



Certificate

This is to certify that

Dr. Defriman Djafri

participated in

The 21st International Epidemiological Association (IEA)

World Congress of Epidemiology (WCE2017)

held in

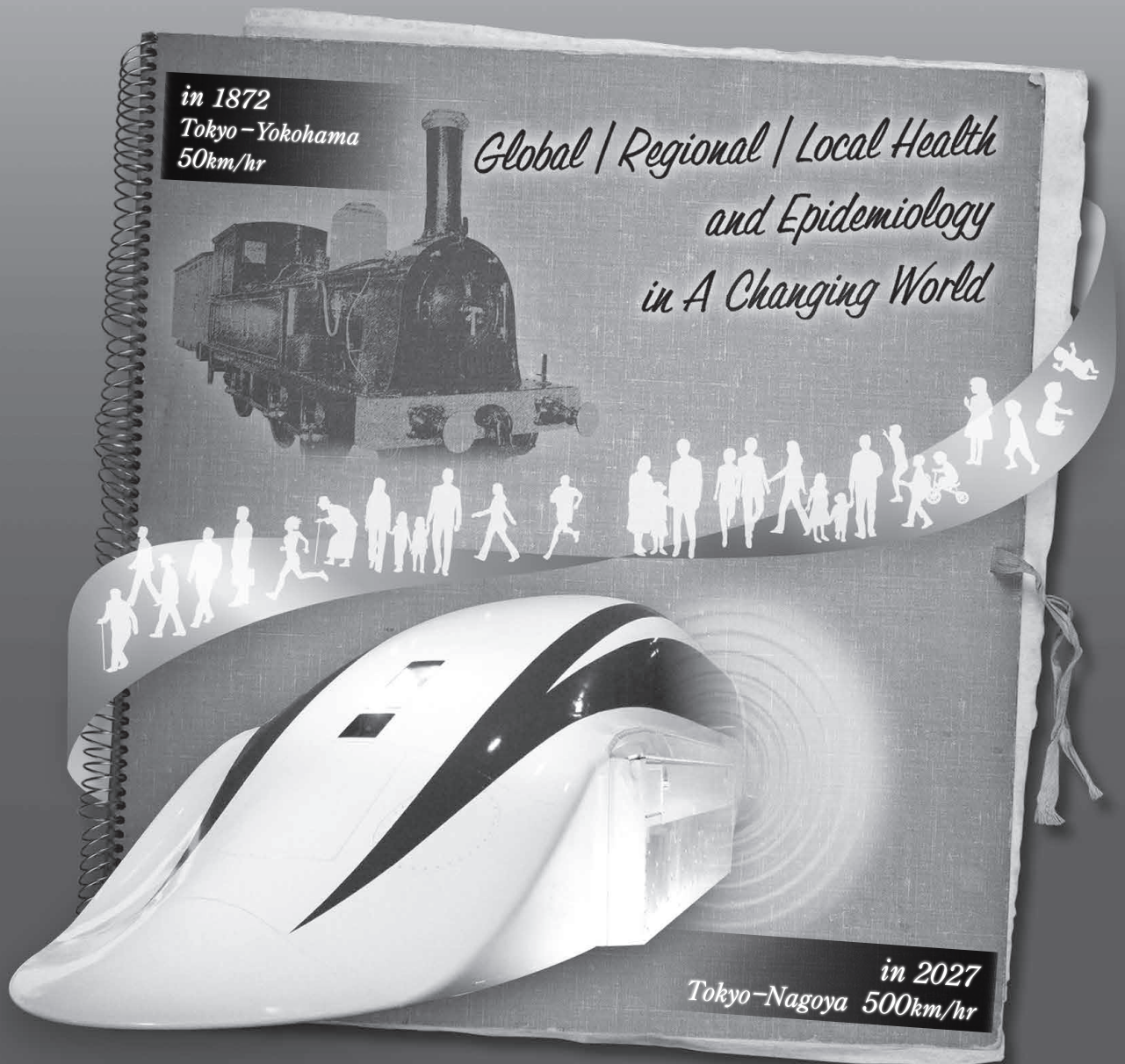
Saitama, Japan on August 19 - 22, 2017.

A handwritten signature in black ink that reads 'Nakamura y'.

Yosikazu Nakamura, MD, MPH, FPPH
Congress President

The 21st International Epidemiological Association (IEA)
World Congress of Epidemiology (WCE2017)

Program Day 1



Saturday, August 19, 2017

Main Hall 13:30-14:20

Opening Ceremony

Remarks by the President, WCE2017

Yosikazu Nakamura (Chief and Professor, Department of Public Health, Jichi Medical University)

Remarks by the President, IEA

Valerie Beral (Professor of Epidemiology, University of Oxford)

Remarks by Her Imperial Highness Princess Akishino

Patroness of the Japan Anti-Tuberculosis Association (JATA)

President of the Imperial Gift Foundation Boshi-Aiiku-Kai

Japanese Drums & Calligraphy Performance

Main Hall 14:30-15:00

Plenary Lecture 1

Moderator: Chisato Nagata (Chair, Social Committee, WCE2017 / Professor, Epidemiology and Preventive Medicine, Tumor Control, Medical Sciences, Gifu University Graduate School of Medicine, Japan)

PL1 The IEA and changes in health during its lifetime

Valerie Beral (President, IEA / Professor of Epidemiology, University of Oxford)

Main Hall 15:00-15:45

Plenary Lecture 2

Moderator: Toshiyuki Ojima (Secretary General, WCE2017 / Professor, Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Japan)

PL2 Future Perspectives on the Roles of Epidemiology - Lessons from the Experiences in Japan -

Hiroshi Yanagawa (Advisor, WCE2017 / Professor Emeritus, Jichi Medical University, Tochigi, Japan / Professor Emeritus, Saitama Prefectural University, Saitama, Japan / Senior Adviser, Japanese Association for Development of Community Medicine, Tokyo, Japan)

Main Hall 15:55-17:25

Plenary Symposium

Global / Regional / Local Health and Epidemiology in a Changing World

Moderator: Yosikazu Nakamura (President, WCE2017 / Chief and Professor, Department of Public Health, Jichi Medical University)

PS-1 The IEA - European Epidemiology Federation

Elisabete Weiderpass (IEA-European Councilor / Chair of the European Epidemiological Federation / Professor of Medical Epidemiology at the Karolinska Institutet, Sweden)

PS-2 Declining Sex Ratios in South East Asia: Causes and Consequences

Vinod Srivastava (Secretary, IEA / Head, Department of Community Medicine, Hind India Institute of Medical Sciences, Barabanki, Greater Lucknow, India / Faculty, Social & Preventive Medicine, King George's Medical University, Lucknow, India / Dean, Faculty of Medical Sciences, Integral University, Lucknow, India)

PS-3 Regional Health and Epidemiology Practice in a Changing World

Newton Kumwenda (Regional Councilor for Africa, IEA / Blantyre Health Research and Training Trust, Blantyre Malawi)

PS-4 Population aging in Japan, Asia, and the rest of the world

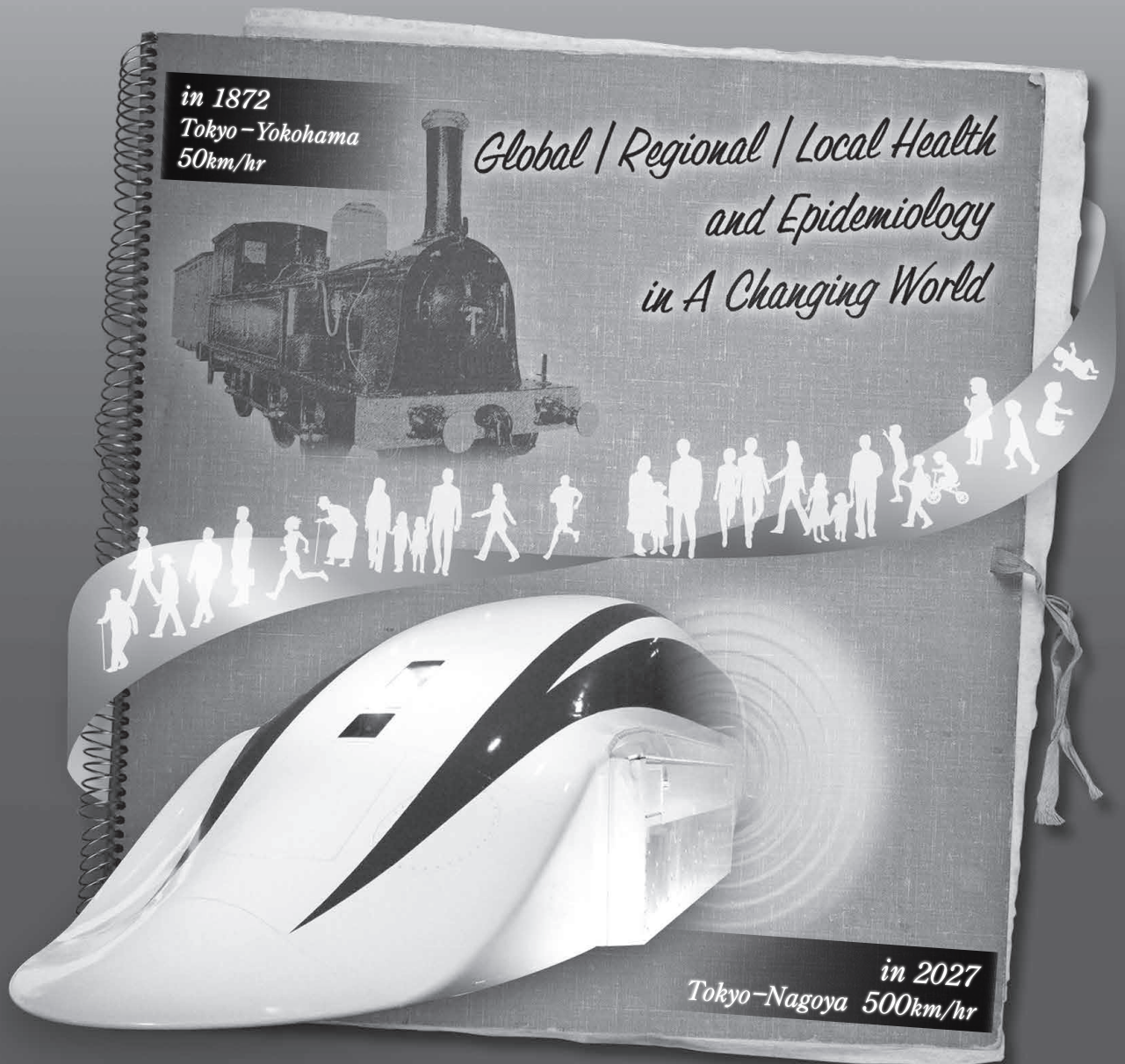
Ichiro Tsuji (Chair, Scientific Program Committee WCE2017 / Professor of Epidemiology, Department of Health Informatics & Public Health, Tohoku University Graduate School of Medicine, School of Public Health, Sendai, Japan)

Omiya Sonic Civic Hall 401-404

17:30-19:00

Welcome Reception

Program Day 2



Sunday, August 20, 2017

Room A 8:30-10:30

Symposium 1

The Fukushima nuclear power station accident and its health effects

Moderators: Tomotaka Sobue (Department of Environmental Medicine and Population Sciences, Graduate School of Medicine, Osaka University, Osaka, Japan)

Seiji Yasumura (Department of Public Health, Fukushima Medical University School of Medicine, Fukushima, Japan)

S1-1 Comprehensive Overview of Thyroid Ultrasound Examinations in Fukushima Health Management Survey

Satoru Suzuki (Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University, Fukushima, Japan)

S1-2 Changes in cardiovascular risk factors in Fukushima people after the Great East Japan Earthquake

Tetsuya Ohira (Radiation Medical Science Center for the Fukushima Health Management Survey, Japan / Department of Epidemiology, Fukushima Medical University School of Medicine, Fukushima, Japan)

S1-3 Long-term psychosocial effects on people living in Fukushima: evidence and experiences

Masaharu Maeda (Department of Disaster Psychiatry, Fukushima Medical University, Fukushima, Japan)

S1-4 Depression and maternal confidence among Fukushima mothers after the nuclear accident

Aya Goto (Center for Integrated Science and Humanities, Fukushima Medical University, Fukushima, Japan)

Room A 10:40-11:40

Special Lecture 1

Physical inactivity: The biggest Public Health Problem of the 21st Century

Moderators: Shigeru Inoue (Tokyo Medical University Tokyo, Japan)

Koichiro Oka (Waseda University, Saitama, Japan)

SL1 Physical inactivity: The biggest Public Health Problem of the 21st Century

Steven N. Blair (Arnold School of Public Health, University of South Carolina, Columbia, USA)

Room A 11:50-12:50

Lunch Time Seminar 1

Sponsored by Daiichi Sankyo Co., Ltd.

Launch of the NIPPON DATA and its findings

Moderator: Kazunori Kodama (Radiation Effects Research Foundation)

Hirotugu Ueshima (Shiga University of Medical Science,
Center for Epidemiologic Research in Asia (CERA))

Room A

13:00-15:30

Symposium 2

The state-of-the-art research on children's environmental epidemiology and its future strategy

Organizers: IEA-WCE 2017 / the Ministry of the Environment, Government of Japan

Supporting Organizations: the National Institute for Environmental Studies and the National Center for Child Health and Development

Moderators: Zentaro Yamagata (Department of Health Sciences, Basic Science for Clinical Medicine, Division of Medicine, Graduate School Department of Interdisciplinary Research, University of Yamanashi, Japan)

Michihiro Kamijima (Department of Occupational and Environmental Health, Nagoya City University Graduate School of Medical Sciences, Japan)

S2-1 Children's health and the environment: the American experience

Brenda Eskenazi (Center for Environmental Research and Children's Health (CERCH), School of Public Health, University of California, Berkeley, USA)

S2-2 Impact of maternal nutrition on children's health and development

Sjurdur F Olsen (Centre for Fetal Programming, Statens Serum Institut, Copenhagen, Denmark / Department of Nutrition, Harvard School of Public Health, Boston, USA)

S2-3 Large data challenges and opportunities in detection of genome-exposome interaction in children's health and development

Chirag J Patel (Department of Biomedical Informatics, Harvard Medical School, USA)

S2-4 Japan Environment and Children's Study (JECS)

Shoji F Nakayama (JECS Programme Office, National Institute for Environmental Studies, Japan)

Room A

15:30-17:00

Symposium 3

Global patterns and effects of risk factors for chronic diseases

Moderators: Young-Ho Khang (Seoul National University, Korea)

Andre Pascal Kengne (South African Medical Research Council, South Africa)

S3-1 Trends in body-mass index in children and adolescents in 200 countries: pooled analysis of more than 1, 100 population-based measurement studies with over 13 million participants

James Bentham (MRC-PHE Centre for Environment and Health, Imperial College London, UK / Department of Epidemiology and Biostatistics, Imperial College London, UK)

S3-2 Trends in blood lipid profiles in 19 middle-income and high-income countries over four decades: a pooled analysis of 313 population-based measurement studies with 2.6 million participants

Cristina Taddei (Department of Epidemiology and Biostatistics, Imperial College London, UK)

S3-3 Worldwide patterns in body-mass index and blood pressure among adolescents and comparisons with adults: analyses of more than 2, 200 studies with more than 35 million individuals

Ver Bilano (Department of Epidemiology and Biostatistics, Imperial College London, UK)

S3-4 The urban-rural BMI gap: a pooled analysis of 1213 population-based measurement studies with 14.5 million participants

Honor Bixby (Department of Epidemiology and Biostatistics, Imperial College London, UK)

S3-5 Contributions of population mean and high-risk individuals to worldwide trends and variations in raised blood pressure: pooled analysis of 912 studies with 9.8 million participants

Bin Zhou (Department of Epidemiology and Biostatistics, Imperial College London, UK)

Room A

17:00-18:00

Travel Award Session 1

Moderator: Zentaro Yamagata (Department of Health Sciences, University of Yamanashi, Japan)

TA1-1 Population level factors as determinants of consistently high HIV prevalence in Indian districts: a multi-level analysis

Rajneesh Kumar Joshi (Faculty of Health and Biomedical Sciences, Symbiosis International University, Pune, India)

TA1-2 Utilisation of Intermittent Preventive Treatment (IPT) for prevention of Malaria In Pregnancy, Evidence from the Nigeria Demographic Health Survey 2013

Olukemi T Olugbade (Nigeria Field Epidemiology and Laboratory Training Programme, Abuja, Nigeria)

TA1-3 Determinants of being fully immunized and their effects on mortality and hospitalization cases in an urban informal settlement in Nairobi, Kenya-a longitudinal study

Martin Kavao Mutua (Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya / African population and health research center, Nairobi, Kenya)

Room A

18:00-20:00

IEA Business Meeting

Room B

8:30-10:30

Symposium 4**Epidemiology Consortia on a Global Scale: Experience with Large-scale Cohort Research Across Regions and Countries**

Moderator: Manami Inoue (Center for Public Health Sciences, National Cancer Center, Japan)

S4-1 Investigating the causes of chronic disease in a large-scale European consortium: the EPIC study

Marc Gunter (International Agency for Research on Cancer (IARC), Lyon, France)

S4-2 Biobanks and registries for epidemiological research on cancer in the Nordic countries

Elisabete Weiderpass Vainio (Cancer Research, Oslo, Norway)

S4-3 The Experience of the Multiethnic Cohort Study with Genomic Consortia

Loïc Le Marchand (Epidemiology Program, University of Hawaii Cancer Center, Honolulu, HI, USA)

S4-4 Asia Cohort Consortium: Evolving the future

Daehee Kang (Department of Biomedical Sciences, Seoul National University Graduate School, Seoul, Korea / Department of Preventive Medicine, Seoul National University College of Medicine, Seoul, Korea)

S4-5 Japan Cohort Consortium: collaborative effort towards evidence-based cancer prevention in Japan

Taichi Shimazu (Center for Public Health Sciences, National Cancer Center, Japan)

Room B

10:40-11:40

Special Lecture 2**Use of Big Data and Cohorts to Uncover Causes of Non-Communicable Diseases**

Moderator: Shoichiro Tsugane (National Cancer Center, Center for Public Health Sciences, Tokyo, Japan)

SL2 Use of Big Data and Cohorts to Uncover Causes of Non-Communicable Diseases

Wei Zheng (Professor and Director, Vanderbilt Epidemiology Center, Vanderbilt University Medical Center, Nashville, US)

Room B

11:50-12:50

Lunch Time Seminar 2

Sponsored by MSD K. K.

Cervical cancer Protection - from an epidemiological viewpoint

Moderator: Kunio Kitamura (Japan Family Planning Association)

Cervical cancer protection in Japan: Where are we now?

Yutaka Ueda (Oncology and Pathology Section, Department of Obstetrics and Gynecology, Osaka University Graduate School of Medicine)

Proposal for a more efficient future strategy for protection against cervical cancer in Japan

Asami Yagi (Oncology and Pathology Section, Department of Obstetrics and Gynecology, Osaka University Graduate School of Medicine)

Room B

13:00-15:00

Symposium 5

Cancer data for cancer action

Moderators: Tomohiro Matsuda (National Cancer Center, Japan)

Leslie Mery (International Agency for Research on Cancer, France)

S5-1 Global Burden of Cancer - Cancer Data for Cancer Control Action

Freddie Bray (Section of Cancer Surveillance, International Agency for Research on Cancer, Lyon, France)

S5-2 The Global Initiative for Cancer Registry Development (GICR): Building Capacity for Cancer Control

Leslie Mery (Section of Cancer Surveillance, International Agency for Research on Cancer, Lyon, France)

S5-3 Strengthening cancer registry capacity for cancer control in Thailand

Suleeporn Sangrajrang (National Cancer Institute, Bangkok, Thailand)

S5-4 A new stage in cancer registry in Japan: from the preceding era of creation and management of database towards utilization of the data

Tomohiro Matsuda (National Cancer Registry Section, Center for Cancer Registries, Center for Cancer Control and Information Services, National Cancer Center, Tokyo, Japan)

S5-5 Utility of cancer registry data I - Quality control of cancer screening

Kumiko Saika (Center for Public Health Sciences, National Cancer Center, Tokyo, Japan)

S5-6 Utility of cancer registry data II - Cancer control based on geographical analysis

Megumi Hori (Division of Cancer Statistics Integration, National Cancer Center, Tokyo, Japan)

Room B

15:00-17:00

Symposium 6

Decision Making Tool for Health Policy based on Innovative Simulation Approach

Moderator: Tomotaka Sobue (Division of Environmental Medicine and Population Science, Osaka University, Osaka, Japan)

S6-1 Recent trends and future projections for dementia in England and Wales to 2040: Estimates from the IMPACT-Better Ageing Model

Sara Ahmadi-Abhari (Department Epidemiology & Public Health, University College London, UK)

S6-2 A Simulation model of Incidence of Cardiovascular Diseases using Risk Prediction Chart in Japanese men: an application of system dynamics model

Nobuo Nishi (Center for International Collaboration and Partnership, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

- S6-3 Microsimulation model for colorectal cancer to estimate effect of FOBT screening programme and improvement in cancer care in Japan: CAMOS-J CRC**
Kenichi Kamo (Medical Educational Center, Sapporo Medical University, Sapporo, Japan)
- S6-4 Canadian OncoSim Model: Overview, features and applications**
Keiko Asakawa (Health Analysis Division, Statistics Canada, Ottawa, Ontario, Canada)
- S6-5 Use of simulation models to inform vaccine policies and recommendations in Canada**
Ken Eng (Public Health Agency of Canada, National Advisory Committee on Immunization Secretariat, Ottawa, Canada)

Room B

17:00-18:00

Oral 1**Health effects of refugees and migrants / Other topics 1****Moderator: Heiko Becher** (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)

- O1-1 Mortality patterns in a large cohort of migrants from the former Soviet Union in Germany**
Heiko Becher (University Medical Center Hamburg-Eppendorf, Hamburg, Germany)
- O1-2 Ethnic disparities in breast cancer survival in New Zealand: which factors contribute?**
Sandar Tin Tin (Section of Epidemiology and Biostatistics, School of Population Health, The University of Auckland, Auckland, New Zealand)
- O1-3 Smartphone interrupted sleep: a new public health challenge? high-resolution smartphone data from Denmark**
Naja Hulvej Rod (Department of Public Health, University of Copenhagen, Denmark)
- O1-4 Non communicable diseases (NCDs) and prevalence of life style risk factors in a urban population cohort in Trivandrum, S. India**
Leena K B (Population Health and Research Institute, Pazhaya Road, Medical College PO, Trivandrum, India)
- O1-5 Population impact on general and dental health of sugar-sweetened beverages in Australian children**
Loc G Do (Australian Research Centre for Population Oral Health, The University of Adelaide, Australia)

Room C

8:30-10:00

Symposium 7**Workplace intervention to improve worker health****Moderator: Akizumi Tsutsumi** (Kitasato University School of Medicine, Japan)

- S7-1 An integrated workplace mental health intervention in an Australian police context: results of a cluster-randomised trial**
Anthony D. LaMontagne (Work, Health & Wellbeing Unit, Centre for Population Health Research, School of Health & Social Development, Deakin University, Burwood, Australia / Melbourne School of Population and Global Health, University of Melbourne, Australia)
- S7-2 Participatory workplace environment improvements for managing mental health in diverse workplaces**
Toru Yoshikawa (Research Center for Overwork-Related Disorders (RECORDS), National Institute of Occupational Safety and Health (JNIOSH), Kawasaki, Japan)
- S7-3 Improvement of the work environment in Japan: characteristics, the association with work-related stress, and its gender differences in a nationally representative sample**
Kazuhiro Watanabe (Department of Mental Health, Graduate School of Medicine, The University of Tokyo, Japan / Japan Society for the Promotion of Science, Japan)
- S7-4 Policy intervention on psychosocial risk in South Korea**
Jungsun Park (Department of Occupational Health, Catholic University of Daegu, Republic of Korea)

Room C

10:10-11:40

Symposium 8

Epidemiology of mental health after disasters: from research to implementation

Moderators: Norito Kawakami (Department of Mental Health, School of Public Health, The University of Tokyo, Japan)

Kiyomi Sakata (Department of Hygiene and Preventive Medicine, Iwate Medical University School of Medicine, Japan)

S8-1 Mental health impacts of a major disaster in a New Zealand birth cohort: a natural experiment

John Horwood (Department of Psychological Medicine, University of Otago Christchurch, Christchurch, New Zealand)

S8-2 Frequencies, risk factors, and help-seeking for mental disorders/poor mental health among disaster survivors after the Great East Japan Earthquake 2011

Norito Kawakami (Department of Mental Health, School of Public Health, The University of Tokyo, Japan)

S8-3 Mental health after the Fukushima Nuclear Power Plant Accident: from research to implementation

Yuriko Suzuki (Department of Adult Mental Health, National Institute of Mental Health, National Center of Neurology and Psychiatry, Tokyo, Japan)

Room C

11:50-12:50

Lunch Time Seminar 3 Sponsored by Japan Association for Development of Community Medicine

Health Promotion Activities Based on Epidemiological Evidence

- Efforts of Japan Association for Development of Community Medicine -

Moderator: Hiroshi Yanagawa (Health Promotion Research Center, Japan Association for Development of Community Medicine)

Masakazu Nakamura (Health Promotion Research Center, Japan Association for Development of Community Medicine)

Yu Nofuji (Health Promotion Research Center, Japan Association for Development of Community Medicine)

Room C

13:00-15:00

Symposium 9

Life course epidemiology of mental disorders: current evidence and methodological challenge

Moderators: Norito Kawakami (Department of Mental Health, The University of Tokyo, Japan)

Shuntaro Ando (The University of Tokyo Hospital / Tokyo Metropolitan Institute of Medical Science, Japan)

S9-1 Epidemiological Approaches to Longitudinal Mental Health Research in the ALSPAC cohort in the UK

Sarah Sullivan (University of Bristol, UK)

S9-2 Childhood sexual abuse and adult mental health outcomes: methodological issues

John Horwood (Department of Psychological Medicine, University of Otago Christchurch, Christchurch, New Zealand)

S9-3 The Tokyo Teen Cohort study: an adolescent cohort study with life course approach

Shuntaro Ando (The University of Tokyo Hospital, Japan / Tokyo Metropolitan Institute of Medical Science, Japan)

S9-4 Epidemiology of psychotic experiences: life course analysis based on data from the World Mental Health Survey Initiative

Carmen C.W Lim (Queensland Brain Institute and Queensland Centre for Mental Health Research, University of Queensland, Australia)

Room C

15:30-17:00

Symposium 10**Community engagement in research involving human participants**

Moderators: Kaori Muto (Department of Public Policy, The Institute of Medical Science, The University of Tokyo, Japan)
Akiko Tamakoshi (Department of Public Health, Graduate School of Medicine, Hokkaido University, Japan)

S10-1 Patient and public engagement as an ethical requirement for research involving human participants

Kaori Muto (Department of Public Policy, The Institute of Medical Science, The University of Tokyo, Japan)

S10-2 Participant Engagement: the ALSPAC experience

Lynn Molloy (ALSPAC (Children of the 90s), School of Social and Community Medicine, University of Bristol, UK)

S10-3 Toward partnership with research participants - experiences and challenges in Japan -

Eiko Suda (Japan Environment and Children's Study (JECS) Programme Office, Centre for Health and Environmental Risk Research, National Institute for Environmental Studies, Japan)

Room C

17:00-18:00

Oral 2**Maternal and child health 1**

Moderator: Neeraj Bedi (Gandhi Medical College Bhopal, India)

O2-1 Using Geographic Information Systems to understand utilization and access to prenatal genetic services (PGS) in Alberta, Canada

Alka B Patel (Department of Community Health Sciences, University of Calgary, Canada)

O2-2 Intervention strategies for preschool children with autism spectrum disorder: a systematic review and meta-analysis of published articles between years 2001 and 2015

Su Su Maw (Graduate School of Health Sciences, Okayama University, Okayama, Japan)

O2-3 Maternal Health Care Interventions to Reduce MMR in Developing Countries

Neeraj Bedi (Gandhi Medical College Bhopal, India)

O2-4 The impact of financial incentives for Brazilian low-income pregnant women participants of the Brazilian conditional cash transfer program on early identification of pregnancy

Ana Clara Duran (Department of Epidemiology, University of Sao Paulo School of Public Health, Brazil)

Room D

8:30-10:00

Symposium 11**Kawasaki disease: Epidemiological approach to the disease with unknown etiology**

Moderator: Yosikazu Nakamura (Jichi Medical University, Japan)

S11-1 Kawasaki disease: update

Masahiro Ishii (Department of Pediatrics, Kitasato University School of Medicine, Japan)

S11-2 Kawasaki disease in the United States

Ermias Belay (National Center for Infectious Diseases, Centers for Disease Control and Prevention, USA)

S11-3 Epidemiologic feature of Kawasaki disease in Beijing from 2005 through 2015

Zhong Dong Du (Beijing Children's Hospital, Capital Medical University, China)

S11-4 Epidemiology of Kawasaki disease in Mongolia

Dambadarjaa Davaalkham (Department of Epidemiology and Biostatistics, Mongolian National University of Medical Sciences, Mongolia)

S11-5 Epidemiology of Kawasaki disease in Japan: The etiology of Kawasaki disease investigated from epidemiology

Nobuko Makino (Department of Public Health, Jichi Medical University, Japan)

Room D

10:00-11:30

Symposium 12

Local public health authorities and epidemiology in the changing world

Moderators: Ritei Uehara (Department of Health Sciences, Saitama Prefectural University, Koshigaya, Japan)
Tsuyoshi Ogata (Tsuchiura Public Health Center, Ibaraki prefectural government, Japan)

S12-1 Characteristics and epidemiological works of public health centers in Japan

Hidenori Uda (Chairperson of the Japanese Association of Public Health Center Directors (JAPHCD), Tokyo, Japan /
Director of Ijuin Public Health Center, Kagoshima, Japan)

S12-2 Epidemiological Activities of State and County Public Health Authorities and Their Collaborations with CDC, USA

Matthew Griffith (Researcher, Infectious Diseases Surveillance Center, National Institute for Infectious Diseases, Japan)

S12-3 Early Warning Surveillance of Infectious Diseases in Beijing, China

Zheng Yang (Institute for Infectious Disease and Endemic Disease Control, Beijing Center for Disease Prevention and Control (CDC), China)

S12-4 Epidemiological Knowledge for local health policy making: Insights from the new public health system in England

Ryozo Matsuda (College of Social Sciences, Ritsumeikan University, Kyoto, Japan)

Room D

11:50-12:50

Lunch Time Seminar 4

Sponsored by OMRON HEALTHCARE Co., Ltd.

Significance of Home Blood Pressure Measurement on Research in Cardiovascular Epidemiology: Findings from the Ohasama Study

Moderator: Katsuyuki Miura (Center for Epidemiologic Research in Asia, Shiga University of Medical Science)

Takayoshi Ohkubo (Department of Hygiene and Public Health, Teikyo University School of Medicine)

Room D

15:00-17:00

Symposium 13

Health effects of exposure to electromagnetic fields

Moderators: Naohito Yamaguchi (Tokyo Women's Medical University, Tokyo, Japan)
Masao Taki (Tokyo Metropolitan University, Tokyo, Japan)

S13-1 Policy trend of electromagnetic environment and direction of Japan

Reiko Kondo (Ministry of Internal Affairs and Communications, Telecommunication Bureau, Tokyo, Japan)

S13-2 Mobile phone use and brain tumor: preliminary results from MOBI-Kids Japan

Noriko Kojimahara (Tokyo Women's Medical University, Tokyo, Japan)

S13-3 Exposure Assessment for RF Radiation from Mobile Phones: Korea and JK EA based on MOBI-Kids Study

Ae-Kyoung Lee (Radio & Satellite Research Division, ETRI, Daejeon, Korea)

S13-4 Epidemiological studies on intermediate frequency electromagnetic field (IF-EMF)

Shigeru Sokejima (Mie University, Tsu, Japan)

S13-5 MOBI-KIDS-Risk of brain cancer from exposure to radiofrequency fields in childhood and adolescence

Elisabeth Cardis (ISglobal, Barcelona, Spain)

Room E

10:40-11:40

Symposium 14

Time trends in perinatal and infant health based on four population based cohorts from Pelotas, Brazil (1982, 1993, 2004, 2015)

Moderators: Cesar Victora (Federal University of Pelotas, Brazil)
Fernando Barros (Catholic University of Pelotas, Brazil)

S14-1 Maternal health and antenatal care in four cohorts

Mariangela Silveira (Department of Maternal and Child Health, Federal University of Pelotas, Brazil)

S14-2 Delivery care and newborn health in four cohorts

Fernando Barros (Department of Maternal and Child Health, Catholic University of Pelotas, Brazil)

S14-3 Child health and nutrition in four birth cohorts

Cesar Gomes Victora (Post Graduate Program in Epidemiology, Federal University of Pelotas, Brazil)

Room E

13:00-15:00

Symposium 15

Inequalities in the health of mothers and children in 100 countries - analyses of reproductive and health surveys

Moderators: Aluisio J D Barros (International Center for Equity in Health, Federal University of Pelotas, Brazil)
Cesar G Victora (International Center for Equity in Health, Federal University of Pelotas, Brazil)

S15-1 How much progress has been made in reducing the gaps of essential health interventions for mothers and children in the MDG years?

Aluisio J D Barros (International Center for Equity in Health, Federal University of Pelotas, Brazil)

S15-2 The challenge of developing a woman's empowerment index based on household health surveys - the SWPER

Fernanda Ewerling (International Center for Equity in Health, Federal University of Pelotas, Brazil)

S15-3 Stunting is decreasing in low and middle income countries, but the gap is not closing between rich and poor in countries with lower income

Inacio C Silva (International Center for Equity in Health, Federal University of Pelotas, Brazil)

S15-4 Equity in the health of mothers and children: challenges in the era of the Sustainable Development Goals

Cesar G Victora (International Center for Equity in Health, Federal University of Pelotas, Brazil)

Room F

8:30-9:30

Oral 3

Maternal and child health 2

Moderator: TBD

O3-1 Relationship between sleep habits and mental health among Japanese 6 or 7 year olds: Results from the A-CHILD study

Satomi Doi (Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

03-2 Predictive validity of developmental milestones for detecting limited intellectual functioning in The Netherlands

Paul H Verkerk (Department of Child Health, TNO, Leiden, The Netherlands)

03-3 Caesarean delivery and anaemia risk in children in 45 low- and middle- income countries: propensity-score weighting and meta-analysis of national survey data

Calistus Wilunda (Graduate School of Medicine and Public Health, Department of Pharmacoepidemiology, Kyoto University, Kyoto, Japan)

03-4 Prenatal and postnatal maternal somatic anxiety and hyperactivity symptoms in children

Blanca Bolea (Maternal and Child Health, School of Social and Community Medicine, University of Bristol, UK)

Room F

9:30-10:30

Oral 4

Maternal and child health 3

Moderator: TBD

04-1 Association of pre-pregnancy body mass index (BMI) with future offspring metabolic profile: findings from three independent European cohorts

Diana L. Santos Ferreira (MRC Integrative Epidemiology Unit, University of Bristol, UK / School of Social and Community Medicine, University of Bristol, UK)

04-2 Maternal dietary patterns in pregnancy in relation to offspring height and weight: evidence from a large prospective birth cohort

Camilla Nykjaer (Nutritional Epidemiology Group, School of Food Science & Nutrition, University of Leeds, UK / Centre for Sport & Exercise Sciences, Faculty of Biological Sciences, University of Leeds, Leeds, UK)

04-4 Synergistic effects of unintended pregnancy and young motherhood on shaking and smothering towards infants among caregivers in Nagoya-city, Japan

Aya Isumi (Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

Room F

10:30-11:30

Oral 5

Maternal and child health 4

Moderator: TBD

05-1 Incidence of childhood overweight and obesity and its association with weight-related attitudes and behaviors in China: a national longitudinal study

Meixia Dai (Department of Maternal and Child Health, School of Public health, Sun Yat-sen University, Guangzhou, China)

05-2 Effectiveness of a kindergarten-based integrated intervention for preventing childhood obesity in China: A non-randomized trial

Yan Hu (Division of Birth Cohort Study, Guangzhou Women and Children's Medical Center, Guangzhou Medical University, Guangzhou, China / Department of Woman and Child Health Care, Guangzhou Women and Children's Medical Center, Guangzhou Medical University)

05-3 Multiple psychosocial stressors across the first decade of life, childhood obesity and socioemotional difficulties: findings from the Millennium Cohort Study (UK)

Hanna Creese (Department of Epidemiology and Public Health, University College London, UK)

05-4 Indoor air pollution and low birth weight. An Analysis of The 2012 Indonesian Demography and Health Survey

Asri Adisasmita (Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Indonesia)

Room F 13:00-14:00

Oral 6

Geriatric epidemiology 1

Moderator: Noriko Yoshimura (Department of Joint Disease Research, 22nd Century Medical and Research Center, The University of Tokyo, Tokyo, Japan)

O6-1 Identifying frail biomarkers using the japan gerontological evaluation study

Noriko Cable (Department of Epidemiology and Public Health, University College London, UK)

O6-2 Mutual associations among frailty, sarcopenia, and osteoporosis

Noriko Yoshimura (Department of Joint Disease Research, 22nd Century Medical and Research Center, The University of Tokyo, Tokyo, Japan)

O6-3 The relationship between body mass index and disability-free survival in elderly Japanese: the Ohsaki Cohort 2006 Study

Shu Zhang (Division of Epidemiology, Tohoku University School of Public Health, Graduate School of Medicine, Sendai, Miyagi, Japan)

Room F 14:00-15:00

Oral 7

Geriatric epidemiology 2

Moderator: Salim M. Adib (Department of Epidemiology and Population Health, Faculty of Health Sciences, American University of Beirut (AUB), Beirut, Lebanon)

O7-1 Predictors of late deficit accumulation onset in older adults in Europe: results from the SHARE study

Anna-Janina Stephan (Institute for Medical Information Processing, Biometry and Epidemiology, Ludwig-Maximilians-Universitaet Muenchen, Germany)

O7-2 Age at menopause and lifetime cognition: findings from the British MRC National Survey of Health and Development

Diana Kuh (MRC Unit for Lifelong Health and Ageing, University College London, UK)

O7-3 Geriatric cancer projections in the middle-east: findings from Lebanon (2010-2025)

Salim M. Adib (Department of Epidemiology and Population Health, Faculty of Health Sciences, American University of Beirut (AUB), Beirut, Lebanon)

O7-4 The association between plasma Angptl2 level and all-cause mortality among the younger-old Japanese: a case-cohort study within NISSIN Project

Wenjing Zhao (Department of Public Health, Graduate School of Medicine Hokkaido University, Sapporo, Hokkaido, Japan)

Room F 15:00-16:00

Oral 8

Social epidemiology 1

Moderator: Farhat Yusuf (Menziess Centre for Health Policy, The University of Sydney, Australia)

O8-1 Increased breast cancer mortality only in the lower education group: Age-period-cohort effect in breast cancer mortality by educational level in South Korea, 1983-2012

Kyunghee Jung-Choi (Department of Occupational and Environmental Medicine, Ewha Womans University, Republic of Korea)

08-2 Comparison of district-level income gaps in smoking prevalence from two national databases: the National Health Screening Database and the Community Health Survey in Korea, 2009-2014

Ikhan Kim (Department of Health Policy and Management, Seoul National University College of Medicine, Seoul, Republic of Korea)

08-3 Social epidemiology of the Indigenous people in Australia

Farhat Yusuf (Menzies Centre for Health Policy, The University of Sydney, Australia)

Room F

16:00-17:00

Oral 9

Social epidemiology 2

Moderator: Cristian Carmeli (Division of Chronic Diseases, Institute of Social and Preventive Medicine, Lausanne University Hospital, Switzerland)

09-1 Socioeconomic inequality in childhood obesity: the weight disorders survey of the CASPIAN study- Iran

Ramin Heshmat (Chronic Diseases Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran)

09-2 Socioeconomic status as a determinant of physical functioning: a multicohort study of 68459 participants in 5 countries

Cristian Carmeli (Division of Chronic Diseases, Institute of Social and Preventive Medicine, Lausanne University Hospital, Switzerland)

09-3 Can social differences explain the geographical patterns in acute myocardial infarction in Denmark?

Thora Majlund Kjaerulff (National Institute of Public Health, University of Southern Denmark, Denmark)

Room F

17:00-18:00

Oral 10

Social epidemiology 3

Moderator: Amanda Hughes (Institute for Social and Economic Research, University of Essex, UK)

O10-1 Asthma and mental health among Brazilian children: evidence of mind-body interactions on the onset, remission and severity of wheeze

Caroline Feitosa (Division of Public health, Bahia School of Medicine and Public Health, Brazil / Institute of Collective Health, ISC-UFBA)

O10-2 Do material, psychosocial and behavioural factors explain the association between disability acquisition and poor mental health in Australian adults? A causal mediation analysis

Zoe Aitken (Gender and Women's Health Unit, Centre for Health Equity, Melbourne School of Population and Global Health, The University of Melbourne, Carlton, Australia)

O10-3 Are anabolic hormones an overlooked mechanism in health disparities? Social differences in IGF-1, DHEAS and testosterone in the UK Household Longitudinal Study

Amanda Hughes (Institute for Social and Economic Research, University of Essex, UK)

O10-4 Informal caregiving and type 2 diabetes and modifying effects of psychosocial work factors: a longitudinal multi-cohort study

Jesper Mortensen (Department of Public Health, University of Copenhagen, Denmark)

O10-5 PASSIVE SMOKING AT HOME BY SOCIOECONOMIC FACTORS IN A JAPANESE POPULATION: NIPPON DATA 2010

Minh Hoan Le Nguyen (Center for Epidemiological Research in Asia, Shiga University of Medical Science, Otsu, Shiga, Japan)

Room G

8:30-9:30

Oral 11

Environmental epidemiology 1

Moderator: Jung-eun Lim (Institute for Health Promotion & Department of Epidemiology and Health Promotion, Graduate School of Public Health, Yonsei University, Seoul, Republic of Korea / College of Pharmacy, Ewha Womans University, Republic of Korea)

- O11-1 Joint effects of heatwave and air quality on emergency health services in Western Australia**
Le Jian (Public Health Division, Western Australia Department of Health, Western Australia, Australia / Curtin University)
- O11-2 Perinatal mortality risk from exposure to ambient particulate matter during gestation: a regional study in China**
Mengling Tang (Department of Epidemiology and Health Statistics, Zhejiang University School of Public Health, Hangzhou, Zhejiang, China)
- O11-3 Association between serum persistent organic pollutants and stroke risk in Korea**
Jung-eun Lim (Institute for Health Promotion & Department of Epidemiology and Health Promotion, Graduate School of Public Health, Yonsei University, Seoul, Republic of Korea / College of Pharmacy, Ewha Womans University, Republic of Korea)
- O11-4 Quantifying the Effects of daily ambient temperature on diabetes mortality among the cities in the Philippines**
Xerxes Tesoro Seposo (Department of Health Care Policy and Management, University of Tsukuba, Tsukuba, Ibaraki, Japan)

Room G

9:30-10:30

Oral 12

Environmental epidemiology 2

Moderator: Angela van der Plas (Product Assessment and Scientific Substantiation, Philip Morris International, Switzerland)

- O12-1 Prevalence and patterns of tobacco use in Japan after the commercialization of a heat-not-burn alternative (IQOS) to cigarettes: analysis and evaluation of a cross-sectional study**
Angela van der Plas (Product Assessment and Scientific Substantiation, Philip Morris International, Switzerland)
- O12-2 Lung function among 9-10 year-old Tibetan schoolchildren living at different altitudes in Tibet**
YANGZONG (Department of Preventive Medicine, Medical College, University of Tibet, China)
- O12-3 Studies from the Global Geo Health Data Center: the associations between fast-food outlet density and the incidence of individual-level cardiovascular disease**
Ilonca Vaartjes (Department of Epidemiology, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, The Netherlands)
- O12-4 Prediction of health effects of cross-border atmospheric pollutants using the Model of Aerosol Species in the Global Atmosphere (MASINGAR)**
Kazunari Onishi (Center of Birth Cohort Studies, Interdisciplinary Graduate school of Medicine, University of Yamanashi, Japan)

Room G

10:30-11:30

Oral 13

Occupational health

Moderator: Patrick Brzoska (Epidemiology Unit, Chemnitz University of Technology, Thuringer, Germany)

- O13-1 Bullying, violence and risk of cardiovascular disease and diabetes: a multi-national study**
Tianwei Xu (Section of Social Medicine, Department of Public Health, University of Copenhagen, Copenhagen, Denmark)

O13-2 Work-related stressors among migrants residing in Germany: The role of socio-economic profiles

Patrick Brzoska (Epidemiology Unit, Chemnitz University of Technology, Thuringer, Germany)

O13-3 Does work-family conflict mediate the association between work-related stress and depressive symptoms over time? Longitudinal evidence from the German lidA-cohort study

Jean-Baptist du Prel (Department of Occupational Health Science, University of Wuppertal, Wuppertal, Germany)

O13-4 Work, Family Caregiving, and Social Network on Mental Health among Japanese Civil Servants

Masaaki Yamada (Epidemiology and Health Policy, University of Toyama, Toyama, Japan)

Room G

13:00-14:00

Oral 14

Cardiovascular and renal diseases 1

Moderator: Hiroshi Yokomichi (Department of Health Sciences, University of Yamanashi, Yamanashi, Japan)

O14-1 Body size in early and adult life and risk of coronary heart disease in adulthood: A prospective study in a large UK cohort

Dexter Canoy (Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Oxford, UK)

O14-2 Incidence of metabolic syndrome in Japanese people by gender and age: a large-scale cohort study

Yasuo Haruyama (Department of Public Health, Dokkyo Medical University School of Medicine, Tochigi, Japan)

O14-3 Dietary soy intake and mortality from coronary heart diseases among Japanese: The JACC Study

Hitomi Kimura (Department of Public Health Medicine, Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan)

O14-4 Cause-specific mortality rate in Japanese type 2 diabetic patients with complications of macro- and microvascular disease: BioBank Japan cohort

Hiroshi Yokomichi (Department of Health Sciences, University of Yamanashi, Yamanashi, Japan)

O14-5 Smoking and risk of atrial fibrillation: A prospective study with cotinine measurement

Hui Zuo (Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway)

Room G

14:00-15:00

Oral 15

Cardiovascular and renal diseases 2

Moderator: Maryam Zaid (Center for Epidemiologic Research in Asia (CERA), Shiga University of Medical Science (SUMS), Otsu, Shiga, Japan)

O15-1 Breastfeeding and the risk of maternal cardiovascular disease: findings from the China Kadoorie Biobank

Sanne Peters (The George Institute for Global Health, University of Oxford, Oxford, UK)

O15-2 Estimating the effect of obesity on coronary heart disease using the method of G-estimation in the Atherosclerosis risk in communities (ARIC) study

Maryam Shakiba (School of Health, Guilan University of Medical Sciences, Rasht, Iran)

O15-3 Incidence rates of premature cardiovascular disease and its risk factors: 12-year follow up of the prospective Tehran Lipid and Glucose Study

Ali Eslami (Prevention of Metabolic Disorders Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran)

O15-4 The relationship of carotid intima-media thickness measurements with coronary artery calcification in a Japanese general population: SESSA

Maryam Zaid (Center for Epidemiologic Research in Asia (CERA), Shiga University of Medical Science (SUMS), Otsu, Shiga, Japan)

Room G

15:00-16:00

Oral 16

Cardiovascular and renal diseases 3

Moderator: TBD

O16-1 Invasive dental treatment and the risk of acute vascular events in Taiwan: a self-controlled case series study

Tzu-Ting Chen (Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan)

O16-2 Analysis of pattern of visits to medical institutions among individuals with lifestyle-related diseases: A longitudinal study using claims and annual health check-up data in Japan

Go Muto (Department of Epidemiology and Environmental health, Graduate school of Medicine, Juntendo University, Tokyo, Japan)

O16-3 Metabolic profiling of adiponectin levels in adults: Mendelian randomization analysis in European and Brazilian adults

Maria Carolina Borges (Post-Graduate Program in Epidemiology, Federal University of Pelotas, Pelotas, Brazil / MRC Integrative Epidemiology Unit, University of Bristol, UK / School of Social and Community Medicine, University of Bristol, Bristol, UK)

O16-5 Intensive versus Standard Blood Pressure Control in Nondiabetic Patients with Chronic Kidney Disease: Systematic Review and Meta-analysis of Randomized Clinical Trials

Hon-Yen Wu (Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei, Taiwan / Institute of Epidemiology and Preventive Medicine, National Taiwan University College of Public Health, Taipei City, Taiwan / Department of Internal Medicine, National Taiwan University Hospital and College of Medicine, Taipei City, Taiwan)

Room G

17:00-18:00

Oral 17

Ethics

Moderator: Emily C OBrien (Duke University School of Medicine, USA)

O17-1 The use of incentives to encourage participation in longitudinal cohort studies

Lynn Molloy (School of Community and Social Medicine, University of Bristol, UK)

O17-2 Couple as the unit of analysis: ethics in sampling and data collection drawn from a Portuguese mixed-methods study

Mariana Amorim (Epidemiology Research Unit (EPIUnit), Instituto de Saude Publica, Universidade do Porto, Portugal / Global Public Health Doctoral Programme / Faculdade de Medicina, Universidade do Porto, Porto, Portugal)

O17-3 Patient perspectives on the linkage of health data for clinical research: insights from a survey in the United States

Emily C OBrien (Duke University School of Medicine, USA)

Poster Presentation Room

17:00-18:00

Poster Presentation 1

- P1-1 Comparison of help-seeking intentions for physical and psychological symptoms among Japanese adults**
Machi Suka (Department of Public Health and Environmental Medicine, The Jikei University School of Medicine, Tokyo, Japan)
- P1-2 RELATIONSHIP BETWEEN PSYCHOLOGICAL DISTRESS AND TOBACCO USE: A CROSS-SECTIONAL STUDY FROM NORTH INDIA**
Sonu Goel (School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh, India)
- P1-3 Tobacco use trends in Thailand using age-period cohort model: the national household survey 1996-2015**
Nirun Intarut (Faculty of Medicine, Mahasarakham University, Thailand)
- P1-4 Effect Heterogeneity and Variable Selection for Standardizing Experimental Findings**
Anders Huitfeldt (The Meta-Research Innovation Center at Stanford, Stanford University School of Medicine, USA)
- P1-5 Impact of a modification of a strategy of care for patients with end-stage renal disease**
Cecile Couchoud (French REIN registry, Agence de la biomedecine, France / UCL, CNRS, UMR 5558, Villeurbanne, France)
- P1-6 Trend Analysis and Forecast of Alcohol Related Crash Fatalities, Illinois 1982 to 2014**
Darnna Banks (Department of Pediatrics, John H Stroger Jr Hospital of Cook County, Chicago, IL, USA)
- P1-7 Inequities in access to depression treatment: results of the Brazilian National Health Survey**
Natalia Limoes Hellwig (Institute of Social Medicine, State University of Rio de Janeiro, Brazil)
- P1-8 Effect of DOTS on sputum conversion after 2 months of treatment among pulmonary tuberculosis patients in Bangladesh**
MSA Mansur Ahmed (Department of Public Health, Daffodil International University, Dhaka, Bangladesh)
- P1-10 A survey-based indicator of women's empowerment: the development of the 'SWPER' index for Africa**
Fernanda Ewerling (International Center for Equity in Health, Postgraduate Program in Epidemiology, Federal University of Pelotas, Brazil / Postgraduate Program in Epidemiology, Federal University of Pelotas, Brazil)
- P1-11 Dietary supplement consumption among hospital personnel in central Bangkok**
Tanida Makeaw (Division of Medical Research, Department of Research and Technology Assessment, Rajavithi Hospital, Bangkok, Thailand)
- P1-12 Mental health impacts of social capital interventions, a Systematic Review**
Elaine Catherine Flores (Centre for Global Mental Health, Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, UK / Universidad Peruana Cayetano Heredia / Universidad de San Martin de Porres)
- P1-13 Comparison of methods for the statistical mediation analysis of models with a dichotomous outcome variable**
Judith J M Rijnhart (Department of Epidemiology and Biostatistics, VU University Medical Center, Amsterdam, The Netherlands / EMGO Institute for Health and Care Research, VU University Medical Center, Amsterdam, The Netherlands)
- P1-14 Healthcare workers attitudes towards influenza vaccination in the Czech Republic**
Jan Kyncl (Centre for Epidemiology and Microbiology, National Institute of Public Health, Prague, Czech Republic)
- P1-15 Hepatitis B and C infection profile in hilly tribal community of northern India**
Brij Sharma (Department of Gastroenterology, Himachal Pradesh University, Indira Gandhi Medical College, India)
- P1-16 Assessment of vaccination coverage and adverse events following vaccine using an electronic immunization registry in a medium-sized city, Brazil**
Ana Paula Sayuri Sato (School of Public Health, Department of Epidemiology, University of Sao Paulo, Brazil)

- P1-17 Sexual Activity and Prostate Cancer: Dose-response meta-analysis**
Yun-Chun Wu (Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan)
- P1-18 Mendelian randomization study identifies causal association between Education and Coronary Artery Disease**
Taavi Tillmann (Department of Epidemiology & Public Health, University College London, UK)
- P1-19 Integrated disease surveillance and response strategy for epidemic prone diseases at the primary health care level in Oyo State, Nigeria: health care workers perspective**
Kola Ademola Jinadu (University of Ibadan, Ibadan, Nigeria / University College Hospital, Ibadan, Nigeria)
- P1-21 Exploring mental health services among climate victims in a cyclone affected area of coastal Bangladesh**
Naymuddin Roby (Infectious Diseases Division, International Center for Diarrhoeal Diseases Research, Dhaka, Bangladesh)
- P1-23 Descriptive epidemiology of human prion diseases in Japan: a prospective 16-year surveillance study**
Ryusuke Ae (Division of Public Health, Center for Community Medicine, Jichi Medical University, Tochigi, Japan)
- P1-24 Intersectionality and risk for ischemic heart disease in Sweden: categorical and anti-categorical approaches**
Maria Wemrell (Unit of Social Epidemiology, Faculty of Medicine, Lund University, Malmö, Sweden)
- P1-25 Epidemiological Investigation of Hepatitis E outbreak in a Northern city of India**
Anita Thakur (Department of Community Medicine, Indira Gandhi Medical College, Shimla, India)
- P1-26 Profile of MDR-TB patients and MDR-TB and HIV co-infected patients followed at Sanatorium Hospital in Luanda, Angola, in 2014**
Ines Fronteira (Division of International Health, Institute of Hygiene and Tropical Medicine, Portugal)
- P1-27 A comparison of work stress between nursing jobs and non nursing jobs in clinical environments**
Miyako Noda (Gifu Junior College of Health Science, Gifu, Japan)
- P1-28 An Out-of-Pocket Cost Removal Intervention on Fecal Occult Blood Test Attendance**
Takahiro Tabuchi (Center for Cancer Control and Statistics, Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan)
- P1-29 Partners' ongoing treatment for chronic disease and the risk of psychological distress after the Great East Japan Earthquake**
Naoki Nakaya (Department of Preventive Medicine and Epidemiology, Tohoku Medical Megabank Organization, Tohoku University, Sendai, Miyagi, Japan)
- P1-30 A 30 year trend of tuberculosis in an HIV epicenter in Northern Thailand**
Pathom Sawanpanyalert (Ministry of Public Health, Thailand / TB / HIV Research Foundation, Chiang Rai, Thailand)
- P1-31 Determinants of sodium intake in adult populations of high-income countries: a systematic review and meta-analysis**
Carlos de Mestral (Division of Chronic Diseases, Institute of Social and Preventive Medicine, Lausanne University Hospital, Switzerland)
- P1-32 Regional disparities in Japanese suicide rate based on age, period, and cohort factors**
Noriko Miwa (Division of Nursing, University of Tokyo Health Sciences, Tokyo, Japan)
- P1-33 Alcohol related harm to children due others alcohol drinking in Brazil**
Maria CP Lima (Public Health, Botucatu Medical School UNESP, Brazil)
- P1-34 Measures against the pandemic influenza A (H1N1) 2009, China and Japan**
Takashi Sano (Department of Public Health, Jichi Medical University, Tochigi, Japan)

- P1-35 Perceived stress, depressive state, and oxidative DNA damage in a general Japanese population**
Chisato Shimano (Department of Preventive Medicine, Faculty of Medicine, Saga University, Saga, Japan)
- P1-36 ANALYSIS OF ORDINAL DATA IN THE STUDY OF ENDOMETRIAL CANCER UNDER A MATHCHED PAIR CASE-CONTROL DESIGN USING GENERALIZED ESTIMATING EQUATIONS**
Shyam Sundar Ganguly (Department of Family Medicine & Public Health, College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman)
- P1-37 Posterior atrophy as a marker for rapid progression in Alzheimer disease**
Young Ho Park (Department of Neurology, Seoul National University Bundang Hospital, Republic of Korea)
- P1-38 Individual variability and risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA) colonization: Modifying effects of prior MRSA-carriage**
Angela Chow (Department of Clinical Epidemiology, Institute of Infectious Diseases & Epidemiology, Tan Tock Seng Hospital Singapore, Singapore)
- P1-39 Twenty-year Trends and the Influence of Age on Multimorbidity in the United States**
Paul E Ronksley (Community Health Sciences, University of Calgary, Alberta, Canada)
- P1-40 Damage situations and socioeconomic circumstances continuously affect the mental health of elderly victims of the Great East Japan Earthquake: the RIAS study**
Eri Takusari (Department of Hygiene and Preventive Medicine, Iwate Medical University School of Medicine, Iwate, Japan)
- P1-41 Social determinants of health among mothers of children with disabilities in Japan**
Miyako Kimura (Department of Preventive Medicine, St. Marianna University School of Medicine, Kawasaki, Japan)
- P1-42 Clan involved approaches to antenatal care in a rural minority area, China**
Wei Ma (Department of Epidemiology, Shandong University School of Public Health, China)
- P1-43 Evaluation of epidemic threshold of influenza surveillance system in Korea**
Bryan Inho Kim (Division of Risk Assessment & International Cooperation, Korea Centers for Disease Control, Republic of Korea)
- P1-44 Changes in the average interval since last visit and the number of repeat outpatients in the Patient Survey of Japan**
Shinichiro Kubo (Department of Public Health, Health Management and Policy, Nara Medical University, Nara, Japan)
- P1-45 Factors associated with prefectural disparity of life expectancy and healthy life expectancy in Japan: an ecological study**
Mieko Nakamura (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P1-46 Comparing rates of serious infections in ethnic groups: a retrospective cohort study of 4.62 million people in Scotland**
Laurence Gruer (Usher Institute of Population Sciences and Informatics, University of Edinburgh, UK)
- P1-47 Associations of adverse childhood experience with adult diseases and their risk factors in older people: A comparative study of Japan and Finland**
Airi Amemiya (Department of Health and Social Behavior, School of Public Health, The University of Tokyo, Tokyo, Japan)
- P1-48 Association between anesthetic agents and early surgical site infection after total knee arthroplasty: analysis using Japanese nationwide database**
Miwa Kishimoto (Department of Public Health, Health Management and Policy, Nara Medical University, Nara, Japan / Department of Anesthesiology, Nara Medical University)
- P1-49 An epidemiological analysis of firearms-related mortality in Mexico**
Guillermo Julian Gonzalez-Perez (University Center of Health Sciences, University of Guadalajara, Mexico)

- P1-50 Effect of *H. pylori* infection on the risk of atopy and allergic disorders in a cohort of young Ethiopian children**
Bineyam Taye (Department of Biology, Colgate University, USA)
- P1-51 Relationship between teacher support and depression among junior high school students in Japan**
Akiko Mizuta (Department of Community Health Nursing, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P1-52 Risk factors for extended-spectrum beta-lactamase-producing *Escherichia coli* urinary tract infection in the community in Denmark: a case-control study**
Christina Vandenbroucke-Grauls (Department of Medical Microbiology and Infection Control, VU University Medical Center, Amsterdam, The Netherlands)
- P1-53 Risk factors and causes of death in new smear positive pulmonary TB patients at Chiangrai, Thailand**
Worarat Imsanguan (Internal Medicine Department, Chiangrai Prachanukroh Hospital, Chiangrai, Thailand)
- P1-54 Personal responsibility and self help in the health system reform. Cuba 2015**
Isabel Pilar Luis Gonzalvez (Clinical research and impact assessment, Finlay Institute, Havana, Cuba)
- P1-55 The effect of *H. pylori* on malnutrition in school-aged children in Butajira, Ethiopia**
Samantha Hynes (Department of Biology, Colgate University, USA)
- P1-56 Logistic Regression Model for Survival Time Analysis Using Time-Varying Coefficients**
Kenichi Satoh (Research Institute for Radiation Biology and Medicine, Hiroshima University, Hiroshima, Japan)
- P1-57 Prevalence of *H.pylori* infection in Japan by birth cohort, from 1908 to 2003 -- a systematic review and meta-regression analysis**
Chaochen Wang (Department of Public Health, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan)
- P1-58 Psychological distress and suicide risk in Japan: The Ohsaki Cohort 2006 Study**
Fumiya Tanji (Department of Health Informatics and Public Health, Tohoku University School of Public Health, Graduate School of Medicine, Sendai, Miyagi, Japan)
- P1-59 Statistical method estimating varying coefficients for longitudinal data without specifying spatial-temporal baseline trend and its application to cancer mortality data**
Tetsuji Tonda (Faculty of Management and Information Systems, Prefectural University of Hiroshima, Hiroshima, Japan)
- P1-60 The association of pattern of alcohol use and the change of health-related quality of life: the FAMILY Cohort in Hong Kong and the NESARC Cohort**
Xiaoxin Iris Yao (School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China)
- P1-61 Interaction between job status and psychological stress to life-style factors: the Shizuoka-Sakuragaoka J-MICC Study**
Kaori Endoh (School of Food and Nutritional Sciences, University of Shizuoka, Shizuoka, Japan)
- P1-62 Study Design and Baseline Survey of Japan Public Health Center-based prospective Study for the Next generation (JPHC-NEXT Study)**
Norie Sawada (Epidemiology Division, Center for Public Health Sciences, National Cancer Center, Tokyo, Japan)
- P1-63 Correlation between chronological trends of Kawasaki disease and infectious disease in Saitama, Japan**
Yukie Ozeki (Division of Infectious Disease and Epidemiology, Saitama Institute of Public Health, Saitama, Japan)
- P1-64 Depression and parent-child relation of the elderly in rural northern India**
Alok Kumar (Division of Biostatistics, Banaras Hindu University, Department of Community Medicine, Institute of Medical Sciences, Varanasi, India)
- P1-65 Recursive partitioning to explore subgroups with high and low risks of hearing loss in very preterm neonates from Neonatal Intensive Care Units in the Netherlands**
Paula van Dommelen (Department of Child Health, TNO, Leiden, The Netherlands)

- P1-66 Smoking and deprivation in South Africa: a cross-sectional study**
Yan Kwan Lau (Department of Epidemiology, University of Michigan, USA)
- P1-67 Survey data imputation using C4.5 machine learning technique**
Leonardo Zanini Ferreira (International Center for Equity in Health, Federal University of Pelotas, Brazil / Graduation Program in Computer Science, Federal University of Pelotas, Brazil)
- P1-68 Effectiveness of disinfection with chlorine vs Adaminaphenitil-3 in critical enviromental surfaces of the Intensive Care Unit from Hospital de Especialidades Centro Medico Nacional Siglo XXI**
Yazmin Zacate (Epidemiology, Mexican Institute of Social Security, Mexico)
- P1-69 A Study on Relevance of High-Caffeine Drinks Intake Frequency to Mental Health of Adolescents**
Wookyung Shin (Department of Home Economics, Korea University, Seoul, Republic of Korea)
- P1-70 Socio-economic & demographic characteristics and health condition among elderly tribal people in northern India**
Subhi Srivastava (Biostatistics, Banaras Hindu University, Department of Community Medicine, Institute of Medical Sciences, India)
- P1-71 Reasons of non acceptance of indoor residual spraying for visceral leishmaniasis: A qualitative study in district Muzzafarpur Bihar, India**
Sangeeta Kansal (Community Medicine, Banaras Hindu University, Institute of Medical Sciences, Varanasi, India)
- P1-72 Prevalence and Factor of Alcohol consumption effect to hepatitis pre Treatment of new smear positive Tuberculosis in lower north of Thailand**
Niramom Pimnumyen (The Office of Disease Prevetion and Control region 2 Phitsanulok, Thailand)
- P1-73 Statin initiation and survival among cancer patients**
Louise Emilsson (Departemnt of Epidemiology, Harvard School of Public Health, USA / Institutet of health and society, Oslo University, Norway / Vardcentralen Varmlands Nysater, Varmland county, Sweden)
- P1-74 Quality of life assessment among Portuguese schoolteachers**
Carlos Pereira (CI&DETS, Polytechnic Institute of Viseu, Viseu, Portugal)
- P1-75 Internet addiction is positively related with Insomnia on school personnel survey**
Hideki Tsumura (Department of Environmental Medicine and Public Health, Faculty of Medicine, Shimane University, Shimane, Japan)
- P1-76 Social support as a moderator of depressive symptoms after the 2011 Great East Japan Earthquake and Tsunami -The Iwanuma project, The JAGES prospective cohort study-**
Yuri Sasaki (Department of Social Preventive Medical Sciences, Center for Preventive Medical Sciences, Chiba University, Chiba, Japan)
- P1-77 Clinico-epidemiological factors determining the outcome of acute encephalitis syndrome cases in north Bihar, India**
CM SINGH (Department of Community Medicine, All India Institute of Medical Sciences, Patna, India)
- P1-78 Association of gratitude and sense of coherence in Japanese female students**
Tomoko Fujitani (Department of Health Education and Promotion, Graduate School of Human Development and Environment, Kobe University, Kobe, Japan)
- P1-79 Employment status in people living with HIV/AIDS in Japan**
Chihiro Wakabayashi (Division of Health Scieinces, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P1-80 Perception of married women of rural community related to marital and sexual relationship in Muzaffarpur district, Bihar, India**
Alok Ranjan (Department of Community Medicine, All India Institute of Medical Sciences, Patna, India)
- P1-81 Current treatment and medical costs of Ulcerative Colitis in Japan**
Akihito Uda (HEOR team in Medical Affairs, Takeda Pharmaceutical Company Limited, Tokyo, Japan)

- P1-82 Association between eating behavior and perceived stress in Japanese university students**
Kumiko Ohara (Department of Health Education and Promotion, Graduate School of Human Development and Environment, Kobe University, Kobe, Japan)
- P1-83 Attitudes towards causative role of smoking in lung cancer among physicians in Estonia, 1982-2014**
Kersti Paerna (Institute of Family Medicine and Public Health, University of Tartu, Estonia)
- P1-84 Repeatedly measured predictors: a comparison of methods for prediction modeling**
Marieke Welten (Department of Epidemiology and Biostatistics, Amsterdam Public Health Research Institute, VU University Medical Center, Amsterdam, The Netherlands)
- P1-85 Elucidation of social factors related to mortality in community-dwelling older people in Japan:10-year follow-up study of participants in the JAGES project**
Eisaku Okada (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P1-86 Educational differences in leisure-time physical activity in Finland. A 12 year follow-up study**
Ossi Rahkonen (Department of Public Health, University of Helsinki, Finland)
- P1-87 Occupational class trajectories in physical health functioning among ageing employees from Finland: Widening or narrowing?**
Eero Lahelma (Department of Public Health, University of Helsinki, Finland)
- P1-88 The relationship between psychology, socioeconomics, and social networks and starting to drink among evacuees after the Great East Japan earthquake and nuclear disaster**
Masatsugu Orui (Department of Public health, Fukushima Medical University School of medicine, Fukushima, Japan)
- P1-89 Re-employment, job quality, health and allostatic load biomarkers: Prospective evidence from the UK Household Longitudinal Study**
Tarani Chandola (CMIST and Social Statistics, University of Manchester, UK)
- P1-90 Prognostic factors for death from visceral leishmaniasis in severe patients treated with liposomal amphotericin B in the state of Minas Gerais, Brazil**
Mariangela Carneiro (Department of Parasitology, Federal University of Minas Gerais, Brazil / Secretariat of Health Surveillance, State Secretariat of Health of Minas Gerais, Brazil)
- P1-91 Development of a model to predict imported cases of dengue in the Republic of Korea based on oceanic sea surface temperature**
Jong-Hun Kim (Department of Social and Preventive Medicine, Sungkyunkwan University School of Medicine, Suwon, Republic of Korea)
- P1-92 Does the quality of social relationships buffer the association of social disadvantage with allostatic load? An analysis of adults from the UK Household Longitudinal Study**
Patrick Rouxel (CLOSER - Institute of Education Social Science, University College London, UK)
- P1-93 Developing a comprehensive profile using sensitive data, to inform policy & ongoing research: A profile of people living with HIV in Newfoundland and Labrador, Canada**
Shabnam Asghari (Primary Healthcare Research Unit, Memorial University, Canada)
- P1-94 Trends of leprosy in Brazil, 2008-2015**
Margarida Cristiana Napoleao Rocha (Postgraduate Program in Collective Health, Faculty of Health Sciences, University of Brasilia, Brasilia, DF, Brazil / General Coordination of Leprosy and Illness in Disposal - CGHDE, Secretariat of Health Surveillance - SVS, Ministry of Health - MS, Brasilia, DF, Brazil)
- P1-95 Dynamics of recent cholera epidemics in Haiti**
Yu-Han Kao (Department of Epidemiology, University of Michigan, USA)

- P1-96 Temporal relationship between of antibiotic prescribing and respiratory virus activities in Republic of Korea, 2010-2015**
Sukhyun Ryu (Department of Epidemiology and Medical Informatics, School of Public Health, Korea University, Seoul, Republic of Korea / Department of Infectious Disease Control, Gyeonggi Provincial Government, Suwon, Republic of Korea)
- P1-97 Descriptive epidemiology of multimorbidity in New Zealand**
James Stanley (Department of Public Health, University of Otago, Wellington, New Zealand)
- P1-98 Associations between body weight gain from 20 years old and family factors: the Shizuoka-Sakuragaoka J-MICC Study**
Wakako Suzuki (School of Nursing, University of Shizuoka, Shizuoka, Japan / Graduate School of Integrated Pharmaceutical and Nutritional Sciences, University of Shizuoka)
- P1-99 A prospective cohort study of hobbies associated with less incidence of functional disability: The Japan Gerontological Evaluation Study**
Mayuka Moroishi (Department of Public Health, Hokkaido University Graduate School of Medicine, Sapporo, Hokkaido, Japan)
- P1-100 Risk factors for depression with suicidal ideation among middle-aged primary care patients in Japan**
Megumi Fujieda (Department of Neuropsychiatry, Kurume University School of Medicine, Kurume, Fukuoka, Japan / Department of Environmental Medicine, Kurume University School of Medicine)
- P1-101 CHANGE BEHAVIOUR AND SOCIAL IMPACT IN ADOLESCENTS FOR USING E-CIGARETTE**
Novia Dewi Putri Ayuningtyas (Division of Public Health, Airlangga University, Surabaya, Indonesia)
- P1-102 A more systematic approach to interpreting infectious disease surveillance data in Japan**
Yuzo Arima (Infectious Disease Surveillance Center, National Institute of Infectious Diseases, Tokyo, Japan)
- P1-103 Prevalence and transmission of Staphylococcus aureus and methicillin-resistant strains (MRSA) among mothers and newborn babies in Melbourne, Australia**
Catherine Marie Bennett (Centre for Population Health Research, Deakin University, Australia)
- P1-104 Social capital and health among civil servants in Japan**
Chiyo Murata (Center for Gerontology and Social Science, National Center for Geriatrics and Gerontology, Obu, Aichi, Japan)
- P1-105 Domestic violence, parental addiction, and the risk of smartphone overuse in South Korea adolescents**
Hye-Jin Kim (Division of Public health, School of Public Health, Seoul National University, Seoul, Republic of Korea)
- P1-106 Risk of seasonal influenza by occupation in a railway company in an urban area, Japan, 2012/13, 2013/14 and 2014/15 influenza seasons**
Munehisa Fukusumi (Infectious Disease Surveillance Center, National Institute of Infectious Diseases, Tokyo, Japan)
- P1-107 Prevalence of Hypertension among Female Migrants by Duration of Residence in United Arab Emirates: a Cross Sectional Study**
Shunichi Fukuyama (Department of Global Health, Medicine, and Welfare, Atomic Bomb disease Institute, Nagasaki University, Nagasaki, Japan)
- P1-108 The Association between social factor, lifestyle and subclinical depression status examined by Kessler 6 among Japanese representative population: NIPPON DATA2010**
Harumitsu Suzuki (Center for Epidemiologic Research in Asia, Shiga University of Medical Science, Otsu, Shiga, Japan)
- P1-109 Health related quality of life of mothers of children suffering from cancer: the role of social support and social capital**
Christiana Antoniou Nicolaou (Department of Nursing, School of Health Sciences, Cyprus University of Technology, Limassol, Cyprus)

- P1-110 Cost-benefit analysis of a projected national Human Papilloma Virus vaccination program in Lebanon**
Ghinwa El Hayek (Department of Epidemiology and Population Health, Faculty of Health Sciences, American University of Beirut (AUB), Beirut, Lebanon)
- P1-111 Self-perceived health status in Spain: how can it be summarised?**
Monica Perez-Rios (Division of Public Health, Epidemiology unit. galician directorate for Public Health, Spain / Preventive medicine and public health department, School of Medicine, University of Santiago de Compostela)
- P1-112 Profile of tuberculosis deaths in Brazil, 2015**
Andrea de Paula Lobo (National Tuberculosis Control Programme, Postgraduation in Public Health, Brasilia University, Brazil)
- P1-113 Pilot data of nationwide prevalence of papillomavirus in Brazil: POP-Brazil Study**
Eliana Marcia Wendland (Moinhos de Vento Hospital, Porto Alegre, Brazil / Federal University of Health Science of Porto Alegre, Brazil)
- P1-114 Homicide Rate against Women in South Korea from 2000 to 2014**
Yu-Mi Kim (Department of Preventive Medicine, Dong-A University College of Medicine, Busan, Republic of Korea)
- P1-115 Adverse mental health outcomes in women who had breast cancer: systematic review**
Helena Carreira (Department of Non-communicable Diseases Epidemiology, London School of Hygiene & Tropical Medicine, UK)
- P1-116 Epidemiology of Non-Small Cell Lung Cancer in the Asia Pacific Region**
Nicole Zhang (Epidemiology, Decision Resources Group, USA)
- P1-117 The effect of having primary care physicians for maintaining activities of daily living: JAGES longitudinal study**
Maho Haseda (Department of Health and Social Behavior, Department of Health Education and Health Sociology, The University of Tokyo, Tokyo, Japan)
- P1-118 EPIDEMIOLOGICAL PROFILE OF SYPHILIS IN PREGNANT WOMEN IN SALVADOR/BAHIA, BRAZIL: A PUBLIC HEALTH PROBLEM**
Juan Ignacio Calcagno (Center of Epidemiological Hospital, Brazil)
- P1-119 Chlamydia infection and the risk of spontaneous preterm birth**
Bette Liu (School of Public Health and Community Medicine, University of New South Wales, Sydney, Australia)
- P1-120 Do antidepressant agents influence the course of disease among patients with inflammatory bowel disease? - a Danish nationwide prospective cohort study**
Marie Skov Kristensen (National Institute of Public Health, University of Southern Denmark, Copenhagen, Denmark)
- P1-121 Hotspots of dementia in Australian communities: an approach to inform policy and practice**
Nasser Bagheri (Department of health Services and Policy, The Australian National University, Acton, Australia)
- P1-122 The development of the stochastic model for vivax malaria occurrence based on the climate factor in the Republic of Korea**
Eun-Hye Kim (Department of Social and Preventive Medicine, Sungkyunkwan University School of Medicine, Suwon, Republic of Korea)
- P1-123 Risk factors for the onset of long-term care need in community-dwelling older people in Japan: 10year follow-up study of participants in the JAGES project**
Yuko Araki (Department of Informatics, Shizuoka University, Hamamatsu, Shizuoka, Japan)
- P1-124 METHAMPHETAMINE USE PRIOR TO SEX AND THE RISK FACTORS ASSOCIATED WITH HIV PREVALENCE AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN THAILAND**
Phunlerd Piyaraj (Department of Parasitology, Phramongkutklao College of Medicine, Bangkok, Thailand / Bangkok Health Research Center, Bangkok Hospital Group, Bangkok Dusit Medical Services (BDMS))

- P1-125 Socioeconomic Status and its association with incidence of dementia among older Japanese men and women: JAGES study**
Kokoro Shirai (Department of Human Sciences, University of the Ryukyus, Okinawa, Japan / T.H.Chan.School of Public Health)
- P1-126 Relationship of socio-demographic factors with pain impact and disability in adolescents**
Flavia P Kapos (Department of Epidemiology, School of Public Health, University of Washington, USA / Department of Oral Health Sciences, School of Dentistry, University of Washington)
- P1-127 Breakthrough on Data Collection during Acute Phase of Disaster**
Tatsuhiko Kubo (Department of Public Health, University of Occupational and Environmental Health, Kitakyushu, Japan)
- P1-128 The effect of expressive disclosure writing on self-stigma, depression, and anxiety among substance dependent clients in a governmental hospital in Egypt**
Amira Mohammed Ali (Psychiatric and Mental Health Nursing, Alexandria University, Alexandria, Egypt / University of Tokyo, Japan)
- P1-129 Relations of population density with smoking experience in junior high students and familial smoking in an urban area**
Daisuke Matsui (Department of Epidemiology for Community Health and Medicine, Kyoto Prefectural University of Medicine, Graduate School of Medical Science, Kyoto, Japan)
- P1-130 Optimal control and parameter estimation in some epidemiological models**
Aziz Belmiloudi (Mathematics research institute of Rennes (IRMAR-CNRS) , France)
- P1-131 Association of social support and metabolic syndrome among secondary school teachers in Malacca, Malaysia**
Foong Ming Moy (Department of Social & Preventive Medicine, Faculty of Medicine, University of Malaya, Malaysia)
- P1-132 A cluster randomized study to reduce physical violence (hitting) experienced and perpetrated by high school students in KwaZulu-Natal, South Africa**
Myra Taylor (Discipline of Public Health Medicine, University of KwaZulu-Natal, Durban, South Africa)
- P1-133 Social Participation and Hobbies Reduce the Risk of Being Underweight in Older Japanese: The JAGES Longitudinal Study**
Tomomi Nagahata (Department of Nutrition, School of Health and Nutrition, Tokaigakuen University, Nagoya, Japan)
- P1-134 Continuous website update of medical content increases new patient numbers using a social marketing method**
Teruhide Koyama (Department of Epidemiology for Community Health and Medicine, Kyoto Prefectural University of Medicine, Kyoto, Japan)
- P1-135 Twelve-month use of complementary health approaches among psychiatric outpatients in Japan**
Mai Iwanaga (Department of Psychiatric Nursing, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan)
- P1-136 Adjusting for baseline values of a continuous outcome variable in cluster-randomized trials: a simulation study from Brazil**
Rosely Sichieri (Epidemiology, State University of Rio de Janeiro, Brazil)
- P1-137 The dark side of social capital: a systematic review of the negative health effects of social capital**
Ester Villalonga Olives (Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health, USA)
- P1-138 Does the effect of social participation on psychological distress differ by living arrangement, living alone or with others? a cohort study of Japanese older adults**
Shiho Amagasa (Department of Preventive Medicine and Public Health, Tokyo Medical University, Tokyo, Japan)
- P1-139 Infection dynamics of *Opisthorchis viverrini* infection: two-part model approach and age-prevalence-intensity relationship**
Picha Suwannhitatorn (Department of Parasitology, Phramongkutklao College of Medicine, Thailand)

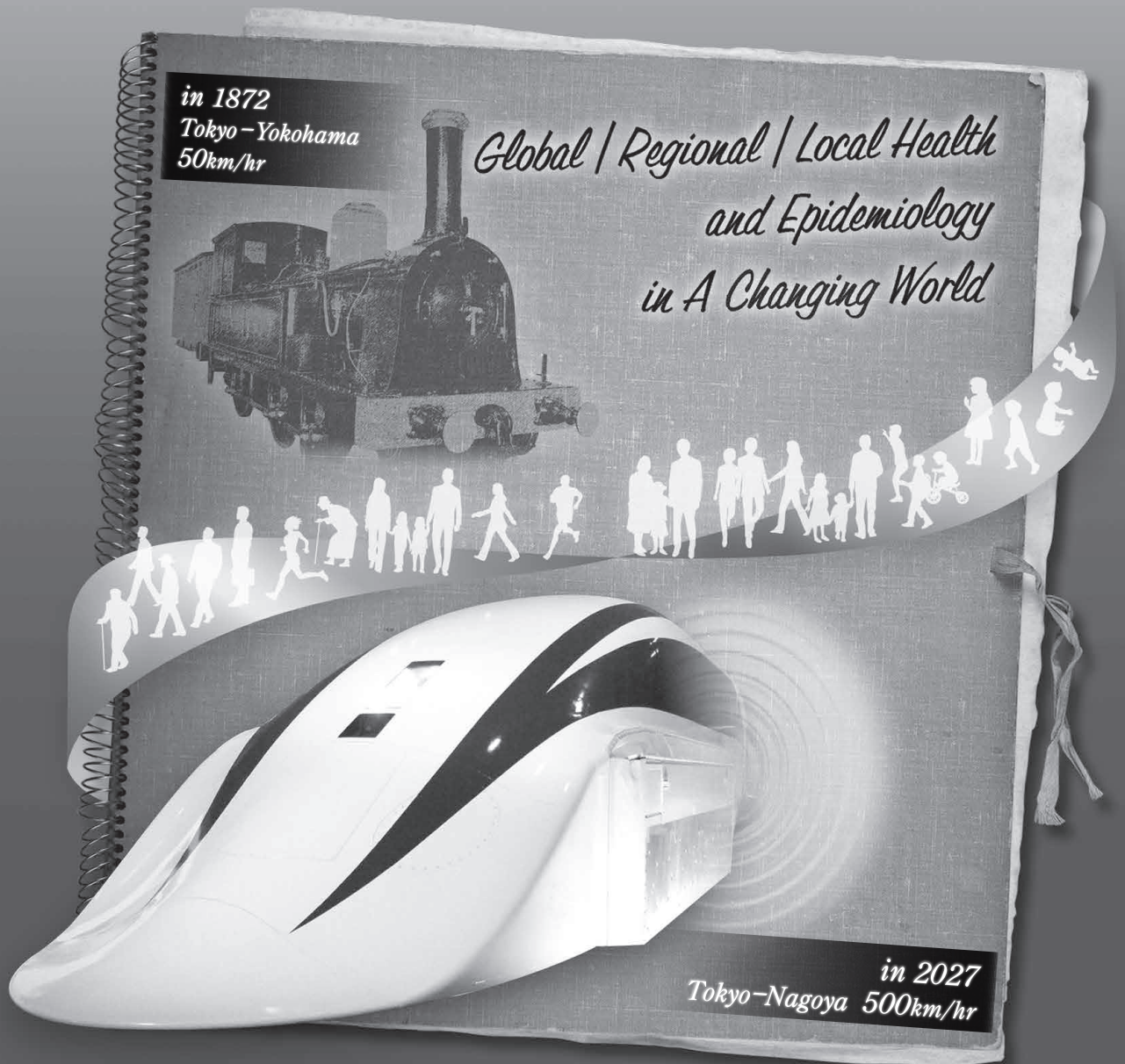
- P1-140 Prevalence and associated factors of alcohol drinking among adolescents aged 12-24 years old in rural community-Thailand, 2016**
Peerapong Sumkong (Medical student cadet affairs, Phramongkutkloa College of Medicine, Bangkok, Thailand)
- P1-141 Repeat abortion among young unmarried women in 30 Chinese provinces in 2013: a cross-sectional survey**
Jialin Xu (Chengde Nursing Vocational College, Chengde, China)
- P1-142 The effect of climate factors and air pollution on emergency room visits for acute upper respiratory infections**
Jinyoung Jang (Epidemiology and Medical Informatics, Division of Public Health, Korea University, Seoul, Republic of Korea)
- P1-143 Prevalence of blood borne infections and factors associated with percutaneous injuries among hospital staff in West Pomerania, Poland**
Maria Ganczak (Department of Epidemiology and Management, Pomeranian Medical University, Szczecin, Poland)
- P1-144 The relationship between obesity and viral influenza A/B infection: a hospital-based case control study in Thailand**
Pakwimon Subhaluksuksakorn (Department of Family and Community Medicine, Institute of Medicine, Suranaree University of Technology, Thailand)
- P1-145 What is the impact of measuring bias on the design of complex survey? Portuguese cross-sectional study**
Milton Severo (Department of Clinical Epidemiology, Predictive Medicine & Public Health, University of Porto Medical School, Portugal / Institute of Public Health University of Porto)
- P1-146 Assessment of comparison of health checkup results between National Database and commercial database in Japan**
Rie Nishikino (Data Solution Division, Japan Medical Data Center Co.,Ltd., Tokyo, Japan)
- P1-147 School Closure for Pandemic Influenza: When and how long school closure should be implemented for effective mitigation**
Wonju Cho (Department of Preventive Medicine, Korea University College of Medicine, Seoul, Republic of Korea / Graduate school of public health, Korea university)
- P1-148 Causation: rethinking the role of analogy**
Douglas L Weed (Division of Public Health, University of Utah, Salt Lake City, USA)
- P1-149 Temporal pattern of acute respiratory infection related productivity loss impact among health care workers over the course of seasonal influenza epidemics in Hong Kong**
Dennis KM Ip (School of Public Health, University of Hong Kong, Hong Kong SAR)
- P1-150 Educational inequality in the age at smoking initiation between China, South Korea and Japan**
Kanade Ito (Division of Oral Health Sciences, Department of Health Sciences, School of Health and Social Services, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P1-151 Determinants of dosage active ingredient in space spray application of pesticides for vector control**
Carlos Campelo Melo (Public health, University Brasilia, Brazil)
- P1-152 Difference between home and office blood pressure measurements, and determinants for the difference in a randomly selected Japanese male population**
Sayaka Kadowaki (Department of Public Health, Shiga University of Medical Science, Otsu, Shiga, Japan)
- P1-153 The association between the ratio of monocytes to lymphocytes and incidence of tuberculosis among antiretroviral treatment-naïve HIV-infected adults in Lampang, northern Thailand**
Naho Tsuchiya (Department of Preventive Medicine and Epidemiology, Tohoku Medical Megabank Organization, Tohoku University, Sendai, Miyagi, Japan)
- P1-154 Diversity of neighborhood retail food stores affects mortality from acute myocardial infarction**
Masashi Kizuki (Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

- P1-155 Physical, psychological and sexual abuse in high school dating adolescents in Peru: Prevalence and main correlates**
Eric Ricardo Pena-Sanchez (Direction of Epidemiological Research, Lambayeque Regional Hospital, Peru / Social Responsibility Unit at "Santo Toribio de Mogrovejo" University)
- P1-156 Associations between spousal education and health-related behaviors among men and women in Japan**
Keiko Murakami (Department of Hygiene and Public Health, Teikyo University School of Medicine, Tokyo, Japan / Department of Health and Social Behavior, School of Public Health, The University of Tokyo)
- P1-157 Monocyte/Lymphocyte Ratio predict the risk of Tuberculosis among HIV-infected population in Mae Chan, Thailand**
Reiko Miyahara (Department of Clinical Medicine, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan / Fukujuji Hospital, Japan Anti-tuberculosis Association, Japan)
- P1-158 What think hospital pharmacists about antibiotics. A study from Portugal**
Maria Teresa Herdeiro (Department of Medical Sciences & Institute of Biomedicine - iBiMED, Aveiro University Department of Medical Sciences, Portugal / CESPU, IINFACTS, Instituto de Investigacao e Formacao Avancada em Ciencias e Tecnologias da Saude, Gandra, Portugal)
- P1-159 Early life event trajectories and early adult health: Evidence from the British Household Panel Survey and the UK Household Panel Study**
Cara L Booker (Institute for Social and Economic Research, University of Essex, UK)
- P1-160 Drug use in the streets of Porto, Portugal: population size estimates using capture-recapture method under a participatory research**
Paula Meireles (Epidemiology Research Unit (EPIUnit), Instituto de Saude Publica, Universidade do Porto, Portugal)
- P1-161 The incidence and risk factors of *Opisthorchis viverrini* infection in rural communities, Thailand**
Pichaya Suwan (Phrmongkutklao College of Medicine, Bangkok, Thailand)
- P1-162 Fixed effects analysis of neighborhood collective efficacy and children's development**
Kayoko Ichikawa (Division of Social Welfare , Ministry of Health, Labour and Welfare, Tokyo, Japan)
- P1-163 The signs and symptoms of the psychosis prodrome: nested case-control study using primary-care data**
Sarah A Sullivan (School of Social and Community Medicine, University of Bristol, UK)
- P1-164 Consequences of stressful life events during pregnancy: a Generation XXI cohort study**
Silvia Fraga (Epidemiology Research Unit (EPIUnit), Instituto de Saude Publica, Universidade do Porto, Porto, Portugal)
- P1-165 gamma-RUV: a robust method to removing unwanted variation**
Hung Hung (Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan)
- P1-166 Hypertensive Disorders of Pregnancy and Offspring Mental and Behavioural Problems: Systematic Review and Meta-Analysis**
Berihun Assefa Dachew (Epidemiology, The University of Queensland, School of Public Health, Herston, Australia / Department of Epidemiology and Biostatistics, Institute of Public Health, University of Gondar, Ethiopia)
- P1-167 Healthcare Professionals and Needle-stick injuries: a culture of silence**
Ashok Kumar (Department of Hospital Administration, PGIMER, Chandigarh, India)
- P1-168 PLETOK BEER, INDONESIAN TRADITIONAL DRINK, AS A SAKE SUBSTITUTION**
Sitti Rochmayati (Division of Public Health, Airlangga University, Surabaya, Indonesia)
- P1-170 Prevalencia de IAAS y factores asociados en el HGZ 30 Iztacalco**
Marco Antonio Garcia Casasola (Epidemiologia, Hospital General de Zona No. 30, Mexico)
- P1-171 OPTIMAL WAIST CIRCUMFERENCE CUT-OFF POINTS FOR PREDICTING METABOLIC SYNDROME AMONG LOW-INCOME BLACK SOUTH AFRICAN ADULTS**
Daniel Ter Goon (Department of Nursing Science, Faculty of Health Sciences, University of Fort Hare, East London, South Africa)

- P1-172 Design and validation of a new multivariate and focused index for Measuring Inequities In Health based on the concentration index**
Martha Lucia Rodriguez (Clinical Research Institute, National University of Colombia, Colombia)
- P1-173 Analysis of microbiome in a murine colonization model of *Klebsiella pneumoniae* causing emerging endemic disease in Taiwan**
Yi-Jiun Pan (School of Medicine, China Medical University, Taichung, Taiwan)
- P1-174 Diagnostic performance of clinical symptoms and rapid test for influenza in primary care**
Yat-hung Tam (WHO Collaborating Centre for Infectious Disease Epidemiology and Control, School of Public Health, Li Ka Shing Faculty of Medicine, University of Hong Kong, Hong Kong SAR)
- P1-175 Association Between Habitual Bedtime, Bedtime Determinants and Health Status in Adolescents**
Megumi Sakurai (Division of Health Education, Tokyo University, Tokyo, Japan)
- P1-176 Genetic epidemiological analysis revealed intestinal urate excretion via ABCG2 in human: serum uric acid is a useful marker for impairment of intestinal epithelium**
Airi Akashi (Department of Integrative Physiology and Bio-Nano Medicine, National Defense Medical College, National Defense Medical College, Tokorozawa, Saitama, Japan)
- P1-177 Rs671, a common variant of ALDH2, could play a protective role in the onset of gout**
Mako Komatsu (Department of Integrative Physiology and Bio-Nano Medicine, National Defense Medical College, Tokorozawa, Saitama, Japan)
- P1-178 Molecular epidemiology of hepatitis A in Russia: 10-year study results**
Nikolay Pimenov (Reference Center for Viral Hepatitis, Central Research Institute of Epidemiology, Russia)
- P1-179 The epidemiological evolution of AIDS in Brazil, 10 year analysis**
Evaldo Lima da Costa (Woman Helth, University UniCEUB, Brazil)
- P1-180 Modern contraceptive use according to marital status in low- and middle-income countries**
Franciele Hellwig (International Center for Equity in Health, Federal University of Pelotas, Brazil / Postgraduate Program in Epidemiology / Federal University of Pelotas)
- P1-181 Association of Psychiatric Morbidity by Johns Hopkins Aggregated Diagnosis Group with Chronic Medical Disorders in a Population Based Dataset from Ontario, Canada**
Simon J C Davies (Geriatric Psychiatry, Centre for Addiction and Mental Health, Toronto, Canada / Department of Psychiatry, University of Toronto, Canada)
- P1-182 Epidemiological analysis of Syphilis in Brazil regions in the last 10 years**
Victor Santos Araujo (Woman Health, University UniCEUB, Brazil)
- P1-183 Prevalence of obesity by marital status in Health Examinees (HEXA) Study**
Jeeyoo Lee (Department of Preventive Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea)
- P1-184 Advanced paternal age and early onset of schizophrenia: is selection into late fatherhood a confounder?**
Shi-Heng Wang (Graduate Institute of Biostatistics, China Medical University, Taichung, Taiwan)
- P1-185 Socioeconomic inequalities in mortality from external causes in South Korea from 1983 to 2015**
Jinwook Bahk (Department of Public Health, Keimyung University, Daegu, Republic of Korea)
- P1-186 Impact of loss of to follow up on estimation of neurodevelopmental delays at 2 years in a very preterm birth cohort**
Aur lie Piedvache (Obstetrical, Perinatal and Pediatric Epidemiology Research Team at the National Institute for Health and Medical Research, France)
- P1-187 Socioeconomics and cardiovascular diseases: a transfer function analysis**
Chih-Ming Lin (Department of Healthcare Information and Management, Ming Chuan University, Gwei-Shan, Taiwan)

- P1-188 Possibility of confirmation of actual existence of Algebra space**
Toshiko Sawaguchi (Showa University School of Medicine, Tokyo, Japan)
- P1-189 Interdisciplinary Possibility in Medical & Health Science and Role of Epidemiologists**
Akiko Sawaguchi (Tokyo University School of Social Welfare, Japan)
- P1-190 Factors associated due work-related accidents in Brazilian workers: data from the National Health Survey, 2013**
Barbara Niegia Garcia de Goulart (PPG em Epidemiologia , Universidade Federal do Rio Grande do Sul, Brazil)
- P1-191 First ever situation assessment of condom programming in Sri Lanka**
Janaki Vidanapathirana (National STD / AIDS Control programme, Ministry of Health, Colombo, Sri Lanka)
- P1-192 Estimation of the transmissibility and severity of Ebola virus disease under time dependent bias**
Yusuke Asai (Department of Hygiene, Graduate School of Medicine, Hokkaido University, Sapporo, Hokkaido, Japan)

Program Day 3



Monday, August 21, 2017

Room A

8:30-11:00

Symposium 16

The first Japan-Korea-Taiwan Joint Epidemiology Seminar Session, co-hosted by the Japan Epidemiological Association (JEA), the Korean Society of Epidemiology (KSE), and the Taiwan Epidemiology Association (TEA)

Health-related database: utilization for epidemiological research

Moderators: Manami Inoue (Chair, International Exchange Committee, Japan Epidemiological Association / Center for Public Health Sciences, National Cancer Center, Japan)

Byung Chul Chun (The Chair of International Affairs Committee, Korean Society of Epidemiology / Professor, Department of Preventive Medicine, Korea University Medical College, Republic of Korea)

Chen-Yang Shen (President, Taiwan Epidemiology Association / Institute of Biomedical Sciences, Academia Sinica, Taiwan)

S16-1 National health insurance databases in Japan

Hideo Yasunaga (Department of Clinical Epidemiology and Health Economics, School of Public Health, The University of Tokyo, Japan)

S16-2 The Scope and Contents of Korean National Health Insurance Data for Health Research

Jong Heon Park (Big Data Operation Center, National Health Insurance Service, Korea)

S16-3 Experiences for Big Data Analysis of Taiwan National Health Insurance Research Database and Future Perspectives

Pau-Chung Chen (Professor and Director, Institute of Occupational and Industrial Hygiene, National Taiwan University, Taiwan)

S16-4 Big data research in preventing digestive cancers

Chun-Ying Wu (Visiting Staff, Taichung Veterans General Hospital, Taiwan)

S16-5 Epidemiologic Studies of Cardiovascular Disease using National Health Insurance Database

Hyeon Chang Kim (Department of Preventive Medicine, Yonsei University College of Medicine, Korea)

S16-6 Monitoring health inequalities using government statistics in Japan: The current status and future challenge

Yuri Ito (Cancer Control Center, Osaka International Cancer Institute, Osaka, Japan)

Room A

11:00-12:00

Oral 18

Health effects of natural disasters

Moderator: Takeo Fujiwara (Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

O18-1 Mental health problems in the aftermath of the Nepal earthquakes: Findings from a representative cluster sample survey

Nagendra Prasad Luitel (Research Department, Transcultural Psychosocial Organization (TPO) Nepal, Kathmandu, Nepal)

O18-2 Suicide risk among young children after the Great East Japan Earthquake: A follow-up study

Takeo Fujiwara (Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

O18-3 The Assessment of Earthquake and Tsunami Awareness to Disaster Preparedness Three Years after the September 2009 Sumatra Earthquake in the City of Padang, Indonesia

Defriman Djafri (Department of Epidemiology & Biostatistics, Faculty of Public Health, Andalas University, Indonesia)

O18-4 Does living in an area damaged by earthquakes increase cardiovascular disease risk five years on? cohort linkage study

Andrea M. Teng (Department of Public Health, University of Otago, Wellington, New Zealand)

Room A

13:30-15:30

Symposium 17

Epidemiology and prevention for cardiovascular and renal diseases: Differences and similarities of risk factors and prevention strategies between Eastern and Western countries

Moderators: Hiroyasu Iso (Professor of Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, Osaka, Japan)

Shigeyuki Saitoh (Sapporo Medical University School of Health Sciences Medical Sciences, Sapporo, Japan)

S17-1 Epidemiology for cardiovascular risk factors: Tanno-Sobetsu Study in Japan

Hirofumi Ohnishi (Department of Public Health, Sapporo Medical University School of Medical Sciences, Sapporo, Japan)

S17-2 Epidemiological burden of metabolic disorders in a Japanese community: the Hisayama Study

Toshiharu Ninomiya (Department of Epidemiology and Public Health, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan)

S17-3 Epidemiology and prevention of cardiovascular disease: Experiences from CIRCS, JPHC and JACC studies

Kazumasa Yamagishi (Department of Public Health Medicine, University of Tsukuba Faculty of Medicine, Tsukuba, Japan)

S17-4 Community-based intervention programs for blood pressure control in China

Tao Wu (Department of Epidemiology and Biostatistics, Peking University School of Public Health, Beijing, China)

S17-5 The trends in cardiovascular risk factors in Korea, and the differences in cardiovascular risk factors between Asian and Caucasian people

Hyeon Chang Kim (Department of Preventive Medicine, Director, Center for Precision Medicine & Data Science, Director, Cardiovascular and Metabolic Diseases Etiology Research Center, Yonsei University College of Medicine, Seoul, Korea)

Room A

15:30-16:30

Travel Award Session 2

Moderator: Shizukiyo Ishikawa (Medical Education Center, Jichi Medical University, Japan)

TA2-1 Determinants of total fertility rate among districts of Empowered Action Group States of India: Evidence from Annual Health Survey 2012

Vishal Dogra (Max Institute of Healthcare Management, Indian School of Business, India)

TA2-2 Meta-analysis of over-nutrition among school children in India

Pratap Kumar Jena (School of Public Health, KIIT University, India / Premier Research Group, India / Health Systems Research India Initiative, India / Nitte Univeristy, India)

TA2-3 Vector control actions use among Pakistanis: Findings from nationally representative recent most demographic survey

Saba Mughal (School of Public Health, Dow University of Health Sciences, Karachi, Pakistan)

TA2-4 Migration and Urbanisation Effects on Rates of Overweight, Diabetes and Hypertension in Malawi – a sibling migrant study

Felix Patience Chilunga (Malawi Epidemiology and Intervention Research Unit (MEIRU), formerly Karonga Prevention Study, P.O Box 148, Lilongwe, Malawi)

Room A

16:30-18:30

Regional Meeting: Western Pacific

Moderator: TBD

Room B

8:30-10:00

Symposium 18**Measurement, evaluation and disease control with longitudinal data analysis**

Moderator: Yukiko Wagatsuma (Department of Clinical Trial and Clinical Epidemiology, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan)

S18-1 Development of cardiovascular risk factors: a group-based trajectory modelling approach

Abdullah Al Mamun (Biostatistics & Epidemiology, School of Public Health, Faculty of Medicine, The University of Queensland, Brisbane, Australia)

S18-2 Trends of Years of Life Lost (YLLs) due to leading chronic diseases in Japan, 1950 - 2014

Enbo Ma (Department of Clinical Trial and Clinical Epidemiology, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan)

S18-3 Modelling the spatiotemporal distribution of zoonotic diseases in China: a spatial modelling pipeline to optimize outbreak response and targeted surveillance

Ricardo J. Soares Magalhaes (UQ School of Veterinary Science, University of Queensland, Gatton, QLD, Australia / UQ Child Health Research Centre, University of Queensland, South Brisbane, QLD, Australia)

Room B

10:00-12:00

Symposium 19**Causal inferences using natural experimental studies to face current public health challenges**

Moderator: Naoki Kondo (School of Public Health, The University of Tokyo, Japan)

S19-1 Using disaster as an external shock: Pre-disaster social capital and resilience among the victims of the 2011 Great East Japan Earthquake

Jun Aida (Department of International and Community Oral Health, Tohoku University Graduate School of Dentistry, Sendai, Japan)

S19-2 Evaluation of a community intervention program promoting social interactions among older residents to prevent functional disability: Findings from propensity score matching and instrumental variable analyses

Hiroyuki Hikichi (Department of Social and Behavioral Sciences, Harvard T.H.CHAN School of Public Health, USA)

S19-3 Effectiveness of supporting municipality staff for data-oriented cross-sectoral collaborations on their job performances: a cluster quasi-experimental study

Maho Haseda (Graduate School of Medicine, The University of Tokyo, Tokyo, Japan)

S19-4 Difference-in-Differences Studies in Health Economics: Possibilities and Pitfalls

Sayaka Nakamura (School of Economics, Nagoya University, Nagoya, Japan)

Room B

12:10-13:10

Lunch Time Seminar 5

Sponsored by Bristol-Myers Squibb K.K. / Pfizer Japan Inc.

Practical Application of Real-World Data for Cardiovascular Disease

Moderator: Hiroyasu Iso (Professor of Public Health, Department of Social Medicine, Graduate School of Medicine, Osaka University)

Shun Kohsaka (Assistant Professor of Department of Cardiology, Keio University School of Medicine)

Room B

13:30-15:30

Symposium 20**Epidemiologic evaluation of influenza: disease burden, risk factors and vaccine effectiveness**

Moderators: Wakaba Fukushima (Department of Public Health, Osaka City University Faculty of Medicine, Osaka, Japan)
Ta-Chien Chan (Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan)

S20-1 Disease entity and vaccine effectiveness of influenza: an epidemiologic perspective

Yoshio Hirota (College of Healthcare Management, Miyama, Japan / Clinical Epidemiology Research Center, Medical Co. LTA (SOUSEIKAI), Fukuoka, Japan)

S20-2 The risk of influenza transmission through social networks, personal health behaviors and environmental factors - a participatory cohort study in Taiwan

Ta-Chien Chan (Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan)

S20-3 Influenza disease burden among Japanese pregnant women: a self-control method

Satoko Ohfuji (Department of Public Health, Osaka City University Graduate School of Medicine, Osaka, Japan)

S20-4 Influenza vaccine effectiveness among elderly adults in Japan: a population-based cohort study

Megumi Hara (Department of Preventive Medicine, Faculty of Medicine, Saga University, Saga, Japan)

S20-5 Incidence and risk factors of influenza-like illness in 3 communities in Korea: a prospective cohort study

Jin A Kim (Graduate School of Public Health, Korea University, Republic of Korea)

S20-6 Risk factors of acute respiratory infectious diseases among children: a hospital-based case-control study

Sangho Sohn (Department of Preventive Medicine, Korea University Medical College, Republic of Korea)

S20-7 Influenza vaccine effectiveness among Japanese young children: a test-negative design

Wakaba Fukushima (Department of Public Health, Osaka City University Faculty of Medicine, Osaka, Japan)

Room B

15:30-16:30

Oral 19**Genetic epidemiology**

Moderator: Lars Alfredsson (Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden / Centre for Occupational and Environmental Medicine, Stockholm County Council, Stockholm, Sweden)

O19-1 Investigating the combined effect of body mass index and alcohol consumption on liver disease biomarkers: a Mendelian randomization study of 91, 661 European adults

Alice Rose Carter (MRC Integrative Epidemiology Unit, School of Social and Community Medicine, University of Bristol, UK / School of Social and Community Medicine, University of Bristol, UK)

O19-2 A replicated, genome-wide significant variant for aortic stenosis: meta-analysis and UK cohort study

Benjamin J. Cairns (Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Oxford, UK / British Heart Foundation Centre of Research Excellence, University of Oxford, Oxford, United Kingdom)

O19-3 Gene-environment interactions indicate the involvement of lung in the etiology of multiple sclerosis. Evidence from Scandinavia and USA

Lars Alfredsson (Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden / Centre for Occupational and Environmental Medicine, Stockholm County Council, Stockholm, Sweden)

O19-4 Sex-specific genetic loci associated with body fat distribution among Chinese adults

Huilan Guo (Department of Nutrition and Food Hygiene, School of Public Health, Zhejiang University, Hangzhou, Zhejiang, China)

019-5 Cigarette smoking increases coffee consumption: findings from a Mendelian randomisation analysis

Amy Taylor (School of Experimental Psychology, University of Bristol, UK / MRC Integrative Epidemiology Unit, University of Bristol)

Room B

16:30-18:30

Regional Meeting: Europe

Moderator: Elisabete Weiderpass Vainio (Professor, Department of Medical Epidemiology and Biostatistics (MEB), Karolinska Institute, Sweden)

Presentations:

Henrique Barros - The Euro-peristat network

Jacqueline Muller-Nordhorn - Time trends in sudden infant death syndrome and unspecified causes of infant death in 53 countries from 1969 to 2012

Lau Caspar Thygesen - Vitamin D at birth and pediatric outcomes

IEA and the European Region:

- Elisabete Weiderpass Vainio, Councilor 2014-2017

- Patricia Kearney, Councilor 2017-2020 (video presentation)

- A representative of the European Early Career Epidemiologists.

Room C

8:30-10:00

Symposium 21**Nutritional Aspects of Epidemiology**

Moderators: Rachel Huxley (Professor, School of Public Health, Faculty of Health Sciences, Curtin University, Australia)
Yasuo Kagawa (Professor, Department of Medical Chemistry, Kagawa Nutrition University, Japan)

S21-1 Nutrigenomics of the impact of Westernization in Asia

Yasuo Kagawa (Professor, Department of Medical Chemistry, Faculty of Nutrition, Kagawa Nutrition University, Japan)

S21-2 The results of national intervention program to control metabolic syndrome; Specific Health Guidance

Kazuyo Tsushita (Director, Comprehensive Health Science Center, Aichi Health Promotion Public Interest Foundation, Japan)

S21-3 Social determinants of health from a nutrition perspective: Evidence on women's health

Fumi Hayashi (Associate Professor, Nutrition Ecology, Kagawa Nutrition University, Japan)

S21-4 The Role of Nutrition and Lifestyle-Related Risk Factors on the Burden of Cardiovascular Disease in Asia

Rachel Huxley (School of Public Health, Faculty of Health Sciences, Curtin University, Australia)

Room C

10:00-12:00

Symposium 22**Epidemiological modeling of infectious disease epidemics in Asia**

Moderators: Hiroshi Nishiura (Department of Hygiene, Hokkaido University Graduate School of Medicine, Sapporo, Japan)
Hisashi Inaba (Graduate School of Mathematical Sciences, The University of Tokyo, Tokyo, Japan)

S22-1 Early Sub-Exponential Epidemic Growth: Implications for Disease Forecasting and Estimation of the Reproduction Number

Gerardo Chowell (School of Public Health, Georgia State University, Atlanta, GA, USA)

S22-2 Predicting the global spread of emerging infectious diseases

Hiroshi Nishiura (Department of Hygiene, Hokkaido University Graduate School of Medicine, Sapporo, Japan)

S22-3 Mathematical modeling for integration of ecological, epidemiological and environmental data to inform infectious disease management

Jianhong Wu (School of Mathematics and Statistics, York University, Toronto, Canada)

S22-4 Mathematical Models of Emerging Infectious Diseases in the Republic of Korea

Eunok Jung (Department of Mathematics, Konkuk University, Seoul, Korea)

S22-5 Treatment - donation - stockpile dynamics in Ebola convalescent blood transfusion therapy

Xiaodan Sun (Department of Mathematics and Statistics, Xi'an Jiaotong University, Xi'an, China)

Room C

12:10-13:10

Lunch Time Seminar 6 Sponsored by Nippon Boehringer Ingelheim Co., Ltd. and Eli Lilly Japan K.K.

New Insights into Prevention and Treatment of Obesity, NAFLD and Diabetes

Moderator: Mieko Nakamura (Department of Community Health and Preventive Medicine Hamamatsu University School of Medicine)

Tsuguhito Ota (Brain / Liver Interface Medicine Research Center, Kanazawa University)

Room C

13:30-15:30

Symposium 23

Field epidemiological research in resource-limited settings: Challenges and opportunities

Moderators: Masahiko Hachiya (Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan)
Tetsuya Mizoue (Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine, Japan)

S23-1 Field epidemiological research in resource-limited settings: An overview

Masahiko Hachiya (Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan)

S23-2 A cluster randomized interventional study in Sri Lanka

Tetsuya Mizoue (Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine, Japan)

S23-3 A survey of hepatitis B prevalence in Lao PDR

Tomomi Kitamura (Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan)

S23-4 Malaria control project evaluation in Niger

Daisuke Nonaka (Department of Global Health, School of Health Sciences, University of Ryukyus, Japan)

S23-5 Field epidemiological research and its policy implications

Anonh Xeuatvongsa (National Immunization Program, Ministry of Health, Lao PDR)

Room C

15:30-16:30

Oral 20

Other topics 2

Moderator: Ijeoma U. Itanyi (Department of Community Medicine, University of Nigeria Teaching Hospital, Enugu, Nigeria)

O20-1 Geographical differences in cigarette smoking by secondary school students in Enugu State, southeast Nigeria using multilevel analysis

Ijeoma U. Itanyi (Department of Community Medicine, University of Nigeria Teaching Hospital, Enugu, Nigeria)

O20-2 Self-reported tuberculosis, sexually transmitted diseases and HIV prevalence rates among Peruvian inmates: results from the 2016 prison census

Carlos Culquichicon (Emerge, Emerging Diseases and Climate Change Research Unit, School of Public Health and Administration, Universidad Peruana Cayetano Heredia, Peru)

O20-3 National Estimates of Pediatric Emergency Department Visits Secondary to Foreign Body Ingestion and Aspiration USA 2015

Kenneth Soyemi (Department of Pediatrics, John H Stroger Jr Hospital of Cook County, Chicago, IL, USA)

O20-4 The implications of the the Brazilian National Programme for Improving Access and Quality of Primary Care

Anya PGF Vieira-Meyer (Public Health - Family Health, Fundação Oswaldo Cruz, Brazil / Unichristus)

Room C

16:30-18:30

Regional Meeting: North & Latin Americas**Moderators:** Karina Ribeiro (Council Representative for LAC)
Eduardo Franco (Council Representative from NA)

IEA members from the Americas are invited to attend a joint workshop to discuss professional and scientific issues of relevance to the practice of epidemiology and public health in these regions. Following up on the success of previous workshops, which focused on inequalities in health, we wish to address the issue of disparities in relation to training opportunities and vulnerability of our populations to public health threats. Consistent with this overarching goal, four themes were chosen by the Regional Councillors for WCE-2017 for a brainstorming session during the regional workshop: (i) Strengthening capacity in epidemiologic methods; (ii) Improving the quality of scientific publications; (iii) Training the next generation of cancer registry coordinators; and (iv) Countering the public health harms from anti-vaccine activism. Our goal at the end of the workshop is to have an assessment of the gaps in knowledge and possible directions to address the aforementioned topics.

Room D

8:30-10:00

Symposium 24**Obesity Prevention - Our mission to global change****Moderators:** Yoshihiro Miyamoto (Department of Preventive Medicine and Epidemiologic Informatics, National Cerebral and Cardiovascular Center, Suita, Osaka, Japan)

Nobuo Nishi (Center for International Collaboration and Partnership, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

S24-1 TBD

Yoko M. Nakao (Department of Preventive Medicine and Epidemiologic Informatics, National Cerebral and Cardiovascular Center, Suita, Osaka, Japan)

S24-2 TBD

Nobuo Nishi (Center for International Collaboration and Partnership, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

S24-3 TBD

Martin O'Flaherty (Department of Public Health and Policy, University of Liverpool, Liverpool, UK)

Room D

10:00-12:00

Symposium 25**Strategic Biobank and Collaboration Worldwide****Moderators:** Naoko Minegishi (Tohoku University, Sendai, Japan)
Shinichi Kuriyama (Tohoku University, Sendai, Japan)**S25-1 Becoming an established partner in successful networks for collaborative biobank and genetics research using Lifelines as an example**

Harold Snieder (Department of Epidemiology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands)

S25-2 Construction of Integrated Biobank: Tohoku Medical Megabank Project

Atsushi Hozawa (Department of Preventive Medicine and Epidemiology, Tohoku Medical Megabank Organization, Tohoku University)

S25-3 Genetic Epidemiological Studies of ToMMo Genomic Cohorts

Gen Tamiya (Disease Risk Prediction Laboratory, Tohoku university, Tohoku medical megabank organization, Sendai, Japan / Statistical Genetics Team, RIKEN Center for Advanced Intelligence Project, Tokyo, Japan)

Room D

13:30-15:30

Early Career Epidemiologists - current activity and future development

Moderators: Isao Oze (Division of Molecular and Clinical Epidemiology, Aichi Cancer Center Research Institute)

Ester Villalonga Olives (Abteilung Medizinische Psychologie und Medizinische Soziologie, Universitätsmedizin Göttingen)

Early Career Epidemiologists (ECE) play important roles for accumulation of evidence in epidemiology as well as the development of epidemiology. The Executive Council of the IEA has affirmed its support of an international ECE group within the IEA structure in 2011 for the purpose of facilitating communication, promoting development of epidemiological methods and setting up network to enhance scientific collaboration. On the other hand, there are local ECE groups in the regions and/or countries. However, the activities conducted by the ECE groups have not been sufficiently shared. There would be plenty of room for improvement and/or collaboration within the ECE groups' activity. The aim of the session is to clarify the requirement to encourage the activity of ECE groups. Current status of ECE activities in each group will be presented in the first part of the session. What is required to promote ECE activities will be discussed among small groups of participants in the second part of the session. The result of the discussion will be summarized and presented. The discussion of the session is expected to encourage ECE activities and to facilitate international communication among ECEs in the world.

Room D

16:30-18:30

Regional Meeting: South East Asia

Moderators: Vinod K Srivastava (India)

Janaki Vidanapathirana (Srilanka)

The eminent speakers deliver presentations i) Prof. Anand Krishnan India; Obesity: Time for its inclusion in the MCH Agenda ii) Dr. Rajesh Kuwar- India; Management of IDD for promotion of child health iii) Dr.A.C.M.Basnayake - Sri Lanka; Nutrition through life course: Review of best practices in Child Health iv) Dr. Janaki Vidanapathirana - Sri Lanka Eliminating new HIV infections among children; v) Prof. Mansoor Ahmed – Bangladesh; Strategies for Reduction of Maternal Mortality vi) Dr. Pradeep Aggarwal – India; Role of IT in Reducing the U5 Morbidity and Mortality vii) Dr. S.B. Dixit – Nepal, WHO Interventions for improving Newborn care in Nepal.

Room E

8:30-9:30

Oral 21

Cancer 1

Moderator: Kayo Togawa (Section of Environment and Radiation, International Agency for Research on Cancer, Lyon, France)

O21-1 H. pylori eradication and the risk of gastric cancer: a population-based cohort study

Eva Doorackers (Upper Gastrointestinal Surgery, Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Sweden)

O21-2 Comparative evaluation of preliminary screening methods for colorectal cancer in a mass program

Ding Ye (Division of Public health, Zhejiang University School of Public Health, Hangzhou, China)

O21-3 Vasectomy and long-term risk of prostate cancer

Anders Husby (Department of Epidemiology Research, Statens Serum Institute, Copenhagen, Denmark)

O21-4 Parental occupational exposures and testicular cancer in offspring: a registry-based case-control study in the Nordic countries (NORDTEST Study)

Kayo Togawa (Section of Environment and Radiation, International Agency for Research on Cancer, Lyon, France)

Room E

9:30-10:30

Oral 22**Cancer 2****Moderator: Alberto Ruano-Ravina** (Department of Preventive Medicine and Public Health, University of Santiago de Compostela, School of Medicine, Spain)**O22-1 Residential radon exposure and small cell lung cancer in Spain. First results from the SMALL CELL study**

Alberto Ruano-Ravina (Department of Preventive Medicine and Public Health, University of Santiago de Compostela, School of Medicine, Spain)

O22-2 Risks of iatrogenic injury during diagnostic workup for cervical cancer and precancerous lesions: a nationwide cohort study in Sweden

Qing Shen (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden)

O22-3 HPV prevalence and type distribution among women with and without cervical cancer in Ghana

Yvonne Nartey (Hugh Adam Cancer Epidemiology Unit, Department of Preventive and Social Medicine, Dunedin School of Medicine, University of Otago, New Zealand)

O22-4 Routine bowel cancer screening: The association of faecal occult blood test positivity with gastrointestinal and haematological conditions found before and after screening

Emily He (Prince of Wales Clinical School, University of NSW, Australia / Cancer Epidemiology Unit, University of Oxford)

Room E

10:30-11:30

Oral 23**Cancer 3****Moderator: Tai-Hing Lam** (School of Public Health, The University of Hong Kong, World Cancer Research Fund International, China)**O23-1 Solid cancer incidence among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009**

Eric J Grant (Radiation Effects Research Foundation, Hiroshima, Japan)

O23-2 Smoking and melanoma incidence and mortality rates in the UK Million Women Study

Alicia Kathryn Heath (Nuffield Department of Population Health, University of Oxford, Oxford, UK)

O23-3 The incidence and mortality rates of neuroblastoma cases before and after the cessation of the mass screening program in Japan

Takafumi Shinagawa (Division of Environmental Medicine and Population Sciences, Department of Social Medicine, Graduate School of Medicine, Osaka University, Osaka, Japan)

O23-4 Combined mammography and ultrasonography screening for breast cancer: A population-based observational study using a cancer registry database

Izumi Oki (Department of Cancer Prevention and Information, Tochigi Cancer Center, Utsunomiya, Tochigi, Japan)

O23-5 Towards the 2017 Diet and Cancer Report

Tai-Hing Lam (School of Public Health, The University of Hong Kong, World Cancer Research Fund International, China)

Room E 13:30-14:30

Oral 24

Cancer 4

Moderator: Dambadarjaa Davaalkham (Department of Epidemiology and Biostatistics, Mongolian National University of Medical Sciences, Mongolia)

O24-1 Relationship between liver cancer marker and hepatitis B, C and D virus infections among population in Mongolia: A nationwide survey

Dambadarjaa Davaalkham (Department of Epidemiology and Biostatistics, Mongolian National University of Medical Sciences, Mongolia)

O24-2 Cancer incidence among diagnostic medical radiation workers in Korea

Seulki Ko (Department of Preventive Medicine, Korea University College of Medicine, Seoul, Republic of Korea)

O24-3 Impact of cancer on subsequent disemployment risk among Japanese work-age men and women: real world evidence from a large-scale claims database in Japan

Izumi Mishiro (Japan Medical Affairs, Takeda Pharmaceutical Company, Tokyo, Japan)

O24-4 Quality of Life and patient-reported early adverse effects in prostate cancer patients treated with radiotherapy in the multi-centre observational REQUITE study

Petra Seibold (Division of Cancer Epidemiology, German Cancer Research Center (DKFZ), Heidelberg, Germany)

O24-5 A prediction model for the absolute risk of death from cancer and other causes

David C Muller (Department of Epidemiology and Biostatistics, Imperial College London, UK)

Room E 14:30-15:30

Oral 25

Cancer 5

Moderator: TBD

O25-1 Blood lipids, lipoproteins and the risk for breast cancer in chinese females: a population-based prospective cohort study

Zhangyan Lv (Program Office for Cancer Screening in Urban China, National Cancer Center, China)

O25-2 Effects of menopausal hormone therapy and the risks of screen detected and interval breast cancers in a large UK prospective study

Isobel Barnes (Cancer Epidemiology Unit, University of Oxford, Oxford, UK)

O25-3 Childhood body size and risk of breast cancer after menopause by oestrogen receptor status

TienYu Owen Yang (Nuffield Department of Population Health, University of Oxford, Oxford, UK)

O25-4 Boiled bean intake and colorectal cancer incidence among Japanese: The JACC Study

Takahiro Itagaki (Department of Public Health Medicine, Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan)

Room E 15:30-16:30

Oral 26

Cancer 6

Moderator: Taro Takeshima (Division of Community and Family Medicine, Center for Community Medicine, Jichi Medical University, Tochigi, Japan)

O26-1 The long - term influence for cancer prevention by green tea consumption: The Jichi Medical School Cohort Study

Taro Takeshima (Division of Community and Family Medicine, Center for Community Medicine, Jichi Medical University, Tochigi, Japan)

O26-2 The association between *helicobacter pylori* infection and risk of pancreatic cancer in Taiwan

Chia-Rung Tsai (National Institute of Cancer Research, National Health Research Institutes, Tainan, Taiwan)

O26-3 SURVIVAL AND BURDEN OF BREAST CANCER IN FLORIANOPOLIS/SC, SOUTHERN BRAZIL

Ione JC Schneider (Health Science, Federal University of Santa Catarina, Brazil)

O26-4 Follow-up survey on the adverse events following the human papillomavirus (HPV) vaccinations in Japan: the first review

Yuri Kitamura (Department of Social Medicine, Osaka University, Suita, Osaka, Japan)

Room E

16:30-18:30

Regional Meeting: Africa

Moderator: TBD

Room F

8:30-9:30

Oral 27**Maternal and child health 5**

Moderator: Marco A Peres (Australian Research Centre for Population Oral Health, The University of Adelaide, Australia)

O27-1 The death of a sibling in childhood and subsequent mortality: a nationwide cohort study in Denmark and Sweden

Yongfu Yu (Department of Biostatistics, School of Public Health, Fudan University, Shanghai, China / Section for Epidemiology, Department of Public Health, Aarhus University, Aarhus, Denmark)

O27-2 Origins of the disparities in infant mortality between England and Sweden: a national electronic birth cohort study

Ania Zylbersztejn (Great Ormond Street Institute of Child Health, University College London, London, UK / Farr Institute of Health Informatics Research / Administrative Data Research Centre England)

O27-3 Early life exposure to General Anaesthesia due to dental reasons affects children's development: findings from a South Australian data-linkage study

Marco A Peres (Australian Research Centre for Population Oral Health, The University of Adelaide, Australia)

O27-4 Effective contraception, counseling, and related factors among women seeking post abortion care in healthcare facilities in Kenya

Michael M Mutua (Research, African Population and Health Research Center, Kenya / University of Witwatersrand)

Room F

9:30-10:30

Oral 28**Maternal and child health 6**

Moderator: TBD

O28-1 Study design: the evaluation of interindividual differences in neonatal epigenome - the BC-GENIST project

Noriko Sato (Department of Molecular Epidemiology, Medical Research Institute, Tokyo Medical and Dental University, Tokyo, Japan)

O28-2 An application of Cox frailty model in identifying determinants of neonatal mortality in Empowered Action Group states in India

Kalaivani Mani (Department of Biostatistics, All India Institute of Medical Sciences, New Delhi, India, India)

O28-3 Prevalence and associated factors of obstetric violence in a southern Brazil birth cohort

Mariangela Freitas Silveira (Maternal and Child Health, School of Medicine, Federal University of Pelotas, Brazil / Post Graduation Program in Epidemiology, School of Medicine, Federal University of Pelotas)

O28-4 Associations between sex hormones and asthma among Japanese young children

Keiko Wada (Department of Epidemiology and Preventive Medicine, Gifu University Graduate School of Medicine, Gifu, Japan)

Room F

10:30-11:30

Oral 29

Maternal and child health 7

Moderator: Anne-Marie Nybo Andersen (Section of Social Medicine, Department of Public Health, University of Copenhagen, Denmark)

O29-1 In utero Exposure to beta-2-adrenergic Receptor Agonist and Attention-Deficit/Hyperactivity Disorder in Children: a population-based study in Denmark

Maohua Miao (Department of Reproductive Epidemiology and Social Medicine, Shanghai Institute of Planned Parenthood Research, Shanghai, China)

O29-2 Prevalence of angiotensin-converting enzyme inhibitors (ACEI) exposure during pregnancy and the clinical indications: A Population-Based Cohort Study in NSW (2005-2012)

Bilal Ahmed (Centre for Big Data Research in Health, University of New South Wales, Sydney, Australia)

O29-3 Light-to-moderate alcohol drinking in pregnancy and its relationship with birth weight and preterm birth: elucidating bias by pooling data from nine European cohorts

Anne-Marie Nybo Andersen (Section of Social Medicine, Department of Public Health, University of Copenhagen, Denmark)

O29-4 High Frequency of Vitamin D Deficiency in Pregnant Japanese Women Associated with UV Avoidance and Hypo-Vitamin D Diet

Kumiko Tsuji Kanatani (Department of Health informatics, Kyoto University School of Public Health, Kyoto, Japan)

Room F

14:30-15:30

Oral 30

Mental health 1

Moderator: Kazushige Ihara (Division of Public health, Toho University, Tokyo, Japan)

O30-1 Association between supplemented multivitamins containing folic acid and decreased risk of mental disorder due to cocaine use: a population-based study in Canada

Shiliang Liu (Health Surveillance and Epidemiology Division, Public Health Agency of Canada, Ottawa, Canada)

O30-2 Using publicly available data to investigate causal associations between substance use and mental health

Suzanne Gage (Department of Psychological Sciences, University of Liverpool, UK)

O30-3 Posttraumatic stress disorder and incidence of thyroid dysfunction in a large cohort of women: A 24-year longitudinal study

Sun Jae Jung (Department of Epidemiology, Harvard TH Chan School of Public Health, Boston, MA, USA)

O30-4 Exome-wide association study identifies the association between depression, height and DOCK3

Kazushige Ihara (Division of Public health, Toho University, Tokyo, Japan)

O30-5 Suicidal behavior during lithium and valproate medication: a within-individual eight year prospective study of 50 000 patients with bipolar disorder

Jie Song (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden)

Room F

15:30-16:30

Oral 31**Mental health 2**

Moderator: Rebecca M Pearson (School of Social and Community Medicine, University of Bristol, UK / Department of Psychiatry, Oxford University, UK)

O31-1 Prenatal exposure to β 2-adrenoreceptor agonists and the risk of autism spectrum disorders in offspring: a population-based cohort study

Xiujuan Su (Department of Women and Children's Health Care, Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai, China)

O31-2 Familial liability for attention-deficit hyperactivity disorder (ADHD) and eating disorders: applying a genetically informative epidemiological design in a large Swedish population

Shuyang Yao (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden)

O31-3 Grandmothers mental health and grandchildren emotional and behavioral development. A three generation prospective study in Brazil

Rebecca M Pearson (School of Social and Community Medicine, University of Bristol, UK / Department of Psychiatry, Oxford University, UK)

O31-4 Father absence in childhood and offspring depressive disorders at 18 years: UK population-based cohort study

Iryna Culpin (Centre for Academic Mental Health, School of Social and Community Medicine, University of Bristol, UK)

Room F

16:30-18:30

Regional Meeting: Eastern Mediterranean

Moderator: Salim Adib (Lebanon)

The MENA regional meeting will be held with all those in attendance from the region, under the large banner "Epidemiology in troubled times". Participants may discuss issues pertaining to field activities and training/academic concerns as many nations in the region continue to suffer directly or indirectly from violence, armed conflicts and forced displacement.

Room G

8:30-9:30

Oral 32**Social epidemiology 4**

Moderator: TBD

O32-1 The influence of welfare state institutions and expenditures on subjective wellbeing following transitions from work in sixteen European countries

Sol Richardson (Research Department of Epidemiology and Public Health, International Centre for Life Course Studies in Society and Health, University College London, UK)

O32-2 The effects of socioeconomic position on healthy ageing trajectories after 60 years in the US, England, China and Japan

Wentian Lu (Research Department of Epidemiology and Public Health, University College London, UK)

O32-3 The mediating effects of depressive symptoms on the association of childhood maltreatment with non-medical use of prescription drugs among adolescents

Lan Guo (School of Public Health, Sun Yat-sen University, Zhongshan, China)

O32-4 Intensive Care Unit and burnout in Colombian ICU physicians - a view from social epidemiology

Omar Segura (Doctorate in Public Health, National University of Colombia, Colombia / SMC-AS Research Unit, Bogota - Colombia)

Room G 9:30-10:30

Oral 33

Social epidemiology 5

Moderator: Thomas Astell-Burt (Population Wellbeing and Environment Research Lab (PowerLab), University of Wollongong, Australia / Early Start Research Institute, Faculty of Social Sciences, University of Wollongong / Illawarra Health and Medical Research Institute)

033-1 Does neighborhood green space promote narrower socioeconomic inequity in body mass index among women? Evidence from Australia

Thomas Astell-Burt (Population Wellbeing and Environment Research Lab (PowerLab), University of Wollongong, Australia / Early Start Research Institute, Faculty of Social Sciences, University of Wollongong / Illawarra Health and Medical Research Institute)

033-2 Is neighborhood green space protective against associations between child asthma, neighborhood traffic volume and perceived lack of safety? Multilevel analysis of 4, 447 Australian children

Xiaoqi Feng (Population Wellbeing and Environment Research Lab (PowerLab), University of Wollongong, Australia / Early Start Research Institute, Faculty of Social Sciences, University of Wollongong / Illawarra Health and Medical Research Institute)

033-3 Development of a Neighborhood Observation Tool for auditing health related features of community environments (Cy-NOTes): systematic social observation study across Limassol neighbourhoods, Cyprus

Nicos Middleton (Department of Nursing, School of Health Sciences, Cyprus University of Technology, Limassol, Cyprus / Cyprus International Institute for Environmental and Public Health, School of Health Sciences, Cyprus University of Technology, Limassol, Cyprus)

Room G 10:30-11:30

Sponsored Seminar Sponsored by National Assembly Promoting Healthy and Energy Conserving Housing

Housing as a critical determinant of health

Moderators: Hiroyuki Uehara (National Assembly Promoting Healthy and Energy Conserving Housing)
Takesumi Yoshimura (University of Occupational and Environmental Health)

Toshiharu Ikaga (Faculty of Science and Technology, Keio University)

Room G 14:30-15:30

Oral 34

Infectious diseases 1

Moderators: Forhad Akhtar Zaman (Community Medicine, Sikkim Manipal Institute of Medical Sciences, India)
Masayuki Kakehashi (Institute of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan)

034-1 Female genital schistosomiasis in abeokuta, nigeria

Uwemedimo Friday Ekpo (Department of Pure and Applied Zoology, Federal University of Agriculture Abeokuta, Nigeria)

034-2 Study of the status and factors affecting isoniazide chemoprophylaxis for paediatric contacts of the smear positive tuberculosis cases in east district of Sikkim in India

Forhad Akhtar Zaman (Community Medicine, Sikkim Manipal Institute of Medical Sciences, India)

034-3 Congenital Zika virus syndrome in Brazil: a case series of 7, 299 livebirths with complete investigation

Giovanny Vinicius Araujo de Franca (Secretariat of Health Surveillance, Ministry of Health, Brazil)

034-4 An analysis of the effect of school closure using an individual based stochastic model of influenza transmission

Masayuki Kakehashi (Institute of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan)

034-5 Estimating the transmissibility of noroviruses infection using outbreak event data with known route of transmission in Japan

Ryota Matsuyama (Graduate School of Medicine, Hokkaido University, Sapporo, Hokkaido, Japan)

Room G

15:30-16:30

Oral 35**Epidemiological methodology 1**

Moderator: Nobuo Nishi (Center for International Collaboration and Partnership, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

035-1 A comparison of genetic and policy reform instrumental variables for estimating the causal effects of education on health: evidence from the UK Biobank

Neil Martin Davies (Medical Research Council Integrative Epidemiology Unit, School of Social and Community Medicine, University of Bristol, UK)

035-2 Projection of the number of participants in the National Health and Nutrition Survey of Japan using a system dynamics model

Nobuo Nishi (Center for International Collaboration and Partnership, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

035-3 Changes in physical activity and weight as predictors of change in sleep: analysing observational Finnish data as non-randomised pseudo-trials

Alice Jessie Clark (Department of Public Health, University of Copenhagen, Denmark / the Copenhagen Stress Research Center)

035-4 A predictive model based on body composition for diabetes screening among Chinese adults

Saili Ni (Department of Nutrition and food hygiene, Zhejiang University, Chronic Disease Research Institute, School of Public Health, Zhejiang University, Hangzhou, Zhejiang, China)

035-5 Cope non-compliance with assigned treatments in clinical trials, using a global goodness-of-fit test for linear structural mean models

Shizue Izumi (Department of Data Science, Shiga University, Hikone, Shiga, Japan)

035-6 The association of non-standard employment with un-utilization of cancer screening: Findings from a nationally representative survey in Japan

Emiko Ando (Department of Mental Health, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan)

Poster Presentation Room

15:30-16:30

Poster Presentation 2**P2-1 Validation of GRACE Score in Predicting 1-Year Mortality of Patients With Acute Coronary Syndrome Admitted to the Arabian Gulf Hospitals**

Lukman Thalib (Department of Public Health, Qatar University, Doha, Qatar)

P2-2 Breast Cancer Screening (BCS) chart for making policy decision on mammography, Tehran, Iran

Jalal Poorolajal (Research Center for Health Sciences, Department of Epidemiology, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran)

P2-3 Acute methanol poisoning outbreak in Ondo State Southwest, Nigeria April 2015

Elizabeth Bunmi Adedire (Field Epidemiology, Nigerian Field Epidemiology Network, Nigeria)

P2-4 Effect of statin use on non-melanoma skin cancer incidence

Chiho Muranushi (School of Public Health, University of Queensland, Australia / Cancer Control Group, QIMR Berghofer Medical Research Institute)

P2-5 The Association Between Risk Factors and Coronary Heart Disease in Prof. Dr. R. D. Kandou Hospital Manado North Sulawesi Indonesia

Priscilla Caroline Kandou (Department of Public Health, Sam Ratulangi University, Indonesia)

- P2-6 Physical Activity and Smoking among Secondary Infertile and Fertile Women in Southeast of Iran: Considering Potential Reproductive Confounding Factors in a Case-Control Study**
Hossein Ansari (Health Promotion Research Center, Department of Epidemiology and Biostatistics, Zahedan University of Medical Sciences, Zahedan, Iran)
- P2-7 Prenatal origins of intergenerational transmission of health: a novel answer to the increasing burden of chronic illness in nordic societies**
Jiong Li (Department of Clinical epidemiology, Aarhus University, Denmark)
- P2-8 Predicted 10-year risk of cardiovascular disease and BMI paradox in Shahroud, Iran**
Mohammad Hassan Emamian (Department of Epidemiology, School of Public Health, Shahroud University of Medical Sciences, Shahroud, Iran)
- P2-9 Tobacco smoking cessation and risk of esophageal cancer: systematic review and meta-analysis**
Qiaoli Wang (Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Sweden)
- P2-10 Comparative Effectiveness Analysis of Various Proprotein Convertase Subtilisin/Kexin Type 9 Inhibitors on Lipid Levels in Patients with Hypercholesterolemia: a Systematic Review and Network Meta-analysis**
Yi-Ting Huang (Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan)
- P2-11 Projected 10-Year Trends and Intervention Effects of Heart Disease and Stroke Mortality Using Big Data in Taiwan**
Kuo-Liong Chien (Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University, Taiwan)
- P2-12 Report on the Investigation of an outbreak of food-borne illness in a tertiary education institution in Gauteng, South Africa; January 2016**
Lwando Maki (Public Health Medicine, University of Pretoria, South Africa)
- P2-14 Preliminary results for diabetes mellitus and colorectal cancer in Thai population aged 45-74 years old: a population-based RCT screening in Khon Kaen, Thailand**
Pongdech Sarakarn (Faculty of Public Health, Khon Kaen University, Thailand)
- P2-15 Cardiovascular risk stratification during opportunistic screening in a rural area of Punjab, India**
Manju Rani (Department of Community Medicine and School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh, India)
- P2-16 Sitting-time in Portuguese school-aged adolescents: are school classes a risk factor?**
Romeu Mendes (Unidade de Saude Publica, ACES Douro I - Marao e Douro Norte, ARS Norte, Portugal / University of Tras-os-Montes e Alto Douro / ISPUP-EPIUnit, Universidade do Porto)
- P2-17 Prevalence of diabetes mellitus and related cardiovascular disease risk factor in an ethnic community of Bangladesh**
Sabrina Ahmed (Initiative for Noncommunicable Diseases(INCD), Dhaka, Bangladesh)
- P2-18 Frequency of fruit/vegetable obtained from relatives or neighbors, but not fruit/vegetable gardening, is significantly related to fruit and vegetable intake: Among residents in Gunma, Japan**
Daisuke Machida (Division of Health sciences, Gunma University Graduate School, Takasaki, Gunma, Japan / Takasaki University of Health and Welfare)
- P2-19 Thyroid Nodule in Fukushima**
Yutaka Hamaoka (Faculty of Business and Commerce, Keio University, Tokyo, Japan)
- P2-20 Quality of oils obtained from food undergoing deep frying processes**
Marcos Flores Garcia (Basic Science Department Faculty of Science, Santo Tomas University, Talca, Chile)
- P2-21 Comparison of standardized mortality ratios for renal failure using national vital statistics before and after the 2011 Great East Japan earthquake and tsunami**
Rumi Tsukinoki (Department of Public Health Nursing, Osaka Medical College, Osaka, Japan)

- P2-22 Attempt to assess epidemiological evidences by animal experiments**
Norio Takahashi (Vice Chairman's Office, Radiation Effects Research Foundation, Hiroshima, Japan)
- P2-23 Factor VII and incidence of myocardial infarction in a Japanese population: The Jichi Medical School Cohort Study**
Takuya Shiraishi (Uenomura Clinic, Division of internal medicine, Gunma, Japan)
- P2-24 The association between psychological distress and habitual using of saltiness seasoning on meal among Japanese pregnant women in Miyagi Prefecture**
Yuki Sato (Tohoku Medical Megabank Organization, Tohoku University, Sendai, Miyagi, Japan)
- P2-25 THE DISTRIBUTION OF RISK FACTORS AND HYPERTENSION PREVALENCE TOWARDS 18-59 YEARS SOCIETY IN WORKING AREA OF UPT PUSKESMAS TAMPAKSIRING I IN NOVEMBER 2013**
Jiana Rofik Baitur R (Division of Public Health, Airlangga University, Surabaya, Indonesia)
- P2-26 Effect of different levels of physical activity, body mass index and sitting time on colon and rectal cancers in the 45 and Up study**
Carlos Andres Nunez (Cancer Research Division, Cancer Council, University of Sydney, NSW, Australia / University of Sydney)
- P2-27 The Effect of Longitudinal Medication Adherence to control of Diabetes Mellitus patients in a community by Latent Growth Modeling**
Nam Wook Hur (Department of Sociology, Yonsei University, Seoul, Republic of Korea / Department of preventive medicine, College of Medicine, Yonsei University)
- P2-28 DIET@NET Best practice guidelines for dietary assessment in health research**
Janet E. Cade (Nutritional Epidemiology Group, School of Food Science and Nutrition, University of Leeds, Leeds, UK)
- P2-29 Association between socio economic status and blood cadmium level and smoking status**
Yongho Jee (Department of Public Health Science, Seoul National University, Seoul, Republic of Korea)
- P2-30 The contribution of alcohol in the risk of head and neck cancer in Taiwan**
Jeffrey Shu-Ming Chang (National Institute of Cancer Research, National Health Research Institutes, Tainan, Taiwan)
- P2-31 Effect of apparent temperature on cardiovascular disease hospital admissions in Cape Town, South Africa**
Janine Wichmann (School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa)
- P2-32 Associations of handgrip strength with total and regional bone mineral density among Chinese Adults**
Sunyue Ye (Department of Nutrition and Food Hygiene, School of Public Health, Zhejiang University, Hangzhou, Zhejiang, China)
- P2-33 Indoor particles in two mother-child studies in the city of Leipzig, Germany - concentrations and effects on children's bronchitis risk and inflammatory cytokines**
Ulrich Franck (Helmholtz Centre for Environmental Research - UFZ, Core Facility Studies, Leipzig, Germany)
- P2-34 Gender Difference on the Association of Handgrip Strength and Hyperglycemia Among Adults in Mito, Japan**
Chrispin Mahala Manda (Department of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan)
- P2-35 Dietary Pattern and Its Association with Blood Pressure and Blood Lipid Profiles among Japanese Adults in the 2012 Japan National Health and Nutrition Survey**
Naychi Htun (Department of Nutritional Epidemiology, National Institute of Health and Nutrition, Tokyo, Japan)
- P2-36 Association between obesity and renal disease markers: cross-sectional analysis from the Brazilian longitudinal study of adult health (Elsa-Brazil)**
Alexandra Dias Moreira (Departamento de Enfermagem Materno Infantil e Saude Publica, Nursing school, Universidade Federal de Minas Gerais, Brazil)

- P2-37 Dietary diversity and healthy life expectancy - an international comparative study**
Keiko Miyamoto (Graduate School of Nutritional Sciences, Nagoya University of Arts and Sciences, Nagoya, Aichi, Japan)
- P2-38 Hand-grip strength as a predictor of site-specific osteoporotic fracture risk in postmenopausal women: The Japanese Population-based Osteoporosis (JPOS) Cohort Study**
Kuniyasu Kamiya (Department of Hygiene & Public Health, Osaka Medical College, Takatsuki, Osaka, Japan)
- P2-39 Nutrition Status among 32 breastfeeding mothers at 1 month postpartum**
Saki Horie (Department of Public health, Teikyo University Graduate School, Tokyo, Japan / National Institute of Health and Nutrition)
- P2-40 Association between average daily television viewing time and the incidence of ovarian cancer: findings from the Japan Collaborative Cohort Study (1988-1990)**
Shigekazu Ukawa (Department of Public Health, Hokkaido University Graduate School of Medicine, Sapporo, Hokkaido, Japan)
- P2-41 Effect of excess iodine intake on thyroid diseases in different populations: A systematic review and meta-analyses including observational studies**
Ryoko Katagiri (Department of Social and Preventive Epidemiology, Graduate School of Medicine, the University of Tokyo, Tokyo, Japan)
- P2-42 Physical Activity and Cardiovascular Disease Risk in Japan: The Jichi Medical School Cohort Study**
Yosuke Shibata (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P2-43 Coffee consumption and all-cause mortality in Japanese community residents: the Jichi Medical School Cohort Study**
Tsuyako Sakamaki (Division of Public health, Graduate School of Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P2-44 Dipeptidyl Peptidase-4 Inhibitors Associated with a Higher Risk of Cardiovascular Events: A Population-based Cohort Study in Taiwan**
Jui Wang (Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan)
- P2-45 A study on effects of body image perception to nutrient intake and mental health of Korean adolescents**
Kim Yookyung (Department of Home Economics Education, The Graduate School of Education, Korea University, Seoul, Republic of Korea)
- P2-46 The risk of stroke induced by meteorological conditions in different sex and age groups: Hiroshima Emergency and Weather Study (HEWS) stroke collaboration**
Miwako Tsunematsu (Department of Health Informatics, Hiroshima University Graduate School of Biomedical and Health Sciences, Hiroshima, Japan)
- P2-47 The impact of neuropathic pain on sleep quality up to three years after breast cancer diagnosis**
Nuno Lunet (Departamento de Ciencias da Saude Publica e Forenses e Educacao Medica, Faculdade de Medicina, Universidade do Porto, Portugal)
- P2-48 A class of non-linear exposure-response models in case-crossover method**
Mieczyslaw Szyszkowicz (Population Studies Division, Health Canada, Ottawa, Canada)
- P2-49 Pre-hospital delay in Patients presenting with Acute Myocardial Infarction to a Tertiary Care Center in India**
Sarit Sharma (Department of Community Medicine, Dayanand Medical College & Hospital, Ludhiana, India)
- P2-50 Television viewing time and mortality from chronic kidney disease among Japanese men and women: the JACC Study**
Satoyo Ikehara (Department of Hygiene and Public Health, Osaka Medical College, Takatsuki, Osaka, Japan / Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine)

- P2-51 Oral health behaviours and the association with sports in Portugal**
Nelio Veiga (Health Sciences Institute, Universidade Catolica Portuguesa, Viseu, Portugal / Center for Interdisciplinary Research in Health-Universidade Catolica Portuguesa)
- P2-52 Prevalence and risk factors associated with overweight and obesity among adults in a population of rural north India: a cross-sectional study**
Mahesh Satija (Department of Community Medicine, Dayanand Medical College & Hospital, Ludhiana, India)
- P2-53 Larger leg fat mass predicts lower blood pressure in relatively underweight girls: a three-year follow-up study in Hamamatsu**
Katsuyasu Kouda (Department of Public Health, Kindai University Faculty of Medicine, Osaka-Sayama, Japan)
- P2-54 Daily physical activity is associated with smaller decrease in bone mineral density: evaluation using an objective activity measurement with a triaxial accelerometer in Japanese women**
Takahiro Tachiki (Department of Public Health, Kindai University Faculty of Medicine, Osaka-Sayama, Japan)
- P2-55 Colon cancer incidence among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009**
Hiromi Sugiyama (Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan)
- P2-56 Association of serum n-3 polyunsaturated fatty acids with silent cerebral vascular lesions in a Japanese male population**
Keiko Kondo (Department of Public Health, Shiga University of Medical Science, Otsu, Shiga, Japan)
- P2-57 Uterine cancer incidence among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009**
Kotaro Ozasa (Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan)
- P2-58 LDL-C concentration is estimated by dietary factors with considering the genetic variation among Japanese: the J-MICC Sakura Diet Study**
Syu Akimoto (School of Food and Nutritional Sciences, University of Shizuoka, Shizuoka, Japan)
- P2-59 Heart disease mortality in the Life Span Study, Japan, 1950-2008**
Ikuno Takahashi (Department of Clinical Studies, Radiation Effects Research Foundation, Hiroshima, Japan / Department of Epidemiology, Radiation Effects Research Foundation)
- P2-60 Association between objectively measured physical activity and methylation of PYCARD gene in the Japanese general population**
Yuichiro Nishida (Department of Preventive Medicine, Faculty of Medicine, Saga University, Saga, Japan)
- P2-61 Upper digestive cancer incidence among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009**
Ritsu Sakata (Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan)
- P2-62 Early effect of the mass colorectal cancer screening program in China, 2007-2014: population based study**
Kun Chen (Division of Public health, Zhejiang University School of Public Health, Hangzhou, China)
- P2-63 Comparison of three obesity measurements in the prediction of hypertension and diabetes in Fiji**
Marika Nomura (Department of International Health and Collaboration, National Institute of Public Health, Saitama, Japan)
- P2-64 Vegetarian diet, change in dietary patterns, and risk of diabetes: a prospective cohort study in Taiwan**
Tina Hsueh-Ting Chiu (Department of Nutrition Therapy, Dalin Tzu Chi Hospital, Tzu Chi Medical Foundation, Chiayi County, Taiwan / Graduate Institute of Epidemiology and Preventive Medicine, National Taiwan University)
- P2-65 Risk of non-alcoholic fatty liver disease and lifestyle factors: the Shizuoka-Sakuragaoka J-MICC Study**
Kiyonori Kuriki (School of Food and Nutritional Sciences, University of Shizuoka, Shizuoka, Japan)

- P2-66 Invasive dental treatment and the risk of infective endocarditis: a case-crossover study in Taiwan**
Yu-Kang Tu (Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan)
- P2-67 2016, Japanese National Cancer Registration is started, the completeness of registration is OK?**
Masakazu Hattori (Department of surgery, Fukui Prefectural Hospital, Fukui, Japan)
- P2-68 Dietary patterns and long-term risk of death from cardiovascular diseases in Japanese: NIPPON DATA90**
Aya Kadota (Center for Epidemiologic Research in Asia, Shiga University of Medical Science, Otsu, Shiga, Japan)
- P2-69 Association between genetic variants in promoter region of a novel antisense long noncoding RNA RP11-392P7.6 and colorectal cancer risk in Jiashan county of China**
Simeng Gu (Department of Epidemiology and Biostatistics, Zhejiang University School of Public Health, Hangzhou, Zhejiang, China)
- P2-70 Causes of death after pesticide poisoning in South Korea: A Nationwide Population-Based Study**
Ye Jin Bang (Department of Preventive Medicine, Korea University College of Medicine, Seoul, Republic of Korea)
- P2-71 Exposure assessment of organophosphorus pesticide in Japanese diapered children**
Naoko Oya (Department of Occupational and Environmental Health, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan)
- P2-72 The association of homocysteine with incident cardiovascular disease is modified by vitamin A**
Thomas Olsen (Department of Nutrition, University of Oslo, Norway)
- P2-73 Chinese obesity has higher risk of metabolic abnormalities than whites**
Yimin Zhu (Department of Epidemiology and Biostatistics, Zhejiang University School of Public Health, Hangzhou, Zhejiang, China)
- P2-74 Heterogeneous relationships between smoking and squamous and basal cell carcinomas of the skin: prospective study of UK women and meta-analysis**
Kirstin Pirie (Cancer Epidemiology Unit, University of Oxford, Oxford, UK)
- P2-75 Prevalence of comorbidity in patients with cardiovascular disease in the general population: results from the Lifelines cohort study**
Josefien Buddeke (Department of Epidemiology, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, The Netherlands / Dutch Heart Foundation)
- P2-76 Sex disparities in cancer incidence in Jiashan County of China, 1995-2014**
Xiyi Jiang (Department of Epidemiology and Health Statistics, Zhejiang University School of Public Health, Hangzhou, China)
- P2-77 Protective effect of vegetarian diet against gallstone disease in female -a prospective cohort study in Taiwan**
Ming-Nan Lin (Department of Family Medicine, Buddhist Dalin Tzu Chi Hospital, Chiayi County, Taiwan)
- P2-78 Effects of eating rate for each risk of metabolic syndrome and potential metabolic syndrome patients and the confounding factors: the Shizuoka-Sakuragaoka J-MICC Study**
Wu Ren (Division of Food and Nutritional Science, Graduate School of Integrated Pharmaceutical and Nutritional Sciences, University of Shizuoka, Shizuoka, Japan)
- P2-79 Weight gain during adulthood and colorectal adenomas: a systematic review and meta-analysis**
Sabrina Schlesinger (Department of Epidemiology and Biostatistics, School of Public Health, Imperial College London, UK)
- P2-80 Validity and reproducibility of a developed culture-sensitive, semi-quantitative food frequency questionnaire for use among adult population in Kenya**
Elisabete Pinto (Universidade Catolica Portuguesa, Centro de Biotecnologia e Quimica Fina (CBQF) Laboratorio Associado, Escola Superior de Biotecnologia, Portugal / Instituto de Saude Publica da Universidade do Porto (ISPUP))

- P2-81 Body mass index and incidence of subarachnoid hemorrhage in Japanese community residents: the Jichi Medical School Cohort Study**
Nami Kawate (Division of Public health, Graduate School of Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P2-82 Relationship between natto intake habit and risk of osteoporotic fracture in postmenopausal women: The Japanese Population-based Osteoporosis (JPOS) Cohort study**
Akane Kojima (Department of Hygiene & Public Health, Osaka Medical College, Takatsuki, Osaka, Japan / Department of Health and Nutrition, Kyoto College of Nutritional & Medical Sciences)
- P2-83 Increased mite sensitization in residents of emergency temporary housing after the Great East Japan Earthquake**
Chiyako Oshikata (Department of Respiriology, National Hospital Organization, Saitama National Hospital, Saitama, Japan)
- P2-84 Trend of official radiological food monitoring data - During five years and ten months after the Fukushima Nuclear Accident -**
Ichiro Yamaguchi (Department of Environmental Health, National Institute of Public Health, Saitama, Japan)
- P2-85 Incidence of liver, pancreas, and gallbladder cancers among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009**
Atsuko Sadakane (Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan)
- P2-86 Physical Activity Earlier in Life Reduces Insulin Resistance among Adults in Japan**
Hitomi Fujita (Department of Public Health, Nagoya City University Graduate School of Medical Sciences, Nagoya, Aichi, Japan)
- P2-87 Evaluation of Quality of Life in survivors with malignant pleural mesothelioma in Japan**
Isao Oze (Division of Molecular and Clinical Epidemiology, Aichi Cancer Center Research Institute, Nagoya, Aichi, Japan)
- P2-88 Fatty acids in serum phosphatidylcholine and cardiovascular risk parameters among Japanese patients with diabetes mellitus, dyslipidemia, or hypertension**
Kayo Kurotani (Department of Nutritional Education, National Institute of Health and Nutrition, Tokyo, Japan / Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine)
- P2-89 Metabolic syndrome over four years prior to the onset of cardiovascular disease: a nested case-control study**
Huanhuan Hu (Department of Epidemiology and Prevention, Bureau of International Health Cooperation, National Center for Global Health and Medicine, Tokyo, Japan)
- P2-90 Maternal dietary patterns during pregnancy and spontaneous preterm birth: a large prospective cohort study in China**
Min-Shan Lu (Division of Birth Cohort Study, Guangzhou Women and Children's Medical Center, Guangzhou Medical University, Guangzhou, China / Department of Woman and Child Health Care, Guangzhou Women and Children's Medical Center, Guangzhou Medical University)
- P2-91 Vascular endothelial growth factor and ischemic heart disease risk: a Mendelian randomization study**
Shiu Lun Au Yeung (School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China)
- P2-92 Tumour characteristics of breast cancer in relation to age in women in England**
Torat Gathani (Nuffield Department of Population Health, University of Oxford, Oxford, UK / Department of Oncoplastic Breast Surgery, Oxford University Hospitals NHS Foundation Trust)
- P2-93 KAROLINSKA FOOTBALL INJURY COHORT, INJURIES IN ADOLESCENT FEMALE FOOTBALL PLAYERS**
Eva Skillgate (Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden / Naprapathogskolan - Scandinavian College of Naprapathic Manual Medicine, Stockholm, Sweden)

- P2-94 Association of oral salt intake and blood pressure with salt taste thresholds in healthy people, Japan**
Naoko Katahashi (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P2-95 Epidemiology of survival rates from in-hospital cardiac arrest at a governmental hospital in the United Arab Emirates, 2013-2015**
Tom Loney (Institute of Public Health, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates)
- P2-96 Nutrition impact symptoms as a determinant of global quality of life, social function, emotional function among patients operated on for oesophageal cancer**
Poorna Anandavadivelan (Surgical Care Sciences, Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Sweden)
- P2-97 Impact and burden of snoring / apnea on total health expenditure in adult Japanese national health insurance beneficiaries: the Ibaraki prefectural health study**
Mizuki Sata (Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, Suita, Osaka, Japan / Ibaraki Health Plaza, Mito, Japan / Ibaraki Health Service Association, Mito, Japan / Department of Public Health Medicine, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan)
- P2-98 Small size of kidney and blood pressure of bangladeshi children**
Farzana Ferdous (Graduate School of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan)
- P2-99 A comprehensive analysis in the incidence and survival of pancreatic cancer by histology, including rare subtypes: a nation-wide cancer registry-based study from Taiwan**
Hui-Jen Tsai (National Institute of Cancer Research, National Health Research Institutes, Tainan, Taiwan / Department of Internal Medicine, National Cheng Kung University Hospital / Department of Internal Medicine, Kaohsiung Medical University Hospital)
- P2-100 Neighborhood food environment and nutrient intake among Japanese older people**
Tomoko Kishi (Department of Public Health Science, Hokkaido University, Sapporo, Hokkaido, Japan)
- P2-101 The association of Neutrophil Lymphocyte Ratio and Risks of Cardiovascular Diseases: A systematic review and meta-analysis**
Teeranang Angkananard (Division of Cardiovascular Medicine, Department of Medicine, HRH Princess Maha Chakri Sirindhorn Medical Center, Srinakharinwirot University, Bangkok, Thailand / Section for Clinical Epidemiology and Biostatistics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University)
- P2-102 Oral cancer via the bargain bin; the role of naswar (smokless tobacco) in the etiology of oral cancer in Pakistan**
Zohaib Khan (Prevention and Evaluation, Leibniz institute for prevention research and epidemiology-BIPS, Germany / Khyber Medical University, Pakistan.)
- P2-103 Estimating the avoidable part of the burden of hepatocarcinoma related to delays in implementing hepatitis B immunization in low- and middle-income countries**
Louis-Rachid Salmi (Centre INSERM U1219 Bordeaux population health research, Universite de Bordeaux, Bordeaux, France / INSERM, ISPED, Centre INSERM U1219 Bordeaux population health research / CHU de Bordeaux, Pole de sante publique, Service d information medicale)
- P2-104 Multifactorial management of cardiovascular risk factors and mortality in diabetes and chronic kidney disease: a population-based cohort study in the UK**
Shota Hamada (Department of Primary Care & Public Health Sciences, King's College London, UK / Research Department, Institute for Health Economics and Policy)
- P2-105 Characteristics and outcomes of out-of-hospital cardiac arrest at the vehicles in Osaka City**
Kosuke Kiyohara (Department of Public Health, Tokyo Women's Medical University, Tokyo, Japan)
- P2-106 The positive association between waist circumference and new onset of diabetes mellitus in urban Japanese population: 5 year follow-up study in Habikino City**
Daisuke Sugiyama (Department of Preventive Medicine and Public Health, School of Medicine, Keio University, Tokyo, Japan)

- P2-107 Association of coffee consumption with all-site cancer incidence, all-cause mortality, and cause-specific mortality: The Three-Prefecture Cohort in Japan**
Junya Sado (Division of Environmental Medicine and Population Sciences, Osaka University, Suita, Osaka, Japan)
- P2-108 Dietary fiber intake and risk of colorectal cancer: a meta-analysis study**
Rika Senke (Hygiene and Preventive Medicine, Graduate School of Life Science, Kobe Women's University, Kobe, Japan)
- P2-109 Fatty liver index is a predictor for future incidence of hypertension in a Japanese general population**
Aya Hirata (Department of Preventive Medicine and Public Health, Keio University School of Medicine, Tokyo, Japan)
- P2-110 Associations between process quality indicators for diabetes care and the risk of dialysis initiation: A retrospective cohort study in Japan**
Atsushi Goto (Metabolic Epidemiology Section, Division of Epidemiology, Center for Public Health Sciences, National Cancer Center, Tokyo, Japan)
- P2-111 Nutrient intake from food and dietary supplements in community-living populations of Japan**
Tomoko Imai (Doshisha Womens College of Liberal Arts, Kyoto, Japan / National Center for Geriatrics and Gerontology, Japan)
- P2-113 The prevalence and relevant factors of knee pain for community-dwelling independent elderly in Japan: The complete survey**
Shinichiro Sato (Faculty of Health Sciences, University of Human Arts and Sciences, Saitama, Japan / Graduate School of Sport Sciences, Waseda University)
- P2-114 Post-diagnostic change in body mass index and breast cancer survival in postmenopausal women**
Jenny Chang-Claude (Division of Cancer Epidemiology, German Cancer Research Center (DKFZ), Germany / University Cancer Center Hamburg (UCCH), University Medical Center Hamburg-Eppendorf (UKE))
- P2-115 Variability of sex disparities in cancer incidence over thirty years**
Ghislaine Scelo (Genetic Epidemiology Group, International Agency for Research on Cancer, Lyon, France)
- P2-116 Data reliability and completeness of cancer registry information using re-abstracting method in Nation Cancer Institute, Thailand, 2012 - 2014**
Anupong Sirirungreung (Department of Military and Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand)
- P2-117 Impact of neck circumference and prevalence of hypertension in Thai Rural community, 2016**
Apisit Kaewsanit (Department of Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand)
- P2-118 Ovarian cancer survival by stage at diagnosis and histotype in the Million Women Study**
Kezia Gaitskell (Cancer Epidemiology Unit, University of Oxford, Oxford, UK)
- P2-119 Prevalence of abdominal obesity among Brazilian adolescents: a national school-based study**
Demilto Yamaguchi Pureza (Department of Physical Education, Federal University of Amapa, Brazil)
- P2-120 Association between excess weight and physical activity in Brazilian adolescents: a national school-based study**
Dilson Rodrigues Belfort (Department Physical Education, Federal University of Amapa, Brazil)
- P2-121 Diet quality in relation to stroke among US men with hypertension**
Sara E Raposo (Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, USA)
- P2-122 Genetic variants in lncRNA MALAT1 are associated with risk of colorectal cancer**
Yingjun Li (Department of Public health, Hangzhou Medical University, Hangzhou, China)

- P2-123 Population attributable fractions of high risk level of cardiovascular risk factors on stroke and coronary heart disease: the Circulatory Risk in Communities Study (CIRCS)**
Takumi Matsumura (Department of Public Health Nursing, University of Tsukuba, Tsukuba, Ibaraki, Japan / Department of Community Health, Faculty of Medicine, University of Tsukuba / Department of Public Health Medicine, Faculty of Medicine, University of Tsukuba)
- P2-124 Dietary intakes from 3-day weighed dietary records among pregnant participants in the Birth Cohort - Gene and ENvironment Interaction Study of TMDU (BC-GENIST)**
Hidemi Takimoto (Department of Nutritional Epidemiology, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)
- P2-125 Epidemiology of betel nut use in the Mariana Islands: Findings from the University of Guam/ Cancer Center of Hawaii Partnership Program**
Yvette C Paulino (School of Nursing and Health Sciences, University of Guam, USA)
- P2-126 Acute-phase cardiac rehabilitation reduces the risk of cardiac events in patients with myocardial infarction: A retrospective cohort study based on administrative data in Japan**
Natsuko Kanazawa (Department of Clinical Data Management and Research, National Hospital Organization, Tokyo, Japan / Department of Health Policy and Informatics, Tokyo Medical and Dental University, Graduate School of Medicine)
- P2-127 Sex differences in trajectories of cardio-metabolic risk factors during childhood and adolescence**
Linda M O'Keefe (Integrative Epidemiology Unit, School of Social and Community Medicine, University of Bristol, UK)
- P2-128 Environmental burden of disease from ultraviolet irradiation in Korea: nationwide and localized estimation**
Myung-Jae Hwang (Department of Social and Preventive Medicine, Sungkyunkwan University School of Medicine, Suwon, Republic of Korea)
- P2-129 Comparison of bibliographic search strategies for systematic review on kidney and urinary diseases epidemiology for the Global Burden of Disease Study**
Boris Bikbov (Department of Renal Medicine, IRCCS - Istituto di Ricerche Farmacologiche Mario Negri, Bergamo, Italy)
- P2-130 Family history of gastric mucosal abnormality and the risk of gastric cancer: a population-based observational study**
Huan Song (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden)
- P2-131 Association of obesity genotype and appetite-related behaviour with BMI trajectory in midlife: Whitehall II study**
Koutatsu Maruyama (Department of Epidemiology and Public Health, University College London, UK / Department of Public health, Juntendo University Graduate School of Medicine, Tokyo, Japan)
- P2-132 The variety of dietary intake and risk of disabling dementia in Japanese: The Circulatory Risk in Communities Study (CIRCS)**
Yosuke Maezawa (Department of Public Health Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan)
- P2-133 Risk-stratified screening for colorectal cancer (CRC): A meta-regression analysis of risk prediction models for CRC and advanced neoplasia**
Lakkhina Troeung (Centre for Health Services Research, School of Population and Global Health, The University of Western Australia, Crawley, Australia)
- P2-134 Non-diagnosed hypertension prevalence rates among reproductive-age women: results from the NDFS Peru 2015**
Mahony Reategui Rivera (Division of Public Health, National University of San Marcos, School of Human Medicine, Peru / Emerge, Emerging Diseases and Climate Change Research Unit, School of Public Health and Administration, Universidad Peruana Cayetano Heredia)

- P2-135 Risk factors of cervix cancer, endometrial cancer and ovarian cancer in three-prefecture cohort study of Japan**
Rong Liu (Division of Environmental Medicine and Population Sciences, Graduate School of Medicine, Osaka University, Suita, Osaka, Japan)
- P2-136 Dietary patterns and adult testicular function in Western Australian (Raine) birth cohort**
Milica Ognjenovic (Division of Public Health, University of Western Australia, Australia)
- P2-137 Relationship of mothers' life style and dietary habits on the feeding method of their 1- month old infants in Japan**
Katsushi Yoshita (Department of Food and Human Health Science, Osaka City University, Graduate School of Human Life Science, Osaka, Japan)
- P2-138 Relationship between physical exercise and sleep in people who underwent a health checkup in Japan**
Yoshinori Kitabatake (Department of Health Sciences, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P2-139 Association between four season's average of urinary sodium excretion in 24-hours and salty foods in a food frequency questionnaire: the J-MICC Sakura Diet Study**
Chiho Goto (Department of Health and Nutrition, Nagoya Bunri University, Aichi, Japan)
- P2-140 Smoking and risk of nasopharyngeal carcinoma: preliminary results from a hospital-based case-control study in Hong Kong, China**
Shing-Chun Chiang (School of Public Health, The University of Hong Kong, Hong Kong S.A.R., China / Centre for Nasopharyngeal Carcinoma Research, The University of Hong Kong, Hong Kong S.A.R., China)
- P2-141 Time to recurrence after first ever stroke within three years and its risk factors in Chinese population**
Ping Zhu (Department of Epidemiology and Biostatistics, SiChuan University, China)
- P2-142 Intake of fish oil/cod-liver oil/omega-3 and vitamin D supplements associated with lower risk of nasopharyngeal carcinoma: preliminary results from a case-control study in Hong Kong**
Zhi-Ming Mai (School of Public Health, The University of Hong Kong, Hong Kong S.A.R., China / Center for Nasopharyngeal Carcinoma Research, The University of Hong Kong, Hong Kong S.A.R., China)
- P2-143 Exploring the mechanism of socioeconomic inequalities in rectal cancer referral in London, England using mediation analysis**
Mari Kajiwara (Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, Oxford, UK)
- P2-144 Enduring health effects of asbestos exposure in Amagasaki, Japan: a population-based cohort study of cause-specific mortality (2002-2012)**
Ling Zha (Division of Environmental Medicine and Population Sciences, Osaka University, Suita, Osaka, Japan)
- P2-145 Stroke Incidence in rural Malawi**
Alison Price (Infectious Disease Epidemiology, LSHTM, UK)
- P2-146 Blood pressure and Mortality: A Prospective Study in China**
Jian-Bing Wang (Department of Epidemiology and Health Statistics, Zhejiang University, Hangzhou, Zhejiang, China)
- P2-148 Lack of physical activity in patients with type 2 diabetes mellitus attending a mutual aid group in Ensenada Mexico**
David Sergio Salas-Vargas (School of Medicine and Psychology, Universidad Autonoma de Baja California, Mexico)
- P2-149 Weight change since age 20 and endometrial cancer risk in a pooled analysis of the Miyagi Cohort Study and Ohsaki Cohort Study**
Mano Wakamatsu (Division of Epidemiology, Department of Health Informatics and Public Health, Tohoku University school of Public Health, Graduate School of Medicine, Sendai, Miyagi, Japan)
- P2-150 Does Living Close to a Freight Railyard Increase Likelihood of Children Using Emergency Room Services for Asthma?**
Marco Pasco-Rubio (School of Public Health, Loma Linda University, USA)

- P2-151 The number of thromboembolism patients among of female hormone users estimated from a national epidemiological survey in Japan**
Kazuko Sugiura (Department of Reproductive Health Nursing / Midwifery, Nagoya City University Graduate School of Nursing, Nagoya, Aichi, Japan)
- P2-152 Comparative dietary exposure assessment of selected heterocyclic amines and polycyclic aromatic hydrocarbons through meat and bread consumption in the United States**
Francisco Zagmutt (Risk Analysis Consulting, EpiX Analytics LLC, USA)
- P2-153 Prospective association of dietary and nutrient patterns with fractures: findings from the China Health and Nutrition Survey**
Yohannes Adama Melaku (School of Medicine, The University of Adelaide, Highgate, Australia)
- P2-154 Cancer incidence and survival among individuals born small (SGA) or large (LGA) for gestational age in Denmark years 1979-2011**
E. Christina M. Wennerstrom (Department of Epidemiology Research, Statens Serum Institute, Copenhagen, Denmark)
- P2-155 Associations of participation in social activity with physical activity and sedentary time among older adults living in metropolitan areas in Japan: a cross-sectional study**
Satoshi Seino (Research Team for Social Participation and Community Health, Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan)
- P2-156 Evaluation of the AirGIS dispersion modelling system against measured data on PM2.5 and PM10 from two separate measurement campaigns in Denmark**
Ulla Arthur Hvidtfeldt (Diet, Genes and Environment, Danish Cancer Society Research Center, Copenhagen, Denmark)
- P2-157 Epidemiology and survival curves of colorectal cancer in Lebanon: A retrospective hospital-based cohort study**
Mary Elias Deeb (Gilbert and Rose-Marie Chagoury School of Medicine, Lebanese American University Medical Center-Rizk Hospital, Beirut, Lebanon)
- P2-158 Breast cancer risk based on Body Mass Index by tumor subtypes among Korean women**
SeokHun Jeong (Preventive Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea)
- P2-159 Dietary factors and female breast cancer risk: a prospective cohort study in Korea**
Ji Hyun Kim (Department of Cancer Biomedical Science, Graduate School of Cancer Science and Policy, National Cancer Center, Republic of Korea)
- P2-160 Interaction between physical activity and colorectal cancer risk by *pitx1* rs647161 genetic polymorphism in a korean population: a case-control study**
Madhawa Neranjan Gunathilake Puwakella Durayalage (Department of Cancer Control and Population Health, Graduate School of Cancer Science and Policy, National Cancer Center, Republic of Korea)
- P2-161 Egg consumption and risk of metabolic syndrome in Korean adult: results from the Health Examinees Study**
Sangah Shin (Institute of Environmental Medicine, Seoul National University Medical Research Center, Republic of Korea / Department of Preventive Medicine, Seoul National University College of Medicine)
- P2-162 Impact of sugar sweetened beverage consumption on type 2 diabetes incidence in Ireland**
Kate Nuala O'Neill (Department of Epidemiology & Public Health, University College Cork, Cork, Ireland)
- P2-163 Variability of Mammographic density and body mass index in Spanish women: Var-DDM study**
Ana Maria Pedraza-Flechas (Cancer and Environmental Epidemiology Unit, National Center for Epidemiology, Carlos III Institute of Health, Madrid, Spain)
- P2-164 Family history of cancer and the risk of nasopharyngeal carcinoma: preliminary results from a hospital-based case-control study in Hong Kong, China**
Jiahuang Lin (School of Public Health, The University of Hong Kong, Hong Kong S.A.R., China / Center for Nasopharyngeal Carcinoma Research, The University of Hong Kong, Hong Kong S.A.R., China)
- P2-165 Period prevalence of cerebrovascular and heart disease is estimated based on medical claim with health checkups information among 996, 637 employees in Japan**
Masayo Yamato (Department of Epidemiology, Infectious Disease Control and Prevention, Hiroshima University, Hiroshima, Japan)

P2-166 Low Systolic Blood Pressure and Increased Respiratory Mortality Risk in Korean Healthy Population: A Prospective Cohort Study

Jeoungbin Choi (Department of Preventive Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea)

P2-167 Predicted sun protection effectiveness and use of various headgear

Claudine Backes (Institute for Work and Health, University of Lausanne, Switzerland / Institute for Work and Health, Lausanne / Institute for Social and Preventive Medicine, Lausanne)

P2-168 Breakfast quality and cardiometabolic risk profiles in a middle-aged German population

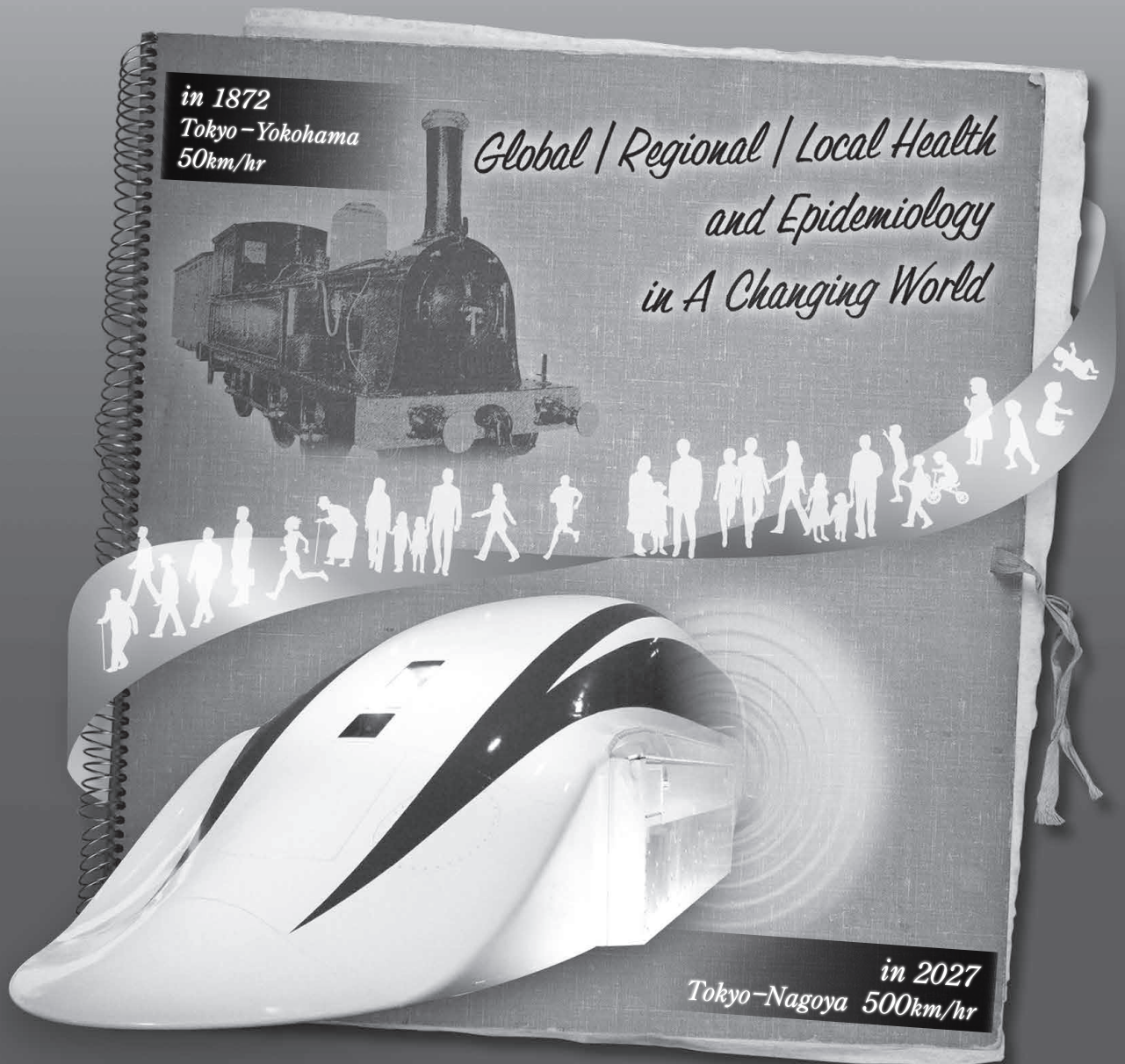
Khalid Iqbal (Department of Epidemiology, German Institute of Human Nutrition Potsdam-Rehbruecke (DIfE), Germany)

Rose Room, Palace Hotel OMIYA

18:30-20:30

Banquet "Japan Night"

Program Day 4



Tuesday, August 22, 2017

Room A

8:30-10:00

Symposium 26

Opening new era in epidemiology with clinical big data

Moderator: Hirohito Sone (Department of Hematology, Endocrinology and Metabolism, Niigata University Faculty of Medicine, Niigata, Japan)

S26-1 Big data and drug safety evaluation

K. Arnold Chan (Health Data Research Center, National Taiwan University, Taipei, Taiwan)

S26-2 Big data analyses for epidemiological research in rheumatology

Masayoshi Harigai (Professor of Division of Epidemiology and Pharmacoepidemiology, Institute of Rheumatology, Tokyo Women's Medical University, Tokyo, Japan)

S26-3 Big data applications in diabetes and cardiovascular disease

Kazuya Fujihara (Department of Hematology, Endocrinology and Metabolism, Niigata University, Niigata, Japan)

S26-4 Statistical issues in clinical epidemiology with big data

Shiro Tanaka (Department of Clinical Biostatistics, Graduate School of Medicine Kyoto University, Kyoto, Japan)

Room A

10:00-12:00

Symposium 27

Tuberculosis molecular epidemiology –Outcome and perspective of collaborative research in East Asia

Moderators: Qian Gao (School of Basic Medical Science, Fudan University, Shanghai, China)

Seiya Kato (Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association, Kiyose, Japan)

S27-1 Study of tuberculosis transmission in China

Yanlin Zhao (National Center for Tuberculosis Control and Prevention, Chinese Centre for Disease Control and Prevention, Beijing, China)

S27-2 Whole-Genome Sequencing Reveals Recent Transmission of Multidrug-Resistant *Mycobacterium tuberculosis* in China

Qian Gao (School of Basic Medical Science, Fudan University, Shanghai, China)

S27-3 Detection of putative expanding cluster types by molecular epidemiological study and scrutinizing them by whole genome sequences

Tomotada Iwamoto (Department of Infectious Diseases, Kobe Institute of Health, Kobe, Japan)

S27-4 Molecular Epidemiology of *Mycobacterium Tuberculosis* and its Historical Trends in South Korea from 1994 to 2006

Hongjo Choi (Department of Research and Development, The Korean Institute of Tuberculosis, Korean National Tuberculosis Association, Cheongju, Republic of Korea)

S27-5 Molecular epidemiology of multidrug-resistant tuberculosis in Taiwan, 2012-2015

Pei-Chun Chuang (Tuberculosis Research Center & Reference Laboratory of Mycobacteriology, Taiwan Centers for Disease Control, Taipei, Taiwan)

S27-6 Establishment of the Asian Tuberculosis Genome Database: Genome Research for Asian Tuberculosis (GReAT)

Takemasa Takii (Department of Mycobacterium Reference and Research, Research Institute of Tuberculosis (RIT), Japan Anti-Tuberculosis Association (JATA), Kiyose, Japan)

Room A 15:00-15:40

Plenary Lecture 3

Epidemiology of interpersonal violence: looking at different ages and places

Moderator: Chandra Mani Pandey (Next President-elect, IEA / Department of Biostatistics and Health Informatics, Post Graduate Institute of Medical Sciences, Lucknow, Uttar Pradesh, India)

PL3 Epidemiology of interpersonal violence: looking at different ages and places

Henrique Barros (President-elect, IEA / Full Professor, Medical School and Institute of Public Health, University of Porto, Porto, Portugal)

Room A 15:40-15:50

Richard Doll Lecture (Video)

Moderator: Henrique Barros (President-elect, IEA / Full Professor, Medical School and Institute of Public Health, University of Porto, Porto, Portugal)

RDL George Davey Smith (Professor of Clinical Epidemiology, School of Social and Community Medicine, University of Bristol, Bristol, UK)

Room A 15:50-16:20

Closing Ceremony

Room B 8:30-10:30

Symposium 28

Geriatric epidemiology in Japan: Care prevention, Social determinants of health, Dementia and depression

Moderators: Ichiro Tsuji (Department of Health Informatics & Public Health, Tohoku University Graduate School of Medicine, Sendai, Japan)

Seiji Yasumura (Department of Public Health, Fukushima Medical University School of Medicine, Fukushima, Japan)

S28-1 Prevention strategy for the long-term care state among the community elderly in Japan

Takao Suzuki (Institute of Gerontology, J. F. Oberlin University, Japan)

S28-2 Prevention and Intervention of Dementia and Depression in Japan

Shuichi Awata (Tokyo Metropolitan Institute of Gerontology, Research Team Promoting Independence of the Elderly, Japan)

S28-3 Sarcopenia and Frailty: Current Situations and Future Perspective in Japan

Hidenori Arai (National Center for Geriatrics and Gerontology, Japan)

S28-4 Social determinants of health in older people

Katsunori Kondo (Center for Preventive Medical Sciences, Chiba University, Chiba, Japan)

Room B 10:30-11:30

Special Lecture 3

Epidemiological studies for atomic bomb radiation

Moderator: Kazuo Tajima (Visiting Professor, Department of Public Health and Occupational Medicine, Mie University Graduate School of Medicine, Tsu, Japan)

SL3 Late health effects among atomic bomb survivors

Kotaro Ozasa (Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan)

Room B

11:50-12:50

Lunch Time Seminar 7

Sponsored by Tenga Healthcare Inc.

Home sperm test - A novel device for male infertility screening with smartphone**Moderator: Kunio Kitamura** (Japan Family Planning Association, Inc.)

Yoshitomo Kobori (Department of Urology, Dokkyo Medical University Koshigaya Hospital)

Room B

13:00-15:00

Symposium 29**Development of Indicator and management for building Age Friendly Communities****Moderators: Katsunori Kondo** (Professor, Center for Preventive Medical Sciences, Chiba University, Chiba, Japan)
Sarah Barber (Director, WHO Centre for Health Development, Kobe, Japan)**S29-1 WHO Global Strategy and Action Plan on Ageing and Health**

Sarah Barber (Director, WHO Centre for Health Development, Kobe, Japan)

S29-2 Utilization of Community Diagnosis Tools toward cross-sectoral collaborations in Kobe, Japan

Naoki Kondo (Associate Professor, Department of Health Education and Health Sociology, School of Public Health, The University of Tokyo, Tokyo, Japan)

S29-3 Influent Factors of Functional Capability and Subjective Well-being of elderly in Shanghai

Fu Hua (Professor and Director, Fudan Health Communication Institute, School of Public Health, Fudan University, Shanghai, China)

S29-4 WHO Core indicators of age-friendliness

Megumi Rosenberg (Technical Officer, WHO Centre for Health Development, Kobe, Japan)

S29-5 Extending indicators to dementia-friendliness

Toshiyuki Ojima (Professor, Department of Community Health and Preventive Medicine, Hamamatsu University school of Medicine, Hamamatsu, Japan)

Room C

8:30-11:00

Symposium 30**Factors determining success versus failure in the implementation of an HPV vaccine programme** *Funded by the Japan Society for the Promotion of Science**Moderators: Sharon J. B. Hanley** (Dept. of Women's Health Medicine, Graduate School of Medicine, Hokkaido University, Japan)
Eduardo L. Franco (Department of Oncology, Division of Cancer Epidemiology, McGill University, Canada)**S30-1 Preventing cervical cancer, why screening alone is not enough**

Sharon J. B. Hanley (Dept. of Women's Health Medicine, Graduate School of Medicine, Hokkaido University, Japan)

S30-2 Successful introduction of the HPV vaccine into Bhutan's routine immunization program

Tanjin Dorji (Chief, Healthcare and Diagnostics Division, Department of Medical Services, Ministry of Health, Bhutan)

S30-3 School based HPV vaccination: Why it works for Malaysia

Saidatul Norbaya Buang (Chief Senior Assistant Director, Family Health Development Division, Ministry of Health, Malaysia)

S30-4 The success of the HPV vaccination program in Australia: public trust and the importance of effective public health practices to support vaccination

Julia M. L. Brotherton (Director, National HPV Vaccination Program Register, Victorian Cytology Service, Australia)

S30-5 Why the Scottish HPV Immunisation Programme is successful: perspectives on maximizing and maintaining uptake

Sharon J. B. Hanley (Dept. of Women's Health Medicine, Graduate School of Medicine, Hokkaido University, Japan)

S30-6 HPV vaccination in Denmark: Pre-vaccination morbidity should be considered in the evaluation of HPV vaccine safety signals

Palle Valentiner-Branth (Head of Surveillance, Dept. of Infectious Disease Epidemiology & Prevention, Statens Serum Institut, Denmark)

S30-7 HPV vaccine - separating fact from fiction in Ireland

Brenda Corcoran (Director, National Immunisation Office, Health Service Executive, Ireland)

S30-8 Association between HPV vaccine and reported post-vaccination symptoms: Subgroup analyses of the Nagoya Study

Sadao Suzuki (Dept. of Public Health, Graduate School of Medicine, Nagoya University, Japan)

S30-9 A nationwide epidemiologic survey of adolescent patients with diverse symptoms including pain and motor dysfunction

Tomotaka Sobue (Dept. of Social and Environmental Medicine, Graduate School of Medicine, Osaka University, Japan)

Room C

13:00-14:30

Symposium 31

Desertification and Health: Human-Animal-Land Interaction in East Asia

Moderator: Shinji Otani (International Platform for Dryland Research and Education, Tottori University, Japan)

S31-1 Characteristics of aeolian dust emission and its controlling factors in East Asia

Yasunori Kurosaki (Arid Land Research Center, Tottori University, Japan)

S31-2 Health situation of population residing in Gobi-desert region and other areas of Mongolia

Dambadarjaa Davaalkham (Department of Epidemiology and Biostatistics, School of Public Health, Mongolian National University of Medical Sciences, Mongolia)

S31-3 Adverse effects of inhaled sand dust particles on the respiratory organs of sheep and goats in Mongolia

Akinori Shimada (Department of Pathology, Azabu University, Japan)

S31-4 Assessing health risks of exposure to Asian dust and health forecast using aerosol model among healthy individuals

Kazunari Onishi (Center for Birth Cohort Studies, Interdisciplinary Graduate school of Medicine, University of Yamanashi, Japan)

Room D

8:30-10:30

Symposium 32

Social determinants of health: translating evidence into action

Moderators: Hiroyasu Iso (Professor of Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, Osaka, Japan)

Eric Brunner (Professor of Social and Biological Epidemiology, UCL Department of Epidemiology and Public Health, London, UK)

S32-1 Social determinants of health translating evidence into action: UK experiences

Eric Brunner (Professor of Social and Biological Epidemiology, UCL Department of Epidemiology and Public Health, London, UK)

S32-2 Childhood poverty and health: what policy makers should know

Takeo Fujiwara (Professor, Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan)

S32-3 Health disparities in adult and older individuals in Japan: evidence for action

Naoki Kondo (Department of Health Education and Health Sociology, School of Public Health, The University of Tokyo, Japan)

S32-4 How does gender impact on the health disparities in Japan?

Kaori Honjo (Professor of Psychology and Behavior Sciences, Osaka Medical College, Takatsuki, Japan)

Room D

13:00-15:00

Symposium 33**Social Determinants of Health: Results from International Comparative Studies of British, Finnish, and Japanese Civil Servants****Moderators:** Eero Lahelma (University of Helsinki, Finland)

Tarani Chandola (University of Manchester, UK)

S33-1 Social Determinants of Health: Role of Psychosocial Stress at Work and Family Life

Michikazu Sekine (Department of Epidemiology and Health Policy University of Toyama, Japan)

S33-2 Social determinants of health behaviours and obesity: longitudinal studies

Eero Lahelma (Department of Public Health University of Helsinki, Finland)

S33-3 Social determinants of mental health in cultural contexts: an example of social contacts

Noriko Cable (Department of Epidemiology and Public Health, University College London, UK)

S33-4 Why are international comparative studies important for understanding the social determinants of health?

Tarani Chandola (Cathie Marsh Institute and Social Statistics, University of Manchester, UK)

Room F

9:30-10:30

Oral 36**Nutrition****Moderator:** George G Rhoads (School of Public Health, Rutgers University, NJ, USA)**O36-1 Differences in healthy eating attitudes by social factors in Japanese adults: NIPPON DATA 2010**

Sayuri Goryoda (The Disease Prevention Science Course, Tokyo Medical and Dental University, Tokyo, Japan / National Institute of Biomedical Innovation, Health and Nutrition)

O36-2 Body size across life and leukocyte telomere length: Findings from the 1946 British birth cohort

Wahyu Wulaningsih (MRC Unit for Lifelong Health and Ageing, University College London, UK)

O36-3 Associations between Eating Behavior and Nutritional Intake in Japanese with Metabolic Syndrome

Akemi Morita (Department of Nutrition, Koshien University, Takarazuka, Hyogo, Japan)

O36-4 Contribution to the understanding of how PCA-derived dietary patterns emerge from habitual data on food consumption

Carolina Schwedhelm (Department of Epidemiology, German Institute of Human Nutrition, Nuthetal, Germany)

O36-5 The Effect of Partial Gastrectomy on Late Incidence of Diabetes and Insulin Resistance in the Honolulu Heart Study

George G Rhoads (School of Public Health, Rutgers University, NJ, USA)

Room F

10:30-11:30

Oral 37

Physical activities

Moderators: Alex Antonio Florindo (School of Arts, Sciences and Humanities, University of Sao Paulo, Brazil / Graduate Program in Nutrition in Public Health, Department of Nutrition / School of Public Health / University of Sao Paulo, Brazil)

Bo-Cheng Lin (Research Center for Humanities and Social Sciences, Academia Sinica, Taipei, Taiwan)

O37-1 Objectively-measured neighborhood walkability and change in physical activity of Japanese older adults: a five-year cohort study

Hiroyuki Kikuchi (Department of Preventive Medicine and Public Health, Tokyo Medical University, Tokyo, Japan)

O37-2 Built environment and physical activity in Sao Paulo city, Brazil

Alex Antonio Florindo (School of Arts, Sciences and Humanities, University of Sao Paulo, Brazil / Graduate Program in Nutrition in Public Health, Department of Nutrition, School of Public Health, University of Sao Paulo, Brazil)

O37-3 Physical activity among dubai population, prevalence and associated factors

Hamed Y Hussien (Public Health, Faculty of Medicine, University of Baghdad, Baghdad, Iraq)

O37-4 The association between community greenspace and fasting glucose from a large cohort study in Taiwan

Bo-Cheng Lin (Research Center for Humanities and Social Sciences, Academia Sinica, Taipei, Taiwan)

O37-5 Validity of the Global Physical Activity Questionnaire (GPAQ) in rural and urban population: the case of Bangladesh

Shirin Jahan Mumu (School of Science & Health, Western Sydney University, Australia / Dept of Epidemiology, Bangladesh University of Health Sciences (BUHS), Bangladesh)

Room G

8:30-9:30

Oral 38

Epidemiological methodology 2

Moderator: TBD

O38-1 Statistical approach which allows varying effects of time-dependent covariates during long-term follow-up in cohort studies

Kazutaka Doi (Radiological Science Research and Development Directorate, National Institute of Quantum and Radiological Science and Technology, Chiba, Japan)

O38-2 Innovative research strategies for studying the effectiveness of eHealth interventions: a methodological review

Ram Chandra Bajpai (Centre for Population Health Sciences (CePHaS), Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore)

O38-3 External adjustment of unmeasured confounders in a case-control study of benzodiazepines and cancer risk (Denmark)

Lau Caspar Thygesen (National Institute of Public Health, University of Southern Denmark, Copenhagen, Denmark)

O38-4 Prevalence of gestational diabetes mellitus in India: A systematic review and meta-analysis

Mohan Bairwa (Public Health and Epidemiology, Institute of Health Management Research, IIMR University, Jaipur, India)

Room G

9:30-10:30

Oral 39

Epidemiological methodology 3

Moderator: Alinune Nathanael Kabaghe (School of Public Health and Family Medicine, College of Medicine, University of Malawi, Malawi / Academic Medical Center, University of Amsterdam, Netherlands)

O39-1 Evaluating the completeness of HIV surveillance using capture-recapture models, Alameda County, California USA

Paul Douglas Wesson (Division of Prevention Science, University of California, San Francisco, CA, USA)

O39-2 Adaptive geostatistical sampling enables efficient identification of malaria hotspots in repeated cross-sectional surveys in Malawi

Alinune Nathanael Kabaghe (School of Public Health and Family Medicine, College of Medicine, University of Malawi, Malawi / Academic Medical Center, University of Amsterdam, Netherlands)

O39-3 Using linked primary care data to assess bias due to dropout: estimating the association between smoking in pregnancy and offspring depression in a UK cohort

Rosie P Cornish (School of Social and Community Medicine, University of Bristol, UK)

O39-4 The weekly associations between climatic factors and *P. vivax* and *P. falciparum* malaria in China, 2005-2014

Samuel Haile Hundessa (Division of Epidemiology and Biostatistics, The University of Queensland, Australia)

Room G

10:30-11:30

Oral 40

Epidemiological methodology 4

Moderator: Ravindra Mohan Pandey (Department of Biostatistics, All India Institute of Medical Sciences, New Delhi, India)

O40-1 The methodology for a composite indicator of global safety, i.e. freedom from unintentional injury

David Stuart Wroth (Public Safety Office, Underwriters Laboratories Inc., Northbrook, IL, USA)

O40-2 How to summarize exposure to adiposity for the prediction of metabolic outcomes? A study in the EPITeen cohort, Portugal

Joana Araujo (Epidemiology Research Unit (EPIUnit), Instituto de Saude Publica, Universidade do Porto, Portugal)

O40-3 Comparison of statistical models for prognostication of patients with traumatic brain injury in India

Ravindra Mohan Pandey (Department of Biostatistics, All India Institute of Medical Sciences, New Delhi, India)

O40-4 Assessment of nonresponse bias in smoking prevalence by sex and age in the 2013 Japan National Health and Nutrition Survey

Nayu Ikeda (Center for International Collaboration and Partnership, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan)

Room G

13:00-14:00

Oral 41

Infectious diseases 2

Moderator: Timo Smieszek (Statistics, Modelling and Economics Department, Public Health England, London, UK / Department of Infectious Disease Epidemiology, Imperial College London)

O41-1 Incidence and risk factors associated with Blastocystis infection in a rural community, Thailand

Warit Chuengdee (Department of Parasitology, Phramongkutklao College of Medicine, Bangkok, Thailand)

- O41-2 Use of antibiotics by condition in English primary care and potentials for reducing antibiotic prescribing**
Timo Smieszek (Statistics, Modelling and Economics Department, Public Health England, London, UK / Department of Infectious Disease Epidemiology, Imperial College London)
- O41-3 Antimicrobial Stewardship Intervention in an Orthopaedics Department of a Tertiary Care Hospital: a Controlled Interrupted Time Series Study**
Margarida Tavares (Department of Infectious Diseases, Centro Hospitalar Sao Joao, Porto, Portugal)
- O41-4 The change of Japanese vaccination system and its influence on the excess mortality from influenza: mandatory mass schoolchildren vaccination or optional vaccination?**
Kenichi Ohmi (Department of Health Promotion, National Institute of Public Health, Saitama, Japan)
- O41-5 Vaccination coverage in Low and Middle Income Countries**
Olatunji Adetokunboh (Division of Community Health, Stellenbosch University, Cape Town, South Africa)

Poster Presentation Room

11:50-12:50

Poster Presentation 3

- P3-1 Are maternal deaths underreported?-A community based study from a mountainous state of India**
Anupam Parashar (Department of Community Medicine, Indira Gandhi Medical College & Hospitals, Shimla, India)
- P3-2 High total energy consumption during early pregnancy is not associated with fetal macrosomia but excessive gestational weight gain in Chengdu: a multicenter prospective cohort study**
Xiong-Fei Pan (Department of Epidemiology and Biostatistics, School of Public Health, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China)
- P3-3 Use of Mobile phones and other factors associated with involvement in road traffic accidents by vehicle drivers in Abuja, Nigeria, 2015**
Abimbola F. Aman-Oloniyo (Public Health, Walden University, Abuja, Nigeria)
- P3-4 Effect of caesarean section on breastfeeding practices in China: a systematic review and meta-analysis**
Jian Zhao (Department of Epidemiology and Biostatistics, Curtin University, Perth, Australia)
- P3-5 Epidemiological investigation of intentional exogenous intoxication among adolescents in the city of Curitiba Brazil**
Milena da Costa (Faculdades Pequeno Principe, Brazil)
- P3-6 Association between cesarean delivery and obesity in children and adolescent in China: a national survey**
Jingjing Liang (School of Public Health, Sun Yat-Sen University, Guangzhou, China)
- P3-7 Iron, Folic Acid and Vitamin B-12 Deficiencies in Children of 11-18 Years of Age in India**
Umesh Kapil (Human Nutrition Unit, All India Institute of Medical Sciences, India)
- P3-8 Coagulation factors and the risk of ischemic heart disease: a Mendelian randomization study**
Jie V. Zhao (School of Public Health, The University of Hong Kong, Hong Kong SAR)
- P3-9 Evaluating the causal effect of vitamin D on pregnancy-induced hypertension and pre-eclampsia using a Mendelian Randomization approach**
Maria Christine Magnus (MRC Integrative Epidemiology Unit, University of Bristol, UK / School of Social and Community Medicine, University of Bristol, Bristol / Domain for Mental and Physical Health, Norwegian Institute of Public health, Oslo, Norway)
- P3-10 Life course body size, age at menarche and DNA methylation age in mid-life; Findings from a British birth cohort**
Jane Maddock (MRC Unit for Lifelong Health and Ageing, University College London, UK)

- P3-11 Oral Health Information in the syllabus of three major secondary school boards in Karnataka, India - A Content Analysis**
Harikiran Govindaraju Arkalgud (Department of Public Health Dentistry, D.A.P.M.R.V.Dental College and Hospital, India)
- P3-12 Relationship between Self-Rated Health and Food Habits in High School Students**
Tomoko Osera (Hygiene and Preventive Medicine, Graduate School of Life Science, Kobe Women's University, Kobe, Japan / Takakuradai Kindergarten attached to Kobe Women's University)
- P3-13 Pain problems of patients with chronic obstructive pulmonary disease from urban Chinese communities**
Tian Xiao (School of Public Health, Key Laboratory of Public Health Safety, and Pudong Preventive Medicine Institute, Fudan University, Shanghai, China)
- P3-14 Birth weight and childhood adiposity: a spurious association due to confounding by twins' shared factors? - evidence from a study among Portuguese twins**
Henrique Barros (Institute of Public Health, University of Porto, Portugal)
- P3-15 Snakebites in Cameroon, between exposure and use of traditional cares**
Justin Bienvenu Eyong (Division of Public health, Cameroon Society of Epidemiology (CaSE), Cameroon / African Epidemiological Association (AEA), Lilongwe, Malawi)
- P3-16 The association between work-life balance, inflammatory markers and depressive symptoms in the Whitehall II study, United Kingdom**
Tahera Razavi (Epidemiology and Public Health, University College London, UK)
- P3-17 Serum gamma-glutamyl transferase and cardiovascular disease risk factors in older Chinese: a Mendelian randomization study**
Lin Xu (School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China)
- P3-18 Study of risk factors of pre-eclampsia: a hospital based case control study in marathwada region of India**
Mohan Kondiba Doibale (Community Medicine, Govt. Medical College, Aurangabad, Maharashtra, India)
- P3-19 Mothers' dietary intake and behaviors in Japan**
Yukie Iizuka (Graduate School of Medicine, Osaka University, Suita, Osaka, Japan)
- P3-20 Determinants of waterpipe tobacco smoking among Lebanese women**
Karim N. Daou (Department of Epidemiology and Population Health, Faculty of Health Sciences, American University of Beirut (AUB), Beirut, Lebanon)
- P3-21 Adversity in childhood and measures of ageing in mid-life: Evidence from a prospective cohort study of women**
Emma L Anderson (School of Social and Community Medicine, University of Bristol, UK)
- P3-22 Is 40 the New 30? Age-period-cohort effects in pre-existing and pregnancy-associated disease in primiparous women in the United States**
Amy Metcalfe (Department of Obstetrics and Gynecology, University of Calgary, Canada / Department of Medicine, University of Calgary / Department of Community Health Sciences, University of Calgary)
- P3-23 The effect of a smoking ban on university students' smoking and exposure to secondhand smoke: a two-year longitudinal study**
Hiroko Tobari (Department of Pharmacy, Tokyo University of Pharmacy and Life Sciences, Tokyo, Japan / Department of Public Health Medicine, Graduate School of Comprehensive Human Sciences, and Institute of Community Medicine, University of Tsukuba)
- P3-24 Perceptions of the work by those who are adopted as a civil servant**
Keiko Fujiwara (Division of Public health, University of Human Environments Graduate School Department of Nursing Research, Obu, Aichi, Japan)

- P3-25 The simplified autism spectrum disorder screening effects in health examination for starting primary school**
Atsushi Toki (Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-26 Associations between smart device usage of Hong Kong children and adolescents and their caregivers: A population-based cross-sectional study**
Paul H Lee (School of Nursing, Hong Kong Polytechnic University, Hong Kong SAR)
- P3-27 Heart rate variability reactivities to acute stress and sickness absence among Japanese men and women: a prospective study**
Kumi Hirokawa (Department of Nursing, Baika Women's University, Ibaraki, Osaka, Japan / Graduate School of Medicine, Osaka University)
- P3-28 The effect of health-checks for 5year olds' in the early deflection of developmental disorders**
Yoriko Noujima (Public health, Shubun University, Aichi, Japan)
- P3-29 A comparative study of Automated Blood Pressure monitor and Mercury free LED Sphygmomanometer Device in establishing concordance and validity**
Shashi Bhushan Singh (Department of Preventive and Social Medicine, Rajendra Institute of Medical Sciences, Bariyatu, Ranchi, Jharkhand, India)
- P3-30 Association between dental caries and growth in Korean children**
Dong-Hun Han (Department of Preventive and Social Dentistry, Seoul National University, Seoul, Republic of Korea)
- P3-31 Associations between Job Stress and Lifestyle Behaviors**
Katsunori Adachi (Psychiatric Nursing, Department of Nursing, Shubun University, Aichi, Japan / Department of Occupational Health, Gifu University Graduate School of Medicine)
- P3-32 Mid-regional pro-adrenomedullin levels are associated with progression of deep white matter lesions in the brain accompanying cognitive decline**
Nagato Kuriyama (Department of Epidemiology for Community Health and Medicine, Kyoto Prefectural University of Medicine, Kyoto, Japan)
- P3-33 Association of Age with Refractive Change: 5 Years Prospective Study against 287, 019 Japanese Eyes**
Masao Yoshida (Department of Public Health, Kyorin University School of Medicine, Tokyo, Japan)
- P3-34 Partners' functional disability and psychological distress in elderly Japanese: The Ohsaki Cohort 2006 Study**
Toshimasa Sone (Department of Rehabilitation, Faculty of Health Science, Tohoku Fukushi University, Sendai, Japan / Division of Epidemiology, Department of Health Informatics and Public Health, Tohoku University School of Public Health, Graduate School of Medicine)
- P3-35 Factors related to subjective physical fitness of schoolchildren: A longitudinal study**
Yuko Sawada (Division of Physical Therapy, Morinomiya University of Medical Sciences, Osaka, Japan)
- P3-36 Estimated prevalence of ulcerative colitis and Crohn's disease in Japan in 2014: a nationwide survey**
Yoshitaka Murakami (Department of Medical Statistics, Toho University, Tokyo, Japan)
- P3-37 Genome wide association study on pollinosis in a Japanese population: The J-MICC Study**
Ryosuke Fujii (Department of Pathophysiological Laboratory Sciences, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan)
- P3-38 Health-related quality of life and total knee or hip replacement in persons with osteoarthritis: A case-control study**
Jacek A. Kopec (School of Population and Public Health, University of British Columbia, Canada / Arthritis Research Canada)

- P3-39 Impact of Cystatin C and Microalbuminuria on Cognitive Impairment in the Population of Community-Dwelling Japanese**
Hisashi Adachi (Department of Internal Medicine, Division of Cardio-Vascular Medicine, Kurume University School of Medicine, Kurume, Fukuoka, Japan)
- P3-40 Prevalence and Factors Associated with Healthcare Service Use among Chinese Elderly with Disabilities**
Xiaoying Zheng (Institute of Population Research, APEC Health Science Academy, Peking University, China)
- P3-41 Benefits of Bathing in Nagayu hot spring**
Yasuaki Goto (Onsen Medical Science Research Center, Japan Health & Research Institute, Tokyo, Japan / Hamamatsu Medical University)
- P3-42 Reasons of an Unavailability of an End-of-Life Care Bonus in Japanese Nursing Homes**
Sho Nishiguchi (School of Medicine, Yokohama City University, Yokohama, Kanagawa, Japan / Department of General Internal Medicine, Shonan Kamakura General Hospital)
- P3-43 Changes in child-rearing environment and prevention of maltreatment for pre-school children: Evidence from the 15 years Cohort Study**
Emiko Tanaka (Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan / Japan Society Promotion Science)
- P3-44 Depressive symptoms and future ADL dependence in older Japanese: the Kurabuchi Study**
Takahiro Nakamura (Division of Environmental and occupational health, Department of Social medicine, Toho University, Tokyo, Japan)
- P3-45 Clinical manifestations and treatment of Behcet's disease in Japan: Analysis of a clinical database of patients receiving financial aid for treatment**
Michiko Kurosawa (Department of Epidemiology and Environmental Health, Juntendo University Faculty of Medicine, Tokyo, Japan)
- P3-46 Cardiovascular diseases and associated factors among the elderly in Sao Paulo, Brazil, 2000-2010**
Kaio Massa (Department of Epidemiology, School of Public Health, University of Sao Paulo, Brazil)
- P3-47 Shared etiology between attention-deficit/hyperactivity disorder and severe obesity**
Qi Chen (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden)
- P3-48 Efficacy of a roleplay on the hazard prediction training (Kiken-Yochi-Training; KYT) for nursing students: A Randomized controlled trial**
Yasuyo Sato (Division of Health Science, Graduate School of Saitama Prefectural University, Koshigaya, Saitama, Japan / Japan University of Health Sciences)
- P3-49 Status of illness or injury associated with at-home bathing services provided by long-term care insurance**
Shinya Hayasaka (Faculty of Human Life Sciences, Tokyo City University, Tokyo, Japan / Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine)
- P3-50 Measurement of cut-off day between admission and surgical intervention, for reduced mortality of patients with hip fractures using Japanese nationwide administrative database**
Yuichi Nishioka (Department of Public Health, Health Management and Policy, Nara Medical University, Nara, Japan)
- P3-51 Analysis on hospitalization costs in 12345 inpatients with digestive tract tumor in a general hospital in Changzhi**
Xiangxian Feng (Department of Epidemiology, Changzhi Medical College, Shanxi, China)
- P3-52 Incidence of aplastic anemia in Japan**
Akiko Ohta (Division of Public Health, Department of Social Medicine, Saitama Medical University Faculty of Medicine, Saitama, Japan)
- P3-53 Dietary n-3 polyunsaturated fatty acids in late pregnancy and postpartum depression among Japanese women**
Minatsu Kobayashi (Department of Food Science, Otsuma Women's University, Tokyo, Japan)

- P3-54 Current condition of earthquake countermeasures in place at pharmacies**
Kayoko Ozeki (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-55 Current Status of the Taiwan Biobank**
Pei Ei Wu (Taiwan Biobank, Academia Sinica, Taipei, Taiwan / Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan)
- P3-56 Bullying in Ciudad Juarez, Mexico: a socio-epidemiological perspective**
Maria Guadalupe Vega-Lopez (University Center of Health Sciences, University of Guadalajara, Mexico)
- P3-57 Use of paracetamol, ibuprofen or aspirin in pregnancy and risk of cerebral palsy in the child: A cohort study based on two Scandinavian birth cohorts**
Katrine Strandberg-Larsen (Section of Social Medicine, Department of Public Health, University of Copenhagen, Denmark)
- P3-58 A new approach to identify hotspots of obesity, cardiovascular disease and type 2 diabetes in Australian communities to inform policy and practice**
Kayla Smurthwaite (Department of Health Services Research and Policy, Australian National University, Acton, Australia)
- P3-59 Trends in hospitalization due to falls elderly inhabitant in the amazon region - Brazil**
Greiciane da Silva Rocha (Center for Health and Sport Sciences, Federal University of Acre, Brazil)
- P3-60 Moral sensitivity and empathy disposition of nursing university students in Japan; A cross-sectional study**
Taeko Muramatsu (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-61 The current treatment of Parkinson's disease in Japan: a retrospective Japanese claims database analysis**
Manami Yoshida (Japan Medical Affairs, Takeda Pharmaceutical Company Limited, Tokyo, Japan)
- P3-62 Prenatal exposure to alcohol and hearing impairment in children: large scaled study on early childhood health checkup from 2000 to 2013 in Japan**
Satomi Yoshida (Department of Pharmacoepidemiology, Graduate School of Medicine and Public Health, Kyoto University, Kyoto, Japan)
- P3-63 Pre-pregnancy maternal weight predicts body fat mass of offspring in Japanese children**
Yuki Fujita (Department of Public Health, Kindai University Faculty of Medicine, Osaka-Sayama, Osaka, Japan)
- P3-64 Related factors of regional difference in death at home, Saitama**
Nobuko Yamaguchi (Department of Nursing, School of Health and Social Services, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P3-65 Psychosomatic Symptom Is Useful Indicator of Burnout Among Faculties and Medical Specialists at a private University**
Yuki Chatani (Department of Anesthesiology, Saitama National Hospital, Japan)
- P3-66 Comparison of characteristics between participants and non-participants of a sub-cohort study: The Japan Environment and Children's Study**
Miri Sato (Center for Birth Cohort Studies, University of Yamanashi, Japan)
- P3-67 Food safety knowledge, attitude and self-reported practice among middle school students in beijing, china: a cross-sectional study**
Siyan Zhan (Department of Epidemiology and Biostatistics, Peking University School of Public Health, Peking University, Beijing, China)
- P3-68 Governance aspects drive inequalities in Universal Health Coverage for Maternal, Newborn and Child Health**
Fernando C Wehrmeister (Social Medicine Department, Federal University of Pelotas, Brazil / International Center for Equity in Health, Federal University of Pelotas)

- P3-69 Unexpectedly low prevalence of anemia among school children enrolled in biannual deworming program in Ziway, Ethiopia**
Molly Bloomenthal (Department of Biology, Colgate University, USA)
- P3-70 Risk of Mild Cognitive Impairment Associated to Lifestyle Factors in Adults older than 60 years old**
Luis Osvaldo Martinez (Epidemiology, Mexican Institute of Social Security, Mexico / Universidad Nacional Autonoma de Mexico)
- P3-71 Prospective validity of a screening tool recommended for Japanese Stress Check Program at worksite**
Akizumi Tsutsumi (Department of Public Health, Kitasato University School of Medicine, Sagamihara, Japan)
- P3-72 Heritability of birth size: a pooled individual-based analysis of secular trends and global geographical differences using 26 twin cohorts**
Yoshie Yokoyama (Department of Public health nursing, Osaka City University, Osaka, Japan)
- P3-73 Differences in the heritability of adult body mass index by sex, age, time period and region: a global individual-based pooled analysis of 40 twin cohorts**
Karri Silventoinen (Department of Social Research, University of Helsinki, Finland)
- P3-74 Preparation for decision making among Japanese home care patients and their families**
Shuji Tsuda (Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-75 Mental health and quality of life are strongly associated to occupational stress: a study with workers from a youth custody centre in Brazil**
Fernando Ribas Feijo (Centre for Epidemiological Research, Federal University of Pelotas, Brazil / Centre for Epidemiological Research / Federal University of Santa Maria)
- P3-76 Disease burden of genes from past to present: the Family Tree Mortality Ratio**
Jan P Vandenbroucke (Clinical Epidemiology, Leiden University Medical Center, The Netherlands)
- P3-77 Characteristics of overwork-related mental disorders and suicide among compensated cases of young employees in Japan since 2010**
Takashi Yamauchi (Research Center for Overwork-related Disorders, National Institute of Occupational Safety and Health, Kawasaki, Kanagawa, Japan)
- P3-78 Gestational weight gain to prevent from low birth weight and macrosomia infants in 8152 Japanese women with singleton pregnancies**
Kyoko Nomura (Department of Hygiene and Public Health, Teikyo University School of Medicine, Tokyo, Japan)
- P3-79 The role of antenatal care in predicting birth preparedness among rural women in Tanzania**
Deogratus Felician Bintabara (Department of Global Health Entrepreneurship, Division of Public Health, Graduate School of Tokyo Medical and Dental University, Tokyo, Japan / Department of Public Health, College of Health Sciences, The University of Dodoma, Dodoma, Tanzania)
- P3-80 Maternal Dietary Survey and Behavior: A Comparison with Weight Gain during Pregnancy in Japanese Women**
Takako Yasuda (Faculty of Nursing, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-81 Prevalence and predictors of prescription opioid use during pregnancy in Hawaii**
Emily K. Roberson (Department of Public Health, Hawaii Pacific University, USA)
- P3-82 Prevalence of sleep-disordered breathing among young working women in Japan**
Yuka Suzuki (Department of Public Health, Juntendo University Graduate School of Medicine, Tokyo, Japan)
- P3-83 Maternal nutrition counseling offered during pregnancy reduces low birth weight among infants born in Nairobi slums, Kenya**
Carolyn Kemunto Nyamasege (Clinical Trials and Clinical Epidemiology, University of Tsukuba, Tsukuba, Ibaraki, Japan)

- P3-84** **Toward an Epidemiological Perspectives of Sexual Education based on Sexual Behavior for Female College Students**
Miyuki Tamura (Department of Early Childhood Education, Shukutoku Junior College, Tokyo, Japan)
- P3-85** **Changes in Health Behaviors and the Trajectory of Body Mass Index among Older Japanese: A 19-year Longitudinal Study**
Hiroshi Murayama (Institute of Gerontology, The University of Tokyo, Tokyo, Japan)
- P3-86** **Reconstruction of occupational radiation doses and organ doses of radiologic technologists in Korea**
Yeongchull Choi (Department of Preventive Medicine, Korea University, Seoul, Republic of Korea)
- P3-87** **Assessment of cold chain points for routine immunization at primary health centres in the bhojpur district of Bihar, India**
Sanjay Pandey (Department of Community Medicine, All India Institute of Medical Sciences, Patna, India)
- P3-88** **Trajectories of maternal blood pressure during pregnancy grouped by pregestational weight status**
Kohta Suzuki (Department of Health and Psychosocial Medicine, Aichi Medical University, School of Medicine, Nagakute, Aichi, Japan)
- P3-89** **The association between social media sources for health information and healthcare utilization in Vietnam**
Hoang Thuy Linh Nguyen (Department of Global Health Entrepreneurship, Division of Public Health, Graduate School of Tokyo Medical and Dental University, Tokyo, Japan / Faculty of Public Health, Hue University of Medicine and Pharmacy, Vietnam.)
- P3-90** **Association among anthropometry, body composition, and eating behavior in Japanese school children**
Harunobu Nakamura (Department of Health Education and Promotion, Graduate School of Human Development and Environment, Kobe University, Kobe, Hyogo, Japan)
- P3-91** **Five-year changes in smoking prevalence by company size from Japanese occupational health checkup data (8th ZRF study)**
Satsue Nagahama (Division of Occupational Health and Promotion, All Japan Labour Welfare Foundation, Tokyo, Japan / Department of Environmental and Occupational Health, Toho University)
- P3-92** **Comparison of children's bathing habits and differences in who bathes with the child**
Iwao Sonoda (Faculty of Human Life Science, Tokyo City University, Tokyo, Japan / Japan College of Social Work)
- P3-93** **Health effects from occupational radiation exposure among interventional medical workers: A systematic review**
Won Jin Lee (Department of Preventive Medicine, Korea University College of Medicine, Seoul, Republic of Korea)
- P3-94** **Migration status and self-reported morbidities: analysis of three prevalent morbidities in Gauteng province, South Africa**
Jabulani Ronnie Ncayiyana (Division of Epidemiology and Biostatistics, University of the Witwatersrand, School of Public Health, South Africa)
- P3-95** **Review of quantitative methods to evaluate prenatal care adequacy in Brazil**
Matheus Souza Ferreira (Mastering student of the Epidemiology Department, School of Public Health, University of Sao Paulo, Brazil)
- P3-96** **Fragility and anemia in elderly living in the community, Belo Horizonte, Brazil**
Carlos M F Antunes (Instituto de Ensino e Pesquisa, Santa Casa de Belo Horizonte, Brazil)
- P3-97** **Testing the significance of the spatial effect using R-INLA: analyzing Korea Community Health Service (KCHS), 2012 (Seoul)**
Hayon Michelle Choi (Graduate School of Public Health, Seoul National University, Seoul, Republic of Korea)

- P3-98 Primary results of a 10-years follow-up of a RCT on Emergency Department-Initiated Tobacco Control in Germany**
Bruno Neuner (Department of Anesthesiology and Intensive Care Medicine, Charite-Universitaetsmedizin Berlin, Berlin, Germany)
- P3-99 Baseline survey with the purpose of developing adolescent peer activities for reconstruction support in the wake of the Great East Japan Earthquake**
Ritsuko Hattori (Faculty of Health Science, Naragakuen University, Nara, Japan)
- P3-100 Influence of subjective economic status on new-onset neck pain (So-called Katakori) after the Great East Japan Earthquake: Longitudinal study in Miyagi prefecture**
Takuya Sekiguchi (Division of Epidemiology, Department of Health Informatics and Public Health, Tohoku University Graduate School of Medicine, Sendai, Miyagi, Japan / Department of Orthopedic Surgery, Tohoku University Graduate School of Medicine)
- P3-101 Maternal And Perinatal Factors Associated With Early Childhood Caries In South Australian Children**
Karen G Peres (Division of Epidemiology, The University of Adelaide, Australia)
- P3-102 Simvastatin dose and acute kidney injury without concurrent muscle injury: a New Zealand nationwide nested case-control study**
Lianne Parkin (Department of Preventive and Social Medicine, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand)
- P3-103 Features of functional training in Outpatient Day Long-Term Service in Japan- Analysis of Long-Term Care Service Information database in Saitama Prefecture**
Fumie Tokiwa (Department of Nursing, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P3-104 Association of lifestyles, occupational factors, and marital status with 3-year changes in visceral fat accumulation among adults in Japan**
Keisuke Kuwahara (Graduate School of Public Health, Teikyo University, Tokyo, Japan / Teikyo University Graduate School of Public Health)
- P3-105 Design and methods of the Genome Cohort on Psychosocial Traits Study (GCOP Study)**
Takeshi Nishiyama (Department of Public Health, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan)
- P3-106 Poor birth outcomes among Aboriginal Western Australians largely attributable to smoking and poor maternal health**
Alison Gibberd (School of Public Health, University of Sydney, Australia)
- P3-107 Mitochondrial haplogroups modify the effect of physical activity on urinary levels of 8-hydroxydeoxyguanosine in middle-aged Japanese subjects**
Megumi Hara (Department of Preventive Medicine, Faculty of Medicine, Saga University, Saga, Japan)
- P3-108 Smoking, drinking, adiposity and mortality in the Trivandrum Urban/Rural Tobacco Study**
Shenoy K T (Population Health and Research Institute, Pazhaya Road, Medical College PO, Trivandrum, India)
- P3-109 LPL Methylation Levels in Leukocyte and fatty liver in a Japanese Population**
Hiroya Yamada (Department of Hygiene, Fujita Health University School of Medicine, Toyoake, Aichi, Japan)
- P3-110 Association between brachial-ankle pulse wave velocity and osteoporotic fracture risks in Japanese women over 10 years: the Japanese Population-based Osteoporosis (JPOS) Cohort Study**
Junko Tamaki (Department of Hygiene & Public Health, Osaka Medical College, Takatsuki, Osaka, Japan)
- P3-111 Trends in the proportion of male births in Japan based on the birth attributes in 1947-2015**
Mihoko Takahashi (Department of Social Medicine, Faculty of Medicine, Saitama Medical University, Saitama, Japan)
- P3-112 Relationship between Obesity and Serum Levels of Reactive Oxygen Metabolites in Elementary School Students**
Terumi Kogawa (Faculty of Health Science, Aomori University of Health and Welfare, Aomori, Japan)

- P3-113 Low frequency of leaving home as a predictor of future trajectories of functional disability among older adults in Japan: the JAGES cohort study**
Junko Saito (Department of Health and Social Behavior, Department of Health Education and Health Sociology, School of Public Health, The University of Tokyo, Tokyo, Japan)
- P3-114 Some predictors of physical disability among rheumatoid arthritis patients attending rheumatology clinics in the Colombo district in Sri Lanka**
Anoma Mohotti Basnayake (Nutrition Division, Ministry of Health, Nutrition & Indigenous Medicine, Sri Lanka)
- P3-115 Establishing patterns of the body mass index trajectory in Japanese children**
Chiyori Haga (Department of Health Science, Okayama University, Okayama, Japan)
- P3-116 Differences in dietary intake and meal time among pregnant women who increased or decreased dietary intake during morning sickness**
Eri Abe (Department of Food Science, Otsuma Women's University, Tokyo, Japan)
- P3-117 Interaction of sleep duration and daytime napping on body composition: a population-based cross-sectional survey in China**
Xiaoguang Ma (Department of Nutrition and Food Hygiene, School of Public Health, Zhejiang University, Zhejiang, China)
- P3-118 Impact of an Epidemiological Research Masters program in Peru**
Bladimir O Morales (Faculty of Public Health, Universidad Peruana Cayetano Heredia, Peru / Emerge, Emerging Diseases and Climate Change Research Unit, School of Public Health and Administration, Universidad Peruana Cayetano Heredia)
- P3-119 Prevalence and risk factors of antenatal depressive symptoms - results from the TRACER Study in Kuwait**
Despina Pampaka (Cyprus International Institute for Environmental and Public Health, Cyprus University of Technology, Limassol, Cyprus)
- P3-120 Family planning coverage by modern methods among sexually active women in low- and middle-income countries**
Aluisio Barros (Int Center for Equity in Health, Federal University of Pelotas, Brazil)
- P3-121 Factors associated with body mass index in brazilian children: structural equation model**
Gustavo Velasquez-Melendez (Department of Maternal Infant and Public Health, Federal of University of Minas Gerais, Brazil)
- P3-122 Prevalence of intestinal parasites and associated risk factors in school aged children enrolled in a biannual deworming program in Ziway, Central Ethiopia**
Grace VanValey (Biology Department, Colgate University, MA, USA)
- P3-123 Pilot work for the Japan epidemiological study of hematological cancers in children**
Kevin Y Urayama (Graduate School of Public Health, St. Luke's International University, Tokyo, Japan)
- P3-124 The meal valance of Japanese mothers whose BMI classification is underweight**
Makiko Noguchi (Faculty of Health Sciences, Hokkaido University, Sapporo, Hokkaido, Japan)
- P3-125 Cognitive function trends among a Japanese elderly population: Radiation Effects Research Foundation Adult Health Study**
Michiko Yamada (Departments of Clinical Studies , Radiation Effects Research Foundation, Hiroshima, Japan)
- P3-126 Risk Factors for Birth Defects among Liveborn and Stillborn Infants and by Maternal Race/ Ethnicity: Findings from the National Birth Defects Prevention Study**
Wendy N Nembhard (Division of Birth Defects Research, Department of Pediatrics, College of Medicine, University of Arkansas for Medical Sciences, Arkansas Childrens Research Institute, AR, USA)
- P3-127 Impact of time spent walking on incident dementia in elderly Japanese: The Ohsaki cohort 2006 study**
Yasutake Tomata (Division of Epidemiology, Tohoku University School of Public Health, Graduate School of Medicine, Sendai, Miyagi, Japan)

- P3-128 Self-rated health predicts 3-year decline in instrumental activities of daily living among non-disabled older people: a population-based prospective cohort study in Japan**
Kimiko Tomioka (Nara Prefectural Health Research Center, Nara Medical University, Nara, Japan)
- P3-129 Analysis of the area effort for structure of community-based integrated care systems**
Mitsushi Takeda (Social Medicine Department, Division of Social Medicine, Saitama Medical University, Saitama, Japan)
- P3-130 Recognition and practice of traditional practices for pregnancy, childbirth and postpartum among female Laotian immigrants in Japan**
Keiko Saito (Graduate school of Health Sciences, Saitama Prefectural University, Koshigaya, Saitama, Japan)
- P3-131 Factors That Inhibit Participation In Social Activities Of Japanese Elderly People**
Mariko Niikura (Department of Epidemiology and Health Policy, University of Toyama, Toyama, Japan)
- P3-132 Associations of frailty with health care utilization among community dwelling older adults: findings from a nationally representative survey in Taiwan**
Chia-Lin Li (Department of Health Care Management, Chang Gung University, Taiwan / Division of Endocrinology and Metabolism, Departments of Internal Medicine, Chang Gung Memorial Hospital, Chang Gung University, Tao-Yuan City, Taiwan)
- P3-133 Stress and Parkinson's disease: A case-control study in Japan**
Tetsuya Kawamoto (Department of Epidemiology and Preventive Medicine, Ehime University Graduate School of Medicine, Ehime, Japan / Research Fellow of the Japan Society for the Promotion of Science / Department of Education, Faculty of Letters, Keio University)
- P3-134 Age and sex differences of physical activity measured by tri-axial accelerometers among elderly people living in Japan**
Masahiro Ishikubo (Faculty of Nursing, Jobu University, Takasaki, Gunma, Japan / Graduate School of Health Sciences, Gunma University)
- P3-135 Risk score for onset of dementia among community dwelling older adults in Japan: An update**
Tami Saito (Department of Social Science, National Center for Geriatrics and Gerontology, Obu, Aichi, Japan)
- P3-136 Lower Serum Levels of MicroRNAs Are Associated with the Frontal Lobe Function in a Japanese Population**
Mari Kondo (Division of Preventive Medical Sciences, Fujita Health University Graduate School of Health Sciences, Toyoake, Aichi, Japan)
- P3-137 Relationships between family members smoking and pediatric inflammatory bowel disease: a case-control study of the Japanese pediatric inflammatory bowel disease research group**
Koji Uchiyama (Center for International Cooperation, Dokkyo Medical University, Tochigi, Japan)
- P3-138 Impact of education about disaster-related public health support activities on nursing students**
Hisako Nakamura (Division of Public health, Faculty of Nursing, Kwassui Women's University, Nagasaki, Japan)
- P3-139 The association of procrastination with metabolic syndrome in Japanese male workers**
Akihiko Narisada (Department of Health and Psychosocial Medicine, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan / Mitsubishi Electric Corporation)
- P3-140 Appendectomy, tonsillectomy and Parkinson disease risk: a Swedish register-based nested case-control study**
Bojing Liu (Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden / Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, MI, United States)
- P3-141 Trends in the caesarean section rate among term, singleton, cephalic nulliparous women in Belgium**
Wei-Hong Zhang (Research Laboratory for Human Reproduction, Faculty of Medicine, Universite Libre de Bruxelles (ULB), Belgium / Research Laboratory for Human Reproduction, Faculty of Medicine, Universite Libre de Bruxelles (ULB), Belgium.)

- P3-142 Associations of social participation and social participation by leading role with dementia onset in older Japanese: The AGES cohort study**
Yuta Nemoto (Graduate School of Sports Sciences, Waseda University, Tokorozawa, Saitama, Japan)
- P3-143 Work injuries among underage workers in the formal sector from 2004 to 2013 in Piracicaba, Sao Paulo State, Brazil**
Mariana Tavares Guimaraes (Epidemiology, School of Public Health, University of Sao Paulo, Brazil)
- P3-144 The influence of the 2008 financial crisis on the notifications of repetitive strain injuries and work-related musculoskeletal disorders in Piracicaba, Sao Paulo State, Brazil**
Maria Regina Alves Cardoso (Epidemiology, School of Public Health, University of Sao Paulo, Brazil)
- P3-145 Death by immersion and seizures in Canada, epidemiology and policy, a 23 year study**
Peter Barss (National Water Safety & Injury Prevention Program, Canadian Red Cross, Canada / UBC School of Population and Public Health)
- P3-146 Association between long sleep duration and long-term care or support in community-dwelling older adults in Japan**
Ichiro Miyano (Department of Public Health, Kochi Medical School, Kochi, Japan)
- P3-147 Incidence and risk factors of metabolic syndrome among population 9 year follow-up in Na Yao community Sanam Chai Khet District Chacheongsao Province, Thailand**
Tanaporn Apiraksaporn (Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand)
- P3-148 Prevalence and risk factors of metabolic syndrome among population in Na Yao community Sanam Chai Khet District Chacheongsao Province, Thailand**
Benyalak Kaewthanasin (Department of Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand)
- P3-149 Epidemiology; Mobile; Android Epi 7; mHealth**
Pradeep Aggarwal (Department of Community Medicine, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, India)
- P3-150 Base line survey of community-based approach with adolescents peer educator in Mongolia**
Shingo Esumi (School of Nursing, Jichi Medical University, Tochigi, Japan)
- P3-151 Epidemiology of drowning along the Gironde's oceanic coast in 2011-2013**
Eric Tellier (ISPED, Centre INSERM U1219 Bordeaux population health research, Universite de Bordeaux, Bordeaux, France / Univ. Bordeaux, ISPED, Centre INSERM U1219 Bordeaux population health research, Bordeaux, France / CHU de Bordeaux, Pole Urgences adultes SAMU-SMUR, Bordeaux, France)
- P3-152 Social support and long-term care need**
Toshiyuki Ojima (Department of Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan)
- P3-153 A study of Prevalence and associated factors of obesity and overweight among school-age children in Thai Rural community**
Teechaya Nonboonyawat (Military and Community Medicine, Phramongkutklao College of Medicine, Bangkok, Thailand)
- P3-154 Relationship between green tea intake and cognitive decline according to HbA_{1c} level among elderly Japanese residents: the National Institute for Longevity Sciences-Longitudinal Study of Aging**
Yoshiro Shirai (Section of NLS-LSA, National Center for Geriatrics and Gerontology, Obu, Aichi, Japan / Graduate School of Integrated Pharmaceutical and Nutritional Sciences, University of Shizuoka)
- P3-155 Relationships between Social Capitals and Functional Capacities among Frail Older Persons**
Takahiro Inoue (Department of home health nursing, Kwassui Women's University, Nagasaki, Japan / Kwassui Women's University)
- P3-156 Association of LINE-1 hypermethylation in Leukocyte with Cancer Mortality: the Yakumo Study**
Yoshiki Tsuboi (Division of Preventive Medical Sciences, Fujita Health University Graduate School of Health Sciences, Toyoake, Aichi, Japan)

- P3-157 Informal child care, birth order and childhood hospitalizations for wheezing disorders: evidence from Hong Kong's "Children of 1997" birth cohort**
June YY Leung (School of Public Health, The University of Hong Kong, Hong Kong SAR, China)
- P3-158 The relation between gestational serum oxytocin concentration and medical history in Japanese women**
Toshio Masumoto (Division of Health Administration and Promotion, Department of Social Medicine, Faculty of Medicine, Tottori University, Yonago, Tottori, Japan)
- P3-159 What are determinants to influence retention of qualified human resources for health in rural and difficult regions in Senegal?**
Takao Kojo (Division of Public health, Jichi Medical University, Tochigi, Japan)
- P3-160 Changes in cotinine and oxidative stress levels during the smoking cessation treatment and its association with physical and nutritional characteristics in Japanese smokers**
Shino Oba (Graduate School of Health Sciences, Gunma University, Gunma, Japan)
- P3-162 The second cohort of Biobank Japan Project: an interim report**
Akiko Nagai (Department of Public Policy, Institute of Medical Science, The University of Tokyo, Tokyo, Japan)
- P3-163 Factors associated with nursing students' desire to participate in public health support activities in disaster-stricken areas**
Tomoko Haraoka (Faculty of Nursing, Kwassui Women's University, Japan)
- P3-164 Preparation of bio-releasable micro-spherical polycaprolactone carriers with doxorubicin hydrochloride for acute lymphoblastic/myeloid leukemia test**
Pan Cheng Tang (Department of Mechanical and Electro-Mechanical Engineering and Institute of Medical Science and Technology, National Sun Yat-Sen University, Taiwan / Institute of Medical Science and Technology / National Sun Yat-Sen University)
- P3-165 Evaluation of the Stimulus Fund for Performance (FED): a conditional cash-transfer mechanism in Peru to improve sub-national managerial capacities in the public sector**
Daniel Alexis Antiporta (School of Public Health, Universidad Peruana Cayetano Heredia, Peru)
- P3-166 Prediabetes among healthy children aged 6-11 years in Al Ain, United Arab Emirates**
Ayaka Tokumaru (Department of Global Health, Medicine, and Welfare, Atomic Bomb Disease Institute, Nagasaki University, Nagasaki, Japan)
- P3-167 Unhealthy behaviours and health functioning: a follow-up study among middle-aged Finnish public sector employees**
Jouni Lahti (Department of Public Health, University of Helsinki, Finland)
- P3-168 Monitoring of children's development**
Etsuko Tomisaki (Nursing, Kyoritsu Women's University, Tokyo, Japan)
- P3-169 Associations of e-cigarettes, conventional cigarettes, and dual use with depression symptoms among Korean adolescents**
Christina Jeon (Department of Public Health, Graduate School, Yonsei University, Seoul, Republic of Korea / Department of Epidemiology and Health Promotion, Institute for Health Promotion, Graduate School of Public Health, Yonsei University)
- P3-170 An association between relapse of smoking in mothers of 3-4-month-old babies and municipalities' approach of maternal and child health measures in Japan**
Yuka Akiyama (Department of Health Sciences, School of Medicine, University of Yamanashi, Japan)
- P3-171 Health and long-term care costs at the end-of-life in Japanese patients with cancer, heart disease, and pneumonia**
Tomoko Terada (Department of Integrated Pulmonology, Tokyo Medical and Dental University, Tokyo, Japan)
- P3-172 Body mass index trajectory and risk of diabetes mellitus in Korean population: the Korean Genome and Epidemiology Study (KoGES)**
Jooeun Jeon (Department of Epidemiology and Health Promotion, Institute for Health Promotion, Graduate School of Public Health, Yonsei University, Seoul, Republic of Korea)

- P3-173 Family characteristics of child victims of domestic accidents in a French pediatric emergency department in 2016-2017**
Marion Bailhache (Department of general practice, University Hospital of Bordeaux, France / ISPED, Centre INSERM U-1219 Bordeaux Population Health Research Center, University of Bordeaux, France)
- P3-174 Empirical research on capability of informed assent around 7 year old children: A pilot study**
Izumi Ishiyama (Faculty of Education & Care of Early Childhood, Tokoha University, Fuji, Shizuoka, Japan)
- P3-175 The current situation of stroke-related sarcopenia in Japan**
Takahiro Hokimoto (Department of Clinical Trial and Clinical Epidemiology, Graduate School of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan)
- P3-176 Association between sleep quality deterioration and quality of life impairment study in voluntary firefighters from low-middle income country: A cross sectional study**
Edward Mezones-Holguin (Research and Development, School of Medicine, Universidad Peruana de Ciencias Aplicadas (UPC), Lima, Peru / Research and Development Department, Superintendencia Nacional de Salud (SUSALUD-Peruvian National Health Authority), Lima, Peru)
- P3-177 Hepatitis B markers among population born after universal vaccination in some urban and rural areas of Mongolia**
Oyu-Erdene Shagdarsuren (Department of Epidemiology and Biostatistics, Mongolian National University of Medical Sciences, Mongolia)
- P3-178 How does unemployment affect health-related quality of life among Swedish adults?**
Fredrik Norstrom (Division of Epidemiology and Global Health, Department of Public Health and Clinical Medicine, Umea University, Umea, Sweden)
- P3-179 Pathway analysis of participation in health intervention program and retirement age among middle-aged population in Sweden: a multivariate latent growth curve approach**
Ailiana Santosa (Centre for Demographic and Ageing Research, Umea University, Umea, Sweden)
- P3-180 Development of a fall-risk assessment profile for community-dwelling elders using Taiwan National Health Interview Survey**
Ping-Ling Chen (Graduate Institute of Injury Prevention and Control, Taipei Medical University, Taipei, Taiwan)
- P3-181 Japan Environment and Children's Study (JECS): Baseline characteristics of mothers, fathers, and their children**
Takehiro Michikawa (Japan Environment and Children's Study Programme Office, National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan)
- P3-182 Effect of Community Communication on HIV Preventive Behaviors among High Risk Groups: A Study in Uttar Pradesh**
Om Prakash Singh (Department of Community Medicine & Public Health, King George's Medical University U P, Chowk, India)
- P3-183 The effect of BMI on gestational age-specific fetal death rates**
Sarka Lisonkova (Department of Obstetrics and Gynaecology, University of British Columbia, Vancouver, Canada)
- P3-184 Status Of Antenatal Services In Rural Areas Of Lucknow, North India**
Vijay Kumar Singh (Department of Community Medicine & Public Health, King George's Medical University U P, Chowk, India)
- P3-185 On Regression Extension of Latent Class Models with Applications to Classify Different Types of Alcoholism based on a population-based prospective study**
Chin-Chieh Wu (Department of Emergency Medicine, Chang Gung Memorial Hospital, Keelung, Taiwan)
- P3-186 Development of an e-learning program on evidence-based-medicine for lay adult persons with interest in health**
Satoe Okabayashi (Health Service, Kyoto University, Kyoto, Japan)

- P3-187 BEYOND PATIENT CARE: THE IMPACT ON JOB SATISFACTION IN MONGOLIAN PUBLIC HEALTHCARE SECTOR**
Odongua Nemekhee (Department of Public Health Nursing, Mongolian National University of Medical Sciences, Mongolia)
- P3-188 Gene-environment wide interaction study on dyslipidemia between genes and obesity traits in Korean cohorts**
Moonil Kang (Complex Disease and Genetic Epidemiology Branch, Department of Epidemiology, Graduate School of Public Health, Seoul National University, Seoul, Republic of Korea)
- P3-189 A multilocus genetic risk score for diabetic retinopathy in Han Chinese in Taiwan**
Wen-Ling Liao (Graduate Institute of Integrated Medicine, China Medical University, Taichung, Taiwan / Center for Personalized Medicine, China Medical University Hospital, Taichung, Taiwan)
- P3-190 Impact of frailty on the incidence of loss of independence in community-dwelling older Japanese: the Kusatsu town study**
Akihiko Kitamura (Research Team for Social Participation and Community Health, Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan)
- P3-191 Spatial diffusion of bovine Tuberculosis in England**
Shino Shiode (Department of Geography, Birkbeck, University of London, London, UK)
- P3-192 Impact on family history of diabetes on the association between CDH13 (rs4783244) and adiponectin among Korean population**
Jae Woong Sull (Biomedical Laboratory Science, Eulji University, Republic of Korea)
- P3-193 Relationship between housing type after Great East Japan Earthquake and functional disability**
Yumi Sugawara (Division of Epidemiology, Department of Health Informatics and Public Health, Tohoku University School of Public Health, Graduate School of Medicine, Sendai, Miyagi, Japan / Center for Community Health, Tohoku University Graduate School of Medicine)
- P3-194 Association between sleep duration and metabolic syndrome: an update from the Health Examinees (HEXA) study**
Claire E Kim (Department of Preventive Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea)
- P3-195 Age-differential association between serum uric acid and incident hypertension**
Seung Won Lee (Cardiovascular and Metabolic Diseases Etiology Research Center, Yonsei University College of Medicine, Seoul, Republic of Korea / Department of Preventive Medicine, Yonsei University College of Medicine)

PL2

Future Perspectives on the Roles of Epidemiology - Lessons from the Experiences in Japan -

Hiroshi Yanagawa

Advisor, WCE 2017 / Professor Emeritus, Jichi Medical University, Tochigi, Japan / Professor Emeritus, Saitama Prefectural University, Saitama, Japan / Senior Adviser, Japanese Association for Development of Community Medicine, Tokyo, Japan

The speaker, first, describes the meaning of the two important epidemiological studies (epi-studies), which pioneered the development of Japanese epidemiology, that is, (1) Nutritional deficiency as a cause of beriberi by Takaki K, and (2) Passive smoking as a causal factor of lung cancer by Hirayama T.

Takaki K (Surgeon General of the Japanese Navy) compared the incidence of beriberi, the cause of which was unknown at that time, between two training ships of the Japanese navy. The results of the studies showed that protein-lack white rice meal caused beriberi in his comparative studies in 1882 and 83. His studies contributed toward the drastic decrease of beriberi in the Japanese navy 10 years before Eijkman C (Dutch hygienist) advanced the theory that beriberi was caused by nutritional deficiency. Takaki's studies on the cause of beriberi marked the dawn of epidemiology in Japan.

Hirayama T (National Cancer Center Research Institute, Japan) published the first paper linking passive smoking and lung cancer in the non-smoking wives of men who smoked. It was the first conclusive evidence in the world. After his work, many studies in the world supported his conclusion.

The speaker tries to take up leading and influential epi-studies in Japan and to comment on the meaning of each study. First, as the Japan specific problem, the speaker is taking-up two studies on health effects of radiation, one is a long-term epi-studies of A-bomb survivors and their offspring in Hiroshima-Nagasaki and the other is Fukushima Health Management Survey for the health effects of radiation due to power plant accident after the Great East-Japan Earthquake and Tsunami in March 2011.

The objectives of Hiroshima-Nagasaki study are to find medical effects of radiation, to maintain health and welfare of the atomic bomb survivors, and finally to enhance the health of all humankind. One of the important public health implications of the study is the utilization of study results for establishment of radiation protection standard, by international organizations, such as United Nations Scientific Commission on the Effects of Atomic Radiation (UNSCEAR) and International Commission on Radiological Protection (ICRP) because the study has been considered as a gold standard for radiation risk assessment.

The objectives of Fukushima Health Management Survey are to keep long-term health check-

up records on 2 million residents in Fukushima prefecture and to keep information on changes in environmental radiation levels. Thyroid examination, comprehensive health check, mental health survey, life-style survey and pregnancy-birth survey are included in this survey. These surveys will contribute to find long-term influence of radiation on residents who have lived in contaminated areas in Fukushima.

Katsuki S (Professor of Kyushu University) started a long-term follow-up study for the 9,000 residents living in Hisayama Town in Kyushu. The characteristics of Hisayama Study are high participation rate (80%), high autopsy rate (75%) and high follow-up rate (99%). The major products of Hisayama Study were, (1) elucidation of actual incidence, prevalence, and cause of mortality of CVD and CHD and their risk factors, (2) elucidation of high risk life-style leading to hypertension, DM, metabolic syndrome, etc., (3) contribution toward actualization of gene cohort study, and (4) elucidation of present situation of senile dementia and its risk factors.

In order to find effective measures to prevent cancer in the rapid changes in the life-style of Japanese population, Aoki K (Past President of IEA, Professor Emeritus of Nagoya University) started Japan Collaborative Cohort Study (JACC Study), a large scale collaborative study of 24 institutions throughout Japan in 1988-90. Residents over one hundred thousand in 45 areas throughout Japan were followed-up for 20 years.

As an example of the results of JACC Study, relation between life-style score consisting of smoking, alcohol drink, walking, sleeping hours, yellow vegetable intake, BMI, and risk of total mortality will be discussed.

Japan Public Health Center-based Prospective Study (JPHC Study) [Chief Investigator: Tsugane S (Chief of Epidemiology and Prevention Division, Research Center for Cancer Prevention and Screening, National Cancer Center, Japan)] is a large-scale population-based study started in 1990 in 11 areas with over 140 thousand residents throughout Japan. The targets of the study are to find factors associated with cancer, and CVDs. The results on the relation between typical Japanese diet and cancer as well as CVD contributed to brake unhealthy Japanese dietary habit.

NIPPON DATA by Ueshima H and Miura K (Professor Emeritus and Professor of Shiga University of Medical Science) are follow-up studies of two cohorts, NIPPON DATA 80 and NIPPON DATA 90. The subjects of these cohorts are participants of National Cardiovascular Disease Surveys conducted by the Japanese government in 1980 and 1990.

In each study, residents in 300 areas randomly selected throughout Japan were interviewed, and collected biological markers from blood and urine samples. They were followed-up for over 20 years using the Basic Resident Register System in local municipalities. The evidences obtained by NIPPON DATA contributed to the policy making on health promotion, especially to national campaign named “Healthy Japan 21” and to provide basic data for making

guidelines on CHD and CVD prevention. Recently the group started another cohorts NIPPON DATA 2010.

Jichi Medical University is the only medical university which brings along medical doctors who engage in medical activities in remote and inconvenient areas in the country. Jichi Medical University Cohort Study (JMS Cohort) started in 1992 in 12 remote areas. Over 12 thousand inhabitants in these areas were followed-up for 10.7 years to find remote area-specific health problems in Japan. Based on the evidences obtained from JMS Cohort, several guidelines on the prevention of life-style related chronic diseases are now applied to medical practices in remote areas in Japan.

Kawasaki disease (KD) was first described by Kawasaki T (Director of Kawasaki Disease Research Center) in 1961, and his original paper discussing 50 cases was published in 1967. In 1970, the Ministry of Health and Welfare of the government organized a multi-professional Research Committee on Kawasaki Disease. In order to find clues of the cause of KD, the committee conducted the first nation-wide epidemiological survey lead by Shigematsu I (Director of Department of Epidemiology, Institute of Public Health, Japan) in 1970. Since then twenty-three nationwide surveys have been conducted, and a total of around 300 thousand patients were reported by the end of 2014. Japanese and Chinese groups have closely collaborated and large scale epidemiological surveys in China have been conducted in 10 provinces and cities.

SMON (Subacute Myelo-Optic Neuropathy) was a new disease of unknown etiology which occurred in many areas throughout Japan in 1950's and 60's. The disease starts with abdominal disorders, pain and diarrhea, and subsequent important symptoms after the acute stage are peripheral neuropathy, impaired vision and blindness. As the results of intensive clinical and epidemiological studies, use of clioquinol was suspected as the cause of SMON. The Japanese government decided to suspend use and sale of clioquinol, and resulted in a dramatical decrease of new patients. The role of epidemiology in clarifying the cause of the disease and applying political decision will be discussed.

After the SMON episode, the government organized research committees on the cause-unknown intractable diseases and gave financial aid. As an example of the products in this support, epidemiological studies on aseptic necrosis of the femoral head by Hirota Y and Fukushima W (Professor Emeritus and Professor of Graduate School of Medicine, Osaka City University) will be shown.

The speaker will discuss the future roles of epidemiology in making, implementing and evaluating health policies considering the lessons we have learned from these epi-studies in Japan.

PL3

Epidemiology of interpersonal violence: looking at different ages and places

Henrique Barros

President-elect, IEA / Full Professor, Medical School and Institute of Public Health, University of Porto, Porto, Portugal

The remarkable difference in life expectancy and quality of life observed between individuals and communities across socioeconomic groups and human development levels poses social challenges and urges the identification of major modifiable determinants. Interpersonal violence, in its varied types, represents one of such relevant societal phenomenon, with a life course critical expression and strong impact in human rights and a biologically mediated effect in health.

Intimate partner violence, in particular, is recognized as a major social problem that has reached epidemic proportions all over the world with deleterious consequences on the mental and physical health of victims, interfering with the access to health, and in general, the organization of life. Other new aspects of violence, such as cyberbullying or financial abuse of elder people.

The growing awareness of violence magnitude and the associated burden of disease promoted efforts to explore its epidemiology and to propose effective public health measures. The public health dimension of the problem is based on measurements of frequency and its understanding on the identification of appropriate determinants and attributable proportions. To provide valid estimates for the needed parameters epidemiologists face relevant questions due to the sensitive nature of the topic, its occurrence in settings hard to reach and explore, the subjective nature of the survey tools and the cultural dimensions involved.

The present lecture covers methodological and substantive topics and particularly reviews the information obtained in multiple European multinational studies, providing data for different phases of life (pregnant women, children, adolescents, and ageing adults) using cohort and cross-sectional studies, looking for determinants and consequences of violence to look for effective preventive approaches.

The IEA - European Epidemiology Federation

Elisabete Weiderpass

IEA-European Councilor / Chair of the European Epidemiological Federation / Professor of Medical Epidemiology at the Karolinska Institutet, Sweden

The IEA European Epidemiology Federation (IEA-EEF) is a regional structure of the International Epidemiological Association. The EEF is chaired by prof Elisabete Weiderpass. Prof. Patricia Kearney was recently elected as regional councillor- elect 2017-2020. The daily board is a committed team that made some important steps in the professionalization of the organization during the last years. To warrant continuity over years and different board compositions, a secretariat was established and a continual vice chair was appointed (prof. Maurice Zeegers). Finances were analyzed critically and are under control. The website (www.iea-europe.org) was redesigned and with the help of social media members are updated on epidemiology related activities (@eef_events) and job vacancies (@eef_jobs). Further, the EEF aims to advance epidemiologic understanding by branding, facilitating and supporting the development of the 'IEA-EEF textbook of Epidemiology'. The book will be published by Springer in Summer 2017 and enables the IEA-EEF to make an educational contribution to the field of epidemiology.

To facilitate communication among epidemiologists in Europe, an IEA-EEF conference is organized yearly (except when a world conference takes place). In 2016 the conference took place in Munich, Germany (around 1400 participants). The next conference will take place in Lyon, France from 4-6 July 2018 under the patronage of ADELFF (Association Des Epidémiologistes de Langue Française) and Epiter (The association for the development of field epidemiology). In 2019 a joint European Congress and Society for Social Medicine Annual Scientific Meeting will be organized in Ireland.

Future plans include building an alliance with ASPHER (Association of Schools of Public Health in the European Region). Besides, the IEA-EEF is looking into possibilities to set up an EEF European Master of Epidemiology in Brussels.

Declining Sex Ratios in South East Asia: Causes and Consequences

Vinod Srivastava

Secretary, IEA / Head, Department of Community Medicine, Hind India Institute of Medical Sciences, Barabanki, Greater Lucknow, India / Faculty, Social & Preventive Medicine, King George's Medical University, Lucknow, India / Dean, Faculty of Medical Sciences, Integral University, Lucknow, India

The natural "Sex Ratio at Birth" is slightly biased towards the male sex and on an average; there are around 105 males for every 100 females at birth. The number of newborn males slightly outnumber newborn females because as they grow up, males are at a higher risk of dying than females, not only due to sex differentials in natural death rates, but also due to higher risk from external causes like accidents, injuries, violence etc. As a result, in due course, the sex ratio of the total population is expected to equalize. In case, a country's population sex ratio does not equalize or rather exceeds the 105-threshold, it means that societies with a dominating preference for male child, tend to intervene in nature and reduce the number of born girl child by practicing sex-selective abortion and infanticide. The societies in countries like India and China choose boys over girls, leading to a growing gap in numbers between the genders. The female infanticide, feticide and prenatal sex-selection are some of the expressions of the lesser value accorded to girls and are practices in many countries in Asia. The access to new technology, such as ultrasound and safer abortion methods, as well as governmental policies, such as the (now revoked) one-child policy in China, contributes to the problem.

Over last few decades, the ratio of number of males to per 100 females has declined in all South East Asian Region countries except Bhutan, Indonesia, and DPRK and only two countries viz. India and Bhutan continue to have skewed (above 105) sex ratio. The presentation attempts to establish the severity of the issue and the individual country circumstances which should be taken in to account during policy-making and to make recommendations on the steps forward.

Regional Health and Epidemiology Practice in a Changing World

Newton Kumwenda

Regional Councilor for Africa, IEA / Blantyre Health Research and Training Trust, Blantyre Malawi

Over the past 50 years or more, there have been rapid changes in the world which threaten regional and global health. These changes include climate, environmental, technological and human interaction. Some of the changes have direct impact on diseases and health while others are indirectly related. In last few years infectious diseases outbreaks have been reported in different parts of the world believed to be directly linked to the effects of the changing world. In addition, climate change, political conflicts, globalization and technological advances in the world are affecting global health directly or indirectly. These factors may act through the impact on socio-economic status of individuals, communities and countries, which may be associated with adverse health status. They may also affect cultural, social and behavior practices are directly related to health conditions in populations. Population migration, displacement and refugee crises around the world present yet additional new challenges for global health especially with regard to epidemiology and public health practice. These population changes may directly result from political or armed conflict and can have direct impact on disease spread, health care delivery and epidemiology practice. Coupled with these many changes in the world is the rapid technological advancement especially among many; travel and information access present new opportunities at the same time may present significant challenges for epidemiology practice and global health.

Population aging in Japan, Asia, and the rest of the world

Ichiro Tsuji

Chair, Scientific Program Committee WCE 2017 / Professor of Epidemiology, Department of Health Informatics & Public Health, Tohoku University Graduate School of Medicine, School of Public Health, Sendai, Japan

In Japan, the proportion of the population aged 65 years and over (older people) is expected to increase from 17% in 2000 to 39% by 2050. Population aging is a worldwide phenomenon. During the first half of the 21st century, the number of older people worldwide will increase by 1.1 billion, from 0.4 billion in 2000 to 1.5 billion by 2050. This increase will be more remarkable in developing countries, where it will be 5-fold, compared to only 2-fold in developed countries. In 2050, almost 80% of the older people would live in developing countries.

This rapid growth of the aging population all over the world will increase the needs and demands for medical and long-term care, placing a great burden on the social security systems, especially in countries with limited financial resources.

On the other hand, abundant evidence suggests that older people are becoming “younger” year by year, being more active and healthy than ever before. A national survey in Japan has indicated that the mean physical fitness score of those aged 70-74 in 2015 was equal to those aged 65-69 in 2000. In other words, over the last 15 years, vitality in older people has improved by a factor of 5 years. The incidence of dementia has also been reported to be decreasing in the USA, UK, and some European countries. Now, among some populations, we are witnessing the “compression of morbidity” that was predicted by Dr. Fries.

In this paper, I would discuss some of the strategies for overcoming the challenge of population aging and for building a society in which everyone can enjoy healthy and productive aging.

Special Lecture 1

Physical inactivity: The biggest Public Health Problem of the 21st Century

Moderators: Shigeru Inoue (Tokyo Medical University Tokyo, Japan)
Koichiro Oka (Waseda University, Saitama, Japan)

The Lancet ran a feature article on physical inactivity in 2012. This article reported that physical inactivity is becoming a global pandemic with detrimental health effects similar to those of smoking, and that 5.3 million people around the world die every year because of physical inactivity. The second report of the feature article was published in 2016. The Lancet is seriously concerned that there have been little improvement in the situation, and points out that it is necessary to collaborate with financial circles and many different sectors and scale up measures to address this problem. Although there are a lot of important public health problems in the world, physical inactivity is one of the most important public health problems.

Many previous epidemiological studies have firmly established that physical inactivity is a risk factor for non-communicable diseases and premature mortality. On the other hand, mounting evidence has shown that implementation of physical activity or maintenance of high physical fitness, which is an objective marker of physical activity, has a protective effect on the incidence of several non-communicable diseases or premature death.

Dr. Blair is an expert in this field. His primary area of interest is in the role of physical activity in preventing chronic diseases and enhancing longevity. Thus, we expect that his lecture will give important information for public health to participants of WCE2017.

SL1

Physical inactivity: The biggest Public Health Problem of the 21st Century

Steven N. Blair

Arnold School of Public Health, University of South Carolina, Columbia, USA

Special Lecture 2

Use of Big Data and Cohorts to Uncover Causes of Non-Communicable Diseases

Moderator: Shoichiro Tsugane (National Cancer Center, Center for Public Health Sciences, Tokyo, Japan)

Prof. Wei Zheng has intensively conducted several studies in the area of molecular, genetic, and nutritional epidemiology of cancer and other NCDs. He is the PI for the Shanghai Women's Health Study and a key founding co-investigator of the Shanghai Men's Health Study. He also serve as the joint PI of the Southern Community Cohort Study (two-thirds are African Americans) in the southeastern United States. Therefore he has experienced high-quality epidemiological studies both in Asian and Western countries. Moreover, he has led international research consortia involving a large number of study participants from multiple studies in the world. He will present some of these research findings and discuss the importance using big data in uncovering the causes of NCDs.

SL2

Use of Big Data and Cohorts to Uncover Causes of Non-Communicable Diseases

Wei Zheng

Professor and Director, Vanderbilt Epidemiology Center, Vanderbilt University Medical Center, Nashville, US

Over the past few decades, there has been a dramatic increase worldwide in the morbidity and mortality of non-communicable diseases (NCDs). It is projected that this upward trend will continue, particularly in low- and middle-income countries. Knowledge regarding the causes of NCDs is needed to effectively control the epidemics of these common chronic diseases. Epidemiologic studies have played an instrumental role in identifying etiologic factors for human diseases. Early epidemiologic studies tended to be small in size, both in the number of subjects included and the number of variables evaluated, as those studies typically investigated the effect of a few easily measured exposures with large risks. In the past thirty years, there has been increasing interest in studying common exposures, such as dietary factors, that are difficult to measure. Although these exposures are typically associated with a relatively small risk, they could contribute significantly to the risk of NCDs in the general population, given their high prevalence and exposure levels. Large epidemiologic studies, particularly studies with adequate data of exposure assessment, are needed to investigate these important lifestyle exposures. With the advance of molecular biologic techniques, particularly high throughput -omic technologies in the last 10 years, it has become feasible to cost-effectively measure hundreds and even millions of biomarkers and exposures for each study participant in large epidemiologic studies, providing unprecedented opportunities to study the etiology of NCDs and uncover molecular mechanisms through which lifestyle and genetic factors cause NCDs. Over the past few years, my colleagues and I have conducted multiple large epidemiologic studies, including international research consortia involving a large number of study participants from multiple studies. In this talk, I will present some of our recent research findings and discuss the opportunities and challenges of using big data in uncovering the causes of NCDs.

Special Lecture 3

Epidemiological studies for atomic bomb radiation

Moderator: Kazuo Tajima (Visiting Professor, Department of Public Health and Occupational Medicine, Mie University Graduate School of Medicine, Tsu, Japan)

Atomic bombings in Hiroshima and Nagasaki were the first and last usage of nuclear weapons to human and one of the largest war disaster in the world history. After the war, many scientist groups investigated health effects of the bombings based on survivor groups that were defined rather ad hoc, so that the results were not sometimes considered to be much reliable. So, in 1955 the Francis Committee recommended the necessity of fixed study groups that represented all survivors sufficiently in order to evaluate their health effects, especially for the purpose of long-term follow-up, then the Life Span Study was planned by the Atomic Bomb Casualty Commission. In addition to the representativeness, coverage of wide range of age at exposure and individual radiation dose, and also scarce confounding by conventional risk factors due to non-selective exposure on general residents living in the cities have provided superior unbiased risk estimates of late health effects of radiation exposure. The results have been considered to be scientific basis contributing not only directly to survivors' welfare for their health, but also to world peoples' radiation protection as the results have been accepted as the gold standard of radiation risk estimates in radiation research communities such as the United Nations Scientific Committee on Effects of Atomic Radiation and the International Commission on Radiological Protection. The organizers of this session would like to introduce the epidemiological basis and results of the atomic bomb survivors' studies on late health effects of radiation exposure.

SL3

Late health effects among atomic bomb survivors

Kotaro Ozasa

Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan

The late health effects of exposure to atomic bomb radiation have been evaluated based on the cohorts of atomic bomb survivors (Life Span Study), survivors exposed *in utero*, and children of the survivors (F₁). Members of their subcohorts have been invited to health examinations at the institute every two or four years to investigate clinical aspects of health effects. The risk of leukemia among the survivors increased remarkably several years after the bombing, especially among young people, but rapidly decreased after the peak around ten years after the bombing. Increased risks of solid cancers have been evident later and appeared additional to the baseline cancer occurrence among survivors at cancer-prone age. The dose-response relationship of radiation exposure was mostly linear for excess occurrence of solid cancer. Radiation risks of cancer were modified by sex, age at exposure, and attained age, and also by some lifestyle factors although confounding by conventional risk factors have not been remarkably observed. The linear dose-response and the patterns of risk modification have been thought to associate with mechanism of radiation carcinogenesis. Increased risk of several noncancer diseases was associated with exposure to high-dose radiation. Dose-response of noncancer diseases has been observed variously to be linear or nonlinear among studies. For *in utero* exposed people, frequency of disorders such as microcephaly increased in accordance with exposure to radiation at sensitive period of organ development and risk of cancer increased after birth. On the other hand, regarding hereditary effects of radiation exposure, children of the survivors who were fertilized after the exposure have not had an increased risk of cancer and noncancer disease, at present, associated with parental exposure to radiation. Careful observations will be continued in those cohorts.

Symposium 1

The Fukushima nuclear power station accident and its health effects

Moderators: Tomotaka Sobue (Department of Environmental Medicine and Population Sciences, Graduate School of Medicine, Osaka University, Osaka, Japan)

Seiji Yasumura (Department of Public Health, Fukushima Medical University School of Medicine, Fukushima, Japan)

On March 11, 2011, Great East Japan Earthquake hit Japan coast and Tokyo Electric Power Company Fukushima Daiichi Nuclear Power Plant Accident occurred. After the accident, Japanese Government ordered all residents to evacuate from their living place inside the evacuation area around the Nuclear Power Plant (NPP).

Over 164,000 people evacuated forced or voluntary. In Fukushima, 1,604 people died and 200 people still missing due to earthquake and/or tsunami. Fortunately, no one died due to radiation.

In initial phase, inappropriate transportation of patients from hospital to other hospitals or shelters resulted death of some patients. Excess mortality among the institutionalized elderly was also observed. In addition to such negative effect of evacuation, due to worsening the pre-existing diseases and newly occurring of diseases, 2,139 “disaster-related deaths” were observed as of March 13, 2017.

After the accident, public concerns and fear about health effects of radioactive contamination increased. Now, external and internal radiation exposure among the Fukushima residents are thought be very low. But people's concerns remain after 6 years passed after the accident.

Under such circumstances, Fukushima Prefectural Government decided to launch the "Fukushima Health Management Survey" and Fukushima Medical University was indebted to plan, implement, support the residents and to evaluate the results. Many other supporting activities have been conducted.

In this session, 4 important topics listed below are presented by distinguished researchers in each field.

- 1) Comprehensive Overview of Thyroid Ultrasound Examinations in Fukushima Health Management Survey
- 2) Physical changes in Fukushima people after the Great East Japan Earthquake (tentative)
- 3) Long-term psychosocial effects on people living in Fukushima: evidence and experiences
- 4) Depression and maternal confidence among Fukushima mothers after the nuclear accident

We think that these presentations and discussion will give the participants newest evidence of Fukushima situation.

We greatly appreciate your participating this session.

Comprehensive Overview of Thyroid Ultrasound Examinations in Fukushima Health Management Survey

Satoru Suzuki

Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University, Fukushima, Japan

Background: Following the 2011 Fukushima Daiichi Nuclear Power Plant accident, Fukushima Medical University has been conducting thyroid examinations as part of the Fukushima Health Management Survey, commissioned by Fukushima Prefecture. We are now engaged in a full-scale thyroid screening survey program (second round), following the first-round preliminary baseline survey.

Subjects and Methods: Of 367,685 people aged ≤ 18 years and living in Fukushima Prefecture at the time of the accident, 300,476 underwent thyroid ultrasound examinations in the preliminary baseline survey. The thyroid examination program consists of two stages: a primary screening examination, and a confirmatory examination for those in need of detailed follow-up. In the second-round survey, 270,489 (70.9%) underwent a thyroid ultrasound examination, as of December 31, 2016.

Results: In total, 185 were diagnosed with malignancy or suspected malignancy in the first- and second-round surveys, as of December 31, 2016. The number of detected thyroid cancer cases was age-dependent in both surveys. The maximum exposure among these cases over the initial 4 months after the accident was 2.1 millisieverts. The prevalence of ectopic intrathyroidal thymus (1%) and thyroid congenital hemi-agenesis variant (0.02%) was revealed. Low TSH levels may be associated with the presence of nodules as found in the confirmatory survey.

Conclusions: As the relationship between high prevalence of thyroid cancer and radiation exposure is believed unlikely, potential overdiagnosis via ultrasound examination should be avoided. Thyroid volume, prevalence of ectopic intrathyroidal thymus and hemi-agenesis, and the relation between thyroid function and nodules were also clarified in the present program. Future cumulative data should clarify the natural history and risk factors of childhood and adolescent thyroid cancers, as well as the risk-benefit relationship of the thyroid ultrasound survey itself, for not only thyroid cancer but also for benign thyroid findings.

S1-2

Changes in cardiovascular risk factors in Fukushima people after the Great East Japan Earthquake

Tetsuya Ohira^{1,2}, Hironori Nakano^{1,2}, Yui Yumiya^{1,2}, Wen Zhang^{1,2}, Fumikazu Hayashi^{1,2}, Shigeatsu Hashimoto¹, Akira Sakai¹, Seiji Yasumura¹

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The Great East Japan Earthquake occurred on the 11th of March 2011, and was followed by a nuclear accident at the Fukushima Daiichi Nuclear Power Plant. The government ordered a mandatory evacuation from the high radioactive concentration area in Fukushima. This evacuation may have forced many evacuees to change specific aspects of their lifestyles such as diet and physical activity, which in turn may lead to future incidence of lifestyle diseases such as cardiovascular diseases (CVD). To address this concern, the association between the evacuation and changes in CVD risk factors before and after the disaster was examined in the Fukushima Health Management Survey (FHMS). A longitudinal study examined data collected from 41,633 subjects (18,745 men and 22,888 women; mean age, 67 years) sourced from general health checkups conducted in 13 communities between 2008 and 2010. Follow-up examinations were conducted from 2011 through 2013. A total of 27,486 participants (12,432 men and 15,054 women; follow-up proportion, 66%) received follow-up examinations after the disaster, with an average follow-up period of 1.6 years. The proportion of overweight/obese people, and those with hypertension, diabetes mellitus, dyslipidemia, liver dysfunction, atrial fibrillation, and polycythemia increased after the disaster. Furthermore, the evacuation was associated with an increase of these cardiovascular risk factors. Therefore, evacuees may be more disposed to CVDs such as myocardial infarction and stroke after the disaster. The prevention of future CVD among evacuees from Fukushima requires ongoing preventive programs for obesity, hypertension, diabetes mellitus, and dyslipidemia, in collaboration with local governments and communities.

S1-3

Long-term psychosocial effects on people living in Fukushima: evidence and experiences

Masaharu Maeda

Department of Disaster Psychiatry, Fukushima Medical University, Fukushima, Japan

The Great East Japan Earthquake, especially the nuclear crisis subsequently occurred in Fukushima resulted in terrible effects on residents: lives of numerous residents were disrupted and communities, economy, and policy were confused in unexpected situations. In prolonged relief process and unclear aspects of future, there have been various types of psychosocial influence on the residents and their communities: not only psychiatric problems such as post-traumatic stress disorder (PTSD), grief reaction, or depression, but also more complicated psychosocial issues such as social stigma, disparities, and fragmentation seen in communities. While the reconstruction is physically proceeding on schedule in general, many evacuees seemed not to be in readiness to return to their hometown. In fact, there are still approximately 80,000 evacuees in and out of Fukushima prefecture, who are hardly able to believe that their hometown could recover and habitable as they once lived. They need more long-term psychological care as well as progress of physical reconstruction. In addition, self-stigma among evacuees resulting from exposure to public stigma (so-called "radiation stigma") might induce declines of self-esteem or self-efficacy. Positive countermeasure such as nationwide anti-stigma campaign involving various types of media should be also needed.

S1-4

Depression and maternal confidence among Fukushima mothers after the nuclear accident

Aya Goto

Center for Integrated Science and Humanities, Fukushima Medical University, Fukushima, Japan

Mothers of young children are at risk of negative emotional and mental health consequences following a nuclear accident. Annually conducted Pregnancy and Birth Surveys of the Fukushima Health Management Survey assess the physical and mental health of mothers with infants. The survey in 2011 revealed that among 8196 mothers with singleton live births, 28% screened positive for depressive symptoms. After adjusting for maternal and infant characteristics, mothers in both the coastal region where the nuclear power plant is located, and those anywhere who had changed obstetrical care facilities, were significantly more likely to screen positive for depression. Two surveys in the subsequent years (n=6686 in 2012 and n=6423 in 2013) showed that the prevalence of mothers with depressive symptoms remained at 25% in 2012 and 24% in 2013. The percentage of those with lower self-confidence in child rearing was 53% in 2012 and 55% in 2013. Noticeably, evacuation and concern about radiation were significantly associated with depressive symptoms but not lower maternal confidence after adjusting for maternal and infant characteristics. Our findings suggest that improving mental health support for mothers with infants should be a high priority in the acute phase of a nuclear disaster. On a positive note, mothers in Fukushima showed resilience in parenting, in that their experiences and concerns in the aftermath of our nuclear disaster did not adversely affect their maternal confidence.

References; BMC Psychiatry 2015;15:59. Asia Pacific Journal of Public Health 2017;29:139S–150S.

Symposium 2

The state-of-the-art research on children's environmental epidemiology and its future strategy

Organizers: IEA-WCE 2017 / the Ministry of the Environment, Government of Japan

Supporting Organizations: the National Institute for Environmental Studies and the National Center for Child Health and Development

Moderators: Zentaro Yamagata (Department of Health Sciences, Basic Science for Clinical Medicine, Division of Medicine, Graduate School Department of Interdisciplinary Research, University of Yamanashi, Japan)

Michihiro Kamijima (Department of Occupational and Environmental Health, Nagoya City University Graduate School of Medical Sciences, Japan)

The purpose of this symposium is to promote the awareness of the Japan Environment and Children's Study (JECS), a birth cohort study involving 100,000 parent-child pairs, which was launched in 2011 to evaluate the impact of various environmental factors on children's health and development.

Professor Brenda Eskenazi of the Center for Environmental Research and Children's Health (CERCH), School of Public Health, University of California, Berkeley, USA, will give a lecture, based on her studies, about environmental chemicals that have serious effects on children's health. Professor Sjurdur F. Olsen of the Center for Fetal Programming, Statens Serum Institut, Copenhagen, Denmark, will speak about the influence of pregnancy nutrition on the health of the children born in the Danish birth cohort study. Professor Chirag J. Patel of the Department of Biomedical Informatics, Harvard Medical School, will argue that the state of data science with regard to analyzing human exposure is influenced by the phenotypes of the developing child (as well as its parents). He will also provide recommendations from the viewpoint of exposure-based biomedical research for the public health community to consider when dealing with the challenges of analyzing big data. Finally, Dr. Shoji F. Nakayama of the National Institute for Environmental Studies, Japan, will introduce the outline and progress of the JECS.

In the discussion, we would like to encourage the participants to join us in thinking about the problems and expectations concerning research on children's health and the environment.

Children's health and the environment: the American experience

Brenda Eskenazi

Center for Environmental Research and Children's Health (CERCH), School of Public Health, University of California, Berkeley, USA

In recent years, researchers have observed increases in the prevalence of a number of chronic disorders among American children, including autism, asthma, and type 2 diabetes. Although many genetic and environmental causes contribute to the etiology of these disorders, we suspect that environmental chemicals play a significant role. For example, we find that in utero exposure to organophosphate pesticides, polybrominated diphenyl ethers (PBDEs), or dichlorodiphenyltrichloroethane (DDT) is associated with deficits in childhood neurodevelopment (Eskenazi et al., 2006, 2007, 2013). Additionally, prenatal organophosphate exposure is associated with increased respiratory symptoms and decreased lung function at age 7 (Raanan et al., 2015, 2016), while prenatal exposure to PBDEs or DDT is associated with increased body mass index (BMI) among boys in middle childhood (Erkin-Cakmak et al., 2015; Warner et al., 2014).

Authorized by the Children's Health Act of 2000, the National Children's Study (NCS) was intended to examine the role of environmental chemicals and other environmental factors (e.g., psychosocial stress) in the health and development of American children. The study aimed to recruit 100,000 children prior to birth and follow them until age 21. Pilot testing began in 2009. With more than one billion dollars invested, the study was discontinued in 2014 in response to concerns about its feasibility and design.

Like a phoenix rising from the ashes, the Environmental Influences on Child Health Outcomes (ECHO) Program was launched by the National Institutes of Health in 2016. Having learned from the fatal mistakes of the NCS, ECHO brings together a consortium of existing pediatric cohorts to study perinatal outcomes, respiratory function, neurodevelopment, and growth. This synthesized cohort poses unique challenges, including unifying data collection moving forward and conducting statistical analyses with disparate populations. Despite these challenges, ECHO represents an unparalleled opportunity to better understand the environmental determinants of health among American children.

Impact of maternal nutrition on children's health and development

Sjurdur F Olsen

Centre for Fetal Programming, Statens Serum Institut, Copenhagen, Denmark / Department of Nutrition, Harvard School of Public Health, Boston, USA

The diet consumed during or shortly before pregnancy can severely impact the health and wellbeing of the woman herself and her offspring, even within normal dietary variations as observed in presumably well-nourished populations. Examples of such relationship that are underpinned by evidence from randomized interventions include: periconceptional folic acid can prevent neural tube defects; calcium in the latter half of pregnancy can prevent hypertension in pregnancy; and fish oil in the third trimester can prevent asthma in the offspring. Numerous other, albeit less substantiated, hypotheses have been suggested linking various aspects of the maternal diet to child cognitive development, bone development, risk of leukemia, risk of type 1 diabetes; and in the adult offspring to its risk of developing cardiovascular diseases, type 2 diabetes, and certain cancers, and in male offspring to their fecundity. The talk will attempt to give an overview of the field with focus on some of the, arguably, more promising, novel and/or best-substantiated hypotheses.

It follows that identifying the most optimal pregnancy diet carries an important potential for disease prevention for the next generations. Considerable resources have been invested in several countries into establishing large longitudinal cohorts that can be used to investigate the impact of factors operating in early life - including pregnancy diet - on disease development through childhood up to adult age. Such cohorts with approximately 100,000 women and their subsequent children followed from early pregnancy, have been established in Denmark and Norway and, more recently, in Japan. The Danish National Birth Cohort and the Norwegian Mother-Child Cohort have a common history and share many features; e.g., the methods used to assess dietary intake in pregnancy were similar, rendering these data compatible. Experiences from collaborative initiatives aiming at coordinating use of data from both cohorts will be presented.

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S2-3

Large data challenges and opportunities in detection of genome-exposome interaction in children's health and development

Chirag J Patel

Department of Biomedical Informatics, Harvard Medical School, USA

The complexity of the human exposome—the totality of environmental exposures encountered from birth to death—motivates systematic, high-throughput approaches to discover the environmental determinants of disease in developing children. In this talk, we describe the state of data science in analyzing the human exposomes associated with phenotypes of the developing child (and parents) and provide recommendations for the public health community to consider in dealing with analytic challenges of big data exposome-based biomedical research. Specifically, we will describe extant and novel analytic methods needed to associate the exposome with critical health outcomes and contextualize the data-centered challenges by drawing parallels to other research endeavors such as human genomics research. Last, while it is intuitive that disease and phenotype are a result of genome-exposome interaction, we lack findings that describe such phenomena. In the last portion of this talk, we describe how a new paradigm of the exposome can enhance detection of interactions in understanding the plasticity of child health and development.

Japan Environment and Children's Study (JECS)

Shoji F Nakayama¹, Toshihiro Kawamoto¹, Michihiro Kamijima²

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² Nagoya City University Graduate School of Medical Sciences, Japan

Japan Environment and Children's Study (JECS) is a national birth cohort study started in 2011. Its aim is to examine environmental impacts on children's health and development. JECS is designed to identify environmental factors that affect children's health and to help policy makers facilitate better chemical risk management framework. Specifically, JECS focuses on the foetal and early childhood, i.e. early-life, exposure to chemical substances and its effects on children's health. JECS gives priority to five major health domains: Reproduction and pregnancy complications; congenital anomalies; neuropsychiatric disorders; immune system deficits and allergic responses; and metabolic and endocrine system dysfunctions. The environment is defined broadly such as global/ambient environment including atmospheric pollution, chemical substances, physical conditions, built environment, behaviours/habits, socio-economic factors, family/community support and psychological conditions.

What makes JECS unique compared to the other birth cohorts are 1) its size (over 100,000), 2) comprehensive data collection (measuring as many health outcomes and exposure matrices as possible) and 3) the use of biological samples for exposure analysis. We are living not in a world where we are exposed to a single contaminant but in the complex environment with chemical, physical, biological and social stressors. The exposure changes over life time. To examine the effect of multiple exposures, the cohort size becomes importance. A big sample size is necessary to analyse the effect of multiple, not three or five but hundreds of, exposures. We collaborate with many experts and explore new methods, such as biomonitoring, personal sampling, sensors and wearable devices, to capture as much exposures as possible. New statistical models should also be developed to deal with the real world complex exposures that children are facing. JECS is an enthusiastic endeavour to safeguard the environment for future generations.

Symposium 3

Global patterns and effects of risk factors for chronic diseases

Moderators: Young-Ho Khang (Seoul National University, Korea)

Andre Pascal Kengne (South African Medical Research Council, South Africa)

Preventing non-communicable diseases (NCDs) is one of the most pressing global health priorities. These conditions cause millions of deaths and place severe economic burdens on both individual patients and health systems as a whole. Countries have agreed to reduce NCD deaths, at least partly by reducing their major risk factors, which include physiological characteristics like obesity or high blood pressure. To guide the development of local, national and international strategies for NCD prevention and control, and to evaluate progress towards globally agreed-upon targets, we need rigorous and comparable information on current levels and trends in these risk factors.

The NCD Risk Factor Collaboration (NCD-RisC) is a worldwide network of health researchers and practitioners that provides rigorous and timely cardiometabolic risk factor trend estimates for all countries. The collaboration works closely with the World Health Organization (WHO). The collaboration has more than 800 members from all regions of the world who have contributed over 2,000 data sources with more than 40 million participants. Data are pooled and synthesised in a bespoke Bayesian hierarchical model designed for the analysis of NCD risk factors. This session presents the results for a number of risk factors, with emphasis on similarities and variations across regions. More information is available at ncdrisc.org, including dynamic data visualisations, numerical estimates and publications for download, and details of media coverage.

Trends in body-mass index in children and adolescents in 200 countries: pooled analysis of more than 1, 100 population-based measurement studies with over 13 million participants

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Introduction: Excess adiposity and underweight are both associated with elevated risks of adverse health outcomes. While estimates of trends in body-mass index (BMI) in adults, and weight-for-age in children under 5 years old have been published recently, information on trends in older children and adolescents is scarce. We estimated trends in mean BMI and prevalence categories for boys and girls aged between 5 and 19 years in 200 countries and territories from 1975 to 2016.

Methods: Using a consistent protocol, we analysed studies that had measured height and weight in representative samples of the general population. We applied a Bayesian hierarchical model to these data to estimate trends in mean BMI, and five mutually-exclusive, collectively-exhaustive prevalence categories with cut-offs based on the World Health Organization growth reference.

Results: We pooled more than 1,100 studies, with over 13 million participants. Over the past 40 years, age-standardised global mean BMI has increased by more than 1 kg/m² in both boys and girls. The region with the highest mean BMI is Polynesia, where age-standardised obesity prevalence exceeds 25 per cent in some territories. The lowest levels of mean BMI are observed in South Asia and East Africa, with a prevalence of underweight of more than 15 per cent in a number of countries.

Conclusions: Mean BMI has increased globally in 5 to 19 year olds over the past four decades, and high levels of obesity are observed in many countries. Meanwhile, persistent underweight is still common elsewhere in the world. There is an urgent need to implement policies that will address this twin burden, and give the world's children a healthier start in life.

Trends in blood lipid profiles in 19 middle-income and high-income countries over four decades: a pooled analysis of 313 population-based measurement studies with 2.6 million participants

Cristina Taddei

Department of Epidemiology and Biostatistics, Imperial College London, UK

Introduction: Non-optimal blood lipid profiles are a major modifiable risk factor for cardiovascular diseases. We analysed trends in blood lipid profiles for 19 middle-income and high-income countries in four continents.

Methods: We pooled 313 studies that had measured blood lipids in representative samples of the general population. We included 2.6 million participants aged 40-59 years from Australia, Belgium, China, Czech Republic, Finland, France, Germany, Iceland, Italy, Japan, New Zealand, Norway, South Korea, Spain, Sweden, Switzerland, Thailand, UK, and USA in our analyses. We estimated trends in mean total, HDL and non-HDL cholesterol, and mean total-to-HDL cholesterol ratio by country, sex, and age group from 1976 to 2015.

Results: Over four decades, mean total and non-HDL cholesterol levels decreased from high levels in 14 of 15 western countries. Meanwhile, mean total cholesterol increased from low levels in all four Asian countries, with non-HDL cholesterol also increasing in China but declining in Japan and South Korea. Over the same period, changes in mean HDL cholesterol and mean total-to-HDL cholesterol ratio were more heterogeneous. Mean HDL cholesterol increased substantially in Belgium, Japan, and UK; the increase of more than 0.1 mmol/L per decade in Japanese women led to a decrease in mean total-to-HDL cholesterol ratio despite increases in mean total cholesterol. By contrast, mean HDL cholesterol declined by about 0.05-0.1 mmol/L per decade in Germany and Norway, with stagnation or possible increases in mean total-to-HDL cholesterol ratio despite declines in both mean total and non-HDL cholesterol.

Conclusions: Over the past 40 years, blood lipid profiles have changed in important ways. There has been convergence in mean total and non-HDL cholesterol in western and Asian countries, whereas mean HDL cholesterol and total-to-HDL cholesterol ratio show heterogeneous trends. This study underscores the importance of analysing entire lipid profiles.

Worldwide patterns in body-mass index and blood pressure among adolescents and comparisons with adults: analyses of more than 2, 200 studies with more than 35 million individuals

Ver Bilano

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Introduction: Non-communicable diseases (NCDs) cause more than 37 million deaths globally each year, and are projected to account for the majority of deaths in low-income and middle-income nations by 2030. These conditions also impose a financial burden on both patients and health systems. Major NCD risk factors, including obesity and high blood pressure, and behaviours associated with them, are often initiated or established during adolescence, and persist to adulthood. To inform the development of strategies that address this crucial stage in the development of NCDs, we aimed to describe NCD risk factor patterns among adolescents and compare these with adult trends.

Methods: We used a comprehensive database of more than 2,200 population-based studies with objective measurements on major cardiometabolic NCD risk factors for children and adolescents or for adults, totalling more than 35 million individuals. We estimated mean levels of body-mass index (BMI) and systolic blood pressure (SBP) by age group, sex, study and year. We described global and regional variation in mean risk factor levels for adolescents and adults. We also fitted regression models to describe the relationship between adolescent and adult risk factor levels.

Results: Substantial global variation in mean BMI and mean SBP is already evident among adolescents aged 15 to 19 years. There are striking regional patterns in adolescent BMI with Oceania, the Middle East and North Africa, and South Asia and sub-Saharan Africa having opposing trends. Mean SBP patterns are less regionally distinct, although much of the variation in mean SBP among adults is already evident among 15-to-19-year-olds, and this is more prominent in high-income countries.

Conclusions: Adolescence is a crucial period for addressing the health and economic challenges posed by NCDs. A life-course approach to the development of NCD prevention and management strategies would improve both adolescent and future adult health, and reduce lifetime healthcare costs.

The urban-rural BMI gap: a pooled analysis of 1213 population-based measurement studies with 14.5 million participants

Honor Bixby

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Introduction: High body-mass index (BMI) is an established risk factor for non-communicable diseases including stroke, coronary heart disease and some cancers. Between 1975 and 2014, mean BMI increased on by 2.5 kg/m² in men and 2.3 kg/m² in women worldwide. Urban living is frequently implicated as a driver of the global obesity epidemic, although empirical evidence for this link remains ambiguous. We aimed to quantify mean BMI among urban and rural residents of countries worldwide and trends over recent decades.

Methods: We systematically collated population-based studies that directly measured participants' height and weight. We applied a Bayesian hierarchical model to data from adults aged 18 years and above to estimate trends in mean BMI for the urban and rural populations of 200 countries, from 1990 to 2014. Analyses were conducted separately for men and women.

Results: We analysed data from 1,213 studies including over 14.5 million people. In 2014, age-standardised mean BMI was lower among people living in towns and cities compared to those living in rural areas of high-income western, central and eastern European and east Asian countries. The same was true for women across the Middle East, north Africa and Latin America where urban men on average had a higher BMI. Sub-Saharan Africa was the only region where for both men and women mean BMI was commonly higher among urban residents. Globally, the urban-rural BMI gap has converged since 1990. Still, in many countries, the gap has persisted or grown.

Conclusions: Comparable estimates of BMI levels in urban and rural populations worldwide provide an important resource for investigating the contribution of urban living towards this major public health problem. Policies and programs should be targeted towards the different needs of urban and rural residents and aim to address inequalities.

Contributions of population mean and high-risk individuals to worldwide trends and variations in raised blood pressure: pooled analysis of 912 studies with 9.8 million participants

Bin Zhou

Department of Epidemiology and Biostatistics, Imperial College London, UK

Introduction: High blood pressure is an important risk factor for cardiovascular diseases and chronic kidney disease. Both population-wide changes in blood pressure and changes in high-risk individuals can modify prevalence of raised blood pressure, but their contributions to the observed trends and geographical variations in raised blood pressure worldwide are unknown.

Methods: We pooled 912 population-based measurement studies with 9.8 million participants to estimate associations between prevalence of raised blood pressure, defined as systolic blood pressure (SBP) ≥ 140 mmHg or diastolic (DBP) ≥ 90 mmHg, and population mean SBP and DBP, among men and women aged 20 to 79 years from 1985 to 2015 in nine regions of the world. We estimated inter-region variations in raised blood pressure at the same mean blood pressure levels. We estimated trends in raised blood pressure within regions if population mean had not changed. We also estimated the contributions of changes in population mean and prevalence-mean association to the trends in prevalence of raised blood pressure.

Results: Using the estimated association, men and women in South Asia would have the highest prevalence worldwide, with the lowest in high-income Asia Pacific, at the same mean blood pressure levels. Raised blood pressure would have declined continuously among men and women aged 60-69 years in high-income regions, even if population mean had not changed. The decrease would have happened later in Central and Eastern Europe and East and Southeast Asia. Changes in mean blood pressure make the largest contribution to the trends in prevalence of raised blood pressure.

Conclusions: Considerable variations in prevalence of raised blood pressure would still exist both geographically and temporally even if mean blood pressure had been held constant, indicating changes in high-risk individuals. Despite that, the observed trends in prevalence of raised blood pressure are mostly attributable to changes in mean blood pressure.

Symposium 4

Epidemiology Consortia on a Global Scale: Experience with Large-scale Cohort Research Across Regions and Countries

Moderator: Manami Inoue (Center for Public Health Sciences, National Cancer Center, Japan)

A recent notable trend in the field of cancer epidemiology is the active formation of international/regional/domestic cohort consortia to promote pooled analyses using large-scale cohort database. This trend has enabled the efficient use of epidemiological resources and analyses with large statistical power. At the same time, cohort consortium researchers require good collaboration and harmonization skills. This session will be organized with specialists involved in international/regional/domestic epidemiology consortia. Presenters are expected to talk about their experiences, including merits and difficulties in organization.

S4-1

Investigating the causes of chronic disease in a large-scale European consortium: the EPIC study

Marc Gunter

International Agency for Research on Cancer (IARC), Lyon, France

The European Prospective Investigation into Cancer and Nutrition (EPIC) is a longitudinal cohort that was established between 1992-1999 and enrolled more than 521,000 study participants aged 35-70 from 23 centres in Denmark, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden and the United Kingdom. EPIC was established primarily to investigate the role of nutrition in cancer development and the multi-country design was intended to capture variation in diet and lifestyle habits across Western European countries. Detailed information on diet, lifestyle characteristics, anthropometric measurements, and reproductive and medical history was collected at recruitment. Biological samples including plasma, serum, leukocytes, and erythrocytes were also collected at baseline from 387,889 individuals and are stored at the International Agency for Research on Cancer - World Health Organization (IARC-WHO) and mirrored at EPIC collaborating centres.

EPIC is jointly coordinated by IARC and Imperial College London and is governed by a steering committee comprising representatives from each EPIC centre. Follow-up of study participants is coordinated by the individual EPIC centres through cancer registry linkage or active follow-up and data is centralized at the IARC coordinating centre. Since recruitment, approximately 96,000 EPIC participants have been diagnosed with cancer including 25,000 breast cancers, 12,500 colorectal cancers, 8,000 lung cancers, 2,500 pancreatic cancers and 1,000 liver cancers.

As a consortium EPIC has produced more than 800 scientific articles with numerous additional publications originating from the individual participating EPIC cohorts. Notable sub-studies within EPIC include EPIC-Interact and EPIC-Heart - case-cohort studies to investigate the etiology of type 2 diabetes and cardiovascular disease, respectively; EPIC-PANACEA - a study of the causes of weight gain and obesity, and NeuroEPIC4PD which has a focus on Parkinson's disease. This presentation will describe the rationale and structure of the EPIC study, highlight its major scientific contributions to date and will describe how the cohort now serves as an important and growing resource for future studies employing new molecular technologies to identify the causes of cancer and other chronic diseases.

S4-2

Biobanks and registries for epidemiological research on cancer in the Nordic countries

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The Nordic countries have a long tradition of register-based epidemiological studies. Numerous population-based specialised registers offer high-quality data from individuals, and the extensive use of register data further improves the quality of the registers. Unique personal identity codes given to every resident and used in all registers guarantee easy and accurate record linkage. A legislation that makes the use of existing data possible for purposes that benefit both registered individuals and the society - instead of forcing researchers to use their energy in repeated questionnaire studies disturbing individuals' privacy and leading to response and recall biases - is a prerequisite for effective epidemiological research. Biobanks can be considered an additional type of registers. They may offer such data from individuals that cannot be reliably collected via questionnaire surveys. In turn, other types of registers are crucial in biobank-based studies (i) in defining for how long the persons in biobank cohorts are at risk of getting the diseases, (ii) to get information on cofactors that may modify the relative risk measured by the biomarkers and (iii) to get information of the long-term outcome events.

In this presentation, the possibility of register use for research in the Nordic countries will be summarised. Examples of a massive register use, including both direct linkages on individual level and indirect group level linkages will be given, in particular in relation to studies on cancer aetiology.

The Experience of the Multiethnic Cohort Study with Genomic Consortia

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To date, genome-wide association studies (GWAS) have mainly been conducted in individuals of European descent. These studies have elucidated new mechanistic pathways and the risk variants identified may help risk prediction. However, it is of critical importance to conduct GWAS in other ethnic/racial populations to expand the scope of the research and the public health implications of the findings. GWAS focusing on other ancestry populations help to identify ethnic/racial-specific risk variants and to better characterize known susceptibility loci with respect to the presence of secondary signals and the identity of the best candidate variant(s) for functional studies. Another goal of these studies is to identify gene-environment interactions by which the effect of environmental factors (e.g., lifestyle) is much intensified and concentrated to population sub-groups defined by their genetic profile. Because fewer studies have been conducted in non-Europeans, multi-institution and international collaborations are typically required to assemble the large sample sizes required for GWAS studies of other ethnic/racial groups. Thus, the opportunities offered by these studies come with a number of challenges, such as adequacy of patient consent, IRB approval, availability of representative genotyping arrays, data harmonization, adequate reference panel for imputation, centralized or decentralized data analysis, research coordination, authorship, etc.). The Multiethnic Cohort (MEC) study has played a leading role in bringing together studies of African Americans, Japanese and Latinos/Hispanics focusing on common cancers. Opportunities and challenges of genetic consortia will be illustrated by the example of a pan-ethnic GWAS of colorectal cancer that focused on Japanese and African Americans. Results will also be presented and discussed. The findings illustrate the importance of conducting GWAS studies in diverse ancestry populations.

Asia Cohort Consortium: Evolving the future

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Cohort study design methodologies have evolved over time; serum biomarkers are used to increase the precision of exposure assessment and genomic tools are employed to discover individual susceptibility to disease development. Early cohorts such as the Framingham Heart Study utilized biomarkers while others formed coalitions, namely the NCI Cohort Consortium, setting research milestones in medical history.

Cohort studies in Asia are more recent in time, but have quickly incorporated biomarkers and other novel methods. Asia provides unique opportunities to investigate the pattern of susceptibility and resistance to disease; there exists a big difference in exposure variables within relatively homogenous ethnic backgrounds and rapid changes are observed in certain personal habits.

First proposed in 2004, the Asia Cohort Consortium (ACC) brings together over 20 cohorts representing Korea, Japan, China and other nations. This international body of investigators is committed to the study of genetic and environmental exposure in the etiology of disease in more than 1 million Asians. The mission of ACC is two-fold: 1) to serve as a platform for cross-cohort collaborative projects and combined analysis; and 2) to act as an incubator for new cohorts.

ACC projects have only begun; 11 original articles have been published, including the 2011 NEJM article on BMI and the risk of death. Currently, 32 ongoing projects focus on: diet and nutrition; obesity and physical activity; occupation and environment; medical and reproductive history; alcohol and tobacco use; family history and genetics; biospecimens and sample collection; data collection and management; and follow-up and endpoint ascertainment.

Studies remain in the process of developing definite understanding about diseases. In the long run, however, we anticipate that these collaborative forces will not only challenge the concept of universal standards, but will also aid in filling the knowledge gap to elucidate the disease causation that is specific in Asians.

Japan Cohort Consortium: collaborative effort towards evidence-based cancer prevention in Japan

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It is well recognized that cancers are largely the result of lifestyle and environmental factors that are potentially preventable. However, given substantial differences in the pattern of cancer by geographical region and socioeconomic level, cancer control policies in any country must be tailored to reflect the local burden of cancer and characteristics of the local healthcare system. On this basis, the research group "Development and Evaluation of Cancer Prevention Strategies in Japan" was established in 2003, with the final goal of suggesting methods involving lifestyle modification which can be expected to definitely effect a decrease in the incidence of cancer in Japanese. To evaluate the overall cancer risk in Japanese based on scientific evidence, the kind and amount of research results accumulated to date, and areas in which research is lacking must be assessed. Nevertheless, solving current problems requires more than just assessment. Thus, in 2006, the research group initiated a pooling project, "Japan Cohort Consortium", which uses original data from major ongoing large-scale population-based cohort studies in Japan starting in the mid-1980s to the mid-1990s to evaluate/quantify the association between lifestyle and major forms of cancer in Japanese. Ten cohort studies are currently involved, with 520,000 study participants in total: the Japan Public Health Center-based Prospective Study, Cohort I; Japan Public Health Center-based Prospective Study, Cohort II; Japan Collaborative Cohort Study; Miyagi Cohort Study; Ohsaki National Health Insurance Cohort Study; Three-Prefecture Cohort Study, Miyagi; Three-Prefecture Cohort Study, Aichi; Three-Prefecture Cohort Study, Osaka; Takayama Study, and Life Span Study Cohort. Each member of the research group is involved in one of the major cohort studies conducted in Japan. The main research targets are those factors which are established and need quantification of relative risks; and those which are rare or suggested to have a small effect and whose detection therefore requires a large sample size. As of now, 11 studies have been published in peer-reviewed scientific journals and have been utilized in policy decision making at the national level. In this talk, I will provide a brief overview of the Japan Cohort Consortium.

Symposium 5

Cancer data for cancer action

Moderators: Tomohiro Matsuda (National Cancer Center, Japan)

Leslie Mery (International Agency for Research on Cancer, France)

Health and demographic transitions are projected to place the greatest future cancer burden in low- and middle-income countries (LMIC). There is an overwhelming need for countries to adopt and implement cancer control actions based on reliable data. Equipped with high quality data, evidence-based interventions can be planned and monitored in the most efficient manner. The basis to plan, implement and monitor such programs, high-quality population-based cancer registries (PBCRs), are established in less than one in five LMIC. Led by the International Agency for Research on Cancer, the Global Initiative for Cancer Registry Development is a collaboration with key international partners to accelerate improvements in the coverage, quality and the use of PBCRs worldwide to better inform cancer control.

The role of cancer registry data are not only to quantify the incidence and mortality of cancers for annual reports, but to be served as resources to conduct cancer research to support control programs, to conduct studies into the important risk factors of cancer in the area, and to provide information on the prevalence of exposure to these factors in the population.

This session will examine global and Asian trends in cancer, latest methodology to bridge a gap between cancer research evidences and cancer control programs, capacity building and the utility of cancer registration data in epidemiology throughout the Global Initiative for Cancer Registry Development (GICR), a coordinated program of activities to build with in-country capacity for cancer surveillance, the experience of developing cancer research by using cancer registry data in Thailand, and the brand new semi-automated nation-wide cancer registration system and data utilization in Japan.

Global Burden of Cancer - Cancer Data for Cancer Control Action

Freddie Bray

Section of Cancer Surveillance, International Agency for Research on Cancer, Lyon, France

The global cancer burden is predicted to double within two decades, with 29 million new cases and almost 17 million deaths by 2035. Cancer is now the leading cause of death at premature ages in close to 50 high-income countries, a number increasing as national profiles of risk alter with socioeconomic and epidemiologic transition. Cancer is set to become the leading cause of death and the single most important barrier to further gains in life expectancy during this century. Demographic projections signify the greatest proportional increases are in transitioning economies that already face a significant burden from infection-related diseases, and presently ill-equipped to deal with the pending rise of cancer. This health transition is as much an economic as public health issue: the estimated costs from lost productivity due to premature cancer deaths are an increasingly greater proportion of total GDP.

Cancer survival is increasing, and the predicted 68 million persons living within five years of a cancer diagnosis by end-2035 places emphasis on quality of life of cancer survivors. Yet, estimates still reveals life-years lost due to disability are a minor contribution relative to premature death from cancer in LMIC, highlighting the need to improve health care systems. Indeed, international benchmarking studies reveal marked survival differences for treatable cancers, with survival often 20-40 percentage points lower in LMIC relative to high-income countries.

Despite the rising burden and striking disparities, national cancer plans are operational in only a few LMIC. Unprecedented efforts are however underway to sensitize governments and mobilize action through agreed high-level commitments aimed at tackling NCDs. The development of robust incidence and survival data from population-based cancer registries is a cost-effective strategy that complements risk factor and deaths surveillance. These systems provide health planners with data that informs priority actions and tracks progress given resources expended.

The Global Initiative for Cancer Registry Development (GICR): Building Capacity for Cancer Control

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² Representatives from the American Cancer Society, International Association for Cancer Registries, International Atomic Energy Agency, International Network for Cancer Treatment and Research, Pan American Health Organization, Union for International Cancer Control, US Centres for Disease Prevention and Control, US National Cancer Institute and World Health Organization

Purpose: Cancer is a leading cause of morbidity and mortality worldwide. In 2012, more than 14 million new cases and 8 million deaths due to cancer are estimated to have occurred. The need for action is especially urgent in poor settings, which are least equipped to provide patient care but are projected to bear the majority of the future burden. The Global Initiative for Cancer Registry Development (GICR) was launched to improve the coverage, quality and accelerate the availability of population-based cancer registries. The presentation will focus on the progress of the GICR to demonstrate how activities relate to strengthening cancer research worldwide.

Methods: IARC Regional Hubs for Cancer Registration have been established to provide localized programmes in training, support, research and advocacy. Four Hubs are operational for Asia, Africa and Latin America. Two additional Hubs in the Pacific Islands and in the Caribbean are being implemented. To further support knowledge translation and training, Collaborating Centres together with electronic tools, Mentorship and Twinning Programmes are being developed.

Results: Since the launch of the GICR in 2011, site visits to 61 countries have been conducted to assess opportunities to improve their level of cancer registration. Seventeen new agreements between IARC and countries have been signed, with several others in development. Training as a core component has resulted in 50 GICR-led or affiliated courses. An IARC Technical Publication has been produced as a reference for health planners in LMICs (Bray, 2014), with the additional support tools, regional databases and reports underway.

Conclusion: A key focus of the GICR is to support the development of trained staff in population-based cancer registries and to increase the quality of cancer data. New opportunities in cancer control planning and in building cancer research capacity are being established through the GICR.

Strengthening cancer registry capacity for cancer control in Thailand

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Cancer has been the leading cause of death in Thailand since 1998. The first population-based cancer registry (PBCR) was established in 1986, and in the early period we had only 4 such registries. The PBCR network has gradually been expanded over the years and now there are 15 PBCRs covering about 24 million people. In 2011, 113,619 new cases are diagnosed in a total population of 65 million. Of these 55,181 were males and 58,438 were females, corresponding to age-standardized rates of 141.3 and 129.8 per 100,000, respectively.

In the beginning, cancer registries were mainly used to generate incidence data. More recently, the emphasis has shifted to evaluation of interventions against cancer at the population level, particularly for cancer screening. With the help of cancer registry data, our institute could propose population-based cervical and colorectal cancer screening programs as national policy in 2005 and 2018, respectively. Cancer registry data are also very useful for epidemiologic research into trends of burden in different disease categories and associated economic evaluations.

In 2013, the Ministry of Public Health implemented a new policy, the so-called Service Plan Policy, to strengthen the health care system. As part of this, the number of hospital based cancer registries was rapidly increased from 30 in 2012 to 330 in 2017. Thus, cancer registration is taking on expanded roles, for example in treatment related planning such as determining how much investment in radiotherapy machines is needed.

Although PBCRs were launched in Thailand several decades ago, the quality of the data generated still needs improvement, particularly in view of our ongoing National Cancer Control Programme activities which depend on accurate monitoring and detailed evaluation.

A new stage in cancer registry in Japan: from the preceding era of creation and management of database towards utilization of the data

Tomohiro Matsuda

National Cancer Registry Section, Center for Cancer Registries, Center for Cancer Control and Information Services, National Cancer Center, Tokyo, Japan

All 47 prefectures nationwide are maintaining a Population-based cancer registry (PBCR), resulting in 100% coverage of the population in Japan in 2014. In addition, the Cancer Registry Promotion Act was enacted in 2016. The Act clearly addresses the following: (1) cancer reporting will become a legislative duty of hospitals; (2) information collected in each PBCR must be registered in the newly installed database system in the National Cancer Center (NCC); (3) the NCC will follow subjects in the database up by linking to national death certificate data files to calculate accurate cancer survival; and (4) the national government will provide financial support to PBCRs for part of the cost of the registration. We consider that the new Act will lead to the provision of both nationwide and prefecture-based cancer control planning based on robust evidence.

This Act comprehensively takes into account the release and use of data, as well as data collection and processing. As long as consent is obtained from the patients, researchers can obtain identifiable data of patients from the national cancer registry database with linkage to records. It is expected that this system will promote nationwide cohort studies, with cancer incidence, mortality and survival as the outcome measurement, and it will make maximum use of the existing public health statistics by linking with the National Cancer Registry data.

The cancer registry data are already served as resources to set a target of the 3rd term Basic Plan to promote cancer control programs. We are planning to share this series of experience with the other Asian countries to support development of their cancer control programs.

Utility of cancer registry data I - Quality control of cancer screening

Kumiko Saika

Center for Public Health Sciences, National Cancer Center, Tokyo, Japan

Providing a quality control measure for cancer screening program is one of the most important roles of cancer registry to reduce cancer mortality. To evaluate cancer screening program, there are several performance indicators such as participation rate, recall rate, work-up rate, positive predictive value, false positive rate, false negative rate, sensitivity and specificity. Local governments offer cancer screening to residents in Japan, and most of them follow subjects with a positive screening test, however few follow those with a negative screening test. Cancer registry data enable the local governments to grasp cancer incidence among all subjects who received cancer screening precisely. In particular, sensitivity and specificity, main indicators of cancer screening program, will be calculated. Besides, as it becomes possible to identify the X-ray films of the case with false-positive or false-negative, the medical doctors will have an occasion to improve their X-ray interpretation ability. As a remaining issue, it requires tumor registrar's steady efforts to identify accurately who has cancer among people receiving cancer screening, since we have no personal identification number used in common in Japanese society.

Utility of cancer registry data II - Cancer control based on geographical analysis

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Division of Cancer Statistics Integration, National Cancer Center, Tokyo, Japan

In Japan, population-based cancer registries (PBCRs) have been operating in all 47 prefectures since 2012. And then all PBCRs met the data quality standards required for comparison of incidence among prefectures in 2012 report. Maintenance of PBCRs nationwide has enabled us to examine geographical disparities in cancer incidence in combination with cancer mortality. This presentation shows that geographical disparities for cancer incidence and mortality in Japan and introduce the utility of the information for cancer control appropriate to each prefecture.

Geographical disparities in incidence and mortality are seen in several cancer sites such as stomach and liver. Several cancer sites have the same geographical patterns between incidence and mortality, but others have no clear relation. From these characteristics, we can get a handle on the decision of the priority actions for cancer control. Moreover, using other geographical statistics regarding risk factors and early detection will be useful for further focusing the priority action. For instance, if a geographical region had high incidence and mortality rate of lung cancer, and also has high prevalence of smoking, prevention strategy, namely tobacco control, would be the first priority. There may be another case where a geographical region has high mortality rate of colorectal cancer compared to other regions, although there are not much of difference in the incidence between the region and others. In this case, we need to further know geographical patterns of the proportion of patients diagnosed at early or late stage and screening rate. If the region has a low screening rate and/or small proportion of early diagnosis, promotion of screening and/or quality assessment screening procedures will be high priority action.

Regional disparities in cancer incidence, mortality and cancer care are a major challenge in Japan. PBCRs' data and other population-based statistics will give us useful information to overcome that issue.

Symposium 6

Decision Making Tool for Health Policy based on Innovative Simulation Approach

Moderator: Tomotaka Sobue (Division of Environmental Medicine and Population Science, Osaka University, Osaka, Japan)

Recent development in sophisticated computer simulation approaches enabled us to deal with complicate health problems using results from conventional epidemiological studies such as cohort studies, randomised controlled trials, and official statistics. In this session, presenters introduce some examples of application of simulation model to disease control policy.

Several statistical approaches have been developed such as Markov chain Monte Carlo Simulation, System Dynamics Model, Microsimulation model and others. We invite speakers who have applied those models to estimate the effect of disease control activities using real world data in their own countries. We can share their experience and discuss further applications for health policy in the world.

Recent trends and future projections for dementia in England and Wales to 2040: Estimates from the IMPACT-Better Ageing Model

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Background: As life-expectancy rises, dementia is expected to impose increasing societal and healthcare burden. Forecasts for dementia prevalence are vital in defining future needs and can be improved with a dynamic modelling approach that integrates calendar-trends in dementia incidence with those for mortality and cardiovascular disease.

Methods: The English Longitudinal Study of Ageing (ELSA) is a representative panel study with 6 waves of data across 2002-2013. Age- and sex-specific dementia incidence rates were calculated between consecutive waves of data collection. Calendar trend in dementia incidence was estimated by fitting a joint model of longitudinal and time-to-event data to account for higher loss to follow-up of study participants with dementia. The probabilistic Markov-model IMPACT-BAM was used to predict future dementia prevalence, accounting for competing effects of changing risks of cardiovascular disease and dementia and the growing pool of susceptibles due to increased life-expectancy.

Results: Dementia incidence was estimated at 14.3 per 1000 person-years in men, and 17.0/1000-PY in women aged 50+ in 2010. Dementia incidence declined at a relative rate of 2.7% (95%CI 2.4-2.9) per-year over the period 2002-2013. Using IMPACT-BAM we estimated approximately 766000 (95% Uncertainty Interval 735000-797000) people are living with dementia in England and Wales in 2016. Despite the decrease in incidence, the number living with dementia is projected to increase to 872000, 1092000, and 1205000 in the years 2020, 2030, and 2040 respectively. Population ageing is a main contributor as the age-standardized prevalence is declining. A sensitivity-analysis without the incidence decline gave a much larger projected growth - over 1.9 million living with dementia in 2040.

Conclusion: Despite the decline in age-specific dementia incidence, the number of people living with dementia in England and Wales is likely to increase by 57% from 2016 to 2040. This increase is mainly driven by increasing life-expectancy and population-ageing.

A Simulation model of Incidence of Cardiovascular Diseases using Risk Prediction Chart in Japanese men: an application of system dynamics model

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System dynamics is used to model a dynamic complexity with stocks, flows, internal feedback loops and time delays, and to test intervention effectiveness. An example of its use is introduced in the presentation.

The study was aimed to simulate incidence of cardiovascular diseases (CVDs) in Japanese men using risk prediction chart. Simulation models of calculating incidence of CVDs from 2003 to 2032 for Japanese men aged 40 to 79 by Vensim DSS 6.2 were developed. Japanese population data from 2003 to 2014, number of total deaths from 2003 to 2015, and data for cardiovascular risk (systolic blood pressure, total cholesterol, smoking, and diabetes) of the National Health and Nutrition Survey from 2003 to 2010 were used to optimize parameters by 10-year age group. WHO/ISH risk prediction chart (2010) for Group A in the Western Pacific Region of the World Health Organization was applied, and the incidence rates for 5 risk levels were set as 1%, 2%, 3%, 4%, and 6%, respectively (status quo). Simulations were also performed assuming the 5th risk level as low as the 4th risk level (high-risk strategy) and the 5th, 4th, 3rd, and 2nd risk levels as low as the 4th, 3rd, 2nd and 1st risk levels, respectively (population strategy). In the status quo, the number of CVD incidence increases continuously for men aged 60 to 69 years until around 2025. The high-risk strategy showed almost the same results as the status quo, but the population strategy revealed that a number of incident CVDs would be reduced to two thirds of the status quo eventually. In conclusion, the effect of aging on CVD incidence among the Japanese population is inevitable, but the population strategy could decrease incidence of CVDs substantially.

Microsimulation model for colorectal cancer to estimate effect of FOBT screening programme and improvement in cancer care in Japan: CAMOS-J CRC

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Cancer Modeling & Simulation Group in Japan (CAMOS-J) project tries to construct microsimulation system for estimating the effect of cancer control program. In particular we report the result for CAMOS-J CRC (colorectal cancer) which evaluate the effect of the reduction for mortality rate owing to FOBT screening and improvement in cancer care.

Implementation of CAMOS-J CRC system starts from natural history model, which is the diagram describing the mechanism of carcinogenesis. The natural history expresses the minimum necessary possible paths from no lesion to carcinogenesis and cancer mortality. In the natural history, stochastic model interprets the transition from one situation to the next. By implementing the stochastic model as the randomized simulation virtually, we can revive the situation for carcinogenesis.

In CAMOS-J CRC, two intervention factors are considered, one is FOBT screening and another is improvement in cancer care. In the present status, medical examination rate in colorectal cancer is 40% for male and 35% for female, respectively, and detailed examination rate is 65%. If they are assumed to be improved as 50% for medical examination and 90% for detailed examination, then the reduction for age adjusted mortality rate under 75 years old is estimated as 9.4% for male and 6.2% for female. On the other hand, for improvement in cancer care, we assume that the survival rate in all hospital is improved to the same level in the designated cancer hospital. Then the reduction for mortality rate is estimated as 4.3% for male and 4.0% for female. These interventional effect is estimated to contribute to the reduction for whole mortality rate as 3.9% for screening and 3.0% for uniform accessibility of treatment. Such simulation-based approach based on several scenario should be utilized initiatively for planning and optimizing efficient cancer control program.

Canadian OncoSim Model: Overview, features and applications

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The oncology microsimulation model, OncoSim, developed by the Canadian Partnership Against Cancer in collaboration with Statistics Canada, is a comprehensive, web-based decision-making tool that projects population-based health and economic impacts of alternative cancer control strategies in Canada. The model synthesizes a wide variety of epidemiological, clinical, administrative, survey and economic data. This allows the modelling of natural history, risk factor dynamics, incidence, mortality, resource use and costs. OncoSim is constructed in a very flexible manner such that policy makers and analysts can explore population-level impacts of cancer prevention, screening and treatments. To date, OncoSim models lung, colorectal, human papillomavirus (HPV)/cervical and breast cancers. The model has been used by policy makers in Canada to assess the impact of HPV DNA testing for primary cervical cancer screening and colposcopy management and the feasibility of organized lung cancer screening, among others. The presentation will provide an overview of OncoSim, including model components (modelling approach, statistical analyses, data, and validation process) and types of cancer control strategies considered. Model features and outputs will be illustrated through a short case study on clinical and economic analyses of HPV vaccination and cervical cancer screening strategies.

Use of simulation models to inform vaccine policies and recommendations in Canada

Ken Eng

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Cost effectiveness analyses based on simulation models that compare the costs and health outcomes of vaccine strategies on infectious disease control activities are important inputs into policy making decisions. Simulation models can be used to assess vaccine costs compared to the health impact on morbidity and mortality. Models simulate disease sequelae to examine what if scenarios for alternative vaccine strategies on various epidemiological and economic outcomes. They include changes in incidence, deaths, health care utilization (e.g., hospitalizations and physician visits) and costs arising from vaccine administration and health care utilization. Outcome measures such as the quantity and quality of life based on Quality Adjusted Life Years are also considered.

In this presentation, an overview of the use of simulation models in estimating epidemiological and economic outcomes will be provided. The presentation will explain the role of simulation models in the context of cost effectiveness analysis to help inform vaccine recommendations. Some brief details on the development of national level recommendations in Canada will be provided. The Canadian National Immunization Technical Advisory, the National Advisory Committee on Immunization (NACI) makes recommendations for the use of vaccines currently or newly approved for use in humans in Canada. The NACI provides ongoing and timely medical, epidemiological and public health advice on vaccine use, with recommendations published in literature reviews, statements and the Canadian Immunization Guide. The NACI recommendations are based on evidence related vaccine efficacy, immunogenicity, effectiveness and safety. Recently, recommendations also consider additional elements including vaccine cost effectiveness, feasibility, acceptability, equity and ethics.

Symposium 7

Workplace intervention to improve worker health

Moderator: Akizumi Tsutsumi (Kitasato University School of Medicine, Japan)

Workplace improvement has been drawing the attention as an important strategy to workers' health and companies' productivity. Speakers represent three different countries, and their contributions refer to their empirical experiences on this strategy and its influence on health outcomes and national regulations to spread the measure.

In the first part of this session, the methodological issue including the implementation and the evaluation of intervention will be discussed based on the empirical evidence. Prof. LaMontagne will present data from a cluster-randomised intervention trial in an Australian police force. Researchers encountered several difficulties to implement and evaluate their intervention which will facilitate the discussion on many methodological challenges of the intervention.

Dr. Yoshikawa will share an experience of the mental health project for prefectural employees, a new participatory program for workplace environment improvements, named "Workplace Dock." He will discuss the role of applying an action toolkit focusing on stress-reducing improvements and its challenges in terms of measures and evaluation in his presentations.

In the second part of this session, we will discuss how to spread workplace improvement at the national level. Dr. Watanabe will present the relationship between workplace improvement and work-related stress using a Japanese national representative data. From the observation, the authors will discuss the necessity of gender- (or other character-) specific strategy for workplace improvement.

Dr. Park will introduce new regulations relating job stress management as an intervention at national level in Korea, one of the few regulations of this sort internationally. The national project particularly emphasizes the implementation in small-sized enterprises. The development, rationale, and anticipated implementation and enforcement strategies will be discussed together with the recently launched Japanese Stress Check Program, a new occupational health policy to screen for workers with high psychosocial stress in the workplace.

An integrated workplace mental health intervention in an Australian police context: results of a cluster-randomised trial

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Background: We developed, implemented, and evaluated an integrated workplace mental health intervention in an Australian police context. The primary aims of the intervention were to improve psychosocial working conditions and mental health literacy.

Study Design & Methods: We used a two-arm cluster-randomised trial design following CONSORT guidelines, with 12 police stations randomly assigned to the intervention and 12 to non-intervention control. The intervention combined multi-session leadership coaching for the senior officers within police stations with tailored mental health literacy training for all ranks. Data were collected from all police members in each station (n = 828 at baseline [response rate of 75.1%] and 736 at follow-up [response rate of 69.1%]). Psychosocial working conditions (e.g., supervisory support, job control, job demands) and mental health literacy (e.g., knowledge, confidence in assisting someone who may have a mental health problem) were assessed using established measures. Effectiveness was evaluated using generalised estimating equations, controlling for station level characteristics. We also conducted a mixed method process evaluation.

Results & Discussion: Twenty-three stations completed the trial (one intervention station dropped out). Due to a range of challenges, intervention activities were only partially implemented for both senior officers and troops (~50% implementation). Some challenges were organisational (e.g., high mobility of police members) and some station level (e.g., operational demands limiting police member availability). There was no improvement in the outcomes measured in intervention versus control groups.

Conclusions: The multiple barriers to intervention implementation limit the ability to draw effectiveness conclusions. For such an intervention to have the intended impacts, additional resources, a longer intervention period, and system-wide implementation may be needed in order to embed supportive leadership practices, and then for those practices to flow through to the troop level.

Participatory workplace environment improvements for managing mental health in diverse workplaces

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Aim: Within the mental health project for prefectural employees, a new participatory program for workplace environment improvements, named "Workplace Dock", was undertaken by facilitating immediate actions in diverse workplaces. A particular emphasis was placed on facilitating primary prevention of work-related stress.

Methods: An action toolkit for workplace environment improvements was developed by incorporating local good examples, an action checklist listing workplace actions for improving stress-related conditions and a manual on group planning of feasible improvements. A participatory program for improving workplace environment in most workplaces of prefectural employees was conducted in fiscal years 2010-2015. Improvements conducted following a one-day workshop for volunteer facilitators selected from participating workplaces were analyzed. Their effects on stress reduction were assessed.

Results: From among 166 workplaces that participated in the program, more than 200 improvements were reported in each fiscal year. These improvements covered the six technical areas of the action checklist: (a) sharing information, (b) working time arrangements, (c) ergonomic work methods, (d) physical environment, (e) mutual support and (f) mental health care. Typical improvements included better information signs, sharing files, securing no-overtime days, organized storage, improved manager-worker communication and renewed emergency plans. As workers were actively involved in conducting multiple improvements, the workplace climate usually improved. The action toolkit proved useful for facilitating the wide-ranging improvements. The factors contributing to implementing these improvements included the participatory process accelerated by trained facilitators, the use of the locally adapted toolkit and the active exchange of successful improvements. By assessing the outcomes, it was agreed to continue the program by focusing on effective dialogue procedures.

Conclusion: Multiple workplace environment improvements were achieved in diverse work situations by applying an action toolkit focusing on stress-reducing improvements. It is suggested to promote participatory action-oriented programs for improving workplace environment in managing mental health with the support of facilitators.

Improvement of the work environment in Japan: characteristics, the association with work-related stress, and its gender differences in a nationally representative sample

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Now that improvement of the work environment is one of the major strategies in occupational health in guidance by many organizations and countries, there is certain evidence to improve work-related stress in several systematic reviews and well-designed randomized controlled trials. However, improvement of the work environment has often failed in reality, due to many possible processes and contextual issues. In addition, one approach to improvement may not fit everyone at workplace, which could decrease the effect of a general approach on some subgroups, such as women. Therefore, the effectiveness of improvement of the work environment on reducing work-related stress among workers in the real world is still not clear. In our presentation, we would like to introduce results of our study based on a national, population-based survey in 2012, to monitor the effectiveness of improvement of the work environment on work-related stress at the national level. Among samples, 19.5% of worksites conducted improvements to their work environment. Improvement of the work environment had slightly negative, but not significant, relationships with any level of work-related stress. However, gender-stratified analyses indicated contrasting results for men and women: the relationship was negative and significant among men but not significant among women. From the results, improvements to work environments may be effective for reducing work-related stress among men nationwide in Japan. The finding challenges the current national strategy promoting improvement of the work environment as a measure of worksite mental health in Japan. Programs and procedures for improving the work environment should be reviewed from a gender equality perspective and then improved if necessary.

Policy intervention on psychosocial risk in South Korea

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Korean government introduced a risk assessment program to curb increasing occupational injuries and diseases in small-sized workplaces in 2012, and has supported the workplaces in various ways including providing web-based tools for easy and simple risk assessment through Korea Occupational Safety and Health Agency (KOSHA) for soft-landing of the program. However, work-related stress has not included yet in the formal risk assessment program, although the presenter has suggested that Participatory Action Oriented Training (PAOT) is a practical approach to a risk assessment of work-related stress.

Working for long hours and emotional labor have been raised as very hot occupational safety and health (OSH) issue by labor organization these years in Korea. Regarding the former issue, an internationally well-known notorious issue, Korean government is trying to decrease legally permissible working hours to 52 hours at most per 5 days including extended working hours by Labor Standard Act through the *tripartite committee* by labor, management and the government to decrease long working hours. In addition, several National Assembly members work on a legislation concerning emotional labor, which is supposed to be made in OSH Act within this year in response to demand from labor organizations for protecting customer-facing service workers, who are exposed to physical and verbal violence.

In Korea, legislation or system improvement is usually made as follows; issue raising by labor organization, and then motion of legislation by National Assembly members supporting the labor side, and then policy-making research by researchers and government, including current situational analysis, confirmation of scientific evidence, survey on programs of foreign countries, and finally, establishment or amendment of regulations. These legal establishments or amendments aim to increase awareness among employers for psychosocial risks, create 'certainty of action' and assist employers in complying with their duties under law.

Symposium 8

Epidemiology of mental health after disasters: from research to implementation

Moderators: Norito Kawakami (Department of Mental Health, School of Public Health, The University of Tokyo, Japan)

Kiyomi Sakata (Department of Hygiene and Preventive Medicine, Iwate Medical University School of Medicine, Japan)

In these days, disasters frequently occur, including both natural disasters, such as earthquakes and tsunamis, and man-made disasters, such as explosion and nuclear power plant accidents. There is well-documented knowledge on post-disaster mental health from epidemiology studies of disaster survivors. The United Nations Post-2015 Framework for Disaster Risk Reduction (HFA2) clearly states that in order to enhance disaster preparedness for effective response, and to build back better in recovery, rehabilitation and reconstruction, it is necessary to enhance recovery schemes to provide psychosocial support and mental health services for all people in need (Priority #4, item (o)). However little of the accumulated knowledge has been converted into implementations for better disaster preparedness. This symposium will review selected previous epidemiologic studies of disaster survivors of earthquakes, tsunami, and nuclear power plant accident, and discuss what has been learnt from these studies and what messages from these studies for disaster preparedness are. The first speaker will talk about a study of disaster impact on mental health based on a longitudinal study in New Zealand. The second speaker will review studies of mental health impact of the Great East Japan Earthquake in 2011, and summarize lessons learnt. The third speaker will focus on the Fukushima Da'ichi Nuclear Power Plant accident subsequent to the Great East Japan Earthquake in 2011, and possible implications into actions for survivors and future disaster preparedness plans. After the all presentations, a discussion will be facilitated to address difficulty in translating epidemiologic knowledge based on post-disaster surveys limited in many ways and depending on specific disasters into a general knowledge, and how to overcome the barriers and implement the findings into improved disaster preparedness.

Mental health impacts of a major disaster in a New Zealand birth cohort: a natural experiment

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Introduction: There has been growing research into mental health consequences of major disasters. Few studies have controlled for prospectively assessed mental health. This presentation describes a natural experiment in which 57% of a well-studied birth cohort was exposed to a major natural disaster (the Canterbury, New Zealand, earthquakes in 2010-2011), with the remainder living outside of the earthquake area.

Methods: Data were gathered as part of the Christchurch Health and Development Study, a 35-year longitudinal study of a New Zealand birth cohort. In 2012, approximately 20-24 months after the start of the earthquake sequence, data were gathered on the extent of earthquake exposure and mental health outcomes for 952 study participants (77% of the surviving cohort).

Results: After covariate adjustment, those in the highest quartile of earthquake exposure had overall rates of disorder that were 1.4 (95%CI 1.1-1.7) times higher than those who were not exposed. This increase was due to increases in the rates of major depression; PTSD; other anxiety disorders; and nicotine dependence. Similar results were found using a measure of subclinical symptoms (IRR = 1.4; 95%CI, 1.1-1.6). Estimates of attributable fraction suggested that earthquake exposure accounted for 11%-13% of the overall rate of mental disorder in the cohort at age 35 years. Further examination of the factors most predictive of anxiety/internalising responses amongst those with high earthquake exposure identified a constellation of factors including: prior history of mental disorder, prior exposure to trauma and individual stress responsivity.

Conclusions: Following extensive control for prospectively measured confounding factors, exposure to the Canterbury earthquakes was associated with a small to moderate increase in the risk for common mental health problems. This increase in risk was in part a reflection of prior individual and psychosocial vulnerabilities. Potential limitations and implications for longer term follow-up of the cohort will be discussed.

Frequencies, risk factors, and help-seeking for mental disorders/poor mental health among disaster survivors after the Great East Japan Earthquake 2011

Norito Kawakami

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Introduction: In the Great East Japan Earthquake of March 11, 2011, huge earthquakes and subsequent tsunamis hit coastal areas of three prefectures (Iwate, Miyagi, and Fukushima) of the Tohoku region of Japan. The magnitude and size of the earthquakes and tsunamis were tremendous, causing numerous casualties. Recovery from the disaster took longer; about 220,000 residents were evacuated from their homes and about 100,000 still lived in temporary housing. This paper reviews frequencies, risk factors, and help-seeking for mental disorders or poor mental health of disaster survivors after this huge earthquake and discuss their implications on disaster preparedness actions.

Methods: Published reports were systematically searched using PubMed. Unpublished reports were also collected by hand.

Results: Studies consistently reported increases in depression and anxiety among survivors. However, there is an analysis showing that assessment instruments of depression and anxiety may behave differently in disaster survivors and a non-affected population. An increased incidence of common mental disorders was observed in people who lived in temporary housing, while the prevalence was not different from the general population 3 years after the disaster. There are mixed findings on risk factors of mental disorders and poor mental health among disaster survivors. Help seeking behaviors for mental health were increased in disaster survivors.

Conclusion: While the incidence of mental disorders increased after the Great East Japan Earthquake and tsunami, part of increased depression and anxiety may be attributable to differential item functioning of measures. Risk factors of post-disaster mental disorders may depend on the situation, thus a high risk group should be determined case by case. Help-seeking seemed facilitated through a community-based effort.

Mental health after the Fukushima Nuclear Power Plant Accident: from research to implementation

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The Great East Japan Earthquake caused the Fukushima Nuclear Power Plant Accident, which compounded the problems of the residents in terms of long-term evacuation, uncertainty for the future, and concern over the health effect of the radiation. Mental health is one of the focuses of the Fukushima Health Survey, and this has been monitored for a long term, based on lessons learnt from the Chernobyl nuclear accident.

Psychological distress and traumatic reaction saw a gradual improvement in the first three years, but still remained high (Oe, 2016). Exposure to the disaster and secondary stressors due to the disaster increased the risk of psychological distress (Kunii, 2016), and women and older people showed higher degree of traumatic reaction (Iwasa, 2016), which are consistent with other disaster research. The risk perception of radiation effect on health, especially which of long-term effect, increased the risk of psychological distress (Suzuki, 2015). With regard to risk perception, damage caused by the disaster, and educational level was associated with the risk perception, suggesting that not only educational or didactic but emotionally supportive approach is needed for better risk communication.

Based on the results, at individual level, the support team offers telephone counselling to the residents with possible mental health problems and liaises them with local health care providers. At population level, the result is utilized to inform staff the way to communicate with residents about risk of radiation. The psychological state of evacuees are complicated and fluctuating, thus staff in the field had tremendous emotional burden in the midst of complexity. With discussion with local staff, we try to elucidate the relationship of the psychological distress, traumatic reaction, and risk-perception to guide the local staff to sort out the complexity in the face of their return to the hometown.

Symposium 9

Life course epidemiology of mental disorders: current evidence and methodological challenge

Moderators: Norito Kawakami (Department of Mental Health, The University of Tokyo, Japan)
Shuntaro Ando (The University of Tokyo Hospital / Tokyo Metropolitan Institute of Medical Science, Japan)

This symposium focus on recent advancement of epidemiologic research on the association between life course variables such as childhood adversities and adult mental health, such as subsequent onset of mental disorders and other psychopathology in adulthood. The life course approach to understanding the etiology of mental disorders supposes that the onset of the disorders could be affected by multiple variables over life course from gene, early life experience, to recent life experiences. These variables also can mediate or moderate each other. The approach raises a huge challenge to the epidemiologic methodology to investigate the model, because of its complexity both in the study design and analysis strategy.

In this symposium, four speakers will talk recent evidence from life course epidemiology studies, and discuss methodological challenges. The first three speakers introduce their prospective cohort studies from childhood or adolescence into adulthood to investigate the life course associations. The last speaker talks about a different approach to investigate the associations based on retrospectively recalled data, which has clear limitations but is more feasible, thus may still be useful.

After all these presentations, speakers and other participants discuss a way to design better a life course epidemiology research.

Epidemiological Approaches to Longitudinal Mental Health Research in the ALSPAC cohort in the UK

Sarah Sullivan, Stanley Zammit, Liam Mahedy, Gemma Hammerton, Rebecca Pearson, Iryna Culpin, Hannah Jones, Blanca Bolea

University of Bristol, UK

Introduction: There has been much research endeavour to determine the risk factors and outcomes of mental health problems. This has proved difficult and it could be argued that mental health research has been less successful in this than physical health research. In many cases we are still not sure exactly what causes some mental health problems, nor the best way to treat them. One reason is that mental health epidemiology is extremely complex. Frequently, causes are multi-factorial, inter-correlated and difficult to measure and hidden confounding is an influential problem. Consequently we argue that epidemiology, in the context of prospective birth cohort studies, with an appropriate approach to methodological problems is a promising way forward. I will present some work that we have been doing at the University of Bristol using data from the Avon Longitudinal Study of Parents and Children (ALSPAC) as an example.

Methods: All pregnant women resident in the Avon Health Authority in the South West of England who had an estimated delivery date of between 1st April 1991 and 31st December 1992 were invited to participate. The children of 15,247 pregnancies were recruited. Of this sample 14,701 were live births and were also alive at one year. A vast amount of data has been collected on parents and children in the cohort. Some also now have their own children, allowing intergenerational approaches. The mental health data collected has been particularly rich and many measures have been repeatedly collected. The cohort participants are now approximately 26 years of age and of course there has been considerable attrition, however there are still approximately 5000 active participants. The mental health research carried out has been varied and influential. We have also used methodologies which aim to reduce the influence of; missing data, loss to follow up (selection bias), measurement error and residual and unmeasured confounding. We have investigated; psychotic experiences, autistic traits, depression (including post and peri-natal depression) and anxiety, conduct disorder, ADHD, substance abuse and self-harm and suicidal behaviour as examples. We have used; structural equation modelling, confirmatory and bi-factor model approaches, pathways analyses, instrumental variables, polygenic risk scores, longitudinal latent class analyses and linkages to routine clinical data.

Results: I will discuss findings and methods used in work carried in Bristol and illustrate how different methodologies have resolved some of the data problems. I will also illustrate how replicating findings in different cohorts is an extremely powerful tool.

Childhood sexual abuse and adult mental health outcomes: methodological issues

John Horwood, David Fergusson, Joseph Boden, Geraldine McLeod

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Introduction: Assessment of childhood exposure to abuse/maltreatment in general population samples almost invariably relies on retrospective reports of abuse obtained in adulthood. However, questions remain about the reliability/validity of retrospective reports in evaluating the linkages between abuse exposure and later outcomes. This presentation uses data gathered in the context of a longitudinal study of a New Zealand birth cohort to examine stability/continuity/errors of measurement in retrospective reports of childhood sexual abuse and implications for the assessment of relative risk of adverse adult mental health outcomes.

Methods: Data were gathered as part of the Christchurch Health and Development Study, a 35 year longitudinal study of a birth cohort of 1265 New Zealand children. Retrospective reports of exposure to childhood sexual abuse (<16 years) were obtained at ages 18, 21, 30 and 35 years. Participants were also assessed on adult mental health outcomes from age 18-35.

Results: There was considerable instability in abuse reports obtained at different points in adulthood with values of kappa typically <0.50. Abuse reports did not appear to be contaminated by current mental state. Latent variable modelling suggested instability in abuse reports largely reflected a high rate of false negative reporting amongst those who had been abused. While different approaches to classifying abuse status led to wide variations in the estimated prevalence of abuse exposure, estimates of the relative risk of adverse mental health outcomes conditional on abuse exposure remained relatively stable.

Conclusions: Retrospective reports of exposure to childhood sexual abuse are characterised by considerable instability and unreliability. As a consequence prevalence estimates of abuse exposure derived from a single reporting occasion will provide a substantial underestimate of the true prevalence of abuse. However, estimates of relative risk of adverse mental health outcomes appear to be robust to the effects of reporting errors.

The Tokyo Teen Cohort study: an adolescent cohort study with life course approach

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Adolescence is the period when many mental disorders have their onsets. Investigation into risk factors for adolescent mental health problems and their effects on life course is required; however, there has been few cohort studies which focused on this issue.

We launched a prospective cohort study (Tokyo Teen Cohort: TTC) on adolescents at three municipalities in metropolitan area in Tokyo, Japan. The sample was recruited from the participants in Tokyo Early Adolescence Survey (T-EAS), which was a cross-sectional survey on general 10-years-old children conducted between 2012 and 2015. The data from T-EAS was treated as the first wave of TTC, and the second wave was conducted on 12 years old children. We collected multidisciplinary data including mental health on both children and parents by self-report questionnaire and home-visit interview. Further, we have launched two subsample studies which focus on biological markers such as brain MRI, EEG, and sex hormone. TTC is based at three research institutes, and ethics approval has been granted by all of the three institutions.

Participants of TTC was recruited from 4478 children who participated in T-EAS. When choosing the participants of TTC, oversampling method of families with low annual household income was used. Of the invited 3251 children, 3007 children participated in TTC second wave (follow-up rate: 92.5%). Approximately 300 children participated in the subsample study. Several papers were already published and submitted, and many national/international research collaborations have started.

Continuous efforts should be made to keep a high retention rate and further data should be collected also from father and siblings in the future.

Epidemiology of psychotic experiences: life course analysis based on data from the World Mental Health Survey Initiative

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Introduction: Cross-sectional surveys are commonly used to study incidence and prevalence of disease at a specific point of time mainly for generating hypothesis for future research. Typically causal relationships are not inferred because direction of causality cannot be ascertained (exposure may precede or follow the outcome). If the timing of various exposure and outcome variables are collected, the analysis can be performed in such a way that mimics the design of a pseudo-longitudinal study.

Methodology: We used data from the World Mental Health Surveys (WMHS) Initiative, a collection of cross-sectional surveys from many countries to study the association between childhood adversities (CAs) and the subsequent onset of psychotic experiences (PEs). We examined (a) whether prior exposure to CAs impacts on the risk of developing PEs, (b) the strength of association in different life course stages, and (c) whether other common mental disorders are potential confounders/mediators in the causal pathway. The WMHS initiative retrospectively assess the ages of onset of mental disorders and age of exposure to childhood adversities along with other adverse social consequences. Since timing of mental and physical conditions were measured coarsely (in years as opposed to days), discrete-time survival analyses were used to analyse the data.

Results: Exposure to CAs was common and those who experienced any CAs had increased odds of subsequent PEs. Associations between CAs and PEs persisted despite adjusting for the presence of other prior mental disorders.

Conclusion: Despite some obvious limitations (e.g. recall bias), using discrete-time survival analysis is a useful way of overcoming major weaknesses of cross-sectional studies, which in turn may help in constructing realistic prospective studies.

Keyword: Cross-sectional study, psychotic experiences, survival analysis, mental health, epidemiology, life course analysis

Symposium 10

Community engagement in research involving human participants

Moderators: Kaori Muto (Department of Public Policy, The Institute of Medical Science, The University of Tokyo, Japan)

Akiko Tamakoshi (Department of Public Health, Graduate School of Medicine, Hokkaido University, Japan)

'Community engagement' is the relatively new key concept that justifies epidemiological studies. As the 'International Ethical Guidelines for Health-related Research Involving Humans' (CIOMS, 2017) indicated, 'It is important to ensure full participation of communities in all steps of the project, including discussions of the relevance of the research for the community, its risks and potential individual benefits, and how any successful products and possible financial gain will be distributed, for example through a benefit-sharing agreement.' The engagement process is believed to help build trust between the community and researchers. Several previous studies have already reported the process and outcomes of community engagement in various types of studies including epidemiological research.

In the case of birth cohort studies, researchers must share the collaborative process not only with the local community in general but also with the participants – both parents and children. The important thing we should consider is the transition of the main participants – the parents and children. Although children are enrolled in birth cohort studies by the proxy consent of their parents, as they grow older, they agree to the studies and, finally, provide informed consent to continuously participate by themselves. During the whole process, they may respond to questionnaires by themselves instead of with the help of their parents.

In this session, Professor Kaori Muto will share her views on the idea and values of 'community engagement' and summarize the factors that need to be considered in epidemiological studies. We will then explore two birth cohort studies from the UK and Japan. Ms Lynn Molloy will share her experiences from the Avon Longitudinal Study of Parents and Children (ALSPAC, Children of the 90s), followed by Dr Eiko Suda's thoughts and discussions on the Japan Environment and Children's Study (JECS).

S10-1

Patient and public engagement as an ethical requirement for research involving human participants

Kaori Muto

Department of Public Policy, The Institute of Medical Science, The University of Tokyo, Japan

S10-2

Participant Engagement: the ALSPAC experience

Lynn Molloy

ALSPAC (Children of the 90s), School of Social and Community Medicine, University of Bristol, UK

S10-3

Toward partnership with research participants - experiences and challenges in Japan -

Eiko Suda

Japan Environment and Children's Study (JECS) Programme Office, Centre for Health and Environmental Risk Research, National Institute for Environmental Studies, Japan

Symposium 11

Kawasaki disease: Epidemiological approach to the disease with unknown etiology

Moderator: Yosikazu Nakamura (Jichi Medical University, Japan)

Since Dr. Tomisaku Kawasaki first reported Kawasaki disease in 1967, Just a half century has passed and more than 300 thousand patients have been reported in Japan, but the etiology is still unknown. The patients were reported from more than 60 countries and areas around the world. The pathogenesis is systemic vasculitis, and cardiac sequelae, such as coronary aneurysms, are one of the large problem.

Since 1970, 23 nationwide epidemiologic surveys have been conducted in Japan. Epidemiologic surveys have been conducted in some countries, such as in Korea, China, Taiwan, and the United States as well. In addition, several case-control studies have been conducted, but no risk factor was revealed. Descriptive epidemiologic features indicates that infectious agency (agencies) roll(s) a play as a trigger of the disease. Host characteristics also affects the onset, although no SNP was find out to elevate the risk of the disease definitely.

In this symposium, Dr, Ishii, a pediatrician, presents the over all features of Kawasaki disease first. Then, four epidemiologists, Drs. Belay from the US, Du from China, Davaalkham from Mongolia, and Makino from Japan presents the epidemiologic features of Kawasaki disease in their countries, and speculations about the etiology from the epidemiologic features of the disease.

Epidemiologic approaches for diseases of which etiology is unknown should be discussed.

(Collaborate symposium with the non-profit organization, Japan Kawasaki Disease Research Center, of which president is Dr. Tomisaku Kawsaki)

S11-1

Kawasaki disease: update

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Kawasaki disease is a type of vasculitis of unknown etiology mainly affecting small and medium-sized arteries. In Japan, the number of patients with Kawasaki disease has recently been increasing, with more than 10,000 patients developing Kawasaki disease every year, thus indicating a record-high prevalence. The main symptoms are fever and bilateral bulbar conjunctival congestion, along with the exhibition of reddening of the lips, strawberry tongue, polymorphous exanthema, indurative edema of hands and paws, or erythema of palms and soles in acute phase, membranous desquamation from the finger tips during the convalescent phase, and acute nonpurulent cervical lymphadenopathy. Even today, with the development of intravenous immunoglobulin (IVIG) therapy, cardiovascular lesion occur in approximately 3% of patients. Sequelae which develop into aneurysms in the coronary arteries are particularly important. They lead to acute coronary artery syndrome including myocardial infarction. In Japan, the group of adult patients with acute coronary syndrome includes 100 to 200 patients with a history of Kawasaki disease. In developed countries which have overcome rheumatic fever, it is the main cause of acquired heart disease. In this lecture, I would like to discuss the clinical conditions of Kawasaki disease, the facts regarding acute therapy, and the prognosis of cardiovascular lesion in long-term period after onset of Kawasaki disease.

S11-2

Kawasaki disease in the United States

Ermias Belay

National Center for Infectious Diseases, Centers for Disease Control and Prevention, USA

Kawasaki disease (KD) causes generalized vasculitis and primarily affects children <5 years of age. It is the leading cause of acquired heart disease in children in the United States. Although the specific cause is unknown, the illness characteristics are consistent with an infectious etiology. In the United States, KD occurs with an incidence of about 18 cases per 100,000 children <5 years of age. The incidence is highest among children of Asian ancestry followed by black and white children. Most recent surveillance data indicates that up to 17% of KD patients develop coronary artery abnormalities. The incidence is almost 1.5 times higher in boys. Over 90% of KD patients are hospitalized and received IVIG treatment. During the last several decades, the incidence of KD has been relatively stable in the United States unlike in Japan where the incidence has been steadily increasing.

S11-3

Epidemiologic feature of Kawasaki disease in Beijing from 2005 through 2015

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Objective: Kawasaki disease (KD) is more common in the Asian race. Its incidence is increasing in Japan with an annual increment of 4.17 per 100,000 children < 5 years of age. Although there is a similar trend of increment in Beijing, Shanghai and Taiwan, the rate of increment is lower in the previous surveys in these regions. Therefore we conducted this consecutive study in Beijing to further evaluate this feature.

Method: For the survey of epidemiological features of KD in Beijing, we performed four surveys in 2000, 2005, 2010 and 2015, respectively. We report the results of the last two surveys in this manuscript. In each study, a questionnaire form and diagnostic guidelines for KD were sent to all hospitals with pediatric inpatient beds in Beijing. Data from local medical database belong to municipal government was also used in the recent 10 years.

Results: A total of 2108 and 3552 children with KD were reported from all 46 hospitals with pediatric inpatient beds in the 3rd survey from 2005 through 2009, and 4th survey from 2010 through 2014, respectively. The incidence rates of KD for each year were 56.2 (2005), 65.5 (2006), 69.4 (2007), 70.8 (2008), 86.8 (2009), 75.7 (2010), 73.9 (2011), 82.5 (2012), 93.0 (2013), and 110.0 (2014) per 100 000 children <5 yrs of age. The male:female ratio was 1.7:1. The age at onset ranged from 1 month to 14.8 years (median 2.2 yrs), with 86.6% <5 yrs old. The disease occurred more frequently from May to September each year. At the initial study after onset of the disease, coronary abnormalities were found in 20.5%. No patients died in the acute stage.

Conclusion: The incidence of KD in Beijing is increasing over the year. Although its incidence is lower than Japan and higher as compared to Taiwan, its increment rate is similar to Japan. The age and gender distribution are similar to those in other previous reports, but seasonal distribution is different from reports from other countries or regions.

S11-4

Epidemiology of Kawasaki disease in Mongolia

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Background: Kawasaki disease has been reported in more than 60 countries worldwide and has become the leading cause of acquired heart disease among children living in developed countries. Epidemiologic study of KD in different countries would be helpful to discover the etiology of the disease that is still unknown. Therefore, we aimed to determine the epidemiology of KD in Mongolia.

Methods: Two nationwide retrospective surveys were conducted: medical histories were collected from patients aged 0 to 16 years who were hospitalized countrywide between 1996 and 2008. Hospital records for these patients were also reviewed. Nationwide training seminars on KD were conducted before each survey.

Results: For the nationwide surveys, the participation rates among all hospitals with pediatric wards were 97% and 94%. Inpatient medical histories from 1996 through 2008 were reviewed, and, among children younger than 16 years, 9 patients with KD were investigated. The age of KD patients ranged from 1.4 to 14 years; 7 of 9 patients were male. Six (67%) patients fulfilled all 6 clinical diagnostic criteria; the other 3 (33%) were defined as having KD based on the presence of 5 such criteria. Fever persisting 5 or more days, bilateral conjunctival congestion, and changes of the lips and oral cavity were the most common symptoms, and cervical lymphadenopathy was the least common symptom. Cardiac sequelae developed in 5 of the patients, 4 of whom were older than 10 years.

Conclusions: The results of these nationwide surveys reveal that KD cases do exist in Mongolia. However, knowledge of KD among Mongolian pediatricians is likely to be poor. Thus, there is a need to augment their understanding to improve management of KD patients. Further studies are crucial to clarify the epidemiologic characteristics of KD in Mongolia.

S11-5

Epidemiology of Kawasaki disease in Japan: The etiology of Kawasaki disease investigated from epidemiology

Nobuko Makino, Yosikazu Nakamura, Hiroshi Yanagawa

Department of Public Health, Jichi Medical University, Japan

Approximately 50 years have passed since Kawasaki disease was first reported.

The Kawasaki disease nationwide survey began in 1970. As of May 2017, the 24th survey is in progress. Although more than 330,000 patients have already been reported in Japan, the cause is still unknown. Therefore, no specific diagnostic method has been established, and the mechanism of action of immunoglobulin therapy, which is a standard treatment method in the acute phase, is not clearly defined. Various cause theories have been proposed for this disease, such as carpet shampoo, wind from China, diet, microorganisms, vaccine, pollen, microparticulate matter, and genetic factors. Some of these were denied by other researchers or invalidated by themselves. Therefore, no definite cause has been identified thus far. Our surveys revealed the epidemiological features of the disease in Japan as follows:

1. Three nationwide epidemics have occurred.
2. The number of patients and incidence rate have increased.
3. The male/female ratio was approximately 1.4.
4. Seasonal variations have been observed.
5. The incidence rate was highest in children aged between 9 and 11 months.
6. Chronological and geographic clustering have been observed.
7. Sibling and parent-child cases existed.

We should criticize newly proposed hypotheses from the viewpoint of whether these are consistent with the aforementioned epidemiological features. In this presentation, the epidemiology of Kawasaki disease will be reviewed on the basis of the epidemiological survey, including the nationwide survey in Japan and epidemiological surveys in other countries: different seasonal variations depending on age, parent-child cases, racial differences, and sibling cases. In conclusion, considering that susceptible hosts are infected by multiple microorganisms, we can explain a lot of epidemiological statements. Thus, the proposed cause theory should be verified from an epidemiological point of view and the real cause should be identified.

Symposium 12

Local public health authorities and epidemiology in the changing world

Moderators: Ritei Uehara (Department of Health Sciences, Saitama Prefectural University, Koshigaya, Japan)
Tsuyoshi Ogata (Tsuchiura Public Health Center, Ibaraki prefectural government, Japan)

This session will discuss about system and function of local public health authorities in municipal governments. It includes discussion on organization and epidemiological activities of local public health authorities in various countries, comparison of them on merits and weak points, and future image in the changing world.

Characteristics and epidemiological works of public health centers in Japan

Hidenori Uda

Chairperson of the Japanese Association of Public Health Center Directors (JAPHCD), Tokyo, Japan / Director of Ijuin Public Health Center, Kagoshima, Japan

Public health activities in Japan are provided predominantly by local governments under supervision of Ministry of Health, Labor and Welfare (MHLW). The front line of public health activities is public health centers (PHCs), which number 480 as of April 2017.

The activities of PHC are stipulated by the Public Health Law enacted in 1947 (later amended to the current Regional Health Law). The main goal of PHCs is to protect health through health promotion, prevention, and preparedness. In Japan, PHCs do not provide clinical services. Their activities cover various fields such as 1) maternal and child health, mental health, 2) vital and health statistics, epidemiological surveillance, 3) regulation over medical and pharmaceutical affairs, 4) improvement of nutrition, 5) food hygiene, 6) safe water supply and waste management, 7) public health nurse activity support, 8) surveillance and control of infectious diseases.

In those activities, various health personnel such as medical doctors, dentists, pharmacists, public health nurses, veterinarians, nutritionists, X-ray technicians, food inspectors, environmental inspectors, hygiene technicians are working at PHCs.

PHCs play important roles in the epidemiological surveillance, and control of infectious and non-infectious diseases. An important and publicly well-known activity of PHC can be witnessed at the scene of a mass food poisoning. When it breaks out, the local PHC assumes the responsibility to investigate and take necessary legal actions.

In non-infectious disease control, PHCs also play important roles. A prominent example is the National Health and Nutrition Survey (NHNS), which is conducted to clarify citizens' physical conditions, nutrient intake, and lifestyle based on the Health Promotion Law. The findings are widely utilized for health promotion policies at the national and local levels.

Assessment, necessary measures based on the assessment, the communication with relevant people and organizations are essential for PHC's activities. Epidemiological approach is fundamental to those activities.

S12-2

Epidemiological Activities of State and County Public Health Authorities and Their Collaborations with CDC, USA

Matthew Griffith

Researcher, Infectious Diseases Surveillance Center, National Institute for Infectious Diseases, Japan

Background: Effective working relationships between national public health institutes and local public health centers are essential for understanding, improving, and maintaining public health. Resources and technical expertise are often focused at national institutes while local public health centers struggle with limited resources and diverse demands. Diseases, and therefore the source of epidemiologic information necessary to understand public health, occur at the local level and are best understood through the context lens that only local public health professionals have cultivated. Yet social, structural, economic, cultural, and geographic factors frequently inhibit effective working relationships between the local and national organizations, thus limiting all parties' efforts to improve the health of the people.

Presentation: This presentation will illustrate how the U.S. has been addressing this challenge. The presenter will describe the U.S. Public Health System, its core activities, and its major players. The presentation will illustrate U.S. CDC's structure and approach to collaborating with state and local public health agencies for epidemiologic activities. The presentation will include an example that shows these working relationships in motion and highlights the benefits and challenges of the U.S. approach. The presentation will conclude by looking at relevant components of the U.S. Public Health System that could assist in improving public health systems across the globe.

S12-3

Early Warning Surveillance of Infectious Diseases in Beijing, China

Zheng Yang

Institute for Infectious Disease and Endemic Disease Control, Beijing Center for Disease Prevention and Control (CDC), China

Beijing Center for Disease Control and Prevention (Beijing CDC) is an agency for public health and disease control in Beijing, China. It mainly works for the prevention and control of infectious diseases, chronic non-communicable diseases, vector-borne diseases, as well as for environmental health monitoring, health education and promotion, etc. Beijing CDC also takes an important part in the response and disposal of public health emergencies.

Beijing CDC has a comprehensive surveillance network for infectious diseases. The surveillance system for notifiable infectious diseases covers 667 primary and above medical facilities, and the information can be reported via China information system for diseases control and prevention. For infectious diseases, Beijing CDC has also established some other systems that are more suitable for disease control in the capital region. The systems include influenza surveillance (for influenza-like illness (ILI) and virological surveillance), unknown etiology pneumonia surveillance, avian influenza surveillance, infectious disease symptom monitoring and early warning system, gastrointestinal clinic surveillance and reporting system. Based on the data from these surveillance systems and different reporting standards for Notifiable infectious diseases, public health professionals in Beijing CDC can give a quick response and make appropriate disposition for each epidemic of different infectious diseases.

S12-4

Epidemiological Knowledge for local health policy making: Insights from the new public health system in England

Ryozo Matsuda

College of Social Sciences, Ritsumeikan University, Kyoto, Japan

To understand what have impacts on local capabilities of public health intelligence, this paper gives a study on public health knowledge at local public health institution in England, where the public health system was transformed in 2013. First, the paper overviews the new system. Local authorities (LAs) have a statutory duty to improve the health of their residents; the national government continues to be responsible for overall public health policy with a newly established executive agency, Public Health England (PHE). Its Department of Health sets a national objectives called Public Health Outcomes Framework. LAs decide their strategies on health and wellbeing of their populations with advice of PHE, which has regional offices and centres. Second, the paper discuss what epidemiological knowledge are to be produced, integrated and used by whom in what contexts at local settings. A variety of epidemiological knowledge is used to develop LAs' strategic plans, to report the state of public health, and other public health objectives. Trained professional workers, called "public health (intelligence) analyst" are engaged in those activities. Finally, the paper argues that different public health systems face similar challenges in knowledge utilization but that institutional settings in each system have critical roles in contextualizing its utilization and integration.

Symposium 13

Health effects of exposure to electromagnetic fields

Moderators: Naohito Yamaguchi (Tokyo Women's Medical University, Tokyo, Japan)
Masao Taki (Tokyo Metropolitan University, Tokyo, Japan)

Due to the rapid expansion of the radio environment and popularity of IH household appliances, the concern about the health hazards of electromagnetic fields (EMF) is growing. Over the next decade, the EMF will continue to spread due to the development of new radio technologies, such as wireless power transmission systems (WPT) for EV, 5G, and WiGig. It is technically difficult to evaluate exposure to EMF, and challenging to apply high-quality epidemiological study designs, including randomized control trials or cohort studies. Therefore, when compared with other environmental parameters, the evidence regarding EMF remains limited. In terms of animal experiments, the US National Toxicology Program recently reported that only a slight increase was observed in the incidence rates of malignant tumors in rats that received whole-body exposure to radiofrequency field, even though the whole-body SAR value was as high as 6 W/kg, which is 75 times the regulated level for mobile phones in Japan.

Evidence from epidemiological studies including data from the Japanese population, such as the INTERPHONE study on mobile phone use and brain tumors among adults, is accumulating. Based on our experience with the INTERPHONE study, we became involved with the MOBI-Kids study, an international case control study. From 2010 to 2015, we recruited brain tumor and appendicitis patients aged 10-24 years old. As for extremely low-frequency electromagnetic fields, an international study reported that power transmission lines might be associated with infant leukemia. However, data on intermediate frequency (IF) is still limited.

This symposium will outline mobile phone use and malignant tumors among children using both epidemiological data and exposure assessments, and the preliminary results of the MOBI-Kids study will be shared. We will also discuss regulations of electromagnetic fields in Japan, and possible study plan regarding health hazard on IF.

S13-1

Policy trend of electromagnetic environment and direction of Japan

Reiko Kondo

Ministry of Internal Affairs and Communications, Telecommunication Bureau, Tokyo, Japan

S13-2

Mobile phone use and brain tumor: preliminary results from MOBI-Kids Japan

Noriko Kojimahara

Tokyo Women's Medical University, Tokyo, Japan

As a subgroup analysis of Mobi-Kids study, which is a multinational case-control study investigating the hazards of mobile phones among young people aged 10-24, we examined exposure to radiofrequency electromagnetic fields (RF-EMF) on brain tumors in Japan. Since the development of mobile communication technologies is unique in Japan compared to EU countries, we assessed using original exposure assessment of RF-EMF from mobile phones. We focused the high risk users, therefore the target age range was extend from 10 to 30 years for Mobi-Kids JAPAN. Besides age, we followed the same protocol as the international Mobi-Kids study.

At one year before the reference day, the number of regular mobile phone users was 81 (67.5%) in cases and 271 (75.3%) in controls, and non-users being set as the reference, the crude OR (95% confidence interval (CI)) was 0.682 (0.435-1.071) and 0.585 (0.345-1.000) when adjusted by sex and age. The results regarding following variables will be presented: total use years, cumulative call time, cumulative duration of call, and weighted values of those by mobile phones generations. We analyzed the risk for brain tumors using a conditional logistic regression by R, and will show the crude odds ratios (OR) and adjusted OR by age, gender, and socioeconomic status.

S13-3

Exposure Assessment for RF Radiation from Mobile Phones: Korea and JK EA based on MOBI-Kids Study

Ae-Kyoung Lee

Radio & Satellite Research Division, ETRI, Daejeon, Korea

Mobi-Kids study is a multinational case-control study investigating the potential effects of childhood and adolescent exposure to EMF from mobile communication technologies on the risk of brain tumor development. France, Japan, and Korea have been involved in Mobi-Kids exposure assessment (EA) of RF EMF radiation from mobile phones.

Code division multiple access (CDMA), wideband CDMA (WCDMA) and Long Term Evolution (LTE) networks by three operators currently coexist in South Korea. CDMA and WCDMA services were launched in Korea in the late 1990s and the mid-2000s, respectively. LTE launched in 2011 mostly had serviced data communication such as text message use and internet access while recruiting the study subjects. Therefore, only the CDMA and WCDMA technologies were considered for Mobi-Kids EA.

The SAR compliance test reports of commercial phone models were investigated, which were released in Korea from 2002 to mid-2013 in order to determine the representativeness of each type of phone model from the viewpoint of EA. As a result, eleven phone models were numerically implemented for EA for the study subjects.

The presentation includes four parts: 1) numerical modeling of mobile phone models based on SAR test reports of about 1200 commercial phone models, 2) extraction of typical transmitted (Tx) power levels by analyzing the collected power data of commercial phones in real environments, especially Seoul, where most Korean study subjects were recruited, 3) SAR and cumulative exposure evaluation in the human head models, and 4) future study.

S13-4

Epidemiological studies on intermediate frequency electromagnetic field (IF-EMF)

Shigeru Sokejima

Mie University, Tsu, Japan

S13-5

MOBI-KIDS-Risk of brain cancer from exposure to radiofrequency fields in childhood and adolescence

Elisabeth Cardis

ISglobal, Barcelona, Spain

Symposium 14

Time trends in perinatal and infant health based on four population based cohorts from Pelotas, Brazil (1982, 1993, 2004, 2015)

Moderators: Cesar Victora (Federal University of Pelotas, Brazil)
Fernando Barros (Catholic University of Pelotas, Brazil)

In this session, we will discuss time trends in maternal, newborn and infant health in Brazil based on four population based cohorts, each of which included all hospital births that took place in the city of Pelotas in Southern Brazil in a given year: 1982, 1993, 2004 and 2015. We will show important improvements in maternal health and in antenatal and delivery health care, as well as in breastfeeding duration and in the reduction of undernutrition. We will also highlight health and health care issues that worsened during these four decades, in particular the epidemic increases in preterm births and overweight and obesity among women and children. We will also discuss the lack of improvement in quality of antenatal care, and the dramatic increase in Caesarean sections which now account for 63% of all deliveries.

S14-1

Maternal health and antenatal care in four cohorts

Mariangela Silveira

Department of Maternal and Child Health, Federal University of Pelotas, Brazil

S14-2

Delivery care and newborn health in four cohorts

Fernando Barros

Department of Maternal and Child Health, Catholic University of Pelotas, Brazil

S14-3

Child health and nutrition in four birth cohorts

Cesar Gomes Victora

Post Graduate Program in Epidemiology, Federal University of Pelotas, Brazil

Symposium 15

Inequalities in the health of mothers and children in 100 countries - analyses of reproductive and health surveys

Moderators: Aluisio J D Barros (International Center for Equity in Health, Federal University of Pelotas, Brazil)
Cesar G Victora (International Center for Equity in Health, Federal University of Pelotas, Brazil)

The Countdown to 2015, a multi-stakeholder initiative created to hold governments and international agencies accountable for progress towards the MDGs, anticipated the importance of health equity in improving the health of populations, now fully acknowledged by the SDGs. Now, reborn as the Countdown to 2030, the focus of the initiative lies in helping countries reach high and equitable coverage for reproductive, maternal, newborn and child health (RMNCH) interventions.

In this session, we present some key pieces of the work developed within the framework of Countdown, starting with an overview of how health equity for essential, life-saving interventions for women and children developed over the MDG years. The progress made in maternal and child health, with important reductions in mortality, was widely reported. But was this accomplished with a reduction in the gaps between the better-off and the least privileged groups? We also look at what happened with a key nutritional indicator – stunting, that is determined early in child's life and very difficult to recover.

Despite the wealth dimension being the most commonly studied in health equity analyses, gender equity is another key dimension. And one critical aspect for progress in gender equity is women's empowerment. Limited by available questions in national surveys, we faced to challenge to develop and propose an indicator for empowerment to be used in equity analysis using survey data. How well the proposed indicator works is also discussed in the session.

Finally, the challenges we face in terms of equity analyses to suitably monitor all the SDGs are discussed, and strategies proposed to tackle those challenges are presented and discussed.

S15-1

How much progress has been made in reducing the gaps of essential health interventions for mothers and children in the MDG years?

Aluisio J D Barros

International Center for Equity in Health, Federal University of Pelotas, Brazil

S15-2

The challenge of developing a woman's empowerment index based on household health surveys - the SWPER

Fernanda Ewerling

International Center for Equity in Health, Federal University of Pelotas, Brazil

Background: The United Nations' Sustainable Development Goals have a strong focus on equity. Goal five explicitly aims to empower all women and girls, reinforcing the need to have a reliable indicator to track progress. Our objective was to develop a novel indicator from widely available data sources, facilitating monitoring and research on women's empowerment in African countries.

Methods: We used data from Demographic and Health Surveys for 34 African countries. We identified women's empowerment related variables that were present in all surveys, and used principal component analysis to extract the best linear combination of variables. We carried out a convergent validation process using coverage of two health interventions (modern contraception, institutional delivery) and stunting as outcomes; and an external validation process by analyzing correlations with the Gender Development Index.

Findings: Fifteen variables related to women's empowerment were available in all surveys. We extracted three dimensions of empowerment: "attitude to violence", "social independence" and "decision-making". These components explained 50% of the total variation. All domains were correlated with the Gender Development Index (correlation coefficients of 0.58; 0.66; 0.75, respectively). Institutional delivery was more consistently related to social independence; for modern contraception use, the attitude to violence and decision making domains showed a more consistent pattern and higher impact. Stunting was more consistently associated with social independence, but the effect disappeared for most countries after adjustment by wealth. For modern contraceptive use and institutional delivery, the adjusted effects were lower than the crude ones, but remained statistically significant.

Discussion: The index allows estimation of the effects of women's empowerment on maternal, reproductive and child health outcomes using individual-level data. It enables monitoring within- and between-countries, and in women's empowerment trends over time trend analysis, which is its main strength as no other survey-based index with these features has yet been proposed.

S15-3

Stunting is decreasing in low and middle income countries, but the gap is not closing between rich and poor in countries with lower income

Inacio C Silva

International Center for Equity in Health, Federal University of Pelotas, Brazil

Introduction: Global stunting prevalence decreased in the past two decades. We assess whether, within low and middle-income countries, disparities for the declines existed by wealth or area of residence.

Methods: Prevalence of stunting (height-for-age below -2 SD of the WHO child growth standards) was analysed for children under 3 or 5 years of age from 217 Demographic Health Surveys and Multiple Indicators Clusters Surveys for 67 countries with at least two surveys between 1993 and 2014. National estimates were stratified according to household wealth and area of residence, comparing the poorest 40% to the wealthiest 60%, and those residing in urban versus rural areas, within each country. Stunting trends were calculated using linear multilevel regression models separately for low-, lower-middle- and upper-middle-income countries. Regression coefficients were used to compare trends by wealth and by area of residence. Time trends in the slope index of inequality (SII) and the concentration index (CIX), which reflect the full distribution of wealth in each country, were calculated.

Results: Estimated stunting rates in 1993 were 46.2% in low, 37.2% in lower-middle and 21.6% in upper-middle-income countries with annual average declines of 0.48, 0.57 and 0.50 percentage points, respectively from 1993-2014. Similar rates of decline were found for the two wealth and two residence categories in low- and lower-middle-income countries, but in upper-middle-income countries the poorest 40% had larger declines than their wealthier counterparts: -0.70 (SE=0.10) versus -0.28 (SE=0.06) percentage points; and rural children than their urban counterparts -0.70 (SE=0.08) versus -0.28 (SE=0.07) percentage points. For all countries combined, the SII decreased by 0.2 percentage points/year, whereas the CIX increased by 0.1 percentage point/year.

Conclusions: Stunting prevalence is decreasing overtime, but the gap between the poorest 40% and richest 60% as well as the urban-rural gap seems to be closing only in upper-middle-income countries.

S15-4

Equity in the health of mothers and children: challenges in the era of the Sustainable Development Goals

Cesar G Victora

International Center for Equity in Health, Federal University of Pelotas, Brazil

Symposium 16

The first Japan-Korea-Taiwan Joint Epidemiology Seminar Session, co-hosted by the Japan Epidemiological Association (JEA), the Korean Society of Epidemiology (KSE), and the Taiwan Epidemiology Association (TEA) Health-related database: utilization for epidemiological research

Moderators: Manami Inoue (Chair, International Exchange Committee, Japan Epidemiological Association / Center for Public Health Sciences, National Cancer Center, Japan)

Byung Chul Chun (The Chair of International Affairs Committee, Korean Society of Epidemiology / Professor, Department of Preventive Medicine, Korea University Medical College, Republic of Korea)

Chen-Yang Shen (President, Taiwan Epidemiology Association / Institute of Biomedical Sciences, Academia Sinica, Taiwan)

Health-related database infrastructures, such as national surveillance and healthcare database systems, have been actively established and practically implemented in Japan, Korea and Taiwan, with both similarities and differences between them. In this opportunity, we would like to share the current status of the development of these infrastructures, as well as the experience gained and new ideas which have arisen in epidemiological research through the utilization of their data.

S16-1

National health insurance databases in Japan

Hideo Yasunaga

Department of Clinical Epidemiology and Health Economics, School of Public Health, The University of Tokyo, Japan

Japan has two large health insurance databases: (i) National Database of health insurance (NDB) and (ii) the Diagnosis Procedure Combination (DPC) database. The NDB includes administrative claims data for all the inpatients and outpatients across Japan. The Ministry of Health, Labour, and Welfare, Japan has started the project of utilizing NDB data for research purpose. The DPC database includes discharge abstract and administrative claims data from over 1000 large hospitals in Japan. The database only includes data on acute care inpatients, but the unique advantage of the database is the inclusion of detailed process data and several clinical data that can be applied to clinical studies. The items of the DPC data contain diagnoses, comorbidities and complications coded with ICD-10 codes; procedures; drugs and devices used; length of stay; discharge status; costs; and detailed clinical information (body height/ weight; smoking index; Japan Coma Scale; cancer stage; modified Rankin Scale; Hugh-Johns classification; NYHA classification for heart failure; severity index for angina pectoris/ myocardial infarction, pneumonia, and acute pancreatitis; and Child-Pugh classification for liver cirrhosis). The number of published studies using the DPC data is increasing year by year.

S16-2

The Scope and Contents of Korean National Health Insurance Data for Health Research

Jong Heon Park

Big Data Operation Center, National Health Insurance Service, Korea

NHIS, as a single insurer, take responsibility for operation of National Health Insurance (NHI) scheme, such as eligibility review of the insured, imposition and collection of contributions, insurance benefit, and negotiation of medical fee schedule with healthcare service providers.

The Korean National Health Insurance Big Data (NHID) features a whole population cohort which can be used for research purposes. National Health Insurance Big Data is made out of many resources. Database of beneficiary, contributions, medical service utilization, health screening service, long-term care service is integrated into NHID through individual ID linkage.

National Health Insurance Big Data can be used in various areas. NHIS supports for research that contributes to evidence-based policies and provides customized health service and so on. NHIS created a public research DB, only after a de-identification process, to improve the accessibility of data, and provides big data and support for research that contributes to evidence-based policies, relates to issues of public concern, and improves data availability, conducted by a professional societies or public institutions.

NHIS provides a various health services, such as one-stop service which includes an annual physical diagnosis, an assessment of potential health risks and a customized treatment plan to counteract any health risks, monitoring indicators for the prevention of cardiovascular disease, and a health map service for an adequate allocation of healthcare resources and design an effective system. NHIS is expecting to prevent disease and cut medical costs and predict disease outbreak and improve overall health services using health big data. NHIS' final goal may be summarized that every people can live without the burden of disease. NHIS believes that the more trials we should put for exceeding the public data boundary lines, the faster our final goal can be accomplished.

S16-3

Experiences for Big Data Analysis of Taiwan National Health Insurance Research Database and Future Perspectives

Pau-Chung Chen

Professor and Director, Institute of Occupational and Industrial Hygiene, National Taiwan University, Taiwan

The National Health Insurance (NHI) program in Taiwan provides compulsory universal health insurance, implemented on March 1, 1995, that covers health care services from western medicine to traditional Chinese medicine, from dental care to parturition, and from preventive services to elderly home care in around 99% of the island's population. The NHI Research Database is one of the largest nationwide population databases in the world, covering approximately 23 million residents covers all outpatient visits and admissions containing information on patient characteristics including sex, date of birth, place of residence, details of insurance, employment, family relationships, date of admission, date of discharge, dates of visits, and up to five discharge diagnoses or three outpatient visit diagnoses by International Classification of Diseases, Ninth Revision (ICD-9) classification. The data files also contain detailed information on patient prescriptions including the names of prescribed drugs, dosage, and duration; examinations; operations; and their expenditure. Strict confidentiality guidelines were closely followed in accordance with personal electronic data protection regulations; the National Health Research Institutes of Taiwan anonymizes and maintains the NHI reimbursement data as files suitable for research. Epidemiological evidence of aristolochic acid nephropathy and statins for cancer chemoprevention will be presented as two examples of NHI Research Database. Validation studies using hospital records and linkage studies to primary data, e.g. longitudinal cohorts, national health interview surveys, and registry databases are needed.

S16-4

Big data research in preventing digestive cancers

Chun-Ying Wu

Visiting Staff, Taichung Veterans General Hospital, Taiwan

Big data approach in health care outcome assessment and diseases prevention is an important trend in these years. Nationwide cohort studies base on big data have several advantages compared with traditional cohort studies and randomized clinical trials.

In this talk, we will use our previous big data research experience based on Taiwan's National Health Insurance Research Database (NHIRD) as examples to introduce the feasibility of big data approach in preventing digestive cancers. Based on NHIRD, we found early *Helicobacter pylori* eradication and regular use of non-steroidal anti-inflammatory drugs (NSAIDs) associated with reduced risk of gastric cancer. We reported that antiviral therapy was effective as a 2nd chemoprevention agent to reduce hepatocellular carcinoma (HCC) risk in patients with hepatitis B. Antiviral therapy and NSAIDs were also an effective 3rd chemopreventive method to reduce HCC recurrence in patients with HBV and HCV-related HCC after liver resection or radiofrequency ablation (RFA). In addition, we found regular ultrasonography and higher RFA operator volume significantly associated with HCC mortality.

Big data approach can also be used for personalized risk prediction and finding the molecular signaling pathways to inhibit carcinogenesis. For patients with peptic ulcer diseases, we used NHIRD to construct a nomogram to predict each individual patient's risk score and categorized patients' risk. We also used NHIRD to find the usefulness of metformin and statins to treat HCC and explored the related signaling pathways with *in vitro* and *in vivo* studies. Currently, we are conducting a nationwide multicenter randomized clinical trial to confirm the chemopreventive effect of statins in HCC.

In conclusion, big data approach can be used to conduct novel clinical studies, to assess effectiveness in real world, to make health policies, and to achieve precision medicine. Big data approach in health care outcome assessment and disease prevention is feasible and useful.

Epidemiologic Studies of Cardiovascular Disease using National Health Insurance Database

Hyeon Chang Kim

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Big data refers to a large set of structured and unstructured data that are beyond the capabilities of conventional database management tools, or the analysis and interpretation of such datasets. In 2012, the World Economic Forum selected Big Data Technology as the first of the top 10 promising technologies, and the Korean government selected Big Data as one of the 10 core IT technologies.

Health science and industry have a great interest in big data analysis, because healthcare system is one of the largest big data sources, and the healthcare system can benefit from big data analysis to reduce uncertainty and increase efficiency. Big data generated by the Korean healthcare system includes electronic medical records, imaging studies, genetic and other laboratory tests in the private sector; death statistics, health insurance claims data, national health screening data, national surveys, and disease registries in the public sector. Epidemiological research data is also becoming an important big data source, with its quantity and complexity increasing rapidly.

Recently, big data researches are increasing as the Korean government and public organizations release various big data. In particular, epidemiological research using the national health insurance (NHI) big data is increasing, as the National Health Insurance Service (NHIS) and Health Insurance Review Assessment Service (HIRA) provide the NHI big data to the researchers in a few ways. At the same time, there is growing debate about the utility and limitations of NHI big data, and whether investigators are properly analyzing and interpreting the data. In this regard, I will introduce some of the cardiovascular disease epidemiology studies using the NHI big data, and discuss about some issues to be considered when carrying out such research.

S16-6

Monitoring health inequalities using government statistics in Japan: The current status and future challenge

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During the long-term recession of the Japanese economy, health inequalities have appeared according to several cohort studies in Japan. It is important to monitor the trends in health inequalities using routinely-collected official statistics. At present, we cannot monitor the deprivation gap in health outcomes using vital statistics and disease registry data directly linked to databases of individual socioeconomic status, such as income, education, and occupation in Japan.

To monitor the deprivation gap in mortality, we constructed the areal deprivation index (ADI) based on the census-based indicators by municipality for each census year since 1985. Using vital statistics data for the period between 1985 and 2014, we obtained number of deaths by cause of death, sex, age group and quintile group of ADI based on residential municipality. We applied Poisson regression model to monitor relative risks of death by quintile of ADI with controlling for age. We observed the substantial areal deprivation gaps in all and main causes of death in Japan. The deprivation gaps in deaths of males were larger than those for females, especially for cancer and suicide.

Since municipality would be too coarse for capturing socio-economic segregation of residential people, the size of the effect would be underestimated. Even using such limited data, the wide gaps in all and main causes of death were observed in Japan.

In future, we should consider the possibility to build linked databases of individuals having both their socioeconomic attributes and various health outcomes in order to monitor more detailed and reliable health inequalities. For further progress on this challenge, we need to establish personal ID system for the health data linkage and appropriate law and guidelines for the usage of those linked databases in Japan.

Symposium 17

Epidemiology and prevention for cardiovascular and renal diseases: Differences and similarities of risk factors and prevention strategies between Eastern and Western countries

Moderators: Hiroyasu Iso (Professor of Public Health, Department of Social Medicine, Osaka University
Graduate School of Medicine, Osaka, Japan)

Shigeyuki Saitoh (Sapporo Medical University School of Health Sciences Medical Sciences,
Sapporo, Japan)

Ischemic heart disease and stroke are the first and the second highest leading causes of death in the world. Although dyslipidemia, hypertension and diabetes mellitus is the universal risk factors for these non-communicable diseases (NCDs), their magnitudes of the disease prediction are different. In general dyslipidemia is a strong risk factor for ischemic heart disease while so hypertension is for stroke and chronic kidney disease (CKD). Diabetes mellitus is a common risk factor for all of them. As for disease profiles in countries, ischemic heart disease is more common in western countries while so is stroke in east Asian countries. Furthermore, risk factor distributions and disease profiles have changed during the past decades. For example, in Japan, blood pressure levels have declined substantially and total cholesterol levels increased. Mortality from stroke has decreased and that from ischemic heart disease has remained low. Thus, the strategies for NCDs prevention should be adopted for the risk factor distributions and diseases profiles in populations. In this session, we discuss differences and similarities of risk factors and prevention strategies between Eastern and Western countries to seek the better prevention strategies adapted to their own countries.

S17-1

Epidemiology for cardiovascular risk factors: Tanno-Sobetsu Study in Japan

Hirofumi Ohnishi

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Hypertension, type 2 diabetes and dyslipidemia are established risk factors for cardiovascular disease (CVD) but several randomized controlled trials have shown that comprehensive management of multiple risk factors may be more effective for prevention of CVD event than strict control of single risk factor only. Major clinical guidelines for management of above risk factors recommend comprehensive management of multiple risk factors for prevention of CVD. For the comprehensive risk management, comprehensive risk assessment based on numbers of risk factors and severity of each risk factor is necessary.

The Tanno and Sobetsu study is a prospective cohort study that has followed residents in two rural towns in Hokkaido island in Japan, since 1977. We assessed an effectiveness of risk stratification for CVD events in general Japanese population. Two thousand and eight residents who underwent health checkup in 1994 were divided into four risk categories (no additional risk, low risk, moderate risk and high risk) according to modified risk stratification in the guidelines for the management of hypertension 2014 reported by the Japanese society of hypertension. We followed up them for a maximum of 13 years and the end point was CVD event including myocardial infarction and stroke. As the blood pressure levels and number of other risk factors became high, incidence rate of CVD events also became high. Hazard ratio for CVD events in the low risk group, moderate risk group and high risk group were 1.2, 1.5 and 2.0, respectively.

Risk stratification according to severity of risk factor and numbers of coexistence of other risk factors and appropriate intervention for each risk category may be one of common strategy for prevention of CVD events between eastern and western countries regardless of different disease profiles.

S17-2

Epidemiological burden of metabolic disorders in a Japanese community: the Hisayama Study

Toshiharu Ninomiya

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Cardiovascular disease is estimated to be one of the leading causes of death in Japan, as well as other countries around the world. Although the incidence and mortality of cardiovascular disease in Japan have declined over several decades, the risk of cardiovascular events remains high. A number of epidemiological studies have shown risk factors and preventive strategies for cardiovascular disease, suggesting hypertension and diabetes, dyslipidemia is significant risk factors for cardiovascular disease. Thus, it is of clinical value to estimate the trends in the epidemiological burden of metabolic disorders in a Japanese community for addressing the prevention of cardiovascular disease.

The Hisayama Study is a population-based prospective cohort study, which was established in 1961 to explore risk factors for cardiovascular disease in Hisayama Town, a suburb of Fukuoka City, a metropolitan area of Kyushu Island in Japan. In this study, 5 cohorts consisting of residents aged ≥ 40 years in a Japanese community were established, in 1961 (n=1618), 1974 (n=2038), 1983 (n=2459), 1993 (n=1983), and 2002 (n=3108), and followed up each cohort for 7 years. The age-adjusted incidence of stroke decreased greatly, by 51% in men and by 43% in women, from the 1960s to the 1970s, but this decreasing trend slowed from the 1970s to the 2000s. On the other hands, the incidence of acute myocardial infarction did not change in either sex. With regard to cardiovascular risk factors, blood pressure control among hypertensive individuals improved significantly and the smoking rate decreased, but the prevalence of glucose intolerance, hypercholesterolemia, and obesity increased steeply from the 1960s to the 2000s.

Hence, we present herewith the findings from the Hisayama Study and discuss risk factors for cardiovascular disease in Japanese.

S17-3

Epidemiology and prevention of cardiovascular disease: Experiences from CIRCS, JPHC and JACC studies

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Japanese have high mortality from stroke (especially from intraparenchymal hemorrhage and lacunar infarction) and low mortality from coronary heart disease, while Caucasians have the opposite trend. This difference in disease profile can be explained by different types of vascular pathology, that is, arteriolosclerosis and atherosclerosis. Lifestyles in Western populations are more likely to cause atherosclerosis-based diseases such as coronary heart disease and large-artery occlusive cerebral infarction (corresponding to atherothrombotic infarction), while traditional lifestyles in East Asia are likely to cause arteriolosclerosis-based disease such as cerebral hemorrhage and infarction at perforator's arteries area.

Another possible explanation of difference in disease profile between the East and West is that the large difference in distribution of risk/lifestyle-related factors of cardiovascular disease, such as obesity, lipid profiles, dietary intake of carbohydrate, saturated fat, n-3 polyunsaturated fat, calcium, and sodium. In this context, several Japanese large cohort studies, the Circulatory Risk in Communities Study (CIRCS), Japan Public Health Center-based Prospective (JPHC) Study, and Japan Collaborative Cohort (JACC) Study for Evaluation of Cancer Risk have clarified many risk/lifestyle factors for Japanese cardiovascular disease.

S17-4

Community-based intervention programs for blood pressure control in China

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The disease burden of hypertension in China has been increased rapidly, where almost one-third of deaths due to cardiovascular diseases among 35 to 79 years of age were caused by uncontrolled hypertension. While community-based interventions are highly recommended strategies in controlling blood pressure (BP) at population level, many community-based hypertension control programs has been conducted for decades in China. Most intervention programs were successful in blood pressure control. A meta-analysis on the effectiveness of community interventions for hypertension management in China showed that the weighted reduction in the intervention group was 6.9 mm Hg for systolic blood pressure (SBP), and 3.8 mm Hg for diastolic blood pressure (DBP). Moreover, as a good facility of primary care, community health service center (CHSC) plays an important role in chronic non-communicable diseases management in China. Most interventions towards the residents in community-based programs were conducted by the public health professionals in the CHSC.

We initiated a 2-year community-based trial in Shanghai, China to explore the effectiveness of a community-based comprehensive intervention strategy of blood pressure control among Chinese population. Totally 16,389 subjects (7,653 participants from the intervention community and 8,826 participants in the control community) participating in both baseline and outcome surveys were included in the analysis. We founded that net adjusted reductions in SBP and DBP were observed after the intervention for all participants as well as among participants without hypertension at baseline. The intervention effect was not significant among the hypertensive patients. How to improve the blood pressure control among patients remained a challenge.

S17-5

The trends in cardiovascular risk factors in Korea, and the differences in cardiovascular risk factors between Asian and Caucasian people

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Over the last three decades, mortality from cardiovascular disease (CVD) has been markedly declined in Korea. However, stroke and heart disease still explain almost a quarter of all deaths in Korea. High blood pressure is the most contributable and modifiable risk factor of CVD. According to the data from nationwide surveys, prevalence of hypertension among Korean adults has not been changed much. But hypertension awareness, treatment and control rates have been dramatically improved since 1990s. According to the recent data, awareness and treatment rates among Korean adults (aged 30 or older) with hypertension were 66% and 63%, respectively. Hypertension control rate was 46% among overall hypertensive patients and 73% among patients using antihypertensive medications. This improvement in hypertension management led to a significant reduction in average blood pressure level of the Korean population and contributed to the fast decrease in CVD mortality, particularly in stroke mortality. There has been a significant reduction also in smoking rate partly in the male population. However, hypertension and cigarette smoking remained the most contributable factors of CVD in the Korean population. Moreover, other modifiable CVD risk factors such as diabetes, hyperlipidemia, overweight and physical inactivity have not been improved or even worsened. The Asia Pacific Cohort Studies Collaboration (APCSC), a data pooling project of 600,000 individuals from 36 Asian and 8 Australasian cohorts, showed that the major CVD risk factors are the same in Asia and Western populations, but the impact of individual risk factors may vary by region. The current status and trends in major modifiable risk factors reinforce the importance of prevention, detection, and treatment of risk factors in reducing the burden of CVD on individuals and society.

Symposium 18

Measurement, evaluation and disease control with longitudinal data analysis

Moderator: Yukiko Wagatsuma (Department of Clinical Trial and Clinical Epidemiology, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan)

Longitudinal studies are often used in medical research, to study ill and health trends across the life span, and in some researches, to study life events throughout lifetimes or generations. The methodological challenges such as types of measurements and analytic methods will be presented using actual researches conducted. This session covers the time-series analysis of communicable and non-communicable diseases.

Development of cardiovascular risk factors: a group-based trajectory modelling approach

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Background: Risk factors change with time and age. Development of risk factors over the life course are less understood. The aim of this study was to determine the developmental trajectory of cardiovascular risk factors including body mass index (BMI) and blood pressure (BP).

Methods: Two data sets are used to illustrate the developmental trajectories of BMI and BP: 30y follow-up of the Mater-University Study of Pregnancy (<MUSP) birth cohort (N~2000) and 21y follow-up of the Indonesia Family Life Surveys (IFLS) adult cohort, 1993-2014 (N~7000). For the single risk factor trajectory of BP, we used MUSP study and for the multiple risk factors trajectories of BMI, SBP and DBP we used IFLS data. We used group-based trajectory modelling (GBTM) approach for both single and multiple risk factors adjusting for potential confounders.

Results: Using the MUSP study, we found during the developmental stages of life both males and females have different trajectories of BP and the difference started mainly from adolescent stage of life. Parental obesity, early life growth characteristics and pubertal development are main predictors of BP trajectories. Using the IFLS, we found both BMI and BP increased with age. However, through multi-trajectory modelling, we have identified different trajectories within the population. One-third of the adult population are either overweight or obese, and an additional group are at risk of gaining unhealthy weight. While the current elderly cohort was more likely to predict trajectory groups with high BMI and BP, later born cohorts were more likely linked to trajectory groups with high BMI and normal to high-normal BP.

Conclusion: We found GBTM is a flexible way to model the repeated measures data in the longitudinal data. Multi-trajectories have advantage of distinguishing groups of individuals that are homogenous within their trajectory groups but distinct from other trajectories.

S18-2

Trends of Years of Life Lost (YLLs) due to leading chronic diseases in Japan, 1950 - 2014

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Background: Long-term trends of mortality are important for health planners to identify prior diseases and risk factors to be controlled in a population. This study aimed to evaluate the temporal trends of life-expectancy lost in Japan in the past 50 years.

Methods: Age-standardized Years of Life Lost per 1000 population (YLLs) were estimated by using vital statistical data and lifetables in each year. Trends of segments and average annual percent change (AAPC) were identified and analyzed by Joinpoint regression models.

Results: Between 1950 and 2014, YLLs due to all-causes of deaths were declined from 361.1 to 120.3 (66.7% reduction and AAPC=-1.7%). For cancer, YLLs increased from 29.1 in 1950 to 49.6 in 1996 (AAPC=1.2%), then declined to 42.3 in 2014 (AAPC=-0.9%). YLLs of stroke increased from 43.0 in 1950 to 59.7 in 1967 (AAPC=2.0%), then declined to 9.8 in 2014 (AAPC=-3.8%). For ischemic heart disease (IHD), YLLs was 23.2 in 1950 and 30.0 in 1984 (AAPC=0.8%), then 16.0 in 2014 (AAPC=-1.9%). YLLs of diabetes increased from 0.8 in 1950 to 2.6 in 1974 (AAPC=4.7%), then declined to 1.5 (AAPC=-1.4%).

Conclusion: The decline of YLLs due to cancer mortality was started late and slowly comparing with declines of other causes. Currently, YLLs of death of cancer and IHD were higher than those of stroke and diabetes.

S18-3

Modelling the spatiotemporal distribution of zoonotic diseases in China: a spatial modelling pipeline to optimize outbreak response and targeted surveillance

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Background: Exposure of humans to zoonotic pathogens is driven by spatiotemporal variation in the distribution of animal and human populations, climate and physical environment and application of control strategies. Modern surveillance systems for zoonotic infections need to be able to integrate dissimilar spatial data and incorporate methodological platforms that account for spatial and temporal correlations in the data. Spatiotemporal early warning systems assist in the identification of spatiotemporal emergence of zoonotic disease outbreaks. Here, we analyzed time-series of zoonotic disease notification from China and review the adequacy of current disease mapping methods for early warning outbreak response and targeted surveillance.

Methods: Data on human notifications from 2000-2017 from the Chinese national notification system for the top 5 zoonotic diseases (Rabies, Japanese encephalitis, Anthrax Scrub typhus and Leptospirosis) were provided by the Chinese Centers of Disease Control. We applied visualization and disease cluster detection methods integrated into a spatial modelling pipeline to discover the spatiotemporal variation in incidence rates and disease burden (as measured by DALYs).

Results: Using the time-series of the top 5 zoonotic diseases in China, we found important spatiotemporal clustering of zoonotic infections within known high risk areas. The effect of the distribution of animal and human populations, climate and physical environment and the control strategies on the spatiotemporal distribution of zoonotic infections was heterogeneous in China. Our analysis demonstrated that spatiotemporal variation in incidence rate is not a good correlate of the spatial variation in DALYs.

Conclusion: Our analyses of top 5 zoonotic diseases in China indicate that there are important spatial non-stationary effects that current early warning analytic approach fails to account. The application of a spatial analysis pipeline that models both disease incidence and mortality can help optimize outbreak response and targeted zoonotic disease surveillance in China with the objective of reducing the burden of infection.

Symposium 19

Causal inferences using natural experimental studies to face current public health challenges

Moderator: Naoki Kondo (School of Public Health, The University of Tokyo, Japan)

Epidemiologists should undertake additional roles in addressing public health challenges. While pure experimental studies including randomized controlled trials are ideal in terms of identifying causal relationships at the individual level, they are not so effective in revealing the causal pathways linking wider macro-social environment to policies and individual health, owing to multiple reasons including cost and the need to restrict participants to maintain their internal validity. Natural experiments utilizing real-world changes in policies, accidents, and natural disasters as external shocks are a valuable alternative to infer causality. They are also valuable in public health because they can be jointly conducted with actual policy interventions and the results of such experiments can be directly applied into actual policies. Accurate causal inference is a major challenge of natural experimental studies. However, some useful theoretical and statistical models have been made available, e.g., counterfactual models, instrumental variable analysis, and inverse probability treatment weighting. In this session, the chair will invite four speakers who have recently conducted natural experimental studies in epidemiology and health economics, using those models/techniques. Each talk addresses a currently important public health challenge, including natural disasters, population ageing, food insecurity, and health disparity. After the talks, we will discuss the opportunities and challenges of natural experimental studies to address current public health issues.

S19-1

Using disaster as an external shock: Pre-disaster social capital and resilience among the victims of the 2011 Great East Japan Earthquake

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Annually, an average 100,000 people die from natural disasters around the world. Health, assets, and social relationships are affected during disasters, and mitigating the harmful effects of a disaster is a major public health challenge. For this purpose, the effects of disasters on health and various social and physical environments need to be monitored. After disasters, researchers are also able to observe their effect on issues that are difficult to study using random allocation in experimental researches. For example, random allocations of social network or social capital are problematic in the real world. Allocation of economic poverty or obligatory relocation is ethically impossible. However, researchers can observe the effects of these situations when caused by disasters. In this presentation, we will introduce epidemiological studies related to the 2011 Great East Japan earthquake and tsunami in which more than 18,000 people lost their lives and more than 326,000 survivors were forced to relocate to temporary housing. In an on-going, nationwide, prospective cohort study, the Japan Gerontological Evaluation Study (JAGES) has established a study field in Iwanuma city, where the disaster struck. The baseline survey was conducted seven months before the disaster. Using this natural experiment, we will show several results regarding the impact of disasters on social capital, housing damage, and the effect of the ensuing economic difficulty on health. Housing damage increased the risk of depressive symptoms, functional decline, dementia, and tooth loss. In contrast, the component of social capital prior to the disaster reduced the risk of the onset of post-traumatic stress disorder.

S19-2

Evaluation of a community intervention program promoting social interactions among older residents to prevent functional disability: Findings from propensity score matching and instrumental variable analyses

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Previous observational studies suggested that social interactions among older people are associated with lower risk of onset of physical and cognitive functional disability. However, selection bias due to their observational nature remains a caveat of these studies, e.g. people who participate in social activities tend to be healthier than those who do not participate. We have conducted a community intervention study promoting social interactions among community-dwelling older adults with the aim of preventing functional disability in Taketoyo town, Japan. The community salon project was launched in May 2007 when the municipal authority began to open community-based centres where the town's senior residents could congregate and participate in social activities. Initially, three salons were established, and by 2010, eight salons were in operation. Although the salon programs were not standardized across locations, popular activities included dance classes, chatting with other participants, arts and crafts (calligraphy, origami, and poetry recitation), singing, playing musical instruments, quizzes and games (e.g., bingo, cards, Japanese chess), as well as interactive activities with preschool children. In each salon, 90-120 minutes of programs were scheduled between 1 to 3 times per month. Any resident aged 65 years or older was eligible to participate for a nominal fee of 100 Japanese Yen (roughly 1 US dollar) per visit. To address the issue of selection bias in this quasi-experimental study, we used two identification strategies, namely propensity score matching (PSM) analysis and instrumental variable (IV) analysis, using the number of community salons within a radius of 350 m from the participant's residential address as an instrument.

S19-3

Effectiveness of supporting municipality staff for data-oriented cross-sectoral collaborations on their job performances: a cluster quasi-experimental study

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Community diagnosis and cross-sectoral collaborations are essential in the "social determinants of health" approach. The aim of this study was to evaluate, using cluster quasi-experimental design, the effects of providing support to municipality staff/professionals for using community diagnosis tools and promoting cross-sectoral collaborations on their job performances. In 2013, the Japan Gerontological Evaluation Study (JAGES) project conducted a questionnaire survey for the older residents of 32 municipalities in Japan. After the survey, researchers provided active support to health professionals and staff of 15 municipalities to help them use community diagnosis tools based on the JAGES survey results and collaborate with other sectors (intervention). For the staff of the remaining 16 municipalities, the JAGES team provided only community diagnosis results (control). We conducted a mail-in survey every year from 2014 to 2016 for 180 municipality professionals/staff in charge of communicating with JAGES researchers. In these surveys, we evaluated individual indicators regarding social capital and policy-making skills. We performed difference-in-difference (DID) analysis to compare two-year changes in those indicators between the staff/professionals in two municipality groups. We used propensity score matching to account for potential baseline selection bias. The results showed that, compared to control groups, health professionals in the active support groups increased the collaborations with non-health sector organisations within their individual networks ($p < 0.05$). Policy making skills of professionals among the active support groups tended to improve better compared with the control groups. In conclusion, this support may be effective for health professionals to develop cross-sectoral collaborations. Measuring key information that determines the intervention/control selection is critical in quasi-experimental study.

S19-4

Difference-in-Differences Studies in Health Economics: Possibilities and Pitfalls

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Difference-in-differences (DID) analysis exploits a situation when a certain change (the treatment) affects only a subset of subjects (the treatment group), leaving the rest (the control group) unaffected. DID analysis examines the effect of the treatment by comparing differences in changes in the outcome of interest before and after the treatment between the treatment and control groups. Moreover, DID analysis enables researchers to account for time-invariant unobserved heterogeneity and often makes causal interpretation easier, especially when the change is plausibly exogenous. Typical examples of the aspects studied in DID analysis include natural disasters and policy changes, and many economic studies have exploited variation in policy changes at the local government level. In Japan, it is difficult to conduct such analysis, because local government-level policy variation is small, and because detailed information on individuals' residence location is not available in most large-scale data sets. Nevertheless, Japanese health economists have conducted DID studies in various ways, for instance by exploiting nationwide policy changes only affecting certain subpopulations. However, DID analysis is not a panacea. In particular, findings of several influential DID studies were overturned by newer studies based on more convincing identification strategies than DID analysis. Thus, it is crucial to understand the key assumptions underlying the DID model and examine their validity. For instance, researchers can test for reverse causality by examining whether the outcome variable is a significant predictor of the treatment. Additionally, for a robustness check, researchers can conduct propensity score based matching, weighting, or trimming to ensure sufficient overlap in before-treatment characteristics between the treatment and control groups.

Symposium 20

Epidemiologic evaluation of influenza: disease burden, risk factors and vaccine effectiveness

Moderators: Wakaba Fukushima (Department of Public Health, Osaka City University Faculty of Medicine, Osaka, Japan)

Ta-Chien Chan (Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan)

Influenza is one of the most common acute respiratory diseases that can cause serious illness and death among older adults, younger children and those with higher risk for influenza complications. Epidemiologic evaluation of influenza is important to establish effective strategies for prevention, although unique characteristics of influenza cause many methodological difficulties. This symposium will focus on “how to evaluate influenza” from the perspectives of an epidemiologic approach and the validity of a study. Topics will include a novel survey system/study design for assessing risk factors or disease burden, basic principles in cohort studies, potential biases in vaccine effectiveness studies, and appropriate control selection in case-control studies. Some underlying issues of health-care systems related to influenza in individual countries will be discussed as well. This symposium will highlight the challenges in epidemiologic evaluation of influenza, and will provide a useful perspective for future studies.

S20-1

Disease entity and vaccine effectiveness of influenza: an epidemiologic perspective

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An influenza epidemic causes an increased morbidity, mortality, and medical care cost. Vaccination of high-risk individuals is the most effective measure for reducing the impact of this disease. However, vaccination coverage is not satisfactory in some countries. Misunderstanding of illness severity and skepticism about vaccine efficacy of influenza is more or less responsible for this low uptake. Therefore, it is necessary to improve the methodology by which disease burden, risk factors and vaccine effectiveness can be evaluated and thus better appreciated. Numerous difficulties have been pointed out in conducting influenza epidemiologic study. Major items are: (1) unpredictability of the time and intensity of the occurrence, (2) a mixed epidemic with different virus strains, (3) existence of already-immune individuals, (4) antigenic similarity between the vaccine strains and epidemic viruses, (5) antibody inducibility specific to each vaccine antigen, (6) inter-individual variation in the antibody response to vaccine, (7) indirect effect of hard immunity by vaccination on nonvaccinees, (8) masking effect of high vaccine-induced antibody when ascertaining the infection by antibody rise, (9) unequal virus exposure between the compared groups, particularly when the epidemic scale is small, (10) inclusion of noninfluenzal illnesses into the outcome event, (11) unequal behavior seeking medical care between vaccinees and nonvaccinees. To establish the basis for future studies on influenza, the methodology to evaluate disease burden, risk factors and vaccine effectiveness should be further developed, by utilizing a wide range of epidemiologic means.

S20-2

The risk of influenza transmission through social networks, personal health behaviors and environmental factors - a participatory cohort study in Taiwan

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Introduction: Seasonal influenza epidemics caused a high disease burden worldwide every year. How to prevent influenza infection is a critical issue for public health. Previous studies have mostly focused on enhancing vaccination coverage or promoting personal hygiene behavior. However, daily personal health behavior and social contact might play important roles in mitigating the risk of influenza transmission. In this study, we tried to use a novel diary-based online survey to elucidate these associations.

Methods: This is a long-term participatory cohort study in Taiwan. We designed a web-based platform to collect data on participants' daily health behaviors and their social contacts. Once a day, the participants recorded their health diary and contact diary based on recollection of the past 24 hours. The health diary included sleep quality, diet, physical activity, having influenza-like illness (ILI) symptoms and so on. From the contact diary, the contact duration, contact mode, and whether the contacted persons had ILI symptoms or not were all recorded. In addition, we also incorporated external environmental factors such as daily air pollutants and temperature into our model. We used mixed effects logistic regression to estimate the risk of getting influenza infection.

Results: We selected the data during the 2015-2016 influenza season, which from October 1, 2015 to March 31, 2016. There were 294 participants with 17,253 health diary records and 192,648 contact diary records. The results showed that having longer physical activity, eating more fruit, red meat, and beans, and sleeping longer were associated with lower risk of influenza infection. However, contact with persons having ILI symptoms within the past 2 days, higher temperature difference, and staying up late all were linked to an elevated risk of influenza infection.

Conclusions: Developing a healthier lifestyle, avoiding contact with persons with ILI symptoms, and keeping warm can reduce the risk of influenza infection.

Influenza disease burden among Japanese pregnant women: a self-control method

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In November 2012, the World Health Organization recommended that pregnant women should be the highest priority group for influenza vaccination. However, in Japan, during the influenza A(H1N1)pdm09 pandemic, influenza-related hospitalization reported among pregnant women was only 74 cases (cf. the number of annual births was 1,070,035 in 2009), which was lower than that in other countries. Therefore, to evaluate the disease burden due to seasonal influenza among Japanese pregnant women, an epidemiological study using the self-control method was conducted.

Twelve thousand, eight hundred and thirty-eight pregnant women who were attending maternity hospitals and clinics in Osaka Prefecture before the beginning of the 2013/14 influenza season were recruited. A study outcome was defined as hospitalization due to respiratory illnesses between the 2010/11 and 2013/14 seasons. For analysis, the hospitalization rates during pregnancy and non-pregnancy periods was calculated separately, and the Mantel-Haenszel method was used to calculate rate ratios (RR_{MH}) and 95% confidence intervals (CI) of the hospitalization rate during pregnancy (risk period) compared with that during non-pregnancy (control period).

A total of 26 hospitalizations due to respiratory illnesses was reported during the four seasons. Among those, nine subjects were hospitalized during their pregnancy period. The hospitalization rate during pregnancy was 2.54 per 10,000 woman-months, while that during non-pregnancy period was 1.08 per 10,000 woman-months. The RR_{MH} for the hospitalization rate during pregnancy compared with that during non-pregnancy was 4.30 (95% CI: 1.96-9.41). Although some limitations accompany the self-control method, our results suggested that the risk of hospitalization for respiratory illnesses during influenza season is higher during pregnancy. The self-control method appears to be an appropriate epidemiological method for evaluating the disease burden of influenza among pregnant women.

S20-4

Influenza vaccine effectiveness among elderly adults in Japan: a population-based cohort study

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Background: Numerous observational studies utilizing record linkage to large scale databases demonstrated benefits of influenza vaccination against serious outcomes such as all-cause mortality or hospitalization for pneumonia or influenza among adults aged ≥ 65 . However, these studies might be affected by potential bias and confounding factors. In addition, little is known about the vaccine effectiveness for influenza onset in community-dwelling elderly.

Methods: This population-based cohort study was conducted between 1 December 2003 and 31 March 2004, with 4,787 participants aged 65-79 years at recruitment. If the participants had fever equal to or more than 37°C during the survey period, they were asked to record their signs or symptoms onto the provided record sheet including a check list of symptoms, hospital visits, and medication. Research nurses interviewed either the elderly themselves or their family members regarding acute febrile illness, hospital visits, hospitalization and death by telephone every month. We inquired participants' vaccination status to the city office and determined clinical influenza based on medical records. Influenza-like illness (ILI) was defined as an acute febrile illness ($\geq 38.5^{\circ}\text{C}$) during the survey period.

Results: After adjusting for confounders, vaccination decreased ILI significantly (odds ratio [OR], 0.38; 95% confidence interval [CI], 0.17-0.85), but not clinical influenza (OR, 0.76; 95%CI, 0.28-2.06). The results were inconclusive for preventing hospitalization for influenza or pneumonia (OR, 0.37; 95%CI, 0.09-1.47) and death (OR, 3.68; 95%CI, 0.75-18.12), possibly due to the inadequate sample size.

Conclusion: This cohort study is the first study that have shown vaccine effectiveness against ILI in community-dwelling elderly through unbiased active surveillance and with minimized misclassification and careful consideration of confounders.

S20-5

Incidence and risk factors of influenza-like illness in 3 communities in Korea: a prospective cohort study

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Background: Acute upper respiratory infectious diseases including influenza have enormous disease burden in the Globe. The aims of this study were to estimate and compare the incidence of influenza and influenza-like illness (ILI) in 3 communities with different population structure and to identify behavioural risk factors for ILI.

Methods: We set up 3 community-based cohorts which were consisted of 1,007, 1,001 and 1,027 dwellers (age 6 months over) selected randomly from Ulsan (urban), Chungju (rural) and Seoul (metropolitan) respectively. Baseline surveys, including socio-demographic and behavioural risk factors, were performed in November 2012. After baseline survey each member of the cohort was followed weekly by telephone to identify whether he/she had influenza-like illness (fever and cough or sore throat) to August 2013. If he/she got ILI, the investigator visited his/her residence to collect sample of nasopharyngeal swab. The samples were tested to detect 14 respiratory viruses by RT-PCR. The incidence of ILI and influenza per 1,000 persons by age groups were calculated. Risk factors for ILI were analysed using multivariate logistic regression.

Results: The weekly mean ILI incidences per 1,000 during study period were 8.5, 5.1 and 21.3 in Ulsan, Chungju and Seoul, respectively. The incidence of influenza confirmed by PCR in Seoul (35.1/1,000) was much higher than those of Ulsan (12.9) and Chungju (10.0). The rates were highest among 0-6 years among all age groups (110.5/1,000 in Seoul, 81.6 in Chungju). For the adolescent and adults over 15 years-old, female (OR=1.88), low income (OR=2.57), past smokers (OR=1.89), alcohol drinking (OR=0.65) were significant factors of ILI in multivariate analysis.

Conclusion: Incidence of ILI and influenza varies by communities and age-groups. Behavioural factors may play a role in ILI incidence, but further study is needed to make it clear.

S20-6

Risk factors of acute respiratory infectious diseases among children: a hospital-based case-control study

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Background: Acute respiratory infectious diseases (ARI) are major burdens to pediatric health issues. The nature and interactions of the ARI risk factors including health behaviors remain not fully characterized in children. This study was carried out to identify the risk factors of the ARI in children during influenza season.

Methods: A hospital-based case-control study from pediatric department of two hospitals in Seoul was performed. ARI was defined as 2 or more symptoms being positive among fever, cough, sore throat, chill and rhinorrhea. Cases were chosen from patients who visited pediatric clinics with ARI, and controls were selected from patients who had no ARI. Researchers and trained interviewers carried out a face-to-face interview from January to April 2013. The structured questionnaire was designed to investigate the socio-demographic status, household environmental factors, medical history, environmental tobacco smoke, dental hygiene, public transportation usage, childcare attendance, and breastfeeding history. Adjusted odds ratios and 95% confidence intervals were calculated from multivariate logistic regression analysis.

Results: 166 children were enrolled in the study with 86 cases. Boys in cases and controls were 59.3% and 50.0%, and mean age was 25.2 ± 16.9 months and 25.3 ± 16.5 months respectively. From the multivariate logistic regression analysis, the risk of ARI increased with childcare attendance (OR=3.72, 95%CI: 1.87-7.40) and environmental tobacco smoke (OR=2.68, 95%CI: 1.19-6.03). Floor area of the house (OR=0.43, 95%CI: 0.17-0.83) and breast-milk feeding (OR=0.37, 95%CI: 0.88-0.99) were protective with ARI. However, public transportation usage, dental hygiene and other possible factors were not significant.

Conclusion: Exposure to the environmental tobacco smoke and childcare attendance increase the risk of ARI in children while breast-milk feeding decrease the risk.

Influenza vaccine effectiveness among Japanese young children: a test-negative design

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Department of Public Health, Osaka City University Faculty of Medicine, Osaka, Japan

Background: Evidence is limited for influenza vaccine effectiveness (VE) against laboratory-confirmed influenza among young children. Recently, there have been a growing number of influenza VE studies using the test-negative design, which can minimize confounding by health care-seeking behavior and misclassification of diseases. We aimed to estimate influenza VE among Japanese young children using the test-negative design. In Japan, all approved influenza vaccines are inactivated formulations, and quadrivalent vaccines were introduced for the first time in the 2015-16 influenza season.

Methods: During the 2015-16 influenza season in Osaka and Fukuoka Prefectures, Japan, we prospectively recruited children aged <6 years who visited 1 of 9 collaborating pediatric clinics within 7 days of influenza-like illness (ILI) onset. In order to reduce selection bias as much as possible, we employed systematic sampling: 1) if children satisfied the eligible criteria, we asked all children to participate, and 2) if informed consent was obtained from guardians, we recruited sequentially up to 5 children per day (3 days a week). Nasal aspirates were tested for influenza by real-time reverse transcription polymerase chain reaction. Information on influenza vaccination was confirmed by medical records or maternity health record books. Conditional logistic regression models were used to calculate VE by taking into account the clinics, the weeks at recruitment, and the severity of ILI, as well as potential confounders.

Results: Among 424 influenza-positive cases and 490 influenza-negative controls, overall adjusted VE was 60% (95% confidence interval [CI]: 40% to 74%) for 2 doses. VE was significant irrespective of influenza subtypes, except for A(H3N2) due to the small number of cases.

Conclusion: Influenza vaccine provided significant protection against laboratory-confirmed influenza in Japanese young children. Although the test-negative design is very useful to achieve an abstract estimate of influenza VE across the seasons, methodologies to reduce potential selection bias should be discussed.

Symposium 21

Nutritional Aspects of Epidemiology

Moderators: Rachel Huxley (Professor, School of Public Health, Faculty of Health Sciences, Curtin University, Australia)

Yasuo Kagawa (Professor, Department of Medical Chemistry, Kagawa Nutrition University, Japan)

In healthspan WHO ranking among 194 countries, Japan is second (75 years old) and Australia (73 years old) is fourth, partly because Washoku (traditional Japanese diet) and Mediterranean diet are recommended for Japanese and Australian respectively. However, in the aged society, prevention of frailty and dementia is the most important issue. To achieve this, prevention and treatment of metabolic syndrome (MS), type 2 diabetes (T2D) and cardiovascular diseases (CV) are essential. Dr. Kagawa will present the background information including genetically optimal nutrition, and genetic difference between Mongoloid and Caucasoid.

In order to treat MS, nationwide intervention program called Specific Health Checkups (SHC) with Specific Health Guidance (SHG) for medically insured 25 million subjects (40-75 years old) per year was started in FY2008. Dr. Tsushita will report significant reductions in systolic and diastolic blood pressures, fasting blood glucose, urate and other indices were observed in the group with a 3% to <5% weight reduction.

The important factor of nutritional health is the social determinant especially women's lifestyle that will be reported by Dr. Hayashi. Anorexia nervosa is more common in women than men. For the epigenetic prevention of MS and T2D, decrease of underweight young women and their low weight infants is one of key targets in Japan. In order to prevent aged people living alone from frailty and dementia, their social interaction with neighbors should be increased.

Finally, Dr. Huxley will report on the most important endpoint of MS and T2D, which is CV. Owing to the population aging, and increasing vascular risk factors, the burden of CV is growing in Asia-Pacific region. Using lessons from the West, identify possible population based primary prevention strategies, the impact of CV to populations in the Asia-Pacific region will be reduced.

S21-1

Nutrigenomics of the impact of Westernization in Asia

Yasuo Kagawa

Professor, Department of Medical Chemistry, Faculty of Nutrition, Kagawa Nutrition University, Japan

Diversity in the genetic profile between Mongoloids and Caucasians causes different response to Western diets with high caloric density (1.7 kcal/g). There was the striking ethnic difference in the age-adjusted prevalence of diabetes in Hawaiian modern society: the rate for unmixed Hawaiians was about six times, and Japanese was about three times that for Caucasian. There are many single nucleotide polymorphisms (SNPs) that affect metabolic syndrome (MS). For example, the energy saving SNP of β 3-adrenergic receptor (β 3AR Arg64) is found in 33% of Japanese, and is the risk of MS, but was beneficial during historical periods of famine. In contrast, the thermogenic SNP (β 3AR Trp64) is found in most Caucasoids, and was advantageous during the glacial period. The salt-saving SNP of the angiotensinogen gene (AGT 235Thr) is found in 63% of Japanese, but in modern society with a sufficient salt supply, the SNP (235Thr) became more risky for hypertension than SNP (235Met) of Caucasoid. Long chain n-3 polyunsaturated fatty acids (LCPFA) of fish play a role in preventing MS. Conversion of α -linolenic acid to LCPFA requires the Δ 5 desaturase, but about half of Japanese has SNP (FADS1C) with the low activity. SNPs with low folate metabolism were alleviated by taking more green vegetables. Some merits of Mediterranean diet are milk and wine, but Asian adults lack intestinal lactase and have low aldehyde dehydrogenase activity. Vegetables and fish are both healthy to Mongoloids and Caucasoids, because the frequencies of SNPs that require both foods are similar. Mongolians taking few fish and vegetables have short lifespans. Currently, the pescovegetarian diet similar to the traditional Japanese diet (1kcal/g), is the healthiest for average Japanese. In our Nutrition Clinic and Sakado Folate Project, SNP notification was effective for motivating good dietary habit. In future, SNP-specific personalized dietary recommendations for optimal healthspan will be developed.

S21-2

The results of national intervention program to control metabolic syndrome; Specific Health Guidance

Kazuyo Tsushita

Director, Comprehensive Health Science Center, Aichi Health Promotion Public Interest Foundation, Japan

To reduce non-communicable lifestyle-related diseases, the Japanese government made it obligatory for medical insurers to provide Specific Health Checkups (SHC) and Specific Health Guidance (SHG) in FY2008. People who are abdominal obesity and have more than two metabolic risk factors are eligible for Intensive Health Guidance (HG). This program includes individual counseling or group sessions to give information about how to change lifestyle and set individual goals, with follow-up by e-mail, phone or interviews for six months, with a final evaluation.

We analyzed the examination data of 3,480 participants enrolled in the Intensive HG. Significant weight reduction and concomitant improvements in measurements associated with obesity-related diseases were observed in one year. In the group exhibiting a 1% to <3% weight reduction, TG, LDL-C, HbA_{1c}, AST, ALT and γ -GTP decreased significantly, and HDL-C increased significantly compared to the control group ($\pm 1\%$ weight change group). Significant reductions in SBP, DBP, FPG and UA were observed in the group with a 3% to <5% weight reduction. Based on these findings, setting goal of 3% weight reduction is thought to be feasible and effective.

The SHG study group performed a population-based observational study using the National Data Base from 221,516 SHC participants, comparing changes in the examination data of SHC between those participating in the SHG group and a non-participating control group, followed over three years. In the Intensive HG group, waist circumference, BMI, body weight, BP, TG and HDL-C were significantly improved in comparison to the corresponding control groups. HbA_{1c} rose in the control group, but in the intervention group suppression was observed.

These findings suggest it is important to make proactive approaches to reduce metabolic NCDs.

S21-3

Social determinants of health from a nutrition perspective: Evidence on women's health

Fumi Hayashi

Associate Professor, Nutrition Ecology, Kagawa Nutrition University, Japan

Gender differences has been shown to affect nutrition and health outcomes in both developing and developed countries. Simply, sex refers to biological differences, but gender refers to social differences. Although both sex and gender must be taken into account to understand health and disease prevention, this presentation will focus on social factors that influence health outcomes of women. According to studies with nationally representative samples of Japanese people, women with lower household income had higher risks of hypertension and women in professional and managerial position were lower risk in anemia. The gender differences are also found in risk for eating disorders that influence the nutritional outcome. Eating disorders are more common in women than men; and lowering the prevalence of underweight young women is one of key targets of health promotion in Japan. The sociocultural norms such as 'ideal female body shape' in western societies could distort body images and nutritional practices of young women, and dieting may be used to improve self-esteem. In terms of elderly nutrition, many studies have demonstrated the effect of social support. Elderly people who are living alone tend to be associated with an increased nutritional risk, but a study showed that eating together with others at least once a month was associated with increased food diversity and diet quality of elderly living alone. That is, social interactions at eating occasions would increase motivations to eat variety of foods. In addition, ease of food accessibility is considered as a key factor for subjective well-being of elderly women with chronic diseases. A study found that elderly women with poor subjective well-being had shopping difficulties and eating together with others less often. Therefore, the complexity of social determinants of health should be taken into account to understand the nutritional impact of gender roles on women's health.

S21-4

The Role of Nutrition and Lifestyle-Related Risk Factors on the Burden of Cardiovascular Disease in Asia

Rachel Huxley

School of Public Health, Faculty of Health Sciences, Curtin University, Australia

Cardiovascular diseases (predominantly comprising coronary heart disease and stroke) is no longer a disease that predominantly affects Western populations. In many countries in the Asia-Pacific region, cardiovascular disease has superseded communicable disease as the leading cause of death and disability. Moreover, recent estimates suggest that 80% of the global burden of cardiovascular disease occurs in populations in the region. In part, this reflects not only the huge population residing within the region but also the changing population structure of these countries - namely population aging - as a result of substantial increases in life-expectancy.

But the sizeable burden of cardiovascular disease, is also due to the increasing prevalence of major and modifiable vascular risk factors in these populations, particularly among the younger generations. In large part, this reflects the wide-scale adoption of nutrition and lifestyle practices in Asian populations that historically are more synonymous with the West, and a move away from agrarian existences and traditional dietary practices. Consequently, the prevalence of conditions such as obesity, diabetes and hypertension has risen inexorably in recent years. Taken together, the main vascular risk factors including obesity, diabetes, and tobacco exposure and raised levels of blood pressure and blood cholesterol account for a significant proportion of the burden of cardiovascular disease in the Asia-Pacific region.

Large, well-conducted epidemiological studies have clearly demonstrated that suboptimal nutrition and behavior patterns are important distal contributors to these risk factors and that reversal of these behaviours confers significant cardiovascular health benefits. This presentation will outline the growing burden of cardiovascular disease in the region, possible causes underlying the increase, and using lessons from the West, identify possible population based primary prevention strategies that may help to mitigate and reduce the impact of cardiovascular disease to populations in the Asia-Pacific region.

Symposium 22

Epidemiological modeling of infectious disease epidemics in Asia

Moderators: Hiroshi Nishiura (Department of Hygiene, Hokkaido University Graduate School of Medicine, Sapporo, Japan)

Hisashi Inaba (Graduate School of Mathematical Sciences, The University of Tokyo, Tokyo, Japan)

Epidemiological models have been practically used in numerous settings to understand the transmission dynamics and evaluate interventions, and in the present day, mathematical approaches are recognized as essential tools to describe the epidemic dynamics of various infectious diseases. It is notable that recent modeling studies have been greatly improved by their increased quantitative validity through the use of Markov Chain Monte Carlo techniques and machine learning methods. In Asia, the recent growth of epidemiological modeling studies has been remarkable, drastically widening the range of applications and filling the gap that has existed between public health and modeling experts in inferring the incidence and prevalence and offering epidemic forecasts. Inviting epidemiological modeling researchers with substantial experience of implementations in North America and calling expert leaders from Japan, China and South Korea, the purpose of this symposium is to share case studies of practical modeling research and identifying existing problems for the audience without background of mathematical and statistical modeling.

S22-1

Early Sub-Exponential Epidemic Growth: Implications for Disease Forecasting and Estimation of the Reproduction Number

Gerardo Chowell

School of Public Health, Georgia State University, Atlanta, GA, USA

There is a long tradition of using mathematical models to generate insights into the transmission dynamics of infectious diseases and assess the potential impact of different intervention strategies. The increasing use of mathematical models for epidemic forecasting has highlighted the importance of designing reliable models that capture the baseline transmission characteristics of specific pathogens and social contexts. More refined models are needed however, in particular to account for variation in the early growth dynamics of real epidemics and to gain a better understanding of the mechanisms at play. Here, we review recent progress on modeling and characterizing early epidemic growth patterns from infectious disease outbreak data, and survey the types of mathematical formulations that are most useful for capturing a diversity of early epidemic growth profiles, ranging from sub-exponential to exponential growth dynamics. Specifically, we review mathematical models that incorporate spatial details or realistic population mixing structures, including meta-population models, individual-based network models, and simple SIR-type models that incorporate the effects of reactive behavior changes or inhomogeneous mixing. In this process, we also analyze simulation data stemming from detailed large-scale agent-based models previously designed and calibrated to study how realistic social networks and disease transmission characteristics shape early epidemic growth patterns, general transmission dynamics, and control of international disease emergencies such as the 2009 A/H1N1 influenza pandemic and the 2014-2015 Ebola epidemic in West Africa.

S22-2

Predicting the global spread of emerging infectious diseases

Hiroshi Nishiura

Department of Hygiene, Hokkaido University Graduate School of Medicine, Sapporo, Japan

Infectious disease modeling group of Hokkaido University has tackled a real-time modeling tasks of emerging and reemerging infectious diseases including Ebola virus disease 2014, Zika virus epidemic 2015, measles epidemic in 2016, and the Middle East respiratory syndrome (MERS) in the Republic of Korea, 2015, implementing multitudes of mathematical modeling studies using big data and being committed to drastically improve infectious disease epidemic forecasting. The subject of our study included: (1) Estimation of country-specific risk of importation, (2) Estimation of outbreak risks given an importation, (3) Characterization of heterogeneous transmission, (4) Modeling time- and type-specific heterogeneous transmission, (5) Rapid estimation of the risk of death, case fatality ratio (CFR), (6) Rapid estimation of risk factors of death as a function of epidemic time, and (7) ascertaining the end of outbreak using a statistical model. While mathematical formulations are similar from each other, modeling that is specific to each disease has been considered. Here we show the results from our forecasting of global epidemic that is triggered by human mobility across the globe.

S22-3

Mathematical modeling for integration of ecological, epidemiological and environmental data to inform infectious disease management

Jianhong Wu

School of Mathematics and Statistics, York University, Toronto, Canada

We use a few case studies on avian influenza, tick-borne encephalitis, and Zika infection dynamics to show how mathematical modeling and analysis provides a framework and decision support tool to integrate ecological, epidemiological and environmental data to inform infectious disease prevention and control.

S22-4

Mathematical Models of Emerging Infectious Diseases in the Republic of Korea

Eunok Jung

Department of Mathematics, Konkuk University, Seoul, Korea

Emerging infectious diseases have long been recognized as a continuous, inevitable, unpredictable threat to the global public health. Hence, understanding the underlying dynamics why they spread and what causes epidemics give key ideas of intervention strategies. In this talk, we will present the development of new mathematical models for the spread of two emerging infectious diseases in the Republic of Korea, 2009 A/H1N1 pandemic and 2015 Middle East respiratory syndrome outbreak, and the effects of public health intervention in the early stage of the outbreaks. Using the laboratory-confirmed case data, the spreading dynamics of transmission is investigated. Results in this work suggest that heterogeneity plays a key role in the spread of two emerging infectious diseases in the Republic of Korea. Our findings show that interventions in the early stage of the outbreak could reduce the epidemic size up to 19% for the 2009 pandemic influenza, and up to 80% for the 2015 MERS outbreak.

S22-5

Treatment - donation - stockpile dynamics in Ebola convalescent blood transfusion therapy

Xiaodan Sun

Department of Mathematics and Statistics, Xi'an Jiaotong University, Xi'an, China

We formulate a novel mathematical model to examine the nonlinear transmission - treatment - donation - stockpile dynamics during an Ebola outbreak and with a large scale use of the transfusion therapy in the population. It is shown that such a system exhibits complicated behaviors as the recovery period of donors between donations varies. Stable large amplitude periodic solutions, bi-stability of the positive equilibrium and periodic solutions, coexistence of multiple stable periodic solutions, stable double and quadruple period solutions are observed. Our results have public health implication to suggest critical role in optimizing the stockpile storage before the outbreak and keeping good track of potential donors during the outbreak. We also recommend that the donor recovery duration should be carefully chosen and maintained in a range to achieve optimal outcome of this therapy at a large population.

Symposium 23

Field epidemiological research in resource-limited settings: Challenges and opportunities

Moderators: Masahiko Hachiya (Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan)

Tetsuya Mizoue (Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine, Japan)

Conducting epidemiological research in resource-limited settings often poses significant ethical, organizational, cultural, and infrastructural challenges to researchers, funding bodies, development partners, and institutional review boards.

In this session, after a brief overview, the speakers will present research processes and results specific to their own country, as influenced by national circumstances, the research methodology used, and the public health context.

1. Cluster randomized interventional study in Sri Lanka

A 12-month cluster randomized trial was conducted to examine the effect of child-initiated intervention on weight, physical activity, and maternal dietary habits. The balance between robustness and practicability of the study design will be discussed.

2. Prevalence survey for hepatitis B in Lao PDR

A nationwide cross-sectional survey for disease prevalence was conducted to evaluate hepatitis B epidemiology. The balance between maximizing local human resources and maintaining quality control, with necessary consideration of infrastructure and logistical limitations, will be discussed.

3. Malaria control project evaluation in Niger

Household bed net coverage was compared between intervention and control areas to assess the impact of community-based net distribution strategies. The balance between project evaluation and epidemiological evaluation will be discussed.

4. Field epidemiological research and its policy implications

With changing global health circumstances, new evidence is needed regularly before implementing specific interventions in the field. With policy formulation in mind, researchers should consider the balance between theory and field reality.

S23-1

Field epidemiological research in resource-limited settings: An overview

Masahiko Hachiya¹, Tomomi Kitamura¹, Shinsuke Miyano¹, Kenichi Komada¹,
Ikuma Nozaki¹, Hironori Okabayashi¹, Tomoo Ito¹, Masataro Norizuki¹, Munehito Machida²

¹ Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan,

² Department of Global Health, Kanazawa University School of Medicine, Japan

With increased globalization and human mobility, health issues previously considered to be local have become global, and more researchers are conducting epidemiological studies in resource-limited settings. Under these circumstances, specific issues are now attracting attention. Researchers, funding bodies, development partners, and institutional review boards are now confronted by significant ethical, organizational, cultural, and infrastructural challenges. The speaker will present a brief overview of the current situation and introduce specific case studies.

A cluster randomized interventional study in Sri Lanka

Tetsuya Mizoue¹, Nalika Gunawardena², Kayo Kurotani³, Susantha Indrawansa⁴,
Daisuke Nonaka⁵, Diyanath Samarasinghe⁶

¹ Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine, Japan,

² Department of Community Medicine, University of Colombo, Sri Lanka,

³ Department of Nutritional Education, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Japan,

⁴ The Foundation for Health Promotion, Sri Lanka,

⁵ Department of Global Health, School of Health Sciences, University of the Ryukyus, Japan,

⁶ Department of Psychological Medicine, University of Colombo, Sri Lanka

The authors, from Sri Lanka and Japan, performed a 12-month cluster randomized trial, with school as a cluster, to examine the effect of child-initiated intervention on weight, physical activity, and maternal dietary habits in Sri Lanka. Participants were mothers of grade 8 schoolchildren (around 13 years of age) in 20 schools in Homagama, Sri Lanka. Students in the intervention group were taught by facilitators to assess noncommunicable disease risk factors in their homes and act to address them; students in the control group received no intervention. Body weight, step count, and maternal lifestyle were assessed at baseline and post-intervention. Body weight decreased and physical activity and step count increased in the intervention group compared with the control group (Int J Behav Nutr Phys Act 2016;13:45). How this study was conducted, from planning through to publication, will be discussed in relation to the following issues: balance between robustness and practicability of the study design, allocation of resources to intervention and evaluation, role of the researchers in both countries, importance of coordinators and facilitators in the field, use of simple tools for objective measurement, and training of assessors.

S23-3

A survey of hepatitis B prevalence in Lao PDR

Tomomi Kitamura¹, Kenichi Komada¹, Masahiko Hachiya¹, Anonh Xeuvatvongsa², Phengta Vonphrachanh³

¹Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan,

²National Immunization Program, Ministry of Health, Lao PDR,

³National Center for Laboratory and Epidemiology, Ministry of Health, Lao PDR

Background: Hepatitis B is considered a public health issue in Lao People's Democratic Republic because of the high prevalence of hepatitis B reported in neighboring countries. Thus, a nationwide cross-sectional survey of hepatitis B prevalence was conducted to evaluate the disease epidemiology among children and mothers.

Methods: The survey sample population was selected by three-stage cluster sampling using probability proportionate to size. Face-to-face structured interviews and HBsAg rapid tests were conducted by local public health officers in the field.

Results: HBsAg prevalence was estimated to be 1.7% for children and 2.9% for mothers. Maternal infection status was positively associated with HBsAg positivity in children.

Opportunities and Challenges: The opportunities and challenges raised when conducting the survey will be discussed in relation to the balance between maximizing local human resources and maintaining quality control while considering infrastructure and logistical limitations.

Reference: Chronic hepatitis B prevalence among children and mothers: results from a nationwide, population-based survey in Lao People's Democratic Republic.

PLoS ONE. 2014 Feb 28;9(2): e88829. doi: 10.1371/journal.pone.0088829. eCollection 2014.

S23-4

Malaria control project evaluation in Niger

Daisuke Nonaka¹, Tetsuya Mizoue², Jun Kobayashi¹

¹Department of Global Health, School of Health Sciences, University of Ryukyus, Japan,

²Department of Epidemiology and Prevention, Center for Clinical Sciences, National Center for Global Health and Medicine, Japan

Malaria is a leading cause of morbidity and mortality in Niger. Between 2007 and 2010, the Japan International Cooperation Agency (JICA) implemented a malaria control project in Boboye Health District, Dosso Region. The project sought to establish a community-based malaria control model and primarily promoted community-based distribution of bed nets. Several months before the project ended, JICA asked the presenters to assess the project's impact in the study area. In responding to the request, the presenters encountered two challenges: it was not possible to use a rigorous evaluation design because the project was already at a late stage; and even though the project had collected baseline data on household bed net coverage, the validity and reliability of the measures used were of concern, so a follow-up survey using the same measures would not be able to produce comparable data. As a result, a community-based survey was newly designed for post-project comparison of bed net coverage in the project area with that in a non-project area. The project area was the catchment area of five health centers where most of the project activities took place; the non-project area was the catchment area of five different health centers whose population size matched those of the five project area health centers. With two-stage cluster random sampling using probability proportional to estimated population size, 1,034 households were selected from the two areas. The survey found that household bed net coverage was significantly higher in the project area than in the non-project area (82.5% vs. 60.7%), with no significant differences in household socio-economic or demographic characteristics between the areas. Thus, the project was found to have had a positive impact on household bed net coverage.

S23-5

Field epidemiological research and its policy implications

Anonh Xeuatvongsa¹, Phath Keungsaneth², Phnegta Vonphrachanh³

¹National Immunization Program, Ministry of Health, Lao PDR,

²Director, Department of Hygiene and Health Promotion, Ministry of Health, Lao PDR,

³National Center for Laboratory and Epidemiology, Ministry of Health, Lao PDR

Various field studies in epidemiology have been conducted in Lao PDR, but not all were conducted successfully or their results used to formulate policy. In light of this, researchers should understand several issues in order to effectively influence policy formulation processes. First, researchers and policy makers attach a different sense of the value to the research findings; researchers consider how to appropriately disseminate the findings (number of publications and journal impact factors), whereas policy makers consider available budgets and practicability of implementing measures from the results as well as how residents will receive such measures. Second, timeframes for knowing the results differ; researchers often publish complete results several months or years after a study has finished, whereas policy makers need the results more quickly, even if they are tentative, quick, and crude. Third, the mode of presentation of the results differs between the two groups; scientific meetings and peer-reviewed journals used by researchers do not effectively reach policy makers, and a greater variety of modes for presentation should be used. Given these issues, continuous communication is needed in evidence-based policy formulation among the relevant parties involved in policy making, including researchers, central and local governments, policy makers, development partners, and civil society. Some experiences in Lao PDR will be shared.

Symposium 24

Obesity Prevention - Our mission to global change

Moderators: Yoshihiro Miyamoto (Department of Preventive Medicine and Epidemiologic Informatics,
National Cerebral and Cardiovascular Center, Suita, Osaka, Japan)

Nobuo Nishi (Center for International Collaboration and Partnership, National Institute of Health and
Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo,
Japan)

Non-communicable disease (NCDs) are the leading cause of mortality worldwide and the spread of NCDs is a serious public health threat to both developed and developing countries. Obesity is one of the common risk factor of NCDs. Despite years of efforts to reduce obesity, there are a few developed countries that have reported small declines or a levelling out of their obesity rates. Countries that have made impressive strides in reducing undernutrition have now faced rapid increases in obesity prevalence. World Health Organization has warned that paradoxically coexisting with undernutrition, an escalating global epidemic of overweight and obesity – “globesity” – is taking over many parts of developing countries. It is a global agenda that needs immediate action globally. Although evidence for this global problem is being accumulated, there is a gap between evidence and prevention policy of real world. It is an urgent matter how each stakeholder should actually tackle obesity prevention. In this symposium, we introduce the efforts of each country on the obesity policy and discuss how we should approach for this global agenda in the future.

S24-1

TBD

Yoko M. Nakao

Department of Preventive Medicine and Epidemiologic Informatics, National Cerebral and Cardiovascular Center, Suita, Osaka, Japan

S24-2

TBD

Nobuo Nishi

Center for International Collaboration and Partnership, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan

S24-3

TBD

Martin O'Flaherty

Department of Public Health and Policy, University of Liverpool, Liverpool, UK

Symposium 25

Strategic Biobank and Collaboration Worldwide

Moderators: Naoko Minegishi (Tohoku University, Sendai, Japan)
Shinichi Kuriyama (Tohoku University, Sendai, Japan)

To realize personalized health care and medicine, biobanks are now being established, utilized and collaborated with each other. In European countries, UK biobank and Lifelines etc. are established and collaboration of BBMRI are constructed. In Asian countries, several biobanks are also ongoing. Nevertheless, in genome cohorts, although a large sample size is useful, they require additional analysis strategies.

“Lifelines Cohort Study (Lifelines)” in Netherland is the only relatively large-scale population-based cohort study including about 160,000 participants with a three-generation design. The Lifelines has many potential advantages towards the realization of personalized healthcare and medicine, because there is sufficient family information.

The Tohoku Medical Megabank Project (TMM), which is being conducted by Tohoku University Tohoku Medical Megabank Organization (ToMMo) and Iwate Medical University Iwate Tohoku Medical Megabank Organization (IMM), has been launched to realize creative reconstruction and to solve medical problems in the aftermath of this disaster. TMM started two prospective cohort studies in Miyagi and Iwate Prefectures: a population-based adult cohort study, the TMM Community-Based Cohort Study (TMM CommCohort Study), that will recruit 80,000 participants, and a birth and three-generation cohort study, the TMM Birth and Three-Generation Cohort Study (TMM BirThree Cohort Study), that will recruit 70,000 participants, including fetuses and their parents, siblings, grandparents, and extended family members.

The two biobank could realize strategic analysis. We, therefore, plan this symposium and the symposium aims to discuss about;

1. How strategic is your Biobank?
2. How do you plan to analyze these strategic data?
3. How effective is collaboration of these biobanks worldwide?

S25-1

Becoming an established partner in successful networks for collaborative biobank and genetics research using Lifelines as an example

Harold Snieder

Department of Epidemiology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands

S25-2

Construction of Integrated Biobank: Tohoku Medical Megabank Project

Atsushi Hozawa

Department of Preventive Medicine and Epidemiology, Tohoku Medical Megabank Organization, Tohoku University

S25-3

Genetic Epidemiological Studies of ToMMo Genomic Cohorts

Gen Tamiya

Disease Risk Prediction Laboratory, Tohoku university, Tohoku medical megabank organization, Sendai, Japan /
Statistical Genetics Team, RIKEN Center for Advanced Intelligence Project, Tokyo, Japan

Symposium 26

Opening new era in epidemiology with clinical big data

Moderator: Hirohito Sone (Department of Hematology, Endocrinology and Metabolism, Niigata University
Faculty of Medicine, Niigata, Japan)

Utilization of big data in epidemiological studies has attract worldwide attention. In the field of medicine and health services, there already exist a variety of huge databases which are automatically grow bigger on a daily basis. Vast-sized databases, which is produced by integrating these existing big databases such as health check-up, electronic health record, medical claim, nursing-care insurance and genomic information, has made it possible to bring new types of epidemiological studies which are different from those of traditional epidemiology. This opening new era in epidemiology with big data is now widely applied to developing health promotional plan, prevention of disease and actual medical settings. We invite four outstanding speakers from Japan and abroad to give lectures about their achievements and methodology in this fields.

S26-1

Big data and drug safety evaluation

K. Arnold Chan

Health Data Research Center, National Taiwan University, Taipei, Taiwan

Historically the pre-marketing evaluation of medical products relies on mechanistic studies in laboratories and clinical trials among patients. Due to the limitations of these methods, rare and serious adverse outcomes as a consequence of use of medical products may not be detected until large number of patients have used the products in post-marketing settings. Examples including cerivastatin and rhabdomyolysis, rofecoxib and ischemic heart disease, and bisphosphonates and atypical femoral fracture.

With the advance in information technology, more and more secondary health data become available for a wide range of clinical and public health research, including post-marketing drug safety assessment. These secondary data include health insurance claims and electronic medical records. Additional data, including genomic information and patient reported outcomes, may be incorporated as well.

In this presentation the latest development in methods and data environment for post-marketing drug safety assessment will be reviewed. The presenter will illustrate the use of real world health data for the three crucial components of medical product safety assessment: 1) safety signal detection; 2) safety signal refinement; and 3) safety signal evaluation.

S26-2

Big data analyses for epidemiological research in rheumatology

Masayoshi Harigai, Ryoko Sakai

Professor of Division of Epidemiology and Pharmacoepidemiology, Institute of Rheumatology, Tokyo Women's Medical University, Tokyo, Japan

Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease, which leads to joint destruction and disabilities and is associated with various systemic comorbidities. In the past decade, a series of clinical trials of biologic disease modifying antirheumatic drugs and Janus kinase inhibitors have shown superb efficacy and acceptable safety in patients with RA. A variety of cohort studies has been launched to address clinical questions of these drugs in the real world. Although these researches brought about a rapid progress in rheumatology in Japan and abroad, they often had difficulty in generalizability of the results due to various biases. One of the solutions to this limitation is the use of big data, or claims data, for epidemiological researches in rheumatology. The use of claims data has revealed a various aspects of RA such as prevalence, patients' characteristics, comorbidities, and use of drugs, and permitted us to compare events with relatively low incidence rates in patients with RA and general population in each region or country. In this symposium, I would like to discuss the results of our researches on comorbidities in patients with RA utilizing claims data as well as those in the literatures. We and other investigators suggested that patients with RA have higher prevalence or incidence rates of comorbidities like infection, cardiovascular disease and fracture compared to the general population. However, big data are not panacea for epidemiological research in rheumatology. I will also discuss shortcomings of claims data in the research of RA.

S26-3

Big data applications in diabetes and cardiovascular disease

Kazuya Fujihara

Department of Hematology, Endocrinology and Metabolism, Niigata University, Niigata, Japan

Coronary artery disease (CAD) is a major cause of morbidity and mortality in patients with type 2 diabetes.

Although there are a number of diabetic cardiovascular disease clinical studies being conducted around the world, clinical studies face a large cost, enormous effort and cooperation of subjects. In order to resolve such issues it is essential to use new and alternative research sources such as big data. Big data has the following characteristics that can complement above issues: be available existing data set, no need a large cost, be available data accumulated over a long period, expecting to increase in events as time passed.

Japan is a developed country that has provided universal health coverage, which allows virtually all persons to have access to curative services including those in specialty cardiac hospital at an affordable cost.

Moreover, Japanese claim data base were not the large sample size but were accurate definitions of diabetes and CAD using data from health examinations, medical practice, and claims database, which allowed us to precisely identify and classify participants and to detect almost all patients with incident CAD during follow-up.

We analyzed data using a nationwide claim-based database in Japan consisting of approximately 3,000,000 people who belong to a health insurance provider for company employees.

We evaluated the impact of prediabetes and diabetes on the development to CAD in Japanese men. Although diabetes was found to be associated with a 2-4 fold increased risk of CAD, our findings indicate that this consensus among diabetes specialists was limited to patients over 40 years of age. This study showed that diabetes confers about a 20-fold excess risk for CAD, independently from other conventional risk factors in men aged 31-40 years.

In this section, we discuss mainly the role of the utilization of big data for complication of diabetes.

S26-4

Statistical issues in clinical epidemiology with big data

Shiro Tanaka

Department of Clinical Biostatistics, Graduate School of Medicine Kyoto University, Kyoto, Japan

Many textbooks of epidemiology have classified bias arises in epidemiological studies as selection bias, information bias and confounding. Sources of bias in clinical epidemiology with big data could be conceptually classified in such a way but epidemiologists should be aware of methodological fallacies typical in database studies. This talk describes characteristics of administrative databases available in Japan, e.g. claims, pharmacy dispensings and electronic medical records, and provides an overview of statistical issues and solutions in database studies, focusing on study designs and causal inference methodology.

Symposium 27

Tuberculosis molecular epidemiology –Outcome and perspective of collaborative research in East Asia

Moderators: Qian Gao (School of Basic Medical Science, Fudan University, Shanghai, China)

Seiya Kato (Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association, Kiyose, Japan)

World Health Organization (WHO) estimated that 10.4 million people developed tuberculosis in 2015. Among them, 480 thousands patients have multi-drug resistant tuberculosis (MDR). It is also noted that TB among migrant become global issue. These situations raise needs of study using molecular approach.

Molecular epidemiology for tuberculosis had started in 1990's and using three genotyping methods, e.g. restriction fragment length polymorphism (RFLP), Spoligotyping and Variable Numbers of Tandem Repeats (VNTR). Recently genome analysis using next generation sequencer (NGS) is an increasingly accessible and affordable for *M. tuberculosis* genotyping. So far, a lot of studies were conducted mainly in western countries. In this symposium, presenters show progress of tuberculosis molecular epidemiology in Asia. In addition, outline of ongoing collaborative research project with participation of major research and reference institutes in Asia will be shown. The purpose of the project is to establish genome database using NGS, which is expected to provide ample information on drug resistance and insight on spread of the tuberculosis in Asia.

The symposium will be an opportunity to share information on current status and future prospect of tuberculosis molecular epidemiology in Asia.

Study of tuberculosis transmission in China

Yanlin Zhao

National Center for Tuberculosis Control and Prevention, Chinese Centre for Disease Control and Prevention, Beijing, China

More than one million new tuberculosis (TB) cases are diagnosed annually in China; this represents about one tenth of the global TB incident cases. Here we describe the population structure of the epidemic *Mycobacterium tuberculosis* strains in China and investigate the association of genotypes with drug resistance and transmissibility.

Standardised spoligo and 24 loci VNTR typing was applied to a nationwide, representative collection of 3,133 *Mycobacterium tuberculosis* isolates from 2007, and 6400 strains from 2013. All samples within the framework of a drug resistance survey, to define the population structure. Combining information on genotypes, drug susceptibility profiles, demographics of patients, geographical spread, and clustering of cases allowed a representative molecular epidemiological study.

Seven major strain complexes were identified. The largest four, representing 92% of the total sample, belonged to East Asian (mainly Beijing genotype) and the Euro American lineage. The epidemic Beijing strains in China were in general closely related to the Russian Beijing B0/W148 strain, strongly associated with MDR-TB. The density of Beijing strains was high in the whole of China (70% of the total), but the highest North of the Yellow river. The Euro American lineage was more prevalent in the South. The cluster rate of all strains was 20-40%, The Beijing strains showed the highest cluster rate of 48 % and significantly higher level of resistance to rifampicin (14%, $p < 0.001$), ethambutol (9%, $p = 0.001$), and ofloxacin (5%, $p = 0.011$).

The East Asian (mainly Beijing genotype) and Euro American lineages are predominant in China and their distribution varies significantly by geographic region. The tuberculosis share the same cluster rate was 20-40%, case management should be enhanced to reduce the transmission between TB cases and the community.

Whole-Genome Sequencing Reveals Recent Transmission of Multidrug-Resistant *Mycobacterium tuberculosis* in China

Qian Gao

School of Basic Medical Science, Fudan University, Shanghai, China

Background: Multidrug-resistant tuberculosis (MDR-TB) is a significant threat to tuberculosis (TB) elimination worldwide. Understanding the transmission patterns of MDR-TB is crucial for its control. We used a genomic epidemiological approach to assess the recent transmission of MDR-TB and potential risk factors for genomic clusters, a marker of transmission.

Methods: In a population-based retrospective study, we performed variable-number-of-tandem-repeat (VNTR) genotyping, followed by whole-genome sequencing (WGS) of isolates from all MDR-TB patients in Shanghai, China, from 2009-2012. We measured strain diversity within and between genomically clustered patients. Genomic and epidemiologic data were combined to construct transmission networks.

Findings: 367 (4.6%) of 7982 TB patients were identified as MDR-TB and 324 had isolates available for genomic analysis. 103 (31.8%) MDR strains were in genomic clusters with isolates that differed by 12 or fewer SNPs, and 92.3% (95/103) were confirmed as direct transmission of MDR strains. Patients who had a delayed diagnosis or were older (45-64 and ≥ 65 years) were at high risk for genomic clustering. The transmission networks showed that 83.3% (30/36) of clusters accumulated additional drug-resistance mutations through emergence and fixation of drug-resistant mutations during transmission.

Interpretation: Our findings suggest that recent transmission of MDR strains, with increasing drug-resistance, helps drive the MDR-TB epidemic in Shanghai, China. WGS provides a measure of heterogeneity of drug-resistant mutations within and between hosts and enhances our ability to determine the transmission patterns of MDR-TB.

Detection of putative expanding cluster types by molecular epidemiological study and scrutinizing them by whole genome sequences

Tomotada Iwamoto

Department of Infectious Diseases, Kobe Institute of Health, Kobe, Japan

Japan has remained as a middle-prevalence area of tuberculosis (TB) (14.4/100,000 in 2015). Kobe city where located on the north shore of Osaka Bay shows higher TB prevalence rate (21.3/100,000 in 2015) than that of the average in Japan. To get insights into the infection sources and transmission routes of TB in Kobe city, we have been conducting population based molecular epidemiological study since 2002 by using the locally optimized subset of variable number of tandem repeats (VNTR) analysis. Moreover, we have performed VNTR analysis for 200 multi-drug resistant TB strains (MDR-TB) isolated in Osaka bay area where Kobe city is belonging to. Both studies detected unexpectedly large number of isolates with identical VNTR profiles (large clusters). The cluster sizes are growing year by year, therefore, we call them as putative expanding cluster types (pECT). The formation of pECTs infers the existence of the unknown TB transmission routes and outbreaks in this area.

Whole genome sequencing (WGS) has been widely noticed to detect minute differences among clinical isolates of *M. tuberculosis*. The accumulation of mutations in a series of clinical isolates can indicate the direction of transmission routes, even in outbreak cases. Therefore, we scrutinized two pECT clusters by WGS to estimate the background of the emergence of them. The analyses confirmed that they were formed by real clonal expansion, not by the insufficient discriminatory power of VNTR genotyping. The results also unveiled a new picture of the transmission of the pECT isolates that could not be found by VNTR analysis. Moreover, several single nucleotide variants were detected as genetic markers which can be used to refine the clonal transmission of the pECT isolates in future. This kind of feedback from genomic comparison to molecular epidemiological study is a good model for coexistence of WGS and ordinary genotyping method.

Molecular Epidemiology of *Mycobacterium Tuberculosis* and its Historical Trends in South Korea from 1994 to 2006

Hongjo Choi

Department of Research and Development, The Korean Institute of Tuberculosis, Korean National Tuberculosis Association, Cheongju, Republic of Korea

Background: Molecular epidemiology is a tool to discriminate recent transmission and reactivation of active tuberculosis (TB). The molecular epidemiologic information would be useful evidence to design and program national TB policy. In particular, rate of recent transmission would reflect the achievement of national TB policy. The study aims to identify clustering rate of active TB and its historical differences between 1990s and 2000s in South Korea.

Methods: TB isolates were selected by sampling with probabilities proportional to size from Korean Mycobacterium Resource Centers (KMRC) stored in 1994-2006. IS6110 Restriction Fragment Length Polymorphism (RFLP) and 24-locus standardized mycobacterial interspersed repetitive unit-variable number tandem repeat typing (MIRU-VNTR) were used to identify clustering of active TB. Clustering was an outcome variable measured by three ways: RFLP only, MIRU-VNTR only, and both methods. Other covariates were measured, which include age, gender, region, and drug-susceptibility testing profile.

Results: Among 11,135 isolates stored in KMRC, 1,151 isolates were selected for the study. After excluding contaminated isolates or cases without demographic information, 1,007 cases were analyzed. Clustering rates were at 19.7%, 35.8% and 4.7% in IS6110 RFLP only, MIRU-VNTR only and both methods, respectively. In multivariate analysis, younger age group (<29) is more likely to be clustered than older age group (>49) in three different methods. In addition, the clustering rates were decreased in 2000s compared to the isolates collected in 1990s.

Conclusion: Trends of recent transmission would be higher chances in younger age group. On the other hands, older age group might be likely to be active disease by reactivation from previous latent TB infection. In addition, probability of recent transmission would be decreased in 2000s compared with 1990s, which may reflect partial success of national TB policy since 2000s in South Korea.

S27-5

Molecular epidemiology of multidrug-resistant tuberculosis in Taiwan, 2012-2015

Pei-Chun Chuang, Wan-Hsuan Lin, Ruwen Jou

Tuberculosis Research Center & Reference Laboratory of Mycobacteriology, Taiwan Centers for Disease Control, Taipei, Taiwan

In Taiwan, approximately 1% of annual confirmed TB cases were multidrug-resistant tuberculosis (MDR-TB). A population-based surveillance was performed to characterize MDR Mycobacterium tuberculosis isolates. During 2012-2015, there were 474 confirmed MDR-TB including 9 extensively drug-resistant (XDR) TB in Taiwan. Male to female ratio was 3.1 and the median age is 57 years old. Of the 474 cases, 370 (78.1%) and 104 (21.9%) were new and retreated cases, respectively. We investigated characteristics of 466 (98.3%) initial MDR and XDR M. tuberculosis isolate. Based on drug susceptibility testing results, 80.8% of study cases were simple MDR-TB, 15.2% pre-XDR-TB and 1.9% XDR-TB. M. tuberculosis isolates were genotyped using the 10-loci mycobacterial interspersed repetitive unit-variable number tandem repeat (MIRU-VNTR), MIRU(10), including hyper-variable loci and spacer oligonucleotide typing (spoligotyping) methods. A cluster was defined as at least 2 isolates having identical MIRU-VNTR patterns and spoligotypes. Compared with the SITVIT database, the predominant spoligotypes were 52.7% Beijing family, 16.0 % Haarlem and 6.5 % EAI. We found 294 (63.1%) isolates were in 117 clusters including 47 isolates clustered with isolates of MDR-TB cases before 2012. The remaining 247 isolates were in 70 clusters and cluster size ranged from 2-20 isolates. Furthermore, 61 (87.1%) clusters were identified in more than a year. Spoligotypes of clusters were 45.7% (32/70) Beijing family, 21.4% (15/70) Haarlem, 8.6% (6/70) EAI, 5.7% (4/70) Manu_ancestor, 1.4% (1/70) T, 4.3% (3/70) Unknown and 12.9% (9/70) undefined. The findings were timely uploaded to a web-based National Tuberculosis Registry System to facilitate case management and identifying probable outbreaks. Thus, continuous surveillance with genotyping and epidemiological investigation is crucial for the determination of the temporal and spatial trends of MER-TB in Taiwan.

Establishment of the Asian Tuberculosis Genome Database: Genome Research for Asian Tuberculosis (GReAT)

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Tuberculosis (TB) is one of the largest communicable diseases in the world. There exist a lot of high TB-burden countries in East and Southeast Asia. The emergence of multidrug-resistant tuberculosis (MDR-TB) causes heavy burden in the affected countries/areas and makes the elimination of TB difficult. As the movement of the people among Asian countries has become easy and popular, the spread of TB bacilli, especially MDR-TB, has also become a common public health threat.

From the aspect of the control of TB in this region we have started the TB database project, named "Genome Research for Asian Tuberculosis (GReAT)", that started in 2016 collaborated with the researchers in China, Taiwan, Korea, Mongolia, Philippines, Vietnam, and Japan. GReAT, so far has collected more than 1,500 of whole genome and meta data of TB isolates, including large number of MDR-TB, in addition to information on the isolated year, countries, and province. It also gives phenotypic information of the strains such as minimum inhibitory concentration of not only 1st line, but also 2nd line anti-TB drugs. Whole genome data of TB isolates are mainly stored in GenEpid-J, a genomic database at the National institute of Infectious Diseases (NIID) Japan. We are also able to analyze the data stored through AMiGA or TGS-TB, bioinformatic tools.

This database is expected to be used for the future development of pathogenic studies, clinical applications, drugs and diagnostics for detecting drug-resistant TB. It would also assist in analyzing the transmission of TB in a community including drug-resistant TB, and in contributing to the progress of molecular/epidemiologic research in Asian region.

Symposium 28

Geriatric epidemiology in Japan: Care prevention, Social determinants of health, Dementia and depression

Moderators: Ichiro Tsuji (Department of Health Informatics & Public Health, Tohoku University Graduate School of Medicine, Sendai, Japan)

Seiji Yasumura (Department of Public Health, Fukushima Medical University School of Medicine, Fukushima, Japan)

Japan became the country with highest proportion of the elderly aged 65 years and over that is 26.7% in a very short period. Due to the low mortality in all age group including the elderly people, Japan has achieved the longest life expectancy at birth among the all over the world. However, active life expectancy at birth has not postponed along with the life expectancy at birth.

Under such circumstances, Japanese government launched the "long-term care insurance system" in 2000 in order to lessen the number of the elderly requiring long-term care and support such elderly people. In spite of continuous endeavor of the national/local government and public health practitioners, there have been still many issues needed to be addressed.

In this session, 4 important topics listed below are presented by distinguished researchers in each field in Japan.

- 1) Prevention strategy for the long-term care state among the community elderly in Japan.
- 2) Dementia and depression in Japan (tentative)
- 3) Frailty and Sarcopenia: Current Situations and Future Perspective in Japan
- 4) Social determinants of health in older people

We strongly believe that these presentations and discussion will give the participants some hints to understand the situations of the super aged society and to make some plans to solve the problems in their districts/countries.

We greatly appreciate your participating this session.

S28-1

Prevention strategy for the long-term care state among the community elderly in Japan

Takao Suzuki

Institute of Gerontology, J. F. Oberlin University, Japan

As to evidence-based prevention of long-term care state among the elderly living in the community, various geriatric syndromes including undernutrition, falling, incontinence, walking problem caused by foot deformity, and dementia are the major targets for prevention under the long-term care insurance in Japan. Many randomized controlled trials (RCT) on the prevention of geriatric syndromes have been conducted in Japan targeting high-risk elderly people living in the community, and have attained many excellent achievements so far. As an example, we recently conducted a randomized controlled trial to examine the effects of a multi-component exercise program on the cognitive function of older adults with mild cognitive impairment. The subjects were randomized into a multi-component exercise or an education control group. The intervention group participated in a 12-month exercise program including aerobic muscle strength training under multiple conditions to stimulate cognitive function. At the end of intervention, patients who participated in the multi-component exercise program showed significant improvement of cognitive function. The studies conducted in Japan indicate that appropriate intervention targeting each geriatric syndrome improves or supports, at least partly, physical and cognitive performance in older adults, and that there are certain possibilities for the prevention or postponement of the onset of long-term care state among elderly people in the community.

S28-2

Prevention and Intervention of Dementia and Depression in Japan

Shuichi Awata

Tokyo Metropolitan Institute of Gerontology, Research Team Promoting Independence of the Elderly, Japan

Japan has the highest proportion of elderly persons in the world, and the number of those living with dementia is currently around 5.5 million (16% of individuals aged ≥ 65 years). Estimates indicate that this will increase to 7 million (20% of individuals aged ≥ 65 years) by 2025. Dementia is defined as cognitive impairment due to various types of brain disease that disrupt activities of daily living (ADL). However, clinical features of dementia can be more and more complex, including physical, mental, and social disability, frequently accompanied by chronic illnesses, depression, delusion, social isolation, economic issues, caregiver's burdens, and so on. The complexity of dementia is the main factor that disrupts everyday life in communities. In a series of population-based study in Tokyo, we have shown that older people with cognitive impairment had a higher risk for complexity compared with those with no cognitive impairment. To prevent and minimize complexity, we have developed a program that provides comprehensive geriatric assessment (CGA), facilitates access to diagnosis, and coordinates appropriate integrated care for persons living with dementia in a community. The Dementia Assessment Sheet for Community-based Integrated Care Systems (DASC)-21 is a tool comprising 21 items with which to assess cognitive function, instrumental ADL, and basic ADL. The DASC-21 uses a cut-off of 31/30, which discriminates dementia from non-dementia with 91.3% sensitivity and 82.5% specificity. The Initial-Phase Intensive Support Team was launched in 2014 as a national health program to coordinate integrated care for individuals with early-stage dementia. The DASC-21 is essentially applied nationwide within this program. We are presently investigating how to create Age and Dementia Friendly Communities through an intervention program providing coordination and building social networks.

S28-3

Sarcopenia and Frailty: Current Situations and Future Perspective in Japan

Hidenori Arai

National Center for Geriatrics and Gerontology, Japan

Sarcopenia and frailty are the most important geriatric syndromes and a major challenge to healthy aging due to the high prevalence and low awareness. People with sarcopenia and frailty have worse clinical outcomes and higher mortality than those without. Sarcopenia is a syndrome characterized by progressive loss of skeletal muscle mass and strength with a risk of adverse outcomes such as disability, poor quality of life and death, while frailty has been defined as a biological syndrome of decreased reserve and resistance to stressors, resulting from cumulative declines across multiple physiologic systems. Thus proper management of sarcopenia and frailty is crucial for the prevention of disability along with appropriate diagnosis. For the diagnosis of sarcopenia, several diagnostic criteria have been proposed including our Asian consensus. We need to measure muscle mass, grip strength and walking speed for the diagnosis of sarcopenia. Recently, we have performed systematic review on how to intervene sarcopenia and found there are insufficient data to provide clinical guidelines. Therefore, we need to provide more data to address the effect of interventions on sarcopenia. In terms of frailty, several researchers have previously reported on several frailty criteria. Fried and colleagues developed the frailty index based on the Cardiovascular Health Study, which is widely used for frailty assessment. These criteria include 5 simple items: weight loss, weakness, exhaustion, slowness, and low activity. However, these criteria require measurements of physical function, such as gait speed and grip strength. Because reversible and treatable conditions are often underdiagnosed and undertreated in geriatric patients, it is important for all health care professionals to be aware of the implication of frailty in clinical practice. One feature of frailty that distinguishes them from aging per se is the potential reversibility. Therefore, early intervention is important for the prevention of adverse health outcomes.

S28-4

Social determinants of health in older people

Katsunori Kondo

Center for Preventive Medical Sciences, Chiba University, Chiba, Japan

Social determinants of health and aging are prominent topics in global health. The purpose of this report is to introduce progress in our research projects in Japan, which currently is the most aged society in the world. Japan Gerontological Evolution Study (JAGES) is one of the largest nation-wide cohort study on social determinants of health and aging with more than 100,000 participants in 2010, 2013 and 2016. One of the notable findings is that social determinants of health and ageing such as community participation and social capital are significant determinants of older people's healthy aging including depression, dementia. We confirmed social participation and social capital is modifiable and effective for healthy aging through community intervention study. Another progress is the development of JAGES HEART (Health Equity Assessment and Response Tools) which is a management tool for developing age friendly cities. These progresses suggest that community perspective and management of health promotion in the communities are valuable and require further research.

Symposium 29

Development of Indicator and management for building Age Friendly Communities

Moderators: Katsunori Kondo (Professor, Center for Preventive Medical Sciences, Chiba University, Chiba, Japan)

Sarah Barber (Director, WHO Centre for Health Development, Kobe, Japan)

In 2016, a comprehensive global strategy and action plan on ageing and health was adopted by the Sixty-ninth World Health Assembly. The Strategy provides a clear path for Member States, the WHO Secretariat and partners toward achieving the vision that all people can live long and healthy lives.

The Strategy (2016–2020) has two goals: (1) five years of evidence-based action to maximize functional ability that reaches every person; and (2) by 2020, establish evidence and partnerships necessary to support a Decade of Healthy Ageing from 2020 to 2030. With perspectives of a life course approach and multi-sectoral action, two of the five strategic objectives are (2) developing age-friendly environments and (5) improving measurement, monitoring and research on Healthy Ageing.

The topic of this panel session is related to the goals and strategic objectives of the global strategy and action plan on ageing and health. Developing indicators of age-friendliness, encouraging the use of those indicators by local governments, and building the scientific evidence on the environmental determinants of healthy ageing contribute to the five strategic objectives, and ultimately, to the goals of implementing evidence-based action and further establishing the evidence base. Examples from WHO, China, and Japan are presented.

S29-1

WHO Global Strategy and Action Plan on Ageing and Health

Sarah Barber

Director, WHO Centre for Health Development, Kobe, Japan

In 2016, a comprehensive global strategy and action plan on ageing and health was adopted by the Sixty-ninth World Health Assembly. The Strategy provides a clear path for Member States, the WHO Secretariat and partners toward achieving the vision that all people can live long and healthy lives.

The Strategy (2016-2020) has two goals: (1) five years of evidence-based action to maximize functional ability that reaches every person; and (2) by 2020, establish evidence and partnerships necessary to support a Decade of Healthy Ageing from 2020 to 2030.

With emphases on a life course approach and multisectoral action, the Strategy focuses on five strategic Objectives: (1) commitment to action on Healthy Ageing in every country; (2) developing age-friendly environments; (3) aligning health systems to the needs of older populations; (4) developing sustainable and equitable systems for providing long-term care; and (5) improving measurement, monitoring and research on Healthy Ageing.

The topic of this panel session is clearly relevant to the goals and strategic objectives of the global strategy and action plan on ageing and health. Developing indicators of age-friendliness, encouraging the use of those indicators by local governments, and building the scientific evidence on the environmental determinants of healthy ageing contribute to the five strategic objectives, and ultimately, to the goals of implementing evidence-based action and further establishing the evidence base.

S29-2

Utilization of Community Diagnosis Tools toward cross-sectoral collaborations in Kobe, Japan

Naoki Kondo

Associate Professor, Department of Health Education and Health Sociology, School of Public Health, The University of Tokyo, Tokyo, Japan

The World Health Organization's report on Social Determinants of Health recommends the improvement in daily life environment through the monitoring of health disparity and effective partnerships across sectors. Based on the Japan Gerontological Evaluation Study (JAGES), we have developed the strong vertical and horizontal cross-sectoral collaboration schemes between public and private sectors. This is a success case of evidence-based local governance for the action to reduce health disparity in a large city. Using 2010-11 JAGES data, we developed JAGES Health Equity Assessment and Response Tool (JAGES-HEART), the web-based community diagnosis tool evaluating input, process, outcome, and equity factors at regional and individual levels. We also developed a data visualizing system: JAGES Long-term Care Prevention Web Atlas showing the result of our community diagnosis in an illustrative way. Using the Tool and the Atlas, in 2013, Kobe municipality central government organized multiple sessions with health professionals at wards and discussed about the strategic prioritization of regions for long-term care prevention. In 2014 four regions are prioritized for installing the City's new community long-term care prevention program aiming to build community social capital under the collaborations with multiple companies and universities including coffee and other beverage company (Nestle Japan, Inc.) and telecommunication company (NTT). Our evaluation study has suggested that this data-based governance exercise was effective in expanding health professionals' individual social capital and policy management skills. In 2017 we will evaluate this project in terms of population health and health equity using JAGES 2016 wave follow up data.

S29-3

Influent Factors of Functional Capability and Subjective Well-being of elderly in Shanghai

Fu Hua, Junling Gao, Peng Weixia

Professor and Director, Fudan Health Communication Institute, School of Public Health, Fudan University, Shanghai, China

Background: China is facing huge challenges from population aging. Building age-friendly environments is one strategy of the “Healthy China 2030 Plan”. Although some cities such as Shanghai, Beijing, and Hangzhou have conducted pilot projects, there are no standardized indicators of age-friendliness.

Objective: To understand influent factors of functional capability, subjective well-being (SWB) and Healthy Life Expectancy (HLE) of older persons in Shanghai and to explore possible indicators of an age-friendly city.

Methods: Data were analyzed separately for 3,049 elders in one district to study HLE, and on 2,719 elders from 47 neighborhoods to study SWB as health outcomes.

Results: Life expectancy and HLE at age 60 were 26.3 years and 18.9 years respectively, with 28.0% lost healthy life years. Diseases were the main factors affecting the healthy life years of older persons, especially cerebrovascular disease. The highest HLE was found among those who are married and whose spouse is alive. Higher income and education were also associated with higher HLE. Social capital was positively correlated with functional capability. The overall level of SWB was 74.2 in the studied areas. After controlling for individual covariates, high individual-level sense of social cohesion and social interaction were associated with high SWB. Both higher individual- and neighborhood-level aesthetic quality were associated with higher SWB.

Conclusions: In order to improve HLE of the elderly, healthcare services for senior citizens and women should be enhanced with attention to socioeconomic factors. Social capital can improve older people's participation, social cohesion and sense of trust. Building aesthetic and cohesive neighborhoods may promote SWB among Chinese elders by encouraging them to participate in social activities. Monitoring and evaluation based on indicators should be strengthened in order to facilitate policy implementation to create age-friendly environments in all Chinese cities.

S29-4

WHO Core indicators of age-friendliness

Megumi Rosenberg

Technical Officer, WHO Centre for Health Development, Kobe, Japan

Urbanization and population ageing are two major global demographic transitions that have significant implications for people's health and wellbeing. Age-friendly City is a concept that has been promoted by WHO to address the potential health impact of these converging trends. It emphasizes a multisectoral, whole-of-society approach to create an environment that enables people to develop personally, to contribute to their communities, and to retain their autonomy and health as they grow older. This concept has been adopted in many parts of the world, including in non-urban contexts.

Measurement of age-friendliness is essential for many reasons, including to build a scientific evidence base of the effects of age-friendly factors on health and wellbeing, to increase government accountability, and to monitor progress toward goals and targets. In 2015, WHO published, "Measuring age-friendliness: a guide to core indicators" in order to provide guidance about the use of metrics for assessing age-friendliness to government authorities, civil society members and researchers.

This presentation will explain what the core indicators are and how they were developed. It will include illustrative examples of how the indicators were used in different contexts and what benefits they produced, based on a global pilot study of the indicators in 15 communities around the world.

Extending indicators to dementia-friendliness

Toshiyuki Ojima¹, Satoko Horii², Yukari Yokoyama³, Jun Aida⁴

¹ Professor, Department of Community Health and Preventive Medicine, Hamamatsu University school of Medicine, Hamamatsu, Japan,

² National Institute of Public Health, Japan, ³ Nihon Fukushi University, Japan, ⁴ Tohoku University, Japan

According to aging, people with dementia worldwide will almost double every 20 years, reaching 131.5 million in 2050 (World Alzheimer Report 2015). “The Comprehensive Strategy to Accelerate Dementia Measures” (New Orange Plan) was formed by the Japanese Government in 2015. The main goal of the plan is to make dementia friendly community. Though most of the concepts of dementia friendliness overlap with age friendliness, some concepts might be added considering specific features of dementia. We are developing indicators and guidelines for dementia friendly community extending age-friendly cities. We conducted literature review, interviews including for people with dementia, and discussion. As the results, 3 core concepts of dementia friendly community, i.e. Understanding, Normalization, and Willingness to seek/receive help, were abstracted. We also developed questionnaire to assess dementia friendliness including understanding for behavioral and psychological symptoms of dementia (BPSD), respecting self-decision, willingness to live in community, thinking that people with dementia should have a role, willingness to notify neighbors about dementia, and no embarrassing to seek help. We conducted large scale epidemiologic survey about dementia friendliness as well as age friendliness as a part of Japan Gerontological Evaluation Study (JAGES). By the analyses of the data, we revealed features of each community. Moreover, people in communities where volunteer activities are popular tend to think people with dementia should have a role for participating in community activities. Our next step is to develop guideline and take actions to promote dementia friendliness in communities.

Symposium 30

Factors determining success versus failure in the implementation of an HPV vaccine programme Funded by the Japan Society for the Promotion of Science

Moderators: Sharon J. B. Hanley (Dept. of Women's Health Medicine, Graduate School of Medicine, Hokkaido University, Japan)

Eduardo L. Franco (Department of Oncology, Division of Cancer Epidemiology, McGill University, Canada)

The first prophylactic human papillomavirus (HPV) vaccine was licensed over 10 years ago in 2006. Since then, more than 230 million doses of the quadrivalent and bivalent vaccines have been administered to girls and women worldwide. With increased funding from organizations such as the Pan American Health Organization (PAHO) and the Global Alliance for Vaccines and Immunizations (GAVI), HPV vaccines are also, albeit slowly, becoming available in the national immunization programs of low and middle income countries. Most of these countries have uptake of >80%. Several have uptake of >90%

While there is robust evidence to suggest that both the bivalent and quadrivalent HPV vaccines are safe and effective, both in the clinical trials and at the population level, conveying the immense depth of scientific knowledge that supports the remarkable safety, efficacy and effectiveness of the HPV vaccines can be difficult. This is particularly the case in this age of social media, alternative facts and fake news, where unscientific, anti-vaccination claims travel quickly and can no longer be ignored. Unconfirmed reports of adverse events following immunization (AEFI) can lead to significant public anxiety. Events in Japan, Columbia, Denmark and now Ireland have illustrated the vulnerability of HPV vaccine uptake to perceptions of risk.

This session will introduce international experts from countries who have implemented successful HPV vaccination programmes (Bhutan, Malaysia, Australia and the UK) as well as those from countries who are struggling (Denmark, Ireland and Japan).

By sharing our experiences and providing evidence based guidance on key technical and strategic issues, we hope to present lessons learnt for other countries should they face similar difficulties, propose strategies to counter vaccination hesitancy and build public confidence, and try and find a way forward for those countries who are still struggling.

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Preventing cervical cancer, why screening alone is not enough

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Human papillomavirus (HPV) is the most common viral infection of the reproductive tract. Even though most HPV infections are asymptomatic and clear spontaneously, persistent infections with a 'high-risk' (oncogenic) HPV type cause approximately 5% of all cancers globally. These include almost all cases of cervical cancer, as well as a large proportion of other anogenital carcinomas and oropharyngeal tumours, for which there are no effective screening tests.

Annually, there are over 500,000 newly diagnosed cases of cervical cancer and over 260,000 cervical cancer deaths worldwide. Additionally, because cervical cancer affects relatively young women, it is also responsible for 4 million (preventable) years of life lost (YLL).

While the introduction of screening with the Papanicolaou (Pap) smear test to detect cervical pre-cancers early and the implementation of national screening programs have significantly reduced the incidence and mortality of squamous cell cervical carcinomas in many middle-high income countries, the physical and emotional morbidity associated with the detection and treatment of precancerous lesions through screening remains the same.

Furthermore, cervical cancer screening programmes have had little effect on reducing the incidence and mortality of cervical adenocarcinomas, strongly associated with HPV 16 and HPV 18 and particularly aggressive in younger women.

By protecting the 'herd' and not just the individual, universal vaccination of adolescent girls is the most effective strategy to avoid cases of and deaths from cancer caused by HPV and the potential for 'saving' YLL is great. Between 70%-90% of all HPV-attributable cancers may be prevented by universal high-coverage HPV vaccination. While cervical screening will still be needed, the age at which screening should start will increase and the number of necessary lifetime screens will significantly decrease, not only reducing the financial costs of screening programmes, but also the physical and emotional morbidity associated with the test itself.

Successful introduction of the HPV vaccine into Bhutan's routine immunization program

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In 2010 the Ministry of Health, Bhutan, introduced HPV vaccination through a mass immunization campaign of 12 to 18 year old girls. The vaccine was introduced due to the high incidence of cervical cancer, poor coverage of cervical cancer screening, and the health system's ability to implement the program. The quadrivalent HPV6/11/16/18 (QHPV) was the vaccine of choice. From 2011, HPV entered the routine immunization schedule targeting 12 year-old girls with the QHPV.

During the initial campaign in 2010, over 130,000 doses of QHPV were administered and QHPV3-dose vaccination coverage was estimated to be around 99% among 12 year-olds and 89% among 13-18 year-olds. QHPV vaccine was well tolerated and no severe adverse events were reported. From 2011 to 2013, QHPV vaccine was administered routinely to 12 year-old girls through health centers instead of schools, during which time the population-level 3-dose coverage decreased to 67-69%, an estimate which was confirmed by individual-level survey data in 2012 (73%). In 2014, to improve coverage, HPV delivery was switched back to schools, and instead of age based vaccination the vaccine was administered to girls in the 6th standard, based on the assumption that most 12 year olds are in the 6th standard. The 3-dose coverage rose again above 90%. In 2015, this rose to 96.08%

The rapid implementation and high coverage of the national HPV vaccine program in Bhutan were largely attributable to the strength of political commitment, primary healthcare and support from the education system. School-based delivery appeared clearly superior to health centers in achieving high-coverage among 12 year-olds.

Bhutan's lessons for other countries include the superiority of school-based vaccination, the feasibility of a broad catch-up campaign in the first year, the need for flexibility to improve coverage, and communicating the safety of the HPV vaccine.

S30-3

School based HPV vaccination: Why it works for Malaysia

Saidatul Norbaya Buang

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Objectives: This presentation describes the Ministry of Health efforts to ensure high school based HPV vaccination coverage in Malaysia

Methods: In 2010, the Ministry of Health introduced HPV vaccination as a long-term strategy in preventing Cervical cancer related to HPV 16 and HPV 18 infection. To ensure the vaccination program provides optimal protection to young Malaysian girls, the vaccination was delivered to Form 1 girls (12 -13 years).

Results: On average 230,000 girls are enrolled into Form 1 each year. Over the last 6 years, parental consent increased from 95% in 2010 to 98.5 % from 2013. Every year, an average of 99% of these girls received their first dose of HPV vaccination in school and more than 98% completed their vaccination within 6 months before school ends in November.

Conclusion: Introducing HPV vaccination as part of school health service package work well in Malaysia. Various factors contribute to the success of the HPV implementation. Existing working relationship with the Ministry of Education was an enabling factor in facilitation of voluntary parental consent. Other important factors are the public trust in childhood expanded programmes of immunisation and availability of the existing school health services infrastructure.

S30-4

The success of the HPV vaccination program in Australia: public trust and the importance of effective public health practices to support vaccination

Julia M. L. Brotherton

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Australia was the first country to introduce a national human papillomavirus (HPV) vaccination program and offered quadrivalent HPV vaccine to all females aged 12- 26 years between 2007-9, with ongoing school vaccination thereafter including males since 2013. Because of this timing, Australia was the first country to manage a large-scale HPV vaccine program, including the need to monitor uptake, communicate about the vaccine, and respond effectively to safety concerns. Australia vaccinated over half of its young women in the initial catch up program and 3rd dose completion rates are nearing 80% in girls now being routinely vaccinated. The impact upon HPV related diseases in Australia is already large, with significant declines in the prevalence of targeted HPV types, in genital warts and in cervical pre-cancers in young people. Herd protection has also been demonstrated. Data also suggest that recurrent respiratory papillomatosis is becoming less common in young children.

In this presentation, I will discuss the aspects of Australia's program that resulted in initial and sustained success in delivering HPV vaccine. Critical components included:

- Effective governance of, and designated responsibilities for, all aspects of the program
- Communication strategies both preparatory and reactive, including media management about vaccines generally in the longer term
- Vaccine safety monitoring and crisis management
- Vaccine register support of the program and for monitoring coverage and effectiveness
- Building on public trust

S30-5

Why the Scottish HPV Immunisation Programme is successful: perspectives on maximizing and maintaining uptake

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Following a long comprehensive planning process with a high degree of political commitment, the Scottish national human papillomavirus (HPV) vaccination program commenced in September 2008 with the bivalent HPV vaccine. The school-based programme routinely vaccinates 12-13yr old girls (around 25,500 annually) and a three-year catch-up programme for girls up to the age of 18yrs (around 77,000 girls) took place between 2008-2011. From September 2012, the quadrivalent HPV vaccine was used and from September 2015, the dosing schedule was changed from 3 doses over 6 months to 2 doses over 12 months in girls <14yrs. Since the programme commenced, three dose uptakes rates have exceeded 90% in the routine cohorts. With significant declines in the prevalence of both targeted and non-targeted high-risk HPV types and high grade precancerous cervical lesions, the impact of the Scottish HPV vaccination programme has been greater and quicker than originally anticipated and no vaccine safety signals have been observed.

In this presentation, factors that have led to maximizing and maintaining high uptake will be discussed. These include:

- A structured, managed approach that allows for transparency of process, accountability for decision making and a process that can be reviewed at any key stage
- Developing and implementing an educational campaign (including Internet, TV and cinema) to raise awareness, understanding and acceptance of HPV immunisation among girls, their parents, healthcare and education professionals
- Dealing with vaccine safety issues rapidly and appropriately
- Effective surveillance and data lineage to help assure parents and health-care professionals the vaccine is both safe and effective in real life situations.
- Existing background incidence rates of potential AEFI
- Engaging with concerned parties, but not letting them control the narrative.

S30-6

HPV vaccination in Denmark: Pre-vaccination morbidity should be considered in the evaluation of HPV vaccine safety signals

Palle Valentiner-Branth

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Among Western European countries, the incidence of cervical cancer remains high in Denmark. Denmark was one of the first countries to implement publicly funded vaccination against human papillomavirus (HPV) in their childhood vaccination schedule. The programme was launched in 2009 primarily targeting 12-year-old girls. Additionally, large catch-up programs with 11 birth cohorts of girls born from 1985-95 (up to age 27yrs) were undertaken.

In 2013, during a large catch-up programme, the number of suspected adverse reactions to the quadrivalent HPV vaccine reported to the Danish Medicines Agency (DMA) started to increase. The Danish safety signal was raised to the European Medicines Agency (EMA) Pharmacovigilance Risk Assessment Committee (PRAC) in September 2013. In July 2015, the European Commission requested PRAC to assess whether there was evidence of a causal association between HPV-vaccines and Postural Orthostatic Tachycardi Syndrome (POTS) and/or complex regional pain syndrome (CRPS). The suspicion of such an association had also been raised by Japan. PRAC concluded that the current evidence did not support claims HPV-vaccines cause CRPS or POTS. However, continuing public concerns about HPV vaccine safety resulted in coverage of HPV vaccinations in the childhood vaccination programme declining from 92% for first dose HPV for girls born between 1998-2000 to 32% for girls born in 2004.

To determine health care-seeking behavior prior to first HPV vaccination among females with suspected adverse reactions to the vaccine, we conducted a registry-based case-control study. We included as cases vaccinated females who reported suspected severe adverse reactions to the DMA, while controls were those who did not report adverse reactions. We found that before receiving their first HPV vaccination, females with suspected adverse reactions already had symptoms and a health care-seeking pattern that was different from the matched population.

Pre-vaccination morbidity should be considered in the evaluation of HPV vaccine safety signals.

S30-7

HPV vaccine - separating fact from fiction in Ireland

Brenda Corcoran

Director, National Immunisation Office, Health Service Executive, Ireland

In Ireland, human papillomavirus (HPV) vaccine was introduced into the state school immunisation programme in 2010 to protect girls from cervical cancer. HPV4 vaccine is offered by vaccination teams to 12-13 year old girls in their first year of second level school. Since the programme started, uptake for the completed vaccine course has been above the target of 80% with figures for 2014/2015 of 87% (the highest since the programme began). However uptake figures for 2015/ 2016 dropped to 72% and figures for the first vaccine dose in 2016/2017 are 40-50%.

This decline is related to concerns about HPV vaccine safety which have no scientific basis. Lobby groups of concerned parents have been established and these groups have promoted vaccine misinformation through national and local television, radio and press and have been very active on social media outlets. This is of great concern to all those involved in cancer prevention.

In early 2016, the Irish health services consulted with other interested stakeholders who agreed to take a coordinated approach to tackling negative publicity and incorrect "facts".

Firstly, focus groups on parents' attitudes to and experience with HPV vaccine were carried out as well as social media analysis. The results of these influenced ongoing activities including liaison with relevant bodies, revision of information materials, enhanced website materials including short videos and social media campaigns.

Regular meetings are held with health representatives of all parliamentary parties and interested public representatives to ensure their ongoing support. In addition, a comprehensive training programme for a wide range of health professionals has been implemented enhanced by the production of e-learning modules.

Since then media coverage has been more balanced but the decline in vaccine uptake will require concerted long term efforts from all stakeholders to ensure girls in Ireland are protected from cervical cancer.

Association between HPV vaccine and reported post-vaccination symptoms: Subgroup analyses of the Nagoya Study

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Purpose: To perform a detailed subgroup analysis of the association between HPV vaccine and reported post-vaccination symptoms in young Japanese women using data from the Nagoya Study.

Methods: Two subgroup analyses were performed. In subgroup analysis I, time trends among cohorts of a fixed age (11-14 years) were evaluated. Subgroup analysis II was performed to exclude "noise" attributable to the overall analysis. This exclusion was performed regardless of vaccination status to prevent bias resulting from presence of symptoms in vaccinated girls before they received their first injection.

Results: Comparisons of cohorts of fixed age revealed increases in odds ratios in more recent years of vaccination. There were no significant low odds ratios for any of the symptoms for participants vaccinated in the most recent years. Although some significant, high odds ratios were observed in two recently vaccinated cohorts, the symptoms involved differed by group. In subgroup analysis II, all odds ratios for the 24 symptoms that led to a hospital visit were higher than those in the overall analysis. Thirteen of these symptoms had statistically significant odds ratios and five symptoms had an odds ratio of >2.0 . The highest odds ratio was 6.15 (95% CI: 1.03-23.78) for "loss of ability to remember simple Chinese characters", followed by 4.59 (95% CI: 1.32-28.75) for "loss of ability to do simple calculations". Exclusion of participants with symptoms that occurred early in the study period, did not affect the occurrence or persistence of these symptoms very much.

Conclusion: Marked changes in odds ratios over a short interval in subgroup analysis I and significant increased odds ratios for symptoms that led to a hospital visit after exclusion of early onset in subgroup analysis II might be due to psychological and/or behavioral factors rather than a biological causal association.

A nationwide epidemiologic survey of adolescent patients with diverse symptoms including pain and motor dysfunction

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In Japan, human papillomavirus (HPV) vaccination was included in the national immunization program from April 2013. In June 2013, however, the Japanese Ministry of Health, Labour and Welfare (MHLW) suspended proactive recommendation for the vaccine to investigate self-reported diverse symptoms, including pain and motor dysfunction, as possible serious adverse events following immunization. Consequently, current uptake of HPV vaccination is around 0.1%. Although these symptoms may be seen in adolescents regardless of HPV vaccination, no clear prevalence data were available. The aim of our study was to estimate the prevalence of "diverse symptoms" among adolescents without a history of HPV vaccination.

A protocol for a nationwide epidemiologic survey on intractable (rare) diseases, proposed by the MHLW research committee, was partly modified for the current survey. The study period was July 1, 2015 to December 31, 2015. Eligibility criteria were: (1) 12-18yrs on visiting hospital, (2) having at least 1 of the following symptoms/disorders: (a) pain or sensory dysfunction (b) motor dysfunction (c) autonomic dysfunction (d) cognitive impairment, (3) persisting for at least 3 months, (4) both (2) and (3) substantially influencing school or working attendance. Participants were selected from 25,413 medical departments nationwide by stratified random sampling according to inpatient bed numbers and hospital characteristics.

The first-stage of the survey started in January 2016, and targeted 18,302 departments (response: 11,037, 60.3%). The second-stage of the survey started in July 2016, and targeted 508 departments with at least one patient/physician responding (response: 324, 63.8%). The estimated prevalence of "diverse symptoms" among girls aged 12-18 years was 40.3 per 100,000. When we limited the subjects to girls who had no history of HPV vaccination, the estimated prevalence was 20.4 per 100,000.

In conclusion, our study confirms adolescent girls who have no history of HPV vaccination are also presenting at hospitals with "diverse symptoms".

Symposium 31

Desertification and Health: Human-Animal-Land Interaction in East Asia

Moderator: Shinji Otani (International Platform for Dryland Research and Education, Tottori University, Japan)

Desertification is caused by multiple forces including climate change and human activities, and accelerated due to increasing and combined pressures of agricultural and livestock production, urbanization, and deforestation. Desertification can affect human health through complex pathways: food production slumps, water sources dry up, and populations are pressured to move to more hospitable areas. Especially, the physical, chemical and biological properties of airborne dust related desertification have a direct impact to human and animal health include respiratory diseases, the spread of infectious diseases, worsening of allergic disease, and so on. Health consequences are worldwide, particularly affecting populations in dryland including, for example, in the Middle East, North Africa, Australia, Central Asia, and the US Southwest. Populations far from the source regions are exposed when long-range atmospheric transport carries dust, for example from China and Mongolia to Japan and Korea. In this session, we will focus on both Mongolia, one of desertification and/or urbanization progressing countries, and Japan located in downwind region, and advance the discussion about environmental problems and health.

Characteristics of aeolian dust emission and its controlling factors in East Asia

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Huge sources of aeolian dust, which is known as "KOSA" in Japan, distribute in drylands of Mongolia and China. Dust particles are blown up by a sand-dust storm accompanied by strong wind (i.e., emission process), they are transported by the upper westerly winds (i.e., transport process), and they fall on the earth's surface by gravity and precipitation (i.e., deposition process). A disaster such as death and missing of people and livestock, infrastructure destruction, etc. is caused by sand-dust storm around dust emission regions. Although we don't have such disasters in its down-wind regions, but effects on health and ecosystem by aeolian dust are concerned. An effective countermeasure against the damages by aeolian dust is an application of early warning system (EWS). Numerical dust models, which are employed for EWS, have been developed by organizations of many nations for the recent decades, but their accuracy is still insufficient. Many researchers recognize that causes of the low accuracy are in the emission process because of a difficulty in accurately monitoring numerous land surface elements (e.g., soil size distribution, soil moisture, soil crust, soil freeze, vegetation coverage, snow cover) and an insufficient elucidation of dust emission mechanisms. We have clarified temporal and spatial variations of key land surface elements to control emissions of aeolian dust from analyses of synoptic data (i.e., data recorded at meteorological observatories) and satellite data. We also found land surface elements, which substantively influence dust emissions, from observations in grassland and desert regions in Mongolia. In our talk, we will present such our findings and our issues in installation of the findings into numerical dust model.

Health situation of population residing in Govi-desert region and other areas of Mongolia

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Introduction: Many diseases are affected by changes in weather. Global climate change is likely to increase the frequency and intensity of heat waves. Humans are exposed to climate change through changing weather patterns (temperature, precipitation, and more frequent extreme events). Evidence shows that heat waves are associated with high and excess mortality especially in rural populations, among the elderly and outdoor workers. We aimed to determine the current health situation among general population residing in Govi-desert areas and compare with other region of Mongolia.

Methods: A population based cross-sectional study design was used. A multistage random cluster sampling was used for participant selection from Khangai-Forest areas and Govi-desert areas. Laboratory analyses for HBsAg, Anti-HBs, HBeAg, Anti-HBe, Anti-HBc, Anti-HCV were performed using HISCL-5000 analyzer and kits from SYSMEX Company, Japan. TANITA-scan was used to determine general and central obesity among study participants.

Results: In this paper we analyzed data of 1050 population aged 16-64 years. Among these adult population 27.4% and 22.9% were randomly selected from Dornogovi and Umnugovi provinces that are located in the desert or southern part of Mongolia. The remaining (49.7%) were randomly selected from Khuvsgul that is located in the Khangai or forest area. Among rural population living in Govi areas the prevalence of obesity was significantly higher compared to those living in other region ($p=0.036$). For instance, prevalence of obesity and overweight was as high as 55.8% in Umnugovi province, and 49.8% in Dornogovi province compared to Khuvsgul province (46.5%, $p=0.036$). In addition, proportion of people with hypertension the highest Umnugovi (33.3% vs. 31.4%) province than in the other provinces. Prevalence of current HBV infection was 11.5%, 8.8%, and 9.4% in Dornogovi, Umnugovi and Khuvsgul provinces, respectively ($p=0.521$). Interestingly, prevalence of hepatitis C virus infection was significantly ($p=0.002$) higher in Umnugovi (15.1%) province followed by Dornogovi province (8.4%) and was lower in Khuvsgul province (7.1%). Collectively, among population aged 16-64 years 22.7% and 18.5% have any infection with HBV or HCV in Umnugovi and Dornogovi provinces, respectively, whereas this rate was significantly lower (15.4%) in Khuvsgul province ($p=0.049$).

Conclusion: Results of current study with random sample reveal that health situation of people living in Govi-desert provinces might be lower compared to other provinces.

Acknowledgement: This study was funded by Science and Technology Fund of MNUMS, Sysmex Corporation and Tottori University of Japan.

Adverse effects of inhaled sand dust particles on the respiratory organs of sheep and goats in Mongolia

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Sand storms in Mongolia have increased in frequency and scale, resulting in increased exposure of the inhabitants of Asian countries, including Japan and Korea, to Asian sand dust (ASD), which results in adverse effects on the respiratory system. However, there is no information on the health risks of severe sand storms in domestic animals in Mongolia. The aim of the study was to investigate the effects of sand dust particles on the respiratory organs, including the lungs and tracheobronchial lymph nodes, of sheep and goats exposed to severe sand storms in Mongolia. Seven adult sheep and 4 adult goats that had been exposed to sand storms and 3 sheep with no history of exposure were included in this study. Lung tissues and tracheobronchial lymph nodes were subjected to histopathological and immunohistochemical examination. The mineralogical contents of the lungs and lymph nodes were determined using inductively coupled plasma atomic emission spectroscopy. Fibrosis and granulomatous lesions comprising macrophages containing fine sand dust particles were observed exclusively in the lungs of sheep and goats exposed to sand storms. The activity of macrophages was also demonstrated by the presence of IL-6, TNF, and lysozyme. In addition, silicon, which is the major element of ASD (kosa aerosol), was detected exclusively in the lung tissues of the exposed animals. Our findings suggest that exposure to sand dust particles may affect the respiratory systems of domestic animals during their relatively short life span.

S31-4

Assessing health risks of exposure to Asian dust and health forecast using aerosol model among healthy individuals

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Background: Asian dust (AD) transported by winds to Japan had been gradually on the rise since the year around 2010, but has now become irregular due to large-scale climate change. It has been suggested that Asian dust affects the ocular, nasal, and respiratory symptom, and we suggest that windborne AD may affect fever. To investigate this hypothesis, we conducted a long-term survey.

Method: We administered diary-style questionnaires to 104 volunteers who lived in Yonago City between 2011 and 2015. The results were evaluated using a 6-level subjective symptom score (29 variables in total). We used the Japan Meteorological Agency's method of determining the occurrence of AD on each day and model's surface concentration data to conduct a risk evaluation. Data on climate (temperature, humidity, and atmospheric pressure) were used as covariates. The data were analyzed using t-test, as well as linear mixed models, subjected to a multifaceted investigation, generalized estimating equation (logit link), including covariate adjustment.

Results: The difference in scores for fever on the AD day compared to the non-AD day was 0.05 (95% CI: 0.02-0.08, $p < 0.01$), suggesting that it is associated with AD. A strong correlation was also observed for symptoms in the ocular, nasal, skin, respiratory and throat in 2013 to 2015. We calculated the correlation between values obtained from the prediction model for surface concentration of dust aerosol and fever. The odds ratio for fever of the highest quartile [Q3+Q4] vs. the lowest [Q1] was 6.46 (95% CI = 4.21 to 9.90), indicating a significantly elevated risk in 2011.

Conclusions: We confirmed that both modeled data and observed data are associate with fever. This study suggests that models predicting the arrival of pollutants can help predict and possibly prevent the health impact of long-range transport of air pollutants.

Symposium 32

Social determinants of health: translating evidence into action

Moderators: **Hiroyasu Iso** (Professor of Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, Osaka, Japan)

Eric Brunner (Professor of Social and Biological Epidemiology, UCL Department of Epidemiology and Public Health, London, UK)

Social epidemiology aims to understand upstream factors such as childhood living conditions that have been called the 'causes of the causes'. Over the past 30 years, this research perspective has provided a renewed understanding of the determinants of population health from infancy to old age. We are now able to draw on research evidence collected in many studies in many countries to support conceptual models which link socioeconomic, psychosocial and behavioral factors to health.

Health inequalities continue to pose a major global challenge for researchers and policy makers, despite the continuing rise in life expectancy overall (increasing by some 10 years in OECD countries since 1970). In Japan, economic stagnation and the decline of the salaryman system may be coming to an end, but income inequality, health inequality and the link between them are now recognized public problems which attract significant attention.

The need for social epidemiological research is as great as ever in rapidly changing socioeconomic contexts. Culturally also, transitions in gender and intergenerational roles and relationships challenge our understanding in terms of 'causes of the causes' of differences in population health between societies in the East and West.

Social epidemiology has become established as a research discipline. The accumulated data can be used to build new bridges across the gap between the worlds of research and policy making by applying quantitative techniques previously under-used in epidemiology. For example, we can move from the estimation of exposure-outcome effect sizes (odds ratios, risk ratios) to build models which can forecast future health trends at population level if current risk factor patterns continue. Similarly, we can compare possible policy interventions to predict which one may reduce health inequality to the greatest extent.

S32-1

Social determinants of health translating evidence into action: UK experiences

Eric Brunner

Professor of Social and Biological Epidemiology, UCL Department of Epidemiology and Public Health, London, UK

We and others estimate life expectancy at age 65 will increase by a yet another two years over the next decade in England & Wales (in 2025, 21.7 years in men, 22.1 in women). This continuing and remarkable improvement in longevity is in large part attributable to the declining cardiovascular disease (CVD) epidemic. As the recent WHO report on ageing points out 'the extent of the opportunities that arise from these extra years of life will be very heavily dependent on one key factor: health'. Over 20% of people currently aged >65 years have one or more functional impairments in basic activities of daily living and require supportive care. Three important trends will shape the future in this respect. First, the rising number of older people will increase the societal burden of those needing caregiver support. Second, if the declining age-specific incidence of cardiovascular disease and dementia continues, prevalence proportions of disability, age by age, will stay broadly constant. Third, unless social inequalities in cardiovascular disease and other common health conditions in midlife are reduced, important inequalities in well-being at older ages will persist in the future.

The WHO ageing report emphasizes lifelong perspectives on prevention. Longitudinal evidence from midlife into old age is rare. A major strength of the Whitehall II cohort study, unlike many studies of ageing, is the relative youth of the cohort at baseline (35-55 years), long follow-up (32 years) and repeat measures of biomedical, lifestyle, and psychosocial factors before and during age-related decline in functioning. Physical inactivity, hypertension, and poor lung function measured at age 50 years were predictors of impairments in both cognitive and physical functioning in old age. Social inequalities in health at older ages, measured by SF-36 physical and mental component scores, were seen both in prevalence of and recovery from poor scores.

S32-2

Childhood poverty and health: what policy makers should know

Takeo Fujiwara

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Child poverty is an emerging issue in Japan. The rate of child poverty was 16.3% in 2012, which is higher than OECD average. Life-course epidemiology has generated evidence regarding the associations between child poverty, adult poverty and health. For example, low socioeconomic status in childhood has been associated with risk of suspected autism spectrum disorder at 18 months, and with higher-level functional disabilities at 65+ years.

The evidence points to the need for action to break the cycle of poverty and health from childhood. It may be difficult though not impossible to change the rate of child poverty per se. However, we can change the mediators of the association between child poverty and later health, such as parenting and the school environment, through interventions including community development.

In this session, recent studies on child poverty and health will be reviewed, and policy implications in relation to some modifiable mediators will be discussed.

Health disparities in adult and older individuals in Japan: evidence for action

Naoki Kondo

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In Japan, epidemiologic data indicate the regular pattern of health disparity in general. Socially disadvantaged individuals and groups are likely to show poor health outcomes (mortality, morbidity, poor self-rated health and behavioural risks). However, Japan's pattern in occupation-related health disparity may not be typical. Recent studies suggest increasing health risks (e.g. mortality by cardiovascular diseases and suicide) among managers and professionals rather than clerical and manual workers. This was observed after the beginning of the economic stagnation starting from the 1990s. Cultural (e.g., strong sense of loyalty to the company) and structural characteristics (e.g., work-related regulations) may explain the pattern.

Given the changing patterns in health disparity, nationwide systems to monitor health disparity continuously are essential. For example, the Japan Gerontological Evaluation Study (JAGES) follows over 100,000 older individuals residing in 30 municipalities nationwide since 2010, and has provided the data for municipality health professionals. The data covered a wide array of measurements in health, behavioural, social and community contexts. Using the data before and after the 2011 Great Earthquake in Japan, JAGES identified a large areal variability in disaster resilience, and this variability was related to pre-disaster community characteristics including community social cohesion.

Support systems to utilize the epidemiologic data for action are also necessary. Recent intervention studies suggest the effectiveness of supporting municipality public health professionals for the utilization of JAGES-based community diagnosis tools in terms of improving their policy-making skills and the diversity of their job-related partnerships. To tackle health disparity issues, similar data tools and support frameworks should be expanded for public health challenges among younger age groups and other settings (e.g., workplace).

S32-4

How does gender impact on the health disparities in Japan?

Kaori Honjo

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Gender, one of the significant social determinants of health, is socially constructed; therefore, its health effect is likely to differ across countries and over time. We often recognized unique pattern of gender differences in health inequalities in Japan. For example, a recent longitudinal study identified living with spouse was a protective factor for risk of depressive symptoms among male older adults but not for female counterparts. (Honjo 2017, submitted)

Recently, transitions in gender role has been occurring in Japan. Gender gap in educational attainment became smaller and the proportion of people (especially younger generation) who support gender division of labor has rapidly shrunk. However, increased diversity of female life-course choice with this social change creates new social problems such as female poverty. Along with increasing divorce and unmarried rates, the number of single women (including single mothers) has increased. The relative poverty rate (=the ratio of the number of people who fall below half the median household income) of women aged between 20 and 64 who live alone was 33% in 2012 (Comprehensive Survey of Living Condition, Japan, 2013)

In this session, recent evidence on gendered poverty and health will be reviewed and possible underlying mechanisms and its policy implications will be discussed.

Symposium 33

Social Determinants of Health: Results from International Comparative Studies of British, Finnish, and Japanese Civil Servants

Moderators: Eero Lahelma (University of Helsinki, Finland)
Tarani Chandola (University of Manchester, UK)

Socioeconomic inequalities in health have been widening. We have conducted international comparative studies of British, Finnish, and Japanese civil servants. The advantages of international comparisons are that we could propose a country-specific public health policies for policy makers by comparing and discussing the differences and similarities of social determinants of health across countries.

To date, we showed that (1) socioeconomic inequalities in health and health behaviours exist in the 3 cohorts from Britain, Finland and Japan; (2) psychosocial stress at work, work-family conflicts, health behaviours and social activity play an important role in socioeconomic inequalities in health; (3) the pattern and magnitude of socioeconomic inequalities in health and the underlying mechanisms somewhat differ among the 3 cohorts. In this session, we will show an updated review of the international comparisons.

Prof. Sekine (Japan) will present (1) the outline of the international comparisons, (2) potential pathway from psychosocial stress at work and family life, health behaviours, social network to health and health inequalities, and (3) the differences and similarities of socioeconomic inequalities in psychosocial stress at work and health.

Prof. Lahelma (Finland) will present (1) the differences and similarities of health inequalities in health risk behaviours (i.e. smoking, alcohol drinking, unhealthy diet, and physical inactivity) and obesity and (2) the changes over time in the socioeconomic inequalities.

Dr. Cable (the UK) will present (1) the associations of social contacts and mental health by composition and (2) the differences and similarities of the associations across the 3 cohorts.

Prof. Chandola (the UK) will present (1) the advantages of doing international comparative studies and (2) future directions in research on social determinants of health.

S33-1

Social Determinants of Health: Role of Psychosocial Stress at Work and Family Life

Michikazu Sekine

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International comparisons of countries with different social policies and culture may provide further understanding of social determinants of health and their underlying mechanisms. We have conducted a series of international comparative studies among British, Finnish and Japanese civil servants. Inequalities in physical and mental health by socioeconomic status (SES) were observed in all three cohorts but the magnitude and patterns of health inequalities differed: for physical health, the generally observed patterns of SES inequalities in health (i.e. the higher the SES, the better the health.) were observed in all cohorts and the health inequalities were somewhat smaller in the Finnish cohort than in other 2 cohorts. For mental health, similar patterns of SES inequalities were observed in the British and Japanese cohorts but the reverse was true for the Finnish cohort (i.e. the higher the SES, the poorer the health.). SES inequalities in psychosocial stress at work were somewhat smaller in the Finnish cohort than in the other 2 cohorts. Work-family balances and mental health were better in the Finnish cohort than in the other 2 cohorts. Finnish employees had smaller SES inequalities in work characteristics which seems to contribute to smaller SES inequalities in health. The similarities and differences in the pattern and the magnitude of health risk behaviours, obesity, and social network across countries were also observed. The international variations in the pattern and magnitude of socioeconomic inequalities in psychosocial stress at work, health risk behaviours, obesity and social network may explain the health inequalities across countries, and findings from international comparisons could be applied for country-specific health policy on social determinants of health.

S33-2

Social determinants of health behaviours and obesity: longitudinal studies

Eero Lahelma, Jouni Lahti, Ossi Rahkonen, Karri Silventoinen

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Health behaviours and risk factors play an important part in the production of major diseases. Health behaviours also tend to follow the social gradient and thus contribute to the socioeconomic inequalities in health. However, the social gradient in health behaviours may vary between genders and countries. Thus, comparative research is warranted as it may help suggest where the gradient is particularly steep and what the potential reasons are for the social gradient in health behaviours. The Whitehall II study, the Helsinki health Study and the Japanese Civil Servants Study offer good opportunities for comparative research. We present longitudinal studies focusing on the social determinants and consequences of various health behaviours and obesity among British, Finnish and Japanese employees. These studies cover the following subareas:

1. Changes in the social gradient of smoking (Eero Lahelma);
2. Work-family conflicts and subsequent sleep problems (Ossi Rahkonen);
3. Social gradient in weight and weight gain (Karri Silventoinen); and
4. Physical activity and subsequent health functioning (Jouni Lahti).

Findings from these four subareas of health behaviours and risk factors will be summarized and discussed in terms of potential reasons behind as well as prevention and narrowing the social gradient in health. Finally, we wish to raise the need for further comparative studies on the social determinants of health behaviours among employees facing the end of work career and transition to retirement.

S33-3

Social determinants of mental health in cultural contexts: an example of social contacts

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The social relationship has been known to affect individual health through the material and psychosocial pathways. Although human interactive relationships were discussed in the cultural contexts, the main protective effects of social relationships on health and well-being have been assumed. Using the conceptual framework of social relationships and health, this work is to illustrate cultural differences in the gender-specific associations between frequencies of contacts with networks by types (=kinship, friendship) and mental health indicated by the MCS by comparing the results across three civil servants studies from Japan (N=3,673), Great Britain (N=6,275), and Finland (N=6,814).

Country and gender-specific findings emerged. Relatives and friends were essential for British and Japanese men and Finnish women's mental health, while British women and Finnish men drew their emotional well-being out through interaction with their friends. Contacting relatives was helpful for Japanese women's mental health. These findings will be discussed regarding cultural factors that shape relationships between individuals and social determinants of health.

In summary, the work implies that collecting detailed information relevant to social networks is essential and suggest the importance of country contexts regarding the social relationships and health.

S33-4

Why are international comparative studies important for understanding the social determinants of health?

Tarani Chandola

Cathie Marsh Institute and Social Statistics, University of Manchester, UK

The social gradient in health is well known and there is some debate over why we need more studies to replicate well known associations. International comparative epidemiological studies are at risk of reproducing well known associations, while adding very little to the evidence on reducing social inequalities in health. This talk will highlight examples where international comparative epidemiological studies can be useful in shedding new light on social determinants of health and health inequalities. The paradox of high smoking rates and high life expectancy in Japan will be examined, in the context of the socio-economic inequalities in smoking in Japan and other countries. The role of 'upstream' (structural) and 'downstream' (behavioural) interventions on reducing health inequalities will also be discussed, in the context of international comparisons. The talk will end by emphasizing the need for international comparative studies on the role of social, behavioural and health factors over the lifecourse on producing and reproducing health inequalities.

TA2-1

Determinants of total fertility rate among districts of Empowered Action Group States of India: Evidence from Annual Health Survey 2012

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Introduction: Empowered action group states in India have highest total fertility rates. The district level determinants of total fertility rate are still unknown and can be useful in strengthening the ongoing population stabilization programs in India. The present study assesses the role of district level determinants in predicting the total fertility rate among Empowered Action Group states of India.

Methods: Data from Annual Health Survey 2012 was analyzed using SPSS and R software packages. Regression analysis was done and regression models were evaluated using Akaike Information Criterion. For further understanding, recursive partitioning was used to prepare a decision tree.

Results: Female married illiteracy positively associated with total fertility rate and explained more than half (53%) of variance. Under multiple linear regression models, married illiteracy, infant mortality rate (IMR) antenatal care registration (ANC), household size, the median age of live birth and sex ratio explained 70% of total variance in total fertility rate. In regression tree, female married illiteracy was the root node and splits at 42% to determine total fertility rate ≤ 2.7 . The next left side branch was again married illiteracy with splits at 23% to determine total fertility rate ≤ 2.1 .

Conclusion: We conclude that female married illiteracy plays an important role in determining total fertility rate at district level among Empowered action group states of India. We recommend focusing on female married illiteracy and other covariates (ANC registration, IMR, total unmet need, household size, and age at first live birth) to improve the total fertility rate in Empowered action group states of India.

Meta-analysis of over-nutrition among school children in India

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Introduction: Obesity continues to be a significant public health concern in India. As half of overweight adults were overweight during their childhood, meta-analysis of overweight or obesity burden among Indian school children would help to forecast the obesity epidemic. In this context this meta-analysis is focused on estimation of pooled prevalence of over-nutrition among school children in India by of studies published during last 10 years.

Methods: Studies conducted during 2005-2015, using WHO cut-off points to assess over-nutrition (overweight and obesity) among Indian school children were included in this meta-analysis using MetaXL (V 2.2) software. Twenty one studies involving both boys and girls in the age group of 6-19 years from rural or urban schools were included in the meta-analysis. Studies using other criteria, in specific subgroups, like males, affluent schools etc. were excluded. Considering heterogeneity of the studies, Random Effect(RE) model and Inverse Variance Heterogeneity(IVH) model used for estimating pooled prevalence. Limitation of this study include limited rural studies, use of different criteria to define obesity, and lack of studies from all Indian states.

Results: The prevalence of over-nutrition ranged between 1.5% to 32.2% in the included 21 studies covering 81,716 school children, and 11 Indian states. The pooled prevalence estimate of over-nutrition in RE and IVH model were 11.15%(95%CI:8.98%-13.51%) and 10.56%(95%CI:5.09%-16.74%) respectively. In sub group analysis boys and urban students had higher burden of over-nutrition, than their counterparts. However, gender difference in over nutrition prevalence was lower than urban-rural difference. Most of the studies included were of moderate quality and there was heterogeneity among studies.

Conclusions: One-in-nine school children are suffering from over-nutrition is a concern as India suffers dual burden of under- and over-nutrition, representing inequitable distribution of health. Interventions to reduce over-nutrition burden and monitoring of over-nutrition with the use of country-specific standard tool is warranted.

TA2-3

Vector control actions use among Pakistanis: Findings from nationally representative recent most demographic survey

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Introduction: Various socioeconomic, environmental and behavioral factors have been linked with occurrence of vector-borne diseases including Malaria and Dengue; affecting approximately 1.5 million Pakistani individuals annually. We aim to explore social, economic, and demographic determinants of vector control (VC) actions among Pakistanis, and also examine existence of any underlying socioeconomic disparities in use of VC actions.

Methods: The data of nationally representative Pakistan Demographic and Health Survey (PDHS) 2006-07 (n=13635), and 2012-13 (n=12882) were used for secondary analysis. Outcome variable "any vector control action" included questions regarding what measure were taken to control mosquito infestation at household level. Any yes for these questions was taken as "Yes", and all no responses were recoded as "No vector control action". Education and wealth quintile were used to indicate the socioeconomic status of the households. Logistic regression analyses were conducted to analyze association between variables; reported as adjusted odds ratios with 95% confidence intervals.

Results: We found that 49.3% and 72.1% of the households used any VC actions at household level in 2006-07 and 2012-13, respectively. After adjusting for all important covariates, it was found that poor people were significantly less likely to report use of any VC actions (OR=0.13, 95% CI 0.10-0.17) and (OR=0.21, 95% CI 0.14-0.32) in both surveys. Also illiterate people were significantly less likely to report use of any VC actions (OR=0.48, 95% CI 0.38-0.60) and (OR=0.57, 95% CI 0.45-0.72) in both surveys.

Conclusion: Socioeconomic disparities exist in use of VC actions, the vulnerable subpopulations with lower socioeconomic profile, that is the illiterate and the poor of the country remain at a disadvantage as compared to the rich and the educated. These findings might help us infer that the community has the right health behavior needed in this regard.

TA2-4

Migration and Urbanisation Effects on Rates of Overweight, Diabetes and Hypertension in Malawi – a sibling migrant study

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Objective: Malawi is a very poor country with predominantly rural, but rapidly growing urban populations. Our recent survey of 40,000 adults showed a high burden of non-communicable diseases (NCD), particularly hypertension and obesity, in both rural and urban residents although urban-born were at less risk than in-migrants. The extent to which urban migration effects NCD risk in rural-born Africans is not well understood. In a cohort of siblings we investigated the effects of rural-to-urban migration on risk for NCD.

Methods: Sibling sets were identified from the rural Karonga Demographic Surveillance System in Malawi. In each set at least one sibling was resident in the DSS and at least one had moved during adulthood to Lilongwe, the capital city. Measures of fasting blood glucose (FBG), blood pressure (BP) and Body Mass Index (BMI) were obtained. Conditional logistic regression was used to investigate associations between rural-urban migration and overweight, raised BP and FBG.

Results: Our analysis included 319 individuals (50.2% women), representing 107 rural-urban sibling sets. 308 (96.6%) were aged between 18-49 years. Duration of urban residence varied from 1-18years. Compared to rural siblings, urban-migrant siblings had increased risk for overweight (BMI $\geq 25\text{kg/m}^2$; aOR2.92, 95% CI 1.37-6.23), pre-hypertension (diastolic $\geq 80\text{mmHg}$ and/or systolic $\geq 120\text{mmHg}$; aOR6.75, 95% CI 3.38-13.4) and raised FBG ($\geq 6.1\text{ mmol/L}$; aOR1.33, 95% CI 0.09-20.6), after adjusting for age and sex. Prevalences of obesity ($\geq 30\text{kg/m}^2$), hypertension ($\geq 140/90\text{mmHg}$) and diabetes were 8.8%, 6.9% and 0.4%, respectively. Increasing duration of urban stay (>5 years) was associated with a small increased risk for overweight but not raised BP.

Conclusion: Even in young Malawians, urban-migrant siblings have an increased risk of cardiometabolic disease precursors and the effects are seen early after migration. Further exploration of the mechanism and drivers of these risks will help inform interventions to mitigate the negative impacts in rapidly urbanizing countries.

Mental health problems in the aftermath of the Nepal earthquakes: Findings from a representative cluster sample survey

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Introduction: Two large earthquakes in 2015 caused widespread destruction in Nepal. This study aimed to examine common mental health problems and their correlates following the earthquakes.

Methods: A stratified multi stage cluster sampling design was employed to randomly select 513 participants (aged 16 and above) from three earthquake affected districts namely Kathmandu, Gorkha, and Sindhupalchowk, four months after the second earthquake. Outcomes were selected based on qualitative preparatory research and included symptoms of depression and anxiety (Hopkins Symptom Checklist 25); post traumatic stress disorder (PTSD Checklist Civilian); hazardous alcohol use (AUDIT C); suicidal ideation (Composite International Diagnostic Interview) and functional impairment (locally developed scale).

Results: A substantial percentage of participants scored above validated cut off scores for depression (34.3%, 95% CI 28.4 to 40.4) and anxiety (33.8%, 95% CI 27.6 to 40.6). Hazardous alcohol use was reported by 20.4% (95% CI 17.1 to 24.3) and 10.9% (95% CI 8.8 to 13.5) reported suicidal ideation. Fewer people had elevated rates of PTSD symptoms above a validated cut-off score (5.2%, 95% CI 3.9 to 6.8), and levels of functional impairment were relatively low. Correlates of elevated mental health problems were female gender, lower caste, and residing in Gorkha and Sindhupalchowk districts. Higher levels of impaired functioning were associated with greater odds of depression and anxiety symptoms.

Conclusions: Four months after the earthquakes in Nepal, one out of three adults experienced depression; one out of five engaged in hazardous drinking, and one out of ten had suicidal thoughts. However, posttraumatic stress symptoms and functional impairment were comparatively less frequent. The findings suggest that there were significant levels of psychological distress but likely low levels of disorder. The findings highlight the importance of indicated prevention strategies to reduce the risk of distress progressing to disorder, within post disaster mental health systems of care.

Suicide risk among young children after the Great East Japan Earthquake: A follow-up study

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Introduction: On 11 March 2011, the Great East Japan Earthquake and subsequent tsunami hit East Japan. We aim to investigate the impact of trauma experiences related to the earthquake on suicide risk among young children, stratified by child sex.

Methods: Participants at baseline were children who were exposed to the 2011 disaster at preschool age (affected area, n=198; unaffected area, n=82, total n=280). From July 2013 to May 2014, suicide risk was assessed using the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID) in a follow-up interview conducted by a child psychiatrist or psychologist (N=210, follow-up rate: 75%).

Results: Among young girls in the affected area, 12 out of 65 (18.5%) showed suicidal ideation, which is significantly higher than girls in the unaffected area (4.7%, p for chi-square=0.036). In the multivariate model adjusted for potential confounders and mediators, the odds ratio for 4 or more trauma experiences related to the earthquake was 5.74 (95% confidence interval: 0.83-39.6, p=0.076) compared to no trauma experience related to the earthquake. Among young boys, trauma exposure was not associated with suicidal ideation.

Conclusions: Our findings showed that young girls who experienced earthquake-related trauma at preschool age had a higher suicidal ideation 3 years after the earthquake.

018-3

The Assessment of Earthquake and Tsunami Awareness to Disaster Preparedness Three Years after the September 2009 Sumatra Earthquake in the City of Padang, Indonesia

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Sumatra, the second largest island of Indonesia is an area prone to earthquakes and tsunami. This study aimed to assess awareness earthquake and tsunami to disaster preparedness three years after the September 2009 Sumatra Earthquake in the City of Padang Indonesia. A community-based cross-sectional study was conducted in March-June 2013. One hundred and five household heads were randomly selected based on earthquake vulnerable zone. There was a significant relationship between the level of awareness with family preparedness in the face of the earthquake and tsunami. The preparedness were constituted with a good awareness, then the effort will last a long time. Conversely, if the preparedness efforts are not based on the awareness, preparedness will not last long. The preparedness were constituted with a good awareness, then the effort will last a long time. Conversely, if the preparedness efforts are not based on the awareness, preparedness will not last long. Further improvement of preparedness and response, local government should play a key role in implementing these improvements and mitigation activities should be attempted

Does living in an area damaged by earthquakes increase cardiovascular disease risk five years on? cohort linkage study

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Several studies have linked earthquakes with increased cardiovascular disease (CVD) however few studies have examined whether the impact lasts longer than a few weeks or months, and few were able to examine the impact by level of exposure to earthquake damage. The sequence of Canterbury earthquakes began on the 4th September 2010 with the most harmful earthquake occurring on the 22nd February 2011 damaging over 100,000 homes. Recovery has been challenged with ongoing aftershocks and prolonged insurance settlement processes. This study uses linked administrative datasets to identify the cohort of individuals 25+ years old living in Christchurch on the day before the first earthquake. Individuals were assigned the level of earthquake damage in the area in which they lived using the ratio of the value of insurance claim for building damage relative to property value. Age-standardised rates of CVD mortality and CVD hospitalisations were compared by level of damage in the first year and four subsequent years following the first earthquake. Rate ratios were adjusted for age, sex, ethnicity, small area deprivation index and individual income using Poisson regression. In the first year, the most damaged areas had a 9% higher rate of cardiovascular hospitalisations ($p=0.068$), 23% more myocardial infarctions ($p=0.037$) and 25% more cardiovascular mortality (45+ year olds, $p=0.009$) compared to the least damaged areas. In the four subsequent years there was no evidence of an increase in these outcomes. Acute and chronic stress is likely to be the key mediator of earthquake related cardiovascular disease. Prevention should include actions that minimise earthquake damage and reduce post-earthquake stress.

Investigating the combined effect of body mass index and alcohol consumption on liver disease biomarkers: a Mendelian randomization study of 91, 661 European adults

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Introduction: Observational studies suggest body mass index (BMI) and alcohol interact synergistically in their association with increased liver disease. We aimed to assess whether there was evidence of a causal interaction of BMI and alcohol with liver disease biomarkers, alanine aminotransferase (ALT) and gamma-glutamyl transferase (GGT), using Mendelian randomization (MR).

Methods: Multivariable regression analyses of the associations of BMI and alcohol with ALT and GGT were compared with the equivalent results from MR. In MR analyses we used a weighted allele score of variants in FTO, TMEM18, GNPDA2, BDNF and MC4R, as an instrumental variable for BMI. Alcohol strata were based on self-report and genetic propensity (ADH1B genotype).

Results: In multivariable regression BMI and alcohol were both positively associated with ALT and GGT. For both outcomes there was strong statistical evidence of a supra-multiplicative interaction. In MR analysis, each 1.0kg/m² of BMI increase resulted in a 12.13% (7.53;16.91) and 9.59% (4.90;15.37) increase in ALT and GGT, respectively. Each log unit greater alcohol consumption (in those who drank some alcohol) also resulted in greater ALT and GGT: 6.83% (-3.92;18.78), 12.23% (-1.24;27.54), respectively. The MR effect for each 1.0kg/m² of BMI on ALT and GGT, respectively, was 13.23% (9.91;26.94) and 11.28% (-1.63;25.90) in none drinkers, 14.18% (8.74;19.88) and 12.27% (6.15;18.75) in moderate drinkers, and 5.76% (-4.82;17.53) and 0.71% (-12.75;16.23) in heavy drinkers (pinteraction = 0.36 for both), based on self-report. When stratified by genotype, although point estimates were stronger, the confidence intervals were wider, with no statistical evidence of interaction (pinteraction = 0.22 and 0.92 respectively).

Conclusion: Our MR analyses suggest that both BMI and alcohol have a positive causal effect on ALT and GGT, but do not act synergistically. Evidence of an interaction in multivariable regression may be biased by residual confounding, whilst MR analysis stratified by alcohol genotype was underpowered.

A replicated, genome-wide significant variant for aortic stenosis: meta-analysis and UK cohort study

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Background: No medical therapies exist to prevent or slow progression of aortic stenosis (AS; narrowing of the aortic valve), which affects around 3% of individuals over 65 years of age. New therapies to lower Lp(a) lipoprotein have reignited interest in Lp(a) as a causal risk factor for coronary artery disease (CAD) and, potentially, aortic stenosis. Causal variants for CAD at the *LPA* locus on chromosome 6q26-27, principally rs10455872 and rs3798220, encode higher plasma Lp(a). Several small studies have linked rs10455872 to AS, but none have definitively established this association.

Methods: Four published studies of rs10455872, and unpublished data from UK Biobank, were combined by meta-analysis; there was one published study of rs3798220. After quality control exclusions, we identified 535 cases of non-rheumatic AS (ICD-10: I35.0 and I35.2) from hospital admissions records and death registrations, frequency matched to 10,617 controls by age, sex, and recruitment centre. Minor allele frequencies among eligible participants were 0.08 for rs10455872 (G allele), and 0.02 for rs3798220 (C allele). Estimated associations of AS with rs10455872 and rs3798220 were adjusted for age, sex, centre, genotyping batch, and the first 10 principal components of genotype.

Results: In a meta-analysis of published studies only, rs10455872 was associated with AS at the genome-wide significant level (RR=1.65, 95%CI 1.43-1.90, per minor allele; $P=4\times 10^{-12}$). In UK Biobank, both rs10455872 (RR=1.69, 95%CI 1.39-2.29; $P=1\times 10^{-7}$) and rs3798220 (RR=1.63, 95%CI 1.11-2.38; $P=1\times 10^{-2}$) were associated with AS. Combining both published and new data, the overall summary RRs per minor allele were 1.66 (95%CI 1.48-1.86; $P=2\times 10^{-18}$) for rs10455872, and 1.43 (95%CI 1.04-1.99; $P=3\times 10^{-2}$) for rs3798220.

Conclusions: *LPA* variant rs10455872 is the first replicated, genome-wide significant variant for AS, confirming a probable causal role for high plasma Lp(a) in clinically relevant AS. This underscores the potential of Lp(a) as a therapeutic target for the disease.

Gene-environment interactions indicate the involvement of lung in the etiology of multiple sclerosis. Evidence from Scandinavia and USA

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Introduction: Multiple sclerosis (MS) is the leading cause of non-traumatic neurological disability in young adults in Europe and USA. The etiology is unclear. Twin studies suggest that environment and/or life style play a crucial etiological role.

Aim: To investigate the influence from airborne exposures and their interaction with the two most important HLA MS risk genes.

Methods: We have initiated a population-based case-control study, called EIMS, where individual and environmental factors are investigated systematically with concomitant genetic information. Newly diagnosed cases of MS and randomly chosen controls are identified and asked about e.g. socio-demographic factors, lifestyle/environmental factors, various work related exposures and psychosocial factors. For both cases and controls blood samples are taken for analysis of putative risk genes. Odds ratios with 95% confidence interval were calculated by means of logistic regression models. Interaction was evaluated on the additive scale by calculating attributable proportion due to interaction (AP).

Results: Data Today, data from 3200 cases and 6200 controls have been gathered, which makes EIMS the largest study on incident MS in the world with concomitant information on environmental factors and genetics. We observed significant interaction between the most important MS risk genes (presence of HLA-DRB1*15 and absence of HLA-A*02) and smoking, environmental tobacco exposure (i.e. passive smoking) and organic solvents, respectively. We have replicated findings in Scandinavian studies and the Kaiser Permanente case-control study from California, USA.

Conclusions: These findings give a whole new outlook on the strongest acting polymorphisms in MS, and also on the role of the lungs. Overall, this has led to the hypothesis that for some individuals, changes in the lungs initiate a process leading to MS.

Sex-specific genetic loci associated with body fat distribution among Chinese adults

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Introduction: Genome-wide association studies have revealed dozens of single nucleotide polymorphisms (SNPs) associated obesity, but few studies have focused on the associations between the variations in genes and body fat distribution among Chinese. We aimed to identify the loci affecting body fat distribution in Chinese adults.

Methods: A total of 73 SNPs associated with obesity related indices and fat distribution indicators in previous studies were selected. Genotyping of these SNPs were performed among 951 Chinese adults aged 18-79. The anthropometric measurements were obtained by standard physical examination, and the body fat distribution indicated as body fat percentage (BF%), trunk fat percentage (TF%), android and gynoid fat percentage (AF%, GF%) was estimated using the dual-energy X-ray absorptiometry. Sex-stratified multiple linear regression assessed whether the SNPs were associated with body fat distribution, and metabolic traits in additive, dominant, and recessive models.

Results: After adjustment for age, a total of 25 SNPs encompassing 14 loci showed positive evidence of association ($p \leq 0.05$) with regional fat percentages in the sex-specific analysis. Among these SNPs, 14 SNPs were found to be associated with BF% (rs174547, $p < 0.006$), 8 SNPs related to TF% (rs10938397, $p < 0.005$). In the multivariate regression analysis adjusting for age, BMI, income level, smoking, alcohol use, physical activity, and other regional fat percentages, 21 SNPs were significantly associated with one of the fat distribution indicators (BF%, TF%, AF%, GF%) and 19 SNPs related to at least two indicators. Furthermore, 11 male-specific SNPs (rs6548238, $p < 0.001$) and 6 female-specific SNPs (rs2241423, $p < 0.016$) associated with fat distribution were recognized.

Conclusion: Several SNPs were identified to be associated with body fat distribution in our study sample. These findings demonstrated that different genetic factors contribute to fat distribution in different genders. Future studies were warranted to identify genetic factors interpreting gender difference on body fat distribution.

Cigarette smoking increases coffee consumption: findings from a Mendelian randomisation analysis

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Background: Smokers tend to consume more coffee than non-smokers and there is evidence for a positive relationship between cigarette and coffee consumption in smokers. Cigarette smoke increases the metabolism of caffeine, so this association may represent a causal effect of smoking on caffeine intake.

Methods: We performed a Mendelian randomisation analysis in 114,029 individuals from the UK Biobank, 56,664 from the Norwegian HUNT study and 78,650 from the Copenhagen General Population Study. We used a genetic variant in the *CHRNA5* nicotinic receptor (rs16969968) as a proxy for smoking heaviness. Coffee and tea consumption were self-reported. Analyses were conducted using linear regression and meta-analysed across studies.

Results: Each additional cigarette per day consumed by current smokers was associated with higher coffee consumption (0.10 cups per day, 95% CI:0.03, 0.17). There was weak evidence for an increase in tea consumption per additional cigarette smoked per day (0.04 cups per day, 95% CI:-0.002, 0.07). There was strong evidence that each additional copy of the minor allele of rs16969968 (which increases daily cigarette consumption) in current smokers was associated with higher coffee consumption (0.15 cups per day, 95% CI:0.11, 0.20), but only weak evidence for an association with tea consumption (0.04 cups per day, 95% CI:-0.01,0.09). There was no clear evidence that rs16969968 was associated with coffee or tea consumption in never or former smokers.

Conclusion: These findings suggest that higher cigarette consumption causally increases coffee intake. This is consistent with faster metabolism of caffeine by smokers, but may also reflect behavioural links between smoking and coffee.

Geographical differences in cigarette smoking by secondary school students in Enugu State, southeast Nigeria using multilevel analysis

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Introduction: Tobacco is a risk factor for six of the eight leading causes of death worldwide. Studies, which have investigated tobacco use by adolescents in urban and rural parts of Nigeria are scarce. We compared the prevalence and examined the determinants of current cigarette smoking by adolescents in urban and rural secondary schools in Enugu State, southeast Nigeria.

Methods: We surveyed 4354 eighth to tenth grade students in 49 urban and rural secondary schools in Enugu State using anonymous self-administered questionnaires adapted from Global Youth Tobacco Survey, in November and December, 2015. Stratified two-stage cluster sampling was used to select students, with probability proportionate to school enrolment size. Multilevel mixed-effects logistic regression model identified socio-demographic and environmental factors associated with current cigarette smoking.

Results: Current cigarette smoking was more prevalent in urban schools (prevalence rate [PR]: 16.8%, 95% confidence interval [95%CI]:15.2-18.4%) than in rural schools (PR:10.3%[95%CI:9.0-11.5%]). Odds of current cigarette smoking was 1.5 times in rural compared to urban schools (adjusted odds ratio [AOR]:1.5(95% CI:1.03-2.04). Female sex, reported employment of both parents, and teaching about tobacco use in school, were inversely associated with current cigarette smoking (AOR:0.72 [95%CI:0.58-0.90] for sex, AOR:0.61[95%CI:0.41-0.89] for parental employment, and AOR:0.60[95%CI:0.48-0.75] for tobacco teaching. Conversely, possession of weekly spending money, having smoking parents, friends or classmates, exposure to second-hand smoke or to pro-tobacco advertisement, and sale of cigarettes near schools were positively associated with current cigarette smoking.

Conclusions: Geographic differences in cigarette smoking by school-going adolescents exist in Enugu State, southeast Nigeria, with higher prevalence in rural than in urban schools. Possession of weekly spending money, parental and peer influence, and exposure to pro-tobacco advertisements increased the odds that adolescents would smoke cigarettes.

O20-2

Self-reported tuberculosis, sexually transmitted diseases and HIV prevalence rates among Peruvian inmates: results from the 2016 prison census

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Introduction: Worldwide, prisons are high-risk settings for infectious disease transmission including Tuberculosis (TB), Hepatitis, Sexually Transmitted Infections (STD), and HIV. The unmet needs of penitentiary populations need to be better described to design appropriate prevention and control strategies.

Methods: We analyzed publicly-available prevalence data of selected infections from the 2016 Peruvian Prison census.

Results: A total of 76,143 prisoners were surveyed of whom 71,569 (94%) were male with an average age of 36 years (standard deviation: 11 years). The overall self-reported prevalence of TB, STD and HIV among Peruvian inmates were 4.3%, 0.9%, and 0.5% respectively. Care had been received by 53%, 52% and 32% of people with each condition, respectively. Respondents indicated that infections took in place during incarceration in 60%, 39%, and 38% of these cases, respectively. Main reasons for not receiving TB treatment were delays in care (20%), lack of financial support (19%), and underestimation of the disease impact (14%). For STDs the main reasons were: drug shortage (26%), lack of financial support (18%), and underestimation of the impact of the disease (17%). For HIV the main reasons were: lack of financial support (23%), delays in care (18%) and underestimation of disease impact (18%). Males have higher TB prevalence, prevalence ratio (PR)=3.6 (95% confidence interval, CI, 2.77-4.66); although lower prevalence for STDs (PR=0.4, 95% CI: 0.32-0.5) and HIV infection (PR=0.37, 95% CI: 0.28-0.5). Drug use prior to incarceration increased the prevalence of TB infection (PR=2.5, 95% CI: 2.34-2.67), STDs (PR=1.86, 95% CI: 1.59-2.18), and HIV infection (PR=3.33, 95% CI: 2.71-4.1). Prior incarceration increased the prevalence of TB infection (PR=1.82, 95% CI: 1.67-1.97), STDs (PR=1.47, 95% CI: 1.19-1.81), and HIV infection (PR=1.99, 95% CI: 1.53-2.58).

Conclusions: Imprisonment is associated with multiple risks for infections in Peru. Improved prevention and control is needed to address their burden of disease.

National Estimates of Pediatric Emergency Department Visits Secondary to Foreign Body Ingestion and Aspiration USA 2015

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Introduction: National Electronic Injury Surveillance System (NEISS) is a national probability sample of hospitals in the United States. It collects patient information during point of care encounters at participating hospital emergency department (ED) visits involving an injury associated with consumer products. Our study objective was to calculate national estimates of ED visits related to foreign body ingestion and aspiration and to model predictors of hospitalization.

Methods: We downloaded the public user file from the NEISS website. We extracted data for patients younger than 18 years associated with foreign body ingestion and aspiration. We used complex sample frequencies to calculate national estimates, standard errors, and coefficient of variation for ED visits; complex sample logistic regression to model predictors associated with hospitalization. We used Microsoft Excel 2016 and SPSS 24 for data preparation and analysis.

Results: There were 56,798 (95% Confidence Interval [CI], 53,111-60,486) estimated pediatric ED visits for foreign body ingestion with 3,854 admissions (95% CI, 3,109-4,599), more than half occurred at home 28,390 (95% CI, 25,799-30,982) with children less than five years accounting for 32,949 (95% CI, 30,146-35,762) visits. When stratified by race and gender, White had the highest number of ED visits with 25,583 (95% CI, 23,033-28,133) accounting for 45% of total visits. Males had higher number of visits 32,508 (95% CI, 29,733-35,426) vs females 24, 218 (95% CI, 21,857-26,579) ($P < 0.05$). Being White was the only significant predictor for hospitalization in the multivariable model, (Odds Ratio [OR], 0.39) (95% CI, 0.24-0.63); being less than 5 years of age and male gender were not significant.

Discussion: Majority of ED visits were for ingestions that occurred at home in children aged 5 years or less. Pediatricians and ED staff should continue to educate parents regarding home safety to prevent ingestions and aspirations.

The implications of the the Brazilian National Programme for Improving Access and Quality of Primary Care

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Background: The Brazilian National Programme for Improving Access and Quality of Primary Care (PMAQ-AB) was established by the Ministry of Health (MOH) in 2011. Its main objective is to encourage the expansion of access and improvement of primary care quality and create patterns comparable in national, regional and local levels. As part of the program, an external evaluation is performed by the Higher Education Institutions (HEIs), focusing on primary health care teams, oral health teams, and family health support teams. PMAQ is organized in cycles (2012, 2014 and 2017), where health teams set goals and have a period of time to achieve them. In this program, health teams that present good quality levels of care receive more financial incentives from the government.

Methods: Three main areas are externally evaluated: infrastructure conditions; teams work process and care organization; users satisfaction and perception of services. The present study used the information regarding the system organization to observe if there has been improvement on Primary Health Care over this period. Ten indexes were created and validated based on the information available: Professional Valorization, Planning, Matrix Support, Patient Reception, Health Attention, Prenatal Care, Child Attention, Health Promotion, Home visit/Social participation, School Health. Additionally, an overall quality index was also created based on the mentioned indexes.

Results: A total of 17,202 ESF teams were evaluated in 2012 and 29,778 in 2014. Significant changes were observed in all indexes (t-test, $p < 0.001$), where all, but Matrix Support index, presented improvement over the investigated years. The overall grade went from 64.23 to 71.40 (in a 0-100 scale). Evaluation programs as PMAQ have the capacity to induce positive changes. Financial incentives play an important role in evaluation programs results.

Conclusions: It can be concluded that improvements in Health teams occurred and that PMAQ may be aiding this progress.

***H. pylori* eradication and the risk of gastric cancer: a population-based cohort study**

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Introduction: *Helicobacter pylori* is a stomach bacterium associated with an increased risk for gastric cancer. We aimed to assess if the risk of gastric cancer remains increased after *H. pylori* eradication.

Methods: This was a population-based, nationwide cohort study in Sweden conducted between 1 July 2005 and 31 December 2012. Data on *H. pylori* eradication were retrieved from the Swedish Prescribed Drug Registry and eradication consisted of triple therapy with a proton pump inhibitor and 2 antibiotics (clarithromycin and amoxicillin or metronidazole). The cancer incidence in the cohort was compared to that of the corresponding background population using standardized incidence ratios (SIRs) with 95% confidence intervals (CIs).

Results: In total, 92,852 individuals (46.3% men) received eradication therapy during the study period. The total follow-up time after eradication was 331,694 person-years (mean 3.6 years). Of the eradicated participants, 76 (0.08%) developed gastric cancer, corresponding with an incidence of 22.9/100,000 person years. The SIR of gastric cancer after eradication was increased (SIR 1.46, 95% CI 1.15-1.83). The SIR for men was 1.30 (95% CI 0.94-1.77) and for women the SIR was 1.70 (95% CI 1.18-2.36). The SIRs were higher in the age groups <40 years (SIR 3.18, 95% CI 0.04-17.69), 40-49 years (SIR 3.78, 95% CI 1.38-8.22), 50-59 years (SIR 2.36, 95% CI 1.22-4.11), and not consistently increased in the age groups 60-69 years (SIR 0.97, 95% CI 0.50-1.69) and ≥70 years (SIR 1.38, 95% CI 1.00-1.84).

Conclusions: The overall risk for gastric cancer after eradication for *H. pylori* remained increased compared to the general population.

Comparative evaluation of preliminary screening methods for colorectal cancer in a mass program

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Fecal occult blood test (FOBT) has been widely used in preliminary screening for colorectal cancer (CRC). High-risk factor questionnaire (HRFQ) and quantitative risk-assessment method (QRAM) are recommended to estimate the risk of CRC qualitatively and quantitatively in China. Here, we compared the diagnostic values of CRC preliminary screening methods to provide a preferable one for screening strategy. Individuals aged 40-74 years old were enrolled in the mass CRC screening program from January 1, 2007 to December 31, 2014 in Jiashan County, Zhejiang Province. CRC preliminary screening with FOBT and questionnaire (HRFQ or QRAM) was conducted to identify high-risk population. Screening data were linked to CRC surveillance and registry system, and CRC cases reported in the system were regarded as true patients. After excluding those with missing data or followed up less than one year through the registry system, a total of 96 043 subjects were included to assess the performance of screening methods. The sensitivity and specificity for detecting CRC cases were 75.49% (95% CI: 69.84-80.39) and 90.36% (95% CI: 90.17-90.54) with FOBT respectively. QRAM was more sensitive ($P<0.001$) and less specific ($P<0.001$) than HRFQ. The sensitivity and specificity of FOBT along with HRFQ were 86.56% (95% CI: 81.81-90.22) and 81.37% (95% CI: 81.12-81.62), and those of FOBT along with QRAM were 88.93% (95% CI: 84.47-92.23) and 73.95% (95% CI: 73.67-74.23). Our findings suggest that CRC preliminary screening with FOBT and QRAM in parallel has high sensitivity and satisfactory specificity, and is a useful strategy in mass screening programs.

Vasectomy and long-term risk of prostate cancer

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Background: A mans reproductive behavior has been suggested to influence his risk of prostate cancer. Specifically low frequency of ejaculations and a history of vasectomy, has been associated with increased prostate cancer risk, although studies on the subject are conflicting.

Methods: We established a cohort of all Danish men (born from January 1, 1938) and linked information on vasectomy, parity and socio-economic factors from nation-wide registries by use of the unique personal identification numbers. The men were followed until development of prostate cancer, death or immigration. Incidence risk ratios for prostate cancer by age-at-vasectomy and time since vasectomy were estimated using linear Poisson regression.

Results: Overall, 26,431 cases of prostate cancer occurred among 2.1 million men during 53.3 million person-years of follow-up. We found that vasectomy was associated with an increasing risk of prostate cancer until 15 years after the procedure, from when vasectomy was associated with approximately a 20% increased risk of prostate cancer. The increased risk of prostate cancer after vasectomy was not modified by the age at the procedure. Adjustment for parity and socio-economic factors only marginally changed the association.

Conclusion: Vasectomy is associated with a small, but significant long-term increased risk of prostate cancer, even when adjusted for parity and socio-economic factors. This finding could indicate the presence of a semen-specific factor which is protective against development of prostate cancer.

Parental occupational exposures and testicular cancer in offspring: a registry-based case-control study in the Nordic countries (NORDTEST Study)

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Background: Parental exposures have been hypothesized to play an etiological role in testicular cancer. However, epidemiological data supporting this hypothesis remain scarce. In a registry-based case-control study in the Nordic countries (NORDTEST Study), we examined the associations between certain parental occupational exposures before childbirth and testicular germ cell tumour (TGCT) in offspring.

Methods: TGCT cases diagnosed at ages 14-49 years between 1978 and 2012 in Denmark, Finland, Norway, and Sweden were identified from the cancer registries. These cases were matched by country and year of birth to controls selected from the central population registry. Information on parental occupations before and closest to childbirth was retrieved from census in Finland, Norway, and Sweden. The Nordic job-exposure matrices, specifying prevalence (P) and level (L) of certain exposures, were used to convert the occupational information to exposure indices (P*L) of solvents, heavy metals, and welding fumes. The census data from the three countries have been analysed, and detailed occupational histories available from Danish Pension Fund registry are being analysed.

Results: The study comprised 8,112 cases and 26,264 controls (excluding Denmark). The primary analysis showed no association of TGCT risk with presence of parental exposure (P>0) to solvents, heavy metals, or welding fumes. A subset analysis examining exposures within one year before childbirth showed an increased TGCT risk associated with maternal toluene exposure (OR=1.67; 95% CI=1.02-2.73). However, when different levels of P*L were assessed, the increased risk was limited to a lower level of P*L. A secondary analysis showed an increased risk in paternal exposure category where both P and L of chromium were high (OR=1.37; 95% CI=1.05-1.79).

Conclusions: The study provided somewhat inconsistent findings of associations between TGCT risk and parental occupational exposures to solvents and heavy metals. The ongoing analysis of updated Danish data (3,647 cases and 18,235 controls) may provide clarifications.

Residential radon exposure and small cell lung cancer in Spain. First results from the SMALL CELL study

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Introduction: Small Cell Lung Cancer (SCLC) comprises approximately 15% of all lung cancers. It is closely related with tobacco consumption, though there is little information regarding the influence of residential radon. This is the first epidemiological study exclusively focused on SCLC and radon exposure. We aim to describe residential radon concentration in SCLC cases and if radon concentration is different by gender, disease extension or age at diagnosis.

Methods: We designed a multicentre, hospital-based, case-control study with the participation of 10 hospitals settled in 4 Spanish regions. We present here the results of the first cases recruited. Recruitment started in January 2016 and all cases consecutively diagnosed with SCLC are included. Cases had to be primary lung cancer cases (cases with previous cancers are excluded) and have to be older than 30.

Results: 88 cases had residential radon measured. 20.5% were females. Median age was 64. Median radon concentration was 128 Bq/m³ (pct 25-75: 81-234 Bq/m³). 43.5% of all cases were exposed to residential radon concentrations higher than 148 Bq/m³ (US action level). By gender, residential radon was higher in males compared to females (144 vs 86 Bq/m³; p = 0.186). By disease extension, cases with limited disease had a residential radon concentration of 109 Bq/m³ compared to 151 Bq/m³ for cases diagnosed with extended disease (p = 0.324). When SCLC was diagnosed at 63 or earlier, residential radon concentration was 117 Bq/m³, while it was 196 Bq/m³ for those diagnosed at 64 or older (p = 0.041).

Conclusions: Residential radon concentration in SCLC cases is high compared to the average concentration in Galician population. More than 40% of cases are exposed to concentrations exceeding the United States action level. There seems to be an induction period for radon because older cases had higher radon concentrations.

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Risks of iatrogenic injury during diagnostic workup for cervical cancer and precancerous lesions: a nationwide cohort study in Sweden

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Introduction: The intensive diagnostic and therapeutic procedures of cervical cancer may cause physical harms. We aimed to study the risk and its temporal pattern of bleeding, infection, and other iatrogenic conditions in relation to the diagnostic and therapeutic procedures of cervical cancer and its precancerous lesions.

Methods: Based on the Swedish Cervical Screening Register, we followed 3,016,307 Swedish-born women during 2001-2012. A diagnostic workup of cervical cancer was defined as the time period from a first Pap smear or punch biopsy (if no smear was taken) to the day before primary treatment (if treated) or two months after the last test. All hospital visits for iatrogenic injury of these women were identified from the Swedish Patient Register. We calculated the incidence rates (IRs) of iatrogenic injury by screening types, specific diagnoses, and procedures. Because iatrogenic injuries are expected after treatment, we used a 6-month period after treatment as a positive quality control.

Results: We identified 2,419 and 795 iatrogenic injuries respectively from 4,778,099 normal and 155,770 abnormal workups. The IRs of iatrogenic injuries increased from 0.45 (false positive result) to 2.75 (invasive cancer) per 100 person-years for a screening-based diagnostic workup and from 1.17 (CIN1) to 5.43 (invasive cancer) per 100 person-years for a symptomatic workup. Higher IRs were noted in symptomatic workup than screening workup with the same diagnosis. The IRs were higher during the post-treatment period for all diagnoses, followed by the period between biopsy and treatment. The same temporal patterns were seen for bleeding and infections, the most common types of iatrogenic injuries.

Conclusions: Although at lower extent compared to treatment, the diagnostic workup of cervical cancer and its precancerous lesions also lead to increased risk of iatrogenic injury. Our findings can be beneficial for potential prevention strategy against iatrogenic injury during evaluation process of cervical cancer.

HPV prevalence and type distribution among women with and without cervical cancer in Ghana

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Introduction: In many low and middle-income countries invasive cervical cancer is the most common cancer among women, as in Ghana. High-risk human papillomavirus (hrHPV) 16 and 18 accounts for 70% of cases in most regions. We conducted a case-control study to assess factors associated with cervical cancer in Ghana. As part of the study, we determined the HPV prevalence and type distribution among women with and without invasive cervical cancer.

Methods: Women with newly diagnosed histologically confirmed invasive cervical cancer were identified from two referral hospitals. A structured questionnaire was administered to the women after which a request for a cervical smear was made for the reporting of cytological abnormalities and laboratory detection of HPV deoxyribonucleic acid (DNA) genotypes.

Results: Overall, 206 cases and 230 controls were recruited. Specimens for HPV testing were available for 219 controls and 200 cases. However, due to funding restraints HPV DNA testing was only performed for 84 cases and 174 controls. The prevalence of any HPV was 80.9% among cases and 52.3% among control women. HPV types 45, 16 and 18 were the most common types among women with cervical cancer. The presence of hrHPV DNA was associated with an increase risk of cervical cancer (OR: 3.7; 95% CI: 1.7-8.2) compared with HPV DNA negative women. The risk of cervical cancer was forty-three times higher among women with HPV 16 or 18 compared with HPV DNA negative women (OR: 43.3; 95% CI: 10.5-179.8). The presence of multiple HPV types was also associated with an increased risk of cervical cancer compared with those with a single HPV type (OR: 3.3; 95% CI: 1.4-7.6).

Conclusions: The distribution of HPV types varies from those reported worldwide. These results will be important to inform policy decisions around the implementation of HPV DNA testing for screening and HPV vaccination.

Routine bowel cancer screening: The association of faecal occult blood test positivity with gastrointestinal and haematological conditions found before and after screening

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Objective: to examine associations, before and after routine bowel cancer screening, of faecal occult blood test (FOBT) positivity with 10 conditions that could cause gastrointestinal bleeding.

Background: The National Health Service Bowel Cancer Screening Programme (NHSBCSP) in England began offering routine population-based biennial FOB testing in 2006. Although aimed at detecting colorectal neoplasms, other conditions predisposing to gastrointestinal bleeding may affect the result.

Methods: The prospective Million Women Study recruited 1.3 million UK women in 1996-2001 and followed them by record-linkage for cause-specific hospital admissions. Linkage of NHSBCSP and Million Women Study records identified 604,495 women without prior colorectal cancer who had a first routine screening FOBT. Regression models yielded adjusted relative risks (RRs) in FOBT-positive versus FOBT-negative women for colorectal cancer, colorectal polyps, and eight other gastrointestinal or haematological conditions.

Results: In the first 12 months after screening, the RRs for colorectal cancer and colorectal polyps in FOBT-positive vs FOBT-negative were 201.3 (173.8-33.2) and 197.9 (180.6-216.8), respectively; 12-24 months after screening corresponding values were 2.95 (1.95-4.45) and 3.70 (2.88-4.75). A quarter (26%) of the FOBT-positive women had been admitted to hospital with one of the 8 other gastrointestinal or haematological conditions before screening and half (46%) first admitted with one of these conditions in the 12-months after screening. The most commonly diagnosed conditions in FOBT-positive women, both before and after screening, were peptic ulcer and oesophagitis. The largest RRs in FOBT-positive vs FOBT-negative women before screening and 12-24 months after screening were for inflammatory bowel diseases [6.1 (5.1-7.2) and 4.5 (2.7-7.4)], anaemia [4.2 (3.7-4.7) and 3.2 (2.6-4.1)] and haematological conditions associated with bleeding [2.7 (2.5-2.9) and 2.1 (1.7-2.5)].

Conclusion: Gastrointestinal and haematological conditions, other than colorectal cancer or polyps, are commonly associated with FOBT-positivity, both before and after routine bowel cancer screening.

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Solid cancer incidence among atomic bomb survivors in Hiroshima and Nagasaki: 1958-2009

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This is the third comprehensive analysis of solid cancer incidence among the Life Span Study (LSS) cohort of atomic-bomb survivors in Hiroshima and Nagasaki, adding eleven years of follow-up data through 2009. The eligible cohort included 105,444 subjects who were alive and had no known history of cancer at the start of follow-up, which included 80,205 subjects with individual dose estimates and 25,235 who were not in either city at the time of the bombings. 22,538 incident first primary solid cancer cases were observed, 5,918 cases (26%) occurred in the 11 years (1999-2009) since the previous report. As of the end of follow-up, 36% of the cohort was alive. Risks were adjusted for smoking based on survey data. Poisson regression methods were used to describe the nature of the radiation risks using both excess relative risk (ERR) and absolute risk (EAR) models. Modifications of risk estimates by sex, age at exposure, and attained age were explored. Results using a linear model were consistent with the previous report, with little impact due to the new doses or adjustment for smoking. However, unlike the previous report, a linear-quadratic fit the data better for men while a linear model fit the data better for women. Smoking adjustment had little or no impact on the shape of the dose response. As observed in previous reports, the ERR decreased with increasing age at exposure for both males and females; the ERR decreased significantly with increasing attained age but tended to do so more rapidly for males than females. Despite the long follow-up of this cohort, the recent results have produced some unresolved issues. As these issues are evolving and under investigation, we urge caution with the interpretation of the curvature findings and drawing conclusions from the present data.

Smoking and melanoma incidence and mortality rates in the UK Million Women Study

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Introduction: Smoking increases the incidence of many different types of cancer. Several investigators have reported, however, an inverse association of smoking with incident melanoma, but the association with melanoma mortality remains uncertain; we investigate these associations.

Methods: In 1996-2001, 1.3 million women, mean age 56 years, were recruited into the UK Million Women Study and completed a questionnaire about lifestyle, medical, and socio-demographic factors. Participants were followed for cancer incidence and mortality through national cancer and death registers. Cox regression yielded adjusted relative risks (RRs) for melanoma in smokers compared with never smokers.

Results: Among 1,241,893 women without prior cancer, during 15 years follow-up 6859 had a first malignant cutaneous melanoma registered. Current smokers had a lower incidence rate of melanoma than never smokers (RR=0.69, 95% CI 0.64-0.74; $p<0.0001$), which was dose-dependent (15 or more cigarettes/day: RR=0.62, 0.56-0.69; lower consumption: RR=0.74, 0.68-0.82; heterogeneity $p=0.01$). These effects were only slightly attenuated by adjustment for various measures of sun exposure and pigmentation, and did not vary significantly by anatomical site. There was also a small but significant reduction in incidence comparing past versus never smokers (RR=0.89, 0.85-0.95; $p=0.0001$). During 16 years mortality follow-up 838 died from melanoma, but there was no significant reduction in melanoma mortality rates with current or past smoking (RR=1.02, 0.84-1.23 and 0.92, 0.78-1.08, respectively). For, tumour thickness at diagnosis was greater in current than never smokers (Breslow thickness $>2\text{mm}$; 27% versus 21%), and survival was worse for thicker tumours. There was no significant difference in survival within categories of tumour thickness by smoking status.

Conclusions: Smoking is associated with a reduced melanoma incidence rate, but this is counterbalanced by the melanomas being thicker at diagnosis in current than in never smokers. So, in our population smoking has little overall association with the melanoma death rate.

The incidence and mortality rates of neuroblastoma cases before and after the cessation of the mass screening program in Japan

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Introduction: In 2003, Japan's Ministry of Health, Labour and Welfare halted the neuroblastoma (NB) mass screening program, running since 1985. This study aimed to examine whether NB incidence and mortality changed before and after the program halted.

Methods: This is a descriptive population-based study. We used data from the Monitoring of Cancer Incidence in Japan (MCIJ) project, Vital Statistics of Japan, and Japanese CANcer Survival Information for Society (J-CANSIS). Incidence rate, cumulative incidence rate, mortality rate, cumulative mortality rate, and relative 5-year survival for NB were calculated. Children were divided into two birth cohort groups, consisting of children born before, or after the cessation of the NB mass screening program. We compared the two cohorts, with regards to the cumulative incidence and mortality rates at 5 years old.

Results: The incidence rate was lower after the cessation of the NB mass screening program. There was no substantial change in the mortality rate, and no significant variation in the relative 5-year survival between groups. The cumulative incidence rate in the latter cohort was significantly lower than that in the former cohort (rate ratio: 0.39, 95% CI: 0.25-0.61, $p < 0.001$). No significant difference in the cumulative mortality rate between the two cohorts was observed (rate ratio: 0.99, 95% CI: 0.80-1.22, $p = 0.93$).

Conclusions: The NB incidence rate decreased markedly and the mortality rate did not substantially change after the cessation of the NB mass screening program. The NB mass screening program probably caused overdiagnosis, and its effectiveness was not clear. There is no reason to resume the NB mass screening program. Prior to the introduction of any cancer screening, its benefits and risks should be verified.

Combined mammography and ultrasonography screening for breast cancer: A population-based observational study using a cancer registry database

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Objective: The present study aimed to determine the impact of combining mammography (MMG) and ultrasonography (US) in a public breast cancer screening program among asymptomatic women.

Methods: Between April 2008 and March 2010, Tochigi Public Health Service Association conducted MMG with US to screen asymptomatic women in Tochigi Prefecture for breast cancer. Both MMG and US proceeded independently and images were read by qualified physicians and/or technicians. Results were defined as positive when positive by either or both modalities and were defined as negative when negative by both modalities. Screening records were linked to the population-based Tochigi Cancer Registry database. The observation period was defined as the interval before the next screen or up to two years. Sensitivity and specificity of the individual and combined modalities were compared across all ages, and between <50 and 50+ year age groups, respectively.

Results: A total of 90,465 women were screened using combined modalities. Of these, 4,231 (4.7%) were MMG-positive and 3,671 (4.1%) were US-positive, and 751 (0.83%) and 83,314 (92.1%) were positive and negative on both, respectively. The screen identified 298 new breast cancer cases during the observation period, among which 275 (92.3%) were positive on one or both modalities, 131 (44.0%) were positive on both, and 23 (7.7%) were negative on both. The combined modalities had higher sensitivity (92.3%) but lower specificity (92.4%) than either of the individual modalities. The MMG- and US-positive rates were higher in the older and younger groups, respectively.

Conclusion: This study suggests that combining MMG with US may help to identify more cases of breast cancer. Although this combined screening may be beneficial for detecting breast cancer particularly in young women, further longitudinal studies in terms of effects on reducing cancer mortality are needed.

Towards the 2017 Diet and Cancer Report

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Introduction: From 1997 World Cancer Research Fund (WCRF) International and the American Institute for Cancer Research (AICR) been at the forefront of synthesising and interpreting the accumulated scientific literature on the link between diet, nutrition, physical activity and cancer, and deriving evidence-based Cancer Prevention Recommendations. The 2007 WCRF/AICR 2nd Expert Report, using a robust method and systematic literature reviews, was a landmark in the analysis of evidence linking diet, body weight and physical activity to cancer and led to the establishment of the Continuous Update Project (CUP). In 2017, WCRF/AICR aim to publish a new synthesis of the current evidence and review the Cancer Prevention Recommendations.

Main Topic: More recent evidence since the 2007 Report has resulted in new findings, and substantive changes to the CUP Panel s conclusions, published in reports on bladder, stomach and oesophageal cancer. For instance, alcohol consumption as well as being overweight or obese are now judged probable causes of stomach cancer. New evidence and updated conclusions on breast and colorectal cancers will also be presented. This new evidence means that there have been shifts in emphasis on the perceived links between diet, nutrition and cancer, which will be discussed. Furthermore, evidence is accumulating that the degree of adherence to WCRF/ AICR recommendations is associated with lower mortality of cancer overall, of specific cancers and of all-cause mortality.

Conclusion: As evidence accrues, conclusions regarding the relation of diet, body weight, physical activity to cancer are broadly similar to before and mostly strengthened, though with some change in emphasis. This is supported by the consistent findings that adherence to a healthy dietary and physical activity pattern based on the WCRF/AICR Cancer Prevention Recommendations helps to prevent cancer, overall mortality and other non-communicable diseases.

Relationship between liver cancer marker and hepatitis B, C and D virus infections among population in Mongolia: A nationwide survey

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Introduction: Hepatocellular carcinoma (HCC) is the leading cancer in Mongolia and incidence and mortality rates are the highest in the world. However, large scale population-based survey on AFP and hepatitis viruses is needed in the country.

Objective: To determine the alpha-fetoprotein (AFP) level in regard to hepatitis B (HBV), C (HCV) and D virus (HDV) infections among general population aged over 40 years in Mongolia.

Materials and Methods: Study design was a nationwide population based survey with multistage random cluster sampling. Serum samples were tested for HBsAg, anti-HCV, anti-HDV and AFP at the laboratory of the Jichi Medical University of Japan.

Results: A total of 2313 people aged over 40 years participated in this nationwide survey, 55.7%, 14.2% and 30.1% of whom were from capital-Ulaanbaatar city, province centers and rural villages, respectively. National prevalence of HBV, HCV and HBV and HCV co-infection was 9.1%, 33.9% and was 2.6%, respectively. In other words almost half (49.7%) of the population aged over 40 years have single or co-infection of these viruses. Moreover, 6.9% of all subjects infected with HBV, HCV and HDV were positive for AFP that was significantly higher compared to subjects without infection (0.9%, $p < 0.001$). Among anti-HCV or HBsAg-positive subjects, 7.3% and 6.3% were positive for AFP, respectively, whereas 7.8% of both HBsAg and anti-HDV-positive subjects was positive for AFP. AFP-positivity rate was 5.7% among subjects positive for anti-HCV and HBsAg, and 7.2% among all anti-HCV, HBsAg and anti-HDV positive population.

Conclusion: Nationwide, almost half of the people aged over 40 years have infection with hepatitis B, C, and D viruses, out of whom 6.9% were positive for AFP. Compared to healthy subjects, prevalence of AFP was significantly higher among population with hepatitis viruses and was slightly different by type and co-infection status of hepatitis viruses.

Cancer incidence among diagnostic medical radiation workers in Korea

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Introduction: Medical radiation workers are important population to study of chronic low dose radiation exposure and the numbers are rapidly increasing worldwide. We have launched a retrospective cohort for medical radiation workers to investigate their health status and to assess the association with occupational radiation exposure.

Methods: We identified 94,168 medical radiation workers who are registered in Korean national dose registry between 1996 and 2011. A total of 77,909 persons were linked to the Korean cancer registry from 1990 after excluding cancers diagnosed before age 20. Person-years were computed from the date of first entry to the date of a cancer diagnosis, death or 31 December 2013. Standardized incidence ratios (SIRs) were calculated using Korean cancer incidence rates stratified by age, sex, and calendar year.

Results: A total of 40,760 men and 37,149 women contributed 1,001,180 person-years of observation, yielding a total 1,302 of primary incident cancer cases after excluded cases occurred before the time of first working. The SIRs for all cancers compared to the general population were similar in men (0.97, 95% CI 0.89-1.05) and significantly higher in women (1.11, 95% CI 1.03-1.19). For men, the SIRs were significantly increased on the cancer of thyroid and kidney whereas SIRs were significantly decreased on the cancer of stomach, liver, and lung. For women, the SIRs were significantly increased on the cancer of thyroid and breast whereas SIRs were non-significantly decreased on the cancer of stomach and colorectal.

Conclusions: In this first analysis of cancer incidence using data from national dose registry, a number of significant findings at specific cancer sites were observed. Further studies are needed to assess the possible role of screening and occupational radiation exposure to the observed cancer risks.

O24-3

Impact of cancer on subsequent disemployment risk among Japanese working-age men and women: real world evidence from a large-scale claims database in Japan

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The present study aimed to obtain a relevant index of the impact of cancer on the subsequent risk of disemployment in Japan. We conducted an analysis on the possible association between having cancer and total disemployment risk among working-age population, using the Japan Medical Data Center (JMDC) claims database with an employee-based health insurance members including 2million subjects (1.5 million men and 5 million women) and 10 years of data accumulation. We measured disemployment risk from withdrawal data of insured union workers. From 2005-2016, about 50,000 cases of cancer (38,000 men and 12,000 women) were diagnosed. Among them, 3,453 members (7%) were withdrawn from the database because of death and 15,655 (31%) for the other reason. Withdrawal rates by age group had clear differences between members with and without cancer. The rates of 20-29, 30-39, 40-49, 50-59, and 60-69 years were 0.8%, 1.9%, 3.7%, 7.4%, 21.0%, respectively, for members with cancer, while those were 9.2%, 7.9%, 5.1%, 3.2%, 6.0%, respectively, without cancer. The JMDC claims database is a large, well-organized commercial database sourced from the Japanese union-managed health insurance systems with large-sized companies as main groups. Reasons of withdrawal from membership include retirement, career change, resignation and death. Our results suggested that disemployment risk of cancer patients is different from that of members without cancer. This is the first study to use withdrawal data of the JMDC database as outcome of the study. Although survival data are not available in the claims database and that age of members are limited up to 55-75 years, withdrawal rate could be another index of health condition and quality of life in cancer survivors. Further study is needed to interpret the relationship.

Quality of Life and patient-reported early adverse effects in prostate cancer patients treated with radiotherapy in the multi-centre observational REQUITE study

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Introduction: Treatment adverse effects (AEs) can negatively impact the quality of life (QoL) of cancer patients. We assessed the relationship between patient-reported early AEs and health related worsening of QoL in prostate cancer patients who underwent radiotherapy (RT).

Methods: Prostate cancer patients undergoing RT (N=1,812) were recruited in eight countries between 04/2014-09/2016 for a multi-centre prospective cohort study (www.requite.eu). In this preliminary analysis, treatment data as well as QoL and toxicity data prior to and at the end of RT were available for 873 patients (32% with prostatectomy; no brachytherapy). Global Health Status (GHS)/QoL was assessed using EORTC/QLQ-C30. Early AEs (gastrointestinal/GI, genitourinary/GU) were scored using a patient-reported pelvic symptom questionnaire based on LENT/CTCAE. Logistic regression was used to investigate associations between common early AEs and a worsening of QoL (= drop of 10 points) at the end of RT, and adjusted for age, prostatectomy, hormonal therapy, smoking, normalized RT dose.

Results: Preliminary analyses showed that 53% of the patients reported early GI and 73% GU toxicities, 31% experienced a worsening of QoL during RT. The most commonly reported symptoms were rectal urgency/GI (33%) and urinary urgency/GU (52%). Both GI and GU toxicities were significantly associated with a worsening of QoL overall (ORs 1.5 and 1.7, respectively) and particularly in patients without prostatectomy (ORs 1.7 and 2.2, respectively). GI and GU toxicities were not significant in patients with prostatectomy. Symptoms with the strongest impact on QoL worsening were tenesmus/GI (OR; 95% CI: 2.3; 1.4-3.7) and dysuria/GU (OR; 95% CI: 2.0, 1.3-3.0).

Conclusions: The recognition of early AEs (e.g. tenesmus, dysuria) that have the greatest impact on the worsening of QoL may provide information for adjustment of treatment and management of symptoms. Updated results based on a larger patient cohort will be presented.

O24-5

A prediction model for the absolute risk of death from cancer and other causes

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There are numerous modifiable risk factors for premature death, with tobacco smoking, overweight and obesity, high alcohol consumption, poor diet, and physical inactivity being among the most important. The importance of these factors is widely known in the general public, but the joint magnitude of their influence on the absolute risk of death is less well appreciated. Using data from 330,000 participants with complete data and follow-up information from the European Prospective Investigation into Cancer and Nutrition study, we built a model to calculate the absolute risk of death as a function of these modifiable factors. Absolute risk of death was estimated using flexible parametric survival models including sex, smoking status, BMI, a composite indicator of quality of diet, alcohol intake, and physical activity. A model including all covariates could discriminate well between those individuals at high and low risk of death within 5 years (c-statistic 0.77; 95% confidence interval [0.76, 0.77]). This represented a modest improvement over a model including only age and sex (c-statistic 0.75; 95% confidence interval [0.74, 0.76]). We will present risk profiles according to various patterns of risk factors, and show how these factors influence the absolute risk of death from cancer and other causes for individuals of various ages. Whilst age and sex alone can discriminate well between those at high and low risk of death, the absolute risk of death varies strongly with several modifiable risk factors, most notably tobacco smoking. This model could be used as an aid to public health communication, or to motivate the maintenance of healthy habits.

Blood lipids, lipoproteins and the risk for breast cancer in chinese females: a population-based prospective cohort study

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Introduction: Several mechanistic studies support the role of blood lipids and its metabolites in breast cancer etiology, but associations have been inconsistent in epidemiological studies. We investigated prospective associations between pre-diagnostic blood lipid concentrations (total cholesterol (TC), triglycerides (TG), low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C)), and breast cancer risk and in the Chinese Kailuan cohort study.

Methods: 27,541 females in Kailuan Group were recruited in the present study, and underwent a standardized biennial medical examination since May 2006. Information on demographics, socioeconomic, anthropometrics, lifestyle, as well as blood lipids were collected at baseline. Cox proportional hazards regression models were used to estimate the hazard ratio (HR) of blood lipids and the breast cancer incidence and to adjust for potential confounding variables.

Results: By 31 December 2014, there were 194,526 person-years of follow-up, taking 7.77 years of median follow-up period, and 206 breast cancer cases occurred. Overall, there was no association between TC, TG, and LDL-C and breast cancer risk. Notably, compared with females with normal HDL-C ($1.04 \leq \text{HDL-C} < 1.55\text{mmol/L}$), females having higher HDL-C ($\geq 1.55\text{mmol/L}$) had a 36% (95% confidence interval (CI): 0.44-0.93) lower risk of incident breast cancer. In addition, the levels of HDL-C tended to show a positive dose-response association ($P=0.021$) with breast cancer risk. In stratified analysis, a significant reduction of breast cancer risk was observed among postmenopausal women (HR=0.63, 95% CI: 0.40-0.98) but not among premenopausal women. When considering major confounders (i.e. breast cancer cases within the first two years) to conduct the sensitivity analyses, the pertinent results cannot alter the main findings (HR=0.61, 95%CI: 0.41-0.91).

Conclusions: These results demonstrate that levels of HDL-C but not TC, TG and LDL-C are inversely associated with breast cancer risk. HDL-C may protect against breast carcinogenesis among postmenopausal women.

Effects of menopausal hormone therapy and the risks of screen detected and interval breast cancers in a large UK prospective study

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Introduction: The use of hormone therapy for the menopause (HT) has been shown to affect the sensitivity and specificity of mammographic screening. However there is little evidence on how the association between HT use and risk of screen detected breast cancer compares with that of interval breast cancer. We examined these associations in a large UK prospective study.

Methods: We used Cox proportional hazard models to estimate the relative risk (RR) of screen detected and of interval cancer in relation to HT use among post-menopausal women who attended for routine mammographic screening. Analyses were stratified by year of birth and year of recruitment and adjusted for relevant confounders including socio-economic status, reproductive history, anthropometric and other lifestyle factors.

Results: Of the 1,156,122 women included in the analysis, 18,882 were diagnosed with a screen-detected cancer and 11,932 with an interval breast cancer. When compared to non-users of HT, current-or-recent users were at a much higher risk of an interval cancer (RR=2.05, 95%CI 1.96-2.14) than of a screen detected cancer (RR=1.38, 1.33-1.43). For oestrogen only HT, the corresponding RRs and 95% CI for interval and screen-detected cancers were 1.57(1.48-1.68) and 1.07(1.02-1.13); and for oestrogen and progestogen HT, the corresponding values were 2.57(2.44-2.71) and 1.75(1.67-1.83).

Conclusions: In this large UK prospective study, current-or-recent users of HT were at a substantially higher risk of being diagnosed with an interval cancer than with a screen detected cancer. The difference in risk between screen-detected and interval cancer was apparent for HT preparations containing oestrogen only and combinations of oestrogen and progestogen.

025-3

Childhood body size and risk of breast cancer after menopause by oestrogen receptor status

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Introduction: Women with a relatively high body mass index (BMI) are known to have a greater risk of breast cancer after the menopause, primarily due to an increased risk of oestrogen receptor (ER) -positive breast cancer. By contrast, findings from some studies suggest that women with a larger body size in relation to their peers during childhood may have a lower risk of postmenopausal breast cancer with little evidence as to whether or not this association is ER-dependent.

Methods: We examined the relationship between childhood body size and risk of postmenopausal breast cancer risk in a cohort of 355,264 UK women who reported their relative body size compared to peers at age 10 years (thin, average, plump). Associations with breast cancer risk were assessed using relative risk estimates (RR) based on Cox regression models with adjustment for age and relevant confounders.

Results: During 11.8 years of follow-up, 13528 postmenopausal women were diagnosed with breast cancer. After adjustment for 11 potential confounding factors including current BMI, having a relatively large body size at age 10 years was associated with a lower risk of breast cancer. Analyses of cases with known ER status found no difference in the association for ER positive disease (0.58 per 5kg/m² increase in BMI, 95%CI 0.52-0.65) and ER negative disease (0.58, 0.43-0.77).

Conclusions: In this large cohort of postmenopausal UK women, those who reported having a relatively large body size at age 10 years had a lower risk of breast cancer. This reduction in risk did not appear to be ER-dependent.

Boiled bean intake and colorectal cancer incidence among Japanese: The JACC Study

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Introduction: Although several potential mechanisms for dietary soy and isoflavone intake to reduce the risk of colorectal cancer were addressed, results of the previous cohort studies have been inconsistent. We investigated the association between boiled bean intake and incident colorectal cancer.

Methods: We included 40,392 participants of the Japan Collaborative Cohort (JACC) Study, aged 40-79, who were initially free of cardiovascular disease or cancer at baseline (1987-91), and provided information on their bean intake. During the mean follow-up of 13.1 years, 754 colorectal cancer cases (499 colon and 255 rectal cancers) were identified. Boiled bean, tofu and miso soup intake was measured through a validated food frequency questionnaire, whereby isoflavone intake was estimated. The hazard ratios and 95% confidence intervals (95% CIs) were estimated by fitting a Cox proportional hazards model according to the frequency of boiled bean, tofu and miso-soup intake.

Results: Neither tofu or miso-soup intake showed any associations with the risk of colorectal cancer. Persons with intake of 7 servings of boiled beans per week were, however, associated with the reduced risk of colon cancer compared to those with no intake of boiled beans. After adjustment for age, sex, area, body mass index, smoking status, walking time, adjusted energy intake, frequency of meat, fish products, vegetable, fruit and dairy product intakes, hazard ratio in those who daily consumed boiled beans was 0.54 (95% CI, 0.31-0.91) compared with those with no intake of boiled beans. The further adjustment for the amount of fiber and isoflavone intake, although slightly attenuated, did not change the association [HR =0.59 (95% CI, 0.33-1.02)]. No association between boiled bean intake and the risk of rectal cancer was observed.

Conclusion: Daily boiled bean intake may contribute to the reduced risk of colon cancer.

O26-1

**The long - term influence for cancer prevention by green tea consumption:
The Jichi Medical School Cohort Study**

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Introduction: A few population based cohort studies have followed up patients for more than 15 years. We examined the association between green tea consumption and mortality due to all causes, including cancer, using long-term follow-up data.

Methods: This study was a multicenter population based prospective cohort study conducted in 12 districts of Japan. Baseline data had been collected between 1992 and 1995. We analyzed 10,884 participants aged 18-93 years, excluding those who had a history of any cancer, stroke or myocardial infarction. Green tea consumption was measured by self-report questionnaires. The date and cause of death until 2013 was confirmed by referring to death certificates. Hazard ratios (HRs) with 95% confidence interval (CI) and P-values for trend were analyzed using Cox proportional hazards model. We adjusted for factors as age, sex, body mass index, smoking status, drinking status, diabetes, hypertension, and hyperlipidemia.

Results: While all participants had been followed completely for 18.4 years, 2,216 participants died, of which 774 died from cancer. The multivariate HRs for all-cause mortality associated with different frequencies of green tea consumption were 1.00 (reference) for less than 1 cup/day, 0.90 (95%CI, 0.74-1.09) for 1-2 cups/day, 0.93 (95%CI, 0.79-1.10) for 3-4 cups/day, and 0.87 (95%CI, 0.74-1.02) for more than 5 cups/day (P=0.11 for trend). The HRs for mortality of cancer were 0.78 (95%CI, 0.57-1.05) for 1-2 cups/day, 0.81 (95%CI, 0.62-1.04) for 3-4 cups/day, and 0.75 (95%CI, 0.58-0.97) for more than 5 cups/day (P=0.075 for trend).

Conclusion: Consumption of more than 5 cups of green tea /day was negatively associated with the mortality of cancer.

The association between *helicobacter pylori* infection and risk of pancreatic cancer in Taiwan

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Introduction: Pancreatic cancer (PC) is the 12th most common cancer in the world. Each year, there are 340,000 new cases of PC diagnosed worldwide. In Taiwan, the incidence of PC has been increasing from 4.5 per 100,000 in 2000 to 5.9 per 100,000 in 2013. Current literature shows that smoking, drinking, diabetes, pancreatitis and family history of PC are associated with an increased PC risk. However, most PC cases have unknown causes. The current study investigated the potential role of *helicobacter pylori* (*H. pylori*) infection in the risk of PC.

Methods: The current study analyzed data from an interview survey of 166 PC patients and 391 controls to determine whether infection with *H. pylori* might be associated with pancreatic cancer in Taiwan.

Results: The average age of PC patients was over 60 years. Sixty-five percent were men. Among the 166 subjects (54 cases + 112 controls) ever tested for *H. pylori* infection, 52% tested positive for *H. pylori* infection. Our results showed that concurrent use of alcohol, betel quid, and cigarette was associated with an increased risk of PC (Odds ratio (OR) = 2.2, 95% confidence interval (CI): 0.90-5.43). In contrast, we did not observe an association between *H. pylori* infection and PC (no *H. pylori* testing vs. *H. pylori* negative: OR = 0.60, 95% CI: 0.34-1.01; *H. pylori* positive vs. *H. pylori* negative: OR = 0.77, 95% CI: 0.38-1.56).

Conclusions: Our results did not support an association between *H. pylori* infection and an increased risk of pancreatic cancer.

SURVIVAL AND BURDEN OF BREAST CANCER IN FLORIANOPOLIS/SC, SOUTHERN BRAZIL

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Introduction: Worldwide, about 1.8 million women are diagnosed with breast cancer and about 464.000 deaths are disease-related annually. Moreover, breast cancer causes a loss of 13.1 million years of life adjusted for disability (DALYs). In Brazil, it is top ten specific causes of burden.

Objective: To assess breast survival rates cancer and burden in Florianopolis, Southern Brazil, in 2009.

Methods: It was created a historical cohort to estimate survival by Kaplan-Meier method using Brazilian Data Mortality Information System and Population-Based Cancer Registries of Florianopolis. Breast cancer burden was estimated, using deaths registered in the Mortality Information System to estimate years of life lost (YLL) and cases of Population Based Cancer Registry to estimate Years lived with Disability (YLD). The sum of these data values generated DALY that represents years of life lost adjusted for disability. Life expectancy was 86 years for YLL calculation. For YLD calculation, the weight used for cases considered terminal, that died within 60 days after diagnosis was 0.93, and for the other cases was 0.54; and the duration was estimated median by survival calculation. The rates were adjusted by world standard population.

Results: There were 38 deaths and 171 cases of breast cancer diagnosis. 5-years probability survival was 77.8%, median estimated time was 11.38 years. Regarding disease burden, 1,590.0 DALYs were estimated, and rate was 359.0 DALY per 100.000 inhabitants. YLD accounted for 62.6% of DALYs, with 995.0 years lived with disability, and the rate per 100.000 inhabitants was 221.4 YLD.

Conclusion: The data show that the rate found is higher than the world, what reinforce the importance of public policies for reducing estimated disease burden in Florianopolis population. Epidemiological analyses of disease burden and survival helps reducing non-communicable diseases risk factors, allowing health promotion actions development to ensure better quality of life for population.

Follow-up survey on the adverse events following the human papillomavirus (HPV) vaccinations in Japan: the first review

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Although the national immunization program for HPV vaccine started in April, 2013 in Japan, the Japanese MHLW made a decision shortly to suspend temporarily its proactive recommendation in Jun, 2013, because of growing concern about the vaccine's safety. Affected girls complained of various symptoms and some of them are still suffered from long-lasting adverse events (AEs). Thus, we have conducted a follow-up survey since December, 2015.

Methods: Affected girls who had been still treated at cooperating medical institutions were asked to participate in this survey. As approved by on-site institutional research board, all participants agreed with our study and provided written informed consents. A monthly survey was carried out, using the self-administered questionnaires, regarding the various symptoms including the subjective score related to the painful conditions and psychometric responses.

Results: From May, 2016 to the end of January, 2017, 51 cases were included in our analysis, and eventually the reports reached 219 times. For baseline characteristics, age (mean \pm sd.): (18.3 \pm 3.6) yrs, vaccinated product: Cervarix® 84%, Gardasil® 16%, time period from the first immunization (mean \pm sd.): (56.9 \pm 7.0) months, frequently reported AEs existed in the last one month (number of positive cases, rate(%)): headache (40, 78), fatigue (40, 78), dizziness (37, 73), the hardest one of above-mentioned AEs (n, %) : headache (13, 27), other pain (8, 16), average subjective (1<least> - 10<worst>) score for each patient's condition at baseline (mean \pm sd.): (5.5 \pm 2.5). As a result of analysis using the 2nd and following questionnaires, maximum follow-up period was 8 months and the changes for subjective score from the baseline were minimum, indicating that their conditions were almost stable.

Conclusion: We have conducted a follow-up survey on AEs following the HPV vaccinations since December, 2015 and report the first review of analysis.

(*This study differs from the AEFI national surveillance by the MHLW.)

The death of a sibling in childhood and subsequent mortality: a nationwide cohort study in Denmark and Sweden

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Background: The death of a spouse or a child is associated with an increased mortality risk among the bereaved, but much less is known about potential effects of death of sibling in childhood on mortality among bereaved siblings. We examined the association between sibling death in childhood and subsequent mortality risk using data from Denmark and Sweden.

Method: We conducted a population-based cohort study including live births who had siblings in Denmark (1973-2004, N=2,060,354) and Sweden (1973-2006, N=2,944,675). Participants were classified as exposed if they had lost a sibling before the age of 18. The outcomes were all-cause mortality and cause-specific mortality. Log-linear Poisson regression was used to estimate mortality rate ratio (MRR) with the exposure as a time-varying variable.

Results: Individuals who experienced sibling loss in childhood had a 76% increased all-cause mortality risk (MRR: 1.76, 95% confidence interval: 1.62-1.92). The increased mortality risk was seen across the follow-up period, regardless of the age at bereavement and the type of death among bereaved siblings, but the magnitude of association was stronger during the first year after sibling death. The excess mortality risk was observed for specific cause groups, and the higher MRRs were found when the sibling pairs died from the same cause groups, among same-sex siblings, or a smaller age difference in siblings.

Conclusion: Exposure to death of a sibling in childhood was associated with an increased mortality risks among bereaved siblings with follow-up for up to 37 years. Health professionals should be aware of children's vulnerability due to sibling loss, and social support may help to minimise the potential adverse effect on the bereaved sibling's development and life.

Origins of the disparities in infant mortality between England and Sweden: a national electronic birth cohort study

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Background: Infant mortality is almost twice as high in England as in Sweden. We determined whether differences in infant mortality between England and Sweden can be explained by risk factors operating before or after birth using standardised electronic birth cohorts derived from linked administrative datasets in the two countries.

Methods: We linked live-born, singleton babies to hospital admission and mortality records during infancy in Sweden for births in 1998-2012 and in England for births in 2003-2012. We estimated hazard ratios (HR) for England vs Sweden using Cox Proportional Hazard models for neonatal (2-27 days) and post-neonatal (28-364 days) mortality, omitting deaths at age 0-1 days to minimise bias from inter-country differences in registration practices. We calculated unadjusted HRs, HRs adjusted for risk factors at birth (gestation, birthweight, gender, congenital anomalies), and HRs further adjusted for socio-economic factors (maternal age and socio-economic status).

Results: The study cohorts comprised 4,103,902 births in England and 1,443,558 in Sweden. There were 4,521 neonatal and 5,226 post-neonatal deaths in England, and 1,106 and 1,228 deaths respectively in Sweden. The unadjusted HR for England vs Sweden in the neonatal period was 1.50 (95% Confidence Interval: 1.40-1.61). HR decreased to 1.02 (0.95-1.10) after adjusting for risk factors at birth and to 0.99 (0.92-1.06) after further adjustment for socio-economic factors. In post-neonatal period the HRs were 1.50 (1.41-1.59), 1.10 (1.04-1.18) and 1.01 (0.94-1.07), respectively.

Conclusions: Disparities in neonatal and post-neonatal mortality were primarily driven by a higher prevalence of risk factors at birth in England relative to Sweden. In the post-neonatal period, socio-economic factors also contributed to the differences. Policies to reduce infant mortality in England should focus on maternal interventions before and during pregnancy to reduce prematurity, low birthweight, and prevalence of congenital anomalies. Policies to reduce post-neonatal mortality should also address socioeconomic disparities in infant health.

Early life exposure to General Anaesthesia due to dental reasons affects children`s development: findings from a South Australian data-linkage study

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Background: In Australia, between 2011 and 2012, the total number of hospital separations requiring a general anesthetic (GA) reached 97,398 for children under 5 years of age, with 7,890 (8.1%) of them due to potentially avoidable dental reasons (GAPADR). Despite the well-known benefits of GA there are some concerns that its episodes early in life may cause neurological degeneration, which in turn may result in long term development vulnerability.

Objectives: To examine whether GAPADR up to 5 years of age is associated with children`s developmental vulnerability and poor academic achievement.

Methods: We investigated the effect of GAPADR on the five domains of the Australian Early Development Census (AEDC): Physical Health and Wellbeing, Social Competence, Emotional Maturity, Language and Cognitive Skills, and Communication Skills and General Knowledge assessed at 5 years of age (n=38,578); and on the five domains of the National Assessment Program for Literacy and Numeracy (NAPLAN) undertaken in Year 3 (8 years-old): Writing, Grammar, Reading, Spelling, and Numeracy (n=93,324). We used the South Australian Early Childhood Data Project which contains routinely collected linked data from children born between 2001 and 2007. It includes AEDC, NAPLAN, perinatal data (sex, mother`s age and marital status, aboriginality, residential area level socioeconomic indicator, parental occupation and Apgar score) and hospitalizations records (GAPADR). Multivariable Poisson regression models with robust variance were used.

Results: Out of 64,887 GA among children under 5 years, 3,816 (5.9%) experienced GAPADR. After adjustment for potential confounding, exposure to GAPADR was associated with a higher risk of developmental vulnerability, with adjusted Risk Ratio-aRR varying from 1.06 (95% CI 0.80-1.32) to 1.31 (1.02-1.70) across AEDC domains and from aRR 1.26 (1.17-1.36) to 1.32 (1.20-1.45) across NAPLAN domains

Conclusions: Children exposed to GAPADR early in life had higher developmental vulnerability and poorer academic achievement.

O27-4

Effective contraception, counseling, and related factors among women seeking post abortion care in healthcare facilities in Kenya

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Background: Globally, about 22 million unsafe abortions occur annually, 21 million of them in developing countries. Often, women experiencing abortion resume sexual activity soon after resumption of ovulation. This paper seeks to investigate post-abortion contraception for women seeking post-abortion care in healthcare facilities in Kenya.

Methods: This study uses data from 350 facilities in Incidence and Magnitude of unsafe abortion study conducted in 2012. The outcome variable is whether client was counseled for FP and given an effective method.

Results: Overall, only 9% of patients treated for PAC received an effective method, 46% ineffective method and 45% no method. Women with low decision-making capacity were less like to receive effective method. Unemployed women for example had 23 % lower odds of receiving an effective method of family planning. Receiving an effective FP method depended on; previous use, fertility intention, facility ownership, facility having an evacuation room, and number of methods the facility stocked.

Discussions and Conclusions: There is need for quality improvement targeting facilities, service providers and PAC patients that aims at reducing the psychological and sociological provider-recipient gap in order to improve access to effective family planning methods and services among women seeking PAC in Kenya healthcare facilities.

Study design: the evaluation of interindividual differences in neonatal epigenome - the BC-GENIST project

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Introduction: Common diseases are caused by a combination of hereditary components and environmental factors. Not only disease-associated GWAS SNPs, but also gene x environment interaction and epigenetic mechanisms are potentially important hereditary components. Here, it remains elusive how gene and environment produce interindividual variation in DNA methylation, particularly at birth. The one of the prime objects of Birth Cohort - Gene and ENvironment Interaction Study of TMDU (**BC-GENIST**) is to identify the interindividual epigenetic differences originated from prenatal conditions possibly threatening mother and child health.

Methods: The BC-GENIST is a prospective cohort study. We aim to recruit a cohort of > 200 pregnant women at < 24 weeks gestation. Maternal diet, mental well-being, lifestyle, infant growth as well as medical records are investigated. The neonatal dried blood spots and other biospecimen are used for epigenetic analyses. The subjects (n = 27, single and term labors) were classified according to the estimated fetal weight curves. The classification patterns were determined by latent trajectory analyses using a reference prenatal check-up data (n = 259). The effects of the specified SNPs on target DNA methylation were estimated for standardization using archived post mass-screening dried blood spots (n = 106).

Results: We identified four distinct trajectory patterns (very slow, 20.0%; slow, 23.3%; standard, 30.0%; fast, 26.7%) in the fetal growth rate. The pilot experiment confirmed the previously described association between cis-SNPs and the birthweight-related DNA methylation. We newly found that the neonatal methylation was associated with fetal growth rate and gestational age after adjusting for cis-SNPs.

Conclusions: The combined methylation analyses of the cohort samples and the reference dried spots were effective to dissect the genetic and environmental components producing variation in DNA methylation. We will further explore the prenatal conditions influencing the neonatal epigenome and the associated fetal growth rate.

An application of Cox frailty model in identifying determinants of neonatal mortality in Empowered Action Group states in India

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Introduction: In India, there has been a decline in neonatal mortality, with some states still showing very high mortality rates. It is argued that there is family clustering in mortality among neonates. We explored the effects of programmable determinants on neonatal mortality by accounting for family level clustering and adjusting for background variables using Cox frailty model in rural Empowered Action Group (EAG) states in India and compared the results with the standard models.

Methods: Analysis included 13785 live births that occurred five years preceding the National Family Health Survey-3 (2005-06). The Cox frailty model and other traditional Cox models were used.

Results: The Cox frailty model showed that place of delivery, composite variable of birth order and birth interval, size of the baby at birth, survival status of previous child and breastfeeding were significant determinants of neonatal mortality after adjusting for the familial frailty effect. The hazard ratio was 0.60 (95% CI=0.38-0.95) for non-institutional delivery, 1.52 (95%CI=1.21-1.92) for small-sized than average-sized babies at birth and 1.14 (95% CI=0.91-1.43) for non-breastfed babies than breastfed babies. The familial effect was 2.37 in rural EAG states. The hazard ratios for the determinants in all three models were similar even for the death of a previous child. The Cox frailty model had the highest R² and lowest log-likelihood.

Conclusions: While planning for the child survival program in rural EAG states, parental competence which explains the observed familial effect needs to be considered along with significant programmable determinants. The frailty models that provide statistically valid estimates of the covariate effects are recommended when observations are correlated.

Prevalence and associated factors of obstetric violence in a southern Brazil birth cohort

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Introduction: Obstetric violence could be perpetrated against women by health professionals during pregnancy or delivery, having negative consequences on the health of mothers and babies. Several qualitative studies studied obstetric violence in recent years; however, quantitative data are scarce and the magnitude of the problem in Brazil and in the world is still little known. This study aims to describe occurrence of obstetric violence and associated factors in a Brazilian birth cohort.

Methods: a cross sectional analysis of data obtained from face to face interviews with women who gave birth to members of the Pelotas 2015 Birth Cohort. This is a population based cohort composed of all live births in Pelotas, a city located in extreme south Brazil. Information on sociodemographic factors and birth was obtained during hospitalization for childbirth. Information on the occurrence of obstetric violence during childbirth was obtained at home, at the three month age follow up of the infants. An obstetric violence score was constructed based on the answers obtained from the women on the subject.

Results: Of the 4280 mothers interviewed, 18.3% suffered at least one form of obstetric violence. Women aged 19 years or less (PR 1.77, 95% CI 1.06 to 2.96), those who belonged to the second income quintile (PR 1.71, 95% CI 1.31 to 2.23), those whose hospitalization was funded by the Public Health System (PR 1.71, CI 95% 1.40 to 2.09) and who had a cesarean section after labor (1.45, 95% CI 1.21 to 1.73) where more likely to suffer such violence.

Conclusions: the occurrence of obstetric violence was frequent. This quantitative study allows the identification of the magnitude of the problem in the studied population and vulnerable groups, therefore contributing to the discussion and dissemination of an emerging problem with potentially serious consequences for the health of mothers and babies.

Associations between sex hormones and asthma among Japanese young children

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Introduction: We investigated whether sex hormone levels were associated with history of asthma among Japanese young children.

Methods: Subjects were 533 preschool children aged 3-6 years old who attended 1 of 2 preschools in Aichi Prefecture, Japan. The parents of 459 (86.1%) children agreed to enroll in the study conducted in autumn 2006. A parent-administered questionnaire asking about their children's health status, behavior, and lifestyles was distributed. Children were asked to provide their first-void morning urines for the measurement of sex steroids. Using the American Thoracic Society Division of Lung Diseases (ATS-DLD) questionnaire for children, the history of asthma was defined as the presence of the following conditions: (1) at least 2 or more attacks of wheezing that had caused him or her to be short of breath, (2) a doctor diagnosed asthma, and (3) the difficulty in breathing accompanied by wheezing or whistling at that time. Urinary estrone, estradiol and testosterone were measured with liquid chromatography-electrospray ionization tandem mass spectrometry. Dehydroepiandrosterone was measured by radioimmunoassay. Analyses were performed among 230 boys and 198 girls for each sex. The following potential confounders were considered: sex, age, body mass index, siblings, birthweight, feeding until 3 months old, age of mother at delivery, mother's education, maternal and paternal history of asthma, and passive smoking at home.

Results: Urinary estrone levels were lower among boys who had history of asthma than those who did not. In girls, there were not a significant association between urinary estrone and asthma. Urinary estradiol, testosterone, and dehydroepiandrosterone were unrelated to history of asthma.

Conclusions: Lower estrone levels were associated with a higher risk of asthma in boys. Acknowledgements: We thank Drs. Ando K, Watanabe K, Otsuchi, S, and Yamamoto K.

In utero Exposure to beta-2-adrenergic Receptor Agonist and Attention-Deficit/Hyperactivity Disorder in Children: a population-based study in Denmark

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Introduction: Beta-2-adrenergic receptor agonists (B2AA) drugs can cross human placenta, and maternal use of B2AA during pregnancy has been associated with an increased risk of autism spectrum disorder in offspring. In the study, we aimed to examine the association between in utero exposure to B2AA and risk of Attention-Deficit/Hyperactivity Disorder (ADHD).

Methods: We established a cohort of 672,265 children born from 1998 to 2008 in Denmark. Children were categorized as exposed if their mothers had redeemed a prescription of B2AA in pregnancy (from 30 days prior to conception until delivery). We identified children diagnosed with ADHD in the Danish National Hospital Register for the first time after his/her third birthday. Log-linear Poisson regression was used to estimate adjusted incidence rate ratio (aIRR) of ADHD.

Results: In total, 25,434 children were born to mothers who had redeemed a B2AA prescription in pregnancy. The exposed children had a 1.31-fold increased risk (aIRR=1.30, 95% confidence interval (CI):1.20-1.42) of ADHD compared to unexposed children after adjusting for potential confounders. However, when extending the exposure window to two years prior to conception, exposure to maternal use of B2AA only before pregnancy, only during pregnancy, and both before and during pregnancy was associated with elevated risks of ADHD in children, with aIRRs of 1.31 (95%CI: 1.22-1.40), 1.38 (95%CI: 1.22-1.57), and 1.30 (95%CI: 1.16-1.45), respectively. In mothers with a history of asthma, no association was observed between maternal use of B2AA during pregnancy and ADHD in offspring(aIRR=0.92, 95% CI 0.74-1.15).

Conclusion: In utero exposure to B2AA was associated with an increased risk of ADHD in children. However, it is more likely that confounding by indication, the underlying disorders or associated pathological conditions, may explain the association.

Prevalence of angiotensin-converting enzyme inhibitors (ACEI) exposure during pregnancy and the clinical indications: A Population-Based Cohort Study in NSW (2005-2012)

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Introduction: The fetal toxicity of ACEIs in late pregnancy i.e. second and third trimesters is well established, while their teratogenic effect during early pregnancy is controversial. Data on the prevalence of during pregnancy ACEI use and the associated clinical indications may help strengthen clinical guidelines and improve awareness among prescribers to prevent inadvertent fetal exposure.

Methods: The cohort comprised all women who gave birth in the Australian State of New South Wales between 2005 and 2012, and who were concessional beneficiaries of prescription medicines. Midwife collected data regarding the pregnancy and childbirth were linked to records of hospital admissions and pharmaceutical dispensings. For pregnancies during which an ACEI was supplied, related diagnoses were identified from the midwifery record and records of hospital admissions for the delivery and the two years prior.

Results: Preliminary results showed that, among the 135,030 pregnancies, 149 (0.1%) and 33 (0.02%) were dispensed at least one ACEI in early and late pregnancy respectively. Fifty two (0.04%) pregnancies were exposed throughout gestation. Of the 149 early pregnancies exposed to ACEIs, the majority did not have a compelling indication, with chronic hypertension (48%) the most common diagnosis, followed by gestational hypertension (18%) and unknown indication (21%). Only 8.7% had renal disease. Of the 33 pregnancies exposed in late pregnancy, only 3% had renal disease, considered a compelling indication for ACEI use during pregnancy. The indication was unclear in 70% and 15% had gestational hypertension.

Conclusions: The decline in ACEI exposure in late pregnancy is reassuring, given the clear evidence about the harmful effects at this stage of pregnancy. The finding that the majority of exposure was due to non-compelling indications, however, suggests the need for greater review of medication profiles for women of childbearing age.

Light-to-moderate alcohol drinking in pregnancy and its relationship with birth weight and preterm birth: elucidating bias by pooling data from nine European cohorts

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Introduction: Collaboration between birth cohort studies may improve causal inference. Women who drink light-to-moderately during pregnancy have been observed to have lower risk of unfavourable pregnancy outcomes than abstainers. This finding is suspected to be a result of bias. We examined the associations between light-to-moderate drinking and three pregnancy outcomes and whether these associations were affected by characteristics of the drinker.

Methods: Data on live-born singletons from 9 European cohorts were pooled (n=193,747). Adjusted associations between light-to-moderate drinking and preterm birth, birth weight, and small for gestational age (SGA) were compared in the total sample, in a sub-sample restricted to first-time pregnant women with short time-to-pregnancy, and across strata of time.

Results: In the total population, drinking up to three drinks per week was associated with lower risks of preterm birth as compared with abstaining. No in- or decrease in association were found with mean birth weight or odds of SGA. Drinking more than three drinks per week was associated with lower birth weight and slightly higher odds of SGA. For preterm birth we did not observe any increased risk. Restricting the analysis to first-time pregnancies conceived within 6 months of trying to become pregnant revealed similar results. Before 2000 approx. half of pregnant women reported to drink some alcohol during pregnancy. This decreased to 39% in 2000-2004, and 14% in 2005-2011. Before 2000, every additional drink was associated with reduced mean birth weight, whereas in 2005-2011, the mean birth weight increased with increasing intake. No difference across time periods was observed for preterm birth.

Conclusions: The differences in associations between maternal alcohol intake and birth weight over time are striking and indicate that characteristics of the drinkers remain a concern when interpreting the epidemiological evidence regarding a safe threshold for alcohol drinking during pregnancy.

O29-4

High Frequency of Vitamin D Deficiency in Pregnant Japanese Women Associated with UV Avoidance and Hypo-Vitamin D Diet

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Background: Vitamin D is known to influence the risk of morbidity and mortality in various diseases. Furthermore, vitamin D deficiency during prenatal development is hypothesized to increase susceptibility to allergic and other diseases in later life.

Objective: To investigate the relationship between serum vitamin D status and lifestyle factors in Japanese pregnant women.

Methods: Among 3,327 pregnant women who participated in an adjunct study of the Japan Environment and Children's Study in Kyoto, Toyama, or Tottori during 2011 to 2013, in which data were obtained on various lifestyle factors, including dietary intake of vitamin D and frequency of UV exposure, 1,592 pregnant women had 2,030 serum samples drawn in January, April, July and October, and the association between serum 25(OH)D levels, seasonal and lifestyle factors was analyzed using linear mixed models.

Results: Serum 25(OH)D levels was less than 20 ng/mL in 1,486 of 2,030 samples (73.2%). There was an obvious seasonal change, with serum 25(OH)D levels of less than 20 ng/mL in 89.8% and 47.8% of samples in spring (April) and autumn (October), respectively. Both the frequency spent under sunlight and dietary intake of vitamin D were significantly associated with serum 25(OH)D level. An increase in sunlight exposure of more than 15 min for 1 to 2 days per week in non-winter or dietary intake of 2 µg/day of vitamin D resulted in an elevation of 1 ng/mL in serum 25(OH)D levels.

Conclusion: These findings indicate that vitamin D deficiency is very severe in Japanese pregnant women, especially those rarely exposed to sunlight. While being aware of the risks of overexposure to UV light, pregnant women should be informed of the health benefits of an appropriate level of sunlight exposure.

O30-1

Association between supplemented multivitamins containing folic acid and decreased risk of mental disorder due to cocaine use: a population-based study in Canada

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Background: Since 1992, studies have confirmed protective effects of supplemented multivitamins containing folic acid on fetal defects. However, their effects on human brain development have not been identified despite evidence from studies of animal models. We investigated the effects of such a nutritional intervention on mental disorder due to cocaine use.

Methods: We carried out a population-based study of hospital records (2505978 women for childbirth, 2 066 320 women and 1 643 534 men for all-cause hospitalization) aged 15 to 44 years from 2003 to 2015, using information obtained from the Canadian Institute for Health Information. We examined the prevalence of mental disorder due to cocaine use according to birth year, period, cause/morbidity, rural and region of hospitalization. Logistic regression analysis was used to quantify the associations of risk of mental disorder due to use cocaine with the birth year adjusting for age, diagnosis period, other characteristics and conditions for the three cohorts.

Findings: A total of 45 578 diagnoses of mental disorder due to cocaine used were identified, yielding prevalence of 1.6, 8.9 and 14.1 per 1000 for the three cohorts. The prevalence declined significantly throughout all birth years for males. The risk decreased significantly in women born in 1993 and later, with adjusted odds ratio: 1.02, 95 percent confidence interval CI: 0.97 to 1.06; aOR 0.97, 95 percent CI: 0.90 to 1.04; aOR 0.88, 95 percent CI: 0.79 to 0.97; aOR 0.80, 95 percent CI: 0.66 to 0.95 for those born in 1983 to 87, 1988 to 92, 1993 to 97 and 1998 to 2002, respectively, compared with those in 1978 to 82. A greater protective effect appeared among women for childbirth.

Interpretation: Intergenerational protective effects for this mental disorder among female offspring may be linked to supplemented multivitamins when compared to the temporal pattern among males.

O30-2

Using publicly available data to investigate causal associations between substance use and mental health

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Introduction: Substance use occurs at higher rates in populations with mental health problems than in the general population, but ascertaining causality is challenging. We used two-sample Mendelian randomization (MR) to investigate causality in associations between cannabis and cigarette use, and schizophrenia.

Methods: Two-sample MR designs were used, whereby genetic variants associated with the exposure variable were identified from genomewide association studies (GWAS), then identified in GWAS of the outcome variable. These were then combined using a likelihood-based approach.

Results: For smoking and schizophrenia, using the PGC2 consortium there was evidence of an association between smoking initiation and risk of schizophrenia using 4 correlated SNPs (OR 1.71, 95% CI 1.30, 2.25, $p < 0.001$). However, after relaxing the p-value threshold to include independent SNPs and minimize the potential impact of pleiotropy, the association attenuated (OR 1.03, 95% CI 0.97, 1.09, $p = 0.32$). In the TAG consortium, there was little evidence supporting an association between 94 SNPs associated with schizophrenia risk and smoking initiation (OR 1.01, 95% CI 0.98, 1.04). For cannabis and schizophrenia, using the same data from the PGC2 consortium there was some evidence consistent with a causal effect of cannabis initiation on risk of schizophrenia (OR 1.04, 95% CI 1.01, 1.07, $p = 0.019$). There was strong evidence consistent with a causal effect of schizophrenia risk on likelihood of cannabis initiation (OR 1.10, 95% CI 1.05, 1.14, $p = 2.64 \times 10^{-5}$).

Conclusions: There was some evidence indicating that associations between smoking and schizophrenia could operate in both directions. Evidence that smoking initiation predicted schizophrenia risk was less convincing, as after relaxing the p-value threshold to include independent SNPs, the association attenuated to the null. We found some evidence that the association between cannabis initiation and schizophrenia may operate in both directions. We found stronger evidence that schizophrenia risk predicted cannabis initiation.

Posttraumatic stress disorder and incidence of thyroid dysfunction in a large cohort of women: A 24-year longitudinal study

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Background: Many studies have been continuously examined the role of hypothalamic, pituitary, thyroid axis in relation to a variety of mental illness. Abnormal thyroid function was evaluated in several populations along with PTSD, however the results are contradicting. We evaluated trauma exposure and PTSD symptoms in regard to incident thyroid dysfunctions over 24 years in 44013 civilian sample of women.

Method: We used the data from the Nurses Health Study(NHS) II, a longitudinal cohort study of US women, from 1989 to 2013. Trauma and PTSD was measured in 2008 by the Short Screening Scale for DSM IV PTSD and thyroid dysfunction was assessed by self reported history of physician diagnosed hypothyroidism and hyperthyroidism. Proportional hazard models were applied to compute hazard ratios (HRs) and 95percent confidence intervals (CIs) for incident hypothyroidism, Graves hyperthyroidism and any thyroid dysfunction.

Results: Symptoms of PTSD were associated with newly onset hypothyroidism in a dose response pattern after fully adjusting potential confounders (Trauma with no symptom HR 1.08 (95percentCI 1.02 to 1.15), 1-3 symptoms HR 1.13 (95percentCI 1.04 to 1.22), 4-5 symptoms HR 1.22 (95percentCI 1.12 to 1.34), 6-7 symptoms. HR 1.27 (95percentCI 1.15 to 1.42)). However, we could not find any significant association between PTSD symptoms and Graves hyperthyroidism. The findings remained same direction, although attenuated, after considering lagging effect between PTSD and thyroid dysfunctions. The association also maintained after limiting the outcome for the thyroid dysfunction cases occurred after 2009.

Conclusion: Women with higher number of PTSD symptoms have increased risk of hypothyroidism than women without any trauma exposure. Screening for thyroid dysfunction, especially hypothyroidism in women with PTSD can prevent related adverse health conditions.

Exome-wide association study identifies the association between depression, height and *DOCK3*

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Although the association between height and depression has been studied, the influence of height-associated genes remains unclear. We conducted a case-control study of major depressive disorder (MDD) identified in a cohort of 913 persons aged 65-84 years in an area of Tokyo, Japan. A psychiatrist using the Structured Clinical Interview for DSM-IV identified 37 of MDDs and 111 non-depressed controls with Mini-Mental State Examination scores ≥ 24 . Exome-wide analyses (Infinium HumanExome BeadChip) showed that MDD was most strongly associated with a single nucleotide polymorphism (SNP) in *DOCK3*, a height-associated gene, among 37,874 SNPs with ≥ 0.05 minor allele frequencies (Bonferroni-corrected $p = 0.01181$). *DOCK3* reportedly inactivates glycogen synthase kinase-3 β that enhances BDNF-dependent-axonal outgrowth and is critical in rapid antidepressant effect of ketamine. *DOCK3* might be involved in the etiology of MDD. Our top 50 associated SNPs included a SNP in a different height-associated gene (*FREMI*, FRAS1 related extracellular matrix 1) as well as another SNP of *DOCK3*. We examined their genotypic associations with MDD and height and found that genotypes of 2 *DOCK3* SNPs that were more common in persons with MDD were associated with shorter height. *FREMI* and *DOCK3* were associated with MDD and height in women. MDD women were significantly 3 cm shorter than their controls, while MDD was not associated with osteoporosis or other factors. A century ago, Kretschmer reported a predominance of the pyknic body-type in circulars and stated that pyknic women were short while the mean height of pyknic men was moderate. Despite its small sample size, our study suggested that less-heterogeneous MDD rigorously identified in a defined population might include cases of MDD with a pyknic-like endophenotype. The genes associated with both MDD and shorter height should be examined in regard to the neurophysiology and environments of persons with MDD.

Suicidal behavior during lithium and valproate medication: a within-individual eight year prospective study of 50 000 patients with bipolar disorder

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Objective: Conclusions regarding lithium's anti-suicidal effect for bipolar disorder (BD) have been limited due to non-representative subjects and potential confounding including varying severity of illness. Findings regarding the effect of valproate, the most common alternative to lithium, are inconsistent for suicidal behavior. This study investigated the associations and possible difference between these two drugs and risk of suicide-related events by using within-individual designs in a register-based longitudinal cohort.

Method: By linking Swedish multiple national registers, 51,535 individuals with BD were followed 2005-2013 for treatment by lithium and valproate. We used stratified Cox regression to estimate the hazard ratios (HRs) of suicide-related events during treated periods compared with untreated periods. For significant associations between medication and suicide-related events, we estimated the population-attributable fraction (PAF) to assess the public health impact for patients with BD.

Results: During follow-up, 10,648 suicide-related events occurred. The incidence rate was significantly decreased by 14% during lithium treatment (HR 0.86, 95% CI 0.78-0.95) but not during valproate treatment (HR 1.02, 95% CI 0.89-1.15). The test for the difference in HRs of suicide-related events between lithium and valproate had a chi-square of 4.29 (p=0.04). Estimates of the PAF suggested that 12% (95%CI 4%-20%) of suicide-related events could have been avoided if patients had taken lithium during the entire follow-up.

Conclusions: The results suggest that lithium should be considered for patients with BD with suspected suicidal intentions, although risk for suicide is only one of the considerations when providing clinical care.

Prenatal exposure to β 2-adrenoreceptor agonists and the risk of autism spectrum disorders in offspring: a population-based cohort study

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Background: Asthma affects up to 8% of pregnancies and may potentially lead to an increased risk of many diseases in the offspring later in life. The β 2-adrenoreceptor agonist (β 2AA) is frequently used for asthma treatment during pregnancy, which has been proposed to be associated with development of several psychiatric disorders in the offspring. We aimed to examine the risk of autism spectrum disorders (ASDs) in the offspring who were exposed to maternal use of β 2AA during pregnancy.

Methods: This is a population-based cohort study including all live singleton births in Denmark from January 1, 1997 to December 31, 2008. Children born to mothers who used β 2AA during pregnancy were categorized as exposed and all other children were included in the unexposed group. Cases of ASDs were identified from the Danish Psychiatric Central Register and the Danish Patient Register. Incidence rate ratio (IRR) and 95% confidence interval were estimated by Poisson regression models.

Results: Among 751,888 children in the cohort, 9,098 (1.21%) received a diagnosis of ASDs. We observed an increased risk of ASDs in the exposed children (IRR=1.28, 1.12-1.48), especially for those who were exposed during the second trimester period (IRR=1.41, 1.09-1.82). However, when extending the exposure time window to one year prior to pregnancy, we observed a similar association in children born to women who received β 2AA treatment during pregnancy (IRR=1.33, 1.12-1.59) to that in children born to women who received β 2AA treatment one year prior to pregnancy (IRR=1.35, 1.17-1.56). No association was observed in children born to women with a history of asthma (IRR=1.13, 0.79-1.62).

Conclusion: Our finding suggested that children born to women who used β 2AA during pregnancy have an increased risk of autism spectrum disorders in later life, which is more likely due to underlying maternal diseases rather than the exposure to β 2AA itself.

Familial liability for attention-deficit hyperactivity disorder (ADHD) and eating disorders: applying a genetically informative epidemiological design in a large Swedish population

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Previous studies have reported co-occurrence of attention-deficit hyperactivity disorder (ADHD) and eating disorders, but the mechanism underlying such comorbidity remains unclear. We examined the associations between ADHD and anorexia nervosa (AN) and bulimia nervosa (BN) in a large population and explored the role of familial risk factors in explaining the observed associations. We applied a genetically informative epidemiological design on a large Swedish birth cohort (born 1979-2005; 1,288,330 females and 1,360,739 males), using diagnoses and information from the Swedish national registers. We first evaluated the relative risk of ADHD (presented as odds ratio [OR]) in individuals with eating disorders compared with individuals without eating disorders (within-individual risk). We then estimated the OR of ADHD in individuals with relatives with eating disorders compared with individuals whose relatives did not have eating disorders (familial risk). Due to the fact that genetic and environmental sharing decreases with decreased relatedness of relatives, the patterns of familial risk across relatives with different degrees of relatedness could inform whether genetic and/or familial environmental risk factors potentially explain the observed associations. We observed increased risk of ADHD in individuals with AN (OR [95% confidence interval] females 2.41 [2.24, 2.60], males 2.17 [1.70, 2.78]) and BN (females 4.27 [3.90, 4.67], males 5.64 [3.52, 9.05]). Individuals with full-siblings with AN or BN also had increased risk of ADHD compared with individuals whose full-siblings did not have eating disorders (AN: females 1.26 [1.10, 1.45], males 1.15 [1.02, 1.28]; BN: females 1.68 [1.39, 2.02], males 1.26 [1.07, 1.49]). The familial risk was lower in more-distant relatives including maternal half-siblings, paternal half-siblings, and cousins. Results confirmed the associations between ADHD and eating disorders in a large population and suggest familial (genetic and/or environmental) liability for the associations. The results have implications for genetic studies and for clinicians treating patients with these disorders.

Grandmothers mental health and grandchildren emotional and behavioral development. A three generation prospective study in Brazil

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Background: There is substantial evidence that maternal mental-health is associated with an increased risk of emotional and behavioural disturbances in children and that this is explained, at least in part, by the negative impact of maternal depression on caregiving. However, the role of mental-health in other family members, who in many contexts also provide significant caregiving, has received far less attention. The current objective was to assess the impact of symptoms in grandmothers, whose role in child-care is increasing across the world.

Method: Prospective data from three generations in two Birth Cohorts in Pelotas Brazil, 22 years apart (1982 and 2004), were used. Mental-health was assessed using the Self-Report-Questionnaire (SRQ-20) in Grandmothers and parents. Grandchildren were members of the 2004 birth cohort and emotional and behavioural symptoms were measured using the Child-Behaviour-Checklist (CBCL) at age 4.

Results: Grandmother symptoms were associated with more emotional (adj beta =1.5 (0.2-2.5) p=0.022) and behavioural (adj beta =2.2 (0.2 - 4.2) p=0.033) symptoms in grandchildren, after adjustment for confounding variables. The size of the associations was comparable to associations with maternal symptoms but there was no evidence for associations with paternal symptoms. There was evidence that the effects were substantially stronger for maternal compared to paternal grandmothers.

Interpretation: In some contexts, grandmothers mental-health may be as important to grandchild emotional and behavioural development as maternal mental-health. Potential mechanisms will be discussed Improving the mental-health of grandmothers as well as parents may therefore be important to child mental- health.

O31-4

Father absence in childhood and offspring depressive disorders at 18 years: UK population-based cohort study

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Introduction: A growing number of epidemiological studies support the link between family structure, including absence of the biological father, and offspring risk of depression in adolescence. However, few have prospectively examined whether father absence in childhood continues to exert independent adverse effects on offspring mental health in young adulthood. The present study aimed to examine the hypothesis that biological father absence during early (0-5 years) and middle (5-10 years) childhood is differentially associated with offspring depressive disorders and early parenthood at 18 years, and that these risks differ for males and females.

Methods: Study sample comprised 4,415 members of the UK population-based birth cohort the Avon Longitudinal Study of Parents and Children (ALSPAC). Offspring depressive disorders were assessed using the International Classification of Disease, 10th Revision and Mood and Feelings Questionnaire (MFQ) at 18 years. Early parenthood was assessed using offspring self-reports. Biological father absence was derived from maternal questionnaires completed at regular intervals from the birth of the child up to 10 years.

Results: Offspring whose biological father was absent in middle childhood, but not early childhood, were 1.56 times more likely to report depressive symptoms (95% CI, 1.10, 2.21; P=0.013) and 2.12 times more likely to become biological parents (95% CI, 1.04, 4.33; P=0.038) at 18 years or earlier. Female offspring were at higher risk than male. Father absence in childhood was not associated with offspring diagnosis of major depression.

Conclusions: Father absence in middle childhood continues to exert adverse effects on offspring mental health beyond adolescence into young adulthood. Offspring of absent fathers are also vulnerable to becoming young parents. Differences in early paternal involvement may underlie gender differences in father absence effects. Future cross-cohort comparisons are needed to examine biological father absence effects across cultures.

The influence of welfare state institutions and expenditures on subjective wellbeing following transitions from work in sixteen European countries

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Introduction: Not only is wellbeing increasingly considered by policymakers as a measure of social progress in itself, it is also predictive of long-term health outcomes. Although the determinants of subjective wellbeing across countries have been extensively studied cross-sectionally, their influence on change in wellbeing following lifecourse transitions has been neglected. We therefore investigated the individual- and country-level predictors of wellbeing change among respondents aged 50 years and over in 16 European countries who were working at baseline and followed-up post exit using harmonised data from the Survey of Health, Ageing and Retirement in Europe (SHARE) and the English Longitudinal Study of Ageing (ELSA).

Methods: We employed multivariate multilevel modelling using Markov chain Monte Carlo (MCMC) methods to test for determinants of change in subjective wellbeing (measured by CASP-12 scores) between baseline and follow-up. After adjusting for route and timing of work exit, in addition to other health, financial and demographic variables, we tested country-level variables, including welfare state organisation and expenditure, to determine their effect on wellbeing change and the proportion of between-country variance explained. Aggregated country-level data from the OECD Social Expenditure Database (SOCX) was used to operationalise PPP-adjusted per capita expenditure on social protection by type.

Results: Overall per-capita welfare spending had a positive linear effect on wellbeing change, with each additional EUR1,000 resulting in a 0.21 ($p=0.040$) point increase in CASP-12 scores. The same expenditure on benefits-in-kind resulted in a change of 0.59 ($p=0.018$) points compared with a non-significant -0.11 ($p=0.329$) for cash transfers. The results also suggest the effect of welfare expenditure on wellbeing change is mediated by self-reported perceptions of financial strain.

Conclusions: Our results highlight the importance of welfare policy and quantify the protective effect of welfare expenditures by type on wellbeing change following work exit while suggesting this is largely driven by benefits-in-kind.

The effects of socioeconomic position on healthy ageing trajectories after 60 years in the US, England, China and Japan

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Introduction: Healthy ageing is a process of optimising opportunities for health, participation and security in order to enhance quality of life as people age. This work aims to detect the longitudinal relationship between socioeconomic position and healthy ageing in the US, England, China and Japan.

Methods: The sample included 29748 respondents aged 60 and more at baseline in Health and Retirement Study, English Longitudinal Study of Ageing, China Health and Retirement Longitudinal Study and Japanese Study of Ageing and Retirement. A harmonised healthy ageing index (HAI) with 22 indicators in physical, cognitive, physiological functions and psychological and social wellbeing, a socioeconomic indicator International Standard Classification of Education and covariates including age, gender, ethnicity, income, wealth, occupation, father occupation, self-rated health in childhood, partnership, smoking and drinking status were used. Multilevel growth curve models were employed to predict healthy ageing trajectories by educational attainment.

Results: Participants with lower educational qualifications had lower HAIs at 60 in each country. For participants with upper secondary education or above, Americans aged 75 had similar HAIs to English respondents aged 87 to 93, or Japanese aged 73 to 80. Before 70, for participants with each type of educational attainment, HAIs among the English or Japanese ranked first and second, while Americans and Chinese ranked third or fourth.

Conclusions: Educational attainment is a sensitive socioeconomic contributor to healthy ageing in the four countries. At 60, people with lower educational attainments were ageing less healthy in each country. Even among ageing populations with the highest educational attainment, healthy ageing in America is falling behind England and Japan. In early old age, English and Japanese people with each type of educational attainment, may age better than Americans and Chinese.

The mediating effects of depressive symptoms on the association of childhood maltreatment with non-medical use of prescription drugs among adolescents

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Background: Childhood maltreatment is associated with substance use, and the increase in non-medical use of prescription drugs (NMUPD) and depressive symptoms among adolescents has been a topic of great concern. Therefore, this study aimed to test the mediating or moderating effects of depressive symptoms on the associations between childhood maltreatment and NMUPD.

Methods: A secondary analysis of the cross-sectional data collected from 7th and 12th graders who were sampled using a multistage, stratified cluster, random sampling method in the 2015 School-based Chinese Adolescents Health Survey. There were 23,039 questionnaires that were completed by students that qualified for our study (response rate: 94.2%). Structural equation modeling analyses that used the robust maximum likelihood method were conducted to test the mediating effects of depressive symptoms.

Results: Our univariable logistic models first reported that the associations between the interaction items (between physical abuse/emotional abuse/sexual abuse/physical neglect/emotional neglect and depressive symptoms) and NMUPD were not statistically significant. Additionally, the final results demonstrated that the standardized indirect effects of physical abuse on opioid misuse (standardized beta estimate[Beta]=0.005, 95% CI=0.003-0.007), sedative misuse (Beta=0.009, 95% CI=0.007-0.011), stimulant misuse (Beta=0.006, 95% CI=0.004-0.008), and any prescription drug misuse (Beta=0.009, 95% CI=0.007-0.011) through depressive symptoms were significant, indicating that the associations between physical abuse and NMUPD were partially mediated by depressive symptoms. There were also significant standardized indirect effects of sexual abuse on opioid misuse, sedative misuse, stimulants misuse, and any prescription drug misuse through depressive symptoms. Moreover, there were significant standardized indirect effects of emotional abuse on opioid misuse (Beta=0.008, 95% CI=0.004-0.012), sedative misuse (Beta=0.014, 95% CI=0.010-0.018), and any prescription drug misuse (Beta=0.015, 95% CI=0.011-0.019) through depressive symptoms.

Conclusions: Childhood maltreatment is significantly associated with non-medical use of prescription drugs, and depressive symptoms serve as mediators in the associations between childhood maltreatment and non-medical use of prescription drugs.

Intensive Care Unit and burnout in Colombian ICU physicians - a view from social epidemiology

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Introduction: In Colombia, little is known on how certain Intensive Care Unit (ICU) and environment determinants affect ICU physicians mental health leading them to burnout, condition defined by combination of emotional exhaustion, depersonalization and lack of personal accomplishment. Objective was to analyze how ICU is configured and may conceal interrelated health determinants causing burnout in those health professionals.

Methods: PhD thesis research using mixed methods approach to identify implications of burnout in Public Health; to develop a study model of ICU based upon Oakes concept of *social system*; to explore -under Strauss and Corbin grounded theory- ICU configuration and which structures/processes may lead to burnout in ICU physicians; to analyze burnout risk to them given those structures/processes through a case-control study; to propose -under Lakatos notion of *research program*- ICU as convergence point for both social epidemiology and political economics.

Results: In implications, burnout might compromise health worker performance permanently and should be addressed as a silent chronic disease; study model included specialty, equipment, facility and environment as potential health determinants; qualitative phase elicited a male-dominated, not-proactive specialty, highly dependent on medical technology, hospital lack of resources and improvisation, and precarious job; quantitative phase confirmed high risk of burnout in ICU male physicians (OR 9,28; $p < 0,001$) undergoing restless night shifts (OR 2,37; $p = 0,02$), noise (OR 2,38; $p = 0,011$), peer abuse (OR 3,44; $p = 0,026$), salary ratio ideal/real $< 0,65$ (OR 2,42; $p = 0,015$), maldistribution (OR 2,86; $p = 0,005$), besides common biological, physical risk factors; proposal suggested ICU as transdisciplinary research platform to create insight, questions and alternatives to this case.

Conclusions: Model and findings may explain ICU as an uncomfortable social system prone to inequity and health inequalities; hence, burnout may hatch there. This study attempts to raise awareness and to lead stakeholders and Public Health decision-makers to timely address these issues.

O33-1

Does neighborhood green space promote narrower socioeconomic inequity in body mass index among women? Evidence from Australia

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Recent studies have hypothesised that green spaces may help to narrow socioeconomic inequities in health. Multilevel models were used to analyze body mass index (BMI) in relation to an objective measure of neighbourhood green space quantity among 3684 mothers in wave 5 cohort k of the Longitudinal Study of Australian Children. A two-way interaction between green space quantity and neighbourhood disadvantage was fitted. Perceived indicators of green space quality, local services, access to public transport, presence of heavy traffic and indicators of area safety and social capital were examined. Compared to mothers living in areas with 0 to 10% green space coverage, those in areas with 11% to 21% and >21% had lower mean BMI of -0.44kg/m^2 (95%CI -0.96 to 0.07) and -0.90kg/m^2 (95%CI -1.40 to -0.41), respectively. These associations were robust to controls for age, highest educational qualification, employment status, age and gender of the child, neighbourhood disadvantage and area remoteness. Green space quality was not associated with BMI and did not influence the association with green space quantity. Adjustment for other perceived neighbourhood variables similarly did not have an impact on the association between BMI and green space quantity. Fitting a two-way interaction between green space quantity and neighbourhood disadvantage did not result in meaningful evidence of effect measure modification. The results from this study indicate that higher quantities of green space may be beneficial for BMI among women regardless of their socioeconomic circumstances and green space quality may be less important than overall coverage.

Is neighborhood green space protective against associations between child asthma, neighborhood traffic volume and perceived lack of safety? Multilevel analysis of 4, 447 Australian children

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Background: Evidence on the association between green space and child asthma is equivocal.

Objectives: To determine the extent that higher quantities of green space buffer associations between child asthma and traffic volume (air pollution surrogate) and/or perceived lack of safety.

Methods: Multilevel models were used to analyze affirmative asthma cases in nationally representative cross-sectional data from 4,447 children aged 6-7 years old in Australia. Case-finding of affirmative asthma was based upon a triangulation of affirmative responses to three questions on doctor-diagnosed asthma, asthma-related medications and illness with wheezing lasting for at least 1 week within 12 months prior to the survey. Buffering was tested via interactions between parent-reported traffic volume and perceived lack of safety across strata of objectively-measured green space.

Results: Asthma prevalence was lower in areas with more green space for participants considered to be exposed to heavy traffic and also regardless of the perceived lack of safety. Among participants considered to be exposed to high traffic volumes and areas with 0% to 20% green space quantity, the odds of affirmative asthma were 1.88 (95%CI 1.38 to 2.56). However, those odds dropped to 0.31 (95%CI 0.12 to 0.82) for participants living in areas with over 40% green space coverage, despite also being in proximity of heavy traffic. No association between affirmative asthma and green space coverage was observed for participants not exposed to heavy traffic, nor for the perceived lack of safety variable.

Conclusions: Protecting existing and investing in new green space may help to promote child respiratory health through the buffering of traffic-related air pollution concentrations.

Development of a Neighborhood Observation Tool for auditing health related features of community environments (Cy-NOTes): systematic social observation study across Limassol neighbourhoods, Cyprus

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Introduction: The majority of generic or feature specific (e.g. pedestrian environment), neighborhood audit tools originate from North America. Given their cultural specificity, the purpose was to develop an audit tool adapted to the Cypriot urban environment as part of a Quality of Life community survey.

Methods: Using 126 items sourced from tools identified in two published and an original review, two auditors blindly assessed 30 streets selected among three groups of neighborhoods defined by the educational attainment of residents. The study assessed prevalence and variability of audited features, inter and intra-observer reliability, internal consistency based on previously suggested domain typology and criterion validity in terms of observed differences and trend in domain scores across type of neighborhood.

Results: Most items exhibited at least moderate variability across neighborhoods and acceptable intra- and inter-observer reliability, more for objective compared to ordinal rating scale items. More adverse conditions were observed in lower education neighborhoods, with larger differences in resident related features (e.g. appearance and maintenance aspects of housing and private grounds) rather than public infrastructure with equally low scores across the board (e.g. cycling and pedestrian environment). Security related features were more prevalent in higher education neighborhoods reflecting either actual or perceived concern. Social disorder was not frequent in terms of direct but of indirect evidence (e.g. garbage and animal droppings) in lower education neighborhoods.

Conclusion: Performance of CyNOTes in capturing variability in environment features across the socioeconomic disadvantage continuum was adequate but displayed shortcomings. Further development and field testing of modified version, with qualitative feedback and photographic material for rating scale items, is required. Audit tools can provide supplementary information on essential elements of community environment, not captured in traditional census based deprivation indices, for research into neighborhood health effects and needs assessment or advocacy.

Female genital schistosomiasis in abeokuta, nigeria

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Introduction: Female Genital Schistosomiasis (FGS) is an emerging public health problem for young girls and women of childbearing age living in urogenital schistosomiasis endemic areas. Over 44 million women living in sub-Saharan Africa are currently affected by FGS. However, this disease has received little or no attention in Nigeria.

Method: Four *Schistosoma haematobium* endemic communities (Abule-titun, Imala-Odo, Apojola, and Ibaro) were purposively selected for the study. Consenting young girls and child bearing females (age range 5-49 years) were recruited. Terminal urine samples were collected, tested for haematuria (blood in urine), and examined for *S. haematobium* ova. A standardized FGS colour chart was used to verify colours of vaginal discharge. Structured questionnaires were also administered to document risk factors of FGS among study participants, and full gynaecological examination was carried out to investigate FGS cases further.

Results: A total of 317(100%) female was examined in the study. 150 (47.3%) of them were positive for haematuria, whereas 149 (47.0%) had *S. haematobium* infection. Mean intensity (MI) of infection was 0.6785 ± 0.432 . There was significantly ($p < 0.05$) more infection (121, 64.7%) and MI (1.0659 ± 0.1251) in young girls aged 5-15 years than older age groups. Bathing (92.7%), fetching (52.4%), fishing (93.4%) and washing clothes (96.5%) at the dam water were reported risk factors associated with *S. haematobium* infection. Using the standardized colour chart, 4 (1.3%) cases of FGS were identified. Further gynaecological examination of 20 consenting participants confirmed 14 (70.0%) cases of FGS. Gynaecological pathology observed include 10 (71.4%) females with grainy-sandy patches, 6 (42.9%) with yellow-sandy patches, 1 (7.1%) with nabothian cysts and rubbery papules in their vaginal and cervical walls.

Conclusion: Female genital schistosomiasis is endemic in Ogun State, Nigeria. Its implications for the reproductive health of young girls and women of childbearing age living in urogenital schistosomiasis endemic communities.

O34-2

Study of the status and factors affecting isoniazide chemoprophylaxis for paediatric contacts of the smear positive tuberculosis cases in east district of Sikkim in India

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Introduction: The state of Sikkim in India is overburdened with Tuberculosis (TB) in general and childhood TB in specific and is having the highest proportion of Multi Drug Resistant (MDR) TB cases in India. Isoniazide preventive therapy (IPT) has been found to be highly effective in preventing latent TB infection in children.

Methods: It was a prospective study with universal sampling method conducted amongst all the children under 6 years of age who were household contacts of sputum positive pulmonary TB cases being treated in East Sikkim district in 2015. Home visits were done to find out the Isoniazid prophylactic therapy status along with factors for the compliance. Eligible children not on IPT were counselled to start Isoniazid (INH) and those who initiated were counselled to complete the entire course of IPT. Home visit were made again at the end of 6 months of initiation of treatment to note their IPT completion status.

Results: Out of the total 124 Paediatric household contact, 86 (69.4%) initiated IPT. Lack of awareness about IPT amongst the parents was the most common reason cited by parents for those who did not initiate IPT. After 6 months of follow up, 114 (91.9%) children were found to have completed the IPT showing a positive impact of the health education given to them. All those 38 children who did not initiate IPT initially and received health education were found to have completed IPT.

Conclusions: Health education intervention was found to be an effective tool for compliance of IPT. This study had a huge impact in terms of proving that the integration of preventive therapy for the contacts along with the treatment of the index case can be done with no extra burden and cost in the ongoing National Health Programme for TB.

Congenital Zika virus syndrome in Brazil: a case series of 7, 299 livebirths with complete investigation

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Introduction: In November, 2015, an epidemic of microcephaly was reported in Brazil, later linked to congenital Zika virus (ZIKV) infection. An early report addressed the characteristics of a case series of the 1,501 livebirths. We aimed to update those analyses, describing the cases in terms of clinical findings.

Methods: Descriptive study carried out using data from a surveillance system set up by the Brazil Ministry of Health. We reviewed suspected cases reported from November, 2015, with complete investigation by December 31, 2016. Cases with laboratory evidence of ZIKV infection or with imaging reports mentioning specific findings related to ZIKV infection were classified as confirmed.

Results: 7,299 cases (2,185 confirmed and 5,114 discarded) were reviewed. Discarded cases presented higher proportion of female [64.4% (95%CI 63.0 to 65.7%) vs 53.5% (95%CI 51.3 to 55.5%)] and term births [88.5% (95%CI 87.5 to 89.4%) vs 69.4% (95%CI 67.2 to 71.5%)] than did confirmed cases. Information about the presence of a rash during pregnancy was available for 4,166 (57% of the total) women, of whom 1,457 (35.0%) reported a rash. Rashes were less frequent among discarded cases than among confirmed cases [19.2% (95%CI 17.8 to 20.8%) vs 60.7% [95%CI 58.2 to 63.1%]]. Among 1,582 confirmed cases whose mothers provided information about the timing of the rash, 631 (39.9%; 95%CI 37.5 to 42.3) presented rash in the first trimester, 185 (11.7%; 95%CI 10.2 to 13.4) in the second trimester, and 77 (4.9%; 95%CI 3.9 to 6.0) in the third trimester.

Conclusions: Our findings, from a case series almost five times larger the previous report, are consistent with the results presented earlier, highlighting the differences between confirmed and discarded cases, as well as the occurrence of malformations associated with early and late-pregnancy rashes.

O34-4

An analysis of the effect of school closure using an individual based stochastic model of influenza transmission

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Introduction: The purpose of this study is to evaluate the effect of preventive strategies against influenza spread considering stochastic transmission process between individuals.

Methods: The daily reported data of cases of swine flu and the dates of closure in each class of schools collected from September 2009 to March 2010 in a city in Japan were analyzed based on stochastic mathematical model of influenza spread considering each class as a unit. Totally 21,253 cases were reported out of 51,871 students in 134 schools (elementary schools, junior high schools, high schools and kindergartens). To construct accurate model, infected numbers must be estimated from case report data taking latent period into account, which is deterministically impossible. To resolve this difficulty, we stochastically estimated and obtained data of infected numbers by 'Back Monte Carlo' calculation and used in the analysis. The analysis was mainly carried out using data during September up to December to avoid the influence of vacations. The influence of humidity was also analyzed using daily meteorological data of the area.

Results: The rates of transmission within class were calculated by maximum likelihood method in addition to those within whole school and community (all schools). The rate within class was much larger (approximately 15 times larger) than other rates. Among 2 to 5 day duration of school closure, the duration of 3 day seemed to be the best under most likely assumptions. Simulation of the model failed to reproduce very rapid spread of infection in the last ten days in October but such a rapid spread was reasonably attributable to a specific episode not incorporated in the model.

Conclusions: Back Monte Carlo data approach was found useful in determining most effective preventive strategy against influenza based on stochastic model of infectious disease spread in schools.

Estimating the transmissibility of noroviruses infection using outbreak event data with known route of transmission in Japan

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Introduction: Norovirus infection (NVI) is the most common cause of gastroenteritis in humans. In Japan, NVI outbreaks attributable to human-to-human transmission has increased with time, and the timing has coincided with the increase in the observed fraction of genogroup II genotype 4 (GII.4). Although it is believed that GII.4 strains are adapting to their human host with modifying their transmissibility, the change of transmissibility has yet to be explicitly quantified. The present study aimed to estimate the time-dependent changes in the transmissibility of noroviruses.

Materials and Methods: The effective reproduction number for year y (R_y), was estimated by analyzing the time series surveillance data for outbreak events from 2000 to 2016. The R_y was calculated by using the fraction of outbreak events that were attributable to human-to-human transmission and by employing three different statistical models that mechanistically capture the possible data-generating process in three different ways.

Results: The R_y estimates ranged from 0.14 to 4.15 with revealing an overall increasing trend ($p < 0.05$ for all three models) with time. The proportion of outbreaks caused by GII and GII.4 viruses among the total events also increased with time, and positive correlations were identified between transmissibility and these proportions.

Conclusions: We conclude that norovirus transmissibility has increased over the past 16 years in Japan. The change is at least partially explained by the time-dependent domination of the contagious GII genogroup (e.g., GII.4), indicating that noroviruses better adapted to humans have selectively caused the human-to-human transmissions, thereby altering the epidemiology of this pathogen.

O35-1

A comparison of genetic and policy reform instrumental variables for estimating the causal effects of education on health: evidence from the UK Biobank

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Background: Instrumental variable analysis can potentially overcome a major limitation of observational studies, unmeasured and residual confounding. But it can only provide unbiased estimates of causal effects if the three core instrumental variable assumptions hold. In this study, we compared two potential instruments for educational attainment. First, a policy reform which raised the school leaving age to 16, and second an allele score constructed from genetic variants which associated with educational attainment in a large genome-wide association study (Mendelian randomization).

Methods: We evaluated the instrumental variable assumptions using data from the participants of the UK Biobank which passed quality control (N=119,555). We defined educational attainment as remaining in school after the age of 15. We assessed the strength of the instruments using a partial F-statistic. We used bias component plots to assess whether the proposed instruments were associated with 12 potential confounders: sex, maternal and paternal mortality, number of male and female siblings, whether the participant was breastfed, childhood height and weight, whether the participant's mother smoked during pregnancy, birthweight, and allele scores for BMI and height.

Results: Both the policy reform and the allele score were strongly associated with remaining in school (partial F statistic=1359 and 351 respectively). There was little evidence the policy reform was associated with any of the potential confounders except parental mortality. Whereas the educational attainment allele score was associated with seven of the potential confounders including: number of brother and sisters, breastfeeding, childhood height, maternal smoking, birthweight, and the BMI allele score.

Conclusion: The policy reform was largely independent of the potential confounders, and is a plausible instrument for education. Whereas the educational attainment allele score associated with a range of potential confounders. Mendelian randomization analyses of social exposures, such as education, should be interpreted with caution.

O35-2

Projection of the number of participants in the National Health and Nutrition Survey of Japan using a system dynamics model

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Introduction: The National Health and Nutrition Survey (NHNS) is essential to monitoring health and nutritional status of the Japanese. However, the number of participants in NHNS has been decreasing recently. This study aimed to project the number of NHNS participants using a system dynamics model.

Methods: A simulation model was constructed to reflect the NHNS's stratified two-stage cluster sample design: approximately 1,000 or 5,000 census enumeration areas (CEAs) of population census (PC) are randomly selected for the Comprehensive Survey of Living Conditions (CSLC), and 300 unit blocks of CSLC are randomly selected for NHNS. The model was developed by sex using Vensim DSS 6.2. It consisted of five stocks by age group (-19, 20-39, 40-59, 60-79 and 80 years or over) for PC, CSLC and NHNS and of flows connecting stocks across age groups and between surveys. Parameters were calibrated based on population and the numbers of participants of CSLC and NHNS by age group obtained from individual records from 1995 to 2014. The model was projected until 2045.

Results: The total numbers of participants in NHNS in 1995 and 2014 were 6,682 and 4,245 for men and 7,364 and 4,703 for women, respectively, and were projected to be 2,457 for men and 2,689 for women in 2045. Response rates of NHNS in the population for both men and women were estimated to be around 70%, 50% and 40% in 1995, 2014 and 2045, respectively.

Conclusions: Due to the decreases of population and response rates, the number of NHNS participants were projected to fall below 3,000 in 30 years. The survey design should be reviewed for better monitoring of health and nutritional status of the Japanese.

Changes in physical activity and weight as predictors of change in sleep: analysing observational Finnish data as non-randomised pseudo-trials

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Introduction: The limited effectiveness and side effects of pharmacological treatments for impaired sleep highlight the need for non-pharmacological alternatives. We examined whether changes in physical activity and body-weight were associated with alterations in sleep.

Methods: Repeated information (N=67,110) from the British Whitehall II study and the Finnish Public Sector Study was used to establish temporality. Participants who at wave 1 were a) physically active or b) non-obese, and without disturbed sleep at waves 1 or 2 were included to determine whether: a) becoming inactive or b) overweight/obese between waves 1 and 2 predicted onset of disturbed sleep at wave 3. Similarly, we examined the effects on shortening sleep to <7 hours/night. We used a corresponding approach, including a) physically inactive or b) overweight/obese participants at wave 1 who reported disturbed or short sleep at waves 1 and 2, to examine whether becoming physically active or weight-loss predicted remission of sleep disturbances or extension of sleep to 7-8 hours/night at wave 3.

Results: Among overweight participants with impaired sleep, weight-loss was associated with a marginal 1.15-fold (95%CI: 0.99-1.34) increased likelihood of restoring undisturbed sleep. Conversely, the risk of onset of disturbed sleep was 1.20 (95%CI: 1.10-1.30) times higher among individuals who became overweight or obese. Changes in physical activity did not predict change in sleep.

Conclusion: Changes in body-weight, but not physical activity, predicted change in sleep. This suggests that weight-loss may improve sleep among the overweight, while preventing weight-gain may help preserving good sleep.

A predictive model based on body composition for diabetes screening among Chinese adults

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Introduction: Most of diabetes risk assessment tools did not include body composition parameters which have been identified as important diabetes predictors. Moreover, only few of them were designed for Asian populations, especially for Chinese populations. The present study aims to develop a practical risk prediction model incorporating body composition parameters to screen undiagnosed diabetes patients among Chinese adults.

Methods: A population based sample of 3335 individuals aged 18-80 years was recruited with clustering sampling method. The participants completed a questionnaire including demographic characteristics, lifestyle factors, medical and family history. Blood indexes were measured after a 10-hour fast. Anthropometric and body composition parameters were collected by a standard physical examination. The predictive model was established by the optimal subset logistic regression method and validated using the 5-fold cross validation. Receiver operating characteristic (ROC) curve was used to evaluate the model.

Results: Of all the variables tested, legs fat mass, trunk lean mass, android-to-gynoid lean mass ratio, waist circumference, age, family history of diabetes and hypertension were included into the diabetes prediction model for female, and legs fat mass, arm lean mass, android-to-gynoid lean mass ratio, waist circumference, age, family history of diabetes and hypertension were included for male. The area under the ROC curve (AUC) was 0.801 and 0.871 for the male and female models, respectively. And the AUC was 0.780 and 0.845 in validated models. The prediction effect was significantly better than the American Diabetes Risk Calculator (AUC: male: 0.728; female: 0.798) and the Chinese (Qingdao) risk score (AUC: male: 0.704; female: 0.754) in this study population.

Conclusions: The gender-specific prediction models were efficient as diabetes screening tools for discovering the undiagnosed diabetes in Chinese adults and better than existing models for Chinese population.

Cope non-compliance with assigned treatments in clinical trials, using a global goodness-of-fit test for linear structural mean models

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Background: In a typical clinical trial, patients are randomly assigned to different groups with specific treatments to assess its effect on some outcome. However, in most clinical trials patients often fail to adhere to their assigned treatment and switch to another trial treatment. Such non-compliance with assigned treatments is a common feature of clinical trials. Structural mean models (SMMs) have been proposed for estimating causal treatment effects in the presence of non-ignorable non-compliance in clinical trials. To obtain a valid causal estimate, we must correctly specify the parametric part of the SMMs. Model checking is an important task for data analysts to detect any departure of an assumed model from the true one. However, little work has been done on the goodness-of-fit (GOF) test for the SMMs.

Objective: We propose a global GOF test of SMMs to cope non-compliance with assigned treatments in clinical trials.

Method: We construct a GOF test in the spirit of Su and Wei (1991), Lin et al. (2002), Pan and Lin (2005), and Chen and Qin (2014). The idea is based on testing for the unbiasedness of the g-estimating equations under the correct model specification. To investigate the performance of our proposed test, we conduct a simulation study. Also we apply the proposed method to data derived from a randomized trial to evaluate the impact of a primary care-based intervention on depression.

Results: Numerical studies show the proposed test can control type I errors if the SMM is correctly specified. Furthermore, the proposed test detects non-linear effect modification of continuous covariates powerfully, while an existing test does not.

Conclusion: The proposed model-checking method is an objective and informative approach for numerically checking the function form of covariates in SMM. Details of our results (Taguri and Izumi, 2016) can be found on the web.

The association of non-standard employment with un-utilization of cancer screening: Findings from a nationally representative survey in Japan

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Introduction: We aimed to investigate the cross-sectional association of non-standard employment, a key issue of health disparities, with un-utilization of cancer screening among Japanese employees with a nationally representative dataset.

Methods: From the Comprehensive Survey of Living Condition of People on Health and Welfare conducted in 2013, 114,871 male and female employees aged 40-59, and without missing value were analyzed. A log-binominal regression analysis was conducted for estimating the prevalence ratio (PR) of un-utilization of the following cancer screening; gastric, lung and colon (for men and women) with past 12 month; breast and uterus/cervix cancer screening for past 24 months (for women aged 20-59; n=86,819). In line with Industrial safety and health act in Japan, two types of stratified analyses were conducted; weekly working hour (40hr or more/39 or less), and contract duration (1 year or unlimited/less than 1 year). In all statistical models, the following variables were adjusted for as covariates; age, marital status, education achievement, equivalence household expenditure, weekly working hour, occupation, company size, hospital visit, subjective health, and current smoking.

Results: In all covariates adjusted model, non-standard employment, especially indirect employed workers (dispatched) working 40hr or more per week was associated with un-utilization of gastric (Prevalence Ratio (PR); 1.52 p<0.001), lung (PR; 1.47 p<0.001), colon (PR; 1.37 p<0.001). Contract duration stratified analyses also showed that dispatched workers having 1 year or unlimited contract duration was especially associated with un-utilization of cancer screening (PR; 1.48 p<0.001 for gastric cancer, PR; 1.49 p<0.001 for lung cancer, PR; 1.34 p<0.001 for colon cancer). The association of non-standard employment with un-utilization of breast cancer screening was statistically significant excepting employees having shorter contract duration.

Conclusions: Non-standard employment, especially indirect employment contract with same contract duration with standard employees can be main target of promotion for cancer screening.