

Conference Report



**The 10th APRU
Population Aging Conference**
A New Paradigm in the Era of the 100-year Life Span:
The Search for Social and Scientific Solutions
October 13-14, 2019 Keio University, Tokyo

Hosts:



Supporters:



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Preface and Executive Summary of the Conference

Professor Hideyuki Okano, Conference President, Dean of the Graduate School of Medicine, Keio University

It was my privilege to organize the 10th APRU Population Aging Conference in Tokyo. Taking this opportunity, I wish to thank the conference participants who came to Japan despite of the Super Typhoon Hagibis, supporting agencies, the APRU Aging Hub Steering Committee members, and the APRU Secretariats for their tireless support towards the success of the Conference. Also, I wish to express my appreciation to the Keio faculty members and administrative staff for their dedicated contribution during the preparation and the conference.



Japan is aging rapidly; those over 65 already constituted 28.4% of the total population in 2019, which is the highest in the world. Seen from a wider angle, population aging is the result of the incredible successes in improving health and economic development in a country or region. This certainly applies to Pacific Rim countries, which have demonstrated remarkable development in the last few decades. Now, a similar global trend is becoming apparent. Hence, we are the frontrunner of future aging societies, and our experiences will be beneficial to the rest of the world.

In this context, we, APRU member universities have a special responsibility to expand the intellectual horizon to find solutions as well as train future leaders. We need to address the global challenges triggered by population aging, which will affect all aspects of life for individuals and society, as a whole. How can we extend healthy lifespan and not merely physical longevity? How is the extended lifespan supported financially? With an increasing population with increasing needs, and a declining proportion of contributors, how can we sustain the social infrastructure, including the much-lauded social security mechanisms of medical insurance and the pension system? All these are interlinked, and we are awaiting a new paradigm. This is the very reason why Keio gives priority to its interdisciplinary research relating to longevity.

Recognizing this general environment, the local organizing committee for this conference chose the subtitle, “A New Paradigm in the Era of the 100-year Life Span: The Search for Social and Scientific Solutions.” We constructed a program that explores potential solutions relating to the challenges accompanying increased life expectancy using multi-sectoral approaches and to share the latest academic findings and details of upcoming initiatives that will contribute to international public policy and public awareness. More specifically, there were two keynote addresses and three panels that discussed Japanese aging research, dementia, and social innovation, as well as four presentation tracks (healthcare and technology, economy and society, multi-sectoral approach to dementia, and other topics) and poster sessions.

However, due to the typhoon, the original two-day program was shortened to one day. As a result, panel presentations were shared only on the web while the keynote addresses, the four presentation tracks, and the poster session were maintained. Furthermore, it was our first time to have the privilege to welcome three ministers of governments from across the Asia-Pacific Region, who graciously joined us and engaged themselves in a policy dialogue session, in which the engagement of younger generations was highlighted. The younger generations are now dealing with, and will continue to deal with, the realities and consequences of an aging society, despite the fact they are not being sufficiently involved in or taking part in policymaking. Indeed, the issues and challenges surrounding population aging will be of increasing concern to future generations. Hence, further

discussions with young people, i.e., future leaders, along with the further promotion of interdisciplinary studies among universities must contribute to increasing society's fortitude in the midst of the "Silver Tsunami" and the struggle to create sustainable aging societies.

By the active engagement of all conference participants, I am confident that we achieved the original objectives with the shortened program. Also, I am very happy to see that this conference served as the kick-off for a week-long series of aging-related events taking place across Japan in October 2019, which included the NIKKEI-FT Super Active Aging Society Conference on October 15 and the METI/MHLW Well Aging Society Summit on October 16–17 in Tokyo, as well as the G20 Health Ministers' Meeting on October 19–20 in Okayama.

The conference closed with an announcement that the 11th APRU Population Aging Conference will be hosted by the University of Indonesia in 2020.

I hope that like myself, all participants have taken home some useful proposals, suggestions, and scientific data from this conference, which will help enrich our wisdom on how to address the challenges in this new era of the 100-year lifespan.

Preparation Process

The Steering Committee of the APRU Population Aging Hub served as the oversight organ and had a teleconference on April 26, 2019, followed by several consultations via e-mail.

A dedicated conference website went live on the same day as the teleconference. With the view to making this conference as environment-friendly as possible, Keio avoided sending physical correspondence and disseminated information over the Internet and via e-mail.

Conference website: <https://www.keio.ac.jp/en/about/global/apru-population-aging-conference/>

A call for abstracts was posted on the Internet on April 26 with an initial deadline of June 28, 2019, which was extended to 10 July. An international review panel was formed to assess the 69 abstract papers submitted. Fifty-two of them came from the APRU member universities (Chulalongkorn University, Keio University, National University of Singapore, Osaka University, Peking University, Seoul National University, The University of Hong Kong, The University of Sydney, Tohoku University, University of Indonesia, University of Malaya, University of New South Wales, Waseda University) and seventeen came from non-APRU institutions in China, India, Indonesia, Japan, Nepal, Norway, Pakistan, Singapore, Sweden, and the UK. As for the fields of interest for the submissions, the breakdown is as follows:

- Healthcare and Technology: 21
- Multi-sectoral Approach to Dementia: 5
- Economy and Society (Policy): 11
- Other: 32

The international review panel recommended 24 oral presentations and 25 poster presentations. Keio decided to award the presenter of the best paper in each of the four domains. The original program endorsed by the Steering Committee was shortened at the last minute due to Typhoon Hagibis.

Meeting Report

The 10th Association of Pacific Rim Universities (APRU) Population Aging Conference, hosted by Keio University and APRU, and supported by the World Health Organization, Western Pacific Region; Ministry of Health, Labour and Welfare; and Ministry of Education, Sports, Science and Technology of Japan was scheduled to be held on October 13–14, 2019. Unfortunately, the massive Typhoon No. 19 (Hagibis) made landfall on October 12, causing much destruction around Japan and paralyzing all transportation networks, both local and international. As a last-minute decision, the Steering Committee announced their decision to hold the conference on October 14 only, with a condensed program. Despite the changes, the conference was a success with an attendance of 109 participants from 19 countries and regions. The program, albeit shortened, covered a wide range of topics from cutting-edge health science research to socioeconomic research aiming to address the challenges of a rapidly aging population that all countries will face in the near future. Finally, academics and researchers had the opportunity to have direct dialogue with the ministers of governments from across the Asia-Pacific Region and the WHO Regional Director for the Western Pacific (WPRO), and to find out how their work can help policymakers tackle the various issues relating to the aging population.

A short video preceded the opening from WHO WRPO that brings to light the challenges of an aging population and how nations may turn these challenges into opportunities. The video highlighted how early preparation for population aging is critical because countries are aging at an accelerated pace. The doubling time of the over-65 population was over 60 years in Australia and New Zealand, but it will take only 25 years in Malaysia and 17 years in Vietnam. Also preparing for an aging population takes time. The video asked the question of “why is this so challenging?” The conclusion was that it is because the disease burden changes as the population ages. Non-communicable diseases dominate, which require lifelong follow-up and support, requiring health system transformations to “accompany” people throughout their lives. Older people’s health is significantly determined by the social environment, highlighting the importance of addressing social determinants of health, such as education. Older people thrive best in communities but they need support to participate in society. Thus, communities can put in place various measures that allow older people to stay at home for as long as possible, including social support, health promotion, and a community-based care system. Older people are not necessarily only consumers of health resources. Healthy, active older people are an asset to society, as workers, consumers, investors, and social service providers. Countries can turn aging into an opportunity by transforming health systems to address social determinants of health, take care of people for extended periods, and enhance community capacity to support each other.

Welcoming Remarks

Prof. Akira Haseyama, President, Keio University

President Haseyama welcomed the participants to Keio University Mita Campus, Keio University’s main campus with a long and distinguished history, where its founder Yukichi Fukuzawa built Japan’s first public speaking hall, the “Enzetsukan,” in 1875 to promote public debate — a form of communication that was novel to Japan at that time. Hosting the 10th APRU Population Aging Conference at Mita Campus is particularly fitting for its academic tradition and openness to new ideas.

President Haseyama spoke about the main image used for the conference, the famous ukiyo-e print “Under the Wave off Kanagawa” by Katsushika Hokusai. The small boat that is determined to conquer

the gigantic wave indeed symbolizes the great efforts of Japan over the years to overcome the challenges of an aging population. The challenges for Japan include not only an older population living long and healthy lives, but also a society in which older people can live actively with purpose. If Japan can overcome this great wave of population aging and achieve a sustainable aging society, it could contribute to other countries that are following the path of population aging.

To reinforce Japan's capability to meet these challenges, Keio University established the Center for Supercentenarian Medical Research at the School of Medicine in 2014. One of the projects is to unravel the gene sequences of older persons aged 100 years and above. In addition, the Keio University Global Research Institute adopt an integrated approach across three disciplines: "Longevity," "Security," and "Creativity." As a core activity, the institute hosted the APRU Population Aging Hub, promoting integrated research on sciences and arts related to aging. As a gathering of universities in the Asian-Pacific region, APRU leads the way in solving global issues. President Haseyama was encouraged that the conference was attended by researchers and students from different universities, countries, and disciplines, which would surely generate novel and exciting research on health and longevity led through interesting presentations, lively exchange and discussions, and healthy debates during the conference.

Dr. Christopher Tremewan, Secretary-General, APRU

Unfortunately, Dr. Tremewan was unable to attend, so Ms. Christina Schönleber, Director (Policy and Programs) of the APRU, delivered a greeting on his behalf. Ms. Schönleber relayed that the APRU is a network of over 50 leading research universities in the Asian-Pacific region, and their mission is to draw on the research expertise of member universities to support governments and policymakers in addressing societal, environmental, and economic challenges. Population aging is one of the issues that APRU has been tackling over the past ten years through this program in collaboration with members and external partners. She expressed her and Dr. Tremewan's expectations that the conference would explore the implications of the 100-year lifespan on society, individuals, governments, and economic systems, and how rapid development of technologies can provide potential solutions.

Awards Ceremony

Four participants were chosen as awardees for the best papers: Dr. Indri Hapsari Susilowati, Dr. Chadatan Osatis, Mr. Paolo Miguel Vicerra, and Dr. Hom Nath Chalise. Professor Hideyuki Okano, President of the 10th APRU Population Aging Conference, presented an award and certificate to each awardee.

Keynote Address SEE SLIDES

Neuroscience of Aging: Modelling of Human Neurodegenerative Diseases using iPSCs and Genetically Modified Non-Human Primates

Prof. Hideyuki Okano, Dean, Graduate School of Medicine, Keio University

Professor Okano presented research on longevity coming out of Keio University, from the viewpoint of health science. Populations in the world are getting older, and in 2015, Japan was the only country with an over-60 population of 30% or more. Germany and Italy will join Japan in 2020; Spain, Portugal and Finland in 2025; South Korea, Switzerland and Cuba in 2030; Canada and Thailand in 2035; and

finally China in 2040. In this century, all countries around the world, except some in Africa, may have populations with at least 30% aged over 60.

To address this situation, Keio University started the Global Initiative on Longevity, which is composed of three groups: health science (headed by Professor Okano himself), social science and economy, and new technologies. The social science and economy studies include research on population structure, labor conditions for older people, social security, and public finance in collaboration with the WHO, World Bank, and World Economic Forum. Studies on new technologies include research on nano/microtechnology and robots, neuro-rehabilitation and artificial intelligence, as well as technological reform for nursing care.

Health science studies at Keio University mainly focus on dementia and neurodegenerative diseases, and the study of supercentenarians.

Dementia and neurodegenerative diseases

Aging is the biggest risk factor for neurodegenerative diseases, including dementia. With an estimated 2.02 billion people aged 60 or over around the world in 2050, the social cost for dementia in Japan is already 14.5 trillion yen per year (3% of the GDP). To contain this cost, a preemptive approach including early detection and early intervention are indispensable.

Dementia with neurodegeneration, which includes Alzheimer's disease, is associated with deposition of abnormal proteins including amyloid- β and Tau in the brain. On imaging studies, brains of patients with advanced Alzheimer's disease show atrophy, and deposition of amyloid plaque (amyloid- β) and neurofibrillary tangle (Tau).

Professor Okano's group has tried to develop innovative models for dementia using iPS cells (induced pluripotent stem cells) and genetically modified non-human primates. For iPS technology, a skin biopsy was collected from patients with familial Alzheimer's disease. Then, iPS cells were generated from the skin fibroblasts and differentiated to neurons. When they analyzed these Alzheimer's disease-derived neurons, they found an increased ratio of amyloid- β 42/amyloid- β 40 ratio, which are important biomarkers. However, there are limitations in using these 2-D cell cultures. The next step was to establish a 3-D human culture system. By using stem cells, brain-like cellular organization can be generated in a Petri dish. When they generated brain organoids from patients with familial Alzheimer's disease, they observed clear plaque formation. Also, Professor Okano's group started to develop their genetically modified non-human primate model. From 2009, they published papers on genetically modified marmosets. In 2016, they generated knock-out marmoset by genome editing. By using technology such as iPS cells, organoids, and non-human primate models, it became possible to recapitulate pathogenesis of neurodegenerative diseases and develop new diagnostic methods as well as new therapies.

Preemptive medicine is an approach that manages disease over its entire life cycle, from identifying an individual's susceptibility to a disease, to prevention, early diagnosis, reduction of complications, and smarter therapies. The key to preemptive medicine is early diagnosis and early intervention.

Preemptive medicine may be a feasible treatment for Alzheimer's disease. The natural history of Alzheimer's disease consists of a preclinical stage when symptoms are not obvious, followed by mild cognitive impairment (MCI) with mild memory impairment, and gradual progression to Alzheimer's disease some ten years later. It is important to diagnose in the MCI stage. To detect the disease at MCI or earlier, iPSC technology is very powerful. One can generate iPS cells from patients' fibroblasts

or blood cells, differentiate them to neurons and quickly detect Alzheimer's disease biomarkers such as amyloid- β peptides.

Another technology that Professor Okano and his team is working with is whole-genome sequencing. Since one-half of Alzheimer's disease patients have genetic abnormalities, whole-genome sequencing would predict the genetic risk of Alzheimer's disease to some extent. Another method is imaging. PET imaging can detect amyloid- β and Tau. At Keio University Hospital, iPS cell analysis can be done in the iPS Cell Research Center, whole-genome sequencing in the Keio Center for Supercentenarian Medical Research, and amyloid- β and Tau PET imaging at the Preventive Medicine Center. Keio University is also developing AI informatics for machine learning, with the ultimate goal of preemptive medicine for Alzheimer's disease.

Supercentenarian study

This study aims to achieve a comprehensive understanding of healthy longevity. The number of supercentenarians aged over 110 years increased from 33 in 2005 to 78 in 2010 and 146 in 2015. The center has recruited a total of 850 supercentenarians (100 years or above), semi-supercentenarians (105-109 years), and young supercentenarians (100-104 years). The study includes the construction of biobanks for atherosclerosis, diabetes, a biobank of autopsies, generation of iPS cells, and gene sequencing, with the goal to develop a knowledge base for the aging society. The group is studying how the hallmarks of aging, namely, mitochondrial dysfunction, telomere attrition, and epigenetic alteration, differ between supercentenarians and the general population. They have found that telomere length is better preserved in supercentenarians and their offspring. Whole-genome sequencing reveals that the frequency of APOE epsilon4 correlates inversely with longevity.

Presentation Session 1 Healthcare and Technology

Chair: Prof. Sangram S. Sisodia, Thomas Reynolds, Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University

Following six papers were presented:

The Relationship between Balance Confidence with Gait, Balance, and Strength Test among Elderly

Dr Indri Hapsari Susilowati, Head of Occupational Health and Safety Department, Universitas Indonesia (Awardee)

Virtual training leads to real acute physical, cognitive and neural benefits on healthy adults

Prof. Dalila Burin, Assistant Professor, Tohoku University

Epigenetic identify Driven by DNA damage induces aging

Dr. Motoshi Hayano, Research Assistant Professor, Keio University

Towards stereotaxic induction of neural plasticity using brain-computer interfaces for effective neurorehabilitation

Mr. Seitaro Iwama, Graduate School Student, Keio University

Short-term pulse treatment with nicotinamide mononucleotide (NMN) in diabetic nephropathy: therapeutic application of metabolic legacy effect

Dr. Itaru Yasuda, PhD Student, Keio University

Dietary lower protein increased anti-aging related metabolite and improved glucose and lipid

metabolism

Dr. Yoko Yokoyama, Project Assistant Professor, Keio University

Presentation Session 2 Economy and Society (Policy)

Chair: Prof. Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong and Department of Experimental Psychology, University of Cambridge

Following five papers were presented:

Elderly Employment Management in the Thai Private Sector: Flexibility and Protection

Dr. Chadatan Osatis, Lecturer, College of Population Studies, Chulalongkorn University (Awardee)

Non-Standard Employment of Older Persons in the Thai Private Sector: Assessment and Implementation

Dr. Chonticha Asavanirandorn, Researcher, College of Population Studies, Chulalongkorn University

Migrant care workers in Japan: stressors and implications for psychosocial support

Mr. Edward Asis, PhD Student, Sophia University

Leadership and peer counselling program: training and impact evaluation on Filipino senior peer counsellors

Dr. Rogie Royce Carandang, Project Assistant Professor, The University of Tokyo

Exploring the Interrelationships between Structural Social Support, Functional Social Support and Quality of Life Among Community-Dwelling Older Adults

Dr. Farizah Mohd Hairi, Associate Professor, University of Malaya

Presentation Session 3 Multi-sectoral Approach to Dementia

Chair: Prof. Sangram S. Sisodia, Thomas Reynolds, Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University

Following six papers were presented:

Cognitive aging among later-life adults: Associated factors and characteristics-based trajectories

Mr. Paolo Miguel Vicerra, Doctoral Candidate, Chulalongkorn University (Awardee)

Preventive role of p38 against age-related decline in adult neurogenesis via modulation of Wnt signalling

Dr. Yoshitaka Kase, Assistant Professor, Keio University

The impact of modifiable risk factors on dementia in China

Ms. Yingxu Liu, Master Student, Tohoku University

Association between physical activity and cognitive function among the community-dwelling oldest old population: A cross-sectional study utilizing actigraphy from the Arakawa 85+ study

Dr. Kouta Suzuki, Doctor's Degree Student, Keio University

Relationship between attitudes towards people with dementia and the neighborhood

Mr. Kazuhiro Uchida, PhD Student, Waseda University

Empirical and ethical inquiries into robotic intervention for older adults with dementia

Prof. Ryuji Yamazaki, Specially Appointed Associate Professor, Osaka University

Presentation Session 4 Other Topics

Dr. Sabarinah, Vice Dean for Academic Affair, Faculty of Public Health, Universitas Indonesia

Following four papers were presented:

The burden of Alzheimer's disease and other Dementias in China, 1990–2016: A national analysis from the Global Burden of Disease Study 2016

Prof. Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong and Department of Experimental Psychology, University of Cambridge (Special Presenter)

Elderly abuse among Nepalese community living elderly

Dr. Hom Nath Chalise, Vice-President, Population Association of Nepal (Awardee)

Education level and healthy aging in older Indonesian population: the Indonesian Family Life Survey (IFLS) 2007 and 2014

Mrs. Dieta Nurrika, Student, Tohoku University

Sedentary behavior and physical activities of the 85–89-year-old Japanese men and women—A descriptive study of the Kawasaki Well-being Project (KWP)

Ms. Naoko Shinmura, Master Student, Keio University

Poster Session

During the lunch break, posters were displayed, and participants and poster presenters engaged in active discussions. Twenty-one posters were presented in the areas of healthcare and technology, economy and society (policy), multi-sectoral approach to dementia, and “other.”

Grand Plenary 1

Chair: Prof. John Piggott, Director, ARC Centre of Excellence in Population Ageing Research (CEPAR), UNSW Sydney

Special Lecture [SEE HANDOUTS](#)

Toward a Life-long Active Society: The case of Japan and implications on the APRU community

Prof. Atsushi Seike, President, Promotion and Mutual Aid Corporation for Private Schools of Japan

The rapid increase in older people in Japan, especially those aged 75 or over, has great significance in social security reform. One very clear impact is a declining workforce. A decline in the workforce results in a decrease in production and consumption, with serious effects both on the supply side and demand side in the macroeconomy. The decline of the workforce will also hamper the sustainability of the social security system because the Japanese social security system depends on the workers' contributions in the form of the insurance premiums and income taxes.

One of the factors behind this population aging is rapid economic growth. The life expectancy has increased drastically by the economic growth. And the drastic increase in wages and unchanged division of work between men and women result in low birth rates, because women have to pay a higher opportunity cost to have a baby. The birth rate in Japan has decreased to 1.4 in recent years. These trends are difficult to reverse, and even if successful, the new workforce will not be ready until more than two decades later.

To cope with this challenge, it is very important to maintain the labor force even under the constraint

of an aging population. The participation rate in the workforce of young to middle-aged men already approaches nearly 100%. However, there is still substantial room to increase participation for women and older people. To what extent and in what way can we increase the participation rates of women and older people? This is the most important measure we can take. To achieve this, the society has to fully accommodate the needs of women and older people for them to work. This is the concept of a lifelong active society.

The Study Group on Employment Policy of the Ministry of Health, Labour and Welfare projects that if the present trend continues, the labor force will decline from 67 million today to less than 55 million in 2040. However, increasing the rates of laborforce participation of women and older people would maintain the size of the labor force at nearly 62 million until 2040. To increase women's participation, policies to eliminate all obstacles that prevents women from working in the workplace and to promote childcare services are essential. Another very important measure is to increase the labor force participation of older people. More numbers of older people working beyond the current retirement age will substantially reduce per capita the social security burden and drive economic growth. Therefore, older workers should be viewed as an asset for sustainability in an aged society. Older people in Japan are highly motivated to continue working in their 60s and beyond. This is an opportunity to promote a lifelong active society.

On the other hand, there are also obstacles; poor health has the greatest negative impact on the probability of laborforce participation (more than 30% reduction) followed by mandatory retirement (about 20%), and eligibility to receive employee pension (about 15%). Mandatory retirement does not necessarily mean complete retirement from the labor market, and many workers take a so-called secondary job after mandatory retirement from their primary job. However, quite often, the degree of utilization of the potential capabilities of older workers tend to be reduced after mandatory retirement. This issue should be addressed by raising the legal minimum age of retirement, while also revising the seniority-based wages and seniority system. Another obstacle is that people who are eligible to receive employee pension are discouraged to continue working in earnest because their pension is reduced depending on the earning from employment. Therefore, the public pension system also has to be revised.

It is also important to reform the social security system. More social security benefits should be spent on young people, such as child care benefits. Currently, the amount spent on child care is too small (1.4% of GDP). Pension, medical care, and long-term care occupy the biggest share, although the two differ in nature. Changes in pension expenditure are linear, depending only on the pension-eligible population, and hence can be controlled simply by changing the revenue (premium) and expenditure (benefit) schemes.

On the other hand, medical and long-term care expenditures are non-linear and increase faster than the pace of increase in an older population, because of the rapid increase in the old-old population who have greater needs for medical care and long-term care. Besides finance, reforms need to consider service providers such as doctors, nurses and long-term care takers. Without their cooperation, it is impossible to devise effective policies.

To contribute to a sustainable aging society, the university community should play major roles in research and education. Interdisciplinary research is very important. Take for example the research at Keio University. To promote a lifelong active society, researchers in labor economics identified the determinants of labor supply of older people using econometric analysis. According to their findings, health problems were found to be the biggest obstacle to promoting a lifelong active society. It was

deemed imperative to incorporate the fields of medicine and life sciences.

To narrow the 10-year gap between life expectancy and healthy lifespan, Keio researchers in medicine and life sciences are conducting comprehensive research on health and longevity. Medical researchers are accumulating knowledge and insight on how to maintain and restore the physical and cognitive capabilities of older people. Through their research, one can estimate the extent of improvement in health or physical and cognitive capabilities of older people. By converting these estimates to labor supply function, it is possible to predict the labor supply of older people in the future. Interdisciplinary research that integrates labor economics and medicine and life sciences have important implications for meaningful policymaking. Education is another important role for universities to prepare us for an aging society. Realizing a lifelong active society would also mean that people have a longer professional life. It is important to prepare students to be able to adapt to whatever changes they will encounter in their long professional lives. The ability to think for themselves, to understand the situation, and to take appropriate actions based on this understanding will become more important than ever before.

Global aging is a highly predictable long-term trend in all aspects of economic and social phenomena. Early action can be taken if population aging is understood with a broad and long-term perspective. The founder of Keio University, Yukichi Fukuzawa, once said that scholars should be the “*Dogan*” or the guardian goose of the nation. They should reflect on the past, observe the development of the present, and deliberate on the best outcome for the future.

Commentaries from Policy Makers

After the presentation, the chair invited three ministers in attendance to the stage for commentaries: Mr. Kalani Kaneko, Minister of Health and Human Services, Republic of the Marshall Islands; Mrs. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia, France; and Dr. Ifereimi Waqainabete, Minister of Health and Medical Services, Republic of Fiji.

Mrs. Eurisouke posed a few questions. What policies did Japan undertake to achieve such impressive life expectancy? What economic model does Japan adopt for such a large population? Would increasing the retirement age limit young people from joining the labor force?

Dr. Waqainabete noted that when a country develops economically, the population tends to live longer. Fiji currently has an older population of 9%, and economy and health systems are becoming stronger. Like Japan and other countries, Fiji will face the same challenge of the aging population perhaps in a few decades. Fiji has a rich culture in which older people are looked after by the family. He wished to ask academics how to preserve and continue that fabric of culture, to lessen the burden of the government of looking after the older population.

Mr. Kaneko introduced the Marshall Islands to the audience as an island country with a population of about 53,000. The population growth rate is 2.2%, but there is a loss of workforce due to emigration to the US. Forty per cent of the population is aged between 0 and 14 and 5% is aged 60 and over. Emigration of the workforce and increasing life expectancy puts great stress on the social security system, which was in jeopardy of bankruptcy. To rescue this situation, the government implemented a 1% income tax increase and cut social security benefits. These policies saved the system. He questioned whether the quality and speed of the workforce could be maintained with more older people participating.

Due to time constraints, Professor Seike only had time to respond to a few comments. Regarding the longevity of Japanese people, he stressed that in essence, it was economic growth that allowed Japan to improve medical services and living standards. Therefore, population aging is not unique to Japan, and all countries will face this challenge sooner or later. The problem is that functional lifespan (occupational or financial lifespan) does not catch up with biological lifespan, and the gap has to be narrowed. Hence, it is very important to increase the healthy life expectancy by using medical interventions and other services. On the other hand, birth rate is highly correlated to cultural factors. A rapid increase in wages for women and an unchanged traditional culture regarding gender division of labor will invariably result in a drastic decline in the birth rate. While maintaining cultural fabric such as caring for older people in the community is important, it may sometimes be necessary to change other aspects of the tradition, for example, any discriminating practices against women in the workplace. As for the roles of politicians, political leaders need to have long-term perspectives, such as a focus on the next generation.

The chair then opened the floor to questions. Professor Weekes of the University of Hong Kong asked what lessons can be learned from the history of population growth due to economic development, such as the industrial revolution. Professor Seike responded using the example of technological revolution and population aging. In this era of AI and robotics, which some call the fourth industrial revolution, there will be a win-win relationship between technological progress and population aging. For example, modern technology may help improve physical and cognitive capabilities of older people. Technology may also substantially improve long-term care. Mechanical work may be replaced by machines, while knowledge and insight are more in demand among the workforce, which may be provided by older, experienced workers. Professor Piggott added a comment that technology will respond where there is demand. The aging cohort generates the demand, and technology will respond in kind.

Dr. Waqainabete asked what should be the retirement age, especially for a small economy such as Fiji. Professor Piggott remarked that there is a fallacy in economics called the lump of labor fallacy. It is generally thought that someone has to retire for a new job to be created. That is not correct. The economy is like a balloon. If there is a bigger labor force, the economy will expand, and that expansion increases tax revenues and social security contributions. Therefore, a large workforce is advantageous for economic growth.

A participant from the University of Tokyo asked how researchers can make policymakers accept their research in the community. Professor Piggott responded that interdisciplinary research is most important as researchers have to present evidence from several disciplines to persuade policymakers.

Grand Plenary 2

Dialogue with Political Leaders

Co-Chair:

Dr. Takeshi Kasai, WHO Regional Director for the Western Pacific

Ms. Christina Schönleber, Director, Policy and Program, APRU

Panelists:

Prof. Keizo Takemi, Member of the House of Councillors, The National Diet of Japan

Mr. Kalani Kaneko, Minister of Health and Human Services, Republic of the Marshall Islands

Dr. Jacques Raynal, Minister of Health, French Polynesia, France (message delivered by Dr.

Corinne Capuano, WPRO)

Mrs. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia, France

Dr. Ifereimi Waqainabete, Minister of Health and Medical Services, Republic of Fiji

Before opening the session, Dr. Kasai thanked the organizers and expressed his sympathy for the victims of Typhoon Hagibis, giving his condolences to those who lost loved ones.

He then opened his dialogue with a short introduction. Non-communicable diseases and aging are very important topics for the WPRO. Once a country starts to experience population aging, the rate of aging is rapid. Targeting population aging is an opportunity to transform the health system. Preparing for aging requires a re-orientation of the health system from a single incident model to primary care services that follow individuals throughout their lives. This requires a focus on social determinants of health and social security. If one takes action early, it is possible to turn the challenge into an opportunity.

First, the three ministers briefly presented the situations in their respective countries. Dr. Waqainabete reported that Fiji had started social protection for older people who have no formal protection such as a pension scheme, providing them with free transportation, a small pension, and free medicine. The government is also transitioning older people in the labor force into other areas of work. However, older members of the population who have poor health consume a large share of medical expenditures. Therefore, efforts are being made to ensure that they are healthy and can continue to contribute to society.

Mrs. Eurisouke presented the demographics of New Caledonia. In 2014, the population of New Caledonia was 268,000. In 2013, nearly 15% of the population was over 65. In 1989, the government started giving minimum assistance to people aged 60 years and older, irrespective of whether or not they contributed to a pension scheme. Other measures have also been implemented such as housing assistance. For dependent older people, retirement homes and other institutions have been built. However, these measures do not meet all the needs. The priority now is to promote home support. A plan of action has been formulated based on five main axes:

1. Modernize home support to allow older people to remain living in their homes
2. Develop appropriate care structures
3. Control medical expenditures
4. Develop professionals for gerontology
5. Support the purchasing power of older people

Dr. Corinne Capuano, WPRO, delivered a message on behalf of Dr. Jacques Raynal, Minister of Health, French Polynesia, who was not able to attend due to the typhoon. Dr. Raynal conveyed that in 2015, older people accounted for 15% of the population of French Polynesia and consumed 34% of health expenditures. In 2027, the proportion of older people is projected to be 17% and life expectancy to be 81 years. This represents economic, health, and cultural challenges. Therefore, different actions have been implemented. A pilot program was set up to prevent loss of autonomy of older people. The program also highlighted the cultural features of French Polynesia. Development of public policies for older people should take into account the Polynesian model of family structure. A master plan for elderly people has been developed, with three main objectives: achieve well aging by ensuring an institutional framework, home care, and quality and monitoring of services; create an age-friendly environment in transportation, access and physical activities; and take into account the geographical distribution of the population.

Mr. Kaneko explained that for a small population, the population structure could change very rapidly. In the Marshall Islands, while younger people emigrate to the US, they often return after retirement. Therefore, preparations must be made because the situation can change rapidly. The senior citizen act was enacted, which provides discounts for public sector services and also for private sectors. The age of retirement was raised from 60 to eventually 65, with an increase of 1 year every two years. As Chair of the social security board, Mr. Kaneko instituted a reform of the social security system to save the system from going bankrupt. With many middle-aged adults migrating to the US, the older people are essential members of the workforce as the younger workers are less experienced. In the public sector, special contracts are created for professional workers. They retire at 60 and can receive their pension, and they are offered the option to continue working but their pension will be taxed.

Prof. Takemi summarized the situation in Japan. After the war, the goal of Japan was to create a well-educated, healthy, middle-class society. While Japan was enjoying speedy economic growth in the late 60s and 70s, the gap between the rich and the poor did not increase. The reason is that the universal health coverage system shared over 75% of the government capacity to re-allocate financial resources from the rich to the poor. Nowadays the birthrate is as low as 1.4, and over 28.6% of the population is over 65. This demographic change is responsible for -0.6% of economic growth. To cope with this situation in the future, the Japanese government has built a policy framework based on four pillars. The first is to utilize more AI, ICT, and robotics to replace the human workforce. The second is to empower women to join and stay in the workforce. The third is to extend healthy life expectancy for 3 more years by 2040, and give older people chances to continue to work and maintain their productivity. The fourth is to open the labor market to foreign labor forces, specifically, the long-term care market, because Japan will face severe shortages. To manage the four pillars under one umbrella, the government has created a new policy package with the participation of various sectors and intentionally creates synergic effects to realize an economically, socially, and culturally active, healthy aging society in Japan.

Dr. Kasai concluded that other countries might view the Japanese experience as a grand social experiment, and all are looking forward to seeing the outcomes and to continue learning from it.

The panel was then opened for discussion, chaired by Ms. Schönleber. A participant from Nepal pointed out that poor countries including Nepal, are also aging rapidly. In Nepal, political leaders are ambitiously trying to implement universal health coverage and pension system, but academics are worried that the economy can not support such ambitious goals. How can academics convince politicians of the actual situation? Mr. Kaneko responded that in the Marshall Islands, when he tried to change the social security system, he recruited politicians to sit on the board to let them take on ownership of the problem, and make them work with academics and experts. Eventually, there was consensus on the changes. Mrs. Eurisouke commented that the economic crisis of health systems faced by many countries is very convincing to bring politicians on board and to build a holistic approach. All actors in the economic sector, the political sector, and research fields have a role to play.

A participant from Keio University asked whether countries that wish to learn from the Japanese experience found cultural differences with their own countries, and how do they overcome these differences? Dr. Waqainabete commented that it is important to capture the culture of Japan and match it to one's own. For example, both Japan and Fiji have a culture of looking after older people in the family. He would be interested to learn how policymakers find evidence-based policies to support this culture. Prof. Takemi pointed out that Japan is not necessarily an ideal model for all aging societies. Japan has been learning from mistakes in its quest to solve the aging population problems.

In the 1970s, Mayor Minobe of Tokyo introduced the policy of free medical care for older people, which made him very popular for voters but with a disastrous result of nearly bankrupting the health insurance system. At one time, the Japanese Government increased in-patient facilities for the elderly, only to find later that long-term care facilities were what was needed. In 2000, Japan introduced the long-term care insurance system. Now that system is facing financial difficulties because of the escalating demands. The final conclusion of these trials and errors is to extend the healthy life expectancy and pay more attention to social determinants of health. Prof. Takemi cautioned that when learning from the Japanese experience, watch carefully for the errors too and how they were corrected.

The discussion was fittingly wrapped up by the last comment from the youngest participant of the conference, a third-year medical student of Keio University. She reminded the audience that younger people are important members making up the society and are drivers of a sustainable society. Without cooperation from young people (soft power), governments cannot successfully implement their policies (hard power) to achieve the goals. The issue is how to convince young people about the importance of communities and their contribution to solving the problems of population aging. All panelists warmly welcomed the suggestions and described the ways they have engaged young people in their decision making processes. Prof. Takemi added that political leaders should design a positive cycle of social dynamics to give the younger generation a prospect to realize a more meaningful life.

Dr. Kasai thanked the panelists and participants and closed the panel discussion.

Concluding Remarks

Professor Hideyuki Okano, Dean, Graduate School of Medicine, Keio University

Professor Okano thanked all the participants, including the ministers, WHO Regional Director, professors, students, and supporting staff for participating in the conference despite the difficult situation caused by the typhoon. Although the program was shortened from two days to one, he felt confident that the conference was a great success.

He touched on the theme of the conference (“A New Paradigm in the Era of the 100-year Life Span: The Search for Social and Scientific Solutions”) and how this theme was discussed from the various aspects of healthcare, new technology, economy, society, and policy. Many proposals, suggestions, and scientific data presented in the conference will help to enrich our wisdom about how to live in the era of the 100-year lifespan. Participants were able to learn the importance of inter-sectoral discussions, a correlation between physical activity and cognitive functions in older people, and the importance of interaction with the neighborhood in addressing dementia. Scientific evidence was presented that media communication has a therapeutic effect for BPSD and encouraging examples of proof of concept is translated to clinical applications.

Professor Seike’s lecture highlighted the importance of achieving a lifelong active society. The decline of the labor force is an important problem in Japan, but the active participation of women and older people can alleviate this situation. Internationalization and globalization of the labor force must also contribute to this situation, as exemplified by the recent success of the Japanese national rugby team.

Narrowing the gap between biological lifespan and healthy lifespan is important to guarantee the sustainability of society. In this sense, the mission of medical scientists is very clear and the task is

enormous. From the dialogue with the leaders, it was interesting to learn that Pacific Rim countries are facing distinct and also common social problems. All countries should work together to overcome these challenges. To quote the APRU message, no single person, no single university, and no single country can save our future. To achieve a sustainable and creative future, all countries should work together.

Annex 1 Original Program

Sunday, October 13, 2019 (Day 1)

9:00 a.m.	Welcoming Remarks Venue: North Hall
	Prof. Akira Haseyama, President, Keio University Dr. Christopher Tremewan, Secretary General, APRU
9:20 a.m.	Awards Ceremony Venue: North Hall
9:30 a.m.	Key Note Address Venue: North Hall
	<i>Neuroscience of Aging: Modelling of Human Neurodegenerative Diseases using iPSCs and Genetically Modified Non-Human Primates</i> Prof. Hideyuki Okano, Dean, Graduate School of Medicine, Keio University
10:00 a.m.	Panel 1 — Case studies of Japanese aging research initiatives and suggestions for the Asia-Pacific region: From the site of KGRI research at Keio University Venue: North Hall
	Chair: Prof. Masato Yasui, Director, Keio University Global Research Institute
	<i>Sex-specific Modulation of Amyloid Deposition and Neuroinflammation by the Microbiome</i> Prof. Sangram S. Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University
	<i>Cognitive Aging and Financial Gerontology</i> Prof. Kohei Komamura, Faculty of Economics, Keio University
	<i>Neuro-rehabilitation and Artificial Intelligence in Aging Societies</i> Junichi Ushiba, Associate Professor, Faculty of Science and Technology, Keio University
	<i>Supercentenarian Study: What can we learn from extremely long-lived people?</i> Yasumichi Arai, Assistant Professor, Center for Supercentenarian Medical Research, School of Medicine, Keio University
11:00 a.m.	Break
11:15 a.m.	Presentation Session 1 Theme: Healthcare and Technology Venue: North Hall
	Chair: Prof. Sangram S. Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University
	Presenters: Dr. Indri Hapsari Susilowati, Universitas Indonesia (Awardee) Prof. Dalila Burin, Tohoku University Dr. Motoshi Hayano, Keio University Mr. Seitaro Iwama, Keio University Dr. Itaru Yasuda, Keio University Dr. Yoko Yokoyama, Keio University
	Presentation Session 2 Theme: Economy and Society (Policy) Venue: G-Lab
	Chair: Prof. Noran Naqiah Hairi, Associate Professor, Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya
	Presenters: Dr. Chadatan Osatis, Chulalongkorn University (Awardee) Mr. Owasim Akram, Örebro University Dr. Chonticha Asavanirandorn, Chulalongkorn University Mr. Edward Asis, Sophia University Dr. Rogie Royce Carandang, The University of Tokyo Dr. Farizah Mohd Hairi, University of Malaya
12:45 p.m.	Lunch and Poster Session Venue: East Research Building Hall
	Poster session presenters: 1. Healthcare and Technology Dr. Yoshiaki Furukawa, Associate Professor, Keio University Dr. Akihito Hishikawa, JSPS Research Fellow, Keio University Dr. Emi Inagaki, Post-Doctoral Fellow, Keio University Dr. Junichiro Irie, Assistant Professor, Keio University Ms. Naho Kitamura, PhD Student, Keio University Dr. Ramesh Kumar, Post-Doctoral Fellow, Chulalongkorn University

Dr. Sumihiro Maeda, Assistant Professor, Keio University
Ms. Anna Nakamura, Ph.D. Student, Keio University
Mr. Yu Ohno, Master Student, Keio University
Ms. Tsukika Sato, Ph.D. Student, Keio University
Dr. Rina Takahashi, Graduate Student, Keio University
Dr. Shintaro Yamaguchi, Instructor, Keio University

2. Economy and Society (Policy)

Ms. Minji Kim, Master's Degree Student, Seoul National University

3. Multi-sectoral Approach to Dementia

Dr. Yoichiro Abe, Instructor, Keio University
Dr. Toshiki Tezuka, Graduate School Student, Keio University

4. Other topics

Dr. Siyi An, Student, Tohoku University
Ms. Nivedha Balachandar, Research Officer, Geriatric Education and Research Institute, Singapore
Ms. Eriko Jibiki, Researcher, Tokyo Women's Medical University and Human Resources Strategy Center for Global Health
Ms. Yukiko Kawata, Graduate School Student, Keio University
Dr. Fadzilah Hanum Mohd Mydin, Senior Lecturer and Family Medicine Specialist, University of Malaya
Professor Sajaratulnisah Othman, Family Medicine Consultant, University of Malaya
Ms. Hikari Sandhu, Doctoral Candidate, The University of Tokyo
Dr. Pramon Viwattanakulvanid, Lecturer, Chulalongkorn University

2:15 p.m.

Presentation Session 3

Theme: Multi-sectoral Approach to Dementia
Venue: North Hall

Chair: Prof. Angelique Chan, Executive Director of the Centre for Ageing Research & Education, Duke-NUS Medical School

Presenters:

Mr. Paolo Miguel Vicerra, Chulalongkorn University (Awardee)
Dr. Yoshitaka Kase, Keio University
Ms. Yingxu Liu, Tohoku University
Dr. Kouta Suzuki, Keio University
Mr. Kazuhiro Uchida, Waseda University
Prof. Ryuji Yamazaki, Osaka University

Presentation Session 4

Theme: Other topics
Venue: G-Lab

Chair: Dr. Sabarinah, Vice Dean for Academic Affair, Faculty of Public Health, Universitas Indonesia

Presenters:

Dr. Hom Nath Chalise, Population Association of Nepal (Awardee)
Dr. Noran Naqiah Hairi, University of Malaya
Mrs. Dieta Nurrika, Tohoku University
Ms. Naoko Shinmura, Keio University
Ms. Silvia Yu Hui Sim, Geriatric Education and Research Institute, Singapore
Dr. Yi Yang, Duke-NUS Medical School

3:45 p.m.

Break

4:00 p.m.

Panel 2 — Dementia research in Japan

Venue: North Hall

Chair: Prof. Sangram S. Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University

The Recent Progress in Dementia Drug Development

Dr. Haruo Naito, Representative Corporate Officer and CEO, Eisai Co., Ltd

Ethical issues of disclosing amyloid status to persons with subjective cognitive decline

Prof. Masaru Mimura, Department of Neuropsychiatry, School of Medicine, Keio University

The burden of Alzheimer's disease and other Dementias in China, 1990-2016: A national analysis from the Global Burden of Disease Study 2016

Prof. Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong and Department of Experimental Psychology, University of Cambridge

5:30 p.m.

Networking Reception

Monday, October 14, 2019 (Day 2)

10:00 a.m.

Panel 3 — Social Innovation for an Era of Centenarians

Venue: North Hall

	<p>Chair: Prof. Toru Takebayashi, School of Medicine and Dean of the Graduate School of Health Management, Keio University</p> <p><i>Japan's preparation for a super-aged society and the issues the nation currently faces</i> Prof. Koji Miura, Clinical and Translational Research Center, Keio University Hospital</p> <p><i>Caring for Persons with Dementia: Towards a Sustainable Community Based Dementia Care System</i> Prof. Angelique Chan, Executive Director of the Centre for Ageing Research & Education, Duke-NUS Medical School</p> <p><i>Data-Driven Social Innovation for an Era of Centenarians</i> Prof. Naohiko Kohtake, Graduate School of System Design and Management, Keio University</p> <p><i>Kamakura Living Lab: A Platform for Open Innovation</i> Prof. Hiroko Akiyama, Professor Emeritus, The University of Tokyo</p>
11:30 a.m.	Break
11:45 a.m.	<p>Summary Session Feedback from 4 Presentation Sessions Venue: North Hall</p> <p>Chair: Prof. Hiroki Nakatani, Project Professor, Keio University Global Research Institute</p> <p>Presenters: Dr. Indri Hapsari Susilowati, Universitas Indonesia (Awardee) Dr. Chadatan Osatis, Chulalongkorn University (Awardee) Mr. Paolo Miguel Vicerra, Chulalongkorn University (Awardee) Dr. Hom Nath Chalise, Population Association of Nepal (Awardee)</p>
1:15 p.m.	<p>Lunch Venue: East Research Building Hall</p> <p>APRU Population Aging Steering Committee Meeting Venue: Meeting Room, 5th floor, East Research Building</p>
2:30 p.m.	<p>Grand Plenary 1 — Special Lecture by Prof. Atsushi Seike Venue: North Hall</p> <p>Chair: Prof. John Piggott, Director, ARC Centre of Excellence in Population Ageing Research (CEPAR), UNSW Sydney</p> <p><i>Toward a Life-long Active Society: The case of Japan and implications on the APRU community</i> Prof. Atsushi Seike, President, Promotion and Mutual Aid Corporation for Private Schools of Japan</p> <p>Commentators: His Excellency Dr. Jacques Raynal, Minister of Health, French Polynesia Her Excellency Ms. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia His Excellency Dr. Ifereimi Waqainabete, Minister for Health and Medical Services, Republic of Fiji</p>
3:45 p.m.	<p>Grand Plenary 2 — Dialogue with Political Leaders Venue: North Hall</p> <p>Co-Chair: Dr. Takeshi Kasai, WHO Regional Director for the Western Pacific and Ms. Christina Schönleber, Director, Policy & Program, APRU</p> <p>Panelists: His Excellency Dr. Jacques Raynal, Minister of Health, French Polynesia Her Excellency Ms. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia His Excellency Dr. Ifereimi Waqainabete, Minister for Health and Medical Services, Republic of Fiji Dr. Yasuyuki Sahara, Assistant Minister, Minister's Secretariat, Ministry of Health, Labour and Welfare</p>
4:45 p.m.	<p>Concluding Remarks Venue: North Hall</p> <p>Prof. Hideyuki Okano, Dean, Graduate School of Medicine, Keio University</p>
4:55 p.m.	Group Photo
5:00 p.m.	End of Conference

Annex 2 Shortened Program

Monday, October 14, 2019

9:00 a.m.	Welcoming Remarks Venue: North Hall	
	Prof. Akira Haseyama, President, Keio University Dr. Christopher Tremewan, Secretary General, APRU	
9:10 a.m.	Awards Ceremony Venue: North Hall	
9:20 a.m.	Key Note Address Venue: North Hall	
	<i>Neuroscience of Aging: Modelling of Human Neurodegenerative Diseases using iPSCs and Genetically Modified Non-Human Primates</i> Prof. Hideyuki Okano, Dean, Graduate School of Medicine, Keio University	
9:50 a.m.	Break	
10:00 a.m.	Presentation Session 1 Theme: Healthcare and Technology Venue: North Hall	Presentation Session 2 Theme: Economy and Society (Policy) Venue: G-Lab
	Chair: Prof. Sangram S. Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University	Chair: Prof. Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong and Department of Experimental Psychology, University of Cambridge
	Presenters: Dr. Indri Hapsari Susilowati, Universitas Indonesia (Awardee) Prof. Dalila Burin, Tohoku University Dr. Motoshi Hayano, Keio University Mr. Seitaro Iwama, Keio University Dr. Itaru Yasuda, Keio University Dr. Yoko Yokoyama, Keio University	Presenters: Dr. Chadatan Osatis, Chulalongkorn University (Awardee) Dr. Chonticha Asavanirandorn, Chulalongkorn University Mr. Edward Asis, Sophia University Dr. Rogie Royce Carandang, The University of Tokyo Dr. Farizah Mohd Hairi, University of Malaya
11:30 a.m.	Lunch and Poster Session Venue: East Research Building Hall	
	Poster session presenters:	
	1. Healthcare and Technology	
	Dr. Yoshiaki Furukawa, Associate Professor, Keio University Dr. Akihito Hishikawa, JSPS Research Fellow, Keio University Dr. Emi Inagaki, Post-Doctoral Fellow, Keio University Dr. Junichiro Irie, Assistant Professor, Keio University Ms. Naho Kitamura, PhD Student, Keio University Dr. Ramesh Kumar, Post-Doctoral Fellow, Chulalongkorn University Dr. Sumihiro Maeda, Assistant Professor, Keio University Ms. Anna Nakamura, Ph.D. Student, Keio University Mr. Yu Ohno, Master Student, Keio University Ms. Tsukika Sato, Ph.D. Student, Keio University Dr. Rina Takahashi, Graduate Student, Keio University Dr. Shintaro Yamaguchi, Instructor, Keio University	
	2. Economy and Society (Policy)	
	Ms. Minji Kim, Master's Degree Student, Seoul National University	
	3. Multi-sectoral Approach to Dementia	
	Dr. Yoichiro Abe, Instructor, Keio University Dr. Toshiki Tezuka, Graduate School Student, Keio University	
	4. Other topics	
	Dr. Siyi An, Student, Tohoku University	

	<p>Ms. Eriko Jibiki, Researcher, Tokyo Women's Medical University and Human Resources Strategy Center for Global Health Ms. Yukiko Kawata, Graduate School Student, Keio University Dr. Fadzilah Hanum Mohd Mydin, Senior Lecturer and Family Medicine Specialist, University of Malaya Professor Sajaratulnisah Othman, Family Medicine Consultant, University of Malaya Ms. Hikari Sandhu, Doctoral Candidate, The University of Tokyo</p>	
12:45 p.m.	<p>Presentation Session 3 Theme: Multi-sectoral Approach to Dementia Venue: North Hall</p> <p>Chair: Prof. Sangram S. Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University</p> <p>Presenters: Mr. Paolo Miguel Vicerra, Chulalongkorn University (Awardee) Dr. Yoshitaka Kase, Keio University Ms. Yingxu Liu, Tohoku University Dr. Kouta Suzuki, Keio University Mr. Kazuhiro Uchida, Waseda University Prof. Ryuji Yamazaki, Osaka University</p>	<p>Presentation Session 4 Theme: Other topics Venue: G-Lab</p> <p>Chair: Dr. Sabarinah, Vice Dean for Academic Affair, Faculty of Public Health, Universitas Indonesia</p> <p>Special Presenter: Prof. Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong and Department of Experimental Psychology, University of Cambridge</p> <p>Presenters: Dr. Hom Nath Chalise, Population Association of Nepal (Awardee) Mrs. Dieta Nurrika, Tohoku University Ms. Naoko Shinmura, Keio University</p>
2:15 p.m.	Break	
2:30 p.m.	<p>Grand Plenary 1 — Special Lecture by Prof. Atsushi Seike Venue: North Hall</p> <p>Chair: Prof. John Piggott, Director, ARC Centre of Excellence in Population Ageing Research (CEPAR), UNSW Sydney</p> <p><i>Toward a Life-long Active Society: The case of Japan and implications on the APRU community</i> Prof. Atsushi Seike, President, Promotion and Mutual Aid Corporation for Private Schools of Japan</p> <p>Commentators: His Excellency Dr. Jacques Raynal, Minister of Health, French Polynesia Her Excellency Ms. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia His Excellency Dr. Ifereimi Waqainabete, Minister for Health and Medical Services, Republic of Fiji</p>	
3:45 p.m.	<p>Grand Plenary 2 — Dialogue with Political Leaders Venue: North Hall</p> <p>Co-Chair: Dr. Takeshi Kasai, WHO Regional Director for the Western Pacific and Ms. Christina Schönleber, Director, Policy & Program, APRU</p> <p>Panelists: His Excellency Dr. Jacques Raynal, Minister of Health, French Polynesia Her Excellency Ms. Valentine Eurisouke, Minister for Sport, Health and Youth, New Caledonia His Excellency Dr. Ifereimi Waqainabete, Minister for Health and Medical Services, Republic of Fiji Dr. Yasuyuki Sahara, Assistant Minister, Minister's Secretariat, Ministry of Health, Labour and Welfare</p>	
4:45 p.m.	<p>Concluding Remarks Venue: North Hall Prof. Hideyuki Okano, Dean, Graduate School of Medicine, Keio University</p>	
4:55 p.m.	Group Photo	
5:00 p.m.	End of Conference	

Annex 3 Panel 1: Case Studies of Japanese Aging Research Initiatives and Suggestions for the Asia-Pacific Region: From the Site of KGRI Research at Keio University

The shortened program did not accommodate this panel. However, the slides prepared by the panelists were made available on the Internet.

Chair: Professor Masato Yasui, Director of the Keio University Global Research Institute

Masato Yasui graduated from the Keio University School of Medicine and obtained his medical license in 1989. He was a clinical resident of pediatrics at St. Luke's International Hospital, Tokyo, from 1989 to 1992 and a clinical fellow of neonatology at the Tokyo Women's Medical University in 1992. From 1993 to 1997, he studied at the Pediatric Unit of the Department of Women's and Children's Health at Karolinska Institutet in Sweden, where he obtained a Doctor of Philosophy, and in 1998, he was awarded a Doctor of Medical Science from Keio University. He then worked as a postdoctoral research fellow at the Department of Biological Chemistry at the Johns Hopkins School of Medicine in the US until 2000. Between 2000 and 2001, he was an instructor at the Department of Biological Chemistry at the Johns Hopkins School of Medicine, and an assistant professor at the Departments of Pediatrics and Biological Chemistry at the Johns Hopkins School of Medicine from 2001 to 2006. Since 2006, he has been a professor and chair of the Department of Pharmacology, Keio University School of Medicine. He was also appointed as the Director of the Keio Global Research Institute (KGRI) in 2018.

Panelists:

Professor Sangram Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University

Dr. Sisodia's research has focused on understanding the cellular and molecular biology of the amyloid precursor protein (APP) and presenilins (PS1 and PS2), polypeptides that are mutated in pedigrees with familial Alzheimer's Disease (FAD). His most notable contributions include the generation and characterization of mouse models that exhibit amyloid plaques in the brain. These models have been invaluable for understanding the impact of environmental enrichment and exercise in modulating amyloid deposition and adult neurogenesis. More recent studies have focused on the impact of the microbiome on modulation of A β amyloidosis in mouse models. He has published 178 peer-reviewed manuscripts.

Dr. Sisodia has received several awards, including: the Potamkin Prize for Alzheimer's Disease Research from the American Academy of Neurology and the Metropolitan Life Foundation Award for Medical Research. He was inducted as a Fellow of AAAS, and Foreign Fellow of the National Academy of Sciences, India, and the Spanish Royal Academy of Sciences. In addition, he has served as: Member, NLS1 (NIH) Study Section; Member, NIA Board of Scientific Counselors; Scientific Advisory Boards of Autism Speaks; the Packard Center for ALS Research; Chair, Scientific Advisory Committee of the Brain Research Foundation; and Advisory Committee of the MetLife Foundation. He has also organized or co-organized several Adler Symposia on Alzheimer's Disease at the Salk Institute, two Keystone Symposia, and was the co-director of the Cold Spring Harbor Neurobiology of Disease course. Dr. Sisodia has served on the Editorial Boards of eight journals, including *Neuron* and *Cell* (10 year term expired in 2009), and is a member of the Dana Alliance for Brain Initiatives.

Abstract SEE SLIDES

SEX-SPECIFIC MODULATION OF AMYLOID DEPOSITION AND NEUROINFLAMMATION BY THE MICROBIOME

Objectives: Animal models of Alzheimer's disease (AD) recapitulate the severe amyloidosis and neuroinflammation that is evident in the human disease. Neuroinflammation is associated with activation of astrocytes and microglia in response to injury, but the role of peripheral tissues and more importantly, the microbiota in regulating innate immunity that in turn leads to CNS dysfunction has not been defined. We have tested the hypothesis that the composition of the intestinal microbiome plays a role in modulating neuro-inflammation that will ultimately influence amyloid deposition in two established mouse models of A β -amyloidosis.

Methods: We orally administered a combination of antibiotics to induce rapid and sustained alterations in gut microbial populations. The antibiotic cocktail was administered either postnatally or throughout the lifetime of the animal prior to cull and we employed IHC, biochemical and transcriptomic assays to evaluate amyloid deposition and neuroinflammation in the mouse models.

Results: Our studies indicate that alterations in the microbiome parallel changes in plasma cytokines and chemokines, reductions in amyloid deposition and modulation of morphological and transcriptional landscapes of microglia that only occurs in male, but not female animals.

Conclusions: Our studies reveal an unexpected, but significant alteration in amyloid deposition and microglial phenotypes in the brains of transgenic mice upon treatment with orally administered antibiotics.

Acknowledgments This work was supported by Cure Alzheimer's Fund (CAF), Open Philanthropy Fund and Good Ventures Foundation

Professor Kohei Komamura, Faculty of Economics and Director of the Research Center for Financial Gerontology, Keio University

Kohei Komamura graduated from the Faculty of Economics, Chuo University in 1988, and obtained a Ph.D. in economic policy from the Keio University Graduate School of Economics in 1995. He has held research fellowships at the Social Development Research Institute and the National Institute of Population and Social Security Research. He was appointed as an associate professor at Surugadai University in 1997 and as an associate professor at Toyo University in 2000, a position he held for five years before being promoted to professor. In 2007, he joined Keio University as a professor at the Faculty of Economics. He was an advisor for the Secretariat of the House of Councilors from 2003 to 2006 and an advisor at the Ministry of Health, Labour and Welfare (MHLW) from 2009 to 2013. He was awarded the Best Paper Award by the Japan Economic Policy Association in 1995, and in 2001 he received the MHLW Yoshimura Memorial Policy Grant, Commendation for Household Economics, and the Japan Economic Policy Association Award.

Abstract SEE SLIDES

Cognitive Aging and Financial Gerontology

With the population expected to continue aging, the concentration of Japanese households' financial assets among the elderly is becoming an issue. We can see that as the elderly come to hold a larger proportion of financial and risk assets, the "aging of financial assets" will advance more rapidly than the aging of the population.

Looking at the proportion of financial assets owned by those aged 75 and over, already about 6% of household financial assets are owned by people who are suffering cognitive impairment. Financial

assets owned by people with cognitive impairment could amount to the order of 100 trillion yen. Financial gerontology research is essential to re-examine the socioeconomic system, because as the population continues to age, the new problem of how this group's declining cognitive abilities will affect the financial markets will become even more serious.

Associate Professor Junichi Ushiba, Faculty of Science and Technology, Keio University

Junichi Ushiba graduated from the Keio University Faculty of Science and Technology in 2001 and obtained his Ph.D. from the Keio University School of Fundamental Science and Technology in 2004. He was a guest researcher at the Center of Sensory-Motor Interaction at Aalborg University, Denmark, for a 6-month period in 2003 before returning to the Keio University Faculty of Science and Technology as a research associate. He was at the Keio Institute of Pure and Applied Sciences of the Faculty of Science and Technology from 2014 to 2019, and has been an associate professor at the Keio University Faculty of Science and Technology, Department of Biosciences and Informatics since 2012. He is a regular committee member and chair for various conferences and awards, and he has sat on the board of the Japanese Society for Motor Control since 2016 and on the Executive and Scientific Board of the Clinical Brain-Machine Interface (CBMI) Society since 2015. He has also received numerous awards, including winning the Excellence Award at BRAVE 2017.

Abstract SEE SLIDES

Neuro-rehabilitation and Artificial Intelligence in Aging Societies

Stroke is a major disease in aging societies. Annually, 5 million people worldwide are left permanently disabled by strokes, placing a burden on family and community. According to the WHO, stroke burden DALY is set to increase by 160% between 1990 and 2020. Under such circumstances, how will technology support our lives and livelihood? It had been believed that the brain cannot recover once it sustains a structural stroke injury, but recent treatment aided by advanced technologies with a brain-computer interface, electrical/magnetic cortical stimulation, and robotics has succeeded in guiding functional reorganization of brains damaged by stroke. The latest studies utilize artificial intelligence (AI) to identify optimal brain regions of care to maximize therapeutic effects in these treatments. AI is also used to select and adopt the most efficient therapeutics for each individual patient. In this talk, I will discuss the present state and the future prospects of technology-aided neuro-rehabilitation in an aging society.

Assistant Professor Yasumichi Arai, Center for Supercentenarian Medical Research, School of Medicine, Keio University

Yasumichi Arai is a geriatrician and a scientist studying healthy aging and longevity. After graduating from the Keio University School of Medicine in 1991, he trained in geriatric medicine at the Keio University Hospital and obtained his Ph.D. in 2002. He was a visiting scientist at the Institute of Aging and Health at Newcastle University, UK, from 2004 to 2006. Between 2006 and 2014, he was an instructor at the Division of Geriatric Medicine, Keio University School of Medicine, where he taught geriatric medicine and health care for the elderly, and in April 2014, he became an assistant professor at the Center for Supercentenarian Medical Research, Keio University School of Medicine. He has been involved with the Tokyo Centenarian Study since 1995 as well as the Japan Semi-supercentenarian Study since 2002. He has expertise in biomedical analysis and geriatric assessment of centenarians and supercentenarians.

Abstract SEE SLIDES

Supercentenarian Study: What can we learn from extremely long-lived people?

Centenarians are generally characterized by delayed onset of age-related diseases or disabilities into their nineties; however, when reaching the age of 100, substantial evidence has demonstrated that frailty and multimorbidity has become commonplace. In the Tokyo Centenarian Study (TCS), we found approximately 20% of centenarians enjoyed physical and cognitive independence at the age of 100 years, and this elite subpopulation were highly likely to become semi-supercentenarians (over 105 years of age) or even supercentenarians (beyond 110 years). Therefore, we started the Japanese Semi-supercentenarian Study (JSS) in 2002, in which we conduct a nationwide survey of semi-supercentenarians. To date, we have recruited approximately 650 semi-supercentenarians, of which more than 130 participants reached 110 years and higher. Based on results from TCS and JSS, we found two important biological characteristics of supercentenarians: maintained cognitive function and slow cardiovascular aging. These findings expand our knowledge on the biology of human longevity, and when replicated in very old, high-functioning people, there might be public health implications as we see an increase around the world in life expectancy and a rising prevalence of older individuals in the total population.

Annex 4 Panel 2: Dementia Research in Japan

The shortened program did not accommodate this panel. However, the slides prepared by the panelists were made available on the Internet.

Chair: Prof. Sangram Sisodia, Thomas Reynolds Sr. Family Professor of Neurosciences, The University of Chicago and Guest Professor (Global), Keio University

Panelists:

Dr. Haruo Naito, KBE, Representative Corporate Officer and CEO of Eisai Co., Ltd.

Dr. Naito received an MBA from Northwestern University Kellogg School of Management in June 1974. He joined Eisai Co., Ltd. in October 1975 and has been President and CEO since April 1988. He was Vice President of the Japan Pharmaceutical Manufacturers Association (JPMA) from May 1998 to May 2019, President of the International Pharmaceutical Manufacturers Associations (IFPMA) from November 2009 to November 2010, President of the Federation of Pharmaceutical Manufactures' Associations of Japan (FPMAJ) and Chair of Dolder Group from May 2012 to May 2014, President of the Pharmaceutical Manufacturers' Association of Tokyo and Vice President of the Federation of Pharmaceutical Manufactures Associations of Japan (FPMAJ) from June 2016 to June 2018, respectively.

He was conferred an honorary doctorate of science from UCL (University College London) in July 2013. He was awarded an honorary CBE in April 1999 and KBE in April 2014 from the United Kingdom.

Abstract SEE SLIDES

The Recent Progress in Dementia Drug Development

The dementia drug development based on the right hypothesis, recruiting the right patients, administering the right dosing, and evaluating efficacy with the right endpoints is critical for success. Coming to hypothesis, in addition to targeting A β and tau under ATN classifications, immuno dementia mechanism such as microglial function and reinnervating synaptic function are focused. The clinical studies for the opportunities in preventative intervention are also planned. The fundamental breakthrough could be arrived in the near future based on the learning from the recent discontinuation of the various late stage clinical developments. Relatively large scale data have begun to be available through multi-omics analysis, comprehensive and reliable PHR, etc. Also, cutting edge data science including AI to analyze such quality data must help us to discover a unique signature as the new basis of drug development.

Professor Masaru Mimura, Department of Neuropsychiatry, School of Medicine, Keio University

Masaru Mimura graduated from the Keio University School of Medicine in 1984 where he also obtained his Ph.D. in 1992. He worked as a research fellow at the Boston University School of Medicine Behavioral Neurology Department (Chief, Dr. Martin L. Albert), as well as at the Aphasia Research Center (Director, Harold Goodglass) and the Memory Disorders Research Center (Director, Laird Cermak), both of which are also at Boston University. From 1994 to 1999, he worked as an assistant professor at the Department of Neuropsychiatry at the Tokyo Dental College Ichikawa General Hospital in Chiba.

He then moved to the Department of Neuropsychiatry at the Showa University School of Medicine, Tokyo, until 2011, when he moved to the Department of Neuropsychiatry, Keio University School of Medicine where he is currently a professor and chair of the department. He is also vice director of Keio University Hospital, director of the Keio Center for Stress Research, director of the Center for Kampo Medicine, and vice director of the Center for Supercentenarian Medical Research. Additionally, he is president of the Japanese Society of Mood Disorders, president of the Japan Society for Higher Brain Dysfunction, and vice president of the Japanese Psychogeriatric Society. His main research interest is in geriatric psychiatry, including dementia and late-life depression. He is also interested in neuropsychological studies of patients with brain damage and organic mental disorders. He has published more than 360 peer-reviewed papers.

Abstract SEE SLIDES

Ethical issues of disclosing amyloid status to persons with subjective cognitive decline

In Japan, 4.6 million people are living with dementia and the number is expected to rise to 7 million by 2025. In Japan, Amyloid- β (A β) positron emission tomography (PET) is used on cognitively normal people with or without subjective cognitive decline (SCD) for the purpose of clinical trials or diagnosis. Nevertheless, no empirical studies have been conducted on the safety of disclosing amyloid status to such populations. We conducted amyloid PET imaging on 42 participants (A β positive (n = 10) and negative (n = 32)). State anxiety and depression were measured at pre- and post-disclosure, and test-related distress at post-disclosure. Mean state anxiety and depression scores were below the cut-off through pre- and post-disclosure in the A β positive and negative groups. State anxiety and depression did not change over time and were not different between groups. Mean test-related distress scores were within normal limits at post-disclosure in both groups. Psychological safety of disclosing A β PET results at least until 24 weeks to asymptomatic Japanese adults with SCD was indicated.

Professor Brendan Stuart Weekes, Laboratory for Communication Science, University of Hong Kong; Department of Experimental Psychology, University of Cambridge

Brendan Weekes graduated from the University of Melbourne in 1985 and he then studied at the University of California, Berkeley and obtained his qualification in Clinical Psychology and Ph.D. in 1992. He worked as a post-doctoral researcher at the University of Birmingham with Professor Glyn Humphreys and then a tenured Faculty Member in Clinical Psychology at the Australian National University. From 1994 to 1999, he worked as Associate Professor in Clinical Psychology at the Universities of Kent (UK) and Hong Kong. He then moved to the University of Sussex, until 2010, when he returned to the University of Hong Kong as a Chair Professor in Communication Science, where he is currently Distinguished Prestigious Fellow and Primary Investigator of the State Key Laboratory for Brain and Cognitive Sciences. He is also Honorary Professor at the University of Melbourne (his alma mater) with the School of Psychology in the Faculty of Medicine also holding a second appointment at the Melbourne Graduate School of Education (MGSE). Additionally, he holds Honorary Appointments at the University of Cambridge, the University of Science and Technology (Beijing) and University of Zambia. He is currently an Ambassador for UNESCO Year of Indigenous Languages, 2019. His main research interest is in aphasia, including dementia and late-life healthy aging. He is also interested in neuropsychological studies of patients with brain damage specifically as these relate to cognitive assessment and universal health care for patients in Greater China. He has published more than 150 peer-reviewed papers and has received prestigious awards.

Abstract SEE SLIDES

The burden of Alzheimer's disease and other Dementias in China, 1990-2016: A national analysis from the Global Burden of Disease Study 2016

Background

Alzheimer's Disease and other dementias (ADOD) have become one of the most important public health problems in Greater China. We present the burden of Alzheimer's disease (AD) and other dementia in China from 1990 to 2016 based on findings from the Global Burden of Diseases, Injuries, and Risk Factors Study 2016 (GBD 2016). Mortality, prevalence, years of life lost (YLLs), years of life lived with disability (YLDs), and disability-adjusted life-years (DALYs) for dementia were analyzed by age, gender and region, from 1990 to 2016 in China.

In 2016, the number of individuals living with dementia in Greater China was 10.4 million, an increase from 3.9 million in 1990. A total of 476,898 deaths due to ADOD occurred in 2016, making ADOD the fifth leading cause of death in Greater China. In 2016, the number of deaths due to dementia accounted for 4.9% of total deaths but 8.1% of deaths in individuals aged more than 70 years. More women than men were diagnosed with ADOD in 2016. Dementia is a public health crisis in China, and this burden will only increase with the expected rapidly aging population. A more comprehensive, multi-dimensional and rigorous approach to the assessment and cognitive screening of ADOD, including better clinical, psychological, social, and policy measures are needed to manage the increasing risk of dementia in Greater China.

Annex 5 Panel 3: Social Innovation for an Era of Centenarians

The shortened program did not accommodate this panel. However, the slides prepared by most of the panelists were made available on the Internet.

Chair: Professor Toru Takebayashi, School of Medicine, Keio University; Dean of the Graduate School of Health Management, Keio University

Toru Takebayashi graduated from the Keio University School of Medicine in 1989, obtained a Ph.D. from the Keio University Graduate School of Medicine in 1993, and a Master of Public Health from the Harvard School of Public Health in 1994. He has long been engaged in a wide range of epidemiological research projects, and has expertise in environmental and population health. He is also the PI of the Tsuruoka Metabolomics Cohort Study, an ongoing longevity research project related to gene-environment interactions initiated in 2012, which takes a multi-omics approach and involves 11,002 community-dwelling adults in Japan. Additionally, he is participating in a well-being data science project at the Keio University Tonomachi Town Campus, which is part of the Japan Science and Technology Agency's Program on Open Innovation Platform with Enterprises, Research Institute and Academia (OPERA).

Panelists:

Professor Koji Miura, Clinical and Translational Research Center, Keio University Hospital

Koji Miura graduated from the Keio University School of Medicine in March 1983 and entered the Ministry of Health and Welfare (now the Ministry of Health, Labour and Welfare, MHLW) in April of the same year. Afterward, he worked for Kawasaki City, as well as the Health Policy Bureau, Pharmaceutical Affairs Bureau, Health Service Bureau, and other sections of the Ministry of Health and Welfare. He completed a master's degree program in public health at Harvard University in 1988, and later obtained a Ph.D. from Keio University.

For almost 3 years until April 2000, Miura was involved in the preparation and enforcement of the Long-Term Care Insurance System. He then transferred to the Hiroshima Prefectural Government, and after returning to the Ministry of Health, Labour and Welfare in August 2003, he worked at the Department of Food Safety, Pharmaceutical and Food Safety Bureau before moving to the Health and Welfare Bureau for the Elderly where he worked on the 2005 and 2006 revisions of the Long-Term Care Insurance System. He then worked at the Higher Education Bureau, Ministry of Education, Culture, Sports, Science and Technology, and the Ministry of Agriculture, Forestry and Fisheries, and was the Director General of the Health and Welfare Bureau for the Elderly, Ministry of Health, Labour and Welfare from July 2014 to June 2016. He has held his current position since October 2016.

Abstract SEE SLIDES

Japan's preparation for a super-aged society and the issues the nation currently faces

Aging is not only an issue in developed countries, but the speed at which it is occurring is one characteristic unique to Japan. This rapidity makes the necessary changes in society more difficult.

Japan developed a compulsory medical insurance system in the 1950s, and it can be said that this was the beginning of the history of Universal Health Coverage in Japan. In 2000, Japan finally introduced the compulsory long-term insurance system. Until its implementation, there were countless discussions on who should be the insurer, insured, and service provider, as well as about issues including the eligibility to use the services. It must be noted that even after the law was passed in the National Diet in 1997, preparations to introduce the system took a further 3 years.

Aging is a societal issue and therefore we must have discussions on matters related to social security, including health care, social welfare, and other issues such as employment and education.

Associate Professor Angelique Chan, Executive Director of the Centre for Ageing Research & Education, Duke-NUS Medical School

Dr. Angelique Chan holds joint appointments as Associate Professor in the Signature Program in Health Services & Systems Research, Duke-NUS Medical School and the Department of Sociology, NUS. She is the Inaugural Executive Director of the Centre for Ageing Research & Education (CARE, Duke-NUS). Dr. Chan obtained her undergraduate degree, BA (Sociology) from Reed College, her Ph.D. (Sociology) from the University of California at Los Angeles as a Rockefeller Foundation PhD. fellowship awardee, and a US National Institute of Aging Post-Doctoral degree at the University of Michigan.

Dr. Chan's current research examines disability transitions, mortality, and the effects of social support on health, caregiver burden, and use of long-term care services. She has published widely on aging issues in leading international journals including the Journal of American Geriatrics Society, Journal of Aging and Health, and Journal of Gerontology Series B: Social Sciences and book chapters. She is co-author of a book titled *Aging in Singapore: Service Needs & the State* (Routledge 2006) and Co-editor of *Ultra-low Fertility in Pacific Asia: Trends, Causes and Policy Issues* (Routledge 2009).

Her international work includes working with collaborators from Japan and USA on caregiving, work and retirement, and disability transitions. She has consulted for Singapore Ministry of Health, Ministry of Social and Family Development, Agency for Integrated Health, the United Nations, Temasek Foundation, and the World Bank. She sits on various national committees related to aging research and education.

Abstract

Caring for Persons with Dementia: Towards a Sustainable Community Based Dementia Care System

Only one quarter of persons with dementia (PWDs) are captured by health care services. Three quarters of PWDs and their caregivers in the community are living without adequate care and support. There is little information on what goes on in the lives of PWDs, particularly in those families where cognitive impairment has not been diagnosed. Early identification and diagnosis is crucial to assist PWDs as well as their caregivers. Equally important is the on-going care journey and experience which see different needs at different levels of the dementia condition. Even when previous work on dementia prevalence and associated caregiver burden exists for Singapore there is extant knowledge of the impact of different care models for PWDs wellbeing. We also note the lack of evaluation of strategies to relieve stress of caregivers for PWDs.

In light of this, we propose to evaluate a pilot model of dementia care services, the Hua Mei Dementia Care Services (HMDCS) developed by the Tsao Foundation based on an in-depth understanding of Cognitively Impaired Persons (CIPs) and their caregivers in the Whampoa community. Supporting interventions including a cognitive training program will also be evaluated. We hypothesize that this new model of care will enable greater reach and quality of dementia care services in the community. The project is a first step in developing a blueprint for a community dementia care system.

Professor Naohiko Kohtake, Graduate School of System Design and Management (SDM), Keio University

Naohiko Kohtake graduated from the Graduate School of Science and Technology, Keio University in 1998 and entered the National Space Development Agency of Japan (NASDA), where he carried out R&D for the H-IIA rocket as well as being involved in its launch. After spending time as a visiting researcher at European Space Agency (ESA), he became an associated senior engineer at Japan Aerospace Exploration Agency (JAXA) in 2006. He was responsible for the integration of independent verification and validation of software installed on the International Space Station and various satellites, as well as being involved with NASA and ESA on international collaborations relating to software installed on spacecraft. He joined Keio Advanced Research Centers as an associate professor in 2009, became an associate professor at the Keio University Graduate School of System Design and Management in 2011, and a professor in 2018. He has also served in roles such as the chairman of the Indoor Messaging System (Indoor GPS) Consortium and an advisor for the High Performance Strategy Division, Japan Sports Council. He is a steering committee member of Multi-GNSS Asia, and holds a Project Management Institute (PMI) Project Management Professional (PMP) certificate. He is also an adjunct professor at the Asian Institute of Technology. He obtained a Ph.D. from the Keio University Graduate School of Media and Governance in 2005.

Abstract [SEE SLIDES](#)

Data-Driven Social Innovation for an Era of Centenarians

Space infrastructure including earth observation, navigation, and communication satellites provides various data for human society. Internet and cell phone services are expanding at an unprecedented rate, while free satellite images and open data are readily available online. With global-scale data, we can identify numerous events and know what exactly is going on when and where. Global-scale data has huge potential to transform social services. The reconstruction of public and social services is vital for more efficient use of global-scale data based on smart applications of space and social infrastructures. In this talk, data-driven social innovation for an era of centenarians will be introduced with several on-going cases related to agriculture, finance, public health, and sports in Asia-Pacific nations.

Professor Hiroko Akiyama, Professor Emeritus, The University of Tokyo

Hiroko Akiyama, a gerontologist, is professor emeritus at the University of Tokyo and the former vice president of Science Council of Japan. Professor Akiyama has conducted a number of cross-national surveys and is widely recognized as an expert on issues of global aging. She is known for the long-running research on the elderly in Japan—tracking the aging patterns of approximately 6,000 Japanese elderly for 30 years. Recently, she initiated social experiment projects that pioneer to re-design communities to meet the needs of the highly aged society, and Kamakura Living Lab, a platform for co-creation among users, industry, government, and academia. She started the Institute of Gerontology at University of Tokyo in 2006. Professor Akiyama received Ph.D. in psychology from University of Illinois, the United States.

Abstract [SEE SLIDES](#)

Kamakura Living Lab: A Platform for Open Innovation

A 100-year life society is a goldmine of innovations. Individual aging and population aging pose formidable challenges, and at the same time, offer us boundless new opportunities. No organization alone can hold problem or solution. We created an open innovation platform, living lab, joining up citizens, industry, governance, university in non-hierarchical networks. Citizens (users) are not only observed subjects but also a source of creation. This is an entirely new approach to value creation

and a new paradigm of innovation. We share the evolution of Kamakura Living Lab for the first 2 years and raise issues we need to address.

Annex 6 List of Poster Presentations

1. Healthcare and Technology

Dr. Yoshiaki Furukawa, Associate Professor, Keio University

A misfolding of Cu/Zn-superoxide dismutase in amyotrophic lateral sclerosis

Dr. Akihito Hishikawa, JSPS Research Fellow, Keio University

Expression of DNA repair factor KAT5 and DNA methylation modulators in urinary shedding cells of patients with hypertension and diabetes

Dr. Emi Inagaki, Post-Doctoral Fellow, Keio University

Altered Aging Phenotypes in Human iPSC Derived Corneal Endothelial Cells from Patients with Fuchs' Endothelial Corneal Dystrophy

Dr. Junichiro Irie, Assistant Professor, Keio University

Metformin improved metabolic disorders through intestinal microbiota

Ms. Naho Kitamura, Ph.D. Student, Keio University

Iron supplementation prevents high-fat diet-induced obesity and hepatic steatosis by improving mitochondrial function.

Dr. Ramesh Kumar, Post-Doctoral Fellow, Chulalongkorn University

STRESS AND ASSOCIATED RISK FACTORS AMONG THE ELDERLY: ACROSS SECTIONAL STUDY FROM RURAL THAILAND

Dr. Sumihiro Maeda, Assistant Professor, Keio University

Tau reduction did not protect against but induced epileptic changes on hiPSC-derived neurons

Ms. Anna Nakamura, Ph.D. Student, Keio University

Asperuloside, the extraction of "TOCHU-TEA" improves metabolic syndrome via improving metabolic signalling.

Mr. Yu Ohno, Master Student, Keio University

System Design for Up-to-Date Assessment of Social Isolation Using Dynamic Data from IoT Devices

Ms. Tsukika Sato, Ph.D. Student, Keio University

Novel technology for generating region-specific and functional neurons from iPSCs to model age-related neurological diseases

Dr. Rina Takahashi, Graduate Student, Keio University

The significance of NAD metabolites and sirtuins in chronic kidney diseases

Dr. Shintaro Yamaguchi, Instructor, Keio University

The pathophysiological roles of intestinal NAMPT-mediated NAD⁺ biosynthesis in whole body glucose metabolism

2. Economy and Society (Policy)

Ms. Minji Kim, Master's Degree Student, Seoul National University

Assessment on Korea's Diabetes Management System and its Impact: Review and Implications upon Middle- and Older-Adults

3. Multi-sectoral Approach to Dementia

Dr. Yoichiro Abe, Instructor, Keio University

Implication of water channel aquaporin-4 in Alzheimer's disease

Dr. Toshiki Tezuka, Graduate School Student, Keio University

Evaluation of [18F] PI-2620, a second-generation selective tau tracer, for the assessment of Alzheimer's disease (AD) and non-AD tauopathies

4. Other Topics

Dr. Siyi An, Student, Tohoku University

How the Residential Environment Form Place Attachment: A Comparison of Different types of Aging Communities

Ms. Eriko Jibiki, Researcher, Tokyo Women's Medical University and Human Resources Strategy Center for Global Health

Aging-related posts in major global health-related international organizations

Ms. Yukiko Kawata, Graduate School Student, Keio University

Physical Activity and Body Composition among 85–89 year-old Japanese: A descriptive study on Kawasaki Well-being Project (KPW)

Dr. Fadzilah Hanum Mohd Mydin, Senior Lecturer and Family Medicine Specialist, University of Malaya

Elder abuse and neglect intervention in Malaysia: understanding and capitalizing on the role of primary care nurses

Professor Sajaratulnisah Othman, Family Medicine Consultant, University of Malaya

Can a short but intensive educational intervention improve knowledge, attitude and practice of doctors on elder abuse intervention? A quasi-experimental study in Malaysian

Ms. Hikari Sandhu, Doctoral Candidate, The University of Tokyo

Arts and Community Health: Qualitative research exploring the potential of arts activities as community-based health resources in super-aged societies

Annex 7 List of Relevant Websites

Confence Website

Slides and Handouts (available until March 2021)

- Keynote Address by Prof. Okano
- Grand Plenary 1 — Special Lecture by Prof. Seike
- Panel 1 Prof. Sisodia
- Panel 1 Prof. Komamura
- Panel 1 Prof. Ushiba
- Panel 1 Prof. Arai
- Panel 2 Dr. Naito
- Panel 2 Prof. Mimura
- Panel 2 Prof. Weekes
- Panel 3 Prof. Miura
- Panel 3 Prof. Kohtake
- Panel 3 Prof. Akiyama

APRU Population Aging Hub

Keio University Global Research Institute

Annex 8 List of Conference Organization Members

APRU Population Aging Hub Director and Secretary-General of the Conference

Project Professor, Hiroki Nakatani, KGRI, Keio University

Steering Committee Members

Professor Hiroki Nakatani, Keio University (Chair)

Associate Professor Angelique Chan, National University of Singapore

Professor Eileen Crimmins, University of Southern California

Professor Robert Cumming, The University of Sydney

Professor Chen Gong, Peking University

Professor Ka Lin, Zhejiang University

Associate Professor Lan Liu, Peking University

Professor Peter McDonald, The University of Melbourne

Professor Albert Park, Hong Kong University of Science and Technology

Professor John Piggott, UNSW Sydney

Professor Tri Budi Raharjo, Universitas Indonesia

Selection Panel

Assistant Professor Yasumichi Arai, Keio University

Associate Professor Angelique Chan, Duke-NUS Medical School

Professor Robert Cumming, The University of Sydney

Professor Masaru Mimura, Keio University

Professor Koji Miura, Keio University

Professor Hiroki Nakatani, Keio University

Professor Hideyuki Okano, Keio University

Professor Masato Yasui, Keio University

Master of Ceremonies

Ms. Shiori Nagatani, Program Associate, Japan Center for International Exchange (JCIE)

Secretariat

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