

13th Annual Meeting

STS *forum* 2016



Summary

October 2, 3 and 4, 2016
Kyoto, Japan

Summary of STS *forum* 2016

Science and Technology in Society *forum*

Concurrent Session 203: [Life Sciences] Healthy Aging

[Session Chair]

Kurokawa, Kiyoshi, Chairman, Health and Global Policy Institute; Adjunct Professor, National Graduate Institute for Policy Studies (GRIPS), JAPAN

[Speakers]

Akiyama, Hiroko, Professor, Institute of Gerontology, University of Tokyo, JAPAN

Andrews, William H., President & CEO, Sierra Sciences, LLC, U.S.A.

Duszyński, Jerzy, President, Polish Academy of Sciences (PAS), POLAND

Holt, Matthew, Co-Chairman, Health 2.0, U.S.A.

Jones, Allan, Chief Executive Officer, Allen Institute, U.S.A.

Oni, Tolu, Senior Lecturer, Division of Public Health Medicine, School of Public Health and Family Medicine, University of Cape Town, SOUTH AFRICA

Opening Remarks

The chair began the session by explaining that life expectancy had almost doubled, from the 40s to the 80s, in the last 100 years. This is undoubtedly a positive and outstanding achievement. However, it also creates new challenges, such as the increasing number of people suffering from dementia or Alzheimer's. A number of countries have recognized the importance of tackling dementia. For example, the UK in 2013 hosted Dementia Summit at its G8 Summit, starting the World Dementia Council. In addition, statements were issued on the subject at the G7 Ise-Shima Summit and the G7 Health Ministers' Meeting in Kobe. Nevertheless, more efforts are needed, and leaders in government, academia, and business have a shared responsibility to address the issues associated with the aging of the world's population.



Chair: Kurokawa, Kiyoshi

The first speaker raised three points. First, it is not enough to simply think about how to treat medical issues resulting from aging. Efforts for prevention and health promotion are



also needed. These must begin at younger generations. Second, for the first time in the world, there are more people living in urban areas than rural areas, and it is necessary to take into account issues associated with such demographic changes. Third, it is important to consider the question, “healthy for whom?” We cannot promote human health to the detriment of biodiversity, the environment, and so in addressing healthy aging, we need to be cognizant of, and aim for, equilibrium between a growing population living longer and planetary health (i.e. implications for the environment).


The second speaker explained four stages in which the delivery of healthcare was changing. The first stage is the introduction of social, mobile, analytics, and cloud (SMAC) into healthcare. The second stage is users connecting with physicians through Skype and other online means. The third stage is for healthcare to continue to reach patients in their home, not only in the doctor’s office. The fourth stage is finding a way to use data to drive personalized healthcare. In addition, smartphones are becoming an important tool for diagnostics, prevention, and treatment, which can be leveraged to provide healthcare to senior citizens. Robotics also has a role, for example, in making up for a lack of healthcare workers. Despite these advances in technology, ultimately, the most important question in relation to healthy aging is a human one, namely, “how do we want to age?”

Talking about aging in Japan and a possible solution, the third speaker stated that the public likes to believe that everyone ages gracefully. However, that is not the case, and in fact many people suffer from various diseases and ailments in old age. Japan is about to be



hit by a so-called “Silver Tsunami.” In 2030 approximately 30% of the population in Japan will be over 65. By 2050, that number will be 40%. There will also not be enough younger people in the workforce to look after the elderly. One solution may be to stop or delay aging, so that people can stay healthy, “young,” and being a part of the workforce. Research has revealed that telomere shortening is responsible for aging. Preventing this would not only solve the issue of aging, it could also cure diseases such as AIDS, which accelerates telomere shortening in immune cells. Researchers have found a way to lengthen telomeres, which could prevent aging. Telomere lengthening has already been achieved in animals, and in a few years it will become possible in humans.

The fourth speaker discussed the implications of the aging of society. In recent years, two conspicuous social phenomena are experienced globally: an explosion of the human population, mostly in poor countries, and the aging of society, mostly in affluent countries. The aging creates huge economic burdens for these societies. It also exacerbates the issue of the explosion of the human population. For example, countries with aging populations are rather reluctant to open their borders to migrants because they are afraid to take on an additional burden to their already strained welfare system. An international solidarity is challenged and walls between countries are constructed as a result. To address the issue of aging, in addition to scientific approaches, social innovations are also needed. Young people should be educated on how to change their behavioral and mental attitudes and be encouraged to greater physical and intellectual lifelong activity to prevent an early onset of unhealthy aging.



Explaining trends in the aging of Japanese society the fifth speaker stated that most people lose their independence due to such as frailty and disability later in life, and it seems more men remain independent. The scientific community can contribute in three areas, namely biomedical research, improving living environments, and improving individual lifestyles. While biomedical research is advancing, much more can be done to improve living environments and individual lifestyles. One viable approach is for the academic community to pursue “Action Research,” which is research conducted in collaboration with multiple stakeholders and which aims to understand the issue and recommend actions to address the problem.

The sixth speaker explained aging from the perspective of basic biology. As people age, at the genome level, they accumulate mutations in their somatic and germline genes. At the cellular level, humans experience the aging of cells and inflammation. At the tissue level, aging can create disequilibrium, which causes failures in different systems in the body. Fortunately advances in science and technology offer promising solutions at all the aforementioned levels.


The chair shared additional information about aging in Japan. In Japan, 87% of 60,000 plus centenarians are women. Furthermore, women are twice as likely to develop dementia at comparable ages than men. The chair then asked each group led by a speaker to make one recommendation to the Government of Japan, because Japan is the most aged country.

Discussion

The first discussant recommended that Japan address the three S's: salt, sleep, and smoking. This means better dietary habits (to reduce risk of hypertension and subsequent cardiovascular disease), healthy sleep (as poor sleep, particularly in urban areas and amongst working population, is associated with many common conditions including cardiovascular disease and neurocognitive deficits later in life), and reducing smoking (to address the burden of chronic respiratory disease, lung cancer, and cardiovascular disease).

The second group's representative spoke about the revitalization of ghost towns and the relationship between activeness and dementia.

The third reporter pointed out that while exercise, healthy diets, and healthy lifestyles could delay aging, aging still occurred. Therefore, in addition, funding should be devoted to research for modifying the biochemical pathways that affect aging.



The fourth group's discussant recommended that Japan take global leadership on dementia and Alzheimer's disease, and share its research from a variety of fields.

The fifth representative emphasized the importance of social interventions to build a sense of community and purpose among the elderly to promote activeness and a good quality of life.

The sixth group's reporter highlighted research for supporting people to lead productive lives for longer and good end of life care, for overall improved quality of life.

The chair concluded the session by stating that the creativity of the private sector should be leveraged, with various services that improve the general wellbeing of the elderly in community and society at large.