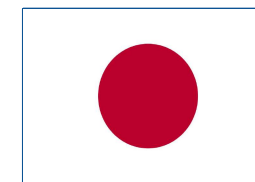


# Japan

*Early Nation to Face Silver Tsunami,  
Age-Friendly Urban Planning,  
Robotics for the Elderly and  
Joint Research Initiative with the UK*



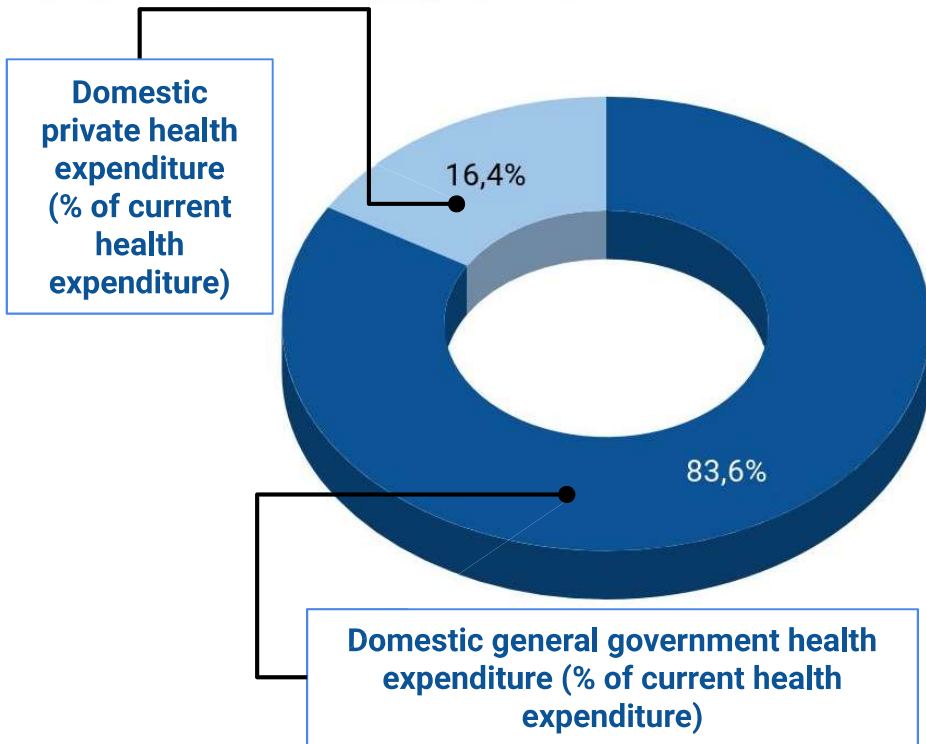
HALE	Both Sexes HALE (2016)	74.8 years
	HALE/Life Expectancy Difference 2016	9.4
Economy	GDP per Capita, Current Prices (2016)	38.79 thousand (\$)
	Annual GDP Growth (2016)	0.6 %
Healthcare	Current Health Expenditure per Capita (2016)	4.23 thousand (\$)
	Public Health Care Expenditure 2016	10.93 % of GDP
Retirement	Age Dependency Ratio 2016	65
	Population over 65, 2016	26.6 %
	Number of WHO Age Friendly Cities and Communities	24
General Health Status	Alcohol Consumption per Capita (Litres of Pure Alcohol) 2016	8
	Annual Cigarette Consumption (Units per Capita) 2016	1583
	Prevalence of Overweight among Adults 2016 (Age-Standardized Estimate)	27.2 % of adults

## Longevity-Related Indices

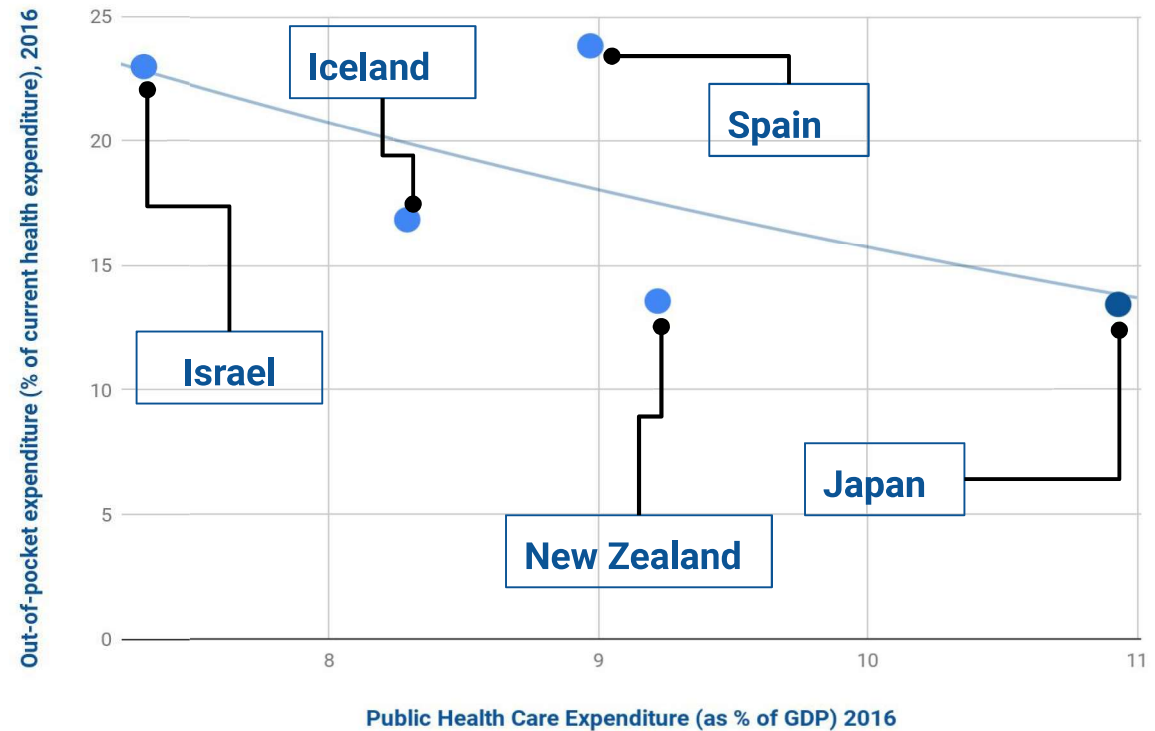


- The Healthcare Access and Quality Index -2016: **94**
- Human Development Index 2016: **0.91**
- E-Government Development Index 2016: **0.84**
- Corruption Perceptions Index 2016: **72**
- Global Gender Gap Index 2016: **0.66**
- Democracy Index 2016: **7.99**

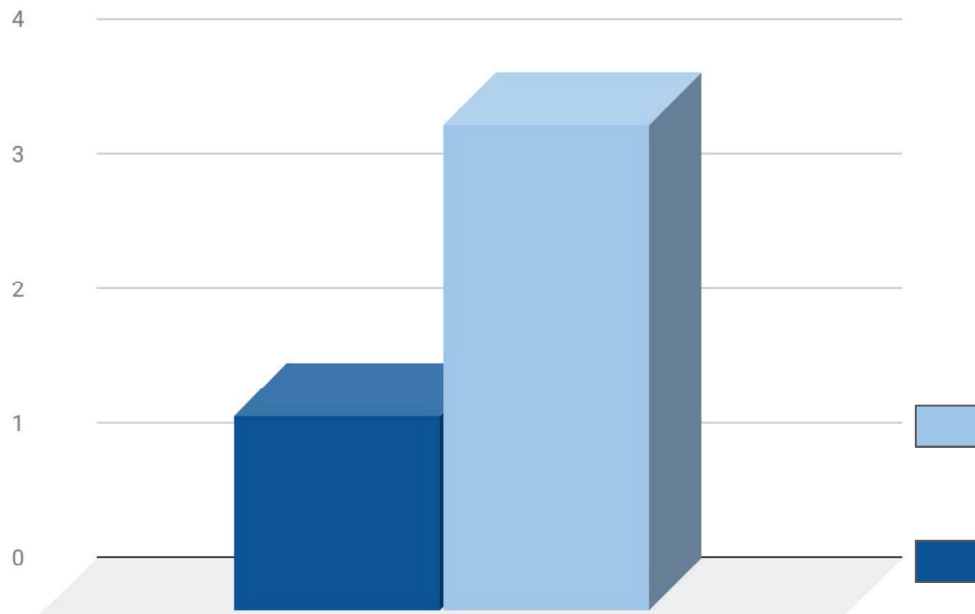
## Current Healthcare Expenditure



## Countries with High HALE and Life Expectancy and Medium Gap



## Effectiveness ratios



Japan is facing a rising burden of chronic disease, and a rising number of frail and elderly persons. In addition, Japan faces some relatively unique public health risks, notably a significant exposure to natural hazards such as earthquakes, floods, typhoons, and tsunamis. So, improvement of public health emergencies systems are in priority.

HALE and Life Expectancy Difference CAGR (6 years)/Current health expenditures per capita (current US\$), CAGR (6 years)

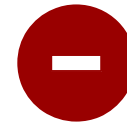
HALE CAGR (6 years)/Current health expenditures per capita (current US\$), CAGR (6 years)

# SWOT Analysis of Healthcare in Japan



## STRENGTHS

- Japan has the highest life expectancy among the OECD countries. Life expectancy at birth was 83.9 years in 2015.
- Japan has the lowest obesity rates and low alcohol consumption if to compare with other OECD countries.
- Cancer survival remains to stay at good levels.
- Healthy life expectancy at birth, the average number of years that a newborn can expect to live in full health, rose from 70.4 years in 1990 to 73.9 years for both sexes in 2015.
- The burden of communicable diseases has decreased substantially over the past five decades.



## WEAKNESSES

- Japan has the highest dementia prevalence among the OECD countries at 2.7% of population in 2017.
- There are high occupancy rates, especially, among elders for the long-term care.
- The suicide level is significantly above the EU average despite the significant efforts of the government putted to reduce the level starting from 2007.
- Like many other high-income countries, non-communicable diseases (NCDs) are now the leading cause of mortality and morbidity in Japan.



## OPPORTUNITIES

- Japanese institutions are fully involved in the process of the of building of communities that can help people with chronic conditions and their families to withstand the illnesses.
- Japanese government have strong aims to improve the healthcare coordination for primary and long-term care sectors to address the challenge of the ageing population.
- Utilising AI opportunities in precision medicine, preventive health, drug discovery.
- There is an increasing demand on the healthcare services.



## THREATS

- Ageing of the population is a rising issue for healthcare and pension systems stability.
- There is a high level of smoking among men that is 30%.
- Cancer causes 28.7% of deaths according to the data of 2015 and remains to be the main reason for mortality in Japan.
- Incidents of deaths from tuberculosis are slightly higher than the OECD average.
- There is a heavys salt consumption in Japan.
- Low back pain, headache disorders and diabetes are main reasons for DALY.

# Analysis of Strengths and Weaknesses of Health Care System in Japan



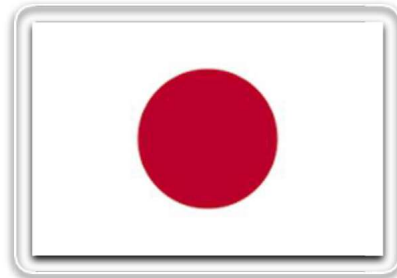
- Health spending averages \$4 519 per person (adjusted for local costs), slightly higher than the OECD average.
- Alcohol consumption and transport accident deaths have decreased substantially over the past 50 years.
- Mortality from the cardiovascular diseases is among the lowest in the OECD countries.
- In the past five decades, Japan has achieved a large number of health successes. These include the full implementation of universal insurance coverage, cultivating the world's highest healthy life expectancy, and the control and even eradication of common infectious diseases.
- [Personal healthcare access and quality index is 94.1.](#)
- The healthcare system in Japan is comprehensive and consists of two levels: public and private that offer the universal coverage for medical services.



- Hospital admissions for diabetes are higher than the OECD average.
- [20% of population consumes 69% of alcohol and it is third highest concentration in OECD countries.](#)
- There are low screening rates for the breast cancer and mammography.
- [Mortality from acute myocardial infarction is 50% higher than the OECD average.](#)
- Negative population growth, an ageing population, low fertility, a shrinking economy, increasing unemployment, and an increasing NCD-related disease burden are considered to be major issues on the way to healthy Longevity improvements.
- Although the overall life expectancy and healthy life expectancy have been increasing in Japan, there are increasing disparities among prefectures, demonstrating a need for region-specific health policies.
- Japan has made limited progress in reducing tobacco consumption over the past few decades, and it remains a leading cause of premature death.

# Summary of Relevant Government-Led Longevity Initiatives in Japan

- In 2013, the government passed a measure requiring companies to raise the mandatory retirement age to 65. But full compliance won't be required until 2025.
- In 2019 Medical researchers in Britain and Japan joined forces to research treatments for some of the most debilitating degenerative diseases, including dementia.
- In 2018 Japan's government commits to an 'ageless society' with planned policies encouraging seniors to stay healthy and keep working.
- In 2018 the Ministry of Economy, Trade and Industry (METI) recently inaugurated the Well Ageing Society Summit Asia-Japan in Tokyo in order to ride the wave of the silver tsunami and turn a negative into a positive.
- Urban planning : Japan has stepped up to the challenge of apply the WHO's principles for an age-friendly city, with its municipal plans for Akita and Kanagawa neighbourhoods.
- Investment in robotics : Ministry of Economy, Trade and Industry (METI) has not only renewed its commitment to robotics but has sought to extend their function to improving the lives of the elderly.

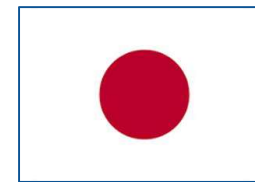


# History of Japanese Government Involvement in Longevity

- 2011 — **Akita City joined WHO Global Network for Age-friendly Cities and Communities in 2011.**
  
- 2013 — **Government passed a measure requiring companies to raise the mandatory retirement age to 65.**  
But full compliance isn't required until 2025.
  
- 2013 — **Akita City established the First Akita Age-friendly City Action Plan (2013-2016).**  
In the first Action Plan, Akita City promoted senior citizen's social participation, and facilitated motivation and public awareness of Age-friendly City with the help of local community association.
  
- 2016 — **Kanagawa prefecture publishes *Healthcare New Frontier - Initiatives based on the Concept of ME-BYO*.**  
“Curing ME-BYO” the scope of which is something broader than that of “disease prevention” in the context of Western medicine.
  
- 2016 — **Society 5.0, Japan's industrial strategy, is introduced**  
It includes addresses to the challenges of ageing population. with “*smart approaches, enabled by technology but shaped by smart people*”.
  
- Jan 2018 — **Japan's government aims for 'ageless society' planned policy encouraging seniors to stay healthy and keep working.**  
The ruling Liberal Democratic Party's related committee broadly approved the draft, and Prime Minister Shinzo Abe's Cabinet endorsed it the same month.
  
- July 2018 — **The Ministry of Economy, Trade and Industry (METI) inaugurate the Well Ageing Society Summit Asia-Japan in Tokyo.**  
In order to ride the wave of the silver tsunami and turn a negative into a positive.



# Japan



## Longevity Initiatives



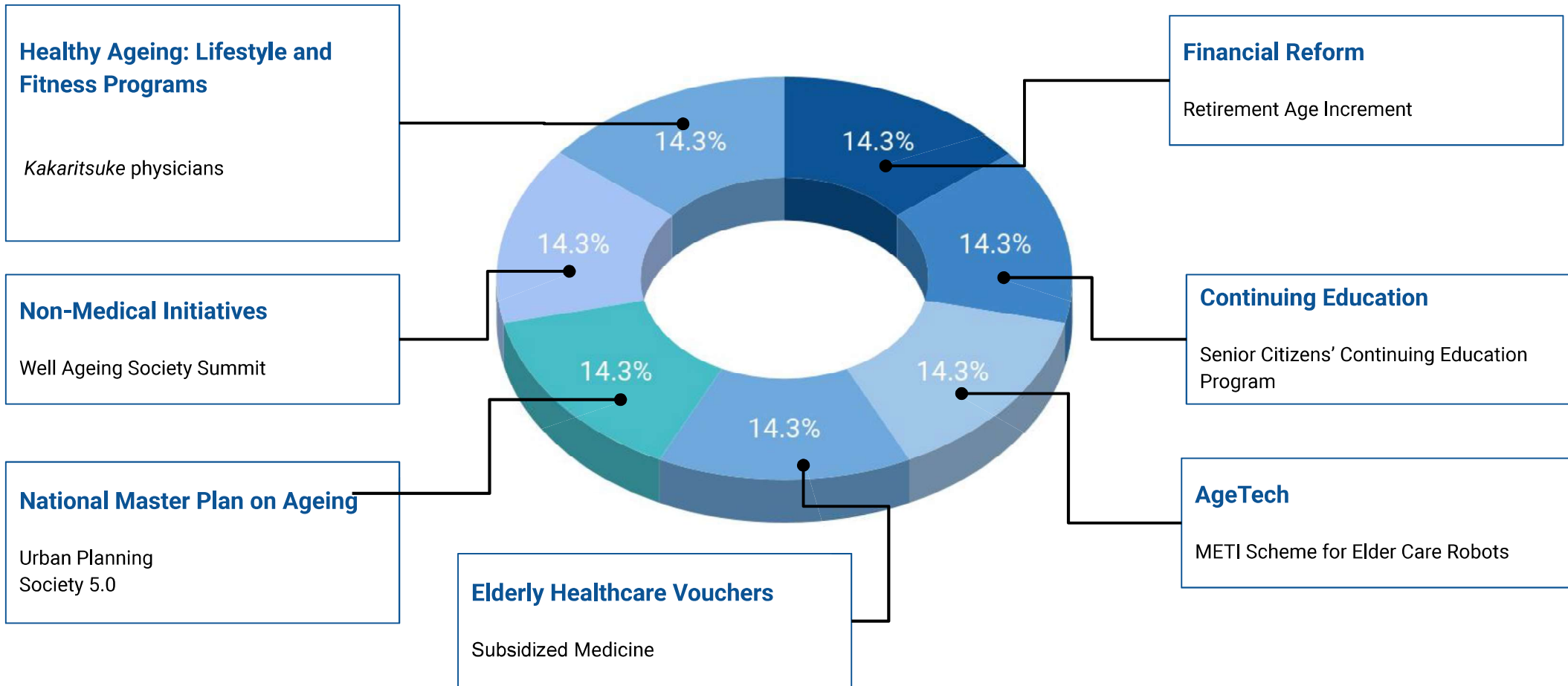
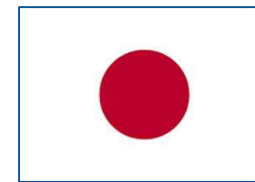
- Age of relevant initiatives: **8 years**
- **24** of WHO age-friendly cities and communities
- **6** initiatives focused on non-medical improvement of quality of life

### General metrics

Life Expectancy	Both sexes life expectancy (2019)	85.8 years
	Male life expectancy (2018)	81.1 years
	Female life expectancy (2018)	87.1 years
GDP	GDP per capita, current prices (2018)	41.02 thousand (\$)
	GDP per capita, PPP (2018)	45.56 thousand (\$)
	GDP, current prices (2018)	5 180 billion (\$)
Population Ageing	Rate of population ageing	6.2 (2007-2017)
	Aged over 65 (2018)	28.3%
	Age dependency ratio (2017)	45%
Healthcare Efficiency	Health expenditure (2017)	10.7% of GDP
	Health expenditure per capita (2017)	4.717 thousand (\$)
	Healthcare efficiency score (2018)	64.3
Retirement	Total # retired	34 293 754
	Retired people proportion	27%
	Normal retirement age (Man/Woman)	65 years / 65 years
	Early retirement age (Man/Woman)	60 years / 60 years



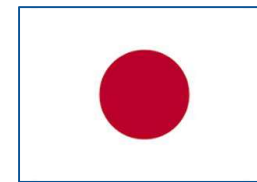
# Japan Initiatives Level of Comprehensiveness



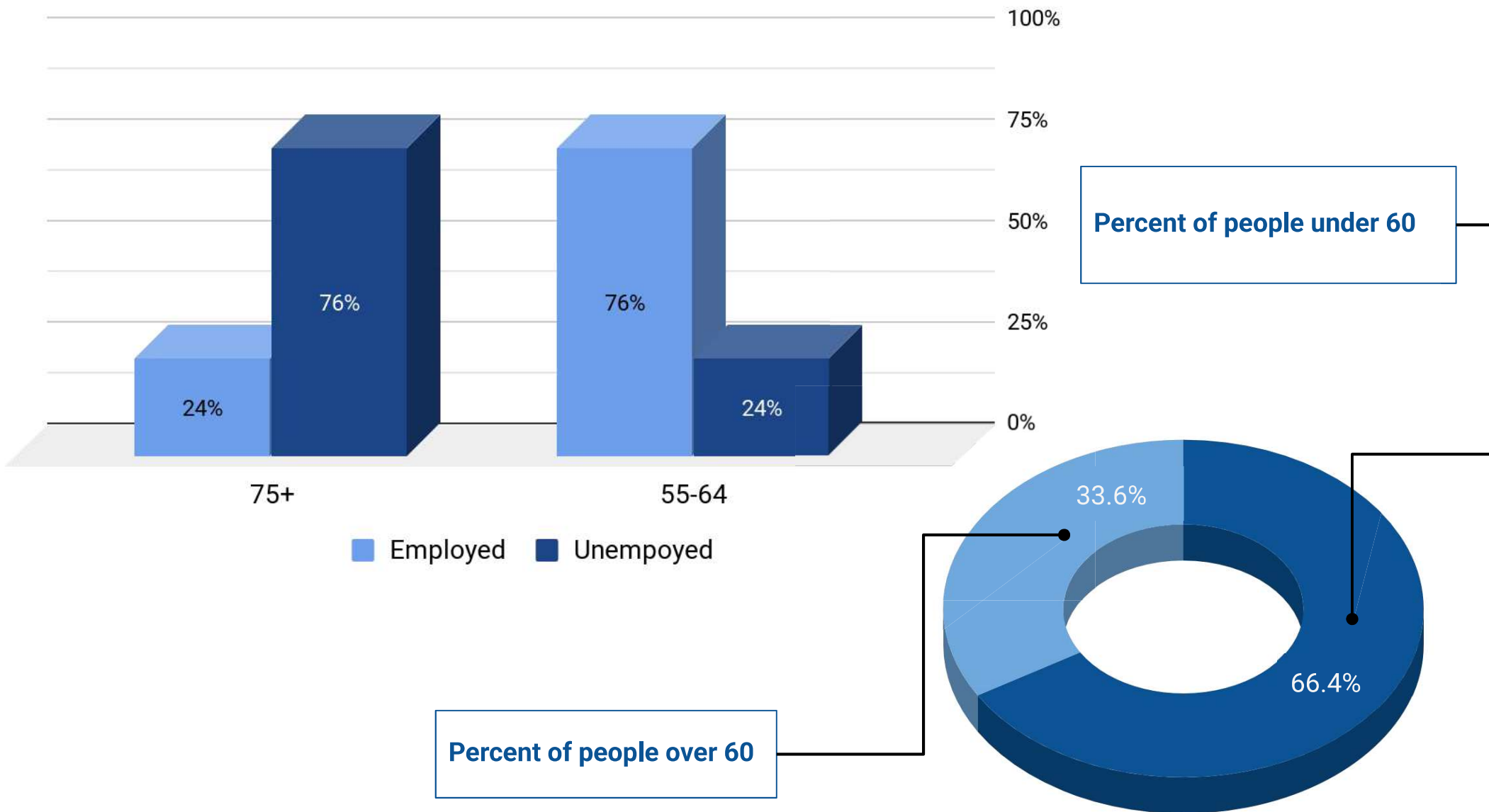
## Underrepresented Initiatives

Preventive Medicine	Geroscience R&D	Longevity Industrial Strategy
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# Japan Age/Employment Range



## Fraction of the Unemployed by Age



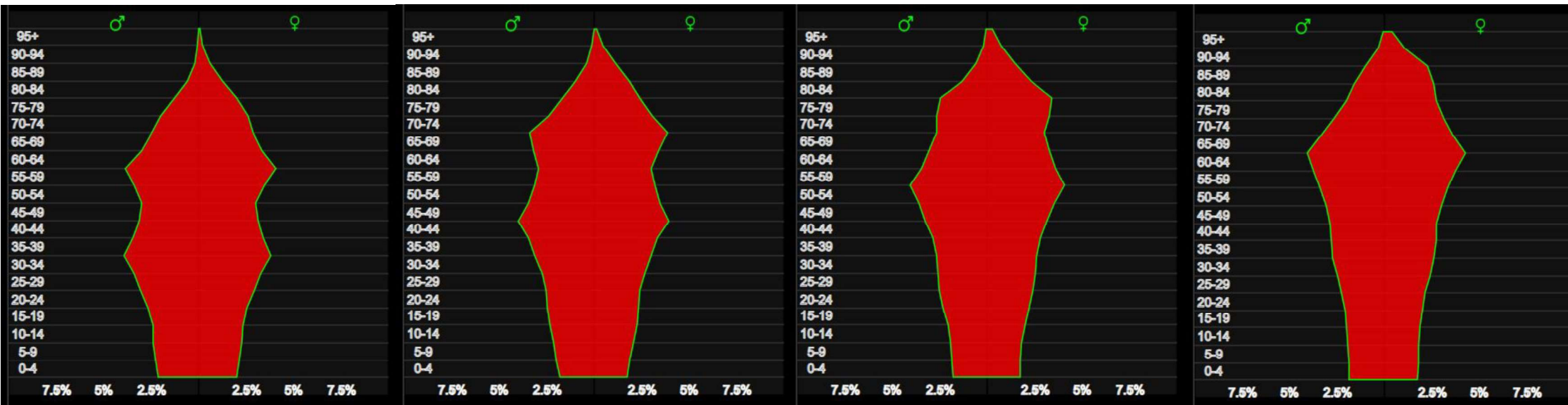
# Recommendations for Japan

- **Introduce long term care insurance system.** Japan is facing super ageing problem; the number of elderly population is expected to grow from the current 16 million to 20 million by 2020, and the working population will be expected to decline from 109 million to 100 million during the same period. This demographic change will require drastic reform of healthcare and long-term care systems. Unless tackled, the rapid increase in aging population can impose a large burden on the health care system including universal health insurance system.
- **Support healthy and disease-free lifestyles with emphasis on health status of elderly.** Promoting healthy, disease-free aging must be a central priority for Japan, and attention must also be paid to the potential for rising rates of risky health behaviour, alcohol consumption and even rates of obesity.
- **Development of health information systems for better monitoring and evaluation.** A strong health information system has the potential to be the backbone for monitoring and evaluating different aspects of health check-ups and cancer screening and further developing its secondary prevention policies.
- **Shift from “sick care” to preventive medicine.** The government should focus on reduction of diseases burden through provision of initiatives aiming to deliver more years in good health and decrease the gap between life expectancy and health-adjusted life expectancy. The goal of healthcare policy is to build a sustainable health care system that delivers better health outcomes through care that is responsive and equitable to each member of the society and that contributes to prosperity in Japan and the world.
- **Utilise AI opportunities for precision health for cost-efficiency and improved health outcomes.** Japan should consider using innovative approaches taken in other countries in context of prevention. For example, within the national cancer screening programmes, a use of selected self-sampling tools for cancer screening were found effective in reaching out to non-participants for cervical and colorectal cancer.

# Japan's Demographic Challenge

Japan is currently the world's oldest country, and it's set to get even older. The number of elderly people aged 65 or older accounts for 26.7 percent of the 127.11 million total population, up 3.7 percentage points from five years ago, a summary report of the 2015 national census shows. In 2050, it's estimated by the government that 40% of Japan's population will be over 65. In the last few decades, the country's social security budget has increased 15%. While 5 decades ago there were 12 workers for every retiree, there will be an equal 1:1 ratio in 50 years. This is one of many demographics problems Japan must address.

By 2020, the world will have 13 "super-aged" societies – societies such as Japan where more than one in five of the population is 65 or older – up from just three today, according to a report from the Moody's rating agency. It said the number of "super-aged" countries would reach 13 in 2020 and 34 in 2030. Only Germany, Italy and Japan meet that definition today, it said. Most of the countries set to join the "super-aged" club by 2020 are in Europe and include the Netherlands, France, Sweden, Portugal, Slovenia and Croatia. But by 2030 they will be joined by a more diverse group including Hong Kong, Korea, the US, the UK and New Zealand.



Source: Ageing demographic projections 2010 - 2050

# Society 5.0 – Japan’s Industrial Strategy and UK Partnership

Perhaps the equivalent of the UK’s Industrial Strategy is Japan’s Society 5.0. Society 5.0 was proposed in the 5th Science and Technology Basic Plan as an idealised future society that Japan should work toward.

Japan’s vision for the future is a super-smart society where technology such as big data, Internet of Things (IoT), artificial intelligence (AI), and robots fuse into every industry and across all social segments. Like the UK Industrial Strategy, Society 5.0 also recognises the ageing society as a grand challenge.

Now a new UK-Japanese research programme aims to help treat patients with chronic degenerative diseases and bring together British and Japanese businesses to develop a new generation of assisted living products and services both countries also agree new collaboration on science and innovation, the ethical use of big data and robotics today measures aim to harness mutual strengths in science and innovation as part of both nations’ industrial strategies.

The partnership includes a £10 million programme led by the UK’s Medical Research Council (MRC) and Japan’s Agency for Medical Research and Development (AMED) that will advance regenerative medicine. The research will help understanding in critical **regenerative processes** in human health and translate research into tools and technologies to treat the diseases of ageing.

Britain will join Japan in its **Well Ageing Society Summit and Global Round Table for Dementia (see slide ‘Ministry of Economy, Trade and Industry (METI) Well Ageing Society Summit Asia-Japan).**

British and Japanese businesses will also be working together to develop and showcase a new generation of assisted living products. Through a joint competition focused on employing Artificial Intelligence (AI) and robotics in assisted living, they can access funding to help create safe, ethical and intelligent home environments. Previous government initiatives have already specified the need for advances in telemedicine, monitoring Service, and **nursing robots (see next slide)** for improving the lives of the elderly.

## Sources:

[Gov.uk](https://www.gov.uk)

[llc-japan.org](https://www.llc-japan.org)

pdf



# Ministry of Economy, Trade and Industry (METI) Elder Care Robots

Japanese Prime Minister Shinzo Abe promised after his election in 2012 to increase the country's gross domestic product by almost a fifth to 600 trillion yen (€4.95 trillion) by 2020.

Robotics, artificial intelligence and smart connected devices are expected to contribute almost a third of this anticipated growth.

But the government sees a wider range of potential applications and recently revised its list of priorities to include robots that can predict when patients might need to use the toilet. Dr Hirohisa Hirukawa, director of robot innovation research at Japan's National Institute of Advanced Industrial Science and Technology, said the aims included easing the burden on nursing staff and boosting the autonomy of people still living at home. "Robotics cannot solve all of these issues; however, robotics will be able to make a contribution to some of these difficulties," he said. **The Ministry of Economy, Trade and Industry (METI)** hopes that four in five care recipients accept having some support provided by robots by 2020. Elderly people dealing with social isolation and loneliness are at increased risk of a variety of ailments, from cardiovascular disease and elevated blood pressure to cognitive deterioration and infection. A new wave of elderly support robots are now springing up, which not only provide a rudimentary form of company and comfort, but also help the elderly out of bed, remind them owners to take medication, remain hydrated, and so on.

**Top:** A robot "Robear" lifting a woman for a demonstration in Nagoya, central Japan. The robot can transfer frail patients from a wheelchair to a bed or a bath. Photograph: Jiji Press/AFP/Getty Images.

**Bottom:** Elderly support robot providing comfort.



# Principles Concerning Measures for the Ageing Society



On February 16, 2018, Prime Minister Shinzo Abe held the 29th meeting of the Ageing Society Policy Council at the Prime Minister's Office

The new General Principles Concerning Measures for the Aged Society has the following pillars:

- Aim to develop an ageless society where people of all generations can play an active role based on their desires.
- Create local communities where people can clearly envision their livelihoods in the golden years at any stage of their life;
- Utilize new measures enabled by the achievements of technological innovation to deal with an ageing society.

On February 16 2018, the Japanese government approved a new **General Principles Concerning Measures for the Aged Society** describing guidelines for medium- to long-term policies for dealing with an ageing society. This is the first time in approximately five years (since 2013) that the General Principles have been updated, and for the first time, it has been clearly indicated that consideration will be given to expanding the age to begin receiving pension payments to 71 or older, in order to make up for the shortage of workers due to declining birth rates, as well as creating an environment in which seniors with a desire to work can continue working.

One of the pillars of the General Principles is to create an “ageless society” in which people of all ages can be as active as they want, revising the current system that handles people uniformly based on their age and the existing social structure of the working generations supporting seniors. Currently, the age to begin receiving public pension payments is normally 65, but people can choose to start receiving them as early as 60 or as late as 70, with monthly payments increased if the starting age is 65 or older. The new General Principles include guidelines for expanding this system beyond 70 years old. The government plans to proceed with discussions on organizing this system, and revise the law in 2020. Anticipating people working at older ages, the goal is to increase flexibility in starting ages for receiving pension payments.

*“The general trend of uniformly seeing those aged 65 or over as elderly is losing credibility. The government will review the (current) standardization by age bracket and aim to create an ageless society where people of all generations can be active according to their wishes.” ~ **2018 General Principles Concerning Measures for the Aged Society policy document***

# Ministry of Economy, Trade and Industry (METI) Well Ageing Society Summit Asia-Japan

In July 2018 the Ministry of Economy, Trade and Industry (METI) inaugurated the Well Ageing Society Summit Asia-Japan in Tokyo in order to ride the wave of the silver tsunami and turn a negative into a positive.

Aimed at showcasing Japanese healthcare and research and development as well as investment in these sectors, the summit brought together large corporations, startups, investors, healthcare experts and policymakers. About 20 startups participated in pitch contests themed on high-quality digital health and ageing.

Participants discussed the importance of Japan's universal health insurance system, which dates to 1961. The public-private regime provides a high standard of care and user costs are relatively low compared to other advanced countries. As one of the largest systems of its kind in the world, with over 127 million subscribers, Japan's healthcare system has accumulated a treasure trove of medical data.

Under a recent legal revision, medical data will be anonymized and provided for various uses. While records on procedures and medication prescribed were previously available, the new regime allows researchers to see outcomes as well. Large volumes of high-quality data will be used for disease research as well as drug development and side effects. Industry players may also use the data to improve care regimes and develop clinical support software.



経済産業省

*Ministry of Economy, Trade and Industry*

Source: [Forbes.com](https://www.forbes.com)



# Akita Age-Friendly City



Akita City's three key priorities for its age-friendly programme have been:

- To involve the residents of Akita City in a leading role;
- To ensure co-operation between private enterprises, administrative organisations and citizens;
- To encourage cooperation between all the relevant departments in the City Government.

In 2011, Akita became the first Japanese member of the Global Network for Age-friendly Cities and Communities, committing to applying WHO's age-friendly principles in its work. Since then, the city has made great strides through creative and innovative action. In this article, AARP's Stephanie Firestone highlights the many ways that Akita is transforming its physical and social environments to better meet the needs and desires of its older residents.

Much of Akita City's age-friendly work is guided by what it calls a "soft" approach, based on community-building and strengthening the social fabric of the city.

Unlike physical change in buildings or roads, which take time to conceive, plan and execute, some social efforts can create quick results. One example is the popular one-coin bus service, which is designed to encourage older adults to be socially active by charging a single fee for rides on fixed-route buses. The project started in 2001 by targeting people 70 and older. When the qualifying age was cut to 68, the number of users increased by 11.4 percent, and the program lowered the age again to 65 in October 2017 hoping for greater expansion. The one-coin program purposely interfaces with the Age-Friendly Partner Program – discounts and free drinks are offered by stores and bathhouses to anyone showing a one-coin certificate.

# Kanagawa Policy Package

The government of the prefecture of Kanagawa, the second most populous in Japan (adjacent to Tokyo), has been promoting its own grand policy package called “Healthcare New Frontier (HCNF)”. This is a bundle of healthcare and industrial/regional policies which aims to bring the longest healthy life expectancy of Japan to Kanagawa and to create new market and industry, by integrating two policy approaches:  
Pursuing the most advanced medical technology

“Curing ME-BYO” the scope of which is something broader than that of “disease prevention” in the context of Western medicine. Combining this concept with the utilization of advanced medical treatment / information technology, we aim to achieve healthy Longevity of the citizens and to create new markets and industries at the same time. The Kanagawa Prefectural Government continues to work closely with WHO on the matter of age-friendly cities.

## Industry for Healthcare Robotics

Healthcare robotics will play an essential role in addressing various issues of aging. This technology is used not only in medical treatments, but also in support of frail seniors and people with disabilities who need daily and long-term care. Robotics also supports healthcare workers who aid such people. Japan is advanced in this field, and HCNF initiatives are utilizing this strength to build a new system of care and support.

### Examples of Robotics Use in Kanagawa Center for the Promotion of Care Robot



Cyborg-type robot, HAL



Therapeutic robot, PARO

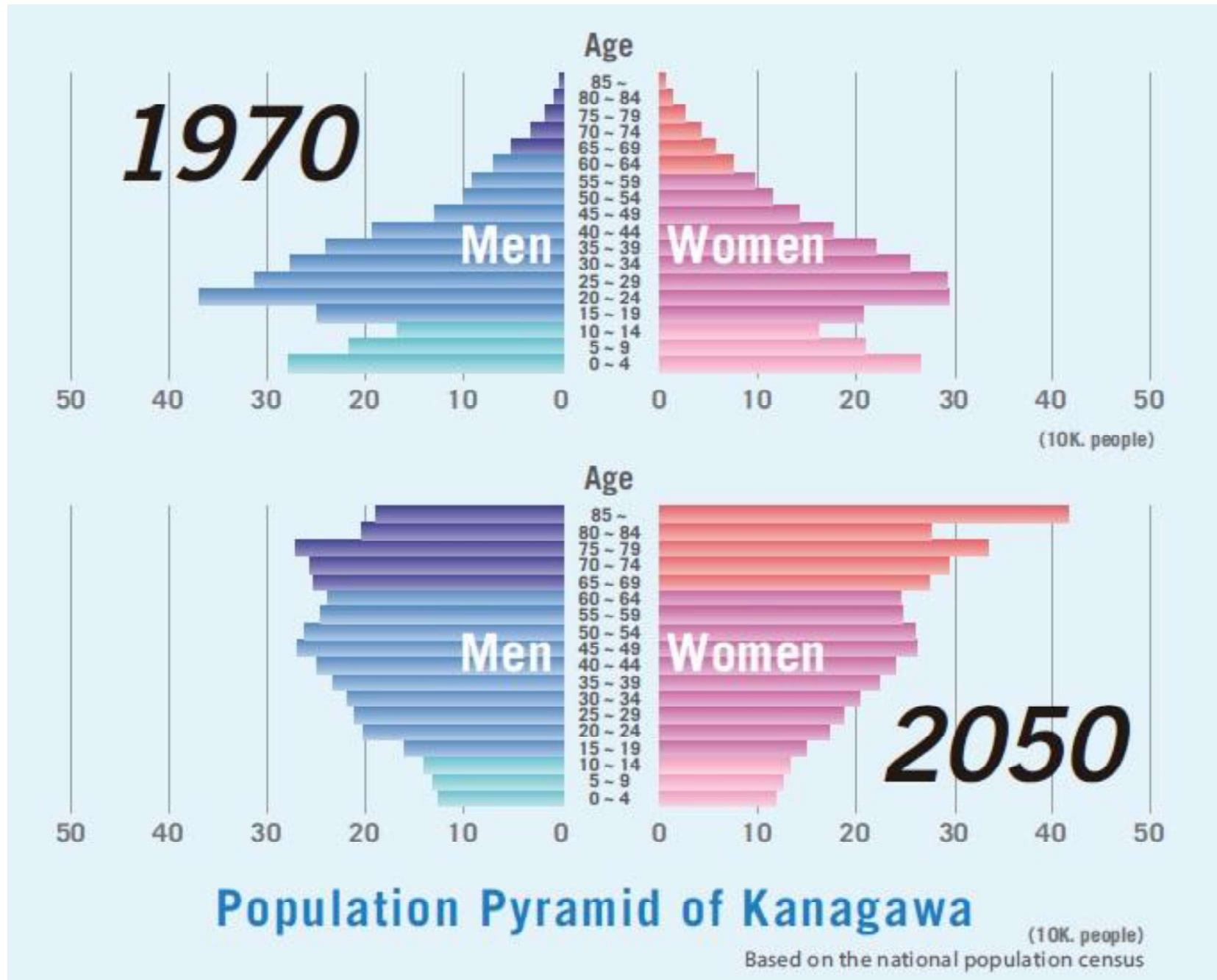


Humanoid robot, PARLO

Sources: [Extranet.who.int](https://extranet.who.int)

[Pref.kanagawa.jp](https://pref.kanagawa.jp) pdf

# Kanagawa Policy Package





# Kanagawa Policy Package



## ***Problems Arising from Changes in Population Structure***

*The current social (welfare) system with the working generation supporting elderly citizens will not be sustainable with the unprecedented changes in social structure demonstrated by the change in the population pyramid.*

## ***Dual Approaches to Solve the Problem***

*Kanagawa Prefecture will promote the HCNF Policy in order to address the problem. HCNF Policy consists of two approaches, a) pursuing cutting-edge medical treatments and technologies, and b) curing ME-BYO.*

Source: [Pref.kanagawa.jp](http://Pref.kanagawa.jp)

# Kanagawa Policy Package

## Industry for Healthcare Robotics

Healthcare robotics will play an essential role in addressing various issues of aging. This technology is used not only in medical treatments, but also in support of frail seniors and people with disabilities who need daily and long-term care. Robotics also supports healthcare workers who aid such people. Japan is advanced in this field, and HCNF initiatives are utilizing this strength to build a new system of care and support.

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