Japan’s Healthcare Innovation Policy

June 2018

Healthcare Industries Division
Ministry of Economy, Trade and Industry
(1) (ii) Project to create the next-generation healthcare system

The creation of a new patient-oriented healthcare system through the introduction of data and technological innovations aims for full-scale operation by 2020. **The goal is to lengthen life expectancy and create a next-generation healthcare system that provides services catered to the individual's needs in order to promote preventive care and improve the health of individuals.**
<Personalized healthcare services>

- A nationwide healthcare information network with the health records and medical history of individuals shared among medical institutions will be set up. Detailed plans will be formalized this summer and necessary trials held in order to ensure full-scale operation from fiscal 2020.

- By 2020, individuals and their family members will be able to access their Personal Health Record (PHP) to check their health and medical records using the My Number Portal at any time. This is expected to improve quality of life and promote healthier lifestyles.

- A public-private partnership that brings together local governments, researchers and enterprises to create new products and services that are aimed at dementia will be set up this year. The platform will deal with early dementia prevention, the creation of an inclusive environment and lifestyle support after the onset of disease.
To increase productivity in nursing, the move towards the usage of ICT will be promoted. By the year 2020, data-sharing in the field of nursing will be made possible together with the development and implementation of robots, sensors and AI to meet the needs of the industry. Using the evidence of efficacy obtained from operators, evaluations regarding remunerations for nursing will be made in the next term.

To increase the usage of services that contribute to better health and disease prevention outside of public insurance, the industry needs a mechanism for feedback and evaluation so as to allow for the objective visualization of said services. Local governments and care managers should actively provide users with information on quality services. At the same time, performance-based partnerships with the private sector will be carried out in order to keep administrative costs low while making use of the expertise of the private sector to solve social issues and increase efficiency.
<Remote/real-time medical care>

- Enhancement of "online medicine" so patients can receive medical care from professional doctors and pharmacists from home, in an environment they feel comfortable in. From the next term onwards, amendments to the "Medicinal products and instruments law" will be made with evaluations of the effectiveness and safety of medical treatments based on the healthcare remuneration revision. These reforms aim to make measures more current and user-oriented.
Well–Ageing Society
Current Situation of Aging <2015> (201 countries)

Aging Rate: Proportion of 65 or more population

<table>
<thead>
<tr>
<th>Country</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Japan</td>
<td>26.0</td>
</tr>
<tr>
<td>2 Italy</td>
<td>22.4</td>
</tr>
<tr>
<td>3 Germany</td>
<td>21.1</td>
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<tr>
<td>4 Portugal</td>
<td>20.7</td>
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<tr>
<td>5 Finland</td>
<td>20.3</td>
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<tr>
<td>6 Bulgaria</td>
<td>20.1</td>
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<tr>
<td>7 Greece</td>
<td>19.9</td>
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<tr>
<td>8 Sweden</td>
<td>19.6</td>
</tr>
<tr>
<td>9 Latvia</td>
<td>19.3</td>
</tr>
<tr>
<td>10 Denmark</td>
<td>19.0</td>
</tr>
</tbody>
</table>

Aged Society
Aging rate > 7%

Super Aged Society
Aging rate > 21%

© T Hasegawa RIFH Japan
There has been a major shift in the population structure in 19th-21st century. It is impossible to maintain the social security systems established in 1960-80s.

Demographic transition <250 years trend>

- Meiji Restoration
- 19th century model
- Bubble economy
- Present
- 21st century model
- Under 14
- Age 15-49
- Age 50-64
- Over 65

The current social security systems developed.

Source: Sensus, Okazaki estimate, National Institute of Population and Social Security Research 2017 estimate
Change in Independence [1]

—Nationwide 20-year Follow-up Survey of the Elderly—

Females

Change in Independence [2]

— Nationwide 20-year Follow-up Survey of the Elderly —

Males

Independence

- Requiring assistance for instrumental activity of daily living
- Requiring assistance for basic & instrumental activity of daily living
- Death

Age

63-65  66-68  69-71  72-74  75-77  78-80  81-83  84-86  87-89

As everyone hopes to live long, society will inevitably age. → ‘Aging society’ is the ideal society of mankind.

After the World War II, affluent economic society was realized, the average life expectancy increased from about 50 years to about 80 years.

Based on the aging of society, it is required to restructure the socioeconomic system.

Establishment of ‘Lifelong Active Society’

- Employers expect employees to be healthy and work hard during this period: **Health investment** → **Significant influence on subsequent healthy life expectancy**

- Less active participation in the economic activities
  - Social contribution (volunteer activities, etc.): **Necessity for new business creation**
  - Examination of ways of working and social contribution with due consideration of the characteristics of local community.

- Special efforts should be made to prolong this period (healthy life expectancy)

- Establishment of the care system that meets the needs

- Establishment of the flexible system that enables people to live in ways they like for a lifetime and meets various needs that they recognize in their lives
Effectiveness and Satisfaction of Treatment in Common Diseases

- Effectiveness of drugs in treatment and treatment satisfaction vary across common diseases based on their characteristics.

**Aging-related Diseases**
- Dementia (e.g. Alzheimer's Disease) $19 billion
- Low Effectiveness of Drugs
- Low Treatment Satisfaction

**Life-style Related Diseases**
- Complications of Diabetes $38 billion
- Cancer
- High Effectiveness of Drugs
- Low Treatment Satisfaction

**Diseases with Single Target Agent**
- Communicable Disease $6 billion
- Arthritis $2 billion
- Hypertension $10 billion
- Diabetes $15 billion

**Permanent cure of single target agent**
- Multi target agents, unclear, symptomatic treatment
- Multi target agents, unclear, no effective treatment

(Source) Japan Human Sciences Foundation
The Future of Healthcare and Medical System

Considering the increase of **Endogenous Disease** (Life-style Related Disease/Aging Disease), the establishment of a new prevention-oriented healthcare system is needed.

<table>
<thead>
<tr>
<th>Characteristics of Diseases</th>
<th>Common Diseases</th>
<th>Treatment Plan</th>
<th>Healthcare System Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous</td>
<td></td>
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<tr>
<td>Diseases with Single Target Agents</td>
<td></td>
<td></td>
<td>○ Develop <strong>drugs</strong> with <strong>high safety and response rate</strong></td>
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<tr>
<td></td>
<td>Communicable Disease</td>
<td>Permanent Cure</td>
<td>• Establish quick and accurate <strong>diagnosis methods</strong></td>
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<td></td>
<td>Hereditary Disease</td>
<td>Same for everyone (Standard treatment)</td>
<td>• Conduct efficient clinical trial and improve manufacturing tech</td>
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<tr>
<td></td>
<td>Cancer (with high target specificity)</td>
<td>Early Diagnosis</td>
<td>• Promote <strong>regulatory science</strong></td>
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<tr>
<td></td>
<td>Dementia</td>
<td>Disease Progression Control</td>
<td></td>
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<tr>
<td></td>
<td>Hypertension</td>
<td>Life support</td>
<td>○ <strong>Find potential patients in early stages</strong></td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>Early Diagnosis</td>
<td>○ <strong>Manage/control the progression of symptoms</strong></td>
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<tr>
<td></td>
<td>Behavioral Change</td>
<td>Prevention</td>
<td>• Develop <strong>technology for early diagnosis</strong></td>
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<td></td>
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<td></td>
<td>• Provide <strong>lifestyle guidance</strong> in addition to prescription of drugs</td>
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<td></td>
<td></td>
<td></td>
<td>• Establish <strong>progression control methods</strong> through data collection</td>
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<td></td>
<td></td>
<td></td>
<td>• Utilize service &amp; equipment to support daily life with diseases</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>○ <strong>Find potential patients in early stages</strong></td>
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<td></td>
<td></td>
<td></td>
<td>○ <strong>Build prevention-oriented healthcare system</strong></td>
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<td></td>
<td></td>
<td>• Be thorough in periodic health checkups and health guidance</td>
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<td></td>
<td>• Develop <strong>health management tools</strong> using IoT/ AI</td>
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<td></td>
<td></td>
<td></td>
<td>• Strengthen roles of pharmacists and <strong>registered dietitians</strong></td>
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<td></td>
<td></td>
<td></td>
<td>• Promote <strong>self-medication</strong></td>
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</tbody>
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Traditional Medicine
Transitions of Symptoms (image)

Prevention stage  treatment and recuperation stage  Terminal stage

Deterioration of cellular function
- Early diagnosis, behavioral change (no smoking)

Deterioration of vascular function (arteriosclerosis)
- Prevention

Deterioration of renal function
- Prevention

Deterioration of cerebral function
- Prevention

Healthy person

At high risk of lifestyle related diseases
- diabetes
- hypertension
- Dyslipidemia
- hyperuricemia

Lifestyle related Disease (Treatment)
- Prevention
- prevention of serious condition
- excluding cancer

Cancer

Cardiovascular disease
- Renal failure (dialysis)
- Cerebrovascular disease (stroke)
- Dementia (Nursing facility, medical facility)
- Senility
- Others

Healthy person

Early diagnosis, behavioral change

Prevention

Deterioration of cellular function

Deterioration of vascular function (arteriosclerosis)

Deterioration of renal function

Deterioration of cerebral function

Geriatric syndrome

Senility

Cancer

Cancer

frailty

Mild Cognitive Impairment

Dementia (Nursing facility, medical facility)

Medical expenditure, nursing expenditure

(Created by METI based on interviews)
Industrial Structure in New Healthcare System

- Pharmaceutical companies shift business models from the provision of drugs to the provision of comprehensive healthcare solutions including prevention and lifestyle management services.
- Simultaneously, the switch from a vertical integration structure to a horizontal specialization structure is seen.

Traditional Structure in Pharmaceutical Industry

Drugs

Pharma company (traditional)

CDMO

CRO

Pharma venture

Integration of Pharma research function Academia / NRDA

New Structure in Comprehensive Healthcare Industry

Drugs

Prevention/ lifestyle management

Pharma company (future)

CDMO

CRO

Pharma Venture/Bio chemical industry

Digital health venture / IT company, Fitness, Food, Housing ...

Integration of Pharma research function Academia / NRDA
Overview

- DFree is the first urination timing predicting device ever. It detects the changes in bladder size and predicts urination timing with ultrasound.

- DFree supports those who have difficulty going to the toilet by themselves. Toilet care is always a stress for both caretaker and the care receiver. DFree reduces stress for everyone, bringing more smiles.

- Nursing care facilities in Japan have already introduced Dfree. Triple W JAPAN goes beyond Japan and has started demonstration project with nursing facilities overseas.

Sensing Bladder with Ultrasound

Connecting to Smart Devices

(Citation) Triple W JAPAN’s website
Developed rehabilitation system using virtual reality and artificial intelligence. Quantified rehabilitation which has been traditionally conducted with experience and skill of physiotherapist, and provided automatic and customized rehabilitation system to individuals.
EXAWIZARDS

- 認知症者等のケアに関する画像や音声などのデータを解析することで、介護技能に関する熟練者のケア技法の特徴を抽出し、ケア初心者の学習を支援。

Next-Gen Power Wheelchair (WHILL)

- Compact size, Intuitive controls and omni wheels make maneuvering effortless and enjoyable, and allows you to go from the office to the park in a single device. Exceptional stability keeps you in complete control, best-in-class durability.
- Founders with solid enginnering and design experience (NISSAN, OLYMPUS, SONY)
- Currently no entity in Europe, one distributor in UK, CE marking ready

✔ Award-winning design
✔ Excellent terrain coverage & tight turning radius
✔ Safety & comfort through software integration

Design

“Unlike any existing wheelchair”

Technology

“Thrive in any environment”

4WD x Omni-wheel Technology

Software*

- Remote control
- Customization
- Remote maintenance

Patented Patented Patented
OQTA

- OQTA is a service to send someone precious to you your genuine love. Using only a one-second sound.
- Aim to heal loneliness and mental health by using OQTA clock system.
- https://www.oqta.com/index.html.en

1. When you wonder how your grandma is doing,
2. Tap her icon on the dedicated smartphone app
3. The connected cuckoo clock makes a sound
4. Let your grandma know someone is thinking of her

Reference “https://www.oqta.com/index.html.en”
Market Scale of Healthcare Industry: Healthcare Businesses Outside Public Insurance Coverage

- We sorted the entire picture of healthcare industry, healthcare businesses outside public insurance coverage and estimated the current and future market scale for each industrial field, under the existing research. The healthcare industry is expected to expand into a 25-trillion-yen market by 2016 and a 33-trillion-yen market by 2025.

- It will be revised under trends in the policy of the healthcare industry.

Community General Support System

National Health and Elderly care Insurance

Private Insurance

For elderly*

For patients

For both patients and elderly

Healthcare industry (products and services to support the lives of patients and the elderly)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>15.8</td>
<td>17.3</td>
<td>20.6</td>
</tr>
<tr>
<td>Industry</td>
<td>trillion yen</td>
<td>trillion yen</td>
<td>trillion yen</td>
</tr>
</tbody>
</table>

*National insurance services are included by trillions because of the limit of the data.
The healthcare industry is expected to expand into a 25-trillion-yen market by 2016 and a 33-trillion-yen market by 2025. Products and services whose markets are expected to expand in the future such as dwellings for health and advice services related to health are not included.

**Healthcare to maintain and promote health**
- **Health and Productivity Management**
  - Agency of medical check-up
  - Measures for mental health
  - 2016: 560 billion  
  - 2025: 760 billion

**Know**
- App related to healthcare
- Publications related to healthcare
- 2016: 30 billion  
- 2025: 60 billion

**Measure***
- Service of medical check-up
- Measurement instrument
- 2016: 1.02 trillion  
- 2025: 1.12 trillion

**Heal**
- Esthetic salon and relaxation service
- Relaxation instrument
- 2016: 400 billion  
- 2025: 520 billion

**Exercise***
- Fitness club***
- Training machine
- 2016: 710 billion  
- 2025: 1.59 trillion

**Live**
- Household appliances for health
- 2016: 100 billion  
- 2025: 130 billion

**Eat**
- Supplement and healthy food
- OTC and quasi-drugs
- 2016: 3.2 trillion  
- 2025: 4.16 trillion

**Sleep**
- Functional bedclothes
- 2016: 150 billion  
- 2025: 190 billion

**Play**
- Health tourism
- 2016: 2.38 trillion  
- 2025: 3.2 trillion

**Learn**
- App related to healthcare
- Publications related to healthcare
- 2016: 2.7 billion  
- 2025: 3.4 billion

**Life assistance***
- Glasses and contacts
- 2016: 270 billion  
- 2025: 340 billion

**Prevent**
- Sanitary goods
- Vaccination****
- 2016: 360 billion  
- 2025: 400 billion

**Wear**
- Functional clothes
- 2016: -  
- 2025: -

*They couldn't be estimated because of lack of data.

**Private Insurance**
- 2016: 7.22 trillion  
- 2025: 9.36 trillion

**For patients**
- Food for patients
- 2016: 60 billion  
- 2025: 100 billion

**For elderly***
- Food for elderly care**
- Tourism with support for elderly
- House for nursing care and welfare equipment*
- 2016: 8.38 trillion  
- 2025: 10.86 trillion

**For both patients and elderly**
- Food delivery service
- 2016: 120 billion  
- 2025: 230 billion

**End-of-life care**
- 2016: -  
- 2025: -

*: mixing service of national insurance and non-national insurance
**: mixing service for institution and individual
***: including services for elderly
****: mixing service paid by municipal corporation, company and individual
Promoting “Regional Councils on Healthcare Industries of Next Generation”

- Promoting “Regional Councils on Healthcare Industries of Next Generation” to accelerate cooperation between healthcare-related professionals in a region and create a healthcare industry based on regional needs.

- Regional Councils have been established in **5 blocks, 17 prefectures, and 18 cities (40 in total)**. (As of May 2018)

### Established

- **Aomori**
- **Tochigi**
- **Gunma**
- **Saitama**
- **Kanagawa**
- **Fukui**
- **Nagano**
- **Shizuoka**
- **Mie**
- **Osaka**
- **Hyogo**
- **Wakayama**
- **Shimae**
- **Hiroshima**
- **Tokushima**
- **Nagasaki**
- **Kumamoto**
- **Morioka**
- **Sendai**
- **Semboku**
- **Kaminoyama**
- **Yokohama**
- **Kawasaki**
- **Matsumoto**
- **Toyama**
- **Takaishi**
- **Koube**
- **Amagasaki**
- **Okayama**
- **Matsuyama**
- **Kitakyushu**
- **Sasebo**
- **Koshi**
- **Okagoshima**
- **Satsumasendai**

### Prefectures

- **Hokkaido Health Care Initiative**

### Cities

- **NHC Forum (Chubu)**

- **Shikoku Wellness Industry + Challenge**

- **Council of Bankoku Iryou Shinryo**
Phillips and Tohoku University has agreed on joint research about healthcare ICT solutions focused on behavioral change.

Philips is a leading health technology company focused on delivering integrated solutions. Philips aims to improve patient outcomes and increase productivity in the health sector by applying Artificial Intelligence (AI) technologies to complex datasets across the data value chain. This includes data from patients, healthcare providers, health insurers and medical technology providers.

Tohoku University started a program in 2014 for developing innovative medical devices by cooperating with corporates and academia and utilizing design thinking.
Iwaki Big Data: main items

① Dementia, Depression etc: 15 tests (MMSE, CDT etc), amyloid β40, amyloid β42, MRI, Olfactory test, center of gravity sway
② Oral health (remaining tooth number, periodontitis, salivary volume, microbiota)
③ Neutrophils functions, Lymphocyte subtype, Cytokine, Hormone, Vitamin
④ Microbiota in gut (T-RFLP method, 16S metagenome analysis, whole genome analysis)
⑤ Physical fitness (16 items)
⑥ Metabolic/ Locomotive syndrome: Bone metabolism (bone density), Fatty acid analysis, Amino acid analysis, Glucose metabolism, Joint X-p, MRI
⑦ Atherosclerosis (PWV, ABI)
⑧ Whole genome
⑨ Echogram for heart and abdomen
⑩ Others: trace elements in serum (12 elements like as selenium, copper, aluminum zinc), H2, CH4, CO NO in exhaled gas, Blood metabolome analysis etc.
Risk factors for dementia

• The Lancet Commission identifies nine potentially modifiable health and lifestyle factors from different phases of life that, if eliminated, might prevent dementia.
Dementia

United States

Europe

Collaboration

Japan

Round Table
- Academia (dementia, nursing care, neurology, IT, etc)
- Business (pharma, non-pharma)

Dementia-related field and registry
- Registry
- Municipalities
- Nursing care providers

Specific Research/Empirical Research
- Risk reduction
- Diagnosis/Prevention
- Treatment
- Life support

Projects for Dementia...
PPPs for Dementia around the World

- Public private partnerships have started in the field of dementia’s risk reduction, prevention, treatment and life support in the world

**Memory Friendly Finland at 2020**
- Started in 2012 as the Finnish National Memory program.
- Promoting Brain Health, preventing memory disorders etc.

**EPAD (European Platform for Alzheimer's Disease)**
- Providing a platform for developing a new treatment for dementia prevention

**Dementia Forum X**
- Held with cooperation by Karolinska institute and Swedish royal family.
- Supported by IKEA
- Held in Japan in April 2018. Discussed life support and risk reduction.

**WEF (World Economic Forum)**
- Opened the Fourth Industrial Revolution Center. Started projects on Precision Medicine.
- Interested in Aging Society

**World Dementia Council**
- Established by the G8 at the London summit. Consisted of global leaders and professionals on dementia issues.
- Focus area is ①Awareness, ②Care, ③Risk Reduction, and ④Research.

**University of Stirling**
- Promoting dementia-friendly design

**ADNI (Alzheimer’s Disease Neuroimaging Initiative)**
- Uniting researchers with study data to define the progression of Alzheimer's disease (AD).
- Data include MRI and PET images, genetics, cognitive tests, CSF and blood biomarkers

**USA2 (US Against Alzheimer's)**
- Driving collaborations Alzheimer's treatment, care, life support

**ORANGE Platform**
- Nationwide clinical registry for dementia
- Consisted of multiple registries of patients with dementia stratified by the following clinical stages: preclinical, mild cognitive impairment, early-stage, and advanced-stage dementia.

**Japan-China Services Trade Cooperation Mechanism**
- Dialogue for cooperation in elderly care and support

**Singapore**
- Considering pilot projects on life support for people with dementia

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Mediva

- Mediva and Tokyu Land Corporation were awarded by the University of Stirling’s Dementia Services Development Centre (DSDC) with its first international gold accreditation for excellence in dementia design.
- Two buildings within a senior living development in the Tokyo suburb of Setagaya received recognition from the world-renowned center.
Strengthening economic cooperation

- The two sides shared the view that developing the economic relationship is one of the most important foundations for both countries, and that cooperation will move ahead in a broad range of fields including finance, food trade, the environment and energy conservation, tourism, and the declining birthrate and aging population, and that exchanges between the two countries’ business communities will be encouraged.  
  (November 11, 2017)
Quality Digital Health
Concept of Quality Digital Health

- To utilize digital technology to cover the limitation of existing healthcare
- To take an organized approach to gather and analyze data in order to achieve “meaningful data-set for certain purpose”
- To put high importance on privacy and ethical issues in order to gather “clean data in process”
Integration of BioMedicaleveryThing (IoBMT)

Citation:
Dr. Nagai, Healthcare IT Study Group, April 12, 2018
At the G7 Ise-Shima Summit, we reaffirmed that the free flow of information is a fundamental principle to promote the global economy and development, and ensures a fair and equal access to the cyberspace for all actors of digital economy.

We stress the importance of ensuring a high level of privacy and security of personal data as a fundamental right and as a central factor of consumer trust in the digital economy, which also further facilitate mutual data flows, leading to the development of digital economy. With the recent reforms of their respective privacy legislation: the entry into force of the EU General Data Protection Regulation (GDPR) on 24 May 2016, which will apply from 25 May 2018, and of the Japanese Act on the Protection of Personal Information (APPI) on 30 May 2017, the EU and Japan have further increased the convergence between their two systems, which rest notably on an overarching privacy law, a core set of individual rights and enforcement by independent supervisory authorities. This offers new opportunities to facilitate data exchanges, including through a simultaneous finding of an adequate level of protection by both sides. With this in mind, we reaffirm our commitment to further intensify our efforts towards achieving this goal by early 2018.
• Quality digital health and **precision healthcare/preventive healthcare**

- Can provide evidence-based, credible, new healthcare solutions
- May reduce social concern for digital health (domestically and cross-border)
- Can efficiently achieve the goal, considering cleansing cost and accuracy level
- Can be accepted by more wide global academics, professionals and businesses
Integrated Healthcare Solutions (Karolinska)

- Karolinska University Hospital creates long-term partnerships in order to continuously improve and develop healthcare together with industry, academia and the patient.
- Companies will be able to commercialize products and services and the hospital will be able to further develop solutions based on identified needs. The partnerships may or may not be linked to our procurement processes.

Citation: Website of Karolinska University
Other lifestyle related diseases

- Hyperlipidemia, hypertension, etc.

Use of healthcare information – from Big data to Quality data –

- Establish system infrastructure for connecting and accumulating data collected through IoT, with the consent from patients (examination and implementation of the Agreement on the Exchange of Health Information and a form for exchanging health information)
- Using HbA1c, validate the project’s effect with a method used in clinical trial (experimental research)

Lifestyle related diseases

- **Diabetes**
  - (diabetes: under treatment)
  - HbA1c 6.5 and above: No medication
  - HbA1c above 6.0 and below 6.5
  - [prediabetes]
  - 10M people
  - 10M people

- **Medication/dialysis**
  - 35M people
  - 0.12M people

- **Target of our project**
  - HbA1c below 6.0
  - [Healthy people]

- **Target of conventional projects**
  - HbA1c above 6.0 and below 6.5
  - Prediabetes
  - 10M people
  - 80M people
  - Population of 30 and above, excluding people with prediabetes

Other lifestyle related diseases (Hyperlipidemia, hypertension, etc.)

- Medication: 35M people
- Dialysis: 0.12M people
- Annual medical expenditure: medication: $4,000, dialysis: $58,000

Establish basic algorithm based on quality data, and establish AI that can be used in the medical field
Use of healthcare information (Project for Diabetes Prevention)

<Target>

Diabetes
Health people, prediabetes
population: 90 M

Hospital Visits
Population: 2M

Dialysis
Population: 0.1 M

None diabetes
Health people, prediabetes

Hospital visits

<Elements of health information mainly used>

1. Information to monitor daily life
   - Number of steps, amount of activity (collected through wearable devices including pedometer and smartphones)

2. Information to alert changes in symptoms
   - weight (measured in workplace)
   - blood pressure (measured in workplace)

Elements to indicate the serious level of diabetes: HbA1c (monthly inspected in medical institution), blood glucose level (measured in workplace), urinary glucose level (measured in home)

※ Blood glucose level and urinary glucose level can be changed in a day. Be sure to measure them under certain conditions
※ Change or addition in the above elements is acceptable if possible to achieve the equivalent goal

Main participants are people with diabetes (mild), but can include people with hypertension and dyslipidemia
Participants should have their HbA1c (NGSP) ≥ 6.5 and don’t take dialysis or insulin injection or hypoglycemic agent.

Health checkup data

Medical bill data

Employer/Insurer
Industrial doctor, public health nurse

Monitor based on healthcare info and alert changes in symptoms

Clinician

Intervene and support behavioral change

Healthcare Database

Accumulate healthcare info including the number of steps, amount of activity and blood pressure

Monitor daily life by themselves

Participants

38
October events
In Japan, there is strong demand and opportunity for transformation in our healthcare ecosystem. Our rapid aging population is driving strong social demand for change. Japan has some of the most advanced basic sciences, applied sciences such as regenerative medicine, and has quality healthcare data from 120 million people. This provides opportunity for new technology, new business models, new culture to be implemented through partnerships within and globally.

**FOCUS TOPIC**

The technology; **Biotech startups**

The business model; **Quality digital health**

The culture; **Well aging society**

(elderly care and support, preventive healthcare)

- Format: Partnering event (symposium, pitch) inviting diverse global players such as healthcare ventures, investors and sponsors (Pharma, Medical device, IT, trading companies, insurers, VCs etc) and local governments from Japan
- Date: **October 9, 2018**
  - co-event with “Bio-Japan”, Asia's No.1 partnering event for the global biotechnology industry
- Venue: Yokohama, Japan
- Supported by
  - AMED(Japan Agency for Medical Research and Development), Government of Japan (Cabinet Office, Ministry of Economy, Trade and Industry(METI), Ministry of Health, Labour and Welfare)
- For more information contact:
  - Healthcare Industries Division, METI healthcare-events@meti.go.jp, +81-3-3501-1790
Cooperation with other countries in the 1st Well Aging Society Summit Asia-Japan

- Japan will invite startups, healthcare companies, investors, and governments in the world to the 1st Well Aging Society Summit Asia-Japan
- We will build a collaborative relationship on issues of aging society

**WEF (World Economic Forum)**: Aging society (TBD)

**Sweden**: Dementia, Digital health

**Finland**: Dementia, Digital health

**UK**: Dementia, Bio

**AARP (American Association of Retire Persons)**: Aging society

**HIMSS (Healthcare Information and Management Systems Society)**: Digital health

**C4IR (Center for the Fourth Industrial Revolution)**: Precision Healthcare

**Japan**: Aging society, Digital health, Bio technology

**Host of the 1st Well Aging Society Summit Asia-Japan**

**China**: Aging society, Elderly care

**Hong Kong**: Aging society, Elderly care

**Taiwan**: Aging society, Elderly care

**India**: Digital health

**Singapore**: Digital health, Bio
BioJapan 2018

• Outline: BioJapan has played an important role in facilitating interaction between Japanese and global companies/organizations and stimulating new business opportunities for almost two decades. Top business development, licensing, and alliance management professionals, R&D personnel, and biotech company executives from around the world will gather in Yokohama in October 2018 for the 20th iteration of BioJapan. Over 900 organizations from around 30 countries are expected to participate in the event, to hold an anticipated 9,000 business meetings over the course of the three days. BioJapan is Asia’s No'1 partnering event for biotechnology.

• Date: **10th -12th October, 2018**
• VENUE: Yokohama, Japan
• Home Page URL: [https://www.ics-expo.jp/biojapan/en/](https://www.ics-expo.jp/biojapan/en/)
Related Events (2)

45th International Home Care & Rehabilitation Exhibition (H.C.R.2018)

- Outline: H.C.R. is the largest international home care and rehabilitation exhibition in Asia, which brings together home care and rehabilitation equipment from all over the world from daily living aids through to state-of-the-art care related aids.
- Date: **10th - 12th October, 2018**
- VENUE: Odaiba, Tokyo, Japan
- Last Year’s Visitors: 121,528 (about 3,000 from Asia)
Related Events (3)

CEATEC JAPAN 2018

- Outline: Harnessing CPS/IoT to create business opportunities based on co-creation involving a wide range of industries and fields, this event brings the technologies together in one venue that is ideal for the exchange of information. This facilitates the realization of Society 5.0, the ultra-smart society designed to further economic development and the solution of social problems.
- Date: 16th - 19th October, 2018
- VENUE: Makuhari, Chiba, Japan
- Last Year’s Visitors: 152,066 (about 1,300 from Asia)
Reference
The system for promoting the Healthcare Policy

Headquarters for Healthcare Policy
Director-General: Prime Minister
Members: Minister of State and others

Promotion Council for the Healthcare Policy
Chairperson: Minister responsible for Healthcare Policy
Members: Directors of the related ministers and government offices

Policy advice
Expert survey

Councilor meeting for Healthcare Policy

Drug Discovery Support Network
The Council on Promoting Development of Next-Generation Medical Devices
The Genomic Medicine Realization and Promotion Council
Task Force for Next-Generation Medical ICT
Task Force for Fund For Healthcare Policy
Next-Generation Healthcare Industry Council
Task Force for Global Reach of Japanese-style Medical Technology and Services

Cabinet Secretariat, Office of Healthcare Policy
In the era of a super-aging society ahead of other countries, Japan has an important role in extending healthy life expectancy by developing cutting-edge medical technologies / services for the formation of a society of health and longevity. To this end, Japan promotes the following measures:

- **Consistent research and development in the healthcare field from basics to commercialization, along with the improvement of its environment and dissemination of results** ⇒ Leading to the provision of healthcare using the world’s highest level of technologies
- **Creation and activation of new industrial activities that can help to form a society of health and longevity, and promotion of international expansion** ⇒ Contribute to the economic growth of Japan and improvement in the quality of overseas healthcare

The period should be from FY2014 to FY2019 (March 2020).
In order to promote medical R&D, turning research results into actual utilization and creating its supporting system are important challenges. To this end, the Headquarters promotes the following measures based on 10 basic principles:

- Promote integrated and consistent project management, database creation, international strategy and industrial-academic collaboration within AMED under the program director
- Promote **nine collaboration projects** (five cross-sectional and four disease field-specific projects)

The period should be from FY2014 to FY2019 (March 2020).

### Construct a cycle between basic research and clinical practice

1) Basic research

2) Bridging to clinical practice

3) Use in medical practice

4) Assessment of effects and setting of new challenges

- Construct a system to help commercialize the results of basic research (Japan Medical Research and Development Award)
- Efforts to materialize cutting-edge medicine, including regenerative medicine
- Arrange a system for fair research, etc.

### 10 basic policies

- 1) Management of R&D related to healthcare (Construction of database)
- 2) Management of clinical research and study data
- 3) Support for commercialization
- 4) Support for arrangement of R&D infrastructure
- 5) Promotion of international strategy
- 6) Support for the efforts of industrial-academic collaboration, etc.

### Expected functions of AMED

(Cross-sectional)

1) Creation of pharmaceuticals
2) Development of medical devices
3) Hub for creating innovative medical technologies
4) Regenerative medicine
5) Genome medicine

(Disease field-specific)

6) Cancer
7) Cerebral / mental diseases
8) Emerging / re-emerging infectious diseases
9) Intractable diseases
AMED : New System for Medical R&D

Headquarters for Healthcare Policy (HHP)

- develop a comprehensive plan for the promotion of medical R&D
- integrate medical R&D budget requests of relevant ministries
- make strategic decisions on the allocation of promotional adjustment funds

Ministries

- Advise on Nomination of President and Auditor
- Advise on Mid-to-Long Term Targets
- Comprehensive adjustment of budget request

Japan Agency for Medical Research and Development (AMED)

- Handle Nomination and Dismissal of AMED President and Auditor
- Present Mid-to-Long Term Targets
- Allocate Subsidy Operating Expense

Funding

- Provides a unified point of contact for funding and for application procedures.
- Provides support from basic research to practical use.

Institutes/Researchers
Johnson & Johnson’s “Our Credo”, created 75 years ago, declared that they are responsible to their employees’ health and happiness.

Our Credo

We believe our first responsibility is to the doctors, nurses and patients, to mothers and fathers and all others who use our products and services. In meeting their needs, everything we do must be of high quality. We must constantly strive to reduce our costs in order to maintain reasonable prices.

Customers’ orders must be serviced promptly and accurately. Our suppliers and distributors must have an opportunity to make a fair profit.

We are responsible to our employees, the men and women who work with us throughout the world. Everyone must be considered as an individual. We must respect their dignity and recognize their merit. They must have a sense of security in their jobs. Compensation must be fair and adequate, and working conditions clean, orderly and safe. We must be mindful of ways to help our employees fulfill their family responsibilities. Employees must feel free to make suggestions and complaints. There must be equal opportunity for employment, development and advancement for those qualified. We must provide competent management, and their actions must be just and ethical.

We are responsible to the communities in which we live and work and to the world community as well. We must be good citizens — support good works and charities and bear our fair share of taxes. We must encourage civic improvements and better health and education. We must maintain in good order the property we are privileged to use, protecting the environment and natural resources. Our final responsibility is to our stockholders. Business must make a sound profit. We must experiment with new ideas. Research must be carried on, innovative programs developed and mistakes paid for. New equipment must be purchased, new facilities provided and new products launched. Reserves must be created to provide for adverse times. When we operate according to these principles, the stockholders should realize a fair return.
Health and Productivity Management

- Over 700 listed companies and over 12,000 SMEs have started Health and Productivity management

**Large Organizations**

The Health & Productivity Stock Selection
(At most 33 companies)

The Certified Health and Productivity Management Organization Recognition Program
(White 500)

(Goal : over 500 organizations)

Other large organizations

**SMEs**

The Certified Health and Productivity Management Organization Recognition Program

Organizations to engage in the Health-conscious Management Declaration
(Goal : over 10,000 organizations)

Other SMEs

Over 700

Over 12,000

Over 700 listed companies and over 12,000 SMEs have started Health and Productivity management.
H&PM and ESG investment

An increasing number of investors embraces ESG (environment, social, and governance).

United Nations’ Principles for Responsible Investment (PRI) backs up ESG investments.

Health and Productivity Management can be recognized as activities of “S” and/or “G”

<table>
<thead>
<tr>
<th>Six Principles</th>
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<tbody>
<tr>
<td>Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.</td>
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<tr>
<td>Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.</td>
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<td>Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.</td>
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<td>Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.</td>
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<td>Principle 5: We will work together to enhance our effectiveness in implementing the Principles.</td>
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<td>Principle 6: We will each report on our activities and progress towards implementing the Principles.</td>
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<th>ESG Elements</th>
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<tr>
<td>Environmental (E)</td>
</tr>
<tr>
<td>• climate change</td>
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<tr>
<td>• greenhouse gas (GHG) emissions</td>
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<tr>
<td>• resource depletion, including water</td>
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<tr>
<td>• waste and pollution</td>
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<tr>
<td>• deforestation</td>
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<tr>
<td>Social (S)</td>
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<tr>
<td>• working conditions, including slavery and child labour</td>
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<td>• local communities, including indigenous communities</td>
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<td>• conflict</td>
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<td>• health and safety</td>
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<td>• employee relations and diversity</td>
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<td>Governance (G)</td>
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<td>• executive pay</td>
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<td>• bribery and corruption</td>
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<td>• political lobbying and donations</td>
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<td>• tax strategy</td>
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