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Healthcare

The healthcare system needs to shift from a "supply-oriented" to a "demand-oriented" system

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Link to survey

Summary

- In Japan, the healthcare system is operated with people's "insurance premiums," "out-of-pocket payments," and "public fund" contributed from taxes. The patients have the luxury of choice of nationwide healthcare facilities and of receiving high-quality healthcare services at low out-of-pocket payments.

- However, the healthcare system designed on the premise of population and economic growth are now facing concerns about its sustainability due to population decline and economic slowdown. In addition to the rise of healthcare expenses accompanied by the increase in number of elderly people as well as the progress in complexity and diversification of needs, including support for daily life, there will be a decline in the working-age population who support the system. The system's challenges have become apparent in the wake of the COVID-19 pandemic. It is necessary to change the design concept on the premise that the population will decrease toward 2050 and to promote structural reform as soon as possible.

- In the past, the primary focus of the healthcare system was supply-side development to meet the expected rise in healthcare demand. However, as healthcare resources become limited toward 2050, structural reform is necessary by shifting to a "demand-oriented" concept based on patients.

- A demand-oriented system is a system that simultaneously realizes the control of total healthcare demand of the community and the optimization of supply-demand matching of healthcare services according to the symptoms of individual. By the optimization of supply-demand matching through visualization and detailed analysis of regional and individual healthcare needs, and real-time visualization of healthcare resources, the primary care system for the comprehensive improvement of the quality of life of individuals will be enhanced, and specialized hospital functions will be provided wider beyond the existing medical districts, thus leading to the enhancement of the sustainability of the healthcare system.

- Dealing with the "emergency" of population decline will entail the redeployment of existing infrastructure, a change in individual awareness on how to receive healthcare services, and a review of burdens and benefits. However, there is plenty of time left before 2050. It is essential to start designing a new patient-oriented system by taking three steps: the improvement of healthcare literacy and public participation, the opening-up of information, and the verification of cost-effectiveness.

Overview of the healthcare system in Japan

■ In this chapter, "healthcare system" refers to the medical care/long-term nursing care system and the national medical insurance/long-term nursing care insurance systems.

■ In Japan, the healthcare system is operated with people's "insurance premiums," "out-of-pocket payments," and "public fund" contributed from taxes. The patients have the luxury of choice of nationwide medical care facilities and of receiving high-quality healthcare services at low out-of-pocket payments.

■ Medical care institutions, long-term nursing care providers, and related industries are structurally dependent on healthcare system.

Overview of the healthcare system in Japan
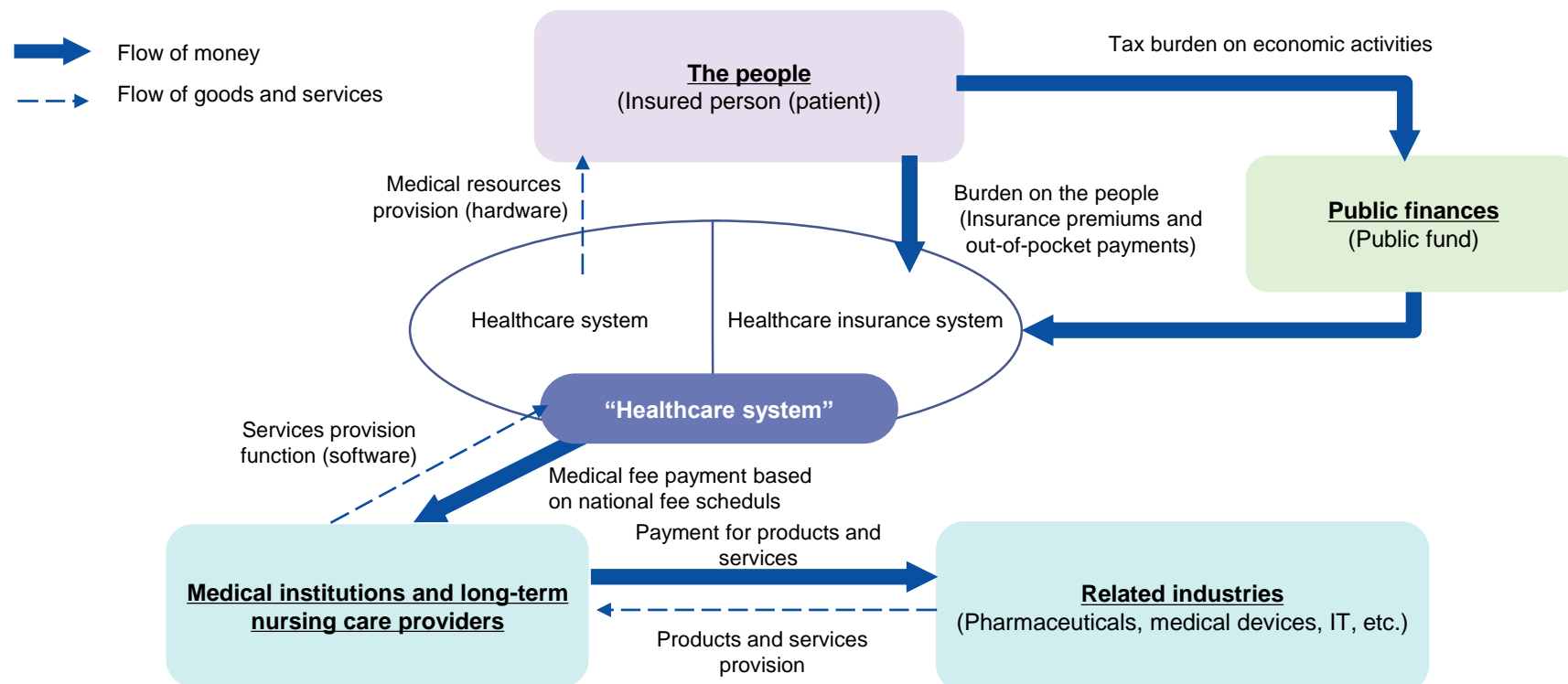
Source: Compiled by Mizuho Bank Industry Research Department based on publicly released material

Financial burden in terms of GDP ratio as of 2040 is estimated to be 30% higher than current levels

- The government has estimated future healthcare expenses until 2040, when the elderly population will peak.
  - The ratio of healthcare expenses to GDP is expected to increase from approx. 10% at present to approx. 13% by 2040.
- Healthcare demand will expand until around 2030 and remain high afterwards. However, there are large regional differences between urban and rural areas.
  - Demand will continue to grow in Tokyo towards 2045. In particular, long-term nursing care demand is expected to sharply increase.
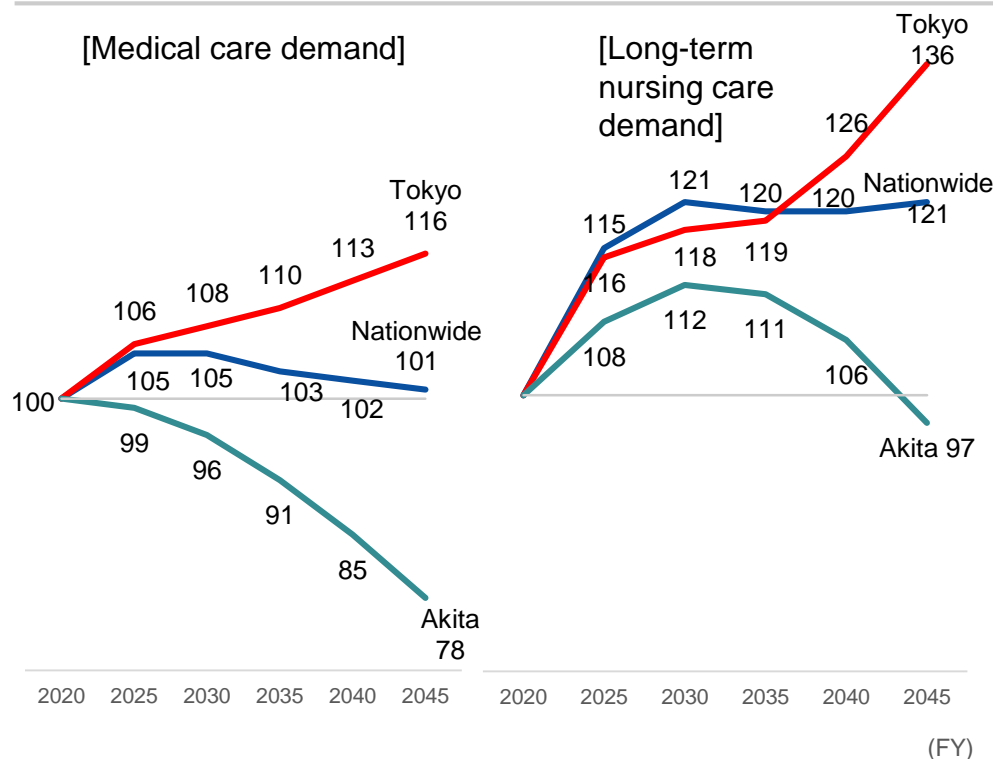
Forecast for changes in healthcare expenses

Future demand for healthcare (2020 = 100)
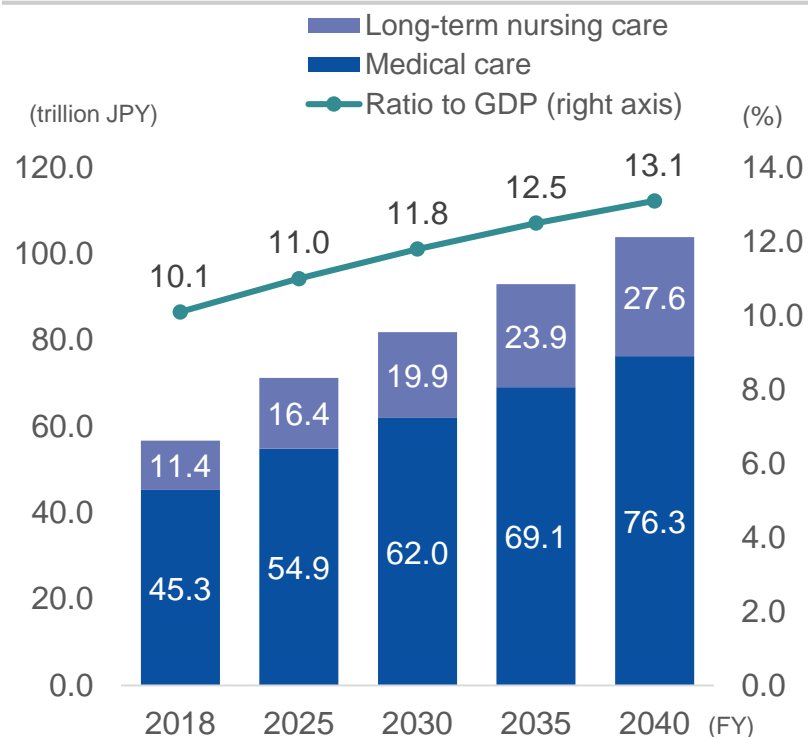
Note: For medical expenses, the figures are based on plan (1)
Source: Compiled by Mizuho Bank Industry Research Department based on "Future Outlook for Social Security with an Eye Towards 2040 (Materials for Discussion)" by the Ministry of Health, Labour and Welfare
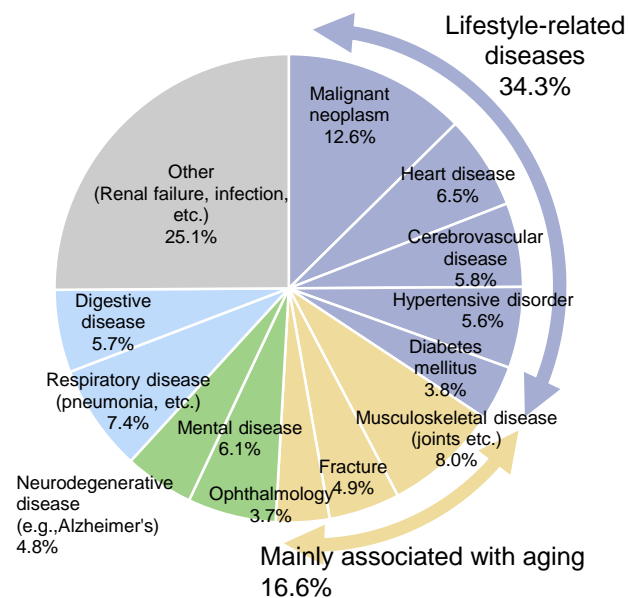
Source: Compiled by Mizuho Bank Industry Research Department based on "Japan Medical Analysis Platform" by the Japan Medical Association
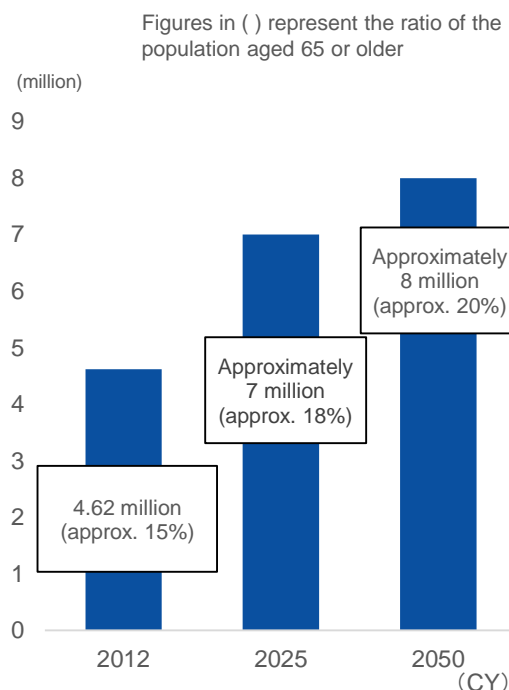
In an aging society, medical needs become more complex and diverse

- As the aging of society progresses, disease structures become dominated by chronic diseases, and the proportion of elderly people with dementia increases.
- On the other hand, given the increasing number of nuclear families and the rising lifetime unmarried rate, the number of households consisting only of elderly people will reach 35% of all households by 2040, and the family functions that support the lives of elderly people are expected to decline further.
- Healthcare for the elderly is not "medical care aiming at complete cures", but "healthcare to support their lives" which combines nursing care and daily life support.
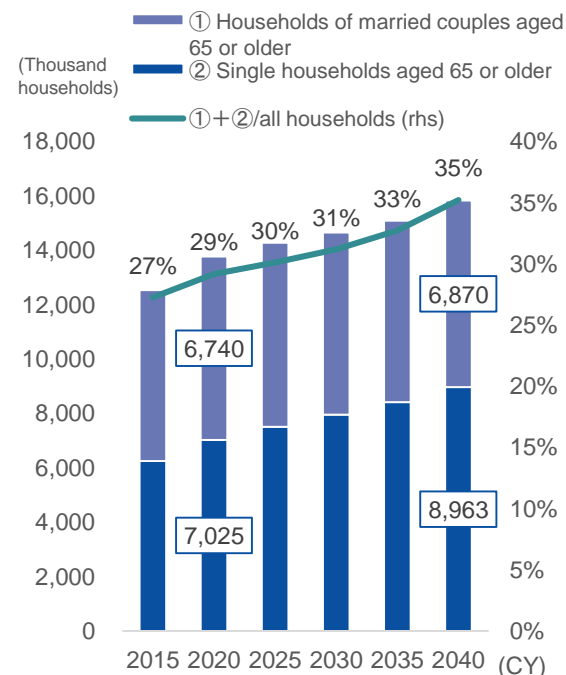 — We will see the rise in complexity and diversification of healthcare needs.

Breakdown of medical expenses by disease (FY 2018)

Lifestyle-related diseases 34.3%

- Malignant neoplasm 12.6%
- Heart disease 6.5%
- Cerebrovascular disease 5.8%
- Hypertensive disorder 5.6%
- Diabetes mellitus 3.8%
- Musculoskeletal disease (joints etc.) 8.0%
- Fracture 4.9%
- Ophthalmology 3.7%
- Neurodegenerative disease (e.g.,Alzheimer's) 4.8%
- Mental disease 6.1%
- Respiratory disease (pneumonia, etc.) 7.4%
- Digestive disease 5.7%
- Other (Renal failure, infection, etc.) 25.1%

Mainly associated with aging 16.6%

Increase of the number of elderly with dementia

Figures in ( ) represent the ratio of the population aged 65 or older

(million)

- 2012: 4.62 million (approx. 15%)
- 2025: Approximately 7 million (approx. 18%)
- 2050: Approximately 8 million (approx. 20%)

(CY)

Trends in the number of elderly households

(Thousand households)

- ① Households of married couples aged 65 or older
- ② Single households aged 65 or older
- ①＋②/all households (rhs)

2015: 27%
2020: 29%
2025: 30%
2030: 31%
2035: 33%
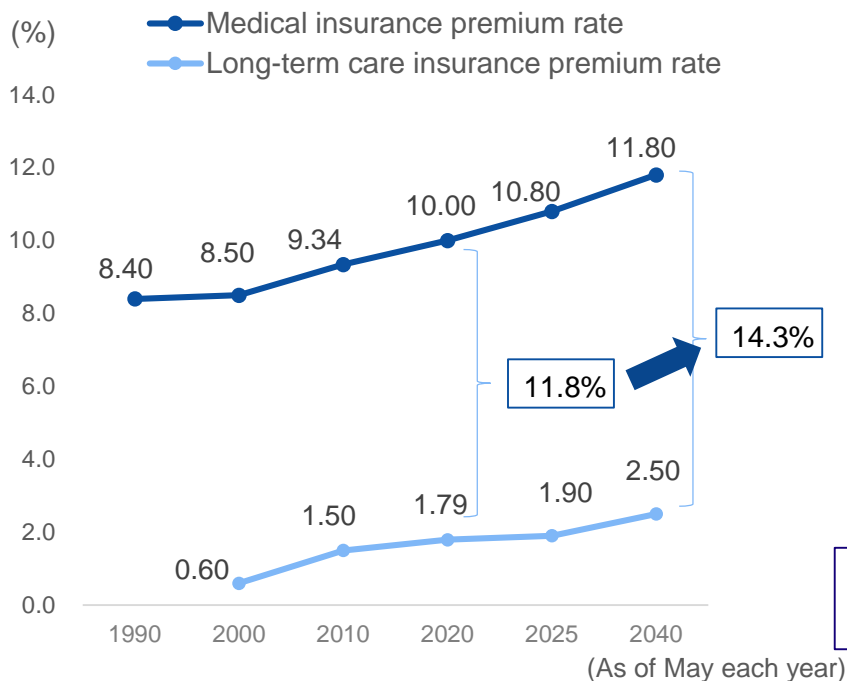2040: 35%

6,740
6,870
7,025
8,963

2015 2020 2025 2030 2035 2040 (CY)

Source: Compiled by Mizuho Bank Industry Research Department based on releases by the Ministry of Health, Labour and Welfare

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There are concerns about the sustainability of the healthcare system due to the rise of financial burdens and shortage of workers

■ Predicting what the healthcare system will look like in 2050 based on the government's projections for 2040, there are concerns about its sustainability because of the rising financial burdens and shortage of workers unless drastic demographic measures are adopted those including the reversal of population decline and bold utilization of immigrants and overseas human resources.
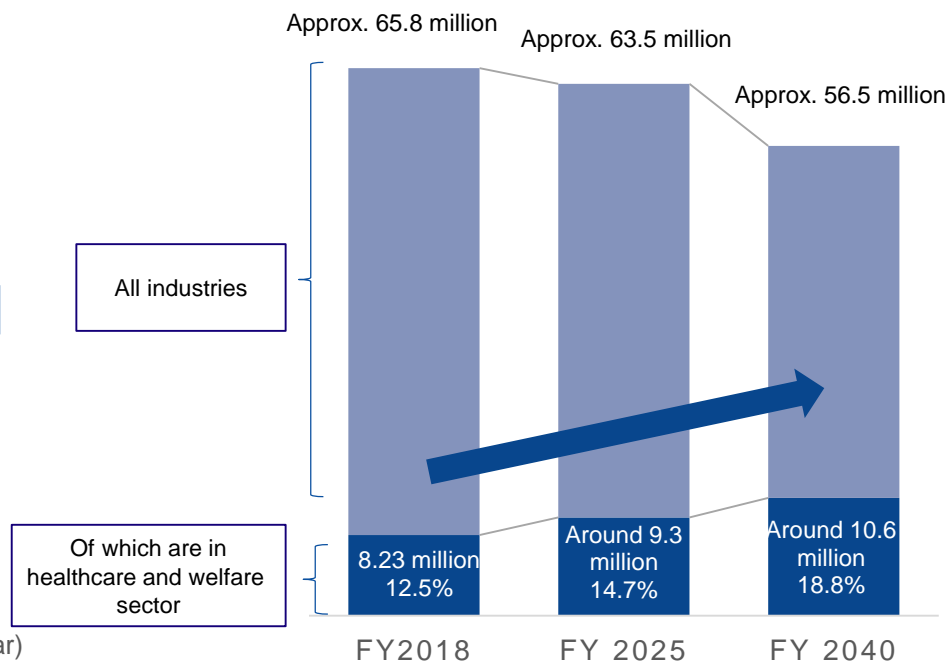
Changes in the insurance premium rate of the Japan Health Insurance Association (JHIA)

At the JHIA, an association consisting mainly of employees of small and medium-sized enterprises, medical insurance and long-term nursing care insurance premiums are expected to reach 14.3% in 2040

(%)
━●━ Medical insurance premium rate
━●━ Long-term care insurance premium rate

Medical insurance premium rate: 8.40, 8.50, 9.34, 10.00, 10.80, 11.80
Long-term care insurance premium rate: 0.60, 1.50, 1.79, 1.90, 2.50

11.8% → 14.3%

1990 2000 2010 2020 2025 2040
(As of May each year)

Note: Estimates by the Ministry of Health, Labour and Welfare for 2025 and 2040
Source: Compiled by Mizuho Bank Industry Research Department based on JHIA's data and the Ministry of Health, Labour and Welfare "Social Security Outlook for 2040 (discussion material)"

Projections on the number of workers in the medical care and welfare sector

In 2040, the ratio of workers in healthcare and welfare sector to workers in all industries is expected to be one in five.

Approx. 65.8 million   Approx. 63.5 million   Approx. 56.5 million

All industries

Of which are in healthcare and welfare sector

8.23 million 12.5%   Around 9.3 million 14.7%   Around 10.6 million 18.8%

FY2018   FY 2025   FY 2040

Source: Compiled by Mizuho Bank Industry Research Department based on Ministry of Health, Labour and Welfare "Social Security Outlook for 2040 (discussion material)"

The challenges of medical expenses increase and workers shortage may lead to new innovations

- In countries with advanced medical services, demonstration experiments utilizing IT and innovative technologies in medical services provision are being held.
  — In the fields of diagnostic imaging and disease management, applications such as AI to replace physicians' technology have been progressed to commercialization stage.
- In Japan, too, there is no time to waste in embracing innovation in order to cope with the shortage of workers and provide efficient and effective services. Amid the rise of fiscal constraints, we need to prepare mechanisms to promote innovation.

Diagnosis (Interview by AI)

Babylon (UK): AI Symptom Checker & Triage

- ✓ When asked about symptoms, AI lists possible diseases
- ✓ Covers more than 80% of primary care illnesses
- ✓ Accuracy of diagnosis exceeds 90%, which is comparable to diagnosis by physicians

Diagnosis (AI imaging)

Google (US): AI-powered dermatology assist tool

- ✓ By sending in three photos of the affected area and answering several queries, the AI lists possible diseases
  - Covers up to around 300 diseases of the skin, nails and hair
- ✓ The basic AI was built from image data of approximately 65 thousand cases
- ✓ In EU, the tool has obtained the CE mark [Note] as a medical device

Disease management

Livongo (US): Livongo Health Nudges

- ✓ Services to manage chronic diseases such as diabetes
- ✓ App monitors patients at home using smart scales, glucose meters, etc.
- ✓ Provides alerts, expert guidance, and interaction programs
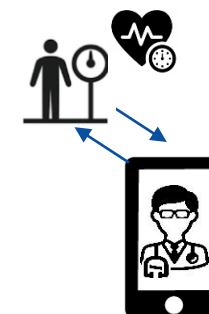
Surgery

Intuitive Surgical (US): da Vinci Surgical System

- ✓ A robot equipped with a 3D high-definition image system with high image quality and a wide field of view, as well as an AI-based image stabilization function, enabling high-precision, advanced, and minimally invasive surgery
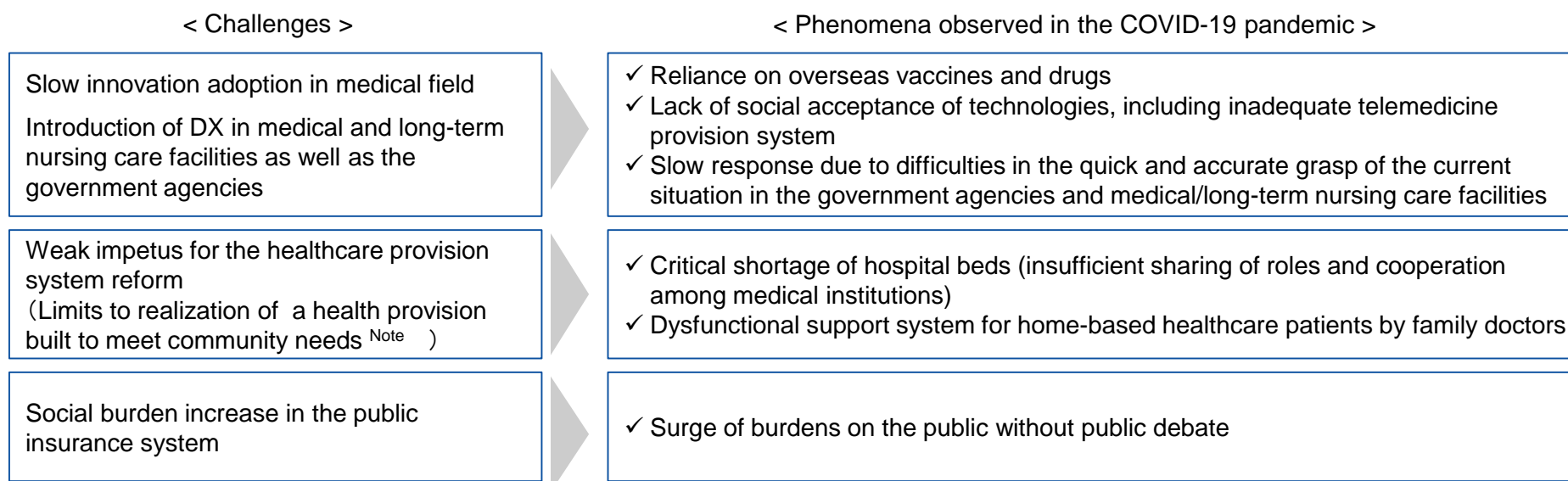- ✓ Nearly 300 units have been installed in Japan

Note: Certification that the product meets the necessary safety standards for distribution in the EU. Medical devices sold in Europe must bear the CE mark
Source: Compiled by Mizuho Bank Industry Research Department based on publicly released material

The COVID-19 pandemic revealed challenges faced by Japan's healthcare system

- The COVID-19 pandemic revealed challenges that cannot be solved under the current healthcare system.
  - The slow innovation adoption in medical field caused the delays in vaccines and therapeutic drugs developments. The system to provide telemedicine was also inadequate.
  - The slow introduction of digital transformation (DX) in medical and long-time nursing care facilities as well as the government agencies impeded real-time grasp of actual situation of services provision and information sharing.
  - Legally non-binding, there were limits to the promotion of the medical care provision system reform. Lack of differentiation and coordination of hospital bed functions caused a critical shortage of beds for COVID-19 patients. Support system for home-based healthcare patients linked to family doctors/long-term nursing care was also dysfunctional.
  - Additional medical expenses due to COVID-19 have been covered by public funds, and social burdens will increase without public debate.
- If the current healthcare system remains unchanged, it will be difficult to adequately respond to changes in the people's views of life and death, and diversification of individual way of living.

Structural challenges revealed by the COVID-19 pandemic

| < Challenges >	< Phenomena observed in the COVID-19 pandemic >
Slow innovation adoption in medical field Introduction of DX in medical and long-term nursing care facilities as well as the government agencies	✓ Reliance on overseas vaccines and drugs ✓ Lack of social acceptance of technologies, including inadequate telemedicine provision system ✓ Slow response due to difficulties in the quick and accurate grasp of the current situation in the government agencies and medical/long-term nursing care facilities
Weak impetus for the healthcare provision system reform （Limits to realization of a health provision built to meet community needs [Note]　）	✓ Critical shortage of hospital beds (insufficient sharing of roles and cooperation among medical institutions) ✓ Dysfunctional support system for home-based healthcare patients by family doctors
Social burden increase in the public insurance system	✓ Surge of burdens on the public without public debate

Note: A health provision built to meet community needs means stabilizing and trengthening capacity to draft and implement policies at the municipal level to meet community healthcare needs, including the ability to regulate hospital beds
Source: Compiled by Mizuho Bank Industry Research Department

Maintaining the current healthcare system will lead to "the future to avoid," and there is an urgent need for reform by changing the design concept

- While maintaining the basic design of the healthcare system, which is premised on population growth and economic growth, it will be difficult to sustain it simply by repeatedly making gradual revisions such as curbing benefits and increasing people's burden. As a result, the reform of the healthcare system is likely to fall into a negative spiral.
- In order to ensure the sustainability of the system towards 2050, it is urgently necessary to move forward with changing to a design concept that is premised on a declining population and slowing economic growth. We need to start with reforming the system through measures such as the visualization of burden and resources aiming to make maximal use of constrained resources.

Image of "future to avoid" that is coming by maintaining the current healthcare system
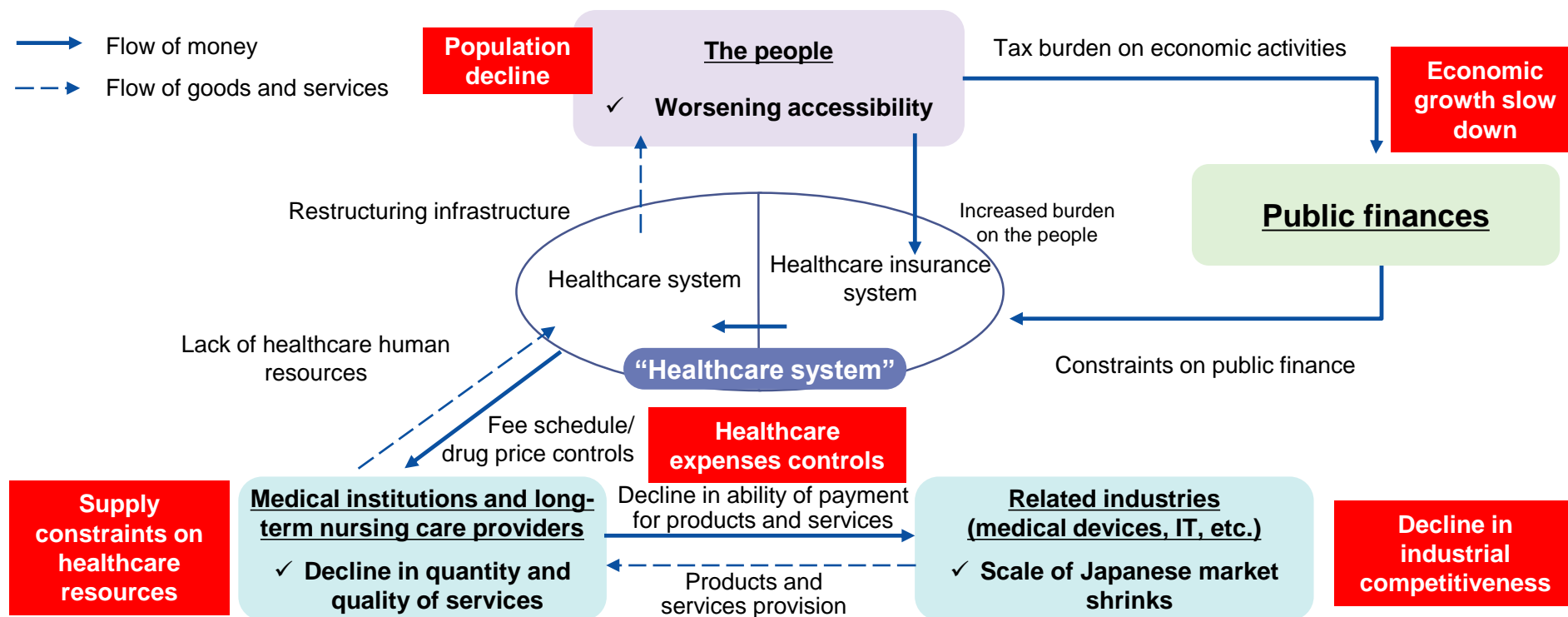
Source: Compiled by Mizuho Bank Industry Research Department
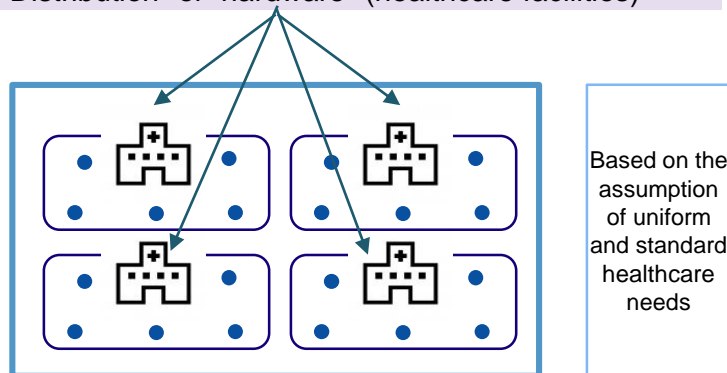
The need for a bold shift to patients' "demand-oriented" approach toward 2050

- Conventional healthcare systems have been "supply-oriented," with a primary focus on improving the supply to meet healthcare demand that is expected to increase.
- As we look ahead to 2050, we need to change our way of thinking as we face healthcare resource constraints.
- There is a need for structural reform through a shift in approach to one which is "demand-oriented." IT enables real-time matching of the true needs of individual patients and healthcare services, including good health promotion and long-term nursing care, without restrictions of seeing physicians, while maximizing the use and operation of limited healthcare resources.

A shift from a supply-oriented to a demand-oriented approach
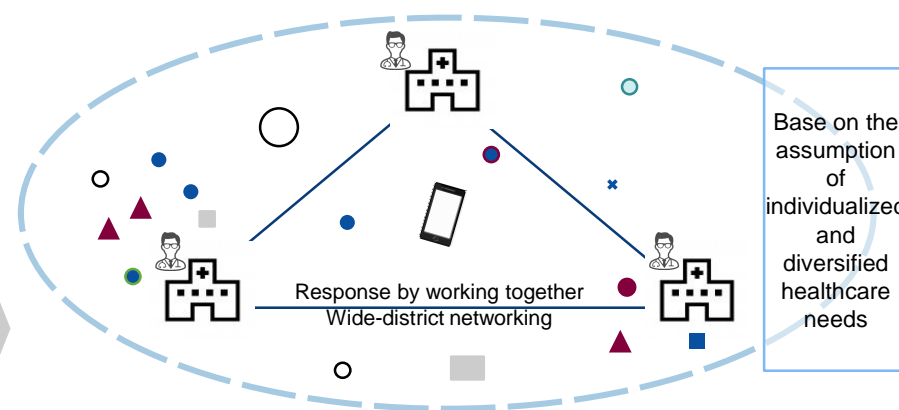
Conventional supply-oriented system	Demand-oriented systems for 2050
"Distribution" of "hardware" (healthcare facilities)	"Optimization" using "software" (network matching)

Based on the assumption of uniform and standard healthcare needs

Base on the assumption of individualized and diversified healthcare needs

Response by working together
Wide-district networking

- ✓ Based on the premise of population growt
- ✓ Based on the assumption of uniform and standard healthcare needs
- ✓ Develop a full line of necessary healthcare services centered on hardware (healthcare facilities) to prepare for future demand growth (maximum demand)
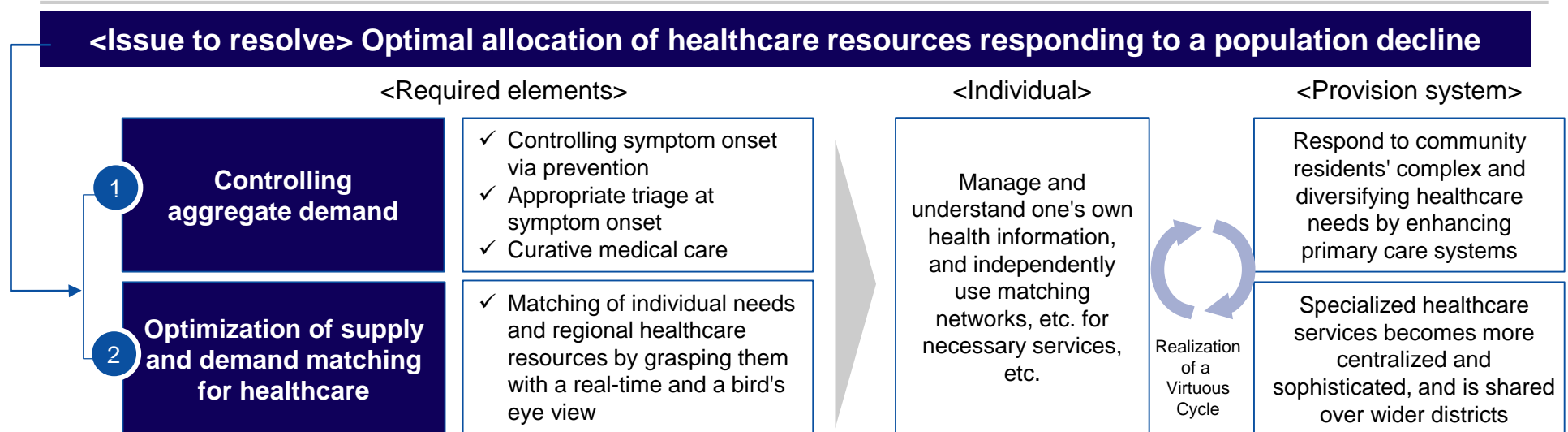
- ✓ Based on the premise of population decline
- ✓ Targeting personalized and diversified healthcare needs
- ✓ Build a system to match patients' needs with healthcare services leveraging software (networks) in order to fully utilize the limited resources (maximum supply)

Source: Compiled by Mizuho Bank Industry Research Department

Demand-oriented healthcare system simultaneously realizes control of aggregate demand and optimization of supply and demand matching

- In the demand-oriented healthcare system converted by 2050, (1) Controlling total demand and (2) Optimization of supply and demand matching for healthcare services will have been realized.
  - (1) can be achieved by controlling the onset of symptom via prevention, by appropriate triage at symptom onset Note , and curative medical care.
  - (2) can be achieved by implementing matching functions of individual needs and regional healthcare resources (supplies) by grasping them with a real-time and a bird's eye view.
  - Healthcare system in 2050 will focus on responding to diversifying needs that include backgrounds for daily life such as patients' employment status and household/family status. The system will build and strengthen a primary care system in which members of various occupations collaborate and provide support as a team. In order to realize a flexible use of limited resources, advanced and specialized healthcare services will be centralized and shared with collaborations in wider districts by utilizing online and other tools.
- As a result, the quantity and quality of healthcare services will be adjusted to achieve optimal allocation. Healthcare institutions will be consolidated and broaden their medical districts, and there will be a virtuous cycle in which quality and safety are improved, the business foundation is strengthened, and sustainability is enhanced.

Virtuous cycle of supply and demand that is realized by demand-oriented systems

\<Issue to resolve\> Optimal allocation of healthcare resources responding to a population decline

\<Required elements\> \<Individual\> \<Provision system\>

1 **Controlling aggregate demand**	✓ Controlling symptom onset via prevention ✓ Appropriate triage at symptom onset ✓ Curative medical care
2 **Optimization of supply and demand matching for healthcare**	✓ Matching of individual needs and regional healthcare resources by grasping them with a real-time and a bird's eye view

Manage and understand one's own health information, and independently use matching networks, etc. for necessary services, etc.

Realization of a Virtuous Cycle

Respond to community residents' complex and diversifying healthcare needs by enhancing primary care systems

Specialized healthcare services becomes more centralized and sophisticated, and is shared over wider districts

Note: The original meaning is to determine treatment priority according to the urgency and severity of an injury or illness in the event of a disaster, etc. Here, it shows the distribution of response policy, such as whether or not an individual needs to see a medical consultant depending on their necessary medical services.

Source: Compiled by Mizuho Bank Industry Research Department

Controlling total healthcare demand – decrease in diseases through prevention, appropriate triage, and medical care aiming at complete cures

- By utilizing AI to precisely analyze a continuous set of health records collected from the entire residents, the local government will decrease diseases of at-risk residents and emergency medical care serives provision through personalized prevention and early intervention, which leads to a control of the total healthcare demand in the community.
- Furthermore, the following technologies are expected to be implemented by 2050. This will enable further reductions in total demand.

Technological innovation in 2050 to reduce the total healthcare demand

|	
Decrease diseases through prevention	◆ Digitization and visualization of individual health conditions through IoT and other means. Accurate detection of signs of disease by big data analysis, and early intervention and preemptive medical treatment to prevent the occurrence of diseases ◆ Absolute prevention of cancer, heart disease, dementia and other diseases with high prevention needs ◆ Rapid response to emerging infectious diseases such as advanced vaccine development
Appropriate triage at disease occurances	◆ Given that accurate prediction and diagnosis support has become possible by AI, triage has become widespread ◆ Low-invasive and inexpensive diagnostic technology using high-definition images of smartphones and saliva, urine, and breath has become widespread. Advanced diagnosis is performed at medical institutions only when necessary after home examination through telemedicine etc. ◆ Patients at high risk, such as those with hypertension, should be encouraged to seek early medical attention before the onset of symptoms by detecting abnormalities using monitoring devices, etc., so that they can make "smart" appointments, go to hospitals, and receive treatment ◆ Automatic warnings are issued in cases of emergency. Patients are transported to hospitals via autonomous ambulances. Hospitals are selected promptly using AI. Paramedics can focus on patient care during ambulance transport
Medical care aiming at complete cures	◆ Recovery of lost functions and congenital diseases are almost surmountable using regenerative medicine and gene therapy ◆ Personalized and optimal treatment is provided on the basis of personal data (e.g., genome data) of patients ◆ Human capabilities are expanded and levels of treatment are upgraded through the use of surgical support robots enabling microscopic surgery, and high-precision AI imaging and pathological diagnosis support that detects lesions that go unnoticed by humans
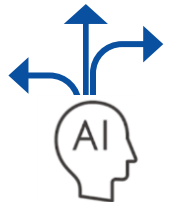
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2-1 Optimizing supply-demand matching - visualizing individual needs and enhancing primary care system

- The way individuals access healthcare will change in 2050. Sensors and devices will make it possible for individuals to manage their health at all times. AI will promptly catch and visualize abnormalities in physical conditions and signs of onset of disesase and will assist individuals to choose appropriate cares for them by recommending optimal services and access according to symptoms.
- Much of everyday healthcare needs will be addressed though the improvement of primary healthcare.
  — Physicians will be able to respond to a wider range of healthcare areas through accurate and prompt inquiry and diagnosis support by AI and (remote) collaboration with specialist physicians.
  — The diversified and complex healthcare needs of patients will be addressed appropriately by multiple professional teams.
  — Through the above, physicians will secure more time for interview and care of patients and respond comprehensively to improve patients' QOL.
- Specialized and advanced healthcare information will be centralized and networked to create a sharing system that enables efficient provision.

The way individuals access healthcare in 2050
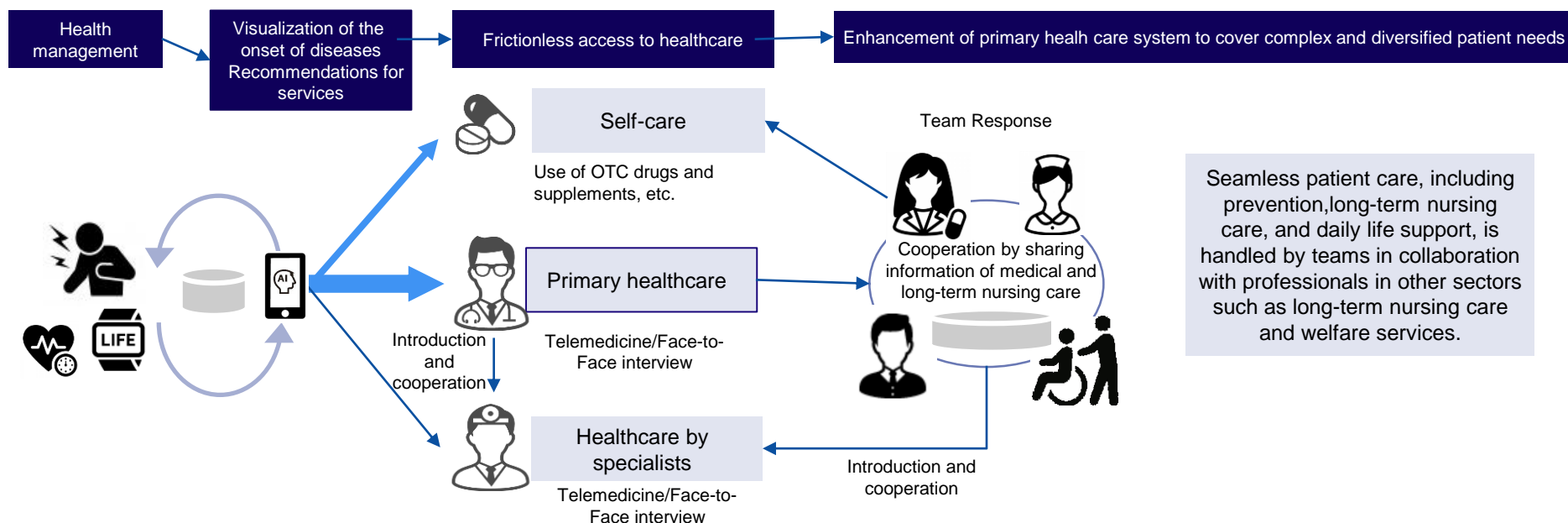
Source: Compiled by Mizuho Bank Industry Research Department
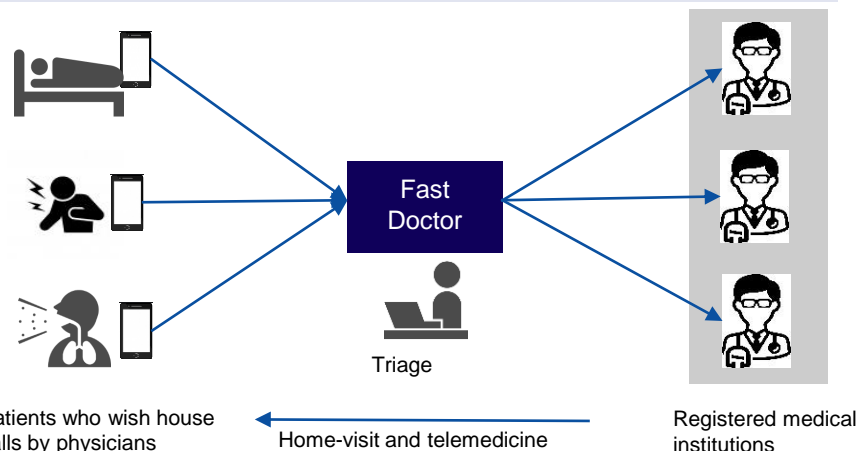
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2-2 Optimizing supply-demand matching - networking and wider-district expansion

■ On the supply side, physicians' expertise and the availability of medical facilities (acceptance of outpatients on a real-time basis) is visualized and networked, and a system that matches patient needs with healthcare services over a wider-district enables efficient allocation of resources. In particular, advanced and specialized healthcare will be provided in a wider medical district. The utilization of telemedicine and the metaverse will become commonplace.

— In urban areas, amid prospects that demand for healthcare services will increase rapidly due to a surge in the number of elderly people, the effective use of home-based healthcare services will ensure seamless triage and access to healthcare on a 24 hour/day and 365 day/year basis.

— In rural areas, the centralization of healthcare resources and the share of resources in a wider district will become inevitable due to the decrease in demand. Initiatives to solve problems in urban areas by utilizing the surplus capacity of physicians and facilities in rural areas due to reduced demand are also effective.

(Urban areas) Real-time matching of healthcare services and individuals

(Reference case) Fast Doctor (online triage and matching)

Home visits by physicians at registered medical institutions and telemedicine are arranged using after-hours emergency app, mainly on holidays and at night, after triaging patients. During the Covid-19 pandemic, this also addresses the emergency medical needs of Covid-19 patients treated at home in cooperation with the government.
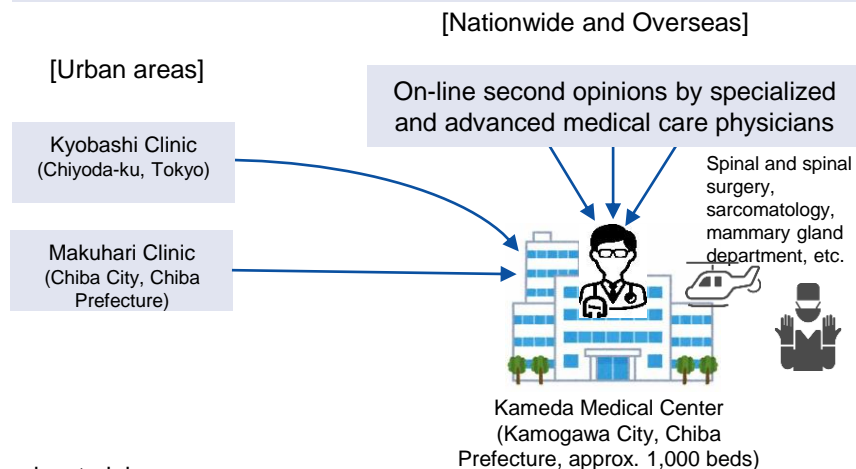
(Rural areas) Effective utilization of healthcare resources through networking and wider-district sharing

Reference case: Kameda Medical Center (An advanced acute phase hospital located in Kamogawa City in Chiba Prefecture, 90km away from Tokyo.)
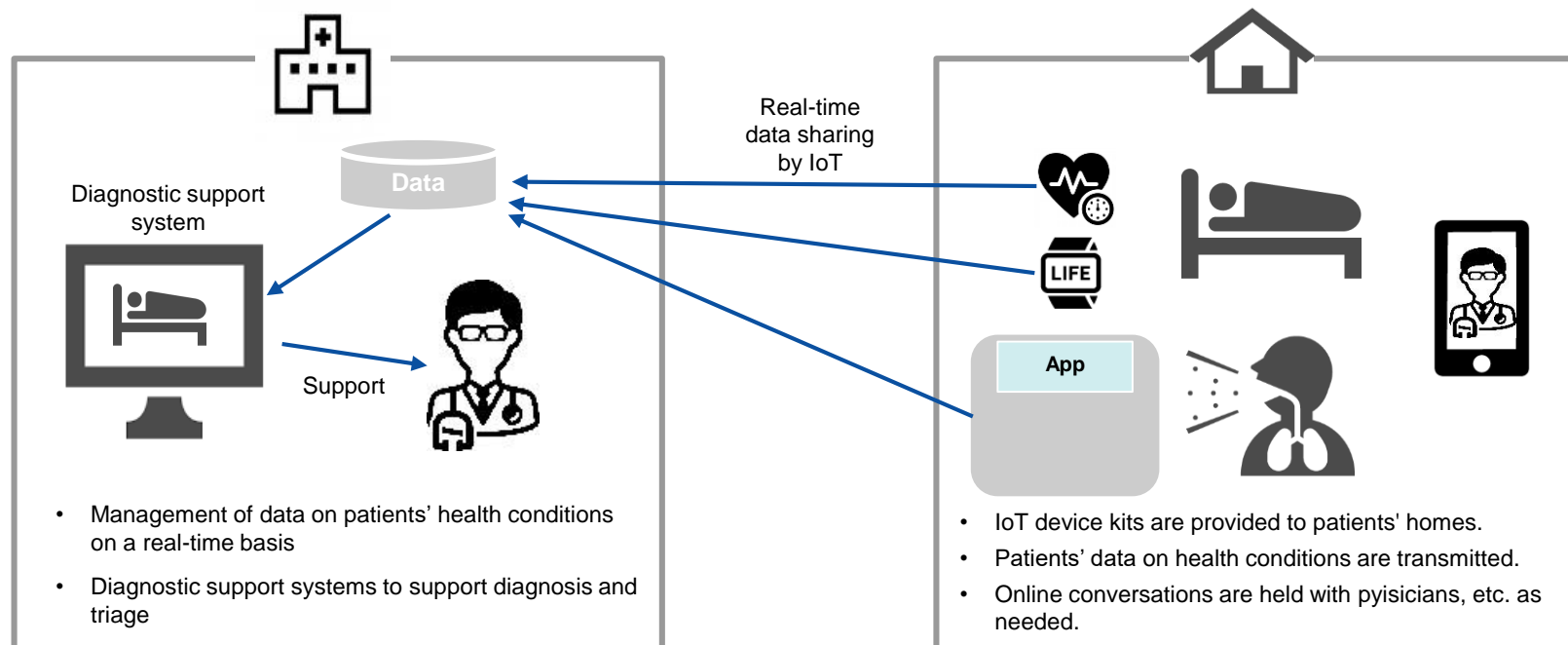
Satellite clinics in urban areas and online second opinions nationwide and overseas. Surgery is available at main hospital when necessary. Utilize surplus medical resources generated by population decline to provide advanced and specialized medical resources over a wider district

Fast Doctor

Triage

Patients who wish house calls by physicians

Home-visit and telemedicine

Registered medical institutions

[Nationwide and Overseas]

[Urban areas]

Kyobashi Clinic (Chiyoda-ku, Tokyo)

Makuhari Clinic (Chiba City, Chiba Prefecture)

On-line second opinions by specialized and advanced medical care physicians

Spinal and spinal surgery, sarcomatology, mammary gland department, etc.

Kameda Medical Center (Kamogawa City, Chiba Prefecture, approx. 1,000 beds)

Source: Compiled by Mizuho Bank Industry Research Department based on publicly released material

(Reference) In Israel, telemedicine was implemented promptly and put to use to address the Covid-19 pandemic

- Telemedicine and other remote medical technologies, which eliminate time and spatial constraints, are useful for optimizing the matching of healthcare supply and demand. In Japan, while restrictions on telemedicine provision were eased during the pandemic, their actual utilization is limited.

- On the other hand, in Israel, a leader in DX, the implementation and utilization of technologies such as telemedicine and diagnostic support systems have accelerated as a result of rapid government decision-making. Medical care and management of health conditions that do not involve human intervention and the introduction of triage technologies for home-based healthcare patients, have enabled the effective use of limited medical resources to cover the rapidly increasing demand for medical care due to the COVID-19 pandemic.
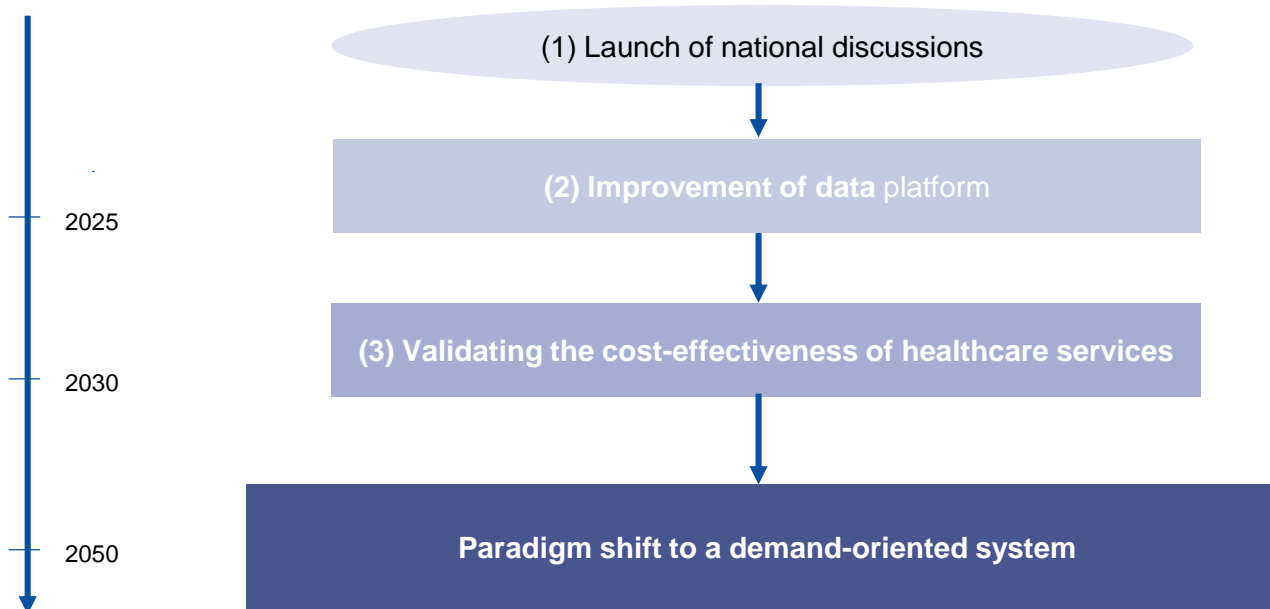
[Israel] Monitoring of patients at home

Diagnostic support system

Data

Support

Real-time data sharing by IoT

App

LIFE

- Management of data on patients' health conditions on a real-time basis
- Diagnostic support systems to support diagnosis and triage

- IoT device kits are provided to patients' homes.
- Patients' data on health conditions are transmitted.
- Online conversations are held with pyisicians, etc. as needed.

Source: Compiled by Mizuho Bank Industry Research Department based on JETRO data, etc.

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Three steps to make a sweeping reform to realize the "demand-oriented" system

- The shift to a demand-oriented system in response to "the emergency" of demographic decline will entail negative facets such as the redeployment of existing infrastructure and a shift in individual awareness on how to receive healthcare services. Discussions on the review of benefits and burdens will also be inevitable.

- First of all, each of us needs to understand the current state of the healthcare system and the future that we want to avoid, and to think for ourselves and participate in the discussion about the vision of a sustainable future under supply constraints (1). To this end, the government needs to open up information through the development of a data platform that will serve as a basis for discussions (2) and start building a system to verify the cost-effectiveness of healthcare services (3).

- It is necessary to clarify the value standards that we demand from healthcare system through an examination of the cost-effectiveness of healthcare services. Upon doing so, it will be necessary to carry out national discussions in a bid to agree on the scope of insurance coverage, the form of healthcare infrastructure, how to receive healthcare services, and what is the appropriate balance in terms of burdens and benefits.

Path to Realize Future Vision in 2050

Year	Step
	(1) Launch of national discussions
2025	(2) **Improvement of data** platform
2030	(3) **Validating the cost-effectiveness of healthcare services**
2050	**Paradigm shift to a demand-oriented system**

Source: Compiled by Mizuho Bank Industry Research Department

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Improved healthcare literacy, participation by people, more open information, and verification of cost-effectiveness

■ Increasing public literacy and a sense of involvement for the healthcare systems through visualization and openness will lead to the monitoring and supervision of the healthcare system for optimal resource allocation, and will realize a transition to a sustainable demand-oriented system.

	Purpose	Visualization / Openness	Efforts required of government
Start of national discussions	• For the people to have an accurate awareness of the current state of the healthcare system	• Current status of and future forecasts for benefits and burdens • Current status of and future forecasts for healthcare resources • Institutional issues of the healthcare system	• Measures to improve public literacy for the national healthcare system －Mechanisms for education/nudges Note1 • Revise and publicize future forecasts for social security
Development of data platform	• People have free access to their own health status • Eliminates asymmetry in healthcare information • Coordination between medical care and long-term nursing care • Foundation for innovations	[Individuals] • Lifelong healthcare information (PHR Note2) [Medical Institutions] • Sharing of medical treatment details/prescription information, etc. from medical institutions (EHR Note3)	• Development of public data platform and its utilization by individuals and healthcare facilities, and rulemaking, etc. for private sector usage －Setting for advanced medical models (specialty zones)
Verification of healthcare cost-effectiveness	• People have ability to choose health care services for which they have an understanding of the costs • Optimal allocation of financial resources (prioritization of compensation for medical care and long-term nursing care that leads to definite results)	• Logical explanations for insurance coverage • Disclosure of cost-effectiveness verification results for new and existing technologies • More open discussion of people's QOL and the costs of healthcare technologies	• Creation of a mechanism to streamline cost-effectiveness verification via utilization of data platform such as EHR. －Verification/governance by third-party institutions

Realization of demand-oriented healthcare system by 2050

Note: 1. An approach that encourages people to take desirable actions based on the knowledge of behavioral science
2. PHR: A mechanism that enables individuals to view and utilize their own healthcare information through PCs and smartphones
3. EHR: A mechanism that allows patients and nationwide medical institutions, etc. to verify healthcare information
Source: Compiled by Mizuho Bank Industry Research Department

(Supplementary Comments) Toward the development of data platform: government initiatives

- Currently, the development of public data platform that enables people to access their own health and medical information is implemented through the government's Data-based Health Management Initiatives. The initiatives need not only to connect databases to build a data platform, but also to support its introduction into the society by devising a mechanism with excellent usability from a demand-oriented perspective. The support includes the introduction of IT systems in healthcare facilities and encouraging recognition and participation of individuals.
- The initiatives should move right into proceeding with data platform development through bold budgetary allocations.
- It is important for the prompt development of the platform to gain public understanding of the use of limited financial resources by estimating and visualizing the value resulting from the data linkage and its necessary costs.

The roadmap of Data-based Health Management Initiatives

◆ One's own healthcare information (PHR) which will become available on Mynaportal [Note1]

		FY 2020	FY 2021	FY 2022	FY 2023	FY 2024 onward
P H R	Medical checkup/ examination data	Vaccinations Medical checkups for infants and pregnant women	Specific health checkups	Municipality examinations School physical checkups	Company health checkups	
	Claims/ prescription data		Pharmaceutical data [Note2]	Electronic prescription data [Note3] Medical institution names, etc. Surgery and dialysis data, etc. Medical management data, etc.		
	Electronic medical records, long-term care data, etc.					Test result/allergy data Notified diagnosis data Imaging data Long-term nursing care data
	Information sharing		Start of API linckage with private PHR providers →			
	EHR		Establishment of a system that allows medical institutions to access the above information with the consent of the individual →			

Initiatives required of the government to improve the data platform

- Clarify the areas in which the central and local governments should play their respective roles.
  — Standardization of national specification and format, etc., should be promoted in a single step with a strong drive.

- Support social implementation for the utilization of data platform
  — Evaluation based on medical and long-term nursing care fee schedules (incentives) toward the introduction of EHR and other data in healthcare facilities.
  — Consideration of mechanisms to promote changes in individual behavior, such as the reduction of patient burdens when using the "My Number Card" for the verification of health insurance qualifications.
  — Demonstration and sharing of advanced medical models through information sharing.

Note: 1. The government's administrative portal site people having individual number cards can use
2. Historical data on prescriptions and dispensations
3. Real-time data on prescriptions and dispensations

Source: Compiled by Mizuho Bank Industry Research Department based on the Ministry of Health, Labour and Welfare data

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(Reference) The US government promoted digitalization through high-impact incentives

- In the US, the social implementation of electronic health records (EHRs) in medical institutions was realized in the 2010s as a result of the government's strong promotion.
  - In its promotion, the US government invested massive financial resources (over JPY 2 trillion), clarified the government organization in charge to promote the program (the Office of the National Coordinator for Health Information Technology (ONC) under the US Department of Health and Human Services) and set a clear deadline. The government established data standards and basic functions for data utilization, and set incentives and penalties for public health insurance premiums for the introduction and provision of EHRs that meet the criteria.

Meaningful Use Criteria/MU in the US

2011~ Incentives	• If the "Meaningful Use (MU)" implementation requirements are met (see the table on the right), physicians or medical institutions can receive incentives • The incentive budget is $17.2 billion.
2015~ Penalties	• Failure to meet implementation requirements by 2015 will result in the following penalties: • For Medicare and Medicaid * premiums 1% reduction in 2015 2% reduction in 2016 3% reduction in 2017
2017~ Expansion of incentives /penalties	<Medicare> •Up to a "4 to 9%" increase in premiums if information is provided through electronic medical records •Up to a "4 to 9%" reduction in premiums if information is not provided

	Stage1	Stage2	Stage3
Timing	2011~2012	2014~2017	2017~2018
Primary objective	Implementation pf EHR: Data capture and sharing	Achievement of MU criteria: Adranced clinical processes	Realize results: Improved outcomes
MU requirements	• Digitization and format standardization of medical information • Historical key clinical records • Communication in the coordination process of medical services • Efforts to assess medical services quality and prepare public health reports • Use for patient and family involvement	• More active exchange of medical information • Expansion of EHR criteria, including electronic prescriptions and diagnostic results • Electronic transmission of patient information to multiple third party medical institutions • Expansion to patients' self-management data	• Improvement of quality and safety of medical care, and its efficiency, leading to the improvement of results • Support for assessment of national priority diseases • Self-management tools for patients • Comprehensive medical information exchange centered on patients • Improvement of the people's health in the society

Note: Medicare: Public health insurance system for the elderly, Medicaid: Public health insurance system for the low-income bracket of population
Source: Compiled by Mizuho Bank Industry Research Department based on materials supplied by the Ministry of Health, Labour and Welfare, Office of the National Coordinator for Health Information Technology (ONC) of US Department of Health and Human Services, and others

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