

## **10. Reference: Future Predictions for the Year 2025**

To ascertain and understand the future state of the environment surrounding the R&D-based pharmaceutical industry 10 years from now in 2025 (the endpoint of JPMA's 10-year vision), JPMA has made predictions for the future, based primarily on an investigation of external literature relating to future predictions.

### **1) Science and technology**

In the future world of 2025, it is predicted that revolutionary technological innovation will be taking place that will drastically alter the state of medical treatment and diagnosis due to the advancement and fusion of the latest cutting-edge fields of science and technology; including the life sciences, ICT, sensor technology and nanotechnology. Taking full advantage of advanced technologies in many different fields such as genome and omics research, wearable devices (smart contact lenses, etc.) and Big Data analysis (of information such as medical records and health check data) may lead to dramatic leaps forward in personalized, preventive, and preemptive medicine. Taking personalized medicine as an example, it is estimated that the value of its global market will grow to in excess of 45 billion dollars by 2025<sup>\*1</sup>.

With the onset of this technological innovation, it is thought that open innovation will develop even further in order to incorporate the latest technological advances, and it is also predicted that companies in other industrial sectors with strong skills and expertise in these kinds of cutting-edge technologies will also begin to venture proactively into the establishment of business operations in the pharmaceutical industry and its peripheral fields.

Unmet medical needs in the treatment of intractable and rare diseases and other areas will still exist, and it is expected that research will be conducted more actively in order to elucidate the causes of these diseases and develop new treatment methods—not limited only to low-molecular-weight compounds, but also treatments utilizing biopharmaceuticals, gene therapy and regenerative medicine. In the future, biopharmaceuticals are expected to account for over 50% of total sales turnover (among the world's top 100 ranked products)<sup>\*2</sup>. There are also estimates that the scale of the future regenerative medicine market will grow to around 1 trillion yen domestically and 12 trillion yen worldwide by the year 2030<sup>\*3</sup>. It is also predicted that global pharmaceutical R&D costs will grow by an average rate of 2.4% per annum between 2013 and 2020, reaching a sum of 162 billion U.S. dollars<sup>\*2</sup>.

## **2) The social environment and the global pharmaceutical market**

We have predicted the various changes that are likely to occur over the course of the next ten years in the social environment and in the pharmaceutical market in developed, newly advanced, emerging and developing countries, respectively.

### **[Advanced countries]**

While on the one hand experiencing a slowdown in economic growth, developed countries will see progressively declining birth rates and aging populations. Under these conditions, it is anticipated that there will be growing concerns over the sustainability of social security systems, and that the pressure to suppress medical expenditure will become more intense than ever before. With the increase in social security benefits and medical expenditure, the functions and positions of insurers are likely to be elevated, the concept of cost-effectiveness will become more widely and deeply ingrained amongst the public, and people will raise awareness of preventive medicine. Meanwhile, advances in information technology and the maturation of society will lead to the widespread popularization of patient participatory medicine and the practice of allowing patients to make choices by themselves.

Turning an eye to the pharmaceutical market, it is considered that pricing control, encouragement of the use of low-priced drugs, and the implementation of benefit restrictions and other policy measures to curb drug costs will be carried out even more forcefully in every country. Meanwhile, it is expected that highly innovative drugs will be recognized, and the market will gradually grow and expand against the aging of society<sup>\*1</sup>.

### **[Emerging countries]**

It is predicted that populations in emerging countries and developing countries will increase, contributing to the growth of global population from the current figure of 7.2 billion to over 8 billion in 2025<sup>\*4</sup>. Growth will be sustained in the economies of emerging countries, and it is predicted that the number of people with mid-level incomes will more than double, from the current figure of 500 million to 1.1 billion worldwide<sup>\*5</sup>.

In addition to population growth and economic development, the progressive improvement of social security systems in these countries will result in rapid growth and expansion in the pharmaceutical market (including new drugs), with an expected annual growth rate of between 8% and 11%<sup>\*4</sup>. In terms of disease structure, a shift is expected to occur from infectious diseases towards non-communicable diseases. There are also some countries, such as China, in which the birth rate decline and population

aging has already begun, and it is predicted that the rate of global population aging will rise from the current rate of 8% to around 10%<sup>\*4</sup>.

### **[Developing countries]**

Populations in developing countries will increase rapidly, but a wide gap will still remain between per-person income levels in these countries and those in advanced countries. The financial infrastructures of these countries are fragile, and their social security systems and other systems remain underdeveloped, which will require more time for improvement. While on the one hand, these countries represent potential areas of investment as prospective new markets, the pharmaceutical industry is also expected to make a contribution towards resolving global health issues. It is predicted that major achievements will have been made in global health initiatives by 2025, such as a 50% reduction in infant mortality rates.

### **3) The Japanese economy**

Looking at the Japanese economy leading up to 2025, Japan is expected to see an average real GDP growth rate of +1.1% per annum between 2016 and 2020 due to the rise in demand during the run-up towards the hosting of the Tokyo Olympic Games in 2020. However, between 2021 and 2025 it is predicted that annual growth will fall as low as +0.7% due to the population decline and efforts towards fiscal reconstruction<sup>\*7-9</sup>. (The annual growth rates above are the median of the referenced economic forecasts of each think tank.)

As domestic demand decreases in conjunction with the declining population, it is expected that foreign demand will become the driving force for growth, and in order to survive and succeed globally, it will be necessary to increase non-price competitiveness and expand added value through technological innovation and R&D. Against the backdrop of international competition, it is predicted that the growing consolidation and streamlining of companies will help increase productivity, which will be a trend that will be markedly observed in the manufacturing industry.

A definite increase in domestic demand is expected in the fields of medical treatment and nursing care. The growth in demand in these fields will stimulate the development and manufacture of new pharmaceuticals, cutting-edge medical devices, nursing care robots and various other products.

As for the overall industry structure, the share of industry accounted for by manufacturing dwindled until around the mid-1990s, but has recently been experiencing an upward trend, so it is considered that the contribution of manufacturing to raising Japan's GDP will increase as we move towards 2025. By taking on both foreign and

domestic demand generated by the expansion of the growth industries of medical treatment and nursing care, it is anticipated that the pharmaceutical industry will achieve further growth and make a greater contribution to the Japanese economy.

#### **4) Social security and healthcare**

In Japan, public costs will continue to rise as social security benefits increase. Expenditures in the medical area of 15.0 trillion yen (37.0% of total spending) account for the largest part of public costs in social security benefits (40.6 trillion yen in FY2012). This burden is predicted to increase further, reaching 25.5 trillion yen (42.1% of total spending) by 2025. There is therefore an expectation that increasing pressure will be placed on the medical area to reduce costs towards improving the sustainability of the universal health insurance system and achieving a positive primary budget balance.

Turning an eye to the environment surrounding patients, it is thought that in the future, we will see a progression of medical treatment that places greater emphasis on the voices of patients<sup>\*10</sup>, as indicated by the term “patient participatory medicine.” It is also predicted that the importance of health literacy will increase due to the increase in the amount of information available as a result of advances in ICT and the shift towards an ICT-based society. Such developments were also raised in the Japan Vision: Health Care 2035 Report, published by MHLW in June 2015, using the phrase “life design.” In Japan, there is a possibility that the realization of this will be accelerated even further<sup>\*11</sup>. In addition to the aforementioned “life design,” the Japan Vision: Health Care 2035 Report also raises the vision of “lean healthcare,” which will seek to raise the value of medical care, and depicts a future in which Japan will lead the world in healthcare as a “global health leader” with the aim of becoming an advanced healthcare country by 2035—able to cater to various styles of life, work and life design, enabling everyone to continue to live active and successful lives in security and with peace of mind. It is conceivable that the progression of the “lean healthcare” initiative will result in increased interest in the value of health and medical care and will lead to more active discussion and debate.

#### **5) Corporate social responsibility (CSR)**

With some companies having a budget comparable to or even surpassing the national budgets of some small countries, the responsibilities of corporations towards society continue to increase. With developments towards socially responsible investing (SRI) and investment with due consideration for environmental, social and governance (ESG) issues, coupled with changes in the awareness of consumers towards the social nature of

corporations, it is thought that CSR initiatives will become even more important<sup>\*12</sup>.

In order to promote and facilitate CSR activities, and to suitably disclose the details of such activities, it is thought that the number of companies referring to international frameworks and guidance in relation to social responsibility, such as the UN Global Compact and ISO26000, will also continue to increase in the future. There is also the additional possibility that Japanese companies will make a shift towards the fusion of CSR with management and business operations, such as in the unification of annual business results with CSR reports to disclose information to the public<sup>\*12</sup>.

To also secure the trust of stakeholders, the promotion and thorough implementation of compliance will remain an important issue for the pharmaceutical industry. Compliance-related budgets and personnel requirements are increasing across all areas of industry, but this trend is particularly prominent in industries with strict controls and regulations such as the pharmaceutical industry<sup>\*13</sup>.

With the popularization of social media and developments in related technology, changes are predicted in the state of communication between companies and society. While on the one hand, information relating to business operations will be communicated more swiftly and with a higher degree of transparency, it is also thought that the range of methods used by companies for managing and handling such information will broaden due to the popularization of Big Data analysis. The reputation of the industry as a whole has an impact on each and every company within the industry, and it is predicted that this trend will become even more strongly pronounced<sup>\*14</sup>.

[Notes]

- \*1 Office of Pharmaceutical Industry Research. Industry Report No. 5 “Current Situation and Issues Surrounding the Pharmaceutical Industry – Delivering Better Pharmaceuticals to the World – Part 1: Innovation and New Drug Discovery” (December 2014)
- \*2 Evaluate Pharma. “World Preview 2014, Outlook to 2020” (June 2014)
- \*3 Ministry of Economy, Trade and Industry (METI), Study Group on Commercialization and Industrialization of Regenerative Medicine. “Report Regarding the Commercialization and Industrialization of Regenerative Medicine” (February 2013)
- \*4 UN Department of Economic and Social Affairs. “World Population Prospects: The 2012 Revision” (2013)
- \*5 The Economist (United Kingdom). *The Economist: Megachange: The World in 2050* (2012)
- \*6 ©2015 IMS Health. "The Global Use of Medicines: Outlook Through 2018" (the IMS Institute for Healthcare Informatics)
- \*7 Mitsubishi UFJ Research and Consulting Co., Ltd.. “Medium-term Forecast for the Japanese

Economy (2014–2025)” (February 2015)

- \*8 Daiwa Institute of Research Ltd.. “Japan's Medium-term Economic Outlook - February 2015 - Shaking off deflation and achieving financial reform – a race against time” (February 2015)
- \*9 Mitsubishi Research Institute, Inc.. “Mid- to Long-term Economic Outlook - Forecast of the global economy up to 2020 based on a long-term perspective -” (July 2015)
- \*10 Office of Pharmaceutical Industry Research. Industry Report No. 5 “Current Situation and Issues Surrounding the Pharmaceutical Industry – Delivering Better Pharmaceuticals to the World – Part 3: Social Environment and Business Structure” (April 2015)
- \*11 Ministry of Health, Labour and Welfare (MHLW). “Japan Vision: Health Care 2035 Report” (June 2015)
- \*12 Eiko Ibuki. “CSR for Strategic Management – New Edition” (August 2014)
- \*13 PwC. “FY 2014 Compliance Survey” (June 2014)
- \*14 Reputation Institute. “Reputation 2020 – Ten Trends Driving Reputation Management” (May 2015)