and greater coordination would also have other benefits, including improvements in health-leadership development, more effective use of human resources, and independent and robust assessment of Japan's global health policies.

ODA commitment to health

Even at 0·013% of Japan's GNI, the absolute amount of Japan's health ODA is still substantial (US$652 million in 2008), but it is small relative to what Japan is capable of contributing. In today's resource-driven global health arena, Japan cannot be a major leader in global health with such a small budget commitment. This raises a crucial question: to what level should Japan's financial commitment be increased?

Although it is important to assess Japan's ODA performance against the internationally agreed ODA commitment level of 0·7% of GNI, this benchmark does not allow for a complete assessment of Japan's health ODA because Japan can theoretically achieve this target without substantially increasing the level of its ODA devoted to health. For this reason, we do not simply recommend that Japan increase its ODA from 0·18% (in 2009) to 0·7% of its GNI. Instead, we propose a new health-specific ODA benchmark that has not been previously defined in international agreements: health ODA as a percentage of GNI, which we set at 0·05%. We calculated this value by taking the average health ODA invested by 22 OECD Development Assistance Committee countries as a percentage of GNI.

If Japan would like a greater role in global health, it must increase its health ODA as a percentage of GNI from 0·013% to at least 0·05%. By reaching this level, the Japanese Government's health ODA would almost quadruple to $2·5 billion annually, making it the second largest health ODA donor in the world after the USA. This can be achieved simply by raising the percentage of Japanese ODA devoted to health from 2% to 7·7%, which is still substantially lower than the present OECD average of 15%.

Unfortunately, the Ministry of Foreign Affairs recently announced a total ODA budget reduction of $533 million in 2011, with a budget cut of $169·1 million to the Global Fund alone.[48] Although it is understandable that Japan has recently focused its attention on its own national relief and recovery efforts after the Great East Japan Earthquake, it is crucial that the Japanese Government expeditiously reverse this decline in ODA if it is to remain relevant in global health.

Japanese non-governmental sector initiatives

Most of Japan's development assistance for health comes from the government (figure 2), with Japanese NGOs contributing less than 1% of Japan's total DAH, most of which originates from the government. It is clear from the example of other countries such as the USA, however, that the non-governmental sector is capable of making substantial financial and technical contributions to global health. We thus recommend that Japan mobilise the untapped financial resources and technical expertise of its non-governmental sector (ie, public–private partnerships, NGOs, corporations, and foundations).

These resources clearly exist in Japan. The Japan Committee for UNICEF, for instance, is one of the largest contributors to UNICEF of national committees for UNICEF in the world, raising $219 million in 2009 from which it provided $177 million to UNICEF.[49] Big corporate entities are also becoming more active in global health, such as Sumitomo Chemical, which transferred its technology for developing its long-lasting insecticidal net to a company in Tanzania and Ethiopia, resulting in the production of 29 million long-lasting insecticidal nets annually (panel 1).[50,51] The emerging role of Japanese private investors is also noteworthy because they purchased almost half the vaccine bonds that the International Finance Facility for Immunisation issued since 2008, worth $1·5 billion.[53]

Like these, additional innovative non-governmental initiatives in global health must be encouraged and sustained. Japan-based foundations, for instance, primarily focus on promoting cultural activities and the arts but should also become more directly involved in global health development. Unfortunately, greater

Panel 1: Sumitomo Chemical's commitment to malaria eradication[50,51]

There are more than 200 million new cases of malaria annually, causing nearly 1 million deaths each year. The burden of disease is greatest in Africa, which accounts for greater than 90% of malaria cases worldwide. Because malaria is a major cause of poverty, effective prevention and elimination of the disease is crucial to Africa's development. Developed by Sumitomo Chemical, a private Japanese manufacturer, the Olyset anti-malarial bednet is a long-lasting insecticidal net that does not need chemical treatment and is the only long-lasting insecticidal net guaranteed to last for at least 5 years. Affordable, tear-resistant, and wash-proof, the Olyset bednets have been endorsed by WHO as an effective way of preventing contact with malaria-transmitting mosquitoes.

Aware of the dire need in Africa for effective malaria prevention strategies and the opportunity to fulfil its corporate social responsibility, in 2003, Sumitomo Chemical transferred its Olyset bednet technology free of charge to a local Tanzanian mosquito net manufacturer, allowing long-lasting insecticide bednets for the first time to be produced locally in Africa. To cope with increasing demand, Sumitomo Chemical partnered with a local African manufacturer in 2005 and created Vector Health. By 2008, Sumitomo Chemical's efforts had resulted in the production of 19 million nets annually and the creation of 4000 local jobs in the process. In 2009, the company expanded its annual production in Tanzania to 29 million nets and opened a new factory in Ethiopia with plans to set up other facilities in Malawi and Uganda.

Spurred by Sumitomo Chemical's desire to raise its social profile and "maintain the trust of society", its commitment to malaria eradication efforts in Africa have had a substantial effect on global health activities in the region.[52] Clearly an effective and viable example of how non-governmental resources can be mobilised for health development, Sumitomo's initiatives should be given greater recognition and publicity to encourage global health engagement by other Japanese for-profit businesses in fulfilment of their corporate social responsibility.

Panel 2: **New civil society movements in Japan**

Although Japanese civil society has always been somewhat weak and restricted in scope, new innovative Japanese non-profit consulting organisations are starting to emerge. One notable example is Soket, which seeks to implement market-driven, innovative business approaches to global development issues in China, eastern Europe, Africa, and central and south Asia. Through accumulated expertise, in-depth assessment of local needs, partnerships, and professional development, Soket helps companies establish business models in developing countries that achieve both profit and social progress.

For more on **Soket** see http://www.soket.me/index_e.html

Table for Two (TFT) is another newly emerging non-governmental organisation seeking to promote health worldwide by simultaneously addressing hunger in the developing world, and obesity and other lifestyle-related diseases in the developed world. TFT is based on the principle that one meal bought in the developed world can also buy a meal in a developing nation. Already, more than 130 Japanese corporations, academic institutions, and government offices have committed to offer healthy food options based on TFT's healthy diet criteria. Each time a healthy meal is served, the participating company donates US$0·20 to TFT, which uses the donation to provide school meals in developing countries to schools that agree to monitor and report the delivery of the meals and the health of the children to whom they are given. The success of this movement in Japan led to its introduction to the USA in 2008 and draws attention to the fact that as one of the world's healthiest populations, the Japanese deeply value health and just need greater awareness of global heath challenges and present efforts to tackle them.

For more on **Table for Two** see http://www.tablefor2.org

non-governmental sector involvement in global health is currently hindered by a concerning lack of broader engagement by Japanese society with the outside world and a lack of adequate incentives and conditions within which the non-governmental sector can flourish. Most notable has been the refusal of the Ministry of Finance to grant tax exemption status to civil society organisations, which represents one of the most concrete and effective ways by which the government can nurture the growth of the non-governmental sector.[16] Recently, there have been some encouraging developments as the Japanese Diet has passed legislation that facilitates the establishment of non-profit organisations while also increasing the maximum annual deduction level of non-profit organisations, particularly for recovery efforts undertaken in response to the Great East Japan Earthquake.[54] This new legislation will be a driving force in promoting a greater culture of donation and philanthropy in Japan, but we urge the Japanese Government to create further financial incentives for non-governmental initiatives. We also call for greater public awareness of global health issues through effective media coverage and campaigns.

For more on the **US Institute of Medicine** see http://www.iom.edu

Research capacity and global health leadership

Further hindering the effective transfer of Japanese lessons and knowledge about best practices into global health has been a lack of robust scientific assessments of national and foreign health policies. In fact, this Series in *The Lancet* is the first opportunity to discuss and assess Japan's national and international health policy in a scientific manner—an effort that must be sustained if Japan is to successfully integrate and transfer its national health expertise into the global health arena.

Sustaining this effort, however, will require that Japan substantially increase its overall research capacity in global health, both inside and outside the government. At present, there is a lack of technocrats in JICA and other involved government ministries, owing in part to a severe shortage of global health experts. Meanwhile, outside the government, there are only a handful of Japanese universities that are actively engaging in global health research and education. Notably, Japan's Ministry of Education, Culture, Sports, Science, and Technology created the present Japan Initiative for Global Research Network on Infectious Diseases to establish collaborative research centres in Asian and African countries. Nevertheless, more collaboration and engagement is needed and there is as yet no substantial involvement in research and education efforts by Japanese NGOs and corporations in science.

Enhancing Japan's research capacity while ensuring robustness and objectivity will require efforts on two fronts. First, Japan must prioritise the development of Japanese human resources in global health, both by creating global health leadership programmes within Japanese universities and by mobilising domestic health experts into the global health arena through posts within the UN, JICA, NGOs, and scientific corporations. Second, to ensure robustness and objectivity, independent assessments of health policies are crucial. These assessments would not only positively influence Japan's global health efforts but also domestic reforms in health because this has not been a strong part of Japanese policy traditions. To this end, we propose giving greater resources and voice to academics as well as the creation of an external assessment agency, such as the Institute of Medicine in the USA, an independent non-governmental organisation that provides unbiased and authoritative advice to the US Government and private sector on matters related to health and health care.[55]

Looking ahead

Japan's contribution in Asia

As the global health community embarks on the path toward universal health coverage, few world regions are in as much need of assistance as Asia—a region that Japan is uniquely positioned to aid in view of its many shared historical, geopolitical, and economic experiences.[3] In some notable instances, middle-income countries

have made substantial progress toward universal insurance coverage—such as Thailand, which has covered 97·7% of the population (as of 2007) since its start in 2001.[2] However, by contrast, other countries' rates of health insurance coverage are poor, with rates as low as 5·7% in India, 0·4% in Bangladesh, and 0·1% in Nepal.[56] As these Asian countries work to find sustainable health financing mechanisms and insurance coverage schemes, Japan should take a leadership role in policy guidance and development by drawing on its own knowledge and expertise in improving health when Japan was a middle-income country in the 1960s.

Japan should also use its leadership role in various regional forums to promote global health goals in Asia. For instance, Japan has been actively engaged in regional forums on economic cooperation and other global issues, such as the Asia-Pacific Economic Cooperation where health became a priority topic this year.[57] It also functions as a permanent organ under the Asia–Europe Meeting, where it leads the Asia–Europe Meeting initiative on pandemic influenza as one of its major donors.[58] Both of these forums represent viable means by which Japan can make health an even greater regional priority. Moreover, as China and South Korea become major donor countries in the region, Japan should actively work in partnership with them in pursuit of better regional health outcomes. Already, four Tripartite Health Ministers Meetings between Japan, China, and South Korea have been convened since 2007, to promote consorted efforts on sharing regional knowledge and collaborative assistance activities in the region. So far, the Tripartite Health Ministers Meetings' agenda has been confined to sharing regional knowledge on pandemic influenza and the MDGs, but the scope should be expanded in the coming years to include other areas relevant to global health.

Japanese vision for the future of global health

With improvements in the policy-making process, increased financial commitments, non-governmental sector innovation, and global health leadership, Japan is poised to transform the way it deals with the health of people in Japan and around the world. In an era of unprecedented worldwide interdependence and health challenges, we submit that Japan cannot afford to wait any longer to take action. In fact, never has there been a time in Japan when understanding the need for worldwide solidarity has been so important as Japan now faces a devastating complex emergency caused by the Great East Japan Earthquake and tsunami of March 11, 2011, and the ensuing nuclear crisis.

Already, there are promising signs of change. In response to the present Japanese crisis, we have seen an outpouring of passionate Japanese youth committed to helping those severely affected by the disasters. By use of innovative social media, they have effectively gathered and diffused information, garnered support for projects, and launched massive donation campaigns. Like these, there are a growing number of innovative global health initiatives emerging in Japan, which we believe will further facilitate the development of people-centred health systems and governance (panel 2).

However, Japan alone does not have all the answers and solutions for global health. Like Japan, many other nations have amassed countless insights and knowledge from health innovations over the years in pursuit of their own national health, which have yet to be globally pooled, systematically assessed, and integrated into global health efforts. This is unacceptable. Collectively, this wealth of knowledge represents an almost boundless, but as yet untapped, source of potential lessons for a world that urgently needs them. The time to act is now.

Contributors

RL, SK, LC, and KS set the conceptual framework of the report. RL, SK, and RM searched published work. SK and HS compiled data and contributed to the data analysis. RL, RM, OK, and KS contributed to the writing of the report. LC, OK, TT, YN, KK, YH, and KT contributed to the critical revision. All authors contributed to the discussion and have seen and approved the final version of the report.

Conflicts of interest

We declare that we have no conflicts of interest.

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Japan: Universal Health Care at 50 Years 6

Future of Japan's system of good health at low cost with equity: beyond universal coverage

Kenji Shibuya, Hideki Hashimoto, Naoki Ikegami, Akihiro Nishi, Tetsuya Tanimoto, Hiroaki Miyata, Keizo Takemi, Michael R Reich

Japan's premier health accomplishment in the past 50 years has been the achievement of good population health at low cost and increased equity between different population groups. The development of Japan's policies for universal coverage are similar to the policy debates that many countries are having in their own contexts. The financial sustainability of Japan's universal coverage is under threat from demographic, economic, and political factors. Furthermore, a series of crises—both natural and nuclear—after the magnitude 9·0 Great East Japan Earthquake on March 11, 2011, has shaken up the entire Japanese social system that was developed and built after World War 2, and shown existing structural problems in the Japanese health system. Here, we propose four major reforms to assure the sustainability and equity of Japan's health accomplishments in the past 50 years—implement a human-security value-based reform; redefine the role of the central and local governments; improve the quality of health care; and commit to global health. Now is the time for rebirth of Japan and its health system.

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This is the sixth in a **Series** of six papers about Japan's universal health care at 50 years

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Introduction

The global health community is quickening its efforts aimed at ensuring health coverage for all.[1–3] The 58th session of the World Health Assembly in 2005 endorsed a resolution, urging its member countries to work towards sustainable health financing, defining universal health coverage as access for all to appropriate health services at an affordable cost. The World Health Assembly also urged countries to strive for the achievement of universal coverage by using, in accord with their specific contexts, a mix of prepayment systems that include tax-based financing and social health insurance.[4] In the past decade, low-income countries such as Ghana and Rwanda have introduced national health insurance schemes designed to achieve universal coverage at an affordable cost.[5–7]

The definition of universal coverage is still debated, but generally it is access to key promotive, preventive, curative, and rehabilitative health interventions for all at an affordable cost. The principle of financial risk protection ensures that the cost of care does not put people at risk of financial catastrophe.[4,8,9] The social health insurance approach allows the gradual expansion of the population covered and solidarity among the individuals enrolled in each plan.[9] Japan achieved universal health insurance coverage in 1961 when virtually the entire population became covered by plans for social health insurance.[10]

Achievement of universal coverage is, however, not an end, but the beginning of new challenges. Universal

Search strategy and selection criteria

We searched PubMed, Medline, Embase, Jamas, and Jstor databases, government reports, and unpublished literature from domestic sources. Once a source was identified, it was used to generate additional material (eg, by searching the reference lists of reports obtained while using this search strategy). The first section of this work is based on the earlier reports in this *Lancet* Series in which health and its associated factors are assessed in Japan 50 years after the introduction of universal health care coverage in the country. To discuss the effects of the Great East Japan Earthquake and the accident at the Fukushima nuclear power plant that followed, we used reports identified and retrieved using the above-mentioned method and documents issued by the International Atomic Energy Agency, Japanese Government, and other sources including those produced by the domestic media.

Key messages

- Although Japan achieved universal coverage in 1961 and other health-care policies and programmes have led to excellent population health at low cost with equity, the nation now has many challenges.
- Three common challenges to the health system of Japan—economic sustainability, political governance, and responsiveness to patients—were identified in the other reports in this *Lancet* Series.
- The Great East Japan Earthquake in March, 2011, showed the underlying structural problems in the health system but made the three challenges much more difficult to resolve fiscally.
- To address these challenges, we propose four major reforms for Japan's health-care system: implement human-security value-based reform; redefine the role of the central and local governments; improve the quality of health care; and commit to global health.
- There are promising signs that Japan will be able to achieve both structural health reform and disaster reconstruction. This domestic experience could be the basis for Japan to take an increased proactive role in promoting global health.

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coverage has never been static in Japan and has been developing since 1961, including changes in copayments, how financing is subsidised with taxes, and cross-subsidies for different plans.[10] This gradual change in Japan's policies for universal coverage shows policy debates that are underway in many countries in their own contexts. The financial sustainability of Japan's universal coverage is under threat from demographic, economic, and political factors.

However, the situation of low economic growth rate and unstable political climate creates a particularly difficult situation for addressing the problems of universal coverage and undertaking structural reform. Furthermore, a series of crises—both natural and nuclear—after the magnitude 9·0 Great East Japan Earthquake on March 11, 2011, has shaken up the entire Japanese social system that was developed and built after World War 2 (panel 1).[11] The disasters have clearly shown underlying structural problems in the Japanese health system that have existed for a long time.

***Panel 1:* The Great East Japan Earthquake**

On March 11, 2011, a magnitude 9·0 earthquake and tsunami occurred at about 130 km off the northeast coast of Japan's main island of Honshu, setting off a cascade of crises that included a major nuclear power plant disaster.[12] The combined earthquake–tsunami disasters killed more than 15 500 people, with about 7000 still missing in early July, injured more than 5300, and also severely damaged more than 217 000 houses.[13] The earthquake–tsunami–nuclear power plant disasters created more than 100 000 evacuees.[11,13] Drowning from the tsunami was the primary cause of death in more than 90% of cases.[13] The triple disasters resulted in Japan's greatest humanitarian crisis since the end of World War 2.[11,14,15] In the acute phase of the disasters, emergency care was provided by many Japanese-based health institution teams, Japan's Self-Defence Force, and a few international medical teams; these efforts contributed to saving lives and treating diseases in the affected areas. Assessments are now being done on ways that emergency relief could have been improved in the acute phase.

Japan's triple disasters have now entered the chronic phase of relief, raising many difficult health questions about the processes of reconstruction. First, the management of chronic illnesses (eg, hypertension and diabetes) remains a critical health priority for both evacuees and non-evacuees. These problems have been aggravated by the lack of exercise and high salt intake among evacuees in shelters. Second, mental health problems (including post-traumatic stress disorder and hyperventilation) have emerged widely among the people affected, their family members, and the health and aid workers.[16] These problems are related to the massive devastation and losses at the individual and social levels, and the high levels of uncertainty about the future, including radiation-related health risks, financial compensation, and community reconstruction. Third, the local economy has been destroyed throughout the region; many companies face disaster-related bankruptcy; power shortages have undermined production; and tax increases are likely to be introduced to fund the huge construction needed. Thus, the disasters have had many effects on people not directly affected. Last, the chronic phase includes the monitoring of radiation exposure and potential health effects at the population level, for workers at the power plant, nearby residents still in their houses, and evacuees in the radiation-contaminated zones. Public concern remains very high about radiation exposure from the catastrophes at the Fukushima power plant and the inability of the government and Tokyo Electric Power Company to control the nuclear disaster and provide credible public information about what is happening.

In Japanese, the term crisis literally consists of two Chinese characters—risks and opportunities. We started *The Lancet* Series about Japan[17] with the belief that Japan's current political, economic, and social circumstances offer opportunities for bipartisan reform of the health-care system after five decades of universal coverage, and the hope that Japan's definition of human security can provide the key values for dealing with both domestic and global conundrums in health policy.[10,18,19] The reports in this Series provide a comprehensive analysis of the major topics of health in Japan—population health, universal coverage, costs and service quality, ageing and long-term care, and global health.[10,17–20] Here, we summarise the main achievements of Japan's health system, discuss the challenges it confronts for the future, and present our recommendations for reform.

Good health at low cost with equity

Japan's premier health accomplishment in the past 50 years is the achievement of good population health at low cost with increased equity between different population groups. A landmark study[8] of health systems (in China, Costa Rica, Sri Lanka, and the Indian state of Kerala) reported in 1985 is now being revisited by an alliance of international researchers.[21] We believe that Japan's experiences, especially how the country successfully pursued egalitarian principles while seeking good health at low cost, provide several important lessons for the achievement of good population health.

Japan's achievement of universal health insurance coverage in 1961 was fairly early in the world, especially with an income per person that was half that per person in the UK.[10] Today virtually all Japanese people are covered by social health insurance, through 3500 plans according to where they are employed or where they reside. Japan has also reduced inequities between the different insurance plans by making co-payment rates uniform, except for elderly people and children, and by mandating cross-subsidies among plans to adjust for the different proportions of elderly people enrolled. These efforts have worked towards implementation of egalitarian principles of equal treatment in terms of social health insurance for nearly all Japanese citizens. However, inequities exist in the proportion of income contributed as premium and part-time workers are increasingly not insured.[10,22]

A concern about universal coverage is how to control health expenditures in a sustainable manner.[23] Japan's basic policy has been a combination of tight supply-side control for the conditions of payment with the fee schedule, with a laissez-faire approach to how services are delivered.[17] Although the structural and process dimensions of quality, especially in chronic disorders such as hypertension, seem to be poor, quality is primarily a result of how physicians and hospitals have developed, and the inadequate governance of professional organisations, and not attributable to the cost containment

policy. Outcomes of subspecialty acute care services such as postsurgical mortality rates are as good as those reported in other countries. However, the needs and supply of health-care resources are mismatched, and accountability is lacking for the quality of care.

Japan has also developed innovative policies to address the country's rapidly ageing population. The proportion of people aged 65 years and over has nearly doubled in the past two decades, going from 12% in 1990 to 23% in 2010. Since the late 1970s, policy makers in Japan have focused on how to finance health expenditures for elderly people. As discussed in the report about ageing in this Series,[20] Japan implemented a public long-term care insurance in 2000 to meet the challenges of its ageing society and to contain health expenditures. Long-term care insurance operates on the basis of social insurance principles, with benefits provided irrespective of income or family situation; it is unusually generous in terms of both coverage and benefit. This policy has gained widespread public acceptance, shown in the doubling of service use and expenditures in the past 10 years, during which health expenditures increased by only 15%. Although the policy's effects on beneficiaries and carers still need a complete assessment, the long-term care insurance policy has been successful in enhancing women's participation in the labour market and reducing the fiscal burden on households. However, issues of financial sustainability, overdependence on institutional care, and inadequate attention to the needs of informal carers remain to be solved.[20]

Japan's health achievements for the population are impressive. Life expectancy at birth for women is 86 years and has ranked first in the world since 1986. The achievement in reduction of mortality rates can be considered in two periods, as discussed in the report about population health in this Series.[19] The first period was right after World War 2 until the mid-1960s when reductions were noted in mortality rates in children younger than 5 years with infectious diseases and in adults with tuberculosis. The second period was from the 1960s until now (after achievement of universal coverage), when reductions in rates were mainly noted for adults and elderly people with cerebrovascular and ischaemic heart diseases.

Reductions in mortality rates were partly attributable to public health measures for infectious diseases and the provision of free treatment for tuberculosis in the first period even when the country was poor, and to management of health risks through salt reduction and the use of antihypertensive drugs in the second period. The health-care system made a synergistic contribution by assuring access to health care for all citizens, and by regulating prices so that out-of-pocket payments by patients were low. Japan's experience of good health at low cost suggests that a country's priority in health policy should initially be on improving access and preventing impoverishment from health care, and then efficiency

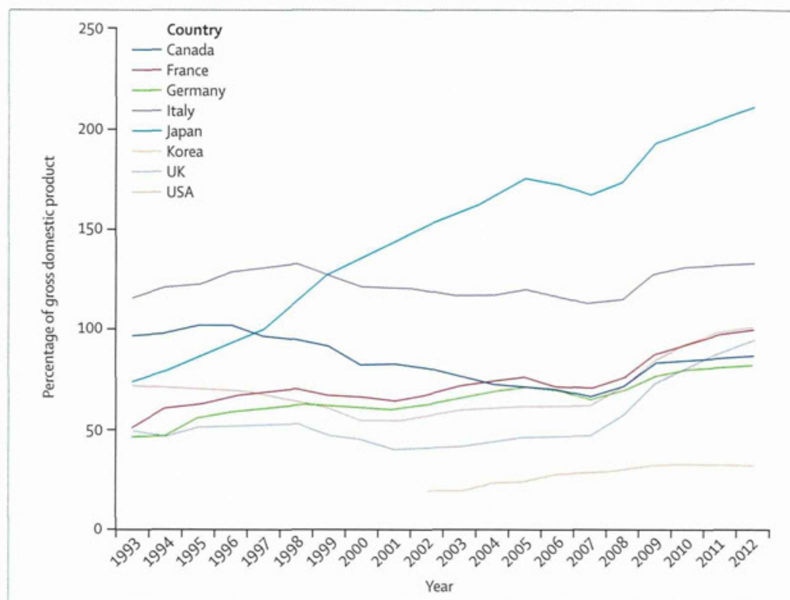

Figure 1: **Government debts as proportion of gross domestic product**
Data from the Organisation for Economic Co-operation and Development.[27]

and quality of services should be pursued.[17] Even in the 1950s, mortality from causes other than infectious diseases and cerebrovascular diseases was already low, suggesting that the Japanese have a genetic or lifestyle-related propensity to longevity.

In the past two decades, life expectancies have continued to improve despite adverse economic circumstances, increases in copayment rates for many people since 1983, and increases in income disparity and unemployment rates since the 1990s. However, doubts exist about whether Japan has really achieved a healthy society. Available data show that the improvement in healthy life expectancy decelerated since the 1990s.[24] Additionally, although Japan's socioeconomic disparities in various health outcomes are still small compared with other countries, mortality rate is increasingly determined by the socioeconomic status and suicide rates are increasing among male workers.[19] These health problems might be indicative of broader systemic challenges that require solutions, especially in the context of Japan's persistent economic stagnation and increasing government debt besides its rapidly ageing population.[25] Can Japan manage to pursue the health of the population and the health of each individual at a low cost?

Japan's future challenges

The three major challenges to the Japanese system for good health at low cost with equity have been identified as economic sustainability, political governance, and consumer responsiveness in this Series.[10,17–20]

First, the most daunting challenge for Japan is the national fiscal situation and the way health care is financed. Although the bulk of health expenditures is

Panel 2: Drug and device lags

In Japan, there are substantial delays in the approval and introduction of new health technologies, including drugs, devices, and vaccines. New drugs took about 3·7 years after first world application before market launch in Japan during 1999–2003.[33] This long period compared with delays in other developed countries is attributable to the longer processes required for undertaking clinical trials, delay in filing new drug applications in Japan, longer approval process by Japan's regulatory authority, and tight price regulation that dampens incentives for pharmaceutical companies to enter the market.[34,35]

The delay is even longer for new devices in Japan. For example, Japan's approved implantable artificial heart has been replaced with newer second-generation devices in other countries. As a result, the device used in Japan has disappeared from the global market, and the latest devices are not available to Japanese patients with end-stage heart failure.[36]

Similar delays have been noted for vaccines. In Japan, vaccines for *Haemophilus influenzae* type b, *Streptococcus pneumoniae*, and human papillomavirus were recently approved after years of delay compared with other countries. Furthermore, Japan has continued to use a live, attenuated oral poliovirus vaccine, even though the government reported that 80 patients developed vaccine-associated paralytic poliomyelitis during 1989–2008 from the live vaccine.[37] Japanese domestic companies are trying to develop combined vaccines including inactivated poliovirus under the guidance of the Ministry of Health, Labour and Welfare.[38,39]

Delays in approval of drugs and devices are not only the consequences of cost containment policy,[35] but result from structural problems. Some of these problems in delayed approval could be addressed through a modernisation of the regulatory system, a fair pricing system, a formal cost-effectiveness evaluation system for approval decisions, and improved clinical research capacity by government and academic hospitals.

financed by social insurance premiums, a quarter comes from the central government's general revenues and constitutes 10% of its budget.[26] Since this amount would increase as health expenditures increase over time with the ageing society and advances in medical technology, the government must control total health expenditures so as to contain the overall budget. Budget constraints have been severe ever since Japan's economic bubble burst in 1991. Since then, the country's national debt has accumulated to twice the gross domestic product.[27] Thus, on the one hand, health-care costs will become increasingly difficult to contain, and on the other hand the government does not have the capacity to increase funding. Worse, the emergent budget for reconstruction and compensation of the triple-disaster-hit areas will further increase fiscal pressure on government (figure 1).

Second, Japan is "a despondent country with a dysfunctional political system", according to *The Economist*.[28] The chaotic national management of the recent nuclear power plant crisis shows the need for stronger political leadership and greater transparency in decision making. After the disasters occurred on March 11, 2011, the government created many official task forces that contributed to inefficiencies in the government response. The untimely and contradictory disclosure to the public of information about the risks of radiation and the extent of damage at the power plant helped create public confusion and mass panic, and contributed to raising distrust in the government.[29] Academics who sat on government committees were also criticised for their ineffectiveness, inappropriate risk assessments, and unclear messages to the public as a result of poor communication skills and conflicts of interest between the government and the nuclear power industry. The official response to the disasters showed Japan's antiquated institutional mechanism for policy making, which is characterised by fragmented relations and competition among the different ministries and agencies, and close ties among industries, academics, and governmental bureaucrats within a specific area as exemplified by the nuclear energy policy. The confused official response has been worsened by mutual mistrust between bureaucrats and politicians in the government led by the Democratic Party of Japan. The disaster also showed the legacy of ineffective regulation of the nuclear power industry from decades of government by the Liberal Democratic Party.[30]

Last, Japan's health system is not responding to people's changing expectations about health and increasing demands for good-quality services, particularly in an interconnected world. This trend has raised national debates about several medical issues. For example, reports about the health hazards of drugs, followed by a series of lawsuits, brought modernisation of the drug and device regulatory system.[31,32] However, the delayed approval of new drugs, devices, and vaccines frustrates doctors and patients (panel 2). These trends indicate increasing tensions and conflicts among medical workers, patients, and the mass media in Japan's health system.

The Japanese Government in 2009 recognised the strategic importance of the specialty of life innovation that seeks to bring together economic growth, science and technology, and quality of life in an ageing society.[40] That policy, approved in 2009 by the cabinet, promotes scientific research in life sciences, informatics, and genomics in pursuit of innovations that will improve diagnosis and treatment of disorders that affect ageing societies.[41] We welcome this technology-driven and growth-oriented approach to consider health as a prominent economic sector.[42,43]

Despite a continuous increase in the number of physicians, there is a shortage of physicians in some specialties, especially obstetrics, paediatrics, and surgery.[44,45] Shortages in some specialties are further compounded by changes in patients' views about the quality of service and non-medical aspects of care (eg, respect for individuals and client orientation).[46] Patients have become increasingly sophisticated in their understanding about quality and physicians,[47] whereas physicians have not been able to keep pace with these changes. Even for low-risk operations, many patients now seek care from specialists in tertiary hospitals. In terms of emergency care provision, Japanese society, including parents, general internists, and

emergency care physicians, seems to insist on children being seen by a paediatrician and not by an internist on duty.[48] These expectations, with the poor differentiation in service provision and misdistribution between specialties, have created bottlenecks in major medical centres, especially for emergency care. Because patients' expectations have changed, the roles of primary care physicians and specialists and the balance between them need to be adjusted.

Although Japan's current system might be making people healthier, it does not seem to be able to meet rising expectations. In this context, Japan needs to reconsider the meaning of health in an ageing, uncertain, and global context. In particular, Japan needs to give greater attention to people's values about health and to develop a coherent vision as a leader in global health. To address these challenges, we believe that Japan must undertake a major restructuring of its health system.

Reforms for the future

A broad consensus exists in Japan today about the need for reforms in health (as in many other areas of national policy), but little agreement on what to do or how to do it. Japan seems to have lost its capacity to make tough social decisions that impose costs on some stakeholders. We propose four major reforms to assure the sustainability and equity of Japan's health accomplishments in the past 50 years (panel 3).

First, implement a human-security value-based reform. Japan's health system continues to increase the national medical expenditures. Undoubtedly, Japan needs more funding for health, through increases in insurance premiums and taxation. However, the real concern is how Japan will ensure fairness in financial contributions while securing new sources of funding for health. This ability to ensure fairness, in turn, depends on informed judgments by the Japanese people.[21]

Structural reform inevitably represents the values that a nation intends to achieve. European countries established their health systems based on their particular values and their own political and historical contexts. In Japan, as in other non-western countries, government officials and politicians imported a health system and adapted it to their own context, but the process of adoption was eclectic and not necessarily internally consistent, thereby lacking a structural mechanism to retain and improve its quality.

As discussed in the report about global health,[18] Japan made human security the cornerstone of its foreign policy because it understood the interdependence of political, economic, and social development. The Japanese health system that had worked in the past has begun to fail, and is now threatening human security within Japan, as exemplified by the recent disaster. Human security—to protect all human lives from critical and pervasive threats and give people the building blocks of survival, livelihood, and dignity[49]—such as universal insurance coverage, is more relevant than ever to meet the challenges facing Japan. Towards this end, we believe that Japan needs to apply this idea more proactively to its domestic policy. Health, as a common goal at the basis of our shared humanity, is uniquely positioned to play a major part in Japan's pursuit of human security for its own people.

Japan needs to begin reform by clearly stating the shared values that need to be achieved through the health-care system, and adhere consistently to them. We believe that equity in human security should be the core value of Japanese health policy, but it will require new commitments from every stakeholder. The basic structure of compulsory enrolment in social health insurance plans should remain, though structural reform through consolidating plans and setting fair premiums is a necessary step to improve equity.

As the era of Japan's post-war decision-making system comes to an end, a more transparent process needs to be implemented to better represent people's values. A 2010 opinion poll suggests that the major sources of the dissatisfaction with the Japanese health system are not

Panel 3: Summary of key policy recommendations

1 Implement a human-security value-based reform
- Apply the notion of human security with increased proactiveness to Japan's domestic policies
- Refine governmental health policies in medical education, system monitoring, and assessment from the people-centred perspective
- Maintain the basic structure of compulsory enrolment in the social health insurance plan, based on the underlying value attached to equity in Japanese society
- Use good-quality research and scientific evidence to frame key choices in local, national, and global decision making

2 Redefine the role of central and local governments
- Transfer the authority and responsibility for improving the efficiency of allocation of health-care resources and sustainability of funding to prefectural governments
- Consolidate fragmented agencies and institutions (eg, Japanese version of the Institute of Medicine, Centers for Disease Control and Prevention, and National Institutes of Health)
- Reconstruct health systems in Tohoku area damaged by the Great East Japan Earthquake as the test case for future reforms based on human security

3 Improve the quality of health care
- Build clinical databases to certify subspecialties to improve quality of physicians
- Establish general practice as an official subspecialty for patient-centred seamless care
- Monitor performances with mandatory reports for benchmarking
- Enable functional differentiation and the establishment of referral networks in clinics and hospitals

4 Commit to global health
- Provide opportunities for domestic and global health experts to interact
- Mobilise Japan's accumulated knowledge, especially of the universal coverage, ageing and long-term care, and health and wellbeing for the past 50 years in the global health context

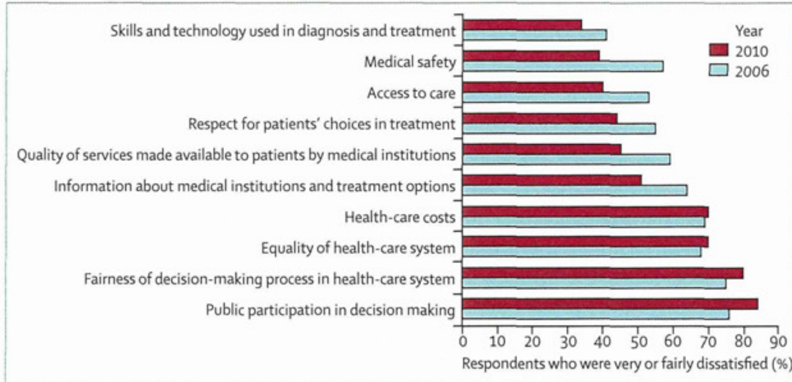

Figure 2: **Main reasons for dissatisfaction of Japanese population with the health-care system**
A public opinion survey on health-care policy was done in January, 2010, by Japanese experts.[50] Two-stage cluster sampling of 1650 individuals (aged ≥20 years) was used to gather information about public opinion on various aspects of health-care policy. The overall response rate was 62%. When compared with a survey in 2006 with the same set of questions, the results of the recent survey suggest that over the past few years, public dissatisfaction with the decision-making process of the health-care system has increased, while public satisfaction with the medical services and treatments has increased.

issues about quality, access, or costs, but the lack of fairness and public participation in decision making (figure 2).[50] Behind this lack of fairness and public participation in decision making is the lack of appropriate use of evidence. Decision making—whether local, national, or global—will always remain political, but it can still be informed by better science and evidence to frame key choices, especially approaches that take into account the overall context.

Although a general social agreement exists about the need for structural reform, no one is willing to take the political risk to break the policy inertia and transform the health system. The system's inefficiencies could be tolerated in Japan's period of high economic growth, but not in today's climate of economic stagnation. We believe that a bold alliance of stakeholders across political parties and positions, beyond the vested interests of individual groups, is needed to stimulate structural reform of Japan's health system.

Second, redefine the role of central and local governments. The notion of human security requires both top–down and bottom–up approaches to reform Japan's health system. From the top–down perspective, Japan needs central policies that give more emphasis to people-centred health interactions by breaking down the ministerial silos of authority and responsibility. The greatest barrier to reform is Japan's antiquated and entrenched institutional mechanisms for health-policy making that provide few opportunities for domestic and global health experts to interact. Towards the goal of providing independent and robust analyses of both domestic and global health policies, Japan needs to establish agencies such as the Centers for Disease Control and Prevention, National Institutes of Health, and Institute of Medicine in the USA, and National Institute of Clinical Excellence and Public Health in the UK. At the same time, from the bottom–up perspective, Japan needs to empower regional and community planning entities that can expand autonomy for the regions. Design and implementation of these changes will require new kinds of dialogue and decision making among groups that have not previously collaborated, including the medical association, government organisation, private industry, and civil society groups.

Japan's health policy is decided uniformly by the central government and with little discretion from the local governments. Therefore, at the local level, prefectural governments should serve as the key organisations for citizens to participate in forming and implementing health policy. The first step would be the election of politicians who are committed to managing and sustaining the regional health-care system. The consolidation of the social insurance plans at the prefectural level would not only improve fairness of each organisation's financial contribution, but also enhance the authority of the prefectural governors. Their mandate would be to exercise tighter control over provision of care to improve efficiency in the allocation of health-care resources and their functions in the region. Providers' performance must be monitored, and hospitals and clinics should be consolidated to improve efficiency.

The triple disasters—earthquake, tsunami, and nuclear crisis—that Japan is now confronting in the Tohoku area have created the nation's worst humanitarian crisis since World War 2. Remote villages along the coast hit by the tsunami are among the regions with the fastest ageing populations in Japan. The prevalence of hypertension and diabetes is high among survivors, and there is a chronic shortage of health workforce and little access to quality care.[51] In these areas, the major issues for the Japanese health system—ie, ageing population, chronic disease, little access to quality services, and lack of a health workforce—have been magnified after the disaster. This confluence of crises represents one possible future scenario for all Japan. Thus, reconstruction of the health system in the Tohoku area represents a test case for future reform of the Japanese health system. We believe that rebuilding the health system in Tohoku provides an opportunity for a positive reform of the Japanese health-care system based on the notion of human security.

Third, improve the quality of health care. Japan lacks systematic measures and incentives to improve quality.[52] The accreditation system of subspecialties is not well established—physicians are free to proclaim and practice any specialty they desire, and national quotas for training subspecialists based on the expected need, and the resources for meeting the required level of experience do not exist.[17] Although the subspecialties are under the general organisation of the Japanese Board of Medical Specialties,[53] the board does not have the authority to set quotas or standardise accreditation requirements. Subspecialty organisations should start by setting such quotas and building clinical databases, such as those that