to the fact that surgical procedures tend to be done in facilities that have subspecialty departments with an appropriate volume of cases—in 2008, 81·0% of surgical operations with general anaesthesia took place in hospitals with more than 200 beds, which compose only 17·5% of non-psychiatric hospitals.

Are improved outcomes therefore related to a high volume of patients, despite the fact that the number of surgical cases per physician and per institution is low in Japan? A series of studies of the volume-to-outcome relation in Japan shows mixed results.[32,33,36,38–41] A recent study of patients with non-surgical cholangitis showed that a low volume of services was significantly related to reduced compliance with standardised care processes defined in a practice guideline, increased length of stay, and raised mortality, suggesting that standardisation of care might have an effect.[42] Amendment of accreditation criteria by the Society of Thoracic and Cardiovascular Surgery provided a unique natural experiment to assess the effect of volume on outcome.[43] When analysis showed an association between volume and outcome,[38] the society raised the threshold annual volume of operations for accreditation of residency hospitals in 2004, which led to a decrease in the number of certified hospitals in 24 of 47 prefectures. In these 24 prefectures, the operative mortality rate decreased and the disparity between prefectures narrowed, without any decrease in the number of surgical operations (unpublished data, available from authors on request).

Finally, reporting of adverse events is an important aspect of quality in both process and outcome. Public demand for safety of inpatient acute services has been growing since 1999, when a mass media campaign about hospital safety was triggered by a malpractice case in a university teaching hospital.[44] This demand has led to safety management as the one area in which quality standards have improved, especially in large hospitals providing intensive and high-risk treatment. An amendment of the Medical Service Law in 2004 required teaching and public hospitals with advanced functions (272 hospitals as of Dec 31, 2008) to report medical adverse events for the purpose of development and sharing of safety measures, although the mandated report did not exempt their liability.[45] According to the annual report in 2008, the incidence rate of fatal events was as low as 0·07%; however, under-reporting is quite likely, because 68 of 272 required hospitals did not report a single adverse event for that year.

By comparison with other OECD countries, patient satisfaction seems low in Japan.[46] However, caveats are needed in drawing cross-country comparisons because the satisfaction level reflects patients' expectations and the context in which services are provided. Perhaps more meaningful are the repeated cross-sectional surveys undertaken by the Ministry of Health, Labour and Welfare, which show satisfaction increasing from 48% in 1994 to 58% in 2008 for outpatient care, and from 54% to 66% for inpatient care.[47] Patient satisfaction about the length of consultation fell (48% satisfied in 2008), but the median length of outpatient consultations for repeat visits to a hospital's outpatient unit was 8 min,[48] and about the same as reported in primary care settings in the UK.[49]

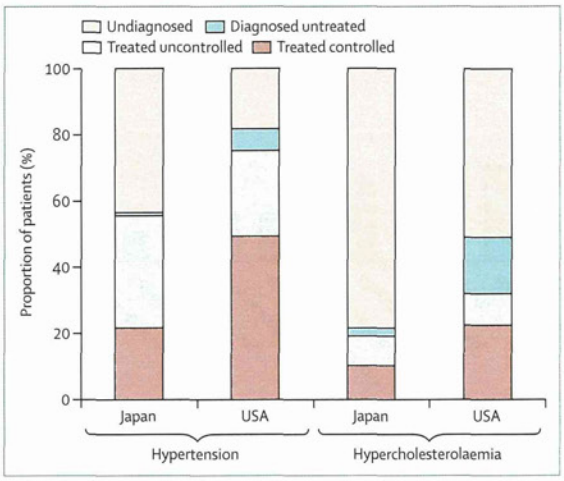

Figure 3: **Coverage and control of hypertension and hypercholesterolaemia in Japan and the USA**
Data are from the Japanese National Health and Nutrition Survey 2007 and US National Health and Nutrition Examination Survey 2007–08. Hypertension was defined as systolic blood pressure greater than 140 mm Hg. Hypercholesterolaemia was defined as serum LDL cholesterol greater than 3·10 mmol/L (120 mg/dL).

Challenges and reform proposals

The Japanese health-care system has two contrasting features: tight supply-side control of payment by the fee schedule and a laissez-faire approach to how services are organised and delivered. Costs have been contained by setting of the global revision rate and subsequent item-by-item price revisions of targeted services and drugs. Fees are generally reduced, but when shortages in specific areas are perceived, they are raised, thus giving an incentive to deliver the service. Although the establishment and expansion of hospital beds have been regulated since 1985, hospitals are allowed to purchase any equipment and open any specialty department. Almost all hospitals have a walk-in clinic for their specialty departments, and if the patient is unwilling or unable to wait until a bed becomes available at the hospital of their choice, they are referred to other hospitals affiliated with the physician's university clinical department. Consequently, waiting lists and rationing have never been issues of public concern.

In recent years, however, the mechanisms to contain costs and maintain quality have become untenable. First, after more than 50 years of almost continuous power, the Liberal Democratic Party lost the August, 2009, election. The new government led by the Democratic Party of Japan had pledged to increase health expenditure and break the ties with interest groups (such as the JMA). This approach was their response to the media portraying

Japan's health-care system as collapsing, as they reported the death of an expectant mother who was not able to find a hospital in time.[44,50] To honour their pledge, the global rate was increased by 0·19% in the 2010 fee schedule revision, all three members nominated by the JMA for the ministry's council were dismissed, and targeted item-by-item increases were made for hospital-based procedures such as surgical operations.

Second, the methods used to contain costs, item-by-item revisions and auditing claims forms, are no longer applicable to most inpatient care settings. Most acute care beds in hospitals are now paid for by a combination of fee-for-service and a per-diem inclusive rate set by the Diagnosis Procedure Combination.[51] This new payment system was introduced in 2003 for 80 university hospitals and two national centres under pressure from the payers who believed that fee-for-service payment was intrinsically inflationary. Whether payers have obtained their objective remains doubtful, because hospitals could transfer services to outpatient care, which is paid for by fee-for-service, and up-code patients to groups with higher rates. New methods, such as auditing hospitals on the basis of their casemix profile and pay-for-performance, have yet to be developed.

Third, patient expectations and demands for increased accountability from physicians are rising. The arrests of physicians for negligence causing the death of a patient or for falsification of medical records have received widespread media coverage from 1999.[52] Although prosecutors have since become more cautious after the clearing of all charges against an obstetrician in 2008, physicians still feel under increased pressure to explain and document their decisions. Studies have shown that physicians and nurses in large acute care hospitals perceive that they are under increasing stress and feel inadequately compensated.[50]

Fourth, the government's efforts to maintain quality at hospitals have focused mostly on nurse staffing levels. But our analysis shows that nursing levels, unlike those of physicians and pharmacists, are not related to hospital mortality rates. Although some minimum level would be a precondition for quality of inpatient care, the credentials of the nurses employed and how their work is organised are probably more important.

So what can be done to improve quality of care in Japan? Has there been a trade-off between cost containment and quality? We do not think so, and in view of the fact that cost constraints are not likely to disappear in the future, we recommend several structural reforms to improve the quality of care. These reforms should strengthen support from the public to increase public funding for health care. First, the present policy of tight control of the conditions of payment by the fee schedule but a laissez-faire approach to control of service provision should be restructured to allow increased flexibility on the payment side, while tightening control of how services are organised and delivered. These changes would make hospitals and physicians more efficient and more accountable for providing high-quality care. The first steps have already been made with the introduction and spread of the Diagnosis Procedure Combination. In exchange for being allowed to bill more flexibly for an inclusive amount, hospitals are mandated to submit detailed clinical profiles in standardised digital format. On the basis of these data, several benchmarking projects have been launched for quality improvement on a voluntary basis.[25] They could be expanded to form a public database for regional health planning and policy evaluation that would allow increased efficiency of resource allocation and improve peer competition on quality of care. The government should also extend data collection about quality to chronic care hospitals because their payment also became based on patient grouping from 2006.[53]

Second, the capacity of prefectural governments to control the delivery of service should be strengthened. Although prefectural governors have been mandated to implement regional health plans since 1985, little progress has been made apart from the cap on hospital beds. If Japan consolidates all social health insurance plans prefecturally (as is recommended in an accompanying paper in this Series),[12] then the prefectural governments would have increased responsibility for financing health care and be under pressure to improve efficiency of health-care delivery. Resources should be concentrated in specialties in which a volume effect has been reported, such as in thoracic surgeries, and in hospitals that have shown good performance.

Finally, Japan's system of medical education should be reformed to improve quality of care. Since a third of all physicians are based in clinics and are focused on primary care, medical schools should restructure their training to prepare physicians for providing primary care, not only on training subspecialists. The Ministry of Education, Culture, Sports, Science, and Technology, which is responsible for undergraduate medical education, should transform the system for evaluation of medical schools, which is currently focused on their research record, to one that also addresses how they meet societal needs in health care. This reform will need strong political leadership because it has to overcome the opposition from the powerful establishment of medical schools.

Global lessons

Although the quality of Japan's health-care system as assessed in structural and process dimensions shows many issues, the global indices of health are excellent. Moreover, even as pressure to contain costs increased from 2000, not only have health indices continued to improve, but so have patient satisfaction ratings. When outcomes are measured for specific clinical conditions, they are the same as or better than those reported for other developed countries. How can these discrepancies be accounted for?

One answer might be that the structure and process aspects of quality of care are not that important for

outcomes. If so, then the priority in health policy should be placed on improvement of access and prevention of impoverishment from health care. In these aspects, the Japanese outpatient-focused health-care system has shown much success for which the greatest credit should be given to the fee schedule regulations. Although fee-for-service payment has been criticised for leading to cost escalations, costs have been contained by the global and item-by-item revisions of the fee schedule. Although global budgets or capitation might be more effective than the fee schedule for control of costs, they do not provide incentives for physicians to deliver services. Japan's design of its fee schedule has been more a result of historical accident than of intentional decisions by policy makers. However, in countries that have not rigorously controlled payment or have relied mainly on publicly owned hospitals, Japan's method of containing costs and maintaining equity could provide valuable lessons.

Japan's revisions of the fee schedule have been a dynamic process, reflecting the political and economic environment for the global rate and the power balance between the providers and how they have reacted to the item-by-item revisions. However, an implicit balance has been maintained between specialists in large urban hospitals, who tend to earn less but are able to practise in the specialty for which they have been trained, and those working in rural hospitals and primary care physicians in clinics, who tend to earn more. Both have been dedicated to people's health needs, as witnessed in their voluntary efforts to help the victims of the Great East Japan Earthquake in 2011. The professional ethos of individual physicians could account for why health outcomes, as measured by macro health indices and inpatient care, are good, despite the poor quality as measured from its structural and process dimensions.

However, a reliance on professional ethos alone would no longer be sufficient to meet the growing expectations of the public and the increasing desire of physicians to pursue their own quality of life. If physicians wish to have increased resources allocated to health care, they have to improve their accountability through an organisational mechanism to monitor the quality of care and to enhance peer competition over quality. In particular, the systematic collection and dissemination of outcome data should be made a joint professional and government responsibility.

Contributors

HH and NIk co-led and drafted the report. KS, JMA, and MRR critically commented and revised the report. HH, HM, HY, HN, and NIz did the data analysis. 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.

Acknowledgments

We thank Keizo Takemi, Sudhir Anand, and Takahiro Higashi for their valuable comments, Shinya Matsuda, Hiroya Ogata, and Zaiken Nishida, and David Evans and Mitsuhiko Noda for reference, Susan Hubbard for her technical edits, and Hiyuko Fujita, Tomoko Suzuki, and Tadashi Yamamoto (Japan Centre for International Exchange) for their administrative support. This work is in part funded by the Bill & Melinda Gates Foundation and the China Medical Board, and in part by a research grant from the Ministry of Health, Labour and Welfare (H22-seisaku-shitei-033), and by a research grant from the Japan Society for the Promotion of Science (JSPS) (Funding Program for Innovative R&D on Science and Technology; FIRST program, initiated by the Council for Science and Technology Policy). The views and opinions expressed by the independent authors in this publication are provided in their personal capacity and are their sole responsibility.

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Japan: Universal Health Care at 50 years 4

Population ageing and wellbeing: lessons from Japan's long-term care insurance policy

Nanako Tamiya, Haruko Noguchi*, Akihiro Nishi, Michael R Reich, Naoki Ikegami, Hideki Hashimoto, Kenji Shibuya, Ichiro Kawachi, John Creighton Campbell*

Japan's population is ageing rapidly because of long life expectancy and a low birth rate, while traditional supports for elderly people are eroding. In response, the Japanese Government initiated mandatory public long-term care insurance (LTCI) in 2000, to help older people to lead more independent lives and to relieve the burdens of family carers. LTCI operates on social insurance principles, with benefits provided irrespective of income or family situation; it is unusually generous in terms of both coverage and benefits. Only services are provided, not cash allowances, and recipients can choose their services and providers. Analysis of national survey data before and after the programme started shows increased use of formal care at lower cost to households, with mixed results for the wellbeing of carers. Challenges to the success of the system include dissatisfaction with home-based care, provision of necessary support for family carers, and fiscal sustainability. Japan's strategy for long-term care could offer lessons for other nations.

Lancet 2011; 378: 1183–92

Published Online September 1, 2011 DOI:10.1016/S0140-6736(11)61176-8

See **Comment** page 1124

See **Comment** *Lancet* 2011; **378:** 1051

See **Series** *Lancet* 2011; **378:** 1094 and 1106

See Online/Series DOI:10.1016/S0140-6736(11)61098-2

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

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Introduction

Populations in developed countries are ageing rapidly and Japan's is ageing the quickest. In 1950, Japan had a very young population; in 1990, only about 12% of Japanese people were aged 65 years or older, which is about the same as in the USA in 1990, and well below the UK and other developed nations.[1,2] However, the postwar baby boom was followed by sharply decreasing birth rates, while life expectancy rose.[2] By 2010, the number of people aged 65 years and older had almost doubled from 15 million to 29 million—23% of the population and the highest proportion in the world.[1] The absolute number of older people will soon level off, at about 40 million, but the number of younger people will continue to fall rapidly.[2] Accordingly, Japan's population will have the largest proportion of old people in the world in 2050, when 40% of its population will be over 65 years of age.[1] This demographic situation means that Japan's experiences so far and its prospects for the future hold important lessons for policy makers in other nations, since they will soon be facing similar situations.

How do older people in Japan compare with those in other countries in terms of income, health, and living arrangements? In a 2005 international survey[3] of people aged 60 years and older, 57% of Japanese people said they had no economic problems, compared with 36% in the USA, 33% in Germany, and 18% in France. The average disposable household income of the 65 years and older group in Japan is 86% of that of the 18–65 age group, compared with an Organisation for Economic and Co-operation and Development (OECD) average of 82%.[4] Japanese public pensions are somewhat lower than those in many European countries, but the average income of Japanese older people is fairly high because many of them work—about 30% of men aged 65 years and older, compared with 22% in the USA (and even lower in Europe).[3] Moreover, many have large savings.[5,6] Thus, Japanese older people are well off on average, although income inequality is high and a sizeable number (especially older single women) have to rely on public assistance or support from relatives.[7,8]

The same cross-national survey[3] reported that 85% of Japanese people aged 60 years and older had no impediments in their daily life, compared with 65% or less of American, German, and French people. Although this survey is based on subjective criteria, Japan does have the highest healthy life expectancy (HALE) at birth (73 years for men and 78 years for women).[9,10] Additionally, 83% of Japanese women aged 65 years survive until 80 years, 3% higher than in any other country (70% in the USA and 72% in the UK).[10] This good health in older people was accomplished despite Japan spending much less than the USA and UK on medical care.[11]

In 1960, more than 80% of people aged 65 years and older were living with a child.[12] The last time that 70% of older people lived with a child in the USA was in 1860.[13] In the mid-1990s, the corresponding number for northern and western Europe was 15% of the 60 years and older population.[13] Living arrangements in Japan have changed substantially. In the 2010 census,[14] the proportion of older

Search strategy and selection criteria

We used quantitative and qualitative data from academic published work to review the effect of the long-term care insurance system in Japan. We searched PubMed and Web of Science (Thomson Reuters) for studies published between 1990 and 2011, with the terms "insurance, long-term care" or "health services for the aged" in combination with "Japan". All the 193 publications in PubMed and 164 publications in Web of Science written in English were judged to be relevant to our report on the basis of the context of their evaluation of the long-term care insurance system in Japan, and were reviewed. Other academic published work, grey literature, and book chapters for related information (eg, demography, public policies, and health-care financing in Japan, and long-term care situations in other countries) were included when relevant.

Key messages

- The number of people in Japan 65 years and older almost doubled in the past two decades, reaching 29 million or 23% of the population in 2010. Demographic projections suggest that the number of older people will level off at about 40 million, while the proportion of younger people will continue to decrease.
- In 2000, Japan implemented public, mandatory long-term care insurance (LTCI). It is one of the most generous long-term care systems in the world in terms of coverage and benefits.
- A decade of experience has proved LTCI to be effective and manageable, including constraining expenditures to the growth rate of the target population.
- Japanese LTCI provides only services rather than cash for care. The most popular service is adult day care, with 1·9 million users (6·5% of people aged 65 years and older), benefiting both frail older people and their carers.
- LTCI has increased the use of formal care and reduced financial burdens. Labour participation by family carers increased only in high-income households because of their high opportunity costs.
- Distinctive features including the services-only strategy, consumer choice with expert advice, comprehensive organisation with flexibility in management, and specialisation in older people, offer important lessons to long-term care policy makers and experts worldwide.

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people living with a child had fallen to 41%, whereas the proportions living with only a spouse (33%), alone (16%), or in an institution (6%) had increased. Even so, co-residence with children is still very high compared with other developed nations, and this pattern is widely regarded as normal in Japanese culture.[13,15–17]

Sustaining Japan's economy and supporting the increasing number of older people while facing a shrinking total population and the prospect of fewer young workers presents several challenges. First, maintaining incomes of older people through public pensions and enhanced employment opportunities; second, providing good medical care at a reasonable cost; and third, ensuring that older people weakened by physical or mental disabilities have a good quality of life. In this report, we focus on the third challenge, and Japan's innovative response: public, mandatory long-term care insurance (LTCI).

Japan's public long-term care policy

All developed nations face a growing population of older people, including those who need care.[1,18] At the same time, as the number of children has decreased and more women want to work outside the home, the availability of care from family members has fallen (although it is still the most important source of elderly care). Many OECD nations have responded to these pressures by initiating explicit and comprehensive long-term care programmes.[19] In an era of widespread cutbacks in the welfare state, Japan's expansion of long-term care policy stands out as exceptional among developed nations.

In Japan, concern for frail older people has been at the forefront of welfare policy developments for many years.[20] Public financing for nursing homes and home helpers started in 1963, albeit on a small scale, and in the early 1970s, riding the crest of the post-war economic boom and facing sharp political challenges, the ruling Liberal Democratic Party instituted free medical care by abolishing co-payments for older people, even for hospital stays.[21] So-called social admissions, without much medical justification, soared, and even nowadays more than 500 000 people aged 65 years and older live in hospitals.[20] However, old-age services other than hospitalisation grew slowly and were mostly restricted to people with low incomes and who had little family support. This situation prevailed until 1989—the peak of another economic boom and just before a general election—when the Liberal Democratic Party again suddenly decided to expand the government's responsibility for care of frail older people. This increased responsibility was enacted through the so-called Gold Plan or Ten Year Strategy for Health and Welfare of the Elderly,[21] which set a specific target of doubling institutional beds and tripling home and community-based services for older people over 10 years.

The Gold Plan was hugely popular but it created serious problems. Spending soared to the point of threatening tax hikes; management difficulties overwhelmed understaffed local governments; and key operational standards such as definitions of eligibility, the types and amounts of services provided, and whether fees should be charged, varied largely between localities. In the mid-1990s the Ministry of Health and Welfare developed a systematic plan to provide long-term care through social insurance to deal with these issues.

LTCI was enacted in 1997 and implemented in 2000.[20,22] Its official purpose was to help those in need of long-term care "to maintain dignity and an independent daily life routine according to each person's own level of abilities".[23] Other goals included: introduction of competition, consumer choice, and participation by for-profit companies into what had been a bureaucratic system;[24] achievement of savings in medical spending by moving people from hospitals into the LTCI system;[24] emphasis of community-based care over institutional care;[20] and particularly relief of burdens on family carers.[25]

LTCI in Japan compared with other nations

Nations that have expanded long-term care policy vary considerably in programme design.[26] Differences include tax financing or social insurance; covering all ages or concentrating on old people; strict, moderate, or no means testing; high, low, or no cost-sharing; broad or narrow coverage; generous or few benefits; and supported caring mainly by family members or informal workers such as migrants through cash for care, or by trained and supervised staff delivering formal services. Japan's programme (panel) is financed half by taxes and half by social insurance, focuses on older people, has no means testing and moderate cost sharing, and has broad coverage and generous benefits. There is no cash benefit, which is one reason why informal care by live-in migrant

workers, although quite common worldwide, is almost non-existent. The design of the programme had two main sources: problems with the Gold Plan, and solutions suggested by German and Scandinavian approaches.[20,25,27]

First, as in Germany, the system operates on social insurance principles rather than on Scandinavian-style taxed-financed local services. The Gold Plan had been a tax-financed service, but social insurance premiums were more acceptable than were tax hikes. Second, unlike Scandinavia, Japan gave a right to a specific amount of benefits, and recipients could choose the services and providers that they wanted. In Scandinavia decisions about eligibility, benefit size, and selection of services and providers were made by municipal caseworkers, who could take into account income and availability of care by family members. That had been true in Japan under the Gold Plan, but unclear guidelines and the absence of local administrative capacity often resulted in arbitrary decisions. The officials who planned the new LTCI insisted on firm principles for eligibility and gave recipients rather than local bureaucrats the power to choose services and providers, including for-profit companies—a shock to the social welfare specialists who idealised the Scandinavian approach.

Third, Japan's coverage and benefits are quite generous and its public spending on long-term care is higher than that in many other nations, such as Germany and the USA (figure 1).[26,29] The formula to decide eligibility is similar in principle to that used in Germany, but much less restrictive: about 17% of the population aged 65 years and older has been certified as eligible in Japan compared with 10% in Germany. Additionally, Japanese people can use about twice the amount of community-based services as can German people with similar levels of disability.[24] The main reason for this generosity is that many fairly low-need people were getting quite high benefits under the Gold Plan; politically the new programme could not go backwards.

Fourth, the key similarity to the Scandinavian approach is that Japanese LTCI relies solely on formal services. In Germany, recipients can choose cash instead of services, with no restrictions on use.[30] German LTCI was thus explicitly designed to encourage family caring. Japanese LTCI was designed to help family carers by having the government handle some aspects of care, because cash would not relieve carers of their heavy burdens.

The Japanese LTCI system has been operating for more than a decade and nowadays serves nearly 5 million people.[31] The number of beneficiaries in institutions increased by 83%, but more notable has been the 203% increase in those receiving home and community-based services in the programme's first 10 years.[31] As of January, 2011, home helpers were visiting about 1·4 million people and adult day-care centres were used by nearly 1·9 million people.[32] About 6·5% of all people aged 65 years and older attend day care in Japan (compared with <1% in Germany and Sweden).[33] The expansion of LTCI services is a major change in the daily life of older people in Japan. It represents the first time that Japan has been a leader of developed nations in an important sector of social policy.

Panel: Japan's long-term care insurance programme

Kaigo hoken literally means care insurance but public mandatory long-term care insurance is a more informative title. Its goal is socialisation of care, meaning that the government provides care as an entitlement to all, irrespective of their income level or the availability of informal care. It operates as a social insurance system, although half is financed by matching funds from taxes. Everyone aged 40 years and older pays premiums, and everyone 65 years and older (and aged 40–64 years if the need arises from an ageing-related disease), is eligible for benefits. Premiums are about 1% of income up to a limit for those aged 40–64 years; for those aged 65 years and older premiums average about US$35 per month (purchasing parity price rate), adjusted to income. Municipalities are the insurers and the premiums for those aged 65 years and older living within their jurisdiction are set every 3 years according to the expenditure projected.

Eligibility is assessed by use of a 74-item questionnaire based on activities of daily living, with a preliminary categorisation into one of seven levels by a computer algorithm, then reviewed and finalised by an expert committee. Each level sets the ceiling amount of services that can be purchased as benefits, ranging from $400 to $2900 per month. For home-based services, most clients do not use up to the limit (most use 40–60%)—only what they need. Clients pay a 10% co-payment; those in institutional care also pay $200 per month to cover living costs (waived or capped for low-income individuals).

Once assessed as eligible, the client selects a care manager who draws up a care plan, setting the weekly schedule of care services. Upon approval of the plan and the provider by the client, services commence. Reassessment is made every 2 years (or 6 months for those who need lower levels of care), or as requested in the event of any decline in health.

Many services are covered: at home they include a home helper (housekeeping and personal care), visiting nurse, bathing, remodelling, assistive devices; outside of home they include day care, day care with rehabilitation, short-stay respite care; institutional services include nursing homes, homes with more medical service, chronic-care hospitals. Additionally, caring costs in private nursing homes and dementia group homes are covered.

Providers include local governments, semipublic welfare corporations, non-profit organisations, hospitals, and for-profit companies (for-profit companies are not allowed in institutional care). They are licensed and supervised by the local government. Fees for each service are set by the national government and revised every 3 years.

Effects of LTCI

In view of the rapid expansion of LTCI services in the past decade, it is worthwhile to assess the effects of these services on the intended beneficiaries: care recipients, family carers, and households. Our report presents several quantitative analyses used to assess the consequences of Japan's LTCI from both macro and micro viewpoints. All the data analysed are from the Comprehensive Survey of People's Living Conditions[12,34]—a large, nationally representative repeated cross-sectional survey of the non-institutionalised population. We compare changes in outcomes between formal and paid service users, and non-service users in 1998, and 2004, in frail elderly people (defined as those who need support for daily living) before and after the introduction of LTCI.

See Online for webappendix

The webappendix provides detailed explanations of the survey, data manipulation, empirical framework, and limitations. The table shows a summary of the results.

Use of formal care

Figure 2 shows a sharp increase in formal service use by the frail older population, from 52% in 1998 to 76% in 2001, which remained steady until 2004. This analysis is solid evidence that the introduction of LTCI noticeably improved access to formal and paid care in the community.[35] The trend of service use varied by household income. In 1998, the rate of formal care use was nearly identical between income groups, at just above 50% of frail older people (as identified in the survey). After the introduction of LTCI and the increase in use, use by households in the upper-income tertile was marginally but significantly—about 4%—greater than that in households in the middle-income tertile and lower-income tertile. Formal services use across income groups varies greatly in Europe, for example, it is much higher for upper-income households in Germany.[26,36]

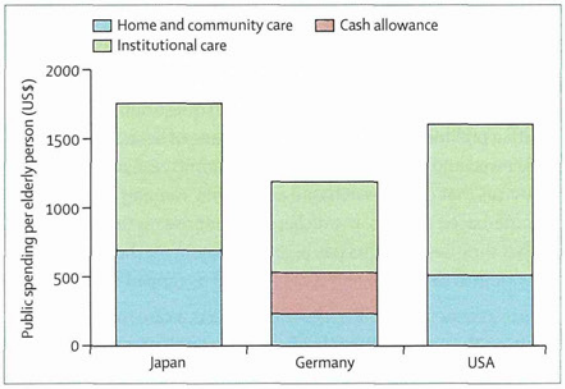

Figure 1: **Long-term care spending in Japan, Germany, and USA in 2005**
Spending estimates differ from other published sources because they include only public spending, include only services and support for people aged 65 years and older, and exclude post-hospital care, which is often aggregated with long-term care. For USA we exclude spending for all Medicare post-acute care but we include Medicare home health part B and Medicare spending for assistive devices because they are included as long-term care home and community-based services in other countries. For both the USA and Germany, we estimate and exclude spending for people younger than 65 years. Precise data are available for Japan for those aged 65 years and older, but we estimate and include spending from health insurance on long-term patients aged 65 years and older in hospitals, who receive care equivalent to that in nursing homes in other countries. Purchasing Power Parity was used to adjust exchange rates to cost of living. Data from Campbell and colleagues.[28]

Wellbeing of care recipients

Previous studies have assessed the effect of various types of formal services (eg, home-based care such as home visits, community-based care such as day care and respite stay, and institutional care) on various outcome measures (eg, mortality, functional status, institutionalisation, care needs level, nutritional status, and care burden) in different regions of Japan.[37–43] The results of these studies are mixed. According to the results of one study,[37] more frequent day-care service use was associated with lower mortality in community-dwelling frail adults, although those of another study[41] were less positive about the effectiveness of day care. Although findings from one study[42] showed that respite care and day-care service use could prevent elderly people from being institutionalised or admitted to hospital, investigators of another study[39] reported an association between respite stay use and an increase in the level of care needed. Although day care and home-based care seem to have positive effects on the health of recipients, the overall effects of LTCI are still uncertain.

The results of our comparison before and after the introduction of LTCI (table; with difference-in-difference

	Regression model*	Whole sample (95% CI)	Income tertile of household (95% CI)†		
			Low	Middle	High
Effects in older people					
Subjective health status‡	Logit	1·03 (0·84 to 1·26)	0·91 (0·63 to 1·31)	0·85 (0·60 to 1·22)	1·28 (0·91 to 1·81)
IADL status§	Logit	0·96 (0·80 to 1·14)	0·77 (0·57 to 1·05)	1·15 (0·84 to 1·56)	1·04 (0·76 to 1·40)
Effects in family carers					
Subjective health status‡	Logit	0·98 (0·82 to 1·18)	0·96 (0·69 to 1·32)	1·03 (0·73 to 1·44)	0·99 (0·72 to 1·36)
Hours of informal care per day	Tobit	−0·81 (−1·19 to −0·43)	−0·45 (−1·13 to 0·23)	−0·81 (−1·45 to −0·18)	−1·36 (−2·01 to −0·71)
Labour participation¶	Logit	1·09 (0·89 to 1·33)	0·89 (0·63 to 1·26)	0·85 (0·60 to 1·21)	1·72 (1·22 to 2·44)
Hours of work per week	Tobit	1·25 (−0·36 to 2·87)	−0·62 (−3·37 to 2·12)	−0·55 (−3·44 to 2·35)	4·57 (1·77 to 7·37)
Hours of activities other than informal care and working	Tobit	0·67 (0·27 to 1·07)	0·90 (0·20 to 1·61)	0·84 (0·14 to 1·53)	0·50 (−0·17 to 1·17)
Effects on household economy					
Percentage of household expenditure spent on formal care	Ordinary least squares	−0·05 (−0·06 to −0·04)	−0·05 (−0·06 to −0·04)	−0·04 (−0·05 to −0·03)	−0·06 (−0·07 to −0·05)

The numbers of observations estimating the effects for older people and for family carers differ: for the effects on older people, n=9597 for the entire sample, n=3164 for the low-income group, n=3176 for the middle-income group, and n=3257 for the high-income group; for the effects on family carers, n=8738 for the entire sample, n=2938 for the low-income group, n=2800 for the middle-income group, and n=3000 for the high-income group. CSPLC=Comprehensive Survey of People's Living Conditions. IADL=instrumental activities of daily living. *For data given as hours per day Tobit was used because the data are right censored at 24 h; Logit data are given as odds ratios, Tobit data are given as marginal effects, and ordinary least squares data are given as coefficients. †Missing data for household's income were imputed by multiple imputation. ‡Excellent or very good versus fair or poor or very poor. §Any difficulties in IADL versus no difficulties. ¶Working versus not working.

Table: **Difference-in-difference estimates with nationally representative data (CSPLC) from 1998 and 2004**

estimations) show no overall favourable effects on either older care recipients subjective health status or their ability to undertake day-to-day tasks. These findings are similar to those of another study[43] of the effect of long-term care programmes, implying that maintenance rather than improvement in health and functional status of frail older people is an appropriate goal for long-term care programmes.

Wellbeing of carers and opportunity losses

Many studies have investigated stress, morale, and burden among family carers, with mixed results.[15–20,22,23,44–51] The favourable effects of formal service use on physical burdens of care have been repeatedly reported in Japan, and some studies have also shown a statistically significant reduction in emotional burden.[44,49,52] In our analysis of the survey data, we did not record any significant effects on carers' self-rated health status.

We examined how LTCI affected hours spent by family carers for caring, employment, and other activities. For the entire study population, average time spent caring dropped significantly after the introduction of LTCI, by 0·81 h per day, and time spent on other activities increased by 0·67 h per day. However, the effects differ by income. In middle-income and high-income families time spent on caring decreased by 0·81 h per day and 1·36 h per day, respectively, but for low-income families these changes were not significant. This finding is consistent with the lower use of formal services by lower-income families.[35,52]

Furthermore, for the high-income group, family carers were substantially more likely to be employed after the introduction of LTCI, leading to an increase of 4·57 h per week spent working. The lower-income and middle-income groups were slightly more likely to be employed after LTCI than before LTCI but their working hours decreased (not enough to be significant in both cases). They spent almost an additional hour in other activities; 0·9 h per day for low-income households and 0·84 h per day for middle-income households. In the high-income group, time spent on other activities increased by 0·5 h, but this finding was not significant. A likely explanation for this difference is that for higher-income carers, mostly women, the opportunity costs of caring are high because they can get higher wages. Additionally, employers tend to offer care leave only to full-time workers with fairly high incomes.[53]

Household economy

The proportion of household expenditure spent on formal long-term care decreased by 5% in 2004 compared with before LTCI was introduced. This change was almost the same for all income groups. In short, the practical benefits of LTCI to family carers are clear, but findings of the effect on feelings of burden are mixed. Moreover, there are interesting differences in effect that are dependent on income group. These results are consistent with those of a previous study.[54] More research in these areas is needed.

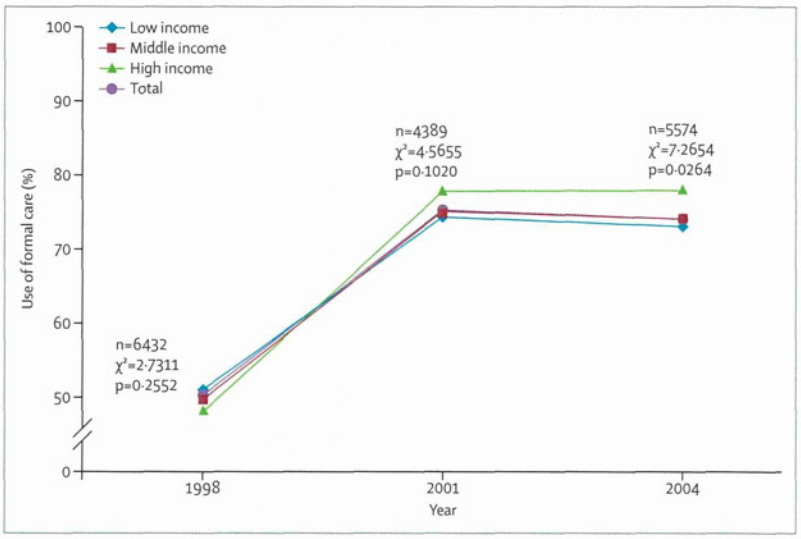

Figure 2: **Formal care use in frail people aged 65 years and over before and after the introduction of long-term care insurance in 2000**

Data are from our original analysis based on the Comprehensive Survey of People's Living Conditions (CSPLC). The CSPLC data in 2001 were gathered by the Ministry of Health, Labour and Welfare in the same manner as in 1998 and 2004. Data from Ministry of Health, Labour and Welfare.[12]

LTCI and Japanese family values

Japan's LTCI programme has not solved the problems of frailty and dependence for elderly recipients and their families. The most any long-term care programme can do is improve independence and quality of life for these elderly people. For the family, especially the primary carer, the feelings of responsibility and concern for a failing spouse or parent cannot be abolished by a government programme. A long-term care system can help with carers' practical burdens, but in all regions—even Scandinavia, with its highly developed programmes—most of the tasks of caring for frail older people in the community are undertaken by family members.[55]

The criterion for effectiveness, therefore, is how much assistance Japanese LTCI provides to older people and carers relative to long-term care programmes in other countries. There are two dimensions: the design of the programme (the main theme of this report), and how the programme fits into the Japanese sociocultural environment, which is also important, and requires a brief discussion of Japanese family values.

In the traditional Japanese household, responsibility for care of aged parents fell on the eldest son's wife. This role was regarded as the culmination of her long relationship with her mother-in-law (*shutome*) who had trained her when she first entered the household as a bride (*yome*). From this perspective, caring is seen as a duty to do everything; living in the same household and being available 24 h a day.[56] Nowadays, only 20% of primary carers of frail older people are daughters-in-law.

Although the proportion of older people living with any child has decreased substantially, the proportion is still about 40% and is still perceived as the normal mode of family caring. Conservatives view this sort of caring as embodying Japanese family values, whereas feminists view it as exploitative. The view of care from the daughter-in-law as exploitative prevailed, and as a result LTCI in Japan seeks to relieve the burdens on family carers by replacing some of their duties with formal services, thereby giving them more choice to work or pursue other interests.

This policy contrasts with German cash allowances, which are intended to support traditional values by rewarding and encouraging family caring; Germany also covers carers' pension contributions and offers vacation time, similar to paid employment.[36] However, the amount of the allowance in Germany and all other nations that offer cash for care is much less than the wage from employment. As a result, family carers receive a meagre income while undertaking increasingly time-consuming and psychologically burdensome tasks with no opportunity to build a career.[26]

However, Japanese LTCI does not fully liberate Japanese family carers. Putting the parent in a nursing home would alleviate most of the burden, since that is seen as transferring the total responsibility, which helps to explain why demand for institutional beds soared when LTCI was initiated. The government was not willing to subsidise such high-cost care by building more nursing homes, resulting in long waiting lists.[57] Family carers could rely only on home help, day care, and other home and community-based services, which could never be enough to relieve the burdens so long as caring is regarded as a full-time duty. This tenet helps to clarify why dissatisfaction with long-term care policy persists among many women. Japan actually has a higher institutionalisation rate (about 5·5% of the 65 years and over population) than the OECD average (3·3%).[58] At-home services are far more available in Japan than almost anywhere. However, many family carers are influenced by the expectations embodied in traditional family values as well as hoping to be liberated from them; in our view, a long-term care policy that does not provide a solution for this dilemma cannot be fully successful.

Still, the LTCI programme itself brings about new attitudes. Traditional Japanese family values dictate that a self-respecting *yome* would not allow a stranger into her house to give care, much less send her *shutome* to day care. As formal services expanded these forms of care became common and were accepted, even in the most old-fashioned rural areas.[59,60] Over time, the old-age population includes increasing numbers of the baby-boom generation, who have very different life experiences and expectations, including views on independence. Moreover, while the carer's dilemma in Japan is particularly acute, it does not differ fundamentally from that of family carers everywhere. Most feel burdened by their tasks but continue to care because of affection and a desire to help on the one hand, and a sense of duty and social pressures on the other. Effective long-term care policies alleviate but cannot obliterate these feelings.

Challenges, responses, and recommendations

In a sense, Japan's LTCI programme has already mastered its biggest challenge, which was simply getting such a large and innovative programme underway. At its inception many observers were not at all optimistic: a 2000 article in *The Lancet* was titled "Chaos greets birth of insurance system for Japan's elderly".[61] Actually the programme was set up quickly with few administrative difficulties, and it has become an accepted and highly supported component of Japan's social policies. None-the-less, unsolved problems and other challenges must be addressed.

The empirical evidence that LTCI has relieved carer burdens is scarce, and despite the popularity of the programme, it is commonly criticised for not doing enough. Clearly the problem is not limitations on services. Some people are eligible but use no services at all, and on average recipients of home-based care choose to use only 40–60% of their entitlement. The 10% co-payment inhibits use to some extent; someone with a moderate level of disability using half the entitlement might pay about US$150 a month and might not want to increase their expenditure. However, since the monthly contribution to LTCI for low-income people is capped (and for those receiving public assistance, services are free), out-of-pocket costs would not seem to be a major barrier against receiving more services for many people (figure 2).

A reason for continued dissatisfaction might be a shortage of specific services that are particularly important to carers. Originally, visits by home helpers at night were supposed to be continually available ("anytime, anyplace" was the slogan) but areas where agencies provide it are scarce because this service is financially and logistically difficult to provide, despite government efforts. Respite care, or short-stay—a few nights at a time in a nursing home—is widely used (350 000 stays per month)[31] but the number of institutional beds is not adequate because of high demand, so appointments need to be made weeks in advance in many areas.

How should the government respond? Provision of more night visits and respite care, and help for carers to maintain a good work–life balance by making care leave from companies more available, would be helpful. Beyond that, Japan needs additional services aimed specifically at helping family carers: daughters and daughters-in-law, and also spouses who are elderly themselves.

Two directions are promising. First, results of meta-analyses indicate that psychosocial interventions can be effective in improving carer morale and relieving depression and stress.[62,63] Japanese carers have many opportunities for getting information and advice, but formal counselling is rare; there are few trained professionals, and reimbursement under health