Special Section

TECHNOLOGY ASSESSMENT IN JAPAN

Guest Editors

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INTRODUCTION

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It is perhaps appropriate that the first special issue of the International Journal of Technology Assessment in Health Care focusing on a specific country should be on Japan. Despite the fact that Japan has the second largest economy in the world, it is still an enigma to the rest of the world, especially in the area of health care. Some tantalizing questions emerge from a brief overview. Although most of the credit for having the best health indexes in infant mortality and life expectancy at birth could be ascribed to the socioeconomic system, the health care system does have some commendable features. The most outstanding features are the egalitarian form of universal health coverage and the low health care costs that are only 6.5% of the gross domestic product. An intriguing aspect is that this has been achieved despite the fee-for-service method of reimbursement, the existence of multiple plans, and no overt signs of rationing. The per capita numbers of patients on renal dialysis and using computed tomography (CT) equipment in Japan are the highest in the world.

The main answer to this mystery lies in the nationally uniform fee schedule that determines the price of every procedure and material under the social insurance system in which all Japanese citizens must enroll. All payers and all providers must use this fee schedule; thus, it has become a powerful instrument that strongly influences both the extent and the quality of technology in Japan. When a new technology is developed, it must first be listed in the fee schedule before it can be reimbursed. Its price is then determined by comparing it with the nearest existing technology, with little consideration given to its actual costs; therefore, it tends to be set at quite a low level. Theoretically, this should provide an ideal opportunity for applying the results of technology assessment: prices could be set low or not listed at all if evaluated to be of low value or, conversely, high if of high value.

Unfortunately, in reality, this seldom occurs except occasionally in a crude form. First, as will be explained, the process of technology assessment remains at an infantile state in Japan. Second, even if the fees are set low, providers can recover costs directly by lowering the quality or increasing the volume, or, even if this is not feasible, the costs could still be recovered indirectly because the technology would generate revenue by attracting patients and good physicians. A combination of these factors has in fact occurred for CT scans and for magnetic resonance imaging (MRI), which explains their rapid diffusion. Third, and most important, the setting of the fees is a highly political process. Since health care costs have to remain within the limits of the implicit global budget, which is set by adding the fee times the expected volume of
each procedure and material, fee revisions have become essentially a zero-sum game—any increases would have to come at the expense of others.

Some explanation should be given here on just how the fee schedule is structured. It generally tends to favor the services provided in a primary care setting compared with high-tech procedures. Japan has the highest physician consultation rate and one of the lowest inpatient admission rates in the world. This appears to be the result of a historical accident and the process of political negotiations that decides the allocation of resources rather than the result of an explicit policy measure to contain costs. The first fee schedule came into existence when social insurance was introduced to Japan in 1927. At that time, most physicians were general practitioners in open practice. There were few hospitals because care had traditionally been provided at home, not in institutional settings. As a consequence, negotiations over the reimbursement centered on payment for the private practitioners, who were represented by the Japan Medical Association (JMA). Since that time, JMA has continued to be the sole organization to represent the interests of all physicians, partly because the government has found it easier to deal with only one party and partly because other professional groups have remained weak. In general, the basic policy that has been pursued is to avoid conflict by maintaining the status quo. This has meant keeping the relative share of inpatient care to outpatient care, and of each clinical specialty to the total health care expenditure, constant.

These factors have definitely served as a built-in mechanism to contain costs. However, they have had an adverse effect on the development of technology assessment. If costs are low, there is less pressure to rationalize the system. Methodologically, assessment is far more difficult in an ambulatory setting. However, the main reason may lie in the fact that negotiations over the fee schedule between the government and the JMA occur inside a tightly closed door. This may not necessarily be a bad strategy to adopt from the point of view of cost containment because once the actual process of resource allocation becomes more open, it would inevitably lead to increased pressure for more resources from all interested parties. The resulting conflicts would upset the delicate balance of existing power in Japan, and it is unlikely that a consensus can be reached by relying only on a rational approach using cost utility analysis. Whatever the reason, health policy research in Japan has remained a marginal area, and the debate that occurs tends to be characterized by subjective opinions unfounded by any rigorous research. It must be acknowledged that there are only a few formal university positions in the field of health economics and policy in the whole of Japan. While the Japan Association of Medical Technology Assessment has existed since 1985, it has only about 200 members, of which only a small handful can find the resources to engage in research activities. Formal government grants for technology assessment were started in 1990 and are estimated to total only approximately 50 million yen (US $454,500) in 1993.

The above has been provided as background information for the collection of articles in this special issue. As guest editors, we were not in a position to pick and choose among the current research being performed in technology assessment in Japan. Rather, since so few studies have actually been conducted, we had to actively solicit articles from our own network and beyond. Of the nine articles, only two were independent submissions whose main authors are Japanese but had been engaged in research in the United States. We are thus more than indebted to the contributors who were patient enough to comply with our repeated requests to focus each paper on those aspects that would be of interest to the international readers in each of their respective fields.
Introduction

The nine articles can be divided into three categories. The first four are on prevention. It is not by accident that half of the articles should be on this subject despite the fact that "preventive technology is usually not considered the mainstream of technology assessment" (7). Japan has one of the most extensive mass screening programs in the world. Hisamichi has calculated that every Japanese citizen undergoes an average of one mass screening a year (1). However, as we have already pointed out in our previous articles in this journal, the efficacy (let alone the effectiveness) of these programs has never been rigorously evaluated, and the constant expansion has occurred based on the principle that more screening is better (3;4). Several reasons for why this view has prevailed can be postulated. First, although the vast improvement in the lifestyle of Japanese citizens after World War II is likely to have been the major factor in the successful eradication of tuberculosis, the screening programs that were implemented at the same time have given both the public and professionals inflated views of their effects. Second, preventive health is not part of the statutory benefits of Japan's health insurance plans. Consequently, the richer plans were able to expand this benefit. Once expanded, it became an entitlement quite irrespective of its utility and was quickly seen as a goal to which other plans should aspire. Third, screening could be regarded as serving as a cleansing act similar to the purification rituals that are part of the Japanese tradition. However, despite these powerful forces, some dissenting voices have recently been raised against the present indiscriminate screening policy. It is in this light that these articles should be understood.

Oshima acknowledges that the present state of cancer programs is "ill-planned and unscientific." He proposes that screening should be concentrated in those programs for which the efficacy has been well or fairly well established. For those that are not, evaluative studies should be carried out before their expansion. His second proposal is for randomized control trials for new screening technology.

Shimbo, Glick, and Eisenberg evaluate the cost-effectiveness of colorectal cancer screening using a state transition mode. They conclude that initial screening using immunological fecal occult blood test (followed by colonoscopy if positive) at age 40 is as cost-effective as other generally accepted medical services, although incomplete long-term compliance would make later initiation preferable.

Babazono and Hillman evaluate the cost-effectiveness of screening for gastric cancer using a Markov modeling process. They conclude that although indirect x-ray remains the correct method, because of the changing disease incidence during the past 10 years, this may no longer be cost-effective for Japanese citizens under the age of 50 years.

Hisashige's first article reviews the nationwide mass screening system for neonatal metabolic diseases established in 1977. Based on a cost-benefit analysis, although the incidence of phenylketonuria (PKU) is lower in Japan, screening for this disease proves to be efficient. However, he points out that a similar analysis is needed for the screening of other diseases, particularly because there is no evidence to show its effectiveness (unlike screening for PKU).

The next three articles discuss diagnosis and treatment. This has been an area in which technology assessment has been particularly difficult to perform in Japan. The major hurdle has been the lack of professional standardization. It has been the practice for newly qualified physicians to join the clinical department of the university hospital in which they have received their undergraduate training. Having joined the department, they are likely to spend their entire professional lives within this department and its affiliated hospitals unless they choose to go into open practice, in which case they will no longer be able to use the hospital's facilities. The training
that they receive is very much dependent on the practice pattern of the professor and chair of the department, who also decides which physicians should be posted to each affiliated hospital. Under this system, standardization of clinical practice by specialty boards is very difficult to achieve, and the power of these boards remains weak. Only in the past 10 years have serious attempts been made to establish accreditation examinations, but the pattern remains uneven. The second hurdle lies in the fact that the Japanese reimbursement system does not consider quality. The same price is paid for a particular procedure regardless of where and by whom it is performed. The fee-for-service system rewards quantity, and there is no formal process of evaluating quality in Japan. As in prevention, uneasiness has come to be expressed concerning the lack of quality control. However, standard protocols have yet to be derived and medical records need to be improved. These adverse conditions make these two articles particularly noteworthy.

Hisashige's second article reviews the factors that led Japan to have the highest per capita number of MRI and CT units in the world. The main reasons lie in the technological attributes of MRI, the market situation of the medical engineering industry, and the reimbursement system. There previously were no formal assessments of the effectiveness and efficiency of MRI.

Ochiai, Sasaki, Terashima, and Fukushima review the prognostic factors and the treatment results of ovarian cancer. A path-breaking study of the four-year survival rates of stage III ovarian cancer patients in 21 hospitals throughout Japan is presented. What is remarkable about this study is that it is the first time that the results have been compared across such a wide range of hospitals affiliated with different medical schools.

Ikeda, Tsuchihashi, Kawashiro, and Kanzaki review the management of acute otitis media and, in particular, the wide use of myringotomy in Japan. This high rate is due to the fact that patients have direct access to otolaryngologists in private practice. The authors point out that the current literature does not provide enough evidence to draw any conclusions about the effectiveness of this practice.

The last two papers discuss bioethics, which is almost virgin territory in Japan. As mentioned, decision making is a closed process at the policy level. It is also closed at the patient care level, as Japanese physicians tend to be uncommunicative and to adopt a paternalistic attitude toward patients. This may be ascribed to the combination of low fees and the pressure to increase volume that does not allow the time for providing information. The blame could also be placed on the fact that, until very recently, there has always been a shortage of physicians and medical facilities. However, the underlying cause may well be that Japanese people tend not to be verbally communicative and try to avoid making explicit decisions as part of their cultural tradition. Nevertheless, even in this area, influence from the West has seeped into Japan, and demands for more information and the need for informed consent have increased.

Kitai et al. have done a study to evaluate the acceptability of prenatal diagnosis using amniocentesis. The results of their surveys regarding the relative burden of undergoing this procedure, together with the existing available data, were used in the medical decision tree. They conclude that prenatal diagnosis is regarded as acceptable and decisions about its use would change according to the incidence level of chromosomal abnormality.

Feldman has done a fascinating case study of why no heart transplants have been performed in Japan after the single case in 1968. The failure to arrive at a consensus on brain death may be regarded as a reflection of the current status of
health care and physicians in Japanese society. The real and superficial roles of cultural factors are explored.

We are keenly aware of the areas not covered in our special issue. Papers from the fields of pharmaceuticals, cardiac emergencies, and rehabilitation were invited, but they did not materialize within the time deadline. We hope that the prospective authors continue to pursue their subjects so that they can submit their work at some future date. In particular, pharmaceuticals should pose an interesting subject for inquiry because, with the increase of harmonization, they will have to be targeted toward the international market. However, the quality of neither randomized controlled trials nor phase IV surveillance appears to have improved in Japan (1).

Having painted a somewhat depressing picture of the state of technology assessment in Japan, it is sobering to reflect that despite this situation, health indexes continue to be excellent and health care costs continue to be largely contained. Should the Pandora’s box of technology assessment remain closed? We personally do not think so. As we have stated, changes are occurring despite efforts to maintain the status quo. In fact, we feel that we are fighting a lonely war against time. There is a need to establish some infrastructure for technology assessment in Japan, but forces of inertia remain strong and the walls of the ivory tower remain intact.

Given this environment, we feel all the more indebted to the contributors of this special issue. We would also like to express our deep thanks to Dr. Stanley Reiser for his continuous encouragement and editorial assistance in putting forth this issue. We sincerely hope that our efforts will be of some value and interest to all readers.

REFERENCES