

REVIEW

Perspectives in Medical Education

3. Reforming medical education to change healthcare practice in Japan

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Abstract. The enviable health status of Japanese citizens is one of the reasons for obdurate opposition to reform of Japanese healthcare practice. Change is widely believed to be unnecessary for a system that is both successful and profitably exploited to universal benefit. However, societal trends are conspiring to make current healthcare practice patterns and expenditures unsustainable in the future. In particular, Japan has undergone an unprecedented demographic shift from a society of young (and healthy) workers to one of older retirees with a higher prevalence of obesity. As a result, an equally dramatic future increase can be anticipated in the prevalence of age- and obesity-related disorders. The traditional paradigm of Japanese healthcare is not conducive to the restraint necessary for preserving its future viability, given these trends. Japanese healthcare does not reward clinical problem-solving skills, values specialists over generalists, places a heavy reliance on expensive technology, does not require interventions to be evidence-based, and provides no incentives to improve quality or efficiency. If this paradigm endures, Japanese healthcare faces the real prospect of bankruptcy. The failure of Japanese medical education to inculcate clinical skills and stress evidence-based medical practice lies at the heart of the impending crisis in healthcare. To solve the crisis, medical education in Japan must change its focus to training and developing a cadre of physicians with the broad-based expertise and clinical skills to make evidence-based decisions in a medically and fiscally responsible manner. The future health of the system and of the Japanese people depends on it. (*Keio J Med* 55 (4) : 141–148, December 2006)

Key words: Japanese healthcare practice, clinical skills training, Japanese medical education, problem solving skills, evidence-based medicine

Introduction

In an earlier paper, I have described in some detail my view of the dysfunctional state of medical education in Japan.¹ My conclusions are derived from observations made during annual visits since 2003 to Keio University School of Medicine in Tokyo, one of Japan's premier medical institutions. As a follow-up to the first paper, I have published a Blueprint for Reform of Medical Education at Keio University, based on a report submitted at the request of the authorities in charge of medical educa-

tion there, Dean Kitajima and Professor Amano, Head of the Department of Medical Education.² The focus of the Blueprint was on recommending a series of wide-ranging changes calculated to emphasize clinical skills training and inculcate clinical problem solving skills in Japanese medical graduates.²

Notwithstanding the wide dissemination of those two reports among the faculty at Keio University, and the strong endorsement of their contents by the authorities in charge of medical education there, the response of the faculty to the recommendations has been decidedly luke-

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warm, at best, and covertly dismissive at worst. I realize now that the blame for this may rest with me.

The reason for that surprising conclusion is to be found in my failure to articulate a single coherent and cogent argument for change in my earlier papers. I was so completely overwhelmed by the magnitude of the dysfunction I encountered that I could only focus on identifying individual problems as and when I came across them. Moreover, the justification for reform seemed so inherently obvious to me as a teacher and a clinician that I suggested solutions without providing anything more than piecemeal justification as I went along. It is clear to me now that one important deficiency in those two earlier papers is that I did not put the justification for correcting the individual problems into a single over-arching framework that applied to the system as a whole.

This paper is a belated attempt to correct that failure.

The Problem With Change

Change of any kind is threatening. As bad as it is when it is forced on an individual, it is even more so when a society faces the pressure to change. Implementing change in a society that reveres and respects tradition, like Japan's, is very difficult (as I have acknowledged [1]). In such a society, change that threatens something as fundamental and cherished as a tradition itself can be overwhelming. It is resisted from the outset even when it is justified. Without justification, change of that magnitude is well-nigh impossible to achieve in a tradition-bound society.

These generalities achieve monumental significance in relation to the attempts to reform healthcare in Japan. It is easy to understand, in that context, why previous attempts to introduce change have failed.^{3,4} The failure was quite predictable, in my opinion, because the case for reform has been undermined by a sense that there is no reason to change something that not only works, but is profitably exploited to universal benefit, starting from patients and providers to hospitals and the bureaucracy. I have sensed that the same all-pervasive inertia is resisting the current effort underway in Japan to reform the system of medical education.⁵

Which brings us to the fundamental question that must be answered, if the inertia to change is to be overcome: Why change something that seems to work?

That question has been asked of me more than once, in different ways, during my visits over the past three years to Keio University School of Medicine in Tokyo. Given the Japanese tradition of unfailing courtesy to a guest, the question is never asked with belligerence or with defensiveness, but most often as a genuine request for enlightenment. On occasion, however, it has also been posed to me with varying degrees of disbelief and even amusement.

It is a question that needs to be answered, if reform is to have any hope of succeeding. After all, if there is no justification for change, change for change's sake is at best an exercise in futility, and can at worst only harm that which needs no change. Equally, though, obdurate resistance to change, in favor of maintaining the status quo even when the need to change clearly exists, is a guarantee of systemic failure. That the need exists to reform Japanese medical education is patently obvious to the outsider, as I have detailed at length in two previous papers.^{1,2} The justification is not quite so obvious to those working inside the system, many of whom reject the need for change as unnecessary and even harmful.

The justification for reform of medical education is best understood in the context of the resistance to change that seems to be all-pervasive in the Japanese healthcare system. The inertia has its roots in tradition, and there is no doubt that an innate reluctance to accept a change from tradition is a part of it. Equally important, however, is a refusal to even consider that there is anything wrong with the system, which is thought to be an unrivalled success. Therefore, the need for reform of medical education can only be understood if it can first be justified that there is a need to change the culture and practice of healthcare in Japan. In order to justify such far-reaching changes in the eyes of those who oppose reform, the undeniable successes of the past must be acknowledged. Only then can the problems of the present be identified and the perils that lie in the future for healthcare in Japan be anticipated. Only then can the case be made for reforming medical education in order to change healthcare practice in Japan.

THE PAST

An Envious Track Record of Success for Japanese Healthcare

Japanese healthcare is rightfully lauded as the world leader with respect to overall health system attainment.⁶ Japan's universal health insurance system provides all Japanese residents with ready access to high quality healthcare at a far more reasonable cost than most other developed countries.⁷ Not only is there no Japanese equivalent for the 43.6 million uninsured citizens in the US.⁸ ("universal" really does mean exactly that!), but Japanese citizens fare much better than their US counterparts by almost any health measure along the age spectrum, such as the prevalence of low birth weight, natal, postnatal, and total infant mortality, and life expectancy at age 20 and age 65.⁹ All of these stellar statistics are impressive enough, but what is truly remarkable is that they have been achieved with a lower ratio of health expenditure to gross domestic product than any other developed country.¹⁰

Several societal factors account for this exemplary per-

formance. These include the lowest rates for crime, illicit drug use and prevalence of HIV in the developed world, the highest rates for high school and full-time university enrollment, and a literacy rate approaching 100%.¹¹ Although all of these factors are certainly important contributors to the overall success of healthcare in Japan, one cannot ignore the fact that a considerable measure of the credit for the exemplary healthcare performance must attach to the main provider of that care: the Japanese physician. If one accepts that undeniable conclusion, then one must ineluctably conclude that there could not have been much wrong with the training of that physician!

So why should Japan seek to change a model for healthcare and a system of medical education that appears to have worked so well? The answer is to be found in the current practice of healthcare in Japan.

THE PRESENT

An Unaffordable Mix of Technology, Tunnel Vision and Maslow's Hammer

While there can be no arguing with the successes of the past, there is also considerable cause for concern as to where Japanese healthcare stands at this point in time. It is true that Japan ranks first in overall health system attainment, according to WHO, but it lags behind many other developed countries in measures of health system performance (9th) and measures of fairness of contribution to the health system (8th–11th).⁶ These two measures—one reflecting the effectiveness of healthcare being provided, and the other the social conscience of the recipients of that care—contain ominous portents for the future. They manifest in the present as a combustible mix of three elements, identified in the sub-heading of this section

(i) A Profligate Reliance on Technology

One point that is often ignored in the debate about whether a need for change exists at all is that all of the exemplary achievements in healthcare in Japan were achieved as a direct consequence of the unprecedented economic growth that followed the Second World War. The luxury of unfettered expenditures funded by historically unprecedented economic growth allowed the Japanese healthcare system to achieve the enviable status of one of the world's most technologically sophisticated. Unfortunately, this success may have reached levels that are unsustainable in today's bleaker economic climate, particularly in the context of the ageing Japanese population and the stagnant growth rate in Japan.¹¹ The seeds of future catastrophe lie in other statistics, many of which also confer pre-eminent status to Japanese healthcare in areas that are less desirable for healthcare cost containment. For instance, Japan has far and away the greatest

number of magnetic resonance imaging and computed tomography scanners per capita, and it is worse than all other developed countries in resource utilization measures such as outpatient clinic visits and length-of-stay in hospital.¹²

The reason for those decidedly less-than-stellar performance measures lies in the twin pillars that prop up the current abuse of the system: universal entitlement and fee-for-service reimbursement. On the one hand, universal entitlement provides patients with unrestricted access to the most expensive tertiary care for even the simplest problem. On the other hand, a fee-for-service reimbursement paradigm encourages profligate resource utilization by physicians for every problem, and offers no incentive for critical thinking to solve problems or to exercise restraint through judicious clinical decision making.

Either one of these twin invitations to profligacy by itself is bad enough as an incentive to abuse the system. Both together are virtual guarantors of fiscal irresponsibility. With no incentive to control costs, it inevitably induces physicians to use the most expensive technology available and to ignore the human component of patient care. Equally, it encourages patients to seek the most expensive care possible under the assumption that the right to the most advanced technology guarantees the best medical care. As a corollary to both those mindsets, it is inevitable that both parties would come to believe that the less technologically sophisticated methods used in primary care are not even desirable, let alone worthy of consideration.

The most important result of this constellation of problems is that responsible and thoughtful clinical decision making becomes an unnecessary part of healthcare. This is the conclusion of Hirose *et al* who, in a hard hitting critique,¹¹ decry the degeneration of the physician-patient interaction in Japan into a “three-hour wait, three-minute contact consultation (with an emphasis on ordering tests and prescribing drugs during the three minutes)”.

The incentive to use the most expensive technology to solve a problem, and the disincentive to think through the problem are bad enough. They lead to the inappropriate use of diagnostic and therapeutic modalities. There is an additional problem that amplifies the consequences several-fold: it is the inability to see the problem in the first place because of “tunnel vision”.

(ii) The Blindness that Results from “Tunnel Vision”

Tunnel vision is the hallmark of physicians who are unable to recognize problems outside a very narrow focus of interest. A lack of clinical judgment compounds the problem and sets the stage for unnecessary and even inappropriate use of technology, with minimal attention to clinical justification. Tunnel vision results when clinical skill, critical reasoning and thoughtful, evidence-

based decision making take a backseat in the midst of the rush to exploit new technology. The inability/refusal of the Japanese physician to even recognize that there might be a problem with such a “tech-heavy” approach is compounded by the culpability of patients in facilitating the over-emphasis on tertiary care and super-specialization in Japan.

There is no better way to summarize the gravity of the problem than with the words of Kumasaka.¹³ With forthright eloquence, he writes, “Single-minded specialization tends to produce single track minds, which may lack balanced judgment in approaching the appropriateness of both investigation and management.”

Japanese medical education creates and sustains the phenomenon of tunnel vision, since everyone in any position of influence in academia is a “single-minded” super-specialist and shares a very narrow focus and perspective, seeing little merit in the practice of general internal medicine or in the clinical problem solving skills necessary for it. It comes as no surprise, then, that everyone in Japanese academia, almost without exception, lacks both the desire and the ability to teach those skills.

My discussions with several internists have revealed that patients too perceive high quality care as being the domain of super-specialists in academic tertiary care centers, and that both the public and academia look down upon primary care physicians. The terrible consequences of such a devaluation of primary care as a whole and general internal medicine in particular become apparent if one considers a hypothetical scenario of a patient with shortness of breath.

A primary care physician, such as an internist, would perform a detailed history and physical and determine whether the dyspnea is of cardiac, pulmonary, or other origin. A differential diagnosis would be generated and the diagnostic work-up targeted to elucidating the correct cause, following a stepwise utilization of resources with the greatest positive predictive value at each stage, based on evidence. Finally, the patient would be referred, if necessary, to the appropriate specialist for a specialized test or therapeutic intervention based on the diagnosis.

In contrast, a tertiary care model (like the one that exists in academic centers in Japan), by its very nature, would *not* follow the stepwise paradigm outlined above. Instead of diagnostic interventions being based on clinical diagnostic utility, the approach is likely to be determined by the specialty interest of the physician who first sees the patient. Thus, if the patient happens to visit a pulmonologist for shortness of breath, the “three minute visit” described by Hirose *et al*¹¹ would be devoted to scheduling a CT or MRI of the chest, pulmonary function tests, or even a bronchoscopy, without any regard to the underlying cause (since there is neither the time nor the incentive to perform a comprehensive H&P). If the patient happens to see a cardiologist first, however,

the patient might be scheduled for echocardiography, a thallium stress test, or cardiac catheterization, with equal disregard to the real cause (for the same reason)!

I will defer any further discussion of this particular behavioral phenomenon until after I justify the cynicism that leads me to outline the hypothetical scenario above as I have done. My cynicism is not unfounded hyperbole. It derives from my own observations of the practice of medicine in Japan.

Two published examples will suffice to back that claim.

The first of those is the patient with bacterial endocarditis that I described in the first paper in this series.¹ He went to see a pulmonologist for a cough and fever, and was treated with oral antibiotics for a presumed respiratory infection, after what was, no doubt, a classic “three minute visit”! A second and equally stunning example of “tunnel vision” followed when the patient, who was becoming increasingly incapacitated from the hemodynamic standpoint, then visited a gastroenterologist for diarrhea, and was prescribed a change in antibiotics to treat “gastroenteritis” with dehydration!

Neither specialist made even the most rudimentary effort at taking a history. If they had, they might have discovered that the patient had a partial correction of transposition of the great vessels, and a simple cardiac examination would have confirmed the existence of multiple auscultatory abnormalities! The failure to perform something so essential and fundamental resulted in an unconscionable delay in diagnosing life-threatening bacterial endocarditis. The patient suffered a hemodynamic collapse, and was still critically ill when I saw him three weeks later. There is no doubt in my mind that this was a misadventure that was preventable if a timely diagnosis had been made.

Failure on the part of a Japanese specialist to apply appropriate clinical reasoning is similarly evident in the clinico-pathologic conference in which I participated at Keio University Hospital during my first visit in 2003.¹⁴ In that case, a patient with exertional “chest discomfort” for the preceding seven months was subjected to a left heart catheterization and an endomyocardial biopsy without performing the most basic history or physical examination! When no coronary arterial disease or other myocardial pathology was found, the patient was sent home on a dihydropyridine calcium channel blocker for presumed “variant angina”. Eight months later the correct diagnosis (restrictive cardiomyopathy from amyloid heart disease) revealed itself when the patient presented with intractable exertional dyspnea, pedal edema, rapidly worsening renal failure, and a monoclonal IgD myeloma protein in the serum. The patient died shortly thereafter and an autopsy confirmed the diagnosis.

The lack of any history and physical examination from the initial presentation makes it impossible to do

anything more than speculate about what might have been. It is not unreasonable, based on the later course, to conclude that the patient's "exertional chest discomfort" might really have been exertional *dyspnea*. Given that the patient saw a cardiologist for this symptom, and given that no history or physical examination was performed, it is almost inevitable that exertional chest discomfort would be reflexively diagnosed as angina. It is just as inevitable that the patient would get a coronary angiogram for a presumptive diagnosis of coronary artery disease. If, on the other hand, an H&P had pointed to exertional dyspnea, the correct approach would have been for the patient to get an echocardiogram. Then, the classic features of restrictive cardiomyopathy due to primary amyloidosis might have been discovered initially, instead of at the later presentation. In particular, the patient would not have been given a dihydropyridine calcium channel blocker for "variant angina". This class of drugs is specifically contraindicated in patients with amyloid heart disease because of irreversible binding to amyloid fibrils.^{15,16} It must be stated, in all fairness, that the final outcome would have been no different, given the grim prognosis in such patients, but that caveat does not justify a failure to adhere to the most basic fundamentals of clinical decision making.

The tragedy is that the mistakes made in both of the examples cited above could have been prevented, in my opinion, in a primary care model. In the first case (of bacterial endocarditis), the tertiary care model allowed each specialist to dismiss the patient's illness as a "minor ailment" in the context of his own specialty, without performing a history or physical examination. In the second case (of amyloid heart disease), the tertiary care model invited the specialist to jump to the most convenient diagnosis, and to justify the use of a favorite technology in a futile attempt to confirm it, once again without performing a proper history.

Lest it be assumed that I cite these two examples because they are the only exceptions I have encountered to a pattern of otherwise exemplary care, let me hasten to add that I have seen several others that fit the same mold during my brief visits. There was the case diagnosed as "rheumatoid pneumonitis" in a patient with rheumatoid arthritis on a Rheumatology service, and treated with high-dose steroids without giving any consideration to "community acquired pneumonia". Or the case of Wernicke-Korsakoff syndrome in a patient with alcoholic cirrhosis, dismissed as "hepatic encephalopathy" on a GI unit. Or a diagnosis of the rare variant "normotensive pulmonary edema" being made instead of recognizing pulmonary edema due to an acute myocardial infarction in a patient with IgA nephropathy on the Renal service. All of these examples came to my attention as part of routine ward rounds, and without my making any effort to find them. These cases, just as much as the two described in greater

detail above, are all excellent examples of the behavioral phenomenon that is referred to as "Maslow's Hammer".

(iii) *Maslow's Hammer*

Named for Abraham Maslow, the motivational theorist who enunciated it, Maslow's Hammer states: "If the only tool you have is a hammer, you tend to see every problem as a nail."¹⁷

The relevance of Maslow's Hammer to healthcare (and to Japanese healthcare, specifically) is best demonstrated through the hypothetical scenario described earlier of the patient who has the choice of going to either a pulmonologist or cardiologist for shortness of breath. According to the principle of Maslow's Hammer, the true nature of the problem has little relevance to the diagnostic approach that will be followed, since the pulmonologist will see the problem of dyspnea as a nail to be hit with the pulmonologist's hammer (e.g. an MRI of the chest or pulmonary function tests), whereas the cardiologist will see the exact same problem as a nail to be hit with the cardiologist's hammer (e.g. echocardiography or cardiac catheterization).

Using that hypothetical scenario as the backdrop, it is possible to identify Maslow's Hammer in operation in each of the cases cited in the previous section from my personal experience in Japan. Thus, a cardiologist sees exertional chest discomfort only as angina, and even when no coronary artery disease is found, labels it as a "variant" angina, a rheumatologist views pneumonia in a patient with rheumatologic disease only as an unusual "pneumonitis" of autoimmune origin, a gastroenterologist sees neurological dysfunction in a cirrhotic patient only as "hepatic encephalopathy", and a nephrologist sees normotensive pulmonary edema in a patient with renal disease only as a fascinatingly rare "variant" instead of an MI. In each case, one can see the way circumscribed thinking and tunnel vision drive the reflexive use of Maslow's Hammer.

The behavioral phenomenon of Maslow's Hammer is not confined only to short-circuiting critical thinking in patient care in Japan. It also has a direct bearing on the profligate misuse of technology that is bankrupting the system in Japan. The effects are particularly devastating because healthcare quality takes a backseat in the rush to exploit every high-tech resource available, with or without clinical justification. In particular, there is little financial incentive for hospitals to focus on quality or efficiency, and there are no oversight mechanisms in place at any level that might invoke some form of penalty for failure to adhere to quality control! According to Hirose *et al*, the Medical Service Law does not require accreditation or review of medical institutions, physicians and nurses are licensed for life with no mandatory requirement for license renewal or continuing education, peer or utilization review in hospitals is non-existent, and

internal performance oversight in hospitals is negligible. Finally, physician censure or license revocation is almost unheard-of.¹¹

With no institutional safeguards in place to ensure quality, providers and healthcare institutions have taken full advantage of the opportunity to exploit the unregulated “fee-for-service” system. Tokita writes: “Owing to lack of competition between both hospitals and powerless insurers—the outcome of too many regulations—there is only a small incentive to improve the efficiency and quality of medical service”.¹⁰

A picture begins to emerge of what is so wrong with the system, and why the need for reform is so urgent, if one combines all the separate elements described above into a comprehensive paradigm. The Japanese healthcare system (i) does not place a premium on clinical skills, (ii) allows unrestricted access to tertiary care, (iii) confers pre-eminent status on super-specialization, (iv) permits the use of interventions without regard to clinical justification or evidence, (v) places a heavy reliance on technology, (vi) provides no financial incentive to improve quality or efficiency, and (vii) does not provide penalties for failure.

It is this combination that presages disaster for the system in the future.

THE FUTURE

Foretelling Disaster through Hardin’s “Tragedy of the Commons”

Nomura and Nakayama¹⁶ foresee the coming ruination of Japanese health care through Hardin’s vision of a “tragedy of the commons”.¹⁷ The central thesis of Hardin’s argument was that grazing land belonging to a community (the commons), left to individual exploitation (grazing) by a group of users (herders) was overgrazed until it ultimately became a wasteland. The reason was that each individual herder, seeing himself in competition with his fellow herders for the benefits provided by the common resource, was interested only in maximizing his own use of the land for profit. Each user was oblivious to or unheeding of the consequences of his actions on the commons, because the destructive impact of an individual act of overgrazing was seen to be relatively trivial. However, the collective impact of the many repeated acts of apparently “trivial” abuse resulted in eventual ruin for all the users.

In essence, Hardin’s postulate can be generalized to any collectively “owned” resource left open to unrestricted use. Human behavior dictates that it will not be husbanded or protected because individual greed and the temptation of immediate gain trump restraint. In that context, not even the surety of long-term harm can act as a deterrent against eventual devastation of the resource. Hardin writes that, “Ruin is the destination toward which

all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.”¹⁷

Hardin’s postulate provides justification for the belief that unrestricted exploitation of a common resource, like the Japanese healthcare system, is a guarantee for tragedy. According to Nomura and Nakayama,¹⁶ the Japanese healthcare system is headed for ruin because doctors, pharmaceutical companies and medical equipment manufacturers (the herdsmen) are exploiting patients and the health insurance reimbursement system (the commons) for short-term gain. I would go even further than they do to include the patients as herdsmen, as well: with their sense of entitlement to tertiary care for even the smallest of problems, they must bear a measure of culpability in the ravaging of the commons (the healthcare system). To paraphrase Hardin, “ruin is truly the destination toward which all participants in the Japanese healthcare system are rushing, each pursuing his or her own best interest.”

Matters are not going to get any better in the future. Japan is seeing a demographic shift over the past half-century that is unprecedented in history, as it transitions from a society composed primarily of young, healthy people to one that is ageing so rapidly that it is now the world leader in highest average population age.¹¹ This inevitably means that resource consumption in healthcare will undergo an equally unprecedented increase as the population ages. Not only that, studies show that the prevalence of obesity is also on the increase in Japan,²⁰ as are obesity-related disorders, such as diabetes and hypertension,^{21,22} as well as some lesser known associations in the Japanese population like ovarian cancer.²³ The magnitude of the problem will only increase with the increase in childhood obesity now being reported in Japan.²⁴ As these trends accelerate in the coming years, the health status of the Japanese population is likely to become less an object of envy than a cause for concern. The future can expect to see a major increase in expenditure on interventions to treat problems like coronary artery disease, and the complications of diabetes and hypertension.

It is safe to assume, therefore, that the Japanese healthcare system is headed for ruin unless one of two things happens: (i) restrictions are placed on healthcare practice patterns (i.e. restricting the “freedom of the commons”), or (ii) changes are made in the way that physicians in Japan provide patient care (i.e. changing the patterns of use of the “commons”). The only question in my mind is, which of these two options should Japan choose?

Changing Medical Education To Change The Future Of Healthcare In Japan

To summarize the points made above, there are three crucial links in the chain of arguments that lead to the

conclusion that change is imperative. One is Nomura and Nakayama's belief that the financial health of the Japanese healthcare system is bleak because of profligate misuse of resources.¹⁸ The second is Hirose *et al*'s conclusion that profligate resource utilization is a result of the demise of clinical judgment in Japan.¹¹ The third and final link is Kumasaka's contention that single track specialization is responsible for both a lack of clinical judgment and inappropriate use of resources for diagnosis and treatment.¹³

The connection between the three observations is inescapable: Japanese healthcare is headed for catastrophic financial failure if healthcare practices are not changed.

How then to head off the inevitable?

The least favorable solution to the problem from my perspective is the first of the two options described above. Restricting the "freedom of the commons" would mean imposing cost controls and penalties on institutions or providers, or both, for failure to comply, and enforcing those by bureaucratic fiat. This option is not only distasteful to me, but also would be wholly unacceptable to Japanese physicians, and probably to the public at large. It would thus border on political suicide for any government to even consider such draconian measures.

The only viable solution, therefore, is to change the pattern of use of the "commons".

In an ideal world, all Japanese physicians would magically agree to change their practice habits and become more clinically judicious and evidence-based, and thus more fiscally responsible. It would mean that the system itself would require little or no modification and that cost control would become a matter of each individual physician's moral obligation.

The problem is that Hardin's postulate deals with the real world, not the ideal! In the first place, the current generation of physicians is not equipped to practice in the manner necessary for this to work, given the education and training they have received. Even more importantly, the likelihood of this happening, given the reality of Hardin's "tragedy of the commons", is nonexistent. Thus, it is a utopian dream and, although perfect from the theoretical standpoint, so impractical as to be almost foolish to contemplate.

If draconian measures are unpalatable, and utopian dreams are impractical, then realistic solutions are all that are left. It leads to the only possible conclusion: that the problem of the future must be solved by preparing the physicians of the future to deal with the problem the right way. Kumasaka writes, "For continuity of care and containment of costs... a broad medical education is an invaluable investment".¹¹

The wisdom of that statement lies in the adjective "broad", because a "broad" medical education is crucial for primary care. It is the key to preventive interventions in a wide variety of conditions that would otherwise re-

sult in complications that cost several times more to treat than to prevent. It also epitomizes the reason the medical education system must change: without a broad medical education, future generations of graduates will not be equipped to face the challenges and perils that face the Japanese healthcare system. Without it, there will be no way to save it in a form that resembles anything like that which exists today.

To achieve that, it is essential to realign medical education in Japan by adopting a curriculum that is less devoted to specialty care, and more to primary care. The focus must shift to inculcating clinical skills and encouraging the use of evidence-based medicine to guide diagnostic and therapeutic decision-making in the next generation of physicians. If, in the process, a greater appreciation and respect for primary care is also instilled, so much the better, but the main focus should be on learning clinical problem solving skills that are the foundation for responsible clinical practice, regardless of specialty choice.

It is important to note that the solution does not require major structural changes in the Japanese healthcare system. It only requires a change in emphasis in medical education to emphasize the skills that are needed for primary care. The solution also fits well with the fact that the backbone of the current system is the vast majority of graduates of Japanese medical schools who provide primary care to the public, for the most part in non-academic settings. The great mystery is that they are doing so without any instruction on how to provide effective primary care. I can only imagine how much better things will be if medical education in Japanese schools actually adapts to meet their needs, instead of being focused almost exclusively on specialists who provide tertiary care.

The focus of the medical education system must shift to teaching clinical problem solving skills to its graduates. The Blueprint for Reform that I put forward in an earlier report² describes most of what must be done to achieve this. Four of these are obvious: (a) problem-based learning, (b) case-based learning, (c) interactive teaching to make learning fun, and (d) clinical skills training with an emphasis on general internal medicine. Add to these a fifth, (e) the teaching of evidence-based medicine, and Japanese medical education will be transformed into the engine that drives the Japanese healthcare system into the twenty-first century, as a major player on the global market.

That is the argument that must win the day. Only then will the naysayers and doubters be forced to give ground in the face of the determination to change. It is the reason that the traditional approaches to medical education and practice in Japan must be abandoned and new perspectives and attitudes must be cultivated. The alternative does not bear consideration by anyone who has in mind the collective good of the Japanese healthcare system,

and of the Japanese people.

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