

A chronicle of organ transplant progress in Japan

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Abstract. This study records the progress of organ transplantation in Japan by reviewing significant developments in five areas: actual transplant legislation; landmark cases notably affecting public impressions of organ transplants; efforts to establish brain death criteria; action on the part of the Japan Medical Association; and current attempts to legislate on brain death. The account demonstrates how the notions of both brain death and heart transplantation have met with strong resistance. The first and only heart transplant occurred in 1968. Through its historical emphasis, this report reveals that, although opposition has not impeded transplant research, the determination of death and the idea of heart transplants remain highly controversial due to specific religious, philosophical, and cultural factors.

Key words: Japanese organ transplants – Brain death in Japan – Organ transplantation in Japan

At the time of this writing, an interim report on brain death and organ transplantation is expected to be announced by a special Provisional Commission in Japan. This Commission, chaired by Dr. Nagai Michio, was established through the office of the Prime Minister in early 1990. It represents the culmination of an enduring controversy within the country over the acceptance of brain death and organ transplantation. Not only is there an absence of brain death legislation, but heart and liver transplants are strictly prohibited. To date, the only organs which can legally be transplanted are cornea and kidneys. Moreover, an exceptionally high percentage of kidney sources are from living related donors, few from cadavers. In this respect, Japan appears as an anomaly among highly industrialized and medically sophisticated nations. Within the past decade, pressure has been strongly exerted upon the government to evaluate the situation. In 1988, the

Japan Medical Association issued its “Final Report” encouraging brain death legislation and organ transplantation. In addition, Japanese nationals continue to seek heart and liver transplants abroad, and the accompanying media attention to this most likely contributes to heightening national sensitivities and debate.

My study records the evolution of organ transplantation as it has occurred in Japan, and was part of a presentation I delivered to associates and staff members of the Center for Medical Ethics at the University of Pittsburgh in July 1991. During that session, I also discussed particular reasons which seemed to underlie the opposition among Japanese to both brain death and heart transplants. This study primarily addresses the complex historical development over the past three decades. I hope to provide the reader with a disentangled framework. As a further aid, a chronological outline of this development is appended to this article.

Instead of merely submitting a routine narration of significant events and counterevents, I have elected to provide an account within five distinct categories: (1) actual organ transplant legislation, (2) watershed transplant cases, (3) brain death criteria studies, (4) Japan Medical Association efforts, and (5) current potential legislation. With this approach, the reader may acquire a more systematic appreciation of the history as well as a balanced awareness of the various factors both promoting and hindering organ transplant progress in Japan.

Actual legislation

As stated above, only two organs can legally be transplanted in Japan: cornea and kidneys. And only a pair of laws have been enacted which deal directly with transplantation. The first, An Act Relating to Cornea Transplantation, was passed in 1957 (Table 1). This Act authorized cornea transplants under two conditions. First, the operation could take place only with the consent of the family. Second, there had to be a specific recipient selected at the time of organ removal [4]. Though rigid, this

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Table 1. Organ transplantation in Japan: a chronological outline

1956	First kidney transplant in Japan; rescue therapy for acute renal failure, by Kusunoki	1986	Japan Medical Association (JMA) sets up ad hoc committee, Bioethics Discussion Group, for brain death and organ transplant investigation
1957	An Act Relating to Cornea Transplantation		Dr. T. Ochiai, Chiba University, reports on immunosuppressive effects in vitro and in vivo of FK-506 at 11 th International Congress of Transplantation Society (first symposium on FK-506, organized by T. E. Starzl)
1964	Japan Society for Transplantation founded First kidney transplant for end-stage renal disease, by Kimoto First liver transplant, performed by Nakayama		
1968	Total coverage for dialysis expenses through social health insurance First successful cadaveric kidney transplant reported	January 1987	Japanese Society of Obstetrics and Gynecology provides guidelines for organ use from dead newborns and dead fetuses
August 1968	Japan's first heart transplant, Sapporo Medical College, by Wada Juro. Heart from 18-year-old male drowning victim Investigation of operation: surgeon charged with murder Ad Hoc Committee on Brain Death established by Japanese EEG Society	March 1987	Bioethics Discussion Group's interim report on brain death
October 18, 1969	In Tokyo, first public meeting defending rights of patients	June 1987	Prime Minister's Office public opinion poll on brain death along with Bioethics Discussion Group's interim statement
1974	Ad Hoc Committee on Brain Death (EEG Society) publish criteria for determining brain death	1987	Four-year-old Eigi Sawai undergoes successful liver transplant at Children's Hospital of Western Ontario in London, Ontario (more Japanese nationals seek transplants abroad)
1977	Government-supported kidney bank initiates donor card system	January 12, 1988	"Final Report on Brain Death and Organ Transplants" submitted by Bioethics Discussion Group (Katō Ichirō, Chair) of JMA
April 1977	National registry for renal transplantation at Institute of Medical Sciences, University of Tokyo, and Organ Transplant Data Center of University of Tokai	May 1988	Niigata Prefecture hospital group performs kidney transplant from brain-dead patient; group is later censured Patients' Rights Conference instigates legal action against Niigata group
1979	An Act Concerning the Transplantation of Cornea and Kidneys. Passed just after the inauguration of a National Center of Kidney Transplantation	June 1988	Japanese Society of Psychiatry and Neurology oppose JMA redefinition with published report
March 1980	Above law first enforced, and cadaveric kidney transplant legally accepted	July 15, 1988	Japan Federation of Bar Associations provides negative opinion of JMA report
1980	Law enacting procurement of organs only through authorized organ banks; sale of organs prohibited	Summer 1988	Liberal Democratic Members of Parliament visit France, Holland, Sweden, Britain, and USA to look into brain death and organ transplant procedures
December 11, 1981	Eight-year-old girl receives renal transplantation from anencephalic baby at Nagoya University Hospital	1988	Newspaper <i>Asahi Shimbun</i> public opinion poll shows 42% opposed to brain death criteria, 43% in favor
1982	Cyclosporine (CyA) first introduced in Japan as clinical immunosuppressive drug <i>Streptomyces tsukubaensis</i> strain (FK-506) extracted by Goto et al., Fujisawa Pharmaceutical Co.; further studies at Pittsburgh University, Cambridge University and Chiba University	October 1988	NHK (Japanese public broadcasting) poll on brain death/transplant shows 38% in support
1983	Brain Death Study Group (Dr. Takeuchi, Chair) organized through the Ministry of Health and Welfare (MHW) to re-evaluate 1974 criteria	1989	Same Niigata group performs second kidney transplant from brain-dead patient Japan Organ Transplantation Society hold 14 open symposia throughout year on brain death and organ transplantation
1984	Japan Society for Transplantation and The Transplantation Society forbid members to participate in commercial transactions of organs	February 1989	Legislation on brain death presented to Diet; special investigatory panel on brain death and organ transplants to be set up
March 1, 1984	Six-month epidemiological study (multi-institutional) of reported brain death cases begins; later results in new revised criteria	November 1989	Twenty-one-month-old boy first to receive liver from living donor (part of father's liver), Shimane Medical School hospital
November 1984	Newspaper <i>Yomiuri Shimbun</i> public opinion poll indicates nearly 40% of Japanese strongly opposed to recognizing brain death	March 1990	NHK poll on brain death/transplant shows 41% in favor
December 1984	Japan's first multiple transplant; kidneys, pancreas, corneas from 43-year-old woman. Performed by Drs. Iwasaki Yoji, Fukao Katashi, and Nose Tadao at Tsukuba University Patients' Rights Conference (Tokyo University Hospital, 17-member) files complaint with prosecutor's office; indictment for murder	June 1990	Three successful liver transplants from living donors, Kyoto University and Shinshu University schools of medicine
February 1985	Diet members establish a Life Ethics Study Parliamentarians League, composed of 28 Dietmen and 45 other officials as well as professionals	August 1990	Bioethics Committee of Osaka University School of Medicine approves transplantation from brain-dead donors
December 1985	Brain Death Study Group of MHW announce new revised criteria for brain death MHW approves CyA	September 1990	Committee from Japanese Association of Indian and Buddhist Studies issues interim report opposing brain death/transplants
		October 1990	NHK poll on brain death/transplant shows 47% in favor
		1990	Provisional Commission for the Study of Brain Death and Organ Transplantation (Dr. Nagai Michio, Chair) established through Prime Minister's office. Interim report expected in summer 1991 Provisional Commission poll of professionals shows 65% in support of brain death/transplant

statute remained in effect until 1979, during which time, however, other types of transplants occurred. In fact, the first kidney transplant was actually effected in 1956 by Dr. Kusunoki as a rescue therapy for kidney failure. Dr. Kimoto performed the first kidney transplant for end-stage renal disease (ESRD) in 1964. 1964 also saw the first and (until recently) only liver transplant, performed by Dr. Nakayama [14]. Kidney transplants, primarily for ESRD, became more prevalent. 1977 witnessed the initiation of a donor card system sanctioned by the government. In that same year, a national registry for kidney transplantation was established, coordinating efforts at the Universities of Tokyo and Tokai. Despite these projects, along with 22 kidney banks and over 30 hospitals with kidney transplant programs, Japan has one of the highest per capita use of dialysis machines in the world, with a disproportionately small percentage of renal transplants annually. In 1988, 11 895 of the 88 534 chronic dialysis patients were on the waiting list for kidneys from cadavers. Yet the average number of cadaver kidney transplants in Japan remained under 200 per year [1, 8].

The second official decree legislating organ transplants took place in 1979. An Act Concerning the Transplantation of Cornea and Kidneys followed the inauguration of a National Center of Kidney Transplantation. A further incentive came that same year when insurance coverage was extended to include kidney transplants. The two stipulations of this Act were that family consent had to be obtained, and that no explicit recipient was needed at the time of removal. Accordingly, modifications involved the official recognition of kidney transplantation and the non-necessity of a specific beneficiary. Another law relating to this emerged the following year, enacting the procurement of organs only through authorized organ banks, and prohibiting the commercialization of organ donation. This ruling remains as the last piece of legislation on organ transplants in Japan.

Landmark cases

Two significant incidents have persisted in the public memory with an indelible effect upon attitudes toward brain death and organ transplantation. One case in particular has endured which has evoked intense reactions from professionals and public. In August 1968, Japan's first and only heart transplant was performed at Sapporo Medical College by Dr. Wada Juro. The heart of an 18-year-old drowning victim was transplanted into a young man with mitral incompetence who then survived for another 83 days. A number of critical questions were raised, some still not resolved. Since brain death was not officially established, many considered the extraction of the still beating heart to be comparable to murder. There was a lack of adequate documentation as to the specific brain death criteria utilized. Insufficient information about the recipient's medical history and diagnosis sparked further doubts concerning the justifiability of the operation. In addition, a conflict of interest was suspected since members of the transplant team were also involved in declaring the patient dead [3, 4, 17]. Kimura Rihito adds further ele-

ments to the case: the medical professionals on the whole did not condemn the operation, and Dr. Wada did not make any public apology [11]. The power of apology in Japanese cultural behavior is significant. The feeling of betraying the group, integral to the Japanese sense of guilt, or *sumanai*, is expressed naturally in the apology. Reaction to the operation was both swift and far-reaching, especially in reinforcing any public mistrust of physicians' use of advanced medical technology. The conventional deference to medical authority was now seriously impaired.

After an intense investigation of the case, Wada was eventually acquitted despite on-going media censure and accusations of murder. Many critics appealed to traditional beliefs about death, and claimed that, since the heart of the accident victim was still beating, he was still alive. A number of factors play into this consideration, purportedly stemming from the religious beliefs of Shinto and Buddhism, philosophical and cultural dispositions, and a Confucianist morality. The interpretation of death and attitudes toward the dead body in accordance with ingrained belief systems were, and continue to be, a major determinant here. In addition, the growing suspicion, fed by media coverage, that there were underlying mixed motives exacerbated a distrust of physicians. The fact that there was no official apology may have implied to many Japanese that Dr. Wada and his team were not willing to assume any responsibility at all for what was perceived as an outrage. In the opinion of many medical professionals, the case illustrated the urgency of adopting uniform standards for brain death as a clinical gauge so that the necessary heart transplants could occur. As we shall see in the next section, this case inspired prolonged efforts to arrive at brain death criteria by the Japanese Electroencephalography Society and the Ministry of Health and Welfare. Regardless, after this operation, heart transplants in Japan were de facto banned.

The Wada case certainly did not inhibit transplant research. After initial-phase trials and experimentation throughout the 1970s, the early 1980s witnessed the effectualizing of immunosuppressive agents. At this time, cyclosporine (CyA) was first introduced in Japan as a clinical drug for its immunosuppressive qualities. In 1982, *Streptomyces tsukubaensis* strain, or FK-506, was extracted by researchers at Fujisawa Pharmaceutical Company [5]. It is ironic that FK-506, a controversial yet effective immunosuppressive drug used in transplantation, found its origin in a country which has not allowed a heart transplant since 1968.

The second landmark transplant operation, perhaps equally symbolic, took place in December 1984. Japan's first multiple transplant was performed from a 43-year-old woman by Drs. Iwasaki Yoji, Fukao Katashi, and Nose Tadao at Tsukuba University. It was the first combined kidney/pancreas transplant and the recipient was a 29-year-old suffering from diabetic nephropathy. (The donor's corneas and other kidney were also used for other patients.) Again, this operation aroused negative reactions from both professionals and laypeople. Because the donor's heart was still beating, charges of murder were filed by the Patients' Rights Conference (PRC),

a 17-member group from the prestigious Tokyo University Hospital. Claiming this was her wish, the woman's husband consented to the organ donation after she had gone into deep coma. In addition, the donor herself had been a neuropsychiatric patient suffering from cerebrovascular disease. Honda Katsunori, a representative of the Patients' Rights group, related the following problems in the case: "(1) the possibility that necessary treatment for the basic disease of the donor was abandoned; (2) transplant from a brain-dead patient before the establishment of the criteria of brain death; (3) discrimination against the psycho-handicapped whose medical-legal competence was questionable, and the validity of the consent obtained from the guardian; (4) the adequacy of the selection of the recipient, who could have survived longer if treated conventionally, with insulin and haemodialysis, for example" [7]. The case is still under consideration.

Again, the public's traditional faith in and respect for the authority of the medical profession was further eroded. Since brain death was still not established, people became more suspicious of the motives of transplant surgeons. At the same time, despite the growing tide of outspoken criticism from groups like the Patients' Rights Conference, others within the medical community more openly advocated brain death legislation and organ transplantation. After the Tsukuba case, public opinion polls, not to overstate the case, revealed only a slowly increasing endorsement. Debate on certain issues became more public. There were strong beliefs regarding proper treatment of the dead body. In the important distinction between *shitai* and *itai*, *shitai* simply pertains to the corpse as a dead body. On the other hand, *itai* denotes the relationship between the survivors and the spirit of the dead concretized through the treatment of the remains, or *shitai* [12]. It is this relationality between the living and the deceased, as well as solidarity among the survivors, which needs to be more fully comprehended if one is to gain a better sense of some of the opposition to organ transplants. Conflicting ideas about the definition of death, notions of self, the rights and duties of patients, and the obligations of physicians further underscored the controversy.

It is still unclear whether the criticisms in the Wada and Tsukuba cases stem from objections to the concept of brain death per se or to organ transplants, particularly heart and liver. The two concerns intersect within a bedrock of religious, philosophical, and cultural perspectives. Nevertheless, both camps have articulated their positions. Support for brain death legislation and organ transplants has emanated from a strong core within the Japan Medical Association. Portions of the Liberal Democratic Party have also expressed their backing. In summer 1988, Liberal Democratic Members of Parliament visited Holland, France, the United States, Britain, and Sweden to inquire into prevailing attitudes toward brain death and to look into organ transplant procedures. On the other hand, opposition has surfaced from groups such as the Patients' Rights Conference, the Japanese Society of Psychiatry and Neurology, the Japan Federation of Bar Associations, and a committee from the Japanese Association of Indian and Buddhist Studies.

Despite this resistance, two transplant operations were recently performed in Niigata Prefecture which have incited reaction and debate even further. In May 1988, a surgical team in Niigata performed a kidney transplant from a brain-dead patient. Predictably, the Patients' Rights Conference pursued legal action against the physicians involved. A year later, the same Niigata group flew in the face of convention and law when it performed another kidney transplant from a brain-dead patient. According to family members of the patient, the operation was in accord with the patient's wish. Amidst all this agitation, current steps have finally been initiated to promote legislation of brain death. In the meantime, it will be interesting to see if further radical actions occur.

Establishing brain death criteria

Efforts to investigate and establish the criteria for brain death came from two groups: the Japanese EEG Society and the Ministry of Health and Welfare. Shortly after the Wada case in 1968, an Ad Hoc Committee on Brain Death was organized by the EEG Society. The Committee embraced a rather general statement on brain death. Six years later, this definition was reviewed, and after 200 brain death cases were evaluated, more precise standards were published. The Committee, however, limited its definition of brain death to cases involving "gross acute primary lesions". The following attributes were "mandatory criteria" for establishing brain death (not strictly applied in cases of cerebral anoxia, hypothermia, acute intoxication, and cases in children): deep coma, apnea, bilateral dilated pupils, absent pupillary and corneal reflexes, abrupt fall in blood pressure with persistent hypotension, isoelectric EEG. All of the preceding must have been present for at least 6 h [16].

Since these measures applied only in cases of primary brain lesions, it was later considered essential to reevaluate them to include secondary lesions as well.

In 1983, the Ministry of Health and Welfare created a Brain Death Study Group, chaired by Dr. Takeuchi. With the intention of appraising the 1974 criteria, the group coordinated a 6-month epidemiological study reviewing over 700 cases of brain death from both primary and secondary lesions. In December 1985, the Brain Death Study Group announced its new revised criteria. Basically, the 1974 standards were upheld along with some modifications:

Prerequisite. Known irreparable organic brain lesion, detected by computerized tomography.

Exclusion. Children under 6 years of age, hypothermia, drug intoxication, endocrine and metabolic disorders.

Criteria. Deep coma, 300 Japan coma scale, 3 Glasgow coma scale; apnea confirmed by apnea test; bilaterally fixed pupils larger than 4 mm in diameter; absent corneal, ciliospinal, oculocephalic, vestibular, pharyngeal, and cough reflexes; isoelectric electroencephalogram.

Duration of observation. Six hours, or longer if necessary [16].

Note that the above criteria introduced a few changes from the 1974 document. Cases of cerebral anoxia were now included. The “abrupt fall in blood pressure with persistent hypotension” was deleted. More importantly, the need for certainty was illustrated by requiring total absence of the different cephalic reflexes: This stipulation reflected the prevailing desire to be as free as possible from mistaken judgement when it comes to determining death. Of course, the absence of such strict gauges in 1968 did not help the cause of Dr. Wada and others for heart transplantation. Nevertheless, this bid to determine specific criteria was a pioneering venture by the Ministry of Health and Welfare to pave the way for more public acceptance of brain death and transplants. The 1985 criteria remain in effect, and even though it carries no legal weight, the Study Group’s judgment is allegedly respected in nearly 70% of the larger Japanese hospitals and university medical centers [16].

Throughout the literature, the need for public acceptance of brain death has been continually underscored. It is interesting to note that two transplant surgeons who were originally members of the Brain Death Study Group resigned before the group publicly announced its revised criteria. One reason for their resignation might have been to weaken potential public criticism of the findings based upon mistrust of physicians’ research motives, and to thereby enhance public acceptability. This social consensus factor has played a strong hand throughout the brain death and transplant controversy. The significance of a shared consensus has a long history in Japan. Decision by unanimous consent has held a privileged position within public morality and policy-making. Perhaps the resignation of the two transplant surgeons was an instance of *nemawashi*, or establishing the groundwork through confronting possible opposition before the actual decision. In any case, Katō Ichirō, who later chaired the Bioethics Discussion Group of the Japan Medical Association, claims that it is precisely this inclination for consensus which has been the biggest obstacle to brain death acceptance and legislation. He argues that the notion of consensus is not only philosophically vague, but based upon an emotional bias, or preoccupation with the “myth of Japanese togetherness” [9]. The issue of consensus requires subsequent examination as it may shed more light on an elemental trait of Japanese culture.

Japan Medical Association

Since its inception, the Japan Medical Association (*Nihon Ishikai*) has had a protracted history of political involvement. Its interactions with various other interest groups (*atsuryoku dantai*), different political parties, and labor unions exemplify the intricacies of its activities. Moreover, it demonstrates the centrality of interest group activity when it comes to the politics of health care in Japan [15]. In 1986, shortly after the Ministry of Health and Welfare’s Brain Death Study Group announced its new revised criteria, the Japan Medical Association finally assumed the initiative and organized an ad hoc committee, the Bioethics Discussion Group, to resolutely investigate

brain death and organ transplants. In recent decades, the Japan Medical Association has taken its role as a shaper of public opinion more seriously. Installing this committee was, therefore, a rather critical first step by the Association in its effort to achieve some social consensus over brain death. Indeed, with specialists in cultural anthropology, industry, philosophy, molecular biology, and literature along with a pair of lawyers and physicians, the strikingly interdisciplinary nature of the Discussion Group could possibly win more public approbation [10].

In March 1987, the committee submitted its interim report on brain death and, as anticipated, endorsed brain death legislation. A few months after the report, the office of the Prime Minister conducted a public opinion poll relating to the Group’s interim statement. According to the poll, 24.1% were opposed to brain death, 23.7% were in favor, and 36.7% indicated that the wishes of the family should be the determining factor (the remainder were undecided). Katō Ichirō, the chair of the Bioethics Discussion Group, considered that the poll’s results indicated that 60.4% expressed a “conditional” support for the idea of brain death. His interpretation, however, conflicted with that of leading newspapers *Nihon Keizai Shimbun* as well as *Mainichi Shimbun*’s claim that there was no national consensus on the matter [9]. This demonstrates all the more that the idea of consensus remains inexplicit and requires meticulous clarification. Yet the spirit of consensus continues to act as a powerful rationale for many Japanese.

On January 12, 1988, the Bioethics Discussion Group submitted its “Final Report on Brain Death and Organ Transplants”. Its recommendations were stated verbatim by Kimura:

“(1) Brain death (i.e., irreversible dysfunction of the entire brain) should be recognized as the death of an individual, in addition to the traditional cardiopulmonary criteria.

(2) The minimum standard for brain death should be based on a standard adopted by the Special Task Force on Brain Death within the Ministry of Health and Welfare (chaired by Kazuo Takeuchi).

(3) The determination of death by brain criteria should be provided by physicians who respect the patient’s and/or family members’ wishes as evidenced by informed consent.

(4) Determination of death by applying whole brain criteria is justified socially and legally if (i) it is grounded in the consent of the patient, (ii) it is determined by an appropriate method, and (iii) it is carried out by a physician in accordance with the guidelines of the Japanese Medical Association.

(5) The time of death should be recorded no later than six hours after the initial determination of brain death.

(6) Organ transplantation should be performed according to the guidelines of the Japanese Transplantation Society, which require informed consent by the donor or the donor’s family, and the recipient or the recipient’s family [11].”

The intent behind the Report was clear; it was a concerted effort to induce a consensus especially among the public for brain death and organ transplants. However, a reading of the document reveals that in doing so it attempted to reconcile two seemingly mutually exclusive views: while it advocated the acceptance of brain death criteria and organ transplantation, at the same time it also respected the choices of individuals and families. In this effort to achieve consensus, such a compromise could naturally raise further legal and philosophical quandaries.

Opposition to the Report came from some professional organizations. In June 1988, the Japanese Society of Psychiatry and Neurology opposed the Japan Medical Association statement in a published paper. Yamauchi outlined its criticisms:

It is difficult to decide when the brain function is irreversibly lost.

It is fundamentally doubtful whether doctors alone should have the power to determine brain death as human death.

A system has not yet been established in Japan to prevent pressure on donors and to preserve the rights of the weak, such as patients with mental disorders, at the time of transplantation [17].

Protests were also voiced by the national legal group. The Japan Federation of Bar Associations circulated its negative opinion of the Medical Association's report, fearing situations that could lead to the exploitation of patients' rights, and expressing the need for a clear social consensus to exist before actual legislation of brain death would come about [2]. The insistence upon consensus, signifying an abiding custom, has endured as a major impediment to brain death legislation.

Reaction to the Bioethics Discussion Group's statement was not only dissenting. A few months after the Report, the Niigata hospital group performed its kidney transplant from a brain-dead patient, for which the Patients' Rights Conference sought legal action. The Liberal Democratic Party was motivated enough to send representatives to other countries for fact-finding and comparative studies of brain death protocol and transplant procedures. There were major efforts to enlighten the public (and thereby establish consensus). For example, throughout 1989, the Japan Organ Transplantation Society sponsored open symposia dealing with brain death and organ transplants. In November 1989, the first segmental liver transplant occurred, and broke the prevailing taboo on liver transplants since 1964. This occurred at Shimane Medical School Hospital when a 21-month-old boy received a section of his father's liver. As of January 1991, there have been 16 reported cases of segmental liver transplants in Japan [11]. In more recent endorsements, some prestigious hospitals announced support for the Japan Medical Association's position. In August 1990, Osaka University School of Medicine's Bioethics Committee openly declared its approval of transplantation from brain-dead donors. Popular support also appeared to escalate somewhat. NHK (Japanese public broadcasting) polls taken in October 1988, March 1990, and October 1990 showed public support of brain death as 38%, 41%,

and 47% respectively [11]. Many opposing brain death, however, felt this was hardly enough to constitute a national consensus.

Current potential legislation

Mounting pressures upon the Japanese government for brain death legislation were generated both internally and externally. There was evident support within the professions, disclosed at 65% by a 1990 government commission poll. Along with this, the increasing numbers of Japanese placed on waiting lists for heart and liver transplants abroad probably became more of a source of embarrassment for the government of one of the world's most advanced medical-technological countries. It was disclosed that by 1987, 22 Japanese had gone to Australia for liver transplants, and that 40 children with biliary atresia had also sought transplants overseas [2, 17]. In 1987, 4-year-old Eigi Sawai's successful liver transplant at the Children's Hospital in Western Ontario was later made into a television documentary, itself a sign of the undercurrent of discontent with the brain death/organ transplant predicament in Japan [6]. Furthermore, media attention to the death of a Japanese waiting for a heart transplant in London, along with other scenarios, helped bring the dilemma more under public scrutiny.

Nevertheless, the Japanese Society of Psychiatry and Neurology, the Japan Federation of Bar Associations, and the Patients' Rights Conference persisted in their objections. In September 1990, a committee from the Japanese Association of Indian and Buddhist Studies distributed its text opposing brain death and transplants [13]. In the same year, the government established its first Commission to review existing procedures in other countries, provide recommendations, and conceivably initiate legislation. This Provisional Commission for the Study of Brain Death and Organ Transplantation was founded through Prime Minister Kaifu Toshiki's office. An interim report was to be announced in the summer of 1991. Even though this is the first government board of its kind, it carries on the sustained effort to realize some sort of consensus which may eventually lead to an official ruling. As the account of this struggle indicates, however, it may not be an easy passage. Opposition continues to be expressed by both professional and religious groups. Specific religious, philosophical, and cultural factors underlying their resistance have only been touched on in this cursory study and demand further analysis. Japan's struggle with the issues of brain death and organ transplantation remains a paradigm which illustrates how deeply rooted beliefs and value systems can play an integral role in the evolution of medical practices.

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Note added in proof: In early May 1992, NHK (Japanese public television) announced efforts to legislate brain death. Yet, legislation concerning transplantation has not come about. Attempts will be made at the next session of the Diet.