

# Measures to Address the Manpower Shortage in Anesthesiology in Japan

JMAJ 50(4): 325–329, 2007

Junzo TAKEDA\*<sup>1</sup>

## Abstract

The shortage of anesthesiologists affects the very core of emergency medicine—the operation of surgical units and safe management of patients—and is a problem that strongly influences the ability of emergency hospitals to survive. Thus the shortage of anesthesiologists has come to be seen as a problem for society as a whole. The Japanese Society of Anesthesiologists (JSA) has issued the “Japanese Society of Anesthesiologists Recommendations to Address the Manpower Shortage in Anesthesiology,” the recommendations including an analysis of the current situation as well as countermeasures. The recommendations indicate that the shortage of anesthesiologists has occurred as supply has been unable to keep pace with a rapid surge in demand and proposes that the problem be solved in the long term by increasing the number of anesthesiologists and in the short term through such measures as encouraging female anesthesiologists who are taking a break from medicine to raise children, etc. to return to the field and retraining registered anesthesiologists who are not JSA members, in addition to lightening the burden on existing anesthesiologists and increasing the number of surgeries through the improved efficiency of surgery unit operation and related duties and co-medical cooperation. Maintenance of the safety of medical care involving anesthesiology is desired by the general public, and fulfilling the demands of the general public will raise society’s valuation of anesthesiologists and by extension lead to an increase in the number of anesthesiologists overall.

**Key words** Shortage of anesthesiologists, Registered anesthesiologists, Recommendations

## Introduction

The 2004 Survey of Doctors, Dentists, and Pharmacists conducted by the Ministry of Health, Labour and Welfare (MHLW) found that anesthesiologists comprised a mere 3.7% of doctors working in hospitals and 2.5% of doctors working in other medical facilities. Because the shortage of anesthesiologists has serious repercussions for the safety of patients in surgery amidst a rise in the number of surgeries being performed, this shortage has become a social issue.

The Japanese Society of Anesthesiologists (JSA) began early to address the problem of the shortage of anesthesiologists. Because initially there was no even sufficient documentation to show whether or not there was indeed a short-

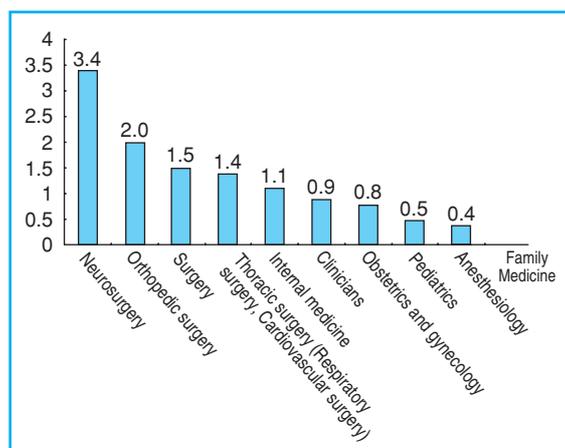
age of anesthesiologists, the society began conducting a questionnaire in 2003 and based on these results published the “Japanese Society of Anesthesiologists Recommendations to Address the Manpower Shortage in Anesthesiology” in February 2005.<sup>1</sup> Because it is necessary to fully understand the reasons for the shortage in order to formulate countermeasures, the recommendations include an analysis of the current situation as well as countermeasures. Detailed documentation regarding the questionnaire results was published in January 2006.<sup>2</sup>

## The Current Situation Regarding the Shortage of Anesthesiologists

It is not uncommon for “shortage of anesthesiologists” to be confused with “decrease in the

\*1 Department of Anesthesiology, School of Medicine, Keio University, Tokyo, Japan (jtakeda@sc.itc.keio.ac.jp).

This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol.135, No.4, 2006, pages 813–816).



**Fig. 1 Comparison of the number of doctors in Japan and the United States for each medical department: The number of doctors in Japan if the number of doctors in the United States per capita is 1**

Note 1: United States data is the number of doctors specializing in each department as of June 2004 (in the United States, approximately 90% of doctors have specialist certification).

Note 2: Japanese data is for the "Main Medical Departments" based on the results of the 2002 Survey of Doctors, Dentists, and Pharmacists.

Note 3: In the United States, a distinction is made between Family Medicine (65,000 doctors) and Internal Medicine (161,000 doctors). If Family Medicine is included in Internal Medicine, the ratio of Japanese to United States doctor numbers is 0.75.

Note 4: Simple comparison of doctor numbers between the United States and Japan is difficult because in the United States, Physician's Assistants and Nurse Practitioners perform some duties which would be performed by doctors in Japan and because the classification of medical departments differs between the two countries.

Note 5: In the United States, medical boards (medical specialist certification committees) for each medical department play a central role in the implementation of the Resident Program, which is a prerequisite to specialist certification. Because there is limitation on the number of residents in each program, it is not possible for doctors newly entering such programs to freely choose a department of specialization.

Source: "2nd Review Committee on the Demand for Doctors" documents. Ministry of Health, Labour and Welfare

number of anesthesiologists." The MHLW survey included a comparison of the number of doctors per capita in Japan and the United States which showed that for anesthesiology, if the United States is 1.0, Japan is 0.4—the lowest number of all (Fig. 1), but in Japan in 1996 there were 4,800 doctors working mainly in anesthesiology and by 2004 this number had increased to 6,000 (Table 1). Furthermore, membership of the JSA, board certified specialist anesthesiologists and

**Table 1 The number of doctors working mainly in anesthesiology**

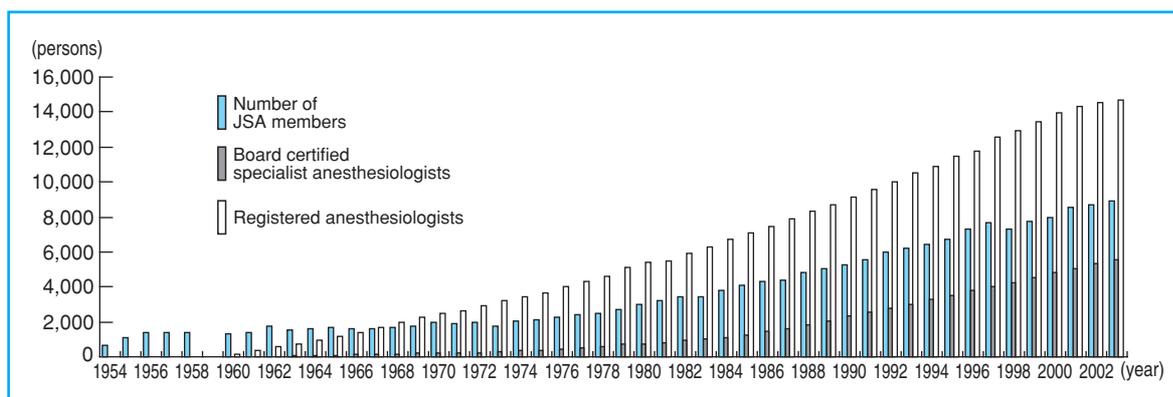
Year	Hospital (persons)	Clinics (persons)	Total (persons)
1994	4,504	179	4,683
1996	4,804	242	5,046
1998	5,315	270	5,585
2000	5,443	308	5,751
2002	5,748	339	6,087
2004	5,998	399	6,397

Source: "2004 Survey of Doctors, Dentists, and Pharmacists." Statistics and Information Department, Ministry of Health, Labour, and Welfare.

registered anesthesiologists have continued to increase (Fig. 2).

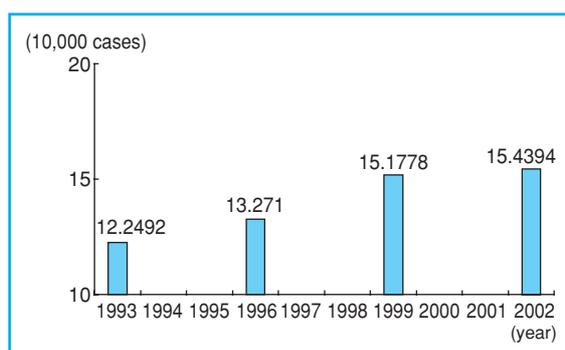
This shortage of anesthesiologists despite an increase in their number can be said to be due to growth in the phenomena of demand for anesthesiologists outstripping the growth in their supply as a result of year-on-year increases in the number of operations performed (Fig. 3), intensive end emergency medical care, and the expansion of the scope of anesthesiologists work to pain clinics and palliative care. In the MHLW data mentioned above, 2,182 medical facilities had anesthesiology departments in 1996, but this number had risen to 2,510 by 2004. The incidence of anesthesia-induced deaths at training hospitals where there are board certified specialist anesthesiologists is very low—0.1 in 10,000—due to improved monitoring and the spread of specialist anesthesiology training. However, with the aging of society there has been an increase in the number of patients experiencing serious complications and more and more voices demanding greater patient safety, and consequently there has been increased demand for specialization in anesthesiology from the standpoint of medical safety and a subsequent decrease in the number of anesthesia administered by non-anesthesiologist doctors who specialize in another field of medicine. Although the true situation cannot be known, it is certain that, in contrast to the figures showing a mere 2–3% of doctors specializing in anesthesiology, a great number of surgeons have been involved in anesthesiology.

One reason why this shortage of anesthesiologists has surfaced is that postgraduate clinical



**Fig. 2 Trends in the number of JSA membership; board certified specialist anesthesiologists and registered anesthesiologists**

Source: [http://www.anesth.or.jp/dbps\\_data/\\_material/\\_localhost/news/pdf/200507250937\\_manpower.pdf](http://www.anesth.or.jp/dbps_data/_material/_localhost/news/pdf/200507250937_manpower.pdf)



**Fig. 3 Number of cases of general anesthetic in a month (September)**

Source: "Survey of Medical Care Facilities (Static/Dynamic)—Overview of Hospital Reports." Statistics and Information Department, Ministry of Health, Labour, and Welfare.

training has been made compulsory. Because university hospitals whose number of residents has decreased suffer manpower shortages, they have been forced to draw doctors from related facilities. Another aim of compulsory postgraduate clinical training—scaling down of the university's authority over personnel issues—has led to instructors leaving the universities and doctors being drawn away from the municipal hospitals where freedom is limited.

## Countermeasures

### Increase the number of anesthesiologists

The fundamental method for resolving the short-

age of anesthesiologists is to increase the number of doctors wishing to become anesthesiologists by improving the working environment and compensation and boosting motivation. Such measures would also encourage existing anesthesiologists to remain in anesthesiology. The JSA has continued to negotiate with related government ministries and agencies and relevant organizations and taken various actions such as approaching residents, and medical institutions have also made efforts to increase the number of anesthesiologists. And training a competent doctor is a task that takes many years.

### Utilization of female doctors and registered anesthesiologists

As short-term measures, the JSA recommendations have included finding female doctors who are taking a break from medicine to raise children, etc. and retraining registered anesthesiologists who do not practice anesthesia on a routine basis. The issue of female doctors is not limited to anesthesiology but is also a concern particularly for obstetrics and gynecology and pediatrics, where a larger proportion of doctors are women. Half of the JSA members aged in their 20s are female doctors, and when we consider that currently a third of medical school graduates are women (Fig. 4), this can be considered an important issue for all doctors.

"Registered anesthesiologist" is a national qualification with a long history, implemented in 1960 by the then Ministry of Health and Welfare

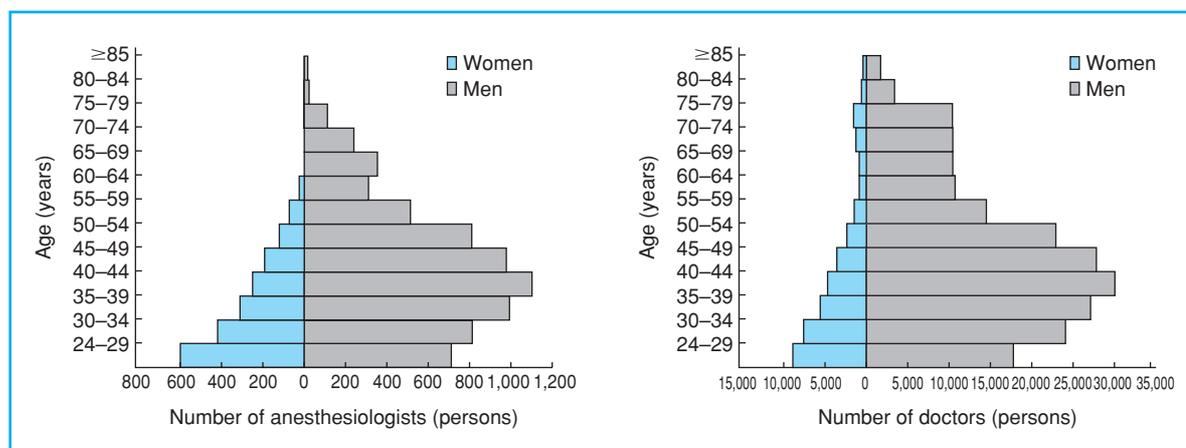


Fig. 4 Proportion of female doctors

Source: [http://www.anesth.or.jp/dbps\\_data/\\_material/\\_localhost/news/pdf/200507250937\\_manpower.pdf](http://www.anesth.or.jp/dbps_data/_material/_localhost/news/pdf/200507250937_manpower.pdf)

in order to maintain the specialized nature of anesthesiology. Many doctors who are not JSA members have also acquired this qualification. In fact, their number greatly exceeds the JSA membership. A proposal to retrain and utilize doctors with this qualification who do not routinely practice anesthesia is currently under consideration.

#### Efficient surgical unit management and work

Resolving the current shortage would require a great many more anesthesiologists. Effective use of the limited resource that anesthesiologists are requires efficient management of surgical units and work. The JSA recommendations include increasing efficiency through such measures as improving surgical unit capacity usage ratios, having anesthesiologists at nearby facilities assist each other, and reducing surgery time and length of time in the surgery unit, etc.

If surgery times are decided according to the convenience of the technicians, there will be periods of time when the surgery unit is not in use. However, as the number of consecutive surgeries requiring general anesthesia is limited by the availability of anesthesiologist, adjustments cannot be made at times when demand is high and some surgeries cannot be performed because there are not sufficient anesthesiologists. By doctors adjusting their schedules to suit the convenience of the surgical unit and thereby reducing ups and down in surgical unit use would go a long way towards resolving the shortage

of anesthesiologists and improve the economic efficiency of hospital administration.

Similarly, although all hospitals in a given neighborhood may have a shortage of anesthesiologists, they will have days or time periods when their surgery unit turnover is relatively low. Sharing anesthesiologists between nearby hospitals, or reciprocating nighttime on-call duties could improve working conditions for anesthesiologists. However, issues such as payment and insurance would still need to be resolved as administration systems differ from hospital to hospital.

#### Co-medical cooperation

The amount and length of duties performed by anesthesiologists needs to be reduced and efficiency increased through a system of cooperation with nurses, pharmacists, and clinical technicians; Increasing co-medical specialization and carrying out medical treatment in teams would enable the improvement of anesthesiology safety.

The system of “Nurse Anesthetists” in the United States frequently comes up in enquires. The United States has a long history of nurses administering anesthetic, since just after the use of ether began, and training is over a 2–4 year period following university graduation. In Japan, the term “Anesthetist Nurse” is used without there being any fixed definition of what kind of system it describes. The avoidance by non-specialist doctors of performing certain medical procedures as one way of avoiding risk and relegating those procedures as is to nurses—in

other words, the fact that anesthesia is in practice administered by both specialist doctors and by nurses—needs to be considered from the standpoint of the public and the universal health care system that aims to provide a high standard of medical care equally to all members of the public. The JSA is currently holding discussions with the Japanese Nursing Association with the aim of training “Perioperative Nurses” who are highly specialized and skilled.

### Anesthesiologists opening up medical practices

Anesthesiologists opening their own medical practices has mainly consisted of work centered on pain clinics, but recently there have been doctors who have developed their own so-called “part-time” anesthesiology practices with individually or in small groups.

At medical facilities affiliated with universities, the increasing number of anesthesiologists leaving the affiliated facilities means that the supply of anesthesiologists to the affiliated hospitals and even the university itself is decreasing. The impact of this and also the decrease of doctors at universities as a result of compulsory clinical training is particularly large, but does not mean there has been a decrease in the actual number of anesthesiologists. Facilities that do not require full-time anesthesiologists are now moving to use anesthesiologists more efficiently to cover only the days and time periods when shortages occur.

There is some argument that preoperative and postoperative care is not being properly provided; much of the criticism is that the dissolution of affiliate relationships will mean that maintenance of some facilities will become impossible and that the cost of anesthesia is too high. There are probably some doctors who require high anesthesia costs and the JSA requests that members are reasonable with regard to this issue; however, it is not clear to what extent this issue is impacting hospital administration.

The trend towards regular employment at

hospitals that allow a comparatively high degree of freedom is continuing, as there are often disadvantages to opening up medical practice—no social security, uncertain workloads, “workplace” cannot be written when required to fill in the “occupation” column on forms, housing loans cannot be obtained, and future security is uncertain.

### Role of the Japanese Society of Anesthesiologists

There are various factors causing the shortage of anesthesiologists and the situation varies between regions and facilities. For example, the shortages experienced by university and municipal hospitals have different causes and although sometimes the problem is a society-wide shortage, at other times the cause of the problem lies with the individual medical institution and so responses differ according to each cause. Moreover, the shortage affects not only anesthesiologists but all doctors. Thus the circumstances leading to the shortage of anesthesiologists are a microcosm of the problems facing the medical field as a whole. The JSA recommendations include various suggestions considered from various perspectives of ways in which government agencies, systems, regional distribution, and individual hospitals can address and resolve the problem.

Resolving the shortage of anesthesiologists means providing the quality and quantity of medical care demanded by the general public, but the increased demand by the public is one of the reasons the shortage came about in the first place. The work of anesthesiologists enabled hospitals to function and is a vital lifeline enabling the provision of better quality medical care. The fastest route to resolving this problem is to be conscious that this is important work with social responsibility and raise social valuation, boosting the motivation of anesthesiologists and increasing the number of doctors who wish to become anesthesiologists.

### References

1. [http://www.anesth.or.jp/dbps\\_data/\\_material\\_/localhost/news/pdf/200503041558\\_manpowerteigen.pdf](http://www.anesth.or.jp/dbps_data/_material_/localhost/news/pdf/200503041558_manpowerteigen.pdf)
2. [http://www.anesth.or.jp/dbps\\_data/\\_material\\_/localhost/news/pdf/200507250937\\_manpower.pdf](http://www.anesth.or.jp/dbps_data/_material_/localhost/news/pdf/200507250937_manpower.pdf)