No. 36 July 2017

JAPAN HOSPITALS

The Journal of Japan Hospital Association

Special Feature

Ideal Healthcare Management:
What We Can Learn from Yozan Uesugi
Tsuneo Sakai

No. 36 July 2017

JAPAN HOSPITALS

The Journal of Japan Hospital Association

Contents

*Listed in alphabetical order.

Japan Hospital Association is committed to contributing to society by enhancing hospital services in Japan.
This journal introduces the activities of the Association and healthcare in Japan to the world.

Enquiries regarding the Association and its services should be addressed to:
Japan Hospital Association
9-15 Sanbancho, Chiyoda-ku, Tokyo 102-8414, Japan
Tel: 03-3265-0077 Fax: 03-3230-2898
Email: info@hospital.or.jp

Editorial Cooperation
faro inc.
6-15-1-5F Kasai bld., Hon-komagome, Bunkyo-ku,
Tokyo 113-0021, Japan
Tel: 03-6380-4888 Fax: 03-6380-5121
http://www.faroinc.com

Foreword

Tsuneo Sakai
11th President, Japan Hospital Association

The Japan Hospital Association's FY2017 business plan was approved at the March 2017 meeting of the Governing Council's Budget Committee. This year, the executive board will undergo significant reform for the first time in seven years in response to the election of executives scheduled in May. It was decided to follow the plan established previously, and then make revisions as necessary after the new executive administration takes office. Among the numerous issues that require our urgent attention is reform of the medical and long-term care system. Regarding this, I would like to talk about the background of the new medical specialist system and workstyle reform, and the Japan Hospital Association's response to it.

Since members of the medical profession began to voice their anxiety about the impact of the new medical specialist system scheduled to start in April 2017 on regional medical care services, a special committee discussing the ideal cultivation of specialists was established inside the Social Security Council Committee on Health Insurance at the Ministry of Health, Labour and Welfare to discuss the issues.

In addition, certain issues regarding the governance of the Japanese Medical Specialty Board (JMSB) have been pointed out. On June 7, 2016, the Japan Medical Association and the Council of Four Hospital Organizations requested the government to delay implementing the new medical specialist system until sometime after 2017, and instead start specialist training after safeguarding the regional medical care service system.

The new JMSB executive board was established after the July 2016 election, and the decision was made to postpone medical specialist training for one year. The new executive board included two directors from the Council of Four Hospital Organizations (one from the All Japan Hospital Association, and the other from the Japan Psychiatric Hospitals Association).

The Guidelines for the Development of a New Medical Specialist System, which serve as its foundation, were approved at the December 16 General Meeting of members. The guidelines address regional medical care services and allow hospitals other than university hospitals to be certified as fundamental training facilities through a relaxing of standards, which had been requested by hospital organizations. The JMSB has been preparing for the scheduled implementation of the new system in April 2018, one year behind schedule, along with the new guidelines.

Anxiety about the impact on regional medical care, however, remains due to JMSB concern that the new system would exacerbate the uneven distribution of physicians. This created an obstacle to discussion of the operational procedures for the new guidelines that were to have been reported at the General Meeting held on March 23, 2017.

Underlying this is the realization for the need to clarify the policies for medical training, including university education, postgraduate clinical education, and education for medical specialists, as well as the need to consider the impact of the new system on regional medical care. It is certain that discussion on these issues will continue at a new council and on other occasions. It may also be necessary to examine the progress and ideal implementation of the new system at the Social Security Council Committee on Health Insurance due to anxiety about the ideal use of medical specialist system being lost in the details.

Based on a clear understanding of the importance of workstyle reform, which is a crosscutting issue that needs to be addressed to promote the dynamic engagement of all citizens in society, the Council for the Realization of Workstyle Reform held numerous discussions before establishing an Action Plan that included upper limits on overtime and penalties

for violations at the meeting on March 28. Since last year, many hospitals were inspected and provided with guidance by the Labour Standards Inspection Office. While such inspections have distracted many other hospitals, I am unsure whether these are related to the Action Plan.

Recognizing the need to improve the working environment for doctors and considering the significant impact of the Action Plan on hospitals, the JHA has monitored its progress. Although the Action Plan includes doctors under overtime work regulations, it also points out the need to consider the requirement to provide medical treatment in accordance with the Medical Act, ensuring that the Revised Labor Standards Act will be applied to doctors five years following enforcement. The Action Plan also includes the requirement for discussions among medical care-related organizations and hospitals to determine specific policies and measures aimed at shortening working hours by the established deadline two years hence. The JHA would also like to send representatives to the committee to discuss issues, including whether doctors are to come under the Labor Standards Act and the pursuit of ideal work environments.

These two issues may present a challenge; however, the JHA continues to place a priority on finding solutions for its members under this new executive board system. I look forward to your continuing support and cooperation in this effort.

June 2016 in Iwate

The 66th Japan Hospital Association (JHA) Congress 2016 Iwate

Ideal Healthcare Management: What We Can Learn from Yozan Uesugi

Tsuneo Sakai

11th President, Japan Hospital Association

Chairman (Mochizuki): Good morning, everyone. It is both an honor and a pleasure to present Japan Hospital Association (JHA) President, Tsuneo Sakai, our featured speaker. The title of his talk today is, "Ideal Healthcare Management – What we can learn from Yozan Uesugi." Yozan Uesugi is well known for saying, "If you put your mind to it, you can do it; if you do not, you cannot. This is true for all things. When something is not done, it is because someone has not done it."

As we see in his profile, President Sakai graduated from Yonezawa *Kojokan* High School, so I'm sure he has a lot to teach us about Yozan Uesugi, the 9th lord of Yonezawa Domain. Now, without further ado, please welcome Mr. Sakai.

Sakai: The main theme of the Congress is ideal healthcare management and *bushido* (martial arts), which borrowed from a book about Inazo Nitobe, a great agricultural economist from Morioka. Inazo Nitobe was a student in the second class to graduate from Sapporo Agricultural College, and Kanzo Uchimura was a classmate. They were both brilliant, and they both wrote books in English. The title of Kanzo Uchimura's book was *Representative Men of Japan*. In this book, he wrote about five Japanese men. One of these was Yozan Uesugi. As someone else will be telling us about Inazo Nitobe today, I decided to talk about Yozan Uesugi.

■ Introduction

● About Me

(Slide 1) I graduated from *Yonezawa Kojokan* High School. This is a picture of the school building. Sadly, the building no longer exists. Simplicity and fortitude were the foundation of the school. We didn't even have a school trip. Instead, we ran a marathon in the early autumn of each year and had a campfire afterward. Our "marathon" was 16 km. While this may not seem like much of a marathon, it was long enough for a bunch of high school students who were not trained as long-distance runners. I didn't think much about the school's ideals of simplicity and fortitude while I was a student there. These concepts came back to me, though, as I got older.

I entered medical school during the university protest movement. Wanting to study in America, I prepared myself by working at the US Army Hospital at Camp Zama, as an intern for one year after graduation to get used to the English language and the American medical system. In America, I studied neurosurgery. I learned the importance of research as well as medical practice. Of my five years' of neurosurgical training, the first two years were devoted exclusively to research. After my stay in America, I returned to Hamamatsu. People in Hamamatsu have historically been bold, and my being from there meant that I wasn't afraid to try my hand at something new. I worked at Hamamatsu University School of Medicine and then moved to Seirei Mikatahara General Hospital. I am now at Seirei Hamamatsu General Hospital. In 2007, I joined the JHA as Vice President and became President in 2010.

● *Kojokan* High School

(Slide 2) *Yonezawa Kojokan* High School was founded in 1776 by Yozan Uesugi, the 9th lord of Yonezawa Domain. He firmly believed that education was essential to fostering talent needed to enrich and sustain the country.

Introduction (1)
— About Me

- ○ Spent an ordinary and easy time at high school (Yonezawa Kojokan High School)
  - • Unconsciously learned the spirit of the school
- ○ Introduction to American Medical care
  - • University protest movement
  - • Prepared to study in America
- ○ Worked as an intern at the US Army Hospital, Camp Zama, Japan
  - • Learned American medical care system
- ○ Training of neurosurgery in America (1971–1979)
  - • Learned the importance of research
  - • Practiced American medical care
- ○ Moved to Hamamatsu (1979)
  - • Hamamatsu University School of Medicine
  - • Seirei Mikatahara General Hospital → Seirei Hamamatsu General Hospital
- ○ JHA (since 2007)

Yonezawa Kojokan High School
(Former building)

Camp Fire
(Takayu Marathon Festival)

Slide 1

Introduction (2)
— Kojokan High School

- ○ 1616: Foundation of *Zenrinbunko* (Kanetsugu Naoe)
- ○ 1697: Foundation of *Kanrinden* (4th lord Tsunanori)
- ○ 1776: Restoration of *Kojokan* Clan School (9th lord, Yozan)
  - • Yozan firmly believed that education was essential to fostering talent needed to enrich and sustain the country.
- ○ Origin of the name *Kojokan*:
  - • If the lord is considerate and merciful, the clan will strive to be filled with mutual consideration (Source: The Great Learning, which was one of the Four Books in Confucianism)
  - • *Kojo* means to promote mutual consideration. (Source: *Kengaku Taii* by Heishu Hosoi)

Kojokan

Slide 2

Kanetsugu Naoe started *Zenrinbunko* as a school for the children of feudal warriors serving the Yonezawa Domain. You are all familiar, I am sure, with Kozukenosuke Kira, who was famously portrayed in the Kabuki play, *Chushingura* (The Treasury of Loyal Retainers). Well, one of Kira's sons was Tsunanori Uesugi, the 4th lord of the clan. Tsunanori established a school called *Kanrinden* in 1697. Aware of the history of schools in the domain, Yozan felt the need to open *Kojokan* in 1776.

The name *Kojokan* came from the words of Heishu Hosoi, who said, "If the lord is considerate and merciful, the clan will strive to be filled with mutual consideration (*Kojo*). *Kojo* means to promote mutual consideration, which we interpret to mean politeness, courteousness,

and civility."

The original Yonezawa Kojokan is shown in this slide. It was an extremely fine building.

■ Yozan Uesugi & John F. Kennedy

● Kennedy's Inaugural Address

(Slide 3) John F. Kennedy, the 35th President of the United States, said in his 1961 inaugural address, "And so, my fellow Americans: ask not what your country can do for you - ask what you can do for your country."

Kennedy was an enthusiastic politician at the age of 43. When I read his speech, I was about 15 years old and was very moved by it. It was a great inaugural speech, and I memorized some phrases.

After this speech, Kennedy was asked by a Japanese reporter at the press conference: "Which Japanese politician do you respect most?" He replied: "Yozan Uesugi." There were no Japanese at the press conference who knew about Yozan Uesugi.

● The Principle that Sovereignty Lies with the People & in Democracy

(Slide 4) Kennedy wrote the speech with reference to the *Denkokunoji*, which is Yozan's view on governance and the role of the feudal lord, written when he resigned his position: "The domain should not be administered selfishly. The people should not be administered selfishly. The lord exists for the sake of the state and the people. The state and the people do not exist for the sake of the lord." It was, I believe, extremely advanced thinking for the Edo Period (1602–1868).

Looking at overseas countries, the Declaration of Independence was signed in the United States in 1776, which was a little earlier than the *Denkokunoji*, and the Declaration of the Rights of Man and of the Citizen was signed in France in 1789. It still surprises me that such a man in such a time and in such a place had such modern thoughts. There were also claims that the conversation between Kennedy and the Japanese journalist did not actually take place. There was no mention of it at the time. Some say that people in Yonezawa may have made up the story. However, when John F. Kennedy's daughter, Caroline, assumed the post of American ambassador to Japan, she stated in her speech that her father admired Yozan Uesugi, and his policy of good governance and lifestyle had a significant influence on her father's inaugural speech. People in Yonezawa were moved and recognized anew the greatness of Yozan.

● The Japanese Introducing Japan

(Slide 5) How did Kennedy come to know about Yozan? It has been suggested that he read at least one of the three books written during the 13 years around 1900; namely, *Representative Men of Japan* written by Kanzo Uchimura, *Bushido: The Soul of Japan* written by Inazo Nitobe, and *The Book of Tea* written by Tenshin Okakura.

Yozan Uesugi & John F. Kennedy (1)
— Kennedy's Inaugural Address

○ "And so, my fellow Americans,
Ask not what your country can do for you
Ask what you can do for your country."
○ A Japanese journalist: "Which Japanese politician do you respect most?"
President Kennedy: "Yozan Uesugi."
A Japanese journalist: "Who·····?"

John F. Kennedy (1917–1963)

January 20, 1961: Inaugural Address

Slide 3

Yozan Uesugi & John F. Kennedy (2)
— The Principle that Sovereignty Lies with the People & in Democracy

- ○ *Denkokunoji* (1785)
  - • The domain should not be administered selfishly.
  - • The people should not be administered selfishly.
  - • The lord exists for the sake of the state and the people. The state and the people do not exist for the sake of the lord.
- ○ Extremely advanced thinking at that time
  - • United States Declaration of Independence (1776)
  - • Declaration of the Rights of Man and of the Citizen (1789)
- ○ Confirmation of the conversation between the President Kennedy and a Japanese journalist
- ○ Speech by Caroline Kennedy, American Ambassador to Japan (November 27, 2013 in Tokyo)
  - • "My father admired Yozan Uesugi. His policy of good governance and lifestyle had a significant influence on my father's inaugural speech."

Yozan Uesugi

Slide 4

Yozan Uesugi & John F. Kennedy (3)
— The Japanese Introducing Japan

Kanzo Uchimura	Inazo Nitobe	Tenshin Okakura
  		
1894 (Revised in 1908)	**1900**	**1906**
• It was no surprise that he took a very pro-war stance, and tried to show the world that Japan would fight for justice. • (Revision) Before the Russo-Japanese War, his position had changed to pacifism.	• Once he was asked about Japanese ethics and customs, he realized that the origin was in Bushido, samurai ethics. He wrote this book to explain that.	• Tenshin Okakura investigated Japanese art with Ernest Francisco Fenollosa. That opportunity opened his eyes to Japanese tea culture, and made him write this book to explain the ideal way of self-sufficiency to European countries and the United States that were in the golden age of imperialism.

Slide 5

In 1868, the Meiji Restoration ushered in the change in the Japanese political system from feudalism to a centralized government. Japan was working hard to catch up with and surpass Europe and America. The Sino-Japanese War broke out in 1894, and the Russo-Japanese War started in 1904. Japan's victory in both wars boosted its national prestige. Japan was still relatively unknown overseas, however, and Kanzo Uchimura and Inazo Nitobe, who had, as I mentioned, studied at Sapporo Agricultural College, decided to remedy this by publishing books about Japan in English.

As we will have a presentation on Inazo Nitobe later, I would like to talk about Kanzo Uchimura. He published *Representative Men of Japan* in 1894. That being immediately after the Shino-Japanese War, it was no surprise that he took a very pro-war stance. However, in a revised version published in 1908, immediately after the start of the Russo-Japanese War, his position had changed. He wrote about five Japanese men in the book: Takamori Saigo, a founder of the new Japan, Yozan Uesugi, a feudal lord, Sontoku Ninomiya, a peasant saint, Toju Nakae, a village teacher, and Saint Nichiren, a Buddhist priest. This book made Yozan famous throughout the world.

● Yozan (Harunori) Uesugi

(Slide 6) Yozan was the 9th lord of Yonezawa Domain. In my abstract, he is listed as the 10th head of the Uesugi Clan counting from Kenshin Uesugi. Actually, however, Kenshin did not live in Yonezawa, making the 2nd head, Kagekatsu, the actual 1st lord of Yonezawa Domain. Counting from Kagekatsu, Yozan was the 9th lord. Yozan was not born in Yonezawa, but in present-day Miyazaki Prefecture, as the second son of Tanemitsu Akizuki, the lord of Hyuga Takanabe Domain. Since his mother was from Yonezawa Domain, he was adopted by the Uesugi Clan when he was 10 years old. When he was 14 years old, he met the then 37-year-old Heishu Hosoi, from whom he learned much. Yozan became head of the clan at the age of 17.

When Yozan became the 9th lord, Yonezawa Domain was on the brink of bankruptcy. The 1st head of the Uesugi Clan, Kenshin Uesugi, was a powerful *Dai-daimyo* (a rank having greater power than a lord) in Aizu, a large area yielding harvests totaling 1.2 million *koku* (1 *koku* is about 150 kg. of rice). However, he joined sides with the West Army in the Battle of Sekigahara (1600) and lost. He was forced to relocate to Yonezawa, where the land yielded a mere 300,000 *koku*. After the sudden death of the 3rd lord, the domain faced the risk of disappearing for lack of a successor. It was spared this fate, however, in exchange for a reduction in size to an area that yielded just 150,000 *koku*.

The Uesugi Clan was very faithful to its retainers and did not release them, although their salaries were reduced. The clan used the revenue obtained from 133,000 out of its 150,000 *koku* to pay them. The ratio of expenses to deposits was 88%. No hospital expends 88% of its income on salaries. Faced with such severe conditions, Yozan considered what he could do for the domain and worked to reform its government. He passed clan leadership on at the age of 35, but continued contributing to the clan until he died at the age of 72.

Yozan (Harunori) Uesugi

- ○ The 9th lord of Yonezawa Domain
  - • 1751: Born as the 2nd son of Tanemitsu Akizuki, the lord of Hyuga Takanabe Domain
  - • 1760: Married to Yoshihime, a daughter of the 8th lord of Yonezawa Domain and adopted by the Yonezawa Domain at the age of 10
  - • 1764: Studied under Heishu Hosoi (37 years old) at the age of 14
  - • 1767: Became the lord of Yonezawa Domain at the age of 17
- ○ State of Yonezawa Domain
  - • Having Kenshin Uesugi as the ancestor (Kagekatsu Uesugi was the 1st lord.)
  - • 1,200,000 *koku* in Aizu (During the period ruled by Hideyoshi Toyotomi)
  - • 300,000 *koku* in Yonezawa (After the Battle of Sekigahara during the period ruled by Ieyasu Tokugawa)
  - • Reduced to 150,000 koku (A successor was undetermined after the sudden death of the 3rd lord Tsunakatsu)
  - • Spent 133,000 out of 150,000 *koku* for retainers 'salaries (Ratio of expenses to deposits: 88%)
- ○ Domain Government Reformation
  - • 1785: Passed down the position of the lord to Haruhiro, the son of the former lord, Shigesada, at the age of 35
  - • 1822: Died at the age of 72

Slide 6

■ Domain Government Reformation by Yozan Uesugi

(Slide 7) Yozan worked hard to carry out a wide range of reforms aimed at restoring the domain's finances. The words of Yozan mentioned by Dr. Mochizuki a while ago expressed his will clearly: "If you put your mind to it, you can do it; if you do not, you cannot." This is true for all things. When something is not done, it is because someone has not done it. Yozan introduced strict measures to reduce costs, which provoked anger among seven advisors whose ancestors had served the Uesugi Clan. They complained that Yozan was not from Yonezawa and knew nothing about it. However, Yozan did not allow their opposition to interfere with his plans. He faced three major problems: existing systems, physical obstacles, and awareness.

The problem with existing systems is seen in medical care too. Many people brought this up in JHA questionnaires. However, the most difficult problem for Yonezawa Domain was awareness.

Yozan established five proposals to address the problem. The first was to share information. He created an accounting book to help retainers and residents visualize the flow of the domain finances. Everyone must have been surprised to see the deficit.

Then, Yozan promoted discussions to share awareness, and he respected the opinions expressed. He focused on changing the existing systems. For example, he abolished the hereditary transfer of local positions, divided Yonezawa Domain into 12 areas, and dispatched officials to each area to live and instruct local residents on farming. This is how Yozan built a loving and trusting relationship between officials and residents. It was this innovative person that impressed President Kennedy.

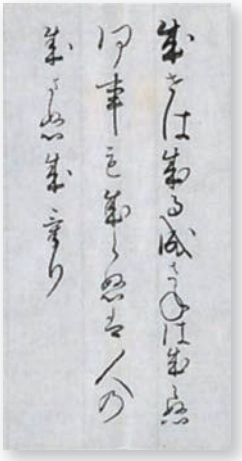
● Raising Awareness – The Teachings of Heishu Hosoi

(Slide 8) Yozan learned about raising awareness from Heishu Hosoi. Heishu pointed out the need to realize that Yonezawa Domain could go bankrupt at any time. In such unusual circumstances, it is necessary to take extraordinary measures. The most important thing is that the domain lord takes the initiative in instituting such measures and communicates effectively with its retainers and residents. Heishu said that three things were necessary: learning, thinking, and acting. He called action the most important of these because learning and thinking themselves do not mean anything without action. Heishu also pointed out that only people and land could reestablish domain finances, and that the lord needed to push forward boldly to raise awareness among the people. Boldness is of critical importance in anything you do. Yozan followed his principals.

Based on Heishu's principals, Yozan instituted three major measures. First, he worked to cut costs. For example, he instituted a system to borrow rice from the village warehouse when supplies were needed instead of purchasing it from dealers. In this way, the money

Domain Government Reformation by Yozan Uesugi

- ○ Worked hard for domain government reformation
  - • "If you put your mind to it, you can do it; if you do not, you cannot."
  - • Introduction of strict measures to reduce costs → Opposition by the retainers (1773)
- ○ Three major problems during the reformation
  - • Existing systems
  - • Physical obstacles
  - • Awareness
- ○ Five proposals to address the problems
  - • Share information: Visualize the flow of domain finances/ Create an accounting book (1771)
  - • Promote discussion
  - • Respect opinions
  - • Change the existing system: Abolish the hereditary transfer of local positions → Divide the domain into 12 areas and dispatch officials to each of them
  - • Build a loving and trusting relationship between officials and residents



"If you put your mind to it, you can do it; if you do not, you cannot."

Slide 7

Raising Awareness
— The Teachings of Heishu Hosoi

- ○ Realize that Yonezawa Domain could go bankrupt at any time
- ○ In such unusual circumstances, it is necessary to take extraordinary measures.
- ○ The domain should take the initiative in instituting such measures and communicate effectively with retainers and residents.
  - • Three important points taught by Heishu: Learning, thinking and acting together
- ○ Only people and land could reestablish domain finances.
- ○ The lord needs to push forward boldly to raise awareness among the people.
  - • "Boldness is of critical importance in anything you do."

Heishu Hosoi

Reform Plan: Based on *Omeikan Iso* by Heishu Hosoi
- • Cut costs: Borrow rice from villages not purchasing from dealers
- • Increase revenue: Identify crops that were most suitable for the weather in the region (Japanese lacquer, mulberry, etc.)
- • Establish schools to raise awareness of retainers and people

Fiveleaf Aralia Fence

Slide 8

circulated to the people and into the village economy.

Second, Yozan worked to increase revenue. He worked to identify crops that were most suitable for the land, crops such as Japanese lacquer and mulberry. He recommended the use of fiveleaf aralia, which has prickles and is easily made into fences. The leaves are edible too. I love them boiled or with dressing, and enjoy them whenever I'm in my hometown. Yonezawa Domain at that time was very poor and did not have enough food to feed its horses. As you can imagine, this meant that their horses were very thin. It embarrassed people to ride them down the middle of the street, so they kept to the sides. As a consequence, the fences scratched the horses' stomachs until their hair was worn off. Although they blended in with the others in Yonezawa Domain, it was easy to spot them outside of the domain.

Third, Yozan established a school to raise awareness among retainers and residents of the domain. That was the Kojokan.

● Yozan & Medicine – Domestic Exchange Student System for the Study of Medicine

(Slide 9) Yozan also established a domestic exchange student system for the study of medicine. He chose bright people in the domain and dispatched them to learn.

In 1793, he established the *Koseido* to provide medical education and training. Dutch medicine had been practiced for some time; and Yonezawa was called "the Nagasaki of the Tohoku Region" at the end of the Edo Government (around 1860) because many distinguished people who had learned from Philipp Franz Balthasar von Siebold, Ryojun Matsumoto, Koan Ogata, Johannes Lijdius Catharinus Pompe van Meerdervoort, and others in Nagasaki had returned to Yonezawa to teach and practice medicine.

One of these was Sukehiko Ito. He was the first son of Sukeyori Ito, who had himself learned from Pompe. Sukehiro learned at the *Kojokan* from the age of 6, and studied in Tokyo from the age of 8. He became the 3rd Dean of the Kyushu Imperial University College of Medicine. When I visited Fukuoka last year, a person at Kyushu University told me that the third dean was Sukehiko Ito, who was from Yamagata. Sukehiko Ito also later became the 1st Dean of Kyushu Medical School (Kurume University).

According to statistics from that time, the number of doctors who learned Dutch medicine differed significantly between Shonai, the northern area of Yamagata, and Okitama, the southern area of Yamagata. While the rate in Okitama, which is near Yonezawa, was 87 to 97%, Shonai was only 50%. This shows that Yonezawa Domain placed an emphasis on education in the Dutch and Western Sciences.

Yozan & Medicine
— Domestic Exchange Student System for the Study of Medicine

- ○ Established a learning system: Domestic exchange student system funded by the domain
- ○ Established a medical school *Koseido* (1793)
- ○ Dutch medicine → Yonezawa was called "the Nagasaki of Tohoku Region" (At the end of Edo Period)
  - • Learned from Siebold, Ryojun Matsumoto, Koan Ogata, Pompe, etc.
- ○ Sukehiko Ito
  - • The 1st son of Sukeyori Ito who had learned from Pompe (Born in 1865)
  - • Learned at Kojokan from the age of 6 and studied in Tokyo from the age of 8
  - • The 3rd Dean of the Kyushu Imperial University College of Medicine (1913–1919)
  - • The 1st Dean of Kyushu Medical School (1928–1934)

Chinese Medicine and Dutch Medicine Doctors (1880, Yamagata)

County	Chinese Medicine Doctors	Dutch Medicine Doctors	Total	Ratio of Dutch Medicine Doctors (%)
Minamiokitama-gun	7	46	53	87
Nishiokitama-gun	1	38	39	97
Higashiokitama-gun	5	37	42	88
Nishitagawa-gun	45	45	90	50

Sukehiko Ito (Kurume University)

Slide 9

■ Teachings of Yozan Uesugi

(Slide 10) Yozan Uesugi taught that governance should be practiced with affection. When he became head of the clan, he said, "A lord should be like a loving parent to the people." It was a surprising amount of wisdom from a boy of only 17. He is also well known for the implementation of self-support, mutual support, and governmental support. Self-support means encouraging industries other than rice cultivation. Mutual support means promoting support in smaller groups such as five- and ten-family units, and village units. Governmental support means support from the domain government. For example, the domain supplied rice to retainers and people during famine, prohibited the use of crops for the production of processed foods, and purchased rice from domains that had not been affected.

These projects were thought to be based on concepts similar to our current integrated community care system, which bolstered the reputation of Yozan Uesugi. However, the self-support, mutual support, common support, and governmental support in the integrated community care system are classified by the individuals who bear the cost of the services, not by the type of services. They are not completely the same, but the teachings of Yozan Uesugi remain alive.

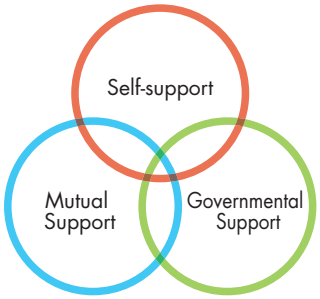
■ What We Can Learn from Yozan Uesugi

● Ideal Healthcare Management

(Slide 11) We should learn 10 things from Yozan Uesugi. Among these are 1. governance practiced with affection, 2. being a model for people, 3. asking others' opinions, 4. planning for the future, 5. considering education as the basic element in the governing of a country, and 6. using the right people in the right place. If we apply these to our medical care system, Yozan's principals lead to patient-centered medical care. In other words, the manager of a hospital takes the initiative in reforming the system to achieve transparency, and respects employee opinions. The manager should envision an ideal hospital system when making plans. The education and cultivation of human resources is a priority issue because it enables the hospital to better employ these human resources in the future. It is also necessary to create a management team. The manager needs to recognize the need to take responsibility. That is, the manager should not only give

Teachings of Yozan Uesugi

- ○ Governance practiced with affection
  "A lord should be like a loving parent to the people."
- ○ Implementation of three areas of support
  - Self-support → Encourage industries other than rice cultivation
  - Mutual support → Smaller group organizations such as five- and ten-family units, and village units
  - Governmental support → Importance shown during the Great Tempo Famine
    - Supplied rice to retainers and people
    - Prohibited the use of crops for the production of processed foods
    - Purchased rice from domains that had not been affected
  - Similar to the current Integrated Community Care System
- ○ *Denkokunoji*
  - 3 articles given to Haruhiro when passing his position down at the age of 35
  - Principle that sovereignty lies with the people
  - Domain lord should respect retainers and people



Slide 10

What We Can Learn from Yozan Uesugi — Ideal Healthcare Management

10 points we can learn from Yozan Uesugi	Ideal Healthcare Management
1. Governance practiced with affection	1. Seek patient-centered medical care
2. Became a model for the people	2. Take the initiative in reformation
3. Asked others' opinions	3. Visualization → Respect the opinions of employees
4. Planned for the future	4. Show ideal healthcare management
5. Considered education the basic element in the governing of a country	5. Prioritize human resource education and cultivation
6. Used the right people in the right place	6. Utilize the human resources we have cultivated
7. Assigned skillful assistants	7. Create a management team to take a core role in management
8. Met good instructors	8. Respect employee opinions without persisting on one opinion
9. Encourage to take measures	9. Recognize the need to take responsibility
10. Changed the way of thinking	10. Create new value

Slide 11

direction, but also work together and be responsible for the results. Thinking from a different angle, the last item means the need to create new value.

■ Ideal Healthcare Management

● Goals of Individual Hospitals

(Slide 12) The main concept is a customer-oriented medical care system. This contains the same concept as governance practiced with affection expressed by Yozan

and the spirit of *Denkokunoji*, which is, as you remember, Yozan's view on governance and the role of the feudal lord. We need to provide efficient, high-quality, safe and secure medical care, and we need to maintain the quality of both medical care and management. One is not enough.

Transparency is the same concept as the accounting book created by Yozan to help retainers and residents visualize the flow of domain finances. We need to evaluate individual hospitals from the proper perspective and according to their individual circumstances. It is also necessary to perceive the state of the hospital and the region, to consider the balance of supply and demand in medical care in the region, and to evaluate the outcomes.

In regard to the education and cultivation of human resources, it is extremely important to cultivate medical and management specialists, utilize the human resources we have cultivated, and promote team medicine and management.

(Slide 13) I just said that it is necessary to create new value. After hospital managers have considered such new value, it is necessary to disseminate it to all employees. In order to raise awareness of the new value in cooperation with employees, it is extremely important to recognize the necessity of learning, thinking, and acting together, not simply creating, explaining and showing plans.

Hospital managers need to show an ideal hospital system, including the optimization of hospitals and regions. It is also necessary to consider the functional differentiation of hospitals. We need to consider the required function of hospitals in each region. Concerning improvement of the Integrated Community Care System, I am not focusing on the type of hospital wards and beds, but considering the hospitals providing assistance in integrated community care. This is a new concept. I also think it is important to establish an Allied Community Healthcare Organization in the same region to enhance cooperation for the effective use of human resources, supplies, funding, and information.

Managers should take the initiative in working on reforms, and they may sometimes have to make painful choices. They need to make choices that they do not want to make; but after making those choices to clarify authority and responsibility, employees will understand and follow them.

● Ideal Hospitals to Fulfill Community Needs

(Slide 14) Ideal hospitals for each community were included in the proposals we presented with the Japan Medical Association and the Council of Four Hospital

Ideal Healthcare Management (1)
— Goals of Individual Hospitals

- ○ Main Concept
  - • Customer-oriented medical care system: **Governance practiced with affection, *Denkokunoji***
  - • Provide efficient, high-quality, safe, and secure medical care
  - • Maintain the quality of both medical care and management
- ○ Visualization (transparency): **Create an accounting book**
  - • Evaluate individual hospitals from the proper perspective
  - • Perceive the state of the hospital and the region
  - • Consider the balance of supply and demand in medical care
  - • Evaluate the outcomes
- ○ Education and cultivation of human resources: **Domestic Exchange Student System/*Kojokan***
  - • Education and cultivation of medical and management specialists
  - • Utilize the human resources we have cultivated
  - • Team medicine and management

Slide 12

Ideal Healthcare Management (2)
— Goals of Individual Hospitals

- ○ Create new value
  - • Disseminate to all employees
  - • Share the new value
  - • Raise employee awareness
  - • Recognize the necessity of learning, thinking, and acting together
- ○ Show an ideal hospital system
  - • Optimize hospitals and regions
  - • Differentiate hospital functions
  - • Further develop and improve Integrated Community Care System
  - • New concept of hospitals providing assistance in integrated community care (Integrated Community Care Support Hospitals)
  - • Establishing an Allied Community Healthcare Organization in the same region is another option.
- ○ Managers should take the initiative in working on reforms.
  - • Sometimes have to make painful choices: "If you put your mind to it, you can do it; if·····"
  - • Clarify authority and responsibility

Slide 13

Organizations. Since then, we have not discussed these much; however, we established plans for the integrated community care hospital ward required by the 2014 medical fee system revision. In addition to a wide range of hospital functions such as the acceptance of patients from the acute phase, the provision of support for home-care and return to daily activities, and the acceptance of emergency patients, we proposed an integrated community care support hospital concept that includes in-hospital and in-community cooperation throughout a wide range of specialties.

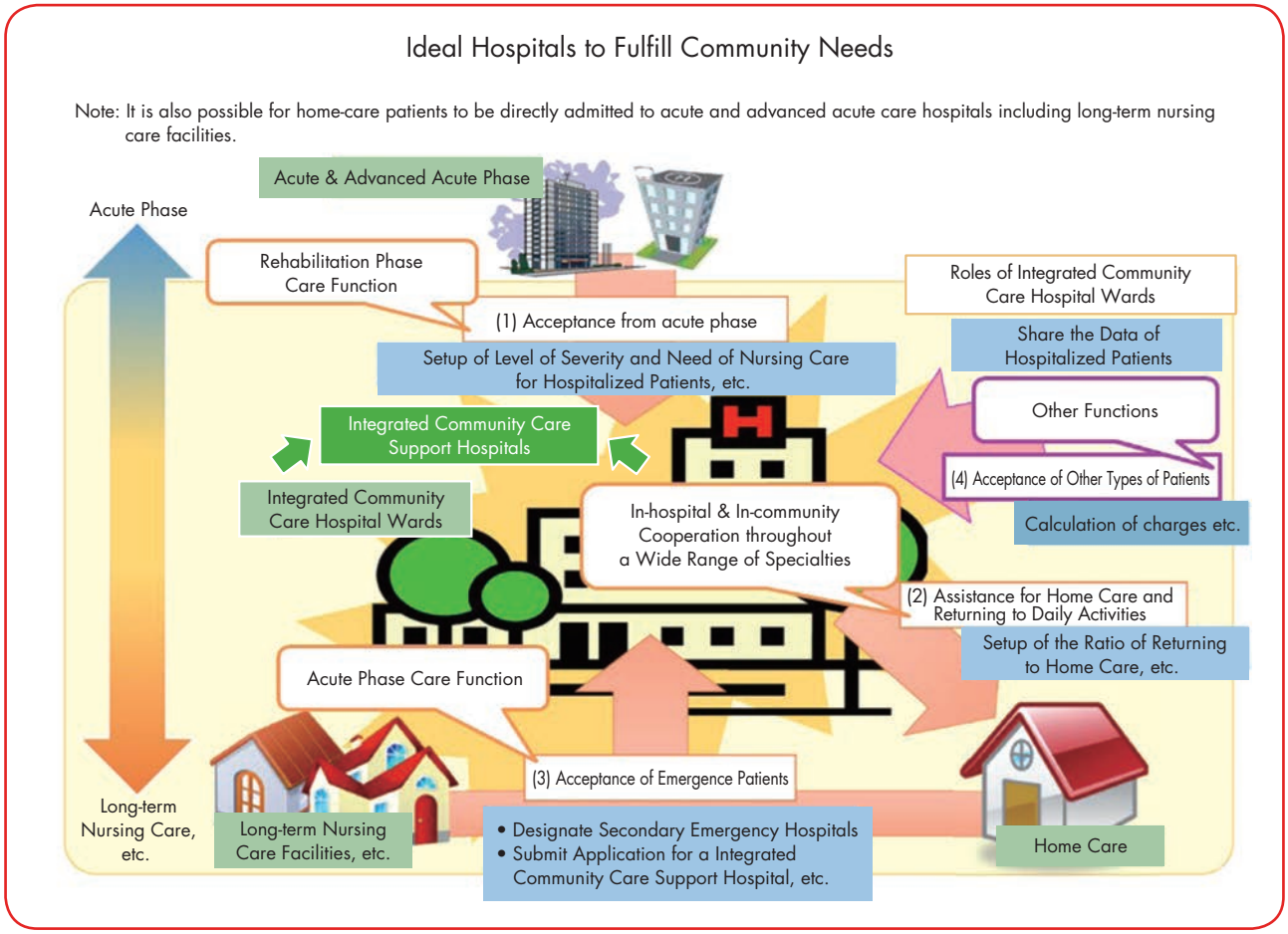
● Ideal New Hospital Functions – Integrated Community Care Support Hospital

(Slide 15) Specifically, the hospital I am talking about has both acute and rehabilitation phase functions, which will require more discussion. Information sharing is the most important factor. As you know, when we see a patient in the emergency department, we do not always have access to complete patient records due to the lack of information sharing among institutions. Using ICT to register patient information in advance, and ensuring that all hospitals are capable of accessing it when necessary would facilitate the delivery of prompt and appropriate care.

■ In Conclusion

(Slide 16) Hospitals have reached a significant turning point. Under such circumstances, we are required to create new value and take action. Individual hospitals, top management, and employees need to work together.

Dr. Kosaku Nakayama, the previous Director of Seirei Hamamatsu General Hospital, became the Director at 38 years of age and served for more than 30 years. Although he was very gentle and mild when I met him, I heard that he was a strong and driven administrator. I heard that he had told hospital employees to think hard; and if they couldn't think, they should make greater effort. If they



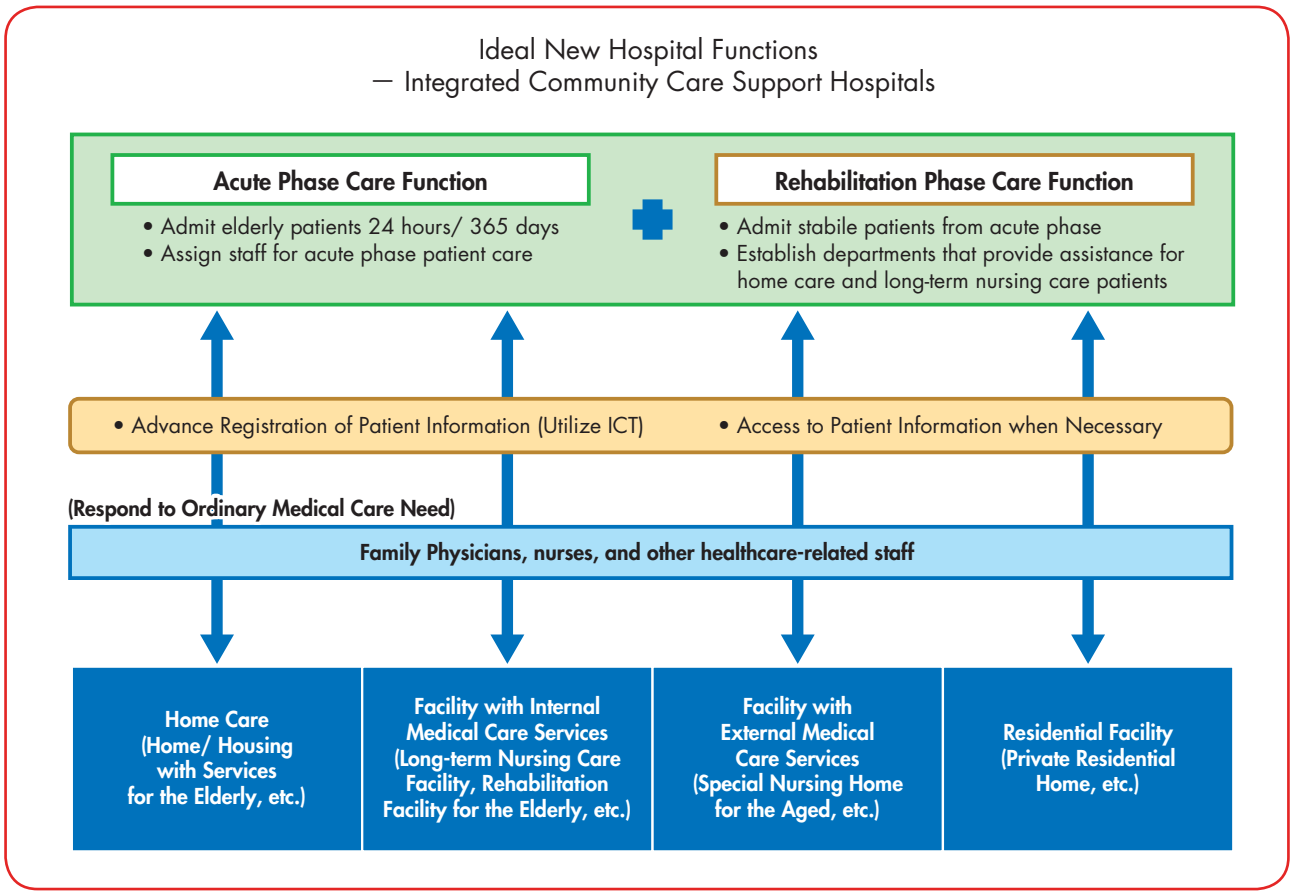
Slide 14

could do neither, they should hand in their resignation. I think this applies to hospital managers.

I hope all of you try hard to avoid having to hand in your resignations.

Thank you for listening.

Chairman (Mochizuki): Thank you, Mr. Sakai for your interesting and informative presentation on learning from history and our predecessors, and ideal healthcare management. You highlighted the greatness of Yozan Uesugi.



Slide 15

In Conclusion

○ Hospitals have reached a significant turning point.
- We are required to create new value and take action.
- Individual hospitals, top management, and employees need to work together.

○ Dr. Kosaku Nakayama
(Previous Director of Seirei Hamamatsu Hospital)
"Hospital employees need to think hard; and if they cannot think enough, they should make greater effort.
If they can do neither, they should hand in their resignation."
→ This also applies to hospital managers.

Dr. Kosaku Nakayama

Slide 16

Submitted Article

Comparison of Dust Concentration Due to Differences in Internal Structure of Restaurant

Yoshiko Bai[1]

Tamami Suzuki[1], Yuko Ohno[1], Kasumi Nissato[2], Kanako Nomura[3], Ryo Higuchi[4]

1. Health Sciences, Graduate School of Medicine, Osaka University
2. Jichi Medical University Hospital
3. Niigata City General Hospital
4. Saitama Medical Center, Jichi Medical University

Abstract

We measured the airborne dust concentration and wind speed of the influx of airborne dust into non-smoking areas in restaurants with a separate smoking area, targeting two restaurants. The airborne dust concentration was within the standard value (0.15mg/m^3) set by Japan's Ministry of Health, Labour and Welfare at both restaurants, but in some areas it exceeded the WHO's standard value (0.05mg/m^3). In Restaurant A, which has a smoking area by the bathrooms and cash register, the concentration was 0.050mg/m^3 in front of the bathrooms and 0.043mg/m^3 in front of the cash register. In Restaurant B, where the non-smoking area is by the bathrooms and cash register, the concentration was 0.007mg/m^3 in front of the bathrooms and 0.007mg/m^3 in front of the cash register when customers were smoking. Moreover, while the concentration was 0.054mg/m^3 around the boundary between the non-smoking and smoking areas in Restaurant A when customers were smoking, it was 0.043mg/m^3 in the non-smoking seats closest to the smoking seats. However, in Restaurant B the concentration was 0.092mg/m^3 around the boundary between the non-smoking and smoking areas when customers were smoking, and it was 0.008mg/m^3 in the non-smoking seats closest to the smoking seats.

Key Words: Passive smoking, separation of smoking areas, restaurants and bars, airborne dust concentration, wind speed

Introduction

Currently, the percentage of regular smokers in Japan is 19.3% (29.7% for men and 9.7% for women)[1]. The Basic Plan to Promote Cancer Control Programs, approved by the Cabinet in 2012, set a numerical target to bring the percentage of people who are exposed to secondhand smoke once or more per month in a restaurant or bar to 15% or less by fiscal 2022. However, a 2015 survey found that 41.4% of people are exposed to secondhand smoke in restaurants, 33.4% at game centers and 30.9%[2] at work and on the streets. This indicates that many people are exposed to secondhand smoke.

Passive smoking causes serious health problems, and as previously reported, secondhand smoke contains more cancerous substances and other hazardous substances than mainstream smoke[3], while secondhand smoke can also irritate the eyes, cause coughing and a sore throat, increase the heartbeat and lead to peripheral vascular constriction[4]. It has also been reported that physiologically, short-term exposure can affect the respiratory system and circulatory system[5]. Globally, 6 million people die every year due to smoking[6], and about 600,000 people die due to passive smoking[7]. This makes the implementation of measures to prevent passive smoking an urgent issue.

Given this situation, a wide range of discussions about smoking are currently underway throughout Japan ahead of the Tokyo 2020 Olympic and Paralympic Games. The International Olympic Committee (IOC) has banned smoking at Olympic venues and has refused the sponsorship of tobacco companies since 1988. Since the Barcelona 1992 Olympic Games, laws and ordinances

with penalties aimed at preventing passive smoking have been established in all of the cities holding the Olympics. In Japan, the Health Promotion Act was passed in 2002, but the regulations did not carry penalties. Revisions that would add penalties to strengthen measures to prevent passive smoking have been proposed, but restaurants and bars have been strongly opposed. As a result, there has been little progress with such legislation.

The proposal submitted by the Ministry of Health, Labour and Welfare[8] in March 2017 would prohibit smoking in medical facilities and the grounds of elementary, middle and high schools, prohibit smoking inside universities, welfare facilities for the elderly, gyms, civil service facilities, buses and taxis, with no areas to be set aside for smoking. Smoking areas are only allowed to be set up in halls, restaurants and bars, offices, railways and ships. However, smoking would be allowed in bars that primarily serve alcohol and have a floor area of 30m^2 or less, on the condition that they post a sign warning of passive smoking and install ventilation. Smoking would no longer be allowed at casual restaurants and Japanese-style pubs (izakaya) that primarily offer food and where smoking had previously been allowed. In the event that this regulation is violated and warnings and orders from the prefectural governor are ignored, the smoker will be fined 300,000 yen or less and the manager will be fined 500,000 yen or less.

However, the Health, Labor and Welfare Division of the Liberal Democratic Party (LDP), the majority party in the Diet, continues to oppose the ban on smoking in small restaurants and bars. Pro-smoking LDP lawmakers talk of protecting tobacco farmers and warn that earnings would fall at retail stores, restaurants, inns and hotels. The Democratic Party has been wary of taking excessive regulations, and established a group within the party that promotes separate smoking areas. Restaurant groups are gathering signatures on the streets to oppose this revised law, and there are no indications that it can pass the Diet.

The National Health and Nutrition Survey 2015 showed that 35% of non-smokers want measures to prevent passive smoking at restaurants and bars[2]. At present, many restaurants, worried about customers' needs and lower sales, have had to provide a separate smoking area. A wide range of systems for separating smoking and non-smoking areas have been introduced. Such systems cannot completely prevent passive smoking, but it is very important for the restaurants forced to provide a separate area and the users that a more effective separation method be used.

In previous research, a questionnaire on the implementation of measures to prevent passive smoking[9] and research comparing airborne dust concentration in smoking areas and non-smoking areas[10] have been carried out. However, little research has been done on exposure to tobacco dust due to differences in the separation method. There has been little previous research on exposure to tobacco dust due to the location of bathrooms and cash registers, which both smokers and non-smokers use, and seats.

Accordingly, this research focuses on commonly observed separate smoking areas, uses airborne dust concentration and wind speed to clarify the degree of exposure to tobacco dust due to the location of bathrooms, cash registers and seats.

Method

Target

Taking into account the impact of airborne dust concentration outside, two restaurants—one with the bathroom and cash registered located within the smoking area and one with bathroom and cash register in the non-smoking areas—that were within 500 meters of each other cooperated in this research. An overview of the target restaurants is shown in Table 1.

Restaurant A is a 24-hour family restaurant that is entirely non-smoking only from 11:00am to 3:00pm on weekends and holidays. Restaurant B always has separate smoking and non-smoking areas during its operating hours from 11:30am to 12:00am.

Neither of the restaurants have air purifiers or open/close windows to make adjustments. Instead, they use air conditioning, fans and air vents, and designate smoking and non-smoking areas by using partitions and dividing rooms.

In Restaurant A, the smoking and non-smoking areas are divided by a hallway, and a glass partition that is open close to the ceiling is used as a divider (Photograph 1). In addition, a partition has been installed to divide the non-smoking area into two (Photograph 2).

In Restaurant B, the area is divided by a wall to mark off the smoking area, but the smoking area and non-smoking area are always open as the entrance/exit has no door (Photograph 3).

■ Table 1: Overview of Restaurants Studied

	Restaurant A	Restaurant B
Store floor area	172.55m²	307.296m²
Number of seats (Smoking seats, non-smoking seats)	104 (32, 72)	156 (46, 110)
Air conditioning	2 in smoking area, 3 in non-smoking area, 1 in passageway	2 in smoking area, 2 in non-smoking area
Fan	None	2 in private room, 2 in non-smoking area
Air purifier	None	None
Vents	3 in smoking area, 3 in non-smoking area	3 in smoking area, 6 in non-smoking area
Opening/shutting windows	None	None
Method of separation	Glass partition (open toward the ceiling)	Wall (only opening is at entrance/exit)
Location of bathrooms and cash register	Smoking area	Non-smoking area
Operating hours	24 hours	11:30am–12:00am
Non-smoking hours	Holidays, 11:00am–3:00pm	None
Type of cuisine	Family restaurant	Italian

■ Photograph 1: Glass Partition in Restaurant A

■ Photograph 2: Partition in Restaurant A's Non-smoking Area

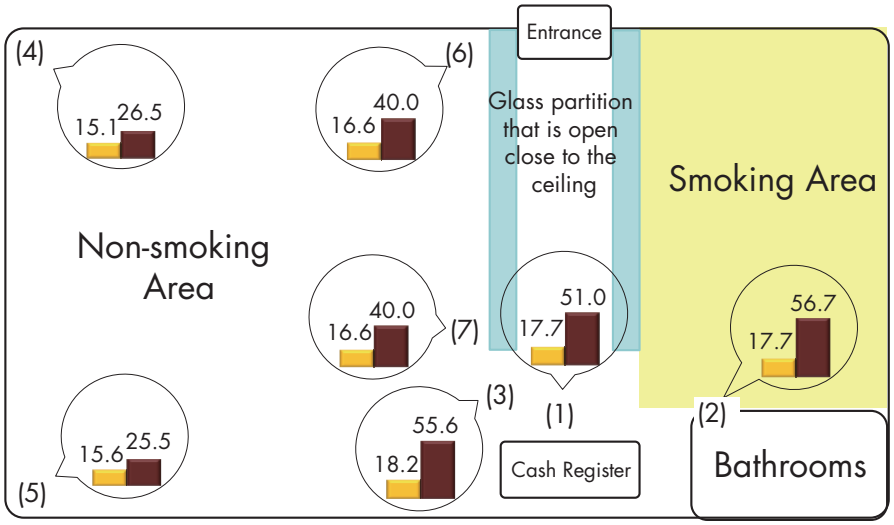
■ Photograph 3: Entrance to Smoking Area in Restaurant B

Figure 1 shows a chart of Restaurant A and Figure 2 shows a chart of Restaurant B.

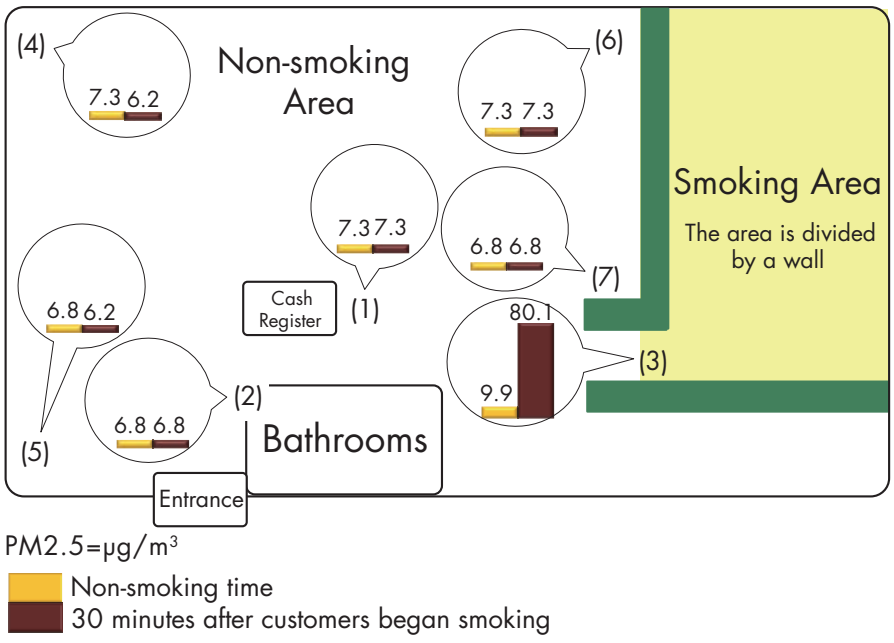
● Study Method

Seven measurement points were designated in each restaurant (refer to Figures 1 and 2), and the airborne dust concentration and wind speed were measured. Table 2 shows the points at which measurements were made.

■ Figure 1: Chart of Restaurant A



■ Figure 2: Chart of Restaurant B



■ Table 2: Measurement Points in Two Restaurants

Restaurant A		Restaurant B	
A-(1)	In front of the cash register	B-(1)	In front of the cash register
A-(2)	In front of the bathrooms	B-(2)	In front of the bathrooms
A-(3)	Boundary between the smoking area and the non-smoking area	B-(3)	Boundary between the smoking area and the non-smoking area
A-(4)	Non-smoking seat furthest from the smoking area	B-(4)	Non-smoking seat furthest from the smoking area
A-(5)	Non-smoking seats in the back corner of the restaurant	B-(5)	In private room
A-(6)	Non-smoking seats in corner by restaurant entrance	B-(6)	Non-smoking seats next to the wall on the smoking area
A-(7)	Non-smoking seats closest to smoking area	B-(7)	Non-smoking seats closest to smoking area

Airborne Dust Concentration

In order to identify changes in airborne dust concentration caused by smoking, we measured airborne dust concentration at each measurement point during the designated non-smoking time from 11:00am to 3:00pm when there were no smokers (Restaurant A) and before Restaurant B opened (10:00–11:30am), as well as the airborne dust concentration when customers were smoking.

In addition, we began measuring 30 minutes after customers began smoking and took one-minute measurements while customers were smoking at each measurement point in order to compare the airborne dust concentration at the different seats within the restaurants. The measurement locations were on top of the table in the seating area (70 centimeters from the ground), and at a location 1 meter from the ground at locations other than seats, such as (1) in front of the cash register, (2) in front of the bathroom and (3) the boundary between the non-smoking area and the smoking area (hereafter abbreviated as "boundary area"). Measurements will be taken beginning with the locations furthest from the smoking area, given that dust will adhere to the clothes of the person taking the measurements (Restaurant A: (4) → (5) → (6) → (7) → (3) → (1) → (2), Restaurant B: (4) →(5) → (1) → (2) → (6) → (7) → (3)).

After taking measurements at Restaurant A, which operates 24 hours a day, we put the same number of cigarettes as were smoked at Restaurant A on a table at Restaurant B and took measurements so that we were comparing airborne dust concentration at both restaurants based on the same number of cigarettes smoked.

Measurements were made using the Digital Dust Indicator (Model LD-5, Sibata Scientific Technology Ltd.) and we used 0.52μg/m^3 (recommendation of the Environmental Improvements Office, Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, Ministry of Health, Labour and Welfare) as the mass concentration conversion factor (K factor) for the dust.

Wind Speed

Wind speed was measured at seven points in each restaurant at five-minute intervals. The measurement points and order were the same as for the airborne dust concentration measurements. A digital wind gauge (Sibata Scientific Technology Ltd. ISA-79) was used for measurements.

● Survey Dates

Restaurant A: 2:00–5:30pm, October 12, 2014
Restaurant B: 10:00am–1:00pm, October 14, 2014

● Analytical Method

The results taken at each restaurant were organized in graphs and tables for analysis.

■ Results

● Smoking Conditions

Smoking was allowed at Restaurant A from 3:00pm, but there were no smokers until 3:45pm. At that point, there were five smokers, and they smoked five cigarettes. A total of 12 had been smoked by 4:45pm (when measurements were completed).

To ensure that the same number of cigarettes were smoked at both restaurants, at Restaurant B five cigarettes were lit and put upright on a table in the smoking area and measurements were taken starting 30 minutes later. Seven more cigarettes were lit and placed upright on the table, so that a total of 12 had been used by the time measurements were complete.

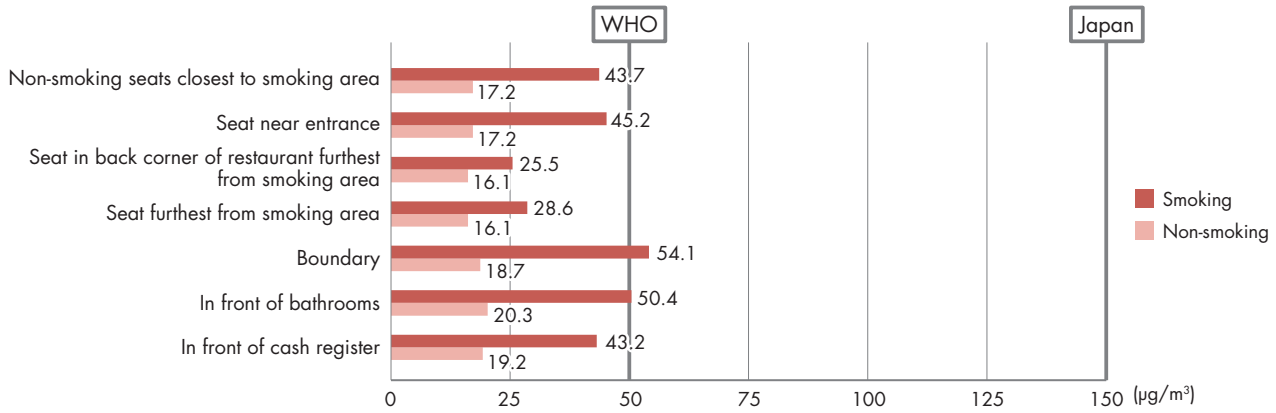
● Airborne Dust Concentration

The dust concentration at the two restaurants in question is shown in Figures 3 and 4.

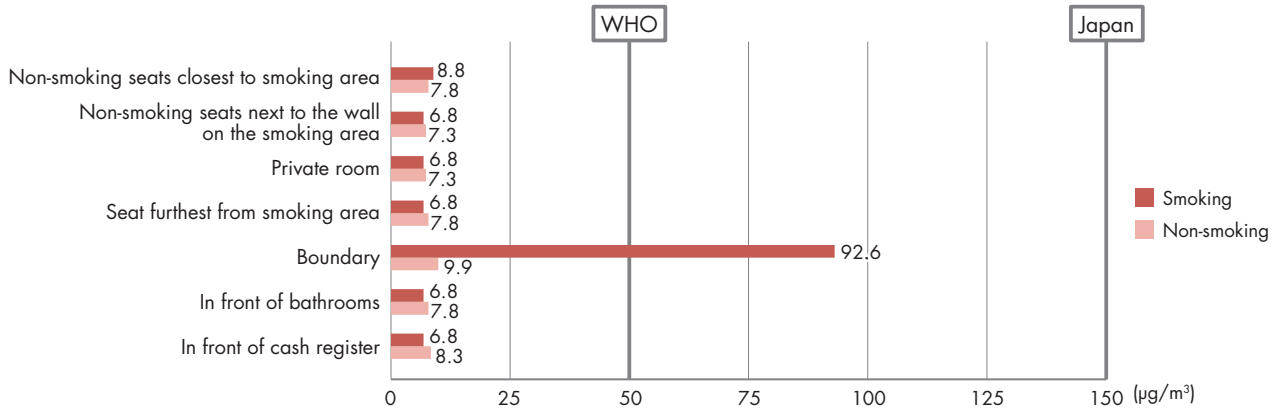
At Restaurant A, 30 minutes after smoking began, measurements were taken for one hour from 3:45pm. These measurements showed that (1) the concentration was about twice as high in front of the cash register as it had been during the non-smoking hours (Figure 5) and (2) about 2.5 times higher in front of the bathrooms (Figure 6). In other places, the value was 1.58 to 2.89 times as high as during the non-smoking hours. In Restaurant B, one hour after cigarettes had been lit, (1) the concentration was about 0.8 times as high in front of the cash register during the non-smoking time (Figure 5) and (2) about 0.9 times as high in front of the bathrooms (Figure 6), showing a modest decrease. In the other locations, the measurements were 0.87 to 1.12 times as high, but (3) the concentration at the boundary was about nine times as high as it was during the non-smoking time.

Airborne dust concentration in Restaurant A was within the Ministry of Health, Labour and Welfare's standard value (0.15mg/m^3; hereafter, "Japan's standard value") in all locations. However, measurements exceeded

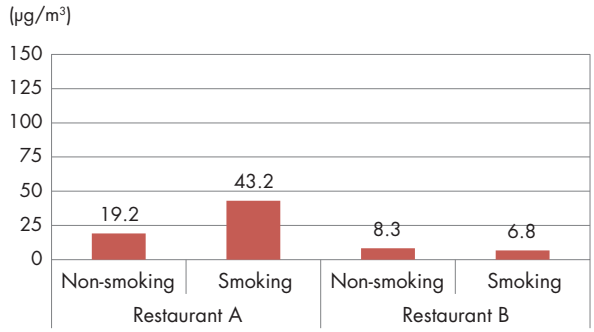
■ Figure 3: Changes in Airborne Dust Concentration at Restaurant A



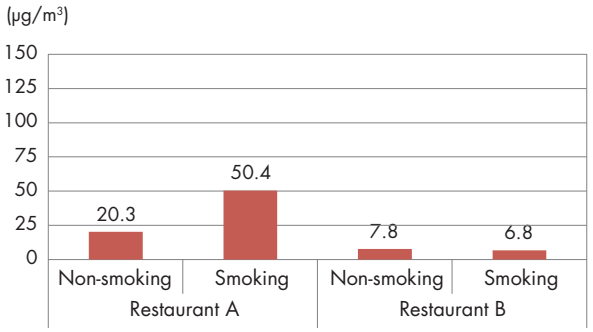
■ Figure 4: Changes in Airborne Dust Concentration at Restaurant B



■ Figure 5: Changes in Airborne Dust Concentration at Cash Register



■ Figure 6: Changes in Airborne Dust Concentration by Bathrooms

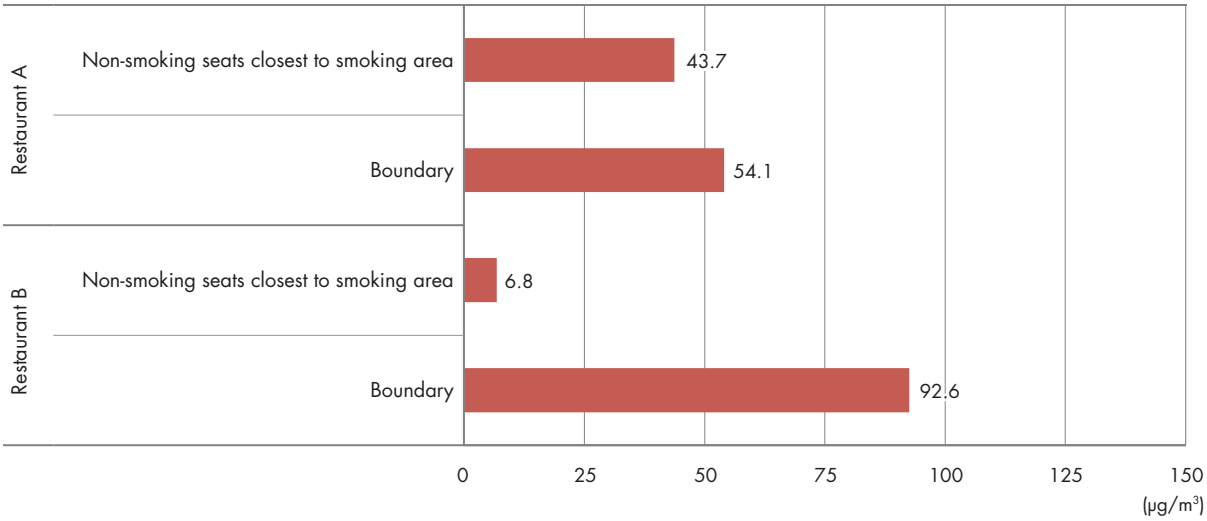


the WHO's standard value (0.05mg/m³) (2) in front of the bathroom and (3) at the boundary (Figure 3). Moreover, the airborne dust concentration during smoking times was 2.89 times higher compared to the non-smoking time by the (3) boundary (Figure 3), and 2.54 times higher compared to the non-smoking time at (7) the seats closest to the smoking area (Figure 3).

In Restaurant B, concentrations exceeded the WHO standard at (3) the boundary, but came in below the WHO standard value in other locations (Figure 4). Moreover, the concentration was 9.35 times higher at (3) the boundary between the non-smoking and smoking times, but the concentration was only 1.12 times higher at (7) the seats closest to the smoking area, which is negligible (Figure 4).

The difference in airborne dust concentration at

■ Figure 7: Difference in Airborne Dust Concentration at the Boundary and the Seats Closest to the Smoking Area during Smoking Hours (Comparison between Restaurants)



(3) the boundary and (7) the seats closest to the smoking area was about 0.3 times as high in Restaurant A and about nine times as high at Restaurant B. A comparison between the restaurants shows that there was a difference of about thirty-fold in the inflow of airborne dust.

● Wind Speed

At Restaurant A, the maximum wind speed was 0.4m/s and the minimum speed was 0.07m/s. At Restaurant B, the maximum wind speed was 0.21m/s and the minimum speed was 0.02m/s. The average wind speed was 0.16m/s at both restaurants. The wind speed was below the standard value (0.2m/s) at both restaurants.

■ Discussion

● Location of Cash Register and Bathrooms

In Restaurant B, the cash register and bathrooms were located on the non-smoking area, so the airborne dust concentration did not increase and non-smokers' passive smoking was minimal, in our view. In Restaurant A, airborne dust flowing into the non-smoking area was within the standard value, but it was highest at (3) the boundary, which indicates that rather than reaching the cash register and bathrooms by going through the boundary (smoking area), it would be better to put the cash register and bathrooms, which are also used by non-smokers, on the non-smoking area.

Since the airborne dust concentration by the bathrooms in Restaurant B did not rise at all even during smoking hours, the organization of the restaurant (with the bathrooms in the back, beyond the smoking area) seems effective (Figure 2, Photograph 4).

■ Photograph 4: Bathrooms Located in Back of Restaurant B

Airborne Dust Concentration at Two Restaurants

The airborne dust concentration at the two restaurants was within Japan's standard (0.15mg/m^3), but exceeded the WHO standard (0.05mg/m^3) in some locations. The allowable level under Japan's standard is three times as high as the WHO level, which is quite lenient. This suggests that there is reason for concern about the impact of airborne dust on health even if the concentration level is within the standard.

Moreover, the smell of tobacco was evident even in the non-smoking area in Restaurant A, compared to Restaurant B, so subjectively, the division between the two areas using partitions is inadequate (Photographs 1 and 2).

In Restaurant B, there was no increase in dust at the measurement points, showing that the inflow of dust to the non-smoking area is minimal. In both restaurants, the seats closest to the smoking area ((7) in both restaurants) had lower dust concentration than (3) the boundary area, but it was much lower in Restaurant B than in Restaurant A. This is likely because of the wall that blocks dust from the smoking area to the non-smoking area and the minimal influx of dust to the non-smoking area since the doorway is narrow (Figure 2, Photograph 3).

In the restaurants overall, dividing the structure of the area to limit the flow of dust by having a narrow entrance to the smoking area, as in Restaurant B, and having a wall between each area enables a more effective separation of smoking areas from non-smoking areas. However, since only two restaurants were examined in this study, we cannot reach conclusions based on these study results alone. We hope to increase the number of restaurants studied and make comparisons between many restaurants in the future.

Wind Speed

Neither of the restaurants reached the standard for wind speed, indicating that wind circulation is sluggish within the restaurants. By installing ventilation, raising the wind speed to the standard value and creating circulation within the restaurant so that wind flows from the non-smoking area to the smoking area, the tobacco smoke flowing to the non-smoking areas would decrease.

The two restaurants have the same number of vents in the smoking area, but compared to Restaurant A, Restaurant B has vents closer to the entrance by the boundary and the entrance to the smoking area is more narrow. This likely inhibits the flow of dust.

Measurement Devices and Measurement Environment

In this research, the only objective data measured was airborne dust concentration so that we could consider the impact of passive smoking. However, in order to measure gaseous materials included in tobacco smoke that cannot be measured using dust measurement devices, in the future we would need to use a detector tube measurement system, which can analyze gas, and gas collection tubes. Moreover, people can detect the smell of tobacco smoke that machines cannot measure, and in this research all three people carrying out the measurements could smell smoke, which indicates that having multiple researchers measure smell would be effective.

In addition, in this survey 12 cigarettes were smoked per hour in restaurants with an area of more than 170m^2, but in reality more smokers than this would visit the restaurant, and it would not be unusual for more cigarettes to be smoked, with smoke a constant condition in small-scale restaurants. Accordingly, we cannot assume based on these study results that improvements to the means of separating the smoking and non-smoking areas could prevent passive smoking. Previous research reported that when an izakaya divided the smoking and non-smoking areas using a wall and an automatic door, the concentration was around 70μg/m^3 even in the non-smoking area, the level at which the Ministry of the Environment warns people not to go outside[11]. Since the measurements would differ considerably even within the same facility depending on the number of smokers and the number of cigarettes, taking measurements under a range of conditions would be a key issue going forward.

Conclusion

This study examined restaurants that have separate smoking areas with a focus on the inflow of the dust from tobacco smoke to the non-smoking area, its dispersion throughout the restaurant, and actual conditions depending on the structure and location of vents. The airborne dust concentration at the two restaurants was within Japan's standard (0.15mg/m^3), but exceeded the WHO standard (0.05mg/m^3) in some locations. This indicates that the

separation is not adequate in terms of the health of both customers and restaurant employees.

At this point, Japanese restaurants and bars are allowed to have a separate smoking area. Of the 851,010 restaurants registered on a restaurant and bar search site in Japan, 129,214 do not allow smoking anywhere in their restaurant (as of April 1, 2017), which is 15.1% of the total. On another site enabling searches of restaurants and bars, out of the 558,549 restaurants registered, 23,427 do not allow smoking anywhere (as of April 1, 2017), which is only 4.1%. Almost 15 years have passed since the Health Promotion Act, which requires that restaurants take measures to prevent passive smoking, went into effect, but many restaurants still have a separate smoking area or allow smoking anywhere in the restaurant. Conditions could change significantly with future legislative revisions, but many restaurant and bar managers and customers are asking for a separate smoking area. If they do not want a total ban on smoking in restaurants, smoking areas should be separated based on scientific data in a way that limits damage to health. To achieve this, we should continue to carry out studies so that we can generate objective data on tobacco smoke in a range of restaurants.

Acknowledgments

We would like to express our sincere appreciation to the two restaurants that cooperated in this research and all of those involved for their support and assistance.

This research received grants-in-aid for scientific research from the Japan Society for the Promotion of Science (JP26861992). There are no conflicts of interest to disclose.

References

1. Japan Tobacco Inc.: Japan Smoking Rate Survey. https://www.jti.co.jp/corporate/enterprise/tobacco/data/smokers/index.html. Accessed April 3, 2017.
2. Ministry of Health, Labour and Welfare: Results of the National Health and Nutrition Survey 2015 and overview of results. http://www.mhlw.go.jp/stf/houdou/0000142359.html. Accessed April 3, 2017.
3. IARC: Tobacco Smoke and Involuntary Smoking. *Monographs on the Evaluation of Carcinogenic Risks to Humans* 83. IARC, Ryon: 2004, 1191–1201.
4. Investigative Commission on Smoking and Health Problems: Smoking and Health (New edition). Hokendohjinsha Inc., Tokyo: 2002, 178–188.
5. Andreas D. Flouris, Constantine I. Vardavas, Giorgos S. Metsios, Aristidis M. Tsatsakis, Yiannis Koutedakis: Biological evidence for the acute health effects of secondhand smoke exposure. *American Journal of Physiology* 298(1): 2009: L3–L12
6. WHO: WHO report on the global tobacco epidemic 2015. http://www.who.int/tobacco/global_report/2015/en/. Accessed April 3, 2017.
7. Mattias Öberg, Maritta S Jaakkola, Alistair Woodward, Armando Peruga, Annette Prüss-Ustün: Worldwide burden of disease from exposure to second-hand smoke: a retrospective analysis of data from 192 countries. *The Lancet* 377(9760): 2011: 139–146.
8. Ministry of Health, Labour and Welfare: Strengthening Preventive Measures against Passive Smoking (Draft of Basic Approach). http://www.mhlw.go.jp/stf/houdou/0000153190.html. Accessed April 3, 2017.
9. Takeshi Usami, Akiho Inaba, Hiroshi Yoshida, Akira Ikari, Suketami Tominaga: A survey examining the countermeasures taken by restaurants to prevent passive smoking and an analysis of the economic impact of smoking prohibition in restaurants. *Japanese Society of Public Health* 59(7): 2012: 440–446.
10. Hiroko Okuno, Erika Tomoyasu, Mayumi Mizuta, Ikuharu Morioka: Conditions of Secondhand Smoking in Restaurants and Karaoke Bars. *Japanese Journal of Medical and Nursing Education (JMNE)* 17: 2008: 19–25.
11. Hiroshi Yamato, et al.: Research on Status and Issues of Passive Smoking in Restaurants and Bars. Health Labour Sciences Research Grant Fiscal 2011 "Research on status and issues of passive smoking in facilities used by many people such as restaurants and bars" Report: 2011.

Corresponding Author: Yoshiko Bai
E-mail: bai@sahs.med.osaka-u.ac.jp

Submitted Article

That Most Important 'Black Box' in Every Hospital

Mark A. Colby

Chairman, CGI KK

Every hospital has a clinical laboratory, but most of us only think about it when something goes wrong; STAT results are late, a sample is lost or the wrong test is ordered. Other than that, all we see are the reams of data generated within patient records. For most of us, the clinical laboratory is a 'black box' where samples are sent and results are reported. Most of us give little thought to what happens in that black box, but we should.

From a global prospective, Japanese clinical laboratories are increasingly isolated due to the lack of compliance to established accreditation or certification programs validating the existence and completeness of Quality Management Systems (QMS). From one perspective, this can lead to minor embarrassments when non-compliant lab data is summarily rejected for submission for clinical trials. Beyond this loss of face, however, is the reality that the lack of QMS in the laboratory may be costing the healthcare system money and increasing morbidity and mortality in patient populations.

"So, why do clinical laboratory departments require unique QMS accreditation when other hospital departments don't?"

The simple answer to the above question can be found in what is referred to as error amplification. In contrast to other hospital departments where errors tend to be confined to single cases and single instances, errors in the laboratory are often cooked into complex systems, and once set in motion, can be repeated potentially for years on end. There have been documented cases where laboratory assay validation problems, for example, created 'baked in' errors that were repeated for more than a decade and impacted upwards of 100,000 patients before they were discovered. The cost of these kinds of errors both in economic and human terms can be dramatic.

Laboratory Quality Management was highlighted in the United States in the 1980's when an investigative reporter from the Wall Street Journal discovered that US laboratories were delivering large numbers of false negative cervical screening test results. Undercover investigations revealed that the reason for these false results were systematic errors built into the testing protocols that had been ongoing for decades, impacting hundreds of thousands of patients and had gone completely undetected.

The report estimated that in economic terms, this specific problem cost the US healthcare system hundreds of millions of dollars in avoidable down-stream medical expenses. In human terms, the data concluded the real possibility of thousands of pre-mature deaths. Disclosing this specific problem and extrapolating it to other potentially problematic laboratory procedures and practices put the possible impact in the billions of dollars each year.

These stunning revelations resulted in the creation of a law called The Clinical Laboratory Improvement Act (CLIA88). CLIA88 requires that all laboratories incorporate QMS and prove compliance through accreditation and regular inspections. It also requires that all laboratories perform proficiency testing regularly and on all assays performed.

It is noteworthy that the U.S. was not alone in discovering the devastating impact of amplified laboratory errors costing countries both life and treasure. In Japan, for example, the consequences of a decades-long system failure in hepatitis testing generated tens of thousands of false negative results, the result of which still impacts the healthcare system decades later. (The actual number of hepatitis cases caused by laboratory error has never been determined, but it is surely a major factor in Japan having one of the highest hepatitis infection rates in the world.)

Justified by numerous examples, many with

significant economic and human consequences (mostly caused by systematic error amplification) resulted in clinical laboratory QMS accreditation programs quickly spreading to Europe and other industrialized countries around the globe.

Interestingly enough, Japan has largely ignored these calls for mandatory QMS accreditation. The reason for this can be debated, but in my opinion it is because most here in Japan assume that quality systems are naturally in place. After all, Japan is the country that invented quality systems and is renowned for it around the globe. In fact, export businesses such as the auto industry maintains some of the highest quality standards anywhere. What is missing in non-export sectors, such as clinical laboratories (and nuclear power plants?) is quality as the key to maintaining a global competitive advantage that the export sector is intently focused on. Export businesses have large quality budgets, staff members dedicated only to quality, and strictly enforced rules designed to ensure quality. They are intensely focused on stopping systematic amplifiable errors before they start. Contrast this to the likes of a clinical laboratory, where there is no quality manager, no established quality system, and no quality checks and balances. It is important to note that a clinical laboratory is in an environment that is every bit as complex as any automobile assembly line. The big difference between the two, however, is that the potential consequence of systematic amplified error in the laboratory can be much more costly in both economic and human terms.

There are other reasons particular to Japan why we should be concerned with error amplification in clinical laboratories. Among these are:

Over-dependence on the Laboratory Instrument Manufacturer

The manufacturers of laboratory instrument and reagent systems have been transformational in driving innovation and utility in the clinical laboratory. Although their contributions cannot be underestimated, these are businesses, which depend on maintaining sales by satisfying very demanding customers. Services expected of manufacturers that global quality accreditation standards mandate, are the responsibility of the laboratory. For example, when new instruments and reagent systems are placed into service, a validation and verification process should be the mainstay of any QMS system. In Japan, however, customers demand a "plug and play" level of service and depend entirely on the manufacturer. Errors cooked into problems with the validation and verification process can persist and be amplified for long periods of time.

There are also issues with manufacture service practices. For example, when a problem occurs, a manufacturer service representative is called in to fix it. Upon completion of the repair, the laboratory staff is typically not given any report of what the problem was and whether or not it impacted prior sample data. QMS systems require a retrospective look at data after repairs and re-testing of the impacted samples. Major repairs would call for the re-validation of all impacted testing protocols, a practice seldom employed by manufacturers.

External Proficiency Testing

Global QMS accreditation programs require that laboratories perform external proficiency testing on all tests and on a regular basis. The reason for this is that external proficiency testing is the best way to catch errors before they amplify in scope. This is helpful in the case of a single isolated laboratory, but is even more beneficial when viewed on a system wide basis. External Proficiency Testing provides for an excellent check and balance, helping to alert manufacturers of their systematic amplified errors. These errors, of course, can be global in scope and affect millions of patients!

Japan has three external proficiency testing programs available. These are the JMA, JAMT and CAP/JSLM. The JMA and JAMT programs cover perhaps eighty of the most common tests run in hospital labs. CAP/JSLM, on the other hand has nearly 2000 proficiency testing procedures available. The JMA and JAMT programs are utilized by about 3000 hospital labs, but only about 200 laboratories participate in CAP programs. Only laboratories accredited by CAP are fully compliant in external proficiency testing. Most Japanese hospital laboratories therefore only perform external proficiency testing for the most routine assays, leaving many testing systems devoid of external checks. Unfortunately, these testing methods tend to be more complex, therefore more prone to error. Many of these tests may also have dire consequences for patient outcomes in the case of erroneous results.

Even for routine assays, proficiency testing is usually

problematic in Japan. The most well known secret in Japanese labs is that most labs repeat proficiency tests several times and compare the results with other laboratories prior to submission. Not only does this practice defeat the purpose of proficiency testing in the first place, it also puts these labs in violation of all global QMS standards. In countries where QMS is required by law, this practice could even land the perpetrators in jail for fraud.

Quality Control Practices

Laboratories run control samples at regular intervals in order to confirm the consistency of results. Having participated in inspections of hundreds of Japanese laboratories, I can tell you that the quality control data generated by these laboratories is excellent. In fact, it is too excellent.

Laboratories set up quality tolerance levels. Many testing protocols call for a Standard Deviation (SD) not to exceed a level of 2. At 2SD, simple statistical mathematics tells us that 5 results out of 100 will not fall into this range. Typically, when quality control results exceed the tolerance limits, they are repeated. If they fall within limits the second time, it is so noted in the record as a common statistical outlier, and associated patient results are reported. If the QC results fail repeatedly, if they become erratic, or begin to demonstrate a problematic trend - this could be the beginning of a significant and potentially amplifiable error. Global QMS accreditation standards require that all quality control results (the good ones and the bad ones) are recorded to enable laboratories to predict errors at the earliest opportunity and to investigate errors retrospectively.

Quality control results in most Japanese laboratories are typically flawless. All recorded QC results fall within established specifications. This would be very impressive - if it was not statistically impossible.

πππ

It is my opinion that the reasons for many of the above factors can be found within cultural attributes unique to Japan. For the manufacturers, the customer is god and they want to do everything possible to ensure that customers are not troubled. For proficiency testing, the results go to the hospital administration. Poor results can cause the entire laboratory to lose face. Flawless quality control results are necessary to reinforce the fantasy that the quality is always perfect. All of this is fine until you factor in the potential impact to patient outcomes.

Recent Changes in Laboratory QMS in Japan

There is some good news. The government has begun to see the light and in 2016 began offering reimbursement to laboratories to gain and maintain QMS accreditation. This resulted in over 100 laboratories gaining accreditation. This number is estimated to increase to 200 laboratories by the end of 2018. Furthermore, there is legislation in the works that will require all clinical laboratories, from clinics to the largest hospitals to have minimal levels of QMS in place, in order to operate. I am hopeful that this law will come into effect by April 2018, but only time will tell.

The Biggest Challenge for Japanese Labs Wishing to Become Accredited

The process of becoming an accredited QMS compliant laboratory is not an easy task. However, at the most basic level, QMS is simply a set of rules. On an individual rule basis nearly all of these rules are just common sense. The difficulty is in organizing, educating and maintaining compliance to a set of rules. This is something that most Japanese labs excel at once they understand it.

There is one important component to global QMS accreditation, however, which will require a great deal of discussion to successfully implement in Japan. To be successful, this discussion must involve both the laboratory and clinical staff. To obtain global QMS accreditation laboratory systems must focus on patient outcomes, NOT on the delivery of quality data. This will require a fundamental shift in thinking and for the laboratories to ask themselves some important and possibly uncomfortable questions. To name a few of these questions: Did the clinician actually look at an urgent result? Does the clinician understand how to interpret results from new emergent testing methodologies? Is the result report form easy to interpret and is there interpretive guidance included where needed?

The causes of systematic amplified errors are not confined to reagents, algorithms and machines. Some of the most vital errors occur from points after delivering data and determined by how that data is used. A globally

engaged QMS accredited laboratory will not have the luxury of washing its hands of responsibility once the data leaves the laboratory.

QMS Programs are Available in Japan

The largest and unquestionably most rigorous laboratory accreditation program is administered by a non-profit organization called the College of American Pathologists (CAP). CAP accredits nearly 8000 laboratories in over 50 countries and provides proficiency testing to over 23,000 laboratories. There are 27 CAP accredited labs in Japan, most of which are clinical reference laboratories. All CAP accreditation programs are available in the Japanese language. There is one CAP accredited hospital laboratory in Japan; Sakakibara Memorial Hospital located near Tokyo.

A newer entrant to clinical laboratory accreditation is ISO 15189. This standard was originally introduced in Japan by Germany's TUV SUD in 1998. The standard is now managed by the JAB, which started accrediting laboratories in 2004. Globally, ISO boasts about 4500 laboratories and is favored by many laboratories in Europe. There are over 100 ISO15189 accredited hospitals and reference laboratories in Japan.

It is also possible for laboratories to build their own internal QMS processes independent of external CAP or ISO audits. In fact, if the new laboratory QMS law is passed by the Diet this year, there may be no choice. If a laboratory chooses to build and maintain their own QMS program, the most practical way of doing this is to purchase the CAP or ISO guidelines. There are also software systems available to support implementation of these standards in a stepwise and assimilate-able fashion for unique needs and timelines.

How Can a Laboratory Gain QMS?

In response to the new reimbursement and impending legal requirements, several companies have developed support programs and software designed to help labs with their QMS needs. Among these are, Roche Diagnostics, CGI, Sysmex, Sekisui and LSI Mediscence. Both Sysmex and CGI/Roche have software programs available to help guide hospital laboratories through the process of building QMS systems.

About the Author: Colby first came to Japan professionally with Abbott Laboratories. He is the founder of Tokyo based CGI KK. CGI pioneered CAP Accreditation Programs from 1991 and TUV-ISO 15189 programs in 1998. He is the author of several books including *Negotiating the Gray Maze, the Business of Medicine in Japan and the Japan Healthcare Debate.* He is also the editor-and-chief of *In-Vitro Diagnostic Global News*.

Submitted Article

Impact of Fiscal Year 2016 Medical Fee Revision on Medical Institution Management

Koichi Kawabuchi

Department of Health Care Economics,
Division of Public Health,
Graduate School of Medical and Dental Sciences,
Tokyo Medical and Dental University

The environment surrounding management has become more critical each day. In fact, 70% of all hospitals had deficits in June 2014. Establisher deficit was reported in 325 of 358 (90.8%) municipal hospitals, 124 out of 186 (66.7%) other government hospitals, and 53 out of 101 (52.5%) private hospitals (Overview of Actual Conditions of Management of Medical Institutions; 645 hospitals in 2014). The results of the 20th Survey on Economic Conditions in Health Care (Survey on Health Care Facilities) conducted by the Ministry of Health, Labour and Welfare (MHLW) showed negative profit ratios for all hospitals, including health care corporations, and the deficit was significant. Establisher deficit was also significant, with national hospitals at -0.3% from 3.3%, public hospitals at -11.3% from -8.3%, and government hospitals at -2.4% from -0.7%.

■ Profits and Losses

Under the aforementioned circumstances, the fee schedule was revised in April 2016. This revision was acknowledged as a "minor change." However, these minor changes were made over a wide range, and modifications to the master codes were made to 470 items, including new code additions. The aim was to establish a health delivery system that could support super-aged societies by 2025 and that was a continuation from the last two revisions. A key phrase was "departure from the conventional hospital system."

This minor change would eventually lead to a simultaneous revision of two fee schedules (one for the Medical Insurance and the other for the Long-Term Care Insurance) for FY 2018. In particular, on the basis of the Comprehensive Reform of Social Security and Tax, the "functional improvement of differentiation, enhancement, and cooperation on health care" and the "promotion of an integrated community care system" became the most important issues.

In addition to these two concepts, the Medical Insurance Group of the Social Security Council and the Committee on Health Insurance have established the following specific items: the "assessment of a primary care doctor, dentist, pharmacist, and pharmacy," the "assessment of palliative care, cancer care, response to dementia patients, innovation, and medical technology," and "changes to pricing rules of generic products, rationalization of large pharmacies located in or near hospitals, and the test introduction of the evaluation of cost-effectiveness."

■ Struggle for 25%

Not every action was carried out smoothly. The most controversial point was the facility selection criteria related to the basic hospitalization fee for a general ward, which can be calculated when at least one nurse for each seven patients are allocated for an entire day (hereinafter, "a 7:1"). The government finally established criteria to modify the standards for the "severity and necessity of medical and nursing practices" from the current level of 15% to 25% or higher.

The MHLW originally estimated that the level of a 7:1 or lower system was approximately 23%. Subsequently, the authorities concluded that patients with acute illnesses were not treated adequately. Thus, new item C was introduced and the requirements of current

items A and B were reviewed. The contents of item C were mainly surgically related, such as craniotomy and thoracotomy procedures, as well as surgery under general anesthesia and spinal anesthesia. Medical treatment related to critical care was added. Concrete additional items include percutaneous endovascular treatment and procedures such as cardiac ablation and the invasive treatment of gastrointestinal disorders. The purpose of these additions was to assess medical therapies; however, they led to an increase in the level of a 7:1 or lower system. As a result, payers claimed "a level exceeding 25%" because a 25% level would not be much different from the current situation, whereas providers called for "a level in the lower half of 20%" rather than the overall level by taking into account the financial risks that small hospitals would face.

After several complications, the proportion of targeted patients settled down to "a level of 25% or higher." The MHLW initially estimated that the decreased level of a 7:1 hospital bed ratio would be 2.9% to 4.9% and currently explains that the diminution in such a ratio would be smaller because of the addition of "Medical treatment related to critical care." For small and medium-sized hospitals, without making the notification for hospital wards with 7:1 and 10:1 ratios (number of hospital beds: less than 200), the proportion of targeted patients was to be reduced to "a level of 23% or higher" during a set tentative period. The authorities announced that the benefits from the review items would be low because the number of surgeries in these hospitals was small; however, hospitals with a 7:1 hospital bed ratio should take a careful approach to the review items.

Whether or Not a 7:1 System Provides Benefits

Hospitals will have difficulty covering labor costs even if the revenues of a 7:1 system remain unchanged from those of a 10:1 system, despite the staff assignments for a 7:1 system. The smaller that a hospital becomes, the higher the proportion of labor costs because of the health policy in Japan. In our country, a hospital with more than 200 staffed beds is generally regarded as a "large hospital" that covers various departments. However, hospitals with fewer than 200 beds account for 80% of all hospitals. When these small and medium-sized hospitals attempt to maintain the same level as large hospitals, problems may arise because the medical staff must consist of an adequate number of physicians and nurses. A typical example is the Red Cross Hospital group, which has a large number of hospitals with fewer than 200 beds.

According to the annual closing of accounts for FY 2014 of the Japanese Red Cross group, an organization with 90 hospitals in 44 prefectures in Japan, 60 hospitals had a deficit and 30 hospitals had a surplus (except for Okayama Red Cross General Hospital and Japanese Red Cross Nagasaki Genbaku Hospital, which adopted consolidated accounting). After the FY 2010 Medical Fee Revision, the group turned a profit and remained in surplus for four consecutive years, and then faced a deficit for the first time in five years. The entire group's deficit totaled ¥17.3 billion. In particular, hospitals with less than 200 beds have sustained a deficit for the past 15 years. Furthermore, 69 hospitals were 7:1 hospital operations, 47 of which had a deficit. The Survey on Economic Conditions in Health Care published in November 2015 revealed that hospitals with a 7:1 system showed a trend toward a deficit, which was supported by the report on the FY 2014 account settlement of the Japanese Red Cross group.

Therefore, an increase in basic hospitalization fees for a 7:1 patient-to-nurse ratio is disproportionate to the increase in labor costs. Table 1 shows that labor costs of nursing staff in a hospital with a 7:1 patient-to-nurse ratio are 1.4 times higher than those in a hospital with a 10:1 ratio. However, an increase in revenue per day is only approximately 1.1 times in terms of basic hospitalization fees for hospitals with a 7:1 patient-to-nurse ratio (patient-nurse ratio: 7:1, nurse staffing ratios: 70% or higher). In the FY 2016 Medical Fee Revision, the requirements for basic hospitalization fees for a 7:1 patient-to-nurse ratio were further tightened. A size-dependent policy in which fees are added simply by assigning nursing staff will become unavailable. To offer acute care with an unnecessary 7:1 ratio will weaken hospital management. Among the 79 hospitals of the Social Welfare Organization's Saiseikai Imperial Gift Foundation, 51 of them submitted an application for basic hospitalization fees for hospitals with a 7:1 patient-to-nurse ratio. However, 20 hospitals may fail to meet the requirements for the end-of-period calculation as an interim measure as of the end of September *(cited from the MEDIFAX website, accessed on April 8, 2016)*.

■ Table 1: Inpatient Revenue per Nursing Staff per Day (100 Patients, General Ward)

Item	7:1 basic hospitalization fee	10:1 basic hospitalization fee	13:1 basic hospitalization fee	15:1 basic hospitalization fee	15:1 basic hospitalization fee
Average length of stay	Within 18 days	Within 21 days	Within 24 days	Within 60 days	Within 60 days
Placement of nursing staff	7:1	10:1	13:1	15:1	15:1
Ratio of nursing staff	70%	70%	70%	70%	40%
Prescribed points	1,591	1,332	1,121	960	960
Addition and subtraction of placement of nursing staff	—	—	—	12	—
First addition (within 14 days)	450	450	450	450	450
Revenue per day (yen)	2,041,000	1,782,000	1,571,000	1,422,000	1,410,000
Number of nursing staff (person)	72	50	39	34	34
Nurse (person)	51	35	28	24	14
Assistant nurse (person)	21	15	11	10	20
Revenue per person per day (yen/person)	28,347	35,640	40,282	41,824	41,471

■ Chaotic Circumstances Surrounding the Diagnosis Procedure Combination

The Japanese Red Cross Society's activities are divided into nine categories. One of these categories is a medical service business, which is a core business of the society. The number of employees and the budget for this business account for more than 80% of the entire group. The actual breakdown in revenues and expenses of Red Cross hospitals showed that revenues from the medical service business accounts for the majority of total revenues, at 98.3% (contents of revenues: hospitalized care 68%, outpatient care 26%). Revenues from hospitalized care are largely attributable to the Diagnosis Procedure Combination/Per-Diem Payment System (DPC/PDPS).

This system aimed to standardize medical care; however, it has no success in reducing the average length of stay, at least for diabetes mellitus or cataracts. In the elaborate quantitative analysis conducted in our "visualized hospital network," statistical significance was not shown[1–9]. This network consists of voluntary organizations that aim to simultaneously improve the quality and efficiency of medical care and includes DPC data collected from more than 100 hospitals.

In this revision, the "Severity Index" was newly added as an "evaluation index for the deviation rate of patients' severity that cannot be evaluated with the DPC score," along with the complex index; however, no one understands this revision. Length of stay II was set as a multiple of 30 (e.g., 30-, 60-, and 90-day). The "CCP Matrix," combined with surgical procedures and the diagnosis of sub-diseases such as comorbidities on admission or onset after admission, also emerged. However, many unclear points exist regarding the objective of the "Japanese version of the Diagnosis Related Group (DRG)." The number of DPC classifications was substantially increased to 4,918 from 2,873. Ideally, the object is presumed to reorganize the current system into one that reflects patient severity, as is the case in the United States. Unfortunately, health care settings cannot keep up with this concept.

In the Saiseikai Group, 54 out of 68 hospitals with a 7:1 or a 10:1 patient-to-nurse ratio were subject to the DPC, and only five hospitals had a higher coefficient when the FY 2015 coefficient based on medical institution (except for the function evaluation coefficient I) was compared with that of FY 2016. Saiseikai Kumamoto Hospital, which belongs to group II and is well known for its clinical pathway and community health care coordination model, was expected to show significantly decreased sales that exceeded a 0.036-point decline *(cited from the MEDIFAX website, accessed on April 8, 2016)*. Of the 70 DPC hospitals of the Kouseiren group, only 13 in group III had a coefficient based on medical institution (except for the function evaluation coefficient I) that increased, and similarly for one out of six in group II.

The rules of the DPC are unclear. Accordingly, it is hard to provide answers, although questions about effective ways to increase revenues are often received. Approximately 27 types of parent organizations exist in the Japanese medical community. Therefore, the risk of aiming for a European single financial framework can be considerable because public sectors constitute a majority

in Europe. The DPC payment system can be said to enter an "era of zero visibility."

A trial of DRG/PPS (Prospective Payment System) had not been completely subjected to careful scientific studies, resulting in a failure. However, it is necessary to avoid the fact that the 1,667 DPC targeted hospitals that increased their number of beds to approximately 490,000 face bewildering situations. Salary expenses account for approximately half (48.8%) of the medical expenses of the Japanese Red Cross Hospital group. Furthermore, these expenses, together with material (26.1%) and equipment (9.6%) expenses, account for 84.5% of total expenditures. Most expenditures are essential for hospital management, which leaves little room for cost savings.

In this environment, the Japanese Red Cross Society carried out organizational changes, such as introducing a headquarters system on the basis of environmental changes related to hospital management. The society commenced information sharing and group purchases of drugs and medical materials by taking advantage of the group's strengths. This approach is one that only a group hospital with more than one trillion yen in total medical revenues could provide.

Change in Rehabilitation from Quantity to Quality

This revision imposes a form of a "pay for performance" on rehabilitation fields. For example, up to the present, it has been possible to calculate the disease-specific rehabilitation of a convalescence rehabilitation ward up to 9 points, according to earned values. However, in the future, it will become impossible to calculate a rehabilitation score of more than 6 points (20 minutes per point) except within 60 days after onset of acute diseases if "actual performance does not reach a certain level." This "actual performance does not reach a certain level" phrase means that the two consecutive numbers of a provided rehabilitation score per day per person are higher than 6 points, and the average growth in activities of daily living (ADL) is less than 27 points using the Functional Independence Measure (FIM).

Yasuko Hashimoto, President of Senri Rehabilitation Hospital, who is famous for being a shrewd female manager, estimates that patients with a Motor FIM score at rehabilitation admission of 40 to 59 points are the most profitable and can easily meet the outcome criteria *(The Phase 3, April 2016)*. Thus, given a certain number of patients having a favorable outcome, she considers dividing patient populations—including those excluded from these criteria—into three categories for each point: emphasis, improvement, and early hospital discharge/home-based follow-up.

In this revision, maintenance and enhancement points of the ADL scale that were applied were substantially increased to 80 points from 25 points when requirements were met; instead, stringent requirements were imposed: only a day on which a pre-registered medical staff worked for more than 6 hours could be added, and the facility's rehabilitation criterion was changed from "a facility shall have at least one or more full-time physical therapists or other professionals" to "a facility shall have more than two full-time staff or at least one or more dedicated staff."

For the facility's rehabilitation criterion, the requirements for full-time staff were relaxed to a "bilateral concurrent post is acceptable in a facility that requires a full-time speech therapist." Regarding the rehabilitation fee for patients with intractable diseases, the "more than two full-time required professionals" can concurrently serve as a professional of other rehabilitation facilities. Makoto Ishikawa, permanent director of the Kaifukuki Rehabilitation Ward Association, believes that, by prefecture, obvious areas with excessive beds exist on the basis of the estimated number of beds per 0.1 million individuals (recovery rehabilitation units as of November 2015: 1,348 hospitals, 1,714 wards, and 76,631 beds) *(cited from the MEDIFAX website, accessed on March 23, 2016)*.

In contrast, the allocation rate of rehabilitation specialists to recovery rehabilitation units remains at approximately 30% (386 of 1,312 hospitals).

This rate was calculated from a comparison of the number of rehabilitation specialists who passed the national examination with the number of such specialists in 2000 and 2016. Between 2000 and 2016, the number of rehabilitation specialists increased from 749 to 2,144. During the same period, the number of physiotherapists (PT) increased from 26,500 to 139,221 (5.25 times); the number of occupational therapists (OT) increased from 14,500 to 80,075 (5.25 times); the number of speech-language-hearing therapists (ST) increased from 4,200 to 27,245 (6.49 times); and the increase in the total number of PT, OT, and ST was from 45,200 to 246,550

(5.45 times). Approximately 60% of rehabilitation specialists (150,000) have worked in clinical settings of the health insurance system. Given that medical fee points are recorded accordingly, health care costs related to rehabilitation would naturally increase.

The Survey of Medical Care Activities in Public Health Insurance conducted by the MHLW indicated that the proportion of rehabilitation expenses in hospital and treatment costs was 1.91% in 2000 and 5.16% in 2014, for an approximate 2.7 times increase. Quality is of vital importance in situations in which the proportion of health care costs significantly increased. Rehabilitation hospitals enjoying a smooth ride in the system till now have to prove their worth.

The Theme: Carrot and Stick

The FY 2016 Medical Fee Revision strongly reflected the national policies on psychiatric care. The largest issue facing mental hospitals is a reduction in the number of hospital beds. In the offered options, priority was given to "assessment of high-quality psychiatric care, including the enhancement of regional transit and regional support policies."

As one of the options, "hospitalization expenses of hospital wards to enhance the regional transit functions" was newly established to promote regional transitions in long-term hospitalized patients, of which 1,527 points per day can be calculated. This is an exceptional menu for psychiatric care with a low base rate. Ken Seki, President and Director of Shironishi Medical Foundation, highly recommends that psychiatric hospitals with more than 200 beds that face an increasing number of unoccupied beds should take advantage of this menu *(News of the Association of Japanese Healthcare Corporations No. 382)*.

In fact, the total number of inpatients in mental hospitals was 297,436 in 2013, a decrease of 31,660 from that of 2003 *(Mental health and welfare information from the MHLW)*. In particular, the number of "schizophrenia, schizotypal disorder, and delusional disorder" patients markedly decreased, from 200,935 in 2003 to 169,511 in 2013. As a result, the number of beds in mental hospitals also decreased by approximately 2.2%, from 342,446 at the end of June 2009 to 334,975 at the end of June 2013.

In addition, the following requirements were reviewed as the "promotion of intensive support for patients with severe mental disorders": support for visiting activities in cooperation with various professions and requirements for calculation and facility criteria in emergency response systems. In specific terms, the item "person who does not use welfare services"—one of the requirements before this revision—was deleted. This aim was to disseminate Assertive Community Treatment (ACT), which performs poorly in Japan. The standard number of beds is also quickly calculated for mental hospitals. Furthermore, the authorities established a national outcome target to decrease the number of long-term hospitalized patients (≥ 12 months) by the end of 2020 to within the range of a minimum 28,000 to a maximum 39,000 compared with 2014. The basic policy was to reduce the early hospital discharge rate in mental hospitals. The proposed rate for the end of 2020 was more than 69% at 3 months, more than 84% at 6 months, and more than 90% at 12 months, after admission.

What Awaits Those Who Go Ahead of the Times

The Aichi Psychiatric Medical Center, renewed in February 2016, is a hospital that predicted these movements by the authorities. The hospital abandoned the traditional name, "Aichi Prefectural Shiroyama Hospital," and was reborn using its new name.

This center reduced the number of hospital beds from 392 to 273 and considerably increased the number of private rooms (15 to 72) and protection rooms (25 to 47). The hospitalization departments were reorganized into a casualty ward, an acute-care ward, a young adulthood ward, a ward under the Medical Treatment and Supervision Act, a convalescence rehabilitation ward, and two types of general wards. The unit cost charged at the time of hospital admission remains low at ¥15,841; however, this cost is expected to increase to ¥25,000 in the future, similar to costs at Shizuoka Psychiatric Medical Center and Kanagawa Psychiatric Center. The outpatient departments consist of an independent outpatient department for young adults and a satisfactory general outpatient department of psychiatry. Other characteristics include the presence of a department of regional support, including ACT, a day-care for only young adults, a department of occupational therapy, and a communication space for local residents. The unit cost of the outpatient departments exceeded ¥10,000, and these departments' performance was prominent among

comparable hospitals.

However, in a short time, a "more appropriate" procedure was required for day-care in the department of psychiatry. Outcomes for periods longer than 12 months were calculated up to a maximum of 5 days per week; however, a further three requirements were added to the calculation as provisions. Moreover, the subtraction technique (90/100) was applied from the 4th day of care per week to patients who had received day-care for more than 3 years.

The authorities occasionally implemented a similar carrot-and-stick policy. However, the good news was that an additional calculation for a working system with medical office assistants became available for basic hospitalization fees for psychopathic wards. This additional calculation was applied to a 50:1, 75:1, and 100:1 basic hospitalization fee. In this revision, office assistants' working hours in a ward and in an outpatient setting (regardless of the place of work) are also subject to the calculation only when they prepare medical certificates and the input substitutions for a medical record were instructed by a physician. This would lead to further promoting the outsourcing of office work because the number of staff is generally small in psychiatric wards. According to a FY 2015 survey of health-related services, the rate of outsourcing of medical coding was 35.7%—the same as it was 3 years ago. However, two-thirds of business operators considered that the size of the market would increase in the future.

Negative Revision for Chronic-stage Treatment

This revision was initially predicted not to affect chronic-stage treatment; however, reality differed. Regarding an additional requirement, medical classification 2 or 3 must account for more than 50% of basic hospitalization fees with respect to a 25:1 sanatorium ward, and other detailed assessments were added.

Takao Ando, Director of Medical Corporation Eiseikai Association, which is well known for announcing the results of its preliminary calculation as quickly as possible, reported that sanatorium wards (a 20:1 sanatorium ward, 150 beds) showed an approximate 5% decrease in revenue.

A causal factor analysis showed that this decrease was largely influenced by oxygen therapy, frequent blood glucose tests, and reviews of depression. Of the 41 patients on oxygen therapy, 1 patient received oxygen at a flow rate of 3 liters per minute or higher, 4 patients fell into the New York Heart Association (NYHA) class III, and 8 patients received infusion therapy. Except for these 13 patients, the 28 remaining patients had their medical classification downgraded to 2 from 3, resulting in a decrease in revenue of approximately ¥3,200,000 per month. Of 12 patients undergoing blood glucose tests, 5 patients received injections, and the 7 remaining patients were on oral medication and were downgraded to a medical classification of 1 from 2. This downgrade resulted in a decrease in revenue of approximately ¥850,000 per month. This hospital has separate psychiatric wards and, thus, could avoid the decline. However, a review of the medical classification alone resulted in a significant decrease in revenue of approximately ¥48,600,000 per year.

There was an approximate 7-fold regional difference in the number of chronic-stage beds (per 100,000 population) between Akita prefecture, which had the minimum number of beds, and Kochi prefecture, which had the maximum number of beds. The authorities intend to transfer 70% of medical classification 1 patients to home care and nursing homes. However, approximately 300,000 patients will be forced to leave a sanatorium bed if this intention is realized, and its effectiveness is questionable. In fact, only 23.6% of patients with medical classification 1 are able to return to home care *(Survey of effectiveness of nursing care benefit revision 2015)*. Future trends are attracting attention with respect to whether abolishing the number of hospital (a 25:1 hospital bed) and sanatorium beds will be achieved by the end of FY 2014.

The number of sanatorium beds was approximately 122,000 as of March 2006, and approximately 59,000 as of March 2016, a reduction of half during the 10-year period. This figure was comprised of 56,026 hospital beds and 3,263 sanatorium beds. The number of facilities that filed applications for medical expenses was 1,320 (number of audit in April 2016), of which 1,083 (approximately 80%) were health care corporations.

To support this policy, the government intends to establish three new types of facilities depending on their health care delivery system: two types of facilities (type I and type II) that provide medical services inside its facility and facilities that provide medical services outside its facility, such as an adjacent facility. However, a simultaneous revision of medical service and long-term

care fees is to be carried out a year later; thus, facilities with sanatorium beds will face a crucial moment.

Significance of Economics of Scale

The Heisei Medical Welfare Group is less affected by fast-moving changes attributable to systemic revisions. Yozo Takehisa, President of this group, explains that the simultaneous accomplishment of quality improvements in medical care and management is the only goal. This group has been operating approximately 100 facilities, including hospitals, clinics, health care facilities for the elderly, special nursing homes, composite services, and pay nursing homes, starting with Hakuai Memorial Hospital (Tokushima city, Tokushima) in 1984, and followed by facilities in various areas from Tokyo to Yamaguchi. The group, whose philosophy is to never abandon a patient, has 26 hospitals that specialize in chronic-stage treatment, and provides post-acute and sub-acute care mainly to rehabilitate patients and return them to home care.

Managing this group led by Yozo Takehisa consists of analyzing outcome data and process management. In other words, they understand the actual status of each hospital and the problems reflected in the outcome data. Hospital executives confirm operating processes and take appropriate actions for improvement if required. Only a private hospital group can adopt in this manner.

In contrast, the degree of freedom regarding quasi public and/or government municipal hospital groups operated by each prefecture is low. For example, the entire Red Cross Hospital group shows a deficit in the balance of payments, as previously described.

The characteristic of the Red Cross Hospital group is operating hospitals in various areas, such as large cities, local cities, and underpopulated areas. Regarding the number of hospital beds, the approach to each secondary medical area is diverse. In medical areas in which a Red Cross Hospital group operates hospitals, the largest is the city of Osaka, with a population of 2,665,314. The smallest area is Azuma-gun (consisting of Nakanojo-machi, Naganohara-machi, and other surrounding areas), with a population of 61,109 and to which the Haramachi Red Cross Hospital belongs. This represents the current condition of Japanese medical services, which differ according to area.

It must be noted that only 48 of 92 hospitals of the Red Cross Hospital group were established by the group and 44 were transferred. In the Meiji and Taisho periods, most hospitals transferred to the Red Cross Hospital group were founded by individual, prefectural hospitals, and municipal hospitals. In the Showa period, especially during the war (after 1945), the number of hospitals transferred from the Medical Foundations of Japan and union hospitals increased.[10–11] As a result, during the period of the group's establishment—the Taisho period—most hospitals operated in keeping with the policy. Today, the group acquires hospitals with a difficult operating environment and is more likely to play a central role in local health care. The current medical fee is rigorous for these hospitals and, ironically, the rate of profit increases as the number of hospital beds increases ($P < 0.01$).

The following findings were obtained from the Summary of the Financial Reports of Medical Institutions of the Japanese Red Cross Hospital group (for 7 years: between FY 2005 and FY 2010, and FY 2012). The profit ratio of the medical business and the occupancy rate, the average length of stay, and the number of new inpatients were used as indicators of hospital management efficiency. Incoming referral rate and outgoing referral rate were used as indicators to assess health care quality.

The proportion of fixed costs was high relative to the medical business, which was considered a reason why economies of scale affect hospital management. Labor costs were less than 55% in 22 of 26 hospitals with more than 500 beds—a majority of the total number of such hospitals. In contrast, labor costs were more than 50% in 28 of 30 hospitals with fewer than 200 beds—also constituting a majority of the total number of such hospitals. In the Red Cross Hospital group, hospitals with fewer than 200 beds are mostly located in relatively small local cities, which might contribute to the budget deficits.

Competition or Cooperation

It is hardly necessary to say that 20% of municipal hospitals function as non-profit regional hospitals.

As a result, municipal hospitals located in underpopulated areas (n=69) and medical resource-limited areas (n=38) are in a poor financial condition. From April to June 2016, total revenues decreased by 1.2% in underpopulated areas and by 0.9% in medical resource-limited areas, relative to the previous year. In contrast, total revenues increased by 0.2% in core cities (n=22) and 1.3% in other areas (n=179).

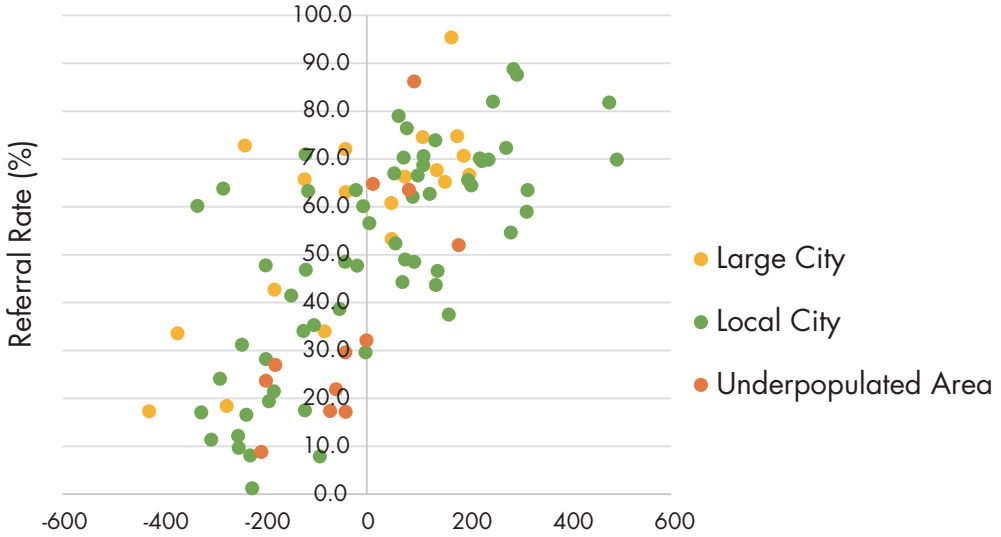
In municipal hospitals located in medical resource-limited areas, the number of inpatients and outpatients decreased by 1.8% and 1.2%, respectively. Unit costs also decreased by 0.2%. The followings results are from the Survey on the Effects of the FY 2016 Medical Fee Revision (first report). Among 537 member hospitals (respondents), medical facilities that experienced a revenue impact from factors other than the Medical Fee Revision and large hospitals that used high-priced drugs that significantly affected the unit costs of outpatient visits were excluded from the aggregate data. In the 332 remaining hospitals, total revenues from April to June 2016 decreased by 1.7% to 1.9% from the previous year, after adjustments for seasonal variations and others. In addition, when 130 of the 332 hospitals were assessed for their practice patterns in the period of April to June in order to estimate the results expected in the single month of October following the end of interim measure, they showed a decrease of 1.7% to 2.4% (according to the 3rd report).

The point is the type of relationship with municipal hospitals. A variety of options, such as competition and cooperation, are available depending on the area. In general, a non-profit regional hospital meets the following conditions: (1) has less than 100 owner hospital beds and less than 100 average daily inpatients; and (2) is the only hospital in the area. It is difficult for such hospitals to achieve profitability purely through independent effort, and medical resources are limited. Thus, certain medical accumulation will be required.

For example, in the Red Cross Hospital group, a 1% increase in the incoming referral rate results in an average increase of 5.6 new inpatients per 100 beds. Therefore, an increased referral rate is the most important point for this group, regardless of the scale of a hospital. Strengthening regional cooperation is an essential element of business improvements under the current medical care payment system.

However, an increased referral rate varies depending on regional characteristics. Thus, secondary medical areas in which hospitals are located are divided into three types: large city, local city, and underpopulated area. Figure 1 shows a significant relationship between referral rate and regional characteristics. The referral rate was placed on the vertical axis, and the excess and shortage of hospital beds within secondary medical areas (an indicator of the excess and shortage ratio of beds against the average value of beds in medical regions throughout the country) was set on a horizontal axis as a variable number. There was a strong correlation between the two variables ($P < 0.01$). As shown by the subsequent figure, the referral rate was higher in areas with enough beds, regardless of city scale. This might provide evidence that the patient acquisition success rate was higher in hospitals that had beds that increased in proportion to the population and that are located in a competitive area.

■ Figure 1: Relationship between Referral Rate and Excess and Shortage of Hospital Beds within Secondary Medical Areas by Area Types



Strengths That Each Possesses

When undergoing a major procedure, patients have no other choice but to frequently visit a hospital in other medical regions if an appropriate local hospital cannot be found.

Therefore, whether external factors surrounding a hospital would impact the profit ratio was examined. In particular, the relationship between the profit ratio of medical services and the ratio of outgoing patients to incoming patients was examined using data on the Red Cross Hospital group. As the net incoming patients from medical areas increased, the ratio of the balance of payments of medical services also increased ($P < 0.01$). Although geographical factors should be taken into account, including the distance between hospitals and transportation conditions, the strengths that hospitals in the concerned medical areas possess were considered an important factor in explaining the increase in incoming patients.

The Revised Medical Care Law that includes the Medical Corporation System of Community Healthcare Cooperation will come into effect in April 2017. In the Red Cross Hospital group, medical devices and drugs can be purchased by group, and available hospital beds can be exchanged within the group. These actions can contribute to cost reductions in medical institutions.

The Red Cross Hospital group is an overly "ideal corporation." Therefore, it is uncertain how many institutions can respond to a situation such as this group after this law comes into force. Medical institutions without strength may be subject to a merger or an acquisition.

References

1. Kazumitsu Nawata, Masako Ii, Aya Ishiguro, Koichi Kawabuchi. An Analysis of the Length of Stays at the Hospital for Cataract Patients of One-Eye and Two-Eye Surgeries in Japan. *Iryo To Shakai*, 16(2), 167–181, 2006.
2. Kazumitsu Nawata, Ayako Nitta, Sonoko Watanabe, Koichi Kawabuchi. An Analysis of the Length of Stay and Effectiveness of Treatment for Hip Fracture Patients in Japan: Evaluation of the 2002 Revision of the Medical Service Fee Schedule. *Journal of Health Economics*, 25(4), 722–739, 2006.
3. Kazumitsu Nawata, Masako Ii, Aya Ishiguro, Koichi Kawabuchi. An Analysis of the Length of Stay at the Hospital for Cataract Patients in Japan. Japanese Journal of Health Economics and Policy, 18(1), 41–55, 2006.
4. Kazumitsu Nawata, Koichi Kawabuchi. An Evaluation of the Length of Hospital Stay for Cataract Surgeries Using the Large Scale Individual-Level Survey Data. *Japan Statistical Society*, 39(2), 181–209, 2010.
5. Kazumitsu Nawata, Koichi Kawabuchi. Analysis of Length of Hospital Stay for Cataract Surgery Before and After Introduction of the Diagnosis Procedure Combination-Based Inclusive Payment System. Japanese Journal of Health Economics and Policy, 21(3), 291–303, 2010.
6. Kazumitsu Nawata, Koichi Kawabuchi. Estimation of the Power Transformation Model under Heteroskedasticity: An Analysis of the Length of Hospital Stay of Diabetes Patients. *Journal of the Japan Statistical Society*, 41(2), 319–335, 2012.
7. Kazumitsu Nawata, Koichi Kawabuchi. An Analysis of the New Japanese Payment System for Cataract Operations. *Public Health Frontier*, 1(1), 1–6, 2012.
8. Kazumitsu Nawata, Koichi Kawabuchi. Evaluation of the Effects of the 2006 DPC Revision on the Length of Hospital Stay for Cataract Surgeries by the Power Transformation Model. *Japanese Journal of Health Economics and Policy*, 25(1), 18–32, 2014.
9. Kazumitsu Nawata, Koichi Kawabuchi. An Econometric Analysis of Hospital Length of Stay for Cataract Operations in Japan by the Box-Cox Transformation Model and Hausman Tests: Evaluation of the 2010 Revision of the Medical Payment System, *Open Journal of Applied Sciences*, 5(9), 559–570, 2015.
10. Fumitaka Kurosawa, Toshinobu Kawai. *History of the Japanese Red Cross Society and Humanitarian Assistance*, Part 2, Chapter 8: Red Cross Peacetime Activities, 2009.
11. Jean Pictet, Translated by Tadateru Konoe, *Kaisetsu Seki-Juji no Kihon Gensoku (Red Cross Movement's Seven Fundamental Principles)*, pp. 17–18. 2006.

Submitted Article

Reconstruction of Three Prefectural Hospitals in Iwate: Six Years after the Great East Japan Earthquake

Yosuke Ooe

Haruhito Watase

Department of Internal Medicine, Yao Municipal Hospital

The tsunami in the aftermath of the Great East Japan Earthquake caused the death of 15,893 people, as well as 2,553 people missing in Japan. Even now after six years, 123,168 people are still unable to return to their homes.

We were dispatched to Otsuchi-cho, Iwate Prefecture as JMAT Osaka team in May, 2011 and engaged in relief activities there. This report is made from the point of view of post-disaster reconstruction six years after the disaster.

Key Words: the Great East Japan Earthquake, reconstruction of the disaster-stricken prefectural hospitals

The Situation in Otsuchi-cho

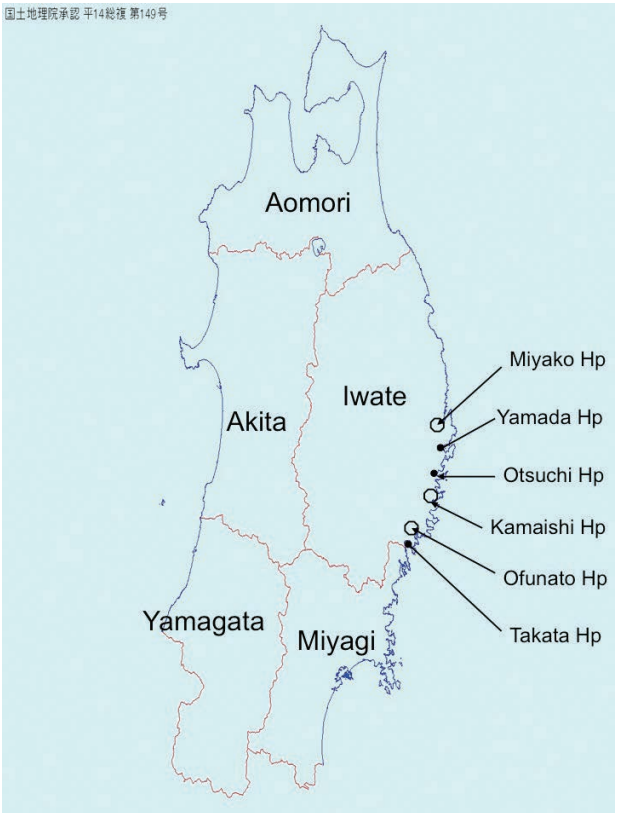
An analysis by the Geospatial Information Authority of Japan showed that the tsunami inundation zone accounted for 20 percent of the entire building area of Iwate Prefecture. Above all, Otsuchi-cho was most severely hit having 52 percent inundated. The magnitude of this figure is very obvious when compared with the percentage of inundation of Rikuzentakata-city, Ofunato-city and Kamaishi-city, 36%, 30% and 21%, respectively. The tsunami washed away the whole town.

The downtown facing the old JR Otsuchi station was completely washed away. The two-story Otsuchi-cho town office was completely underwater, and the three-story Iwate Prefectural Otsuchi Hospital was also flooded up to the ceiling of the second floor. On April 25, the Iwate

■ Photograph 1: Commanding View of Otsuchi-cho with Site-preparation Work Underway from Otsuchi Castle Ruins

The forward of Otsuchi Bay leads toward the Pacific Ocean. (Photo taken in March 2017)

■ Figure 1: Locations of the Prefectural Hospitals at Coastline Region



■ Photograph 2: Old Otsuchi Town Office

■ Photograph 3: Old Iwate Prefectural Otsuchi Hospital

Prefectural Otsuchi Hospital opened a temporary health clinic at the public hall which escaped the damage of the disaster, and on June 27, with the relocation to a hill, they continued to provide medical care at a prefabricated unit donated by Norway. In this period, the temporary health clinic could not provide emergency care or overnight hospitalization to its patients, so they had to go to the Iwate Prefectural Kamaishi Hospital by car which entailed a 30-minute drive to Kamaishi-city, a neighboring city of Otsuchi-cho.

The Iwate Prefectural Otsuchi Hospital restarted with 50 beds on May 9, 2016. The diagnosis and treatment departments consist of six departments, the departments of internal medicine, surgery, orthopedic surgery, dermatology, ophthalmology, and rehabilitation. However, emergency care was limited to normal hours on weekdays, and the Iwate Prefectural Kamaishi Hospital, one of the wide area nucleus hospitals, deal with emergencies on holidays and night time.

■ Photograph 4: Temporal Health Clinic of the Iwate Prefectural Otsuchi Hospital (Until June 27, 2011)

■ Photograph 5: Temporal Health Clinic of the Iwate Prefectural Otsuchi Hospital (Until May 8, 2016)

Hospitals all along the country's Northwestern region coastline had been suffering from a chronic shortage of doctors prior to the earthquake. The number of prefectural hospital doctors was inadequate to set up a clinical rotation, so local medical practioners joined the duty. In addition, they started to take charge of ward rounds during the daytime, which was conducive to strengthening the cooperative framework. Local medical practioners joined the doctor duty service at the restart of the sick beds.

It was extremely difficult to secure the land for hospitals because of the scarcity of useful land. A tsunami simulation under the worst conditions revealed that the new hospital would experience flooding with a water depth of 2–3 m. For this reason, the first floor portion of the building is used for a parking lot, and the diagnosis

■ Photograph 6: Newly-built Iwate Prefectural Otsuchi Hospital (50 Beds)

and treatment functions are provided on the floors above.

The Otsuchi river and the Kozuchi river flow into Otsuchi-cho, and the lowland where the two rivers converge is the hub of this town. According to the reconstruction plan, the area where the former downturn of Otsuchi-cho is located is landfilled to 3.8 meters and will become a residential quarter. However, land developed by landfill is scheduled only at the mountain side of the old JR Yamada line. The sea side from the JR line has become marshy areas because of the subsidence caused by the earthquake, so it is impossible to landfill those areas to accommodate people living there.

Because of the tsunami having devastated the lowland area, temporary houses were constructed separately for 20–30 households on the narrow lands upstream of the Otsuchi river and Kozuchi river and still now, about 3,000 people continue to live in those houses. Four doctors in private practice in Otsuchi-cho moved upstream of the rivers and higher grounds to provide medical care. However, it is not easy for the elderly who lack transportation to regularly commute to their primary care doctors.

■ Situation in Kamaishi-city

The situation in neighboring Kamaishi-city has slightly changed. The Iwate Prefectural Kamaishi Hospital located on a hill was old and in the danger of collapse by an earthquake so the number of beds was limited to 26 but 272 sickbeds for general patients were resumed in October, 2011 after repair work was completed. Kamaishi Nozomi Hospital was temporarily closed due to flooding but has subsequently resumed services with 52 general sickbeds and 102 recuperation sickbeds. The downtown in front of the Kamaishi Station was also flooded by the tsunami but landfill operations have not been conducted in the area. Many buildings such as hotels reopened their business after repairs. The area redevelopment plan included the invitation of an AEON mall, a large scale commercial complex to the area, which is hoped to improve local employment.

■ Restoration Situation in the Iwate Prefectural Hospitals

All damaged hospitals in Iwate Prefecture reopened their medical services in temporary medical facilities. About 80 percent of health clinics reopened, but 12 clinics closed due to reasons such as doctor's death. 11 dental clinics were not able to reopen their facilities.

The Iwate Prefectural Takata Hospital (136 general sickbeds), Iwate Prefectural Yamada Hospital (60 general sickbed) and Iwate Prefectural Otsuchi Hospital (121 general sickbeds) were totally destroyed by the tsunami and restarted as temporary health clinics. Among those hospitals, the Iwate Prefectural Takata Hospital, having 41 sickbeds, was the first to reopen on February 2012.

The Iwate Prefectural Otsuchi Hospital and Iwate Prefectural Yamada Hospital started medical care for outpatients at temporary health clinics but business reconstruction was doubtful because the town population severely decreased due to the catastrophic damage. After the earthquake, the population of Otsuchi-cho decreased from 15,275 people (2010) to 11,732 people (2015).

There were drawn out discussions concerning the continuance of the hospital and as a result of an exceptional subsidy based on the third supplementary

■ Photograph 7: Hotel in Kamaishi-city in Business with a Mark Showing Water Depth by the Tsunami Flooding

budget for fiscal 2011 for the rebuilding of the regional medical care system, the Iwate Prefecture medical treatment bureau decided on the reconstruction of three hospitals by announcing "the reconstruction policy of the disaster-stricken prefectural hospitals."

The basic idea of the policy is summarized as follows: (1) sickbeds are kept for regional medical care centering on the elderly and (2) emergency medical care on non-working days will not be available due to the serious shortage of physicians.

Reconstructions of Other Two Hospitals

The tsunami flooded the Iwate Prefectural Yamada Hospital up to the ceiling of the first floor, but they continued to provide medical care at the second floor as it was not damaged by the tsunami. Later, they moved to a temporary health clinic in July 2011. The new Yamada Hospital was constructed of ferroconcrete and is a two-story building on a hill 30 meters above sea level. The diagnosis and treatment departments consist of internal medicine, surgery, pediatrics, orthopedic surgery, ophthalmology, and rehabilitation. Outpatient care and hospitalization restarted on September 1, 2016, but emergency care was limited to normal hours on weekdays and the Iwate Prefectural Miyako Hospital, one of the wide area nucleus hospitals, deals with holiday and night time emergencies.

The Iwate Prefectural Takata Hospital was flooded to the fourth floor, the top floor of the building, because it was located 500 meters from the coast. The new hospital, which is a two-story building and of ferroconcrete with the scale of 60 sick beds, is under construction and has been relocated to a hill. It is scheduled for completion in January, 2018. Emergency care was limited to normal hours on weekdays, and the Iwate Prefectural Ofunato Hospital, one of the wide area nucleus hospitals, deals with emergency for holidays and night time.

Challenges in the Future

Medical care in Iwate Prefecture is dependent on governmental hospitals so it is very good news that these Prefectural Hospitals will be able to resume hospitalization for local people. With various businesses such as the fishery sector on the restoration path, the creation of residential quarters by landfill is beginning to take tangible form. Residents once away from home are beginning to return to their home town. It may be unnecessary to worry about the decrease in hospitalization due to the downfall of population by the earthquake.

But these three new hospitals are located on hills making them less convenient. The streamlining of public transportation presumably needs to be addressed. Moreover, as the needs for home assistance increase by the aging population, it is expected that the quality of medical care requested will change.

Because these contain problems other than medical care, it is thought that these are one of the challenges to be solved through the collaboration between the authorities in charge of healthcare and the administration.

References

1. Yosuke Ooe. Report on Support Activity for the East Japan Great Earthquake (May 27–29, 2011). Japan Hospitals. 2012; 31: 63–69.
2. Tajima Kuwada. Revival of Public Hospitals in Iwate Prefecture after the Great East Japan Earthquake: Lessons for Improving Sustainability of Medical Delivery in Local Agricultural Districts. Journal of Health and Society. 2012; 22: 157–170 [in Japanese].
3. The Reconstruction Policy of the Affected Prefectural Hospital. http://www.pref.iwate.jp/iryoukyoku/oshirase/016383.html.
4. Construction of Iwate Prefectural Takata Hospital. http://www.pref.iwate.jp/iryoukyoku/oshirase/052319.html.
5. Iwate Prefectural Otsuchi Hospital. http://www.pref.iwate.jp/iryoukyoku/ootsuchi/011068.html.
6. Iwate Prefectural Yamada Hospital. http://www.pref.iwate.jp/iryoukyoku/yamada/index.html.
7. Iwate Prefectural Takata Hospital. http://www.takata-hp.com/.
8. Road to Recovery: Great East Japan Earthquake in Iwate Prefecture (Investigation and Proposal). Iwate Nippo. http://www.iwate-np.co.jp/311shinsai/saiko/saiko110607.html.
9. Medical Reconstruction Plan in Iwate Prefecture. Nikkei Medical. http://medical.nikkeibp.co.jp/leaf/all/report/t169/201203/523947.html.

Submitted Article

Status of Use of Laundry Detergent and Fabric Softener by Nursing School Students in Japan and Review of Fragrance Preferences

Tamami Suzuki

Yoshiko Bai, Yuko Ohno

Health Sciences, Graduate School of Medicine, Osaka University

Key Words: Laundry detergent, fabric softener, high fragrance retention, synthetic fragrances, multiple chemical sensitivity

Abstract

Research was carried out on 72 individuals to examine the use of laundry detergent and fabric softeners by nursing students and their fragrance preferences, generating the following results. The reasons given for using laundry detergent were that it is cheap (27.5%) and easily removes stains (26.1%), with the majority selecting laundry detergent for economic and functional reasons. In addition, 17.4% of respondents responded that they like the scent, which demonstrates that consumers tend to prioritize scent when it comes to laundry detergent as well. Moreover, 75.1% of research subjects use fabric softener, of which 38.1% prioritize the fragrance when using it. Many respondents stated that they are not sensitive to odors, but are annoyed when they are in stores with strong scents (P=0.009), which suggested the possibility of masking.* In addition, many people with pollen allergies, asthma and atopic dermatitis responded that they are not sensitive to smells (P=0.020), and tended to respond that they "suffer when in a store with strong smells" (P=0.035). There are individual differences in whether a scent is perceived as pleasant or unpleasant, and 82.9% of nursing students targeted in this research replied that it is best not to make patients uncomfortable due to fragrance when working as a nurse in the future. When asked how they would respond if an important person in their life said that they would like them to use less fragrance, 70.8% responded that they would switch to a product with no fragrance or little fragrance, which points to empathy for others and patients.

* Masking period (accumulated state): Masking is a state where a symptom is covered (masked). Even though chemical substances build up within the body, a symptom appear to improve. The body fights the chemical substances to become healthy.

Introduction

The Westernization of diets and clothing and the decrease in bathing time have led to an increase in body odor, while at the same time the public is more aware of sensory etiquette. Given this, more people in Japan actively enjoy living surrounded by fragrances.[1] While fabric softeners were originally intended to make clothing soft and fluffy, we have observed a tendency for people to use it less for this purpose than because they enjoy the fragrance, use fabric softener as their personal scent instead of using perfume, or use it to cover their own body odor. Much of the literature on fabric softeners considers the components of adsorption that are stable for fabrics or is related to antibacterial properties,[2–6] the effect that the use of fabric softener with clothes has for dry skin,[7–8] but a scarcity of literature on added fragrances.

An experiment was carried out using microcapsule technology[9] for fragrances to look at the release of fabric softener fragrance from cloth. In this experiment, ultraviolet light was used to trigger photolysis in microcapsules made of polyurethane containing synthetic fragrances from fabric softeners, thus generating isocyanate. However, this was only available on a blog, and information was not disclosed despite a request from

companies. As a result, the situation remains confused. Fragrance has been added to fabric softeners for a long time now, and there are concerns that chemical substances used in microencapsulation of synthetic fragrances resulting from the development of fabric softeners with high fragrance retention could be having a negative impact on humans.

The boom of foreign-made fabric softeners has enhanced consumer need for scented fabric softeners, and the Japanese market has also expanded its line-up of products with a variety of aromas to meet the demand.[10]

On the other hand, more people are finding that they are sensitive to chemical substances such as fragrances. Despite complaints of health problems caused by fragrances and laundry detergent, awareness of people with sensitivities to chemical substances is low in modern society. While complaints about fabric softeners are attributed to nervous overreaction, research carried out to consider the issue scientifically using mice[11] revealed that fabric softeners "release chemical composites that reduce the mouse's normal respiratory speed."

Moreover, while some people enjoy fragrances, others find fragrances unpleasant.[10] Fragrance should be regulated by legislation, as with agricultural chemicals, but at present consumers should voluntarily refrain from using fragrances in public spaces.[10]

As part of the "Cool biz" campaign aimed at conserving energy that was launched again after the Great East Japan Earthquake, the Ministry of the Environment recommended that women use scented fabric softeners with a cooling sensation and use antiperspirant and sheets to wipe off sweat. However, the Ministry was asked by civic groups to remove these recommendations as they did not consider the medical problems caused by chemical substances such as fragrances. In response, the Ministry took the unusual step of removing one of its recommendations.[12] This is a sign that many people suffer health problems due to fabric softeners with high fragrance retention properties.

It is not easy to avoid chemical substances in our current living environment, and without our even knowing it these substances accumulate in our bodies. When our capacity to tolerate chemical substances is exceeded, we respond to various chemical substances and experience multiple chemical sensitivity, an increasingly severe problem.[13] Multiple chemical sensitivities cause headaches, difficulty breathing, loss of muscle strength and a decline in ability to concentrate, among other conditions. Although a medical diagnosis is difficult, a consensus[14] has been developed. Since many people do not know which chemical substance they react to, they live with fear.

Research has been conducted both in Japan and overseas using Quick Environmental Exposure and Sensitivity Inventory (QEESI),[15–16] a screening test for multiple chemical sensitivity. In 2010, a study[17] using QEESI carried out in Skovbjerg, Denmark showed that 8.2% of the survey targets met the two conditions of a response to Q1 chemical substance exposure of ≥35 and a sense that chemical substances were impeding their daily life (Q5) of ≥14. In a study in Japan[18] carried out by Dr. Azuma and others in 2012 under similar conditions, the level was 7.5%. Moreover, it has been pointed out that multiple chemical sensitivity is closely related to allergies,[19] which suggests that allergic reactions and multiple chemical sensitivity are increasing in concert.

Given the impact that fragrances have on health in this context and the many people who are sensitive to chemical substances, we decided to consider how we could address this issue as medical professionals. Accordingly, we examined usage trends and reasons of nursing students—future medical professionals—in regards to fragrances.

Method

Research Objective

1) We considered the current use of laundry detergent and fabric softener and the purposes for which they are used.
2) In addition, we identified the ways in which nursing students dealt with perspiration, opinions on fragrance etiquette during nursing work and trends addressing people who dislike fragrance.

Research Targets

Fourth-year students in University A nursing program were the subjects of this research.

Study Details

In this research study, a survey was given with multiple-choice questions, primarily concerned with the type of laundry detergents and fabric softeners that they use and the reason they use them, and their awareness of fragrances in order to identify trends in nursing students'

preferences for fragrances.

1) Questions related to background: Gender, age, allergies, other
2) Questions related to the use of laundry detergent and fabric softener: Type of laundry detergent and fabric softeners used, amount used, reason for use, quantity and other
3) Questions related to use of other fragrances and thoughts on fragrances: Opinions on fragrance while a nurse is working, how to deal with people who dislike fragrances, and degree to which they recognize multiple chemical sensitivities, among others

Data Collection Period

July 2015

Method for Collecting Data

Respondents filled in an anonymous questionnaire themselves.

Method of Analysis

We considered the use of laundry detergent and fabric softener in terms of the various factors using Chi-squared test, and used the Fisher's exact test when the expected value was 9 or less. The statistical review was carried out using IBM SPSS Statistics21, with a level of significance of 5%.

Ethical Considerations

Prior to the start of the survey, an explanation of the research and an agreement were given to the subjects by University A instructors. They were told that they were free to participate and cooperate with this research, submitting the questionnaire would be deemed equivalent to agreement to cooperate in the research, the survey would be given anonymously with multiple-choice questions, the data obtained in the questionnaire would be used for research purposes only, the data obtained would be promptly put into an electronic database, the survey would be carefully managed in a locked warehouse and would be destroyed as soon as the survey results are compiled in order to protect personal information.

Results

Background of Research Subjects

The nursing program at University A had 80 fourth-year students. A total of 72 students cooperated with the research, including 13 men and 59 women. The background of these 72 students is shown in Table 1. Their age was 20–23 years, and their average age was 21.3±0.5 years.

■ Table 1: Background of Research Subjects

			n	Total	%
Sex		Male	13	72	18.1
		Female	59		81.9
Age		21	49	72	68.1
		22	22		30.6
		23	1		1.4
Allergies		No	16	72	22.2
		Yes	56		77.8
	Pollen allergies, asthma, atopic dermatitis	No, other	24	72	33.3
		Pollen allergies, asthma, atopic dermatitis	48		66.7
	Specific allergies (multiple answers possible)	Pollen allergies	38		
		Asthma	8		
		Metal allergies	13		
		Atopic dermatitis	12		
		Food allergies	9		
		Allergies to medicines	1		
Sensitive to smells		Yes	23	72	31.9
		No	49		68.1
Discomfort when in stores with strong smells		No	47	72	65.3
		Yes	25		34.7
Living arrangement		Does not live alone	53	72	73.6
		Lives alone	19		26.4

16 (22.2%) responded that they did not have allergies, and the remaining 80% said that they did have some kind of allergy. By type of allergy, pollen allergies were the most common, at 38 (52.8%), followed by 13 with metal allergies (18.1%), 12 with atopic dermatitis (16.7%), 9 with food allergies (12.5%), 8 with asthma (11.1%), and 1 with allergies to medicine (1.4%). 23 (31.9%) of the subjects felt a sensitivity to smells, and 25 (34.7%) said that it was particularly difficult at stores such as home centers, book stores and furniture stores. 53 (73.6%) of the subjects lived at home and 19 (26.4%) lived on their own.

Use of Laundry Detergent and Fabric Softeners

Table 2 shows the status of the use of laundry detergent and fabric softener. Asked why they use laundry detergent, 19 (27.5%) responded that they use it because it is cheap, 18 (26.1%) because it is effective in removing stains and 12 (17.4%) that they like the smell. Their reasons for using fabric softener were that they enjoy the smell (24 people, or 37.5%), they want their clothes to be fluffy (20 people, or 31.3%) or that they want to cover up their own smell such as sweat (10 people, or 15.6%). The subjects gave greater weight to the smell than the softening effect.

Use of Other Fragrances and Thoughts on Fragrances

Table 3 shows the use of other fragrances, including their response when they perspire, opinions on fragrance etiquette, and their response to people who dislike fragrance. Asked about fragrance etiquette when a nurse is working, none of the subjects felt that it was acceptable to use fabric softener or perfume with a strong scent, 12 people (17.1%) felt that it was somewhat acceptable, 31 (44.3%) felt it was somewhat unacceptable, and 27 (38.6%) felt that it was unacceptable.

Of those who thought it was acceptable to use fragrances, the reasons given were that they did not want to annoy patients with their own smell of sweat or body odor (10 people, or 83.3%) and their use of fragrances was an individual choice (2 people, or 16.7%). Of those who did not think it was acceptable, 47 (81.0%) felt that using fragrances would annoy patients, 5 (8.6%) that not using fragrance is correct etiquette for nurses, 3 (5.2%) that smell would affect health and could result in the discontinuation of treatment, and 3 (5.2%) that it is not necessary for their work.

When asked how they would respond if an important person with whom they are always with asked them to avoid use of fragrances, 30 (41.7%) said that they would switch the product they use to something with no fragrance, 21 (29.2%) that they would change to a product with little fragrance, 19 (26.4%) that they would reduce the amount of what they use, and 2 (2.8%) that they would not really change anything. Asked about their reasons for this response, over half of respondents answered that they do not want to displease the other person (62.0%), and minority views were that in some cases it could affect health, they value the people who are important to them more than fragrances, and they do not want to annoy the other person.

Use of Laundry Detergent and Fabric Softeners and Review of Individual Factors

Pollen allergies, asthma and atopic dermatitis were identified as allergies with a strong correlation to laundry detergent and fabric softener. The subjects were divided into the two groups of “no allergies or other” (33.3%) and “pollen allergy, asthma, atopic dermatitis” (66.7%) to consider the respective factors.

Table 4 shows that, when examining the two groups of those who responded that they were sensitive to odors and those who responded that they were not sensitive to odors, we found a relationship of P=0.009 between sensitivity to odor and those who responded that it “is difficult to be in stores with strong smells, such as home centers, book stores, 100 yen shops, furniture stores and shoe stores.” Those subjects with pollen allergies, asthma and atopic dermatitis tended not to be sensitive to odors, but a high percentage responded that “it is difficult to be in stores with strong smells” (P=0.020).

Table 5 shows that the percentage of people with pollen allergies, asthma and atopic dermatitis find “it is difficult to be in stores with strong smells” (P=0.035).

Table 6 shows that we found no correlation between the difficulty being in stores with strong smells and the use of laundry detergent and fabric softeners.

We observed no significant difference in factors between the two groups divided by whether or not they suffered from allergies (none: 22.4%, allergies: 77.8%).

Table 2: Use of Laundry Detergent and Fabric Softeners

		n	Total	%
Laundry detergent used (product name)	Attack®	28	70	40.0
	Bold®	13		18.6
	Ariel®	11		15.7
	Nanox®	4		5.7
	Fafa®	4		5.7
	Top®	3		4.3
	Acron®	2		2.9
	New Beads®	1		1.4
	Sarasa®	0		0.0
	Emal®	0		0.0
	Other	4		5.7
Reason for buying laundry detergent used	Inexpensive	19	69	27.5
	Removes stains well	18		26.1
	Pleasant scent	12		17.4
	Anti-bacterial effect	6		8.7
	Makes clothes fluffy	1		1.4
	Not irritating for skin	1		1.4
	Safe for the body	0		0.0
	Other	12		17.4
Amount of laundry detergent used	Less than the designated amount	3	70	4.3
	Designated amount	45		64.3
	Somewhat more than the designated amount	15		21.4
	More than twice as much as the designated amount	0		0.0
	Haven't looked at the designated amount	7		10.0
Use of fabric softener	Don't use at all (1)/Don't use it much (6)	7	71	9.9
	Use occasionally (10)/Always use it (54)	64		90.1
Fabric softener used (product name) (Responses only from those 64 people who responded that they occasionally use fabric softener or always use it)	Aroma Rich®	17	64	26.6
	Flair Fragrance®	15		23.4
	Lenor Happiness®	9		14.1
	Soflan®	8		12.5
	Humming Fine®	5		7.8
	Fafa®	3		4.7
	Downy®	2		3.1
	Emal®	1		1.6
	Laundrin®	1		1.6
	Lenor Eau de Luxe®	0		0.0
	Comfort®	0		0.0
	Other	3		4.7
Reason for buying fabric softener used (Responses only from those 64 people who responded that they occasionally use fabric softener or always use it)	Wants to enjoy fragrance	24	64	37.5
	Wants to make clothes fluffy	20		31.3
	Wants to eliminate own smells, such as sweat	10		15.6
	Way of dealing with hanging clothes to dry inside	4		6.3
	Anti-bacterial effect	0		0.0
	Other	6		9.4
Amount of fabric softener used (Responses only from those 64 people who responded that they occasionally use fabric softener or always use it)	Less than the designated amount	4	64	6.3
	Designated amount	37		57.8
	Somewhat more than the designated amount	16		25.0
	More than twice as much as the designated amount	0		0.0
	Haven't looked at the designated amount	7		10.9

Table 3: Use of Other Fragrances and Thoughts on Fragrances

		n	Total	%
Use of fabric deodorizers on clothing and woven products	Never use (6)/Don't use very often (12)	18	66	9.1
	Use occasionally (44)/Always use (4)	48		66.7
Reason for using fabric deodorizers on clothing and woven products	Can't be washed	16	48	33.3
	To eliminate the smell of sweat and body odor	12		25.0
	To eliminate smells in the house	11		22.9
	To eliminate the smell of food and cigarettes	7		14.6
	Other	2		4.2
Tends to sweat under the arms and on the back, how this tendency is addressed	I use something other than a towel to deal with perspiration	34	70	48.6
	I perspire so I wipe it away with a towel or tissue	24		34.3
	I perspire but don't really mind	9		12.9
	I don't perspire	3		4.3
Type of product used when perspiring	Roll-on type	8	36	22.2
	Spray type	9		25.0
	Easy-wipe sheets	19		52.8
	Other	0		0.0
Smell of products used when perspiring (Those who responded that they use roll-on, sprays, and wipe-off sheets when perspiring were asked about the scent of the product)	Fragrance type	13	35	37.1
	Fragrance-free type	13		37.1
	Slight fragrance	9		25.8
Do you agree that it is acceptable for nurses to use fragrance softener with a strong scent or perfume when working?	Agree (0)/Agree somewhat (12)	12	70	17.1
	Somewhat unacceptable (31)/ Unacceptable (27)	58		82.9
Reason for agreeing (Responses from people who responded that they agree or agree somewhat)	Because they did not want to annoy patients with the smell of their own sweat and body odor	10	12	83.3
	Thinks that use of fragrances is an individual choice	2		16.7
	Because it raises motivation at work	0		0.0
Reason for not agreeing (Responses from people who do not agree or do not agree somewhat)	Because it displeases the patient	47	58	81.0
	Because not using fragrance is correct etiquette for nurses	5		8.6
	Because it could affect treatment	3		5.2
	Because it's not necessary for work	3		5.2
Response when an important person with whom they are always with says they'd like the subject to avoid use of fragrance	Switch to a product with no fragrance	30	72	41.7
	Switch to something with little fragrance	21		29.2
	Reduce amount of perfume used	19		26.4
	Not change anything in particular	2		2.8
	Other	0		0.0
Reason for response when an important person with whom they are always with says they'd like the subject to avoid use of fragrance	Because I don't want to displease the other person	44	71	62.0
	Because I don't want to annoy the other person	8		11.3
	Because important people are more valuable than fragrances	7		9.9
	Because I don't want to change my fragrance since I like it	5		7.0
	Because I have no choice when the other person asks	4		5.6
	Because it could affect physical health	1		1.4
	Because I don't think it has anything to do with myself	0		0.0
	Other	2		2.8

		n	Total	%
Response when a person with whom you are occasionally with says they'd like the subject to avoid use of fragrance	Change to a product with no scent	14	71	19.7
	Change to a product with little scent	14		19.7
	Reduce amount of product used	22		31.0
	Make no change in perfume always used but avoid using a perfume with a strong fragrance when meeting that person	15		21.1
	Not change anything in particular	6		8.5
	Other	0		0.0
Reason for response when a person with whom you are occasionally with says they'd like the subject to avoid use of fragrance	Because I don't want to displease the other person	40	72	55.6
	Because we only meet occasionally	11		15.3
	Because I don't want to annoy the other person	7		9.7
	Because I have no choice when the other person asks	5		6.9
	Because important people are more valuable than fragrances	4		5.6
	Because I don't want to change my fragrance since I like it	3		4.2
	Because it could affect physical health	1		1.4
	Because I don't think it has anything to do with myself	0		0.0
	Other	1		1.4
Do you know about multiple chemical sensitivities?	I've heard about it	47	72	65.3
	I've heard about it in the media and know the causes and symptoms	15		20.8
	No	7		9.7
	People I know suffer from this so I am very familiar with multiple chemical sensitivities	3		4.2
Thoughts on multiple chemical sensitivities	If there are people around me with multiple chemical sensitivities, I would try to consider them	44	71	62.0
	Since I also have allergies, I also try to be careful, including considering other people with sensitivities	13		18.3
	Few people have multiple chemical sensitivities, so it's ok not to consider it	8		11.3
	I'm not at all interested	2		2.8
	I don't think it has anything to do with me	1		1.4
	I'm interested in multiple chemical sensitivities so I'd like to learn more	0		0.0
	Other	3		4.2

Table 4: Consideration of Olfactory Sensitivity and Use of Laundry Detergent and Fabric Softeners

		Are you sensitive to smells?				P value
		Sensitive		Not sensitive		
		n	%	n	%	
Difficult to be in stores* with strong smells	No	20	27.8	27	37.5	**0.009**
	Yes	3	4.2	22	30.6	
Allergies	Pollen allergies, asthma, atopic dermatitis	11	15.3	37	51.4	**0.020**
	No, other	12	16.7	12	16.7	
Amount of laundry detergent used	Less than directed, amount directed	19	27.1	29	41.4	0.050
	More than directed	3	4.3	19	27.1	
Use of fabric softener	Don't use at all, don't use much	2	2.8	5	7.1	1.000
	Use occasionally, use all the time	20	28.2	44	62.0	
Amount of fabric softener used	Less than directed, amount directed	16	25.0	25	39.1	0.095
	More than directed	4	6.3	19	29.7	
Frequency of use of fabric deodorizers with clothes and woven products	Don't use at all, don't use much	3	4.5	14	21.2	0.354
	Use occasionally, use all the time	16	24.2	33	50.0	
Smells of product used for perspiration	Unscented, slight scent	7	18.9	16	43.2	1.000
	Scented	4	10.8	10	27.0	

*Stores such as home centers, book stores, 100 yen stores, furniture stores and shoe stores

Table 5: Consideration of Allergies (Pollen Allergy, Asthma, Atopic Dermatitis) and Use of Laundry Detergent and Fabric Softener

		Allergies				P value
		Pollen allergies, asthma, atopic dermatitis		No, other		
		n	%	n	%	
Difficult to be in stores* with strong smells	No	27	37.5	20	27.8	**0.035**
	Yes	21	29.2	4	5.6	
Amount of laundry detergent used	Less than directed, amount directed	32	45.7	16	22.9	0.783
	More than directed	16	22.9	6	8.6	
Use of fabric softener	Don't use at all, don't use much	5	7.0	2	2.8	1.000
	Use occasionally, use all the time	43	60.6	21	29.6	
Amount of fabric softener used	Less than directed, amount directed	27	42.2	14	21.9	1.000
	More than directed	15	23.4	8	12.5	
Frequency of use of fabric deodorizers with clothes and woven products	Don't use at all, don't use much	9	13.6	8	12.1	0.233
	Use occasionally, use all the time	35	53.0	14	21.2	
Smells of product used for perspiration	Unscented, slight scent	15	40.5	8	21.6	0.477
	Scented	11	29.7	3	8.1	

*Stores such as home centers, book stores, 100 yen stores, furniture stores and shoe stores

Table 6: Consideration of Being Uncomfortable in Stores with Strong Smells and Use of Laundry Detergent and Fabric Softener

		Difficult to be in stores* with strong smells				P value
		No		Yes		
		n	%	n	%	
Amount of laundry detergent used	Less than directed, amount directed	34	48.6	14	20.0	0.091
	More than directed	11	15.7	11	15.7	
Use of fabric softener	Don't use at all, don't use much	5	7.0	2	2.8	1.000
	Use occasionally, use all the time	41	57.7	23	32.4	
Amount of fabric softener used	Less than directed, amount directed	29	45.3	12	18.8	0.138
	More than directed	12	18.8	11	17.2	
Frequency of use of fabric deodorizers with clothes and woven products	Don't use at all, don't use much	12	18.2	5	7.6	0.563
	Use occasionally, use all the time	29	43.9	20	30.3	
Smells of product used for perspiration	Unscented, slight scent	16	43.2	7	18.9	0.169
	Scented	6	16.2	8	21.6	

*Stores such as home centers, book stores, 100 yen stores, furniture stores and shoe stores

Reflection

Rise in Number of Allergy Sufferers

This research showed that more than half, or 56 (77.8%), of the 72 fourth-year nursing students at University A had some kind of allergy. According to a national survey[20] conducted by the Ministry of Health, Labour and Welfare from fiscal 1992 to fiscal 1994 found that 29% of adults suffered from some kind of allergy. The comparison of our findings to data from more than 10 years ago indicates that allergies are on the rise. Many of these allergies are allergies to pollen. The increase in pollen allergy patients attributable to the expansion in the area of artificial forests of Japanese cedar and the decline in the age at which people first began suffering from pollen allergies have become problems[21] in recent years, which is clearly borne out by the tendencies observed at University A.

Fragrance Added to Original Functions of Laundry Detergent and Fabric Softener

Using Table 2, we considered the responses showing an emphasis on smell related to the use of laundry detergent and fabric softener. An attitude and fact-finding survey on the use of fabric softeners was carried out to study married women between the ages of 25–49 living in Japan who regularly using fabric softener. Responses from a total of 800 people were received via the Internet.[22] This survey showed that in addition to the basic functions of softening laundry and preventing static cling, women were also using fabric softener to add fragrance to their clothes so that people they interacted with would think they smelled good—a form of self-expression—and because the fragrance on their clothes had a soothing effect. 58.3% of respondents sought the kind of added value that fragrance offered when using fabric softeners. Moreover, the public is more aware of the general etiquette of odors, such as body odor, because of the Westernization of diets and clothing and a decrease in bathing time.[23] In hot and humid Japan, where it is hard to ensure enough personal space, applying perfume and cologne directly is one option, but fabric softeners, which are cheaper, have fragrances with longer staying power and are also more subtle than perfume, are primarily used. The boom in fabric softeners with strong scents and changes in lifestyle such as food and bathing habits are raising awareness of fragrance, and we expect demand for laundry detergent and fabric softeners with strong scents to heighten going forward. At the same time, consumers are now talking about "harmful fragrances," and Consumer Centers are fielding more complaints about fabric softeners with high fragrance retention.

Sensitive Sense of Smell and Allergies

Many subjects with pollen allergy, asthma, or atopic dermatitis answered that they were not sensitive to smell, which could be due to masking. With long-term exposure, the body will react appropriately, blood pressure will rise and the psyche and nervous activity quickens, so that a person will even feel that this state is pleasant. Medical specialists have pointed out that this is a form of multiple chemical sensitivity. It is conceivable for especially, people having allergies to be insensitive to each reaction leading to lowered body protective functions once they have fallen into such a state.

Response to People Who Have an Aversion to Fragrances

Using Table 3, we can examine correlations to whether nurses use fragrance or not. Asked whether it is acceptable for nurses to use fragrance, 44.3% said that "it is not really acceptable" and 38.6% that "it is not acceptable." While some respondents did not want to make patients uncomfortable with their own sweat and body odor, the minority opinion was that people are free to use fragrances as they like and there are no problems with using them. Among those who felt it was not acceptable for nurses to use fragrances, they felt it was better not to use fragrance or to use less because it could displease patients or affect their treatment. When asked how they would respond if an important person in their life said that they would like them to use less fragrance, 30 respondents (41.7%) responded that they would switch to a product with no fragrance and 21 (29.2%) that they would switch to something with little fragrance, and 19 (26.4%) said that they would use fragrance but reduce the amount used. This indicates that nursing students empathize with those who have an aversion to fragrances.

We believe these results can be attributed to the fact that the research subjects are fourth-year nursing students and their keen awareness of the nursing profession makes them think of other people and patients first, rather than just about themselves. Some respondents felt that they should be free to exercise their taste in fragrances, but this is likely because the individual difference between people

who enjoy fragrances and people who don't is so large that someone who likes fragrances cannot even imagine that it would irritate other people. Many foreign products are highly scented with sweet and simple fragrances. Japanese people are clearly divided in their liking for the scent of foreign products, which is likely because fragrances are based on lifestyle and culture.[24] Given the major discrepancies in whether a scent is perceived as pleasant or unpleasant, medical professionals should keep this in mind in considering the use of laundry detergents and fabric softeners in medical settings.

Conclusion

This research showed that when selecting laundry detergent and fabric softener, consumers prioritize fragrance in addition to their original purpose (removing stains and making clothes fluffy). Even when using fabric softener with an emphasis on fragrance, 82.9% responded that when working nurses should not irritate patients with fragrances, while 70.8% responded that if an important person in their life said that they would like them to use less fragrance, they would switch to a product with no fragrance or little fragrance, which points to empathy for others and patients. Students in the nursing program at University A do not only consider their own preferences with regard to fragrances, but also value manners and etiquette that consider others and patients. Since 72 subjects were used in this research, the statistical significance was not high and we cannot make generalizations. We hope to increase the data sample and continue our investigation in the future.

Acknowledgment

We are deeply grateful to all of the fourth-year nursing students and instructors at University A who helped with this research. This research was conducted with subsidies from Grants-in-Aid for scientific research expenses for fiscal 2014 to fiscal 2016 (Grant-in-Aid for Exploratory Research, Number 26671043, research representative: Tamami Suzuki). There are no conflicts of interest to disclose.

References

1. Office of Environmental Chemicals Safety, Policy Planning Division, Environmental Health Bureau, Minister of Health, Labour and Welfare; Guidance for Preparation of Manual on Ensuring Safety of Fragrances, Odor Eliminators, Deodorizers, and Deodorants. Accessed April 3, 2017. http://www.nihs.go.jp/mhlw/chemical/katei/manu/boushuzai/boushuzai.pdf.
2. Oikonomou EK, Mousseau F, Christov N, Cristobal G, Vacher A, Airiau M, Bourgaux C, Heux L, Berret JF., 2017. Fabric Softener-Cellulose Nanocrystal Interaction: A Model for Assessing Surfactant Deposition on Cotton. J Phys Chem B. 121(10), 2299–2307. doi: 10.1021/acs.jpcb.7b00191. Epub 2017 Mar 7. PMID: 28225273
3. Mondal MG, Pratap AP., 2016. Synthesis and Performance Properties of Cationic Fabric Softeners Derived from Free Fatty Acid of Tallow Fat. J Oleo Sci. 65(8), 663–670. doi: 10.5650/jos.ess15276. Epub 2016 Jul 15. PMID: 27430381
4. Igarashi T, Nakamura K, Hoshi M, Hara T, Kojima H, Itou M, Ikeda R, Okamoto Y., 2016. Elucidation of Softening Mechanism in Rinse-Cycle Fabric Softeners. Part 2: Uneven Adsorption-The Key Phenomenon to the Effect of Fabric Softeners. J Surfactants Deterg.19, 759–773. Epub 2016 Apr 19. PMID: 27375354
5. Hashemikia S, Hemmatinejad N, Ahmadi E, Montazer M., 2016. Antibacterial and anti-inflammatory drug deliveryproperties on cotton fabric using betamethasoneloaded mesoporous silica particles stabilized with chitosan and silicone softener. Drug Deliv. 23(8), 2946–2955. Epub 2016 Feb 29. PMID: 26926323
6. Igarashi T, Morita N, Okamoto Y, Nakamura K., 2016. Elucidation of Softening Mechanism in Rinse Cycle Fabric Softeners. Part 1: Effect of Hydrogen Bonding. J Surfactants Deterg. 19, 183–192. Epub 2015 Oct 5. PMID: 26766897
7. Isoda K, Takagi Y, Kitahara T, Sano Y, Sugano I, Umeda-Togami K, Umeda K, Yamanaka K, Yamada T, Mizutani H., 2011. Treatment of cloth with a fabric softener ameliorates skin dryness. J Dermatol. 38(7), 685–692. doi: 10.1111/j.1346-8138.2010.01084.x. Epub 2010 Nov 3. PMID: 21729145
8. Fujimura T, Takagi Y, Sugano I, Sano Y, Yamaguchi N, Kitahara T, Takema Y, Rizer RL., 2011. Real-life use of underwear treated with fabric softeners improves skin dryness by decreasing the friction of fabrics against the skin. Int J Cosmet Sci. 33(6), 566–571. doi: 10.1111/j.1468-2494.2011.00672.x. Epub 2011

Jun 13. PMID: 21668833

9. Haefliger OP, Jeckelmann N, Ouali L, León G., 2010. Real-time monitoring of fragrance release from cotton towels by low thermal mass gas chromatography using a longitudinally modulating cryogenic system for headspace sampling and injection. Anal Chem. 82(2), 729–737. doi: 10.1021/ac902460d. PMID: 20025230
10. The National Consumer Affairs Center of Japan (NCAC). Information provided on the smell of fabric softener surface materials. Accessed April 3, 2017. http://www.kokusen.go.jp/pdf/n-20130919_1.pdf.
11. Anderson RC, Anderson JH., 2000. Respiratory toxicity of fabric softener emissions. J Toxicol Environ Health. 60(2), 121–136. PMID: 10872633
12. Tomiko Fujita. "What is 'Multiple Chemical Sensitivity,' an issue that emerged in women's cool biz recommendations?" TRINITY. Accessed April 3, 2017. http://www.el-aura.com/20130609-04/.
13. Australian Government., 2008. A Scientific Review of Multiple Chemical Sensitivity: Identifying Key Research Needs; Working Draft Report prepared by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) and the Office of Chemical Safety (OCS). 1–72.
14. Editorial., 1999. Multiple chemical sensitivity: 1999 consensus, Archives of environmental Health 54, 147–149.
15. Miller CS, Prihoda TJ., 1999. The Environmental Exposure and Sensitivity Inventory (EESI): a standardized approach for measuring chemical intolerances for research and clinical applications. Toxicol Ind Health, 15(3-4), 370–385. PMID: 10416289
16. Miller CS, Prihoda TJ., 1999. A controlled comparison of symptoms and chemical intolerances reported by Gulf War veterans, implant recipients, and persons with multiple chemical sensitivity. Toxicol Ind Health. 15(3-4), 386–397. PMID: 10416290
17. Skovbjerg S, Rasmussen A, Zachariae R, Schmidt L, Lund R, Elberling J., 2012. The association between idiopathic environmental intolerance and psychological distress, and the influence of social support and recent major life events.Environ Health Prev Med. 17(1), 2–9. doi: 10.1007/s12199-011-0210-5. Epub 2011 Mar 1. PMID: 21431806
18. Azuma K, Uchiyama I, Katoh T, Ogata H, Arashidani K, Kunugita N., 2015. Prevalence and Characteristics of Chemical Intolerance: A Japanese Population-Based Study. Arch Environ Occup Health. 70(6), 341–353. doi: 10.1080/19338244.2014.926855. PMID: 25137616
19. Jeong I, Kim I, Park HJ, Roh J, Park JW, Lee JH., 2014. Allergic diseases and multiple chemical sensitivity in Korean adults. Allergy Asthma Immunol Res. 6(5), 409–414. doi: 10.4168/aair.2014.6.5.409. Epub 2014 Mar 21.PMID: 25228997
20. Ministry of Health, Labour and Welfare., 2010. Chapter 5.Allergic Rhinitis and Pollen Allergies. Text from Rheumatism and Allergy Counselor Training Session for fiscal 2010. Accessed April 3, 2017. http://www.mhlw.go.jp/new-info/kobetu/kenkou/ryumachi/dl/jouhou01-09.pdf.
21. Disease Sub-committee, Rheumatism and Allergy Committee, Health Science Council. Allergy countermeasures: Report from Rheumatism and Allergy Countermeasure Committee. Accessed April 3, 2017. http://www.mhlw.go.jp/stf/shingi/2r9852000001nes4-att/2r9852000001newa.pdf.
22. CITATION JAPAN CO., LTD. New Signs of a Boom in Scented Fabric Softeners: Higher Demand for Fragrance Could Spur a Second Fabric Softener Boom. PRTIMES. Accessed April 3, 2017. http://www.citation.co.jp/topicshtml/%E6%9F%94%E8%BB%9F%E5%89%A4%E3%81%AE%E5%88%A9%E7%94%A8%E3%81%AB%E9%96%A2%E3%81%99%E3%82%8B%E6%84%8F%E8%AD%98%E3%83%BB%E5%AE%9F%E6%85%8B%E8%AA%BF%E6%9F%BB%EF%BC%882012%E5%B9%B410%E6%9C%88%E5%AE%9F/.
23. Hiroe Kosho., 2014. Expectations of Fragrance Manufacturers: Trend in Unscented Products in Schools and Hospitals in Europe and the US. Late, Fast, Low, High Edition 79. Special Edition: What is Behind Oversensitivity in the School Yard and Classes? Friends Suffering from Fragrances and Chemical Substances. Masaru Okazaki. Japan Machinist, Tokyo: 2014-5, 75–81.
24. Kaoru Mori.,2013. Looking for the real culprit; myth and truth about fragrance. AROMA RESEARCH. 14(2), 129–133.

Corresponding Author: Tamami Suzuki
E-mail: suzuki@sahs.med.osaka-u.ac.jp

Submitted Article

Meeting the Foreign Patient's Expectations: Understanding the Challenges

John C. Wocher

Director of International Patient Services, Kameda Medical Center
E-mail: john.c.wocher@kameda.jp

It is my learned opinion, expressed previously in this journal, that Japan's health care system has remained primarily domestic compared to the rest of the industry, which has expanded globally. Japan's hospitals, as an example, have never been impacted by the globally competitive marketplace that other industries in Japan face. I have written in this journal about the obstacles faced by Japanese hospitals to becoming successful in the highly publicized medical tourism movement. These obstacles are still in place in spite of government initiatives to improve the circumstances for foreigners seeking medical care in Japan. Even if some of these obstacles were reduced or removed, are Japanese hospitals, eager and capable of meeting the needs of foreign patients? I think few are.

Recently the Japan Hospital Search for International Patients organization published a list of twenty-eight hospitals in Japan that were recommended for accepting foreign patients[1].

Medical Excellence Japan (MEJ) acts as the secretariat for the Ministry of Economics, Trade and Industry (METI) in recommending these hospitals after evaluating their capabilities. MEJ was established with the support of the Ministry of Economy, Trade and Industry to promote the globalization of Japan's medical services as a public and private partnership under the philosophy of a mutually beneficial international cooperation. Beginning in 2011, MEJ has offered support to foreign patients to receive advanced medical treatment in Japan. In April 2013, MEJ was reformed into an organization focusing on the expansion of Japan-style medical services to the world. Eight of the hospitals recommended have obtained accreditation by the Joint Commission International, the leading accreditor of international hospitals worldwide.

Another organization, the Japan Medical Service Accreditation for International Patients (JMIP) also accredits hospitals for acceptance of foreign patients. They currently list nineteen hospitals accredited by them. They are supported by the Ministry of Health, Labor and Welfare (MHLW).

Visiting the JMIP website is encouraged, as it lists comprehensively, the requirements and methodologies for evaluating hospitals[2].

Each hospital is visited and evaluated against criteria to determine their capability to accept foreign patients. A prerequisite listed on the website for eligibility is to have valid accreditation by the Joint Commission International (JCI), the Japan Council on Quality Health Care (JHQHC) which is the national voluntary hospital accreditation body, or some other accreditation such as ISO9001/14000, JECP etc.

Some of the hospitals on their list are operated by the Tokushukai Group and are JCI accredited.

The two listings (MEJ & JMIP) have no overlap. It is surmised that the MEJ listing might be applicable more to inbound foreigners and the JMIP list for the expatriate population, though I have not confirmed this.

However, three of the most significant obstacles to accepting foreign patients are not related to evaluating the infrastructure or successful accreditation by MEJ or JMIP.

They are:

1. Accepting the inbound foreign patient
2. Meeting the foreign patient's expectations
3. Getting reimbursed in a timely manner

1 http://www.japanhospitalsearch.org/hospitals/list/03.html
2 http://jmip.jme.or.jp/index.php?l=en

Meeting the Foreign Patient's Expectations

I want to address the foreign patient's expectations first, because these obstacles are the most complex and the most difficult to overcome.

Foreign patients, when they have a choice, will often choose health care in an environment in which communication is in a language that they can understand. For many patients, English is the most common default language. While many physicians in Japan can speak English, competency in English among nursing and paramedical staff is usually absent or very poor. Since nurses and paramedical staff spend more time with the patient than the physician, this creates problems in communicating in a language that the patient understands. When hospitals have a international patient services department with language support, it is often limited to normal working hours during the weekdays. Providing language support after hours and on weekends or national holidays poses a challenge. There are some solutions to this, but they are not ideal. JMIP does evaluate language availability and I believe is aware of hospital imitations. Many hospitals accredited by these two accrediting bodies do not have English language websites.

Related to communications is the issue of informed consent. While legally, verbal informed consent is the weakest acceptable method of providing information, if the patient claims he or she did not really understand what was said because of language, this can be problematic, specially when professional interpreters are not used. Written informed consent either in the language the patient prefers or in the default language of English if the patient agrees, is ideal when augmented by a face-to-face discussion with the physician. However, the time and effort required to either translate or originate informed consent forms for all of the procedures requiring separate consent is a huge undertaking. Informed consent for Japanese patients that might take only a few minutes can exceed more than an hour for foreign patients. Because the foreign patient cannot read the medical record, even if given access, verbal communication becomes even more important. In my experience most foreign patients tend to have greater informational needs than Japanese patients. The other issue, in my opinion, is the aggressive attitude of many foreign patients who in the process of getting informed consent develop an interrogation approach. They ask about success rates, mortality rates, complication rates, infection rates, costs, lengths of stay, alternative treatments, every conceivable risk, anticipated benefits, side effects, enrollment in clinical trials and so forth. Physicians in Japan are not used to this degree of questioning and may interpret it as not trusting their decisions and competency. For this reason, some physicians are reluctant to accept foreign patients.

Average lengths of stay (ALOS) for hospitalization in Japan is very long compared to international averages. Foreign patients are often surprised by this and especially when the procedure they are facing is done as an outpatient in their home country. Japan is also more expensive than the more popular medical tourism destinations, such as Singapore, India, Thailand and others. Longer ALOS drives up the costs for these patients and very frequently, surgery usually done on an outpatient basis internationally, will not be approved for inpatient care by global health insurance companies. Even when approved, payment beyond the ALOS internationally can be the patient's responsibility. Fortunately, foreign patients covered by Japan National Health Insurance do not have this concern.

There are a number of inconveniences that foreign patients complain of when hospitalized in Japan. While not critical to medical treatment, they can result in dissatisfaction. Visiting hours are usually very restrictive compared to those in the patient's home country, and in four to six bed rooms there is very little privacy. In most developed countries, two bed and single bed rooms are normal. Foreign visitors to Japan, who do not have a fixed address in Japan become frustrated when they cannot receive mail at the hospital. Not all hospitals have mechanisms or processes to deliver mail to inpatients. Recently, a colleague of mine was admitted to a hospital in Saitama Prefecture. I mailed him a get-well card. The nurse complained to him, telling him that nurses cannot be responsible for delivering mail, as they are too busy providing nursing care. I agree, but in the absence of processes to get mail to patients, communication with family and friends overseas becomes very restrictive. Fortunately, many foreign patients have access to the Internet on a mobile device today, but hospitals are only beginning to provide Wi-Fi similar to those found in hotels. It is too bad (smiling) that cookies, flowers and fruit cannot be sent in an email attachment. Foreign patients expecting pizza delivery will also be disappointed (more smiling).

One of the most common and significant complaints by foreign patients is inadequate pain control. Perhaps the Japanese concept of 'gaman' or perseverance is a factor contributing to this complaint. The complaint is usually specific to being given a pain medication that does not provide relief. Then given something stronger that also seems not to give relief from pain, and this process may be repeated until relief is achieved. Whether foreign patients have less tolerance to pain, or in the case of many foreign patients who have a high body weight compared to average Japanese patients, or perhaps metabolize differently, the fact remains that this is a very common recurring complaint. Compared to the United States and some other developed countries, the use of opioids in Japan for pain relief is much less common. I must admit that I do not know why this is the case. Pain today is considered a vital sign and proper management of pain is extremely important. I think we can do better.

Foreign patients, especially Westerners, expect to have daily visits by the attending physician to discuss progress and concerns. We laughingly say that some patients get a Ph.D. in their disease and know almost as much about their condition as the physician does. They read the latest medical journal articles and will openly question the physician about their care. These patients want to have significant and detailed conversations about their care with the attending physician, not a resident or intern. Foreign patients frequently complain about not being visited daily by their attending physician, and when visited there is little time for these conversations. These patients have differing informational needs, depending on their home country, and this needs to be recognized and addressed.

Hospital staffs are frustrated by these complaints over which they have little or no control. Foreign patients are often referred to as "high maintenance" not in a derogatory sense, but to point out that their expectations are very different from their Japanese patient's expectations and needs somehow to be addressed. It is common for inbound foreigners seeking care abroad to be unhappy with the care provided in their home country and they often carry that unhappiness with them. Somehow, they frequently feel that they can get things done abroad that they cannot get done at home. These patients can become confrontational, a trait not common in Japanese patients. While hospital ownership may wish to increase the number of foreign patients, staff, and in particular nursing staff, can be resistive.

Accepting the Inbound Foreign Patient

Accepting foreign patients referred from an insurance company, a medical tourism facilitator, or a self-referral is very difficult.

The reason is that accepting a patient without an initial on site evaluation poses risks both to the patient and the hospital. Medical records are often not in English, are illegible in many cases, and images sent in advance are usually not of diagnostic quality. Every referral asks the question of costs, which is impossible to estimate because we really do not know what needs to be done until we can examine the patient in person. Because of lengthy delays in drug and device approvals in Japan, hospitals frequently cannot provide the treatment the patient or his referring physician requests. Because of time differences and work schedules, it is not easy to get a physician-to-physician phone conversation accomplished and not all accepting physicians in Japan have adequate English Language competency to do so. It is even more difficult to speak to the patient himself, to see if he has any special concerns. For citizens of countries that require a visa to enter Japan, this poses an additional burden on the patient, and hospitals are unable to assist with this. Generally, accommodations for family members wishing to accompany the foreign patients are difficult to arrange and are an added expense. One can easily see that issues in accepting inbound foreign patients is a difficult, time consuming and a frustrating undertaking for hospitals, and the experience at my hospitals is that the vast majority of requests do not result in acceptance.

Reimbursement Issues

Foreign patients covered by Japanese National Health Insurance pose few problems for Japanese hospitals and are treated essentially equivalent to Japanese patients. Most expatriates are enrolled in this insurance program.

However, foreigners living in Japan illegally pose significant problems for Japanese hospitals. They are not covered by Japanese National Health Insurance and therefore usually cannot afford to pay for an otherwise expensive admission. They often delay getting early treatment for fear of discovery and being reported. When these patients present in the hospital's emergency room, they cannot be refused, and frequently are discharged at the completion of treatment, unable to pay for the services

provided. In the vast majority of these cases, immigration authorities are not notified, the patient continues to reside in Japan illegally, and continues to receive periodic urgent medical care without the ability to pay for it. Deportation breaks this cycle, but is seen as cold and insensitive, and their illegal status is rarely reported to immigration authorities because medical professionals mostly do not want to be involved in anything beyond the provision of medical care. The hospital's failure to report this to the proper authorities exacerbates the problem. Illegal foreigners are a unique issue, unrelated to other foreigners being admitted to hospitals in Japan.

Visitors to Japan as tourists, or foreigners who come to Japan specifically for medical care pose difficult challenges in terms of the hospital being reimbursed for the care provided. Those foreign visitors who come to Japan specifically for medical care and pay cash upfront as a deposit for the estimated cost of providing the treatment are the easiest to deal with, but are the rare minority.

Foreign or international insurance companies are notoriously difficult to deal with. Although they will usually provide a pre-authorization document or letter of approval, this does not guarantee prompt payment. As examples, they will question treatment, require justification for the use of certain drugs, want English language translations of the medical records, limit the ALOS for payment, and deny certain tests. They are slow to respond to inquiries, need constant follow-up, and use answering machines or voice prompts extensively. Unless the hospital has bilingual staff capable of responding and aggressively negotiating with foreign insurance companies, payment may be denied or delayed indefinitely. For a hospital with a low volume of foreign patients, the investment in this capability is significant.

The bottom line is that while the 2020 Tokyo Olympics is often cited as increasing the number of foreign visitors to Japan and therefore requiring Japanese hospitals to become more foreign friendly, I do not believe this is a compelling reason. Athletes participating in the 2020 Tokyo Olympics, their ancillary contingents, and foreign visitors will usually not seek medical care except in urgent circumstances, and will be pretty much concentrated in the Tokyo area. However, I think that there are many things Japanese hospitals can do to improve the circumstances for foreign patients and I hope that you agree with me. Because of the challenges listed above, I remain uncertain if Japanese hospitals are truly eager to accept foreign patients, and although they are technically and professionally capable, there is still much that needs to be done.

Comments solicited to: john.c.wocher@kameda.jp

ISSN 0910-1004