

## Commentary

# Role Modeling for Female Surgeons in Japan

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Japan is still a patriarchal society. There is an increasing number of female doctors who wish to follow a career path in surgery. This new generation of female surgeons need support not only in their career but also in work-life balance, especially after they have a family. We founded the Japan Association of Women Surgeons (JAWS) with the aims to advance females in surgery by providing networking and to develop leadership, mentorship, education, expertise and advocacy. This article describes our philosophy and activities, and our concept of role modeling. To find a single perfect role model is impossible in Japan, because lifestyle and family situations are quite different among individuals. Many young doctors in Japan find difficulties in identifying role models appropriate to their own situations. Our concept of remote role modeling is to identify multiple outstanding persons with excellent roles that one wishes to emulate; classify them by field of work, lifestyle, family situations, and others; then select the parts that one needs and assemble them to customize one's own ideal role model. This type of role modeling is probably the most practical approach. While modern technology is good for communication, meeting role models in person at meetings and social occasions is important in building an ideal role model.

**Keywords:** female surgeons; Japan Association of Women Surgeons; mentor; role model; sponsor  
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## Introduction

In Japan, the proportion of females who pass the National Examination for Medical Practitioners has exceeded 30% in the last 20 years. The proportion of female physicians to all physicians in Japan was 21.1% at the end of 2016. However, there are still few female surgeons (Tomizawa et al. 2012).

It was not until recently that we began to hear the words “role model”, “mentor”, and “sponsor”, and Japan has not yet developed a culture to address them (Yorozuya et al. 2016). In the literature in international languages, there is a limited number of articles from Japan about “role model”, “mentor” and “sponsor” for female physicians. The Japan Association of Women Surgeons (JAWS) was founded in 2009. A search for “role model” on I-chu-shi (March 16, 2019), which is one of the major Japanese academic databases, yielded 579 references. After excluding conference proceedings and references from nursing journals, 186 references remained, only a few of which were related to the Japanese Association of Medical Sciences. By comparison, a search on PubMed found 3,900 references for “role model(s)” in all fields. This article describes the JAWS activities, our philosophy of gender inequality,

how we built networks and conceived the concept of remote role modeling. Remote role modeling is to identify and classify outstanding persons with excellent roles by field of work, lifestyle, and family matters; then select the attributes that one needs and assemble them to customize one's own ideal role model.

## Japan in the Old Days and Modern Time: Little Progress

In 1885, Ogino Ginko became the first female physician licensed under the modern Japanese medical education system. However, the first female surgeon in Japan has not been clearly identified. In the old days, female surgeons were very rare and they worked in a male-dominant medical society. It was also very difficult for them to have a family. According to the World Economic Forum (2018), Japan ranked the 114th out of 144 countries in the global gender gap index in 2017. Political empowerment, economic participation and opportunity for females are still quite low even today.

Japanese husbands tend not to participate in housework. According to a publication by the Ministry of Internal Affairs and Communications in Japan (Ohta 2006), Japanese working males do housework for only an average

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of 52 minutes per day, 7 days a week. This is the shortest time compared to working males in other countries surveyed. On the other hand, Japanese working females do housework on average 218 minutes per day, and this is about average compared to working females in other countries surveyed. Since working males do very little housework, Japanese working females do housework until late, and their sleeping time is the shortest.

### **Income, Marriage, and Parenthood of Female Surgeons in Modern Japan**

Seventy percent of female doctors are married to male doctors. There are differences in income, marriage, and parenthood between males and females in Japan. A study on income, marriage and parenthood among Japanese surgeons was published, which analyzed the data obtained from the 2012 survey conducted by Japan Surgical Society (Okoshi et al. 2016). From the data, 546 females and 1092 males who graduated in the same year were selected and adjusted for factors that influence a surgeon's salary. Male surgeons earned more than female surgeons. Married male surgeons earned more than unmarried male surgeons. However, married or remarried female surgeons earned less than single or divorced female surgeons (Okoshi et al. 2016). In the same study, as the number of children increased, annual income increased for males but decreased for females. Female surgeons earned less because they worked fewer hours, even though male surgeons and female surgeons had the same salary scale. According to another survey on housework conducted by the Japan Surgical Society, male surgeons, with or without children, spent the same amount of time on housework. Female surgeons, with or without children, spent longer hours on housework than male surgeons (Kawase et al. 2018). In that study, female surgeons aged 30 to 39 years with children spent the longest time on housework. It is difficult to expect improvement because Japanese have little awareness of the need to reform work style. In Japan, the conventional value that "females should stay home" still prevails (Tomizawa et al. 2014, 2016). Japanese females feel strongly about family responsibilities as well as care and education for their children. As a result, they work less hours and consequently their income decreases.

The decision to have a family has a greater impact on female surgeons than male surgeons (Sanfey et al. 2006). As President of JAWS, my personal impression of the Japanese situation is as follows. A department of surgery with a woman professor who has at least one small child may be a suitable working environment for a woman surgeon of childbearing age who wants to have a child. A woman surgeon who has given birth and returned to work in the same department of surgery may find that the support system and child care system are satisfactory. However, since no woman surgeon have given birth in my department (Department of Cardiovascular Surgery, Tokyo Women's Medical University), the situation cannot be verified. If a

female surgeon expects to have a family and wishes to continue working, she probably needs to find a department where there is at least one other female surgeon who is a mother currently working. If there are no female doctors who are mothers in a department, it is possible that there is culture within the organization of not supporting female surgeons who have children.

The gender equality has improved in the US, although there is still a salary gap between male and female surgeons (Greenberg 2017). Gender disparity still exists in Europe and the US, and idiomatic terms such as "glass ceiling," "sticky floor," and "leaky pipeline" have been used symbolically. Glass ceiling refers to the invisible restrictions to prevent promotion of women in the workplace including academia (Nickerson et al. 1990; Tesch et al. 1995; Zhuge et al. 2011). Sticky floor is a situation where women are not promoted from the first position of their employment (Tesch et al. 1995). Leaky pipeline is a phenomenon in which women gradually give up their career due to childbirth and child rearing (Barinaga 1992; Pell 1996). The reason is that it is difficult to balance work and family life. Many males are treated preferentially in the organization, while capable women are unable to get promoted.

Gender bias and discrimination against women by the male-dominant structure in surgery still exists (Longo and Strachley 2008). It is essential to identify the causes of inequality, continue the advancement of women in academic surgery, and propose different strategies to crush the glass ceiling in academic surgery (Zhuge et al. 2011). In Japan, the situation lags behind other countries, and few women rise to senior positions. As a result, still there are few female professors in medicine (Okoshi et al. 2014; Tomizawa et al. 2014). Women must work many times harder and wait much longer for the same reward, because sticky floor is prominent in Japan (Tomizawa et al. 2014).

It is necessary for women to participate in the policy-making process. Before getting a seat in a committee, women have to be educated and be confident to express their opinions in public. Female representatives should be chosen by virtue of their ability. Quota system is not the best way to correct gender gap. However, when the negative effects due to gender gap are large, such as in Japan, a quota system is necessary. In the absence of a gender quota system, the ratio of female Diet members is still low in Japan, Miura (2013) suggested to introduce the gender quota system for Diet members. The ratio of women in parliament is high in many foreign countries with a gender quota system. In the list of women in lower or single chambers after parliamentary renewals in 2018, many countries, not only industrial countries but also developing countries, have quota systems (Inter-Parliamentary Union 2019).

### **The Relation between the Japan Surgical Society and JAWS**

Japanese female surgeons are still the minority in their profession (Tomizawa 2013; Okoshi et al. 2014). Some

male surgeons still have never worked with female colleagues at their workplace. The age structure of female and male members of Japan Surgical Society (JSS) has the shape of a pyramid (Fig. 1). The largest number of female surgeons are aged 30-31, while the largest number of male surgeons are aged 54-55 (Tomizawa 2015).

The Japan Association of Women Surgeons was founded on November 20, 2009. The acronym of our association is JAWS (J-A-W-S). As an external organization of JSS, JAWS has been active in the past 10 years. If this article would trigger increased attention to female doctor support, gender equality, and diversity in surgery, JAWS could become more active, and more female surgeons may be able to continue working without giving up their career. It may be possible to stop the decrease in surgeons.

Directors of JAWS believe that there is an intimate relationship between JAWS and the JSS; however, only one-fourth of the directors of JSS are JAWS members. As of February 1, 2016, JAWS has 85 male surgeons, while there are 36,225 male members in JSS. Therefore, 0.2% of male members in JSS join JAWS. From these figures, JAWS is not popular among male surgeons. On the other hand, when we hold a breakfast meeting every year during the annual meeting of JSS, the venue fee for the breakfast meeting is supported by the President of the annual meeting. Female surgeons could not have established an association without the kind support from JSS.

JAWS has a membership of 263 as of February 28, 2017. We have a website (<http://jaws.umin.jp/>) that posts information of meeting announcements, photographs from

meetings, academic references and links to other organizations. There are five types of membership in JAWS. A regular member must be a woman and a member of the JSS. Associate members are mainly male surgeons, or female physicians who work in the operating room but are not members of JSS, such as dermatologists and orthopedics. Recently, we have also resident and student members. We have one senior member aged above 70 years, whose membership fee is exempted.

The majority of female members in JAWS are aged 39-40, while the majority of male members are aged 61-62 (Fig. 2). Compare to the JSS pyramid, JAWS members are older by 10 years. The reasons for joining JAWS are slightly different between females and males. When female surgeons are in the leading position, they need information and network. When they feel anxious about their career path or when they have issues concerning pregnancy and childbirth, they join JAWS. Some male professors in surgery and department heads are a generation without female colleagues or had never worked with female surgeons. When these male surgeons start to work with female surgeons at the workplace, they also need information on how to support her and join JAWS.

The geographical distribution of JAWS members who pay membership fees is shown in Fig. 3. Members live in 40 of 47 prefectures in Japan. Most of the members live in big cities. There are still seven prefectures without JAWS members. According to a list of persons in charge of female doctor support (from prefectural medical associations, universities, etc.) attending a national liaison meeting

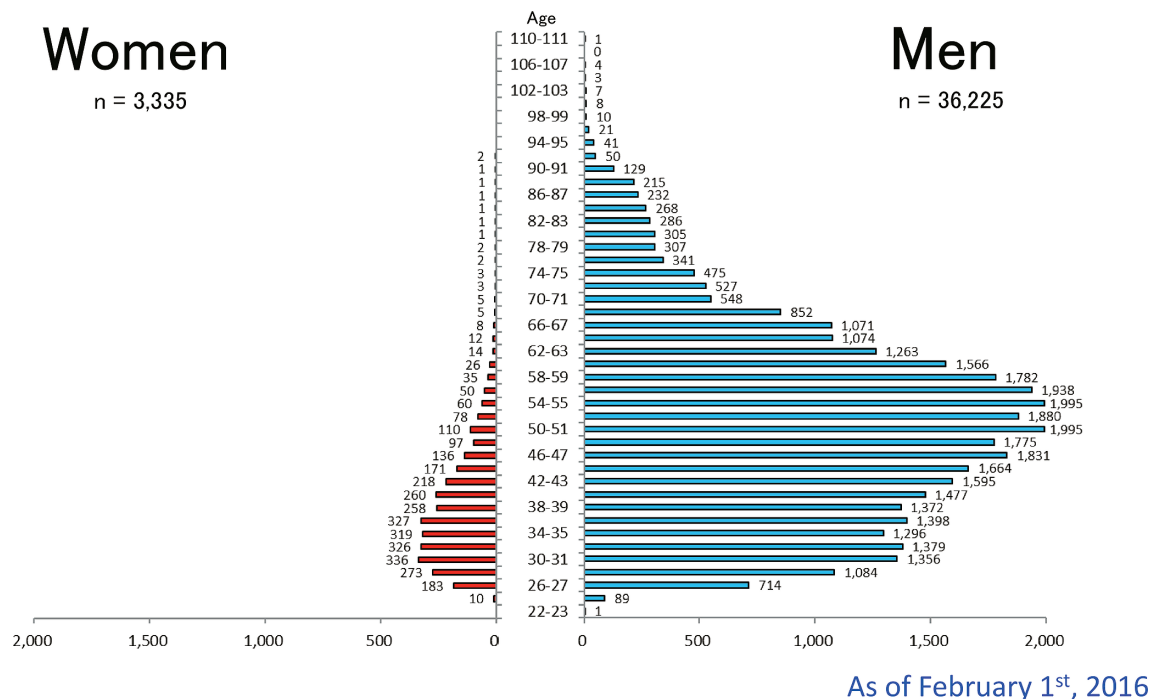


Fig. 1. Age structures of female and male members of Japan Surgical Society as of February 1st, 2016.

The largest number of female surgeons are aged 30-31 years, while the largest number of male surgeons are aged 54-55 years.

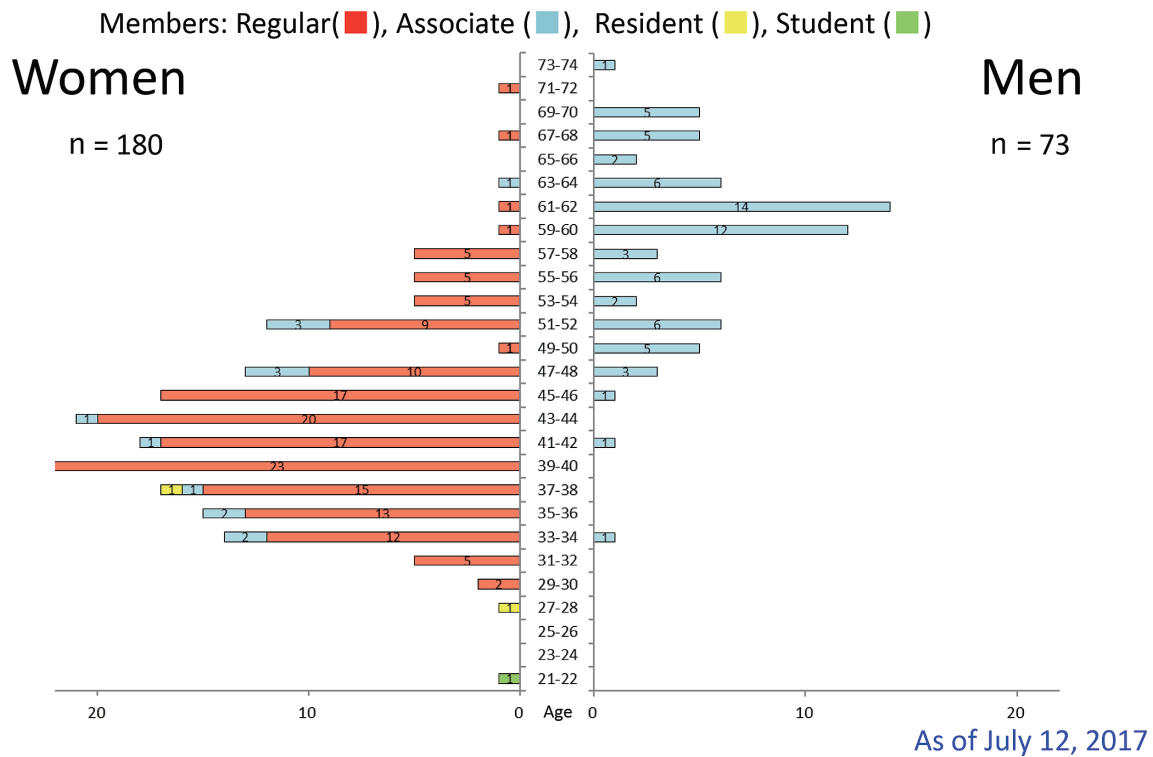


Fig. 2. Age structures of female and male members of JAWS.

There are five types of membership in JAWS: regular member (■), associate member (■), resident member (■) student member (■), and senior member (not shown). The largest number of female members are aged 39-40 years, while the largest number of male members are aged 61-62 years. Compare to the JSS pyramid (Fig. 1), JAWS members are older by 10 years.

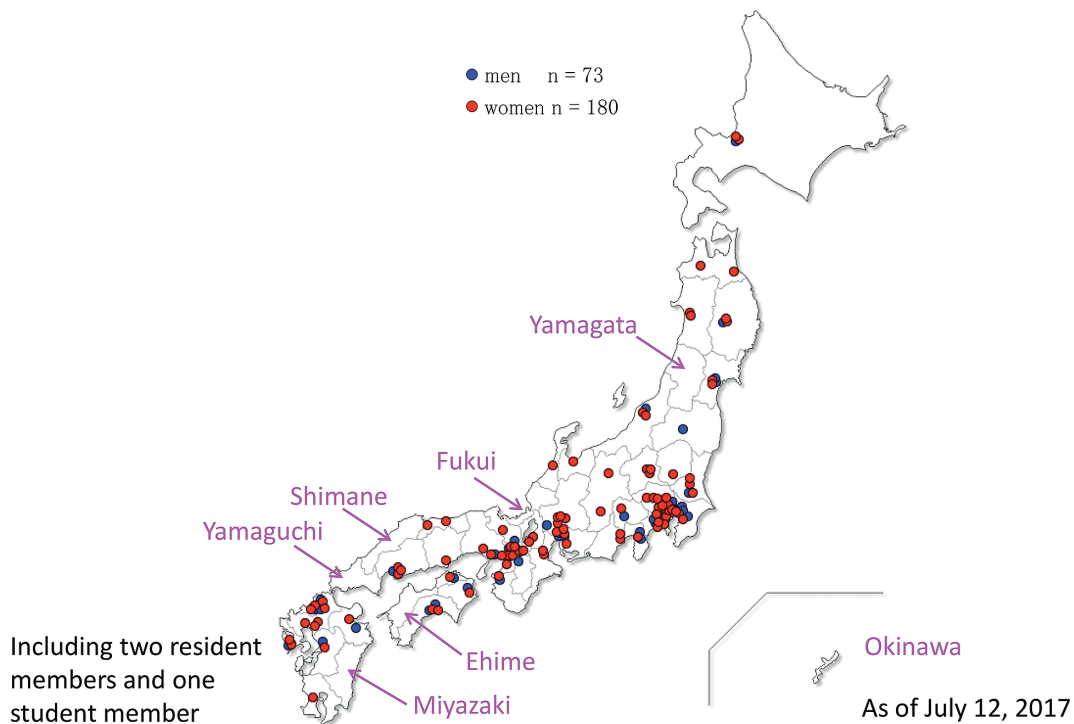


Fig. 3. Geographical distribution of JAWS members by zip code.

JAWS members who pay membership fees live in 40 of 47 prefectures in Japan. Most of the members live in big cities. Seven prefectures with pink letters are without JAWS members.



held on December 9, 2018, more attendees were from prefectures having universities with a reputation of advanced female doctor support and those prefectures tended to have more JAWS members (data not shown). It appears that the enthusiasm of medical education at universities, not the number of surgeons in the area, may affect the number of JAWS members in the prefecture.

There are 81 medical schools in Japan, and female JAWS members work in 44 medical school affiliated hospitals and education facilities (data not shown). Currently 24 medical schools have no JAWS members and we are still working on this.

### JAWS Activities

We provide meeting opportunities for network building. We organize breakfast meetings (Fig. 4) twice a year and invite international distinguished guests who attend the JSS annual meeting to our morning meeting. We teach members how to write original articles and grant applications at workshops, and we organize sessions related to female surgeons, work-life balance and work-family conflict at major surgical meetings.

Using group email, we disseminate information and opportunities to attend international conferences for female surgeons, such as Association of Women Surgeons and Women in Surgery Career Symposium. Every year, we bring young female surgeons and residents to international meetings to gain experience and build network. I attended the Women in Surgery meeting almost every year with young surgeons. Dr. Shalona Ross inspired us to give opportunities to young female surgeons. When we notice the motivation of young surgical residents and students, we understand that female surgeons will choose surgery even if they are born again (Troppmann et al. 2009). We also give financial support to members when they present a paper related to female surgeons at international meetings. JAWS would like to exchange ideas with other groups founded by female doctors in the world.

We send emails to give advice on how to write aca-

ademic manuscripts and to conduct joint research with scientists in other fields. Every one or two weeks, the JAWS office transmits group emails with information such as scientific articles in international journals, articles from newspaper, and useful topics from newsletters of other medical societies.

JAWS office answers questions from members using email. We suggest specialists for joint research projects, introduce speakers for scientific meetings. Male-dominant rules still exist at the workplace. Questions on personal distress such as, "After getting married, how can I use my maiden name at workplace?" are received. Measures against harassments in various forms, such as sexual, power, academic and maternity, are still needed. Since I am the president and there is only one part-time secretary in the JAWS office, I respond to all the requests and questions. When I do not have the answers, I ask other directors and members.

### Mentor, Role Model and Sponsor are Sought for Female Surgeons in Japan

#### Mentor

Mentors not only provide support for academic works and life, but of course also support mental issues, communication and career path. Mentorship includes the maintenance of both physical and mental health at the workplace. While in medical school, the presence of a mentor has important influence on the career choice for female medical students (Healy et al. 2012a). It is reported that during surgical procedures in the operating room, a student who has the opportunity to suture or operate a camera becomes interested in surgery (Berman et al. 2008). Medical students during clerkship should be given appropriate guidance and kind advice, otherwise they will not be interested in surgery. When students are left unattended for a long time because the doctors are too busy to look after them, the students become bored from having nothing to do. Surgeons should pay more attention and attract undergraduate students by demonstrating the roles of surgeons as spe-



Fig. 4. JAWS Breakfast Meeting attended by Prof. Patricia J. Numann (founder of the Association of Women Surgeons in the US) during the 112th JSS annual meeting held in Chiba, Japan on April 12, 2012.

Source: [http://jaws.umin.jp/events.html#Scientific\\_meeting](http://jaws.umin.jp/events.html#Scientific_meeting), reproduced with permission from JAWS. Prof. Numann is the third from the right in the front row, and the author is next to her on the left.

cialists and leaders (Healy et al. 2012b).

A study shows that female doctors who have a mentor write more articles and spend more time on research activities (Levinson et al. 1991), because female doctors learn from the mentor about time management, setting work priorities skillfully, and reduction of useless behavior. To achieve gender equality in career opportunities, mentoring programs are indispensable for residents. A peer mentoring program has been shown to be cost-effective and have positive effect on academic skills and preparation of thesis for junior female faculties (Varkey et al. 2012). Birch et al. (2007) demonstrated that a mentoring program was effective for safely introducing minimally invasive surgery. However, there are serious difficulties in finding a mentor and establishing a productive relationship without formal mentoring programs (Straus et al. 2009). Executives in an academic facility and female doctors should recognize the benefits of having a formal mentoring program. A few universities and medical societies in Japan have official mentor projects, but more efforts are needed.

#### *Role model*

An outstanding woman inspires other females (Lockwood 2006). Women with a role model reported higher overall career satisfaction (Levinson et al. 1991). Junior doctors who had identified a positive surgical role model were twice as likely to express interest in pursuing a surgical career (Ravindra and Fitzgerald 2011). In general surgery, female residents are less likely to encounter a role model of the same sex than male residents (Park et al. 2005). In vascular surgery, residents require a gender-specific role model, because it is difficult for both males and females to maintain work-life balance (Shortell and Cook 2008). Female medical students need a successful female surgeon as a role model before they choose a surgical career (Neumayer et al. 1993). However, there are still few female professors in surgery (Abelson et al. 2016).

In Japan, the total number of doctors who choose surgery is decreasing, while the number of female doctors who choose surgery is increasing slightly. On the other hand, the tendency of a “desire to leave current employment” increases after marriage in female medical doctors, according to individual data of the Employment Status Survey in Japan (Tomizawa et al. 2016). Female surgeons in Japan need role models to encourage and help them stay and advance in their career, but finding a definitive model is even more difficult than their overseas counterparts. In Japan, an individual seeks a role model with commonalities not only in work but also in personal conditions and environment, ideally someone who shares similar background including the living community, spouse’s perception toward housework, and medical specialty.

Young female surgeons should understand that it is difficult to find a single role model that completely matches their own circumstances and conditions, since lifestyle and family situations are different among individuals. They

should concretely imagine their future, and find desirable attributes in tentative role models whom they aspire to become in the future. The concept of remote role modeling will be discussed below. Young surgeons should keep themselves open to new ideas and be ready to change direction if needed. They should meet many excellent clinicians with experience and expertise inside and outside their own facilities, and communicate with them. Attending social gatherings hosted by academic societies and study sessions is an opportunity to meet many subspecialists.

#### *Sponsor*

A sponsor is a skillful person who encourages others and gives others a chance. Unlike mentors, sponsors have to make concrete arrangements. Because it is rare for female doctors to be recommended as committee members in academic societies in Japan, they cannot reach a position or status that allows them to recommend other female doctors (Tomizawa 2014).

There is a need to increase the number of female councilors in Japanese academic societies. The reason is that it is necessary to have a critical number of people (female councilors) with the same idea (female doctor support) on the council to change the structure of the organization in order to change human behavior and awareness, and to increase the minority in the organization through external pressure. It is said that the critical mass to bring about changes is 30%.

In JSS, the number of female councilor has increased from one to two, but the voice from female surgeons does not reach the directors in the decision-making position and hence is not sufficiently loud to change rules, because female surgeons do not have a sponsor most of the time. As in other academic societies, transformation of the organizational mindset is not possible unless individuals remodel their way of thinking (Berman et al. 2008). Recently, the Japanese Society of Internal Medicine together with thirteen affiliated societies started to increase the number of female councilors (Nagoshi et al. 2018). Unless people at decision-making positions in these societies reform their way of thinking, the number of female councilors will not increase to a sufficient number.

### **Concept of Remote Role Modeling by JAWS**

The most important point about identifying role model is: do not expect to find a single perfect role model (definitive role model) who matches exactly one’s own environment and conditions. As an alternative, we conceived a new concept of remote role modeling. This involves identifying multiple outstanding persons who play excellent roles and classifying them by field of work, lifestyle, family matters, and others, then selecting the parts one needs and assembling them to make a custom-made ideal role model. After that, one needs to recognize the reality and limitations, compare the role model with oneself, and make an effort to be close to the ideal model. The advantage of this

approach is flexibility and changeability. There are many role models with excellent attributes in the world, which can be synthesized into one's own ideal image. Young surgeons can learn wisdom of work-life balance from their role models of the same gender. A search on PubMed found no article that contained "remote role model" or "remote role modeling" in the title. However, we believe that this concept will help to improve the gender gap in Japan and will become popular in the next 10 years.

To make a custom-made ideal remote role model, a young female surgeon must find or meet multiple role models with desirable attributes that are applicable to her own situation. JAWS plays a big role in promoting remote role modeling. At breakfast meetings and workshops organized by JAWS, every attendee introduces herself or himself and exchanges business card with other participants. Surgical specialists, multidisciplinary team surgeons, parenting surgeons, residents and medical students are in one room. JAWS meetings create network, provide opportunities to share information by email, and enable members to interact, gather information, exchange opinions and share concerns about their career paths. JAWS brings different remote role models together to be synthesized into an ideal role model image using network. Female surgeons work in various facilities create a network among women of a wide range of ages and expand personal connection.

Medical students who think of selecting surgery as their career are likely to be motivated by a role model. And, early exposure to surgery has been reported to be important (Erzurum et al. 2000). Female surgeons are much more positive about selection of profession (Park et al. 2005). In Japan, family matters strongly affect how individuals work after marriage (Tomizawa et al. 2016). Therefore, female surgeons need a role model who has both a career path and private life similar to themselves, including family environment, husband's perception of domestic arrangement, work-family conflict, and management of work schedule (Tomizawa et al. 2016). Since we have a small number of female surgeons, finding a single role model that satisfies all these conditions is unrealistic. Our new concept of remote role modeling would provide a more practical way of obtaining an image of ideal role model. Because JAWS members have limited opportunities to meet together in a year, we need to use modern technology to communicate so as to keep in touch and connect. JAWS would like to support female surgeons and increase the number of female surgeons who have a lifestyle of their choice and who can continue to practice.

### Summary

In Japan, female surgeons are still a minority. JAWS members need to meet and communicate. To find one perfect individual role model is impossible. JAWS proposes the concept of remote role modeling, which is to classify outstanding persons with excellent roles by field of work, lifestyle, family matters, and others; then select the attri-

butes that one needs, and assemble them to customize one's own ideal role model. Remote role modeling can be realized using modern technology.

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### Conflict of Interest

The author declares no conflict of interest.

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