



## Demographic Situation in Operative Medicine in Switzerland – Time to React?

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### Abstract

**Objective:** The decreasing proportion of physicians of Swiss origin and the increasing number of part-time jobs in operative medicine might lead to a shortage of physicians in operative disciplines in Switzerland. The objective of the present study was to analyze the current demographic situation in operative medicine in Switzerland.

**Methods:** During the summer of 2011, a 19-item anonymous electronic questionnaire was mailed to all directors of departments in operative medicine in Switzerland. The questionnaire was designed to gather data about the characteristics of the participating departments, the demographics (including the appointment (consultant, attending or resident), the proportion of female and foreign physicians, the latter's origin, and the number of part-time jobs with a working time between 20 and 90%), and the proportion of vacant posts.

**Results:** Of 775 questionnaires mailed to all directors of departments in operative medicine in Switzerland, 183 (24%) were returned. Overall, 40% were female, and 42% foreign physicians. The proportion of part-time jobs amounted to 17%. Vacant posts were found in 2%.

**Conclusions:** An expansion of study places at the medical universities and of the incentives for the incumbents in operative medicine is necessary to avert a shortage of physicians in Switzerland.

**Key words:** Shortage of physicians, Switzerland, operative medicine

### Introduction

It is estimated that in Switzerland, between 1998 and 2007, the increase in staff in hospitals was 25% [1]. Therefore, the jobs were disproportionately more often occupied by foreign employees [1]. Similar demographic shifts, with a growth of minority populations from abroad, have evolved in the US [2].

At the same time, the gender gap that existed in the composition of medical students in Western countries for a long time has been essentially closed [2]. A steady increase in the number of female medical school graduates in Switzerland led to their proportion becoming 61% in 2010 [3].

A decreasing proportion of male physicians of Swiss origin might lead to a shortage

of physicians in operative medicine in Switzerland. Surgeons are known to relocate for economic or retirement reasons [4], which might lead to a decline in the overall number of physicians in operative medicine due to improving working conditions abroad. Compared to their male colleagues, women are concentrated in a few family-friendly specialties, whereas only a few choose operative medicine [5-7] and are more likely to work part-time and to retire before the normal retirement age [8-11].

We lack an exact number for foreign physicians working in Switzerland [1]. The data considered here are from foreign members of the Swiss Medical Association (FMH) [12], foreign physicians who have been indexed on request, and physicians who have had their foreign diploma accredited by the Federal Office of Public Health [13]. Furthermore, the statistics of the FMH regarding the proportion of female physicians and part-time jobs in Switzerland are largely based on data from consultants and attendings. The objective of the present study was to analyze the current demographic situation in operative medicine in Switzerland.

### Methods

During the summer of 2011, a 19-item anonymous electronic questionnaire was mailed to all directors of departments in operative medicine in Switzerland (classified according to the FMH) [14]. They were identified from the database of the Swiss College of Surgeons, the umbrella organization of all operative disciplines in medicine in Switzerland [15]. The questionnaire was designed to gather data about the characteristics of the participating departments, the demographics (including the appointment (consultant, attending or resident), the proportion of female and foreign physicians, the latter's origin, and the number of part-time jobs with a working time between 20 and 90%), and the proportion of vacant posts. Response enhancement techniques included notification in advance and a mailed reminder after four weeks. All fully completed, returned questionnaires were included in the study.

### Results

In all, 183/775 (24%) questionnaires were returned. The characteristics of the participating departments are shown in Table 1. The median number of surgeries performed per year was 2100 (range 350–25,865).

Regarding all the 183 participating departments

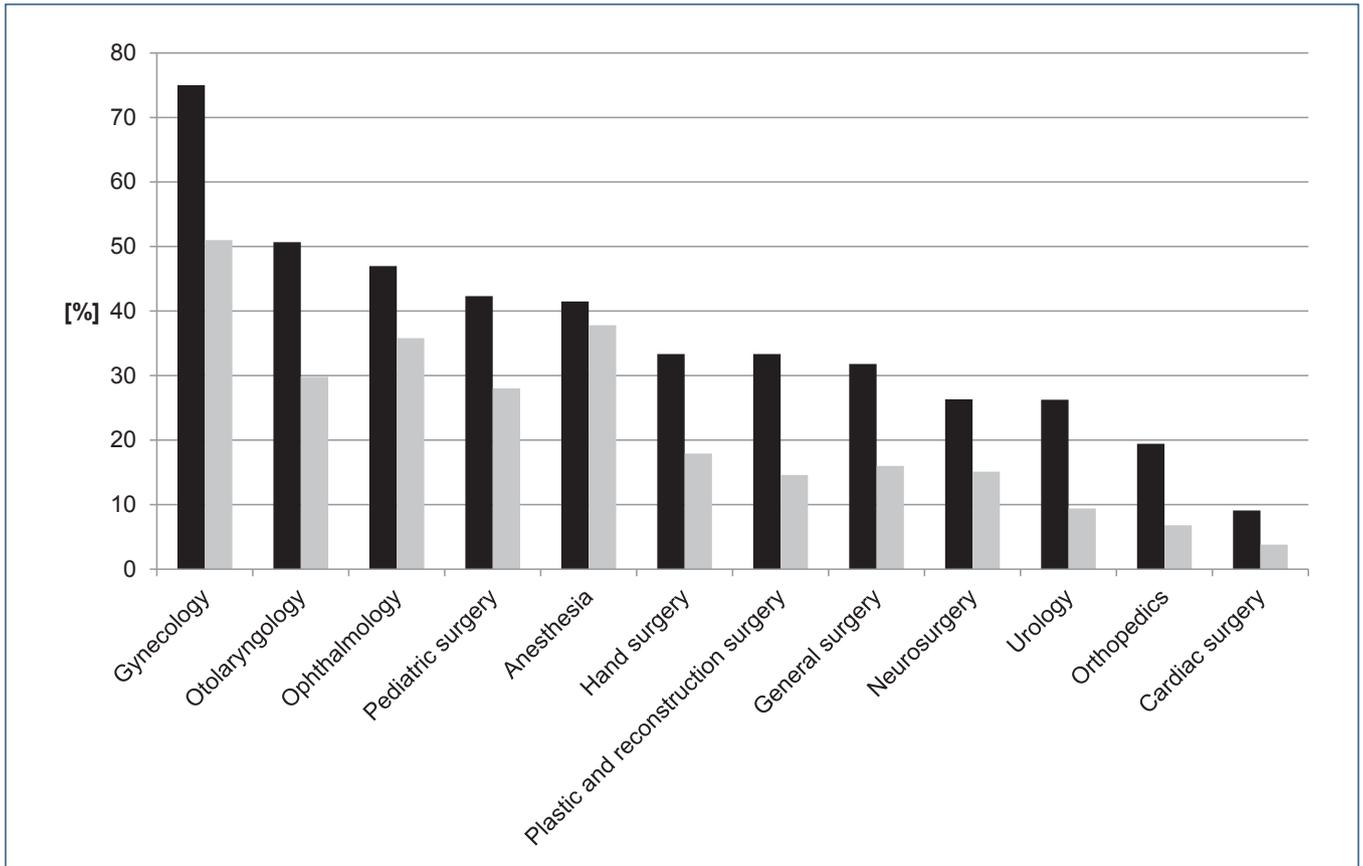
**Table 1.** Characteristics of the participating departments (n=183).

Characteristic	No. of respondents (%)
<b>Hospital category, 18 missing values</b>	
Type U	20 (12)
Type A	19 (12)
Type A1	6 (4)
Type A2	10 (6)
Type B3	26 (16)
Type B2	28 (17)
Type B1	29 (18)
Type C	24 (15)
Private practice	3 (2)
<b>Specialty, 11 missing values</b>	
Anesthesia	35 (20)
General surgery	35 (20)
Gynecology	31 (18)
Orthopedics	31 (18)
Urology	12 (7)
Otolaryngology	7 (4)
Hand surgery	6 (3)
Ophthalmology	4 (2)
Cardiac surgery	3 (2)
Pediatric surgery	3 (2)
Neurosurgery	2 (1)
Plastic and reconstruction surgery	2 (1)
Dermatology	1 (1)
Maxillofacial surgery	0 (0)

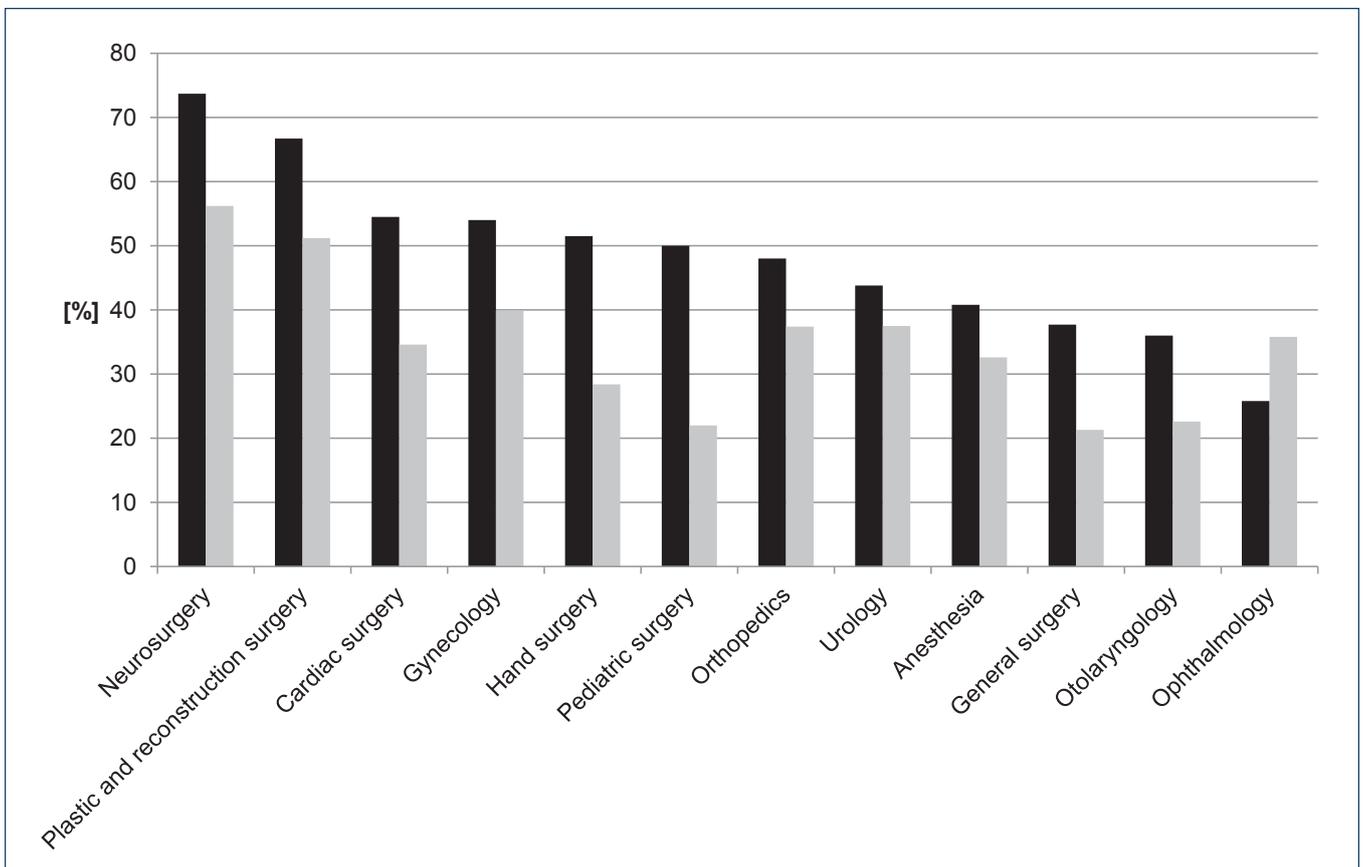
Type U: university hospitals, Type A/A1/A2: large referral centers, Type B3: regional or specialized hospitals, Type B2/B1/C: small regional surgical departments (classified according to the FMH) [14].

together, there were 412 consultants (median 2, range 1–15; 44 missing values), 661 attendings, (median 4, range 1–34; 43 missing values) and 1077 residents (median 4, range 1–74; 36 missing values) included in our study. Overall, 857/2150 (40%) were female physicians, including 66/412 (16%) consultants, 257/661 (39%) attendings, and 534/1077 (50%) residents being women. Figure 1 shows the proportion of female physicians by specialty.

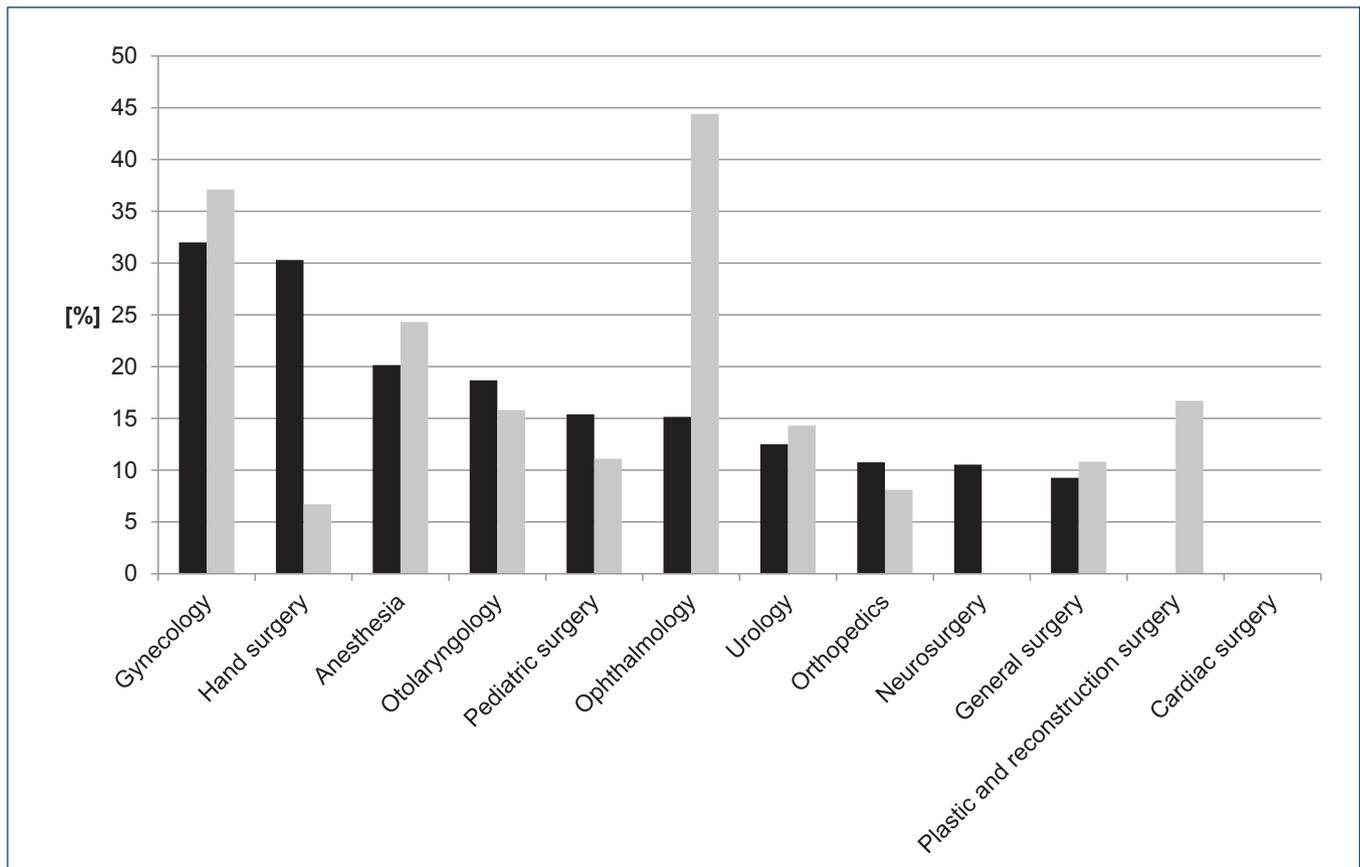
Foreign physicians were identified in 908/2150 (42%), including 89/412 (22%) consultants, 282/661



**Figure 1.** Proportion of female physicians depending on specialty; Obtained results (black) in comparison with the numbers of the Swiss Medical Association (FMH) from 2010 (gray).



**Figure 2.** Proportion of foreign physicians depending on specialty; Obtained results (black) in comparison with the numbers of the Swiss Medical Association (FMH) from 2010 (gray).



**Figure 3.** Proportion of part-time jobs depending on specialty; Obtained results (black) in comparison with the numbers of the Swiss Medical Association (FMH) from 2010 (gray).

(43%) attendings, and 537/1077 (50%) residents being foreigners. Figure 2 shows the proportion of foreign physicians by specialty. Regarding the four most common countries of origin, 155/908 (17%) were from France, 155/908 (17%) from Germany, 85/908 (9%) from Italy, and 72/908 (8%) from Austria (43 missing values).

The proportion of part-time jobs amounted to 17% (361/2150), whereas 78/412 (19%) consultants, 200/661 (30%) attendings, and 83/1077 (8%) residents had part-time jobs. Figure 3 shows the proportion of part-time jobs by specialty.

Overall, there were 46/2150 (2%) vacant posts with 31/1789 (2%) vacant full-time jobs: 7/334 (2%) consultants, 10/461 (2%) attendings, and 14/994 (1%) residents. Of 15/361 (4%) vacant part-time jobs, 6/78 (8%) were consultants, 4/200 (2%) attendings, and 5/83 (6%) residents.

### Discussion

Females and foreigners account for almost half of the physicians in operative medicine in Switzerland.

With nearly one third of the general surgeons and three quarters of the gynecologists being women, we

found higher figures than those of the Association of American Medical Colleges in 2009 (15 and 48% for women and foreigners, respectively) [16]. Regarding the choice of specialty, female residents are known to consider work and time-related aspects to be more important than do men [17]. Still, similarly to van der Horst et al., we found a high percentage of women choosing gynecology, despite its close relation to surgical specialties, but potentially due to the experience of more “female culture” [17,18]. Compared to a high percentage of residents being women, only a few women were consultants and attendings, respectively. As a result of the increasing proportion of female graduates in recent years, an upward correction in this regard might take place in the near future. Nevertheless, women physicians generally show less interest in academic pursuits than do men, with fewer females taking over leadership positions [19-21].

Surgeons are particularly known for relocations, which is reflected by the present finding of almost half of the specialists working in operative medicine in Switzerland being foreign nationals [4].

We found that almost one fifth of the physicians worked part-time. Physicians who are parents during postgraduate training are particularly known to prefer part-time training [22].

In all, there were 2% vacant posts. Regarding the vacant posts per department, Bonk et al. found with an average of 1.58 a higher number for German trauma clinics due to a lack of qualified surgeons [23].

This study was mostly limited by the low response rate, which might lead to a non-responder bias [24-26] and the respondents' self-declaration without objective evaluation.

### Conclusion

An increased need for physicians due to the aging population [27], an increasing number of part-time jobs, and a gradual repatriation of foreign physicians would exacerbate the need for more specialists in operative medicine, leading to a shortage similar to that described by others for the United States [28,29]. Deteriorating structural working conditions might diminish young doctors' interest in surgery — perhaps the reason for our low response rate, reflecting a certain resignation of training providers, who are important role models. An expansion of study places at the medical universities and of the incentives for the incumbents in operative medicine is necessary to avert a shortage in Switzerland.

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### Authors' contributions

- Study concept and design: Kaderli, Laffer, Businger
- Acquisition of data: Kaderli, Gruber
- Analysis and interpretation of data: Kaderli, Gruber, Businger
- Drafting of the manuscript: Kaderli, Gruber, Businger

- Critical revision of the manuscript for important intellectual content: Kaderli, Gruber, Laffer, Businger
- Statistical analysis: Bornschein
- Administrative, technical and material support: Kaderli
- Study supervision: Laffer, Businger

Dr Kaderli and Dr Businger had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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None reported.

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### Role of the Sponsor

The study sponsor had no role in the design and conduct of the study; the collection, management, analysis, and interpretation of the data; or the preparation, review, or approval of the manuscript.

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