

# Orthopaedics and Trauma Surgery in Germany in 2023 – Will We Have Sufficient Doctors in the Future?

## Orthopädie und Unfallchirurgie 2023 – haben wir genug Nachwuchs?



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### ABSTRACT

#### Introduction

There has been a growing shortage of physicians in Germany in recent years. In this study, we analyse the situation facing orthopaedic hospitals and trauma centres.

#### Methods

Between 22 November and 5 December 2022, a web-based questionnaire was sent out by the Academy of the German Trauma Society (AUC) and by the Society of Leading Orthopaedic and Trauma Surgeons (VLOU).

#### Result

The questionnaire was answered by 185 heads of department. Of the responses, 20% came from university hospitals or major trauma centres, and a third from regional or local clinics. More than half of the hospital departments (55%) had a median of 2.7 vacant doctor positions. Among those hospitals, 47% had a vacant position for a consultant, 33% for a board-certified specialist, and 89% for a junior doctor. Within the university hospitals, only one third had vacant doctor positions. The responding heads of department gave negative feedback regarding the number of applications, the qualifications of young doctors, and their motivation for scientific work (in university hospitals).

## Conclusion

More than half of the responding hospitals had vacant doctor positions. If we are to counteract the growing shortage of doctors in orthopaedics and trauma surgery, the number of clinical doctors in general and the working conditions in hospitals have to be improved. Teaching hospitals should try to improve the training of medical students with a view to inspiring greater motivation to work in orthopaedics and trauma surgery.

## ZUSAMMENFASSUNG

### Einleitung

Allgemein zeichnet sich für Deutschland ein zunehmender Ärztemangel ab. Im Rahmen der vorliegenden Umfrage soll die aktuelle Situation für orthopädische und/oder unfallchirurgische Kliniken (O und U) dargestellt werden.

### Methodik

Die Umfrage wurde vom 22.11. bis 5.12.2022 rein webbasiert über die Akademie für Unfallchirurgie (AUC) und über den Verband der Leitenden Orthopäden und Unfallchirurgen (VLOU) durchgeführt.

## Ergebnisse

185 Kliniken haben den Onlinefragebogen beantwortet. Unter den Antwortenden befanden sich ca. 20% Universitätskliniken und Maximalversorger sowie ein Drittel Schwerpunktversorger bzw. Grund- und Regelversorger. Mehr als die Hälfte (55%) der Abteilungen gibt im Median 2,7 unbesetzte Stellen an. Freie Oberarztstellen gibt es in 47% der Abteilungen mit offenen Stellen, freie Facharztstellen in 33% und freie Assistenzarztstellen in 89%. In den Universitätskliniken bzw. Maximalversorgern wurden im Vergleich zu den anderen O- und U-Kliniken am wenigsten offene Stellen (31–41%) angegeben. Bezüglich der Einschätzung der Chefarzte zur Bewerbersituation allgemein wurden durchweg negative Angaben gemacht.

### Schlussfolgerung

Mehr als die Hälfte der antwortenden Kliniken hatten unbesetzte Arztstellen. Um der Entwicklung des zunehmenden Ärztemangels in O und U entgegenzuwirken, muss die generelle Situation im Sinne einer Steigerung der klinisch tätigen Studienabgänger\*innen und einer Verbesserung der Arbeitsbedingungen für Ärztinnen und Ärzte optimiert werden. Gleichzeitig sollten Abteilungen mit Studierendenausbildung ihre Aktivität mit Blick auf eine Steigerung der Attraktivität des Faches O und U erhöhen.

## Introduction

The good news is that there remains a high level of interest among high school graduates in pursuing a medical career. In the winter semester of 2021/2022, there were 38 541 applicants for 10 056 medical study places [1].

The bad news is that there is still a growing shortage of doctors in Germany [2]. There are many reasons for this. The demographic change in our country means that the population is becoming increasingly older, with fewer people of working age. This also applies to the medical workforce. By 2035, according to the Germany's Central Research Institute of Ambulatory Health Care, 9,000 doctors will have retired from service each year due to their age [3]. At the same time, we will have to deal with more and more patients who are chronically ill and need labour-intensive treatment [4].

In addition, fewer doctors are willing to work full-time [5]. According to Ellen Lundershausen, Vice-President of the German Medical Association, it currently takes 1.2 doctors to fill a full-time position [6]. Since 2009 the proportion of doctors working less than 30 hours a week has increased from 4% to 31% [6].

The increasing number of doctors working part-time is due, among other things, to the increasing number of women in the medical service. Approximately two thirds of graduates are women [1]. As the number of female practitioners increases, so too does the proportion of part-time doctors [5].

According to the Marburg Association, the increasing level of performance pressure in hospitals, together with increasingly difficult working conditions, is also a reason for many doctors to reduce their working hours [7]. Younger generations place greater emphasis on maintaining a healthy work/life balance, prompting them to leave the medical profession permanently or seek a less stressful position in research or industry [7].

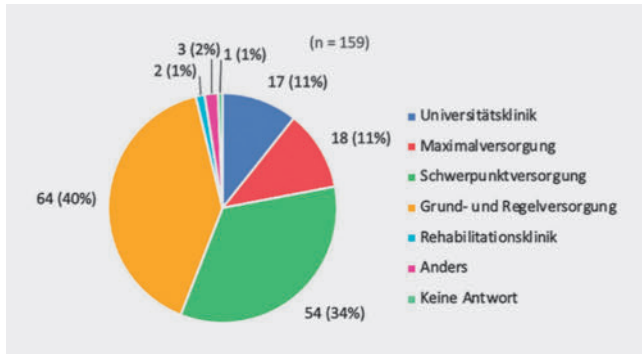
Due to the reasons described, the lack of young doctors is becoming an increasing concern, particularly for the surgical specialties [8]. The aim of this article is to present the current situation facing orthopaedics and trauma surgery (O and T), and to develop proposals around relevant factors that could increase the attractiveness of our field.

## Methods

This survey was conducted as a free collective online research questionnaire by the German Society for Orthopaedics and Trauma Surgery (DGOU), facilitated by the German Academy of Trauma Surgery (AUC) and the Association of Leading Orthopaedic and Trauma Surgeons (VLOU).

The survey was conducted purely in a web-based format, and was aimed at medical directors or head physicians of orthopaedic and/or trauma surgery clinics. The survey was conducted anonymously, on a voluntary basis, using the "Questionstar" web tool.

All 657 German trauma centres in TraumaNetzwerk, the network of the German Society for Trauma Surgery (DGU), were in-



► Fig. 1 Classification of hospitals.

vited to participate via the AUC [9]. The VLOU approached all of its members, including around 500 head physicians. In view of the possibility of receiving more than one invitation to participate in the survey, participants were asked to respond to the survey only once.

From 22 November to 5 December 2022, participants had the opportunity to answer all or only a part of a total of 15 questions and text fields. The answers could be either yes or no, numbers, or an estimated percentage.

Respondents were given the opportunity to classify their own department in terms of main focus of care (O and T, rehab clinic) and geographical location (via the first 2 digits of the postcode).

Respondents were asked to indicate the medical staffing structure in their department (consultants, specialist doctors without a consultant position, junior doctors) in figures. Vacancies in the individual hierarchy levels were then identified, and an assessment was made of the applicant situation. A question was also asked about the number of foreign doctors who do not speak German as their native language.

Finally, there was an opportunity to make comments in a free text field.

## Results

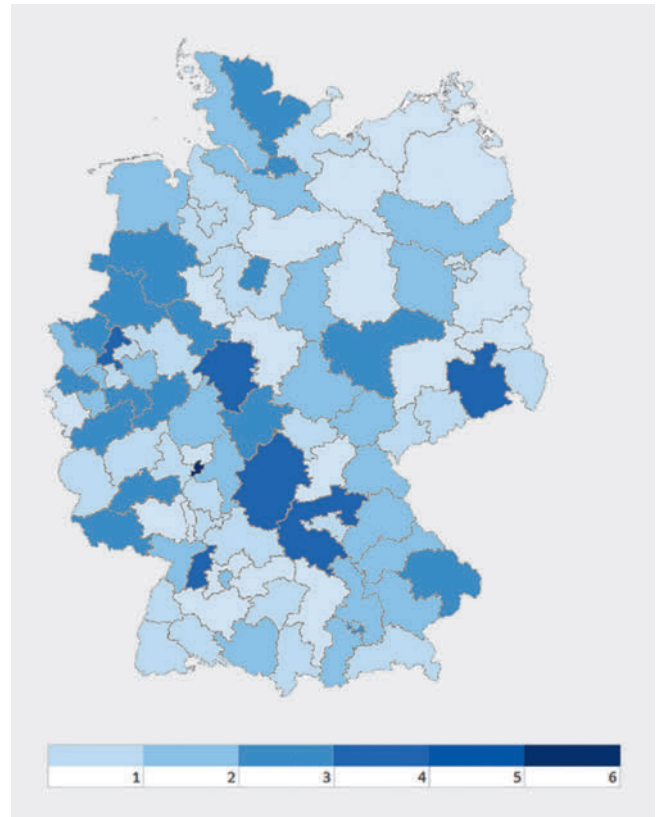
Heads of a total of 1,219 clinics were invited to participate (617 by AUC and 687 by VLOU). After excluding 85 clinic directors who were contacted twice, there remained 1134 potential respondents. Of these, 185 (16%) clinics responded to the online questionnaire.

Approximately 20% of respondents were university hospitals or maximum care hospitals, and a third were specialist care providers or providers of basic and regular care (► Fig. 1). In terms of the total number of beds, there was a balanced ratio, with a third each having 100–300 beds, 300–500 beds, or > 500 beds.

Analysis of the locations also showed an even distribution throughout Germany (► Fig. 2).

The majority of clinics had a focus on both O and T. Clinics that had a focus on only one of these areas, or on orthopaedic rehabilitation, were in the minority at just 10%.

The responding clinics had a median number of 15 clinical staff. More than half (55%) of the departments reported having vacan-



► Fig. 2 Distribution of responding clinics according to the first 2 digits of the postcode.

cies. Of the responding clinics, 47% had vacancies for consultant positions (with more than one vacancy in 37% of cases), 33% had vacancies for specialist positions (with more than one vacancy in 17% of cases), and 89% had vacancies for junior doctor positions (with more than one vacancy in 72% of cases) (► Table 1).

► Table 1 Unfilled vacancies in the responding clinics.

	Yes	More than one vacancy
Vacant consultant positions	47%	37%
Vacant specialist positions	33%	17%
Vacant junior doctor positions	89%	72%

In clinics with unfilled vacancies

The university hospitals and maximum care hospitals reported the least number of unfilled vacancies (31–41%) compared to the other O and T clinics (► Table 2).

However, among university hospitals that did have a shortage of doctors, the number of vacant doctor positions was particularly high at 3.8 (versus 2.7).

► **Table 2** Clinics with unfilled vacancies broken down by clinic category.

	Proportion of clinics with vacancies
University hospital	41%
Maximum care hospital	31%
Specialist provider	59%
Provider of basic and regular care	65%

With regard to the head physicians' assessment of the applicant situation, the responses were consistently negative for all questions (► **Fig. 3**).

Of the clinic directors surveyed, 70% said that they employ doctors who do not speak German as their native language. In hospitals with foreign doctors, 94% of the departments had one or more staff from a migrant background among the junior doctor team (► **Table 3**).

► **Table 3** Doctors who are not native speakers of German.

	Yes	More than one doctor
Consultants	71%	41%
Specialists	58%	29%
Junior doctors	96%	78%
In clinics with foreign doctors		

## Discussion

More than half of the O and T clinics have a median of 2.7 unfilled vacancies. This corresponds to about 20% of the available positions in a department. At the same time, according to the head physicians or clinic directors who participated in the survey, there appears to be a significant decline not only in the number of applicants, but also their level of qualification and motivation to do scientific work. A large proportion of the comments in the free text field described difficult staffing situations in the departments.

**One head physician's comment exemplifies the mood of many respondents:** "The staffing problem in our clinic is one of the top three problems I have to deal with, and it takes up more of my time than any other issue."

To address the shortage of doctors in O and T, it would be necessary first to address the problem of the general shortage of doctors, and then to generate more interest and enthusiasm for a career in O and T among medical students at an early stage of their studies.

With regard to the increasing general shortage of doctors described at the start of this article, the German Medical Association considers that the number of medical study places should be increased by at least 3,000 (up to a maximum of 5,000) [3].

However, the problem is that the federal states would have to pay for the significantly increased costs of setting up the additional medical study places. According to a statement from the German Federal Parliament, this amounts to at least € 170,000 for one completed degree in human medicine [10]. In light of this, it is questionable whether we will see a significant increase here in the next few years.

For years, the German healthcare system has been increasingly recruiting doctors from abroad to cope with the shortage in the medical workforce. In 2021, there were 57,200 foreign doctors [11]. More than two-thirds of the O and T clinics employ colleagues who are not native speakers of German. Nevertheless, despite the extensive recruitment of foreign doctors it appears that there is still a significant shortage of medical staff in the O and T clinics.

In addition to training more doctors, working conditions, particularly in hospitals, need to be improved by reducing the administrative burden (e.g., making more use of digitisation), reducing workloads (e.g., hours on duty), providing better training opportunities, and, if necessary, adjusting remuneration in order to keep as many doctors as possible working full-time (or as close to full-time as possible).

According to studies by market researchers, many prospective doctors assume that in hospitals there will be little leisure time (61%), strong economic pressures (68%), and a high workload (78%). Therefore, a large proportion of them do not even consider working in the field of surgery or O and T [12].

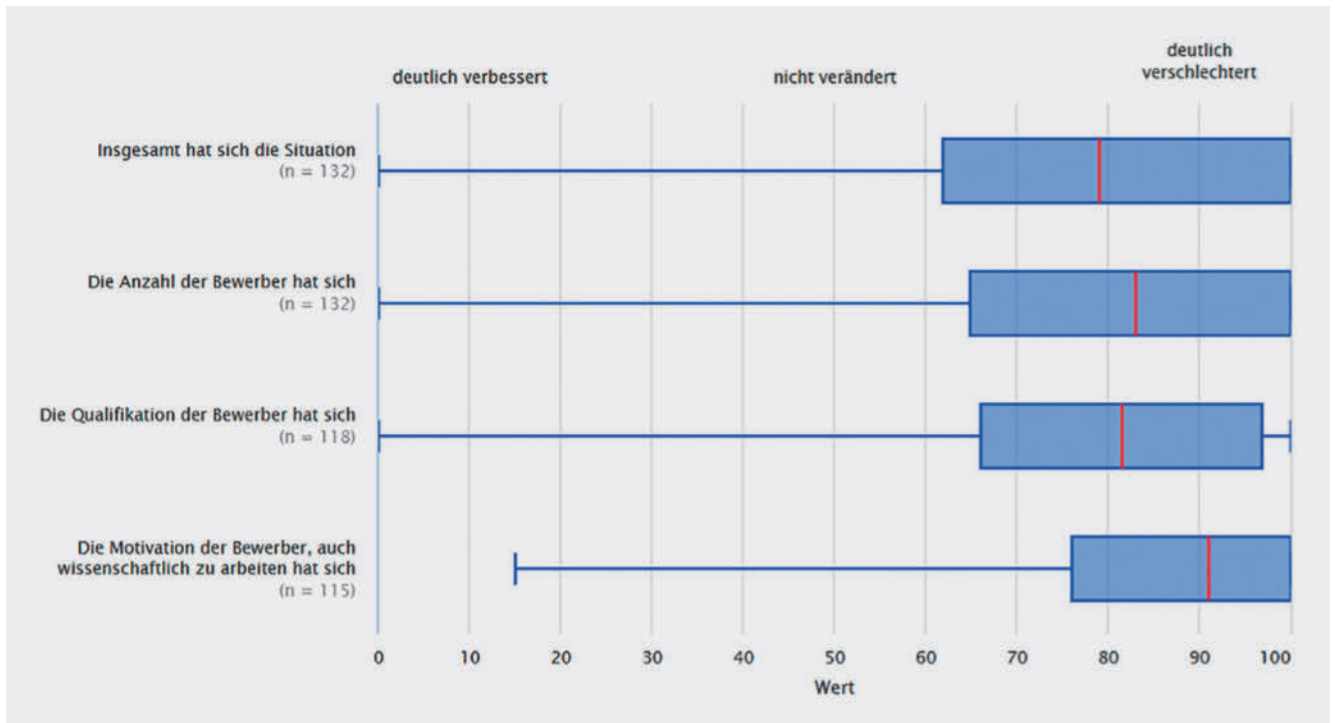
Under the current difficult conditions, besides the need to increase the number of study places and improve working conditions, the only option remaining for O and T is to inspire more enthusiasm for specialist training in O and T through attractive teaching.

In this respect, however, it has been shown that students' interest in later pursuing a surgical career tends to decrease significantly in the course of their medical studies. In an evaluation of students' decisions on which medical career path to follow performed at the University of Würzburg with 465 participants, the working group of Sarah König showed that 30% of students initially rule out the idea of surgery altogether (142). Moreover, interest in surgery had significantly decreased by the end of the study programme (after the practical year). During the course of study, interest initially declined among female students, while interest among male students declined in particular after the practical year [13].

Similarly, Michael Frink at the University of Marburg showed that of the 613 new students surveyed, only 55% were considering specialist training in a surgical field. By the end of the study programme, the proportion of students with an interest in entering a surgical field had dropped to 14% [14].

Visible successes (85%), the manual challenge (67%), and continuing education content (47%) are identified by new students as relevant factors for deciding whether to go into surgery. After the practical year, however, long working hours (41%), lack of time (e.g., family time; 36%), and a high administrative burden (40%) were cited as reasons to decide against a surgical career [14].

When medical students come to the point of choosing a specialisation, the way their time was spent during the course of



► Fig. 3 Assessment of the applicant situation.

study (34% of respondents) and their experiences during the practical year (57%) were the most important factors. This highlights the importance of teaching, but also of students' experiences of the clinical routine during the practical year. In addition, work-life balance plays an increasingly important role during the course of their studies [13].

This development is particularly problematic because the growing shortage of specialist doctors in O and T will affect an increasing number of patients with musculoskeletal diseases and injuries over the next few decades. This increase is due to the demographic development in our country, and involves both degenerative musculoskeletal disorders and fractures associated with osteoporosis [15, 16]. For example, there was an 8% increase in the incidence of proximal femoral fractures from 2008 to 2018 [17]. In addition, it must be assumed that as society grows older, the severity of comorbidities will also increase, which will put a further strain on the health system [17].

Of course, this will also result in significant increases in the need for treatment in the outpatient sector and in the field of conservative therapy.

Immediate action is needed to counteract the development of a growing shortage of specialists in O and T clinics. In particular, the training institutions, including university departments as well as teaching hospitals and clinics, need to stimulate interest and enthusiasm for the subject through attractive teaching. It is clear that O and T offers a number of opportunities to illustrate the attractiveness of the subject in study programmes, such as the exciting combination of manual dexterity and intellectual capability that is required.

However, it should always be borne in mind that the teaching and the role models provided by those who embody the subject have a significant influence, whether positive or negative, on the desire of students to pursue this subject. Despite the many possibilities offered by digital media, it must not be forgotten that on-the-job training is very important for career choices. It is only in this way that students can experience the consequences that their career decisions will have for them personally in their later (professional) lives. In this context, students perceive crucial factors other than the specific subject matter which are very important for their career choices. These include a collaborative leadership style, a flexible work culture, a good team environment, the opportunity for personal fulfilment, and a high level of diversity in the workplace. In addition to high quality of medical care, other factors that are important to students are structured continuing education opportunities, an employee-oriented corporate culture, mentoring, feedback interviews, support in acquiring additional qualifications, and flexible working hours (childcare facilities, parental leave, etc.).

Unfortunately, the O and T clinics do not always manage to convey such a positive image. A survey of the working situation of junior doctors in O and T shows that more than 70% of respondents were rostered to be on call more than five times per month. Only 13% of respondents reported having regular working hours. Other criticisms were that one third of the working time involved tasks other than treating patients, and that only 16% of clinics had a continuing education programme. Overall, only 58% of doctors in continuing education would be prepared to recommend orthopaedics and trauma surgery as a career choice [18].

One of the problems is that new doctors choose the field of surgery because they want to be operating on patients. While the



proportion of non-medical tasks continues to increase (up to 50% depending on the survey), the opportunities to train as a surgeon are actually decreasing. In particular, the statutory reduction in working hours defines the timeframe within which training can be provided. While progressing specialisation has partly mitigated this effect, it has become increasingly difficult to provide broad training in surgery under the current conditions. Students become very aware of these conditions in the course of their studies, especially during the practical year.

High expectations are placed on the departments responsible for student training. After all, today more than ever, it is important not only to impart the expertise needed to pass the examination, but also to inspire as many as possible of our aspiring young colleagues with enthusiasm for the subject of O and T. At many training sites the medical staff face a dilemma. On the one hand they are expected to deliver high-quality, rapid, and cost-effective healthcare with scarce human resources. At the same time, they are supposed to inspire students and provide a motivating role model as health professionals who are satisfied with their work.

Even if university institutions have less of a candidate shortage than other clinics (only 37% of university hospitals had unfilled vacancies), these departments should take into account the need to ensure that there is a new generation of doctors to staff other clinics and practices as well.

The German Society for Orthopaedics and Trauma Surgery, together with the Convention of University Professors of Orthopaedics and Trauma Surgery (KUOU), have therefore set themselves the goal of promoting student training, in addition to existing support programmes (Student's Day, Summer School), with the aim of increasing enthusiasm for our subject.

This includes making available especially selected O and T teaching concepts, as well as providing financial and content support for the design of O and T elective courses, and developing a mentoring program. However, it is not only up to universities; all O and T doctors who come into contact with students have a responsibility to take advantage of the unique opportunity to inspire them with enthusiasm for our field.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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