

## EDITORIAL

# Undergraduate Medical Education as a Foundation for Health Care and Research

Martin R. Fischer

Editorial to accompany the articles „The Career Expectations of Medical Students: Findings of a Nationwide Survey in Germany“ by Gibis et al. and „Publications by Doctoral Candidates at Charité University Hospital, Berlin, from 1998–2008“ by Ziemann and Oestmann in this issue of *Deutsches Ärzteblatt International*

This issue of *Deutsches Ärzteblatt International* features two original articles that focus on the coming generation of physicians. Around 10 000 students, the majority of them women, graduate from German medical schools each year (1, 2). The number of graduates is stable, there are more applicants each year than can be accommodated, and nationwide the graduation rate is higher than for any other field of learning. The medical faculties play a central part in teaching and research. But what skills do medical graduates possess? How closely do their acquired knowledge and abilities match the requirements of health care and advanced clinical training? Medicine is a profession founded on science. The role and quality of the doctoral theses that most medical students write are hotly debated. How much experience in research is necessary for a medical student who will go on to work in clinical care? How much is desirable?

Evidence from a number of sources indicates decreasing motivation to work in patient care, particularly in certain clinical specialties and in rural care settings. The reasons for this may include the expectations of a new generation of physicians who want a better balance between work and private life and attach less importance to academic titles than their elders (3).

These findings are corroborated by the results of a survey of the career expectations of medical students conducted by Gibis et al. of the National Association of Statutory Health Insurance Physicians in cooperation with the University of Trier (4). Over 12 000 completed questionnaires, corresponding to 12.7% of medical students in Germany in 2010, were evaluated; 64% had been submitted by female students. Analysis showed a continued high degree of willingness to work in clinical care after qualification. The students predominantly intend to train as specialists and work in urban settings. It comes as no surprise that primary care in rural areas is seen as less attractive. The financial risks associated with establishing one's own office also play a role, so that the overwhelming majority of the respondents state a preference for a salaried position. The most frequently cited obstacles to employment in a hospital are excessive administrative tasks and poor compatibility of work and family life. Interestingly, there is a distinct gender difference in what is regarded as an adequate income: The women have lower expectations.

Surveys such as this highlight a complex constellation of educational and healthcare policy. What should the medical schools be teaching? What are the key skills that need to be acquired by a student who is just commencing her medical education and will be working as a specialist in clinical care 10 to 12 years from now? Apart from the problem of the low response rate, the question arises of what consequences can be drawn from the findings of Gibis et al. (4). To what extent are medical students' expectations borne out in reality? Is it not urgently necessary to collect better data on what new physicians actually go on to do after graduation? Compulsory registration of specialist training by physicians' professional organizations would be an important means to this end.

Medical education and specialist training will in future be more closely oriented on the requirements of health care planning. Skills-oriented profiling of graduates will play a central part in the shaping of curricula for medical education and advanced training. In this way medical school courses could be more closely matched to the requirements of specialist training, under the aegis of the regional chambers of physicians, and thus create incentives for a career in patient care. The Society for Medical Education (*Gesellschaft für Medizinische Ausbildung*) and the Medical Faculty Conference (*Medizinischer Fakultätentag*) are jointly developing a national skills-oriented catalog of learning goals for medicine, intended to define a medical core curriculum embedded in the legal framework of the Medical Licensure Act (*Ärztliche Approbationsordnung*), thereby making it easier for medical schools to design their courses (5, 6). This catalog takes up a Canadian concept (CanMEDS) originally developed for specialist training (7) and is intended to prepare medical students for their future role as practicing physicians. In the role of medical expert, the future physician draws on a wide range of skills, medical knowledge, clinical competence, professional demeanor, and so on to realize the goal of patient-centered care.

The medical role of the scientist is indispensable and provides a foundation for medical education and advanced training. Without these skills, it is inconceivable that one can work as a physician or critically assess the findings of new studies on diagnosis and treatment. It is thus vital that medical students learn how research is

Department of  
Pedagogy and  
Continuing Studies,  
Ludwig-Maximilians-  
Universität, Munich;  
Prof. Dr. med. Fischer

conducted, so that they can, for example, evaluate the literature. It is also desirable to offer as many students as possible the opportunity to engage in research themselves: On the one hand their own research activities will improve their understanding of new insights and innovation in medicine, and on the other hand they may be encouraged to embark on an academic career.

The publication activity of doctoral candidates at the Charité in Berlin is analyzed in the article by Ziemann and Oestmann (8). The number of publications per candidate, and with it the impact factor, increased between 1998 and 2008. At all times throughout this period, however, the candidates were named as first author in only one quarter of the publications. The Charité underwent massive structural reorganization during the investigation period, making it a special case among German medical schools. Besides the fact that this was a single-center study, a point of criticism is that quantity—a high number of publications—does not imply quality. The impact factor applies to a journal rather than individual articles and is problematic as sole indicator of quality. Publications in peer-reviewed journals derived from doctoral theses, as considered by Ziemann and Oestmann, are certainly a better measure of quality than the simple number of theses. The findings constitute a valuable contribution to the debate on the value and future of the doctoral qualification in its present form.

Many medical faculties are already striving to improve the supervision of their doctoral candidates and establish structured doctoral programs that offer a reliable framework and high-quality methods. Such structured programs could potentially increase the candidates' intrinsic motivation and thus improve the quality of their theses (9). The fruits of these efforts should be made more visible. For this reason a comprehensive survey with uniform methods is needed to analyze the quality of doctoral theses in medicine.

Against the backdrop of the Bologna debate about dividing courses into stages with a separate doctoral stage, it remains open in what direction the medical doctorate will go in the longer term.

In the interests of best-evidence medical education, greater attention should be paid to the data and findings of education research, as exemplified in the two studies presented here, when discussing future developments in medical school courses and specialty training (10).

**Conflict of interest statement**

The author holds shares in and has a personal association with the company Instruct AG.

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**Corresponding author**

Prof. Dr. med. Martin R. Fischer, MME (Bern)  
 Lehrstuhl für Didaktik und Ausbildungsforschung in der Medizin  
 Klinikum der Ludwig-Maximilians-Universität München  
 Ziemssenstr. 1  
 80336 München, Germany  
 Martin.Fischer@med.uni-muenchen.de

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