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PROJECT REPORT

Strengthening training in rural practice in Germany: new approach for undergraduate medical curriculum towards sustaining rural health care

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ABSTRACT

Context: After decades of providing a dense network of quality medical care, Germany is facing an increasing shortage of medical doctors in rural areas. Current graduation rates of generalists do not counterbalance the loss due to retirement. Informed by international evidence, different strategies to ensure rural medical care are under debate, including innovative teaching approaches during undergraduate training.

Issues: The University of Magdeburg in Saxony-Anhalt was the first medical school in Germany to offer a rural elective for graduate students. During the 2014 summer semester, 14 medical students attended a two-weekend program in a small village in Northern Saxony-Anhalt that allowed them to become more familiar with a rural community and rural health issues.

Lessons learned: The elective course raised a series of relevant topics for setting up rural practice and provided students with helpful insight into living and working conditions in rural practice. Preliminary evaluations indicate that the rural medicine course allowed medical students to reduce pre-existing concerns and had positive impact on their willingness to set up a rural medical office after graduation. Even short-term courses in rural practice can help reduce training-related barriers that prevent young physicians from working in rural areas. Undergraduate medical training is promising to attenuate the emerging undersupply in rural areas.

Key words: family medicine, general practice, Germany, practical competence, recruitment and retention, rural exposure, rural practice, rural track, undergraduate medical training, undersupply.

Context

German health system performance

International comparisons of high-income countries highlight Germany for its excellent healthcare capacity and high physician density with close to four doctors per 1000 population[1]. A well-established system of outpatient care provided by Statutory Health Insurance (SHI) accredited physicians guarantees good coverage in terms of availability and generally good patient access. However, the German healthcare sector is facing the risk of an increasing imbalance between urban and rural regions.

According to a recent survey of the Federal Association of SHI Accredited Physicians (KBV), there is currently a shortfall of about 2600 general practices to guarantee primary care coverage throughout Germany. While urban areas and larger cities experience an oversupply and over-servicing, rural and structurally weak regions, particularly in former East Germany, observe a declining supply of medical care and face increasing problems to safeguard the legally guaranteed access to care[2].

Almost 24 000 GPs will drop out of the system by virtue of age and retirement by 2020[3]. Generalists and general practitioners have the highest average age among German physicians and the most difficulties in finding a successor for their medical offices[4]. The East German federal state of Saxony-Anhalt is facing huge challenges in sustaining medical care in rural and economically weak regions. More than 200 rural medical offices are currently vacant, and 42–50 % of active general practitioners are about to retire. Estimations of the regional Association of SHI physicians predict a need for 825 new primary-care doctors by 2025[5].

Policies for enhancing physician recruitment and retention in rural practice

The growing scarcity of rural practitioners calls for urgent action at different levels. In Germany and elsewhere, there is a great need for family practice teaching programs with explicit rural missions providing medical students with opportunities to experience continuity of care, be mentored on aspects of professionalism and communication, understand systems and the impact of healthcare services on a population, and get deeper into rural practice[6]. In addition, strengthening the idea and philosophy behind primary health care has the potential to promote more positive role models of general practitioners[7].

Various approaches exist at international level for attracting, recruiting and retaining physicians in rural communities: utilitarian approaches such as financial compensation, employment and other benefits in order to offset impeding factors; coercive measures, eg deployment for defined periods in underserved areas; and normative strategies, eg through tailored education[8]. WHO recommends adapting medical training to the needs of general and rural practice by recruiting more students from rural areas, developing incentives to choose family medicine, and exposing them to rural practice[9]. Graduate training can positively enhance recruitment to rural communities and affect retention by training the physicians for the realities of practice through rural electives, training tracks and emphasis on rural medicine[7,9-14].

At the same time, family practice graduates trained in rural settings tend to rate themselves as better prepared for rural family practice than urban-trained rural physicians[15,16]. Recruitment to rural practice can increase as a result of exposure to positive rural physician role models[17] and early, long-term clinical training in rural sites and hospitals[11,18]. As a more comprehensive approach, establishing medical schools in remote regions has proven to be effective for enhancing recruitment and retention of rural health professionals in both industrialised and developing countries[19-21]. Since medical school experience exerts a significant influence on students' ideas and values, meaningful exposure to rural practice during undergraduate training has proven to be effective for recruiting young physicians for rural practice[17,22]. Besides the organisation, location and mission of medical

schools, enhanced admission of medical students with rural backgrounds, and the respective academic outreach programs, a rural-oriented medical curriculum and early, repeated undergraduate rural medicine learning experiences are successful at producing graduate physicians who will choose rural practice after graduation[23-25]. Moreover, evidence suggests that rural residency leads to increased numbers of medical students who ultimately pursue careers in rural primary medicine[10].

The respective evidence is mainly based on observations and findings from countries that face the challenge of providing sufficient rural care in extremely remote areas, such as Australia, Canada and the USA. It is less clear whether and to what extent this also applies to health systems where the recruitment and retention of rural physicians is a more recent problem on a minor scale, like the geographically small European countries. More evidence is needed for identifying specific needs and requirements for safeguarding rural health care in countries with advanced and complex health systems with various powerful stakeholders and restricted scope on the government's part to impose policy strategies. In European countries such as Germany and its neighbours, setting up a medical office requires a series of administration, management and organisational tasks and barely foreseeable income remuneration conditions. For rural practice, these general conditions are further complicated by the common problems of lacking experience in rural health, uncertainty regarding practical and communication needs and fear of particular challenges under the condition of rurality.

Challenging medical training

Until now, medical schools are insufficiently prepared – and willing – to offer adequate responses to the growing hurdles to ensuring general practice in rural regions. Most practical medical training occurs at university clinics and well-equipped hospitals providing specialised care, traditional role models, striving for social reputation, and hospital-centred care, which are difficult to counterbalance. A series of relatively recent changes corroborate the trend of medical schools to give family and rural health a secondary or even tertiary role in undergraduate training. The business model of German universities – which are essentially public – has undergone fundamental changes since 'third-party resources' have largely replaced the former system of budget financing from federal states. The appointment of professors and lecturers depends increasingly on their ability to acquire financing from third parties, which is rarely channelled towards primary care and rural medicine.

Medical students hardly get the opportunity to see the full spectrum of clinical practice ranging from prevention and promotion or early detection and screening to primary, secondary and tertiary care and rehabilitation. Instead, undergraduate training provides future physicians with vast opportunities to learn and appreciate technologically advanced procedures used in specialised health care for treating complex diseases[26]. Medical schools are largely skewed towards urban tertiary care; the typical roster of medical school teaching and learning does not provide a model for students attracted to rural practice. Likewise, it gives little relevance to the skills needed by physicians to address community health issues. Located at universities and urban-based, medical schools do not provide students with opportunities to get into rural health care; rather, they offer negative role-modelling experiences[26]. Contextual learning in rural practice is necessary for preparing physicians to set up and sustain a medical office in remote areas. Training programs in rural practice can provide an excellent contextual learning experience that benefits not only the residents but also rural teachers and the community[27]. There is a general need to modify the value sets, attitudes and behaviours of medical school faculties to prevent the dissuasion of rural-oriented students from entering rural practice[28]. Hence, there is a growing demand in Germany for orienting medical undergraduate training towards rural health needs[4].

Issues

The rationale behind the Magdeburg elective

The Magdeburg rural-practice program was organised for the first time during the 2014 summer semester and targeted medical students in their fourth and fifth study year. In a preparatory meeting prior to the course, about 30 students

expressed concerns about rural living conditions, rural health, and particularly the working conditions of physicians in remote areas. Participants expected to get an insight into rural reality, overcome doubts and fears, and check their idea of life as rural healthcare professionals.

The innovative rural health elective implemented by the Institute of General and Family Medicine at the University of Magdeburg/Germany aims at reducing the information and experience gap with regard to rural practice and life, which is one of the biggest barriers to medical careers in rural areas. During undergraduate training in university towns and following internship in hospital wards, medical students in Germany are continuously exposed to the 'standard' role model of clinical specialists. Life and practice in rural settings as well as specific information on organising and financing rural medical offices are scarce, at best. Moreover, undergraduates who are interested in rural careers usually feel poorly understood or ridiculed by their fellow students. Greater rural exposure earlier in medical training and encouraging rural role models are required for students to experience the charm of long-term doctor–patient relationships in a community and the ability to utilise a broad skill mix[29].

The approach

With a view to overcoming the existing barriers, the Institute of General Practice and Family Medicine in Magdeburg started the first clinical course on rural medicine, which offers students learning opportunities in structurally weak regions of Saxony-Anhalt. Based on the assessment of the deficiencies of medical training as regards preparing students for rural medical practice, the Institute developed a comprehensive short program. After pre-selection based on a letter of motivation, 15 students – 14 female and one male – spent two weekends from Friday afternoon to Sunday in the small village of Sieben Linden, a small eco-village of 140 inhabitants in a relatively remote region called Altmark, to discover and learn about work and life in the countryside.

The rural health course was announced during two consecutive lectures on general medicine in the fourth study year and natural remedy medicine in the fifth study year. Initially, almost 40 students expressed their interest. Out of the 27 participants at the preliminary meeting, 24 were women and three were men. Among medical students, the number of females is currently double that of males; however, males tend to exhibit less interest in general medicine. Course applicants had to submit a short exposé in order to describe their motivation and the reasons why they wanted to participate. Based on the short papers, 15 students were finally selected to attend the two-weekend rural health course.

While the family, socioeconomic and educational background of the students participating in the rural elective was quite heterogeneous, one common feature crystallised immediately: all 14 participants had previous experience with rural life because they had spent their entire childhood and youth, or at least a large share of it, in rural areas (Fig1).

Course content

The two-weekend courses comprised an intensive program based on participants' expectations, and applied a series of didactic tools such as presentations, interviews and discussions for bringing students closer to rural medical practice. Activities included discussions with rural practitioners, hands-on training in quickly applicable skills such as communication techniques, and structured exchange between the students. Through moderated discussions, nine rural doctors from the region provided positive role models by talking about their activities in different practice settings, informing about their motives and everyday experiences, and discussing issues for further education, practice establishment and forms of employment. In addition, the intensive short course was different from the usual clinical training because it provided medical students with extraordinary opportunities to train in specific communication skills for patient management and long-term care in the community, particularly with regard to interview techniques and empathic doctor–patient conversation. Such experience has the potential to positively influence the expectation of medical students with regard to the content and quality of undergraduate training in Germany, which is generally dominated by theoretical learning and low levels of active clinical experiences.

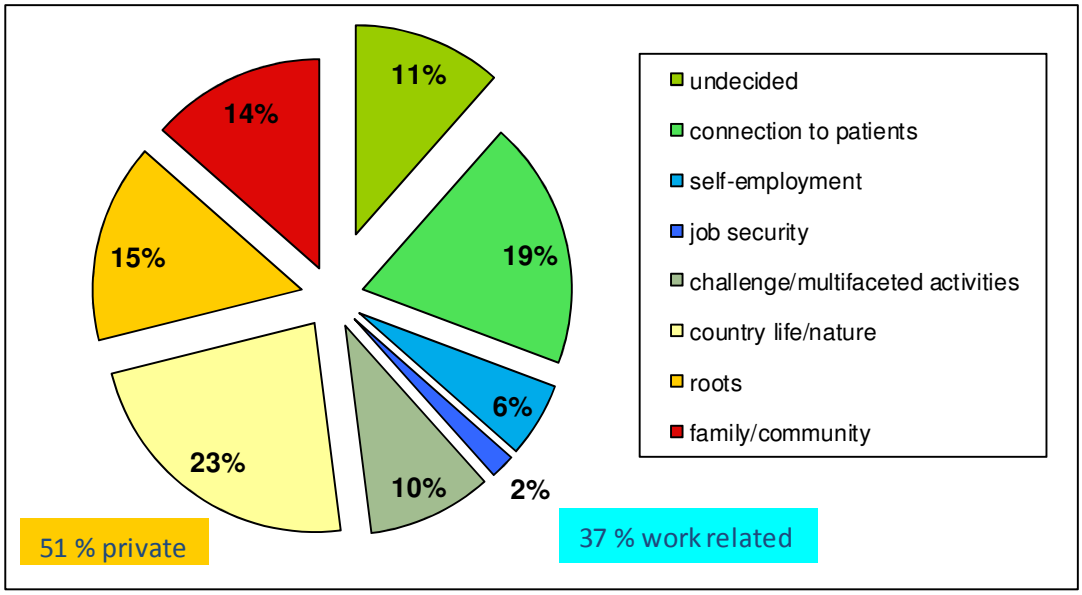

Figure 1: Reasons why students aim to live in rural areas.

Discussions about structural issues of rural medical offices, necessary skills, workload and possible coping strategies as well as practical skills such as manual therapy and yoga completed the program. Beyond reflecting on their own medical and clinical perspectives, students had the first opportunity during their careers to get first-hand information from a representative of the regional Association of Statutory Health Insurance Physicians (Kassenärztliche Vereinigung Sachsen-Anhalt) and a financial advisor on the financial and legal issues of setting up a rural medical practice. The presentation and discussion of international experiences in medical training for rural practice complemented the program. After the two weekends, students were required to prepare a short evaluation of the various topics covered and to reflect on their experiences.

Unique but limited

The new elective of the Medical School of Magdeburg offers undergraduate students an opportunity to become familiar with rural health care. At the international level, quite a number of similar, but usually more extended or in-depth, approaches exist to promote medical careers in rural areas. The Magdeburg rural health elective is a pioneer in Germany's undergraduate medical training. To the authors' knowledge, comparable experiences from Germany have not yet been published, although the growing shortage of rural physicians is increasingly discussed at the political level.

In contrast to the specific learning experience during longitudinal integrative clerkships with longer and more intense patient contacts[30] that allow trainee physicians to experience long-term clinical developments, integration into regional health teams at community level, and long-term care by experienced physicians[31], it was unrealistic to strive for comparable objectives during two weekends. Thus, the Magdeburg course focused rather on motivational psychology and role models[32], social integration[33], and motivation through practical competence and self-efficacy experiences[34].

Assessment results

The preliminary meeting with the 27 applicants for the elective was mainly organised as a group discussion to give the students the opportunity to reflect on the gaps and

weaknesses of their medical training with regard to future clinical practice. Thereafter, they were asked to write down two reasons for living in a rural area and two reasons for *not* wanting to become a rural health professional. In addition, they were required to assess the likelihood of working in rural areas after graduation, regardless of the specialisation they would choose, on a 1–10 rating scale.

In order to evaluate the two-weekend course and provide evidence with regard to the underlying question of whether this kind of elective course during undergraduate training can really influence the attitude of medical students towards rural practice, semi-structured interviews were conducted with all 14 participants. The interviews took place during the first weekend of the elective and the subsequent week. Students were required to answer questions on basically 25 topics, including their general background, motivation to participate in the rural elective, personal impressions, experiences and expectations with regards to the elective in particular and rural practice in general, as well as barriers and facilitators for career choice in rural health care.

The interviews had an average duration of approximately 40 minutes. After transcription, a qualitative content analysis was performed. For inductive category development according to Mayring[35], an initial detailed analysis of two interviews stepwise evolved into creating a preliminary code and category system, which served as guideline for systematically encoding all 14 interviews and setting up a definite system of relevant codes and categories.

The debriefing after the second weekend comprised another group discussion of the 15 participants and a survey of 13 questions. The semi-structured group discussion covered a series of motivational and content-related topics:

- What were your motives and expectations for this course?
- To what extent were the expectations fulfilled?
- What did you like most about the seminar and why?
- What did you dislike (why), what should be changed?
- What will you take home from this seminar, and what is particularly important for you?
- What impact do you think this experience will have on your further curriculum or your future medical practice?

Thereafter, students filled in a questionnaire to provide feedback on the participatory development of the course content, the topics covered and the contributions during the two weekends, and particularly for assessing the likelihood of subsequent rural practice before and after the elective.

Lessons learned

Role models of rural health professionals

Personal inexperience with rural or remote health was an important motive for students to participate in the rural health course, since only very few participants had a rural medicine family background. All participants had a particular interest in general and family medicine and expected to get a more concrete insight and correct their ideas about work and life as rural practitioners.

The real world of rural practice

The course focused on the connection between career and life planning. Working and living as a physician in rural areas required the participants to reassess their professional planning. In a village, rural health professionals cannot just switch off their role after practice hours or leave rural practice like quitting a hospital job. The seminar did not provide standard formats for catering to these challenges; however, the various living and working models presented were very instructive for the participants.

Training for general practice largely unknown

While students are familiar with hospital-based training due to their internship experiences, they are usually uninformed about the options of postgraduate training in general medicine, which is customisable and very open with regard to local, professional and sectorial conditions. The elective

helped them to better understand the rules and pathways of specialising in general and family medicine.

Remuneration opportunities in rural practice

Wages during hospital-based specialisation or as house officers are quite transparent and publicly available. For panel physicians in outpatient care, the income situation is less transparent. All students participating in the rural health course were confused because of contradictory media information describing both overpayment of panel physicians and their risk of impoverishment. The course definitely allowed students to gain helpful insights into the financial implications of rural practice.

Getting to know administration, management and environment

Students were generally aware of the medical tasks, but not of the organisational framework conditions for panel physicians in general practice. Most participants were uninformed about legal topics concerning SHI-accredited physicians with regard to needs-based planning, medical office allocation, type of medical office or professional activity, and the issues of medical office management including provider payment. The rural training course provided students with a better understanding of existing options.

Practical skills

Beyond learning about rural medical practice and reflecting on students' career and life designs, the course also aimed at teaching practical skills that were quick to learn, easy to practice and applicable in the further clinical work. Communication training on interview techniques and empathic interviewing fulfilled this requirement and were directly used in conversations with the seminar guests.

Talk to each other

Students participating in the elective perceived themselves as outside the mainstream, since most medical students aspire towards specialised, clinic-centred training and have little understanding of the rural physician perspective. Participants perceived the rural health course with like-minded fellow students as an inspiring experience that helped them to reduce fears and doubts regarding their plans to work in general and rural practice after graduation. Despite its limited duration, the course not only contributed to reducing students' ignorance and fears, but also provided positive role models and contact to like-minded colleagues, and sparked interest in rural life and work as stated by one of the participants:

> *Finally we had the chance to get to know like-minded people, that really took a load off my mind. If I talk to my fellow students about my interest in rural health, I use to see a huge question mark in front of me – are you serious and stuff like this. This course made me finally feel I have reached my aspiration and that there are other people who want to do a job in rural practice.*[36]

Several students with the ambition to work in rural practice declared that they perceive themselves as kind of outsiders among their fellow students. The mainstream trend is towards specialist postgraduate training in urban hospitals, and the majority of medical students in Magdeburg do not sympathise with a career in general and rural practice.

Growing motivation

The final discussion at the end of the second weekend underscored the deficits of current undergraduate medical training in Germany to prepare students for working in rural practice. The added value of such a seminar was to allow medical undergraduates to immerse themselves in a rural setting. Students appreciated the concept of the two-weekend course, and especially the possibility of bringing in their own concerns and the intensive talks with rural practitioners. Despite the shortness of the course, students could alleviate their worries and reduce their ignorance, meet positive role models and stimulate more curiosity and interest among their peers in the diversity of medical practice and life in rural areas. Preliminary findings gathered from a survey and interviews performed directly after the second part of the rural health course showed encouraging preliminary results. All participants assessed a future medical practice in rural areas as more likely than before (Fig2). A second interview one year after the two-weekend course will show the extent to which this effect is sustainable.

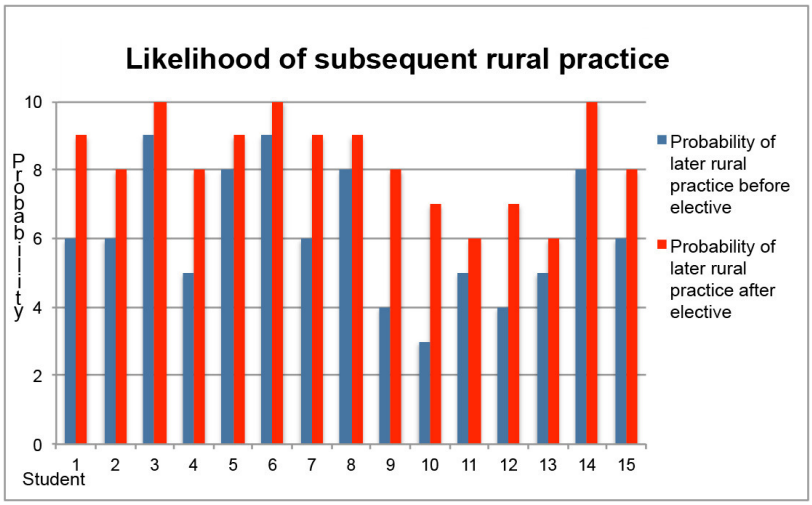

Figure 2: Changes in students' motivation for subsequent rural practice.

The second weekend ended with a first assessment of the students' relationship to rural practice and their respective preferences for their medical careers. Interestingly, all participants were familiar with living in structurally weak and rural areas. While they were aware of the conditions and limitations of private lives in rural settings, they were largely ignorant about work-related aspects of rural practice and showed obvious reservations about working in structurally weak or even remote regigons. The rural track provided by the University of Magdeburg exhibited that current undergraduate medical training in Germany tends to produce students who feel poorly prepared in practical terms and are scared about the idea of treating patients and making decisions on their own. Moreover, options and organisation types for setting up an outpatient office were widely unknown to medical students. Relevant aspects of the future choice of rural practice refer to preferences of partners and the future family situation. Ten out of 14 students were in a relationship when the elective started; even three of the four singles said that the partner has a strong influence on their decision, particularly the job opportunities in a rural area.

Conclusions

The first evaluation results of the Magdeburg rural track confirm existing international evidence for undergraduate rural exposure reinforcing medical graduates' decision to practice in rural areas[37,38]. Physicians tend to start practising close to their graduate medical training location or at least within the same region. Hence, decentralised training has the potential to reduce the uneven distribution among primary care physicians[39]. Medical training in or close to regions with reduced access to health services can be a means for recruiting family physicians in underserved areas. Further research will be required to prove that rural exposure not only influences students' willingness to practice outside urban settings but also their active decision to do so after graduation[40].

Safeguarding the constitutional right to equal access to health care all over Germany will require basic changes in undergraduate medical training. Recruitment of health professionals in rural regions is jeopardised by the existing curricula, teaching methods and priorities of undergraduate training. A more proactive push towards general and family medicine and particularly towards rural practice is needed so as to produce more physicians willing to establish a medical office in structurally weak regions. In order to sustain reliable primary care in rural and remote areas, medical training

needs community-focused and decentralised education formats to be implemented as soon as possible.

Of course, reforming undergraduate medical training is but one approach for attenuating the emerging undersupply in rural areas and has to be closely aligned with policy changes in healthcare financing and delivery. Without payment reform, the impact of educational reforms will remain marginal[41]. Concurrently, adequate health policy provider payment reforms have to place a new emphasis on population and community-oriented care. To prevent the dissuasion of rural-oriented students from entering rural practice, medical schools will have to modify both their value sets and curricula. The elective two-weekend course provided by the Institute of General Practice and Family Medicine of the University of Magdeburg is a first promising step in this direction.

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