

# Missing topics for a newly established general practice curriculum for medical students in Hesse – a qualitative study

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## Research Article

**Keywords:** general practice, primary care, curriculum, extracurricular teaching, teaching methods, qualitative research

**Posted Date:** January 29th, 2024

**DOI:** <https://doi.org/10.21203/rs.3.rs-3875627/v1>

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**Additional Declarations:** No competing interests reported.

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# Abstract

## Background

To address declining numbers of general practitioners (GPs) in rural areas and a lack of medical students pursuing a career in primary care, a general practice-based curriculum coupled with additional university admissions for students has been established at three universities in Hesse, Germany. The aim of this study is to analyze potential topics that need to be taught to students who strive to become GPs to best prepare them for their chosen career and working in rural areas. Our aim was to explore the views of both specialists and GPs on central topics and necessary skills in primary care.

## Methods

In our study we used semi-structured interviews with outpatient specialists and specialists in clinical practice and semi-structured group interviews with GPs in training. The topic guide addressed contents of the curriculum for medical students with an extracurricular focus (addressing additional topics) on primary care.

Data analysis was carried out using qualitative content analysis according to Mayring.

## Results

GPs in training and specialists agreed on the importance of knowledge in the fields of medical history, physical examination, communication as well as common diseases in primary care. Essential competences mentioned were: induce medical treatment, decision making and triage, conduct structured conversations, have patient knowledge (hard skills) as well as interest in continuous learning, empathy, personal commitment, listening and down-to-earthness (soft skills). Case reports, symptom-based learning, practical training, lessons with simulated patients and the integration of role models were regarded as useful teaching methods.

## Conclusions

General practice-based curriculums should not only focus on the transfer of knowledge. The training of soft and hard skills is equally important to prepare future GPs for their work in primary care. New teaching methods as well as practical training should be the heart of a newly established curriculum.

## Background

Recruitment of general practitioners (GPs) in Germany has become a great political concern as rural areas are expected to be severely understaffed by 2030 (1–2). To address the lack of medical students pursuing a career in primary care and as GPs in particular in Germany, a separate admission system for students starting medical school has been established in three universities in Hesse (Universities of Marburg, Frankfurt and Giessen). Since October 2022 6,5% of the newly assigned medical students at these universities have received admission into medical school with the condition to pursue their future careers as GPs or pediatricians (“Landarztquote”). Students are bound by contract to work in general practice or pediatrics for at least 10 years and will receive special extracurricular training during their studies at Hessian Universities – including a seminar and mentoring program as well as practical trainings in rural areas (3). Voluntary extracurricular courses and internships will be established to best prepare the future GPs and pediatricians for their work in primary care.

Various studies have discussed the reasons why only a few students are interested in primary care and how to improve interest and recruiting of students for primary care. Key findings include improving access to internships and learning practical skills in undergraduate studies (4), reduction of the lack of visibility and physicality of what GPs really do and tackling stereotypes such as gender stereotypes or the stereotype of income inequality between other specialties and general practice (5). Furthermore, students described the missing of role models in general practice (6).

There are many studies on what topics and competences should be included in a general practice-based teaching curriculum (7–11), such as a competence-based approach proposed by Steinhäuser et al. (9), including an app in teaching (10) or interprofessional education to improve teamworking abilities (11). A study by Bennett et al. in 2010 explored factors influencing recruiting and sustaining interest in primary care for young medical students and physicians and stated that the recruitment of students growing up in rural areas, a payment reform and the reduction of academic and socioeconomic barriers may have positive impact on students’ choice in specialty. Barriers described by the study included students of higher age, lower socioeconomic status, or married students, and competitive admissions

policies to medical school (15). A similar study by Pfarwaller et al. in 2015 investigated ways to increase attractiveness of primary care for medical students and found support for effectiveness of longitudinal, multifaceted teaching programs in primary care (16). A study by Kaduszkiewicz et al. found that recruitment of students from rural areas and implementing a special educational program with an orientation towards rural primary care have a positive impact on increasing the attractiveness of general practice (17). A study by Barthen et al. explored students' views on incorporating longitudinal teaching in medical school and found a strong call for more practical training and teaching on economic aspects of primary care (18). The study of Scholz et al. from 2022 explored experiences dealing with mentorship programs in a general practice-based curriculum of the University of Leipzig and found a demand for teaching physicians to become better mentors (19). In a nutshell, the existing research on teaching programs in primary care call for longitudinal, mentor-based teaching courses as well as practical training and positive role models in primary care (9–10, 16, 18–19).

In order to develop a longitudinal general practice curriculum at the University of Marburg we interviewed specialists and GPs in training on topics and skills need to be taught to future GPs. Some comparable projects of longitudinal teaching have been discussed and set in place throughout Germany during the last years (12–16, 18–21). However, for the development of these programs – if at all – only students and GPs have been consulted (7–11). By integrating the views of specialists and GPs in training we hoped to discover new findings in order to broaden our newly established general practice curriculum for medical students in Hesse.

## Methods

### Design of the study

We chose a qualitative approach consisting of ten semi-structured interviews with outpatient specialists and specialists in clinical practice of fields working closely with GPs, namely urology, orthopedics, ophthalmology, otorhinolaryngology and surgery. Furthermore, we performed three semi-structured group interviews with overall nine young doctors in training for general practice. This setting allowed us to explore the dynamics of personal experiences in primary care as well as suitable topics and course structures for the newly established curriculum. This qualitative approach aims to illustrate the personal views of a small number of specialists and GPs in training to explore the field in greater depth and collect data for a successive quantitative study.

### Sample

Between April 2022 and February 2023, we recruited specialists and GPs in training interested in participating in our study. Recruiting was based on personal interactions in hospitals and doctors' offices in Hesse. Furthermore, we published advertisements for the study in a network of GPs in training in Germany and Hesse and on social media (namely Twitter, now X).

Ten specialists and nine GPs in training expressed interest in taking part in the study. All of them were included in the final interviews.

Table 1: Sample of interview participants (n = 19)

<b>Gender</b>	
Male	n = 14
Female	n = 5
<b>Age</b>	
	mean = 43,5 years
	min. 30 years
	max. 69 years
<b>Number of years in practice</b>	
< 10 years	n = 6
> 10 years	n = 13
<b>Practice type</b>	
Group practice	n = 14
Solo practice	n = 5
<b>Practice location</b>	
Rural area (< 5.000 habitants)	n = 2
Small town (5.000-20.000 habitants)	n = 6
Medium-sized town (20.000-100.000 habitants)	n = 9
Large town (> 100.000 habitants)	n = 2

## Data collection

The interviews were undertaken in the practice of the specialists or online via a secure webtool, all group interviews were undertaken online. The interviews were semi-structured and lasted between 30 and 90 minutes. All interviews were recorded digitally and transcribed verbatim.

The interview guide focused on views and experiences related to central topics and necessary skills taught to promote optional preparation for work as a GP in rural areas.

The aims of the study were explained to each interviewee and it was ensured that all questions were sufficiently explained to avert misunderstandings.

## Ethics approval

The ethics committee of the University of Marburg approved our study design.

## Data analysis

The interviews were carried out between June 2022 and February 2023. The analysis was performed using the software MAXQDA2022. We identified key issues and named codes sorting into main categories and sub categories (see Fig. 1) on the basis of P. Mayring's qualitative content analysis (22). The developed codes correlate with the interview guide and show inductive category development. To test interrater reliability four content-rich interviews (two group interviews and two single person interviews) were exchanged between the authors. Afterwards the code system was slightly adapted. Interviews and analyses were conducted simultaneously to optimize substantial saturation by the researchers. BK and EJT independently reviewed transcripts in confirmation of comprehension and reproductivity of codes applied. Any disagreements were discussed and consensus found. Cited quotations were translated by BK from German into English and cross-checked by JG.

We identified three main categories in the transcripts: *Τοπς* ' , Competences' and `Course structure'. We defined **topics** as contents or subjects that should be included in the curriculum. A typical quote from the interview would include "I would like a seminar on ...". We as researchers asked ourselves "Can I know this?" to determine answers coded into this category. The second main category, **competences**, was defined as skills or abilities the students and our curriculum need. In an interview the competences would be described as "The doctor

has to be able to ...". Accordingly, we asked ourselves "Can I do this?" to verify our coding. The third main category, **course structure**, included specific proposals and recommendations for teaching methods and course formats.

## Results

### Topics

GPs in training and specialists noted communication to be a central topic for students, especially structured conversation and consultation in primary care.

*"And it's not just about how do you do a good medical history, but also how do you handle someone who cannot get to the point? How do you treat people blowing up your office hours with their consultations? Not just this part of medical history, where you ask since when it started and where the pain is located. But also what do I do with someone who does not stop talking?" (F-4-CO)*

Furthermore, a recurring topic requested by interviewees was common or widespread diseases in primary care. Here especially psychosomatic diseases were mentioned.

*"When I started and my boss told me two thirds of consultations are of a psychic or psychosomatic background, I could not believe it really. But it is a lot and you have to deal with it." (F-7-UK)*

For somatic diseases, common diseases in primary care – such as back pain, high blood pressure or diabetes – as well as typical specialists' diseases were mentioned. In case of ophthalmology, this was a cluster of diagnoses referring to the "red eye", chronic or acute loss of sight as well as high sensibility towards light. Furthermore, the surgeons named hemorrhoids, acute abdomen and wound healing deficiency. Orthopedists described back pain to be common, as well as joint infections and traumatic injuries. Urologists mentioned bloody urine, urinary retention, urinary stones and prostatic diseases to be a recurring topic in primary care. The otorhinolaryngologists named ear pain, upper respiratory infections, sudden loss of hearing and other emergency treatments.

*"And concerning treatment or primary care of various clinical pictures, I believe emergency treatment of this specialty needs to be a part of university teaching, because it also defines the intersection with other specialties. Even if you won't be an otorhinolaryngologist you should definitely know how to treat a nose bleed, which are the key symptoms of an otitis media or of a peritonsillar abscess or of a beginning mastoiditis." (P-6-MS)*

Most interviewees described both medical history and physical examination to be important aspects of existing curricular teaching, yet appealed for further highlighting and inclusion in extracurricular teachings.

*"And medical history before the physical examination. (...) How can you reach the core of the problem with focused questions in a short timeframe? Here you can get lost easily and imagine the worst. But maybe you can break down the contact to what is mostly 10 or 15 minutes." (F-6-JM)*

### Competences

Concerning competences, hard skills as well as soft skills were mentioned in the interviews.

Referring to soft skills, the interviewees considered empathy, personal commitment, listening, down-to-earthness and interest in continuous learning as important factors in primary care.

*„A GP has to be humane. He has to care. In the end the patient must have the feeling that he is in good hands." (P-7-SGa)*

Of interest to all interviewees were the hard skills as well. Recurring topics were decision making and triage in primary care under the condition of limited time for consultation, which results in high need for attentiveness in patient care. To decide upon the necessity of specialist involvement, to detect banalities easily treated in practice instead of sending them to a special clinic with long wait and to detect red flags and dangerous adverse outcomes were the main hard skills mentioned.

*"But this is a singular outstanding attribute of primary care. We are gatekeepers. Most patients we see do not have the most severe progression or any alarming red flags. But to sieve those that do, that is our duty. (...) The majority has a cough or cold and wants a sick leave from work. And those patients don't believe their sickness to be threatening and neither do I, yet it is self-evident to check for any red flags nonetheless. And then the patient is content and happy to go home. But to always stay alert." (F-3-FR)*

Also being able to induce medical treatment and having good patient knowledge (including an understanding of their living situation and their medical knowledge) were considered as important hard skills in primary care.

*"Well I would say he needs to know his people. That is something I know and value about good general practitioners in my environment. They can assess common settings and I think that is central, or important, to know where your patients are coming from. In cities that is a bit harder nowadays, compared to rural areas where you know the family and understand the context. But for me it is a very important aspect. To be able to assess a situation. Where does it come from? What is the context? This is a quality I would appreciate in a general practitioner." (P-8-JBe)*

## Course structure

The interviews showed differences in course topics described, as specialists naturally described mostly topics of their own subject as important for GPs, such as an orthopedics course or a seminar on the red eye. One interviewed surgeon also suggested lessons on explaining important surgeries to patients. This course would, for example, help a GP explain not only the methods with which a specialist will treat an illness, but also help the GPs explain the width or consequences of a surgical treatment.

An interest in interprofessional cooperation as a course topic was expressed by one of the specialists.

One participant mentioned an existing course at the University of Marburg in which case reports or common diseases are worked up in groups to describe evidence-based treatment options and differential diagnostic procedures.

*"Clinical Reasoning (...) A case report is presented together with differential diagnoses and therapeutic options. The case is not necessarily clarified in the end. You just follow. Well the teacher has to vary according to what the students answer and it is (...) You start out with chest pain and in the end you get the idea of gastritis as a diagnosis and then you discuss the treatment options. It's an interactive course and I loved it. You think about the case as one would in practice. And that's the closest we can get to a first line patient consultation in primary care." (F-1-HU)*

Besides course topics also specific teaching methods were named. This included popular methods already existing in teaching modules in university, such as case reports, symptom-based learning and practical training (internships as well as learning practical skills at university).

On top of that, several GPs in training agreed that especially lessons with simulated patients had been a helpful method in their studies.

*"You have to stay flexible in your thinking (...) A lesson with simulated patients and then there can be anything happening. To have patients that are not selected by subject beforehand. One has an itch without a cause. Another patient is the one-year-old infant with fever. Next comes the 90-year-old patient who hasn't had a doctor's visit in ten years and is to be treated palliatively. To portray this in University. A course with simulated patients that is as messy as family practice." (F-1-HU)*

In two interviews, interviewees described how role models in primary care influenced their career paths and expressed interest in implementing this into the curriculum.

*"And what I always found especially exciting were the couch talks, where a random doctor came to talk about everyday life in practice. To me these personal topics were extremely important, to have a role model. Because with many specialties I thought: 'Oh god, if you end up like this it's over!' And in general practice I met people where I thought: 'Hey, this is pretty cool.' And they invited me out for lunch during the internships and I thought that was... Well the personal aspect is so important to hang on. To have these role models and to get an insight beyond professional aspects to stay motivated, to say 'I want to do this too.'" (F-3-FR)*

## Discussion

### Key findings

There was fair distinction in topics named or highlighted by specialists and GPs in training. This fits according to the interview guide where specialists were mostly asked what part of their subject need to be represented and taught in the curriculum, while GPs in training were asked about their experiences in practice.

Referred to course structures, especially the GPs in training named already existing courses that they remembered to be fruitful to their personal career and education. Specialists described ways to communicate the essence of their subjects in a limited format taking into

consideration the limitations of extracurricular teaching modules and the main interest of the curriculum being primary care.

Throughout all interviewees there was great consensus on a high demand for the discussed competences, with special highlight for decision making in primary care. This was explained by the changing role and demand of GPs as an understaffed specialty and high stress from the concurring factors of limited monetary resources as well as high number of patients and workload per day.

## **Strengths and limitations**

The study includes a mixed sample balancing demographic characteristics such as gender and age as well as working conditions such as solo or group practice and working in a rural area, small or medium-sized town. Nonetheless, we undertook the study in only one region of Germany and with a limited amount of interviewees. Findings may not be transferable to other regions of Germany or fit the impressions of the majority of GPs in training or specialists.

A strength of the study can be described by a trustful setting for the conducting of the interviews which reduced the impact of social desirability and presumably produced rather authentic reports on opinions and experiences of the interviewees.

Another strength of the study is that we did not just include the perception of GPs in training but also of specialists working closely with GPs. Thus, we include not just individual perception of their own profession but also external input and feedback on necessary knowledge, competences and teaching courses.

For our main research question "Which topics are missing from the general practice-based curriculum?" both GPs' in training as well as specialists' viewpoint have proven highly relevant.

## **Comparison with existing literature**

Similar to previous studies (4–5, 7) we found that internships and practical training as well as interprofessional education and the integration of positive role models were considered as highly important for the development of a general practice-based curriculum. GPs in training and specialists agreed on the importance of knowledge in the fields of medical history, physical examination, communication as well as common diseases in primary care. In addition, the interviewees emphasized the relevance of competences (soft as well as hard skills) to supplement theoretical knowledge, which confirms the idea of a competence-based curriculum mentioned in literature (9). Moreover, similar to the suggestion in literature (6), it was emphasized that the implementation of role models and personal insights help increase attractiveness of general practice to students. Other recommendations – like the importance of a long-term one-to-one mentoring program (19) or the integration of a teaching app (10) – were not mentioned in our interviews. A new insight is the demand for new teaching methods such as symptom-based learning, lessons with simulated patients and the integration of case reports.

## **Conclusions**

Our study has proven to show valuable input in the research on longitudinal teaching courses nationally and may be able to add valuable insights to teaching programs internationally. According to GPs in training and specialists the training of soft and hard skills is equally important to prepare future GPs for their work in primary care as the teaching of theoretical knowledge. GPs in training and specialists also agreed that new teaching methods as well as practical training should be the heart of a newly established curriculum.

Further studies should integrate the views of medical students as well as experienced GPs in order to compare the perspectives of medical students, GPs in training, experienced GPs and specialists. Also a quantitative study is needed to evaluate and prioritize the mentioned topics, skills and teaching methods by a larger number of medical students, GPs in training, experienced GPs and specialists.

In a successive quantitative study we will examine whether these findings are supported by a larger number of GPs in training. Such a two-step mixed-methods approach will compensate the limitations of the present qualitative study.

## **Abbreviations**

GP: General Practitioner

## **Declarations**

**Ethics approval and consent to participate**

The ethics committee of the University of Marburg approved our study design. Participants formed informed consent freely and without monetary or personal incentive.

### **Consent for publication**

Not applicable

### **Availability of data and materials**

The datasets analyzed during the current study are not publicly available due to safeguarding of personal information and privacy of participants but are available from the corresponding author on reasonable request.

### **Competing interests**

The authors declare that they have no competing interests.

### **Funding**

The development and implementation of the general practice curriculum at the Universities of Marburg, Giessen and Frankfurt is supported by the Hessian Ministry of Higher Education, Research, Science and the Arts as well as the Hessian Ministry for Social Affairs and Integration.

### **Authors' contributions**

BK, EJT and MMC conceived the study, BK conducted and analyzed the interviews.

BK and JG drafted the manuscript. BK, EJT, JG, MMC and SB were involved in the study

design and made contributions to the manuscript. BK, EJT and JG conceptualized the visual design and contents of figure 1. All authors read and approved the final manuscript.

### **Acknowledgements**

Not applicable

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## Figures

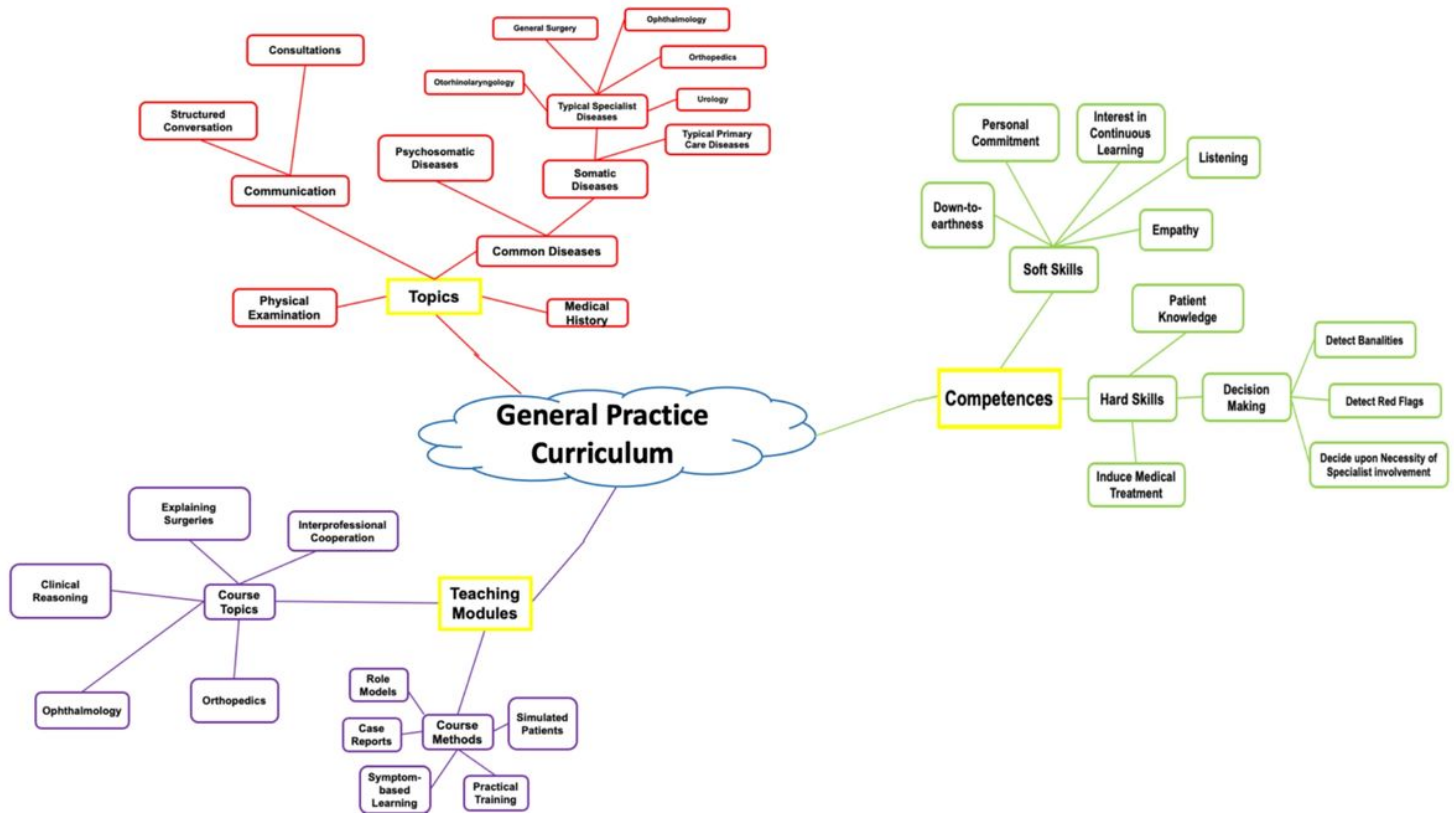


Figure 1

Code structure with main and sub categories