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Preventing a shortage of general practitioners in Austria

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I, Florian Stigler, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signed _____

Date 27 December 2019

Abstract

Background. In Austria, almost half of GPs will reach retirement age within the upcoming ten years. Nevertheless, the specific number of young physicians who intend to replace them is unknown and might be insufficient. Avoiding a GP shortage is therefore an indispensable challenge.

Aims. Developing a comprehensive catalogue of potentially effective measures to prevent a GP shortage, assessing these measures' understandability, effectiveness and feasibility, identifying practical considerations for implementing prioritised measures and analysing current GP shortage reform processes.

Methods

Firstly, a search strategy for international policy documents and literature reviews included bibliographical databases, institutional websites, an internet search engine, and references of included publications. Three experts reviewed extracted measures.

Secondly, identified measures were assessed for understandability, effectiveness and feasibility by a two-phase expert panel process. Ten relevant experts performed structured assessments through e-mail and a face-to-face workshop.

Thirdly, previously prioritised measures were assessed for practical considerations concerning implementation by six relevant experts through a semi-structured questionnaire.

Fourthly, 26 semi-structured interviews were performed with key experts from different stakeholders and regions and supplemented with a documentary analysis. Theories on agenda setting and research utilization informed a framework analysis.

Results

Firstly, ten policy documents and 32 literature reviews informed a catalogue of 95 potentially effective measures.

Secondly, seven measures were considered effective and feasible by key experts.

Thirdly, several practical considerations were identified concerning implementing prioritised measures.

Fourthly, the GP shortage receives public and stakeholder attention but there seems to be little agreement on its definition, severity, causes and solutions. Attention was reportedly raised by alarmed mayors and media coverage but less by advocacy efforts or policy entrepreneurship. Research studies apparently increased recognition of the problem and policy alternatives.

Conclusions. This thesis offers a comprehensive catalogue of assessed measures to prevent a GP shortage. The current reform processes indicate room for improvement.

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Abbreviations

AAFP	American Academy of Family Physicians
BEL	Belgium
EC	European Commission
EU	European Union
FH	Fachhochschule [University of Applied Sciences]
GBR	Great Britain
GER	Germany
GP	General Practitioner
HSR	Health Services Researcher
IAMEV	Institut für Allgemeinmedizin und Evidenz-basierte Versorgungsforschung [Institute for General Practice and Evidence-based Health Services Research]
ICGP	Irish College of General Practitioners
IRL	Ireland
KCE	Belgian Health Care Knowledge Centre
LR	Literature Review
MeSH	Medical Subject Headings
NHS	National Health Service
OECD	Organisation for Economic Co-operation and Development
PD	Policy document
PHC	Primary Health Care
PHI	Austrian Public Health Institute
PRCC	Parallel Rural Community Curriculum
PSAP	Physician Shortage Area Program
PubMed	PubMed is a free search engine accessing primarily the MEDLINE database
PVE	Primärversorgungseinheit [Primary Care Unit]
RAND	Research ANd Development
StPC	Styrian Physician Chamber
StSF	Styrian Sickness Fund
SVR	Sachverständigenrat [Council of Experts]
UCLA	University of California, Los Angeles
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation
YGPS	Young GP Society

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Integrating statement

In September 2013, I finally arrived in London to commence the Doctor of Public Health Programme (DrPH) at the London School of Hygiene & Tropical Medicine (LSHTM). Back then, I was enthusiastic and fully committed to engage with all of the experiences and challenges which may lie ahead of me. Today, six years later, I am glad, thankful, still enthusiastic and without any regrets.

This DrPH Programme aims to equip graduates with scientific and leadership skills to be able to improve public health.⁴ For this purpose, it offers a taught component, an Organisational and Policy Analysis, and a Thesis project.⁴ Hereafter, I will reflect on these experiences, on what they taught me and on how they shaped my development.

Taught component

The DrPH Programme started with two teaching modules on 'Evidence Based Public Health Policy' and on 'Understanding Leadership, Management and Organisations'. Both clearly aligned with the Programme's aims as stated above. While these modules provided many valuable lessons and instructive experiences, when looking back, it was especially one single paper which struck me the most, and which deeply altered my approach to public health since then. It was written by Jeremy Shiffman who analysed the generation of political priority for maternal mortality in five developing countries, and it emphasised, among other findings, the crucial role of individual leadership and of policy community cohesion.⁵ Both lessons are still part of my daily thinking and they influenced several of my professional decisions during the past years, as I will describe a bit later in this statement.

This time period of living in London was transformative, an experience I do not want to miss. It was a privilege to be part of a rich and thriving research community and it was inspiring to learn from many outstanding public health academics. Thus, I can still understand very well why I decided to stay for longer and to sign up for additional LSHTM modules on sociology, anthropology, globalisation and health systems.

Organisational and Policy Analysis (OPA)

Performing this project⁶ taught me several meaningful lessons. First of all, it showed me that research can be a creative endeavor driven by curiosity, which was truly joyful. My supervisor empowered me to pick an issue I am interested in and to choose suitable methods for approaching the research question. Thereupon, I aimed to identify possible explanations for the significantly larger number of hospital admissions due to diabetes in Austria than in England by performing a mixed-method 'rapid health system appraisal'⁷ in both countries. The findings made me familiar with some of the fundamental challenges of the Austrian healthcare system, namely fragmentation and inappropriate incentives partly due to federalism and a split funding system.^{6,8,9} While the long-term persistence of these structural difficulties may be frustrating for a researcher who actually wants to promote change, this study was also encouraging by pointing me to something more easily amendable. I still remember the curiosity of my supervisors when I told them that the main diabetes care issues became already evident after a few qualitative interviews in England while I never reached a form of 'saturation'¹⁰ in Austria. I interpreted this observation as a lack of communication between different regions, actors and experts and this encouraged me to start an email-list (Google-group¹¹). After inviting some colleagues who subsequently invited others, today the list includes around 450 public health experts and stakeholder representatives. There are often fruitful discussions and I believe it already slightly improved communication and cohesion within our public health community.

Thesis project

At first, I intended to build my thesis upon a synthesis of evidence-based guidelines on clinical management of overweight and obesity which was published recently.¹² After realising that another research project of mine, concerning the prevention of a GP shortage in Austria¹³, seemed more interesting from a 'policy making'¹⁴ perspective and therefore more suitable for a DrPH thesis project, my supervisors and I were pleased to pursue this new direction. The final thesis therefore includes the identification and assessment of measures to prevent a GP shortage and an analysis of the current GP shortage reform efforts. Today, I am even more glad for taking this direction as it once again changed my perspective and most likely my future approach to public health. While the previous OPA⁶ introduced me to more tangible barriers to

change within the Austrian healthcare system, namely fragmentation and funding, the thesis project emphasised more intangible facilitators to change, namely ideas and individuals.¹⁵ This made me appreciate the relevance of compelling framing, credible indicators, broadly supported policy proposals, advocacy activities and, once again, the importance of effective policy entrepreneurship and cohesive policy communities.¹⁵ These insights not just taught me how change could happen, but also instilled me with a sense of responsibility for trying to make it happen. At least, now I am better prepared to do so.

Concluding thoughts

It may have been 2009, during the World Health Summit in Berlin, when I was first puzzled by an observable pattern of public health lectures. Presenters seem to usually describe problems and propose solutions, but rarely indicate why these problems still persist or why, despite better knowledge, proposals are not yet implemented. While the different stages of the DrPH Programme supported my development as a researcher and my understanding of the Austrian healthcare system, an overarching theme of the Programme was also to explore *why* and *how* change does or does not happen. Getting to know this different approach to public health challenges allowed me to pursue other patterns of thinking than the one which struck me a decade ago, and it also inclined me to take on the role of a policy entrepreneur myself. After the previous Austrian Government decided in late 2017 to reverse the smoke-free hospitality industry legislation, I started to write several evidence-based newspaper articles on this issue and to engage with the respective policy community. This enabled me to experience advocacy and policy making in practice and thereby taught me that policy entrepreneurship is both a team effort and rewarding. While I tend to see public health as an interplay of complex systems embedded in a political context, I also learned not to underestimate the ability of individuals and groups to facilitate change processes. I therefore want to conclude this integrating statement with a quote attributed to the cultural anthropologist Margaret Mead, which embodies the single most important lesson the DrPH Programme has taught me:

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.”¹⁶

1. Background

1.1. The physician and GP workforce internationally

In the European Union, 74% of countries reported shortages of medical doctors.¹⁷

However, among OECD countries, Austria exhibits the highest reported density of physicians (see Figure 1).¹⁸

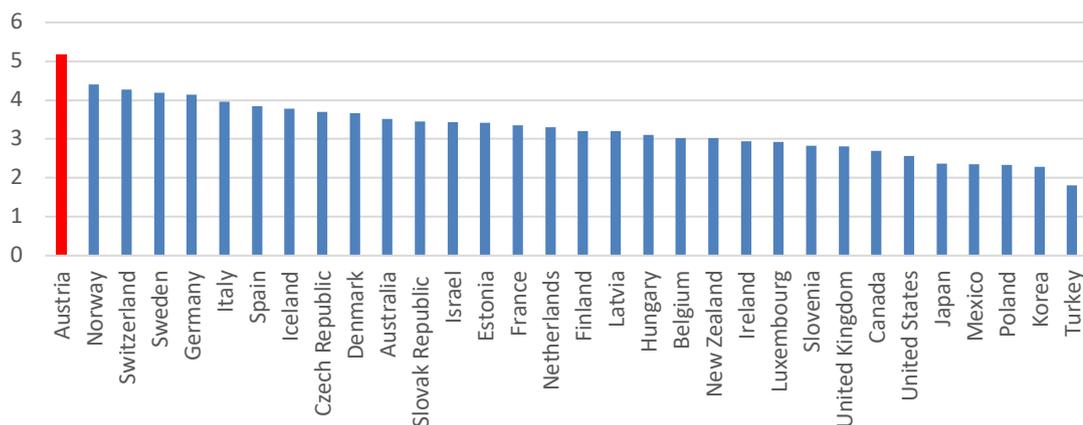


Figure 1: Doctors per 1,000 inhabitants (OECD-32; 2016 or latest available)¹⁸

The proportion of GPs among all physicians varies strongly internationally, from 5% in Greece to 50% in Chile. In Austria, while the absolute number of physicians is comparatively high, the reported share of GPs as a proportion of all physicians is comparatively low at 15% (see Figure 2).¹⁸

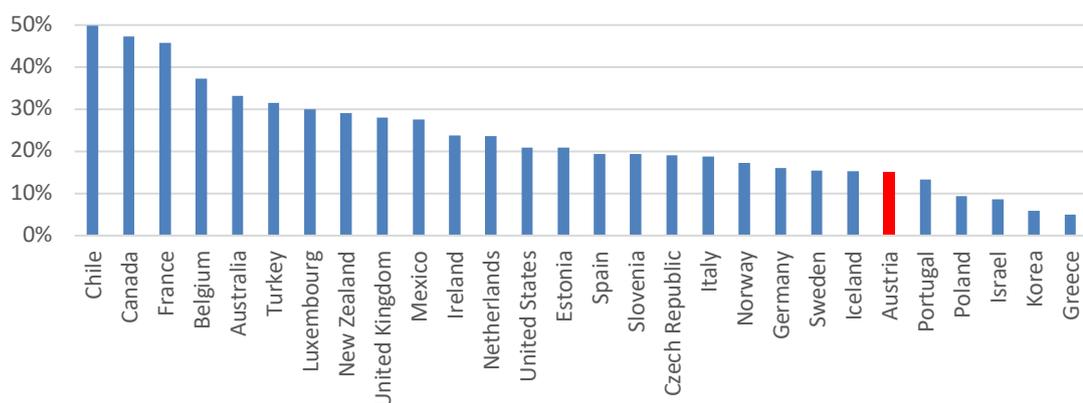


Figure 2: GPs as a percentage of all physicians (OECD-28; head count; 2016 or latest available)¹⁸

Defining the optimal absolute density of GPs (the average population size served by one GP) and the optimal relative proportion of GPs (among all physicians) appears to be challenging and the results might vary between and within healthcare systems.

International differences derive from distinct tasks and roles of GPs, as for example GPs in England are gatekeepers to the wider healthcare system and usually supported by practice nurses, while GPs in Austria are not the gatekeepers to the system and usually not supported by practice nurses.¹⁹ Nevertheless, despite these conceptual difficulties, the quantity of primary care physicians seems to be relevant for population health, as large observational studies from the USA^{20,21} and the UK²² have concluded that higher densities of primary care physicians are associated with better health outcomes.

1.2. The physician and GP workforce in Austria

From a historical perspective, the total number of physicians in Austria quadrupled from 1960 to 2016, while the total number of GPs did not alter significantly (see Figure 3).²³ In relative terms, the share of GPs among all registered physicians declined from 34.4% to 8.5% during the same period.²³ This share is smaller than the data reported by the OECD within Figure 2,¹⁸ as these data also include office-based GPs in Austria who are not contracted with a Sickness Fund (e.g. working as private doctors). In 2016, each of the 3,728 GPs²³ (head count, excluding registrars and locums) in Austria served on average a population of 2,334 inhabitants²⁴ while each of the 28,697 GPs²⁵ (full-time equivalent, excluding registrars and locums) in England in 2019 served on average a population of 1,951 inhabitants (based on mid-2018 population estimates)²⁶.

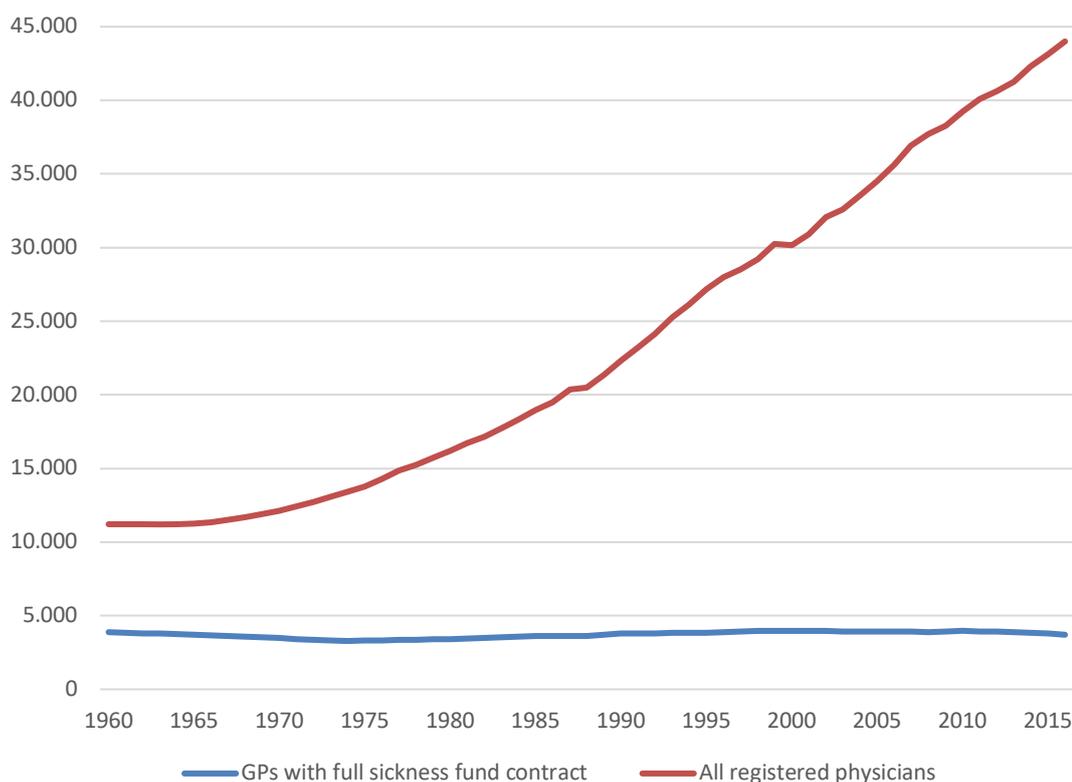


Figure 3: Physicians and GPs with full Sickness Fund contract in Austria (absolute numbers)²³

Defining general practitioners and GPs in Austria

In Austria, the terms *general practitioner* [Allgemeinmediziner] and *GP* [Hausarzt] are often used interchangeably. Nevertheless, a GP is usually defined as a general practitioner who works in an office and who holds a full sickness fund contract (which means almost all patients can access his/her services covered by the insurance). Most

GPs in Austria practise single-handedly and are usually supported by one or two administrative assistants.²⁷ Notably, most general practitioners in Austria do not work as a GP but are employed within a hospital (in some countries called *hospitalist*²⁸) or work in an office as a private physician (see Figure 4).²⁹ In 2019, 26.5% of all general practitioners were working as a *classical* GP by definition.²⁹

This thesis will define general practitioners as follows:

- *GPs* are general practitioners working in an office and holding a full sickness fund contract, they are therefore accessible for almost the whole population. This thesis primarily focuses on the shortage of this group of physicians.
- *Private general practitioners* are working in an office without holding a full sickness fund contract, they rarely offer evidence-based chronic care services but frequently offer alternative and complementary services.
- *Hospitalists* are general practitioners working in a hospital, they usually support the work of specialists but usually do not treat patients independently.
- *General practitioners* include GPs, private general practitioners and hospitalists; all of them have a licence to practise as a GP.

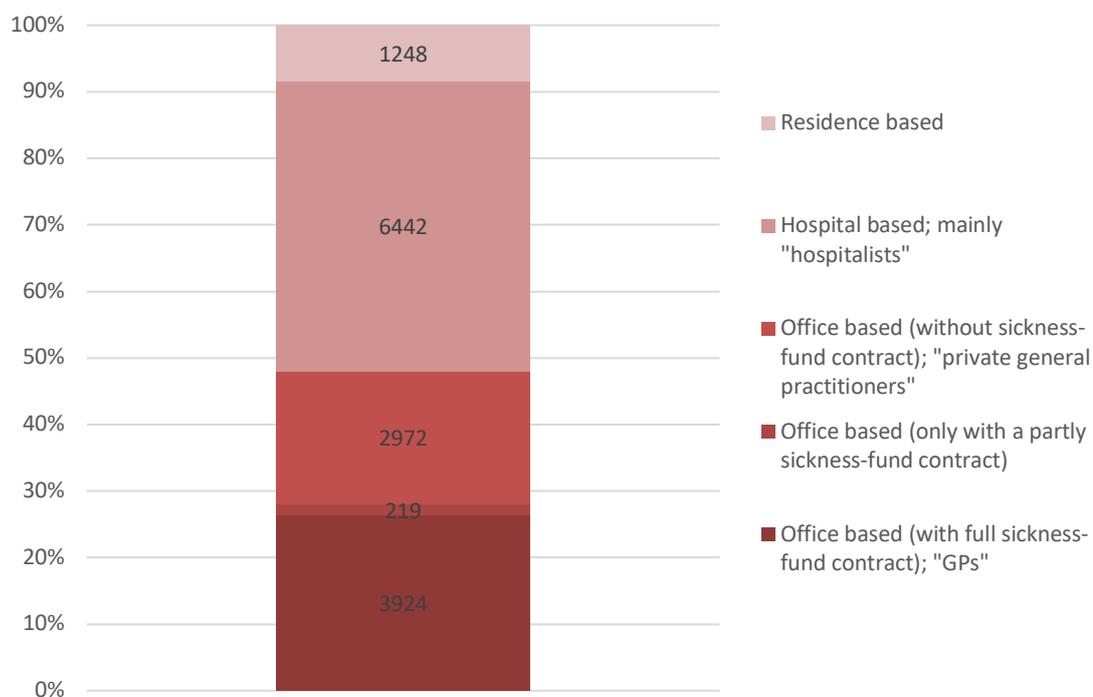


Figure 4: Areas of work of general practitioners in Austria in 2019²⁹

Vacant GP positions in Austria

While data on GP vacancies are not routinely published nationally, Table 1 contains the most recent identified data. It indicates that the extent of GP vacancies is still low but the rise from 1.5% in late 2017 to 1.9% in mid 2018 represents a meaningful increase in the proportion of vacancies despite originating from a low base in absolute terms.³⁰

Table 1: Vacant GP positions in Austria (national/regional physician chambers as cited by ORF³⁰)

	11/2017	01/2018	04/2018	07/2018
Upper Austria	11	17	14	20
Lower Austria	6	7	11	15
Vienna	15	17	15	11
Styria	12	10	8	10
Tyrol	7	6	5	4
Carinthia	2	2	1	3
Salzburg	1	3	3	3
Vorarlberg	2	2	2	2
Burgenland	0	1	1	2
Austria	56	65	60	70
Share of all GP offices	1.5%	1.7%	1.6%	1.9%

The age distribution of the GP workforce in Austria

The age-distribution of GPs (see Figure 5) indicates an increasing annual rate of GPs reaching the formal retirement age of 65.²⁹

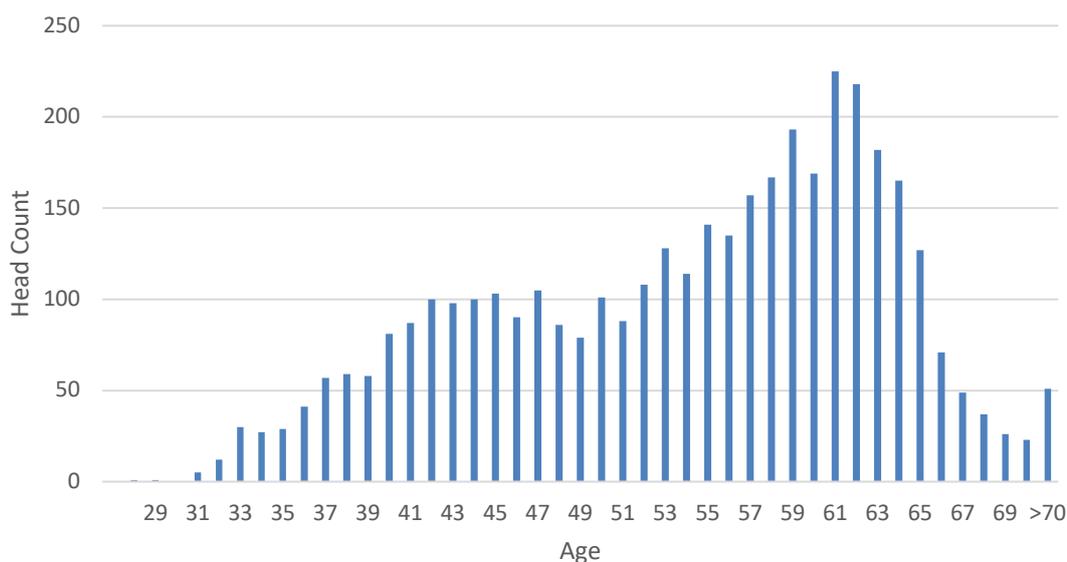


Figure 5: Age-distribution of GPs (with full sickness fund contract) in Austria in 2019²⁹

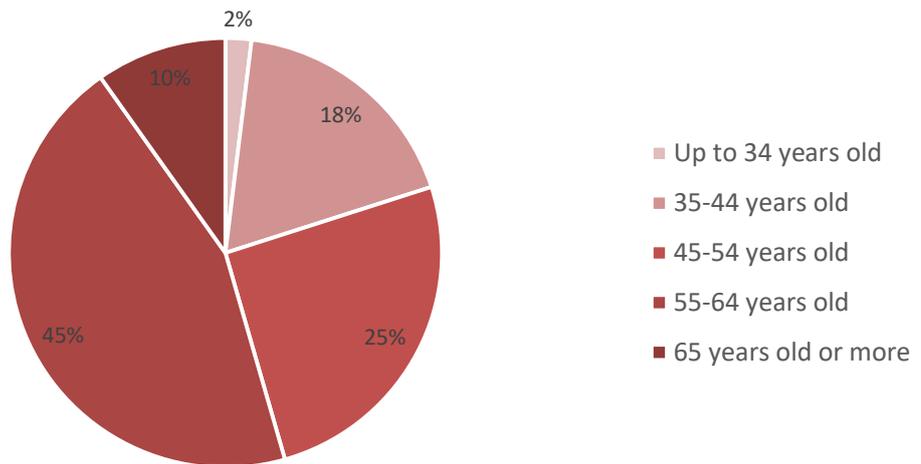


Figure 6: Age-distribution of GPs with full sickness fund contract in Austria in 2019²⁹

In 2019, 45.0% of all practicing GPs were between 55 and 64 years old. This age cohort is 2.5 times larger than the cohort between age 35 and 44 (see Figure 6).²⁹

Expected need for GP replacements

Within the upcoming decade, almost half of GPs in Austria, 1.752, are expected to reach the formal retirement age of 65 years (see Figure 7).²⁹ Therefore, on average 175 GPs will need to be replaced each year to keep the current number of GPs stable. This need for replacement combined with the observation that only few junior doctors in Austria currently choose general practice as a profession²⁹ could result in a national GP shortage. These prospects call for a strategy to prevent this in a timely manner.

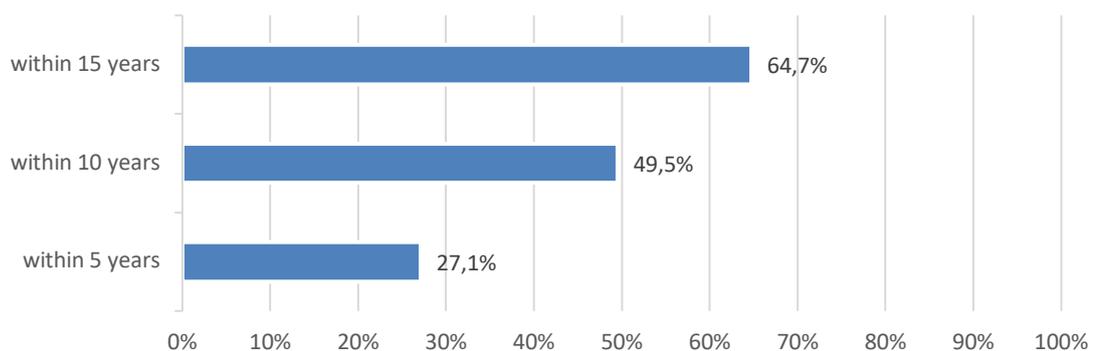


Figure 7: Proportion of GPs with full sickness fund contract reaching formal retirement age of 65^{29*}

*To avoid overestimation, GPs who already reached the formal retirement age of 65 by 01/2019 were excluded from this figure

The projection of Figure 7 is based on the unsatisfactory assumption that GPs retire when reaching the formal retirement age of 65 years. Unfortunately, the actual

occurrence of GP retirements cannot be predicted precisely, due to lack of available data. For example, it is unknown how many GPs retire by reducing their workload continuously or stepwise or to what extent GPs continue to offer clinical services as a private doctor after discontinuing their previously held sickness fund contract. The actual need for GPs not only depends on the annual retirement rate of current GPs but also on the future need for GPs by the Austrian healthcare system and the population it serves. This need depends on developments concerning demography, burden of disease, healthcare needs, and, additionally, on the objectives set by healthcare decision makers. Table 2 provides three different rough scenarios concerning the annual need for GPs based on different quantitative objectives.

Table 2: The annual need for new GPs based on three different quantitative objectives

Scenarios on the annual need for new GPs
Objective 1: Keeping the current number of GPs
In the upcoming 10 years in Austria, 1,752 GPs (49.5%*) will reach the formal retirement age of 65. ²⁹ In order to keep the current number of 3,924 GPs, ²⁹ each year 175 GPs will need to be replaced.**
Objective 2: Keeping the current density of GPs
In 2030, the Austrian population is expected to be 5.2% larger according to national predictions. ³¹ In order to keep the current density of 2,252 inhabitants per GP, ^{29,31} each year 194 GPs are needed.**
Objective 3: Increasing the current density of GPs
In order to reduce this ratio to 2,000 inhabitants per GP, 241 new GPs are needed annually.** In order to reduce this ratio to 1,500 inhabitants per GP, 382 new GPs are needed annually.**

* To avoid overestimation, excluding GPs who already reached the formal retirement age of 65 by 01/2019.

** Based on own calculations, assuming the simplifying assumption that all GPs retire at age 65.

General practitioners' supply and demand

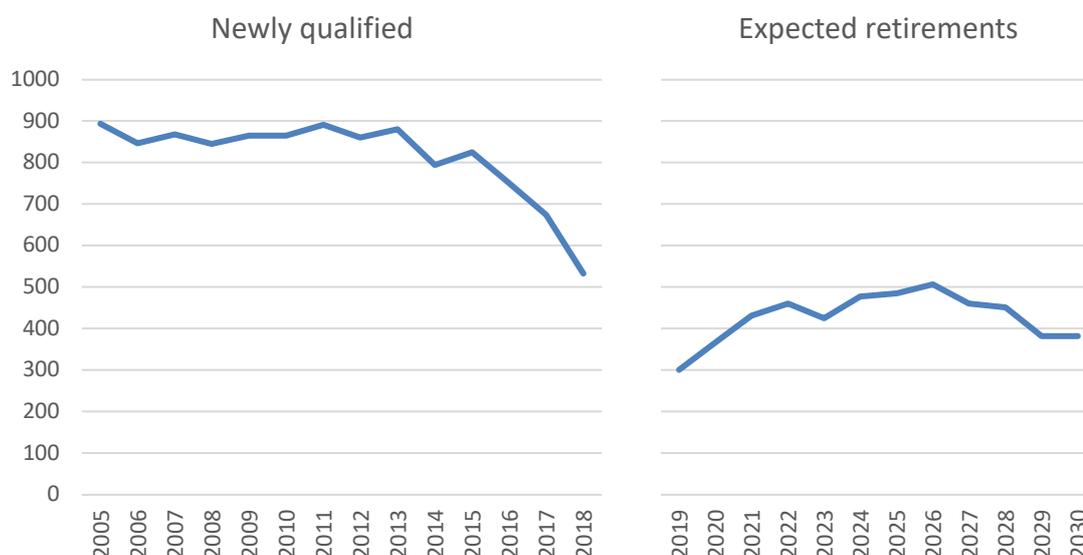


Figure 8: Newly recognised general practitioners in the past versus expected general practitioner retirements (assuming the simplifying assumption that general practitioners retire at age 65)²⁹

Decrease of newly qualified general practitioners (see Figure 8) can be explained by the postgraduate training reform³² enacted in June 2015. Before this reform, around half of physicians completed the three-year long, mainly hospital-based GP training,²⁹ while many graduates pursued a specialty training thereafter. Now, physicians complete a 9-month *common trunk* training and thereafter choose between specialty training and GP training.³² Unfortunately, the current number of physicians entering the GP training is unknown. Nevertheless, available data indicate, that 533 general practitioners received their licence in 2018, while on average 437 general practitioners are expected to reach the formal retirement age of 65 annually for ten years.²⁹ This suggests a positive balance between supply and demand in the short term, but it is unclear if the number of graduating general practitioner will continue to decline. Notably, while the large number of over 800 annual GP training graduates does not necessarily determine an oversupply, as many later switched to specialty training, a declining number does not necessarily determine an undersupply, as an *ideal* number of general practitioners or GPs has not yet been calculated or broadly agreed upon.

Differences related to working as a rural or urban GP in Austria

Data concerning the geographic distribution of GPs in Austria are apparently limited to postal code which does not enable an appropriate differentiation between rural and urban location of GP offices. The number of expected GP retirements can therefore not be appropriately divided according to rural versus urban areas either. Austrian experts seem to frame the issue more frequently as a *GP shortage* rather than a *rural GP shortage* which suggests that the issue is mainly perceived as a general shortage, but conclusive evidence is not available. Though, 44% of medical students and 51% of GP trainees in Austria declared in a survey to prefer working in a rural area.³³ This thesis will primarily define the issue as a general GP shortage while acknowledging rural areas as more vulnerable for and an independent determinant of a GP shortage.

1.3. Preventing a GP shortage internationally and in Austria

Predictive factors for entering a GP career in a rural area

Rural recruitment is often considered an important aspect of a GP shortage, as rural GP practices can be particularly difficult to fill.^{34,35} Several prospective studies identified predictive factors for working as a GP in a rural area.³⁶ One review suggests that the following three characteristics have the strongest association with working as a rural GP, namely: being raised in a rural area; having positive rural area experiences during medical school; and receiving postgraduate training in rural areas.³⁶ Another review suggests that having a rural background might be the strongest single predictor of choosing a rural GP career.³⁷ The influence of the childhood environment was also recognised by an Australian twin study, which determined around 50% of the variance in choice between urban, suburban and rural residence for young adults and around 10% of the variance for older adults.³⁸ An assessment of 24 medical schools in the United States compared two groups of medical schools; those with increases in the number of family medicine graduates and those with decreases.³⁹ Several predictive factors were identified; positive factors were a preference for family medicine when initiating medical school, performing the family medicine internship in at least two different sites, perceiving the family medicine faculty as competent role models, and participating in internships in family medicine and primary care.³⁹ Negative factors were perceiving family medicine faculty as less competent, being less encouraged to choose a family medicine career and having specialists as role models.³⁹

Predictive factors of GP work satisfaction independent of geographic location

A literature review concerning the job satisfaction of GPs included 24 relevant studies.⁴⁰ It concluded that work content can improve job satisfaction and that employment conditions can reduce job satisfaction.⁴⁰ Positive aspects identified more than once were diversity of tasks, positive relationships with colleagues and teaching opportunities.⁴⁰ Negative aspects were not enough income, too many working hours, too little time for patients, too much workload including administrative tasks and not enough recognition.⁴⁰ Another literature review concerning job satisfaction of physicians included 77 relevant studies.⁴¹ It concluded that restrictive funding mechanisms which increase financial pressure can reduce work satisfaction and that more autonomy can increase work satisfaction of physicians.⁴¹ Also a literature review

by the Cochrane Collaboration cautiously suggests that flexible working conditions which increase the control and choice of workers concerning the content of their work might improve wellbeing of employees.⁴² Another challenge is the change of expectations and aspirations of the so-called *Generation Y*, often defined as individuals born after 1981, which most recently entered also the medical profession.⁴³ A review indicates a stronger emphasis on family life compared with previous generations and valuing flexible working hours and further education opportunities while disliking hierarchical structures and single-handed practices.⁴³ Additionally, a recent study of 23 high-functioning primary care practices suggests that shifting from a physician-centric to a shared-care model which values teamwork more strongly can result in better clinical outcomes, higher work satisfaction and more joy in work.⁴⁴

Preventive measures against GP shortages internationally

This thesis will illustrate that specific efforts to prevent a GP shortage are common internationally,⁴⁵ and multiple causes of a GP shortage suggest the need for a bundle of responses. Measures can influence all phases of the GP career⁴⁶ (from medical school application to medical school, GP training, to work and life as a GP and until retirement) and can take a wide range of different approaches (from early exposure to general practice and role models to financial incentives, practice transformation, career opportunities, work-life balance, community interventions and many more) as specified in chapter 4.1. These measures therefore modify a large number of the previously mentioned predictive factors⁴⁰⁻⁴⁴ for choosing a GP career.

For example, one comprehensive strategy to increase the workforce of GPs and other primary care physicians in the USA was developed by the Council of Academic Family Medicine.⁴⁶ This strategy is based on four 'pillars' including a 'pipeline' approach, a focus on the *process of medical education*, a proposal for *practice transformation* and for *payment reform*.⁴⁶ It thereby strives for more and better general practice exposure within medical school and postgraduate training, suggests the introduction of a patient-centred care model and a payment reform based on a pay rise and a value-based payment scheme.⁴⁶

Four specific examples of evaluated medical school initiatives in rural areas which aim to prevent a GP shortage are described in Appendix A.

Preventive measures against GP shortages in Austria

In Austria, in the past, reforming the healthcare system in general appeared to be difficult.^{8,9} For example, the dual funding system – splitting the funding of the hospital sector and the outpatient sector between tax payer funding and social insurance funding, respectively – is often considered to be a major weakness of the Austrian healthcare system.⁹ This introduces inappropriate incentives⁶ which might also be relevant to the issue of preventing a GP shortage. For example, strengthening primary care might be cost-effective by improving the quality of chronic care and subsequently avoiding hospital admissions, but due to the dual funding system it would be costly for Sickness Funds (which pay for GPs) and cost saving for regions (which pay for increasing hospital costs).⁶ Nevertheless, despite these obvious flaws of the dual funding system, this mechanism still remains largely unchanged. This might be explained by the fragmented healthcare system, which is split into nine regions, 21 Sickness Funds and other interest groups (like the influential Physician Chambers).^{11,12} More specifically, it also seems that previous GP reforms were of limited scope, as the number of GPs has not increased since 1960²³ and as many policies prevalent in healthcare systems with a strong primary care orientation (e.g. gatekeeping or patient lists)¹⁹ are absent.

In Austria today, efforts to strengthen GPs were stated within the previous Government Program.⁴⁷ Additionally, an ‘initiative for rural GPs’⁴⁸ in the region of Lower Austria was announced in early 2018 (aiming to fill vacant GP positions with hospital specialists with a GP licence) and several organisations developed the policy document ‘Masterplan for General Practice’⁴⁹ later in 2018. Any comprehensive strategy would need to include medical universities, Physician Chambers, Sickness Funds, regions and the Ministries of Health and Education. There are currently several facilitating factors for implementing such a strategy, including the increasing public awareness of the issue due to media coverage,³⁰ the acknowledgement of the issue by national politicians⁴⁷ and the repeated demands for appropriate measures by several stakeholders⁴⁹. As a result, the time might have been right for research studies on policy alternatives and reform processes related to the prevention of a GP shortage.

1.4.A brief introduction to the Austrian healthcare system including actors relevant to the GP shortage

Austria is a federal state of nine regions with legislative and executive capacities at both levels.⁹ The Austrian healthcare system reputedly covers 99.9% of the population,⁵⁰ while its organisation is often described as fragmented and complex, partly because responsibilities are split between federal and regional levels, and also between Sickness Funds and regional Governments.^{8,9} Healthcare is mainly provided regionally based on national regulations while the hospital sector is regulated by both national and regional legislation.⁸ Also major national healthcare reforms often require the approval of regional Governments and these splits can inhibit effective governance and reform efforts.⁸ Additionally, some decisions related to the outpatient and hospital sectors need to be negotiated with Physician Chambers.⁵¹ The overall complexity of the healthcare system organisation is reflected within the simplified Figure 9.

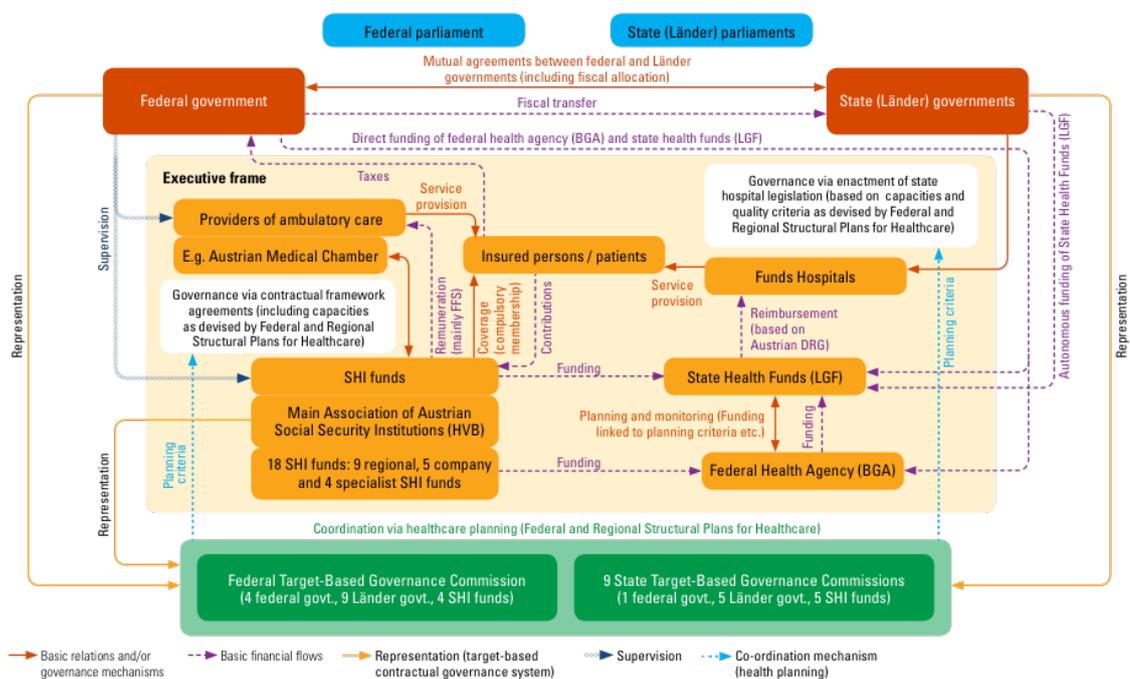


Figure 9: Organisation of the Austrian Health Care System (Source: GÖG as cited by Buchner et al⁸)

The split funding system adds to this fragmentation and complexity, as ambulatory care is funded by social insurance contributions, while further hospital care costs are paid from tax revenues.⁸ This split leads to inappropriate incentives, as Sickness Funds do not benefit financially from reducing hospital care costs and regional Governments do not benefit financially from reducing ambulatory care costs.⁶ Several funding

mechanisms and pathways developed historically based on diverse arrangements.⁸ The complexity of the funding system is reflected within the simplified Figure 10.

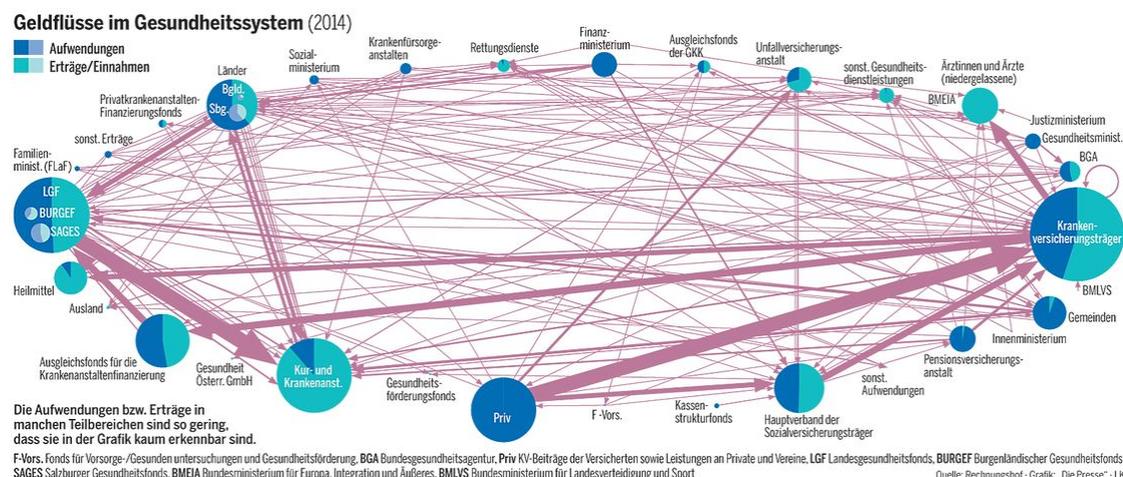


Figure 10: Funding flows within the Austrian healthcare system (Source: Rechnungshof Österreich as cited by DiePresse⁵²)

The following depictions provide brief introductions to the main actors related to the GP shortage in Austria.

National level

The Federal Ministry of Labour, Social Affairs, Health and Consumer Protection (subsequently referred to as *Ministry of Health*)⁵³ initiates hospital sector legislation at the federal level based on joint agreements (Article 15a of the Federal Constitutional Law) to be executed by the regions.⁸ In 2012, a governance reform introduced a ‘Federal Target-Based Governance Commission’ (agreed upon by federal Government, regions and Sickness Funds) which defines healthcare system targets and is considered to be its ‘supreme decision-making body’.⁸ The result of this reform were first ‘Federal Target-Based Governance Agreement’ in 2013 and a second agreement in 2017 which defines goals over five years.⁸

The Federal Ministry of Education, Science and Research (subsequently referred to as *Ministry of Science and Education*)⁵⁴ regularly negotiates with medical universities a funding agreement including expected performance outputs.⁸

*The Main Association of Social Insurance Funds*⁵⁵ is an umbrella for 21 social insurance funds for health, pension and accidents which will be merged by the most recent healthcare reform to produce five funds.⁵⁶⁻⁵⁸ While the Federal Government

oversees social insurance funds, most outpatient care decisions are delegated to regional Sickness Funds.⁸

*The Austrian Physician Chamber*⁵⁹ is the umbrella organisation of largely independent nine regional Physician Chambers. These chambers are determined by the federal constitution and represent the social and economic interests of all registered physicians.⁸

*The Austrian Public Health Institute (GÖG)*⁶⁰ appears to be the most relevant research institute for the Ministry of Health. It is largely independent and focuses among other issues on health services research, healthcare planning, healthcare quality and health promotion.⁸

Civil society or informal pressure groups relevant to the issue of the GP shortage are the *Austrian Society for General Practice and Family Medicine* (subsequently referred to as the *Austrian GP Society*)⁶¹ and *Young General Practice Austria* (subsequently referred to as *Young GP Society*)⁶², which are voluntary associations of GPs or rather of young GPs and medical students.

Regional level

Regional Governments, more precisely state ministers for healthcare and state parliaments, govern regional health systems especially regarding hospital care and are responsible for ensuring hospital capacity and funding.⁸

Regional Sickness Funds are self-governing bodies led by representatives of employers and employees. They are mainly responsible for the provision of outpatient medical care and also fund a large but capped amount of hospital costs.⁸

Regional Health Funds were introduced in 2005 to pool a certain share of federal and regional tax revenues with social insurance contributions. This should improve shared planning and reduce the inappropriate incentives of the split funding arrangement between outpatient and hospital care.⁹

Regional Physician Chambers are based on mandatory membership and represent all registered physicians. The regional chambers negotiate with regional Sickness Funds concerning allocating Sickness Fund contracts for new physician positions and shaping fees for clinical services. The chambers also allocate the number of specialty training positions within specific hospital departments. Both tasks offer, by

international comparison, an unusual amount of professional influence within the outpatient and hospital sector. ⁵¹

Medical Universities shape their curricula largely independently while they are funded by federal money and negotiate corresponding terms with the respective Ministry.⁸ In 2006, the first Austrian Institute for General Practice was founded in Salzburg⁶³ and in 2015, an Institute for General Practice was founded in Styria⁶⁴.

Patient ombudspersons (patient solicitors) are independent institutions of the regions and have the mandate to advocate for patients' interests and rights.⁸

Local level

Mayors and municipalities represent the local population. In Austria are 2,096 municipalities, each of them headed by a mayor. Of those, 119 are located in the region Salzburg and 287 in Styria, the two regions investigated by this study. ⁶⁵

The overall complexity of the Austrian healthcare system and the broad distribution of responsibilities between national and regional level and among diverse actors^{8,9} appears to be relevant for GP shortage reform efforts. Especially, as this fragmentation implies firstly, that the possible implementation of different preventive measures would be decided at different levels and by different actors, and secondly, that the national Government seems to play a smaller role concerning the GP shortage than in other more centralised healthcare systems.

1.5. Theoretical perspectives on agenda setting and research utilization relevant to policy on the expected GP shortage in Austria

This section summarises two selected key theories which were applied within research study four of this thesis by informing its research questions, interview topic guide and data analysis (see chapters 3.4). These bodies of theory were considered relevant to the future policy response to the GP shortage in Austria, firstly, because at least the problem of the expected GP shortage seemed to be on the health policy agenda while specific preventive policies appeared to be less discussed, and secondly, because from the perspective of a researcher, it seemed relevant to explore whether or how studies which proposed specific solutions to an issue apparently perceived as important were influencing the direction of policy. Both theories were therefore considered relevant to understand this reform process more deeply and to offer policy recommendations to increase the likelihood of preventing a GP shortage in Austria.

Agenda setting

In 1984, John W. Kingdon published a theory which offers an explanation as to why some issues gain political attention and therefore an increased likelihood of being translated into action, while other issues do not.¹⁵ His qualitative study analysed reform processes in the USA and identified three streams of activity related to the 'problem', the 'policy' response and the 'politics' which mainly change and develop independently from each other and which can be generalised to various policy systems.¹⁵ If these three streams align at a particular moment in time, their common presence can open a 'policy window' which enables a topic to move onto the Government's decision agenda.^{15 pp.165-95} While Kingdon was mainly interested in this Governmental agenda,¹⁵ the fragmented Austrian healthcare system with its limited central executive function^{8,9} suggests that the collective and individual stakeholder agendas might be more relevant in Austria, as implementing measures to prevent a GP shortage is mostly the responsibility of stakeholders.

A recent analysis⁶⁶ of the impact of Kingdon's theory indicates that it has prompted a large body of literature and further stimulated the development of other agenda setting theories like punctuated equilibrium⁶⁷. Also specific elements of Kingdon's theory¹⁵ were subsequently studied more extensively, including 'policy communities'^{68,69} and 'policy entrepreneurs'^{70,71}.

More recent studies by Jeremy Shiffman⁷²⁻⁷⁴ focused on the generation of political priority specifically among health issues. He distinguished between the ‘strength of the actors involved in the initiative, the power of the ideas they use to portray the issue, the nature of the political contexts in which they operate, and characteristics of the issue itself’⁷³ and his framework includes 11 determining factors (see Table 3).⁷³

Table 3: Determinants of generating political priority, adapted from Shiffman⁷³

Category	Description	Determining factors
Actor power	The strength of the individuals and organisations concerned with the issue	Policy community cohesion
		Leadership
		Guiding institutions
		Civil society mobilisation
Ideas	The ways in which those involved with the issue understand and portray it	Internal frame
		External frame
Political contexts	The environments in which actors operate	Policy windows
		Governance structure
Issue characteristics	Features of the problem	Credible indicators
		Severity of the issue
		Effectiveness of interventions

Research utilization in policy making

In 1979, Carol H. Weiss proposed, based on a literature review, different theoretical models of how research evidence can lead to policy change. She differentiated between the concepts of the *knowledge-driven*, *problem-solving*, *interactive*, *political*, *tactical* and *enlightenment* models concerning the processes and purposes of social science research utilization.⁷⁵

The *knowledge-driven model* is based on a linear rationalist approach derived from the natural sciences and assumes that the sheer existence of new knowledge will directly lead to its application, but few such examples were identified in the social sciences, possibly because social issues are rarely well enough defined, pressing enough, fully publicly debated or connected to agreed policy responses.⁷⁵

The *problem-solving model* appeared to be the most common way of thinking about research utilization and it also takes a linear approach. It assumes that research evidence gets used in response to a pressing issue and therefore fills a gap, i.e. it may help politicians to choose between policy alternatives. This approach further assumes

that there is a clearly defined problem and that politicians agree on the desired outcome. In order to solve the pressing issue, existing research evidence may be identified, or new research evidence may be produced.⁷⁵

The *interactive model* takes a non-linear approach based on social theory which assumes that change derives from the complex, disorderly, cooperative interaction of multiple players from the fields of politics, technology, practice and research. Scientists and their research play only one part in the decision-making process and politicians often cannot wait for peer-reviewed research studies to be completed, which bases political decisions more on experience, judgement or pressure than on research.⁷⁵

The *political model* assumes that research evidence has often very little influence on actual political decisions, because competing interests are more powerful or because strong opinions have already been formed. But also in these circumstances research evidence gets used, often for advocacy purposes in support of or against an already existing political stance.⁷⁵

The *tactical model* does not use the content of the research itself but uses the symbolic meaning of 'doing research' for political purposes. This approach uses research evidence to represent politicians as being active, to delay undesired action, to strengthen a political position or to respond to criticism by referring to research done by reputable scientists.⁷⁵

The *enlightenment model* describes the influence of research evidence primarily by the means of an informed public and their perception of an issue which indirectly influences politicians and policy making. Several channels are involved in the diffusion of evidence, including research journals, media coverage and personal conversations which build up over time and influence policy by raising awareness of problems or by defining problems differently. This model also emphasised the problems of evidence being misinterpreted or that new and sensational research findings usually receive more attention than others.⁷⁵

2. Aims, research questions and objectives

This thesis consists of four linked research studies which were implemented chronologically, and which built upon each other. The aims, research questions and objectives of each study are listed below.

Aims

1. Developing a comprehensive catalogue of potentially effective measures to prevent a GP shortage in Austria¹³
2. Assessing the previously identified measures concerning their understandability, effectiveness and feasibility within the context of the Austrian healthcare system¹³
3. Identifying practical considerations concerning the implementation of the previously prioritised measures within the context of the Austrian healthcare system⁷⁶
4. Assessing the generation of political priority, utilisation of research, and implementation of a policy response to prevent a GP shortage in Austria

Research questions

Research studies 1-3

- a) Which potentially effective measures to prevent a GP shortage in Austria are internationally available?¹³
- b) Which previously identified measures can be considered effective and feasible within the context of the Austrian healthcare system?¹³
- c) Which specific issues can be considered relevant for the implementation of the measures previously assessed as effective and feasible?⁷⁶

Research study 4

- d) To what extent is the GP shortage in Austria on the stakeholder agenda?
- e) How is the GP shortage in Austria characterised?
- f) To what extent are measures to prevent a GP shortage on the policy agenda?
- g) To what extent were preventive measures recently implemented?

- h) How does the policy community influence the selection of policies to prevent a GP shortage?
- i) How do political aspects influence the agenda status and policy selection concerning the GP shortage in Austria?
- j) How was research utilised related to the agenda setting processes?

Objectives

Research studies 1-3

- i. Various sources will be consulted to identify preferably many measures which had been internationally proposed or implemented to prevent a GP shortage¹³
- ii. Healthcare experts relevant to the GP shortage in Austria will be consulted to assess the understandability, effectiveness and feasibility of the previously identified measures¹³
- iii. Healthcare experts relevant to the GP shortage in Austria will be consulted to identify practical considerations related to the implementation of the previously prioritised measures⁷⁶

Research study 4

- iv. Healthcare experts relevant to the GP shortage and key policy documents will be consulted to assess the current level of political priority around, and the characterisation of the prevention of a GP shortage in Austria
- v. Healthcare experts relevant to the GP shortage will be consulted to assess the current level of attention to, the recent implementation of, and the role of the policy community related to policies for preventing a GP shortage in Austria
- vi. Healthcare experts relevant to the GP shortage will be consulted to identify which political factors influenced to what extent and how the agenda status of the problem and of preventive policies related to the GP shortage in Austria
- vii. Healthcare experts relevant to the GP shortage will be consulted to assess to what extent and how research evidence, especially the evidence generated by the first two studies of this thesis,¹³ influenced the agenda setting processes

3. Methods

This chapter describes the methods used in each of the four research studies. The first study developed a comprehensive catalogue of measures to prevent a GP shortage,¹³ the second study assessed these measures' understandability, effectiveness and feasibility in the Austrian context,¹³ the third study identified practical considerations concerning the implementation of previously prioritised measures⁷⁶ and the fourth study assessed the current GP shortage reform processes in Austria.

3.1. Research study 1: Developing a comprehensive catalogue of potentially effective measures to prevent a GP shortage in Austria

The author of this thesis was lead investigator and first author of this study, which was supported by researchers at the Medical University of Graz (see Conjoint Work Statement in Appendix G).¹³

A focused literature search was performed in December 2016 and in January 2017 to identify relevant international policy documents and literature reviews, which contain measures to prevent a GP shortage. The search strategy included the bibliographical databases PubMed and Web of Science, the internet search engine Google, websites of relevant institutions (e.g. ministries of health or national GP associations) as well as the references of included publications and suggestions of invited experts. The bibliographical search strategy used the *MeSH-terms* 'Physicians, Primary Care', 'Physicians, Family', 'General Practitioners', 'manpower' [Subheading], 'Medically Underserved Area' and 'Rural Health Services' in various combinations. The internet search strategy used the terms 'family medicine', 'family physician', 'general practice', 'primary care', 'workforce', 'shortage', 'retention', 'recruitment', 'rural' and 'underserved' in various combinations. The scope of the search strategy was limited to publications in English and German, and to OECD countries. ¹³

The measures stated within the identified policy documents and literature reviews were extracted and similar measures were grouped together. Measures which were the same or very similar were merged and the descriptions of the measures were partly, when needed and appropriate, adapted to the context of the Austrian

healthcare system. Additionally, if available, conclusions on quantitative evidence related to a measure were extracted and reported. The resulting catalogue of measures to prevent a GP shortage was then assessed by three experts from outside the research team (see Appendix B) concerning completeness and supplemented by their suggestions for additional measures which were not yet part of the catalogue. These three experts were selected based on their comprehensive experience concerning the topic and as representing different perspectives on the issue.¹³

3.2. Research study 2: Assessing the previously identified measures concerning their understandability, effectiveness and feasibility within the context of the Austrian healthcare system

The author of this thesis was lead investigator and first author of this study, which was supported by researchers at the Medical University of Graz (see Conjoint Work Statement in Appendix G).¹³

The assessment of the previously identified measures was based on the RAND/UCLA Appropriateness Method⁷⁷ which was initially developed by the RAND Corporation and the University of California. This method considers available evidence on effectiveness and the collective estimation of experts within a structured assessment process.⁷⁷

This structured assessment included a two-phase expert panel process. The expert panel comprised ten experts who were selected based on suggestions of this studies' sponsor (the Styrian Health Fund¹) and by contacting the main stakeholders who would potentially be involved if the measures were to be implemented. There was a strong emphasis on including all relevant perspectives and interest groups. Finally, the panel included representatives of the Ministry of Health, the Medical University of Graz, the Styrian Health Fund, the Styrian Sickness Fund, the Styrian Physician Chamber, the Styrian Academy for General Practice, the Young GP Society, the Styrian Association of Towns and Municipalities, one practising GP and one health services researcher (see Appendix B). The author of this thesis was not a panel member.¹³

First phase of the expert panel process

In the first phase, each panel member was emailed a structured questionnaire in a Microsoft Word[®] document including a description and the source of each measure and questions related to understandability and effectiveness of each measure. The experts were asked to assess each measure, to provide comments (obligatory if the assessment of the *effectiveness* of a measure was negative or if there was a problem in understanding it; optional if the assessment of *effectiveness* was positive). All returned assessment forms were reviewed concerning completeness and the experts were asked to make further efforts to complete the assessment if there were gaps. After the analysis of the assessments of the first phase of the expert panel process and after merging those measures which appeared to have identical content, (four measures

were reduced to two), 44 measures were finally available which fulfilled the defined criterion of *effectiveness*. These remaining measures were included in the second phase of the expert panel process.¹³

The assessment of the effectiveness within the first phase of the expert panel process was binary by choosing between *Yes* or *No*. Measures not assessed as *No* by anyone on the panel, or only once, were included in the second phase of the expert panel. The quantitative reduction from 97 to 44 measures was performed due to time restrictions to enable enough time for the assessment processes within the second panel phase.¹³

Second phase of the expert panel process

The second phase of the expert panel process was conducted as a half-day face-to-face meeting during which each of the 44 measures was briefly described including its source, its frequency of appearing in policy documents or literature reviews and the conclusions of literature reviews concerning evidence on effectiveness related to this measure. Subsequently, each measure was discussed by the group and finally assessed by each expert individually and anonymously within the six minutes allocated to these tasks. The assessment of effectiveness and feasibility in the second panel phase used a scale from 1 (not effective or not feasible at all) to 9 (very effective or very feasible). Participants were instructed to assess effectiveness related to each measure's ability to prevent a GP shortage in general while considering undersupplied rural areas. Understandability was not formally assessed within this second panel phase, but the wording of a few measures' description was changed on the spot based on input from participants which was discussed and agreed by consensus among the expert group.¹³

Those measures, which received an assessment of their effectiveness and feasibility with a median of 7 points or more (based on a scale from 1 to 9) and a low variation (at least 75% of assessments being between 7 and 9), were defined as effective and feasible. This assessment of effectiveness and feasibility was the criterion for selecting a measure for the final proposal of prioritised measures. This quantitative reduction aimed to offer stakeholders not only a comprehensive catalogue of preventive measures but also a preselected shortlist of measures to choose from. This allowed for a more confident recommendation, as these measures had been assessed as effective and feasible based on the assessment of ten expert panel members.¹³

3.3. Research study 3: Identifying practical considerations concerning the implementation of the previously prioritised measures within the context of the Austrian healthcare system

The Masters' student Carolin Zipp was project leader of this study,⁷⁶ which was supported by her supervisor from the FH Joanneum and by researchers at the Medical University of Graz including the author of this thesis (see Conjoint Work Statement in Appendix G). The results of this study presented within this thesis derived from a reanalysis of the raw data by this thesis' author.

Practical considerations concerning the implementation of the seven previously prioritised measures were identified through another panel of experts. Panel participants included representatives of stakeholders likely to be involved in the measures' implementation. They were emailed a document comprising a semi-structured questionnaire which included nine open-ended questions concerning different practical aspects related to the implementation process. These questions were developed by Carolin, her supervisor and researchers at the Medical University of Graz based on assumed practical relevance and were agreed upon by consensus. The final list of questions focused on identifying the stakeholder/s responsible for implementation, the required first step/s for implementation, relevant legal and financial considerations, facilitators and barriers for implementation and an estimation of the expected time horizon for implementation and the desired impact. Each of these questions was applied with the same wording to each of the seven measures.⁷⁶ Ten healthcare experts and representatives of stakeholders relevant to the GP shortage in Austria (including a health services researcher, GPs, medical university, Physician Chamber and Sickness Fund representatives) received an invitation to participate in this study, including detailed information about the study, on 5 May 2017. After up to two reminders by email, six experts agreed to participate, completed the questionnaire and returned it by the deadline of 15 May 2017. The assessment was anonymous, and information derived from experts is therefore coded based on profession or organisational affiliation. All relevant information for the assessment process was combined within a single document including description of aim and content, a summary of recommendations from related policy documents, a summary of evidence from related literature reviews, and a summary of comments by the three external experts and ten panel members as derived from studies one and two^{13, 76}.

The following questions, related to each of the seven measures, were asked⁷⁶:

- What should this measure, if implemented, comprise?
- Which institutions, organisations or individuals would need to get involved in order to implement this measure?
- What would those involved need to do concretely? Which kind of collaborations would be beneficial?
- Which legal issues should be considered related to the implementation of this measure?
- How could this measure be funded?
- How long would it realistically take to successfully implement this measure?
- How long would it realistically take, after the implementation of this measure, to reduce the GP shortage?
- Which are the possible barriers or obstacles concerning the implementation of this measure?
- Which other thoughts do you have concerning the implementation of this measure? What else might be important?

3.4. Research study 4: Assessing the generation of political priority, the utilization of research, and the implementation of a policy response to prevent a GP shortage in Austria

The author of this thesis performed all tasks of this research study (see Conjoint Work Statement in Appendix G).

The case study approach

This study was designed as a health policy analysis⁷⁸ case study⁷⁹ which applied semi-structured interviews with key experts and quantitative content analyses of key documents. A case study design was chosen as it allows for studying a contemporary phenomenon in-depth within its real-world context using mixed methods,^{79 pp.9-17} which fits the studies' exploratory and interpretative aims as outlined above. The case was defined as the expected GP shortage in Austria. It included multiple levels and sites; namely the national level, the regional level, focusing in more detail on two regions, Styria and Salzburg (which were selected based on one similarity, namely the presence of an Institute for General Practice) and the local level including the municipality perspective. This study therefore triangulated^{80 pp.87-8, 79 pp.18-23} between different geographical levels (national, regional and local), between data sources (key experts and documents) and between professional perspectives (see below, *data collection*). The context of this case was defined as the wider Austrian healthcare system, which is often described as fragmented and inert.^{8,9} This case therefore focused on a typical phenomenon within the Austrian healthcare system, a healthcare challenge which had been acknowledged by several stakeholders for quite some time, but which had yet to generate a timely policy response.

Data collection

Sampling strategy. Key experts and stakeholder representatives (see details in Table 4, below) were identified at the national level and in the regions Styria and Salzburg. The principal institutions and interest groups involved in the potential implementation of measures to prevent a GP shortage were identified as the Ministry of Health, Ministry of Science and Education and the Austrian Public Health Institute at the national level, and Medical Universities, Sickness Funds, Health Funds, Physician Chambers, GP Societies, Young GP Societies and Municipalities at the regional and local level.

This purposive sampling strategy⁸¹ aimed to include all stakeholders considered relevant for the GP shortage or considered responsible for implementing the measures identified by research study one¹³. This non-probabilistic sampling⁸¹ did not allow for statistically representative conclusions but it allowed to explore all relevant aspects of the GP shortage and its related reform efforts. The selection of these stakeholders was based on the authors' previous experience with the Austrian healthcare system and the GP shortage specifically.

Interviewees were invited by a standardised email. After potential interviewees indicated their interest to participate, they received a participant information sheet and an informed consent form to be found in the Appendix D and E (the email and both documents were approved by the LSHTM Ethics Committee, see Appendix J). Fifty invitations were sent to potential interviewees and 26 interviews were performed (as three individuals were considered to represent national and regional level simultaneously, the following numbers do not precisely match when summed up, see Table 4, below). At the national level, 28 invitations were sent, and 15 interviews were performed. Two email addresses appeared invalid (and their correct email was unavailable), five individuals did not respond, one person declined due to lack of time, four were willing to meet but proposed substitutes (two subsequent interviews), three were ready to meet but a specific time to meet could not be agreed upon and two people were ready to meet at first but did not respond thereafter. In Styria, 14 invitations were sent, and 7 interviews were performed. Four individuals did not respond, one person declined due to fear of talking freely, one individual proposed a substitute considered more suitable and one person was ready to meet but could not allocate time. In Salzburg, 11 invitations were sent, and 7 interviews were performed. Two individuals did not respond, one person was ready to meet at first but did not respond thereafter and one interview was cancelled due to reaching saturation⁸². Despite inviting five individuals of the Styrian Physician Chamber, no interview was performed with this stakeholder, as the agreement of two individuals to meet arrived too late in the process. All other goals related to the purposive sampling strategy were achieved. All identified stakeholders were included, comparison between Styria and Salzburg was enabled and thematic saturation⁸² was reached as no new themes emerged within the last five interviews.

Table 4: Final sample of interviewees*

Overall (26)	National level (15)	Styria (7)	Salzburg (7)
Governance (4)	Ministry of Health (1) Politician (2)	Politician (1)	Mayor (1)
University education (5)	Ministry of Science and Education (2)	Medical University (2)	Medical University (1)
Physician Chambers (2)	Austrian Physician Chamber (1)		Physician Chamber Salzburg (1)
Sickness Funds (7)	Main Association of Sickness Funds (4)	Styrian Sickness Fund (2)	Salzburger Sickness Fund (1)
Health Funds (2)		Styrian Health Fund (1)	Salzburger Health Fund (1)
GP Societies (3)	GP Representative (1)	GP Representative (1)	GP Representative (2)
Patient Representative (1)	Patient Representative (1)		
Researchers (3)	Health Services Researcher (3)	Health Services Researcher (1)	

*Three individuals received more than one respective code, numbers therefore do not match when summed up crosswise

Semi-structured interviews. The semi-structured interviews were performed in person (23) or over the phone (3) and all were recorded with a digital voice recorder. The interviews were guided by an interview topic guide based on research questions, on theories related to agenda setting,^{15,73} policy implementation⁸³ and research utilization⁷⁵ and on a guideline for writing interview questions⁸⁴. The topic guide was developed before the first interview and slightly adapted after the first three interviews (see the final topic guide in Appendix F). The average interview took 52 minutes, while 8 interviews took between 25 and 44 minutes, 10 between 45 and 59 minutes and 8 between 60 and 89 minutes. After each interview, typically within one hour and twice on the next day, field notes⁸⁵ including analytical thoughts and methodological reflections were taken. All interviews were transcribed verbatim, mostly within a few days and no more than three weeks after the respective interview.

Quantitative content analysis of policy documents. Key documents were identified to extract information on the frequency of the GP shortage being mentioned by relevant institutions within the previous 20 years. Six Government programmes^{47,86-90} were identified from 1999 to 2017, 1,645 press releases⁹¹ by the Austrian Physician Chamber from 2004 to 2019 and 350 bi-weekly newsletters⁹² by the Austrian GP Society from 2004 to 2019. Search terms were defined related to the GP shortage (including GP/s, GP shortage, physician shortage or shortage [in the German translation]) and documents were screened automatically (Government programmes and bi-weekly

newsletters by using the digital search function within the respective PDF documents) or by reading headlines (of press releases) and full text articles (of those documents or passages considered possibly relevant).

Data analysis

Quantitative analysis

The quantitative content analysis of key policy documents aimed to provide further evidence concerning the frequency and amount of coverage related to the GP shortage. The quantity of the word count within each identified Government programme^{47,86-90} related to GPs and primary care was compared with the quantity of its overall word count. The quantity of annual press releases⁹¹ by the Austrian Physician Chamber focusing on a GP shortage or other physician shortages was compared with the quantity of all press releases within each respective year. The quantity of annual bi-weekly publications⁹² by the Austrian GP Society containing the specific word or a synonym for *GP shortage* was compared with the quantity of all bi-weekly publications within each respective year.

Qualitative analysis

The purpose of analysis of qualitative data is 'to develop an overarching theme from the data corpus, or an integrative theme that weaves various themes together into a coherent narrative'.⁹³

Epistemological approach. This research study was influenced by the authors' scientific worldview which can be classified as 'subtle realism', on the spectrum between realism and relativism.⁹³ This perspective assumes that there is a single tangible reality which can be studied and acknowledges that research is subjective, that truth is provisional and that including different research perspectives is valuable.^{80 pp.86-7, 81} Applying this worldview has therefore different consequences than applying a more realist or relativist perspective, for example on framing research questions, on implementing the triangulation method, on claims related to the validity of member checking or on the definition of quality assessment criteria.^{80,94} A more realist perspective assumes that there is a single reality to be studied, and that quality

assessment criteria are feasible but need to be distinct from quantitative research quality assessment criteria.⁹³ A more relativist perspective would assume that there are multiple realities and only provisional truth, and that research can therefore only aim to understand the subjective meaning of social action.⁹³ The extreme relativist perspective would entirely reject a realist perspective and assume there is no social reality and that quality criteria could not be applied, as each research perspective is equally valid and cannot be assessed against external quality criteria.⁹³

Framework analysis. The aim of the qualitative analysis was to develop conceptual classifications and their relationships to describe and explain the GP shortage reform processes in Austria. For this purpose, a framework analysis was chosen because it enables predefined rather than emerging objectives,^{80 p.72} a more structured topic guide^{80 p.72} and a more deductive approach,⁹⁵ which seems appropriate for applied policy research aiming to improve policy rather than to develop new theory^{94 p.208}. Therefore, the previously developed theories on agenda setting¹⁵ and research utilization⁷⁵ were used to enrich the analysis and thus the policy recommendations. The framework analysis was undertaken in five stages^{80 pp.72-4, 94 pp.208-13}:

Familiarisation. Getting to know the data was primarily achieved by listening to the interviews while transcribing them, by rereading the transcripts while identifying codes, and by rereading the field notes and analytic memos (see below).^{80 p.73, 94 p.208}

Identification of a thematic framework. Themes (common patterns around a core concept) and codes (conceptual labels to define what the data are about) were identified before, during and after data collection.^{80 pp.67-9} Some were anticipated deductively from the applied theories and others emerged inductively from the collected data.^{80 p.72} Some authors consider this process to be the most fundamental task in qualitative research, but have also called it 'mysterious' and rarely described explicitly.⁸² To be more explicit about it, hereafter, are more details concerning the applied analytical approaches. The first two processes aimed to develop a comprehensive set of codes and the third process aimed to develop themes, to identify their connections and to generate further explanations for the observed phenomena within the data.

Firstly, to inform the analysis deductively by consulting useful theories, codes were identified in and extracted from a classic book on agenda setting¹⁵ and from a classic article⁷⁵ on research utilization in policy making.

Secondly, to inform the analysis inductively, text passages were highlighted and commented during and immediately after the transcription of the audio files and while rereading the transcripts later on. For this purpose, two scrutiny-based techniques were applied, namely, highlighting text passages which seemed to represent common or repetitive patterns, and those which evoked a gut reaction.⁸² Also deviant or negative cases which did not fit the current hypotheses at the time were actively sought both during this process and during processes later on.⁹⁵

Thirdly, aspects of the techniques described as 'pawing' and 'cutting and sorting' were performed.⁸² A preliminary set of codes was written on coloured index cards and current hypotheses, research questions and around 400 quotes (with some context and reference to the interview) which had been highlighted before were printed on white paper.⁸² These data were laid out on the floor, sorted in different ways mainly related to similarity and connection until 'patterns emerged', which some authors considered to be one of the most useful analytical methods.⁸² Analytic notes of various thoughts were written down continuously during this stage,^{80 p.71} also informed by axial coding which was 'looking for relationships between categories',^{94 p.205} and selective coding looking for more abstract categories and explanations^{94 p.205} which were tested thereafter. This process also produced piles of similar quotes, which were named to define core themes and sub-themes⁸² considered as essential because they explained most issues and related to most other categories^{94 p.205}.

Indexing. The set of core themes and sub-themes was applied to the body of transcribed data with the support of the qualitative data analysis software NVivo 12 Mac⁹⁶ to ensure a more systematic approach.^{94 p.217} The process of indexing the first transcripts was also used to review and to refine the set of core themes and sub-themes by asking whether each indexed extract properly fits into the current framework and by being aware if it did not fit.^{80 p.73}

Charting. The previous indexing process sorted the data to the respective themes within a framework matrix.^{80 p.73} The essence of these compiled data was then summarised which allowed for easier and quicker comparisons between and within cases, and for providing simple counts of various responses.^{94 pp.209-12} As the framework

matrix application was not available within the Mac version of NVivo 12,⁹⁶ this process was performed within a Microsoft Excel[®] document which served the same purpose.

Mapping and interpretation. This process aimed to define the available concepts and structure further, to explore the 'range and nature of phenomena', and to identify new associations between themes and more potential explanations.^{80 p.73} Therefore, analytic notes^{94 pp.205-6} on thoughts about the data were constantly written and diagrams and models^{80 p.70} were drawn with pen on paper, often while looking at and reflecting on the index cards of themes which were still laid out on the floor. Both tasks helped to move on from descriptions to explanations, from particular issues to the more general and thereby to be more creative and to think more abstractly.^{80 pp.76-7} Overall, most of the creative thoughts and insights arose while rereading the literature on the applied theories or simply at random during the various analytical processes. An important goal was to try to catch all these thoughts within a document which was then structured according to themes and which was especially helpful for the write-up. During the mapping and interpretation stage, but also still during write-up, 'analytic induction' was performed by developing hypotheses and by testing, modifying, and re-testing them.¹⁰ This was an iterative back and forth process¹⁰ and the hypotheses were tested by exploring available data within the charted framework matrix, within the original interview transcripts and by applying text search queries within NVivo 12 Mac⁹⁶. This included searching for confirmations or for disagreements by deviant or negative findings^{80 pp.89-90, 94 p.206} and gathering of new data through member checking by asking specific interviewees further questions over phone or by email^{80 p.88, 94 p.221}.

Write-up. One aim was to answer the research questions by reporting, interpreting and theorising the study's findings and another to weave these data into a coherent story.^{94 pp.255-69} To report properly, an attempt was made to describe also the setting and context of this case study so as to allow the reader to draw their own conclusions concerning validity and transferability to other cases and settings.^{94 pp.224-6} Parts of the story were told from the participants' perspective and to unpack broader meaning, it was attempted to offer interpretations and to link them to original accounts.^{94 p.206} If appropriate, alternative explanations of the findings were explored and possible explanations for deviant cases were stated.⁹⁷ Additionally, it was attempted to link the reporting to the respective research questions, to summarise conclusions and to

discuss the relation of the findings to existing theories and their possible contribution to policy making while acknowledging limitations.⁹⁷

Quality assurance

‘The basic strategy to ensure rigour, and thus quality, in qualitative research is systematic, self-conscious research design, data collection, interpretation, and communication.’⁹³

There are several approaches and frameworks related to quality of qualitative research and its assessment.^{80,85,93-95,97,98} These standards are contested and often seen as critical, also based on epistemological considerations (i.e. concerning the nature of reality or the applicability of quantitative quality standards to qualitative research), but such guidelines are also believed to be useful as they make scientific core values explicit and thereby support especially the young researchers’ learning process and scientific rigour.⁸⁵ Hereafter are accounts and reflections concerning the application of selected quality criteria specifically relevant to this study.

Relevance. This study addresses a public concern and therefore appears to be ‘worth doing’⁹³. As slightly more than half of healthcare consultations in Austria happen in GP offices,⁹⁹ an increasing GP shortage could therefore have significant consequences for patients and the larger healthcare system. Additionally, this study might be the first policy analysis of the GP shortage reform in Austria and focuses therefore on a potentially little understood phenomenon.⁸⁵ As this topic has similarities with other challenges in the Austrian healthcare system, also several other issues were on the political agenda, but did not result in a sufficient and timely response, the findings could be transferable to the general functioning of the healthcare system. Also, the theories of agenda setting¹⁵ and research utilization⁷⁵ were not yet broadly discussed within the community of Austrian healthcare experts. This study might therefore be ‘catalytic’ by making an under-researched topic more,⁸⁵ and might serve as a ‘sensitising concept’ by introducing new theoretical approaches which may be ‘good to think with’ and therefore a valuable study output in itself.^{94 p.225}

Credibility. Hereafter reflections on several issues which are varyingly related to the, similar but different, concepts of credibility, validity and rigour. *Credibility* can be

defined as trustworthiness or plausibility,⁸⁵ *validity* implies to measure what is supposed to be measured,⁸¹ and *rigor* implies systematic and self-conscious research processes⁹³. All concepts are relevant for the readers' possible questions of 'why should I believe this?'⁹⁴ p.220 or 'are these findings sufficiently authentic [to] trust myself in acting on their implications?' (Guba and Lincoln as cited by Tracy⁸⁵).

Triangulation. This study used 'triangulation'⁹³ of methods (qualitative semi-structured interviews and quantitative content analyses), of perspectives (including various relevant stakeholders) and of geography (interviews in Styria and Salzburg to allow for regional comparisons) which improved the comprehensiveness of the findings, allowed to identify convergence and divergence within data and enabled a more reflexive analysis.⁸⁰ pp.87-8 While this method is controversial as a pure validity test as this would assume that different methods' weaknesses would be compensatory,⁸⁰ pp.87-8, ⁹³ and other authors therefore prefer to use the term 'crystallization' to emphasise its ability to offer an in-depth understanding by introducing multi-vocality,⁸⁵ triangulation appeared to be a useful quality criterion.

*Deviant and negative case analysis.*⁹³ This method looks for contradictory evidence, within the available data or from external literature, which disconfirms current hypotheses and propositions, it can help to modify these hypotheses or it can confirm them, if participants provide supportive explanations.⁸⁰ pp.89-90 Within this study, several interviewee accounts were identified, especially during the charting and write-up processes, which contradicted hypotheses or propositions at the time. Some of these differences were explicable by different regional or stakeholder perspectives and others by different individual opinions. These discrepancies led to modified interpretations of the data and were stated and discussed within the respective manuscript passages.

*Member reflections (or member checking, respondent validation).*⁸⁰ p.88, ⁸⁵ Within this study, current hypotheses were checked immediately within the same interview, within an upcoming interview or by re-checking with previous interviewees by phone or email after the fieldwork had been completed. The responses of interviewees to these preliminary findings were considered as new data and were therefore incorporated within the studies' results. Lincoln and Guba, as cited by Pope and Mays,⁸⁰ p.88 acknowledge this method as probably the strongest credibility check while it can also be seen as a method for 'error reduction' and for assessing the level of

correspondence between data sources.⁹³ In this study, it appeared especially useful for making meaning of discrepancies and for exploring issues further which seemed relevant, but which were rarely addressed by interviewees.

Generalisability. The purposive sampling strategy aimed to include all relevant aspects of the phenomenon to be studied.⁸¹ This non-probabilistic sampling therefore aimed to be conceptually rather than statistically representative, as some perspectives may be slightly over- or under-represented.⁹³ The purpose of this study was to explore and to make meaning of relevant healthcare challenge but not to generate new theory or to develop existing theories further, and transferability of the findings to other settings, namely other countries, was therefore less of a concern. Nevertheless, the findings of this study may allow for some generalisability to similar cases of delayed policy responses within the Austrian healthcare system and readers from other countries may still find it appropriate to transfer meaning to other settings. To enhance generalisability, it was attempted to provide sufficiently 'thick descriptions' including original evidence to enable critical readers to relate interpretations to evidence.⁸⁵ Explanations were therefore connected to descriptive observations and to examples of verbatim accounts.⁹⁷ This illustration of details and context should enable the reader to judge 'how far can the findings of this particular study be extrapolated?',^{94 p.225} and is in line with the observation that in qualitative research 'things get bigger, not smaller and tighter, as we understand them'⁸⁵.

Reflexivity. The following statements illustrate the different role and relevance of a researcher when performing qualitative rather than quantitative methods. 'It takes a complicated sensing device to register a complicated set of events', and a 'researcher with a head full of theories and a case full of abundant data is best prepared to see nuance and complexity'.⁸⁵ The personal assumptions, a priori hypotheses, perspectives and biases of a researcher are therefore relevant and should be reflected on,⁸⁵ while acknowledging that unconscious assumptions are by definition unconscious and cannot be reflected upon.

My role can be described as an 'insider'⁷⁸ to the Austrian healthcare system, as I have worked as a physician in Styria (one of the two regions to be studied) since 2011, started to scientifically study the Austrian healthcare system in 2010¹⁰⁰ and as I

consider myself part of the Austrian public health community. This might have offered me easier access to interviewees, enabled me to ask more meaningful follow-up questions and to understand culture and context more easily. Also, it might have introduced some bias due to my preconceptions and might have resulted in asking interviewees for fewer or less detailed explanations. Concerning my professional roles, recently, I have worked partly as a physician and partly as a health services and public health researcher. Previously, I was representing the Austrian Young GP Society as General Secretary in 2009-2011. Also, I was working at the Institute for General Practice and Evidence-based Health Services Research in Graz, Austria for 1.5 years and was invited by an opposition party, SPOE, to speak as an expert at their GP shortage press conference.

My main assumptions and hypotheses before this study were that a significant GP shortage within the upcoming years is likely (but I was and am not entirely convinced that this will definitely occur) and that a comprehensive policy response is unlikely (due to fragmentation and lack of effective governance mechanisms in the Austrian health care system). Next to my specific role, experiences, assumptions and a priori hypotheses, I believe that design, implementation and analysis of this research was relatively independent from other interests. This study was not externally funded and also my employment state (currently being on study leave) allowed me to feel no conflict of interest or pressure to frame the findings in a certain way or to exclude or to emphasise some of the findings. Overall, I also hope that I indicate openness to new perspectives and ideas in the way I have analysed the data.⁸⁵

4. Results

4.1. Research study 1: Developing a comprehensive catalogue of potentially effective measures to prevent a GP shortage in Austria

This study identified 273 potentially eligible publications (see Figure 11). After screening title and abstract, 217 items were excluded as not relevant and 56 references remained. After screening full texts, 11 further items were excluded as not relevant and three items were excluded due to being duplications and 42 publications were finally included. Of these publications, ten were relevant policy documents and 32 were relevant literature reviews which were subsequently screened to extract measures.¹³

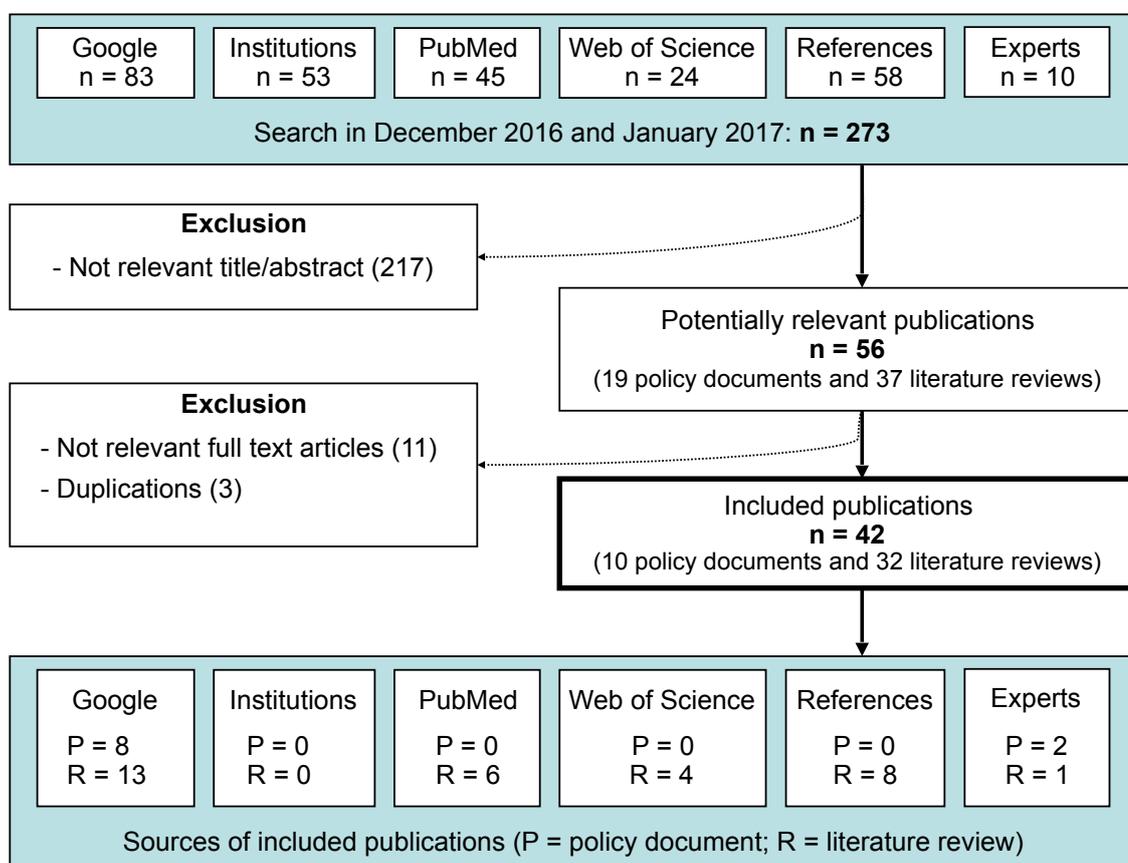


Figure 11: Search strategy for measures to prevent a GP shortage¹³

Overall, 97 measures were identified which were considered potentially effective as they were internationally proposed or implemented to prevent a GP shortage. These measures emerged by extracting all measures from the 42 included international publications, by merging measures which had been given different labels but were on closer examination highly similar or the same, and additionally by suggestion of the three consulted experts. These measures were clustered as follows (see Table 5).¹³

Table 5: Focus of measures which were included in the first phase of the expert panel process¹³

Categories	Number of measures	% among all measures
University entry	12	12 %
University education	11	11 %
GP training	17	18 %
GP work experience	27	28 %
Role of the community	8	8 %
Recruitment of general practitioners not currently working as GPs	7	7 %
Increasing the effectiveness of current GPs	9	9 %
Increasing the number of GPs	6	6 %
Overall	97	100%

The full list of these measures, including their frequency of appearance in the policy documents and literature reviews, and including the assessment results of research study two¹³, is presented in chapter 4.2 (see Table 7) below.

These measures derived from the included policy documents, literature reviews and consulted experts. Altogether 80 measures were identified in policy documents. 56 measures were included in one or two policy documents, 24 measures were included in three or more policy documents, while 17 measures were not identified within any policy document. Furthermore, 60 measures were identified in literature reviews. 30 measures were included in one or two literature reviews, 20 measures were included in three or more reviews, while 47 measures were not identified within any literature review. Additionally, six measures were identified by the three consulted experts. ¹³

Of the ten policy documents, six derived from EU countries, one from the USA and three from the supranational bodies EU, OECD and WHO. The 32 literature reviews covered a broad variety of geographical regions, from a single country (i.e. Australia) to an international scope and a broad variety of content, from single measures (i.e. financial incentive systems) to all types of measures. The quantitative evidence included in these reviews was primarily based on observational rather than on experimental studies and therefore should not be interpreted as causal claims concerning the effectiveness of these measures. ¹³

4.2. Research study 2: Assessing the previously identified measures concerning their understandability, effectiveness and feasibility within the context of the Austrian healthcare system

The following Figure 12 summarises the results of the two expert panel phases.¹³

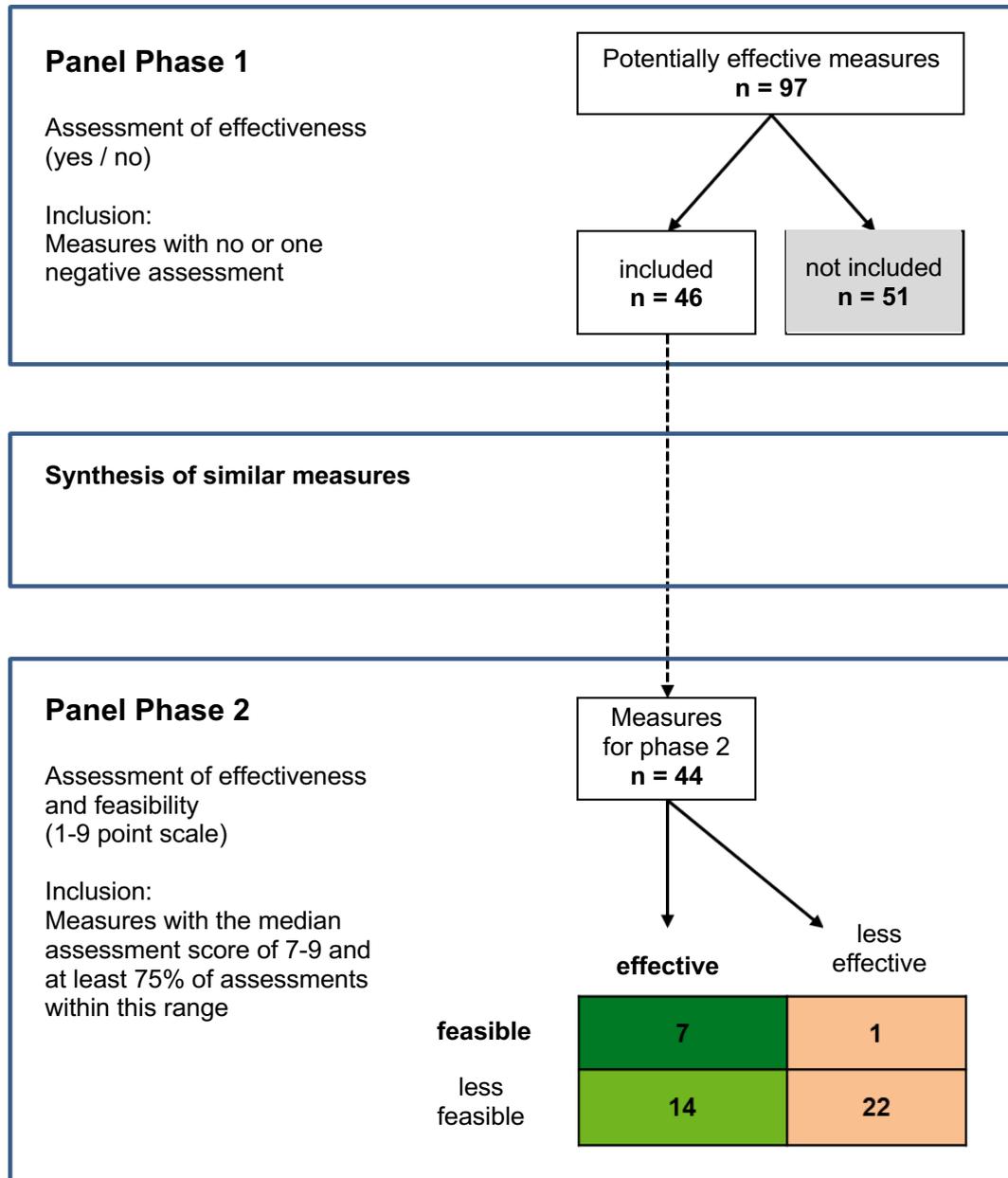


Figure 12: Results of the assessments of panel phases one and two¹³

First phase of the expert panel process

The first phase of the expert panel process of this study resulted in an assessment of the 97 previously identified measures concerning *understandability* and *effectiveness*. The frequency of the assessment results for effectiveness is presented by Figure 13. The categories of the 44 measures assessed as effective are presented by Table 6.¹³

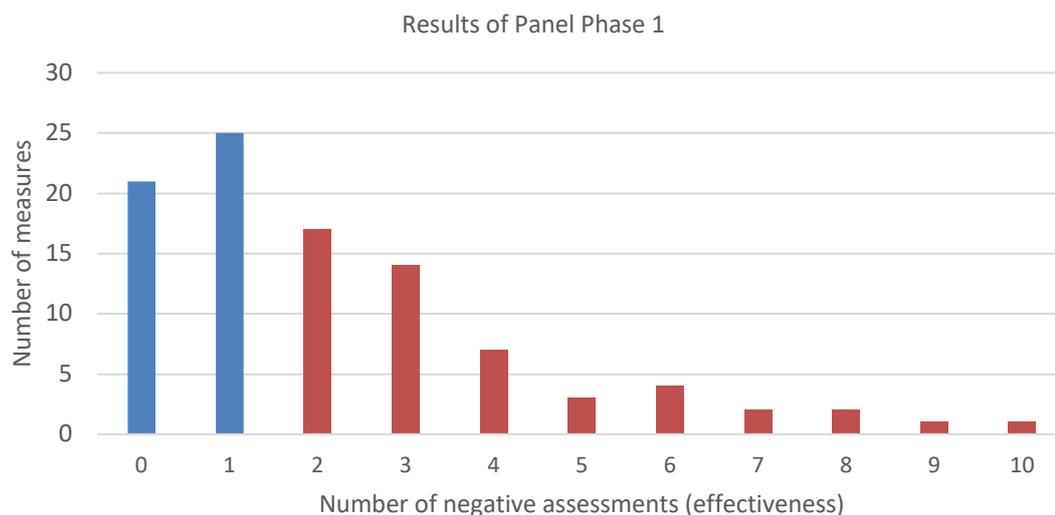


Figure 13: Assessing the effectiveness of measures by the first panel phase (measures included within the second phase of the expert panel process are highlighted in blue)¹³

Table 6: Categories of the measures included in the second phase of the expert panel process¹³

Categories	Number of measures	% of all measures
University entry	1	2 %
University education	7	16 %
GP training	9	20 %
GP work experience	16	36 %
Role of the community	3	7 %
Recruitment of general practitioners not currently working as GPs	2	5 %
Increasing the effectiveness of current GPs	4	9 %
Increasing the number of GPs	2	5 %
Overall	44	100%

Therefore, only one of 12 measures from the category *university entry* was included in the second phase. More than half of measures from three categories were included in the second phase, namely seven of 11 measures related to *university education*, nine of 17 measures related to *GP training* and 16 of 27 measures related to the category concerning *GP work experience*.¹³

Second phase of the expert panel process

The second phase of the expert panel process of this study resulted in an assessment of those 44 measures, which had been assessed by the first phase of the expert panel process as most effective, again concerning their *effectiveness* and also concerning their *feasibility*. After the completion of the second expert panel phase, seven

measures were available, which met the criteria for both, effectiveness and feasibility. A further 14 measures were assessed as effective but not as feasible according to the defined criterion. The remaining 23 measures did not meet the defined criteria for effective or feasible within the second phase of the expert panel process.¹³

Catalogue of measures to prevent a GP shortage in Austria

The following Table 7 provides a full list of the 97 identified measures, including their frequency of appearance within policy documents and literature reviews and including each assessment result concerning *effectiveness* and *feasibility*.¹³

Table 7: Catalogue of measures to prevent a GP shortage and their assessed effectiveness and feasibility¹³

No.	Measures	Sources: Policy Documents / Literature Reviews	Phase 1	Phase 2		Overall assessment
			Effectiveness (yes in %)	Effectiveness Median	Feasibility ≥75%	
University entry						
1	Medical university entry places exclusively for students with rural origins (e.g. quota for students from different regions or applying a rurality-index or selecting students together with representatives of the region/district)	5 / 7	no (67%)			not included
2	Scholarships for students with rural origins	1 / 1	no (67%)			not included
3	Marketing and promotion campaigns at rural high schools	2 / 1	no (78%)			not included
4	Reservation of medical university entry places	2 / 3	no (67%)			not included
5	Scholarships based on the commitment to work in a rural area (e.g. working for 5 years as a rural GP or not to work as a private doctor for 10 years; with/without the possible to pay back the scholarship)	4 / 9	no (78%)			not included
6	2-month internship before medical university (like at the medical university PMU Salzburg)	1 / -	no (56%)			not included
7	Stronger emphasis on social and communication skills within the university entrance test	1 / -	yes (89%)	6 / -	5 / -	less effective
8	Stronger emphasis on specific personality traits associated with working as a GP (<i>feeling</i> in the Myers-Briggs test, less authoritarian, more humanistic)	- / 2	no (56%)			not included
9	Stronger emphasis on individuals with parents of lower socio-economic status	- / 2	no (22%)			not included
10	Stronger emphasis on individuals with specific values associated with working as a GP in rural areas (seeing general practice as important, lower income expectations or fewer research ambitions)	- / 2	no (33%)			not included
11	Stronger emphasis on older individuals	- / 2	no (33%)			not included
12	Stronger emphasis on married individuals	- / 3	no (11%)			not included
University education						
13	More funding for medical universities, which produce many GPs in rural areas	2 / -	no (80%)			not included
14	Introducing new medical universities in rural areas	2 / 6	no (0%)			not included
15	More decentralisation of the medical university education (e.g. with local branches in rural areas)	2 / 5	no (70%)			not included
16	Strengthening general practice at university (including research and education)	2 / 1	yes (100%)	9 / yes	8 / yes	effective & feasible
17	Employing more GPs as teaching personnel	2 / 3	yes (100%)	9 / yes	8 / no	effective; less feasible
18	Developing mentoring programmes of GPs for medical students with interest in a GP career	2 / 2	yes (100%)	9 / yes	6 / -	effective; less feasible
19	Including more general practice and rural medicine specific teaching and examination content within the curriculum	3 / 5	no (80%)			not included
20	Offering more GP internships in rural areas (during the whole course of university education)	4 / 14	yes (90%)	9 / yes	5 / -	effective; less feasible
21	Receiving more training time within GP offices during university education	5 / 14	yes (100%)	9 / yes	7 / yes	effective & feasible

No.	Measures	Sources: Policy Documents / Literature Reviews	Phase 1	Phase 2		Overall assessment
			Effectiveness (yes in %)	Effectiveness Median	Feasibility ≥75%	
22	Developing an accompanying <i>excellence programme</i> or a <i>general practice class</i> to prepare students for working as a GP in a rural area	1 / 3	yes (100%)	8 / yes	5 / -	effective; less feasible
23	Scholarships for junior doctors who commit to working as a GP	3 / 8	yes (100%)	4 / -	2 / -	less effective
GP training						
24	Introducing the term <i>specialist in general practice</i>	- / -	no (80%)			not included
25	Extending the GP training (currently 42 months)	- / -	no (50%)			not included
26	Creating more GP training practices to train junior doctors	2 / 3	yes (100%)	8 / yes	6 / -	effective; less feasible
27	Higher salary for junior doctors in a GP training practice	2 / -	yes (90%)	8 / no	4 / -	less effective
28	Funding of additional costs (travel and accommodation) of junior doctors in a GP training practice	- / 1	no (80%)			not included
29	Strengthening the quality of GP training	3 / -	yes (100%)	7 / no	5 / -	less effective
30	Enabling more training within an interdisciplinary team	2 / -	yes (90%)	7 / yes	5 / -	effective; less feasible
31	Defining the content and the teaching methods of GP training	2 / 1	yes (90%)	4 / -	6 / -	less effective
32	Offering further education for GP trainees preferably within primary care	3 / -	yes (90%)	7 / no	6 / -	less effective
33	Enabling structured feedback opportunities for GP trainees	3 / -	yes (89%)	7 / no	5 / -	less effective
34	Introducing the position of a teaching coordinator and staffing it with GPs in training	1 / -	no (70%)			not included
35	Offering GPs in training an education and training budget	1 / -	no (70%)			not included
36	Organising the GP training (e.g. seminars and mentoring) within cohorts	- / -	yes (90%)	6 / -	6 / -	less effective
37	Appropriate remuneration (full public funding) for GP trainees within a GP training practice	- / -	yes (90%)	→ synthesised with measure 26		
38	Developing a strategy and offering funding to strengthen further education within GP offices	3 / -	no (70%)			not included
39	Identifying, valuing, supporting and disseminating innovative training methods	1 / -	yes (90%)	6 / -	5 / -	less effective
40	Developing and offering part-time research training (e.g. Masters of Primary Health Care and Family Medicine)	1 / -	no (44%)			not included
GP work experience						
41	<i>Rural doctor additional fee</i> and administrative support for establishing a GP practice (or taking a GP practice over) in underserved rural areas	5 / 7	yes (100%)	6 / -	6 / -	less effective
42	Additional fees for GP practices in rural areas with small practice populations	3 / 7	yes (90%)	5 / -	6 / -	less effective
43	Assured minimum wage for GPs in underserved areas	3 / 4	yes (100%)	6 / -	6 / -	less effective
44	Enabling new GPs to work as an employee at established GP practices in rural areas (for 1-2 years)	- / 1	yes (100%)	9 / yes	4 / -	effective; less feasible
45	Supporting research opportunities (e.g. by research practice networks or by part-time research-training)	2 / 1	no (80%)			not included
46	Supporting teaching opportunities for GPs	1 / -	yes (90%)	5 / -	5 / -	less effective
47	Enabling interdisciplinary work experience by implementing and developing new primary health care units	6 / 1	no (80%)			not included
48	Enabling a flexible, family-friendly work schedule including part-time and maternity/paternity leave	4 / -	yes (100%)	9 / yes	7 / no	effective; less feasible
49	Developing supraregional GP-substitution programmes for duties, sickness leave, holidays and more recreational time	3 / 1	yes (100%)	9 / yes	7 / no	effective; less feasible
50	Introducing the new function of a GP leader	1 / 1	no (40%)			not included
51	Enabling additional career opportunities within public health, in hospitals or other areas	1 / -	no (60%)			not included

No.	Measures	Sources: Policy Documents / Literature Reviews	Phase 1	Phase 2		Overall assessment
			Effectiveness (yes in %)	Effectiveness Median	Feasibility ≥75%	
52	Supporting independent further education in general practice (of high quality, local and within primary care)	6 / 3	yes (90%)	9 / no	7 / no	less effective
53	Supporting quality circles and supervision for GPs	1 / -	yes (90%)	7 / yes	7.5 / yes	effective & feasible
54	Utilising telemedicine for further education	1 / -	no (78%)			not included
55	Offering GPs a personal budget for further education	1 / 1	no (70%)			not included
56	Introducing new GP funding schemes and testing their influence on motivation and behaviour (e.g. capitation fees, fixed income, pay-for-performance)	2 / -	yes (90%)	6.5 / -	4.5 / -	less effective
57	Extension and appropriate remuneration of additional clinical services	2 / -	yes (90%)	9 / yes	7 / no	effective; less feasible
58	Introducing <i>soft</i> gatekeeping (to strengthen the role of the GP within the healthcare system)	- / -	no (78%)			not included
59	Improving working climate and teamwork	- / 1	yes (100%)	5 / -	5 / -	less effective
60	Performing research to identify why young (especially female) doctors are less interested in working as a rural GP	1 / -	yes (90%)	8.5 / yes	8 / yes	effective & feasible
61	Fewer management and administrative tasks for GPs	2 / 1	yes (90%)	7.5 / no	5 / -	less effective
62	Reducing GP workload by reducing working hours, increasing holiday duration and enabling more delegation of routine tasks	1 / 1	yes (100%)	7 / yes	6.5 / -	effective; less feasible
63	Supporting scientific journals and newspapers for rural doctors	1 / -	no (78%)			not included
64	Initiating GP networks (including nurses and aligned health professionals)	4 / 3	yes (100%)	8 / yes	8 / yes	effective & feasible
65	Introducing GP awards (e.g. Day of the Rural Doctor or GP of the Year)	1 / 1	no (50%)			not included
66	Linking living in the city and working in rural areas (e.g. by compensating for travel expenses)	- / -	no (67%)			not included
67	Duty to work for a limited time in rural areas for all new GPs	- / 2	no (11%)			not included
Role of the community						
68	Offering GP practice space (e.g. by public ownership and offering it to GPs for free)	1 / -	yes (90%)	8 / no	8 / yes	less effective
69	Offering additional non-cash benefits (e.g. facility commodities or restoration)	2 / -	no (80%)			not included
70	Funding of low-cost credits for building a house, buying a car, holidays, etc.	1 / -	yes (90%)	2 / -	3 / -	less effective
71	Improving the quality of life of GPs within the community	3 / -	yes (90%)	9 / yes	7 / no	effective; less feasible
72	Improving infrastructure (e.g. housing, streets, water supply and communication)	1 / -	no (70%)			not included
73	Improving leisure time activities (e.g. stress management programmes or offering gym memberships)	1 / -	no (40%)			not included
74	Offering health promotion programmes for GPs (e.g. focused on mental health, addiction or health checks)	1 / -	no (80%)			not included
75	Employing a recruiter by the municipality	1 / 1	no (0%)			not included
Recruitment of general practitioners not currently working as GPs						
76	International marketing and promotion campaign to recruit foreign GPs	1 / 1	no (60%)			not included
77	Accepting additional international licences of physicians to practise as a GP	1 / -	no (60%)			not included
78	Offering physicians a visa with work permission (e.g. visa for physicians and their family after commitment to work as a GP in an underserved area for 1-10 years)	2 / 3	no (70%)			not included
79	Introductory courses including language course and training within a GP training practice	- / 1	no (70%)			not included
80	Domestic marketing and promotion campaign to recruit GPs who are currently not working as a GP	1 / -	yes (100%)	5 / -	6 / -	less effective

No.	Measures	Phase 1		Phase 2		Overall assessment
		Sources: Policy Documents / Literature Reviews	Effectiveness (yes in %)	Effectiveness Median	Feasibility ≥75%	
81	Developing a simple and flexible <i>GP re-entry programme</i>	3 / 1	yes (90%)	6 / -	5 / -	less effective
82	Developing a simple and flexible <i>GP career changer programme</i> (e.g. for general practitioners currently working as a specialist)	- / -	no (70%)			not included
Increasing the effectiveness of current GPs						
83	Extending the legal maximum age for working as a GP	1 / -	no (60%)			not included
84	Developing <i>GP retention initiatives</i> (e.g. including single payments or funding mid-career further education to delay the age of retirement)	4 / 3	no (80%)			not included
85	Substitution of missing GPs by nurses and clinical assistants	1 / -	no (30%)			not included
86	Enabling the delegation of GP tasks in rural areas by employing nurses and allied health professionals	2 / 1	yes (90%)	8 / yes	5 / -	effective; less feasible
87	Changing the law to enable the delegation of GP tasks to nurses and community nurses	2 / -	no (80%)			not included
88	Implementing and developing interdisciplinary primary care centres or networks	5 / 1	yes (100%)	9 / yes	7 / no	effective; less feasible
89	Strengthening regional GP support networks	1 / -	yes (100%)	9 / yes	8 / yes	effective & feasible
90	Utilising telemedicine to offer additional services and to build professional networks	2 / 1	yes (100%)	4 / -	4 / -	less effective
91	Reducing workload by reducing administrative tasks and by managing patient demands	1 / 1	yes (89%)	→ synthesised with measure 61		
Increasing the number of GPs						
92	Establishing an <i>Austrian Commission for Human Resource Planning</i> within the healthcare system	1 / -	no (60%)			not included
93	Developing long term need assessments (based on actual needs not just current numbers of healthcare personnel)	4 / -	yes (100%)	8 / yes	7.5 / yes	effective & feasible
94	Introducing training quota for specific physician subgroups (fewer places for subgroups with oversupply and more places for subgroups with undersupply)	3 / -	no (70%)			not included
95	Developing strategies and governance mechanisms to adapt specialty choices of junior doctors to specialty needs of the healthcare system	1 / -	no (80%)			not included
96	Allocating additional GP positions in underserved areas	1 / -	no (80%)			not included
97	Introducing a professional marketing and promotion campaign to strengthen the image of general practice (e.g. by videos or blogs)	2 / 2	yes (90%)	6 / -	7 / no	less effective

Overall, seven measures were assessed as effective and feasible. Two of these measures related to *university education* and three measures to *GP work experience*. One measure each was related to *increasing the effectiveness of current GPs* or related to *increasing the number of GPs*. Two measures propose generating research evidence to inform the subsequent implementation of directly effective policies. No measure was assessed as effective or feasible related to *university entry*, *GP training*, *the role of the community* or the *recruitment of general practitioners who are currently not working as GPs*.¹³

The measures assessed as effective and feasible

This sub-chapter summarises information concerning those seven measures, which were assessed as *effective* within the first phase of the expert panel process and which were assessed as *effective* and *feasible* within the second expert panel phase. These measures are divided according to specified categories and described in a structured way, similar to the presentation during the expert panel process. In addition to the description, there is information concerning each measure's aim, a summary of the related evidence base extracted from the included literature reviews and a short summary of the comments of the three external experts and the ten panel members. Occasionally, relevant background literature is included if available and appropriate.¹³

Category: University entry

No measure included.

Category: University education

Box 1: Measure No. 16¹³

Strengthening general practice at university (including research and education)	
(I) Aim	Strengthening general practice as an academic core discipline, including corresponding research and teaching capacities, in order to reach the goal of training more GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents. ^{101,102} <ul style="list-style-type: none">The German <i>expert council for the assessment of developments within the healthcare system</i> (SVR 2014) stated, that the 'significance of general practice within medical faculties should be strengthened'.¹⁰¹ This may include the introduction of general practice professorships at all medical faculties and developing medical school curricula further, for example the introduction of an obligatory GP internship for at least three months within the final year of medical school (including financial compensation for medical students and their GP teachers). This report also stated, that GPs in countries like England, the Netherlands and in Scandinavia are more firmly established as an academic discipline than in Germany. They state that for example in England, there are 66 professorships in general practice, one third of GP practices is teaching medical students and 9% of medical school curricula are dedicated to general practice content.¹⁰¹

<i>Literature Reviews</i>	One literature review suggests that this measure may be the basis for many other positive developments. ¹⁰³ <ul style="list-style-type: none"> The presence of an institute for general practice increases the likelihood, that medical students choose GP postgraduate training and a GP career thereafter. A strong institute for general practice seems to be the foundation for a diverse range of positive factors.¹⁰³
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » Indispensable measure. » Health services research, which answers political questions, is important. » The obligatory GP internship is popular among students but starting it in the last year of medical school is too late. » This measure was recently implemented in Germany.
(IV) Source	
<i>Policy Documents</i>	SVR 2014 (GER) ¹⁰¹ , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	Avery 2009 ¹⁰³

Box 2: Measure No. 21¹³

<p>Offering more GP internships in rural areas (during the whole course of university education) (e.g. by introducing more GP internships or by financial support^d for instance for travel and accommodation expenses)</p> <p>p ... policy document derived information</p>	
(I) Aim	Offering more GP internships in rural areas within the whole course of medical school education, in order to offer medical students more positive, personal contact with GPs.
(II) Evidence	
<i>Policy Documents</i>	<p>The implementation of this measure was recommended by five of the ten included policy documents.^{35,102,104-106}</p> <ul style="list-style-type: none"> All documents proposed more GP internships in rural areas.^{35,102,104-106} The postulated duration of these internships was different within these policy documents but should spread from the beginning to the ending of medical school education.^{35,102,104-106} The policy document from Belgium also proposed financial support for GP internships in rural areas.¹⁰⁶
<i>Literature Reviews</i>	<p>14 literature reviews were identified, which include this measure. Two literature reviews assessed this measure as having a strong association with choosing a GP career, five indicated that this measure would be effective, three spoke of an effective measure but being based on studies of weak methodological quality, two stated this measure would probably be effective and two indicated that the underlying evidence base is limited.^{45,107-119}</p>

- The synopsis of the literature reviews at hand indicates, that GP internships in rural areas might increase the likelihood that medical students choose a GP career path.^{45,107-119}
- Some of the literature reviews indicate, that especially internships which are perceived as positive,^{107,112,119} or as being well supervised and well supported in several ways,¹⁰⁷ are effective.
- One literature review indicates, that GP teachers require a high-quality teaching methods training, in order to offer high-quality internship experiences.¹⁰⁹
- One literature review indicates, that high-quality internship experiences also require an appropriate financial compensation and support related to transport and accommodation.¹⁰⁷
- One literature review indicates, that the social interaction of medical students and members of the local community should be encouraged and fostered.¹⁰⁹
- One literature review indicates, that especially early GP internships at the beginning of medical school are effective.¹¹²

(III) Comments

External Experts » The DEGAM (German Association of General Practice) wants to abolish GP internships, because they are not based on defined quality criteria. Instead, they want to offer internships in accredited GP practices in future.

10 Panel Members » GP internships should be obligatory for all medical students (in order to promote a common understanding concerning the role of GPs within the wider healthcare system).
 » An appropriate quality assurance mechanism would be necessary. Internships should only be provided in accredited GP practices.
 » An appropriate remuneration for medical students and teaching GPs would be necessary.
 » Travel expenses of medical students should be reimbursed.
 » In Germany, the DEGAM was against this measure in order to avoid low quality internship experiences.
 » Initially, the feedback of medical students which joined the first GP internships ten to fifteen years ago was bad, but today's feedback is getting better and better, the teaching quality increases continuously.

(IV) Source

Policy Documents WHO 2010³⁵, EC 2015 (EU)¹⁰⁴, ICGP 2015 (IRL)¹⁰⁵, SVR 2009 (GER)¹⁰², KCE 2008 (BEL)¹⁰⁶

Literature Reviews Verma 2016⁴⁵, Katzenellenbogen 2013¹⁰⁷, Phillips 2009¹⁰⁸, Henry 2009¹⁰⁹, Baier 2014¹¹⁰, McDonald 2003¹¹¹, Peckham 2016¹¹², Ranmuthugala 2007¹¹³, Ballance 2009¹¹⁴, Dolea 2010¹¹⁵, Laven 2003¹¹⁶, Grobler 2015¹¹⁷, Pong 2005¹¹⁸, Viscomi 2013¹¹⁹

Category: GP training

No measure included.

Category: GP work experience

Box 3: Measure No. 53¹³

Supporting <i>quality circles</i> and supervision for GPs (e.g. <i>Balint-groups</i>)	
(I) Aim	The supply of further education opportunities for GPs should be enhanced by offering more <i>quality circles</i> (GPs meeting regularly to discuss quality issues) and supervisions (including <i>Balint groups</i> ¹²⁰), to increase their work satisfaction and quality.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents. ¹⁰² <ul style="list-style-type: none">• The implementation of this measure, especially <i>quality circles</i> and shared supervision sessions, might strengthen professional local networks.¹⁰²• <i>Quality circles</i> are described as a positive initiative. They may serve as interactive further education sessions, adapted to the education needs of the participants, and facilitate the development of practical solutions for concrete quality issues.¹⁰²
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure should be implemented if its quality can be ensured. » The effectiveness of this measure is questionable. » <i>Balint groups</i> might be a relevant first measure, because they can decrease resistance among GPs to engage in such group initiatives. » This measure can improve collaboration, establish a group identity and support exchange within the profession. Such measures should be obligatory for the newly founded interdisciplinary group practices. » 'You don't know you need it, before you join such a group' (panel member). It therefore needs promotion to increase demand.
(IV) Source	
<i>Policy Documents</i>	SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	None.

Performing research to identify why young (especially female) doctors are less interested in working as a rural GP	
(I) Aim	Research studies should be performed to find out what young physicians and especially female physicians wish for when working as a GP in a rural area to be able to make this career more attractive.
(II) Evidence	<p><i>Policy Documents</i> The implementation of this measure was recommended by one of the ten included policy documents.¹²¹</p> <ul style="list-style-type: none"> • The GP working group of the NHS aimed to answer several research questions, in order to better understand the decreasing interest in a GP career among young physicians.¹²¹ • Research studies should identify the determinants for choosing a GP career path, especially during the final stage of medical school.¹²¹ • Research should identify why female GPs are disproportionately more likely to leave general practice.¹²¹ • Research studies should identify, why some medical schools produce more GPs than others.¹²¹ <p><i>Literature Reviews</i> This measure was not identified in any of the 32 included literature reviews.</p>
(III) Comments	<p><i>External Experts</i> No comments were provided by the three experts in relation to this measure.</p> <p><i>10 Panel Members</i> » The effectiveness of this measure is questionable. » This measure should have been implemented 30 years ago. » There are already similar studies available. » The underlying problem should be better understood. Why is a GP career unattractive, what would be the most important measure for improving this situation? » There should have been institutes for general practice and health services research since at least 30 years.</p>
(IV) Source	<p><i>Policy Documents</i> NHS 2014 (GBR)¹²¹</p> <p><i>Literature Reviews</i> None.</p>

Initiating GP networks (including nurses and aligned health professionals)	
(I) Aim	The implementation of networks of GPs and allied health professionals should reduce professional isolation and therefore increase the attractiveness of working as a GP in a rural area.

(II) Evidence

Policy Documents The implementation of this measure was recommended by four of the ten included policy documents.^{34,35,105,121}

- The WHO recommends the implementation of networks of healthcare professionals in rural areas to facilitate further education initiatives and to increase work satisfaction by reducing professional isolation. Also, telemedicine initiatives may improve the cohesion of professional networks.³⁵
- The OECD reports GP networks in Scotland which aim to improve access to and quality of care.³⁴
- The NHS tries to foster networks of experienced GPs to support these GPs and so that patients benefit from their skills. Also, local networks with the purpose to offer further education initiatives within the community are supported.¹²¹
- The policy document from Ireland proposes the foundation of GP networks to offer community based further education.¹⁰⁵

Literature Reviews Three literature reviews were identified, which included this measure. One literature review indicated that this measure is probably effective, and two literature reviews stated an underlying evidence base concerning this measure of limited reliability.^{45,110,117}

- These literature reviews identified several ways of implementing such networks which serve different kind of purposes. They can, for example, be networks which offer general support, emergency care, rural further education initiatives and improve social cohesion among GP to offer social and emotional support to increase the quality of life of GPs in rural areas.^{45,110,117}

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » This measure should be implemented if the implementation is appropriately supervised and quality assured.
- » Primary care networks have already been implemented in several countries, to improve quality, to improve access and to make entry into GP practises easier for young physicians.
- » The local GP network *Styriamed.net* (a pilot project) should become interdisciplinary.

(IV) Source

Policy Documents WHO 2010³⁵, OECD 2014³⁴, NHS 2014 (GBR)¹²¹, ICGP 2015 (IRL)¹⁰⁵

Literature Reviews Verma 2016⁴⁵, Baier 2014¹¹⁰, Grobler 2015¹¹⁷

Category: Role of the community

No measure included.

Category: Recruitment of general practitioners not currently working as GPs

No measure included.

Category: Increasing the effectiveness of current GPs

Box 6: Measure No. 89¹³

Strengthening regional GP support networks (5-8 GPs organising a shared *shift-rotation-scheme* to enable continuous healthcare access in the local community)^e

e ... expert derived information

(I) Aim

Local GP *shift-rotation-schemes* should get supported by GP networks to reduce the number of shifts a GP has to perform while offering patients a continuous healthcare access in the local community.

(II) Evidence

Policy Documents

The implementation of this measure was recommended by one of the ten included policy documents.¹⁰⁵

- GP networks in rural areas should establish a functional system which enables patients to access GPs outside usual opening hours.¹⁰⁵
- These networks should be supported by a publicly organised GP substitution programme to compensate for holidays and sick leave.¹⁰⁵
- Such GP substitution programmes should help to ensure that GPs in rural areas do not have to work more than their colleagues in urban areas.¹⁰⁵

Literature Reviews

This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts

No comments were provided by the three experts in relation to this measure.

10 Panel Members

» The implementation of interdisciplinary primary care networks (PVEs) would be beneficial.
» Maybe also private GPs should be included in *shift-rotation schemes*.
» Similar measures have already been implemented in Tyrol (an Austrian region).
» *Shift-rotation schemes* require at least 5-8 GPs to be functional.
» Home visits, especially at night, are sometimes problematic for female GPs. In Salzburg (an Austrian region), house visits are therefore always performed by a GP and a paramedic together.

(IV) Source

Policy Documents

ICGP 2015 (IRL)¹⁰⁵

Literature Reviews

None.

Category: Increasing the number of GPs

Box 7: Measure No. 93¹³

Developing long term needs assessments (based on actual needs not just current numbers of healthcare personnel)

(I) Aim

A long-term needs assessment for human resource planning within the Austrian healthcare system should be established (based on disease burden and healthcare needs rather than just based on current numbers of healthcare professionals) to align the number of GPs in rural areas with the actual healthcare needs.

(II) Evidence

Policy Documents The implementation of this measure was recommended by four of the ten included policy documents.^{101,102,121,122}

- The policy document from the US proposes funding for the *National Health Workforce Commission* to align the number of annual medical school graduates with actual healthcare needs. A regular report concerning the status of family medicine, including the workforce quantity, age, regional distribution and type of practice arrangement should be produced.¹²²
- The NHS and the *Centre for Workforce Intelligence* identified gaps within the available workforce data. The policy document therefore calls for regular assessments also of working hours and the amount of sick leave. These data should be extracted automatically from the IT systems of GP practices.¹²¹
- Germany implemented a legal workforce planning directive based on healthcare needs in 2013. To enable coordinated workforce planning, each inhabitant should be assigned one GP which should improve the detection of local over- or under-supply. Today, workforce planning is informed by current numbers of healthcare professionals and the policy document recommends to base future workforce planning on healthcare needs and variations of disease burden within the population.¹⁰¹

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » This measure should have been implemented 30 years ago.
- » There should also be a special focus on the expected demographic developments.
- » This measure is already available. Workforce planning already receives more attention.
- » In Styria (an Austrian region) there are already forecasts of the demographic developments.
- » Focusing services provided by GPs more on Ambulatory Care Sensitive Conditions (ACSCs)¹²³ might be an option. Providing more comprehensive services by GPs would also change the need for care, which needs to be considered as well.

(IV) Source

Policy Documents AAFP 2014 (USA)¹²², NHS 2014 (GBR)¹²¹, SVR 2014 (GER)¹⁰¹,
SVR 2009 (GER)¹⁰²

Literature Reviews None.

Similar boxes of the remaining 88 measures¹³ can be found in Appendix C.

4.3. Research study 3: Identifying practical considerations concerning the implementation of the previously prioritised measures within the context of the Austrian healthcare system

The following seven measures, which had been previously assessed by study two as effective and feasible¹³, were further examined⁷⁶ in this study:

- Strengthening general practice at university (including research and education)
- Offering more GP internships in rural areas (during the whole course of university education)
- Supporting quality circles and supervision for GPs
- Performing research to identify why young (especially female) doctors are less interested in working as a rural GP
- Initiating GP networks (including nurses and aligned health professionals)
- Strengthening regional GP support networks
- Developing long term need assessments (workforce planning)

Six experts completed the email-questionnaire about the practicalities of implementing the seven prioritised measures in Austria. Below is coding information concerning the profession and organisation the experts belong to, without revealing their name or specific position to protect their anonymity. The experts were affiliated with the Austrian Public Health Institute (PHI), one was a health services researcher (HSR), one was a practising GP (GP), one represented the Austrian Young GP Society (YGPS), one represented the Styrian Physician Chamber (StPC) and one was a representative of the Styrian Sickness Fund (StSF). Practicalities of implementing the seven measures are discussed in turn.⁷⁶

Measure 16: Strengthening general practice at university (including research and education)

This measure aims at general practice being an academic core discipline and that its research and teaching capacities should be strengthened. It was recommended by five of the ten included policy documents and 14 literature reviews were identified which included similar measures. The panellists stated that such research should answer relevant health policy questions and that the current Austrian GP internship is popular

among students but starts only in the final year which is considered too late to effectively prevent a GP shortage.¹³

Interviewees stated that these capacities should be strengthened by introducing a Professorship in general practice at each medical university (PHI, HSR), by strengthening the current Institutes for General Practice (GP) and by increasing the quantity (HSR, YGPS) and quality (HSR) of general practice teaching within the medical curricula. This might be achieved by developing a common research agenda which could increase problem recognition on the GP shortage among decision makers, inform an effective policy response, and provide further data on the impact of a possible GP shortage. One interviewee stated that 'this measure is the foundation for all other measures. Without this measure, all other measures are built on sand' (HSR). Interviewees stated a diverse range of institutions as being responsible for implementing this measure. They identified the Ministry of Science and Education (PHI), Ministry of Health (HSR), medical universities (PHI, GP, YGPS, StPC), regions (HSR) and Sickness Funds (HSR) as well as Physician Chambers (StPC) and Institutes for General Practice (StPC). Additionally, the regional GP Societies should be responsible for raising awareness (YGPS). This measure could be funded by the university budget (PHI), or by a common funding mechanism by federal Government, regions and Sickness Fund contributions (HSR) or by Health Funds (GP).

No legal barriers were identified as the current university law would allow for these changes (PHI). The implementation of this measure would concretely require the creation of a national medical education agenda like in Germany (PHI), additional funding (HSR, GP, YGPS) and persistent advocacy (HSR, YGPS). This measure could be implemented within 1-2 years (YGPS) or 5 years (PHI, HSR). It would be effective in 3-4 years (PHI) or 10-20 years (HSR, YGPS) after its implementation. Challenges concerning the implementation would be financial competition with other medical specialties at medical universities (PHI, GP, YGPS), the possible opposition of the Ministry of Science and Education (PHI) or the Physician Chambers (HSR).

Measure 21: Offering more GP internships in rural areas (during the whole course of university education)

This measure aims at offering more such internships and more support for them so that medical students are better able to participate in them, especially in distant rural

areas. It was recommended by two of the ten included policy documents and one literature review was identified which contained this measure. An external expert stated that Germany wants to only allow internships in accredited GP offices in future. The panellists stated that these internships should be obligatory, accompanied by appropriate financial remuneration and by appropriate quality assurance mechanisms. They also stated that the German Association for General Practice was against this measure to avoid low-quality internship experiences but the reported student experience in such internships in Austria was increasingly positive.¹³

Interviewees stated that these internships should be obligatory in the first and final year of medical school (GP, YGPS) and accompanied by further voluntary internships (YGPS), which would require changing the medical curricula (PHI) and that current GP training practices should receive more teaching methods training to further improve their teaching quality (HSR). Interviewees largely agreed that medical universities (PHI, HSR, GP, YGPS, StPC) are responsible for implementing this measure. There was less agreement on GP Societies (HSR, YGPS), individual GPs (YGPS) or the Physician Chambers (StPC) being responsible for implementing this measure. Specifically, the implementation of this measure would require universities to organise it (YGPS, StPC), to define quality criteria for GP training practices and to assess their quality regularly (HSR) and universities would need to cooperate with GP Societies (PHI, HSR) which could promote such internships (HSR, YGPS). There was little agreement among the interviewees on the appropriate funding source for this measure. Interviewees stated that it could be funded by the national Government (StPC), the regions (YGPS, StPC), Health Funds (HSR) and one interviewee stated that the funding responsibility is currently unclear and may need time to define it (PHI).

No legal issues were identified by the interviewees. This measure could be implemented either immediately (HSR), in 1 year (YGPS) or in 5-10 years (PHI). It would be effective 5 years (PHI), 5-10 years (HSR) or 10-20 years (YGPS) after its implementation. Challenges concerning the implementation of this measure would be the lack of GP personnel and time for teaching GP trainees (PHI, StPC) and possibly resistance by the Physician Chamber (HSR). As an opportunity, the newly founded Primary Health Care (PHC) centres could be intended as GP trainee teaching practises from their inception.

Measure 53: Supporting *quality circles* and supervision for GPs

This measure aims at offering more quality improvement opportunities such as *quality circles* and supervision also to increase the work satisfaction of GPs. It was recommended by one of the ten policy documents, but no literature review was identified including this measure. The panellists stated that these measures, if implemented and promoted well, could encourage quality improvements and also strengthen professional exchange and group identity among GPs.¹³

Interviewees stated that these initiatives should be attended more regularly (StPC) or even become obligatory (HSR), that they should be organised in collaboration with medical universities (GP) and that more experienced GPs should be invited to attend to learn from them (YGPS). Interviewees named some institutions as being particularly responsible for implementation, including GP Societies (HSR, GP, YGPS), Physician Chambers (PHI, GP, StPC) and medical universities (HSR, GP). There was disagreement on the appropriate funding source, which could include current further education budgets (PHI), Sickness Funds (GP), Health Funds (HSR) or federal funding (StPC). One interviewee explicitly stated that there would be no legal issues (StPC), others stated that required funding mechanisms should be based on new law (HSR, StPC). This measure could be implemented immediately (PHI, StPC), within 2 months (YGPS) or within 5-10 years (HSR, GP). It would be effective immediately (PHI), in 3-5 years (StPC) or possibly not effective against a GP shortage (HSR, YGPS). Challenges concerning the implementation of this measure would be none (PHI), lack of funding (GP), lack of time or teaching skills of GPs (StPC) and, if it were to be mandatory, possible opposition from GPs and Physician Chambers (HSR).

Measure 60: Performing research to identify why young (especially female) doctors are less interested in working as a rural GP

This measure aims at identifying the barriers for young, especially female, doctors to enter a GP career. It was recommended by one of the ten included policy documents, but no literature review was identified which included this measure. The panellists stated that this measure is overdue. The focus of this measure on female doctors might be based on the lower interest of female general practitioners in Austria to work as a GP, as many prefer to work as a hospitalist or private physician¹²⁴.¹³

Interviewees stated that research studies on this issue could raise awareness and thereby be the first step for solving it (StSF), that they could be performed by coordinating public health and social science research efforts (PHI) or by one of the current Institutes for General Practice (GP, YGPS, StPC, StSF). This measure could be funded by the federation (StSF), regions (StSF), Sickness Funds (GP, StSF), Health Funds (HSR) and established research funding mechanisms (PHI).

One legal issue was identified, namely that Health Funds and Sickness Funds are currently not legally obligated to fund research, but not prohibited either (HSR). This measure could be implemented immediately (PHI, HSR), within 6 months (YGPS) or 1-2 years (StSF). It would be effective in 3-7 years (PHI, StSF) or varyingly depending on the research results (HSR, YGPS). Two interviewees stated that there are no significant challenges to implement this measure (PHI, HSR), but recommendations deriving from such research might be against the interests of the federation, regions, municipalities, Sickness Funds or Physician Chambers according to one interviewee (StSF).

Measure 64: Initiating GP networks (including nurses and allied health professionals)

This measure aims at reducing professional isolation to improve the attractiveness of working as a GP in a rural area. It was recommended by four of the ten included policy documents and three literature reviews were identified which included this measure. The panellists stated that this measure would be helpful if implemented qualitatively and also other countries had successfully implemented it to improve quality of care, access to care and to make entry into GP practises easier for young physicians.¹³

Interviewees stated that these networks should be interdisciplinary including GPs and allied health professionals as intended by the new Austrian PHC law (PHI, HSR, StSF). Such networks could be implemented by the federation (StSF), regions (StSF), municipalities (PHI), Health Funds (HSR), Sickness Funds (GP, StSF), Physician Chambers (GP, StPC, StSF) or by GP Societies (HSR, GP, YGPS) and allied health professionals (HSR, YGPS). They could be funded by the federation (StPC), regions (StPC, StSF), Health Funds (HSR) or Sickness Funds (GP, StPC, StSF).

Some legal issues were identified related to the implementation, namely uncertainty concerning details of the upcoming PHC law (PHI, HSR, StPC, StSF), and specifics within the general social insurance law (StSF), the outpatient physician contract (StSF) and the Austrian constitution (StSF). One interviewee stated that the relevance of legal issues

will also depend on the type and tightness of network structures being implemented (HSR). This measure could be implemented in less than 1 year (YGPS, StSF), 1-2 years in ambitious regions (HSR) or 10-15 years in regions with less interest in such networks (HSR). The time range of the expected impact of this measure was quite diverse, ranging from immediately (PHI), to 3-5 years (StSF) or 10 years (GP, YGPS). Challenges concerning the implementation of this measure would be opposing political interests (StSF), large efforts needed to implement new PHC networks (StPC) and Physician Chambers which oppose the concept of interdisciplinarity due to vested interests as they might see allied health professionals as competition to current physician positions (HSR, StSF). On the other hand, the support of municipalities (PHI) and the readiness of payers to invest in these new structures (HSR) might accelerate implementation.

Measure 89: Strengthening regional GP support networks

This measure aims at reducing the number of shifts a GP has to perform to reduce the workload. It was recommended by one of the ten included policy documents, but no literature review was identified which included this measure. The panellists stated that this measure would require at least 5-8 GPs to be functional and that it could also include private GPs within the rotation scheme. Some regions already organise joint night shifts of a GP and a paramedic, as night shifts are considered problematic for female GPs working alone.¹³

Interviewees stated that nightshifts of GPs should be distributed in a fair manner (YGPS), could include also private physicians (YGPS) and that the introduction of new PHC networks might increase capacity and reduce the average number of nightshifts per GP (StSF). One interviewee stated that GP support networks should strengthened primary care functions like continuity of care (HSR) and that GPs might need additional incentives to perform nightshifts (StPC). According to interviewees, a diverse range of stakeholders would be responsible for implementation. The responsibility lies with the national Government (StSF), regions (YGPS, StPC, StSF), Sickness Funds (HSR, StPC, StSF) and Physician Chambers (PHI, HSR, StPC, StSF). Also, individual physicians could initiate such networks already today by themselves (HSR). It could be funded by the federal Government (StSF), by regions (StSF), Health Funds (StPC) or Sickness Funds (PHI, StPC, StSF).

Interviewees gave different responses concerning legal challenges. Some stated that there are no legal issues concerning the implementation of this measure (PHI, HSR). One interviewee stated that the existing general social insurance law, the outpatient physician contract and the expected PHC law might be relevant for the implementation (StSF). This measure could be implemented immediately (PHI, HSR), within 6 months (YGPS) or 1 year (StSF). It would be effective immediately after implementation (PHI), in 3-5 years (StSF) or 10 years (YGPS). Challenges concerning the implementation of this measure would be opposing political interests (StSF) and that possible obligatory regulations could create resistance (PHI).

Measure 93: Developing long term need assessments (workforce planning)

This measure aims at being able to align the GP supply with actual healthcare needs rather than simply perpetuating previous GP quantities. It was recommended by four of the ten included policy documents, while no literature review was identified which included this measure. The panellists stated that this measure was long overdue but received recently more attention and at least demographic forecasts are now considered. Also, the role of GPs within the healthcare system should be debated, as reducing hospital admissions for Ambulatory Care-Sensitive Conditions¹²³ could be a suitable objective but might require more GPs and allied health personnel.¹³

Interviewees stated that currently, the planning of required GP positions is performed by the national and regional 'Strukturplan Gesundheit'¹²⁵ [structure plan for health] and the national and regional 'Zielsteuerungskommission'¹²⁶ [steering committee] (PHI, StPC, StSF) and that also the ownership and governance of clinical and healthcare data are relevant, as data sources are currently fragmented (PHI). One interviewee stated that the objective should be to regularly receive data on annual GP replacement needs (StPC) and to publish these results to increase accountability and pressure to implement appropriate measures (HSR). One interviewee suggested that the transparency of the Netherlands and its NIVEL¹²⁷ primary care research institute could be a role model (PHI). Different institutions could implement this measure, including the national Government (StSF), regions (StSF), Health Funds (StPC), Sickness Funds (HSR, YGPS, StPC, StSF), Physician Chambers (GP, YGPS, StPC) and Institutes for General Practice (HSR, YGPS, StPC). The implementation of this measure could be funded by

the federal Government (PHI), regions (PHI), Health Funds (HSR) and Sickness Funds (PHI). One interviewee stated that funding should, in general, not be a problem (StSF). No legal issues were identified concerning the implementation of this measure (PHI, HSR, StSF), but a new law should define the ownership of these data to facilitate its implementation (PHI). This measure could be implemented immediately (PHI, HSR), within 6 months (YGPS) or 1 year if all relevant stakeholders agree (StSF). Effectiveness on relieving a GP shortage was questioned (YGPS), expected to take 3 years (PHI), 5 years (StPC) or more than 5 years (StSF) after implementation. Challenges concerning the implementation would be opposing political interests like hospitals which do not want to communicate predicted hospital bed reductions ahead of time (StSF) or do not want to pay for additional GP trainees (StSF). Also, Physician Chambers could oppose as allocation of office-based physician positions are currently based on bargaining between Physician Chambers and Sickness Funds rather than on patient needs (YGPS).

Interpretation

Interviewees seemed to agree and to disagree on several practical considerations concerning the implementation of the seven previously prioritised measures.

Responsibility and funding. Interestingly, especially the questions concerning the responsibility for implementation and funding of these seven measures received very diverse responses. Concerning the responsibility to implement, there was only limited agreement that medical universities should implement rural GP internships (measure 21) and that Institutes for General Practice should perform studies on young physicians' GP career interests (measure 60); there was no apparent agreement on which stakeholder should implement each of the other measures. Concerning the responsibility for funding, there was no apparent agreement on which stakeholder should fund any of these seven measures. This suggests that the allocation of responsibility for implementation and funding of these measures is even for healthcare system experts not obvious, which might hinder implementation, as stakeholders could reject responsibility without having to face broad criticism.

Legal and political barriers. Interviewees did not mention major legal challenges. The only mentioned legal disadvantage was Health and Sickness Funds not being legally required to fund research studies (relevant for measures 60 and 93). Additionally, interviewees stated that legislation could be helpful in facilitating the

implementation of two measures (53 and 93). Concerning expected opposition related to the implementation of the seven measures, according to interviewees, one measure (60) could potentially be opposed by five different stakeholders, one measure (16) could be opposed by three stakeholders, two measures (53, 93) could be opposed by two stakeholders, two measures (21, 64) by one stakeholder, and one measure (89) by no stakeholder. Only two stakeholders were mentioned more than once as potentially opposing an implementation, namely medical universities as potentially opposing the implementation of two measures (16, 93) and Physician Chambers as potentially opposing the implementation of six measures (16, 21, 53, 60, 64, 93). In brief, there might be no major legal challenges for implementation and most measures might only be opposed by few stakeholders. Remarkably, Physician Chambers were standing out as the only stakeholder to supposedly oppose most measures.

Time frames. The estimations for the time needed to implement a measure were diverse within and between different measures. For example, two measures (21 and 53) could be implemented, according to interviewees, either immediately or within ten years. Only three measures received quite similar estimates from interviewees, being implementable between immediately and within one (measures 89 and 93) or two (measure 60) years. Also, the estimated time until an implemented measure would come into effect was diverse. Two measures had a range of more than a decade, between 3-20 years (measure 16) and 5-20 years (measure 21). Only two measures were assessed narrowly, between 3-7 years (measure 60) and between 3-5 years (measure 93) from implementation to actually ameliorating the GP shortage.

In conclusion, no major barriers were identified by the six interviewees which would necessarily prohibit the implementation of any of the seven previously prioritised measures. Nevertheless, some challenges were addressed, as it seems unclear which stakeholders are responsible for implementing and funding these seven measures and as the implementation of most measures might receive at least some opposition by a stakeholder, most frequently by the Physician Chamber. The time for reform seems short, especially as most of these measures would take several years for implementation and several years until they come into effect thereafter.

4.4. Research study 4: Assessing the generation of political priority, the utilization of research, and the implementation of a policy response to prevent a GP shortage in Austria

The results of this study will be presented within four chapters relating to the ‘problem stream’, ‘policy stream’ and ‘political stream’ based on John Kingdon’s agenda setting theory¹⁵ and ‘research utilization’ based on Weiss’ respective theories⁷⁵. The structure of each chapter will be guided by one or more primary research questions. Each of these research questions will be answered by referring to relevant aspects of the respective theory and by relating them to qualitative interview data or quantitative content data and to their respective analyses and interpretations.

The accounts of interviewees who participated in this study will be presented in conjunction with codes which indicate each interviewees’ primary geographical area and organisation as noted in Table 8.

Table 8: Coding of geography and organisation of interviewees*

Codes	Meaning	Participants
N	National	15
S	Region Salzburg	7
G	Graz / Region Styria	7
MH	Ministry of Health	1
MS	Ministry of Science and Education	2
PO	National politician	2
PS	Patient Solicitor	1
MA	Mayor	1
MU	Medical University	3
SF	Sickness Fund	6
HF	Health Fund	2
PC	Physician Chamber	2
GP	Austrian GP Society	2
YG	Young GP Society	1
AC	Academic / Researcher	3

*Each participant received one geographical and one organisational code and a consecutive number based on the interview date; some participants received more than one geographical or organisational code and numbers therefore do not precisely add up

4.5. The ‘problem stream’ related to the GP shortage in Austria

The agenda setting theory of John Kingdon¹⁵ conceived loosely connected streams of activities in relation to a particular policy issue that focus on ‘problems’, ‘policies’ and ‘politics’.¹⁵ These streams flow largely independently through the system and can lead to policy changes when joined together.^{15 pp.172-5} Within the ‘problem stream’, a large number of potentially available issues compete for the limited attention capacity of decision makers.^{15 pp.90-115} Only a few of these issues can receive a noteworthy amount of their attention and can therefore be considered as being on the ‘agenda’.^{15 p.3}

The following section will explore this ‘problem stream’ and respond to research questions related to whether the GP shortage is on the stakeholders’ policy agenda in Austria and related to the characterisation of the issue. In order to specify these questions further, in accordance to Kingdon’s theory,¹⁵ a ‘policy agenda’ will be defined as those problems which receive serious attention^{15 p.3} by relevant stakeholders (as introduced in chapter 1.4) and ‘problems’ will be defined as those conditions which are believed to require action^{15 pp.109-10}. The first research question, concerning the agenda status of the GP shortage, will be answered by assessing (a) if the issue receives stakeholder attention and (b) if the issue is believed to require action. The second research question, concerning the characterisation of the issue, will be answered by exploring (c) the framing of the issue and (d) other relevant aspects.

Research question 1: To what extent is the GP shortage in Austria on the stakeholder agenda?

a) Does the GP shortage receive attention by stakeholders?

The attention for the GP shortage will be assessed quantitatively by analysing the share of the issue within the content of relevant documents and qualitatively by analysing statements related to this theme within the interviews of key informants.

i) Quantitative evidence concerning attention given to the GP shortage

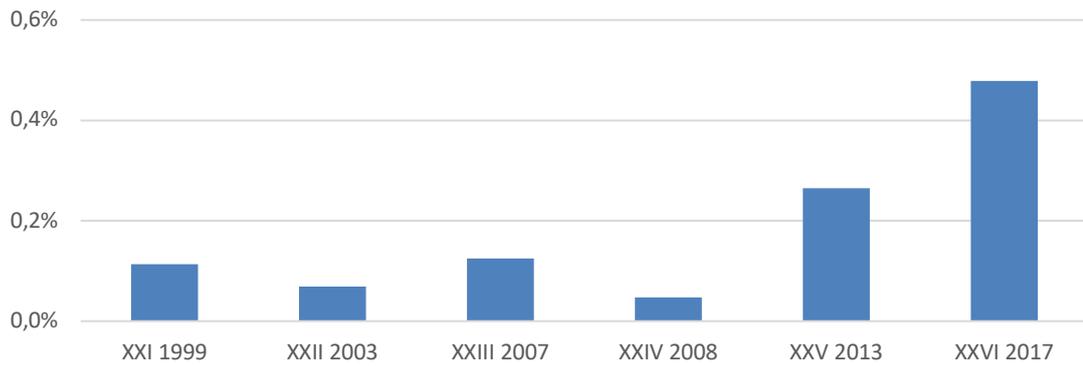


Figure 14: Official Government programmes^{47,86-90} content concerning GPs and primary care

Source: The XXIst⁸⁶, XXIInd⁸⁷, XXIIIrd⁸⁸, XXIVth⁸⁹, XXVth⁹⁰ and XXVIth⁴⁷ Government Programmes, which were negotiated between the elected coalition parties, were screened with search terms related to GPs and primary care. Percentage indicate word counts related to these issues as a share of the word count of the entire document.

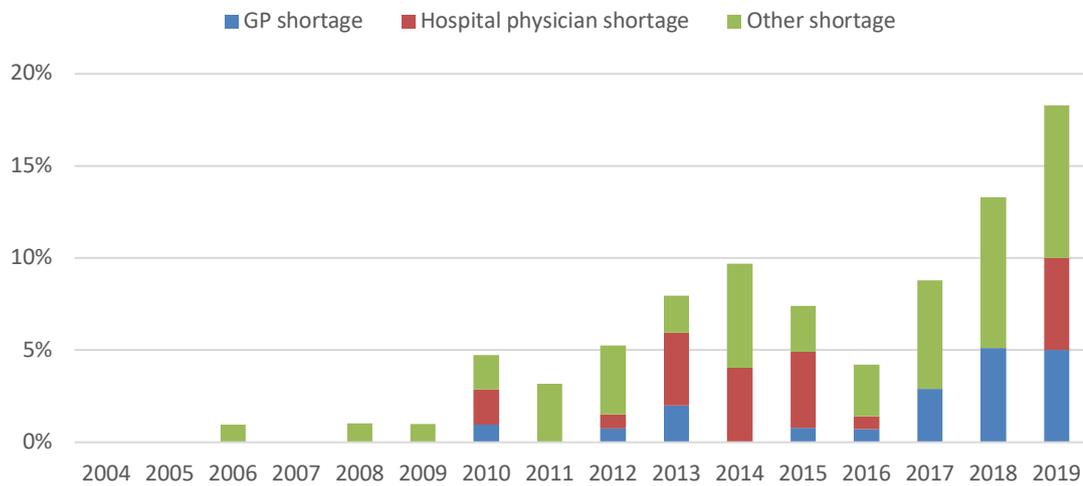


Figure 15: Press releases of the Austrian Physician Chamber⁹¹ focusing on physician shortages

Source: The Austrian Press Agency (original text service) account of the Austrian Physician Chamber⁹¹ contained 1,645 press releases from August 2004 to July 2019 was screened for containing the keywords *physician shortage* [Ärztmangel] or *GP shortage* [Hausärztemangel] and the full text of these identified articles was read to determine the type of *shortage* they refer to.

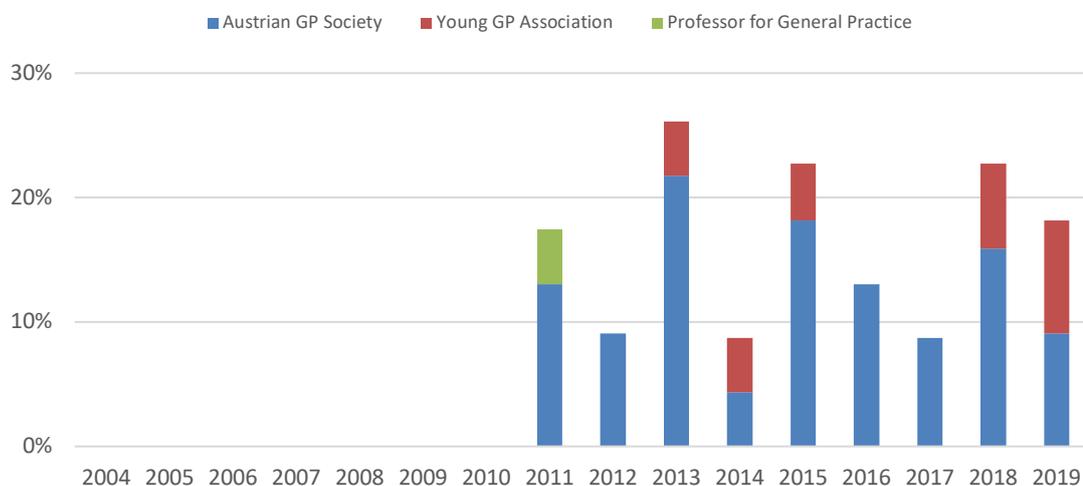


Figure 16: Austrian GP Society's bi-weekly publications⁹² mentioning a GP shortage

Source: 'ÖGAM News'⁹², a bi-weekly publication edited by the Austrian GP Society, published 350 issues (which usually contain 2-4 articles) between January 2004 and July 2019. Each of them was screened for *GP shortage* by using the keyword *shortage* [mangel].

These quantitative data (see Figures 14-16) provide evidence related to the question if the GP shortage received stakeholder attention and provide evidence on when and where this attention emerged. Additionally, these data identified issues which might compete for this attention and also different linguistic framings of the GP shortage.

Firstly, the GP shortage received attention in all three analysed data sources. Around 0.5% of the word count of the Government Programme in 2017⁴⁷ contained information about GPs and primary care, 5% of the press releases of the Austrian Physician Chamber in 2018 and 2019⁹¹ focused on GP shortage and 20% of the bi-weekly publications of the Austrian GP Society in 2018 and 2019⁹² mentioned the term GP shortage. These findings can be interpreted as some indication of attention given to the GP shortage and the possibility of it reaching the policy agenda, at least within the assessed actors. Furthermore, the data suggest that the Young GP Society, founded in 2006, was recently creating increased attention related to the issue of GP shortage.

Secondly, this stakeholder attention seemed to emerge in 2010/2011. Before, there was a five-fold lower share of word count within the Government Programmes compared with the most recent edition and the GP shortage problem was not clearly identifiable within the assessed press releases⁹¹ and bi-weekly publications⁹². This indicates that the emergence was relatively sudden and simultaneous across different communities. Both observations confirm the predictions of consulted theories on agenda setting. The first observation, that the GP shortage did not seem to have been acknowledged for many years and was then starting to be discussed quite suddenly, seems to be in line with the theory's observation that problem agendas usually change rapidly while policy discussions develop more incrementally.^{15 p.227} The second observation, that the GP shortage seemed to appear on the agenda of different communities simultaneously, at least within the analysed actors Government, Physician Chamber and Austrian GP Society, is in line with the predictions of Kingdon's agenda setting theory¹⁵. It concluded that 'ideas can come from anywhere'^{15 p.72} and that 'nobody leads anybody else'^{15 p.73} or 'controls the information system'^{15 p.76}. In this regard, emerging topics usually do not start within one community and move to another community later on.^{15 pp.76-7} Another observation, that the amount of attention apparently increased significantly since 2017 will be discussed later.

Thirdly, the documentary analysis of the Austrian Physician Chamber's press releases⁹¹ also indicates that a general hospital physician shortage was receiving increased political attention between 2013 and 2015 which faded thereafter. More specific hospital physician shortages emerged on the agenda in 2019, namely related to internal medicine, surgery and anaesthesiology. The role of these potentially competing agenda items was not mentioned by the interviewees and explanations concerning the causes for their emergence and fading are therefore not available.

Fourthly, concerning the observed framing, while 19 (1.2%) of 1,645 press releases of the Physician Chamber⁹¹ were classified as focusing on a GP shortage, only three (0.2%) of them, all published in 2018, utilised the term *GP shortage* [Hausärztemangel]. This might indicate a recent change of language, as the other relevant articles mainly used the term *physician shortage* [Ärztemangel] and only implicitly referred to a GP shortage, which was identified by assessing full text articles. Nevertheless, while the usage of the term *GP shortage* was recently increasing, it is still seems used less by the Physician Chamber compared with the Austrian GP Society, being identified in 2% of the Physician Chamber's press releases⁹¹ but in 20% of the bi-weekly publications⁹² of the Austrian GP Society in 2018 and 2019. This might be explained by the broad mandate of the Physician Chamber to represent all physicians and the more specific GP focus of the Austrian GP Society. This broader mandate might lead to an increased competition for attention, for example, with the hospital physician shortage as mentioned above.

ii) Qualitative evidence concerning attention given to the GP shortage

The topic of the GP shortage in Austria reportedly started to receive attention between 5 and 8 years ago in Salzburg (S2SF, S22PC) and between 5 and 10 years ago in Styria (NG7AC). Since then, the attention for the issue has been 'fluctuating' (G5HF, NG7AC) but during the last 2-3 years stakeholder and media attention increased significantly (N1YG, G6GP). The situation was even labelled as a 'hype' (G18SF) and summarised as:

It has been an issue for a relatively long time, but really pressing, being regularly covered by the media, this emerged during the last two years. (N1YG)

Related to the attention given to the GP shortage, two institutions were actively mentioned by the participants, namely the Physician Chambers and the Sickness Funds. A GP and an academic both noticed that Physician Chambers increasingly mentioned the topic in public communications which is in line with the quantitative findings of more stakeholder publications^{91,92} on this topic since 2017 (see above). Also, a Physician Chamber representative perceived the issue as being ‘very dominant’ within the organisation (S22PC). One participant speculated about their intentions:

The Physician Chamber always makes a business out of everything, with every topic. That’s meant critically, that everything the Physician Chamber says should be assessed in the light of their professional interests. (N17PS)

The Sickness Funds’ attention to the issue was described more inconsistently. Some believed that they are making an effort related to this issue (G5HF) and others believed that Sickness Funds ‘currently think about it the least, maybe the Main Association of Sickness Funds a bit more’ (NG7AC). In contrast to these statements, interviewees from the Main Association of Sickness Funds itself saw the issue as ‘highly important’ (N11SF), as being ‘number one’ (N14SF) and:

The topic is present within all committees I know or hear from. The topic is omnipresent. (N13SF)

Notably, both participants from the two regions’ Health Funds perceived the topic as less prominent within their own institution, namely as a ‘side-issue’ (S2SF) and as ‘not highly urgent’ but ‘not insignificant’ (G5HF).

The documentary analysis of the Government Programmes since 1999^{47,86-90} interestingly revealed only one statement within the most recent Programme of 2017⁴⁷ which explicitly mentioned *GP shortage*:

‘In the upcoming years a retirement wave of GPs lies ahead of us. Up to 60 percent of the current sickness fund contracted physicians will retire.’ (Government Programme XXVI 2017⁴⁷)

The remaining content discussed measures which would strengthen GPs and primary care and therefore presumably also help prevent a GP shortage.

Overall, these qualitative data are largely consistent with the quantitative findings presented and interpreted above. Interviewees reported as well that the GP

shortage issue had emerged almost a decade ago and had received increased attention within the last few years, in parallel with, and possibly caused by, or causing, increased media coverage related to this issue. The lower attention given to the issue by the Health Funds and the possibly greater attention given to it by the Main Association of Sickness Funds might be explained by Health Funds mainly being responsible for funding hospitals and Sickness Funds mainly being responsible for funding office-based physicians, including GPs.

In conclusion, quantitative and qualitative evidence both indicate that the GP shortage in Austria started to receive stakeholder attention around 2010 and received an increasing amount of stakeholder and media attention since approximately 2017.

b) Is the GP shortage believed to require action?

After assessing the level of attention given to the GP shortage, this section will explore whether the GP shortage is believed to require action by relevant stakeholders. Therefore, (i) perceived significance and (ii) expected consequences will be explored

i) Perceived significance of the GP shortage

It might be expected, that the GP shortage, which received an increasing amount of coverage, was therefore also perceived as important, but the interview derived data do not fully support this assumption. There seems to be more awareness than acceptance related to the issue and little sense of urgency, which led to some frustration among those who are trying to solve the problem:

They [the decision makers] are aware of the problem, but they do not accept that they would have to spend a lot of money on it. (G8MU)

The water is up to our neck and it seems that it needs to rise even a bit further. (N17PS)

One mayor from Salzburg represents this ambivalent situation by stating on the one hand, that 'this is a very important topic when it occurs, when a GP position needs to be replaced' and on the other hand, that 'at the moment I am actually perfectly happy. It works, the provision of care is there. I hope, that it will continue that way' (S19MA).

Also others seem ambivalent, expressing that the 'GP shortage is one of the big topics' as well as 'in Salzburg we are lucky [...] we currently have very young [GPs]' (S2SF).

This last statement related to the young age of GPs in Salzburg also represents a major difference between Salzburg and Styria concerning the theme of 'perceived significance'. In Salzburg, five of seven interviewees (N1YG, S2SF, S4HF, S22PC, S23GP) spontaneously mentioned this specific information. Overall, the assessment of the severity of the GP shortage seemed to be more positive in Salzburg than in Styria. As interviewees meant, 'Salzburg is not the most critical region' (N1YG) and 'Salzburg is actually still in a relatively good position' (S23GP). The most critical voices from this region stated, that '[the problem] is not yet over' (S22PC) and that:

We might not have a shortage today. But I do not think, that this problem is solved in the medium and long term. (S21MU)

But very interestingly, while the situation in Salzburg was described as positive now, this was obviously different in the past. This region was reportedly one of the first to experience a GP shortage around eight years ago and 'picked up the issue relatively early' (S2SF), as one Sickness Fund representative remembered. This was confirmed by a GP who said, 'we were lucky, that the responsible persons [...] shared a common problem recognition' (S23GP).

The reported attitude change over time in Salzburg might be explained by the agenda setting theories of Kingdon¹⁵ and Baumgartner and Jones⁶⁷. Kingdon's theory suggests, that problems can 'fade' because they were solved, because they were not solved and people were getting tired, because the high social or economic costs of solutions were realised or because the problem lost novelty and appeal.^{15 pp.103-5} Baumgartner and Jones' theory suggests, that unstable periods of intense attention and rapid policy changes can be followed by stable periods of minimal attention when a problem seems to have been solved.⁶⁷ Both theories provide possible explanations for the observed lower problem recognition in Salzburg, by suggesting that the sequence of common problem recognition, some policy response and subsequent perceived problem relief might have caused the problem to 'fade'^{15 pp.103-5} and to put Salzburg in a state of 'quiescence'⁶⁷. Salzburg experienced vacant GP positions earlier than other regions, was able to fill them and reports now few difficulties in finding GP replacements. Therefore, Salzburg has fewer reasons to acknowledge a GP shortage as a significant

problem than Styria. However, while most interviewees from Salzburg confirmed that there was more policy activity related to the GP shortage some years ago, one interviewee challenged this proposition:

At the moment you can demand things and things are happening, which were not happening for decades. (S23GP)

This can be interpreted as a single perspective or, if factual, as an indication that the problem recognition might have 'faded'^{15 pp.103-5} only moderately without putting Salzburg in a state of 'quiescence'⁶⁷.

The assessment of the GP shortage was presented in a more negative tone in Styria. The most positive account derived from a Sickness Fund participant, who argued that the GP density in Austria is still very high (G25SF). Others reported that some believe 'everything is fine, we already do everything we can' (G5HF) and criticised similar statements, which claim that 'the worst lies behind us. The GP shortage problem will slowly disappear' (G8MU). Nevertheless, significant changes of an indicator, namely the number of applications for any vacant GP position, paint a more negative picture of the recent developments, which was depicted by a respondent (G25SF):

In the 1990s in Graz, when an [available GP] position was offered, up to 100 people applied for it. In the meantime, certain [GP] positions, even in Graz, are offered three, four times. (G18SF)

The perceived significance of the GP shortage seems to be mixed. Thus, the increasing frequency and volume of coverage as described in the previous section appears to conceal a lack of consensus that there is a severe problem or a problem in both assessed regions. There were ambivalent accounts which emphasised the importance of the issue while still being content with the situation. The reports also appeared to be different in the two regions. Salzburg had faced vacant GP positions some years ago, implemented public funding for GP training practices which was described as beneficial (S21MU), and today describes the situation more positively than negatively. Also, the cohesive storytelling concerning the young average age of GPs in Salzburg was unusual within the whole body of interview data, but this might conceal future recruitment problems. Indeed, the average age of GPs in 2019 was 53.9 years in Austria overall while the average age was 50.7 years in Salzburg.²⁹ No region has currently a younger GP workforce,²⁹ but this might only postpone rather than abandon difficulties. The storytelling concerns in Styria were different. Interviewees reported

the disappearance of very large waiting lists for vacant GP positions, which appeared to be worrying, at least for Sickness Fund participants. Here, some interviewees seemed frustrated due to the lack of political will for taking action concerning this issue. Nevertheless, despite the differences observed in the two regions, voices which avoid seeing the GP shortage as a problem were found in both.

The overall picture suggests that while most interviewees acknowledge the GP shortage to be a problem and seem to agree that it requires action, this agreement also appears to be far from conclusive and the sense of urgency seems quite low.

ii) Expected consequences of the GP shortage

Identifying possible implications of an issue like the GP shortage and estimating their likelihood and magnitude seems beneficial for assessing the issue's significance.

Interestingly, only seven of the 26 interviewees mentioned possible implications of an increasing GP shortage and only three of them, two academics (NG7AC, N10AC) and one Sickness Fund participant (G18SF), dedicated more than three sentences on this theme. Nevertheless, their accounts provided relevant insights into these possibilities.

The reported scenarios cover a wide range from no consequences to tremendous consequences. This spectrum was not just observed between different interviews, but also within single interviews, as for example, this researcher speculated:

Maybe it will rumble a bit and not much will happen at all, and we will say, my God, the whole flurry for nothing. But of course, it can also crash big time. (NG7AC)

Some interviewees expected little or no implications of a GP shortage. They revealed their views on such implications only indirectly, by expressing scepticism about the definition of a GP shortage (see next section) and by challenging the need for GPs in general. One interviewee represented these positions well by asking:

Do we need all these GPs which we believe that we do not have? (G26MU)

Others mentioned implications for patients, for healthcare quality and costs, and for politics. Interestingly, only two interviewees clearly represented the perspective of patients in this regard. One thought about patients in rural areas who would have to drive further than previously (N16MS). Another, not surprisingly a patient solicitor, reflected that if GPs return their contract, continuity of care would decline, and

mortality rates might increase, because 'they have a pool of patients. [...] Excess mortality in this catchment area does not get measured.' (N17PS).

The two academics expected decreasing healthcare quality and increasing healthcare costs due to *quick fixes* (NG7AC, N10AC). One of them argued that such measures will be implemented, even if they are costly or ineffective, because 'if a million people, a million employments are attached [to the healthcare system], then everything becomes possible' (N10AC). The causal chain which might lead to such quick fixes or 'knee-jerk legislation' (NG7AC), was explained as an increasing GP shortage which leads to increasing media coverage which leads to increasing political pressure (G18SF). One participant believed that in the upcoming ten years there will be a lot of 'new legislation overnight, which is usually poor' (NG7AC) and another agreed that such reactive policy making is usually 'counterproductive' (G18SF).

Three interviewees speculated about possible worst-case scenarios, while none of them actually predicted its occurrence. Their depictions included terms like 'crisis', 'crash', 'collapse', 'explode', 'implode', 'disrupt', 'failed' and 'dead' (NG7AC, N10AC, G18SF). One academic estimated the likelihood of a healthcare system collapse, without specifying it in more detail, as 'probably low, but a possibility' (NG7AC).

Another illustrated such worst-case scenarios but also found positive aspects:

The moment [a significant GP shortage] occurs, either the system disrupts so that we have an entirely market-based system in ten years, which will eat itself up. Thereupon, out of the last remains of the solidary system, a strong system would emerge. Or, it would be a strong solidary system from the beginning. (N10AC)

Surprisingly, several positive aspects of a GP shortage were identified. In addition to the previous citation, also another interviewee saw an opportunity within a possible crisis. The argument was that disruption of the healthcare system might enable the building of something new, because 'with the old men, the officials, it will not work' (G18SF). Another speculated that an increasing shortage would put a useful policy on the agenda, namely the expansion of allied health professionals within primary care (S2SF). Furthermore, there was hope that the fear of a GP shortage crisis might accelerate monitoring improvements:

The volcano might erupt soon, how could we measure early warning signs? (NG7AC)

An implication not mentioned by any interviewee was the possible shortage of hospitalists [Stationsärzte] as a consequence of more demand for GPs. This seems relevant, as both GPs and hospitalists are certified general practitioners. Sickness Funds and hospitals are therefore competing for this single, limited type of physicians.

Overall, the available perspectives on possible consequences of a GP shortage were selective and therefore possibly biased, as only three participants significantly contributed to this theme. Nevertheless, the observation that few participants referred to possible consequences of an issue which has been receiving increasing attention for several years, was unexpected. This might explain why many participants did not express a sense of urgency or worry related to the GP shortage, or the latter might explain the former due to lack of interest in the issue. Also, the breadth of the possible consequences was unexpected. While interviewees who reject the GP shortage as a problem obviously also did not express concerns related to possible consequences, even an interviewee who was convinced that the GP problem was significant acknowledged that the GP shortage might have very little practical effect. However, the GP shortage could lead to discomfort and increased mortality risk for patients. It might lead to political quick fixes which could be costly and ineffective, and three interviewees reflected about the likelihood and magnitude of comprehensive systemic consequences of many vacant GP positions. Without speculating about the accuracy of such predictions, the mere possibility of such prospects, entertained by highly recognised healthcare academics, suggests that further investigations might be worthwhile. On the contrary, also positive aspects were identified which might be worth considering, namely that increasing political pressure might enable the implementation of policies which were not considered for implementation before.

In conclusion, the GP shortage appears to be widely acknowledged as a problem, but a sense of urgency and concerns about possible consequences vary among interviewees. Nevertheless, the increasing attention for the problem and the general belief that it requires action, suggest that the GP shortage can be classified as *being on the stakeholder agenda*.

Research question 2: How is the GP shortage in Austria characterised?

The characterisation of the GP shortage will be assessed by exploring the different framings of the problem, and the role of indicators and other relevant aspects.

c) How is the GP shortage framed by participants?

To frame means to ‘promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation’.¹²⁸ The framing of the GP shortage in Austria appeared to be useful for understanding whether and, if so, how the issue might be moving onto the policy agenda. This section will therefore explore the problem definitions and causal interpretations of participants further. The following accounts will illustrate how the application of different definitions and causal interpretations influences agenda setting processes. Different definitions can suggest that the GP shortage problem is either severe or non-existent. Different causal interpretations can indicate that the problem is not resolvable or the sole responsibility of one single stakeholder. As John Kingdon concluded:

‘Getting people to see new problems, or to see old problems in one way rather than another, is a major conceptual and political accomplishment.’^{15 p.115}

i) *Problem definitions*

The importance of problem definition was further emphasised by Kingdon:

‘There are great political stakes in problem definition. [...] you attempt to define a problem in such a way as to place the burden of adjustment elsewhere, and to avoid changing your own pattern.’^{15 p.110}

In this study, participants mainly applied two definitions of the GP shortage, *vacant GP positions* and *lack of GP positions*. Each implies different judgements on the existence of a shortage, its magnitude, on appropriate solutions and actor responsibility.

Vacant GP positions. This definition was used by six interviewees (N1YG, S4HF, N11SF, S19MA, S23GP, G25SF) and was associated with or seen as potentially causing several issues. *Firstly*, all participants who applied this definition seemed to conclude

that the low number of vacant GP positions indicates that the issue is not very significant. *Secondly*, while the term *quality* [Qualität] was mentioned 22 times within the data body (only two participants used it more than twice), the issue of vacant GP positions was only discussed related to its quantitative aspect, if a GP position is filled or vacant, not related to quality of care. *Thirdly*, this definition was connected to a direct causal explanation, namely the balance between demand and supply related to GP replacements, the difference between the numbers of retiring and successive GPs. One academic framed this eloquently as ‘retirement wave and offspring gap’ [Pensionierungswelle und Nachwuchslücke] (NG7AC). *Fourthly*, also an indicator for this mismatch between demand and supply was mentioned several times, namely the declining number of physicians on the waiting lists for GP positions. Sickness Fund participants reported that several years ago, the number of applications for vacant GP positions had been up to 40 in Salzburg (S2SF) and up to 100 in Styria (G18SF), which had declined to usually one or zero applicants most recently:

In the past we had 30, 40 applicants, in these times it was important who gets which position under which conditions. Today, when we find one [applicant], we are actually happy. (S2SF)

Lack of GP positions. This definition was explicitly or implicitly used by eleven interviewees (N1YG, S2SF, N3MH, S4HF, G5HF, G6GP, N10AC, G18SF, S22PC, G25SF, G26MU) and challenges the legitimacy of the previous definition, which equates vacant GP positions with a GP shortage. These participants questioned the underlying assumption, that the current number and distribution of GP positions is appropriate and that a vacant GP position is therefore inappropriate and should be labelled as a shortage. They mainly argued that GP positions should be allocated based on patient needs (or on patient demands as one participant proposed; N14SF) and consider the role of GPs within the broader healthcare system. Interestingly, participants reported that until recently, almost all GP positions allocated by Sickness Funds and Physician Chambers were occupied by GPs. While interviewees from a Sickness Fund and a Physician Chamber presented the current density of GP positions as adequate, stating that ‘in Austria there are almost no blank spaces left, where we urgently need a GP’ (S22PC) and that ‘there is generally a very dense web of GPs’ (G25SF), an academic believed that in the last 30 years there have been ‘almost certainly far too few GPs’ (N10AC). Interestingly, today there are slightly fewer GPs in Austria than in 1960,²³

despite demographic growth and an ageing population,³¹ which may indicate either an oversupply then or an undersupply now (while considering that healthcare has changed significantly since then). Other participants emphasised the relevance not just of the average GP density but of their distribution, by reporting outliers of single-handed GP practices which serve populations of only 1,250 (G18SF) and up to 7,000 (G6GP) inhabitants. The first case was clarified further:

In Kindberg [a municipality in Styria] were once 10,000 inhabitants, now there are slightly over 5,000. When it came to fill the fourth GP position, the mayor said, 'I must, I will, I need that'. Now there are [still] four GPs. Formerly there were 10,000 folks, now there are 5,000. (G18SF)

This last citation foreshadows an underlying problem related to the previously illustrated situation, namely that the specific allocation of GP positions is in principle based on bargaining between Sickness Funds and Physician Chambers rather than on evidence-based needs assessments. Several participants questioned whether the current allocation process is sensible, but the absence of coding diseases and clinical activities in physician offices would currently not allow for another approach:

Is there a shortage, an absolute shortage, a relative shortage, a felt shortage, is there a real shortage, a truly real shortage? These are all questions, which are not answerable. (G26MU)

While this inability to objectively determine the ideal GP density, and thereby a needs-based threshold for a shortage, was criticised by four participants (N1YG, G5HF, G18SF, G26MU), none proposed specific changes to close this gap. Nevertheless, participants suggested that any introduction of more needs-based allocation processes would need to be preceded by a fundamental debate concerning the expected role of GPs, specialists and allied health professionals within the healthcare system (N1YG, G26MU), issues which are currently 'not raised at all' (N1YG).

ii) Causal interpretations

Participants offered several causal interpretations or explanations of a GP shortage, related to the significant decisions of *GP position allocation*, *choosing GP training*, *choosing to work as a GP* and *GP retirements*. Another causal explanation explains the absence of vacant GP positions by an oversupply in the past (Figure 17).

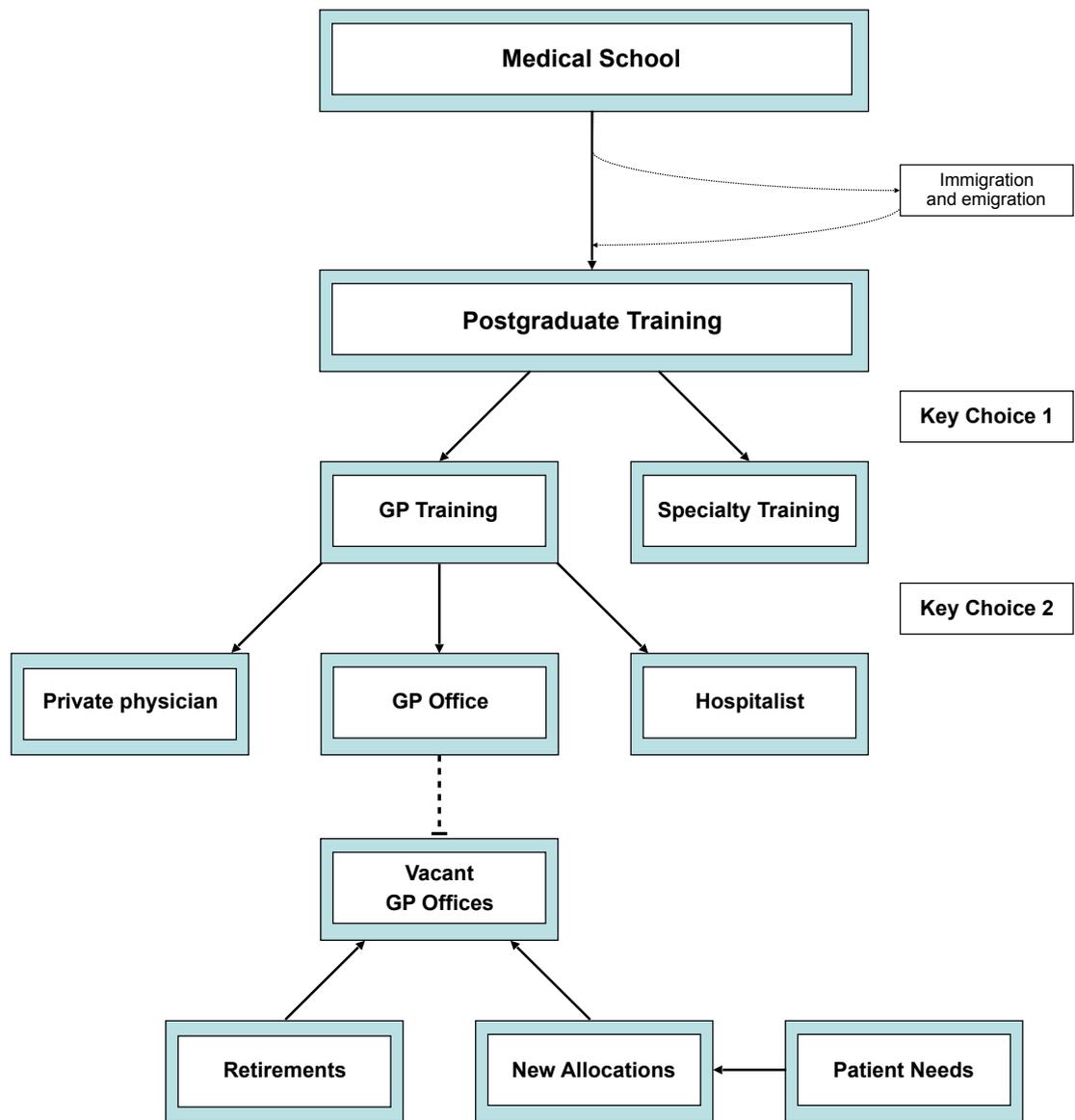


Figure 17: Model of the supply of and demand for GPs in Austria

Causal interpretation for lack of GP positions

Firstly, **an inappropriate allocation process caused a lack of GP positions**. Some participants argued, that the allocation based on bargaining rather than on evidence-based needs assessments (N1YG, G5HF, G18SF, G26MU) might have been the main cause for an undersupply of GPs, defined as a lack or maldistribution of GP positions and thereby unmet patient needs. Also, the continuous full coverage of allocated GP positions suggests that a lack of general practitioners or their lack of interest to work as a GP had no consequences in the past. Therefore, causal explanations cannot be drawn from the supply side like medical schools, postgraduate training or working

conditions. The current allocation process defines the number of allocated GP positions nationally, negotiated by the federation, the regions and the Sickness Funds, and the distribution of these positions happens regionally, negotiated by the regional Sickness Fund and Physician Chamber. As the number of allocated GP positions did not change significantly since 1960,²³ the current numbers seem to be simply based on past numbers. One participant speculated that these negotiations result in an undersupply of GPs because relevant actors are not incentivised to allocate more positions, which would be costly for Sickness Funds (who would not benefit from cost savings in the hospital sector) and would introduce more competition for specialists and private physicians, which hold the democratic majority over GPs within the Physician Chamber (N1YG). This suggests that even if there are no vacancies, there can still be a shortage of GPs when compared with actual patient needs.

Secondly, the **untapped potential of reducing demand and need caused a lack of GP positions**. While not explicitly stated as a causal interpretation, policies to reduce demand for GP services, like expansion of nurses and allied health professionals in primary care, were proposed by some interviewees. While one participant suggested to increase the population's health literacy to reduce demand for care (G26MU) and another suggested to make more use of telemedicine and digitalisation (N16MS), no one proposed public health measures to reduce the population's burden of disease and thus healthcare needs.

Causal interpretation for preventing vacant GP positions

Thirdly, **an oversupply prevented vacant GP positions**. Participants argued that in the past, medical universities in Austria were free of charge and open to a potentially unlimited number of students, which might partly explain why the current physician density is among the highest worldwide. Furthermore, the unusual postgraduate training certified around half of physicians as GPs, because only few physicians were accepted for specialty training right after graduation. Instead, the most common career path was to first enter the three-year hospital-based GP training before pursuing specialist training thereafter or in between. This created many certified GPs by default and some physicians who initially wanted to work as a specialist ended up

entering a GP office because their certification offered this option. This happened either because they did not enter or complete specialty training or because they completed it but discovered at some point that they dislike the hospital setting or otherwise prefer a GP career. This long-term oversupply seems to be a likely explanation for the continuous full coverage of allocated GP positions (N10AC, N24AC):

Because [...] we were [producing many physicians], there was never any pressure to make sure that [a GP career] is attractive. [...] Because the abundance of physicians had the effect that there was always someone [to fill a GP position]. (N10AC)

Nevertheless, both explanations for this oversupply, the unlimited access to medical schools and GP training as a default choice have been abolished. Since 2006, there have been national restrictions on medical school admissions and since 2015 there has been a newly organised postgraduate physician training, which separates specialists and GP trainees after a nine-month 'common trunk', a shared training period (N24AC).

Causal interpretations for vacant GP positions

The following six causal interpretations influence two key choices (see Figure 17), namely the choice of young physicians to enter GP training and the choice of GP graduates to actually work as a GP.

Key choice 1: Medical graduates choosing between GP training and specialty training

Fourthly, **lack of GP trainees will cause vacant GP positions**. The supply of physicians certified to work as a GP is determined by the number of individuals entering and graduating from medical school and subsequently entering and graduating from postgraduate GP training. These numbers are influenced by their experiences during medical school, postgraduate training and their anticipation of the nature of GP work compared with other alternatives.

Medical school experiences. Policy proposals related to medical schools were discussed by several interviewees, which implies that they believe that undergraduate experiences influence the likelihood of working as a GP. Nevertheless, only four interviewees explicitly mentioned medical schools to explain a potential GP shortage.

Their causal interpretations included that medical students get used to living in cities (S4HF), used to working in hospitals (G25SF) and used to medical specialists (N24AC). During medical school and early postgraduate training, they might also experience several ‘temptations’ (S4HF) to enter specialty training, as one GP presumed:

Sure, when the head [of the department] says, ‘don’t you want to stay with us, here you’ll get a position’, then they feel very honoured of course, especially when they are newly graduated. (S23GP)

While the low amount of GP theory and practice during medical school was criticised (S23GP, G25SF), a medical school participant did not favour corresponding changes:

We are not producers of GPs. That I want to record starkly. Starkly, please. [...] An increase [of general practice] within the obligatory curriculum is not intended. (G26MU)

From the perspective of preventing a GP shortage, there would ideally be enough medical school graduates interested in pursuing GP training and subsequently a career as a GP. In 2016, a survey of medical students in Austria (1,688 responses at a response rate of 17%), indicated that the interest in a GP career during medical school has room for improvement.³³ Only 2% of respondents declared that they *only* want to work as a GP, 41% said *only* as a specialist and 57% specified as a GP or something else.³³ This low interest in working as a GP might be explained by more exposure to specialists or by better working conditions of specialists. But it may also be explained by a negative image of working as a GP among the public and within the medical profession. Participants indicated, that Physician Chambers do not serve the image of GPs very well, by spreading negative media messages or by downplaying the income of GPs (S2SF, N3MH, G25SF). Another noticed:

Everybody says, for that [income], I am not ready to do it. I hear that so often and think to myself, they do not really know [GPs], but stories are told. (G18SF)

Participants also referred to terms which reflect a negative image of GPs, namely ‘lone warriors’ [Einzelkämpfer] (S2SF, N24AC, G25SF), ‘referral GPs’ [Überweisungs-Allgemeinmediziner] (G18SF), a ‘dead end model’ of medicine [Sackgassenmodell] (N14SF) or a ‘discontinued model’ [Auslaufmodell] (S23GP).

Postgraduate GP training. As addressed above, postgraduate training for GPs and specialists was reformed in 2015³². The modified training schemes start with a ‘common trunk’ of nine months hospital-based training for all physicians.³² Two participants believed that this led to a first ‘bottleneck’ of waiting times (N10AC,

N16MS), although data in this regard were not identifiable. GP trainees thereafter continue with 27 months of hospital-based training and then complete six months of training at a GP office. It is thus for the first time obligatory for GP trainees to work at a GP office and this training period will be extended to nine months in 2022 and to 12 months in 2027. One academic was worried this may create a second ‘bottleneck’:

If the teaching practice will really become a bottleneck, we need [to know] the age of teaching practice leaders [and] how many young physicians intend to replace them. (NG7AC)

On the other hand, there was hope that the reformed scheme will increase competence and confidence of GP trainees, as the old scheme was reported as ‘almost dangerous’ (G18SF). Another relevant statistic is the share of medical school graduates entering the Austrian physician workforce. A Physician Chamber participant stated that only six of ten graduates end up working as a physician in Austria (N9PC), which might risk being misinterpreted. Own calculations based on Physician Chamber data¹²⁹ indicate, that an average of 434 (32%) medical school graduates from 2011-2015 did not practise as a physician in 2016, while 349 physicians from abroad (including Austrian citizens) entered the physician workforce, resulting in a net loss of 6%.

Key choice 2: General practitioners choosing between working as a GP, private doctor or hospitalist

Fifthly, **more attractive employment opportunities will cause vacant GP positions.** In Austria, most physicians certified as a GP do not work as a GP. Some work as a specialist, which will be far less the case due to the reformed training scheme. Of those who work as a general practitioner, around 40% are hospitalists, 20% are private doctors and approximately 27% are GPs.¹²⁴ Therefore, the number of GP trainee graduates cannot be equated with the number of doctors who go on to practice as GPs, because vacant GP positions are in competition with other working opportunities, like working as a hospitalist or a private doctor, which were in the past attracting three of four general practitioners. On the one hand, this large pool of certified GPs not working as GPs who could eventually choose to work as GPs may already have attenuated or delayed the development of a more significant GP shortage. On the other hand, their current workplaces are often judged more attractive than vacant GP positions. Concerning private doctors, they have more than doubled in numbers since

2000,¹²⁴ indicating a rise in popularity. Concerning hospitalists, they gained a competitive advantage by decreasing working hours of hospital doctors which increased demand for physicians and subsequently wages (G18SF). One participant claimed that income increased by 20%-30% (N15MS), another replied that the hourly wages increased but not the income (N10AC), though income data from the periods before and after this change were not identifiable. Interestingly, while four participants mentioned private medicine as a relevant source of competition (G6GP, N12SF, N17PS, S22PC), only one mentioned both private medicine and hospitalists (N12SF) and none mentioned that preventing a GP shortage might possibly cause a hospitalist shortage. Figure 8 indicates decreases in GP training graduates, from 826 in 2015 to 533 in 2018, while there will be on average 437 annual general practitioner retirements during the upcoming decade.²⁹ If the number of GP graduates will continue to decline significantly, avoiding both a GP shortage and a hospitalist shortage, might not be feasible. This lack of awareness of the closely connected issue of hospitalists might also be related to a lack of linguistic distinction between general practitioners (GPs, hospitalists, private physicians and others) and GPs (working in an office and holding a full Sickness Fund contract). Within the body of interview data, the term *general practitioner* [Allgemeinmedizin*] was mentioned 259 times, *GP* [Hausarzt, Hausarzt*] 197 times and *practitioner* [Praktiker] was mentioned 44 times. All three terms were used interchangeably for *GP*.

Sixthly, **unattractive working conditions will cause vacant GP positions**. Competitive disadvantage cannot solely be explained by specialist training being appealing for young physicians or by other general practice working opportunities being appealing for certified GPs, but also by the (relative) appeal of working as a GP. As one interviewee put it, 'many GPs simply do not want to do that anymore' (N17PS). Surprisingly, only two aspects related to working conditions received significant attention, namely, time and money.

'High frequency medicine' [Frequenzmedizin], too many patient contacts in too little time, was identified as a major problem:

When you have 100 contacts [per day], that's difficult to endure. You permanently have to adjust to new people, that's not easy to endure. (G5HF)

High frequency medicine is the fundamental problem. I have a lot of contact with juniors and they tell me, I am not prepared to see 20 patients an hour. If you don't do that and don't also work as a school doctor or firefighter doctor, then you just have little income. (G18SF)

These statements were tested by asking two GP interviewees, one revealed that s/he saw 'sometimes 30, but sometimes also 60' (G6GP) patients and another estimated 'around 40, 35, 40' (S23GP), both referring to morning shifts of usually around five hours. These data account for an average of 5-9 minutes per patient, which are in line with identified quantitative survey data suggesting an average consultation time of 4 minutes,²⁷ 5 minutes¹³⁰ (second lowest in Europe) and 8-9 minutes¹³¹. While the first two accounts therefore seem exaggerated, the consulted GPs and quantitative data suggest that the workload for GPs in Austria is unusually high. Lack of time for individual patients and for conversations was also recognised by 79% of medical students and by 87% of GP trainees in Austria as a barrier to working as a GP. No other barrier ranked higher in both groups.³³ Nonetheless, one participant saw it differently:

I get a laughing fit when the 'minutes discussion' is mentioned. Five minutes per patient. [...] But how long should I stay in the doctor's [office] when I have a flu? When I am still there after five minutes, I think to myself, doctor, are you bored? (N14SF)

Three causal explanations for the 'high frequency medicine' were offered, specifically, lack of GP positions (N10AC), fee-for-service (G5HF), and lack of nurses and allied health professionals (N10AC). Participants argued that the catchment areas of GPs are too large, that the remuneration system primarily based on fee-for-service does not allow for taking more time with patients and that 'cooperation with physician-relieving healthcare professionals has actually endlessly got stuck' (N10AC). Also, others indicated that the remuneration system was not attractive anymore, especially for younger physicians (N3MH, G18SF).

Lack of income was also identified as a problem, not surprisingly by a Physician Chamber participant (N9PC), but also a patient solicitor admitted that the comparison with the 'gods in white from the cutting specialties, who make a million a year, those exist' (N17PS) can understandably provoke envy. This was affirmed by a GP who stated 'when some office-based specialist earns twice as much as a GP, that's an imbalance, and he does not make home visits, he does not do night shifts' (S23GP). Interestingly, another Physician Chamber participant reported that the largest and most profitable vacant GP positions were the least popular (S22PC), suggesting that lack of income might be less relevant than *high frequency medicine*. While the Physician Chamber was

criticised for publicly downplaying the income of GPs (G25SF), only 12% of medical students see a GP career as attractive because of the income³³. Nevertheless, a long-awaited income inquiry into Austrian physicians calculated a median annual income for GPs of €129,941 before taxes, which is lower than other specialties but which does not seem low compared with other healthcare professionals and the wider economy.¹³²

This perspective was shared by a participant:

GPs do not earn that little, everyone has a double garage [...] that is ridiculous and a whining. But I still understand it somehow. (G8MU)

And it was confirmed by a GP who stated that 'I really do not feel poorly paid. I also work a lot for it, but I can afford [a lot]' (S23GP).

Interestingly, *administrative burden* was not proposed as a cause of unattractive working conditions or lack of time for patients, while it was frequently mentioned within press releases⁹¹ of the Physician Chamber.

Seventhly, **rising GP retirements will cause vacant GP positions**. This was the second most common explanation for the expected GP shortage, used by seven participants (S4HF, NG7AC, N12SF, N15MS, S22PC, S23GP, G25SF). It was usually presented as a challenge to deal with, as an obvious fact, which is supported by evidence. This phenomenon was described using two particular phrases, as the departure of the 'baby boomers' (S2SF, NG7AC, N17PS, S22PC) and as a 'retirement wave' [Pensionierungswelle] (N1YG, NG7AC, N17PS). One participant described it further as a 'homogenous cohort which is now saying goodbye', especially when compared with the more heterogenous age distribution of nurses in Austria (NG7AC). Another issue related to retirements, which reportedly only affected a 'handful of physicians [in Salzburg]' (S22PC), is the regulation that Sickness Fund contracted physicians of more than 70 years of age are obliged to hand over their contract. This regulation came into effect on 1/1/2019, which is perhaps surprising while a GP shortage is being debated, but, nevertheless, understandable, when it is remembered that it was agreed upon 10-15 years ago (S22PC), long before the shortage received attention.

Eighthly, **generational changes will cause vacant GP positions**. Several explanations were offered related to differences of the newer cohorts of medical graduates, namely less interest to work in a single-handed GP office and in rural areas, more interest in

work-life balance, and an increasing number of female graduates. These were the most common explanations for a GP shortage, used by ten interviewees.

Single-handed GP offices were presented as an outdated model as ‘nobody wants this way of working anymore’ (N14SF), while the recent healthcare reform had already introduced the first interdisciplinary healthcare centres as an alternative. Nevertheless, the accuracy of such statements can be questioned, as a survey of medical students showed that, of those who wanted to work as a GP, 59% declared they want to work in new interdisciplinary healthcare centres, while 49% still indicated they want to work as a single-handed GP.³³

Rural exodus was also suggested as a potential cause (G5HF, N9PC, N24AC, G25SF), explained by rural areas being seen as less attractive and that the ‘younger generation wants to live in the cities’ (N9PC). Another voice was more cautious, indicating that ‘there are enough people, who certainly have a preference not to live directly in the [city] centre’ (N24AC), which was supported by survey results which revealed that 44% of Austrian medical students would like to work in rural areas.³³

Work-life balance was seen as a significant generational change. Some interviewees believed that physicians today want to work less and enjoy more leisure time (S19MA, S21MU, S22PC, G25SF), especially when they ‘see the private physician at noon on the tennis court’ (S22PC).

Change of the gender distribution was also mentioned as an explanation of a GP shortage (N3MH, N17PS, S21MU). In the past, more male general practitioners were choosing to work as a GP in Austria. In 2017, 65% of GPs were male, while 62% of private general practitioners and 73% of hospitalists were female.¹²⁴ Nevertheless, this past distribution might change among the younger generation, as 48% of GPs under 55 years of age were female in 2017.¹²⁴

Ninthly, **randomness will cause vacant GP positions**. Few interviewees offered this as a possible explanation, next to offering other explanations as well, by describing the issue as a natural phenomenon without identifiable causes or obvious solutions. Namely, ‘GP shortage is simply there, Europe-wide, independent of organisational form’ (G6GP) and ‘this turned around completely, the whole thing relatively quickly. [...] There are always these rotating cycles. And now we have a cycle where there are way too few [GPs]’ (S2SF).

Overall, the application of the different definitions and causal interpretations had distinct implications for future policy (see Table 9 for a summary). The six interviewees who defined the GP shortage as *vacant GP positions* had less reason for concern, as most GP positions are still filled. They interpreted the issue mainly as an imbalance of demand and supply and used the length of the waiting lists for GP positions as the most relevant indicator. This perspective implies that all actors who influence the production of physicians and their interest in a GP career, share responsibility for the issue. The eleven participants who defined the GP shortage as *lack of GP positions* had more reason for concern, as most of them believed that the current density and distribution of GP positions is inappropriate. They interpreted the issue mainly as a problem of allocation based on bargaining rather than on evidence-based needs assessments. This perspective implies that the actors who are negotiating the allocation share responsibility for the issue.

Table 9: Frequency of definitions and proposed causal explanations for the GP shortage

Codes (individuals)	Definition: vacant GP positions	Definition: lack of GP positions	1) Inappropriate allocation	2) Reducing demand	3) Preventative oversupply	4) (a) Medical Schools	4) (b) Postgraduate Training	5) Employment competition	6) (a) High frequency medicine	6) (b) Lack of income	7) Rising retirement rates	8) Generational changes	9) Randomness
National (15)	3	4	1	2	2	2	5	4	1	4	3	6	
Salzburg (7)	4	4	1			2		1			3	3	1
Styria (7)	1	4	3	1		1	2	2	2	1	2	2	1
Ministry of Health (1)		1		1								1	
Ministry of Sc & Ed (2)							1	1		1	1		
Politicians (2)	1	1				1				1		1	
Patient Solicitor (1)								1		1		1	
Mayor (1)	1											1	
Medical University (3)		1	1	1								1	
Sickness Funds (6)	2	3	1	1		1	1	2	1	1	2	2	1
Health Funds (2)	1	2	1			1			1		1	1	
Physician Chamber (2)		1					1	1		1	1	2	
Austrian GP Society (2)	1	1				1		1			1		1
Young GP Society (1)	1	1	1										
Academics (3)		1			2	1	3	1	1		1	1	
No. of individuals (26)	6	11	4	3	2	4	6	6	2	4	7	10	2

Capacity for action. Several causal interpretations of the GP shortage were provided. Two of them correspond to the definition *lack of GP positions*, namely the inappropriate allocation mechanism and the untapped potential of reducing demand

for GPs. Both explanations were rarely mentioned by participants. Others correspond to the definition *vacant GP positions*. One causal interpretation explained the almost fully occupied GP positions in the past as the product of the long-term oversupply of general practitioners. However, this explanation is now obsolete since the limitations of medical school positions introduced in 2006 and of GP training positions in 2015. Other causal interpretations focus on two key objectives, namely increasing the number of medical graduates who choose GP training over specialty training and increasing the number of certified GPs who choose working as a GP over working as a hospitalist or private physician. Those causal mechanisms are the extent of general practice education within medical schools, the capacity and quality of postgraduate GP training and the comparative attractiveness of the GP workplace, including adequate time for patients and adequate income. None of these responses was mentioned by more than six participants, while lack of time was most important for students and trainees. Two other causal interpretations were mentioned more frequently, namely upcoming GP retirements and generational changes.

Implied responsibilities. The proposed causal interpretations assigns responsibility to different actors. Four participants focused on inappropriate allocation mechanisms which assigns responsibility to the federal Government, regions, Sickness Funds and Physician Chambers. Four participants' causal interpretation implied that medical universities and the Ministry of Science and Education are responsible. Six participants implicitly assigned responsibility to Physician Chambers and regions, which were mainly believed to be in charge of postgraduate training. Six participants focused on competitive disadvantage and six on working conditions, which are issues mainly agreed upon by Sickness Funds and Physician Chambers. Significantly more participants focused on causal interpretations to which there do not appear to be obvious solutions, like retirement rates or randomness, and therefore no obvious responsibilities. Important to note, these statements concerning responsibilities are based on interviewees' judgments and as the third study of this thesis, concerning practical aspects of implementing seven prioritised measures, indicated, responsibilities are often not clearly assigned in the Austrian healthcare system. The observation that no single causal interpretation was mentioned by a majority of participants (see Table 9) suggests that those actors who are responsible for these

causal mechanisms are currently not fully held accountable for remedying the shortage. This may be explained by a lack of understanding of the GP shortage or by using definitions and interpretations tactically to avoid responsibility and its financial or political implications, as this quote indicates:

I am slowly having the impression, that they are passing the ball to each other. The hot potato. Here, take it. (G8MU)

Other consequences. The different framings of the GP shortage issue have several implications for the policy making processes. *Firstly*, the lack of a common definition of the GP shortage may partly explain the lack of urgency related to the issue as identified earlier. Some do not see it as a problem because GP positions are largely filled, or because the *right* number of GPs is unknown. Others see it as a problem because they believe Austria already has a shortage due to an insufficient number of GPs or because they are aware of the recently abolished oversupply and the increasing retirement rates. *Secondly*, this variety of definitions and of causal explanations implies a variety of policy solutions. This may reduce the likelihood of implementing some policies and those policies which get implemented nevertheless may be less likely to tackle root causes like the allocation process, GP education and training or more time for patient encounters. *Thirdly*, the stronger attention given to causal interpretations which do not offer obvious solutions than for those which do may reduce the likelihood of appropriate policy implementation. *Fourthly*, the late emergence of attention given to the GP shortage issue may be partly explained by the long-term oversupply of general practitioners which made GP recruitment efforts unnecessary for a long time. *Fifthly*, while there were few observable differences concerning the reported definitions and causal interpretations between geographical distribution or professional identity of the participants, Physician Chambers seem to put a stronger emphasis on lack of income and excess of administrative tasks as causal factors, also reflected by the larger number of press releases⁹¹ concerning this matter as identified previously. These two beliefs seem highly prevalent also among medical students and GP trainees, which is surprising as most of them would have had up to this point little or no contact with GPs. This observation suggests that there is room for improvement concerning the perception of working as a GP, not just the objective working conditions themselves. *Sixthly*, three participants mentioned two bottlenecks,

namely, assumed waiting times for starting postgraduate training and anticipated waiting times for the now obligatory GP training practices. Any significant interruptions of the GP supply chain would make other causal interpretations less meaningful or even obsolete.

d) How do other aspects of the problem stream influence the agenda status of the GP shortage?

John Kingdon's agenda setting theory identified political changes, indicators, focusing events and feedback as usually the most influential determinants of a change in agenda status and assigned less importance to the policy community, pressure groups, the media or to policy proposals.^{15 pp.90-115} The following section will discuss some of those aspects which relate primarily to the 'problem stream' concerning the GP shortage in Austria before going on to address aspects which relate primarily to the 'policy stream' and then the 'political stream'.¹⁵

i) *Indicators*

Decision makers can consult indicators to assess the magnitude and trends in changes of an issue they consider as relevant.^{15 p.91} The result of such an assessment can thereby influence their sense of urgency and subsequently the agenda status of a problem.^{15 pp.93-4} This factor is less influential if a problem is difficult to measure or if available indicators are not considered credible.^{15 pp.93-4}

Four indicators relevant to the GP shortage were mentioned by participants (see Table 10 for a summary):

Vacant GP positions was mentioned as an indicator by six participants (N1YG, S4HF, N11SF, S19MA, S23GP, G25SF). This was previously presented as one of two predominant definitions of the GP shortage but can as well be considered an indicator. Nationally, while the number of vacant GP positions in Austria is not routinely measured, the last measurement was performed by the Austrian Press Agency in July 2018.³⁰ It displayed 70 vacant GP positions at the time, a vacancy rate of 1.9%, and put

the issue briefly on the national media agenda.³⁰ Regionally, at least Sickness Funds and Physician Chambers seemed well aware of the number of vacant GP positions, presumably because both actors are engaged in finding suitable replacements. Locally, each vacant GP position can put the mayor under pressure and often leads to media coverage. This local perspective was explained as a 'huge issue in the population not to have a doctor, that puts considerable pressure on the mayor' (S23GP) and that 'the largest interest group related to the GP shortage, who really want to make a difference, are the municipalities, because they feel it most strongly, because nobody gets re-elected as a mayor when he loses his GP in the village' (N1YG).

Expected GP retirements was mentioned as an indicator by seven participants (S4HF, NG7AC, N12SF, N15MS, S22PC, S23GP, G25SF). This indicator is routinely measured by the Physician Chamber which is legally obliged to collect physician data. The number of GPs reaching the retirement age is therefore available at both the regional and national level for each year. As mentioned previously, participants from the region Salzburg, nevertheless, mentioned the more indirect indicator *average age of GPs* more frequently, despite its limited utility on its own as it cannot predict the expected annual need for GP replacements.

GP training graduates was mentioned as an indicator by one participant (NG7AC), while two participants discussed the issue without utilising it as an indicator (S23GP, N24AC). The number of GP training graduates reflects the current capacity of the GP supply chain and seems like an obvious indicator for evaluating the functionality of the new postgraduate training scheme as introduced in 2015³². While the number of GP graduates decreased from 826 in 2015 to 437 in 2018,²⁹ the interpretation of this indicator is complex: firstly, because the postgraduate training scheme changed fundamentally and significantly fewer graduates are to be expected; and secondly, because this number is not only influenced by the previously designated *first key choice*, namely the share of young physicians choosing GP training over specialty training, but also by the previously identified *bottlenecks* of waiting times for starting the postgraduate training and for joining the obligatory GP teaching practice.

GP position applicants was mentioned as an indicator by two participants (S2SF, G18SF). They recollected that some years ago 40 (S2SF) or even 100 (G18SF) general practitioners applied for vacant GP positions. While there are several factors which determine the extent of this number, it reflects the balance of supply and demand to some degree. This indicator was not systematically assessed or publicly available, but well known to regional Sickness Funds and Physician Chambers who deal with individual replacements.

Table 10: Indicators relevant for GP shortage mentioned by participants

	No. of vacant GP positions	No. of expected GP retirements	No. of GP training graduates	No. of GP position applicants
No. of participants explicitly mentioning the indicator	6	7	1	2
Routinely measured and published nationally	No	Yes	Yes	No

Overall, the indicators mentioned were used differently and had different implications. Vacant GP positions seemed to function more as an indicator nationally, a feedback mechanism regionally and a crisis locally.^{15 pp.90-103} Some participants even speculated that vacant GP positions which pressured mayors and activated the local media were the primary causal pathway which put the GP shortage onto the agenda (see chapter on the ‘political stream’). The indicators of expected GP retirements and GP training graduates were the only indicators which were routinely measured and nationally available. Interestingly, while the indicator of expected retirements was frequently mentioned by seven participants, the arguably equally important indicator of GP training graduates was only mentioned once. The expected retirements, therefore, might have been utilised as an indicator to objectively support the concerns of mayors about vacant GP positions. Kingdon suggested that the change of an indicator can sometimes indicate larger changes of a system.^{15 pp.91-3} The observations of the length of waiting lists for GP positions might therefore have been utilised as an early warning sign for the imbalance between demand for and supply of GPs and to anticipate the first vacant GP positions.

ii) Other relevant aspects of the ‘problem stream’

Two other relevant aspects primarily within the ‘problem stream’ may help explain why the GP shortage in Austria is on the stakeholder policy agenda.

‘Physician flood’ [Ärztenschwemme], the term for physician over-supply appeared to have largely disappeared from the debate but was used by four participants when describing the past (N10AC, N14SF, N17PS, S22PC). Two more senior participants mentioned that around the turn of the new millennium, many physicians were supposedly working as taxi drivers because they could not find a clinical employment (N3MH, N15MS). One remembered a running gag from that period:

What do you do when you quickly need a doctor? You call a taxi. (N15MS)

This previous debate can partly be explained by an oversupply as medical schools did not have entry barriers at that time. Participants indicated that this debate switched between 2000 and 2005 from a ‘physician flood’ to a *physician shortage* and also a media analysis¹³³ of this issue confirmed that the public debate related to a ‘physician flood’ had largely disappeared by 2005/6. One participant expressed discontent concerning these debates in the early 2000s:

I was angry because within five years the topic switched from a physician flood to a physician shortage. (N14SF)

The quite rapid alteration of the public debate was primarily explained by political developments. One participant stated that it started due to the medical school curriculum reform in 2002 and the subsequent introduction of entry exams and place limits for medical universities in 2006 (N10AC). This reform reportedly caused public anger, because some of those Germans, who were not allowed to study medicine in Germany (because of not passing the required *numerus clausus*), studied medicine in Austria instead and thereby reduced the available number of medical university places for Austrian students:

The public was extremely angry with the EU [European Union], extremely angry with the Germans who took our children’s training places. (N10AC)

This supposedly triggered the Ministry of Science and Education to commission a report which argued that most medical university places should be reserved for Austrians, on the grounds that they are more likely to work in Austria after graduation, thereby helping to meet the human resource needs of the healthcare system (N10AC).

According to one interviewee, this study was then utilised by the region of Upper Austria to argue for starting a new medical school in the city Linz which was supposedly motivated by receiving 'fresh federal money' and the school indeed opened in 2014 (N10AC). Both parts of this story, the need to reserve medical school places for Austrian citizens and to build a new medical school in Linz might have caused the public debate to change from 'physician flood' to physician shortage.

Competition for attention with other reform efforts. While the prepared interview questions focused primarily on the GP shortage and related policy responses, it was obvious to see that two other, major reforms were on the minds of most interviewees, namely the Sickness Fund reform and the Primary Health Care (PHC) reform, which does not seem to be entirely separate, as some regarded this reform as helpful in alleviating a GP shortage.

The PHC reform was launched by the 'federal target control contract' [Bundeszielsteuerungsvertrag] in 2013 (NG7AC) and by a policy document in 2014¹³⁴ which outlined a new structure of interdisciplinary practices of GPs, nurses and allied health professionals, which was, according to one interviewee, also inspired by a GP practice in Tower Hamlets, London (N14SF). These new PHC units can be organised as a centre or as a network and twelve units have been implemented nationwide so far (July 2019¹³⁵). Overall, the PHC reform was mentioned in 23 of 26 interviews. The Ministry of Health seemed preoccupied with it by developing the legal foundations of this reform further (N3MH). In Salzburg, it was presented as a concern, because they did not have such a PHC unit as 'Salzburg somehow does not really make progress' (S2SF) and is therefore 'unfortunately very far behind' (S4HF). In Styria, the first PHC centres and networks had already been initiated and it was presented as an issue which was receiving some attention, as a 'topic which was getting into the focus' (G6GP) and as a 'big topic which occupies colleagues a lot' (G5HF). Interestingly, the most critical voices concerning this PHC reform came from GPs themselves who saw it as a 'parallel piece of work' which mistakenly intertwined the topics of a GP shortage and weak primary care functions (G6GP) and that 'politically and publicly everything goes somehow into the PHC direction' but nevertheless 'I don't feel like a discontinued

model [...] I actually feel comfortable in my single-handed practice' (S23GP). This apparent tension was further affirmed by another participant from a university:

What GPs always criticise is that only primary care units receive support but not general practice in general, not [single-handed] GPs themselves. (G8MU)

Additionally, another participant suggested some competition for media attention, while speculating about decision makers' intentions to focus on the PHC reform:

The regions, the cities suddenly pay for primary care, which was actually never their business, only to set up certain prestige or lighthouse projects and then to get photographed and to be able to say 'isn't it great'. (S23GP)

This perspective was confirmed by an interviewee from Styria who reported that decision makers see 'headlines without end, in Styria four [PHC units] will open this year, every day five reports. That is media-effective' while questioning the quality of the actual implementation (G18SF). As a positive remark, a Physician Chamber representative suggested that single-handed GPs and PHC units should coexist and that there should not be an 'either or' debate (N9PC).

The sickness fund reform was a major initiative of the conservative party, ÖVP, and the right-wing party, FPÖ, coalition Government which took office in December 2017 and ended in May 2019. This reform aimed to merge the 21 Sickness Funds to five and to reduce the overall number of employees from 29,000 to 19,000.⁵⁷ It was advertised as the 'largest reform in the Second Republic',⁵⁸ while one Sickness Fund participant suggested that it was more accurately an 'organisational change, unfortunately not a reform, because the operational problems were left out' (N14SF). It was also promoted as cutting healthcare costs by one billion Euros, without offering evidence to support this claim, which was also questioned by the Austrian Court of Auditors because a 'transparent calculation basis' was missing.¹³⁶ The social-democratic opposition party, SPÖ, speculated that the main intent of the reform was to replace the majority of social democrats within the sickness fund leadership positions with conservatives.⁵⁶ This perspective was shared by an interviewee as well:

The sickness fund reform is a [political] colour-change. It is not about developing the system but about 'position haggling' [Postenschacher]. But this has to do with Sickness Funds being misused for providing some person with some position. (NG7AC)

Within this study, this reform was mentioned by eight participants (N1YG, S2SF, G5HF, NG7AC, N10AC, N14SF, N17PS, G18SF). While the PHC reform was of concern for most stakeholders, the Sickness Fund reform was, not surprisingly, mainly an issue for

Sickness Fund staff. One participant from a Sickness Fund mentioned it within the first sentence after being asked about the institution's current main issues:

That is the big issue which overlaps everything, where the whole time, attention, focus goes to. Because this even affects your home, personal fate, career prospects [...]. That is simply the issue which preoccupies us as Sickness Fund, paralyses us. That is the main issue for the next few years, everything else would be a lie. (S2SF)

Another participant from a Sickness Fund confirmed this view by mentioning that 'many resources will be tied up and much management attention will be tied up, topics will suffer content-wise', and predicted that it will take 'five years, until they get back onto their feet, these will be rather lean periods' (N14SF).

Several other issues influenced the agenda status of the GP shortage which will be discussed further within the upcoming chapters. Among them were the pressure exerted by mayors, the advocacy activities of different interest groups, the increasing media coverage, and activities of policy entrepreneurs.

Three issues were identified as potential competition for decision makers' attention. The first issue was the public storytelling concerning a 'physician flood' in Austria, which disappeared around 2005 presumably due to supply chain changes and political reasons. This may have set the stage for the GP shortage concept. The second issue was the PHC reform which was mentioned by all but three interviewees, which was not only in competition for decision makers' attention but also seemed to be at odds with some GPs' preferences for healthcare reform. The third issue was the Sickness Fund reform which was mentioned significantly less frequently but which seemed to be of major concern for Sickness Funds as it may take up a lot of management attention and allow less attention to be given to issues like the GP shortage.

In conclusion, this chapter on the 'problem stream' related to the GP shortage in Austria attempted to answer two of the research questions, namely, whether the problem is on the policy agenda and how participants characterise it.

A policy agenda was defined as those problems which receive serious attention^{15 p.3} by relevant stakeholders and *problems* were defined as those conditions which are believed to require action^{15 pp.109-10}. Quantitative analysis of the content of

recent Government Programmes,^{47,86-90} press releases⁹¹ of the Austrian Physician Chamber and bi-weekly publications⁹² of the Austrian GP Society, as well as qualitative analysis of the semi-structured interviews both indicate that the notion of a GP shortage started to receive attention around 2010 which increased in frequency and volume after 2017. Nevertheless, participants' accounts suggest that there is no conclusive agreement on the significance of the problem. Some were satisfied with the almost fully occupied GP positions, some argued that GP positions are not allocated based on patient needs and others assumed that there is already a GP undersupply. Regional comparison suggests that Salzburg is less concerned than Styria today but interviewees from Salzburg reported more emphasis in the past when more GPs were expected to retire. Few participants reflected on consequences of the scenario of a significant GP shortage and their predictions ranged from no consequences to a major healthcare crisis. Overall, increasing attention for the issue seems to conceal a lack of consensus concerning the severity of the problem.

GP shortage was mainly defined as vacant GP positions or as an inadequate number of GP positions. Those participants who applied the former definition seemed less concerned and those who applied the latter seemed divided. Many causal explanations for a GP shortage were provided and their usage varied between participants. There appeared to be less focus on issues which appear to offer obvious solutions and more focus on issues which do not. Improving allocation mechanisms, extending general practice within medical schools, improving capacity and quality of postgraduate training and enabling more time for patients seem feasible but were rarely mentioned. Rising retirement rates and randomness are not directly amenable to change but were frequently mentioned. Six other significant issues might deserve more attention: the two *key choices* within the GP supply chain, namely the share of physicians choosing GP training over specialty training and the share of GP training graduates choosing a GP career over private practice and the work as a hospitalist; two potential *bottlenecks*, waiting times for starting the postgraduate training and for working in a GP teaching office; and two relevant indicators, the number of GP training graduates and the number of applications for vacant GP positions. Overall, the understanding of the problem seems to vary considerably and monitoring of the GP supply chain offers room for improvement.

This chapter can partly explain why the GP shortage was receiving more attention by key policy actors. Firstly, the indicators of vacant GP positions, expected GP retirements and number of applicants for vacant GP positions apparently received sufficient attention by stakeholders. Secondly, at least some participants were already aware that the previous oversupply of physicians had disappeared, that the recent postgraduate training reform had significantly reduced the number of GP graduates and that the number of expected GP retirements is likely to increase. Thirdly, the switch of the public debate from 'physician flood' to physician shortage between 2000 and 2005 might have enabled the rise of GP shortage onto the agenda. Additional explanations for its rise are within the chapters on the 'policy stream' and 'problem stream', below.

In brief, while GP shortage receives increasing public and stakeholder attention, there is less consensus on its severity, definition, causal explanations and priority indicators. This might therefore be interpreted as the GP shortage being somewhat on the stakeholder policy agenda in Austria.

4.6. The ‘policy stream’ related to the GP shortage in Austria

What is meant by *policy*? This term cannot be directly translated into German but there are many definitions available in English and classifying an entity as a policy also involves subjective judgement. Hill and Hupe^{83 p.4} reviewed several of these definitions and referred to Hogwood and Gunn when describing policies as having a purpose (set from the outset or retrospectively), behaviours (action and inaction) and outcomes (foreseen and unforeseen). At its simplest, policy is therefore a means to an end^{83 p.5} and Anderson, as cited by Hill and Hupe,^{83 p.5} defined it as ‘a purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern’. While these simplified definitions do not always correspond to the messy reality of making and implementing policy, Kingdon’s theory of agenda setting¹⁵ helped to understand these concepts and processes further.

John Kingdon explained the ‘policy stream’ by using the metaphor of a ‘policy primeval soup’.^{15 p.116-144} In this regard, specialists within a certain policy area continuously discuss the available ideas in a manner similar to evolutionary ‘natural selection’ in which ideas are developed incrementally and eventually favour some policies over others.^{15 p.116-117} These processes are not arbitrary but consist of mutual persuasion between specialists based on criteria including the technical feasibility of policies, their compliance to values especially within the community of experts as well as current or anticipated budgetary constraints.^{15 p.116-144} Kingdon’s theory¹⁵ concluded that decision makers largely define which problems receive attention^{15 pp.163-4} but emphasised that experts usually define the available policy responses:

‘While academics were not responsible for the prominence of that problem on the agenda, they were prominent among the people to whom politicians turned for ideas on how to cope with it.’^{15 p.55}

The ‘policy stream’ is seen as functioning largely, but not entirely, independent from the ‘problem’ and ‘political’ ‘streams’ as presented in the previous and the upcoming chapters.¹⁵ This chapter will explore the ‘policy stream’^{15 pp.116-44} related to the GP shortage in Austria.

Research question 3: To what extent are preventive measures on the policy agenda?

This section will discuss those policy proposals frequently mentioned by participants and discuss criteria, identified by Kingdon, policies need to exhibit to 'survive'.^{15 pp.131-9}

Developing general practice as a recognised specialism

This policy mainly aims to align GP and specialist training and to offer GPs the more prestigious specialist status. It was actively brought up by 13 interviewees and discussed with two more after asking related interview questions. The current debate concerning this policy was described as 'grinding on' (S2SF), 'increasingly under discussion' (N1YG) and 'massive, now once again discussed' (G6GP). One interviewee indicated that it was in some Government Programmes (S2SF) and among the six most recent Government programmes, this policy was identified as a proposal in the programme of 2007⁸⁸ and as an option to be 'assessed' in the programme of 2017⁴⁷. Apparently, it was already 'agreed on in the course of the discussions on the contracts [for joining the European Union]' in 1995 (N10AC), 'strongly discussed' around the turn of the millennium (G18SF) and 'since a few years, there has been in place a resolution by the Physician Chamber in favour of the specialist for general practice' (S22PC). Several variants of this policy, including different content and objectives, were proposed by participants. Some saw it as a 'symbol' (NG7AC) which could increase 'prestige' (S2SF) and decrease the 'emotional gap' (G26MU) between GPs and specialists to attract more students to a GP career (S23GP). This gap was confirmed by a survey of medical students in Austria as only 8% believed GPs are highly recognised by medical specialists.³³ Others saw the specialism as a means to increase the quality of training and care (S2SF, N17PS, S22PC) by increasing the length of the training period (N9PC, G26MU) which was used by a Physician Chamber participant to argue that 'a comparably long training and thereby attached should be also a comparable income [with specialists']' (N9PC). Another participant from a Sickness Fund suggested that the introduction of specialists for general practice should be accompanied by redefining their role, possibly as 'first contact point, as gatekeeper' (G18SF). Several explanations were offered concerning why this policy was still an issue of debate after 24 years. One participant believed that Sickness Funds were against it

because ‘then they [specialists in general practice] would want more money’ (N3MH) which was confirmed by a Sickness Fund representative:

I think they should finally say what to really expect from it. Is it just a title, then it would be less of a problem. [...] This is about money. But all of that can be discussed. [...] For sure it would be good for the prestige.’ (S2SF)

Two participants believed that the Ministry of Health was against it and interestingly identified the same individual, a senior civil servant, as a ‘strong voice against’ (NG7AC) and that ‘[this person] rather wants to avoid it’ (G8MU). Four participants believed that this policy is still not implemented due to the Physician Chamber (N3MH, G6GP, G8MU, N10AC), while a Physician Chamber participant said:

We are also in favour of implementing the specialist for general practice [...] When it is implemented we hope to find enough young colleagues who want to pursue this career. (N9PC)

Those who are sceptical about the actual position of the Physician Chamber presumed that they were ambivalent about implementing it for two reasons. One stated that ‘the resistance is certainly within their own ranks, [...] with specialists’ (G6GP) and another speculated about the Physician Chambers’ motive:

When the specialist for general practice [gets implemented], you have to define some boundaries. Will we make ECG obligatory for GPs and take it away from internists? So far it did not matter. (N10AC)

The reported ambivalence of the Physician Chambers was addressed by one participant who stated that Physician Chambers are currently not in control of GP training positions but in control of the number of specialist training positions (N10AC):

The Physician Chamber indeed allocates specialist training positions, this is the pressure towards hospitals. This department gets three specialist training positions, this gets two. (N10AC)

This was concluded by the claim, that they would gain influence by the introduction of the specialist in general practice, because ‘then the Physician Chamber suddenly has influence over the number of GP training positions. For the Physician Chamber, it would be good’ (N10AC).

Overall, this policy seems to be in line with the values of those who support GPs (as it would increase their status and possibly also their income, competence and significance within the healthcare system) and technically feasible (despite some challenges to define boundaries towards other specialists) while there are financial fears and political factors against its implementation. One interviewee did not believe that this dilemma will be solved shortly:

I tell you one thing, I am already much older than you, this [policy proposal] will be discussed for much longer. (G26MU)

More general practice teaching at medical universities

Overall, 13 participants indicated interest in increasing the extent of general practice teaching within undergraduate medical education (N1YG, G6GP, NG7AC, G8MU, N9PC, N14SF, N15MS, N16MS, S19MA, S21MU, N24AC, G25SF, G26MU). However, by applying the previously stated definition of a *policy* as a means to an end, these statements indeed indicate that half of participants share agreement on the *end* of more general practice, but there was very little agreement on the necessary *means*. The only specific item of policy content which was proposed more than once was that general practice teaching should ‘start preferably early’ (G8MU, N9PC, S21MU), that it should be offered ‘longitudinally’ (G8MU, S21MU) throughout the course of studies and include more ‘practical’ experiences in general practice (S21MU, G25SF). Other proposals put a stronger emphasis on ‘social engagement at the application’ for medical school (N14SF), initiating a ‘training association of universities which currently do not have a [medical] university education’ (N24AC), initiating an undergraduate ‘extension course’ for general practice (G26MU) and expanding ‘medical clerkships, mentoring during studies and research’ (G8MU). The absence of a widely known and agreed on policy proposal related to an issue which seemed important to many participants and which also seems to be technically feasible could be explained in a number of ways. Thus, one participant believed that ‘the university itself has no interest in [expanding general practice in the curriculum]’ and that ‘they rather want to teach science, research, excellence, and collecting third-party funds’ (N1YG) which was basically affirmed by a participant from a medical university in Styria:

We also don’t want all our students to become GPs. We need specialists, we need scientists. We need specialists who are working scientifically, otherwise there is no further progress. (G26MU)

Nevertheless, another medical school participant from Salzburg had more positive personal experiences, stating that ‘I have the feeling that [general practice] gets supported’ (S21MU). Another explanation was limited medical school budgets, as they ‘receive a certain federal money and then you cannot just say ‘now do much more general practice’. You could in fact but then others lose [money]’ (G8MU).

Higher remuneration

Participants concluded that ‘typically, they try to compensate the shortage with financial incentives, which just starts way too late’ (N1YG) and that this ‘shortens the discussion in the spirit of the Old Boys [the decision makers]. It is the simplest measure. They believe it is all about the money’ (NG7AC). This tendency seems to be reflected in recent policy decisions, namely recent GP payment rises in Salzburg (S2SF), Styria (G6GP, G18SF) and in Vienna (N1YG, N9PC). One Sickness Fund participant justified decisions to pay GPs more: ‘otherwise, we do not find any [GPs]’ (S2SF) and one Ministry of Health participant believed ‘more money for GPs is right’ (N3MH). Nevertheless, as addressed in the previous chapter, while probably no GP would oppose a pay rise, the relevance of ‘more money’ in order to prevent a GP shortage seems to be widely challenged (NG7AC, G8MU, N16MS, S22PC, S23GP, G25SF), including by GPs themselves (S23GP). Its implementation seems technically simple, as it mainly requires an agreement between the Sickness Fund and the Physician Chamber which are responsible for the remuneration decisions. Nevertheless, it seems to be financially challenging because Sickness Funds derive their budget from limited social insurance payments and higher income for GPs would therefore lead to lower income for specialists. One Physician Chamber participant therefore proposed:

The Sickness Fund cannot afford to pay more. Hence the idea occurred to use the framework of ‘target control projects’ and to fund [pay raises] together. The city of Vienna pays a part of the ambulatory sector and in return saves money in the outpatient clinics. Thus, an apparent funding with one shared budget. That is possible [...] and makes a lot of sense. (N9PC)

New remuneration methods

‘High frequency medicine’ was identified by two participants (N9PC, G18SF) as well as by 79% of medical students and 87% of GP trainees as a barrier to working as a GP.³³ The current remuneration system which is largely based on fee-for-service was identified as one cause of the lack of time for each patient (G5HF). Nine participants, four of them prompted by specific interview questions on the payment scheme, proposed to change the current remuneration system of GPs (N1YG, S4HF, G5HF, NG7AC, G8MU, G18SF, S22PC, S23GP, G25SF) and two others proposed a similar change introduced within the new interdisciplinary PHC centres (S2SF, N14SF). Nevertheless, the intensity of the debate concerning this policy proposal seemed to be low within the community of specialists and among decision makers. Some said ‘yes, I

believe it is rather [an issue of debate]' (G25SF) and that 'it is also discussed with the sickness fund, but there is not yet an agreement' (S23GP) while others responded, 'I do not recognise that the remuneration system gets discussed' (G6GP) and that 'capitation fees are discussed in the background' (N14SF).

Similar to the topic of *more general practice during medical school*, there seems to be significantly more agreement on the objective to change the current remuneration system rather than an agreement on a concrete policy proposal. The content of the stated demands varied. One interviewee generally hoped for a 'modern remuneration' system (N1YG) and two others proposed a 'capitation fee' (S2SF, G8MU) while this was challenged by a participant who 'would not call the capitation fee a remedy' (G18SF). One participant suggested to 'think about case-based payments like in the hospital, the DRG system' (G5HF) and another proposed that 'actually everybody should be employed, enough! Then it's over with performing some services, which are not required, like one more colonoscopy' (G8MU). There was some agreement on 'diversifying' the remuneration systems (NG7AC, G18SF, G25SF) because 'we now have to try. Austria, we do not have good pilot [projects], we really should just try things out' (NG7AC) but also this policy proposal varied from 'four different remuneration models [...] either with a fixed salary or purely with bonus payments, you can choose' (G18SF) to 'a transition model, where both [payment systems] are still there, where you voluntarily opt in [...] because this then takes away the fear' (G25SF).

Most proposed manifestations of the policy response of a 'new remuneration system' might potentially be supported by physicians, as one emphasised:

I could pretty much imagine doing that. [...] I would not have any problem to switch into such a system. (S23GP)

Also, the formulation of this policy might not be straightforward, but it seems to be technically feasible. Nevertheless, other criteria for 'survival'^{15 pp.131-9} of such policies were less likely to be fulfilled. While a new remuneration system would not necessarily lead to budgetary changes, several participants were concerned about unpredictable financial consequences. Two stated:

This is of course a highly dangerous issue. Because now I know [...] what they [physicians] do.

When you start to screw the cogs, then you often do not know how something evolves. [...]

When you overlook something, then the costs could go through the roof. (G5HF)

In principle, nobody dares to touch that [...] because everyone thinks I have what I have. (S4HF)

But also physician participants, who did not oppose a new remuneration system in general, emphasised that '[the income] must not get worse' (S23GP), that '[the income] must be fine' (S22PC) and that GPs still need to be 'payed adequately' (N9PC). Both groups, payers and physicians, were criticised for their hesitancy, as Sickness Funds apparently 'first look after the money and only then look after the quality of medical services' (N3MH) and as senior GPs reportedly ridiculed younger GPs for favouring capitation fees for PHC centres¹³⁷:

The young [GPs] were asked which remuneration system they prefer. They actually answered very professionally. But the old [GPs] are not interested at all, they shrug their shoulders. (NG7AC)

Overall, it seems that there is some agreement on changing the current remuneration system but less agreement on the content of such a policy, as only two proposed capitation fees and three some form of diversification of payment options. This hesitancy might be largely explained by the payers' fear of having to pay more and the physicians' fear of receiving less.

Strengthening the role of nurses in GP practices

Several participants were at least somewhat in favour of strengthening the role of nurses within GP practices (S2SF, G5HF, N14SF, N17PS, S19MA, S22PC, S23GP, N24AC). Nevertheless, the topic was portrayed as 'controversially discussed' (N1YG) and 'still very much on a theoretical level' (S2SF). The likelihood of its implementation was accordingly assessed as 'not realistic [...] and not yet an issue' (N1YG) while another participant could at least 'to a certain degree' (G5HF) envision its implementation because 'there are actually some GPs who already work with nurses' (G5HF). One participant predicted this policy will be 'a topic when the GP shortage exacerbates' (S2SF) and another stated that 'this [policy] is sometimes feared by physicians' (N1YG). There appeared to be different expectations concerning the content of this policy between physicians and nurses. As one participant described:

When you talk with GPs, they understand something completely different by employing a nurse. They do not want them to treat cough themselves. They want nurses to take blood [samples] and measure blood pressure. And when you talk with nurses they tell you 'we want to perform health counselling, diabetes consultations and disease management programmes'. (N1YG)

Two physicians hoped that 'for example, nurses could perform the larger part of the home visits, when it is just about having a look' (S22PC), that GPs can then 'say [to a

nurse] listen, this is an old woman, you have to measure her blood pressure' (S22PC) and 'when they undertake wound management, diabetes, heart failure and COPD [care], they could indeed also visit people at home [...] but of course this needs to be talked over and it must be coordinated and the responsibility must stay with the physician' (S23GP). Two Sickness Fund participants had similar expectations by envisioning nurses performing 'chronic care' (S2SF, N14SF), 'diabetes care' (S2SF, N14SF) and 'home visits' (N14SF). Interestingly, one Physician Chamber participant indicated, that practice nurses 'should be encouraged very strongly' but added if 'the majority of patients would not see the doctor anymore, this is rather a red rag for us' (S22PC). Other physicians also expressed their resistance towards this policy by stating that 'substituting physicians by nursing professions is the wrong way I believe' (S23GP) and by remarking:

This would never be discussed related to surgeons, that he would be replaced by another healthcare profession. (G6GP)

A patient solicitor proposed more discussions about 'upgrading nursing, the nursing competencies, also the responsibility of nursing' (N17PS) but also identified public opinion as another challenge:

In Austria, also patients are very hierarchical. The idea that a PHC nurse could touch them, there they have the feeling they would be treated poorly, which is actually not true at all. (N17PS)

If this policy proposal were to be considered for implementation in the future, some obstacles were identified. Firstly, changes of legislation (G26MU) would be needed to enable nurses to work more independently, possibly including home visits and clinical tasks without the need for delegation from a physician, which is currently supposedly required by law (S22PC). Secondly, an adaptation of the remuneration system was suggested by two participants (S22PC, G26MU) as Sickness Funds currently do not have contracts with nurses or fund nursing care services. Thirdly, some reported a shortage of nurses (N17PS, S23GP, G26MU) which would require an increase of training capacity in order to introduce more nurses into primary care (N17PS). Fourthly, there might be another political barrier, as one participant stated that the Physician Chamber 'never wants this [change] and the nursing profession does not claim this enough' and that 'the nursing profession in Austria cannot create similar political pressure like the physicians. One has a chamber, the other has not.' (N17PS). Overall, there seems to be some support for this policy but even more resistance and obstacles. Physicians and nurse currently have different expectations concerning the

role of practice nurses and especially physicians seem to be afraid of being replaced. Legal issues and funding mechanisms would need to be resolved to implement it.

Introducing patient registration with GPs or general practices

This policy proposal was briefly mentioned by two participants (N13SF, S22PC). While one stated that the 'Austrian legal situation at the moment does not allow for it' (S22PC), the other participant stated that 'you can certainly implement voluntary registration, you can do it over night, that is simple' (N13SF). In Salzburg, it was reportedly already negotiated with the Sickness Fund but had been rejected by the Physician Chamber because:

The doctor would need to select in his own surgery between registered and not registered patients, and would then even have to discipline the registered patients [...] when they go somewhere else. This is not the task of a doctor. (S22PC)

Other proposed policies

Some policies were either only mentioned once or only indirectly related to the GP shortage. Policies to prevent a GP shortage which were only mentioned once were *strengthening Institutes for General Practice* (N1YG), *more places at university for more medical graduates* (S4HF), *positive image campaign for young physicians* (N3MH) which might be equal to an 'appreciation campaign' (G6GP), and *telemedicine* (N17PS) to reduce demand for care.

Interestingly, a major funding reform of the Austrian healthcare system was, with slight variations, proposed by five participants. These policy options aim to assign healthcare funding responsibility to one entity, either regions, Sickness Funds or central Government to remove the currently inappropriate financial incentives. This policy was twice termed as 'financing out of one hand' (N1YG, N20PO), once 'financing out of one pot' (G8MU) and also proposed as a 'constitutional reform' (N10AC) or a 'legal obligation to work together' (N17PS).

Policies not mentioned

Many of the 95 previously identified measures to prevent a GP shortage were not mentioned by any participant. For example, no explicit proposal was identified within the body of interview data concerning obligatory rural placements, more GP positions or public health measures to reduce healthcare needs.

Research question 4: To what extent were preventive measures recently implemented?

Recently implemented policies related to the GP shortage

PHC reform and *postgraduate training reform* were frequently mentioned by participants. While they indirectly affect the GP shortage, their initial intention and primary objectives serve other purposes. The PHC reform was implemented to improve the quality of primary care, to relieve the hospital sector and to reduce overall healthcare costs (NG7AC). The postgraduate training reform was mainly implemented to reduce waiting time for specialty training, as most completed the GP training before, and therefore to reduce the growing exodus of young physicians to Germany and other countries (N10AC).

The implementation of the nationwide *funding of GP training practices* was agreed upon in February 2018¹³⁸. The decision-making process took several years as it was unclear which stakeholder should be responsible for funding this type of initiative which made these decision makers reportedly worried about creating a precedent case which might lead to unexpected payment obligations in the future (N10AC). Finally, funding was split between Federal Government, regions, Sickness Funds and respective GPs (N1YG, S2SF, N3MH, NG7AC, N10AC). Other policies can be defined as 'self-executing'^{83 p.7}, namely the *pay raise* for all GPs in Styria and the financial *start-up stimulus* for GP positions which have been vacant for a prolonged time (G18SF). This stimulus was agreed upon in January 2019 and includes a bonus of €70.000 for each GP who accepted one of the long-term vacancies.¹³⁹

One past policy implementation was frequently mentioned and presented as an important and successful project, namely the 'Salzburg Initiative for General Practice' [SIA] (N1YG, S2SF, S4HF, S21MU, S23GP). This project ran from 2012 to 2015 and offered a funded GP training practice, before funding was agreed upon nationwide, and also including a small educational component (S21MU). Overall, 21 GP trainees joined this project (N1YG).

Implementation of other policies was mentioned only rarely and briefly, namely, a *summer school on general practice* which was initiated three years ago in Salzburg (N1YG, S21MU, S23GP), a paid clinical clerkship at a rural GP office for medical students named 'rural physician future' [Landarzt Zukunft]¹⁴⁰ initiated in 2018

in Styria, an *increase of minimum working hours* for GPs initiated in the more distant past (N14SF) and *job sharing*, the opportunity for two general practitioners to share one GP position, introduced in Salzburg in 2016¹⁴¹ and in Styria in 2018 (G18SF). The policy decision for job sharing was apparently inhibited by the fear that it might in theory double the number of GP positions, if these two physicians would actually work fulltime (G25SF), while there was actually little interest in such positions (G18SF). Overall, the impact of these policies was generally described by participants as successful and more relevant policies appear to have been implemented recently than in the past. This may be interpreted as recall bias, with more recent policy implementation being reported more frequently, or by a true rise in policy implementation decisions. Nevertheless, one participant criticised these recent efforts as 'droplets' (G8MU) rather than substantial leaps forward. While some of these policies could provide potentially interesting case studies of policy change, the policy implementation process was not analysed in more detail, as they were either not intended to prevent a GP shortage, 'self-executing'^{83 p.7} and immediately implemented after the decision, already largely abolished or mentioned only rarely and briefly, and thereby not allowing for a more detailed analysis.

In conclusion, six policies were proposed by more than one participant as means to alleviate a GP shortage (see Table 11). Only one policy, developing general practice as a recognised specialism, was frequently mentioned and coherently described by interviewees, and can thus be considered as being on the 'agenda'.^{15 p.3}

Table 11: Policies which were mentioned and described positively by at least one interviewee*

Policies	National (15)	Salzburg (7)	Styria (7)	Ministry of Health (1)	Ministry of S & E (2)	Politicians (2)	Patient solicitor (1)	Mayor (1)	Medical university (3)	Sickness Funds (6)	Health Funds (2)	Physician Chamber (2)	Austrian GP Society (2)	Young GP Society (1)	Academics (3)	No. of individuals (26)
Introducing GP specialism	7 ²	4		1 ¹	1		1 ¹		3	2		2	2	1	2	15 ²
More GP at university	7 ¹	2	5		2			1	3	2		1 ¹	1	1	2	13 ¹
Higher remuneration	4	2 ¹	2	1					1	1 ¹		1	1		2	7 ¹
New remuneration methods	2	3 ²	5 ²						1 ¹	2 ¹	2	1 ¹	1 ¹	1	1	9 ⁴
Strengthening PHC nurses	3	4 ³	1				1	1 ¹		2	1	1 ¹	1 ¹		1	8 ³
Introducing patient registration	1	1					1			1						2
Strengthening Institutes for GP	1													1		1
More medical university places		1								1						1
Marketing campaign	1		1	1										1		2
Telemedicine	1						1									1
Major funding reform	4		1			1	1		1					1	1	5
No. of codes (55)	31 ³	17 ⁶	15 ²	3 ¹	3	1	5 ¹	2 ¹	9 ¹	11 ²	3	6 ³	6 ²	6	9	

* Number of positive mentions provoked by an interview question are additionally noted as a superscript figure

Most of the six repeatedly mentioned policies to prevent a GP shortage in Austria seemed quite compatible with the values of the specialist community and also technically quite feasible but were hindered by budgetary limits or financial unpredictability and mainly thereby lacked political support (see Table 12).

Table 12: Criteria influencing the likelihood of policy 'survival' according to Kingdon^{15 pp.131-9} (estimates)

Policies	Technical feasibility	Value compatibility	Budgetary workability	Political support
Introducing GP specialism	Intermediate	High	High	Intermediate
More GP at university	High	High	Low	Low
More remuneration	High	High	Low	Intermediate
New remuneration method	Intermediate	Intermediate	Intermediate	Intermediate
Strengthening PHC nurses	Intermediate	Low	Low	Intermediate
Patient registration	High	Intermediate	High	Low

The specialist for general practice seems well known and accepted as a meaningful policy, either as a symbolic gesture or as enhancement of postgraduate training, income and the GPs' role within the system. It supposedly faces opposition from specialists who fear financial competition and from a civil servant in the Ministry of Health. More general practice during university was often proposed but lacks agreement on its content. It apparently also faces opposition from specialists who fear financial competition and universities which seem more interested in developing

specialists and clinician scientists rather than GPs. Higher remuneration was demanded less frequently and also faces opposition from specialists who seem to fear financial competition. Changing the remuneration system was proposed significantly more often but there was little agreement on the content of such a change. While this would not necessarily influence the overall budget, paradoxically, payers seem to fear higher payments and physicians seem to fear lower income. The policy of introducing more practice nurses was frequently mentioned but also often opposed, especially by physicians who fear being replaced. Other challenges like adapting the current law and introducing a new funding scheme seem to hinder this policy. Another policy, introducing patient registration, was mentioned but only slightly supported. Additionally, the implementation of several relevant policies was reported by participants. Notably, the frequency of these policy decisions seemed to increase recently which may indicate reform progress. Nevertheless, while these policies were largely interpreted as positive, they were also criticised as too small in scope.

Research question 5: How does the policy community influence the selection of policies to prevent a GP shortage?

Kingdon defined 'policy communities'^{15 p.117} as groups of specialists within a certain policy area who continuously discuss those ideas which are available in their field of interest.^{15 p.117} Such a community can vary according to its degree of integration or fragmentation.^{15 pp.118-9} Those more strongly integrated tend to be more likely to develop common outlooks and orientations, share similar paradigms and ways of thinking, are more likely to keep the policy agenda stable, and are less likely to produce disjointed policies.^{15 pp.119-21} While ideas can come from anywhere and their origins are usually not easily traceable,^{15 pp.71-3} they typically evolve within such a 'policy community' and only thereafter possibly rise onto the decision makers' agenda.^{15 pp.116-144} Successful policy selection is usually preceded by making the idea widely known, broadly accepted and well enhanced until it is ready for consideration, which can take several years. Kingdon termed this process 'softening-up'.^{15 pp.116-144} He further described it as 'consensus spreads through a policy community' and stated:

'It's a very complex process, almost like a snowball. It starts with a voice or two in the wilderness. That voice in the wilderness recruits somebody else. You talk to people and keep hammering at it.'^{15 p.140}

The academics and experts within such a community can spread mature ideas to policy makers in the short-term by responding to their requests for advice or by starting to work in a decision-making institution themselves, and in the long-term by shaping the climate of ideas by publishing papers, reports and articles, by giving lectures and by having personal conversations.^{15 pp.55-6} This section will explore the 'policy community', its 'integration' and the state of the 'softening-up' process of policies related to the GP shortage in Austria.

i) Policy community participants

The policy area related to the GP shortage in Austria can be defined as those specialists who regularly discuss available ideas concerning this issue. These specialists are located in several institutions and organisations, some work within the decision-making bodies like the Ministry of Health, Sickness Funds, Health Funds, Physician Chambers and medical universities; others are GPs working on a voluntary basis in GP

societies or researchers working in Government-funded research organisations, medical universities or as academics. In this research study, 16 of 26 participants can be considered, based on the definition above, to be part of the policy community concerned with a GP shortage. While the allocation seemed to be relatively clear for most of these 16 individuals, it was blurry for one participant because of possessing both aspects, some decision-making tasks including the typical focus on a multitude of topics simultaneously, while also appearing as an in-depth expert on this issue.

ii) Policy community integration

The development and selection of policies within the policy community is mediated by continuous discussions and mutual persuasion.^{15 pp.116-144} This section will therefore explore the communication channels and communication behaviour in the policy area related to a GP shortage in Austria.

Communication channels. The GP community in general is internally connected by the regional and national GP Societies and Young GP Societies through their meetings, conferences, their big-weekly publication⁹² and other digital communication means. Nevertheless, few formal communication channels are available which connect specialists from the different institutions and organisations which specifically focus on the GP shortage issue. Some of these specialists communicate through the channels of the partly overlapping policy community related to the PHC reform which is internally connected via the Austrian Forum on Primary Care² through its annual conference and an email-list of approximately 400 primary care practitioners and experts. Others communicate through the channels of the more distant general public health community which is internally connected via the Austrian Society for Public Health¹⁴² through its annual conference, which included a workshop on the GP shortage this year, and by an email-list of approximately 450 public health experts. Additionally, indirect communication takes place through national media articles and through social media sites, mainly by the Public Health School Graz¹⁴³ and the academic healthcare blogger Ernest Pichlbauer¹⁴⁴. Overall, no formal communication channel was identified specifically related to the GP shortage policy area. However, three related broader

communities of GPs, primary care and public health experts partly overlap with the specialists of the GP shortage policy community.

Communication behaviour. Several significant differences were identified concerning the communication behaviour of groups of GP shortage specialists. Sickness funds were described as ‘also horizontally [between different regions] quite well connected’ but also as hierarchical organisations and therefore not communicating openly (G18SF). Also the engagement of Sickness Fund experts within the accessible email-lists for primary care and public communities is low. Physician Chambers are very quiet on these two email lists as well while their external communication through their media advocacy is clearly visible. For example, the Austrian Physician Chamber alone, excluding its regional branches, publishes on average two press releases per week⁹¹ and one interviewee stated that ‘they have a huge budget, close to 30 million [annual] campaign budget, their war chest’ (N15MS). While the Austrian and Young GP Societies are far less active in media advocacy, GPs frequently share their thoughts on the primary care email-list. The communication activity of academics and researchers related to this policy area appeared to be low, which may partly be explained by their small size and the novelty of this community within the Austrian healthcare system. For example, the first Masters of Public Health Programme started as recently as 2002¹⁴³ and the first Institute for General Practice was founded in 2006⁶³; and partly because:

There are many experts but very few dare to [speak up]. An expert loves his field of research. And when you want to continue with this research, you cannot get too outspoken, because otherwise you will never again get any data from anyone. (N10AC)

Another participant experienced the communication within the policy community as insufficient and ‘too fragmented’ (S21MU). Nevertheless, also two examples of successful communication were identified by participants. Firstly, the ‘Masterplan for General Practice’,⁴⁹ which proposed several measures to prevent a GP shortage (discussed in more detail in chapter 4.8) was developed jointly by the Austrian GP Society, Young GP Society, Austrian Physician Chamber and medical universities. This collaborative project reportedly led to a ‘very good cooperation [...] between the federal section [of the Physician Chamber] and the Austrian GP Society’ (G6GP). This interpretation was affirmed by another participant who believed initiatives like the ‘Masterplan’ could reduce fragmentation and enable the development of ‘a strong

common voice' (S21MU). Secondly, the culture of collaboration in Salzburg, mainly referring to communication between the policy community and the decision makers, was repeatedly praised (N1YG, S23GP, G25SF). One participant believed the recent implementation of some policies 'was important for community building in Salzburg [...] because we had for the first time the opportunity to bring together the active people' (N1YG). Another described these positive experiences as based on 'luck because [key individuals] get along well' (S23GP) and on relationships of 'mutual appreciation' (S23GP). Even an interviewee from Styria mentioned this positive atmosphere in Salzburg by stating that they 'always worked well together. Ultimately, it's always about [personal relationships], that's the key component' (G25SF). Overall, the communication between different groups within this policy community seems to be limited. Especially Sickness Funds, Physician Chambers and academics appear to communicate little with one another which might reduce the ability to mutually learn from others' negotiations and implementation attempts related to specific policies. Within the GP shortage policy area, GP Societies seem to communicate more actively, and their 'Masterplan'⁴⁹ initiative seemed to have fostered a degree of integration in the policy community by improving communication and relationships, especially with the Physician Chamber. Also, one GP remembered the initial intention of developing this policy document:

Having a relatively broad diversified process with a lot of input from GPs from all levels, [Physician Chambers], scientific expert associations [GP Societies], and universities, to reach a broad consensus within the GP community. (N1YG)

iii) 'Softening up' of policies

Kingdon describes the enhancement and maturation of policies within a policy community as 'softening up'.^{15 pp.127-31} This process of selecting some ideas over others appears to be analogous to a presidential nomination. Many individuals within a society might have the qualities to become president. Some of them reach the attention of at least one political party member. After several years of familiarisation, only very few will be widely known, broadly accepted and eventually considered for nomination, based on criteria like political values and public popularity. Nevertheless, the final choice will still largely be a political one.

Kingdon¹⁵ described 'softening up' of ideas within the policy community in this way:

'The 'Policy Primeval Soup' portrays the development of policy proposals as evolutionary, akin to biological natural selection. Long periods of gestation take place before proposals emerge from this policy stream. Ideas are floated, translated into proposals, discussed in various forums, revised and honed, and floated again. Gradually, some ideas that don't meet certain criteria for survival die away, and others prosper.'¹⁵ p.226

While six policies were repeatedly proposed by participants related to preventing a GP shortage in Austria, only one policy seems to properly meet the criteria of being well known, widely accepted and enhanced to maturity, namely the *specialist in general practice*. This policy seemed to be known to all participants and was often proposed or recommended as a meaningful response to a shortage of GPs. The existence of several variants might suggest that it has already moved from relative immaturity to the stage of political bargaining and getting nearer to being on the stakeholders' policy agenda. Explanations for not implementing this policy after 24 years of discussions may lie more exclusively within the political rather than the policy stream.

Two policies, *more general practice during university* and *changing the remuneration system* were frequently discussed. They seemed widely accepted, but the lack of agreement on their detailed contents suggests that both still require further debate and agreement among specialists in the policy community to reach maturation. *Strengthening nurses in GP practices* was discussed frequently but seemed to be less well accepted. Other policies, like *higher remuneration* and *patient registration* seemed to be supported only partly. Overall, six policies were repeatedly proposed but only *specialist for general practice* had apparently completed the full 'softening up' process, while bearing in mind that it was first proposed in 1995 and has already been close to implementation before.

The absence of more fully developed policies on a short list of priority policies might have several possible explanations:

The absence of a communication channel specifically for the GP shortage policy area.

While a lot of personal conversations might be going on and while the 'Masterplan'⁴⁹ process fostered communication between different stakeholders, reaching out to many policy community participants within several institutions and in different regions is currently challenging and might only be achieved by indirect communication through

the media. A formal channel, for example in the form of an alliance or online discussion group, could enable accelerated policy learning and thus more rapid further development of policies considered as relevant and currently discussed by specialists.

The low willingness to share knowledge and experiences related to these policies.

Several groups within the policy community seem to be quiet, shy and closed rather than talkative and openly sharing their thoughts, knowledge and experiences. This might be caused by the hierarchical structure of Sickness Funds, by the political nature of Physician Chambers, by the small size of the health services research community and by the fear of falling out of favour with powerful groups.

Both issues, the absence of supportive communication channels and the low willingness to share openly, seem to indicate that the state of this policy community might be more properly described as *fragmented* rather than *integrated*. This might limit the 'floating' process of policy ideas within the 'policy primeval soup' as framed by Kingdon.^{15 p.127} This proposition does not suggest, that the individuals and groups involved in this process are anything less than fully engaged, while it seems, by using a more recent buzzword, that some groups might operate in kind of a *bubble*.

Other features within the 'softening up'^{15 pp.127-31} process might also be able to explain the lack of more fully developed policy priorities. The balance between compliance with criteria for policy 'survival'^{15 pp.131-9} and political pressure to implement effective policies might currently be disadvantageous, due to the previously assessed lack of consensus concerning the severity of the GP shortage problem. An increase in urgency might increase the acceptability of relevant policies.

An alternative explanation suggests that the absence of more prioritised policies is normal for what is arguably the early stage of policy development related to the GP shortage since the GP shortage only started to receive concerted attention around 2010. In addition, other policies, which might have been more 'softened up' have already been implemented most recently, like *funding GP training practices* and *enabling job sharing*.

Additionally, other political features may offer an explanation, namely related to advocacy and policy entrepreneurship, which will be discussed in the next chapter.

In conclusion, an absence of communication channels specific to the GP shortage policy area, and limited willingness to share knowledge and experience (e.g. for fear of being excluded from opportunities by powerful interests) concerning policy options seems to hinder policy development and may explain the absence of more priority policies in this area. This lack of cohesion within the policy community and the lack of agreement on a shortlist of priority policies may reduce the probability of policy implementation.

4.7. The ‘political stream’ related to the GP shortage in Austria

Research question 6: How do political aspects influence the agenda status and policy selection concerning the GP shortage in Austria?

The agenda setting theory of John Kingdon¹⁵ suggests that political aspects can significantly influence both the agenda status of a problem and of specific policy solutions.^{15 pp.145-64} While elections and national mood predominantly influence the agenda status of problems, pressure groups and ‘policy entrepreneurs’^{15 pp.179-83} are more relevant for the consideration of alternatives.^{15 pp.145-64} This chapter will therefore assess the role of these political aspects, which together form the ‘political stream’^{15 pp.145-64} related to the GP shortage in Austria.

The role of elections

Kingdon’s theory was based on a research study on agenda setting in the United States which included 133 qualitative interviews with key respondents in the *health* policy area.^{15 p.233} After analysing these conversations, he concluded that:

‘Fully 44 percent of the health interviews contain prominent discussion of campaigns.^{15 p.62} [...] Fully 83 percent [...] contained prominent discussion of administration change.’^{15 p.154}

The relevance of campaigns was partly explained by health being an important topic for a significant proportion of the public and partly by the promises politicians often make when running for office.^{15 pp.62-3} The even larger relevance of election results was explained by one of his interviewees who stated ‘new faces mean that new issues will be raised’^{15 p.154} and further interpreted as the result of ideological change due to newly elected officials and parties being in power.^{15 pp.153-4}

While election campaigns were prominently discussed in 44% of Kingdon’s health interviews,^{15 p.62} the previous and the upcoming election in Austria were not mentioned by any interviewee of this study. The previous major national election in Austria was held in October 2017, which led to a coalition Government of the conservative ÖVP and the right-wing FPÖ.¹⁴⁵ As this election happened more than a year before the interviews for this study were conducted, this long timeframe might potentially explain why it was not mentioned. Nevertheless, precisely after the first half of the interviews had been completed, Austria was shaken by a major political

scandal which resulted in the termination of the coalition government and new elections are planned for September 2019. Despite this, the upcoming elections were not mentioned and one participant from the Ministry of Science and Education remarked that:

The discussion will continue. This [GP shortage topic] will not change with the possible switch of a Minister or a Government or any other change of responsibility. (N16MS)

The lack of interest in past or future elections also suggests that they were not utilised for advocacy purposes related to the GP shortage. Pressure groups or experts could take advantage of upcoming elections, for example, by publishing a list of policy demands or by officially requesting reform plans of political candidates related to the particular issue a pressure group is preoccupied with. They could also take advantage of previous elections by reminding elected officials of their earlier campaign pledges. The absence of any related remark within the interviews might be interpreted as evidence that no interviewee expected such activities. Interestingly, before the 2017 national election, the former Chancellor published ten pledges for a healthcare and nursing reform. The second pledge proposed to introduce 'more GPs'¹⁴⁶ but there is no evidence that this pledge was used for advocacy before or after this election.

While administration change was prominently discussed in 83% of Kingdon's health interviews,^{15 p.154} it was only briefly mentioned by three interviewees in this study. One remarked that 'the new Minister of Health is a bit more open towards [the GP shortage issue]' (N1YG) while two others offered more negative remarks about the coalition, namely, that 'their goal was moving away from the solidary system' (G18SF) and that 'there was clearly no way for reforms, except those which redistribute power like the Sickness Fund reform' (N17PS). Interestingly, while at least four prominent positions underwent change in the near-term, within the Ministry of Health, the Main Association of Sickness Funds and the sickness funds in Styria and Salzburg, these key personnel changes were not mentioned either.

Overall, these findings indicate that the previous and upcoming elections, change of administration and changes of key personnel were not prominently mentioned within this study. This might be explained by GP shortage related pressure groups not taking political advantage of these predictable political events, possibly due to an absence of advocacy experience in this policy community.

The role of national mood

Kingdon remarks that 'mass public opinion affects the agenda more than the alternatives'^{15 p.66}. This influence can materialise by vote-seeking politicians who look for a popular issue and more frequently by stopping certain policy initiatives from happening.^{15 p.65} His theory also proposes that public opinion is influenced by media coverage which in turn is influenced by the activities of politicians (more than vice versa) and by the activities of small groups of experts.^{15 p.66} This observation further led to the conclusion, that:

'Social movements may not be very widespread in the general public'^{15 p.148}

Some participant accounts referred to the opinion and mood of the Austrian population related to the GP shortage. One GP stated patients have 'a clear perception regarding [the GP shortage] and also tell me 'We are so pleased that somebody is here at all, [...] that we still have a doctor'' (G6GP) and a patient solicitor reported:

The patients are concerned [and] worried, 'Will my doctor still be here?', especially when they get older and when their doctor gets older. (N17PS)

Interestingly, a mayor suggested that public opinion might significantly differ concerning expectations related to GPs and specialists. The rural population might more easily accept that 'not every municipality can have an ophthalmologist' while not having a GP might be unacceptable for many (S19MA). Overall, these short accounts indicate that the GP shortage might currently be a concern for the general public.

The role of the media

Kingdon did not overstate the role of the media, when he remarked, that 'the media report what is going on in Government, by and large, rather than having an independent effect on governmental agendas'^{15 p.59}. Nevertheless, he also drew the conclusions that media content shapes public opinion and therefore policy preferences, that media coverage can magnify social movements which already exist, and that it can be used as an indirect communication tool to reach decision makers and fellow policy community members.^{15 pp.59-61} As Kingdon noted:

'A high-level bureaucrat told me, for instance, that a concern of theirs had not made it to the White House level until it appeared in the Washington Post, whereupon the president and the secretary discussed it the very same day. This use of the media even occurs within one institution.'^{15 p.59}

Some participants reported increasing media coverage concerning the GP shortage in the last one or two years (N1YG, G6GP, G8MU). While one speculated whether this influenced public opinion (G6GP), several other interviewees suggested that this influences various actors (S2SF, G8MU, N10AC, N15MS, G18SF, S23GP, G25SF). One participant even claimed:

What do officials [in Sickness Funds and Physician Chambers] fear most? Critical media coverage. (G18SF)

This claim was to some degree affirmed by a Sickness Fund participant who stated:

Sure, it is not good when the newspaper writes about a vacant position. That is not pleasant as a Sickness Fund, then you are under pressure to do something. You can live with it, but it is not pleasant, and you have to justify yourself. (S2SF)

This alleged fear of critical media coverage might be reflected in the daily routine procedure of Sickness Funds to identify relevant press reports. 'They look and ask, are we mentioned specifically, maybe negatively? Then something happens.' (G18SF) One participant remarked:

What I have really learned [...] actually all [decision makers] want to have peace. They don't need lofty highlights. (G5HF)

Mayors seem to receive similar pressure from local newspapers (S23GP) which might 'write continuously about Dr. Such-and-such who will retire in two years, and the mayor is eager to find a replacement GP, discussions with the Sickness Fund are in progress' (N10AC). Interestingly, also a participant from the Ministry of Science and Education reported that media coverage informed and increased their GP shortage related efforts because 'We do not act in an area without politics or media' (N15MS). While these accounts might suggest that media coverage keeps pressure on agencies to be aware of and respond to any GP shortages, others also criticise and discourage media activities. One participant explained:

They [the decision makers] are under pressure. They know they have problems but don't know how to solve them. They feel they have to do something which is often costly but counterproductive. (G18SF)

This might be interpreted as a 'policy stream' which does not yet offer appropriate policy solutions while there is already some problem recognition and political pressure. That is, the agencies feel they have to be seen to be doing something even though they may well know that their response is unlikely to be very effective.

Others criticised that 'my own lobby [Physician Chamber] tells for decades through the media what a bad job [working as a GP] is' (G25SF) and also media coverage on 'GP-perishing' (S21MU) might discourage young physicians from pursuing such a career. One event in particular was frequently mentioned which led to a short but intense rise in media coverage, namely, a Parliamentary inquiry by the previous opposition party SPÖ.¹⁴⁷ The party leader and former Minister of Health (as well as LSHTM alumna), Pamela Rendi-Wagner, made thereby use of her legal rights to elevate this topic onto the agenda of the Parliament and the national media. Participants speculated that the objective was to 'monopolise the thematic leadership' (N1YG) because problem recognition was already increasing beforehand (N1YG, N10AC). However, the consequences of this initiative were described as 'backfiring' on the SPÖ and as a political 'defeat' especially because Rendi-Wagner was criticised for not acting sufficiently when she and her SPÖ predecessors were in power themselves (N1YG, N10AC, N20PO). Related to the GP shortage reform, some participants stated that this initiative had no significant impact (N1YG, S2SF, NG7AC, N10AC). Nevertheless, this event illustrates several aspects of Kingdon's theory, as an official who wanted to take ownership of a politically attractive issue^{15 pp.38-41} used her 'formidable publicity'^{15 p.37} power for 'magnifying movements that have already started elsewhere'^{15 p.60} while the short attention span of the media^{15 p.59} might explain why this initiative did not result in obvious political consequences.

Overall, media coverage on the GP shortage was reportedly increasing in the last one or two years and several participants believed that fear of critical media coverage puts pressure on actors like Sickness Funds, Physician Chambers and mayors to act.

Nevertheless, others suggested that press coverage should be coupled with appropriate policy solutions and be more positive about the situation of GPs in order not to deter more young physicians. Also, one Parliamentary event created brief but intensive media coverage with seemingly limited effect.

Role of pressure group campaigns

Kingdon concluded that pressure group campaigns have less influence on the problem agenda but more influence on the available policy alternatives.^{15 p.164} Interest groups appear to be especially important for issues which are less about partisanship or ideology and which are less visible during election campaigns,^{15 p.47} like topics such as

the GP shortage. Their influence usually lies more in blocking rather than in promoting certain policies and they can achieve this by mobilising support,^{15 p.51} especially related to elections,^{15 p.51} by affecting the economy,^{15 p.52} by writing statements or meeting decision makers personally,^{15 p.49} and by motivating allies to act similarly^{15 p.49}. From the perspective of decision makers, pressure groups seem to influence them more when they demonstrate consensus rather than conflict and when they reveal a clear tendency in favour or against an issue.^{15 p.52}

Three pressure groups appeared to be mainly relevant to the issue of the GP shortage, namely, mayors, Physician Chambers and GP Societies because of their political influence and because of being affected by the issue.

Mayors were identified as a major source of pressure onto raising the agenda status of the GP shortage issue (N1YG, N10AC, G18SF). This might partly be explained by their large interest in this issue, as they might not get re-elected if they cannot find a replacement GP (N1YG). While Kingdon considered crises (or focusing events) less relevant for agenda setting specifically within the health policy area, due to the infrequency of major crises in this field,^{15 pp.95-6} each vacant GP position might be considered a crisis for the respective municipality and its mayor. Other explanations for the political pressure created by mayors might be, firstly, their good political connections, as one mayor stated confidently, 'I am in regular contact with the state minister for healthcare and the Sickness Fund chairman' and, secondly, their readiness to exercise their influence by 'demanding action by calling again and again [...], by being annoying' (S19MA). This account was affirmed by another participant who stated that mayors organised petitions and citizen initiatives (G18SF) and their influence might also relate to the context of a relatively less powerful central government.

Physician Chambers are often described as an actor with significant influence within the Austrian healthcare system.⁷⁷ This influence might be partly explained by their negotiating mandate for the collective financial physician contract in the outpatient sector and by their mandate to allocate (or not to allocate) postgraduate training positions within hospitals. This influence was assessed as unusually high by international standards⁵¹ and one participant described these arrangements as 'one of the silliest contracting partner agreements worldwide [...] due to too strong a negotiating position for the Physician Chamber' (N14SF). Additionally, the Austrian national Physician Chamber appears to perform extensive advocacy efforts resulting in

approximately two press releases per week⁹¹ (without counting media activities of the regional Physician Chambers). One participant pointing out that ‘they have a huge budget, close to 30 million [annual] campaign budget’ (N17PS). An example of their advocacy activity is shown by Figure 18. The first advert on a tram in Vienna states that ‘physician shortage can be fatal’¹⁴⁸ and the second states, ‘You fight with cancer. Your doctor fights with the bureaucratic obstacles of the Sickness Fund’ (which led to complaints to the Austrian advertising standards authority)¹⁴⁹.



Figure 18: Physician Chamber advocacy (Sources: APA/Stefan Seelig cited in DiePresse¹⁴⁸ [left picture] and Ärztekammer Wien / www.gesundheitismehrwert.at cited in DerStandard¹⁴⁹ [right picture])

While the influence of Physician Chambers clearly appears to be high, their position concerning the GP shortage might be ambivalent. As one participant stated, Physician Chambers ‘represent many [medical] interests, which contradict each other’ (N1YG).

The Austrian GP Society and the Young GP Society were partly seen as relevant pressure groups concerning the GP shortage issue. Participants indicated that the Austrian GP Society made a positive contribution (NG7AC, N17PS), while it was criticised for being too much in the background (N1YG, 7) and for lacking political visibility (N1YG, N17PS). One interviewee stated in this regard:

You also have to engage in the political debate. You have to increase pressure on the Physician Chamber and pressure on the social insurance. (N17PS)

Interestingly, one participant remarked that ‘the Young GP Society claims, what I fully support, that the diversity [of working arrangements] should be as broad as possible’. This account was the only time during the interviews that a policy proposal was linked to a specific organisation that had proposed it. Overall, the accounts concerning advocacy by the GP Societies indicate room for becoming more visible while acknowledging their voluntary basis and their high level of commitment and efforts.

Policy entrepreneurs

One remarkable finding of Kingdon's agenda setting research on US policy making¹⁵ was the apparently central role of individuals:

'When researching case studies, one can nearly always pinpoint a particular person, or at most a few persons, who were central in moving a subject up on the agenda and into position for enactment. Indeed, in our 23 case studies, we coded entrepreneurs as very or somewhat important in 15, and found them unimportant in only 3.'^{15 p.180}

Kingdon did not suggest that such individuals were the only cause for an issue's high agenda status, but they were 'central figures in the drama'^{15 p.180}. 'Policy entrepreneurs'^{15 pp.179-83} try to take advantage of an opportunity by consciously linking 'loosely coupled'^{15 p.229} problem, policy and political 'streams' or areas of activity and advocacy when the time seems right.^{15 pp.172-9} They were thus described as 'surfers waiting for the big wave'.^{15 p.165} Importantly, even if a problem is compelling, a solution is ready, and no political force is opposing it, the opportunity might still be missed if an advocate is absent.^{15 p.205} While not everybody might be able to become an advocate, apparently all those who can be heard, for example, due to their expertise or position, those with good political skills, and with the persistence to talk and write continuously seem to be well suited for this role.^{15 pp.180-1}

Within the interviews for this study, only three specific individuals were mentioned more than once. One of them a civil servant at the Ministry of Health who was partly criticised for opposing certain reform efforts. Another was Stephanie Poggenburg, a GP and researcher, who was mentioned four times (N1YG, NG7AC, N12SF, S21MU) related to her survey of medical students and GP trainees³³. The third individual was Susanne Rabady, a GP and Austrian GP Society board member, who was mentioned twice (N1YG, G6GP) related to her initiative in drafting the 'Masterplan for general practice'⁴⁹ policy document. Both individuals were influential and also dozens of others performed entrepreneurial activities and implemented important projects which contributed to the development of GP related policy in Austria. Nevertheless, no individual was frequently mentioned by interviewees as a 'policy entrepreneur' specifically as defined by Kingdon as 'advocates who are willing to invest their resources – time, energy, reputation, money – to promote a position in return for anticipated future gain in the form of material, purposive, or solidary benefits'^{15 p.179}. This role is based on the conscious decision to think and act strategically to develop and couple the loosely connected 'streams',^{15 pp.175-8} for example by initiating a media

campaign to frame the problem as more compelling for decision makers, by initiating an alliance which connects the policy community to produce a strongly supported shortlist of measures and by initiating a pressure campaign including several influential organisations.¹⁵ There is no obvious explanation for the absence of one or more policy entrepreneurs currently operating in this area. Possible explanations may be a lack of positive examples of advocacy in the Austrian healthcare system or a lack of required skills concerning media relations, alliance building and advocacy campaigning.

Window of opportunity

Kingdon further indicated, that 'many subjects are ready, with the streams all in place' while they are still competing for decision makers' time and attention.^{15 p.184} In such situations, the 'window of opportunity' is still not yet open.^{15 p.184} Nevertheless, in certain circumstances they can open and allow an issue to get onto the decision agenda.^{15 pp.165-95} Some 'policy windows' are political such as elections, changes of key personnel or shifts of public opinion.^{15 p.168} Others are related to the problem itself such as an unpredicted crisis.^{15 pp.168-9}

Currently, there does not seem to be an open window of opportunity for enacting a significant GP reform in Austria. While there is already problem recognition, the problem could be framed more compellingly to increase perceived severity and urgency. While there are already many policies being discussed within the community of subject area specialists, a shortlist of policies which are well known and widely accepted is currently not available. While mayors, Physician Chambers and GP Societies have already created some political pressure, a cohesive policy alliance and an effective advocacy campaign are still missing. In particular, there is no sign of an individual who, currently or in the near future, consciously aims to develop the three streams further and to couple them when the opportunity arises.

It is significant that the previous (2017) national election in Austria was not used to promote the issue of the GP shortage in the political arena and so far, it looks as if the same happens concerning the forthcoming October 2019 election. While decision makers seem to be worried about critical media coverage related to the GP shortage, the mass media is currently mainly used by the Physician Chambers, for advocacy purposes mainly unrelated to the GP shortage (see Figure 18), but much less by

informal pressure groups related to the GP shortage. While there is already some political pressure concerning this issue, an advocacy alliance and strategy as well as an individual who consciously moves the GP reform forward are currently missing.

4.8. The ‘research utilization’ related to the GP shortage in Austria

Research question 7: How was research utilised related to the agenda setting processes?

Within the qualitative interviews, two research studies were repeatedly mentioned as relevant for the GP shortage in Austria, namely a survey of the occupational motivation of medical students and GP trainees³³ (published 08/2017¹⁵⁰) and this thesis’ catalogue of measures to prevent a GP shortage in Austria¹³ (published 09/2017¹⁵¹). Both studies seemed to influence the development of two policy documents, namely the currently unpublished ‘attractiveness of general practice’¹⁵² (completed 12/2017) and the ‘Masterplan for general practice’⁴⁹ (published 08/2018)⁴⁹, and a currently unpublished policy instrument, the ‘implementation of measures to enhance the attractiveness of general practice’¹⁵³ (completed 02/2019). The role and influence of these two research studies on the two policy documents and the policy instrument will be assessed in this chapter. The ‘research utilization’ theories of Carol H. Weiss (1979) which distinguish between *knowledge-driven*, *problem-solving*, *interactive*, *political*, *tactical* and *enlightenment* models will therefore be applied.⁷⁵

Research study: ‘Survey of the occupational motivation related to general practice of medical students and young physicians in Austria and Germany’³³

This research study was led by the Institute for General Practice at the Medical University of Graz in Austria and funded by the Austrian Physician Chamber. This online survey assessed the occupational motivation of medical students and young physicians. It was performed in 2016 and included 1,688 responses of medical students in Austria with a response rate of 16.8% and 636 responses of GP trainees in Austria with a response rate of 9.2%. The results of this study were widely covered by the Austrian national media in August 2017¹⁵⁰ and the final version of this study was published in December 2017.³³

The motive for proposing this research study was based on awareness of the GP shortage and on wondering ‘why don’t people want to do that [work as a GP]’ (G6GP). Additionally, also the Physician Chamber seems relevant for initiating this study. After

a public presentation of the preliminary idea for this study, representatives of the Austrian Physician Chamber approached the research team at the Institute for General Practice and proposed a collaboration because '[they] liked the university aspect, professional and independent' (G6GP). The final research proposal was reportedly approved by the Austrian Physician Chambers' President and its national lead for office-based physicians (G6GP). Also a Physician Chamber participant commented, 'I think that [the study] is very laudable' (N9PC).

Several consequences of this study were identified by participants. For example, it was used by a participant from Salzburg to back an argument:

The survey of Poggenburg [the lead author] showed that the [...] early orientation towards practice [and] positive role models are a strong motivator to enter [a GP] career path. (S21MU)

Results of this study were 'also a building block of the Masterplan' (N9PC) which was published⁴⁹ twelve months thereafter. Two participant accounts could be interpreted as speculations, the first explicit and the latter implicit, on the study's influence on successful policy adoption and subsequent implementation:

I don't want to claim that job-sharing was the result of this study. Maybe it has just influenced it [the climate of opinions] positively. (G6GP)

I met her [the lead author] at a hearing in Burgenland [an Austrian region]. The state parliament of Burgenland invited her to point out possible solution [...] and they agreed on additional payments. (N9PC)

Interestingly, this study also seemed to generate an unusual amount of public and professional attention, including a 'good media echo' (G6GP). An interviewee reported that study authors were thus invited to the 'state parliament at a symposium, invited by the Green Party of the [region] Burgenland, [...] the main association of Sickness Funds [...] the Physician Chamber of Styria [...] the Sickness Fund [...] in Vienna in the National Council.' (G6GP). The media coverage might also have increased problem recognition by selective reporting, as the notable message that only 2% of medical students are sure to enter a GP career was include in the media coverage, while the information that 57% of students could imagine to become a GP was not.¹⁵⁴

Overall, this study was apparently initiated to contribute to solving the perceived GP shortage problem and the motive of the Physician Chamber for funding it can only be speculated. The available accounts do not exclude the possibility that a major intention was political. This study was used by at least one interviewee to advocate for preferred measures, there was speculation that it might already have influenced the

implementation of policies, and the results reportedly fed into a policy document⁴⁹ and it seemed to raise problem recognition among the general public and to raise the profile of the issue in the policy community.

Research study: Catalogue of measures to prevent a GP shortage in Austria¹³

This research study, synonymous with the first two studies of this DrPH thesis (see Chapters 4.1 and 4.2),¹³ was conducted at the Institute for General Practice and funded by the Styrian Health Fund. It was published in September 2017,¹⁵¹ approximately one month after the survey of medical students and GP trainees,³³ by a regional physician journal in Styria¹⁵¹. 13 participants indicated that they know this study (N1YG, S2SF, G5HF, G6GP, NG7AC, G8MU, N12SF, N13SF, N14SF, G18SF, S21MU, S23GP, N24AC), one was unsure (N10AC) while two interviewees admitted that they were not aware of it (N3MH, N9PC).

The results of this study were first presented and discussed at the regional Government of Styria. Present were the Health Councillor [chief executive of the regional hospital sector], the Chairwoman of the Sickness Fund, two Chairmen of the Health Fund (which funded the study), a Physician Chamber representative and others. The study results were presented in approximately ten to fifteen minutes and included a short outline of the study and one slide with the seven measures assessed as effective and feasible (see Table 7). This presentation was followed by a question and answer session, and thereafter the attending decision makers discussed possible next steps and a timeline. Two interviewees, with relevant insights, stated that ‘the interest [of the attendees] was limited’ (G8MU) which was confirmed by another remark that ‘they were frustrated after ten minutes’ (G18SF). This was explained by one interviewee who remembered that an attendee of this meeting was ‘totally disappointed, that [...] it contained measures which are actually totally untrendy. ‘More research in general practice’, what’s the point of that [policy proposal] anyway?’ (G8MU). Another interviewee speculated about the reasons for the regional decision makers’ disappointment:

It overwhelmed them. The time horizon overwhelmed them, the effect was too far in the future [...] There was too much data and it was too scientific for them. [...] you have to break it down so that they can easily understand and also sell it. (G18SF)

Secondly, this study was disseminated through the email-list of the Austrian Forum for Primary Care² and an interview with this thesis’ author concerning the study results

was published in the journal of the Styrian Physician Chamber¹⁵¹. Also, a press release was prepared for distribution by the University's press office but was, despite several requests, never published. This course of events might explain the statement of a participant from Styria that 'your study is mainly known in Styria' (G6GP) and why those participants who admitted not to know the study were both from Vienna (N3MH, N9PC). There were contradictory views about the influence of the study, from 'not very broadly disseminated' (NG7AC) to the view that 'the measures [...] they now feed into everything and are by now already well known' (G8MU).

Thirdly, four participants mentioned that this study fed into the development of the policy document 'Masterplan for general practice'⁴⁹ (N1YG, G6GP, G8MU, S21MU) and three suggested that it fed into the development of the policy document entitled 'Attractiveness of general practice'¹⁵² (NG7AC, G8MU, N14SF) and subsequently into a related policy instrument¹⁵³. Some participants explained the further usage of this study because it was 'the first catalogue of measures I know in Austria' (NG7AC), 'if not actually the only large piece of work [on this topic in Austria]' (N1YG) and 'both, the survey of medical students by Poggenburg and this study were actually the two main documents which were available as the evidence-base for the Masterplan' (S21MU). The last statement was affirmed by two others (N1YG, S21MU). The contribution to the other policy documents and the policy instrument was described by an insider as:

We took it [the study] and it was used for creating the 'Attractiveness of general practice' [policy document]. As simple as that. This subsequently fed into the 'federal target control contract' [policy instrument] between the federation, regions and social insurers [which includes] objectives, measures, and milestones. (N14SF)

The study was also utilised in other ways, for example politically:

I won't say that it substantially changed our positions as the Young GP Society, they stayed rather the same. But I think it is easier for us to communicate certain positions outwardly, because they are now evidence-based. Before, they were just interests we represent. (N1YG)

Another participant claimed to use it as a reminder for policy options, 'I always like to take the large pool [of measures] and look through them' (G8MU).

Additionally, specific interview questions focused on the impact of assessing effectiveness and feasibility in general and on the impact of the seven prioritised measures, specifically. There is some indication that the assessment of measures might have influenced the choices during the development of the 'Masterplan for general practice'⁴⁹. Four contributors to the 'Masterplan' remembered the role of these

assessments. One mentioned that 'it had played a role [...] we were certainly looking at that' (S21MU), another used the assessments as a check in terms of 'how do they match with [our] recommendations?' (N1YG). However, another interviewee did not appear to use them, remarking, 'for me personally, in my area [of the 'Masterplan', I did not use these assessments], but I cannot speak for the others' (S23GP). No statement mentioned the role of the assessments within the development of the policy document 'Attractiveness of general practice'¹⁵². Despite several inquiries concerning the implications of the seven prioritised measures, no evidence for an objective or subjective impact on a specific policy document or proposal was provided by the participants. One possible explanation was offered, namely 'that [the prioritisation process in the study] was arbitrary, [there was] a cut-off, also a great many of the other measures which were identified are important [even if they were not prioritised]' (G8MU). There seemed to be more interest in and usage of the evidence on effectiveness by the literature reviews included in the study. Several participants indicated that the reviews were used in the 'Masterplan'⁴⁹ (N1YG, G6GP, S21MU, S23GP), while this proposition was contradicted by another statement, namely 'I cannot remember that the literature reviews were mentioned' (G6GP).

Overall, despite lack of media coverage, this study seemed to be quite well-known, especially in Styria. While the study results did not seem to meet the expectations of its funders and of other regional decision makers, they were further utilised within the two policy documents, the 'Masterplan for general practice'⁴⁹ and 'Attractiveness of general practice'¹⁵² as well as in its subsequent policy instrument¹⁵³. The effectiveness and feasibility assessment of the policies was barely used and there was no evidence for preferential utilisation of the seven prioritised measures (see Table 13).

Policy document: Masterplan for general practice⁴⁹

The 'Masterplan for general practice',⁴⁹ which contains around 50 policy alternatives and related references to policy documents and research studies, was developed by the Austrian GP Society, Young GP Society, Physician Chambers and Medical Universities.⁴⁹ It did not receive funding (G6GP) and was released by a press conference in August 2018,⁴⁹ around twelve months after the survey of medical students and GP trainees,³³ and around eight months after the unpublished policy document 'Attractiveness of general practice'¹⁵² was completed.

The founding story of this policy document was told quite consistently. The idea was apparently born in the region of Lower Austria during a public event concerning the future of general practice (N1YG). Dr Susanne Rabady, a GP and Austrian GP Society member from this region, fostered 'the idea to create a *therapy concept* for Lower Austria' (N1YG) and 'because differences between Lower Austria and the rest of Austria are small, we, the Young GP Society, said, actually we should undertake this nationally' (N1YG). This was to some degree confirmed by another GP who remembered that 'at the Congress of the Styrian GP Society Susanne Rabady said, 'We have to write something down'' (G6GP). Another participant proposed a possible causal link to the previous publications of the Institute for General Practice by speculating on the Austrian GP Society's reaction:

Thus, when academic general practice produces one [paper], then we practitioners, because they don't have a clue in their ivory tower, will produce a really good paper. (NG7AC)

The creation of this policy document was apparently fuelled by a lot of dedication and performed 'without money in our spare time, in the evening, at night, at the weekend' (G6GP) through 'personal meetings or by Skype [...] in less than a year' (G6GP):

There were six topic areas and for each area there was a group leader and a team of five, six people who offered input and who worked out each measure. (N1YG)

The content-related input for this process reportedly derived from four distinct sources. One participant remarked that 'there were two research studies which were the semi-official foundation, these were the Poggenburg study and the Stigler study [because] there was the wish to have a certain scientific foundation for all of these measures' (N1YG). This was enhanced by a 'small survey by Susanne [Rabady] within the executive board of the GP Society' (G6GP) to evaluate the executive board's preferences. Finally, further input derived from the working groups (N1YG) and a 'three-day meeting in St. Gilgen [the annual general assembly of the Austrian GP Society] where we discussed everything in small groups once again [...] and everything was then reflected again in one large group [discussion]' (G6GP).

The completed 'Masterplan' was then published at a press conference which led to 'a few articles in the general and medical media' (N1YG). Additionally, there were also dissemination efforts which were described as a 'half-hearted lobbying campaign to provide it to the stakeholders directly' (N1YG) and more positively as 'distribution to all stakeholders' (S21MU) and 'distribution to regional decision makers' (S23GP). Another participant narrated that the 'Masterplan' was also presented elsewhere:

At a meeting with members of the National Council and health spokespersons. I think there were all [political] parties, maybe ten people [...] and also the people in [the Austrian region of] Vorarlberg organised a great press conference. (G6GP)

Accounts concerning the spread of the 'Masterplan' were inconsistent. Some stated it had been 'relatively broadly distributed' (N1YG), 'well advanced' (S21MU) and that 'they [decision makers] were printing it by themselves, binding it [...] they were really engaged with it' (G6GP). Others remarked that 'I do not know what happened with that' (G18SF) and that 'nobody knows that [document], I hardly know anyone who is aware of that' (NG7AC). One participant offered a possible explanation for this discrepancy, by stating 'it emerged somehow in parallel, in a parallel universe' (G8MU) which might be interpreted as referring to fragmentation within the policy community or between communities of experts and decision makers. Another participant found fault with the timing, as 'the Masterplan came too late' (N3MH) because it was published when the policy document 'Attractiveness of general practice'¹⁵² was already circulating among decision makers. Nevertheless, the process of developing this 'Masterplan' in almost one year as a common effort of several organisations suggests that it might have strengthened the integration of this policy community and potentially also enhanced the 'softening up' process in Kingdon's terms^{15 pp.127-31}, while it did not create to a shortlist of well known, widely accepted and fully developed policy proposals (as concluded in the chapter on the 'policy stream').

Overall, there was uncertainty concerning the level of awareness of this policy document and some suggested that the timing might have been disadvantageous in terms of influencing the policy agenda. Nevertheless, this dedicated process might have integrated the policy community further and accelerated policies' 'softening up'.

Policy document and instrument: Attractiveness of general practice¹⁵², its implementation agreement and its monitoring¹⁵³

The policy document 'Attractiveness of general practice',¹⁵² which contains 33 policy proposals, was completed in December 2017,¹⁵² around four months after the presentation of the survey of medical students and GP trainees,³³ and subsequently led to a high-level agreement¹⁵³ and a monitoring instrument¹⁵³ to evaluate its implementation progress.

This initiative was reportedly agreed upon by the federal Government, regions, municipalities, Sickness Funds, Physician Chambers, universities and others (G8MU,

N12SF). While the agreement¹⁵³ was described as 'legally binding' (G8MU) it was also referred to as 'not binding' (G18SF) which might be explained by the absence of significant consequences for non-compliance.

The development of these documents was reportedly coordinated by the research institute related to the Ministry of Health, the Austrian Public Health Institute⁶⁰ (G5HF). Some reported that the included measures mainly derived from 'merging' the results of the survey of medical students and GP trainees³³ and the catalogue of measures to prevent a GP shortage¹³ (NG7AC, G8MU, N14SF). Participants mentioned that the policy document 'Attractiveness of general practice'¹⁵², the subsequent high-level agreement¹⁵³ and its monitoring instrument¹⁵³ are unpublished and 'not yet released' (N14SF), while no participant could explain why these 'publicly funded papers' (NG7AC) are not publicly available.

This initiative was positively assessed as contributing to possible policy change in future. It was interpreted as a sign that 'this means something is going on' (G8MU) and this belief was supported by a recent meeting of regional stakeholders who 'discussed measures for making a GP career in Styria more attractive' (G8MU).

Overall, the national level commissioning of a policy document to prevent a GP shortage and the commitment by several national, regional and local stakeholders seem to indicate increasing stakeholder commitment to alleviating the GP shortage.

Evidence base of the currently discussed policy alternatives

The following Table 13 contains those policy proposals which were at least once positively mentioned by interviewees and relates them to their respective evidence base as obtained by the expert panel process of the second study within this thesis (see chapter 4.2).¹³

Table 13: Policies mentioned positively by interviewees and their respective expert panel assessment¹³

Policies	Effectiveness	Feasibility	No. of interviewees mentioning* it
Introducing GP specialism (24 [#])	Excluded in phase 1 ('yes' by 80%)	/	15 ²
More GP at university (19 [#])	Excluded in phase 1 ('yes' by 80%)	/	13 ¹
More remuneration (42 [#])	Less effective (phase 2 median: 5 of 9)	Less feasible (phase 2 median: 6 of 9)	7 ¹
New remuneration method (56 [#])	Less effective (phase 2 median: 6.5 of 9)	Less feasible (phase 2 median: 4.5 of 9)	9 ⁴
Strengthening PHC nurses (86 [#])	Effective (median: 8 of 9)	Less feasible (phase 2 median: 5 of 9)	8 ³
Patient registration (58 [#])	Excluded in phase 1 ('yes' by 78%)	/	2
Strengthening Institutes for GP (16 [#])	Effective (phase 2 median: 9 of 9)	Feasible (phase 2 median: 8 of 9)	1
More medical university places	Not included	Not included	1
Marketing campaign (97 [#])	Less effective (phase 2 median: 6 of 9)	Less feasible (phase 2 median: 7 of 9)	2
Telemedicine (90 [#])	Less effective (phase 2 median: 4 of 9)	Less feasible (phase 2 median: 4 of 9)	1

* Number of positive mentions; number of positive mentions provoked by an interview question are additionally noted as a superscript figure

The number of the policy within the catalogue of preventive measures (see Table 7) which relates most closely to the proposals by interviewees

Interestingly, both policies which were most frequently positively mentioned by interviewees were assessed as *less effective* within the first phase of the expert panel process. However, firstly, the threshold for being defined as *effective* was quite high within both phases of the expert panel process (see chapter 3.2); and secondly, there was only little agreement by interviewees on the policy content of *more general practice teaching at medical universities* (see chapter 4.6) which limits comparability with the policies assessed by the expert panel. Nevertheless, no association was identified between the evidence base obtained by the expert panel process and the frequency of policies being positively mentioned by interviewees.

In conclusion, less than 24 months ago, a survey of medical students and GP trainees³³ related to the GP shortage was published in Austria. This study might have been performed partly for political reasons and its publication, indeed, received significant attention from the public and from decision makers which might have increased the level of problem recognition. Shortly thereafter, the catalogue of preventive measures to mitigate the shortage of GPs in Austria¹³ was published and while it initially received significantly less attention from the media and decision makers, its content subsequently fed into two policy documents: firstly, into the 'Masterplan for general practice'⁴⁹ as developed by several expert groups, which might have strengthened the integration of the respective policy community and might have

accelerated the 'softening up' of relevant policies; and, secondly, it fed into the 'Attractiveness of general practice'¹⁵² report commissioned by the federal Government which subsequently led to a comprehensive contract¹⁵³ between relevant national, regional and local stakeholders. While non-compliance with this contract is likely to have few consequences, this broad commitment might increase the likelihood of its implementation. These two studies were therefore utilised differently. Utilisation of the first study³³ can be explained by applying the *political model*⁷⁵ of research utilization as it apparently aimed to increase the recognition and perceived severity of the issue at hand. Utilisation of the second study¹³ can be explained by applying the *problem-solving model*⁷⁵ as it apparently aimed to fill the gap between the perceived problem and the need of decision makers to solve it. Furthermore, no association was found between the results of the expert panel assessment¹³ within this thesis and the likelihood of policies being positively mentioned by interviewees.

5. Discussion

While only 1.9% of allocated GP positions in Austria were vacant in 2018,³⁰ 45% of GPs in Austria will reach formal retirement age within a decade²⁹ and it remains unknown how many medical students and young physicians are willing to replace them. The challenge of the expected GP shortage has multiple causal explanations and successful reform will most likely require a bundle of measures to be implemented by several institutions simultaneously. Therefore, a comprehensive catalogue of measures to prevent a GP shortage was developed and assessed,^{13,76} and the current GP shortage reform processes were analysed.

This thesis contains four research studies which will be discussed below:

- 1) Developing a comprehensive catalogue of potentially effective measures to prevent a GP shortage in Austria¹³
- 2) Assessing the previously identified measures concerning their understandability, effectiveness and feasibility within the context of the Austrian healthcare system¹³
- 3) Identifying practical considerations concerning the implementation of the previously prioritised measures within the context of the Austrian healthcare system⁷⁶
- 4) Assessing the generation of political priority, utilization of research, and implementation of a policy response to prevent a GP shortage in Austria

Conclusions

The first study developed a comprehensive catalogue of 95 potentially effective measures to prevent a GP shortage based on a focused search strategy.¹³

The second study assessed seven of the previously identified measures as effective and feasible within the context of the Austrian healthcare system based on a two-phase expert panel process.¹³

The third study identified several practical considerations concerning the implementation of the seven previously prioritised measures based on a semi-structured online-questionnaire.⁷⁶

The fourth study assessed the generation of political priority, the implementation of a policy response, and the utilization of research related to a GP shortage in Austria based on 26 semi-structured qualitative interviews with key experts and an analysis of policy documents. It identified an increased public and stakeholder attention given to this issue, an inappropriate framing of the issue, a shortage of well-known and broadly-accepted priority measures, a fragmented policy community, a lack of advocacy activities and an absence of a policy entrepreneur.¹⁵

Strengths and limitations

The strength of the first study¹³ was the breadth of the search strategy which included multiple data sources. A limitation of this study was the absence of a grey literature search, including approaching relevant authors, which might have increased the extent of the catalogue further. Some of the identified measures, like performing relevant research studies, can only indirectly ameliorate a GP shortage through implementing subsequent policies.

The strength of the second study¹³ was the presence of all apparently relevant stakeholders within the expert panel process. A limitation was that the second phase of the panel process took only half a day which did not enable lengthy in-depth discussions for each measure within the whole group.

The strength of the third study⁷⁶ was that most relevant stakeholders performed the semi-structured questionnaire, including physician chamber, sickness fund, GPs and experts. The limitation was that the sample of six participants was small and did not include all stakeholders which would implement these measures; the results might therefore be less representative and might miss relevant considerations.

The fourth study had several strengths. Firstly, the purposive sampling strategy⁸¹ included all stakeholders considered relevant. Secondly, the relatively high acceptance rate of 50% for interviews limited potential selection bias. Thirdly, the applied framework analysis⁹⁵ allowed weaving in collected data with well-established theories. Fourthly, several common quality criteria for qualitative research were applied, including triangulation of geography, professional perspectives and data sources, active identification and analysis of deviant and negative cases, and performing member reflection.⁹³ Fifthly, being an insider⁷⁸ seemed beneficial for making meaning of this complex issue within the complex Austrian healthcare system.

A limitation of the fourth study was that two stakeholder groups might have been under-represented, as no interviewee from the region Styria was a mayor or a Physician Chamber representative.

Implications and reflections

The first and second research study of this thesis offered decision makers a broad range of policy options to prevent a GP shortage.¹³ It seems that this research was published timely, as stakeholders' recognition for the GP shortage increased, which might partly explain why the research results subsequently fed into policy documents^{49,152} and an implementation agreement. While this catalogue also included an assessment of the measures' effectiveness and feasibility,¹³ this did not seem to affect the likelihood of being discussed or implemented.

The third research study was able to identify useful practical considerations for the implementation of seven effective and feasible policies.⁷⁶ Nevertheless, while the sample of six experts was small, participant responses still indicated surprisingly little agreement on which stakeholder is responsible for implementing or funding each of the seven prioritised measures. This observation might partly be explained by the complexity and by lack of communication and shared learning within the Austrian healthcare system, which might make it more difficult to understand.

The fourth research study identified four main issues. *Firstly*, it suggests an increasing stakeholder attention for the GP shortage primarily driven by activated mayors, increasing media coverage and affirmation of these concerns by predicted rising GP retirements. Additionally, it also suggests that the current framing is not very compelling as it neither emphasises major negative consequences nor significant positive benefits related to varying GP quantities. *Secondly*, a low agreement on priority policies was identified, only the *specialist in general practice* seems to be broadly supported, possibly caused by lack of communication opportunities and a closed communication culture which limits policy learning. This interpretation can be challenged by the intense stakeholder exchange when the 'Masterplan for general practice'⁴⁹ was developed or by the early stage of the reform process as GP shortage received increasing attention only recently. Additionally, lack of agreement on a shortlist might also be explained by lack of focus of the involved individuals. *Thirdly*, significant reform seems currently unlikely as the problem could be framed more

compellingly, as more indicators could be monitored, more measures could be well-known and widely-accepted, a specific advocacy alliance is absent and pressure groups did not yet take advantage of the upcoming national election. While an individual who chooses to be a 'policy entrepreneur' could change these issues and increase the likelihood for reform, no obvious candidate for this role is currently in view.¹⁵ *Fourthly*, two publicly funded research studies seemed to support the reform processes by increasing problem recognition³³ and by offering policy alternatives¹³.

*Differences to Kingdon's theory of agenda setting.*¹⁵ The findings of the fourth study of this thesis are largely but not entirely in line with the characteristics of the agenda setting theory of John Kingdon.¹⁵ The many identified challenges within the *problem, policy and political streams*¹⁵ are consistent with the delayed and minor policy response to date. Nevertheless, while Kingdon focused on policy agendas within the central Government in the USA,¹⁵ most relevant policy decisions in Austria are made by regional stakeholders⁸; in Austria, the agendas of regional stakeholders seem therefore more significant than the Governmental agenda. All other aspects of the theory appeared to be meaningful and relevant within the Austrian context.

Differences to other challenges within the Austrian healthcare system. The question seems relevant if the findings of this case study are an unusual example of inertia or if they are typical and transferable to other policy areas and reform attempts. While only further research can offer authoritative answers, there are reasons to believe that this case study might contain a quite typical example for the Austrian healthcare system. The lack of transparency of the Austrian healthcare system¹⁵⁵ potentially inhibits problem recognition also elsewhere, fragmentation and a culture of secrecy might inhibit communication and policy learning in general, and only few Austrians are known to the author for continuously promoting a specific health policy as 'policy entrepreneurs'. Nevertheless, the utilisation of the survey of medical students and GP trainees³³ and the catalogue of preventive measures¹³ can be interpreted as positive distinctions to other policy areas and emphasise the benefit of research.

Key lessons

- Developing a catalogue of policy alternatives¹³ related to an already recognised problem benefited policy making by feeding into policy documents^{49,152}.
- Assessing effectiveness and feasibility of policy alternatives to prevent a GP shortage¹³ hardly seemed to influence policy making processes.
- The GP shortage in Austria receives increasing stakeholder attention while there is less agreement on its definition, severity and causal explanations.
- Essential indicators for monitoring the GP shortage are currently not utilised.
- Six policies were proposed by more than one interviewee. Only the introduction of a *specialist in general practice* seems well-known and widely-accepted among experts and decision makers.
- The absence of broadly supported priority policies might be caused by lack of connection, communication and mutual learning among the expert community.
- No alliance of experts and pressure groups specifically dedicated to preventing the GP shortage was identified.
- While critical media coverage seems to significantly influence decision makers, media advocacy on the GP shortage is expandable and the previous and upcoming national elections were not used for political purposes in this regard.
- No individual is currently well-known for aiming to prevent the GP shortage. Such a 'policy entrepreneur' might frame the problem more compellingly, demand more credible indicators, continuously promote a shortlist of priority measures, create an alliance and perform media advocacy.¹⁵
- The single most effective measure to prevent a GP shortage in Austria might be a skilled individual who simply decides to prevent it.
- Federalism and split funding might neither be the only nor the main cause for inertia of the Austrian healthcare system. Compelling ideas and dedicated individuals might even be more important for creating change.¹⁵
- Applied policy research⁷⁸ and qualitative research methods⁸⁰ can appropriately answer questions like 'why is a certain problem on the policy agenda while others are not?' or 'why are reform efforts repeatedly failing?'. Such research questions are highly relevant, especially for Austria, but still rarely studied.

Areas for further research

This thesis uncovered several research challenges which appear relevant.

Firstly, several key indicators were identified, which are not yet regularly measured or publicly available. Introducing such monitoring could significantly increase understanding of the current GP workforce situation and enable more accurate workforce planning.

Secondly, as only the proposal *specialist in general practice* seems currently well-known and widely-accepted by the specialist community, commissioning research to identify more acceptable policy alternatives appears appropriate. Also, research could identify specific reasons for not accepting available policy options.

Thirdly, the integration or rather fragmentation of health policy communities in Austria could be studied further. Comparative analyses of different such communities could also indicate if fragmentation might be specific to the GP shortage area or a more general phenomenon in Austria which needs to be addressed.

Fourthly, advocacy activities by pressure groups can frame an issue differently, promote priority policies or increase political pressure to implement policies.^{15 pp.150-3} This study identified only little advocacy by informal groups like GP Societies and research could identify causes of this insufficiency and enable stakeholders to deliberately strengthen these capacities to facilitate future reform efforts.

Fifthly, while John Kingdon identified 'policy entrepreneurs' as important in 15 of 23 of his case studies,^{15 p.180} no individual obviously performing this role was identified in Austria. As being a 'policy entrepreneur' is the choice of an individual, it might be worthwhile to investigate if the likelihood of the presence of a 'policy entrepreneur' correlates with the number of individuals living in a country. In other words, are larger countries more likely to have a 'policy entrepreneur'?

Sixthly, the studies within this thesis demonstrated the value of applied policy research and qualitative research methods. Their findings¹³ already fed into two policy documents^{49,152} and a target-control contract, and the fourth study identified GP shortage reform insufficiencies possibly also relevant for other reform areas. These benefits suggest that commissioning more health services research, applied policy analyses and qualitative research methods may be beneficial for the Austrian healthcare system.

Recommendations for preventing a GP shortage in Austria

Several interventions could increase the likelihood of implementing measures to prevent a GP shortage. All could be promoted or initiated by a 'policy entrepreneur':

1) Monitoring key indicators

The fourth study demonstrated, that several important indicators are not yet routinely measured and published. For example, it was not possible to determine how many young physicians currently choose a GP training over a specialty training or how many GP graduates prefer to work in a GP office rather than as hospitalists or private physicians. Also, highly relevant *bottlenecks* like waiting times for initiating postgraduate training or for attending a GP training practice are currently debated based on anecdotal evidence rather than routine measurements. Without these four indicators, it seems impossible to accurately estimate the future workforce supply of GPs or to evaluate the functioning of the 2015 postgraduate training reform.

These four indicators should therefore be routinely measured and published annually:

- Physicians entering and graduating from GP training versus specialty training
- GP graduates intending to work as a GP versus hospitalist or private physician
- Average waiting time for postgraduate training
- Average waiting time for GP training practice apprenticeship

2) Having in-depth conversations about the future role of GPs

This study indicates that while many experts question the appropriateness of the current number and distribution of GP positions, only few propose concrete solutions like an increase of GP positions or an evidence-based allocation mechanism to meet patient needs more properly. The number of GPs is essentially unchanged since 1960²³ and it might be time to reassess the role of GPs within the Austrian healthcare system.

These questions, among others, could be jointly discussed and answered:

- What should be the future role of GPs? How to achieve this change?
- What is the *right* density of GPs? How to define it?
- How to support GPs with practice nurses and allied professionals? How could this policy be mutually beneficial?

3) Changing the framing of perceiving the GP shortage

The GP shortage issue has received considerable public and stakeholder attention over a number of years. Nevertheless, it has been portrayed quite diversely: as vacant GP posts, as a *retirement wave*, or as lack of interest of a new generation of physicians. Those who want to increase political priority for this issue might consider changing its framing. For example, the GP shortage could be framed as a potential threat to maintaining the solidary healthcare system or, in a positive way, increasing GP positions could be framed as a way to improve patient outcomes, to improve quality for care especially for chronic conditions where Austria performs poorly,⁶ to reduce outpatient department visits and healthcare costs.

4) Gaining shared agreement on priority measures

Currently, only the proposal *specialist for general practice* seems well-known and widely-accepted within the respective expert community. If a Minister of Health would ask ten specialists of this community for advice, the Minister might receive quite different answers which decreases the likelihood of their implementation. Ideally, the community would speak with one voice and agree on a shortlist of priority measures. Such an agreement could not be achieved by simply specifying a shortlist, as performed by the second study of this thesis,¹³ it requires a long and laborious process of continuous conversations and there is no shortcut to it.^{15 pp.139-43} Therefore, stronger integration of the policy community might be a prerequisite and could be fostered by forming an alliance of experts across all relevant stakeholders. These stakeholders could also set an example by exhibiting a culture of openness and mutual learning.

5) Strengthening advocacy capacities

Changing the framing of an issue or increasing awareness of a shortlist of priority policies would be a valuable objective and a major achievement of any advocacy campaign.^{15 p.114} Interpreting the GP shortage as a political challenge suggests a political response. Especially within a healthcare system that does not optimally connect all regions and stakeholders, increased media coverage may also serve as an indirect communication tool to reach more distant decision makers or policy community members.^{15 pp.59-60} The effectiveness of advocacy might, for example, be

increased by advocacy skills training or by developing an internal advocacy strategy funded by institutions willing to strengthen the system's capacity for change.

6) Choosing to be a policy entrepreneur

Often, problems within the Austrian healthcare system are either justified by federalism, the split funding system or by blaming other stakeholders. Nevertheless, much might be gained without changing structure or funding mechanisms. Ideas and individuals may be even more relevant for achieving change.^{15 pp.224-5} One single individual could initiate an advocacy campaign to change the framing of the GP shortage, could promote effective policies to gain shared agreement or could form an alliance to increase political pressure.¹⁵ Each of these activities may take a long time, will probably be unpaid and possibly be largely unnoticed. Becoming a 'policy entrepreneur' is therefore a personal choice which cannot be demanded or expected. Nevertheless, history suggests that a successful reform needs a skilled individual who makes this choice. Everyone who thinks about committing to the cause of preventing the GP shortage in Austria is therefore strongly encouraged to take the lead.

Appendix

Appendix A – Examples of evaluated medical school measures in rural areas against a GP shortage

- **Financial incentives for working in a rural area**

In 1970, the United States Congress initiated the National Health Service Corps (NHSC), which provides different types of financial benefits like scholarships or loan repayments for health professionals in return for the commitment to work in a rural, underserved area at least for several years.¹⁵⁶ In 2016, the most common financial benefit was loan repayment, which was received by 5282 individuals which committed to two or three years of clinical work in an underserved area.¹⁵⁶ Overall funding for the NHSC was \$300 million lately.¹⁵⁶ One fifth of these individuals were doctors, another fifth were nurses and around one third were mental or behavioural health professionals.¹⁵⁶ Subsequent evaluation studies indicate, that up to half of the individuals which received these financial benefits remained in one of the defined underserved areas after 10 years.¹⁵⁷

- **Medical school with a comprehensive rural area component**

In 1974, the Thomas Jefferson University in the United States initiated the Physician Shortage Area Program (PSAP), which prioritises the selection of medical students who have a rural or small-town background, and who are committed to work in such an area in future.¹⁵⁸ These medical students received additional mentorship and faculty support, performed their obligatory 6-week internship in family medicine in a small town and most of them performed a GP placement in a rural area during their final year.¹⁵⁸ An evaluation concerning the recruitment locations indicates that PSAP graduates were ten times more likely than non-PSAP graduates to move into family medicine in a rural (26% vs. 3%) or underserved (23% vs. 2%) area.¹⁵⁸ Another evaluation concerning the retention of family physicians in a rural area after 20-25 years of follow-up indicates that of PSAP graduates who practised rural family medicine after graduation, 70% were still practising it in the same location compared with 46% of non-PSAP graduates who also practised family medicine after their

graduation.¹⁵⁹ Overall, it was estimated that three-quarters of the PSAP impact can be explained by its selective admission policy.¹⁶⁰

- **One year of medical school based in rural general practice and primary care**

In 1997, the School of Medicine at Flinders University in Australia's state capital Adelaide, introduced the Parallel Rural Community Curriculum (PRCC)¹⁶¹. This project located an entire year of undergraduate medical education in rural general practice, while keeping the same sub-specialty derived learning objectives as students based in an urban tertiary teaching hospital. It aimed to tackle two problems at the same time, namely the workforce maldistribution between urban and rural areas and the increasing caseload of tertiary teaching hospitals. This pilot project introduced flexible learning resources and new information technology solutions in order to combine the benefits of both the skills and knowledge of specialist teachers of tertiary hospitals and the opportunities of the rural learning environment based within the community. During this program, GPs are the primary contact person, teacher and mentor for medical students.¹⁶¹

A similar program in Western Australia concluded that medical students in a rural setting encounter twice as many common medical conditions and perform six times as many medical procedures as medical students in an urban setting.¹⁶² This observation was in line with the subjective experience of students, as those in a rural setting reported that they learned more than those students who were based in an urban setting.¹⁶² Also the students enrolled in the PRCC program performed unusually well.¹⁶³ Students who spend their third year of medical school in rural general practice performed significantly better in their annual exam than students who spent it in the urban tertiary teaching hospital.¹⁶³ They also had a broader exposure to common medical conditions and improved their reported subjective competence more strongly than their colleagues in the hospital-based program.¹⁶⁴ This program also seemed to achieve the aim to improved retention, as 70% of graduates who went through the PRCC program were practising in rural areas after 12 years of follow-up.¹⁶⁵

- **An entire medical school based in rural general practice and primary care**

In 2001, the Government of Ontario in Canada introduced an entirely rural, community-based medical school, the Northern Ontario School of Medicine.³⁶ This

initiative was enabled by a collaboration of three medical schools, by the support of local communities which hosted the students, and was enabled by distributed learning by using information technology and focused case studies and teaching on the perspective of GPs in rural areas and their related community settings.³⁶ It primarily recruited medical students of rural origin, accepted a diverse range of applicants (90% came from Northern Ontario) and was highly competitive, as 56 new medical students were selected from 2000 new applicants each year.¹⁶⁶ The first graduates finished in 2009 and all of them were able to match to residency programmes within the first round of the national residency matching process, being the first medical school in Canada with this achievement for more than ten years.³⁶ The follow-up evaluation of the Northern Ontario family medicine program showed that slightly more than two-thirds of graduates' person-years of medical practice were spent in Northern Ontario or in another rural area.¹⁶⁷

Appendix B – Expert reviewers and expert panel process participants¹³

1. Experts reviewing the identified GP shortage prevention measures of study one¹³

- Prof. Dr. Ferdinand M. Gerlach, MPH, Head of the Institute of General Practice, Johann Wolfgang Göthe Universität, Frankfurt am Main
- Dr. Thomas Cypionka, Deputy Director, Institute for Higher Studies, Vienna
- MR Dr. Reinhold Glehr, GP, former Head of the Austrian GP Society, Hartberg

2. Participants of the two phases of the expert panel process of study two¹³

- Dr. Julia Baumgartner, GP, Executive Board member of the Styrian Academy for General Practice
- Matthias Berner, Medical student and member of the Austrian Young GP Society
- Dr. Robert Gradwohl, Director of the Styrian Sickness Fund
- Dr. Johannes Koinig, Vice-Executive-Director of the Styrian Health Fund
- Ao. Univ.-Prof.ⁱⁿ Dr.ⁱⁿ Lang-Loidolt, Vice-Chancellor for Study and Teaching at the Medical University of Graz
- a.o. Univ.-Prof. Dr. Herwig Ostermann, Head of the Austrian Health Foundation (representing the Austrian Ministry of Health)
- Mag. Dr. Martin Ozimic, Regional Director of the Styrian Association of Towns and Municipalities
- Mag. Horst Stuhlpfarrer, MPH, Representing the Styrian Physician Association
- Dr. Martin Sprenger, MPH, Head of the Public Health School of the Medical University of Graz
- Dr. Gottfried Thalhammer, GP in Rohrbach an der Lafnitz

Appendix C – Additional measures not assessed as effective and feasible¹³

Available information will be presented concerning measures which were not assessed as effective and feasible by the two phases of the expert panel process based on the defined criteria within chapter 3.2.¹³ This information includes aim, evidence-base, expert comments and sources concerning each measure. Specific sources will be referenced superscript as ‘p’ for information deriving from a policy document, as ‘r’ for literature review and ‘e’ for experts (external experts and expert panel members).

Measures not assessed as effective and feasible within the second panel phase

The second phase of the expert panel process assessed 37 measures, which were assessed as *effective* within the first phase of the expert panel process, but not as both, *effective* and *feasible* within the second phase of the expert panel process. This sub-chapter will describe these measures, provide information concerning their aim, indicate how often each measure was mentioned within the policy documents and the literature reviews, summarise the evidence-base extracted from the included literature reviews and provide a short summary of the comments of the three external experts and the ten panel members. For some measures, relevant background literature will be included if available.¹³

Category: University entry

Box 8: Measure No. 07¹³

Stronger emphasis on social and communication skills within the university entrance test	
(I) Aim	Accepting more students with good social and communication skills at medical schools. Not only to improve the quality of care offered by these graduates, but also as they might be more likely to choose to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.

(III) Comments

- External Experts* » This measure would be discriminatory, and it might harm the image of being a GP. Instead, general practice should be promoted as the most prestigious medical discipline.
» Very important measure.
» A meaningful measure.
- 10 Panel Members* » The effectiveness of this measure is questionable.
» These skills are difficult to assess (especially by a written exam).
» These skills are important for all types of physicians.

(IV) Source

- Policy Documents* KCE 2008 (BEL)¹⁰⁶
- Literature Reviews* None.

Category: University education

Box 9: Measure No. 17¹³

Employing more GPs as teaching personnel (e.g. to hold lectures, seminars and internships within their GP office)

(I) Aim

More GPs should be employed as teaching personnel, in order to offer medical students more positive, personal contact with GPs.

(II) Evidence

Policy Documents The implementation of this measure was recommended by two of the ten included policy documents

Literature Reviews Three literature reviews were identified, which included this measure. One literature review suggests that this measure is effective, one literature review said it is most likely effective and one indicated that there is no significant association (because role models can be positive or negative).

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » The quality of the teaching skills of these GPs is important.
» The remuneration of GPs working as teaching personnel should be good.
» E.g., within each clinical study module at university should be one full day on the GPs' perspective on this clinical subject.

(IV) Source

Policy Documents AAFP 2014 (USA)¹²², KCE 2008 (BEL)¹⁰⁶

Literature Reviews Senf 2003¹⁶⁸, Katzenellenbogen 2013¹⁰⁷, Peckham 2016¹¹²

Developing mentoring programmes of GPs for medical students with interest in a GP career	
(I) Aim	Mentoring programmes by GPs should be developed, in order to support medical students with interest in a GP career early on and in order to offer more positive, personal contact with GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	Two literature reviews were identified, which included this measure. Both indicated a probably positive association.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » An appropriate quality assurance mechanism would be necessary. » An appropriate remuneration would be necessary. » Between one and three medical students per each teaching personnel would be beneficial.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	Hsueh 2004 ¹⁶⁹ , Henry 2009 ¹⁰⁹

More GP internships in rural areas (from the beginning to the end of university education)	
(I) Aim	During the whole duration of the medical school, more internships in GP offices in rural areas should take place, to offer medical students more positive, personal contact with GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by four of the ten included policy documents
<i>Literature Reviews</i>	14 literature reviews were identified, which included this measure. Two literature reviews suggest that this measure is effective, five indicated that this measure appears to be effective, three literature reviews assessed this measure as being effective but are based on weak evidence base, two literature reviews indicated that this measure might probably be effective, and two literature reviews stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » An appropriate quality assurance mechanism would be necessary.
» An appropriate remuneration would be necessary.
» This measure is already available.

(IV) Source

Policy Documents OECD 2014³⁴, SVR 2014 (GER)¹⁰¹, SVR 2009 (GER)¹⁰², KCE 2008 (BEL)¹⁰⁶

Literature Reviews Verma 2016⁴⁵, Katzenellenbogen 2013¹⁰⁷, Phillips 2009¹⁰⁸, Henry 2009¹⁰⁹, Baier 2014¹¹⁰, McDonald 2003¹¹¹, Peckham 2016¹¹², Ranmuthugala 2007¹¹³, Ballance 2009¹¹⁴, Dolea 2010¹¹⁵, Laven 2003¹¹⁶, Grobler 2015¹¹⁷, Pong 2005¹¹⁸, Viscomi 2013¹¹⁹

Box 12: Measure No. 22¹³

Developing an accompanying *excellence programme* or a *general practice class*^r to prepare students for working as a GP in a rural area (e.g. offering internships, additional lectures on general practice, mentoring programmes, peer-group meetings or feedback opportunities)

(I) Aim

Including an accompanying *excellence programme* or a *GP class* into the medical school curriculum to prepare students for working as a GP in a rural area in order to support medical students interested in a GP career early on and in order to offer more positive, personal contact with GPs.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews Three literature reviews were identified, which included this measure. One literature review assessed this measure as being very effective, one literature review assessed it as being effective and one assessed this measure as possibly being effective.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » The implementation of this measure would be challenging (because capacity building related to this issue is lacking behind in Austria).
» This measure would strengthen the image of general practice.
» It would be best to offer this measure as early as possible within the medical school training.

(IV) Source

Policy Documents SVR 2009 (GER)¹⁰²

Literature Reviews Rabinowitz 2008¹⁷⁰, Ballance 2009¹¹⁴, Goodfellow 2016¹⁷¹

Scholarships for junior doctors who commit to working as a GP (e.g. offering it during the two final years of medical school, if students agree to work as a GP in a rural area for at least three year, with or without the possibility to pay it back in order to cancel the commitment)

(I) Aim

Scholarships bound with the commitment to work as a GP in a rural area should offer medical students which are potentially willing to work as a rural GP an additional financial incentive to do so.

(II) Evidence

Policy Documents The implementation of this measure was recommended by three of the ten included policy documents.

Literature Reviews Eight literature reviews were identified, which included this measure. Five literature reviews indicated that this measure appears to be effective (if planned well including appropriate incentives), two literature reviews assessed the evidence base to be limited and inconsistent and one literature review indicated that negative long-term effects might be possible.

(III) Comments

External Experts » The implementation of this measure might lead to legal challenges (due to the basic right to be free to choose work).

10 Panel Members » Only effective if accompanied with additional measures.
 » This measure might be more effective if such scholarships are offered during the first years of medical school.
 » The commitment could vary from indicating a wish to signing a legal contract.

(IV) Source

Policy Documents OECD 2014³⁴, AAFP 2014 (USA)¹²², KCE 2008 (BEL)¹⁰⁶

Literature Reviews Verma 2016⁴⁵, Wilson 2009¹⁷², Baier 2014¹¹⁰, Bärnighausen 2009¹⁷³, Ballance 2009¹¹⁴, Dolea 2010¹¹⁵, Grobler 2015¹¹⁷, Frehywot 2010¹⁷⁴

Category: GP training

Creating more GP training practices to train junior doctors (e.g. by paying office-based GP teaching personnel appropriately^e)

(I) Aim

Additional financial incentives for GPs who perform GP training practices should be offered, especially in underserved rural areas, in order to strengthen the system of GP training practices. This should help to recruit more GPs to perform GP training practices for medical students and for GPs in training.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents.
<i>Literature Reviews</i>	Three literature reviews were identified, which included this measure. One literature review assessed this measure as being effective and two literature reviews assessed this measure as possibly being effective.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» An appropriate quality assurance mechanism would be necessary.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , SVR 2014 (GER) ¹⁰¹
<i>Literature Reviews</i>	Verma 2016 ⁴⁵ , Henry 2009 ¹⁰⁹ , Ballance 2009 ¹¹⁴

Box 15: Measure No. 27¹³

Higher salary for junior doctors in a GP training practice^e	
(I) Aim	
	The income of GPs in training who work in a GP training practice in a rural area should increase in order to recruit more GPs in training.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » This measure would be effective. » The effectiveness of this measure is questionable (because it would not necessarily increase the motivation of these GPs in training to work in rural areas later on). » 'Comparatively' increasing the salary of GPs in training in GP training practices in rural areas. » 'Comparatively' increasing the salary of GPs in training compared with specialists in training. » An appropriate quality assurance mechanism would be necessary.
(IV) Source	
<i>Policy Documents</i>	NHS 2015 (GBR) ¹⁷⁵ , NHS 2014 (GBR) ¹²¹
<i>Literature Reviews</i>	None.

Strengthening the quality of GP training (e.g. by financial support for didactic seminars for GPs who are teaching within GP training practices)^p	
(I) Aim	Strengthening the teaching quality within general practice in order to improve the learning experience of GPs in training.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» An appropriate quality assurance mechanism would be necessary.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , NHS 2015 (GBR) ¹⁷⁵ , SVR 2014 (GER) ¹⁰¹
<i>Literature Reviews</i>	None.

Enabling more training within an interdisciplinary team (e.g. by strengthening teaching within the new interdisciplinary PHC centres)^p	
(I) Aim	More training within the new primary centres should enable more training within interdisciplinary teams and therefore improve the teaching quality and learning experience of GPs in training.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The implementation of this measure is challenges, because there are not yet enough interdisciplinary primary care centres in Austria. » Also general practice outside the new interdisciplinary primary care centres is important and should be valued equally.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , NHS 2014 (GBR) ¹²¹
<i>Literature Reviews</i>	None.

Defining the content and the teaching methods of GP training (including a focus on general practice in a rural area ^p , including an interdisciplinary public health perspective ^p and including a challenging final exam to complete the GP training ^e)	
(I) Aim	The development of a structured, competency-based training curriculum with defined content and teaching methods of high didactic quality should improve the GP training further and reduce barriers (the perception that the GP training does not appropriately prepare for the work as a GP) for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	One literature review stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The implementation of this measure is challenging. » This measure would need to be defined in more detail before being implemented.
(IV) Source	
<i>Policy Documents</i>	SVR 2009 (GER) ¹⁰² , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Grobler 2015 ¹¹⁷

Offering further education for GP trainees preferably within primary care (e.g. by regional further education teams or by local university branches ^p)	
(I) Aim	Further education for GP trainees should preferably be offered in primary care, in order to be as relevant as possible for the subsequent work as a GP.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	» The capacity building process to enable the implementation of this measure is still lacking behind. » Further education for GP trainees starts too late.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , AAFP 2014 (USA) ¹²² , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	None.

Box 20: Measure No. 33¹³

Enabling structured feedback opportunities for GP trainees (e.g. offering training assessment^p, mentoring programmes^p und Balint-groups^e)	
(I) Aim	
	The development of a structured, competency-based training curriculum including training assessments, mentoring programmes and <i>Balint-groups</i> ¹²⁰ should improve the GP training further, should offer GPs in training a <i>medical home</i> and reduce barriers (the perception that the GP training does not appropriately prepare for the work as a GP) for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» If implemented inappropriately, this measure could lead to the opposite effect (e.g., medical students often tell us that 'we can't hear the word <i>bio-psycho-social</i> anymore').
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , SVR 2014 (GER) ¹⁰¹ , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	None.

Organising the GP training (e.g. seminars and mentoring) within cohorts^e	
(I) Aim	The development of a structured, competency-based training curriculum including seminars and mentoring programmes which are organised as cohorts of GP trainees, should improve the GP training further, should offer GPs in training a <i>medical home</i> and reduce barriers (the perception that the GP training does not appropriately prepare for the work as a GP) for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was not recommended by any of the ten included policy documents.
<i>Literature reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » The creation of peer-groups of GPs in training, which includes the exchange of experiences and socialising, would be helpful. » The support and strengthening of the GP training would be helpful. » The effectiveness of this measure is questionable.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature reviews</i>	None.

Identifying, valuing, supporting and disseminating innovative training methods	
(I) Aim	Innovative teaching concepts should be disseminated by identifying them, valuing them and supporting them, in order to improve the GP training further and to reduce barriers (the perception that the GP training does not appropriately prepare for the work as a GP) for medical students and graduates with an interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.

(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» Firstly, standardise the GP training, secondly, be innovative. » This measure should be defined in more detail before being implemented.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²²
<i>Literature Reviews</i>	None.

Category: GP work experience

Box 23: Measure No. 41¹³

Rural doctor additional fee and administrative support for establishing a GP practice (or taking a GP practice over^e) in underserved rural areas	
(I) Aim	
	More income for GPs in rural areas and administrative support for establishing a GP practice (or taking a GP practice over) should improve the likelihood to work as a GP in a rural area and reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by five of the ten included policy documents
<i>Literature Reviews</i>	Seven literature reviews were identified, which included this measure. Two literature reviews indicated that this measure appears to be effective, two literature reviews indicated that this measure might be effective, two literature reviews stated that the underlying evidence base concerning this measure is of limited reliability and one literature review indicated that there might be negative long-term effects.
(III) Comments	
<i>External Experts</i>	» In Austria, there are additional fees for working in difficult areas for the last 20 years (e.g. working in a very remote valley).
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » There should be a financial adjustment based on expected burden of disease and therefore local care needs.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , EC 2015 (EU) ¹⁰⁴ , AAFP 2014 (USA) ¹²² , SVR 2014 (GER) ¹⁰¹ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Wilson 2009 ¹⁷² , Baier 2014 ¹¹⁰ , McDonald 2003 ¹¹¹ , Peckham 2016 ¹¹² , Dolea 2010 ¹¹⁵ , Grobler 2015 ¹¹⁷ , Goodfellow 2016 ¹⁷¹

Additional fees for GP practices in rural areas with small practice populations	
(I) Aim	Providing higher income for GPs in rural areas with smaller population sizes, in order to increase work satisfaction and reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	Seven literature reviews were identified, which included this measure. Two literature reviews indicated that this measure appears to be effective, two literature reviews indicated that this measure might be effective, two literature reviews stated that the underlying evidence base concerning this measure is of limited reliability and one indicated there might negative long-term effects.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» There should be a financial adjustment based on expected burden of disease and therefore local care needs. » At the moment, GP practice-based drug stores (which provide additional income for rural GPs) serve this function at the moment.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , ICGP 2015 (IRL) ¹⁰⁵ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Wilson 2009 ¹⁷² , Baier 2014 ¹¹⁰ , McDonald 2003 ¹¹¹ , Peckham 2016 ¹¹² , Dolea 2010 ¹¹⁵ , Grobler 2015 ¹¹⁷ , Goodfellow 2016 ¹⁷¹

Assured minimum wage for GPs in underserved areas	
(I) Aim	Offering GPs in underserved areas a guaranteed minimum income in order to reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	Four literature reviews were identified, which included this measure. Two literature reviews indicated that this measure appears to be effective, one literature review assessed this measure as possibly being effective and one literature review stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » This measure would reduce the financial risk for GPs practices with a small population size.
- » This measure would reduce the financial dependence on GP practice-based drug stores.
- » Areas, which cannot recruit a GP, do not necessarily offer only a small population size.
- » This measure should only be implemented if there is also agreement on minimum working hours.

(IV) Source

Policy Documents OECD 2014³⁴, ICGP 2015 (IRL)¹⁰⁵, KCE 2008 (BEL)¹⁰⁶

Literature Reviews Baier 2014¹¹⁰, Dolea 2010¹¹⁵, Grobler 2015¹¹⁷, Goodfellow 2016¹⁷¹

Box 26: Measure No. 44¹³

Enabling new GPs to work as an employee at established GP practices in rural areas (for 1-2 years)

(I) Aim

Being employed (for 1-2 years) as a new GP at an established GP practice would enable an individual, flexible and clearly defined career path in order to reduce barriers for medical students and graduates with a potential interest in a GP career.

(II) Evidence

Policy Documents The implementation of this measure was not recommended by any of the ten included policy documents.

Literature Reviews One literature review stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » This measure would be effective.
- » This measure would be effective especially when combined with the new interdisciplinary primary care centres (PVE).
- » This new form of employment could be offered for up to five years.

(IV) Source

Policy Documents None.

Literature Reviews Verma 2016⁴⁵

Supporting teaching opportunities for GPs (e.g. teaching within a GP training practice or at the university)	
(I) Aim	Offering teaching appointment opportunities should offer an individual, flexible and clearly defined career path in order to reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » An appropriate quality assurance mechanism would be necessary. » An appropriate remuneration would be necessary. » The effectiveness of this measure is questionable.
(IV) Source	
<i>Policy Documents</i>	KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Enabling a flexible, family-friendly work schedule including part-time and maternity/paternity leave	
(I) Aim	More individual and flexible work schedule arrangements should improve the work satisfaction of GPs and reduce barriers for medical students and graduates with an interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by four of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	» The implementation of this measure would be very important. » This is currently one of the largest barriers for choosing general practice as a career path.
(IV) Source	
<i>Policy Documents</i>	NHS 2014 (GBR) ¹²¹ , ICGP 2015 (IRL) ¹⁰⁵ , SVR 2014 (GER) ¹⁰¹ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Box 29: Measure No. 49¹³

Developing supra-regional GP-substitution programmes for duties, sickness leaves, holidays and more recreational time (e.g. on-call duties, night shifts and weekend shifts^e; long-term substitutions for up to several years^p)	
(I) Aim	Supra-regional GP-substitution programmes for shifts, sickness leaves, holidays and more recreational time should offer an individual, flexible and clearly defined career path in order to reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	One literature review assessed this measure as possibly being effective.
(III) Comments	
<i>External Experts</i>	» This measure would be the most important foundation. The regions Upper-Austria, Salzburg and Burgenland already implemented similar measures which increased the work satisfaction successfully.
<i>10 Panel Members</i>	No comments were provided.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , ICGP 2015 (IRL) ¹⁰⁵ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Henry 2009 ¹⁰⁹

Box 30: Measure No. 52¹³

Supporting independent further education in general practice (of high quality, local and within primary care)	
(I) Aim	Further education for GPs, which is of high quality and independent from vested interests, should be strengthened in order to increase the work satisfaction for working as a GP in a rural area.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by six of the ten identified policy documents.
<i>Literature Reviews</i>	Three literature reviews were identified, which included this measure. One literature review assessed this measure as possibly being effective and two reviews stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » This measure would be relevant for all medical specialities. » The implementation of this measure would be challenging, because the capacity building in this area is still lacking behind in Austria. » E.g. quality circles should be additionally supported. » The effectiveness of this measure is questionable.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , EC 2015 (EU) ¹⁰⁴ , NHS 2015 (GBR) ¹⁷⁵ , ICGP 2015 (IRL) ¹⁰⁵ , SVR 2009 (GER) ¹⁰² , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Verma 2016 ⁴⁵ , Henry 2009 ¹⁰⁹ , McDonald 2003 ¹¹¹

Box 31: Measure No. 56¹³

Introducing new GP funding schemes and testing their influence on motivation and behaviour (e.g. capitation fees, fixed income, pay-for-performance)	
(I) Aim	
	The implementation and evaluation of new ways of funding should increase the work satisfaction of GPs in rural areas and reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure would be effective.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Box 32: Measure No. 57¹³

Extension and appropriate remuneration of additional clinical services	
(I) Aim	The extension and appropriate remuneration of additional clinical services should increase the work satisfaction of GPs in rural areas.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	» This measure would need to get evaluated, because more comprehensive services might also lead to more work-related burden and fear of additional work loads.
<i>10 Panel Members</i>	» This measure would be helpful if also the training and quality assurance related to these additional services would be appropriate. » This measure would require accompanying changes in other areas of the healthcare system as well. » The implementation of this measure would already be possible.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , OECD 2014 ³⁴
<i>Literature Reviews</i>	None.

Box 33: Measure No. 59¹³

Improving working climate and teamwork (e.g. by offering team-supervision^e)	
(I) Aim	The improvement of the working atmosphere and the teamwork should increase the work satisfaction of GPs in rural areas and reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was not recommended by any of the ten included policy documents.
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure would be helpful in some cases but not in general.

(IV) Source

Policy Documents None.

Literature Reviews Baier 2014¹¹⁰

Box 34: Measure No. 61¹³

Fewer management and administrative tasks for GPs**(I) Aim**

The reduction of administrative and management tasks would enable GPs to spend more time with their patients, increase the work satisfaction and reduce barriers for medical students and graduates with a potential interest in a GP career.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts » How should this be implemented? E.g. remuneration for an additional administrative staff might be an option.

10 Panel Members » The implementation of more interdisciplinary primary care centres would be helpful to reach this goal.
» The problem definition is not clear at the moment.

(IV) Source

Policy Documents KCE 2008 (BEL)¹⁰⁶, NHS 2014 (GBR)¹²¹

Literature Reviews Peckham 2016¹¹²

Box 35: Measure No. 62¹³

Reducing GP workload by reducing working hours, increasing holiday duration and enabling more delegation of routine tasks (e.g. by allocating more GP contracts^e, a GP-substitution-programmes^e and the opportunity to delegate tasks to practice nurses)**(I) Aim**

The workload for GPs in rural areas should be reduced by reducing the number of working hours and increase the duration of holidays by implementing several measures.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » This would be an important measure.
» The sharing of GP contacts should be enabled.
» We should be careful, because we actually know very little about the working hours of GPs.

(IV) Source

Policy Documents KCE 2008 (BEL)¹⁰⁶

Literature Reviews Rabinowitz 2008¹⁷⁰

Category: Role of the community

Box 36: Measure No. 68¹³

Offering GP practice space (e.g. by public ownership and offering it to GPs for free)

(I) Aim

Financial support for GP practice office space should reduce barriers for medical students and graduates with a potential interest in a GP career.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » This measure might be possible for very remote rural areas.
» This measure is already available.

(IV) Source

Policy Documents ICGP 2015 (IRL)¹⁰⁵

Literature Reviews None.

Box 37: Measure No. 70¹³

Funding of low-cost credits for building a house, buying a care, holidays, etc.

(I) Aim

The quality of life of GPs in rural areas should be improved by financial support or low-cost-credits for building a house, buying a car or going on holidays.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure might be effective. » This measure is already available.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵
<i>Literature Reviews</i>	None.

Box 38: Measure No. 71¹³

Improving the quality of life of GPs within the community (e.g. leisure time activities, cultural offerings, the availability of a kindergarten, school of work opportunities for the spouse)	
(I) Aim	
	The improvement of the quality of life in rural areas in general should improve the quality of life of GPs in rural areas as well, in order to reduce barriers for medical students and graduates with a potential interest in a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure would be effective. » This measure would be beneficial for the whole rural population. » General practice could be part of an effective rural development programme.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , EC 2015 (EU) ¹⁰⁴ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Category: Recruitment of general practitioners not currently working as GPs

Box 39: Measure No. 80¹³

Domestic marketing and promotion campaign to recruit GPs who are currently not working as a GP	
(I) Aim	Domestic recruitment programmes could motivate GPs which are currently not working as a GP (e.g. GPs working abroad, GPs during maternity/paternity leave, GPs working in the hospital or as private doctors) to choose to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure would be important, because there are many GPs which are currently not working as a GP. » This measure would be relevant, if the quality of care of these physicians could be ensured.
(IV) Source	
<i>Policy Documents</i>	KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Box 40: Measure No. 81¹³

Developing a simple and flexible GP re-entry programme (e.g. offering financial support, personal support, professional assessments or general practice clinical update courses for GPs who worked never or a long time ago in general practice)	
(I) Aim	The development of a simple and flexible GP re-entry program should facilitate and alleviate the re-entry into general practice and therefore reduce accompanying fears and worries.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents.
<i>Literature Reviews</i>	One literature review stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » This measure would be helpful.

(IV) Source

Policy Documents NHS 2015 (GBR)¹⁷⁵, NHS 2014 (GBR)¹²¹, SVR 2009 (GER)¹⁰²

Literature Reviews Verma 2016⁴⁵

Box 41: Measure No. 86¹³

Enabling the delegation of GP tasks in rural areas by employing nurses and allied health professionals (e.g. delegation to additional, publicly funded practice nurses, physiotherapists or clinical pharmacists)

(I) Aim

Increasing the multidisciplinary within primary care and introducing additional healthcare professionals should allow the delegation of more tasks and therefore also strengthen the capacity for care in rural areas.

(II) Evidence

Policy Documents The implementation of this measure was recommended by three of the ten included policy documents.

Literature Reviews One literature review indicated that *physician assistants* and *nurse practitioners* can increase efficiency and improve patient satisfaction.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » This measure would be effective and should already be best practice today.
» The effectiveness of this measure, concerning reducing the need for GPs, is questionable.
» The tasks of these new healthcare professionals would need to be defined in detail.

(IV) Source

Policy Documents OECD 2014³⁴, KCE 2008 (BEL)¹⁰⁶

Literature Reviews Baier 2014¹¹⁰

Implementing and developing primary care units (including interdisciplinary care, as defined in the Austrian PHC policy document 'Das Team rund um den Hausarzt'¹³⁴ in 2014)^e	
(I) Aim	In order to strengthen the multidisciplinary within primary care and in order to increase the capacity of primary care services, more of the new interdisciplinary primary care centres should be implemented and they should be developed further.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by five of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated that <i>physician assistants</i> and <i>nurse practitioners</i> can increase efficiency and improve patient satisfaction.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	No comments were provided.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , OECD 2014 ³⁴ , NHS 2015 (GBR) ¹⁷⁵ , SVR 2014 (GER) ¹⁰¹ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Baier 2014 ¹¹⁰

Category: Increasing the effectiveness of current GPs

Utilising telemedicine to offer additional services and to build professional networks	
(I) Aim	The implementation of telemedicine should increase the comprehensiveness of services and lead to the development of networks of GPs in rural areas.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	One literature review assessed this measure as being effective.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	» This measure should be implemented if its actual quality can be ensured. » This measure should be implemented related to specific areas of clinical care, e.g. dermatology.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , OECD 2014 ³⁴
<i>Literature Reviews</i>	Baier 2014 ¹¹⁰

Category: Increasing the number of GPs

Box 44: Measure No. 97¹³

Introducing a professional marketing and promotion campaign to strengthen the image of general practice (e.g. by videos or blogs)	
(I) Aim	A professional marketing campaign should improve the image and perceived attractiveness of working as a GP in order to motivate medical students and recent graduates.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	Two literature reviews were identified, which included this measure. One literature review indicated that the evidence base is weak, and one literature review indicated that marketing campaigns based on videos would have a negative effect.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure should lead to positive or negative effects. » It would be important that GPs are presented as competent physicians.
(IV) Source	
<i>Policy Documents</i>	NHS 2015 (GBR) ¹⁷⁵ , NHS 2014 (GBR) ¹²¹
<i>Literature Reviews</i>	Verma 2016 ⁴⁵ , Katzenellenbogen 2013 ¹⁰⁷

Measures only assessed within the first phase of the expert panel process

The following 51 measures were assessed by two or more of the ten expert panel members as *less effective* within the first expert panel phase. These measures were not further addressed within the second phase of the expert panel process.¹³

This sub-chapter will describe the aim of each measure, indicate how often it was mentioned within the policy documents and the literature reviews, summarise the evidence base extracted from the included literature reviews and provide a short summary of the comments of the three external experts and the ten panel members. For some measures, relevant background literature will be included if available.

Category: University entry

Box 45: Measure No. 01¹³

Medical university entry places exclusively for students with rural origins (e.g. quota for students from different regions or applying a rurality-index or selecting students together with representatives of the region/district)

(I) Aim

Admitting more medical students from rural areas to medical school, because of the expected larger likelihood of working in a rural area later on.

(II) Evidence

Policy Documents The implementation of this measure was recommended by five of the ten included policy documents.

Literature Reviews Seven literature reviews were identified, which included this measure. Two literature reviews indicated that this measure might be the most effective available measure, one literature review indicated that this measure has a strong effect, three literature reviews assessed this measure as being effective and one literature review indicated that the evidence base is of limited reliability.

(III) Comments

External Experts

- » This measure would discriminate medical school applicants from cities (would this be against the constitution?). How do you measure 'from rural areas'? In Germany, 10% of medical school spots will be reserved for students from rural background, Bavaria was in favour of this measure, the region Hesson did not implement it. The German Association of GPs (DEGAM) is against this measure, because a) the commitment is of a too long duration for young people, b) children with rich parents can still pay their way to medical school, c) this measure would discredit GPs in rural areas.
- » The relevance of this measure is questionable.

<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » The need for this measure is questionable, because already 56% of medical students are from rural areas (IHS, Sozialerhebung 2015). » The selection of medical students should include representatives from the municipality and local community within their board.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , OECD 2014 ³⁴ , AAFP 2014 (USA) ¹²² , ICGP 2015 (IRL) ¹⁰⁵ , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	Wilson 2009 ¹⁷² , Henry 2009 ¹⁰⁹ , Baier 2014 ¹¹⁰ , Laven 2003 ¹¹⁶ , Grobler 2015 ¹¹⁷ , Goodfellow 2016 ¹⁷¹ , Viscomi 2013 ¹¹⁹

Box 46: Measure No. 02¹³

Scholarships for students with rural origins	
(I) Aim	Admitting more medical students from rural areas to medical school, because of the expected larger likelihood of working in a rural area later on.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated that the evidence base is weak and inconclusive.
(III) Comments	
<i>External Experts</i>	» This might be one indicator for job recruitments later on, but not for admission to medical schools.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » This measure would be discriminating for students from cities. » The need for this measure is questionable, because already 56% of medical students are from rural areas (IHS, Sozialerhebung 2015).
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²²
<i>Literature Reviews</i>	Verma 2016 ⁴⁵

Box 47: Measure No. 03¹³

Marketing and promotion campaigns at rural high schools	
(I) Aim	Admitting more medical students from rural areas to medical school, because of the expected larger likelihood of working as a GP in a rural area later on.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	One literature review concluded, that students from rural areas could be encouraged to apply for medical school due to this measure.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<p>» The effectiveness of this measure is questionable.</p> <p>» The need for this measure is questionable, because already 56% of medical students are from rural areas (IHS, Sozialerhebung 2015).</p> <p>» E.g., lectures of GPs at career fairs would not be helpful. Poster promotions would not be helpful.</p>
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²² , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Ballance 2009 ¹¹⁴

Box 48: Measure No. 04¹³

Reservation of medical university entry places	
(I) Aim	
	Admitting more medical students to medical school, which indicate an interest of working as a GP in rural areas later on, because of the expected larger likelihood of working as a GP in a rural area later on.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	Three literature reviews were identified, which included this measure. One literature review indicated that this measure might be the most effective available measure, one literature review indicated that this is a strongly predictive indicator and one literature review indicated it is a predictive indicator.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<p>» The effectiveness of this measure is questionable.</p> <p>» It would need to be defined, how this indicator will be assessed.</p>
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , AAFP 2014 (USA) ¹²²
<i>Literature Reviews</i>	Senf 2003 ¹⁶⁸ , Hsueh 2004 ¹⁶⁹ , Wilson 2009 ¹⁷²

Scholarships based on the commitment to work in a rural area (e.g. working for 5 years as a rural GP or not to work as a private doctor for 10 years; with/without the possible to pay back the scholarship)	
(I) Aim	Scholarships based on the commitment to work in a rural area (e.g. funding within the two final years at university, if a contract gets signed – with/without the possibility to pay the money back) to offer potentially interested medical students an additional incentive to choose a GP career.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents
<i>Literature Reviews</i>	Eight literature reviews were identified which included this measure. Five literature reviews considered this measure to be effective (if planned well and if combined with incentives), two literature reviews suggested the evidence to be limited and inconsistent and one literature review suggested potentially negative long-term effects.
(III) Comments	
<i>External Experts</i>	» Legal issues might arise (concerning the right to earn an income freely).
<i>10 Panel Members</i>	» This measure would only be effective if combined with different measures. » More effective if at the end of university rather than at the beginning. » Different types – from voluntary to legal binding – are possible.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , AAFP 2014 (USA) ¹²² , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Verma 2016 ⁴⁵ , Wilson 2009 ¹⁷² , Baier 2014 ¹¹⁰ , Bärnighausen 2009 ¹⁷³ , Ballance 2009 ¹¹⁴ , Dolea 2010 ¹¹⁵ , Grobler 2015 ¹¹⁷ , Frehywot 2010 ¹⁷⁴

2-month internship before medical university (like at the medical university PMU Salzburg)	
(I) Aim	Admitting more medical students to medical school, which indicate an interest of wanting to work as a GP in rural areas later on, because of the expected larger likelihood of working as a GP in a rural area later on.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents

<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	» The Private Medical University of Salzburg already requires something similar. This enables medical students to learn about themselves, if they are able to bear the suffering of elderly, multimorbid patients.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. This measure would be relevant for all medical students, not just specific to general practice. » It would be difficult to implement this measure in a way which is of high quality.
(IV) Source	
<i>Policy Documents</i>	SVR 2014 (GER) ¹⁰¹
<i>Literature Reviews</i>	None.

Box 51: Measure No. 08¹³

Stronger emphasis on specific personality traits associated with working as a GP (<i>feeling</i> in the Myers-Briggs test, less authoritarian, more humanistic)	
(I) Aim	
	Admitting more medical students to medical school with predictive characteristics (on a weaker evidence base) concerning choosing to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated that there is little, positive evidence in support of this measure.
(III) Comments	
<i>External Experts</i>	» This measure is discriminatory, it might harm the image of general practice. Instead, general practice should be promoted as the most prestigious medical discipline. » This measure would be helpful. » This measure would not be effective.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » Personalities develop over time, measuring personality traits as predictive characteristics are therefore of limited relevance. » These personality traits are relevant for all medical professions, not just for general practice.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	Senf 2003 ¹⁶⁸ , Hsueh 2004 ¹⁶⁹

Stronger emphasis on individuals with parents of lower socio-economic status	
(I) Aim	Admitting more medical students to medical school with predictive characteristics (on a weaker evidence base) concerning choosing to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated that the association of parents' highest educational attainment or income with the choice of working as a GP later on might be negative.
(III) Comments	
<i>External Experts</i>	<ul style="list-style-type: none"> » This measure is discriminatory, it might harm the image of general practice. Instead, general practice should be promoted as the most prestigious medical discipline. » There are already scholarships available. » This measure would not be effective.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » The effectiveness of this measure is questionable. » This measure would be discriminatory.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	Senf 2003 ¹⁶⁸ , Hsueh 2004 ¹⁶⁹

Stronger emphasis on individuals with specific values associated with working as a GP in rural areas (seeing GPs as important, having lower income expectations or fewer research ambitions)	
(I) Aim	Admitting more medical students to medical school with predictive characteristics (on a weaker evidence base) concerning choosing to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated, that values might be able to predict the choice of working in general practice later on.

(III) Comments

External Experts » This measure is discriminatory, it might harm the image of general practice. Instead, general practice should be promoted as the most prestigious medical discipline.

» This measure would not be effective.

10 Panel Members » The effectiveness of this measure is questionable.

» This measure would be of limited effectiveness, because it might harm the image of general practice.

(IV) Source

Policy Documents None.

Literature Reviews Senf 2003¹⁶⁸, Hsueh 2004¹⁶⁹

Box 54: Measure No. 11¹³

Stronger emphasis on older individuals

(I) Aim

Admitting more medical students to medical school with predictive characteristics (on a weaker evidence base) concerning choosing to work as a GP in a rural area.

(II) Evidence

Policy Documents This measure was not recommended by any of the ten included policy documents

Literature Reviews One literature review indicated that the association between age and choosing to work as a GP in a rural area later on is only weak.

(III) Comments

External Experts » This measure is discriminatory, it might harm the image of general practice. Instead, general practice should be promoted as the most prestigious medical discipline.

» This measure would not be effective.

10 Panel Members » The effectiveness of this measure is questionable.

» This measure would require legal changes.

» The age limit would need to be defined.

(IV) Source

Policy Documents None.

Literature Reviews Senf 2003¹⁶⁸, Hsueh 2004¹⁶⁹

Stronger emphasis on married individuals	
(I) Aim	Admitting more medical students to medical school with predictive characteristics (on a weaker evidence base) concerning choosing to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	One literature review indicated that there is only a weak association between being married and choosing to work as a GP in a rural area later on.
(III) Comments	
<i>External Experts</i>	» This measure is discriminatory, it might harm the image of general practice. Instead, general practice should be promoted as the most prestigious medical discipline. » This measure would not be effective.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » This measure would be discriminatory.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	Senf 2003 ¹⁶⁸ , Hsueh 2004 ¹⁶⁹ , Avery 2012 ¹⁷⁶

Category: University education

More funding for medical universities, which produce more GPs in rural areas (based on evaluations)	
(I) Aim	Medical schools should set themselves the goal to produce more physicians which choose to work as a GP in a rural area.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.

(III) Comments

- External Experts* » How should this measure be measured?
» General practice should be an important topic for the financial negotiations between the Ministry of Education and the medical schools.
- 10 Panel Members* » This would be an effective incentive for medical schools which are currently dominated by a biomedical paradigm.
» Studying medicine is not a craft but a scientific education.
» Measures which strengthen general practice education should be funded.
» This measure would be discriminatory.

(IV) Source

- Policy Documents* AAFP 2014 (USA)¹²², NHS 2014 (GBR)¹²¹
- Literature Reviews* None.

Box 57: Measure No. 14¹³

Introducing new medical universities in rural areas

(I) Aim

Medical schools should set themselves the goal to produce more physicians which choose to work as a GP in a rural area.

(II) Evidence

Policy Documents The implementation of this measure was recommended by two of the ten included policy documents

Literature Reviews Six literature reviews were identified, which included this measure. Three literature reviews indicated that the association to choosing general practice as a career later on is strong and three literature reviews assessed this measure as being effective.

(III) Comments

- External Experts* » This measure is not relevant for Austria, because the capacities of medical schools are already large.
» Absolutely against this measure.
» Absolutely against this measure. Medical school training should stay to be based at university, unlike in Tyrol where it is now based on a college of higher education.
- 10 Panel Members* » There are already enough medical schools in Austria.
» The effectiveness of this measure is questionable.
» It would be difficult to ensure the quality of new medical schools.
» The funding of new medical schools would be difficult.
» The feasibility of this measure would be questionable.

(IV) Source

Policy Documents OECD 2014³⁴, AAFP 2014 (USA)¹²²

Literature Reviews Hsueh 2004¹⁶⁹, Wilson 2009¹⁷², Katzenellenbogen 2013¹⁰⁷, Phillips 2009¹⁰⁸, Ballance 2009¹¹⁴, Dolea 2010¹¹⁵

Box 58: Measure No. 15¹³

More decentralisation of the medical university education (e.g. with local branches in rural areas)**(I) Aim**

Medical schools should set themselves the goal to produce more physicians which choose to work as a GP in a rural area.

(II) Evidence

Policy Documents The implementation of this measure was recommended by two of the ten included policy documents

Literature Reviews Five literature reviews were identified, which included this measure. Two literature reviews indicated that the association for choosing general practice as a career later on is strong and three literature reviews assessed this measure as being effective.

(III) Comments

External Experts » Obligatory lectures or internships in general practice might be helpful.

10 Panel Members » The implementation of this measure would be a challenge (because the related capacity building process in Austria is lacking behind).

» It might be difficult to ensure the quality.

» Offering more internships in general practice might increase the motivation of students and improve the effectiveness of their learning process.

(IV) Source

Policy Documents OECD 2014³⁴, AAFP 2014 (USA)¹²²

Literature Reviews Wilson 2009¹⁷², Katzenellenbogen 2013¹⁰⁷, Phillips 2009¹⁰⁸, Ballance 2009¹¹⁴, Dolea 2010¹¹⁵

Box 59: Measure No. 19¹³

Including more general practice and rural medicine specific teaching and examination content within the curriculum**(I) Aim**

The medical school curriculum should include more general practice content.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents
<i>Literature Reviews</i>	Five literature reviews were identified, which included this measure. Three literature reviews indicated that this measure appears to be effective, one literature review indicated that this measure might probably be effective, and one literature review stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » Medical school should be a general education, not a specific one. » General practice content should be taught and be assessed. » Studying medicine is not a craft but a scientific education.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , ICGP 2015 (IRL) ¹⁰⁵ , SVR 2009 (GER) ¹⁰²
<i>Literature Reviews</i>	Ballance 2009 ¹¹⁴ , Henry 2009 ¹⁰⁹ , Dolea 2010 ¹¹⁵ , Grobler 2015 ¹¹⁷ , Viscomi 2013 ¹¹⁹

Category: GP training

Box 60: Measure No. 24¹³

Introducing the term <i>specialist in general practice</i>	
(I) Aim	
	The professional status of GPs should be promoted.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » This would upgrade general practice and would be a helpful signal. » This would be a downgrading of generalism. » At the same time, also the content of the training should be changed (e.g. longer duration of the training period).

» It would be better to introduce a combined specialty training in internal medicine and general practice (similar to the current debate in Germany and Switzerland).

(IV) Source

Policy Documents None.

Literature Reviews None.

Box 61: Measure No. 25¹³

Extending the length of the GP training (currently 42 months)

(I) Aim

The professional status of GPs should be promoted.

(II) Evidence

Policy Documents This measure was not recommended by any of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts » Especially the length of the training period within a general practice setting should be extended.

10 Panel Members » The current length of the training period is long enough.
» To increase the duration of the training period might discourage some graduates to choose general practice.
» The training duration within a general practice setting (currently 18 months) should increase significantly.
» Internships in general practice should also be enabled at the beginning of the general practice training period.

(IV) Source

Policy Documents None.

Literature Reviews None.

Box 62: Measure No. 28¹³

Funding of additional costs (travel and accommodation) of junior doctors in a GP training practice

(I) Aim

The training within a GP office setting should be strengthened.

(II) Evidence

Policy Documents This measure was not recommended by any of the ten included policy documents

<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	» This measure might benefit from being connected with the measure <i>increasing financial incentives for GP teachers</i> .
<i>10 Panel Members</i>	» This is an effective incentive, especially for GP training practices in rural areas. » It is questionable, if lack of funding is currently the limiting barrier.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	Blozik 2014 ¹⁷⁷

Box 63: Measure No. 34¹³

Introducing the position of a teaching coordinator and staffing it with GPs in training	
(I) Aim	To develop a professional, competency-based training curriculum.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» An appropriate quality assurance mechanism would be necessary. » An appropriate remuneration would be necessary. » Functions and roles would need to be defined clearly. » This measure might lead to discrimination of other medical specialties. » This position should be available for well-trained GPs.
(IV) Source	
<i>Policy Documents</i>	NHS 2014 (GBR) ¹²¹
<i>Literature Reviews</i>	None.

Offering GPs in training an education and training budget	
(I) Aim	To develop a professional, competency-based training curriculum.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » An appropriate quality assurance mechanism would be necessary. » This measure might discriminate other medical specialties. » It would be difficult to ensure the quality of these education initiatives. » Another option might be to offer and fund GPs in training an in-depth training in research skills.
(IV) Source	
<i>Policy Documents</i>	SVR 2014 (GER) ¹⁰¹
<i>Literature Reviews</i>	None.

Developing a strategy and offering funding to strengthen further education within GP offices	
(I) Aim	To develop capacities within GP offices further.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by three of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » The effectiveness of this measure is questionable. » Education after graduation would be too late. » This measure would discriminate other medical specialties.

(IV) Source

Policy Documents NHS 2015 (GBR)¹⁷⁵, NHS 2014 (GBR)¹²¹, SVR 2014 (GER)¹⁰¹

Literature Reviews None.

Box 66: Measure No. 40¹³

Developing and offering part-time research training (e.g. Masters of Primary Health Care and Family Medicine)

(I) Aim

To develop capacities within general practice further.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts » This measure would be beneficial for advanced GPs.

10 Panel Members » This would be a helpful measure.

» Austria might not yet be ready for this measure (maybe in 2030).

» The effectiveness of this measure is questionable (it might hardly be relevant concerning the choice of working as a GP).

(IV) Source

Policy Documents NHS 2014 (GBR)¹²¹

Literature Reviews None.

Category: GP work experience

Box 67: Measure No. 45¹³

Supporting research opportunities (e.g. by research practice networks or by part-time research-training)

(I) Aim

To enable individual career paths (which are flexible and clearly defined).

(II) Evidence

Policy Documents The implementation of this measure was recommended by two of the ten included policy documents

Literature Reviews One literature review stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » An appropriate quality assurance mechanism would be necessary. » An appropriate remuneration would be necessary.
(IV) Source	
<i>Policy Documents</i>	EC 2015 (EU) ¹⁰⁴ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Verma 2016 ⁴⁵

Box 68: Measure No. 47¹³

Enabling interdisciplinary work experience by implementing and developing new primary health care units	
(I) Aim	To enable individual career paths (which are flexible and clearly defined).
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by six of the ten identified policy documents.
<i>Literature Reviews</i>	One literature review indicated, that <i>physician assistants</i> and <i>nurse practitioners</i> would be beneficial (concerning increasing efficiency of primary care and improving patient satisfaction).
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» Interdisciplinary primary care centres should be started, if there is the local need available.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , OECD 2014 ³⁴ , AAFP 2014 (USA) ¹²² , NHS 2015 (GBR) ¹⁷⁵ , SVR 2014 (GER) ¹⁰¹ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Baier 2014 ¹¹⁰

Box 69: Measure No. 50¹³

Introducing the new function of a GP leader	
(I) Aim	To enable individual career paths (which are flexible and clearly defined).
(II) Evidence	

<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	One literature review assessed this measure as being effective.
(III) Comments	
<i>External Experts</i>	» Where? Within a GP office might not be appropriate.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » This measure would need to be more clearly defined. » Austria might not yet be ready for this measure.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵
<i>Literature Reviews</i>	Baier 2014 ¹¹⁰

Box 70: Measure No. 51¹³

Enabling additional career opportunities within public health, in hospitals or other areas	
(I) Aim	
	To enable individual career paths (which are flexible and clearly defined).
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » It is not clear if there is the need for this measure. » Austria might not yet be ready for this measure.
(IV) Source	
<i>Policy Documents</i>	KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Box 71: Measure No. 54¹³

Utilising telemedicine for further education

(I) Aim

To support capacities for further education.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » The effectiveness of this measure is questionable.
» This only includes a small part of the benefits of further education, because further education in a rural area also has social benefits through networking.

(IV) Source

Policy Documents OECD 2014³⁴

Literature Reviews None.

Box 72: Measure No. 55¹³

Offering GPs a personal budget for further education

(I) Aim

To support capacities for further education.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews One literature review stated that the underlying evidence base concerning this measure is of limited reliability.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » The effectiveness of this measure is questionable.
» Public funding of further education should be increased.
» This would be discriminatory for other medical specialists.

(IV) Source

Policy Documents SVR 2014 (GER)¹⁰¹

Literature Reviews McDonald 2003¹¹¹

Box 73: Measure No. 58¹³

Introducing *soft* gatekeeping (to strengthen the role of the GP within the healthcare system)

(I) Aim

To strengthen the intrinsic motivation of GPs in rural areas.

(II) Evidence

Policy Documents This measure was not recommended by any of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » This would be an effective measure, which is absolutely necessary.
- » This model of care exists already.
- » This measure is more relevant for GPs working in an urban area.

(IV) Source

Policy Documents None.

Literature Reviews None.

Box 74: Measure No. 63¹³

Supporting scientific journals and newspapers for rural doctors

(I) Aim

To reduce the professional isolation.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members

- » The effectiveness of this measure is questionable.
- » The Austrian general practice newspaper could be offered for free to all practicing GPs.
- » Articles which focus on rural issues could be supported within current medical medial channels.
- » Financial support for such issues would go too far.

(IV) Source

<i>Policy Documents</i>	WHO 2010 ³⁵
<i>Literature Reviews</i>	None.

Box 75: Measure No. 65¹³

Introducing GP awards (e.g. Day of the Rural Doctor or GP of the Year)	
(I) Aim	To reduce the professional isolation.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	One literature review concluded that research studies on this issue were not identified.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵
<i>Literature Reviews</i>	Baier 2014 ¹¹⁰

Box 76: Measure No. 66¹³

Linking living in the city and working in rural areas (e.g. by compensating for travel expenses)	
(I) Aim	To reduce the professional isolation.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable (it might be effective in the short term or under special circumstances). » In the long term, this might be a barrier for starting to live in a rural area.

» GPs should live close to their office and should be integrated within their community.

» If this measure would be implemented, suburbs would be without GPs on-call in the evening and during the night.

(IV) Source

Policy Documents None.

Literature Reviews None.

Box 77: Measure No. 67¹³

Duty to work for a limited time in rural areas for all new GPs

(I) Aim

To implement compulsory measures.

(II) Evidence

Policy Documents This measure was not recommended by any of the ten included policy documents

Literature Reviews Two literature reviews were identified, which included this measure. One literature review stated that the underlying evidence base concerning this measure is of limited reliability and one literature review indicated that there might be negative long-term effects.

(III) Comments

External Experts » This measure could also have negative effects. But an obligatory year of working in a rural area for all physicians might be possible. This measure was previously implemented in East-Germany.

» This obligatory measure would lead to less graduates which choose general practice as a career path.

10 Panel Members » This measure would have negative consequences by dissuading medical graduates.

» Freedom should be kept.

» Life circumstances will change over time.

» An obligatory GP internship in a rural area during medical school or for GP trainees might be another option.

(IV) Source

Policy Documents None.

Literature Reviews Wilson 2009¹⁷², Grobler 2015¹¹⁷

Category: Role of the community

Box 78: Measure No. 69¹³

Offering additional non-cash benefits (e.g. facility tools or restoration)	
(I) Aim	To improve the work conditions for GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure might be effective. » This measure might be helpful in some cases as an initial aid. » Parts of the office facility could get publicly funded. » This measure is already available.
(IV) Source	
<i>Policy Documents</i>	WHO 2010 ³⁵ , ICGP 2015 (IRL) ¹⁰⁵
<i>Literature Reviews</i>	None.

Box 79: Measure No. 72¹³

Improving infrastructure (e.g. housing, streets, water supply and communication)	
(I) Aim	To improve the life conditions for GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable (because the infrastructure is already well developed in Austria). » This measure would be relevant for the whole population.

(IV) Source

Policy Documents WHO 2010³⁵

Literature Reviews None.

Box 80: Measure No. 73¹³

Improving leisure time activities (e.g. stress management programmes or offering gym memberships)

(I) Aim

To improve the life conditions for GPs.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts » This measure would be effective as a symbolic act.

10 Panel Members » The effectiveness of this measure is questionable.

» This measure would be relevant for the whole population.

» This measure would be inappropriate, because this affects the private life.

(IV) Source

Policy Documents EC 2015 (EU)¹⁰⁴

Literature Reviews None.

Box 81: Measure No. 74¹³

Offering health promotion programmes for GPs (e.g. focused on mental health, addiction or health checks)

(I) Aim

To improve the life conditions for GPs.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » This measure would be relevant for all types of physicians. » This measure would seem like a development programme for a profession which is not independent (rather than GPs).
(IV) Source	
<i>Policy Documents</i>	EC 2015 (EU) ¹⁰⁴
<i>Literature Reviews</i>	None.

Box 82: Measure No. 75¹³

Employing a recruiter by the municipality	
(I) Aim	To recruit Austrian GPs which are currently not working as a GP (e.g. Austrian GPs currently working abroad, working within a hospital or as a private doctor).
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	One literature review stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	» What does this measure mean? Would that be relevant for Austria?
<i>10 Panel Members</i>	» The effectiveness of this measure is questionable. » From the perspective of one single municipality, it is rarely the case that a GP office needs a replacement and does not find one. » This measure would be too expensive for small municipalities. » This measure would need to be organised at the level of the region.
(IV) Source	
<i>Policy Documents</i>	KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Verma 2016 ⁴⁵

Category: Recruitment of general practitioners not currently working as GPs

Box 83: Measure No. 76¹³

International marketing and promotion campaign to recruit foreign GPs	
(I) Aim	To recruit international GPs.

(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	One literature review stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	» This measure would have negative consequences for the country of origin (<i>brain drain</i>). There would also be language barriers in most cases.
<i>10 Panel Members</i>	» There is no physician shortage in Austria overall. The need for GPs should therefore be met domestically. » The effectiveness of this measure is questionable (it might be effective in the short term and in some specific cases).
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴
<i>Literature Reviews</i>	Verma 2016 ⁴⁵

Box 84: Measure No. 77¹³

Accepting additional international licences of physicians to practise as a GP	
(I) Aim	
	To recruit international GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	» It seems there is currently no structured physician immigration law (e.g. looking specifically for more radiologists).
<i>10 Panel Members</i>	» There is no physician shortage in Austria overall. The need for GPs should therefore be met domestically. » Foreign GPs should only be accepted in Austria, if their training standards are comparable with the training standards in Austria. » This measure would also be effective in some cases.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²²
<i>Literature Reviews</i>	None.

Offering physicians a visa with work permission (e.g. visa for physicians and their family after commitment to work as a GP in an underserved area for 1-10 years)	
(I) Aim	To recruit international GPs.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	Three literature reviews were identified, which included this measure. One literature review assessed this measure as being effective, one literature review assessed this measure as being effective (if planned well and accompanied with appropriate incentives) and one literature review stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<p>» There is no physician shortage in Austria overall. The need for GPs should therefore be met domestically.</p> <p>» An international recruitment programme would be questionable from an ethical perspective ('brain drain').</p> <p>» To recruit Austrian GPs who work abroad back to Austria would be possible.</p>
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	Grobler 2015 ¹¹⁷ , Frehywot 2010 ¹⁷⁴ , Baier 2014 ¹¹⁰

Introductory courses including language course and training within a GP training practice	
(I) Aim	To recruit international GPs.
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	<ul style="list-style-type: none"> » The effectiveness of this measure is questionable. » This measure might only be effective in the short term. » The language skills and lack of cultural understanding might be difficulties related to this measure.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	Verma 2016 ⁴⁵

Box 87: Measure No. 82¹³

Developing a simple and flexible <i>GP career changer programme</i> (e.g. for general practitioners currently working as a specialist)	
(I) Aim	
	To recruit Austrian GPs which are currently not working as a GP (e.g. Austrian GPs currently working abroad, working within a hospital or as a private doctor).
(II) Evidence	
<i>Policy Documents</i>	This measure was not recommended by any of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<ul style="list-style-type: none"> » This measure would be helpful, because there are many GPs who are currently not working as a GP available. » This measure should be obligatory for medical specialists who decide to move into general practice, also if they are already a licenced GP (e.g. by an obligatory internship in general practice and training courses). » GP returners should be prioritised, not specialists who want to move into general practice. » Specialists only rarely move into general practice.
(IV) Source	
<i>Policy Documents</i>	None.
<i>Literature Reviews</i>	None.

Category: Increasing the effectiveness of current GPs

Box 88: Measure No. 83¹³

Extending the legal maximum age for working as a GP	
(I) Aim	To persuade GPs to start their retirement later than legally possible.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	» This should only be possible if further education requirements are met.
<i>10 Panel Members</i>	» The current age limit of 70 years (with further exceptions in underserved areas) is sufficient at the moment. » Further extensions of the current age limit should only be implemented if accompanied by a structured handover to the next generation or the willingness to work as a mentor within one of the new interdisciplinary primary care offices.
(IV) Source	
<i>Policy Documents</i>	AAFP 2014 (USA) ¹²²
<i>Literature Reviews</i>	None.

Box 89: Measure No. 84¹³

Developing GP retention initiatives (e.g. including single payments or funding mid-career further education to delay the age of retirement)	
(I) Aim	To persuade GPs to start their retirement later than legally possible.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by four of the ten included policy documents
<i>Literature Reviews</i>	Three literature reviews were identified, which included this measure. One literature review assessed this measure as being effective and two literature reviews stated that the underlying evidence base concerning this measure is of limited reliability.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.

<i>10 Panel Members</i>	<p>» This measure would be effective in the short term, not in the long term.</p> <p>» The underlying problem is questionable (established GPs rarely retire prematurely).</p> <p>» Young physicians should still have the opportunity to start their work as a GP, this measure would create a competition between the generations.</p> <p>» The handover process from the previous to the new GP should be improved and part time working opportunities should be enabled to achieve the same goal.</p>
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , AAFP 2014 (USA) ¹²² , NHS 2015 (GBR) ¹⁷⁵ , NHS 2014 (GBR) ¹²¹
<i>Literature Reviews</i>	Verma 2016 ⁴⁵ , McEllistrem-Evenson 2011 ¹⁷⁸ , Peckham 2016 ¹¹²

Box 90: Measure No. 85¹³

Substitution of missing GPs by nurses and clinical assistants	
(I) Aim	To strengthen multiprofessionality within primary care.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	<p>» GPs (in Austria) cannot be replaced by other professions, due to quality differences.</p> <p>» Delegating tasks to allied health professionals can reduce the need for GPs but cannot replace them.</p> <p>» This measure should only be considered, if there would be an absolute shortage of physicians, which is currently not the case.</p>
(IV) Source	
<i>Policy Documents</i>	KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Changing the law to enable the delegation of GP tasks to nurses and community nurses	
(I) Aim	To strengthen multiprofessionality within primary care.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by two of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure would be helpful.
(IV) Source	
<i>Policy Documents</i>	OECD 2014 ³⁴ , KCE 2008 (BEL) ¹⁰⁶
<i>Literature Reviews</i>	None.

Category: Increasing the number of GPs

Establishing an Austrian Commission for Human Resource Planning within the healthcare system	
(I) Aim	The number of GPs should be adjusted to the actual care needs of the population.
(II) Evidence	
<i>Policy Documents</i>	The implementation of this measure was recommended by one of the ten included policy documents
<i>Literature Reviews</i>	This measure was not identified in any of the 32 included literature reviews.
(III) Comments	
<i>External Experts</i>	No comments were provided by the three experts in relation to this measure.
<i>10 Panel Members</i>	» This measure should have been implemented already in 1990. » The implementation of this measure is not required. » This measure is already available for physicians within the law ZS-G/15a.

(IV) Source

Policy Documents AAFP 2014 (USA)¹²²

Literature Reviews None.

Box 93: Measure No. 94¹³

Introducing training quota for specific physician subgroups (fewer places for subgroups with oversupply and more places for subgroups with undersupply)**(I) Aim**

The number of GPs should be adjusted to the actual care needs of the population.

(II) Evidence

Policy Documents The implementation of this measure was recommended by three of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » The effectiveness of this measure is questionable.
» The freedom of physicians to choose any subject they like should be kept.
» Hospitals should be obligated to produce enough GPs.

(IV) Source

Policy Documents AAFP 2014 (USA)¹²², NHS 2014 (GBR)¹²¹, SVR 2014 (GER)¹⁰¹

Literature Reviews None.

Box 94: Measure No. 95¹³

Developing strategies and governance mechanisms to adapt specialty choices of junior doctors to specialty needs of the healthcare system**(I) Aim**

The number of GPs should be adjusted to the actual care needs of the population.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts No comments were provided by the three experts in relation to this measure.

10 Panel Members » This measure should have been implemented already in 1990.
» The work satisfaction is increasing, if no strategy or regulation is needed and if enough physicians voluntarily choose general practice as a career path.

(IV) Source

Policy Documents SVR 2009 (GER)¹⁰²

Literature Reviews None.

Box 95: Measure No. 96¹³

Allocating additional GP positions in underserved areas

(I) Aim

The number of GPs should be adjusted to the actual care needs of the population.

(II) Evidence

Policy Documents The implementation of this measure was recommended by one of the ten included policy documents

Literature Reviews This measure was not identified in any of the 32 included literature reviews.

(III) Comments

External Experts » Should this measure also be implemented related to other Sickness Fund contracts for other types of physicians?

10 Panel Members » This should only be implemented for new interdisciplinary primary care offices.
» The planning processes of this structural issue is performed within the 'ÖSG/RSG'. If an area is underserved due to a vacant GP office, this problem cannot be solved by offering another GP office nearby.

(IV) Source

Policy Documents NHS 2014 (GBR)¹²¹

Literature Reviews None.

Category: Increasing the number of GPs

No measure included.

Appendix D – Participant Information Sheet (research study four)



Participant Information Sheet

Title of Project: Preventing a shortage of general practitioners in Austria

Introduction

I would like to invite you to take part in the research study which was briefly described in the email. Please have a look at the information below. If anything is not clear or if you would like more information, I am happy to answer any questions you may have.

What is the purpose of the study?

The aim of this study is to better understand the generation of political priority and the implementation of measures to prevent a general practitioners shortage in Austria. It will assess the role of research and identify facilitators of and barriers related to these issues.

Why have I been asked to take part?

Your institution has been identified as one of the main stakeholders which are involved in the issue of preventing a GP shortage in Austria. You were selected due to your experience within your institution and knowledge of the Austrian healthcare system.

Do I have to take part?

You do not have to take part in this study and are free to refuse or withdraw at any time. I will discuss the details of the study with you and give you a copy of this information sheet. If you agree to take part, you will be asked to sign a consent form.

If I agree to take part, what will happen next?

We will schedule a date for performing a personal interview which will take approximately 60-90 minutes.

What are the possible risks and disadvantages?

The interview will be anonymous and your name or your specific position within your organisation will not be written down within the publication of the research study.

What are the possible benefits?

The information we get from the study may further expand our knowledge and understanding of the research area related to the prevention of a GP shortage in Austria.

What if I have any question?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do his best to answer your questions (+43-650-5432-432).

A copy of this informed consent document to be offered to the participant

Study title: Preventing a shortage of general practitioner in Austria
Version & Date: Version 2 / April 2019
Principal Investigator: Florian Stigler
Participant Information Sheet

REC ref: 17139
Page 1 of 2

Can I change my mind about taking part?

You can withdraw from the study at any time. You just need to tell the researcher (Florian Stigler) that you do not want to be in the study anymore. If you withdraw from the study I will destroy all your tape recorded interviews and their transcriptions.

What will happen to the generated data?

All data collected will be anonymised and kept private. Only me and my supervisors at the London School of Hygiene & Tropical Medicine will be allowed to access these data. This means that any information about you will have your name and your specific position within your organisation removed so that you cannot be recognised. At the end of the project, the study data will be archived on my personal computer and destroyed within five years after submission of the thesis.

What will happen to the results of this study?

The study results will be part of my Doctorate of Public Health and will be submitted for publication in a scientific journal.

Who is organising and funding this study?

I am not receiving external funding for this study and I have full responsibility for the project including the collection, storage and analysis of the data.

Who has checked this study?

The Research Ethics Committee of the London School of Hygiene & Tropical Medicine has reviewed and approved this study and has agreed that I perform interviews with key informants.

Thank you for taking time to read this information leaflet. If you think you will take part in the study please read and sign the consent form which you can find in the attachment. If you want to participate, please let me know by sending me an email, I'd be happy to find a time when we both can meet.

A copy of this informed consent document to be offered to the participant

Study title: Preventing a shortage of general practitioner in Austria
Version & Date: Version 2 / April 2019
Principal Investigator: Florian Stigler
Participant Information Sheet

REC ref: 17139
Page 2 of 2

Appendix E – Informed Consent Form (research study four)



CONSENT FORM FOR PARTICIPANT

Title of Project: Preventing a shortage of general practitioner in Austria

Name of PI/Researcher responsible for project: Florian Stigler

Statement	Please initial each box
I confirm that I have read and understood the information sheet dated March 2019 (Version 1) for the above named study. I have had the opportunity to consider the information, ask questions and have these answered satisfactorily.	
I understand that my consent is voluntary and that I am free to withdraw this consent at any time without giving any reason and without my legal rights being affected.	
I understand that relevant sections of my anonymised data collected during the study may be looked at by authorised individuals from the London School of Hygiene & Tropical Medicine, where it is relevant to my taking part in this research. I give permission for these individuals to have access to these records.	
I understand that anonymised data about/from me may be shared via a public data repository or by sharing directly with other researchers, and that I will not be identifiable from this information	
I agree to taking part in the above named study.	

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Printed name of participant

Signature of participant

Date

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Printed name of person obtaining consent

Signature of person obtaining consent

Date

A copy of this informed consent document has been provided to the participant.

Participant Identification Number:

Appendix F – Interview Topic Guide (research study four)

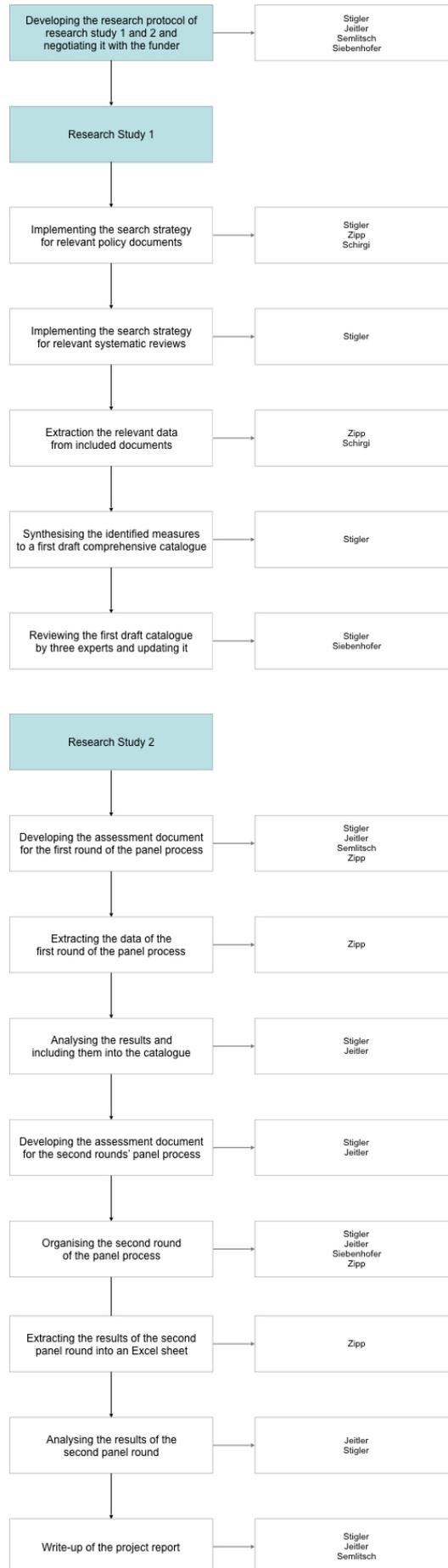
Objectives	Questions	Follow-up/Probes
Agenda Setting: Problem		
To what extent is the GP shortage on the agenda? (Hypothesis: It is quite high on the agenda)	What major problems are you and others in your organisation most occupied with these days?	Could you list them roughly in order of importance? (If missing) How important is the GP shortage for you?
	Has there been change during the last year or the last five years on how much attention the GP shortage receives?	(If yes) Why has that change happened?
Why is the GP shortage on the agenda? (Hypothesis: Media coverage put it on the agenda)	Why do you think the GP shortage received attention by you or others in your organisation – how did it come to be a hot issue?	
	Which other organisations or individuals created most attention for the GP shortage?	How did they do it?
Agenda Setting: Policy Alternatives		
To what extent are measures to prevent the GP shortage being considered? (Hypothesis: Only few preventive measures are on the agenda)	Let me shift now and ask you not about problems but about programs. What are you and other people in your organisation currently working on, what's on the front page?	Could you list them roughly in order of importance? (If missing) How important are measures to prevent a GP shortage for you?
	Has there been change during the last year or the last five years on how much attention these measures receive?	(If yes) Why has that change happened?
Why are some measures to prevent the GP shortage on the agenda? (Hypothesis: There is only little pressure by interest groups on specific policies)	Why do you think these particular preventive measures against the GP shortage are being seriously considered – how did it come to be hot proposals?	(If missing) What was the role of pressure groups or the Universities?
	Could you tell me a bit more about the following measures?	(Note: At this point in the interview, I had a list of preventive measures which were often mentioned.)
Policy Implementation		
To what extent are measures to prevent the GP shortage being implemented?	Can you now tell me a bit more about efforts to prevent a GP shortage? Which measures are currently being implemented by your organisation?	

(Hypothesis: No or few preventive measures are being implemented)	How far is the implementation process? What needs to be done?	(If missing) Which decisions need to be taken? Is enough funding available?
Why are some measures to prevent the GP shortage being implemented? (Hypothesis: It would not be in the stakeholders' best interest)	From your perspective, what facilitated the implementation process?	(If missing) Which other organisations or groups were supportive? Who is interested in an implementation?
	From your perspective, what was a barrier for the implementation process?	(If missing) Which other organisations or groups were an obstacle? Who is against an implementation?
Research utilization		
What was the role of research related to efforts to prevent the GP shortage? (Hypothesis: The specific research study was used as a tactical tool to promote preventive measures)	Now I have some questions on the role of research in this reform process. Which research studies related to the GP shortage or preventing it are you aware of?	Could you list them roughly in order of importance? (If missing) Have you heard of the study with the 95 preventive measures? (If yes) How relevant was it?
	Did this study influence the work of you and others at your organisation?	(If yes) What did it influence? Why do you think it did so?
What was the role of the seven prioritised measures related to efforts to prevent the GP shortage? (Hypothesis: The seven prioritised measures were not used differently)	It was already some time ago, but are you maybe aware of the seven measures our study suggested?	
	Did these seven measures influence the work of you and others at your organisation?	(If yes) What did it influence? Why do you think it did so?
Additional questions		
	From your perspective, who would need to do what in order to prevent a GP shortage in Austria?	
	How could the system be changed to make it more effective in solving problems like the GP shortage?	(If missing) Which incremental change? (If missing) Which radical change?
	Is there an important issue related to the GP shortage we did not discuss yet?	Is there anything else you would like to add? Thank you for your time!

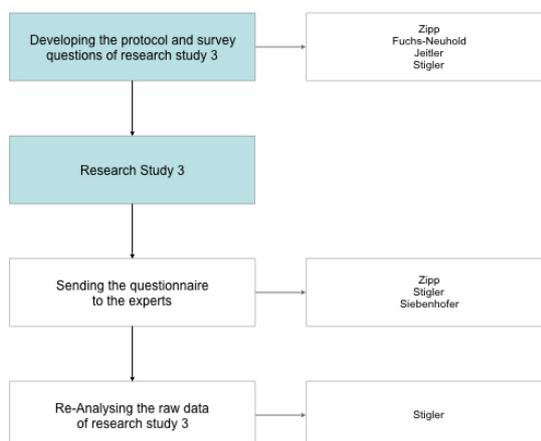
Appendix G - Conjoint Work Statement

- *Research study 1.* I was the lead investigator and first author of this project.¹³ It was performed during my employment at the Institute of General Practice and Health Services Research at the Medical University of Graz. I took part in most tasks (including development of the project protocol, implementing the search strategy, synthesising and reviewing the identified measures and write-up), performed the largest share of the work and received support by researchers at the Institute (see flowchart for more details).¹³
- *Research study 2.* I was the lead investigator and first author of this study.¹³ It was performed during my employment at the Institute of General Practice and Health Services Research. I took part in most tasks (including development of the project protocol, development of the assessment documents, data collection of phases one and two, data analysis of phases one and two and write-up), performed the largest share of the work and received support by researchers at the Institute (see flowchart for more details).¹³
- *Research study 3.* Carolin Zipp, a Masters' student, was the lead investigator of this study and published it in her thesis⁷⁶ supervised by Bianca Fuchs-Neuhold from the FH Joanneum and by me. It was performed during my employment at the Medical University of Graz. I took part in data collection (see flowchart for more details). Carolin gave me written consent to access the raw data of this study and to re-analyse them for my thesis (see Appendix H).⁷⁶
- *Research study 4.* I was the lead investigator of this study and performed all tasks myself. My supervisors provided input and feedback during all stages of this study and I received further input by the DrPH thesis review committee.

Flowchart of the tasks of research studies 1 and 2 (adapted from Zipp⁷⁶ pp.28-9)



Flowchart of the tasks of research study 3 (adapted from Zipp⁷⁶ p.29)



Names positioned above indicate more responsibility and involvement within a task, names positioned below indicate less responsibility and involvement within a task.

Researchers involved in the tasks within the above flowcharts of studies 1-3

Acronym	Full name	Position during research
Stigler	Dr Florian Stigler, MPH	Researcher IAMEV, Supervisor of Zipp's thesis
Jeitler	Dr Klaus Jeitler	Senior researcher at IAMEV
Zipp	Carolin Zipp	MA student at FH Joanneum
Schirgi	Julia Schirgi	Medical student at IAMEV
Semlitsch	Univ.-Ass. Thomas Semlitsch	Senior researcher at IAMEV
Siebenhofer	Prof Andrea Siebenhofer-Kroitzsch	Head of IAMEV
Fuchs-Neuhold	Bianca Fuchs-Neuhold, BSc, MSc	Supervisor of Zipp's thesis
IAMEV	Institute of General Practice and Evidence-based Health Services Research at the Medical University of Graz ⁶⁴	
FH Joanneum	FH Joanneum – University of Applied Sciences ¹⁷⁹	

Appendix H – Permission to use the raw data of research study three



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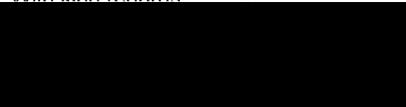
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25. März 2019

To whom it may concern,

I hereby confirm that Florian Stigler has permission to access and further use the raw data, which were collected as part of my Master's thesis in Health and Tourism Management. Specifically the collected data by E-Mail, which were based on semi-structured questionnaire and sent to Austrian healthcare experts concerning the implementation of the seven most relevant and feasible measures to prevent a shortage of general physicians in rural Austria (see: https://allgemeinmedizin.medunigraz.at/fileadmin/institute-oes/allgemeinmedizin/Publikationen/Berichte/2017/IAMEV_Praevention-AM-Landaerztmangel_final.pdf).

With kind regards



Carolin Zipp, MA

Medical University of Graz, Auenbruggerplatz 2, 8036 Graz, www.medunigraz.at

Appendix I – Confirmatory statement concerning research ethics committee approval for research studies one-three in Austria



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26 March 2019

To whom it may concern,

As the Head of the Institute of General Practice and Evidence-Based Health Services Research, I hereby confirm that no ethical approval was sought for the following three research studies, because ethical approval was not required as no patients were involved (and all data which derived from the qualitative methodologies of the panel process and the interviews were kept anonymously).

This decision was in accordance with the stated criteria of the Ethics Committee of the Medical University of Graz (see <https://www.medunigraz.at/schriftliche-arbeiten/antragstellung-bei-dar-ethikkommission/>).

The three research studies are:

- Developing a comprehensive catalogue of measures to prevent a rural GP shortage
- Assessing the relevance and feasibility of the identified measures within the context of the Austrian healthcare system
- Identifying practical considerations for implementing the seven most relevant and feasible measures in Austria

The first two research studies were reported within the overall research project "Preventing a shortage of rural general practitioners in Austria (see: https://allgemeinmedizin.medunigraz.at/fileadmin/institute-oas/allgemeinmedizin/Publikationen/Berichte/2017/AMEV_Praevention-AM-Landaerztemangel_final.pdf)

The third research study was a part of the Master's Thesis of Carolin Zipp (supervised by Florian Stigler).

With kind regards,

Univ. Prof. Dr. Andrea Siebenhofer-Kroitzsch

Medical University of Graz, Auenbruggerplatz 2, A-8036 Graz, www.medunigraz.at

Appendix J – Research Ethics Committee approval for study four

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Observational / Interventions Research Ethics Committee

Dr. Florian Stigler
LSHTM

2 May 2019

Dear Florain,

Study Title: Preventing a shortage of general practitioners in Austria

LSHTM Ethics Ref: 17139

Thank you for responding to the Observational Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval having been received, where relevant.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document Type	File Name	Date	Version
Protocol / Proposal	Thesis review protocol_final	27/03/2019	2
Protocol / Proposal	Interview topic guide_draft	27/03/2019	1
Investigator CV	CV Florian Stigler 2019	27/03/2019	1
Information Sheet	DrPH_Participant Information Sheet_final	27/03/2019	1
Information Sheet	DrPH_Informed Consent Form_final	27/03/2019	1
Advertisements	DrPH_Recruitment_Email_final	27/03/2019	1
Covering Letter	Covering_Letter_17139	30/04/2019	1
Information Sheet	DrPH_Participant Information Sheet_Version2	30/04/2019	2
Information Sheet	DrPH_Participant Information Sheet_Version2_German	30/04/2019	2
Advertisements	DrPH_Recruitment_Email_German	30/04/2019	1
Information Sheet	DrPH_Informed Consent Form_German	30/04/2019	1

After ethical review

The Chief Investigator (CI) or delegate is responsible for informing the ethics committee of any subsequent changes to the application. These must be submitted to the Committee for review using an Amendment form. Amendments must not be initiated before receipt of written favourable opinion from the committee.

The CI or delegate is also required to notify the ethics committee of any protocol violations and/or Suspected Unexpected Serious Adverse Reactions (SUSARs) which occur during the project by submitting a Serious Adverse Event form.

An annual report should be submitted to the committee using an Annual Report form on the anniversary of the approval of the study during the lifetime of the study.

At the end of the study, the CI or delegate must notify the committee using an End of Study form.

All aforementioned forms are available on the ethics online applications website and can only be submitted to the committee via the website at: <http://leo.lshtm.ac.uk>

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