WP5

One handbook for diverse needs? A feasibility study at state-level within Germany's self-governed healthcare system

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Written by Melanie Boeckmann, Rebecca Runte, Miriam Düsterhöft, and Heinz Rothgang

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The Joint Action Health Workforce Planning and Forecasting

The Joint Action on Health Workforce Planning and Forecasting is a three-year programme running from April 2013 to June 2016, bringing together partners representing countries, regions and interest groups from across Europe and beyond, but also no EU countries and international organisations. It is supported by the European Commission in the framework of the European Action Plan for the Health Workforce, which highlights the risk of critical shortages of health professionals in the near future.

The main objective of the Joint Action Health Workforce Planning and Forecasting (JA EUHWF) is to provide a platform for collaboration and exchange between partners, to better prepare Europe's future health workforce. The Joint Action aims at improving the capacity for health workforce planning and forecasting, by supporting the collaboration and exchange between Member States and by providing state of the art knowledge on quantitative and qualitative planning. By participating in the Joint Action, competent national authorities and partners are expected to increase their knowledge, improve their tools and succeed in achieving a higher effectiveness in workforce planning processes. The outcomes of the Joint Action, among other things, should contribute to the development of sufficient health professionals, contribute to minimise the gaps between the needs and the supply of health professionals equipped by the right skills, through the forecast of the impact of healthcare engineering policies and of the re-design of an education capacity for the future.

This document contributes to achieving that aim by providing an analysis of applicability of practices outlined in the European handbook on health workforce planning methodologies to a social health insurance system.

Contributors and Acknowledgements

The preparation of this deliverable was led by the team from the University of Bremen, SOCIUM Research Center on Inequality and Social Policy in Bremen, Germany.

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Executive summary

This document presents results of a feasibility assessment conducted in two states (*Länder*) in Germany: in Hamburg and in Bremen. Our study was conducted to specifically test the applicability of two Joint Action deliverables, D051, Minimum Planning Data Requirements, and D052, the European Handbook on Health Workforce Planning Methodologies across EU Countries, to a health system based on self-governance of strong corporatist actors and a social health insurance system. Key objective of this project was to report on state-level stakeholders' needs and expectations for such a handbook, to test German states' data availability to fulfill the minimum planning data requirements, and to critically assess possible implementation challenges for a handbook in German states. Stakeholders invited included physicians, pharmacists, nurses, midwives, health insurance companies, and state-level departments of health.

Key findings

Study results suggest that the minimum planning data set (MDS) can be completed using data available in Germany. Data on migration of health professionals is the main challenge when applying the MDS as comprehensive data are lacking. A simple projection of future supply of the five professions is possible using the model outlined in D051.

Regarding handbook applicability, interviewed stakeholders expressed concerns regarding transferability of national health service country experiences such as those included in the handbook.

Stakeholders representing professions felt that their needs and experiences were not captured in a handbook that focusses on government-led planning approaches. Information on creative solutions to common workforce planning problems was seen as more useful than outlining status quo strategies. Overall, stakeholders expressed interest in exchange for policy learning across borders.

Recommendations

Future iterations of the handbook might consider adding the perspective of stakeholders to the current focus on governmental practices. Expanding the handbook examples to additional countries to adequately capture the diverse range of systems in Europe will likely increase handbook applicability across EU countries. Limits to transferability between systems need to be acknowledged and critically assessed when designing these dissemination documents at the European level.

Structure of the report

Chapter 1 of the report gives a brief **overview over the German health workforce planning system,** including both inpatient and outpatient services.

Chapter 2 describes **objectives and methods** of the feasibility assessment. The qualitative interview study, the mathematical projections using the minimum planning model and a policy analysis targeting elements of the handbook are introduced.

Results are presented in **Chapter 3**. Up to subchapter 3.5, interviews and focus group analyses are discussed. Chapter 3.6 gives detailed results of the projection approach, followed by a brief summary on why mobility data can be seen as the weak link in data availability.

Finally, **Chapter 4 highlights recommendations** for a future iteration of the handbook.

1 Presentation of the country case. The German health care system and workforce planning approach: a brief introduction

This section gives a brief overview over the German health care system and its health workforce planning approaches. Considering the rather complex nature of the German system with its focus on physician planning and large differences between planning between hospital and outpatient sectors, this introduction cannot be comprehensive or it would be beyond the scope of this report. It therefore serves to set the stage within which the feasibility study was conducted to facilitate a better contextual understanding.

Germany's healthcare system is characterized by self-governance of corporatist actors. Politically, knowledge about shared decision-making between the federal government, the states (*Länder*) and civil society organizations is integral to understanding the German context (Busse & Blümel 2014). Instead of one central, federal planning model, a variety of regulation mechanisms for different professions apply differently to hospital and to outpatient care in the states. Approx. 85% of the German population is insured under statutory health insurance (*Gesetzliche Krankenversicherung*, GKV), making the sickness funds of the GKV the largest corporatist actors in medical self-governance (Busse & Blümel 2014; Rothgang et al. 2010). Insurance within the GKV is compulsory for everyone on a gross income of less than 4,500€ per month. Contributions are calculated based on income. Private insurance schemes are available as complete provision for those earning more per month and thus can choose to opt out of the statutory health insurance, or can be used as add-on insurances.

Provision of healthcare can be distinguished between outpatient and inpatient care. Within the outpatient sector, freelance physicians, both general practitioners and specialists, under contract to the statutory health insurance must register with the regional associations of statutory health insurance physicians. To provide inpatient care, three types of hospitals co-exist: public, non-profit, and private hospitals, all of which serve the whole population .

Overall, the German healthcare system is characterized by five basic principles:
Solidarity (as illustrated by the contribution scheme based on income and mandatory insurance), **benefits in kind** (patients do not pay upfront for treatment), **shared financing between employers and employees**, **self-governance**, and **plurality of providers** without gatekeeping and therefore free

choice of physicians for patients in the outpatient sector (Obermann et al. 2013). In 2012, health expenditure accounted for 11.4% of the GDP, and the health sector provided 11.2% of all employment in Germany in 2011 (Busse & Blümel 2014). For an in-depth look at the German health system, refer to Busse & Blümel 2014.

Health workforce planning in Germany

What do we understand when we talk about health workforce planning? Fazekas et al. (2010) have described workforce planning as an instrument to control healthcare expenditures and as strategic planning. In German, the term "Bedarfsplanung" has a literal translation of "planning the needs." The term is misleading as needs per definition cannot be planned – merely how to meet these needs could be subject to planning (Nüsken & Busse 2011). Thus, one goal of workforce planning could be to create fair access to care (Nüsken & Busse 2011). Currently, actual needs (as opposed to demands, for example)[1] are not incorporated into planning decisions in Germany. Indeed, the limited consideration of population morbidity in the health workforce planning guidelines has been critiqued (Nüsken & Busse 2011). Instead, the German workforce planning system is characterized by divided competencies, a strict dichotomy between outpatient and hospital care planning, and a focus on physicians.

In brief: Planning processes in Germany apply to distribution of seats for physicians practicing under statutory health insurance, medical school admission at universities (under control of the ministries for education, not the ministries of health), and specialist training.

The statutory health insurance sickness funds mentioned above are public bodies, as are the national and regional associations of statutory health insurance physicians; whereas the Federal Association of Hospitals is a private association. All of these actors negotiate outpatient planning mechanisms for physicians, dentists and psychiatrists as part of the Federal Joint Committee (Gemeinsamer Bundessausschuss, GBA), where the states are marginally involved as well. The planning guideline (*Bedarfsrichtlinie*) for these three health professions was revised in 2012/2013. It is important to

[1]For a discussion on the definition of needs in healthcare, see Asadi-Lari et al. (2003)

note that the guideline aims at distributing physicians among the country rather than guaranteeing a particular number of physicians.

Access to medical schools is regulated by one agency jointly set up by all states. The Centre for Allocation of University Places (Zentralstelle für die Vergabe von Studienplätzen, ZVS) controls the number of medical and pharmacy students (including future physicians, dentists, psychologists), but access to nursing education is not included in these regulations.

The following sections will give an overview of outpatient care planning and hospital-based care planning for physicians, followed by criticisms of the current system and a discussion of recent developments.

Physicians in inpatient and outpatient care

Outpatient care:

In the outpatient sector, planning of care provided by physicians authorized by the German statutory health insurance is conducted by the National Association of Statutory Health Insurance Physicians. Planning occurs in "planning districts," size of which depends on whether general practitioners or specialists are subject to planning (Greß & Stegmüller 2011). In each of the German states, regional associations of statutory health insurance physicians create a plan together with the regional federations of health insurance companies and the responsible state ministries[2]. The resulting plan has to adequately reflect the national and binding planning guidelines[3] of the Federal Joint Committee (Gemeinsamer Bundesausschuss 2013) and needs to secure care within the statutory health insurance system (Greß & Stegmüller 2011).

Depending on the planning region type (for instance, city, rural area, or a limited number of "special regions" such as the Ruhr area) and on physician specialty, a target number for statutory health insurance authorized physicians is specified, expressed as a ratio of physician to inhabitants within the planning region (Klose & Rehbein 2011; Fazekas et al. 2010). To measure whether the desired degree of outpatient medical care within a planning region has been reached, the actual number of (statutory health insurance authorized) physicians is contrasted with the target number (Klose & Rehbein 2011). Consequently, a ratio below the target might indicate under-supply, whereas a

[2]http://www.english.g-ba.de/special-topics/needs-planning/mandate/

[3]https://www.g-ba.de/downloads/62-492-920/BPL-RL_2014-07-17.pdf

number above the specified target describes over-supply in this region (Klose & Rehbein 2011). No standard mechanisms operate where under-supply is noted, over-supply on the other hand could lead to a temporary halt in assigning seats for additional physicians in this region (Gemeinsamer Bundesausschuss 2013).

Several deviations to the general guideline aim at acknowledging local characteristics of planning regions. In metropolitan regions or larger counties, the "special rule local care needs" (Gemeinsamer Bundesausschuss 2013) provides the chance to ameliorate intra-regional variations in physician access: even if over-supply has been detected, if this supply is unequally distributed within the region further physicians may be allowed to become statutory health insurance authorized and thus provide additional care. Population age is an additional factor taken into account; However, demography matters only where a larger than average demand for a certain physician specialty can be observed (Klose & Rehbein 2011).

Calculations for this so-called "demography factor" are based on health expenditure data provided by the regional associations of statutory health insurance physicians, who are also responsible for the calculations of supply in general.

Hospital-based care:

In Germany, the federal states are in charge of hospital-based planning. While each state can thus define their own planning process, certain characteristics are common (Fazekas et al. 2010). States create hospital plans, and only hospitals that are part of these plans can claim reimbursement for procedures from statutory health insurance (Greß & Stegmüller 2011). Moreover, states finance expenses for building and maintaining hospitals only for hospitals that are part of the plan. Hospital-based planning means planning beds: factors such as population size, average length of stay at hospital, degree of bed utilization, and number of hospitals are included in the calculations (Greß & Stegmüller 2011). Using the "Hill-Burton-Formula," the number of beds to be provided is calculated in the majority of states as such:

Factors used in the Hill-Burton-Formula for the calculation of the need for hospital beds are length of stay (*Verweildauer, VD*), frequency of hospital usage (*Krankenhaushäufigkeit, KH*), which is calculated by relating number of in-hospital patients (in a year) in a region to number of inhabitants in the same region, number of inhabitants (*Einwohner, E*), and the degree of use of hospital beds (*Bettennut-*

zungsgrad, BN). Hill-Burton Formula = (E x KH x VD x 100) / (BN x 1000 x 365) (Deutsche Krankenhausgesellschaft 2014).

In the state of Bremen, the hospital law[4] changed in 2011. Where financing of investment costs were previously based on individual cases, now the state provides a fixed amount for hospitals. Additional changes included mandatory quality standards, strengthened patients' rights and a revised planning process (Die Senatorin für Wissenschaft Gesundheit und Verbraucherschutz 2011). The central point of this process is the plan framework, which is autonomously devised by the hospitals and later authorized by the state government (Die Senatorin für Wissenschaft Gesundheit und Verbraucherschutz 2011). Similarly, in Hamburg changes to the hospital law[5] newly require quality standards, pointing to an increased awareness that additional factors beyond numbers of beds influence quality of care.

Overall, both outpatient and hospital-based planning rely on a collaborative negotiations process that is framed by legislation. In outpatient care, mainly physicians, dentists and psychotherapists are included in specific planning. Inpatient and outpatient sectors operate separately in the planning process. In 2012, the guidelines for outpatient health workforce planning[6] have been updated. Additionally, the 2012 statutory health insurance care structure law (GKV-Versorgungsstrukturgesetz)[7] has made planning region definition more flexible. Of high interest to state ministries is the section allowing them a seat and vote during outpatient care planning negotiations. A trans-sectoral committee that has the right to give recommendations is now allowed at state-level: this could possibly indicate a move towards trans-sectoral planning in the future.

Dentists

For dentists contracting with statutory health insurance, the Federal Joint Committee publishes planning guidelines[8] that are similar to those for physicians. Here, too, planning occurs in planning regions, and a ratio number is determined by dividing the number of inhabitants in a planning region by the number of practicing dentists or orthodontists. The target ratio can vary between regions if different needs-profiles are established: the guidelines allow for consideration of morbidity and

[4]http://www.gesundheit.bremen.de/sixcms/media.php/13/Krankenhausgesetz.pdf
[5]Hamburgisches Krankenhausgesetz, http://bit.ly/1PSdkPI
[6]https://www.g-ba.de/downloads/62-492-920/BPL-RL_2014-07-17.pdf
[7]http://bit.ly/1i14Fza
[8]https://www.g-ba.de/downloads/62-492-528/BPL-RL-Z%C3%84_2010-06-17.pdf

population structure. As with physician planning, regional associations are responsible for putting these guidelines into practice.

Pharmacists

Pharmacies are responsible for the regulatory provision of pharmaceuticals to the population. While the number of pharmacists is not regulated, some restrictions regarding pharmacies apply[9]. To open a local pharmacy, approbated pharmacists need to apply at the regional governmental department of health, and can own up to three pharmacies, one of which they must work in themselves. All pharmacies owned by the same pharmacist must be located in the same or neighboring county or urban municipality.

Midwives and nurses

Nurses and midwives are not part of a structured planning process like physicians, dentists or psychotherapists under statutory health insurance. Instead, these professions are loosely regulated through education capacities in specific schools and hospitals. In recent years, both nursing and midwifery have become degree programs at university level – a complete academization of the profession has not yet occurred. However, professional associations are debating the desirability of a shift towards a majority of university-educated nurses (Busse & Blümel 2014; Bollinger & Grewe 2002).

Criticism of current health workforce planning practices

The German focus on planning only for physicians, dentists, and psychotherapists has been repeatedly challenged (Nüsken & Busse 2011; Fazekas et al. 2010) – as well as the planning methods themselves. Morbidity profiles of populations are insufficiently taken into account in both outpatient and hospital-based sectors, and there is no standard approach to measuring processes and outcomes of planning (Fazekas et al. 2010). Further subjects of debate are the large number of stakeholders involved in the planning process, and the discrepancies between urban and rural areas in physician supply (Greß & Stegmüller 2011). Since trans-sectoral approaches are lacking, synergies between outpatient and hospital care might be lost. Large planning regions make it difficult to consider local

[9] http://www.abda.de/fileadmin/assets/Gesetze/Apothekengesetz_engl-Stand_2012-10-26.pdf

variations. Finally, particularly the approach to count a status quo baseline as "adequate" without a needs assessment might prove problematic (Greß & Stegmüller 2011). While *numerus clausus* rules regulate access to medical education for physicians, dentists, and pharmacists, no direct cooperation between the education and health sectors is used to inform workforce planning.

To summarize: The previous sections described the **current state of health workforce planning in Germany, stressing the unique aspects of self-governance, strong stakeholders, and a normative understanding of limited planning as sufficient**.

What's next?

Considering these realities, can the Joint Action Handbook provide useful suggestions for system changes? Using focus groups and key informant interviews, we examined stakeholders' perception on desirable changes and on their assessment of the applicability of the handbook. Additionally, the desk research examined whether implementation path practices are feasible within the German context by exemplarily assessing the legal and organizational structure needed to implement selected practices. Finally, testing data availability for the Minimum Data Set (MDS) and minimum planning requirements of the Joint Action complements the feasibility assessment.

2 The feasibility assessments: Objectives and methods

2.1 Study objectives

This feasibility study aims at testing both the **applicability of the European handbook** on planning practices, and the **feasibility of using the Minimum Data Set (MDS)** to project future supply and demand in Germany. Regarding the handbook testing, the feasibility study asks whether the outlined approaches are useful in a country with mostly regional (as opposed to national) planning, and with an insurance-based, self-governed healthcare system (as opposed to a national health service).

The original research questions driving the feasibility study were:

1. *Does the handbook provide the necessary information to transfer the outlined practices to the German context?*

2. *Could selected outlined practices be implemented in Germany from an organizational perspective?*
3. *Can the minimum data set (MDS) be used to project future supply and demand in German states?*

However, in the course of the research, we learned that question number 1 is irrelevant to older. Instead, the general suitability of a handbook overall and its specific contents needed to be assessed, based on criticisms of the current planning practices in Germany. Thus, the refined research questions targeted in this study are as follows:

1. **Is a handbook useful to German stakeholders, and what contents would be relevant to them?**
2. **Could selected practices from the handbook be implemented in Germany from a legal and/or organizational perspective?**
3. **Are all data the MDS requires easily available in Germany?**

Answers to these questions contribute to a critical assessment of the handbook and may provide information for future handbook iterations. Additionally, the assessment of the MDS shows if it is useful as a minimum data set for health workforce planning and forecasting.

2.2 Methods

We conducted a **mixed methods study** consisting of three complementary approaches.

1) Focus groups and key informant interviews (qualitative assessment)
2) Document and policy analysis
3) Mathematical projections based on indicators of the minimum data set (quantitative assessment)

Qualitative assessment: Focus groups and key informant interviews

Recruitment

The **interviews and focus groups** were conducted in three North German states: in Bremen, Hamburg, and Lower Saxony. Assessing the feasibility of a handbook among state governments and stakeholders was chosen to adequately mirror the planning realities in a federal system. The

departments of health in the city states Bremen and Hamburg have repeatedly taken on leadership roles in petitioning for a stronger role of state involvement in outpatient planning, they were therefore expected to be particularly interested in the Joint Action and feasibility study. With the *Versorgungsstrukturgesetz* state competencies were increased, potentially making them more influential in the planning process. City states play a special role in the German system in that their health services also serve populations from neighboring states commuting into the city. As such, sampling these states promised greater involvement of stakeholders and greater potential of further dissemination owing to the previously demonstrated interest of interviewees in these issues.

Sampling of interviewees was thus purposive and driven by the aim to include several professions, mid- to high-level stakeholders from local governments, and stakeholder associations with an active advocacy role. All selected interviewees represented their organizations: either professional organization (medical association, pharmacists' association, statutory health physician association, nursing association, midwives' association), a health insurance fund, or a local governmental department of health. One exception were governmental and physician representatives in Hamburg who additionally represent their respective organizations at the high-level nationally as participants in the Joint Federal Committee process. Sample characteristics and interview locations are presented in Table 1.

Table 1: Sample composition

	Profession	***Location***	***Respondents***
Focus groups			
	Government, statutory health insurance physicians, health insurance	Hamburg	5 (2 female, 3 male)
	Government, statutory health insurance physicians, health insurance	Bremen	3 (male)
Key informant interviews			
	Midwives	Bremen	2 (female)
	Physicians	Bremen	1 (female)
	Pharmacists	Bremen	1 (female)
	Nurses	Hanover, Lower Saxony	1 (male)

Focus group composition acknowledged the power relationships between professions by including physicians, government and health insurance company as dominant and "big players" in group interviews in both Hamburg and Bremen, but conducting individual face-to-face interviews with nurses, midwives, and pharmacists.

Planning guidelines for dentists are very similar to those of physicians[10]; this profession was therefore excluded from the assessment in favor of including the medical association to learn about the continuing medical education sector.

Potential interviewees and their associations were identified by the team based on their status and involvement in the policy discussion, location, and accessibility. Recruitment occurred via individualized invitations sent per email. All but one invited respondent agreed to participate.

Data collection

A **semi-structured interview guide** with predominantly open questions was developed (see appendix A) and applied in all interviews. Sessions were only moderately structured to give respondents sufficient room to state their concerns and ideas. All sessions were audio-recorded, and focus group recordings were transcribed. The expert interviews were summarized based on extensive note-taking and the audio recordings.

All interviewees were asked for their consent to be on record prior to the taping, and were assured that they could abort participation at any time without negative consequences. Audio recordings remained with the institute. As the assessment was concerned with official positions and expectations expressed by the individual's professional association, no sensitive information was being asked for.

Analysis of transcripts and notes

Summaries of all interviews and focus groups were written and compared. These summaries were sent back to interviewees for member validation. Two researchers independently searched for **common themes across and differences between the texts** in an adapted content analysis methodology. Themes were subsequently summarized and abstracted again, and narratively reported.

[10]Planning guideline for dentists: https://www.g-ba.de/informationen/richtlinien/30/

Document analysis

Three additional practices from the handbook were **assessed for their organizational feasibility** within the current German system. A sample of official legislative texts and policy briefs was analyzed to highlight possible paths and potential barriers to implementation of the practice.

Quantitative assessment of the MDS

MDS methodology

The aim of the quantitative assessment was to test the Minimum Data Set with data available in Germany to project future supply and demand. As a result, all steps taken were outlined by the MDS document (Delivarable D051)[11]. An overview of the steps taken is presented in section 3.3.1.3 as an introduction to each indicator. For a detailed description of the model and calculation process, please refer to the MDS document.

Data collection

For better readability, data sources for each MDS indicator are presented together with the projection results in section 3.3.1.3. Data were collected from several national and regional sources, mostly from the Federal Statistical Office, Microcensus, and from chambers. While the majority of these data were publicly available for use online, additional sources were accessible only upon personal request.

2.3 Limitations of the study

This feasibility study tested the handbook and MDS in an **exploratory design** with a consciously limited scope. Results were intended to indicate stakeholders' perceptions in two German states rather than be generalized for the entire country. Future research might extrapolate and repeat the study with a larger state sample.

Interviewees, while representing their associations, might have presented points that were of high interest to them but may not necessarily reflect the stances of entire professions. For instance, migration of doctors into and out of Germany was not mentioned as an issue in the interviews, which might be perceived differently by hospital administrators. Limited physician and nurse migration

[11] http://healthworkforce.eu/wp-content/uploads/2015/09/140414_wp5_d051_minimum_planning_data_requirements_final.pdf

occurs in the outpatient practice sector and is rarely considered in studies. However, since the statements were fairly comparable between different associations for the same profession, and all professions gave similar accounts of the basic advantages and disadvantages of the German planning system, large bias is unlikely.

Physicians were represented to a larger degree in the assessment, which is in line with their role in the planning system.

Additionally, both Bremen and Hamburg are city-states, and the interview conducted in Lower Saxony was also based in a city. It is possible that stakeholders living in larger, predominantly rural states may have had different views on current weaknesses and strengths of the planning system. We partially circumnavigated this bias by including stakeholders in the Hamburg interview who also represent their associations at national level. Thus their views were necessarily shaped by both regional and national debate. Finally, this assessment was conducted at an academic institution, with limited involvement of policy-makers. While we were able to present a thorough picture of challenges and opportunities for the handbook, final decisions on uptake will be made by the stakeholders and not by academia.

3 Results of the handbook applicability assessment

Section 3.3.1 below summarizes respondents' assessment of the current state of planning in Germany at both regional and national level. Participants were first asked to give their opinions on challenges and required changes to German health workforce planning approaches, independently from the handbook suggestions. This part of the interviews served to gather knowledge on stakeholders' satisfaction with German practices and their perception on potential solutions. Section 3.3.2 then presents stakeholders' assessment of the suitability of a handbook in light of **their approaches to planning.**

3.1 Interview results on health workforce planning in Germany

Results summarized:
In the interviews, **common dissatisfactions with the current planning system**, **ideas for a changed approach, and the applicability of a European handbook** on planning were discussed. Among dissatisfactions, suitability of the planning instrument, **power relations** between professions, **tensions** between self-governance and governmental involvement, and tensions between the education and health sector were mentioned. Ideas for changes within the system include **ameliorations to valuation and appreciation** and to structural determinants of work, and **incremental changes** to the planning guidelines

Common dissatisfactions

Common issues perceived within the German system include l**evel of state involvement in the self-governed architecture, mismatch between planning tool and planning aims, lack of prospective planning, and unequal distribution of power, compensation and appreciation between professions**. Across all professions, a strong awareness of shortcomings in the planning approach was expressed, despite the absence of a structured planning approach to the health workforce for all respondents' professions except physicians in Germany. In interpreting these results, it needs to be remembered that only for physicians and dentists structured planning approaches are implemented. It follows that in answer to the question of shortcomings and opportunities of the current health workforce planning system in Germany, broader issues were raised that include but are not limited to manpower planning. In general, both outpatient and inpatient (hospital-based) care as well as general and specialist care were included in the discussion.

Common dissatisfaction 1 - Suitability of the planning instrument of the German system

The German term for health workforce planning in the Joint Action terminology translates as "needs planning". In both focus groups with physician associations present and in the interview with the medical association, the inaccuracy of that term was discussed. Respondents agreed that not only could needs not be planned, a scientifically derived definition of how to measure needs in the health system is also lacking. More specifically, interviewees stated that **choosing a specific need to plan for**

and focus on was a political act driven by decision-makers' interests. Thus, whether headcounts or amount of healthcare provision, patient-doctor interactions or health outcomes should be at the center of a planning system depends largely on the system's normative approach to planning.
In Germany, the instrument was developed to **regulate number of physicians in the system** and is therefore a mostly positive (as opposed to normative) guideline, which illustrates a current state but is unable to account for future changes. This **lack of prospective planning** was critized in the focus group interviews, and indicates awareness of potential issues in the future that the current guidelines are not preparing the system for.

Changes in patient and provider expectations are not represented in the planning guidelines. This aspect was mentioned by physicians, governments, health insurance providers, midwives, and nurses. Both service providers and patients navigate and shape the health system through their preferences, albeit within systemic determinants. Respondents in the focus groups in Bremen and Hamburg mentioned physicians' **economic considerations** in choosing a location for practising. New organizational variations of practices, such as physicians being employed by associations, or several doctors running practice communities together, were discussed. **Financing structures in hospitals**, based on budgets or per service provided, were also perceived as relevant to future planning.

Regarding **patient behavior in the system**, the Bremen focus group participants estimated that access behavior and travel distances influenced choice of physician and subsequently the utilized capacity of individual private practices, as patients are free to choose their physician in Germany without gatekeeping. Additional points raised included accessibility of practices for patients with different physical abilities, and quality in hospitals as a decision criterion for patients. The Bremen focus group participants linked these aspects to decision-making among patients on which practice to go to, thus possibly leading to an unequal workload between practices. The current planning guidelines for physicians do not yet sufficiently include these considerations into their calculations of number of physicians per planning region.
Overall, suitability of the structured approach for physician and dentist planning was contested in the interviews, mainly for its inflexibility, retrospective assignment of seats, and uncertain definition of needs.

Common dissatisfaction 2 - Power relations between professions within the German system

Professions in the German system are on unequal footing. As already stated, among the five professions targeted in the Joint Action, a structured planning guideline exists only for physicians and dentists. In addition, role and status of doctors exceeds those of all other professions in the system, which is illustrated by compensation, task delegation, and associations' political influence.

These issues were raised by **midwives**, **pharmacists**, and **nurses** during the interviews. In terms of perceived status of the profession, the **midwives were aware of tensions between the high standards and expectations assigned to their roles on the one hand**, and the high workload, emotional toll of the work, and inadequate renumeration on the other. According to the **midwives' association**, **high costs** associated with being a freelancer (in particular insurance premiums) are not offset by income opportunities. In hospitals where midwives might be employees, the majority of positions are part-time only, which leads to underemployment and a higher workload.

A lack of acknowledgement of the importance and difficulty of their work was equally perceived by the **nurses' association**. This refers not only to financial acknowledgements, but also to appreciation and intangible values. **According to nurses and midwives, ascribed gender roles harm the nursing professions, including midwives, on a structural level**. Both have historically been underpaid and regarded as "female" professions, culturally and systemically charged with biological conscriptions, expectations about husbands being breadwinners and the roles of women in the household, and a lack of appreciation for the job itself. These societal structures extend into the health system, and are linked to a **discussion of task delegation and academization of nursing professions in Germany**. The **perceived insuffiency of renumeration**, for example, is a contradiction to the call for increased postgraduate education in nursing and midwifery. Respondents stated that those currently pursuing higher education are more likely to end up in academia, and less likely to bring their knowledge back to the field. A parallel increase in pay and restructuring of the training system for midwives and nurses would be needed, according to midwives. This might also increase retention in the profession. **For midwives, lack of systematically collected information on how many people are being trained in midwifery is another challenge to adequate planning**. For **nurses,** on the other hand, data are abundant, and **working conditions the major hindrance** to retention.

Pharmacists were aware of a **divide between income progression in public pharmacies and in the research and development sector of the pharmaceutical industry**. Public pharmacies are perceived as less attractive and tend to be overlooked in pharmacy training at universities. In addition, self-identification as pharmacists is connected to certain desirable tasks, such as communicating with and advising patients, social work in pharmacies in disadvantaged communities, and combining healing with entrepreneurial work. The respondent saw this **self-identification threatened by the actual systemic framework for pharmacists' work, which is characterized by strict regulations**, high levels of bureaucracy, is highly influenced by systemic changes and appreciated less than the work done by physicians, for instance. The pharmacists' chamber judged this to be a barrier to entry into public pharmacy, as opposed to industry-related jobs, for instance.

Working conditions were targeted in the discussion on task delegation in the **medical association** interview, and are related to the **issues of acknowledgement, power, and status raised by nurses and midwives**. The medical association respondent viewed task delegation as a two-fold process: first, inter-professional delegation, i.e. to specially trained physician assistants, and secondly delegation between general practitioners and certain specialties, such as gynecologists or opthamologists. Both types of delegation would reduce the tasks (certain) physicians are solely responsible for, and therefore influence planning. However, the latter does not fundamentally change power relations in the system.

Common dissatisfaction 3 - Tensions between governmental involvement and self-governance in Germany

Concerns about power and political involvement were expressed by **physicians** in the focus groups and the **medical association** interview. **Physicians** cautioned against an increased interest of governments in the planning process[12]. They **stressed the importance of physicians' motivation for their work, which according to them was closely related to independence and freedom of movement**. Physician respondents strongly opposed what they called "coercion" regarding choice of practice location, and perceived restrictive planning as a threat to physicians' autonomy. Instead,

[12]As stated in the background section, in the system of self-governance, governmental representatives are involved in planning for outpatient care to only a limited degree. In contrast, hospital planning is the responsibility of state governments.

they argued, governments could improve local conditions in communities beyond providing healthcare, subsequently making rural areas or disadvantaged neighborhoods more attractive to all citizens, including physicians. **A common theme among physicians were fair working conditions,** which was echoed by the other professions (albeit without the link to independent decision-making about location of practice). In contrast, the state-level governments expressed the need to be included in outpatient planning as stakeholders, acknowledging the merits of a self-governed stakeholder process.

A second limit to governmental involvement was mentioned by the medical association, stating that the **system of free choice of doctor for patients depended on the current planning structure** and could not work in a system with strong gatekeeping, for instance. The respondent stressed the likely opposition of patients should the system move towards stricter planning in this regard.
Finally, **assigning specialities rather than letting medical students choose in order to strengthen GP training enrolment was perceived as damaging to feelings of personal responsibility** and motivation of aspiring doctors. Again, the focus on "forcing" choices rather than making the normatively desired choices more attractive was disapproved of on grounds of feasibility, as well as status and expectations from and of the medical profession. A planning approach that sets guiding parameters rather than prescribes specific action was favored by the physician respondents.

The system of self-governance was generally supported and highlighted as a specific strength of the German approach. The **nurses' association** expressed the wish to be included in decision-making processes at the political level, stressing the importance of stakeholder involvement. **Regional governments** did not oppose self-governance either, although respondents urged those operating within the system to ameliorate shortcomings. The **pharmacists' chamber** equally stressed the specific status of pharmacists in Germany and cautioned against changes that might negatively affect said status. **Physicians** specifically challenged increased governmental involvement in workforce planning for outpatient services. None of the interviewees favored a prescriptive European approach and instead highlighted national sovereignty over the health system.

Common dissatisfaction 4 - Tensions between education and health sector in the German system

Physicians, **midwives**, **nurses** and **pharmacists** all described **changes to the profession's education and training as necessary**. To the **nurses' association**, standardized quality and levels of education, professionalization and processes towards a stronger academic training were as important as the wish to attract a certain type of personality to the profession. **More autonomy for nurses** in their daily work could be a desired outcome of these processes. To **midwives**, the current lack of data on those completing midwifery training is the first barrier to a comprehensive picture of midwifery education. No planned approach to training exists, and **with a shift towards academic education on midwifery, the profession has entered a transition period.**

Pharmaceutical education is aimed at preparing graduates for employment in industry and research and development rather than training them for public pharmacies. **According to the phamacists' chamber, communication and consultation skills are neglected**, yet these would be needed to successfully work in a pharmacy. The respondent critized the lack of collaboration between professional organization and universities in Germany.

Finally, the **medical association** respondent **proposed expansion of capacity for medical students at universities as the only type of planning**. Mutual recognition of classes and rotations taken in other European countries, and increased financing for specialists' training in general medicine in the outpatient sector rather than only hospital-based training was also suggested. According to the interviewee, budget limits for physician's practices made training and supervision for GPs in outpatient care difficult, as this extra work and expenses had to be borne by the educating doctors themselves.

Ideas for a changed approach with the current system in Germany

Overall, **respondents favored solutions from within the current system**. Points raised included appreciation and valuation, structural determinants of the work, financial changes, and considering societal developments in a planning approach.

Proposed change 1 - Appreciation and valuation

The **nurses' association** stressed that **valuation goes beyond monetary renumeration**, and includes fair workloads, limits to overtime, ethical recruitment of migrating nurses, and acknowledgement that a "good nurse" is a person with a specific character and motivation.

Proposed change 2 - Structural determinants of work

The **pharmacists' chamber** described the **increasing challenge of bureaucracy** when operating a pharmacy. High administrative burdens were also mentioned by midwives, whereas the **nursing respondent saw a role for technical solutions to nursing only in analysis and diagnostics**, but not for actual nursing tasks. **Physicians repeatedly stressed the need for free decision-making** within the system.

Proposed change 3 - Financing

Linking budgets to a specific minimum provision of services in hospitals was suggested in the Hamburg focus group. Overall, **health insurance respondents** saw similar issues as physicians and governments regarding the lack of prospective planning. **Midwives** criticized the focus on efficiency in hospitals that they perceived as harmful to the quality of midwifery work.

Proposed change 4 - Incremental changes to the planning instruments in Germany

With solutions suggested from within the system, the following incremental changes were mentioned in the interviews:

- ⇨ **Inter-sectoral planning beyond the hospital-based and outpatient services divide**
- ⇨ **Include morbidity measures into demand projections, and consider population morbiduty profiles locally when assigning ratio numbers**
- ⇨ **Allow different degrees of planning by specialty, within a framework for specialists' geographical distribution**
- ⇨ **Design the planning guidelines to be more flexible and include prospective developments**
- ⇨ **Learn more about reality of service provision vs what is planned with headcounts or FTE**
- ⇨ **Gather data on midwives**
- ⇨ **Intensify research on needs, demands, and necessary health service provision for desired morbidity and mortality outcomes in a population**

⇨ **Design the planning approach to account for societal developments, such as demographic change, migration patterns, health service access behavior, and values**

3.2 Applicability of a European handbook for planning

The previous sections summarized respondents' assessment of the current state of planning in Germany at both regional and national level. **Can their dissatisfactions be targeted by practices suggested in the handbook?** This second part of the assessment illustrates **what selected German stakeholders expect from a handbook**, and what needs they perceive that such a handbook could fill.

Results summarized:

A handbook to facilitate exchange between stakeholders in different European countries could be useful to respondents if their professions' needs would be included by providing novel solutions that can be tweaked to fit the system of self-governance and limited planning.

European exchange on planning and good practices

Stakeholders reported an active exchange on both formal and informal levels between organizations and individuals. All respondents were well connected across country borders, and stated that they regularly used these networks. As such, they did not perceive a handbook as ultimately necessary to *initiate* exchange. They did, however, **regard information flows in Europe as useful for orientation in national policy debates**.

Contents of the handbook

Wishes for handbook content varied by profession. Several respondents stated the political nature of choice of practices to be included. In general, **stakeholders missed information specific to their profession**, as the handbook is written from the governmental perspective. For instance, **midwives expressed an interest in learning how midwives in other countries deal with insurance** requirements, or with part-time work and underemployment. Respondents were particularly interested in examples from countries where midwifery might have a higher status and better

working conditions than in Germany. Similarly, for **pharmacists information from systems where status of pharmacists is higher than in Germany** was attractive about a handbook.

Both **local government** and **nurses' association requested information** not on status quo, but **on innovative, creative solutions to current problems**. Both reported that **with good data availability across Europe, information on what is being done is easily obtainable**. Answers to **questions of gender equality, roles of preventive services in the healthcare system, where resources are being assigned to, or evaluated usefulness of practices are more difficult to find** and would be of higher interest to respondents. The **Hamburg focus group** suggested a **focus on minimum requirements, i.e. for health services access**, instead of on a "best" practice.

Limits to a handbook

While the idea of exchange of information and ideas across borders was viewed favorably, all **stakeholders saw limits to both usefulness and necessity of a handbook approach**. All respondents understood a handbook as a voluntary source of information and not as a prescriptive guideline. Neither mandatory systemic changes in, nor an increased influence of European institutions on the German system were desired by stakeholders. Direct application of practices was seen as hardly possible due to systemic and structural differences between countries. The **Bremen focus group** strongly questioned the use of planning in general, which consequently led them to judge a handbook of limited necessity. The **medical association** respondent cautioned against the use of mechanisms that were not designed for the local system. The **Hamburg focus group** participants felt that a handbook would be useful for researchers: as high-level stakeholders in the Federal Joint Committee, respondents would assign the task of an international comparison to external institutions and not consult the handbook themselves.

3.3 Discussion of applicability assessment

Germany's unique health system in the Bismarck'ian tradition is characterized by a strong focus on stakeholder self-governance, regionalization, and limited systematic planning. Regional differences include rural-urbam dichotomies, different population density, and socio-economic regional profiles. Within this system, the interviewed stakeholders navigate their professions' status and work, and devise policy recommendations accordingly. The views expressed often pointed out Germany's specific system and the limits of comparability. In addition, **national and state-level governmental**

involvement was portrayed as one aspect of stakeholder exchange rather than as a dominant level. **Professions with a high status and strong negotiating power in the current system, in particular physicians, more often strongly opposed changes that would increase state-led regulation**. These views likely express both the *actual* state of negotiations in the self-governed planning system, and the process *desired* by respondents.

In its current version, the chosen handbook examples are taken from **systems with comprehensive planning** and strong national or regional organization of planning, often from a centralized, national perspective. **This perspective is quite distant from that of our respondents, making it difficult for them to judge the usability of the specific examples**. In addition, the term "handbook" seems to indicate a prescriptive guidebook that stakeholders would have to adhere to and that they oppose. The possibility of European influence on self-governance was predominantly perceived as unnecessary and threating to the status quo. **An information portal with optional application, on the other hand, was welcomed.**

Respondents had visions for a **handbook they would use**, which mostly included **specific examples relevant to each profession**. This indicates that for our interviewees, examples on *general* planning approaches would be less useful than those tailored to their own experiences. **Questions of target group are therefore relevant in the discussion of the handbook**. Being aware of the political nature of example selection, respondents suggested a collection of innovative and creative approaches. Current status quo information was less interesting to interviewees due to the perceived availability of said data and the impression that regardless of planning approach, similar issues of access and costs occur in European countries that are apparently not solved by these good practice examples.

3.4 Testing handbook practices against the German system: policy analysis

This part of the assessment **tested three selected handbook practices against the German organizational and institutional system**. As forecasting and data sources are already being assessed with the MDS feasibility testing, for this analysis we chose one practice each from the three remaining key elements: **goals, link to policy action, and organization**.

Table 2: Selected handbook practices for the assessment

Key element	***Selected practice***
Goals	*"Definition of the goals in the English planning system"*
Link to policy action	*"Self-evaluation of the effectiveness of the planning model in the Dutch planning system"*
Organization	*"Multi regional planning in the Spanish system: organization aspects and forecasting model"*

For the first two elements, only one practice each is listed in the handbook. For the element of organization, the multi regional approach in Spain shows some overlap with issues in Germany and is therfore a useful example for this assessment. Overall, with physicians being the only profession targeted by a structured planning approach, the assessment focusses on them here as well.

Element: Goals

The handbook defines a goal for health workforce planning as specific in two dimensions: targeted quantities of health professions, and a year by which to achieve the goal (p. 44). In addition, goals aim to "clearly define and communicate the expected outcomes, the operational objectives" and "the related targets and indicators" (Handbook p. 48). The definition of goals in the planning process is therefore narrow and relies on quantitative measurements of success.

The English practice of defining goals has been described in detail in the handbook. Key characteristics of the practice include a repeated process comprised of several steps from inception to evaluation, and accountability mechanisms that assign responsibilities. The procedural goal setting chain includes setting the scope, defining objectives, reviewing and adapting objectives, and finally checking progress against indicators (Handbook p. 50).

In particular, strategic outcomes (or goals) are translated into mandates, thereby automatically assigning responsibility to a body or institution. Within a framework, these outcomes are differentiated by timescale, and linked to indicators. In brief, then, short-, medium- and longterm plans include both strategic aims and associated outcome indicators with which to measure if a plan is successful.

If (aspects of) the German system wanted to implement the principles of the English goal-setting practice, what would need to be considered?

The first question is: who or which institution is in charge of defining goals for the planning system? In Germany, as outlined before, this would not be a national body or governmental agency. However, for contracted physicians, the Federal Joint Committee as corporatist actor already acts as goal-setter for physician planning (in outpatient services). The ratio numbers of physicians per population set in the needs planning directive[13] (the planning guideline) count as quantifiable and temporal dimensions as required by the handbook definition. Other actors setting goals include universities for medical school entries, hospital administration and regional governments for beds in hospitals, or midwifery and nursing schools for numbers of students, for instance. Due to the high relevance of physician planning as the major structured planning approach in Germany, we focus on this type of planning in answering the following questions.

Are the goals specific? Goals defined in the needs planning directive are highly specific as they outline how many physicians (headcounts) are an "optimal" desired amount for a specified region and specialty group. These goals do not, however, include advice on a) how to reach the target numbers, or b) further divide the headcounts by gender, work time, or actual patients seen.

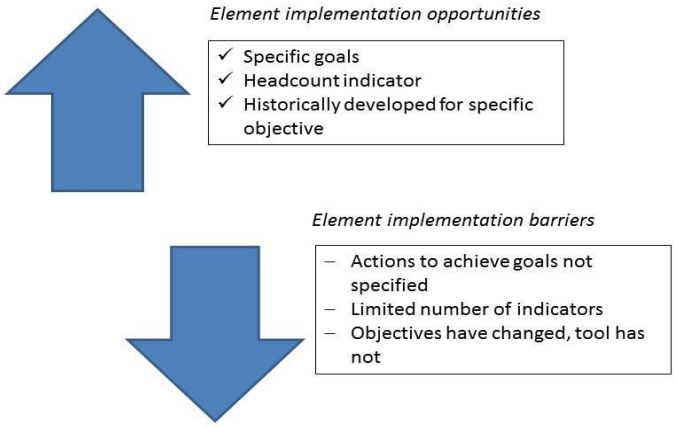
Are the goals accompanied by indicators? Indicators are limited to a desired headcount to population ratio. Revision of the guidelines occurs irregularly.

Are operational objectives stated? Broadly speaking, the historical aim of physician planning, namely preventing additional oversupply by setting the status quo as the desirable outcome (Greß & Stegmüller 2011), has created the guidelines as instruments, yet today these same instruments are expected to contribute to fair access to healthcare and to react to popoulation health needs. This contradiction prevents operational objectives from being spelled out for this particular case.

[13] http://www.english.g-ba.de/special-topics/needs-planning/directive/

To summarize: Implementing goal setting as a practice is possible in Germany and is indeed already being done, albeit at different levels and for few professions. Specificity of goals at higher level and national scale is limited. It is conceivable that concrete goals set by hospital administrations and the education system could also count as useful practices in the realm of health workforce planning. Lack of feedback loops to the health system at large, however, do not make the German practice an ideal case for the handbook approach. In line with the self-governed and regionally fragmented German system, the English top-down practice cannot be implemented directly, but aspects of goal-setting might be transferred. Specific goal-setting and monitoring practices within and across sectors, for different professions and different organizations vary and cannot be subsumed under a national approach.

Element: Goal implementation opportunities and barriers



Element: Link to policy action

In the handbook, the link of planning to subsequent policy action is operationalized as: "How is the planning process connected with the actions that will achieve what has been planned?" (Handbook, p. 129). This translates into instruments of actively increasing or reducing the numbers of health professions in the chosen practices. The Dutch policy action link practice is described in detail in the

handbook. In brief, the policy link relies on evaluation of its effectiveness, which is assessed using the following four questions:

- Has the planning model contributed to the decision-making process?
- Is the model mathematically sound?
- Is the planning approach appreciated and accepted by the health field?
- Does the model cover all the relevant parameters? (Handbook, p. 134)

The evaluation process is handled partly by outside experts, and in the Dutch example combines quantitative and qualitative goals and evaluation methods.

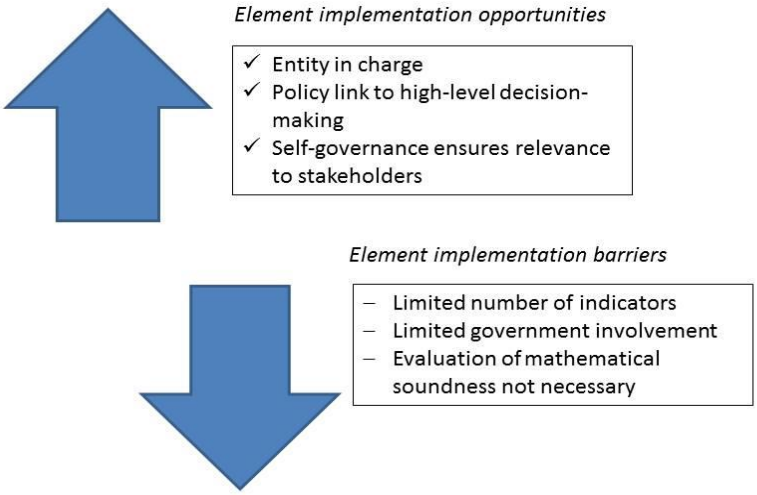
If (aspects of) the German system wanted to implement the principles of the Dutch policy evaluation practice, what would need to be considered?

As in the first practice, the first question is which entity would have an interest and the resources to implement a large scale evaluation of the planning process. Regarding the needs planning directive, the Federal Joint Committee sets the overarching goal, namely, achieving a balanced ratio between physicians and population[11]. The specifics of how to achieve this goal are not spelled out, only the outcome indicator is defined. The process of reaching said goal is loosely structured and falls under the responsibility of regional actors. The process is therefore not entirely aligned with the SMART goals rule set out in the handbook.

As there is no national standard planning model that produces projections for prospective planning, an evaluation of mathematical soundness is unnecessary at this point. Arguably,"relevant" parameters depend on the goals of the planning approach: in the German case, where less planning is desired, few parameters are included in the process, yet these are likely sufficient based on the aims of the system. Of interest are questions 1 and 3, however: regarding physician planning, the model, or rather, the guideline in this case, is the outcome of a high-level decision-making process. Not only does it contribute to the decision-making process, but the policy link is inherent in the Federal Joint Committee self-governance, as the Ministry of Health reviews the guidelines and the goals are translated into regional aims. The set-up of the Joint Committee, with physicians, dentists, hospitals, and health insurance funds contributing to this highest decision-making body, automatically ensures that for physician planning, relevant actors from the health field design the approach and therefore accept it. Governmental involvement is limited, however.

To summarize: The questions outlined in the policy link evaluation practice can only be partially applied to the German context. Self-governance implies that the main stakeholders are continually involved in the planning process, which should lead to an automatic acceptance of and engagement with the decisions made among actors in decision-making. Evaluation of the process is therefore possible, whereas in the current approach an evaluation of a model is obsolete.

Element: Link to policy action implementation opportunities and barriers



Element: Organization

Organization as part of the planning process depends on institutional structures, especially regarding centralized or decentralized responsibilities. As the handbook points out, the practice examples all work with a single body in charge of final decision-makers, yet they allow contributions of national and regional stakeholders to various degrees (Handbook p.141). The Spanish practice of organizing their planning approach is outlined in detail in the handbook. In brief, Spain aims to reconcile regional training capacities and demand with country-level demand through a coordinated stakeholder involvement process. Regions submit offers for training vacancies that are negotiated in a working group and accepted by the Ministry of Health.

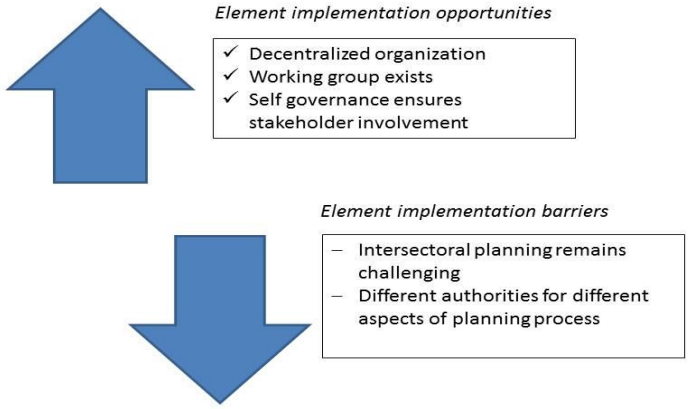
If (aspects of) the German system wanted to implement the principles of the Spanish regional organization practice, what would need to be considered?

The strong role of Spanish regions reflects Germany's decentralized system. The main differences lie in the projection and planning of training capacities, as well as in the structure of active cooperation between ministries of education and of health. The concept of a working group consisting of stakeholders and regions resembles the Federal Joint Committee, where German states are present in the negotiations through a representative. For physicians, this "working group" sets criteria, similar to the Spanish case. The regions are responsible for hospital planning, assigning them an important role in the inpatient care sector. These aspects are therefore already implemented in Germany in versions appropriate to the German system. To include the ministry of education in the planning process would be a challenge, however: intersectoral divisions are large and again, authority for educational decisions lies with the states and not at national level. The process would then require a representation of all 16 state ministries depending on regional availability of medical schools, universities or schools for nursing professions. Considering the absence of a structured forecasting approach[14] for most professions, regulating training capacities in itself is of limited value.

To summarize: Organizing a decentralized process through establishing working groups and a stakeholder consultation process are represented in the German system through the self-governed corporatist actor structures. Intersectoral planning and cooperation between education and health sectors remains challenging.

[14]Projections occur as part of project-based work, but not as official contributions to the planning process.

Element: Organization implementation opportunities and barriers



3.5 Limits to transferability of context-specific policies: the handbook as a case for lesson drawing?

The aim of the handbook is to provide a tool to share knowledge about planning methodologies and to support the European member states in improving their planning policies. Policymakers are encouraged to learn from other countries' experiences, hinting at voluntary policy learning. Is the handbook a suitable medium to support lesson drawing (Rose 1991) in health policy development?

According to Rose's lesson drawing framework, politicians' willingness to learn depends on dissastifaction with the current situation (Rose 1991: 11). In Germany, self-governance of corporatist actors assigns a high degree of freedom in decision-making on health workforce planning for these corporatist actors, as opposed to politicians. Our focus group and expert interview results pointed out that stakeholders perceive opportunities to change the current system, indicating a degree of dissatisfaction with the status quo. Not all stakeholders, however, have the same opportunities and resources to lobby for changes. In the case of physicians, political representation and self-governance are strong, as has been repeatedbly illustrated by pointing out the role of the Federal Joint Committee in planning. Other professions, nurses and midwives especially, are not only not involved in a structured planning approach, but also need to bridge a power divide. Who is the "learning subject" (Rose 1991:5) in systems where many actors cooperate and have to negotiate their positions? Changes implemented for one profession may well have trickle-down effects on other professions, yet depending on status, the lesson drawing process is limited to specific actors.

The handbook can therefore provide inspiration on principles of planning approaches, yet implementation of specific lessons will depend on structural determinants of respective systems, as well as on perceived need for changes and resources available.

3.6 Results of the quantitative MDS feasibility assessment

The first two qualitative assessments within this study concerned stakeholders' perception of the German workforce planning systems and of a European handbook on planning, and a theoretical feasibility assessment of selected planning practices within the German organizational healthcare system structure. This third part of the evaluation examines the **applicability of the Minimum Data Set (MDS)** and minimum planning model within a quantitative research framework.

In brief: The MDS consists of consensus recommendations on the key planning indicators and the related minimum set of data that may be adopted by the EU Member States as a common necessary tool kit to provide basic forecasting and enable a basic planning process to take place. These include supply and demand indicators, including population and health consumption on the demand side, and retirement, training, migration and labour force stock data by location, specialization and working time on the supply side, among others. For a detailed description, see the full document D051[15].

This part of the feasibility study will allow an **evaluation** of the minimum data set concerning its six forecasting and health workforce planning indicators. We hypothesized that, as Germany collects a high volume of health workforce related data, application of the MDS should be possible with little effort. This in turn would indicate a high feasibility of applying the MDS within various contexts in both middle and high income countries in Europe.

The main questions targeted by this sub-project are:

1) **Can the MDS and planning model be adequately used with data available in Germany?**
2) **Are there data gaps acting as barriers to successful use of the MDS and model?**

Structure of the subchapter

This section is strucured according to the MDS indicators (as outlined in detail in D051[15]). Following a brief description of definitions and German data sources used in the projections, each indicator is given, its calculation as stated in the MDS defined, and the calculation results for said indicator outlined. A paragraph discussing data availability for each indicator links these results back to the MDS deliverable by pointing out whether the MDS can be easily fed with German data. Finally, section 3.3.7 highlights migration data as a data gap between what is available in Germany and what the MDS requires.

Profession Definitions

As stated before, within the EU Joint Action on Health Workforce Planning and Forecasting, five professions are in focus: **doctors, dentists, nurses, pharmacists,** and **midwives**. As outlined in deliverable D041, the report on terminology gap analysis, limits to common terminology and definitions of professions between European member states may impede comparability of workforce data. Consequently, we first assessed deviations from the terminology used in the WHO/OECD/ EUROSTAT Joint Questionnaire in the German data to increase transparency. Listed below are the specific professions included in this study.

Data on **doctors, dentists, midwives,** and **pharmacists** were taken from **health workforce statistics** (*Gesundheitspersonalstatistik),* which includes all persons employed in the health care system. Persons who had been trained in these professions but are not working in the healthcare system or are unemployed were excluded.

Regarding **nurses**, the German system acknowledges several separate professions who are subsumed under “nurses” in other countries. For reasons of comparison we included the following professions in the assessment under the category of “nurses“: nurses (excluding midwives), nursing assistants, nurses working in outpatient dental and physician practices, nurses for the elderly, nursing assistants for the elderly.

[15] http://healthworkforce.eu/wp-content/uploads/2015/09/140414_wp5_d051_minimum_planning_data_requirements_final.pdf

German data sources

In order to forecast the health workforce for the whole country, the MDS uses different demographic indicators on the supply side – "current stock," "from education," "retired," "immigration," and "emigration" – and population and health consumption-based data on the demand side. Table 3 shows the German data sources on the supply side used in this project by profession and demographic indicators.

Supply side

Table 3: German data sources by profession and demographic indicators– Supply side

	Doctors	Midwives	Dentists	Pharmacists	Nurses
Current stock	Federal Statistical Office2013: Health - workforce 2011	Federal Statistical Office 2013: Health – workforce 2011	Federal Statistical Office 2013: Health - workforce 2011	Federal Statistical Office 2013: Health - Workforce 2011	Federal Statistical Office 2013: Health - Workforce 2011
From education	Federal Statistical Office 2012: Education and Culture – examinations in higher education 2011	Federal Statistical Office 2014b: Education and Culture – Vocational schools 2012 / 2013	Federal Statistical Office 2012: Education and Culture – examinations in higher education 2011	Federal Statistical Office 2012: Education and Culture – examinations in higher education 2011	Federal Statistical Office 2014b: Education and Culture – Vocational schools 2012 / 2013
Retired	From age groups: Federal Health Monitoring	From age groups: German Microcensus upon request from Federal Statistical Office	From age groups: German Microcensus upon request from Federal Statistical Office	From age groups: German Microcensus upon request from Federal Statistical Office	From age groups: German Microcensus upon request from Federal Statistical Office
Immigration	Federal Health Monitoring physician statistics	--	--	--	--
Emigration	Federal Health Monitoring physician statistics	--	--	--	--

Funded by the Health Programme of the European Union

Demand side

Health consumption: Federal Statistical Office 2010 – Health – cost of illness 2002, 2004, 2006, 2008 (except midwives – for midwives, number of births per year was used: Federal Statistical Office 2014a – Population and employment – natural population developments *(Bevölkerung und Erwerbstätigkeit – Natürliche Bevölkerungsbewegung)* 2012).

Population 2008: estimated from health consumption by dividing health consumption per age group by health consumption per capita

Population 2028: Federal Statistical Office 2009. 12th coordinated population projection

Indicator 1: Coverage of future demand, high level – by profession

Methods

As written in the MDS, indicator 1 was calculated as follows:

Figure 1: Formula Indicator 1 (Source: MDS[16], p. 29)

Numerator: Future supply domestic + Future supply abroad
Denominator: Future demand
Articulated by: Profession

[16]http://euhwforce.weebly.com/uploads/2/3/0/5/23054358/140414_wp5_d051_minimum_planning_data_requirements_final.pdf

Numerator: Future supply

Future supply domestic= current stock + from education – retired.

Future supply abroad = + immigration – emigration.

Current stock: Current number of professionals (headcount and full time equivalent) that are currently producing health care stratified by type (5 profession) and age.

From education: Forecast of number of professionals (headcount) that complete education (basic or specialist) and are licensed to practice during the period. The first years will be calculated on the basis of the current students in training; subsequently the actual training capacity (average of the statistics of the last years) will be used.

Retired: Forecast of number of professionals (headcount) that will retire each year using the actual probability.

Immigration: Forecast of number of licensed and recognised professionals (headcount) that may enter the country, calculated using the average of the last years.

Emigration: Forecast of number of practising professionals (headcount) that may leave the country, calculated using the average of the last years.

Denominator: Future demand

Future demand = $HWF_{px}=k_p * HCT_x$ where

$$HCT_x= (HC1_0*Pop1_x + HC2_0*Pop2_x + HC3_0 *Pop3_x) \quad (2)$$

HWF_{px} : The demand of a specific profession "p" (headcounts) in the year x.

k_p: The constant connecting the total health consumption with the demand for a specific profession.

HCT_x: The total health consumption in year x.(1)

$HC1_0$: The per capita consumption of age group 1 in year 0 (basic year)

$HC2_0$: The per capita consumption of age group 2 in year 0 (basic year)

$HC3_0$: The per capita consumption of age group 3 in year 0 (basic year)

$Pop1_x$: The population of age group 1 in year x.

$Pop2_x$: The population of age group 2 in year x.

$Pop3_x$: The population of age group 3 in year x.

Note(1)**:** it is important to check the sustainability of the total health consumption in year x compared with the current consumption.

Note(2): the values of these parameters are available from OECD / Eurostat / WHO.

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Figure 2: Model assumptions Indicator 1

Model assumptions:

- *Training:* Number of graduates stays constant
- *Retirement:* Age in 5-years steps only. Age is evenly distributed over the five years. All people retire at the age of 65
- *Migration* INFLOW and OUTFLOW: Average of the last years. Stays constant
- As we do not have *health consumption costs* per profession in Germany, we assumed that all professions (except midwives) have the same share of health consumption costs. We therefore assumed the same amount of costs for each profession.
- For midwives we used the number of births per year

Results

The results of Indicator 1 for **doctors, dentists** and **nurses** indicate – with an Indicator below 1 – **future shortage** (in both headcounts and fulltime equivalents (FTE)) for year 2028. In contrast to that, there might be **overcapacity** (in both headcounts and FTE) in year 2028 – with an Indicator above 1 – in **midwives** and **pharmacists**.

Table 4: Indicator 1 headcount results

Profession	Indicator 1 Result (Year 2028)	
	Headcounts	Fulltime equivalents (FTE)
Doctors	0.821	0.812
Midwives[1]	1.425	1.495
Dentists[2]	0.948	0.954
Pharmacists[3]	1.124	1.194
Nurses[4]	0.897	0.901

Annotations:

1: Data for migration IN- and OUTFLOW of midwives are not available. We hypothesize that migration of midwives is less likely because of the high impacts language and culture have in this profession.
2: Data for migration IN- and OUTFLOW of dentists are not publicly available. These data are responsibility of the state chambers. Yet the majority of chambers when approached stated to not collect data on migration. Only a few chambers provided data on either IN- or OUTFLOW. As a result, we were unable to compile a valid dataset for Germany.
3: Data for migration IN- and OUTFLOW on pharmacists are not freely accessible to the public. The majority of chambers when approached stated to not collect data on migration.
4: Data on migration regarding IN- and OUTFLOW of nurses are not available. This is problematic as previous studies expect a future shortage of nurses in Germany (Maier & Afentakis 2013). Due to difficult working conditions in the nursing sector, especially compared to other European countries, outflow of nurses is also likely (Zander et al. 2013). The validity of this indicator without consideration of migration patterns has to be doubted.

Discussion of data availability of indicator 1: is the MDS feasible with German data?

For Germany, most of data needed for Indicator 1 were either freely available on the internet or upon request from the Federal Statistical Office. As the formula does not rely on health consumption for each profession, we used the cost of illness accounts and assumed that they are evenly distributed across professions. These costs, however, do not include long-term care expenditures. Therefore the future need of nurses is underestimated. For retirement, we used the age distributions of every profession for estimating the headcount of those retiring in the future. This data had to be requested and is based on the *Microncensus* of 2011.

In Germany, data on migration In- and Outflow is not recorded on a yearly basis (except for physicians). Accordingly, the models are based only on "current stock", "from training" and "retirement". From the data collected as part of *Microcensus* we can gather how many people with

foreign qualifications currently work in Germany, but we do not know over what time they migrated to Germany and how this number will develop over time. Data sources on migration outflow over time are not available.

These challenges show that while Germany collects a large amount of data, these collections serve specific purposes and might not be in the format the MDS requires. Those wishing to use these data for purposes other than originally intended need to be prepared to invest time in identifying various data collections, requesting specific datasets and cleaning and preparing data according to the needs of the planning model. For a more detailed model of the supply-side, the in-between exits (e.g. parental leave) and re-entries of people should be estimated as well. Persons moving between categories, i.e. who possess qualifications but are working in different field, are currently difficult to track with the available data collections.

Indicator 2: Relative Affordability

Figure 3: Definition of Indicator 2 (Source: MDS[15], p. 15)

Indicator	Stratified by	Reason for the indicator
2. Change in health consumption Numerator: Future health consumption Denominator: Current health consumption	Depends on the responsibility for the health consumption (either regional or national). If it is on a country level, the indicator will not be articulated further.	This indicator forecasts health consumption as a result of the changes in population. It is a base for overall evaluations of what the country can afford in relation to the total cost and, perhaps, determines which changes in Health Production will be necessary in order to offer the same quality as today to the citizens. A value of the indicator >1 means higher consumption in the future compared with the current situation, a value = 1 means a balance between future and current consumption, and a value < 1 means lower consumption in the future compared to today's situation.

Methods

As written in the MDS, indicator 2 was calculated as indicated in Figure 4.

Figure 4: Formula Indicator 2

Numerator: Future health consumption Denominator: Current health consumption **Articulated by:** Depends on the institution responsible for the health consumption. If it is on a country scale, the indicator will not be articulated further, otherwise it has to be further detailed.
Numerator: Future health consumption HCT_x: The total health consumption in year x. $HCT_x = (HC1_0 * Pop1_x + HC2_0 * Pop2_x + HC3_0 * Pop3_x)$ HCT_x: The total health consumption in year x. $HC1_0$: The per capita consumption of age group 1 in year 0 (basic year) $HC2_0$: The per capita consumption of age group 2 in year 0 (basic year) $HC3_0$: The per capita consumption of age group 3 in year 0 (basic year) $Pop1_x$: The population of age group 1 in year x. $Pop2_x$: The population of age group 2 in year x. $Pop3_x$: The population of age group 3 in year x.
Denominator: Current health consumption: HCT_0 : The total current health consumption. $HCT_0 = (HC1_0 * Pop1_0 + HC2_0 * Pop2_0 + HC3_0 * Pop3_0)$ $HC1_0$: The current per capita consumption of age group 1 $HC2_0$: The current per capita consumption of age group 2 $HC3_0$: The current per capita consumption of age group 3 $Pop1_x$: The current population of age group 1. $Pop2_x$: The current population of age group 2. $Pop3_x$: The current population of age group 3.

Source: MDS[15], p. 30

Results

The indicator on relative affordability is 1.125, which indicates a rise in health consumption costs.

Discussion of data availability of indicator 2: is the MDS feasible with German data?

The requirements for the estimation of indicator 2 are basic as only the health consumption costs and the population-forecast are needed. Accordingly, the estimation of this indicator should be possible for nearly any country which gathers data on the health sector. Hence, for Germany, the calculation of this estimator was straightforward, as the information needed was ready to use and freely available on the internet. Neither was a request to the Federal Statistical Office necessary, nor had data to be converted to be usable for the estimation of indicator 2.

Indicator 3: Coverage of future demand, detailed – doctors only

"This indicator shows the future balance of the HWF in the country using the current legislation and the current organization regarding education, retirement, migration etc. Any shortage will require an action, for example on the number of intake in university. Any surplus may require and action in the opposite direction" (MDS, p. 15).

As indicator 3 relies on a detailed database on specialization within the profession and geographical area, the estimation for Germany is only possible and reliable for doctors. Data on specialization are not available for midwives, pharmacists, dentists, and nurses. Data on geographical area for these four professions are available incompletely for the states. Table 5 therefore gives an overview which supply-side factors are available in Bremen and Hamburg. Bremen, for example, did not account current stock for nurses working in outpatient dental and physician practices or for self-employed midwives. Furthermore, training is only accounted for one type of nursing, without considering nursing assistants or nurses for the elderly. Because the age distributions are gathered from the German microcensus, data on age distributions for these four professions on state basis are not valid for city states like Bremen and Hamburg.

Table 5: Data availability of the supply-side for the professions (except doctors) for the states Bremen and Hamburg

	Supply	Bremen	Hamburg
Nurses	Current stock	Incomplete	--
	Training	Incomplete	Yes
	Retirement	--	--
	Immigration	--	--
	Emigration	--	--
Midwives	Current stock	Incomplete	--
	Training	--	Yes
	Retirement	--	--
	Immigration	--	--
	Emigration	--	--
Pharmacists	Current stock	Yes	Yes
	Training	Weighted	Weighted
	Retirement	--	--
	Immigration	--	--
	Emigration	--	--
Dentists	Current stock	Yes	Yes
	Training	Weighted	Weighted
	Retirement	--	--
	Immigration	--	--
	Emigration	--	--

Sources: Statistical Office Bremen 2014; Statistical Office North 2014; Federal Statistical Office 2012; Federal Statistical Office 2014b

Methods

As written in the MDS, indicator 3 was calculated as indicated in Figure 5.

Figure 5: Formula Indicator 3

Numerator: Future supply domestic + Future potential supply from abroad Denominator: Future demand **Articulated by:** Profession, specialization within the profession, geographical area
Numerator: Future supply Future supply domestic= current stock + from education - retired Future potential supply from abroad = + immigration - emigration **Current stock**: Current number of professionals (headcount and full time equivalent) that are currently producing health care stratified by type (5 types) and age. **From education**: Forecast of number of professionals (headcount) that complete education (basic or specialist) and are licensed to practice during the period. The first years will be calculated on the basis of the current students in training; subsequently the actual training capacity (average of the statistics of the last years) will be used. **Retired:** Forecast of number of professionals (headcount) that will retire each year using the actual probability. **Immigration:** Forecast of number of licensed and recognised professionals (headcount) that may enter the country calculated using the average of the last years. **Emigration:** Forecast of number of practising professionals (headcount) that may leave the country calculated using the average of the last years.

Denominator: Future demand

Future demand = $HWF_{px}=k_p * HCT_x$ where

$HCT_x = (HC1_0 * Pop1_x + HC2_0 * Pop2_x + HC3_0 * Pop3_x)$

HWF_{px} : The demand of a specific profession "p" (headcounts) in the year x.

k_p: The constant that connects the total health production with the demand for a specific profession.

HCT_x: The total health consumption in year x.(1)

$HC1_0$: The pro capita consumption of age group 1 in year 0 (basic year)

$HC2_0$: The pro capita consumption of age group 2 in year 0 (basic year)

$HC3_0$: The pro capita consumption of age group 3 in year 0 (basic year)

$Pop1_x$: The population of age group 1 in year x.

$Pop2_x$: The population of age group 2 in year x.

$Pop3_x$: The population of age group 3 in year x.

(1) **Note:** it is important to check the sustainability of the total health consumption in year x compared with the current consumption.

Source: MDS[15], p.31

Figure 6: Model assumptions Indicator 3

Model assumptions

For these analyses, we could only use headcounts. There were no FTEs available.

Demand side: Because there was no specific data available, we used the same sources for the demand as we used for indicator 1. Exceptions are the specializations pediatrics and gynecology. We used data on children 14 and younger for pediatrics and women aged 15 and over for gynecology.

Supply Side:

Specialization: The number of graduates is published for students who studied medicine in general. To estimate the number of graduates for specific sub-disciplines, the number of overall graduates was weighted by the amount each discipline has on all doctors.

Geographical Area: Areas were defined at state level (Bremen and Hamburg) owing to good data availability and scope of this feasibility assessment. To estimate the number of graduates starting to work in each of the two states, the number of overall graduates was weighted by the amount of inhabitants in each state.

Results

This indicator was estimated for either geographical area or specialization. Data for a combined analysis of geographical area and specialization is not available at the moment.

Geographical Area – Results for Bremen and Hamburg

Based on indicator 3, in 2028 Bremen will have a remarkable shortage of doctors (with a result for indicator 3 at 0.512). Hamburg will have a shortage as well, but not as significant as Bremen with an indicator 3 of 0.865. The result for Bremen rests on Bremen not having a medical school and the formula not explicitly modelling mobility between different regions of a country.

Specialization – Examples Surgery and Internal Medicine

For both surgery and internal medicine, there will be a future shortage, with a result of indicator 3 at 0.864 and 0.855, respectively.

Discussion of data availability of indicator 3: is the MDS feasible with German data?

For indicator 3, data were available through the databases of the Federal Health Monitoring (*Gesundheitsberichterstattung)*[17]. However, migration INFLOW only contains immigration from countries within the European Union, introducing bias.

It is not possible to estimate specializations within geographical regions because of the lack of valid data.

Indicator 4: Coverage of needs by foreign professionals today and in the future

"This indicator shows the share of professionals covered by immigration. This is a potential critical issue in the light of international policy of migration and the need to introduce foreign professionals in the national system" (MDS, page 15).

Methods

As can be seen in the MDS, indicator 4 should be calculated as indicated in Figure 7.

[17] https://www.gbe-bund.de/stichworte/AERZTE.html

Figure 7: Formula Indicator 4

Numerator: N° of professionals with foreign first qualification. Denominator: Total n° of professionals. **Articulated by:** Profession, specialization within the profession, geographical area
Numerator: N° of professionals with foreign first qualification. **Current stock of professionals with foreign qualification:** The part of the current stock with country of first qualification <> current country of activity. **Future stock of professionals with foreign qualification:** The part of the future stock with country of first qualification <> current country of activity.
Denominator: Total n° of professionals. **Total current stock**: Current number from indicator 3. **Total future stock:** Numerator of indicator 3

Source: MDS[15], p.32

Results – doctors only

Data on the migration stock is available for doctors from the german medical association (2015). Because we do not know how many of the immigrated doctors leave Germany after a while we had to assume that all doctors who came to Germany with a foreign qualification stay in the country. For today, we therefore calculated a share of professionals covered by immigrants of 10.14 % of all practicing doctors (headcount). For the future (year 2028) we calculated a share of 19.27 %, which might be due to the assumption that all immigrated doctors stay in Germany.

Discussion of data availability of indicator 4: is the MDS feasible with German data?

Data on migration is only collected for doctors. As mentioned above, most of the *chambers of dentists and pharmacists* state to not collect these data.

The german microncensus also contains data on migration by profession. However, these data source can not be used for two reasons: On the one hand, the number of cases is too small to give valid statements and on the other hand, the microcensus does not distinguish between nurses and miwives and doctors and dentists.

Accordingly, the coverage of needs by foreign professionals today and in the future can only be estimated for doctors in general – but not further detailed as for specializations within the profession or for geographical area.

Indicator 5: Number of professionals per inhabitant today and in the future

"This indicator shows real figures of the number of professional per inhabitant but might not be connected to the differences in age of the population" (MDS, page 16).

Methods

As can be seen in the MDS, indicator 5 was calculated as indicated in Figure 8.

Figure 8: Formula Indicator 5

Numerator: N° of professionals Denominator: population **Articulated by:** Profession, specialization within the profession, geographical area
Numerator: Actual number of professionals **Actual number of professionals:** From indicator 3 **Future number of professionals:** From indicator 3
Denominator: population Actual population: Number of population (without weighting) **Future population:** Number of population (without weighting) from a reliable institute of forecasting.

Source: MDS[15], p. 32

Results

Table 6: Results of Indicator 5 for 2011 and 2028, in headcounts

	Doctors	Nurses	Midwives	Pharmacists	Dentists
2011	342000	2171000	21000	61000	69000
2028	327647	2079890	20119	58440	66104
% of population	0.42	2.67	0.02	0.07	0.08

Discussion of data availability of indicator 5: is the MDS feasible with German data?

This indicator can be calculated for all five professions on a general basis (without dividing by geographical area or specialization). Regarding specialization within the profession and the geographical area, it could only be estimated for doctors because of limited data availability for the other professions.

Indicator 6: Number of professionals per weighted inhabitant today and in the future

"This indicator makes it possible to compare different countries or different regions within a country" (MDS, p.16).

Methods

As can be seen in the MDS, indicator 6 was calculated as indicated in Figure 9.

Figure 9: Formula Indicator 6

Numerator: N° of professionals Denominator: weighted population **Articulated by:** Profession, specialization within the profession, geographical area
Numerator: Actual number of professionals **Current number of professionals:** From indicator 3 **Future number of professionals:** From indicator 3
Denominator: population **Current population:** Number of inhabitants weighted by health consumption for each age group (average current EU countries). **Future population:** Number of population from a reliable institute of forecasting weighted by health consumption for each age group (current average of EU countries).

Source: MDS[15], page 32

The weights used for calculating the indicator 6 are shown in Table 7.

Table 7: Italian population weights per age group and gender

Age group	Male	Female
0-14	0.6	0.6
15-64	0.9	1.1
65+	3.2	2.8

Results

Table 8: Results of Indicator 6 for 2011 and 2028, in headcounts

	Doctors	Nurses	Midwives	Pharmacists	Dentists
2011	342,000	2,171,000	21,000	61,000	69,000
2028	361,435	2,294,370	22,193	64,466	72,921
% of weighted population	0.31	1.97	0.02	0.06	0.06

Discussion of data availability of indicator 6: is the MDS feasible with German data?

This indicator can be calculated for all five professions on a rough basis (without dividing by geographical area or specialization). Regarding the specialization within the profession and the geographical area, it could only be estimated for doctors because of data availability.

The equation for indicator 6, given in the MDS, should be more specific concerning the calculation of the country-specific weights.

3.7 Summary: Using the MDS within the German context shows mobility as the weak link

The data needed for calculating all six indicators of the MDS are mostly – apart from migration (in- and outflow) – available in Germany for the five professions. Data on migration is only available for doctors. This particularly matters when forecasting the nursing workforce with these MDS indicators, as recent developments indicate a factual reliance on a migrated workforce that is not verifiable with the available data. Trying to forecast the health workforce in different geographic areas or by specializations with the MDS is challenging, as German data sources for all professions except physicians are better suited for national estimates. There are no data available on demographic indicators divided by geographical area or specialization for dentists, pharmacists, midwives, and nurses.

Based on the results of this feasibility assessment for Germany, the MDS can be used for forecasting the physician health workforce at both national and regional (state) levels. As medical schools are unequally distributed across federal states and therefore also serve other states, supply side projection have to address mobility within Germany. Hypothetically assuming that migration does not occur in the professions of midwives, dentists and pharmacists, indicator 1 (coverage of future demand) of the MDS may supply valid results. For nurses, the MDS does likely not deliver valid results because migration needs to be taken into account when forecasting the workforce. Moreover, as long as long-term care expenses are neglected the future demand is underestimated. When it comes to the more detailed indicator 3 – forecasting within specializations and / or geographical areas – the German data sources supply sufficient data on doctors, but not on the other four professions. Indicator 2 on relative affordability could be calculated very easily as it required only few separate data sources. In comparison, indicator 4 on the coverage of needs by foreign professionals today and in the future could only be estimated for doctors because – concerning the other four professions – there is only little data on the current stock with foreign qualification and only for broad profession categories (nurses and midwives as one profession). Finally, indicators 5 and 6 could be estimated for all professions, but detailed analyses were only possible for doctors. Concerning indicator 6 we have to admit, that the MDS should be more specific concerning the calculation of the population weights.

In brief: German data sources and health monitoring already offer a wide range of information concerning the health workforce. Since these are not collected with the aim of systematic forecasting and health workforce planning, format and availability are not necessarily in line with the MDS requirements.

4 Handbook and MDS 2.0: Recommendations for future iterations

The feasibility study was proposed to test the handbook and MDS against a country system that is dissimilar to the context the good practice examples were selected from. **The aims of this study were to elicit German stakeholders' views on the current state of planning, to identify needs for a handbook, and to make suggestions for a follow-up version of the handbook.**

Results show that all of these aims were reached. However, the needs expressed for a handbook were limited.

In brief: Implications of a handbook for German planning practices cannot be gauged by this feasibility assessment. The aim of this exploratory study was to learn more about stakeholder needs from such a handbook. More research together with German stakeholders is needed on implementation opportunities.

What can we nonetheless learn from the German state-level assessment for future handbook versions?

First, a handbook collecting ideas and practice examples is recognized as valuable and of interest. The scope, aims, and contents of the current handbook are contested, however. Given the number of stakeholders involved in both workforce planning in Europe, and in the Joint Action, this is not surprising. For the German context, two options are conceivable: a) tailor the handbook to stakeholders' needs, or b) find sufficient overlap between the current book and the expressed wishes of stakeholders to find commion ground. Ideally, a combination of the two can be achieved. Strengthening the idea of policy learning as the objective of the handbook could increase its acceptance. This would remove the stigma of prescriptive interference from EU level or other member states, and encourage solutions from within the system that are inspired by external developments. To achieve this goal, the handbook scope would change towards the underlying principles of individual practices, and focus on how to apply these principles to different contexts.

Based on the interview study and our analysis, **the following recommendations for future iterations of the handbook are suggested:**

The future handbook is a flexible tool to guide not only governmental agencies but also links to stakeholder interests

Designed as an interactive website, for instance, the handbook allows users to select reading paths from different point of views. Not only does this make it possible for professions and planners to find examples from other countries and systems pertaining to their practice, it enhances trans-disciplinary learning between planners, policymakers, and professions. The current scope on only nationally guided planning approaches is resolved.

The scope of practices is broadened to systems with less planning, with regional instead of national focus, and with different status profiles of professions

The use of the term best practices is reconsidered to acknowledge that scientific evaluation data on what constitutes needs and met needs in healthcare is sparse. The handbook includes practices from countries with diverse planning backgrounds to maximize applicability to all systems.

In the next version of the handbook, innovation is presented rather than (only) status quo of practices

Creative ideas for solutions to common issues in health workforce planning are presented alongside what is currently done. In this manner the handbook encourages thinking outside the box, aware that similar problems occur in health systems across Europe regardless of type of planning approach. Cooperation to develop novel approaches is encouraged, and societal change towards equity an important aim of listed practices.

The future handbook is an information source that clearly states its limitations and intentions

The handbook strives to complement informal networking between stakeholders at European level. Its voluntary and informational nature is acknowledged, and the limits to comparability between planning systems clearly stated. The normative basis of the handbook is explained, as it influences selection of practices. Limits to European involvement in national systems are acknowledged.

For a future version of the MDS, the role and measurement of “in-between exits” needs to be clarified. These are people exiting the system temporarily, i.e. for parental leave. Including their potential to work in their profession again in the future into projections is a challenge. Further insight

are needed into possible mechanisms to correctly assess and project their contribution to the future workforce. Additionally, it is possible that data on migration, while important, cannot be included in the MDS for all projections based on current migration data collection practices. Furthermore, it should be specified in the MDS how to calculate the population-weights needed for indicator 6.

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Appendix

A. Interview guideline

A. Interview guideline and script [in German]

Herzlich Willkommen und vielen Dank, dass Sie sich die Zeit nehmen an unserem Gruppengespräch teilzunehmen. Mein Name ist Melanie Böckmann, ich bin Gesundheitswissenschaftlerin und wissenschaftliche Mitarbeiterin am ZeS im Projekt, und habe die Joint Action von Anfang an, also seit 2013 begleitet. Meine Kollegin, Frau Düsterhöft, ist ebenfalls im Projekt beschäftigt.
Wie im Einladungsschreiben bereits erwähnt ist dieses Projekt Teil eines europäischen Projektes zwischen mehreren Mitgliedsstaaten, finanziert durch die europäische Kommission. Es geht dabei um den Austausch zu Methoden und Problemen der Bedarfsplanung. Die Ergebnisse der Fokusgruppe gehen in einen Bericht ein, der später Teil des Abschlussberichts wird und an die europäische Kommission gegeben.
Im Rahmen der Joint Action entstand ein Handbuch zur Bedarfsplanung mit Praxisbeispielen aus sieben europäischen Ländern (NL, BE, UK, NOR, FIN, SPA, DK). In diesen Beispielen wird jeweils ein Aspekt der Planung, z.B. Datenerhebung, Zielsetzung der Planung, oder auch Beteiligung von Interessensvertreter_innen, in der Praxis des jeweiligen Landes erläutert. Ziel des Handbuches ist es, für andere Länder Hinweise zu geben, wie Aspekte der Bedarfsplanung gestaltet werden können. Unsere Aufgabe am ZeS ist es nun, mit Ihnen zusammen zu diskutieren, welche Änderungswünsche an die Bedarfsplanung Sie bzw Ihre Organisationen haben - und ob Sie denken, dass ein solches europäisches Beispielhandbuch auch für das deutsche System und die deutsche Praxis nützlich sein kann. Dabei ist es zunächst einmal egal ob stationäre oder ambulante Bedarfsplanung, und für welche Profession. Unsere Aufgabe ist es, den grundsätzlichen Nutzen des europäischen Austauschs für die Thematik der Bedarfsplanung mit Ihnen zu diskutieren.
Wir haben ca. 60-90 Minuten für das Gespräch eingeplant. Wenn Sie damit einverstanden sind, würde ich unsere Diskussion gerne auf Tonband aufnehmen, damit später die Auswertung leichter wird. Diese Aufnahmen verbleiben im ZeS und werden nicht an andere weitergereicht. Ist die Aufnahme für alle in Ordnung?

Schön, vielen Dank! Kennen Sie sich bereits gegenseitig?
Im Anschluss haben wir 3 offene Fragerunden mit Ihnen vor: zunächst eine, in der Sie die Möglichkeit haben, die Punkte zu nennen, die Sie an der Bedarfsplanungspraxis in Deutschland gerne ändern möchten. In einer zweiten Runde geht es dann darum zu sehen, ob Sie bei der Umsetzung dieser Wünsche von europäischen Beispielen profitieren könnten. Und in der dritten Runde können Sie noch einmal Punkte vorbringen, die wir noch nicht angesprochen haben.
….
Dann lassen Sie uns doch direkt einsteigen in die erste Runde.

Runde 1
Wenn Sie irgendetwas an der Bedarfsplanungspraxis in Deutschland ändern könnten, was wäre das?

Runde 2
Würde ein Praxisbeispiel aus anderen Ländern Ihnen helfen bei der Umsetzung Ihrer Änderungswünsche?

Könnten Sie sich vorstellen, dass generell ein Handbuch mit Praxisbeispielen aus anderen Ländern nützlich wäre, um im deutschen Kontext Änderungen zu planen und durchzuführen?

Runde 3
Herzlichen Dank. Zum Abschluss würde ich Ihnen gerne noch einmal das Wort geben für eine offene Runde: gibt es irgendwelche Aspekte zur Bedarfsplanung, die wir bislang noch nicht erwähnt haben, die Ihnen aber wichtig erscheinen?
Haben Sie noch weitere Fragen oder Anmerkungen?

Dann bedanke ich mich noch einmal ganz herzlich für Ihre Zeit. Wenn Sie möchten, halten wir Sie über den Stand des Projektes per Email auf dem Laufenden. Gute Heimfahrt und alles Gute!