

Gesundheitspersonalbedarfsplanung als europäische Herausforderung

5. Pflegekongress | Krems | 7 Mai 2024

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Gesundheitspersonalbedarfsplanung als europäische Herausforderung

- » Die Ausgangslage
 - » Prognosen und Unsicherheit
 - » Internationale Entwicklungen
 - » Nachfrage nach Gesundheits- und Pflegedienstleistungen
- » Gesundheitspersonal
 - » Ärztliches Personal
 - » Pflegepersonal
 - » MTD
 - » Internationale Entwicklungen
- » Mögliche Antworten
 - » Public Health und Gesundheitsförderung
 - » Prävention, Versorgung, Gesundheitskompetenz, ...
 - » Value Based Health Care
 - » Digitalisierung, Primärversorgung
 - » Personalbedarfsplanung
- » Ein paar vorläufige Befunde

DIE AUSGANGSLAGE

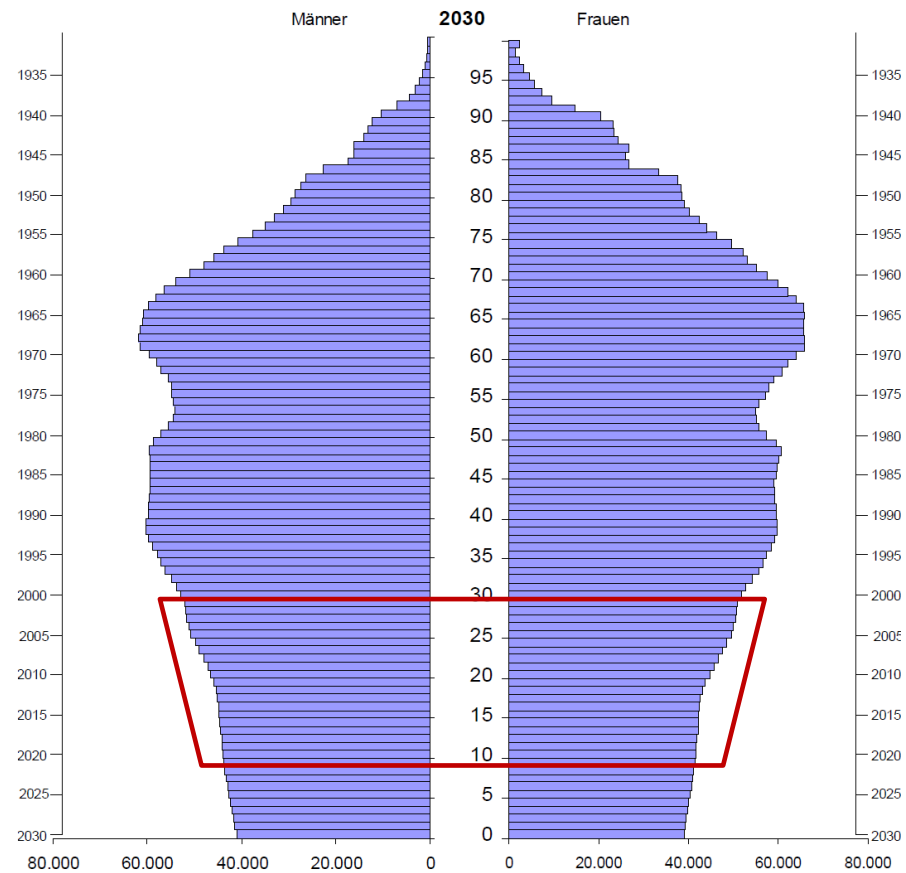
Die Ausgangslage Prognosen und Unsicherheit

» Prognose 2030 aus 2005



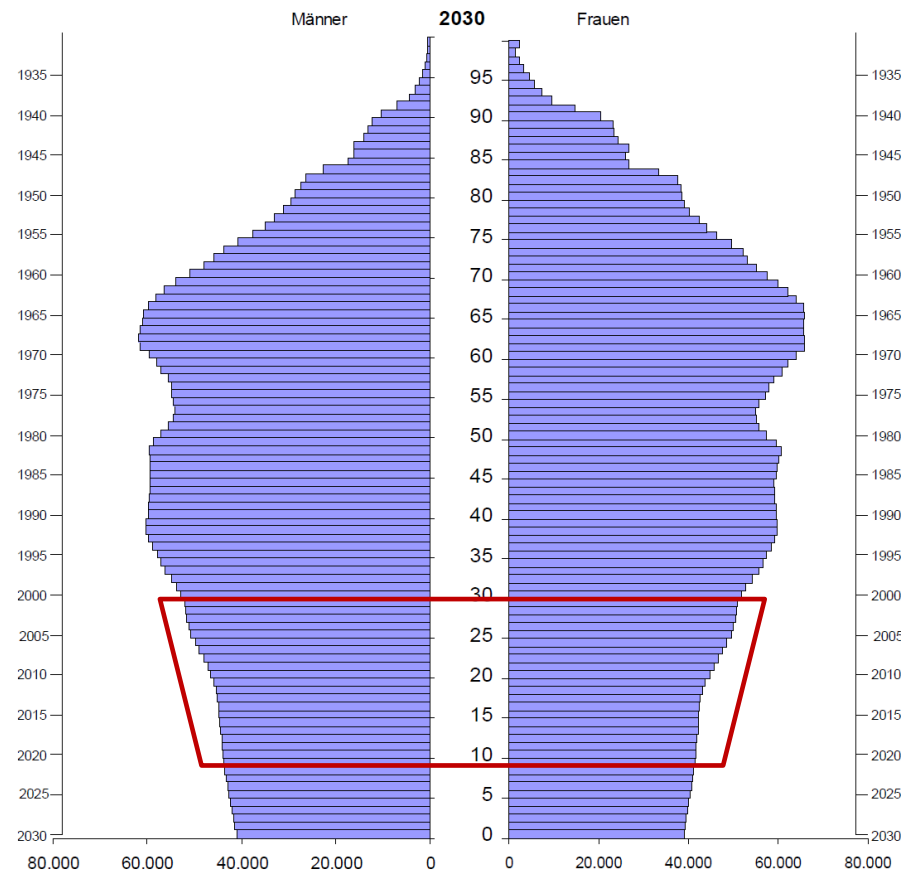
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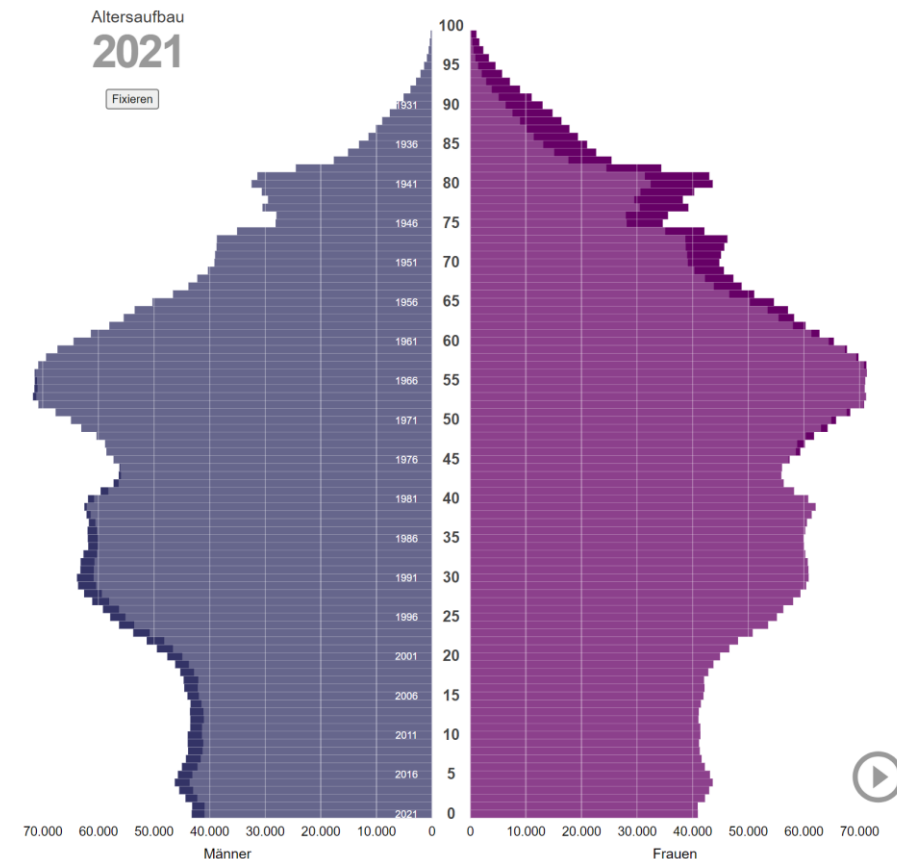


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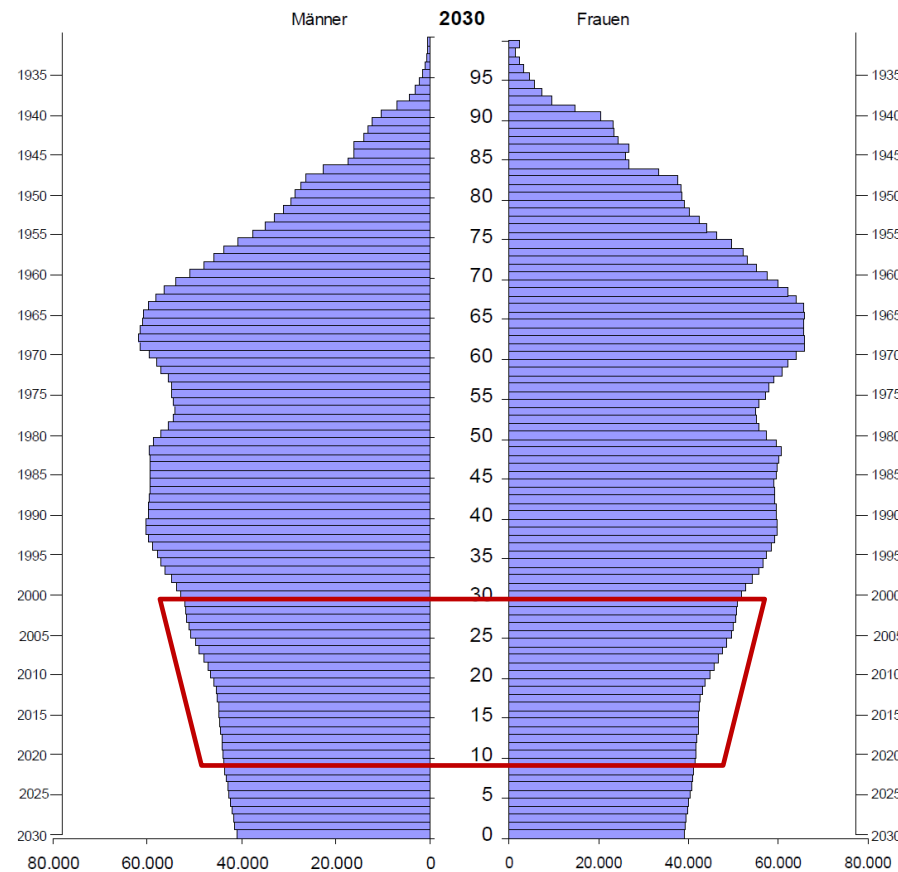


» Ist 2021

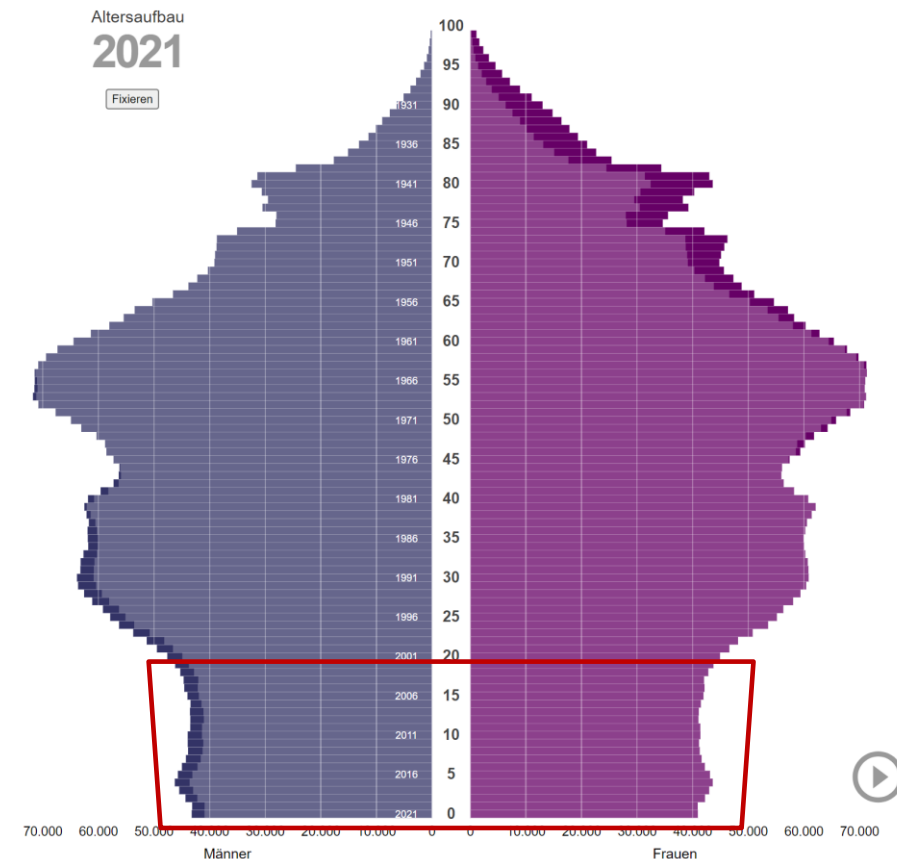


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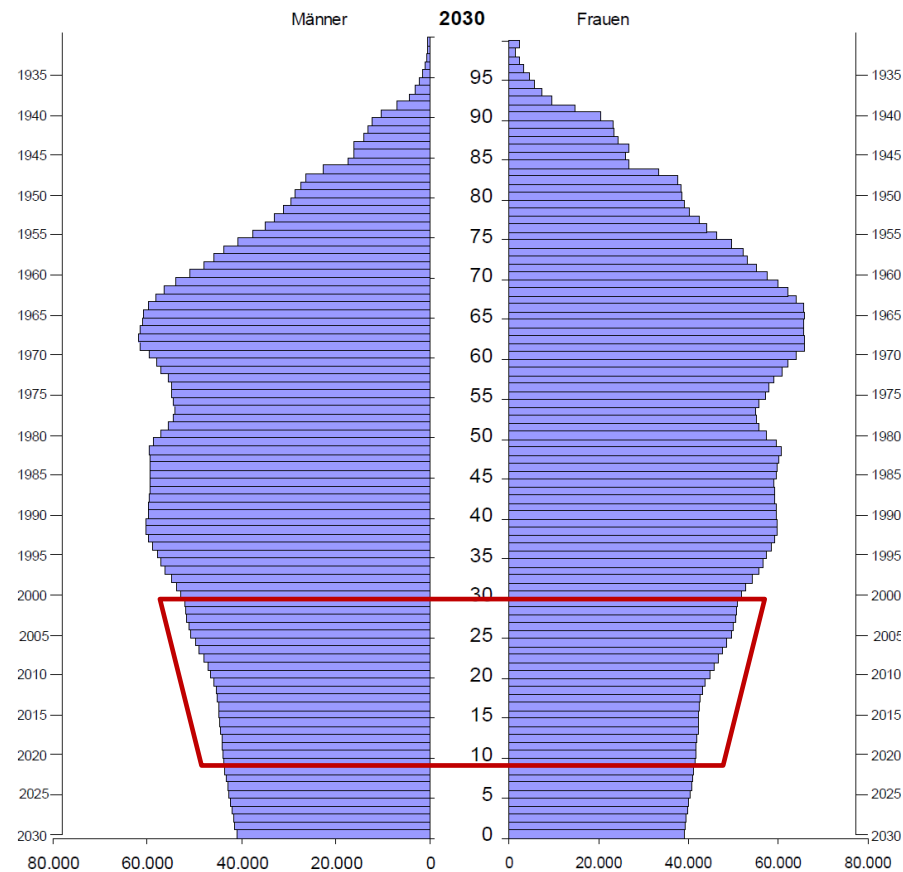


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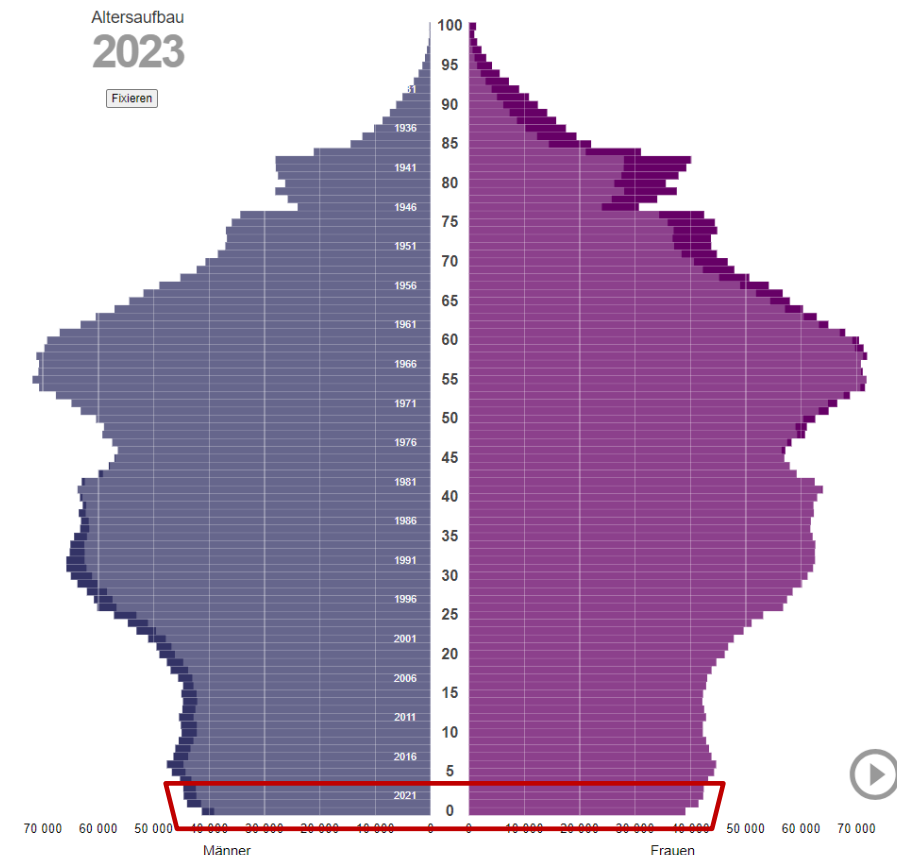


Die Ausgangslage Prognosen und Unsicherheit

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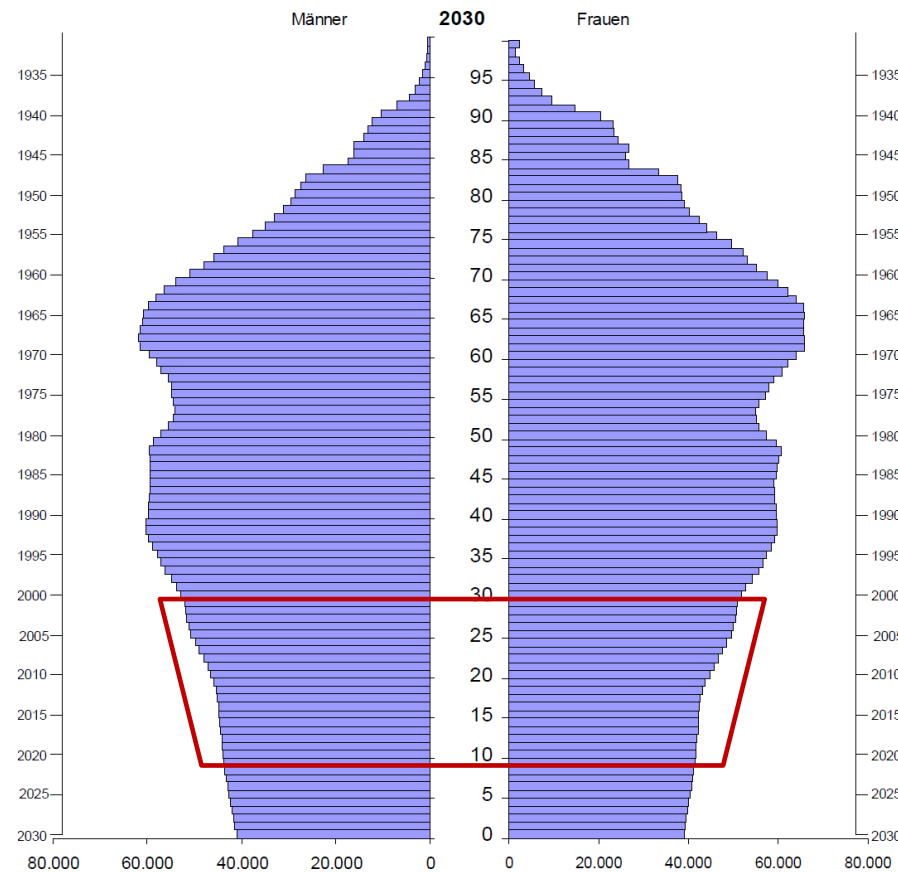


» Ist 2023

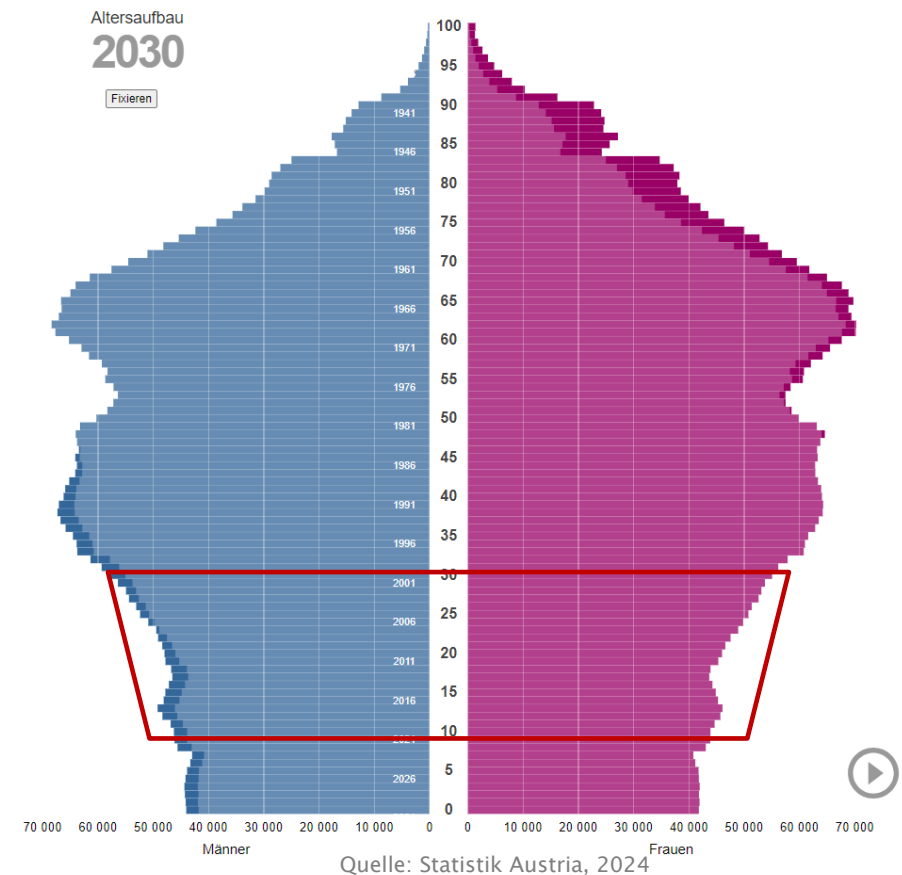


Die Ausgangslage Prognosen und Unsicherheit

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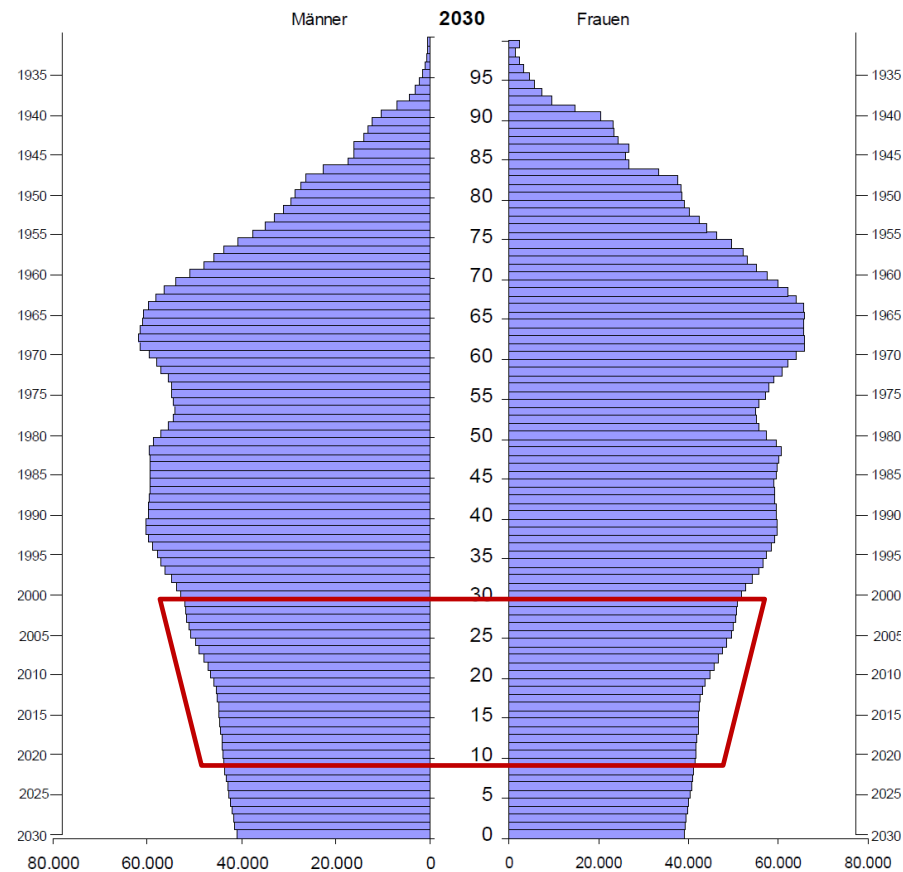


» Prognose 2030 aus 2024

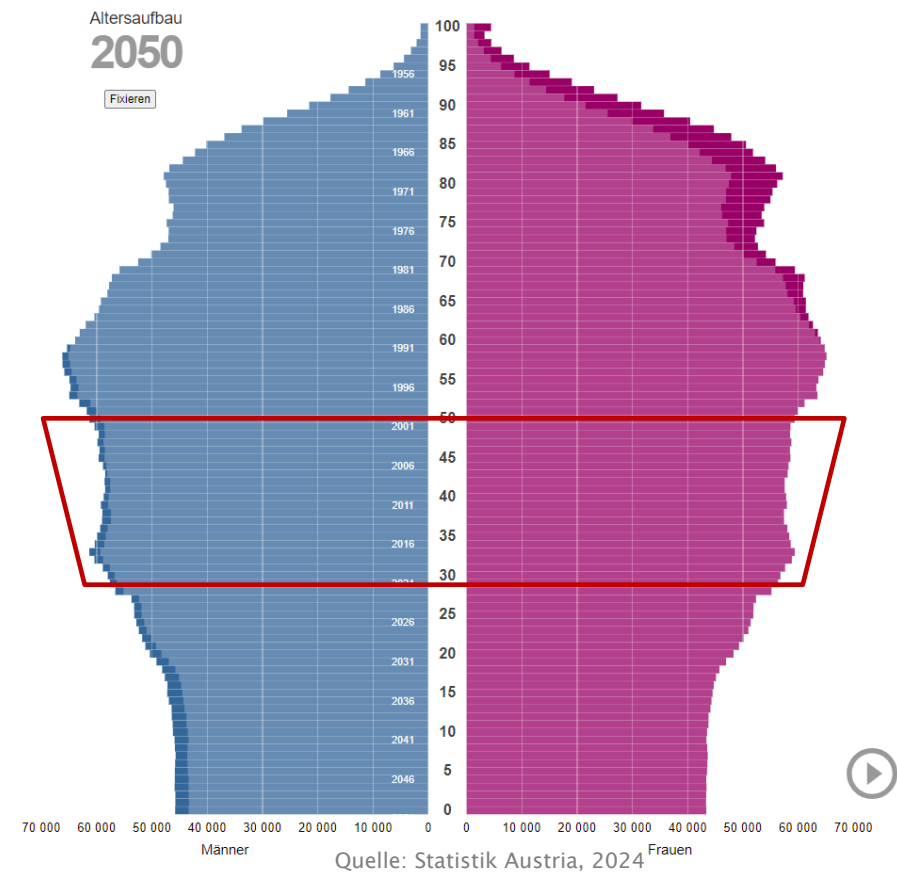


Die Ausgangslage Prognosen und Unsicherheit

» Prognose 2030 aus 2005

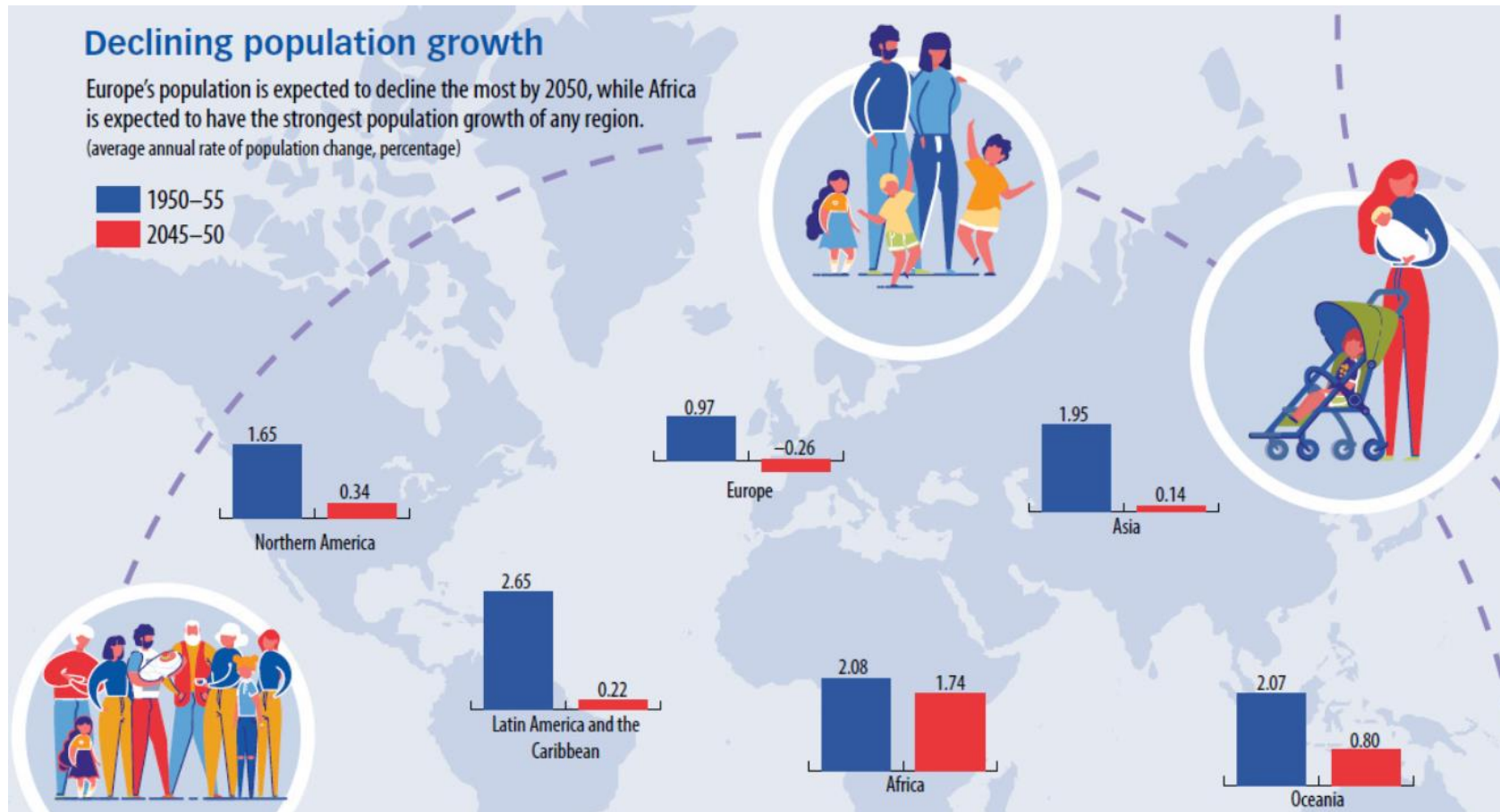


» Prognose 2050 aus 2024



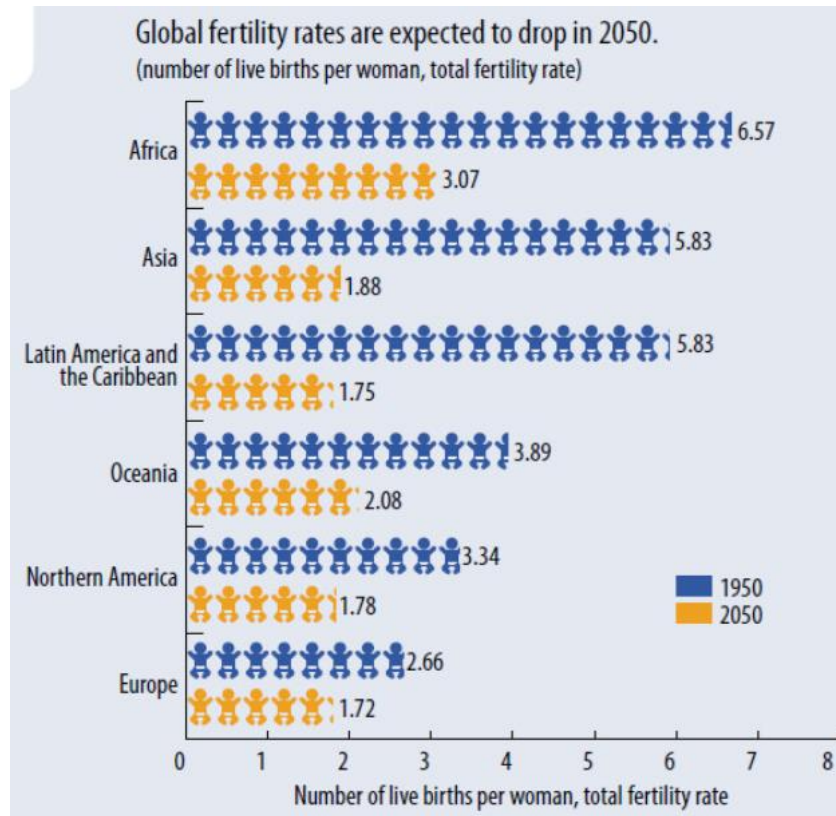
Die Ausgangslage Internationale Entwicklungen

» Bevölkerungs-“zuwachs“



Die Ausgangslage Internationale Entwicklungen

» Geburtenraten

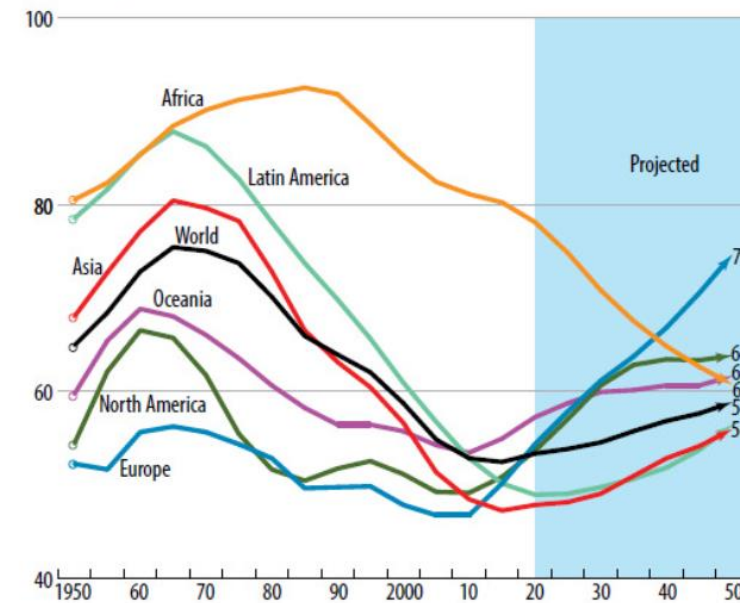


» Abhängigkeitsraten

It all depends

At 75 percent, Europe is projected to have the highest dependency ratio of the world's regions by 2050.

(dependency ratio)



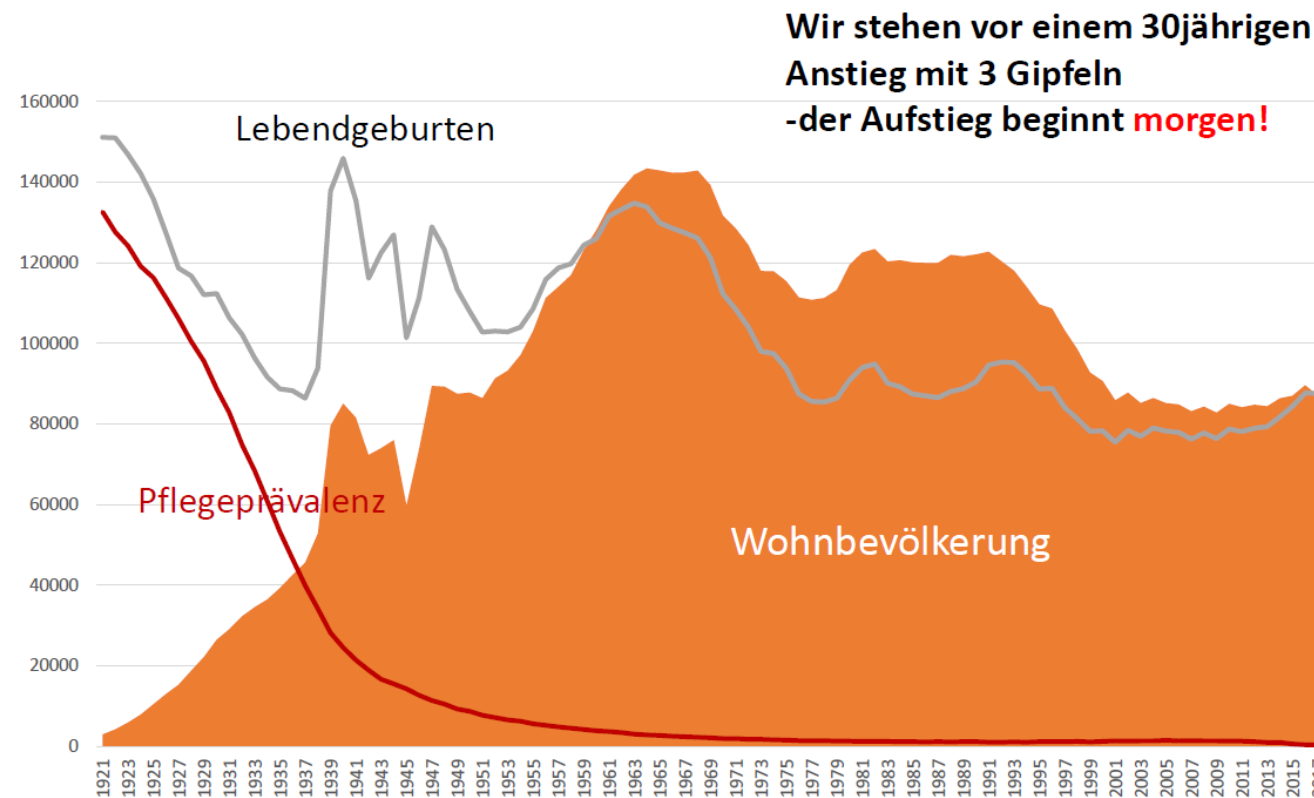
Note: The dependency ratio is the ratio of the population ages 14 or younger and 65 or older per 100 people ages 15–64.

Quelle:
<https://www.imf.org/en/Publications/fandd/issues/2020/03/infographic-global-population-trends-picture>

Die Ausgangslage Nachfrage nach Gesundheits- und Pflegedienstleistungen

Demografische Entwicklung

Stand: 1.1.2019

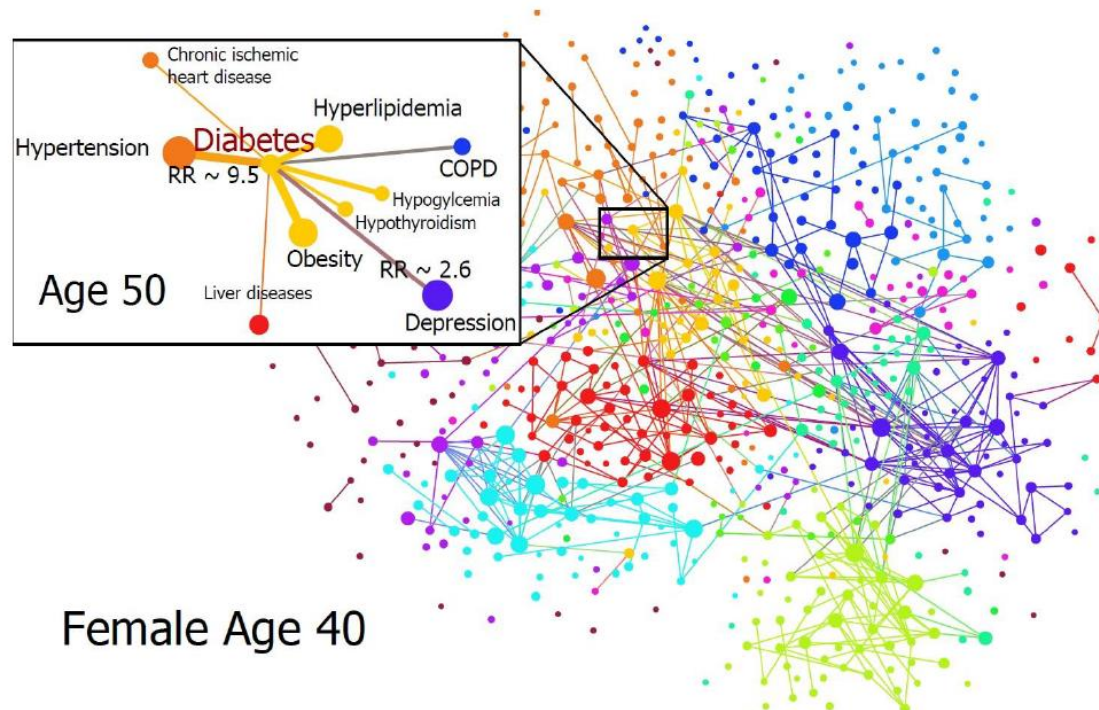


Source: Marschitz, 2019

Die Ausgangslage

Nachfrage nach Gesundheits- und Pflegedienstleistungen

Konsequenz 1: Komorbiditätsnetzwerk erlaubt Vorhersagen

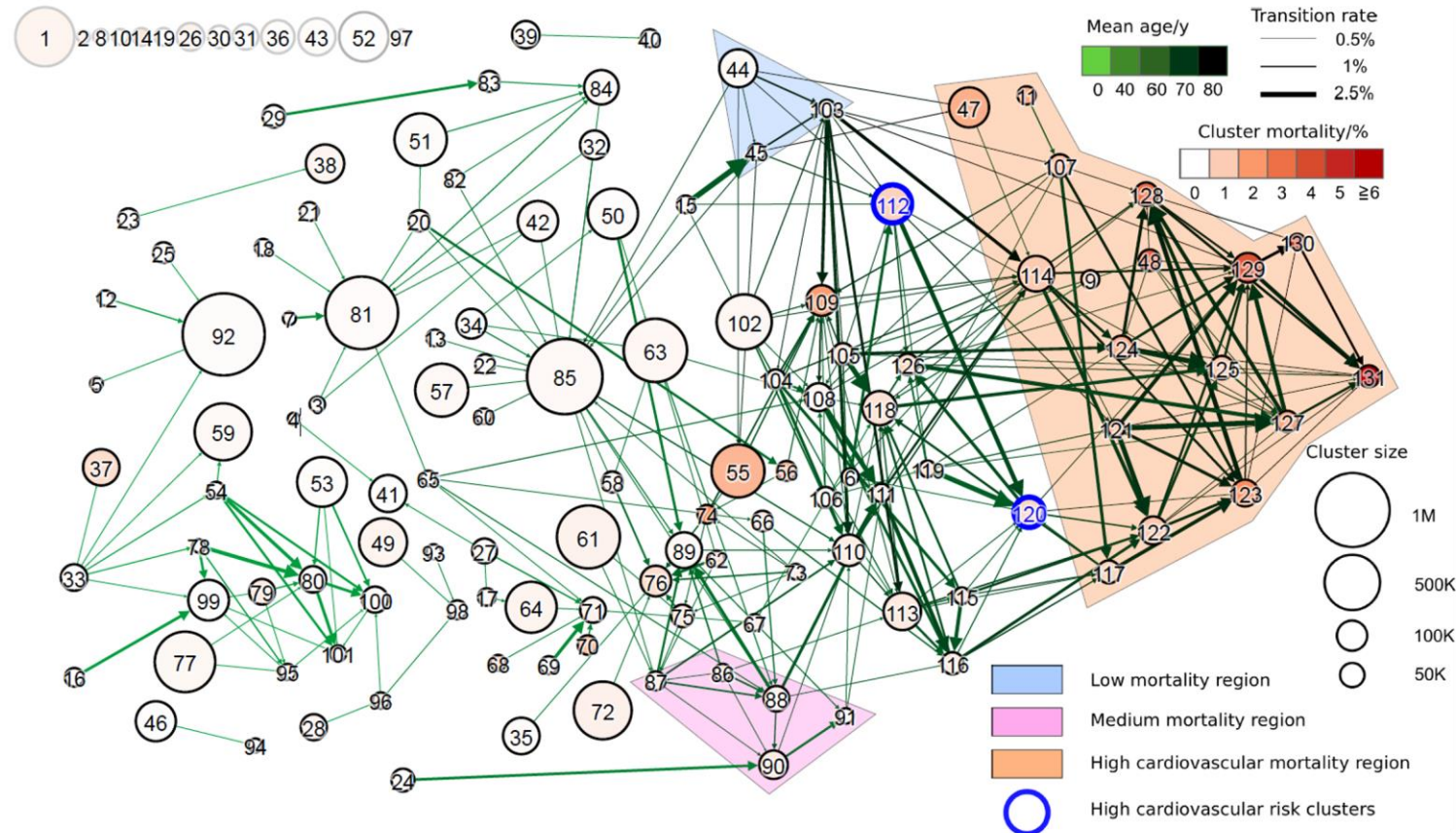


85%-95% der Krankheitsinzidenzen innerhalb der nächsten zehn Lebensjahre können extrapoliert werden

Chmiel A, Klimek P, Thurner S, New J Phys 16, 115013 (2014)

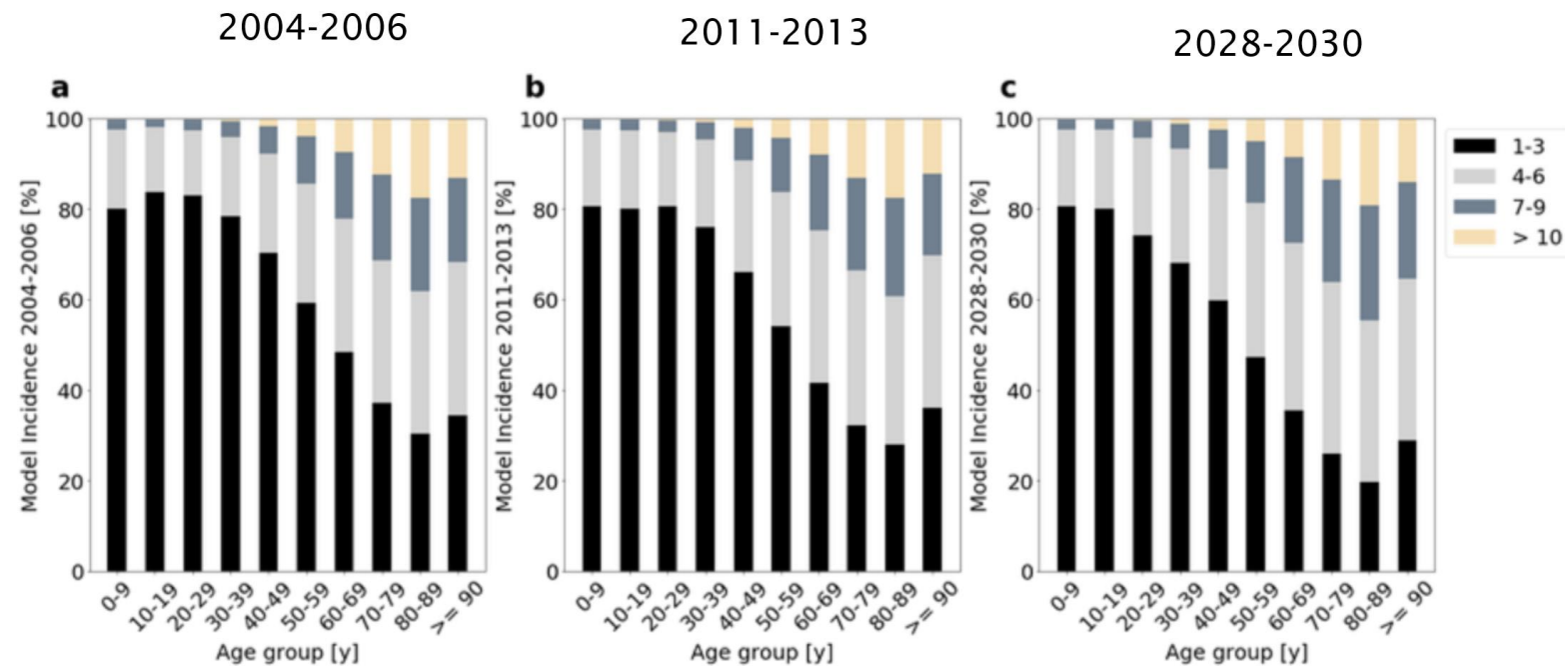
Die Ausgangslage

Nachfrage nach Gesundheits- und Pflegedienstleistungen



Die Ausgangslage Nachfrage nach Gesundheits- und Pflegedienstleistungen

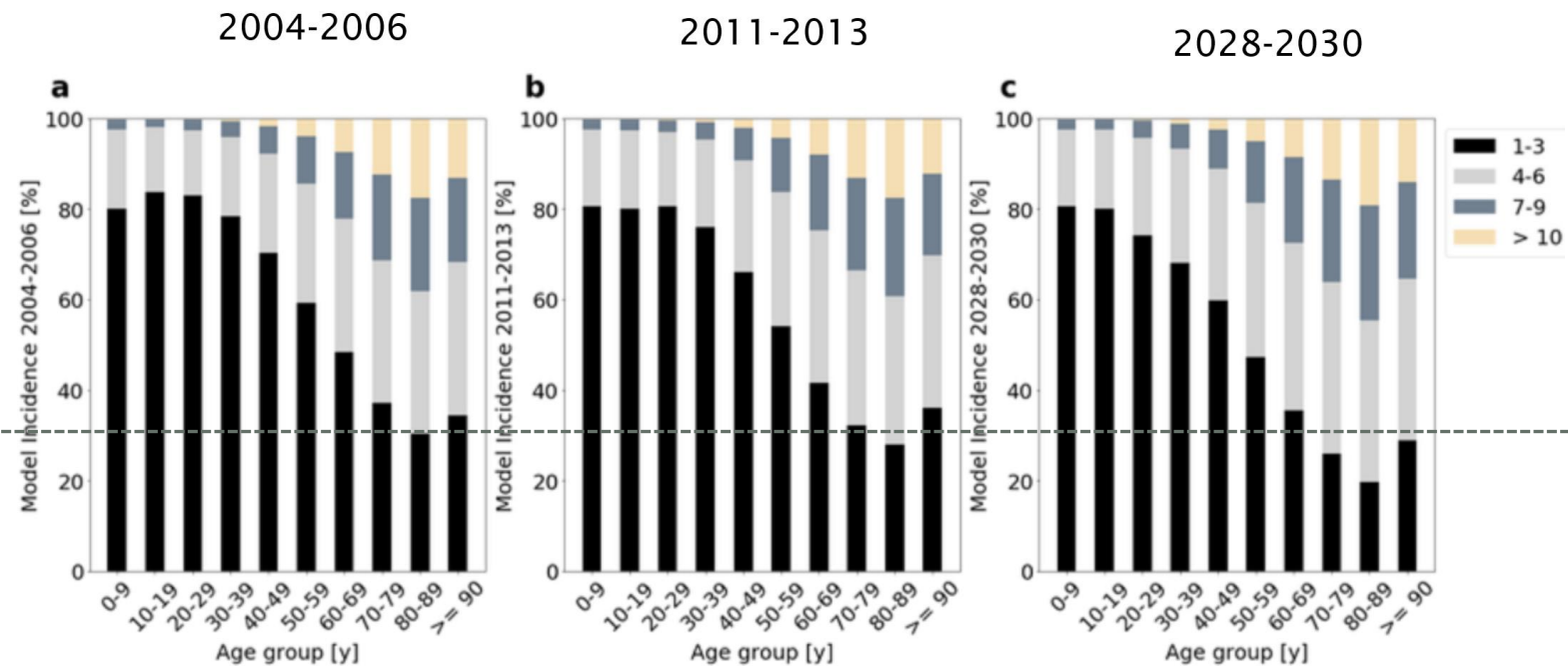
Expected development in multimorbidity



What is the percentage of the population with a given number of new diagnoses within 3y?

Die Ausgangslage Nachfrage nach Gesundheits- und Pflegedienstleistungen

Expected development in multimorbidity



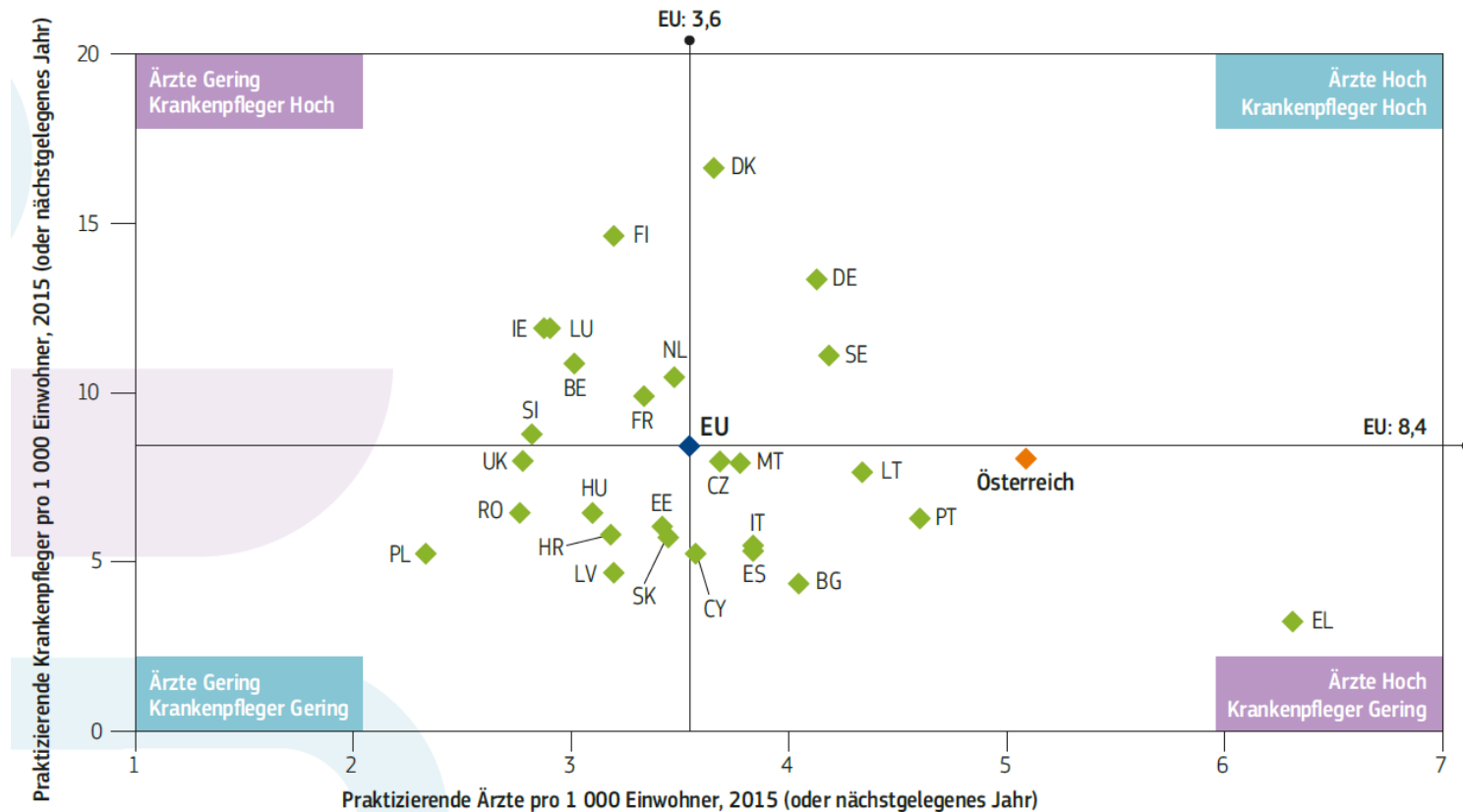
What is the percentage of the population with a given number of new diagnoses within 3y?

GESUNDHEITSPERSONAL

Gesundheitspersonal

» Daten und Interpretation (2019)

Abbildung 7. Österreich hat eine relative hohe Zahl an Ärzten



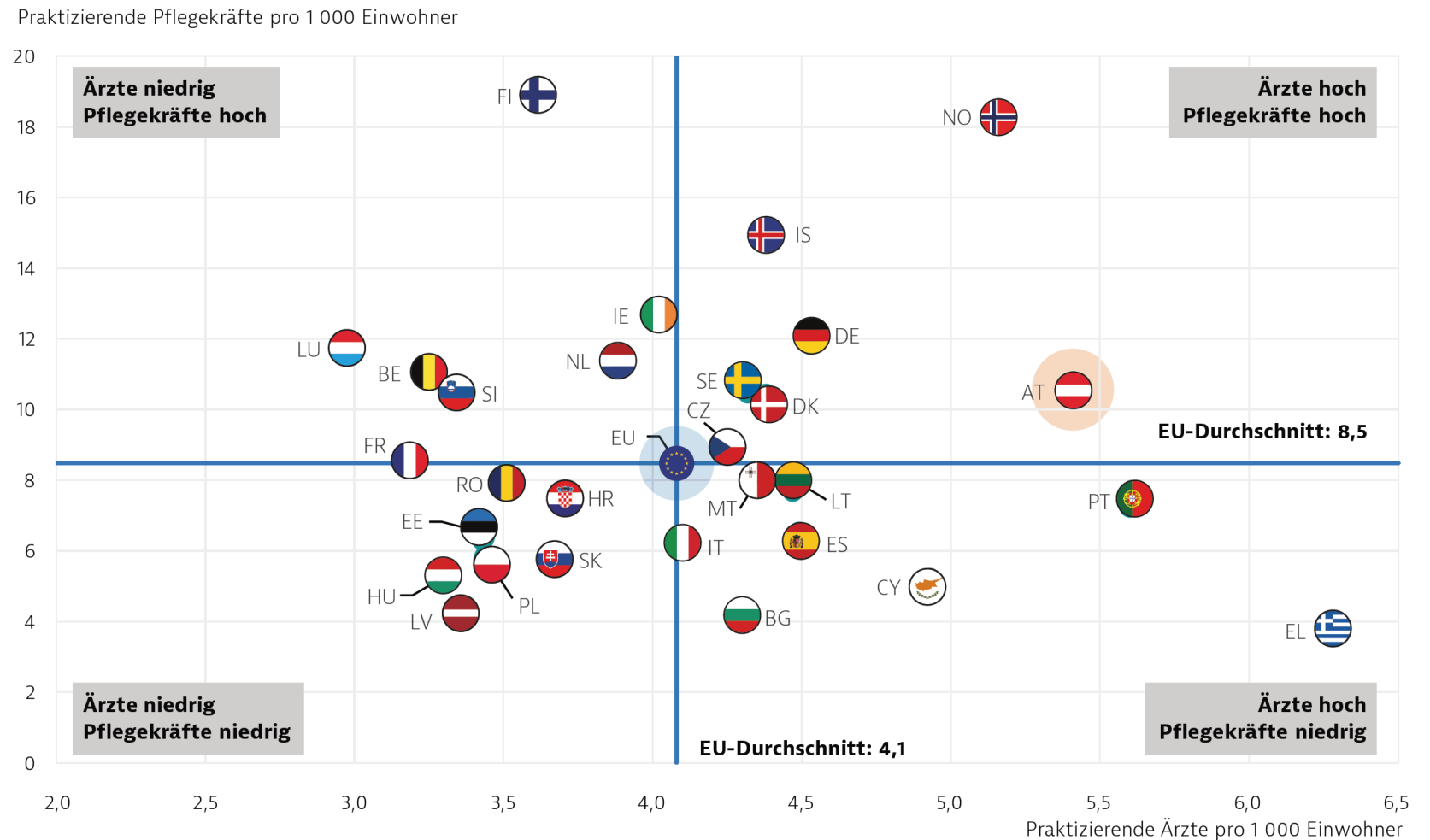
Anmerkung: In Portugal und Griechenland beziehen sich die Daten auf alle Ärzte, die eine Zulassung haben, was zu einer großen Überschätzung der Anzahl der praktizierenden Ärzte führt (z. B. ungefähr 30% in Portugal). In Österreich und Griechenland wird die Anzahl der Krankenpfleger unterschätzt, da nur im Krankenhaus tätige Pfleger berücksichtigt werden.

Quelle: Eurostat-Datenbank.

Gesundheitspersonal

» Daten und Interpretation (2021)

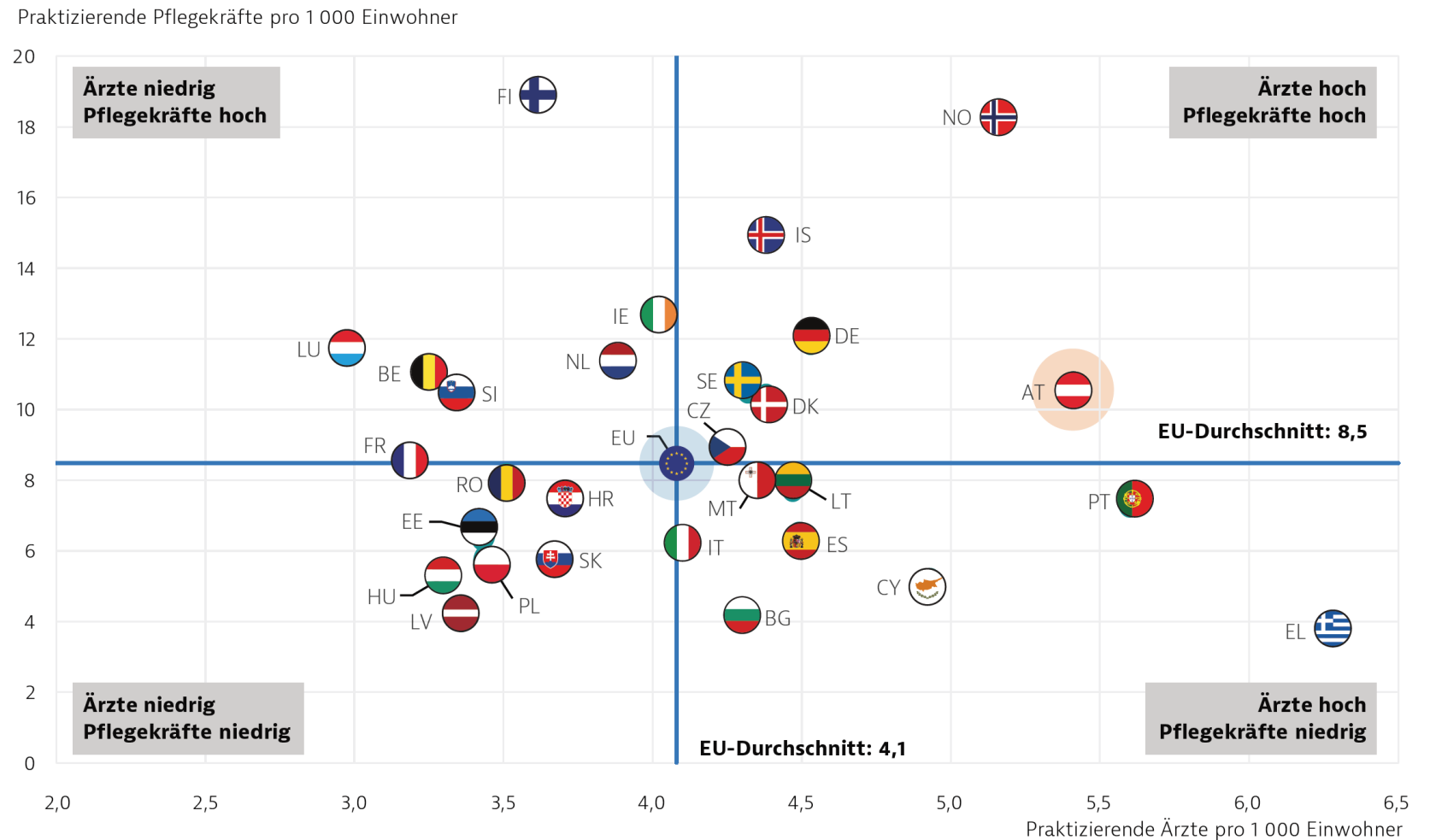
Abbildung 12: Österreich weist eine überdurchschnittliche Dichte an Ärzten und Pflegekräften auf



Gesundheitspersonal

» Ärztliches Personal

Abbildung 12: Österreich weist eine überdurchschnittliche Dichte an Ärzten und Pflegekräften auf

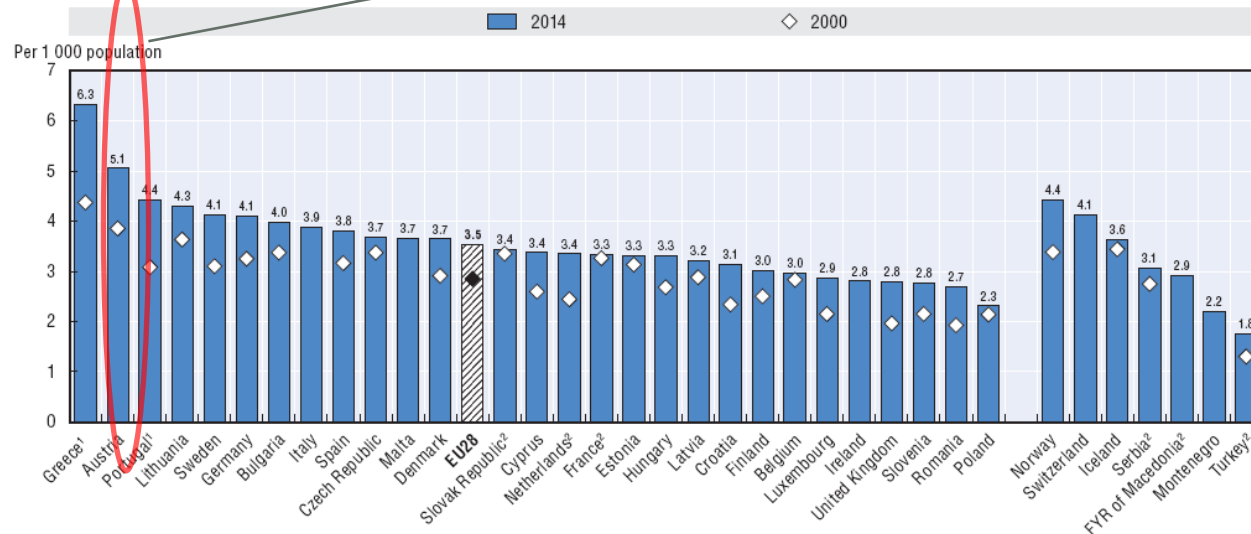


Gesundheitspersonal Ärztliches Personal

» Daten und Interpretation (ÄrztInnen)

~ 45k in total
 ~ 25k salaried in hospitals
 ~ 10k contracted physicians

7.10. Practising doctors per 1 000 population, 2000 and 2014 (or nearest year)



1. Data refer to all doctors licensed to practice, resulting in a large over-estimation of the number of practising doctors (e.g. of around 30% in Portugal).
2. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).

Source: OECD Health Statistics 2016, Eurostat Database.

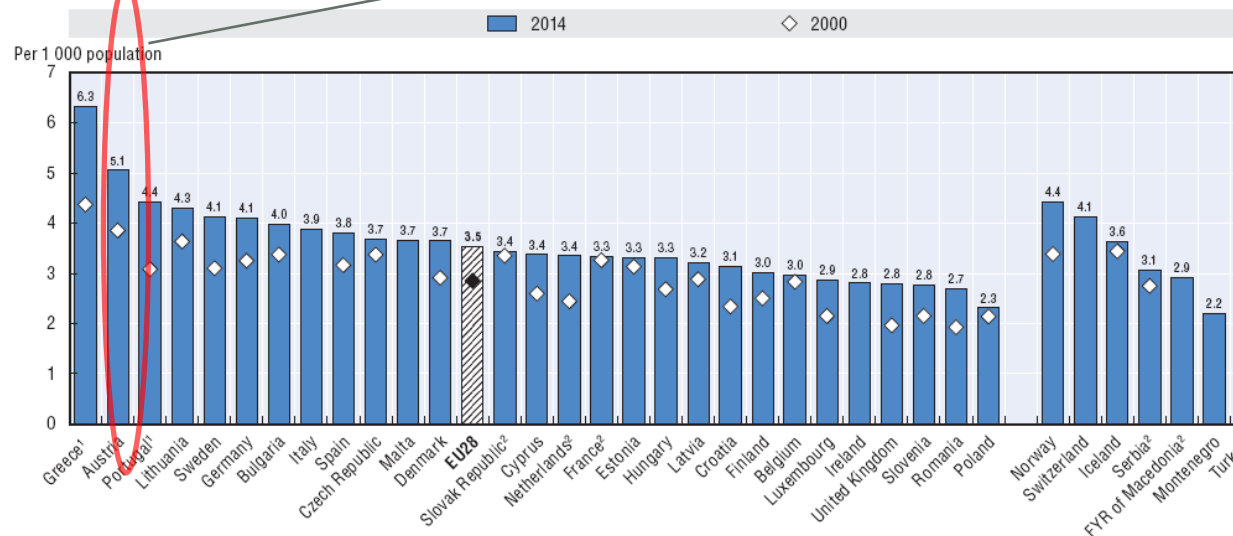
Source: OECD, 2017

Gesundheitspersonal Ärztliches Personal

» Daten und Interpretation (ÄrztInnen)

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~ 25k
~ 10k

7.10. Practising doctors per 1 000 population, 2000 and 2014 (or nearest year)

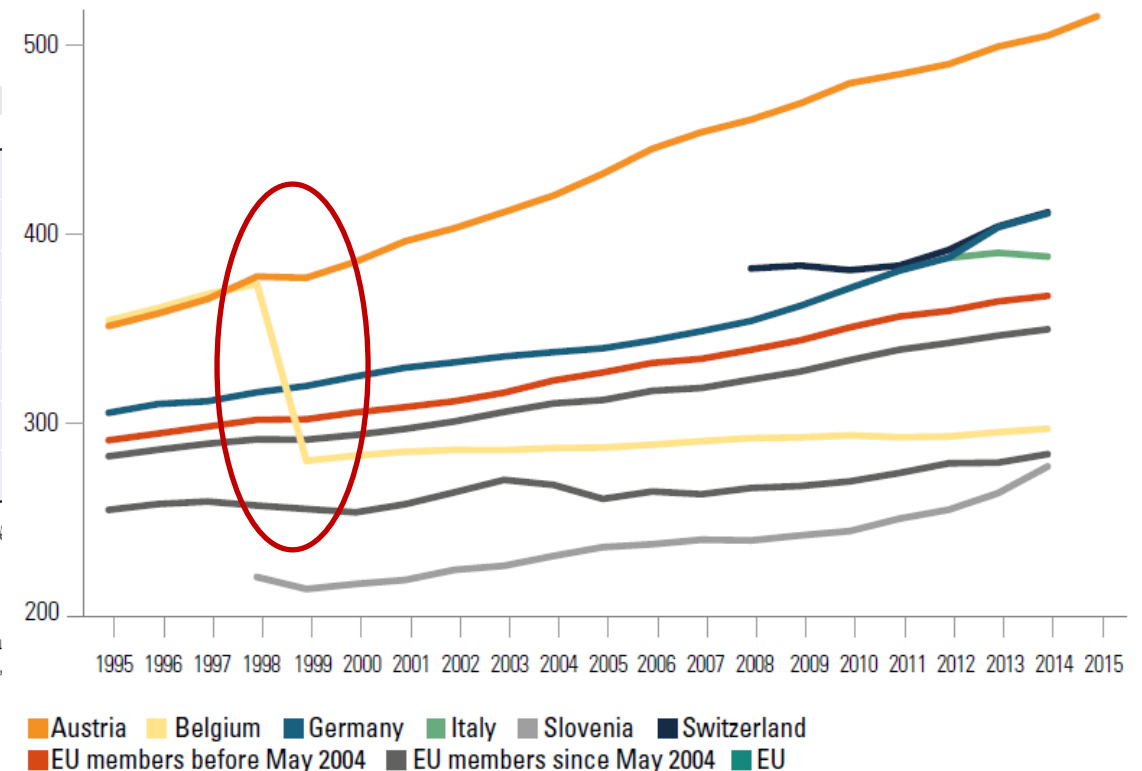


1. Data refer to all doctors licensed to practice, resulting in a large over-estimation of the number of practising doctors (e.g. of around 30% in Portugal).
2. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, (adding another 5-10% of doctors).

Source: OECD Health Statistics 2016, Eurostat Database.

Source: OECD, 2017

FIGURE 4.5 Number of physicians per 100 000 population in Austria and selected countries, 1995 to 2015 (or latest available year)

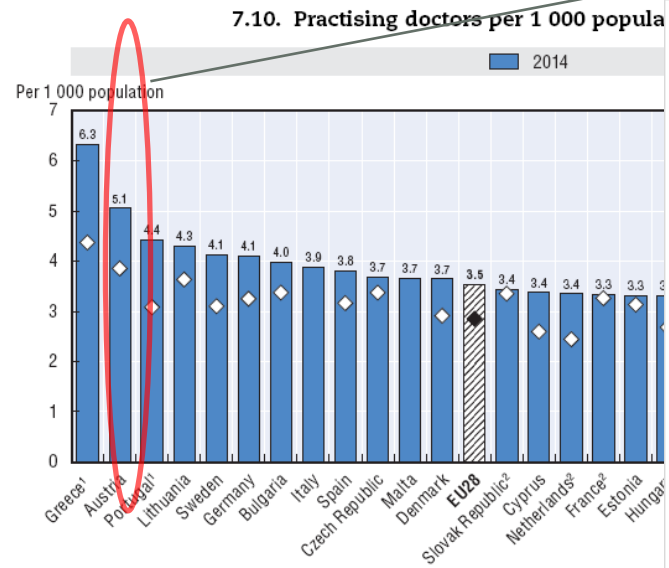


Source: (WHO 2017c)

Gesundheitspersonal Ärztliches Personal

» Daten und Interpretation (ÄrztInnen)

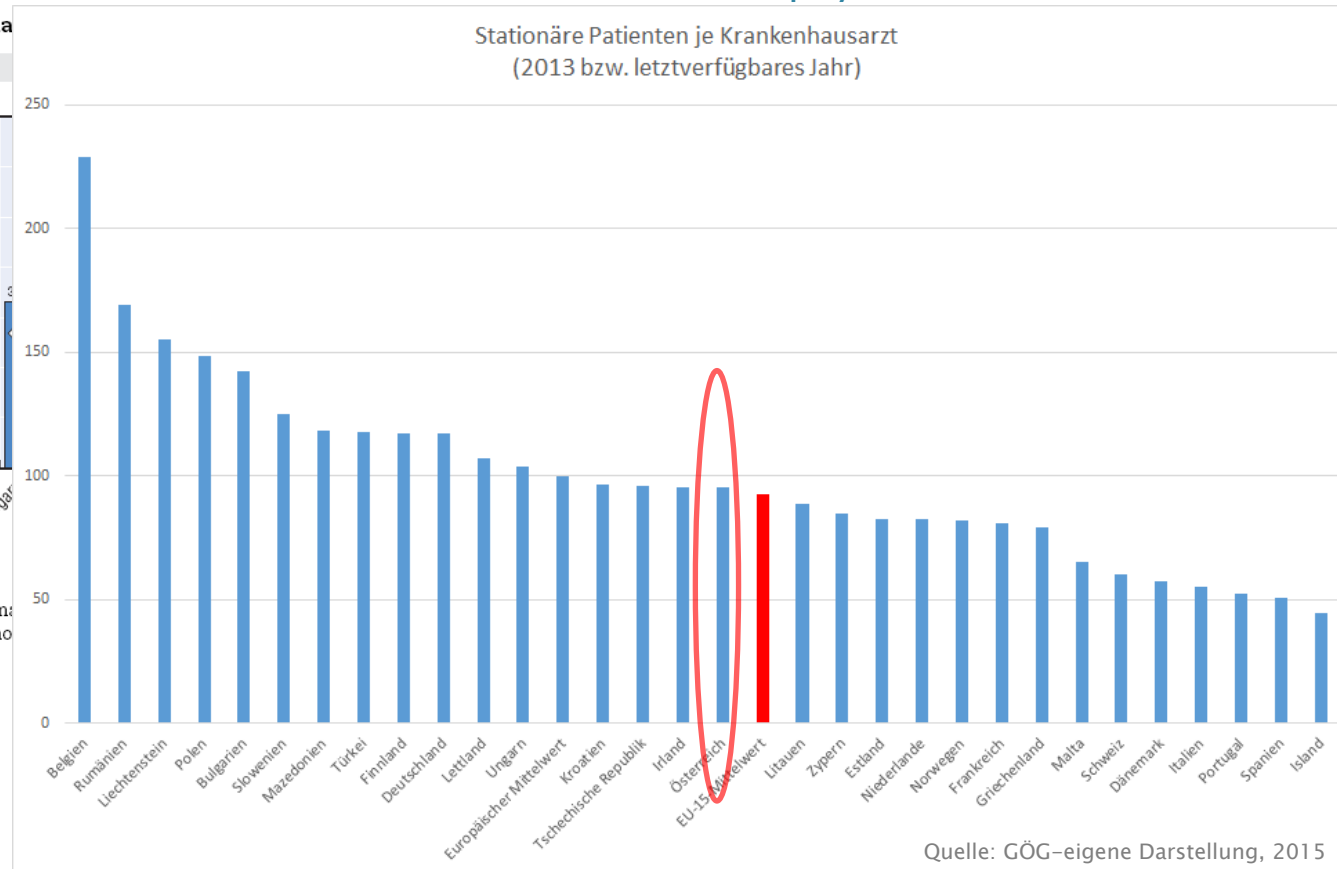
~ 45k in total
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1. Data refer to all doctors licensed to practice, resulting in a large over-estimate.
2. Data include not only doctors providing direct care to patients, but also those in administrative roles (adding another 5-10% of doctors).

Source: OECD Health Statistics 2016, Eurostat Database.

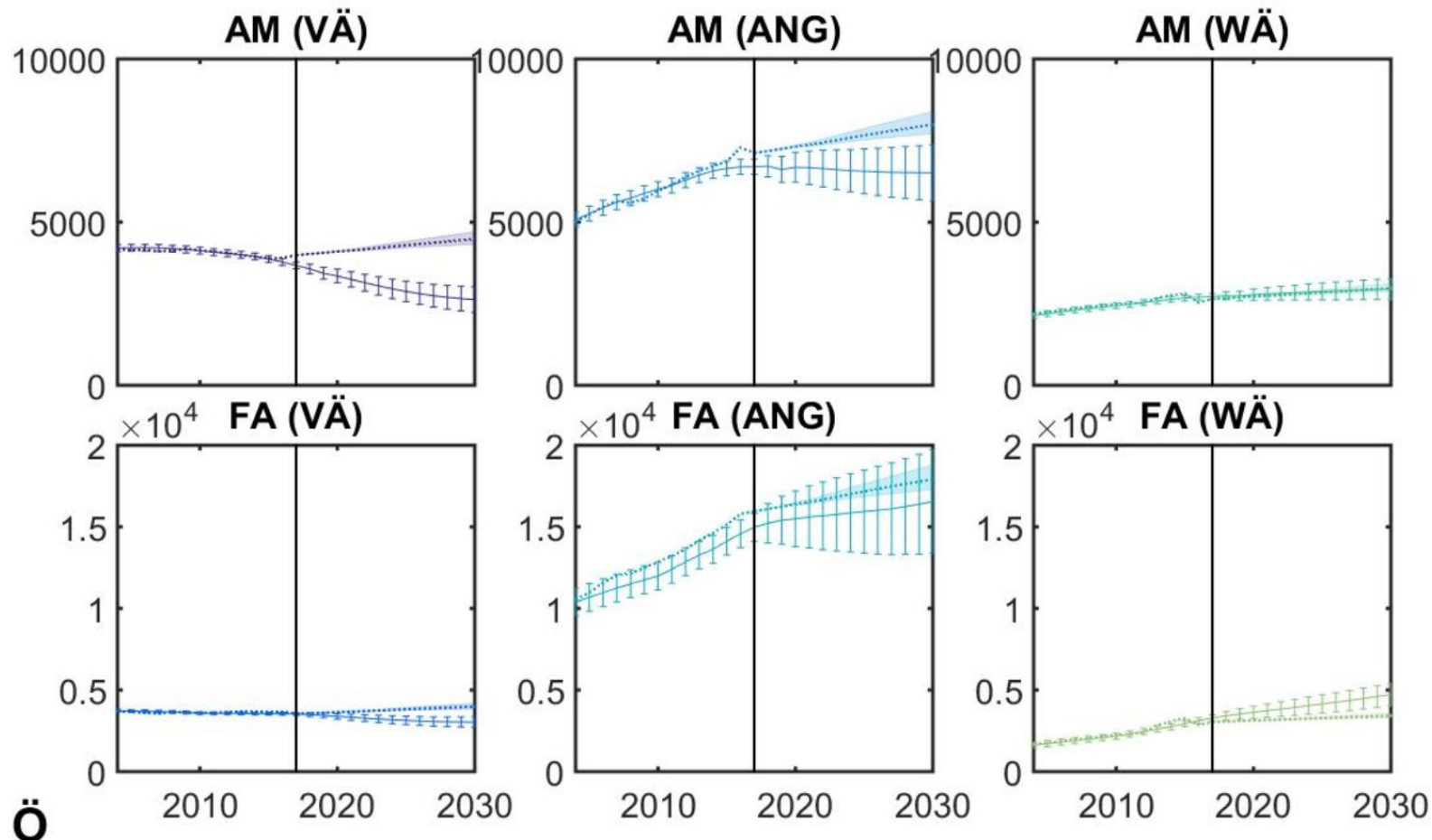
Source: OECD, 2017



Quelle: GÖG-eigene Darstellung, 2015

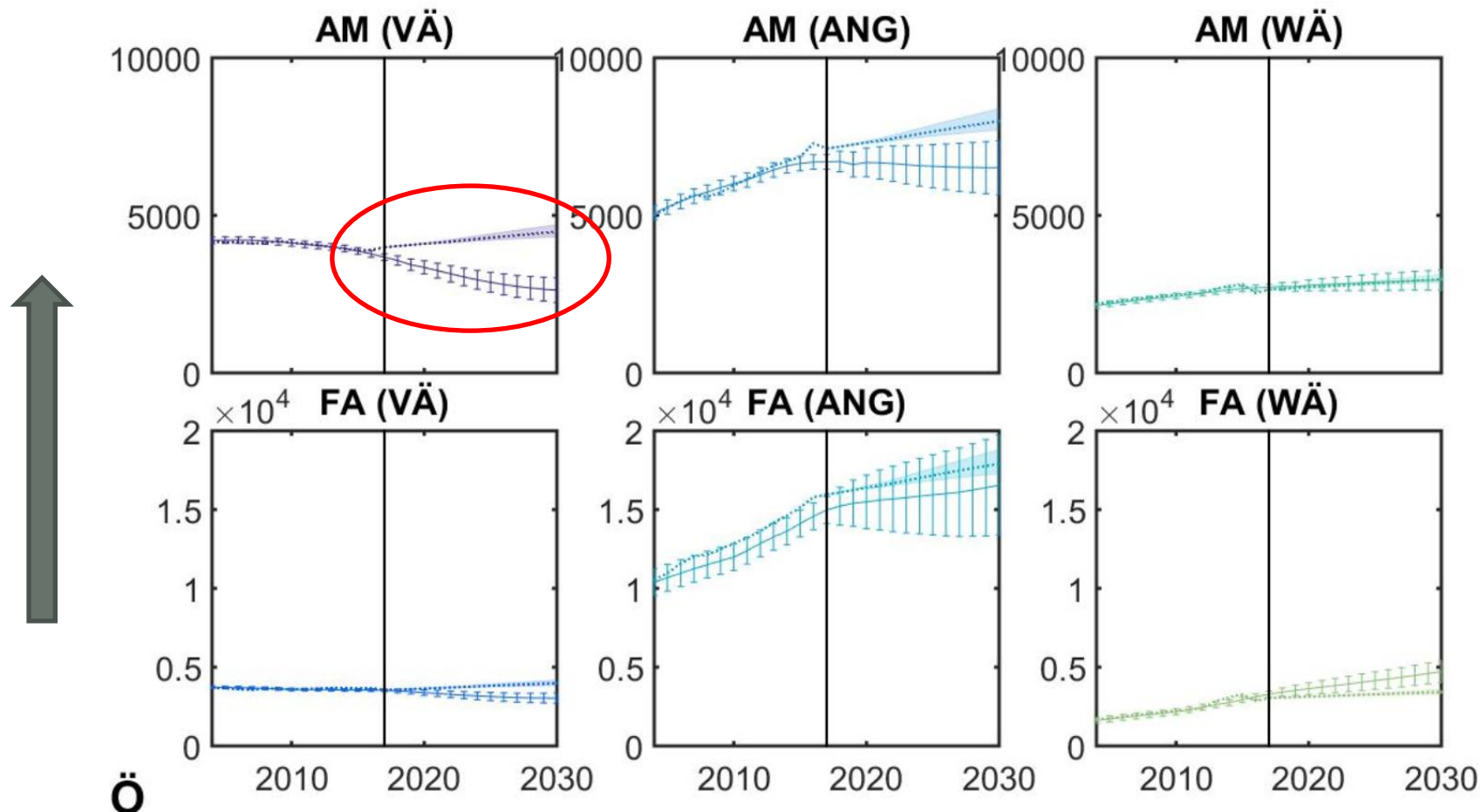
Gesundheitspersonal Ärztliches Personal

» Szenariorechnung ÄrztInnen 2018 (was passiert, wenn nichts passiert)



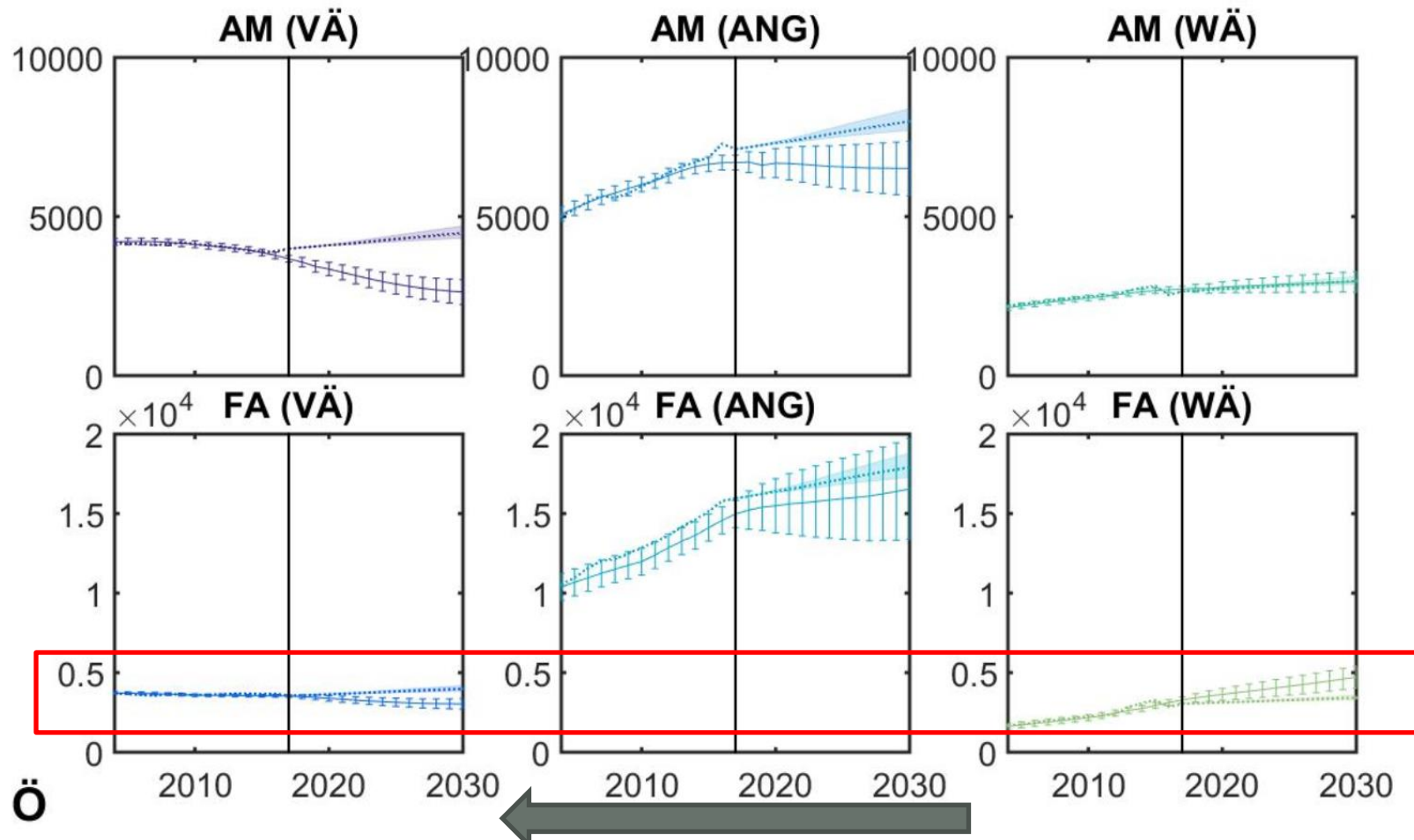
Gesundheitspersonal Ärztliches Personal

» Szenariorechnung ÄrztInnen 2018 (was passiert, wenn nichts passiert)



Gesundheitspersonal Ärztliches Personal

» Szenariorechnung ÄrztInnen 2018 (was passiert, wenn nichts passiert)



Gesundheitspersonal

» Gesundheitspersonal (Pflegepersonen & MTD)



Gesundheitsberuferegister

Gesundheitsberuferegister



Mit 1. Juli 2018 ist für Angehörige der Gesundheits- und Krankenpflegeberufe sowie der gehobenen medizinisch-technischen Dienste die Registrierung im Gesundheitsberuferegister Voraussetzung für die Ausübung des jeweiligen Gesundheitsberufes. Personen, die zu diesem Zeitpunkt ihren Beruf bereits ausüben, haben für die Antragstellung bis zum 30. Juni 2019 Zeit.

Wer am 1. Juli 2018 noch keinen Gesundheitsberuf ausübt (z.B. nach einer Ausbildung oder nach Berufsunterbrechung), muss vor Beginn der Berufsausübung einen Antrag auf Registrierung bei der zuständigen Behörde stellen.

Inhalte

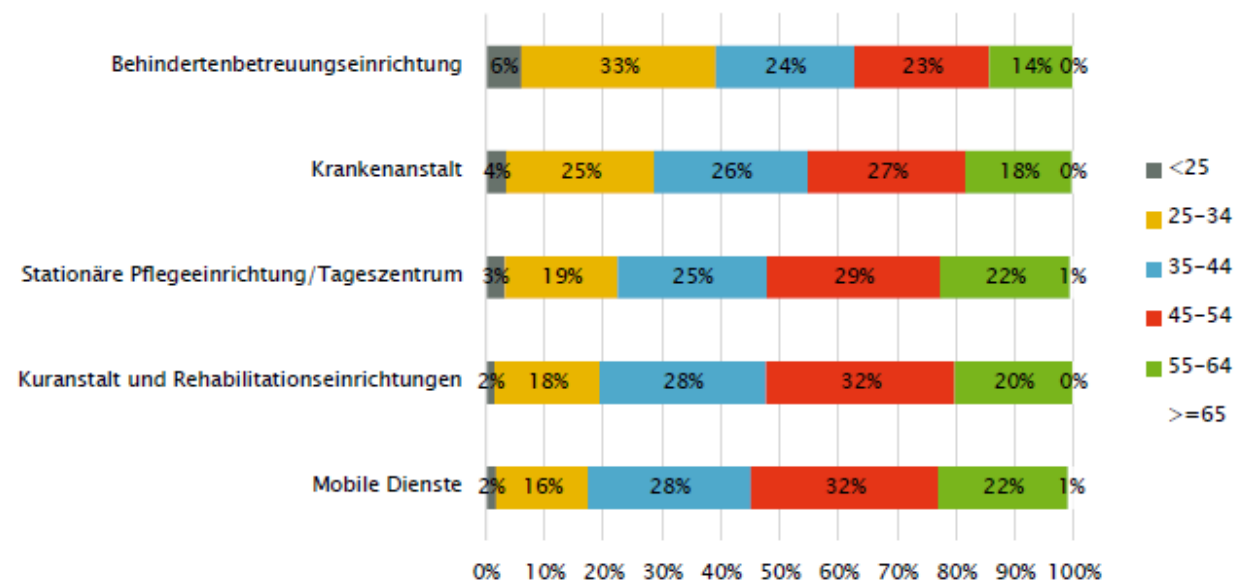
- ➔ Informationen für Berufsangehörige
- ➔ Daten, Registrierungsbehörden und Registerführung
- ➔ Informationen für Öffentlichkeit/Arbeitgeber
- ➔ Gesundheitsberuferegister: Häufige Fragen (FAQ)

Gesundheitspersonal Pflegepersonal

» Gesundheitspersonal (Pflegepersonen)

Abbildung 2.3:

GuK-Berufe – ausgewählte Settings und Altersverteilung in Prozent und in absoluten Zahlen
(ausgewertete n=141.412, Mehrfachzuordnungen möglich)

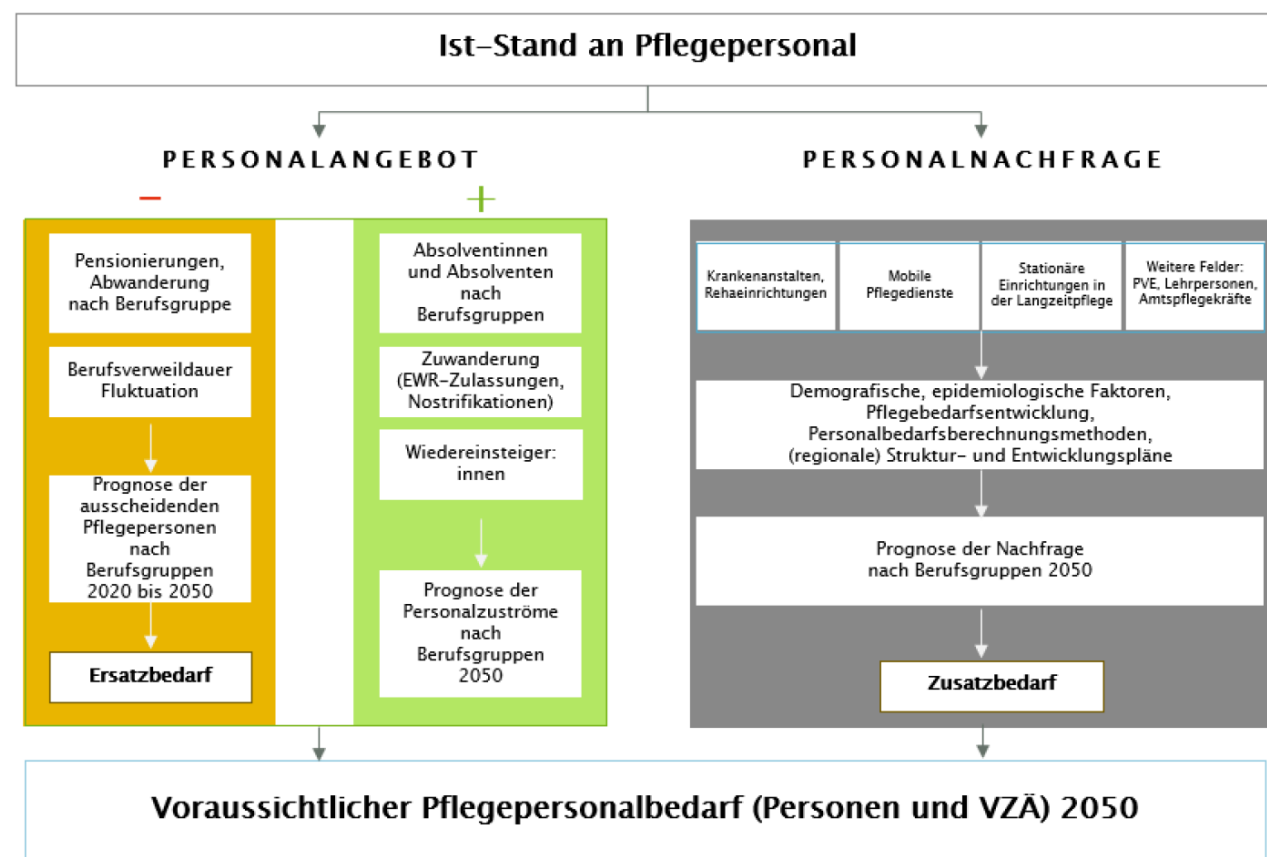


Setting/Alter	<25	25-34	35-44	45-54	55-64	>=65
Behindertenbetreuungseinrichtung	446	2.406	1.721	1.670	1.032	13
Krankenanstalt	2.727	19.225	19.980	20.531	13.855	217
Stationäre Pflegeeinrichtung/Tageszentrum	1.397	8.331	10.958	12.741	9.565	257
Kuranstalt und Rehabilitationseinrichtungen	39	442	703	797	497	5
Mobile Dienste	219	1.901	3.383	3.872	2.700	112

Gesundheitspersonal Pflegepersonal

» Personalbedarfsprognose Pflegepersonen

Abbildung 2.1:
Prognosemodell zur Personalbedarfsplanung

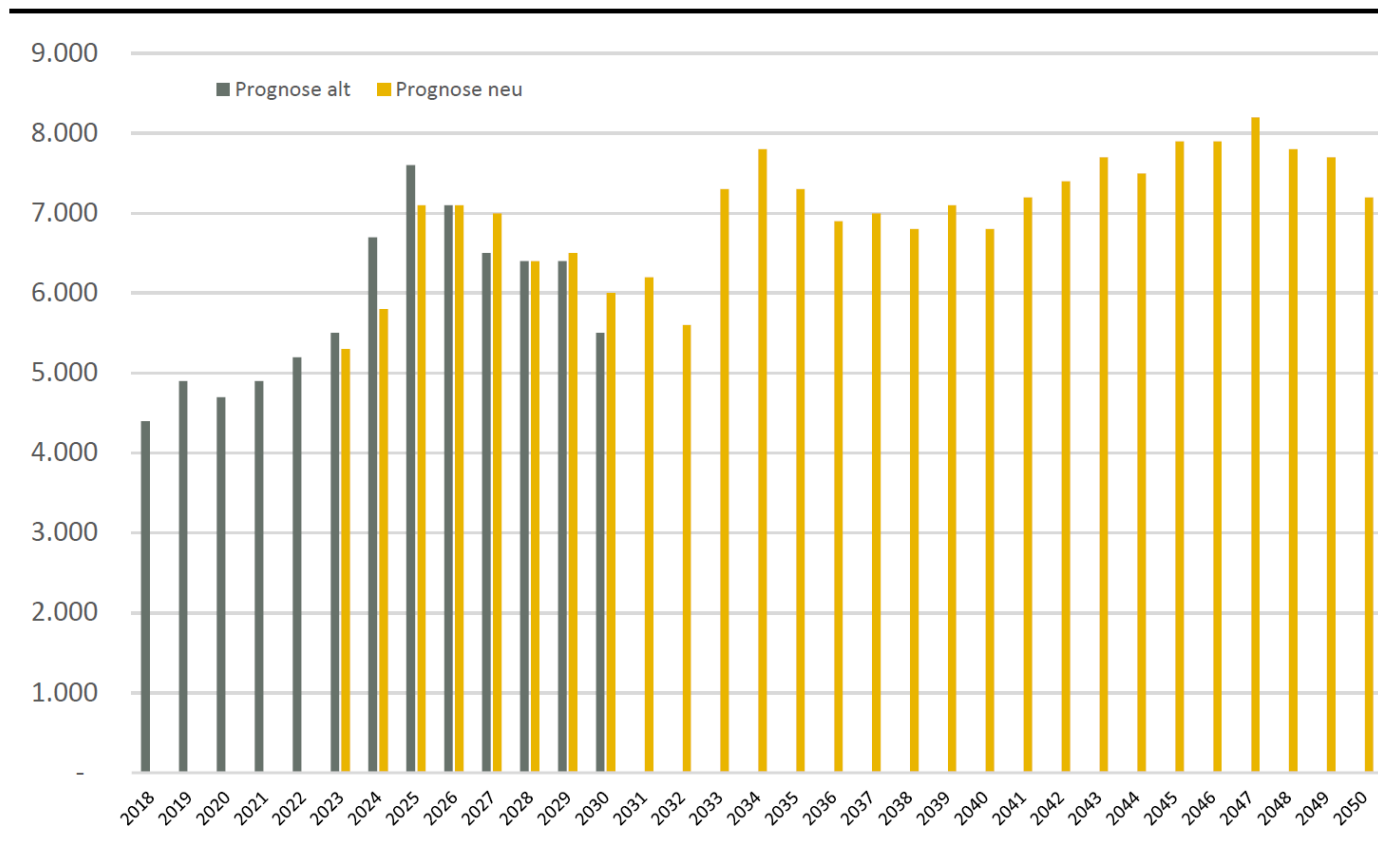


Gesundheitspersonal Pflegepersonal

» Personalbedarfsprognose Pflegepersonen

Abbildung 7.1:

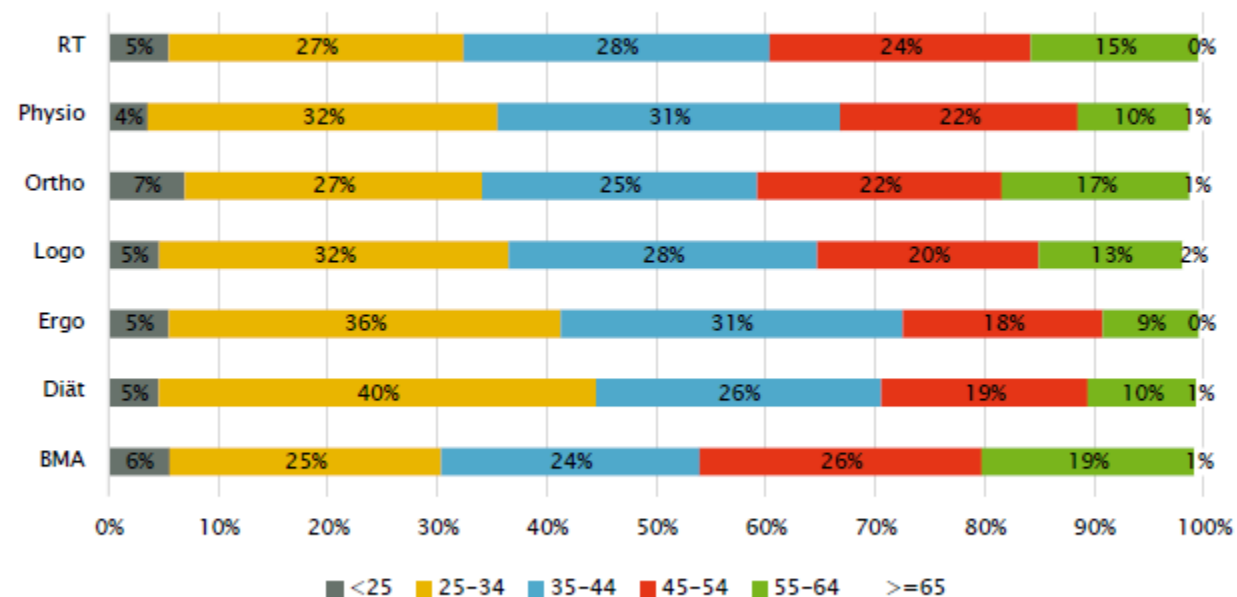
Jährlicher Mehrbedarf (Zusatz- und Ersatzbedarf) an Pflege- und Betreuungspersonen im Zeitraum 2018–2030 (Prognose aus 2019) im Vergleich mit der aktuellen Prognose 2023–2050



Gesundheitspersonal MTD

» Gesundheitspersonal (MTD)

Abbildung 3.1:
MTD - Registrierungen nach Altersgruppen in Prozent 2021 (ausgewertete n=37.750)



Quelle: GBR; Darstellung: GÖG

Gesundheitspersonal Internationale Entwicklungen

» WHO Code of Practice



Home / Publications / Overview / WHO Global Code of Practice on the International Recruitment of Health Personnel

WHO Global Code of Practice on the International Recruitment of Health Personnel

20 May 2010 | Governing bodies documentation



Download (32.3 kB)

Overview

The WHO Global Code of Practice on the International Recruitment of Health Personnel, approved by Member States in the Sixty-third World Health Assembly Resolution WHA63.16, is intended to be a core component of bilateral, national, regional and global responses to the challenges of health personnel migration and health systems strengthening.

The objectives of the Code are:

- to establish and promote voluntary principles and practices for the ethical international recruitment of health personnel, taking into account the rights, obligations and expectations of source countries, destination countries and migrant health personnel;
- to serve as a reference for Member States in establishing or improving the legal and institutional framework required for the international recruitment of health personnel;
- to provide guidance that may be used where appropriate in the formulation and implementation of bilateral agreements and other international legal instruments;
- to facilitate and promote international discussion and advance cooperation on matters related to the ethical international recruitment of health personnel as part of strengthening health systems, with a particular focus on the situation of developing countries.

The Code is voluntary. Member States and other stakeholders are strongly encouraged to use the Code. The Code is global in scope and is intended as a guide for Member States, working together with stakeholders such as health personnel, recruiters, employers, health-professional organizations, relevant sub-regional, regional and global organizations, whether public or private sector, including nongovernmental, and all persons concerned with the international recruitment of health personnel. The Code provides ethical principles applicable to the international recruitment of health personnel in a manner that strengthens the health systems of developing countries, countries with economies in transition and small island states.

Gesundheitspersonal Internationale Entwicklungen

» WHO Code of Practice



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Quelle: <https://www.who.int/publications/i/item/wha68.32>



Table 1: Health Workforce Support and Safeguards List, 2020

African Region (33)	Region of the Americas (1)
Angola	Haiti
Benin	
Burkina Faso	Eastern Mediterranean Region (6)
Burundi	Afghanistan
Cameroon	Djibouti
Central African Republic	Pakistan
Chad	Somalia
Congo	Sudan
Côte d'Ivoire	Yemen
Democratic Republic of the Congo	
Equatorial Guinea	South East Asia (2)
Eritrea	Bangladesh
Ethiopia	Nepal
Gabon	
Gambia	Western Pacific Region (5)
Ghana	Kiribati
Guinea	Micronesia (Federated States of)
Guinea-Bissau	Papua New Guinea
Lesotho	Solomon Islands
Liberia	Vanuatu
Madagascar	
Malawi	
Mali	
Mauritania	
Mozambique	
Niger	
Nigeria	
Senegal	
Sierra Leone	
South Sudan	
Togo	
Uganda	
United Republic of Tanzania	

Gesundheitspersonal Internationale Entwicklungen

» WHO Europe



Gesundheitspersonal Internationale Entwicklungen

» WHO Europe

Health and care workforce in Europe: time to act

Quelle: <https://www.who.int/europe/publications/i/item/9789289058339>



Austria

Human resources for health profile

See pages 82-83 for data sources and technical notes

heit Österreich

Country at a glance

POPULATION
8 907 777

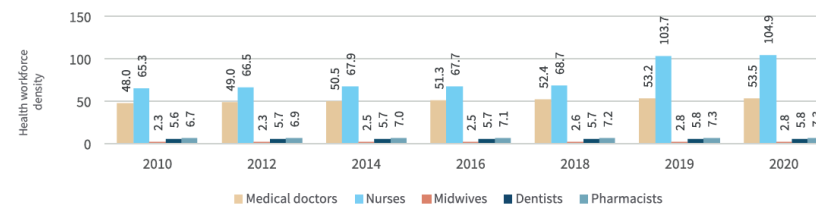
LIFE EXPECTANCY AT BIRTH (YEARS)
81.5

MEDIAN AGE (YEARS)
42.6

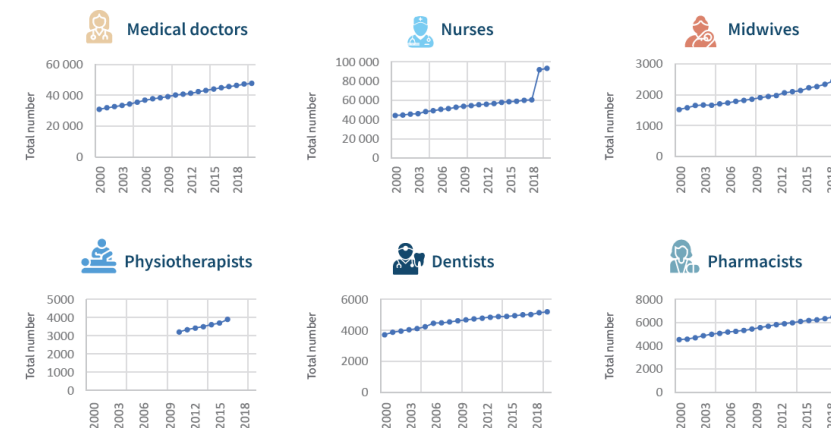
DOCTORS, NURSES AND MIDWIVES PER 10 000 POPULATION
161.3

UHC SERVICE COVERAGE INDEX
82

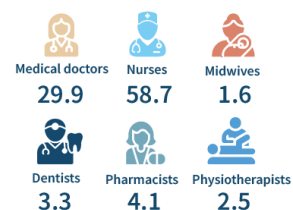
Health workforce density per 10 000 population



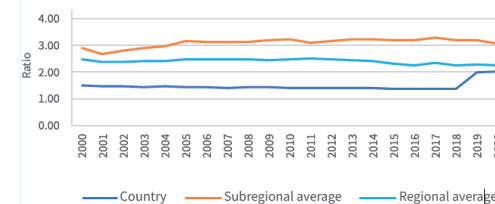
Health workforce trends (total number)



Composition by six professional categories covered in the report, percentage (latest year)



Ratio of nurses and midwives to medical doctors



Gesundheitspersonal Internationale Entwicklungen

» WHO Europe

World Health Organization
European Region

Health and care workforce in Europe: time to act

Quelle: <https://www.who.int/europe/publications/i/item/9789289058339>



Country at a glance



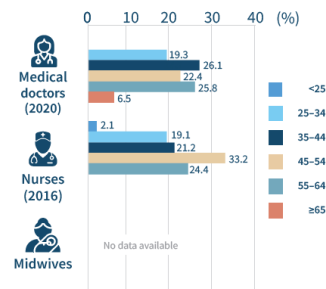
Health workforce distribution

Health workforce availability

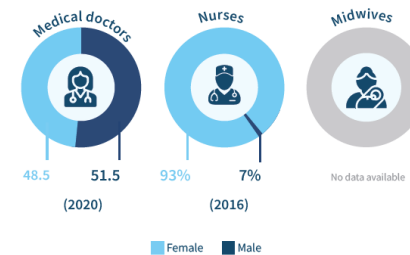


Health workforce domestic and international supply

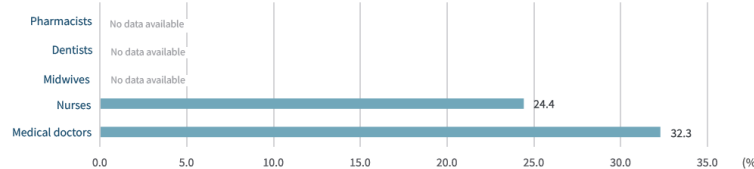
Health workforce distribution by age group, percentage



Health workforce distribution by sex, percentage



Percentage of workforce aged >55

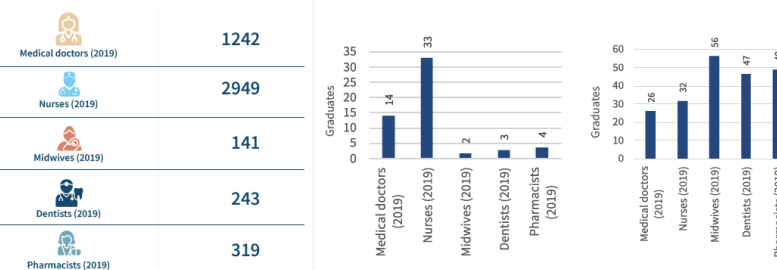


Professions

Annual graduates (total number)

Graduates per year per 100 000 population

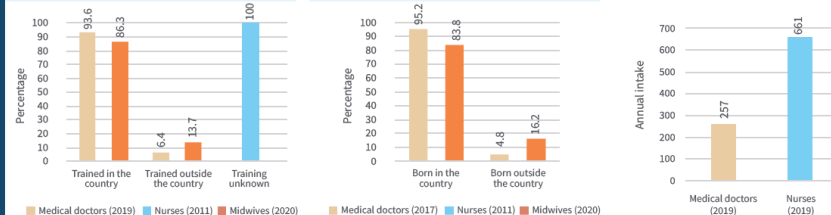
Graduates per year per 1000 practitioners



Country of training, percentage

Country of birth, percentage

Annual intake from other countries



MÖGLICHE ANTWORTEN

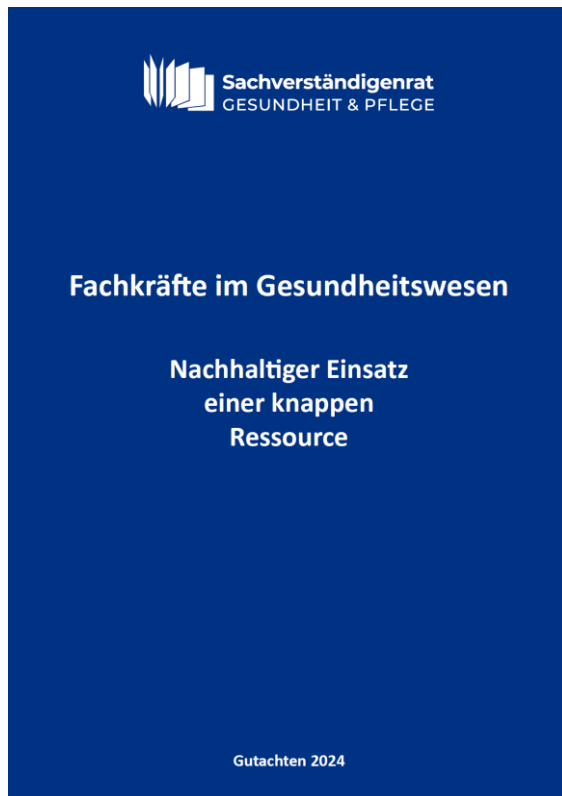
Mögliche Antworten

» WHO Europe




Mögliche Antworten

» SVR (D)



Mögliche Antworten

» SVR (D)

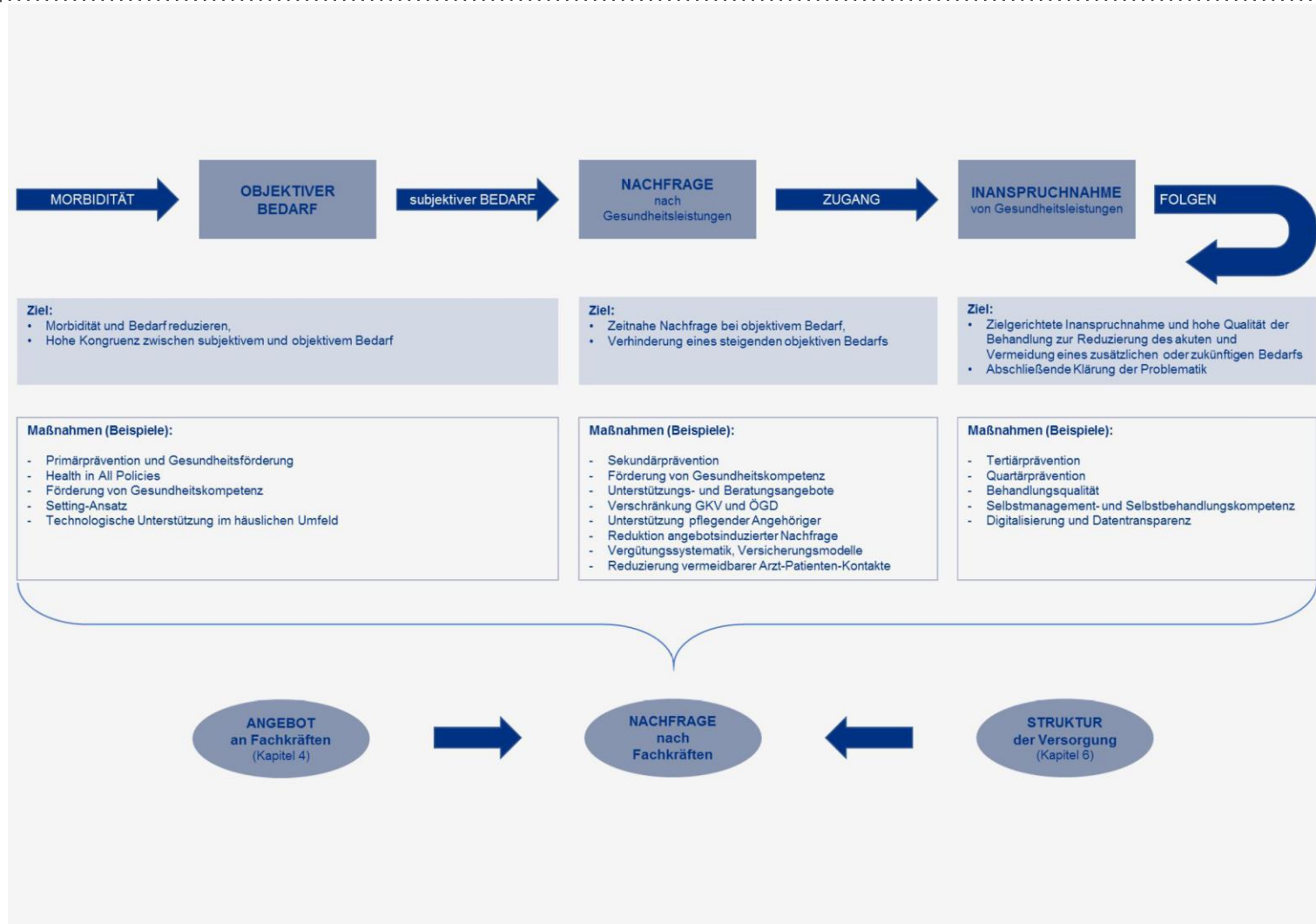


**Sachverständigenrat
GESUNDHEIT & PFLEGE**

Fachkräfte im Gesundheitswesen

**Nachhaltiger Einsatz
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Gutachten 2024



Mögliche Antworten

Public Health und Gesundheitsförderung

» SVR (D)

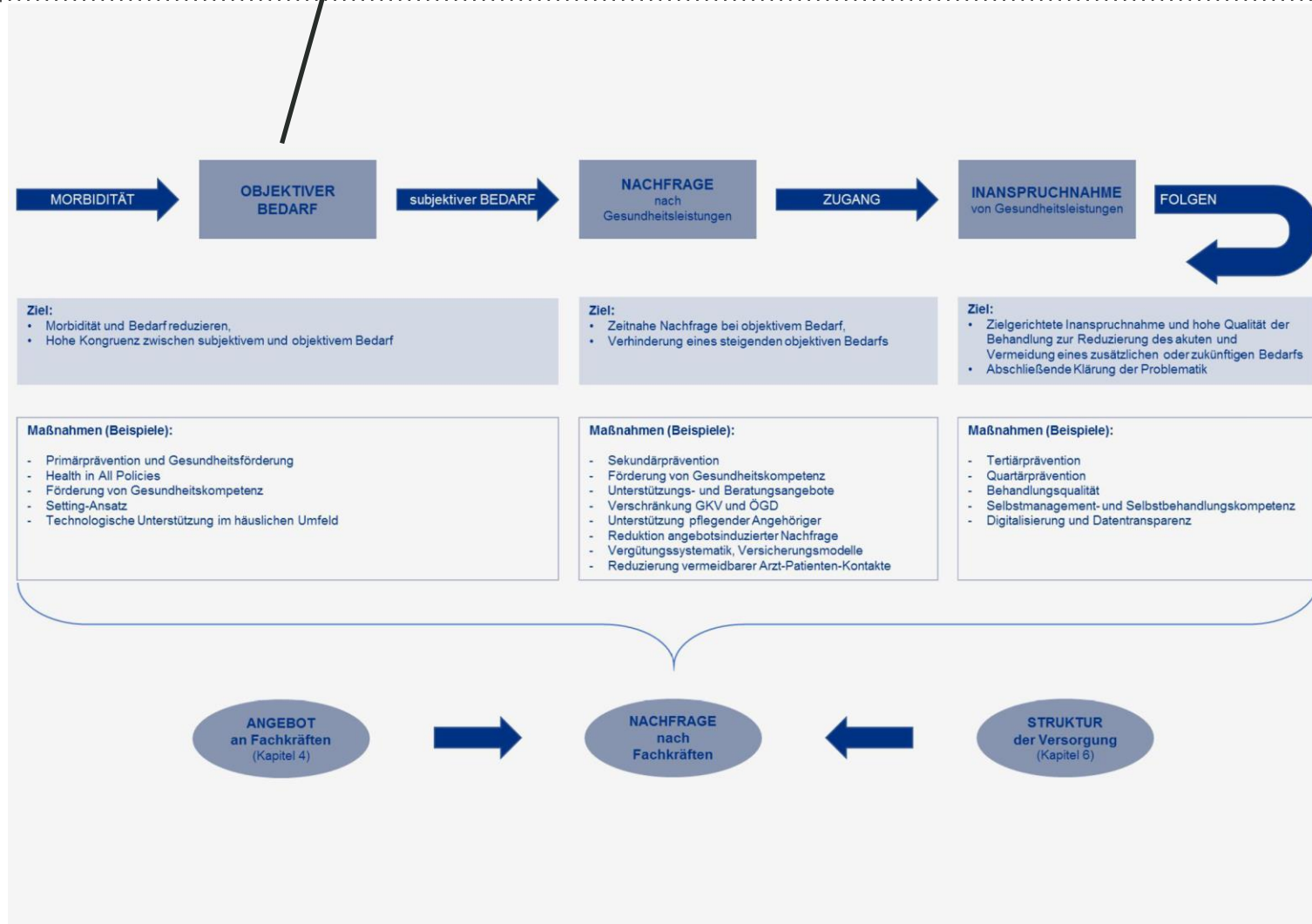


**Sachverständigenrat
GESUNDHEIT & PFLEGE**

Fachkräfte im Gesundheitswesen

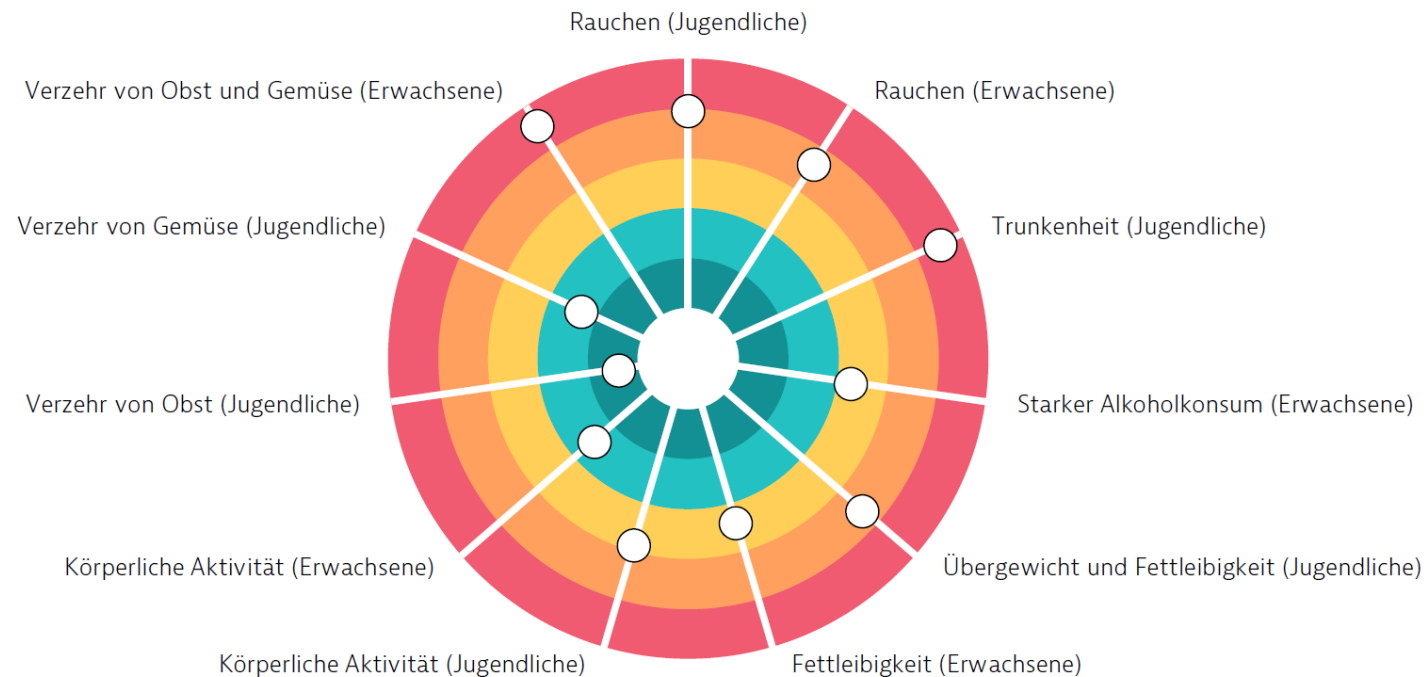
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Gutachten 2024



Mögliche Antworten Public Health und Gesundheitsförderung

Abbildung 8: Rauchen, Alkoholkonsum und Übergewicht stellen ernste Probleme für die öffentliche Gesundheit in Österreich dar

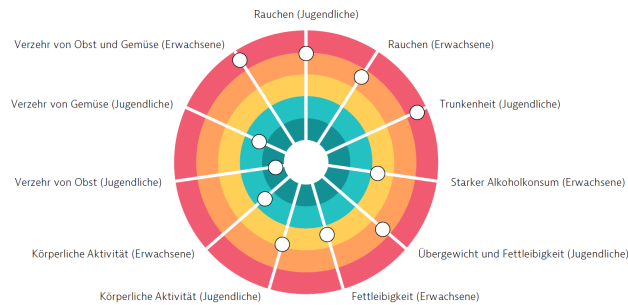


Anmerkungen: Je näher ein Punkt am Mittelpunkt liegt, desto besser schneidet ein Land im Vergleich zu anderen EU-Ländern ab. Kein Land liegt im weißen „Zielbereich“, da in allen Ländern in allen Bereichen noch Fortschritte möglich sind.

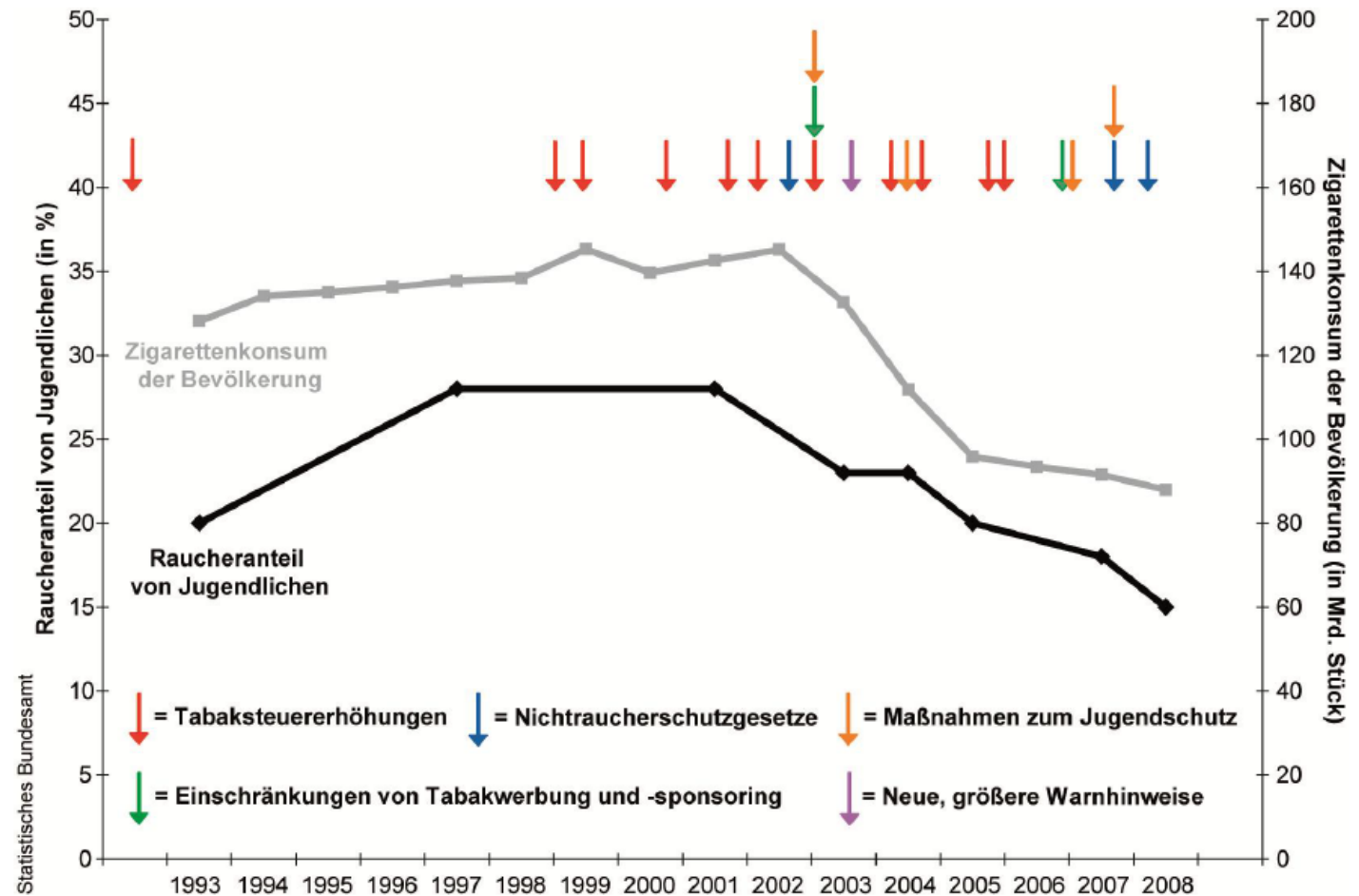
Quellen: Kalkulationen der OECD auf der Grundlage der HBSC-Umfrage 2022 für Indikatoren bei Jugendlichen und auf Grundlage von EHIS 2019 für Indikatoren bei Erwachsenen.

Mögliche Antworten Public Health und Gesundheitsförderung

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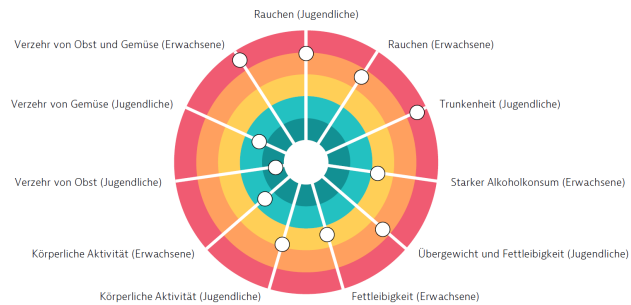


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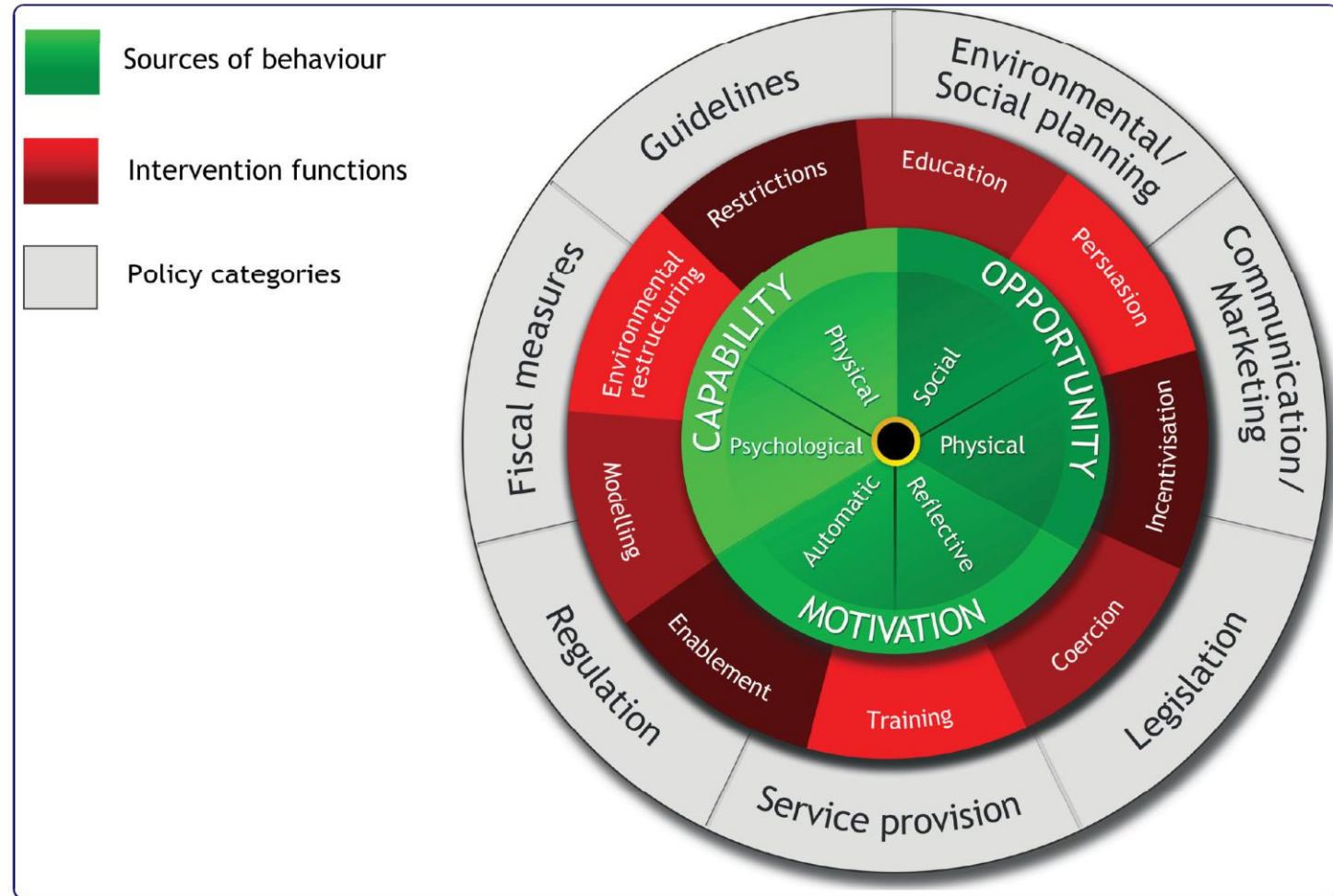


Mögliche Antworten Public Health und Gesundheitsförderung

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Mögliche Antworten

Public Health und Gesundheitsförderung

Prävention, Versorgung, Gesundheitskompetenz, ...

» SVR (D)

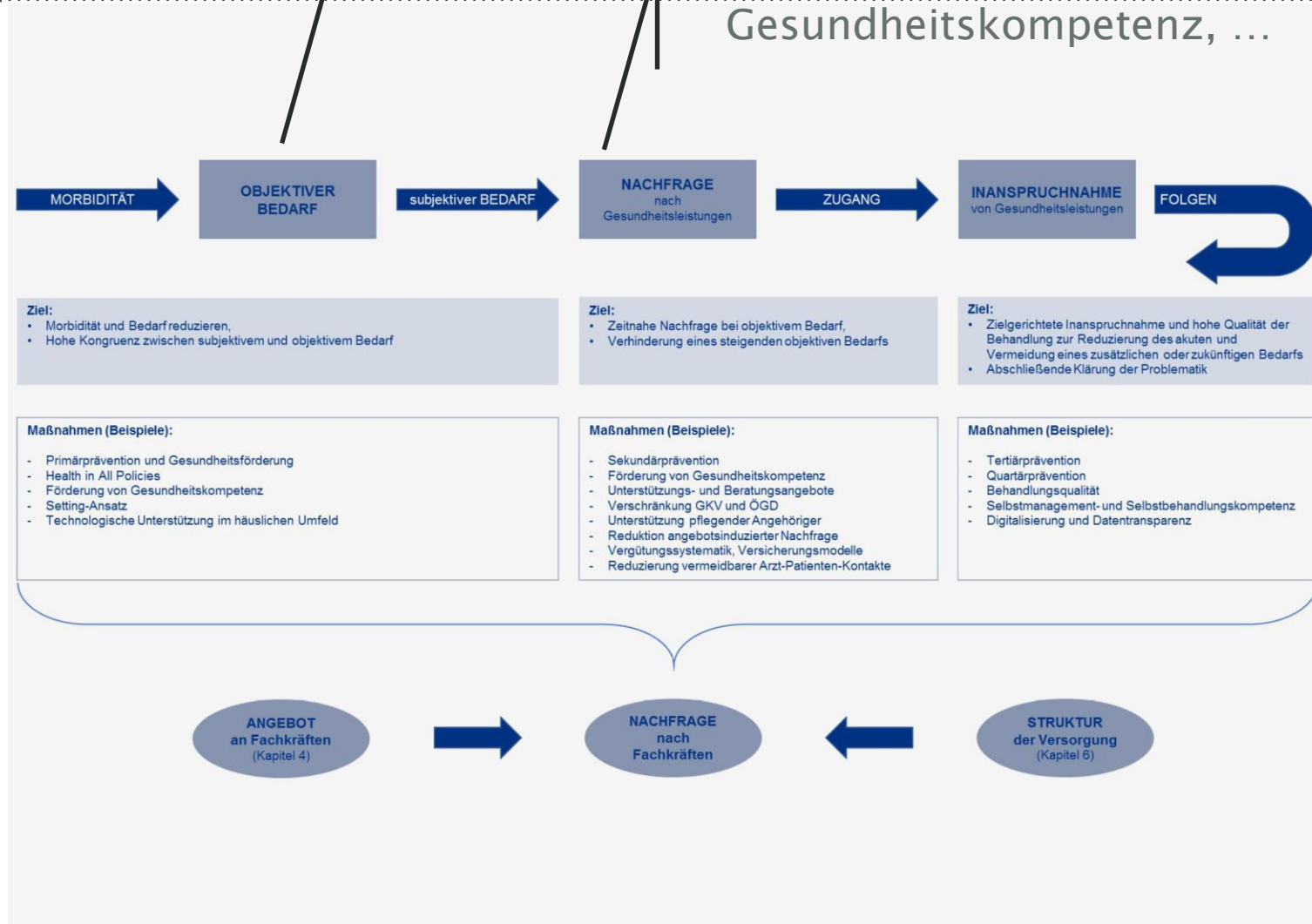


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GESUNDHEIT & PFLEGE**

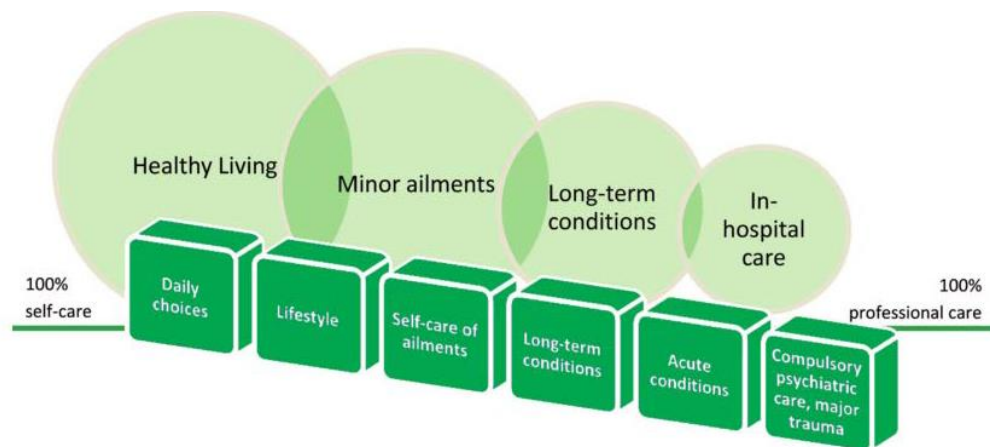
Fachkräfte im Gesundheitswesen

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Mögliche Antworten Prävention, Versorgung, Gesundheitskompetenz, ...



Source: (Yiangou 2011)

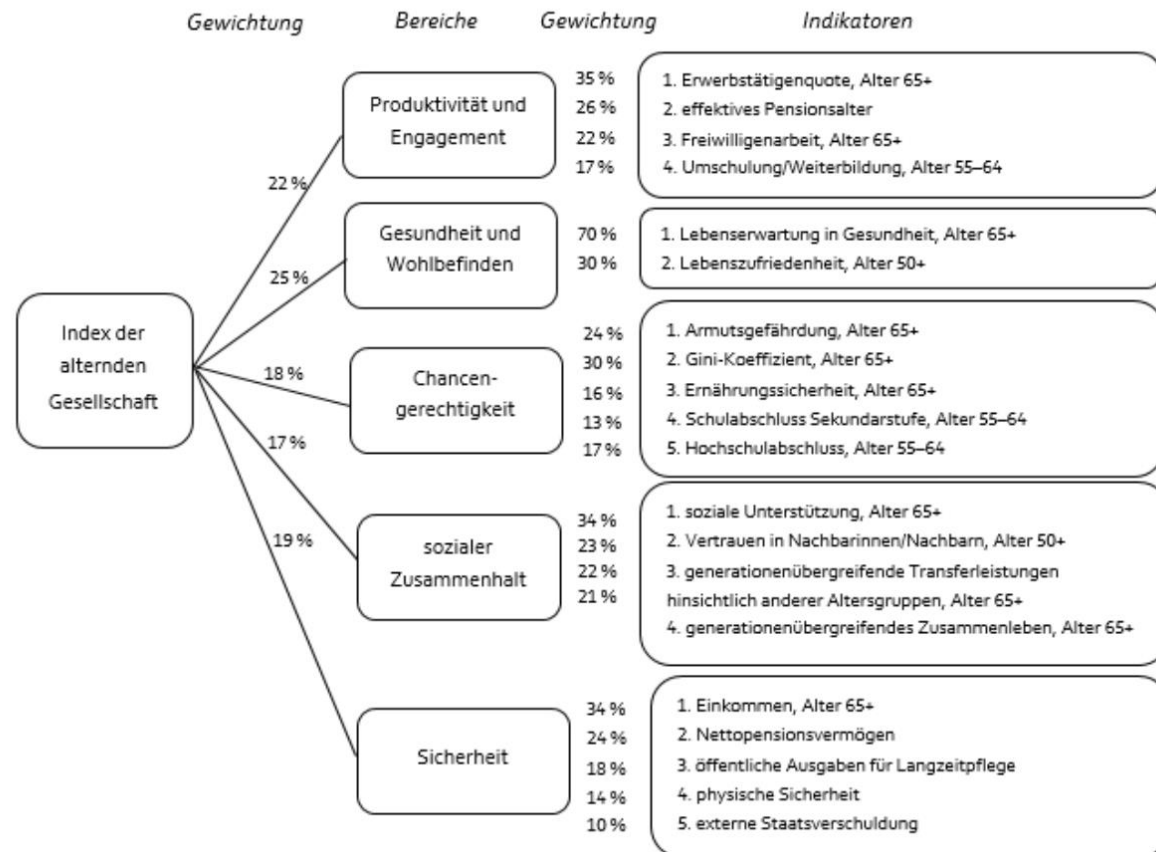
ABBILDUNG 8: CHRONIC CARE MODEL NACH ED WAGNER (2006)



Source: http://www.provinz.bz.it/gesundheitswesen/download/Landesgesundheitsplan_2016-2020_definitiv.pdf

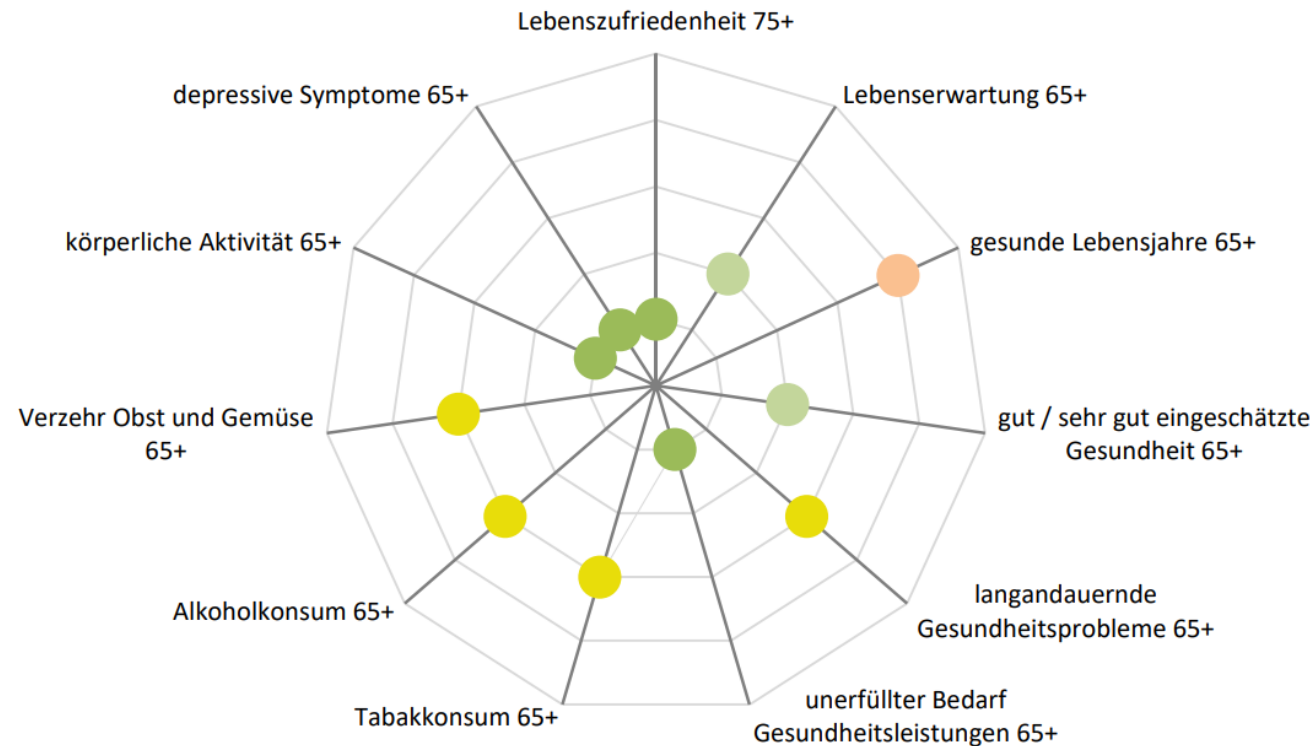
Mögliche Antworten Prävention, Versorgung, Gesundheitskompetenz

Abbildung 1: Indikatoren des mehrdimensionalen Index der alternden Gesellschaft



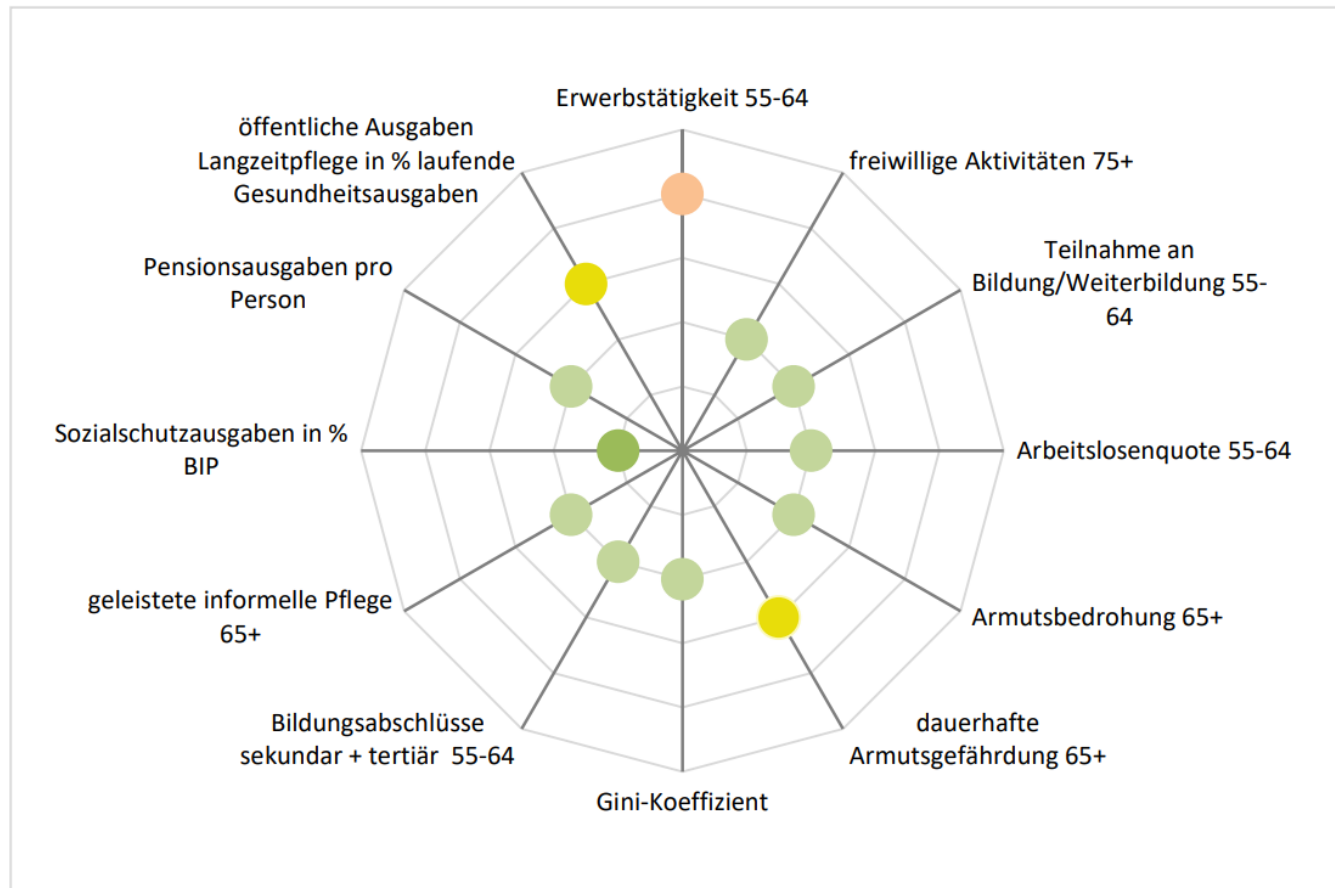
Mögliche Antworten Prävention, Versorgung, Gesundheitskompetenz

Abbildung 2: Indikatoren in der Domäne Gesundheit, Wohlbefinden und Lebensqualität




Mögliche Antworten Prävention, Versorgung, Gesundheitskompetenz

Abbildung 3: Indikatoren in den Bereichen soziale Sicherheit, Chancengleichheit, Teilhabechancen, freiwilliges Engagement und sozialer Zusammenhalt in der Gesellschaft



Mögliche Antworten

» SVR (D)



**Sachverständigenrat
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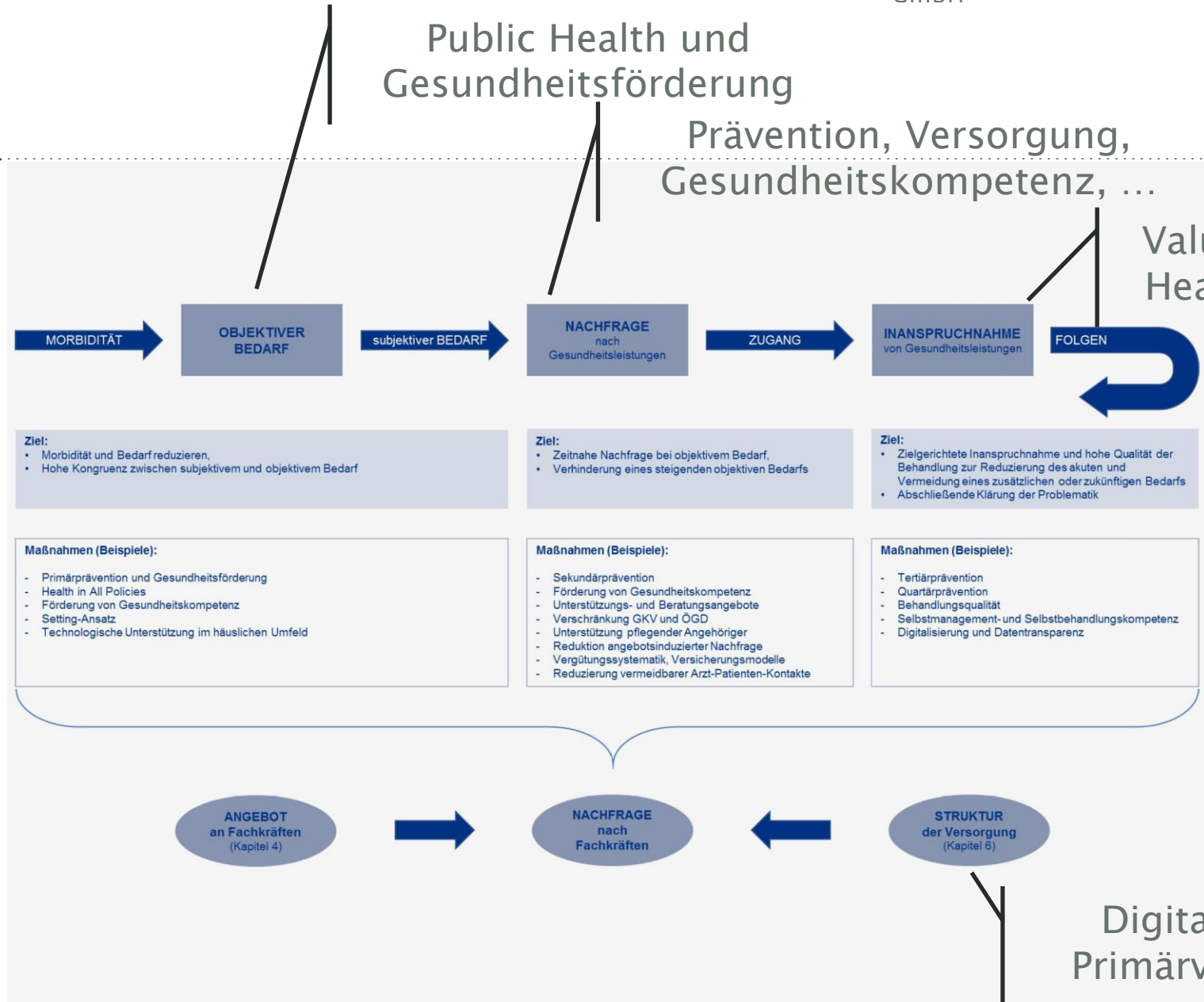
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Gutachten 2024

Public Health und
Gesundheitsförderung

Prävention, Versorgung,
Gesundheitskompetenz, ...

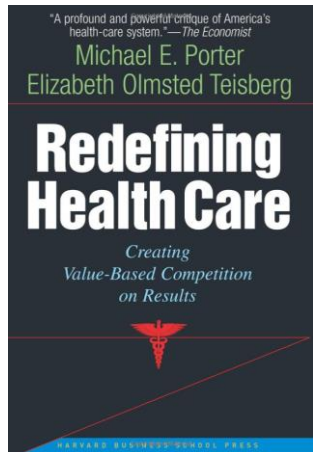
Value Based
Health Care



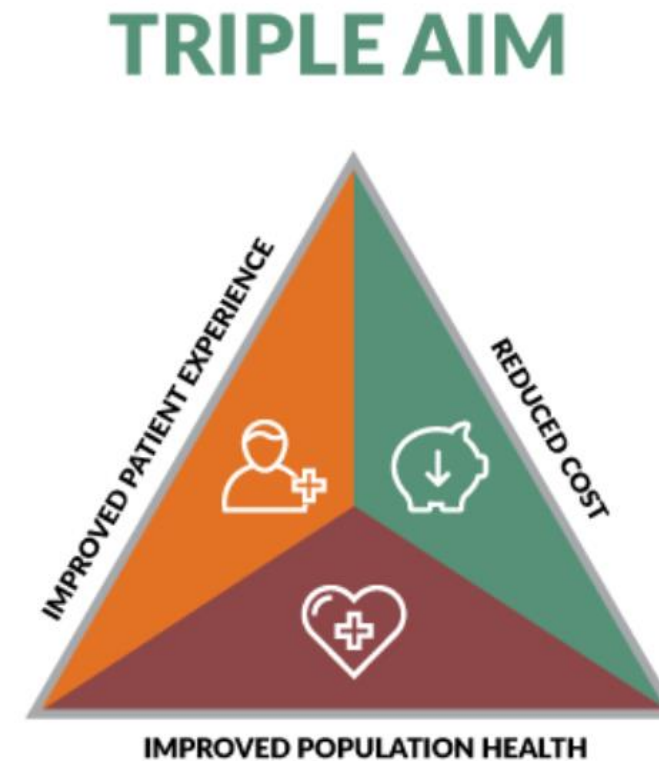
Digitalisierung
Primärversorgung

Mögliche Antworten Value Based Health Care

» Von „Output“ zu „Value“

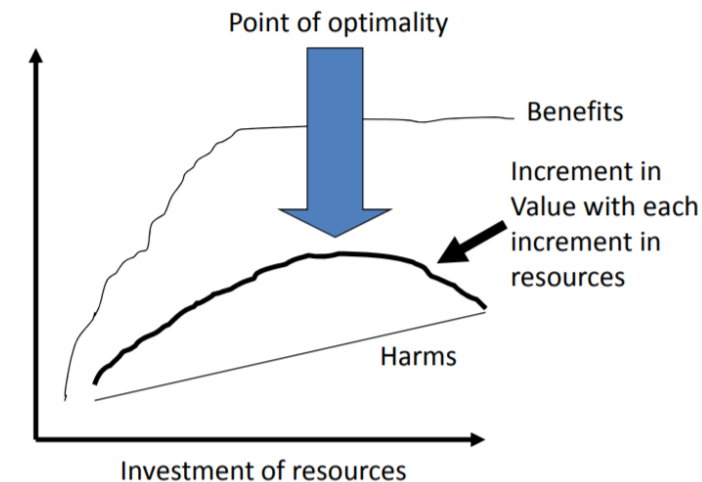
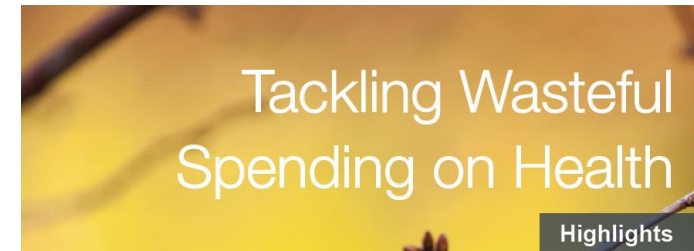


	VALUE-BASED HEALTHCARE	TRIPLE AIM
	$\frac{\text{HEALTH OUTCOMES}}{\text{PATIENT VALUE} + \text{COST}}$	
FOCUS	Disease-specific	Person-focused
IMPROVEMENT METHOD	Linear $A \rightarrow B$	Circular
MARKET MECHANISM	Competition	Collaboration



Mögliche Antworten Value Based Health Care

- » Von „Output“ zu „Value“
- » Zur Identifikation und Vermeidung von
 - » **Übersorgung**
 - » Fehlersorgung
 - » (Unterversorgung)



Mögliche Antworten Value Based Health Care → Leistungsmengenplanung

Figure 5.16. Hospital beds, 2009 and 2019 (or nearest year)

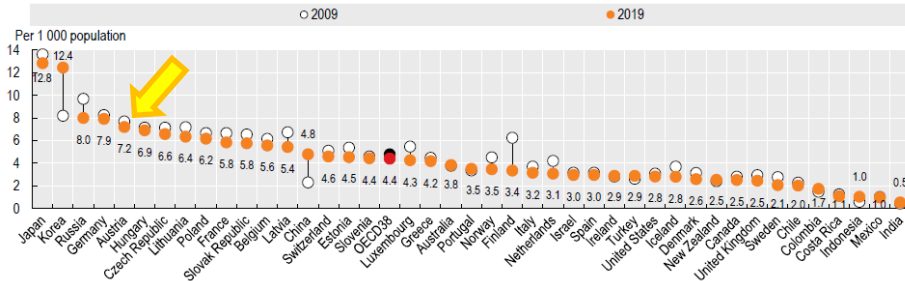


Figure 5.18. Adult intensive care beds, 2019 (or nearest year) and 2020

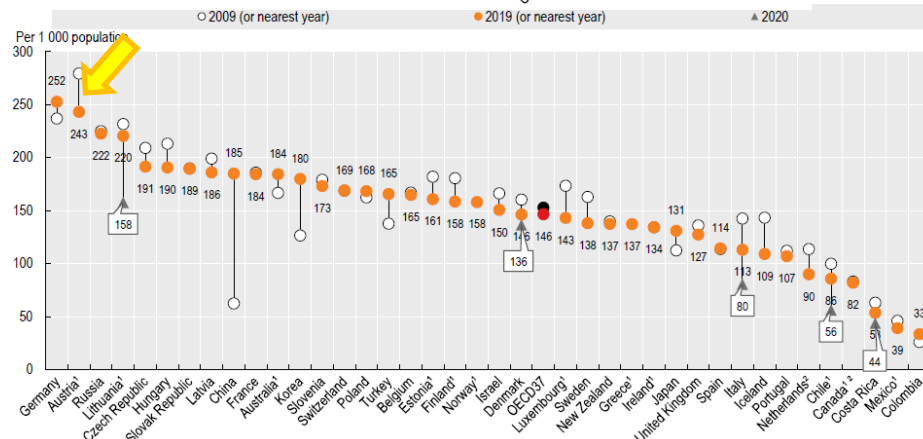
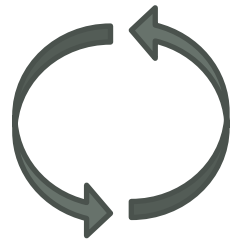
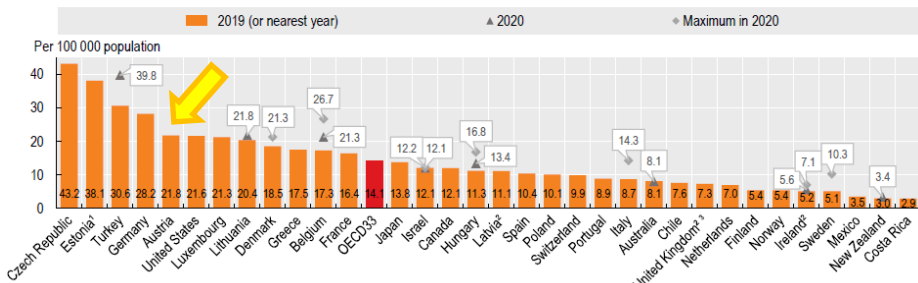


Figure 9. Austria has more doctors and nurses than the EU average

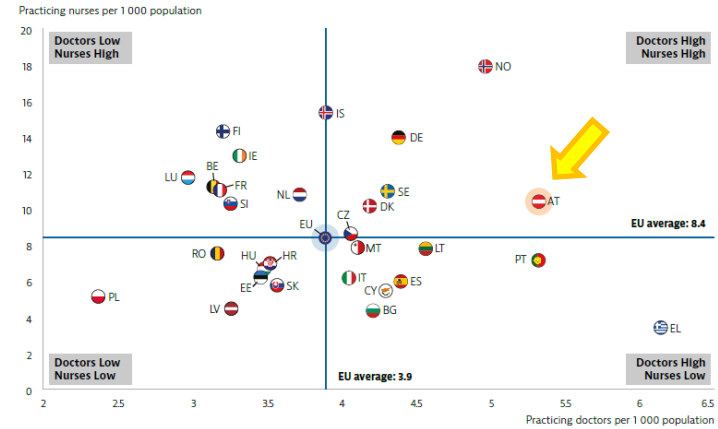


Figure 5.25. Hip replacement surgery, 2019 (or nearest year)

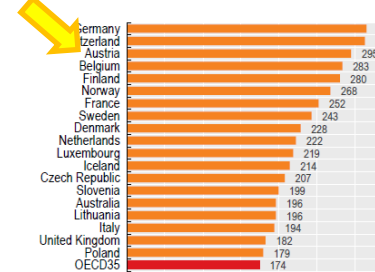


Figure 5.26. Knee replacement surgery, 2019 (or nearest year)

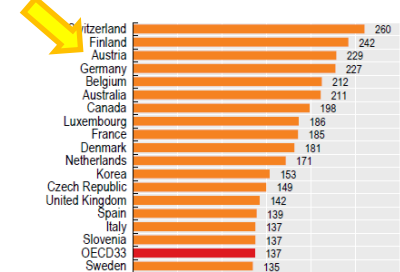
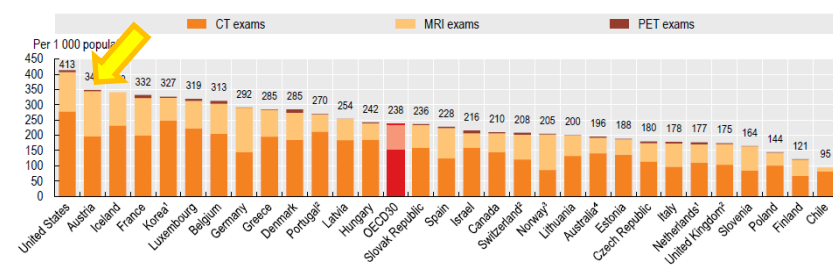



Figure 5.22. CT, MRI and PET exams, 2019 (or nearest year)



Mögliche Antworten

» SVR (D)



**Sachverständigenrat
GESUNDHEIT & PFLEGE**

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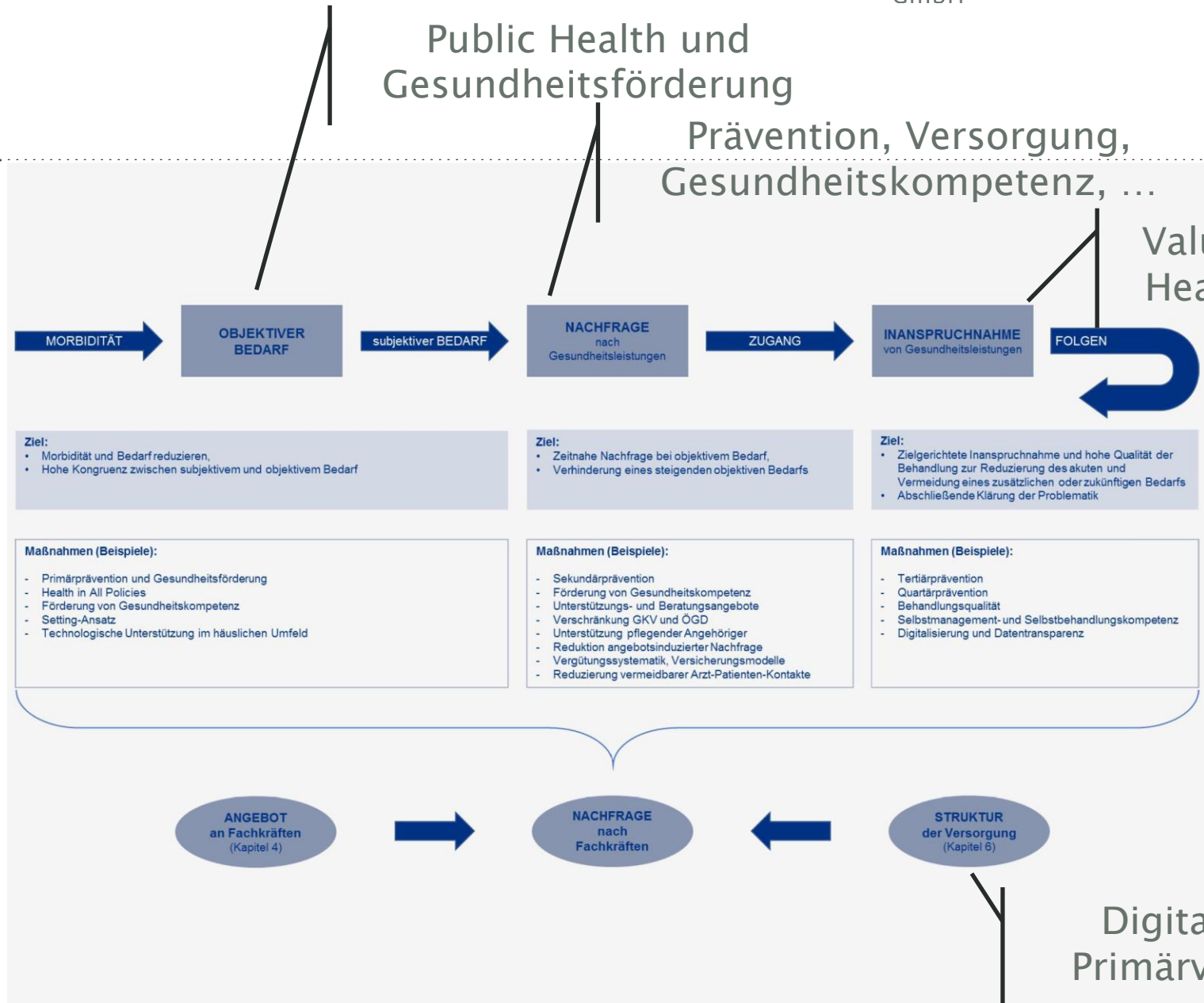
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Gutachten 2024

Public Health und
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Prävention, Versorgung,
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Value Based
Health Care



Digitalisierung
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Mögliche Antworten

Digitalisierung, Primärversorgung

» Maschine Learning



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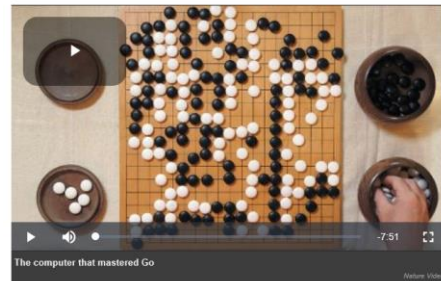
Google AI algorithm masters ancient game of Go

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Elizabeth Gibney

27 January 2016

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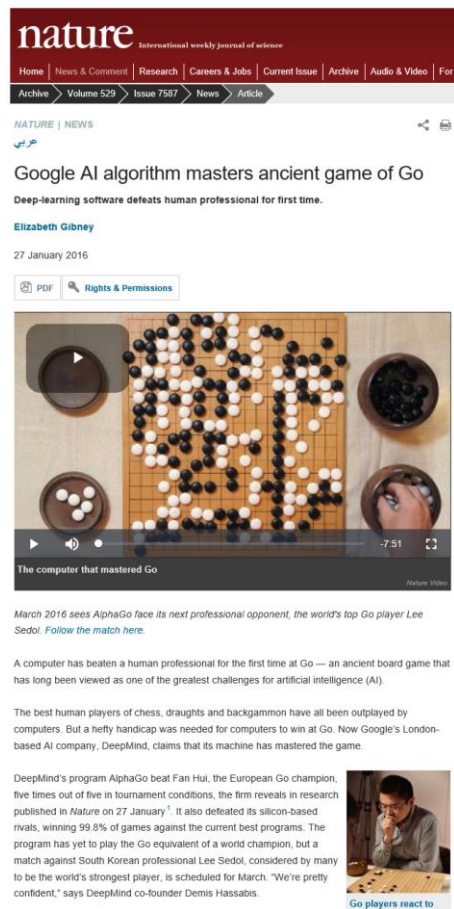


Go players react to

Mögliche Antworten

Digitalisierung, Primärversorgung

» Maschine Learning und klinische Routinen



The screenshot shows the top of a Nature news article. The header includes the 'nature' logo and navigation links like 'Home', 'News & Comment', 'Research', 'Careers & Jobs', 'Current Issue', 'Archive', 'Audio & Video', and 'For Authors'. Below the header, there's a breadcrumb trail: 'Archive > Volume 529 > Issue 7507 > News > Article'. The article title is 'Google AI algorithm masters ancient game of Go' with a sub-headline 'Deep-learning software defeats human professional for first time.' The author is Elizabeth Gibney, and the date is 27 January 2016. There are buttons for 'PDF' and 'Rights & Permissions'. A video player is embedded, showing a Go board with a play button and a progress bar at -7:51. Below the video, there's a caption: 'The computer that mastered Go'. At the bottom, there's a small image of a Go player with the caption 'Go players react to'.

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Go players react to

Study Finds Robots can Detect Breast Cancer as well as Radiologists

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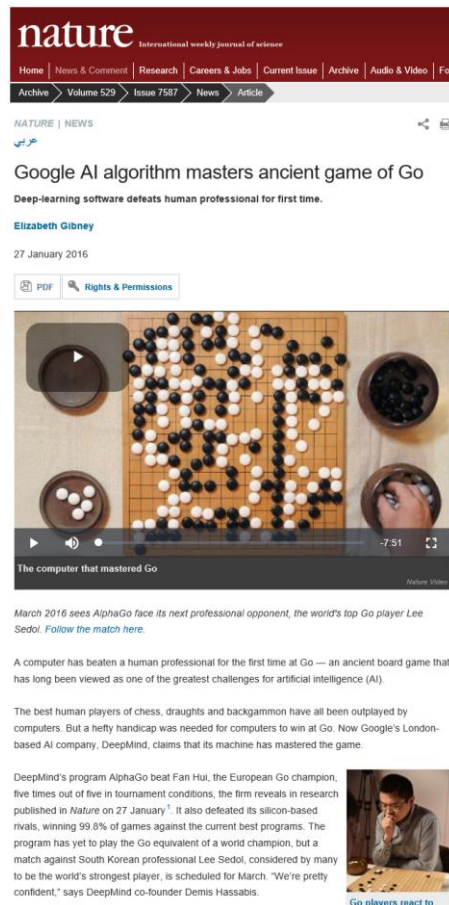
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Bringing more Human Intelligence to AI, Data Science and Digital Automation

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Mögliche Antworten Digitalisierung, Primärversorgung

» Maschine Learning und Automatisierung



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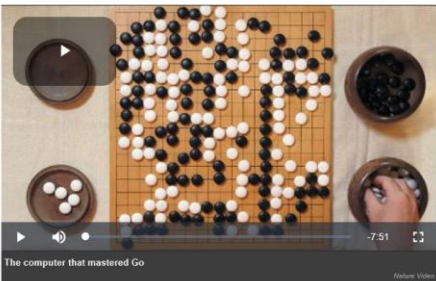
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Mögliche Antworten Digitalisierung, Primärversorgung

» Maschine Learning und Interaktion



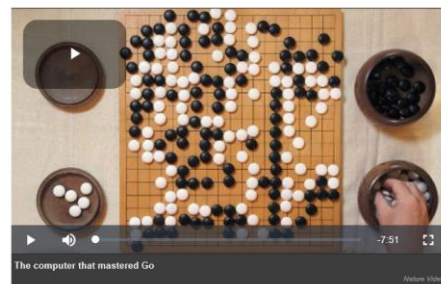
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A Comprehensive Survey of ChatGPT and its Applications Across Domains

Recent advancements in natural language processing (NLP) have ushered in a new era with the emergence of powerful language models, most notably the Generative Pretrained Transformer (GPT) series, which includes substantial language models such as ChatGPT (GPT-3.5 and GPT-4).

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When Digital Transformation Hits the Reality of Healthcare at Full Speed - Chat GPT can do Medicine

13 - 16 November 2023, Düsseldorf, Germany.

In recent years, digitalisation has entered almost every area of daily life. Healthcare is not an exception. As early as the mid-80s, when the history of health IT was really getting started, the internationally leading medical trade fair MEDICA in Düsseldorf featured intensive coverage of the issue in its programme. In the beginning, these were offers related to hardware and software for so-called "office EDP".



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Mayo Clinic's AI Innovation Inspires Hope in Early Detection of Pancreatic Cancer

Estimated to become the second leading cause of cancer deaths in the U.S. by 2030, pancreatic cancer has a grim prognosis with nearly 70% of patients facing mortality within the first year of diagnosis. Unfortunately, 40% of small pancreatic cancers elude detection on CT scans until they've advanced to an incurable stage.

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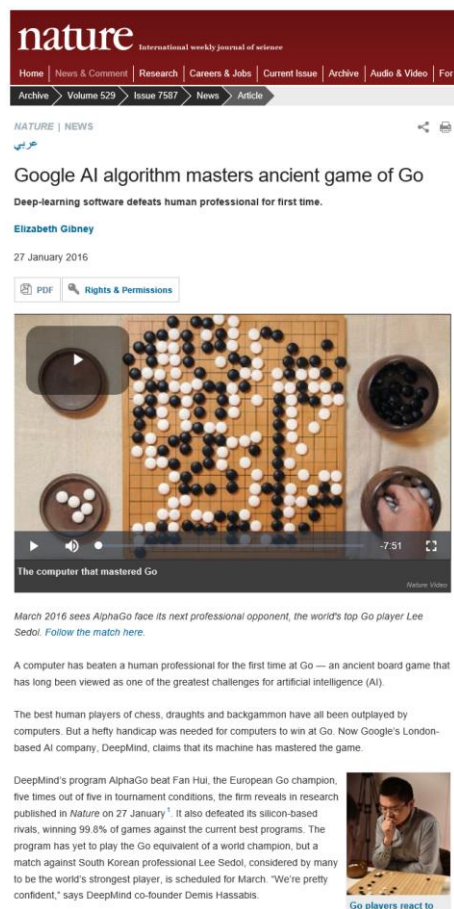
AI Language Models could Help Diagnose Schizophrenia

Scientists at the UCL Institute for Neurology have developed new tools, based on AI language models, that can characterise subtle signatures in the speech of patients diagnosed with schizophrenia.

Mögliche Antworten

Digitalisierung, Primärversorgung

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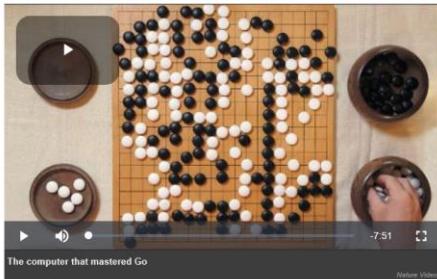
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Bringing more Human Intelligence to AI, Data Science and Digital Automation

The advent of data science, wireless connectivity and sensors, artificial intelligence (AI), and the Internet of Things (IoT) has raised the prospects for digital automation, smart hospital design and the home health care industry for an aging population. A new horizon scanning analysis described why AI, data science, and digital automation need more of the human element.



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▼ Lifestyle Über uns Tipps Ganz Österreich

BILDUNG

ChatGPT besteht Zentralmatura

Die Landesschüler:innenvertretung Niederösterreich hat die Aufgaben der letzten Zentralmatura durch das Künstliche-Intelligenz-Tool ChatGPT lösen lassen. Das Programm hätte die Matura bestanden. Die Schüler fordern nun Änderungen im Unterricht.

Online seit heute, 5,49 Uhr [Teilen](#)

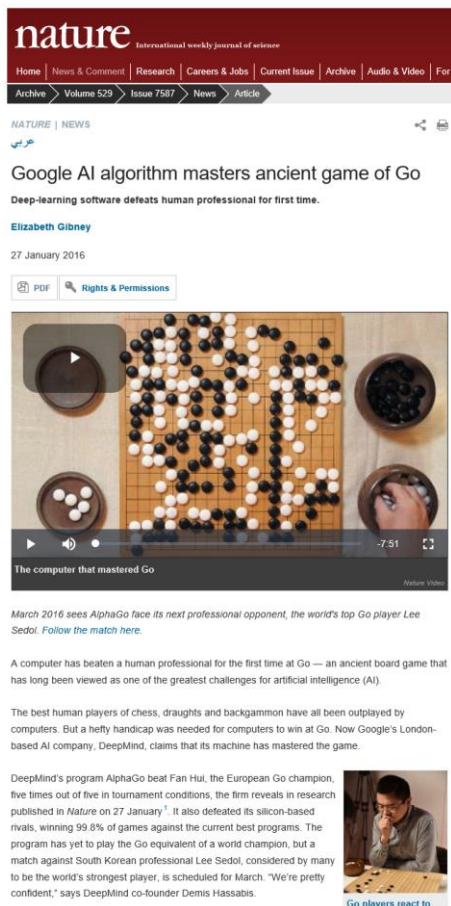
Die Aufgaben, die im vergangenen Jahr in Deutsch, Mathematik und Englisch zur Zentralmatura gestellt wurden, wurden ChatGPT gestellt. In Deutsch korrigierte die ChatGPT-Ergebnisse eine Lehrperson, in Mathematik und Englisch wurden die Lösungen mit den bekannten Lösungen verglichen. Das Ergebnis: Das Tool für künstliche Intelligenz hätte bestanden, und zwar mit einem Genügend in Deutsch und Mathematik sowie mit einem Befriedigend in Englisch.

Betont wurde außerdem, dass die Lösungen mit der Version 3 des Chatbots erarbeitet wurden. Mittlerweile ist eine schnellere und deutlich erweiterte Version verfügbar. AHS-Landesschulsprecher Marco Gayer sagte: „Es ist ein klassisches Aufzeigen von unserem technischen Stand aktuell und auch ein Aufzeigen, dass das Bildungssystem in unserer Zeit doch auch ein Stück hinterherhinkt.“

Mögliche Antworten

Digitalisierung, Primärversorgung

» Maschine Learning und Interaktion



The screenshot shows the top of a Nature news article. The header includes the Nature logo and navigation links. The main headline is "Google AI algorithm masters ancient game of Go" with a sub-headline "Deep-learning software defeats human professional for first time." The author is Elizabeth Gibney and the date is 27 January 2016. Below the text is a video player showing a Go board with black and white stones. The video title is "The computer that mastered Go".

JAMA Internal Medicine | [Original Investigation](#)

Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum

John W. Ayers, PhD, MA; Adam Poliak, PhD; Mark Dredze, PhD; Eric C. Leas, PhD, MPH; Zechariah Zhu, BS; Jessica B. Kelley, MSN; Dennis J. Faix, MD; Aaron M. Goodman, MD; Christopher A. Longhurst, MD, MS; Michael Hogarth, MD; Davey M. Smith, MD, MAS

IMPORTANCE The rapid expansion of virtual health care has caused a surge in patient messages concomitant with more work and burnout among health care professionals. Artificial intelligence (AI) assistants could potentially aid in creating answers to patient questions by drafting responses that could be reviewed by clinicians.

OBJECTIVE To evaluate the ability of an AI chatbot assistant (ChatGPT), released in November 2022, to provide quality and empathetic responses to patient questions.

DESIGN, SETTING, AND PARTICIPANTS In this cross-sectional study, a public and nonidentifiable database of questions from a public social media forum (Reddit's r/AskDocs) was used to randomly draw 195 exchanges from October 2022 where a verified physician responded to a public question. Chatbot responses were generated by entering the original question into a fresh session (without prior questions having been asked in the session) on December 22 and 23, 2022. The original question along with anonymized and randomly ordered physician and chatbot responses were evaluated in triplicate by a team of licensed health care professionals. Evaluators chose "which response was better" and judged both "the quality of information provided" (*very poor, poor, acceptable, good, or very good*) and "the empathy or bedside manner provided" (*not empathetic, slightly empathetic, moderately empathetic, empathetic, and very empathetic*). Mean outcomes were ordered on a 1 to 5 scale and compared between chatbot and physicians.

- + Invited Commentary
- + Related article
- + Supplemental content

Mögliche Antworten Digitalisierung, Primärversorgung

» Maschine Learning und Interaktion

The screenshot shows the top of a Nature website article. The header includes the 'nature' logo and navigation links like 'Home', 'News & Comment', 'Research', etc. The article title is 'Google AI algorithm masters ancient game of Go' by Elizabeth Gibney, dated 27 January 2016. Below the text is a video player showing a Go board with black and white stones. The video title is 'The computer that mastered Go'. Below the video, there is a caption: 'March 2016 sees AlphaGo face its next professional opponent, the world's top Go player Lee Sedol. Follow the match here.' A short paragraph follows: 'A computer has beaten a human professional for the first time at Go — an ancient board game that has long been viewed as one of the greatest challenges for artificial intelligence (AI).' Another paragraph mentions: 'The best human players of chess, draughts and backgammon have all been outplayed by computers. But a hefty handicap was needed for computers to win at Go. Now Google's London-based AI company, DeepMind, claims that its machine has mastered the game.' At the bottom, there is a small image of a Go player with the caption 'Go players react to'.

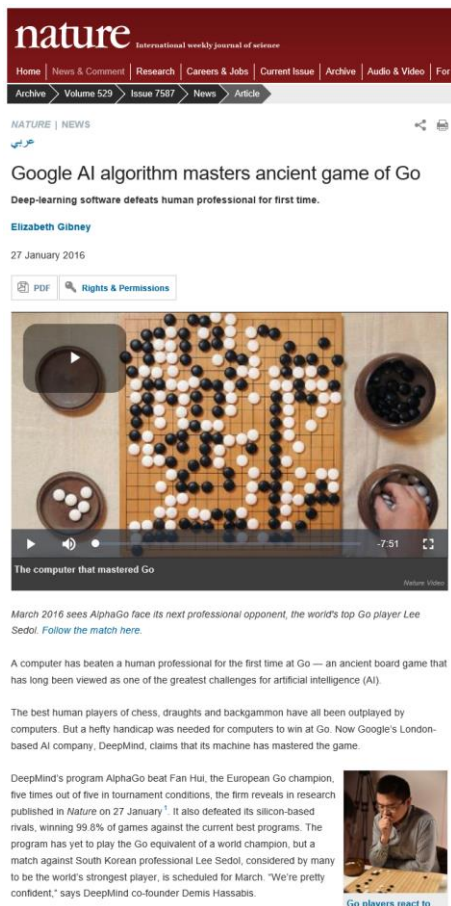
Table. Example Questions with Physician and Chatbot Response^a

Question ^b	Physician response	Chatbot response ^c	Evaluation scores
Question about risk of dying following swallowing and ingesting a toothpick.	<p>If you've surpassed 2-6 h, chances are they've passed into your intestines. Which means it can't be retrieved easily.</p> <p>Many people can swallow razorblades and toothpicks without issue. In case you develop stomach ache, then don't hesitate seeking out an emergency room, and remember to point out the swallowed tooth pick.</p> <p>For now, they won't be doing much.</p>	<p>It's natural to be concerned if you have ingested a foreign object, but in this case, it is highly unlikely that the toothpick you swallowed will cause you any serious harm.</p> <p>Toothpicks are made of wood, which is not toxic and will not cause poisoning. However, it is possible for a toothpick to cause injury if it becomes stuck in the throat or if it punctures the digestive tract. However, this is unlikely to happen with a dull, cooked toothpick that is only 2 cm long.</p> <p>If you are experiencing any discomfort or symptoms such as abdominal pain, difficulty swallowing, or vomiting, it is important to contact a health care provider for further evaluation. However, if you are not experiencing any symptoms, it is safe to assume that the toothpick has passed through your digestive system and you do not need to be concerned.</p> <p>It's always a good idea to be cautious when consuming food and to remove any foreign objects before eating. It's understandable that you may be feeling paranoid, but try not to worry too much. It is highly unlikely that the toothpick will cause you any serious harm.</p>	<ul style="list-style-type: none"> • 100% preferred the chatbot • 4.67 mean quality score (chatbot) • 3.33 mean quality score (physician) • 4.33 mean empathy score (chatbot) • 2.00 mean empathy score (physician)
Question about needing to see a physician following injury that occurred by hitting head on a metal bar while running, resulting in lump on head, headache, and sore neck.	<p>Things that signify you should see a doctor:</p> <ul style="list-style-type: none"> • Nausea/vomiting • Dizziness • Severe or worsening headache • Loss of consciousness • Confusion • Neck stiffness • Problems with vision • Limb weakness <p>If you develop any of these in the next 24 h, rush to the emergency room.</p>	<p>It's always best to err on the side of caution when it comes to head injuries. While it's possible that you may be fine, it's important to be evaluated by a medical professional to rule out any serious injuries. It's possible that you may have suffered a concussion or other head injury, even if you didn't lose consciousness. Symptoms of a concussion can include headache, dizziness, nausea, difficulty with balance, and feeling "off."</p> <p>The location of the impact and the apparent force of the injury could potentially make a difference in the severity of the injury. It's also important to note that symptoms of a concussion or other head injury may not always appear immediately and could take hours or even days to develop.</p> <p>It's important to seek medical attention as soon as possible if you experience any of the following symptoms after a head injury:</p> <ul style="list-style-type: none"> • Loss of consciousness, even if it's just for a few seconds • Severe or worsening headache • Nausea or vomiting • Slurred speech • Difficulty with balance or coordination • Seizures • Changes in behavior or personality • Clear fluid draining from the nose or ears <p>It's also a good idea to see a doctor if you experience neck pain after a head injury, as this could be a sign of a neck injury.</p> <p>In the meantime, try to rest and avoid activities that could potentially cause further injury to your head, such as contact sports or activities that involve high speeds or heights. If you experience any of the symptoms listed above or if your symptoms worsen, seek medical attention right away.</p>	<ul style="list-style-type: none"> • 100% preferred the chatbot • 4.33 mean quality score (chatbot) • 4.67 mean quality score (physician) • 4.67 mean empathy score (chatbot) • 2.33 mean empathy score (physician)
Question about risk of going blind following bleach being splashed into an eye, resulting in irritated and dry eye.	<p>Sounds like you will be fine. You should flush the eye anytime you get a chemical or foreign body in the eye. You can also contact Poison Control 1-800-222-1222.</p>	<p>I'm sorry to hear that you got bleach splashed in your eye. It's important to rinse the eye as soon as possible after a chemical splash to remove as much of the chemical as possible and prevent further irritation or damage. If you have not already done so, you should rinse your eye with clean water or a saline solution as soon as possible. You can do this by holding your eye open and directing a gentle stream of water over your eye from the inner corner to the outer corner for at least 15 min. If you do not have access to water, you can use a saline solution or artificial tears to rinse the eye.</p> <p>If you are experiencing significant pain, redness, or vision changes, or if you are unable to rinse your eye properly, you should seek medical attention immediately. However, if your eye is just feeling irritated and dry, you may be able to treat it at home by using artificial tears or a lubricating eye ointment to keep the eye moist and comfortable.</p> <p>It is unlikely that you will go blind from getting bleach splashed in your eye, but it is important to take care of the eye and seek medical attention if necessary to prevent further irritation or damage.</p>	<ul style="list-style-type: none"> • 100% preferred the chatbot • 4.00 mean quality score (chatbot) • 3.33 mean quality score (physician) • 4.67 mean empathy score (chatbot) • 2.33 mean empathy score (physician)

Mögliche Antworten

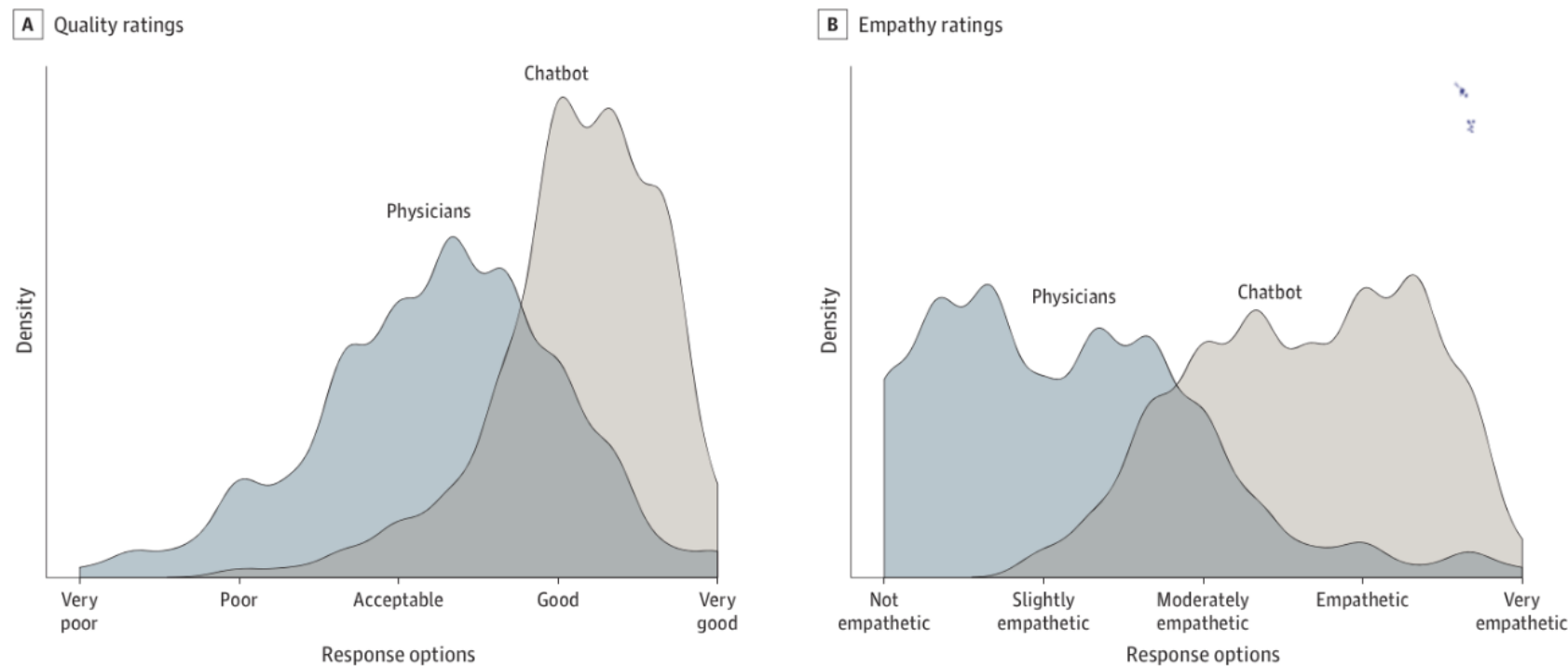
Digitalisierung, Primärversorgung

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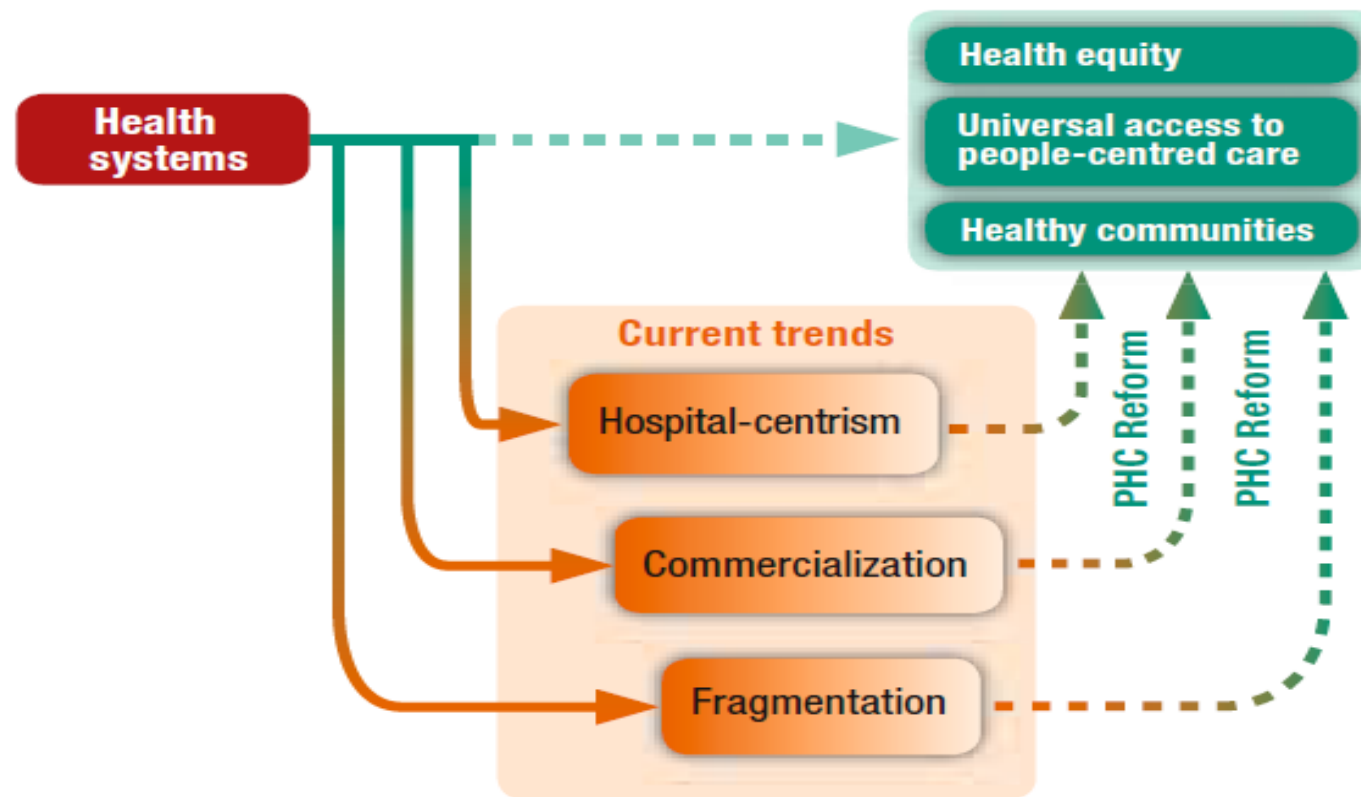
Figure. Distribution of Average Quality and Empathy Ratings for Chatbot and Physician Responses to Patient Questions



Kernel density plots are shown for the average across 3 independent licensed health care professional evaluators using principles of crowd evaluation. A, The overall quality metric is shown. B, The overall empathy metric is shown.

Mögliche Antworten Digitalisierung, Primärversorgung


Figure 1.10 How health systems are diverted from PHC core values



Source: WHO, 2008

Mögliche Antworten

» SVR (D)



**Sachverständigenrat
GESUNDHEIT & PFLEGE**

Fachkräfte im Gesundheitswesen

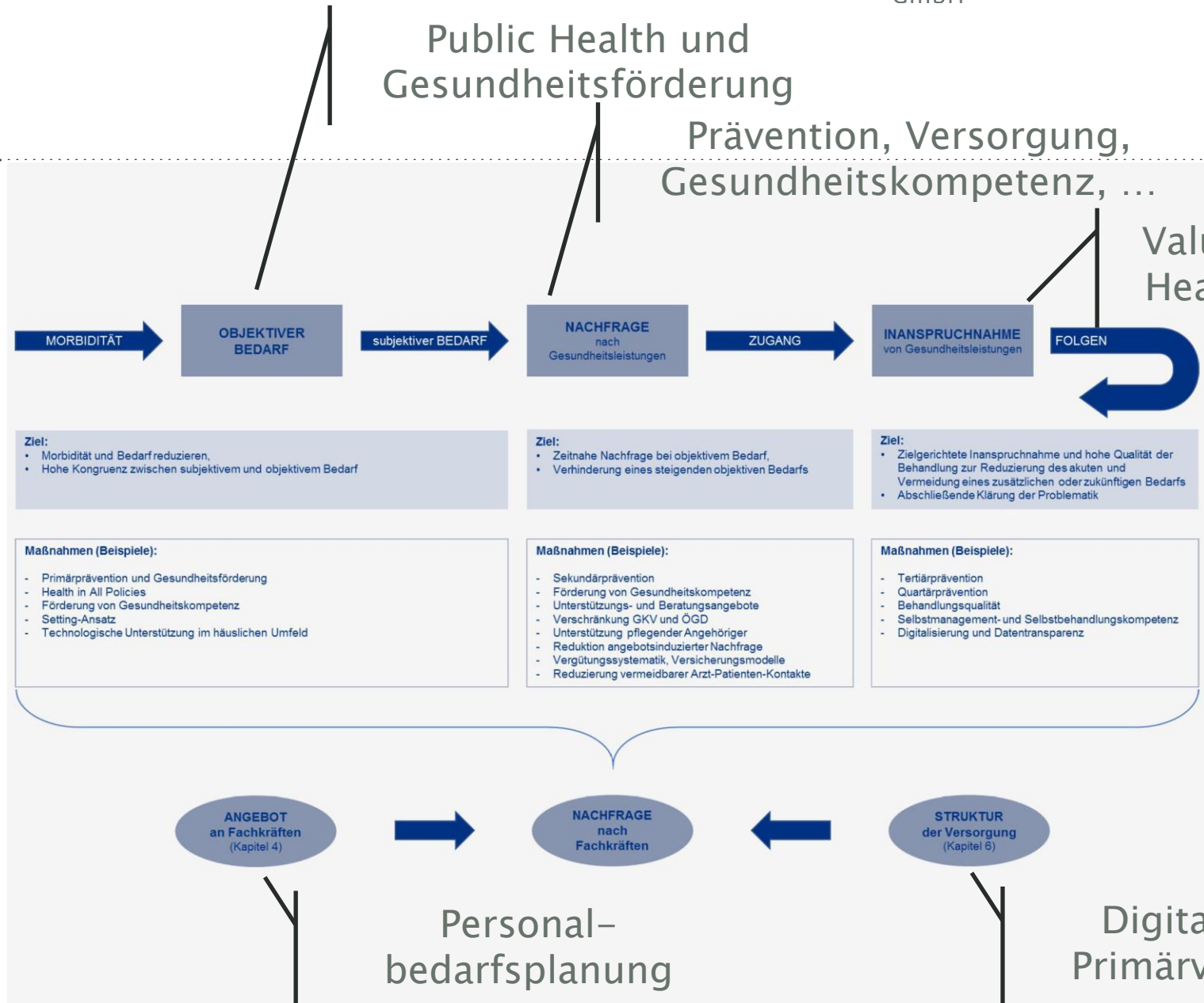
**Nachhaltiger Einsatz
einer knappen
Ressource**

Gutachten 2024

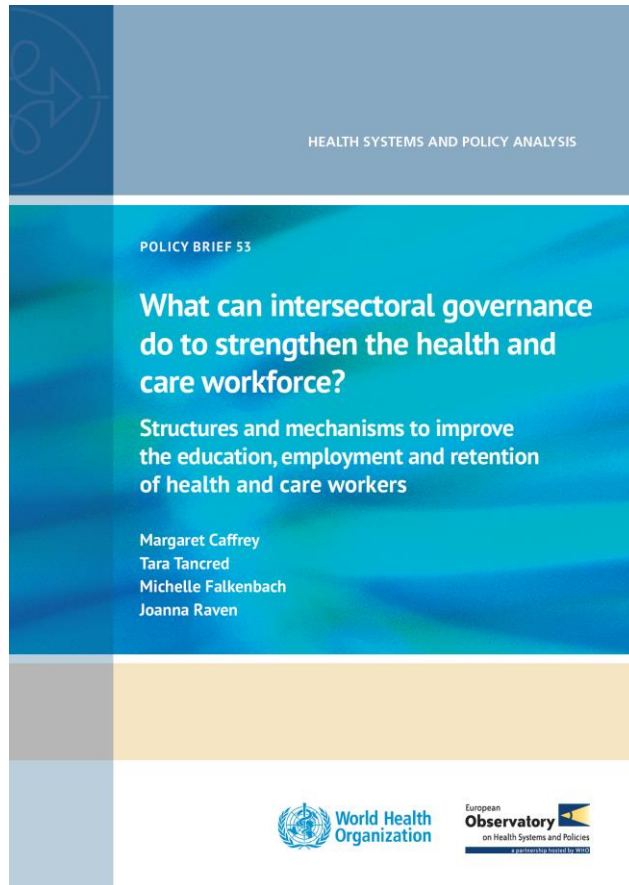
Public Health und
Gesundheitsförderung

Prävention, Versorgung,
Gesundheitskompetenz, ...

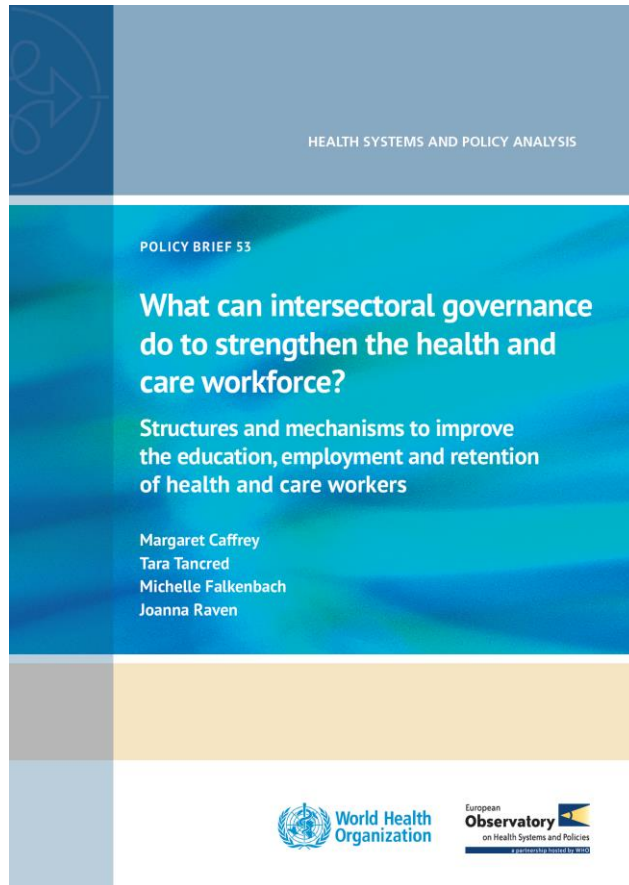
Value Based
Health Care



Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)



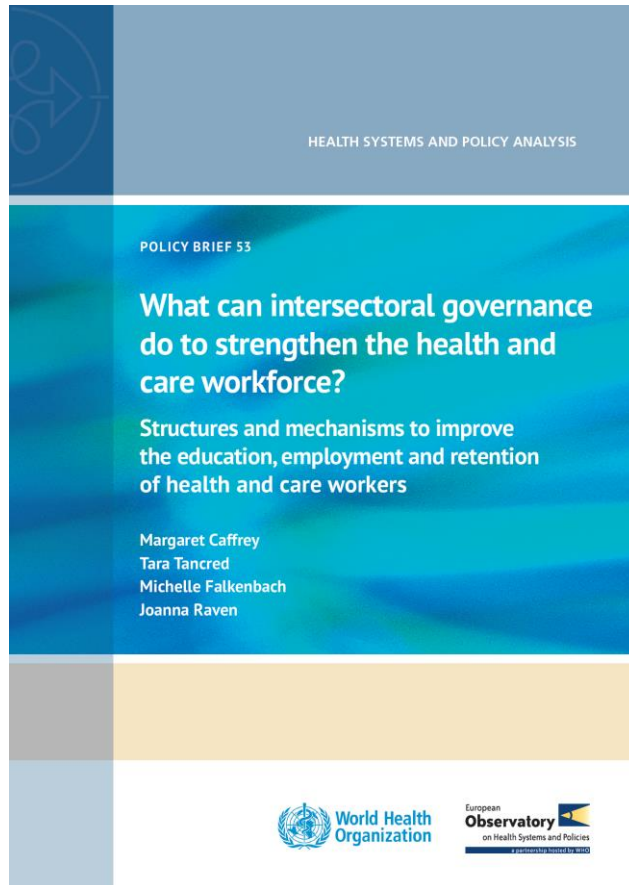
Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)



Box 3. Georgia: from the absence of planning to strategic planning

With the exception of rural PHC services and a handful of public hospitals, Georgia has a highly privatized health care system dominated by for-profit entities. This approach also applies to the HCWF, whose supply has been left to the market. Since the deregulation of the health system in 2004, Georgia has not undertaken any formal HCWF planning. Instead, it relied on the choices of students, the output of education institutions and demands of health service providers in the market. The Ministry of Health has not actively influenced the supply of HCWs, and governance links between the Ministry of Health and key stakeholders have not been in place. The result was a laissez-faire and unplanned approach to HCW supply, leading to oversupply of medical doctors (mainly in narrow specialties), an undersupply of nurses and midwives, with a concentration of the HCWF in big cities around private health care networks.

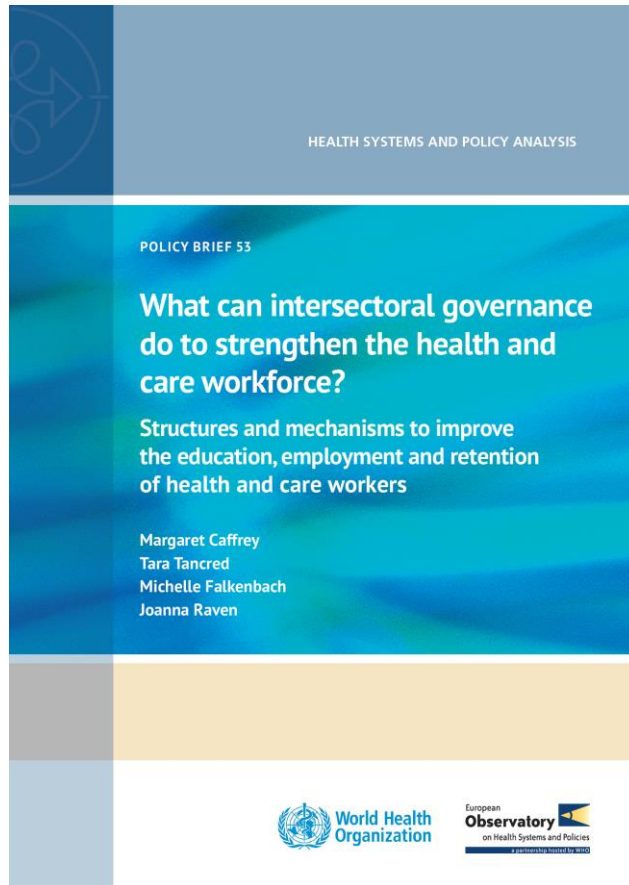
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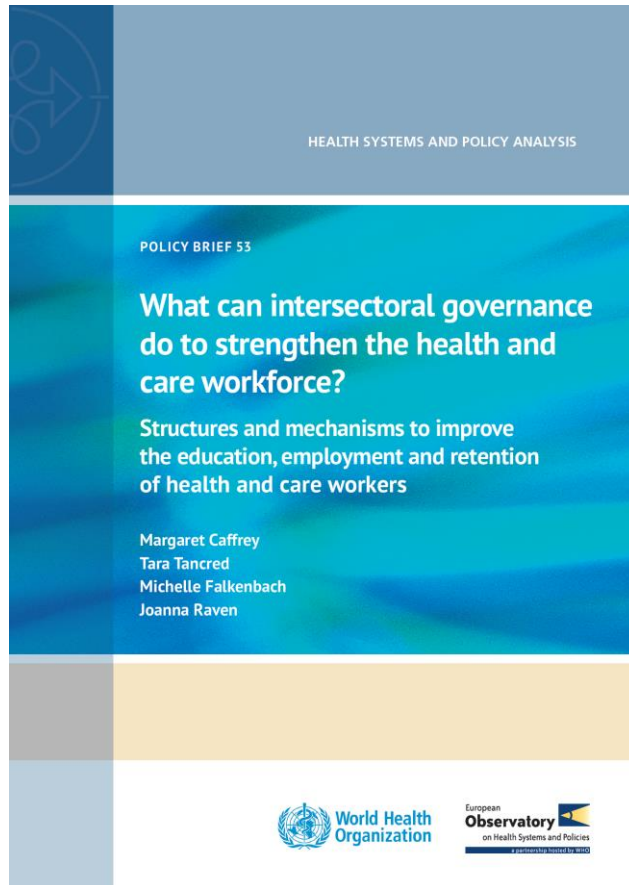
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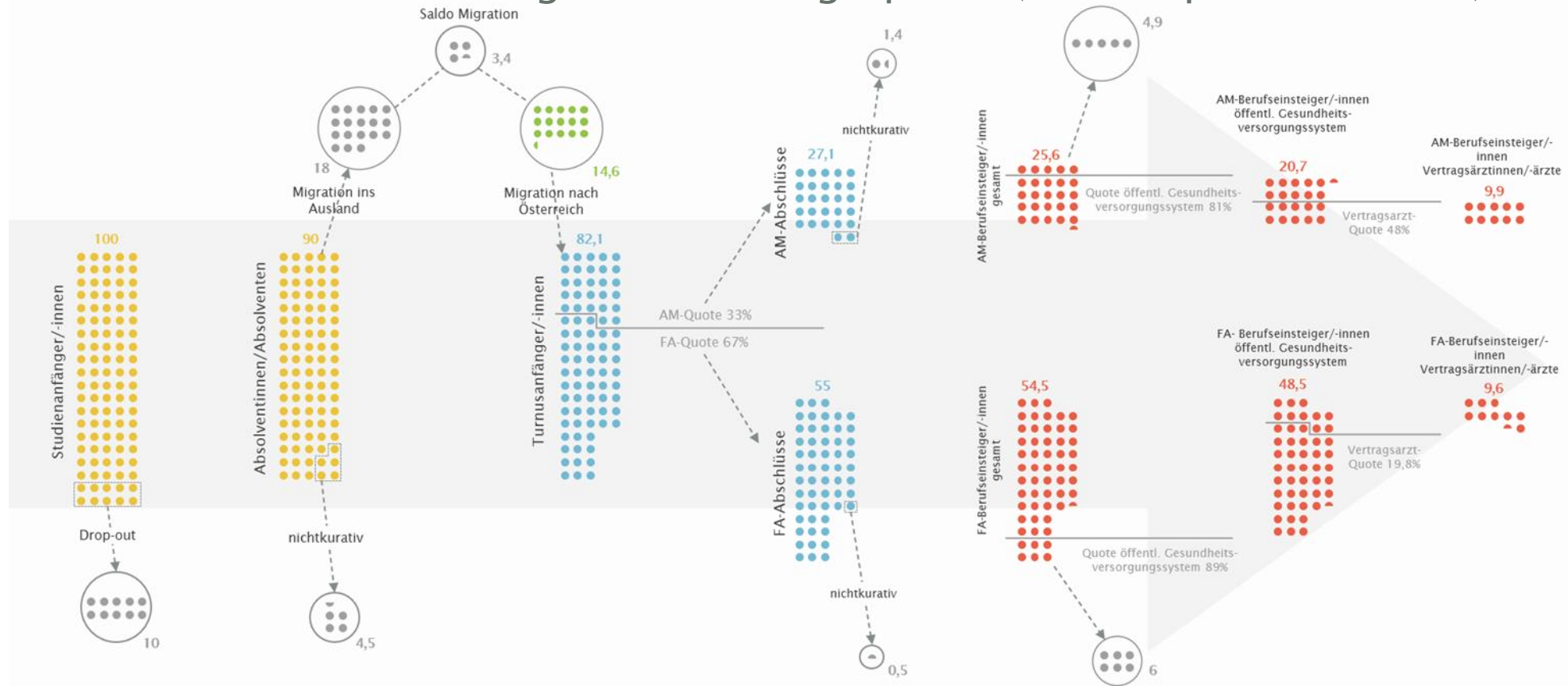


The assessment findings supported the creation of the country's first HCWF development strategy, beginning in June 2022. Successful implementation of the strategy relies on attracting additional professionals to PHC in a sustainable way. Key recommendations included:

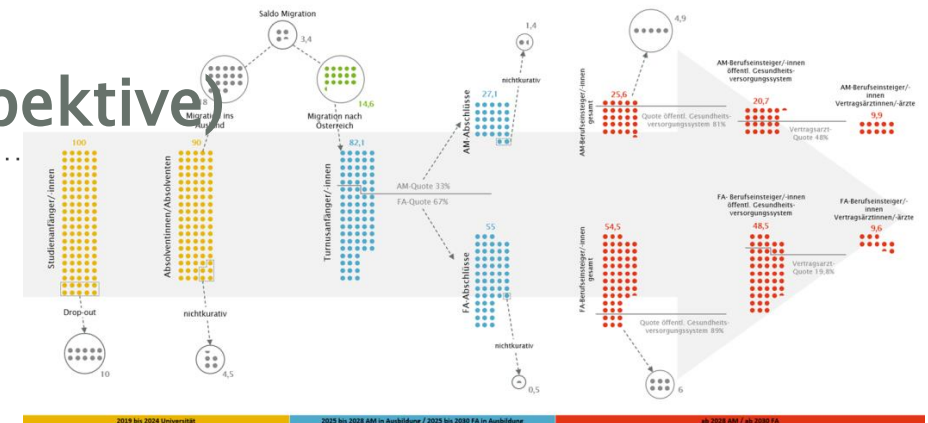
- establishing and investing in an HRH planning and governance unit;
- substantially increasing investment in human resources for PHC;
- providing support to improve quality through continuing professional development;
- developing formal HRH reporting mechanisms and reviewing the HRH information system;
- improving the regulatory environment, including revalidation of accreditation; and
- developing a new approach to recruitment and retention.

Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)

» Die aktuelle Herausforderung: Erwerbsbiographien (am Beispiel ÄrztInnen)



Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)

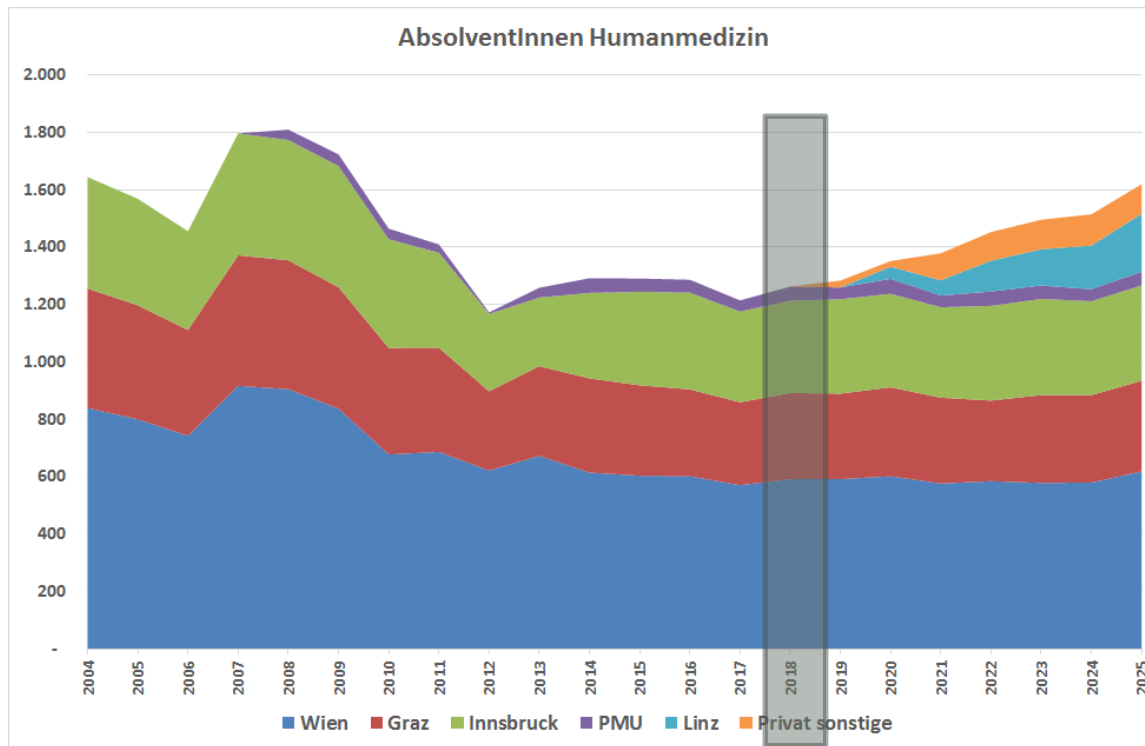
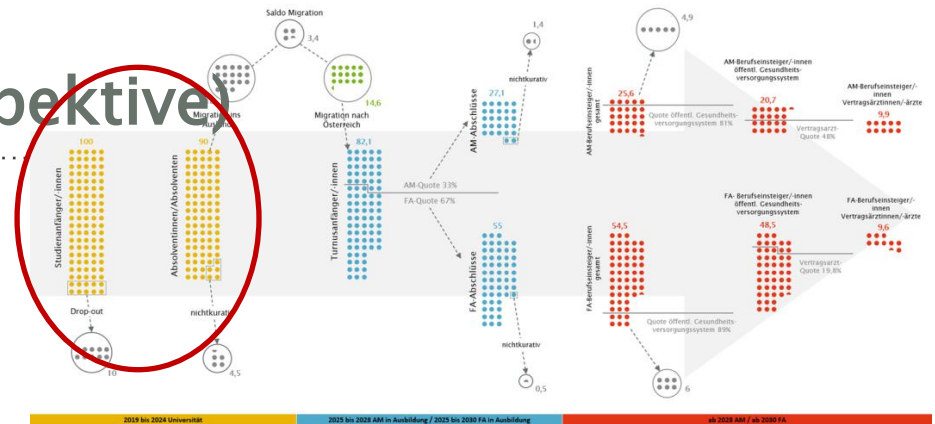


» Die aktuelle Herausforderung: Erwerbsbiographien

- » Der Weg vom Schul-/Studienanfänger bis zum praktizierenden Gesundheitsberufsangehörigen ist lange und durchläuft unterschiedliche System- und damit auch Regulierungsebenen/Politikbereiche/Financiers
- » Aktuelle strukturelle Dynamiken/Unsicherheiten sowohl im Bereich der Hochschulen (insb. PU → limitierte Planung) sowie im Bereich der Ausbildung/Tätigkeitsprofile erschweren Vorhersagen
 - » Zudem sind Migration und/oder unterschiedliche Erwerbsbiographien zu berücksichtigen
- » Planungs- und Prognoseroutinen sind noch zu entwickeln bzw. werden entwickelt
 - » zT als Folge des „Oversupply“ der letzten Jahrzehnte wenig ausgeprägt
 - » Zur Objektivierung der Diskussion

Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)

» Die aktuelle Herausforderung (ÄrztInnen)



Right Jobs, Right Skills, Right Places

Health workers are the cornerstone of health systems, playing a central role in providing health services to the population and improving health outcomes. This publication reviews key trends and policy priorities on health workforce across OECD countries, with a particular focus on doctors and nurses given the preeminent role that they have traditionally played in health service delivery. It outlines broad strategic directions for health workforce policies to achieve the goal of having the right number and mix of health care providers, with the right skills, providing services at the right places, to better respond to changing population health needs.

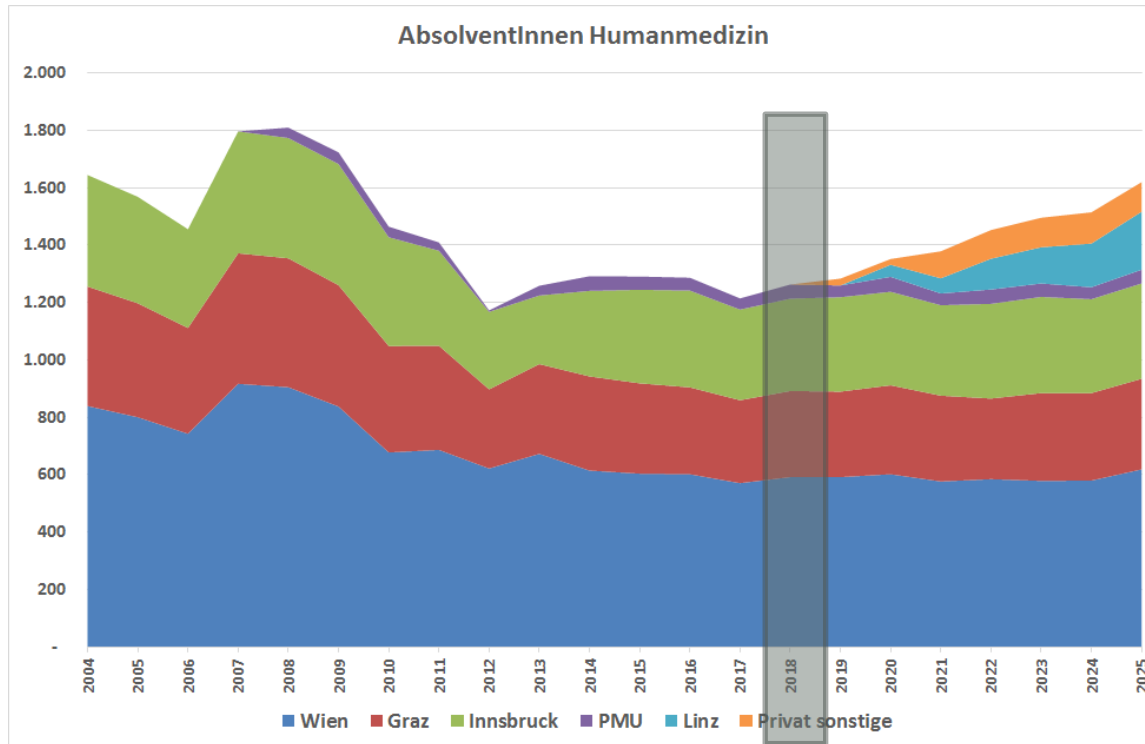
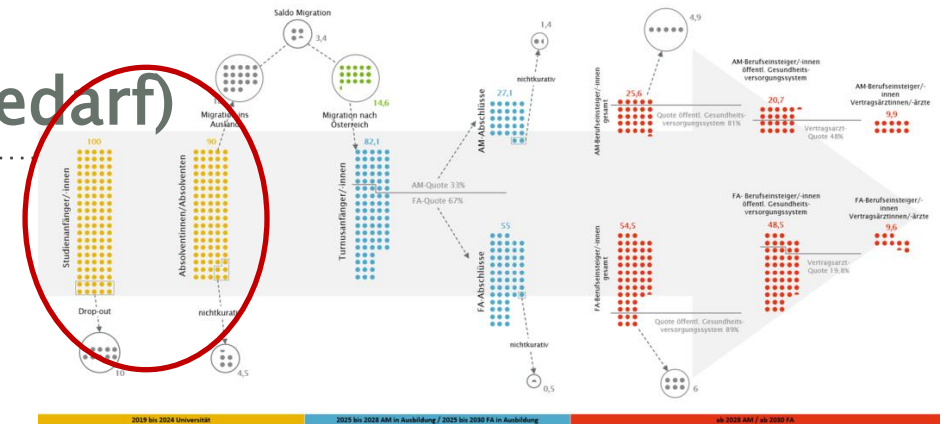
Despite all the interest in self-treatment and the growing role of eHealth and mHealth, it is still – overwhelmingly – health workers that provide health services to the population. The demand for and supply of health workers have increased over time in all OECD countries, with jobs in the health and social sector accounting in 2014 for more than 10% of total employment in most OECD countries.

Discussions on health workforce issues in OECD countries often continue to focus on shortages of health workers, with persisting concerns that the upcoming retirement of the “baby-boom” generation of doctors and nurses might exacerbate such shortages. However, many OECD countries have

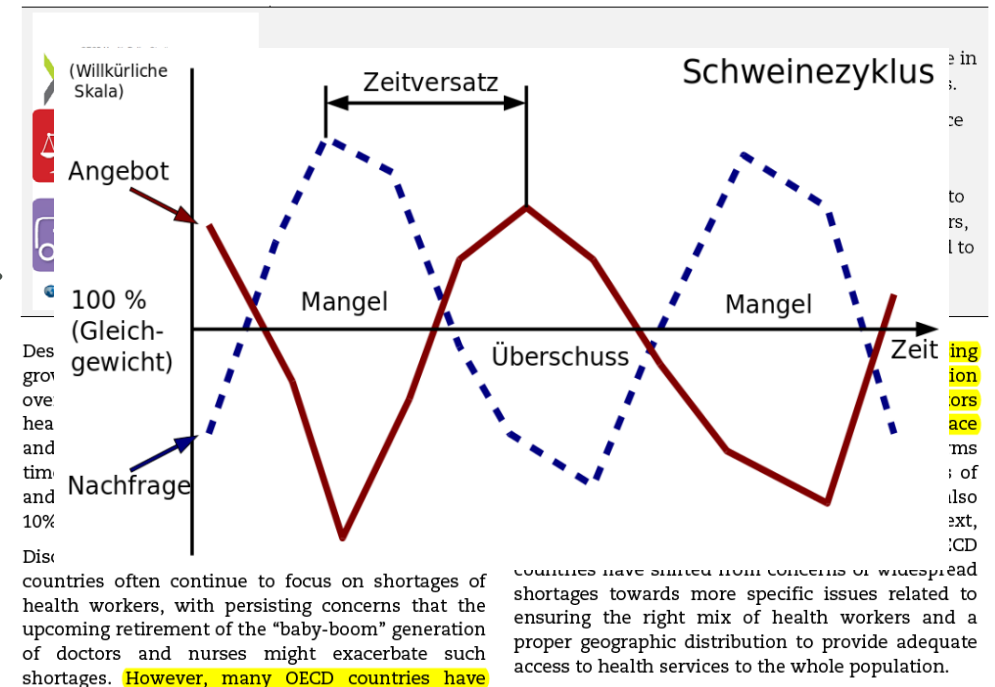
anticipated this wave of retirement by increasing student intakes in medical and nursing education over the past decade, leading to many new doctors and nurses entering the labour market to replace those who will retire. In addition, pension reforms and other factors have increased retention rates of doctors and nurses in the profession, also contributing to increasing supply. In this context, the main health workforce priorities in many OECD countries have shifted from concerns of widespread shortages towards more specific issues related to ensuring the right mix of health workers and a proper geographic distribution to provide adequate access to health services to the whole population.

Mögliche Antworten Personalbedarfsplanung (Ausbildung und Bedarf)

» Die aktuelle Herausforderung (ÄrztInnen)

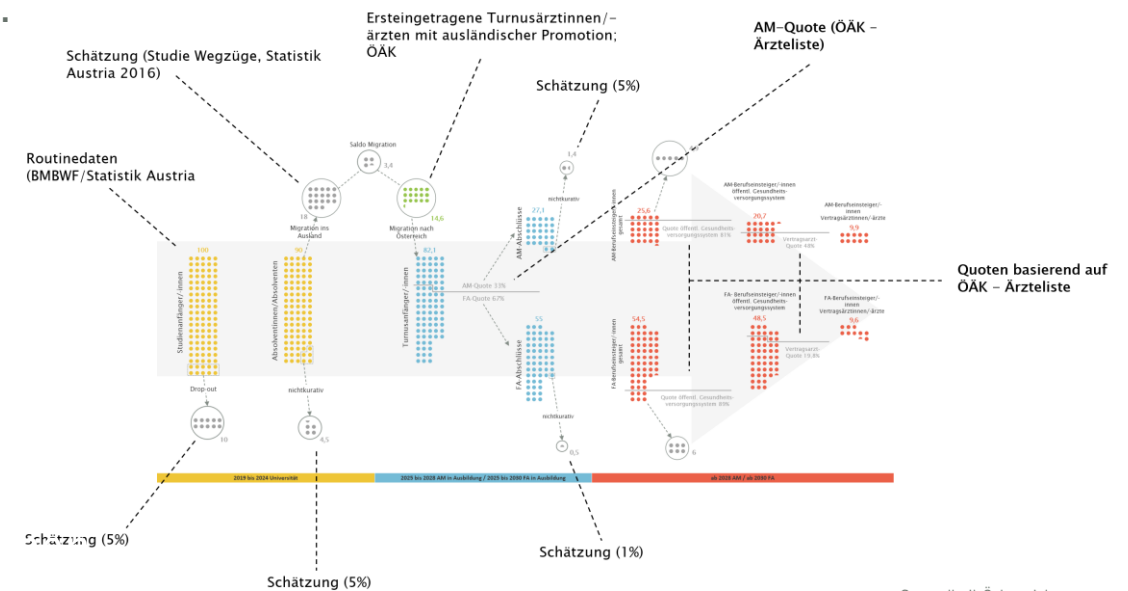


Right Jobs, Right Skills, Right Places



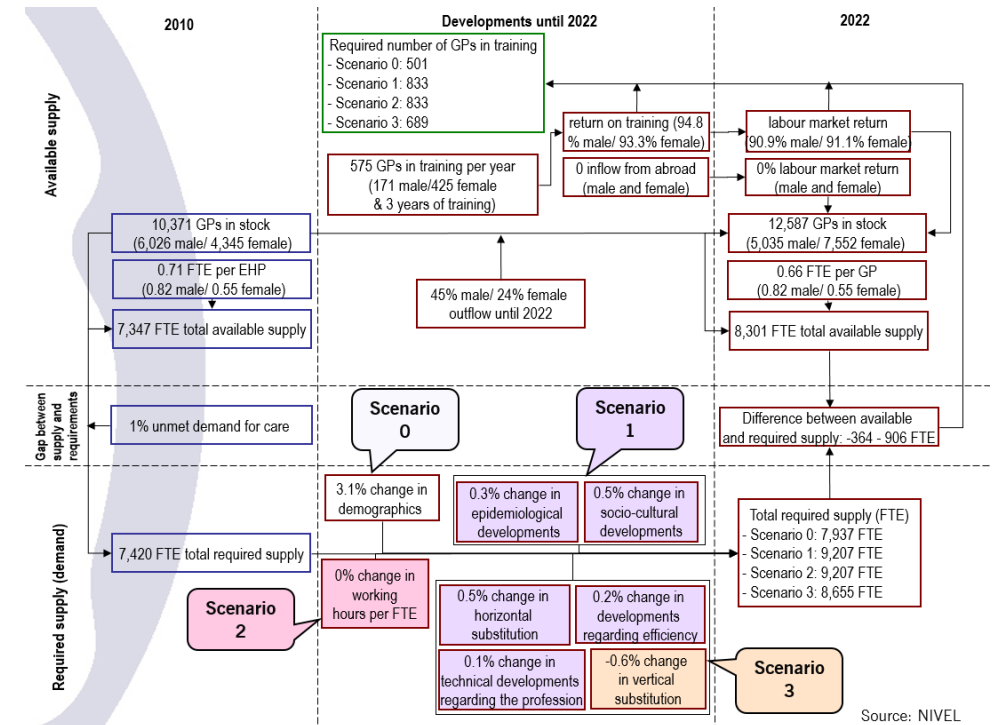
Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)

- » Die aktuelle Herausforderung (ÄrztInnen)
 - » Datenlage und Datenerfordernisse als kritischer Punkt
 - » Übergangswahrscheinlichkeiten zwischen Settings bzw. Spezialisierungen
 - » Frage der internationalen Mobilität
 - » Frage der Erwerbsbiographien (→ Aus- und Einstiege)



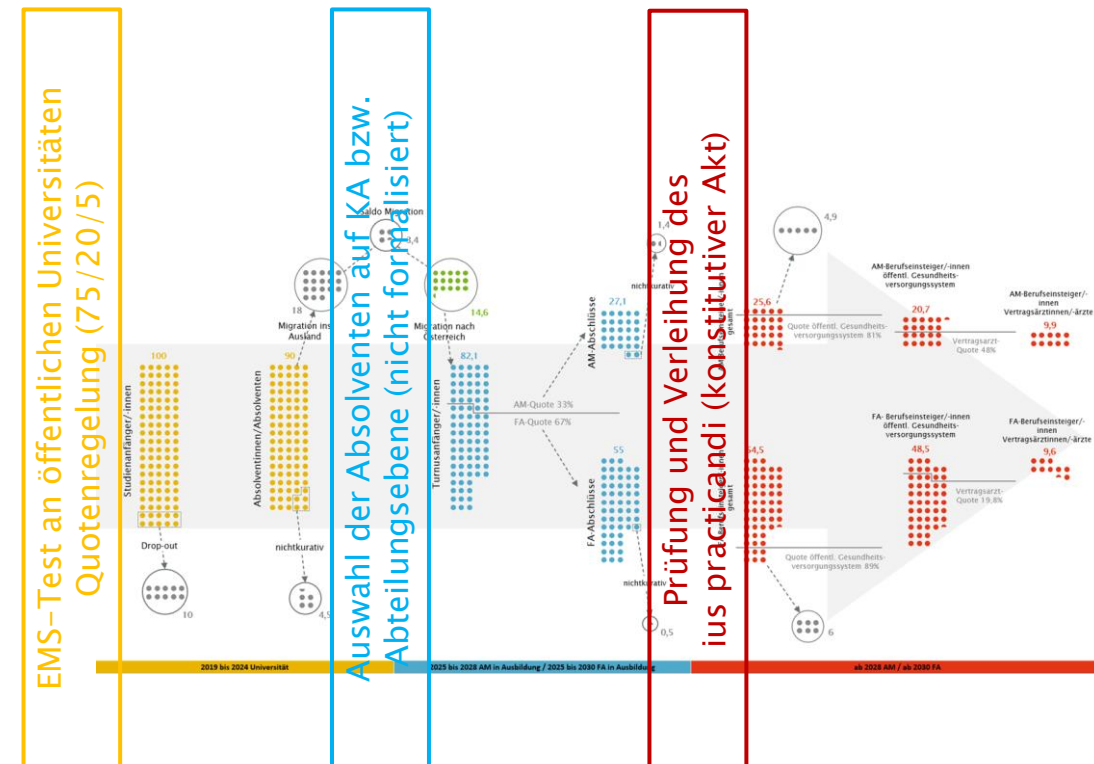
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 - » Einbeziehung aller Gesundheitsberufe (vgl. NL)
 - » Umfassende Planung
 - » Synergien mit ÖSG-Expertengruppen/Integration in ÖSG



Mögliche Antworten Personalbedarfsplanung (die nationale Perspektive)

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- » Prüfung der Wirkung bestehender und Entwicklung neuer Allokations- und Selektionsroutinen
 - » Unter Berücksichtigung internationaler Dynamiken
 - » Unter Berücksichtigung zweiter Markt



Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



1. Oversupply of health and care workers is the only solution to current challenges and only top-level political leaders' commitment can secure investment in the HCWF on the scale needed

- Political leaders proved during COVID-19 that remarkable things are possible.
- Now only top-level **political leadership can ensure the financial commitment necessary to break the cycle** of shortages and attrition. Leaders need to recognize:
 - decades of underinvestment have led to a workforce crisis that requires urgent action;
 - low- and middle-income countries (LMICs) face significant shortages and high-income countries with rising population demand are a long way from self-sufficiency;
 - the macroeconomic outlook and threat of **economic stagnation in many countries is a challenge but cannot be allowed to undermine collective action.**
- The evidence from the pandemic – that the HCWF generates invaluable contributions to the economy, decent employment, gender rights, societal health and well-being and health security – needs to be used to convince finance ministries that the HCWF matters.
- Health must be at the decision-making table when finances are allocated to get investments to where they need to be.

Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



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Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



3. Investment will be wasted if the HCWF is not supported and protected and workers leave the sector

- The pandemic demonstrated that a range of measures can effectively protect the HCWF and sustain them.
- **Investing in the protection of all existing workers is crucial if the HCWF is to be retained**, which means:
 - paying for decent working conditions;
 - taking steps to support the mental and physical health of the HCWF;
 - managing staff performance and supporting career development;
 - removing the gender pay gap, where it exists, delivering equal pay and targeting gender inequalities.
- **The HCWF is not sustainable if adequate employment opportunities are not available.**
- At the half-way point of the SDGs there are inequities and paradoxes:
 - the HCWF accounts for 10% of total employment in high-income countries (but only a little over 1% in LMICs);
 - LMICs experience both a shortage of HCWF relative to population needs, and unemployment or underemployment of health and care workers (HCWs)

- **Coordinated investments – both domestic and international are needed to stimulate health labour markets and HCW employment opportunities including by:**
 - adjusting labour market investments to stimulate job creation.
 - initiatives to offset demand issues;
 - fair remuneration.
- Adequate financial and non-financial incentives need to be combined with policies that support and protect HCWs, especially women and youth.
- 4. **Solidarity and cooperation at the multilateral, regional and domestic levels is needed to secure sufficient and sustained investment**
- Securing long-term domestic financing for recurrent HCWF costs relies on demonstrating efficiency, but an underfunded HCWF cannot be effective and optimize performance.

Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



3. Investment will be wasted if the HCWF is not supported and protected and workers leave the sector

- The pandemic demonstrated that a range of measures can effectively protect the HCWF and sustain them.
- **Investing in the protection of all existing workers is crucial if the HCWF is to be retained**, which means:
 - paying for decent working conditions;
 - taking steps to support the mental and physical health of the HCWF;
 - managing staff performance and supporting career development;
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Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



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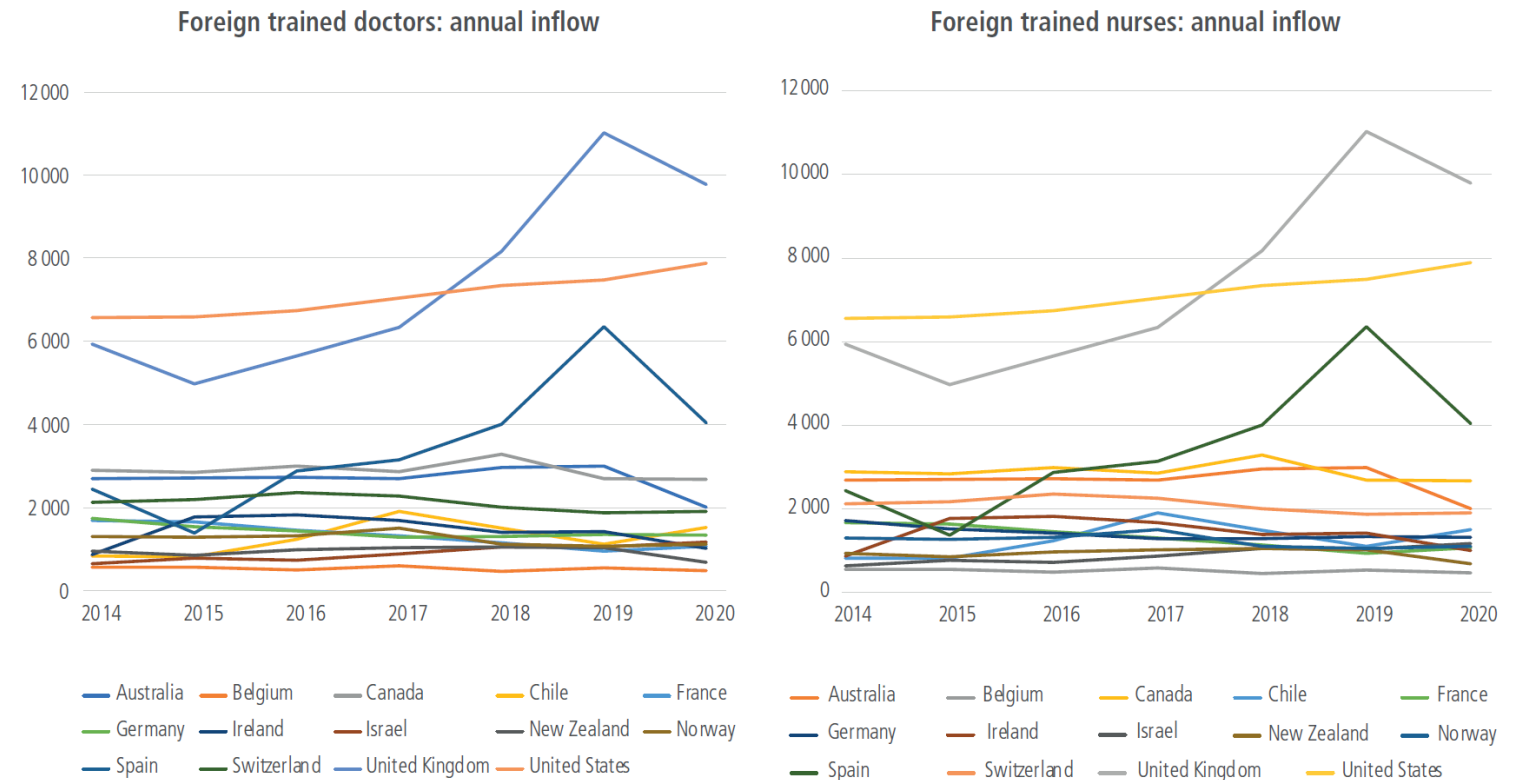
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Mögliche Antworten Personalbedarfsplanung (die internationale Perspektive)



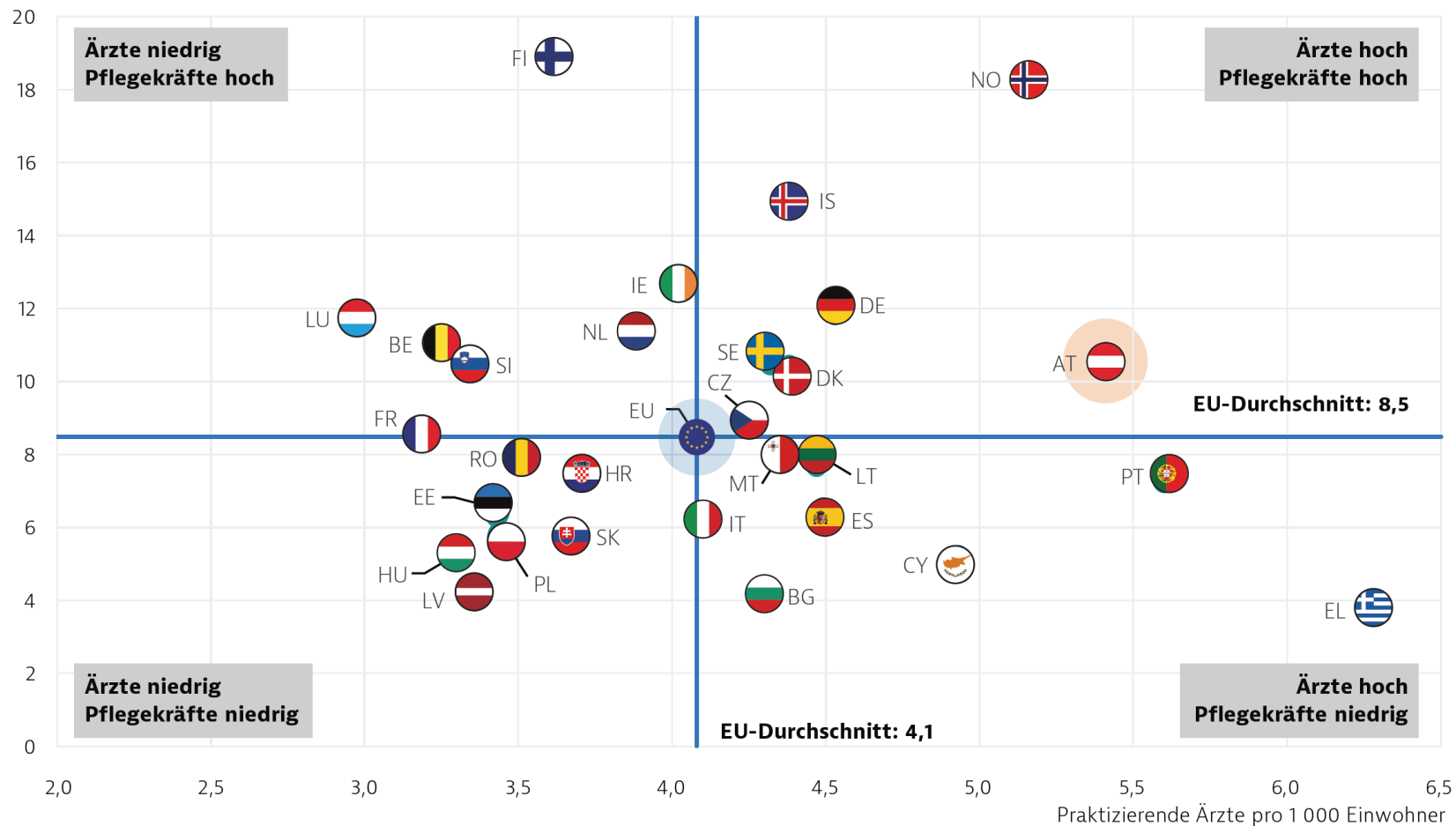
Fig. 3. The annual inflows of foreign-trained doctors and nurses in selected OECD countries has slightly increased in recent years



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

Abbildung 12: Österreich weist eine überdurchschnittliche Dichte an Ärzten und Pflegekräften auf

Praktizierende Pflegekräfte pro 1 000 Einwohner



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

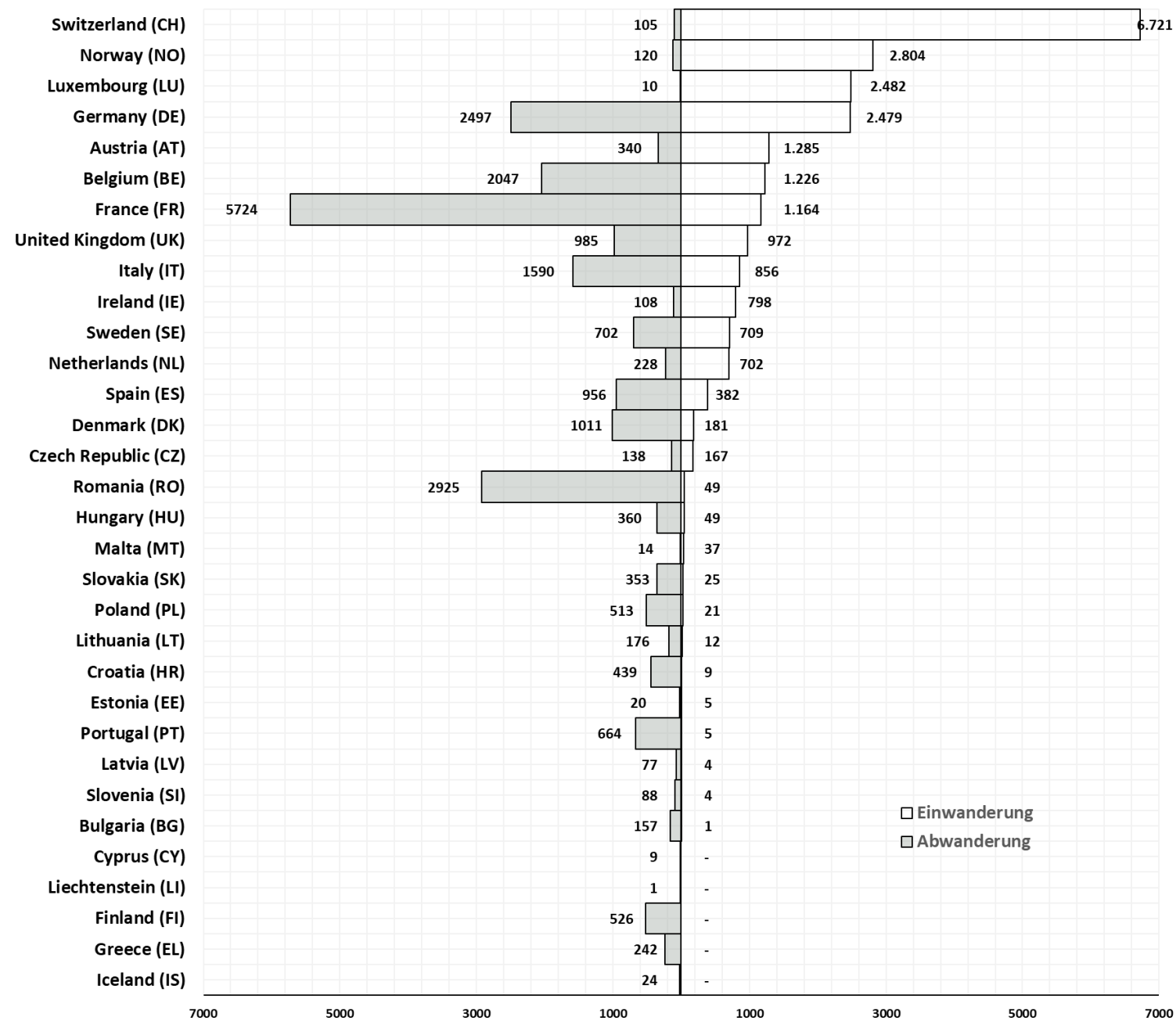
» Dynamiken



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

» Daten

The screenshot shows the European data portal interface. At the top, there is a navigation bar with the European Union logo, 'European Union', a 'Login' button, a language selector set to 'English', and a search bar labeled 'Search datasets' with a 'Search' button. Below this is the 'European data' header with the URL 'data.europa.eu' and the tagline 'The official portal for European data'. A main navigation menu includes 'Home', 'Data', 'Academy', 'Community', 'Publications', and 'Documentation'. The breadcrumb trail reads 'Home > Datasets > Health workforce migration - historical data (2000-2021)'. The main content area features a 'Dataset' button and the title 'Health workforce migration - historical data (2000-2021)'. It identifies the publisher as 'Eurostat' and the update date as '12.07.2022'. Below the title are buttons for 'Dataset', 'Quality', and 'Similar datasets'. To the right, there are options for 'Dataset feed', 'Linked data', 'Cite', and 'Embed'. A metadata box on the right side contains the following information: 'Created: 27.01.2016', 'Updated: 12.07.2022', 'Landing Page: https://ec.europa.eu/eurostat/databrowser/product/page/hlth_rs_wkmg', and 'Publisher: Name: Eurostat'.

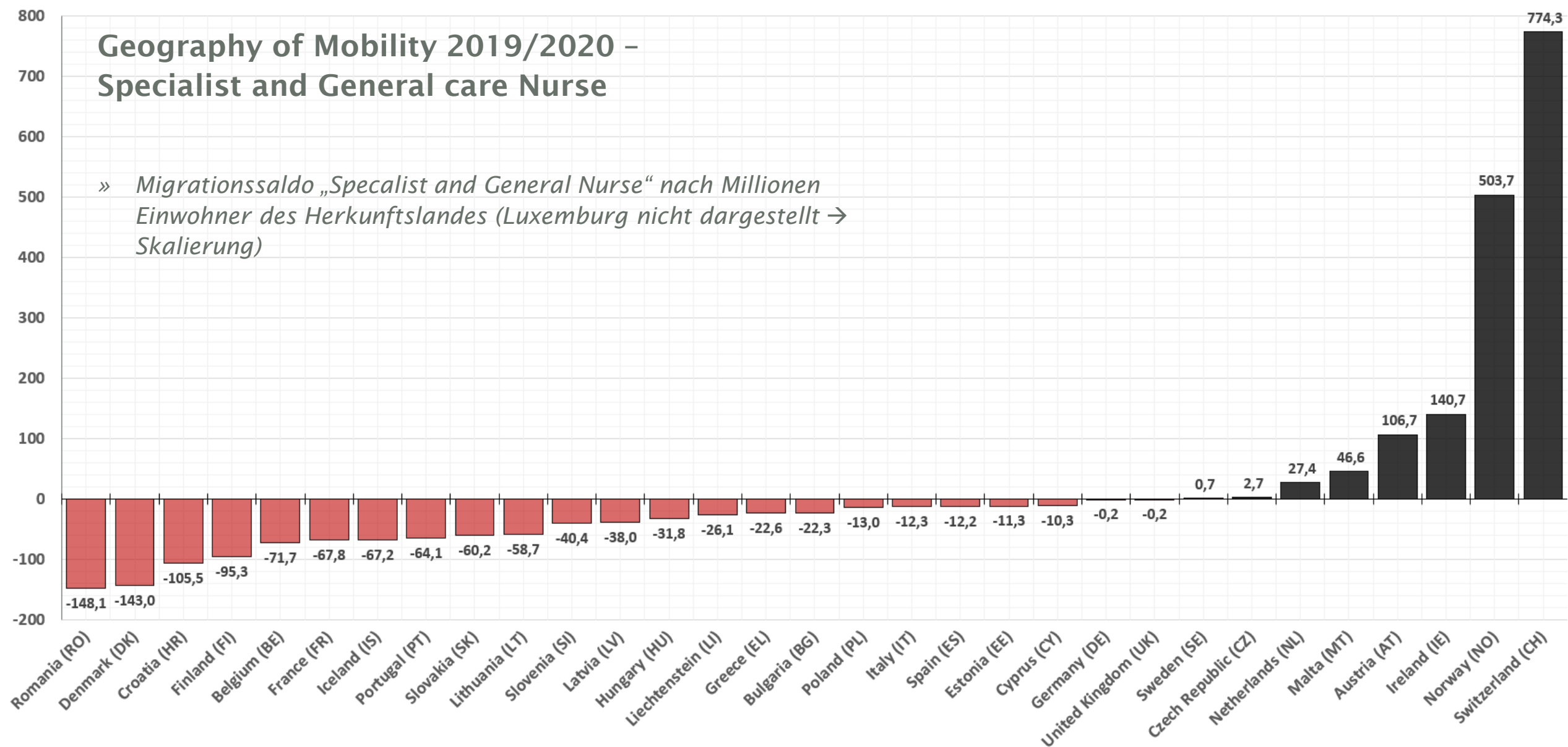


Geography of Mobility 2019/2020 – Specialist and General care Nurse

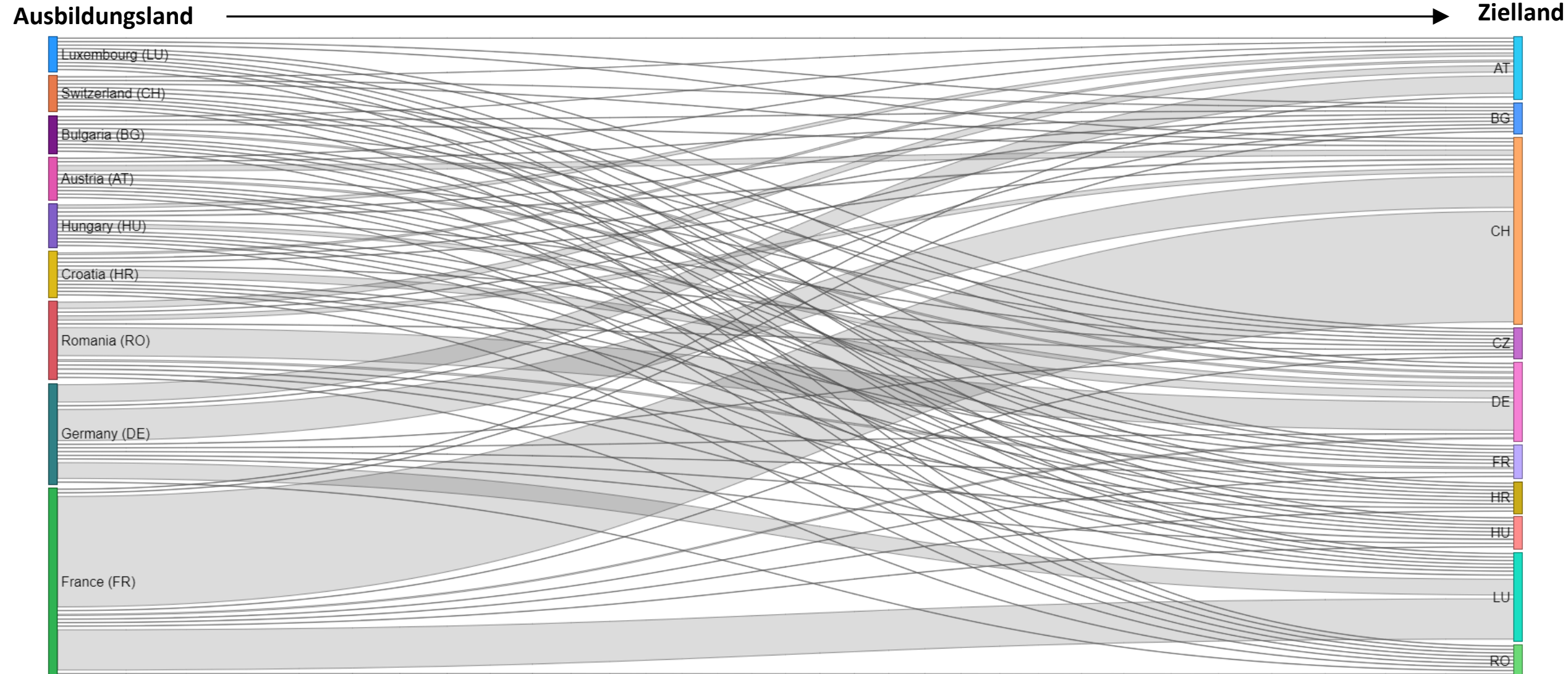
» *Einwanderung und Abwanderung von “Specialist and General care Nurses” im Zeitraum 2019 bis 2020 nach Ländern*

Geography of Mobility 2019/2020 – Specialist and General care Nurse

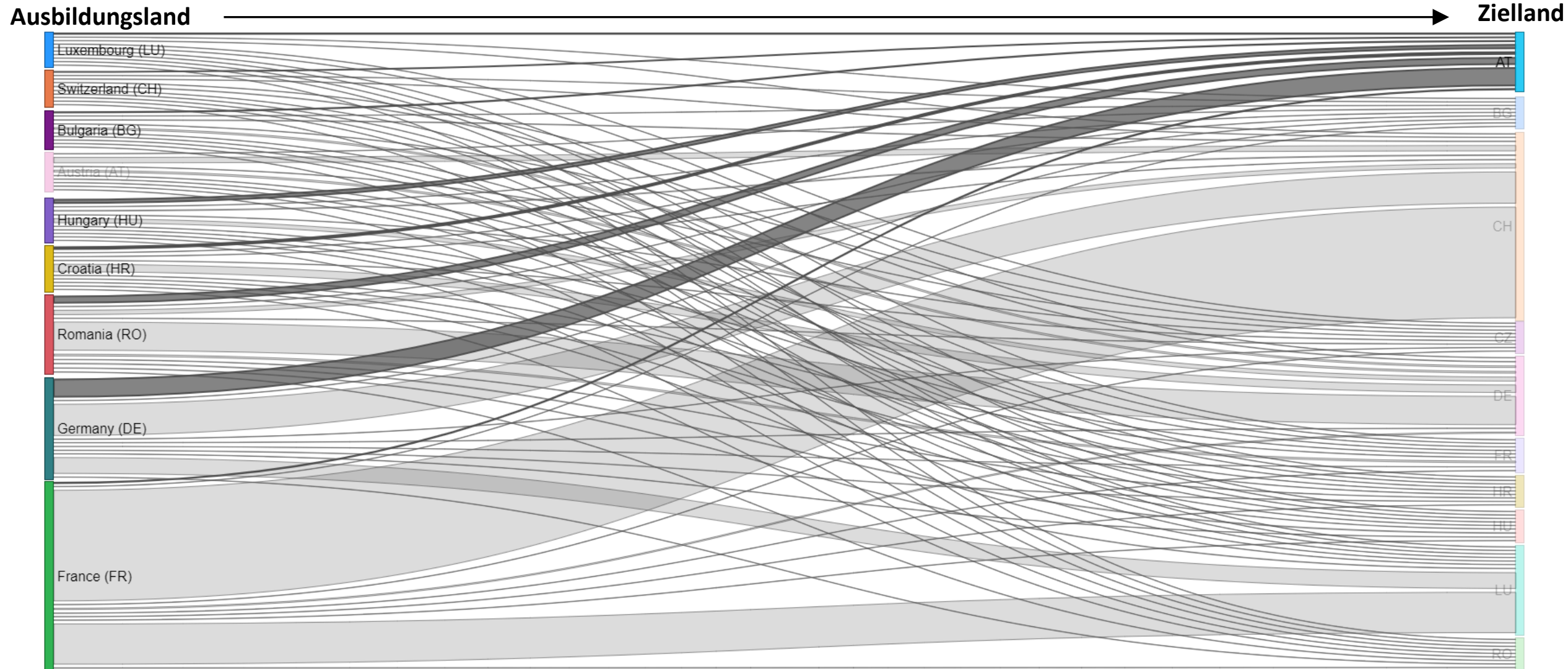
» Migrationssaldo „Specialist and General Nurse“ nach Millionen Einwohner des Herkunftslandes (Luxemburg nicht dargestellt → Skalierung)



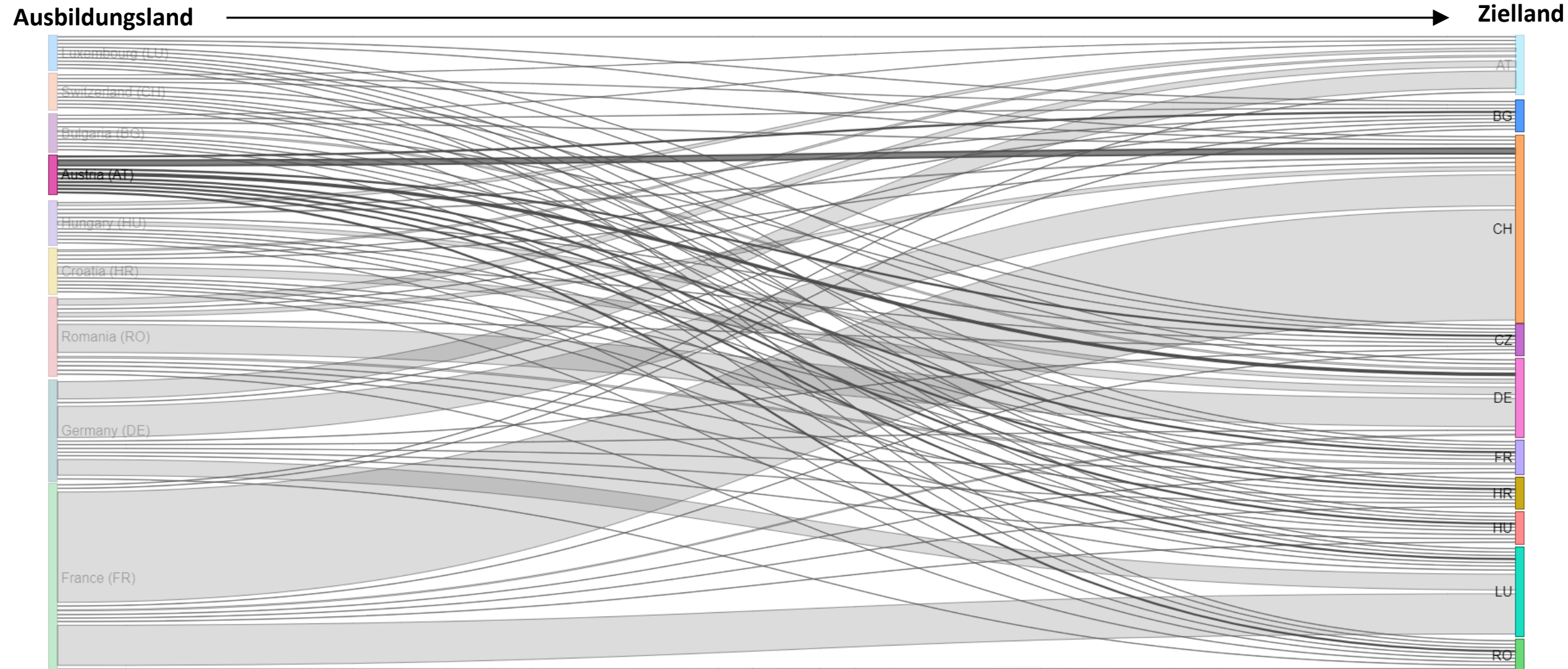
Geography of Mobility 2019/2020 – Specialist and General care Nurse



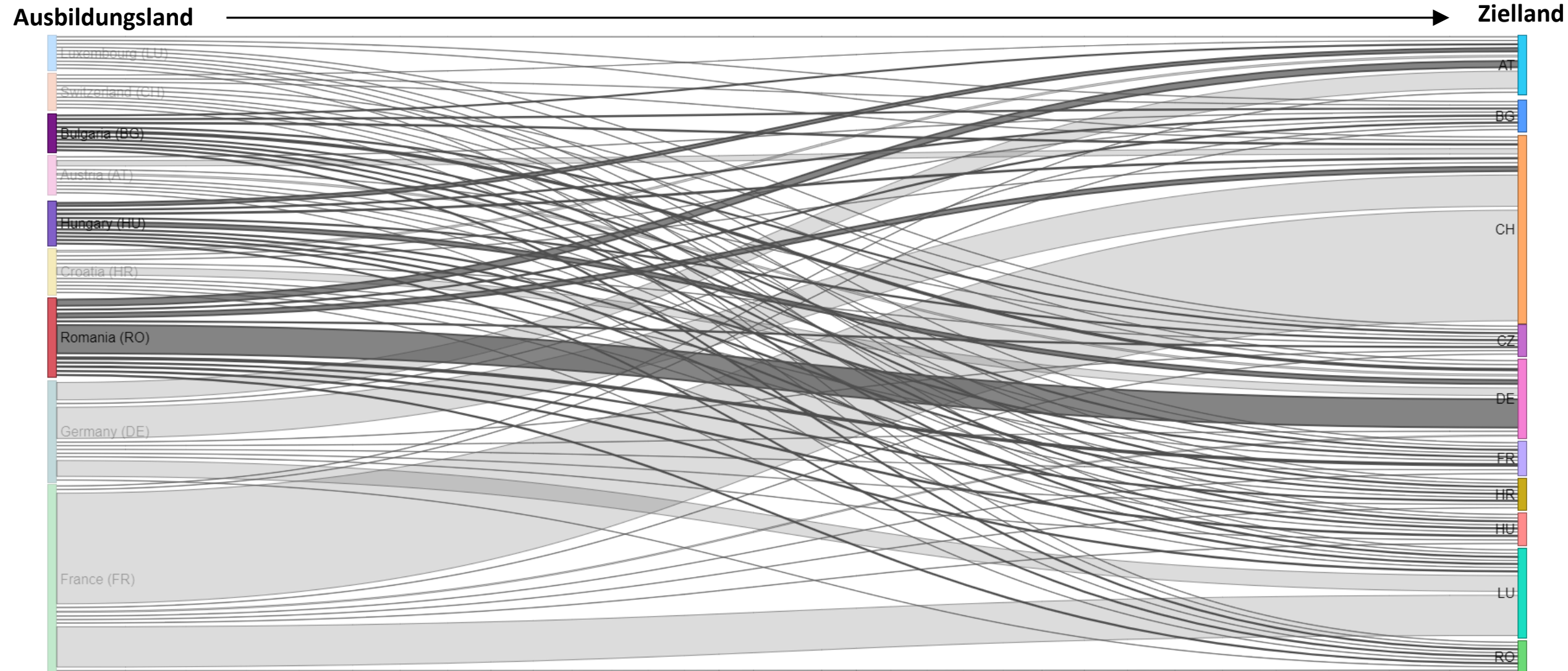
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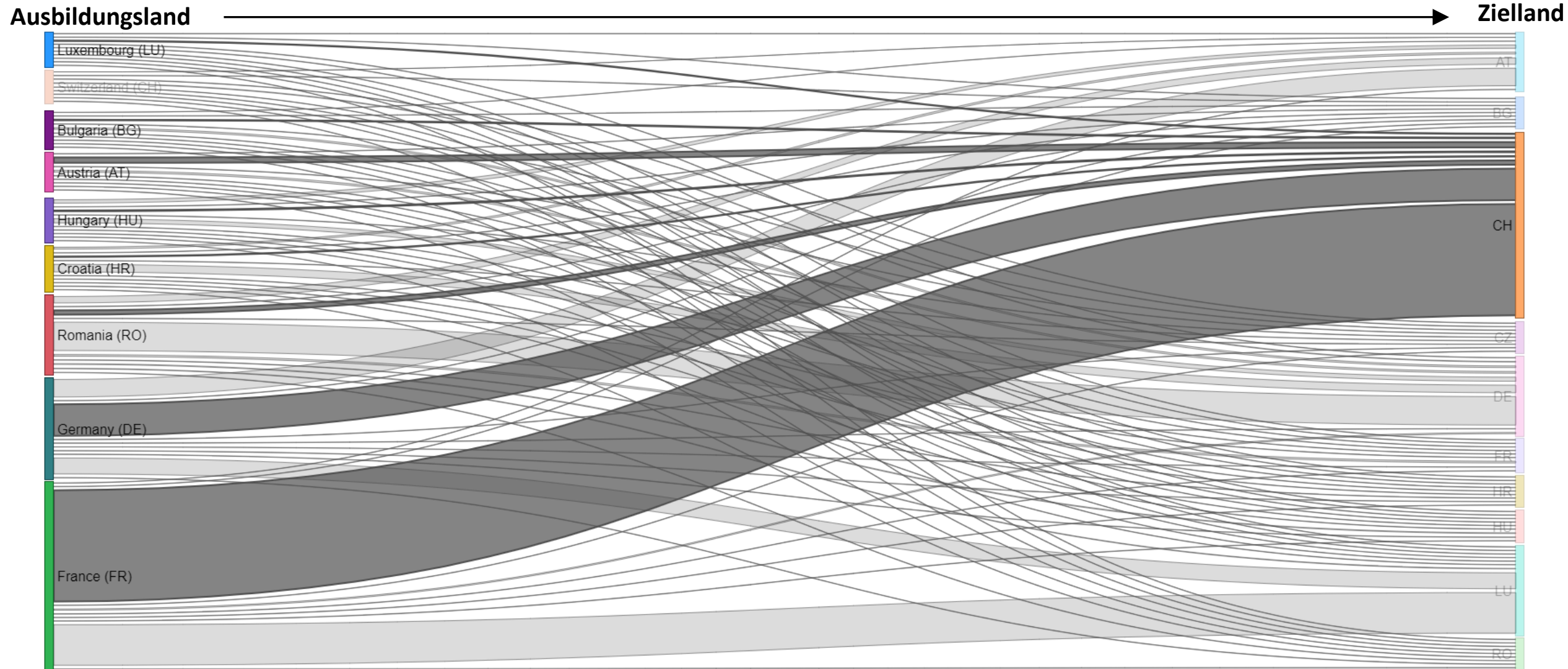
Geography of Mobility 2019/2020 – Specialist and General care Nurse



Geography of Mobility 2019/2020 – Specialist and General care Nurse



Geography of Mobility 2019/2020 – Specialist and General care Nurse



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

» Policy „choices“

oesterreich.gv.at

ID Austria

eAusweise

Lebenslagen

Themen

Services



DE

» > Begriffslexikon > E > EU - Freizügigkeit

Begriffe mit E

Wählen Sie den Anfangsbuchstaben des gesuchten Begriffs aus:



EU - Freizügigkeit

Unter dem Begriff Freizügigkeit versteht man einen Aspekt der **Personenverkehrsfreiheit**, die eine der vier EU-Grundfreiheiten ist. Konkret ist es die Freiheit von unselbstständig beschäftigten Unionsbürgerinnen/Unionsbürgern, in einem anderen EU-Staat zu leben und zu arbeiten.

Letzte Aktualisierung: 8. April 2024

Für den Inhalt verantwortlich: oesterreich.gv.at-Redaktion

Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

» Policy „choices“

» Freizügigkeit erfordert flankierende Maßnahmen
→ Self-Sufficiency der HCWF als Ausgangspunkt

The screenshot shows the website oesterreich.gv.at with a search bar and navigation menu. The search results for 'EU-Freizügigkeit' are displayed, including a list of terms starting with 'E' and a definition of 'EU-Freizügigkeit'.

oesterreich.gv.at ID Austria eAusweise Lebenslagen Themen Services

Begriffe mit E

Wählen Sie den Anfangsbuchstaben des gesuchten Begriffs aus:

A B C D E F G H I J K L M N O P Q R S T U V
W X Y Z Alle

EU - Freizügigkeit

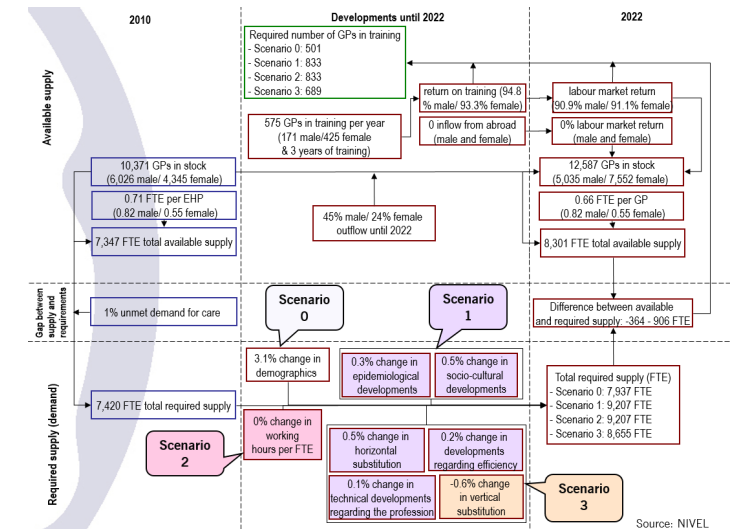
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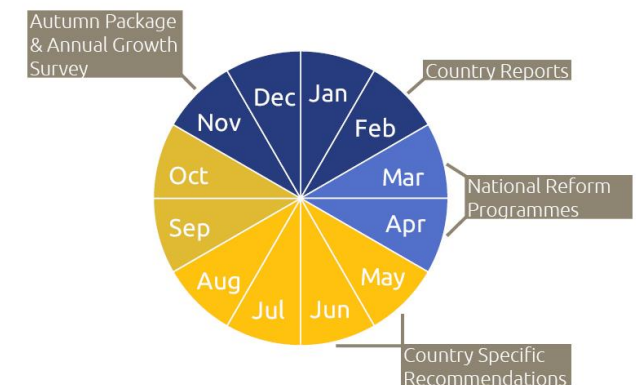
- » Freizügigkeit erfordert flankierende Maßnahmen
→ Self-Sufficiency der HCWF als Ausgangspunkt
- » Nationale Planungsroutinen als Grundbedingung für Self-Sufficiency



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

- » Policy „choices“
 - » Freizügigkeit erfordert flankierende Maßnahmen
→ Self-Sufficiency der HCWF als Ausgangspunkt
 - » Nationale Planungsrountinen als Grundbedingung für Self-Sufficiency
 - » Gemeinsames Berichtswesen als Maßnahme zu Accountability und Verbindlichkeit
 - » Aktuelle Möglichkeit: Einschau/Empfehlungen im Rahmen des Europäischen Semester

The role of the Semester is changing. The proposals for the EU's next long-term budget, the *Multianual Financial Framework (MFF)*, suggest not only a stronger role for the Semester, but also an increased focus on social aspects. Linked to this is the *European Pillar of Social Rights*, which came into force in 2017. The 'Social pillar' is a set of principles, initiatives, recommendations, and monitoring measures which aim to make labour markets and welfare systems fairer and function better. It is directly connected to improving health; it includes principles such as 'Everyone has the right to timely access to affordable, preventive and curative health care of good quality'. The MFF proposals state that in the future, the Semester can be used to monitor and implement social (including health) standards.



Mögliche Antworten Personalbedarfsplanung (die europäische Perspektive)

- » Policy „choices“
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 - » Künftig(?): European Health Union



**EIN PAAR VORLÄUFIGE BEFUNDE
(AN STELLE VON SCHLUSSFOLGERUNGEN)**

Ein paar vorläufige Befunde (an Stelle von Schlussfolgerungen)

- » Demographie wird vermutlich ein bestimmendes Momentum in den nächsten Jahrzehnten – in Österreich, Europa und international
 - » Geopolitische Implikationen („Tripolarität“)
 - » Ökonomische Implikationen (insb. Produktivität durch Mangel an Arbeitskräften, aber auch Wettbewerb um Rohstoffe, Kompetenz)
- » Die Folgen sind sehr unmittelbar und erfordern (vermutlich mehr noch als andere aktuelle Krisen) eine Erhöhung der (System-)Resilienz auf allen Ebenen



Ein paar vorläufige Befunde (an Stelle von Schlussfolgerungen)

- » Den Gesundheitssektor tritt hier eine doppelte Herausforderung
 - » Angebot von Gesundheitspersonal
 - » Nachfrage von Gesundheits- und Pflegedienstleistungen

- » Es braucht vermutlich (koordinierte) Strategien in mehreren Politikfeldern und von allen relevanten Systemakteuren, um den Herausforderungen zu begegnen
 - » Abstimmung unter Finanziers
 - » (Echte) gemeinsame Steuerung auf Grundlage von transparenten und gemeinsamen Daten
 - » Kooperation der Politikfelder (Bildung, Wissenschaft, Arbeitsmarkt) und Verwaltungsebenen (Bund-Länder)

Herzlichen Dank für die Aufmerksamkeit!