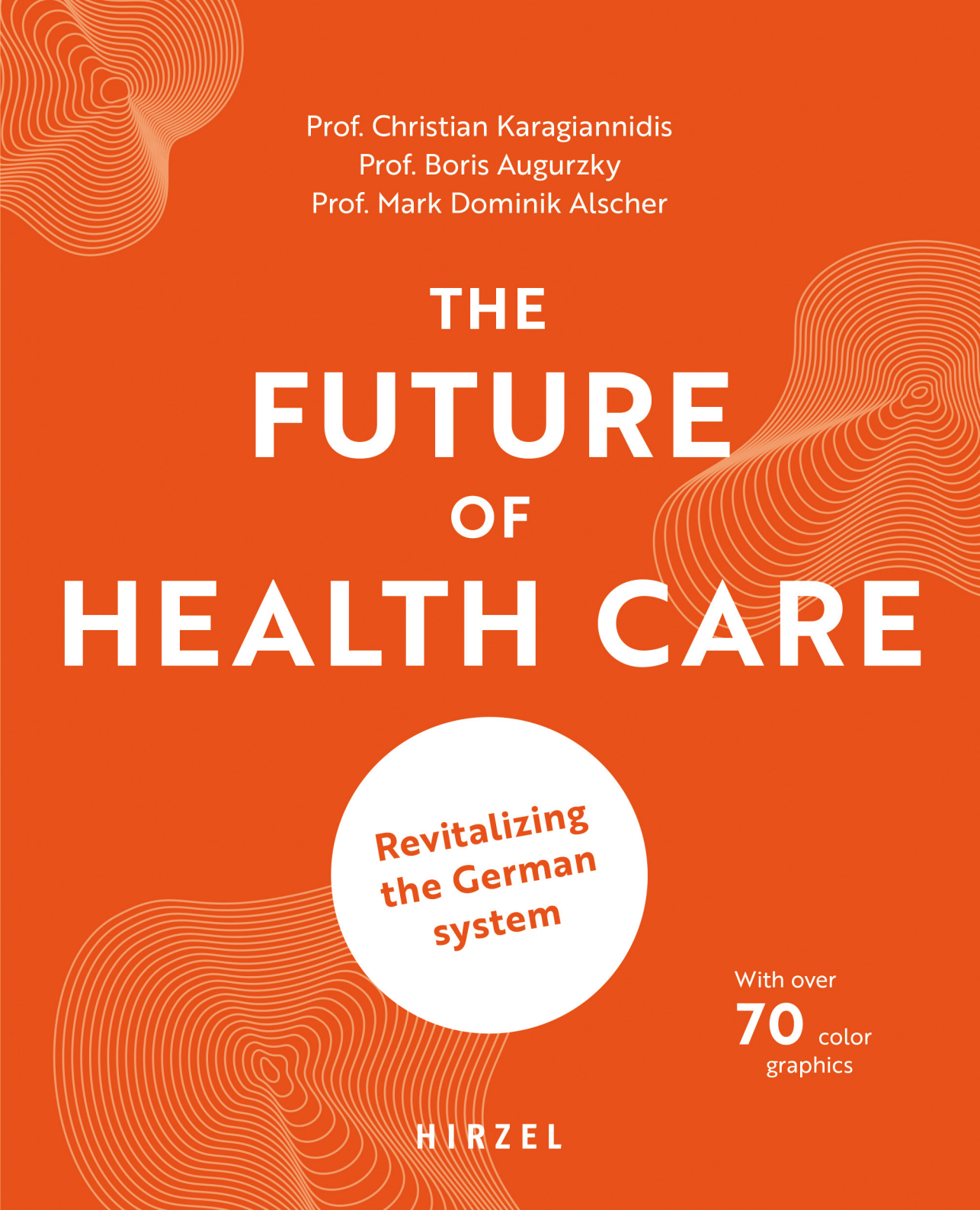




Prof. Christian Karagiannidis  
Prof. Boris Augurzky  
Prof. Mark Dominik Alscher

# THE FUTURE OF HEALTH CARE

**Revitalizing  
the German  
system**

With over  
**70** color  
graphics

**HIRZEL**



**#HEALTHCARE2030**

**Christian Karagiannidis/Boris Augurzky/Mark Dominik Alscher**  
The Future of Health Care

Supported and funded by



**Bosch Health  
Campus**

der Robert Bosch Stiftung

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**H I R Z E L**

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# The Blueprint for a Bright Future

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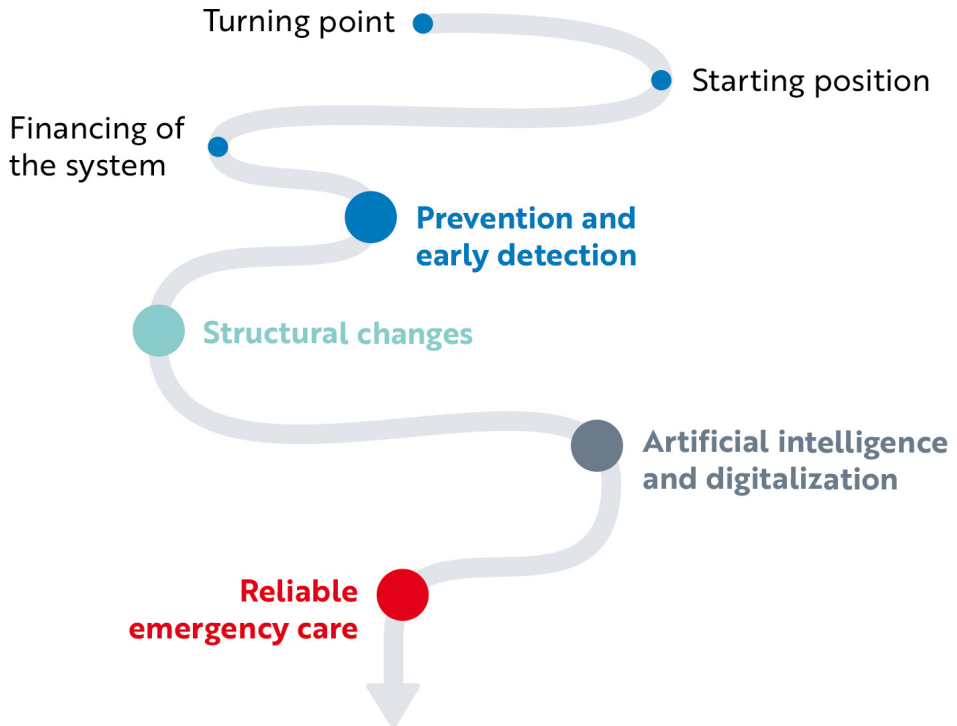
# The Turning Point in Health Care

## Roadmap to a bright future

Much like society as a whole, Germany's public health system is in a state of epochal change that will shape the years and decades ahead. As we emerge from a time of peace and prosperity – driven by consistent economic growth and almost endless medical capacity – the Covid-19 pandemic, the war against Ukraine, changing geopolitical conditions, the increasingly evident impact of climate change, and the aging society all point toward a profound turning point.

Beginning in the 1970s, the public health sector was shaped by the expansion of capacity, which at times also defined both the objective and perceived needs of the population. During this time, the economic implications of health care were rarely subject to debate, and the long-term costs of continuous expansion were largely overlooked. However, driven partially by demographic change and the accompanying transformation of the labor market, the system is now approaching a critical turning point. It is no longer possible to fully staff existing capacities with qualified personnel. Many health care providers are already struggling to recruit suitable staff. In some cases, hospital wards cannot be operated continuously, and medical practices are finding it increasingly difficult to attract successors – especially in rural areas. As a result, the number of operational hospital beds and facilities has declined in recent years. Nevertheless, overall capacity in the German health care system remains very high, as a quick glance at other comparable countries shows.

For the first time, therefore, a genuine turning point is approaching, with fewer people available to meet the growing demand driven by an aging society. The imbalance between demand for health care services on the one hand, and the capacity to deliver them on the other, is increasing rapidly. Ensuring an adequate response, i.e. the ability to provide continued high-quality health care for all, calls for radical reforms and a transformation of society as a whole. Even though such a transformation will entail significant changes to established practices and may give rise to uncertainty, it also presents a major opportunity to build a considerably more efficient and higher-quality health care system. This book outlines a roadmap for this profound transformation, and offers tangible solutions to help ensure its successful implementation in practice.



## The Future German Health Care System

High-quality. Efficient. Sustainable

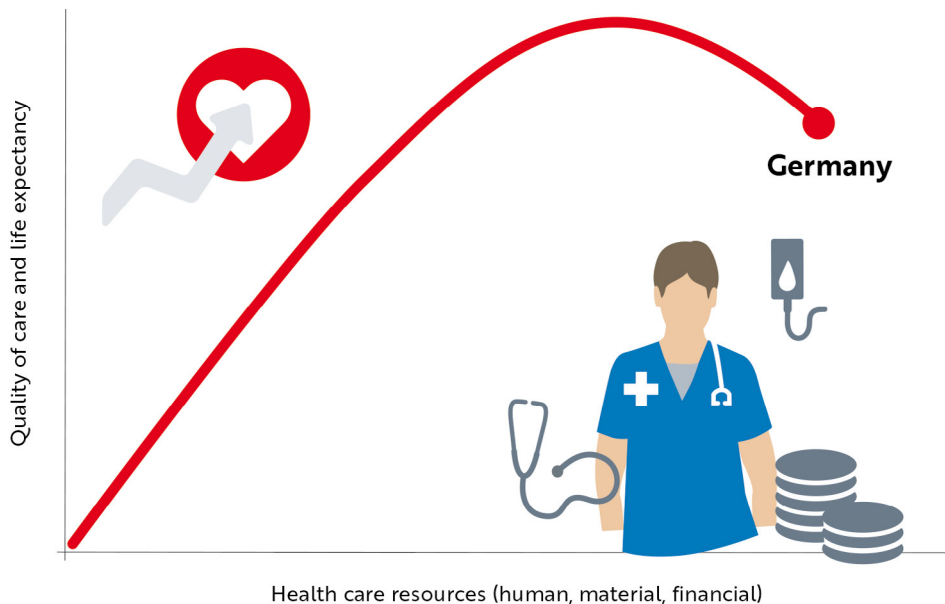
# #Healthcare2030: Why the Transformation Can Succeed

## The meta level

Recent well-founded proposals never made their way into the reform plans of the various federal governments, largely because they often remained too focused on the meta level, with insufficient detail to make them viable. With this in mind, the authors aim to present concrete proposals for gradual reform of the public health care system under the current challenging conditions and to help prepare it for the challenges ahead. Time and again, the discussion at the meta level returns to the question: *“What prospects does reform have without restricting services and preferably without increasing funding? Life expectancy in Germany is already below the EU average.”*

Yet the answer lies within the question itself. What is needed is a substantial and far-reaching transformation of the care structures that better integrates the different sectors of the health care system and improves efficiency moving forward. In virtually no other health care system in the world is such high consumption of resources, both material and staff, so weakly reflected in improvements in patient care, treatment outcomes, and ultimately life expectancy. This is partially due to the fact that the available options are far too numerous and poorly coordinated, while at the micro level there is insufficient staff available per

patient. The persistent demand for resources to maintain the status quo can no longer be adequately met, and simply “more” would unlikely deliver more quality – in fact, it would more likely come at the expense of quality. Moreover, our current health care system is too heavily geared toward repair-based care and not enough toward maintaining and preserving health. We spend around **61 years of our lives** without limitations on normal daily activity.



In the past few decades there has been little change in the existing underlying structures of our health care services. Instead, the system has largely been maintained by funding. Many major levers for fundamental reform remained unused. In the meantime, artificial intelligence (AI) has emerged as a major game changer, with the potential to drive profound and far-reaching change. Only if we consistently leverage the opportunities of digitalization, AI, and automation – including humanoid robotics – and fundamentally modernize health care structures, can we

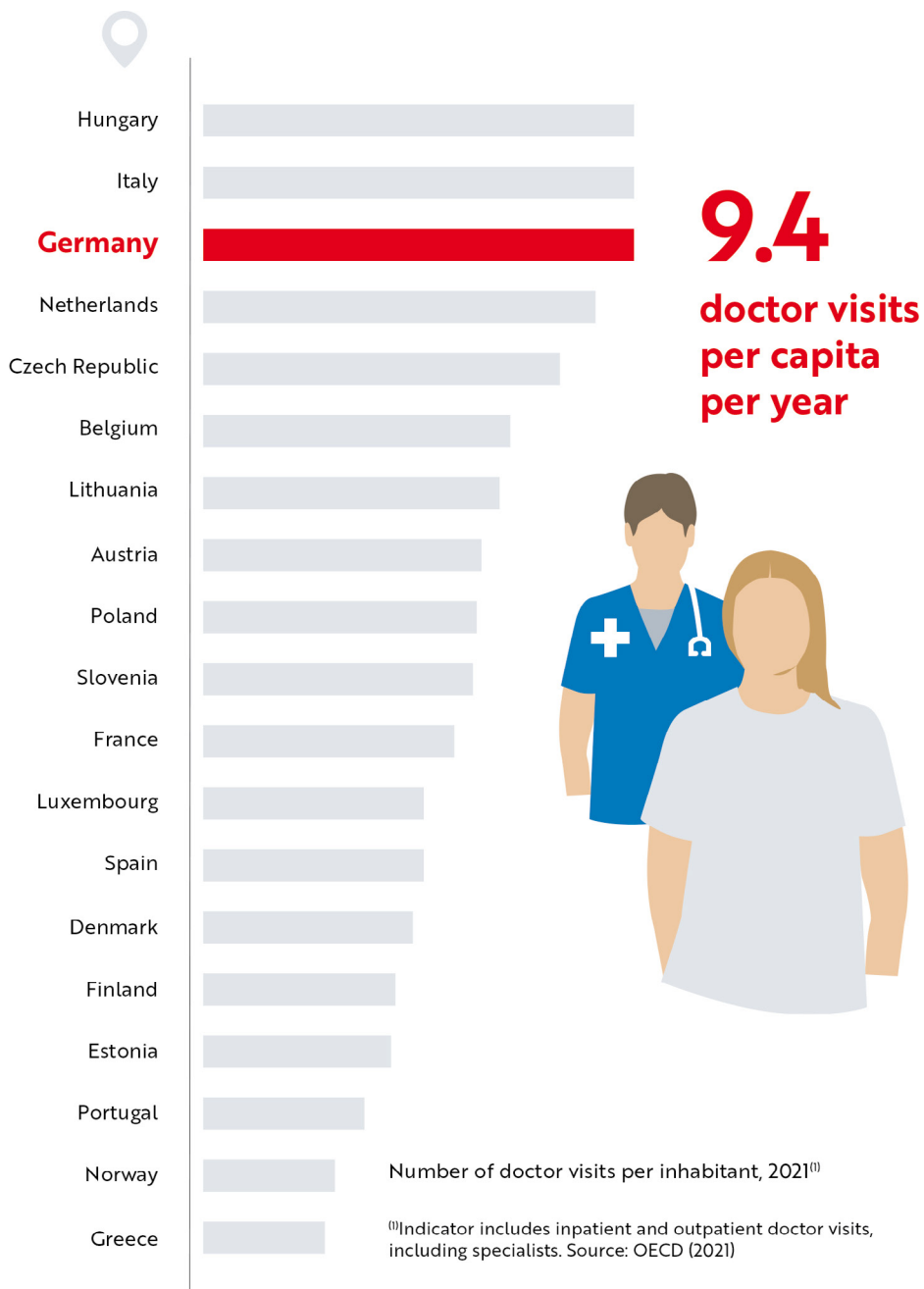
achieve an affordable and significantly more efficient health care system.

What are the major, as-yet unused levers for fundamentally improving health care at the individual level?

- Digitalization in health care gained significant momentum with the Hospital Future Act (KHZG), under which more than four billion euros have been made available to hospitals since 2021, specifically for digitalization projects. Initial results are expected in the coming years. However, in daily practice, the introduction of electronic patient records (EPR) needs to have a much more immediate and tangible impact. It is **the key** to patient-centered care. The current “lack of availability” of important medical results is a major reason for the heterogeneous and sometimes limited quality of the system. At present, however, access to the EPR via a central platform in emergency situations, such as already exists in countries like Denmark, is still pending. Once implemented, the data content of the EPR will also have significant potential for further expansion, for example by enabling access to view X-rays. All of this can be life-saving in an emergency.
- Across all areas of medicine, the potential of AI is outstanding and will revolutionize medicine. It can also raise the quality of primary care to a more standardized and noticeably higher level, while making treatment more efficient.
- Currently there is no primary care model in Germany in which the general practitioner (GP) serves as the first point of contact and central coordinator for patient care. Instead, many conditions are treated directly by specialists in practices and hospitals, often without a comprehensive approach and without effective communication between the practitioners – again also due to the lack of an easily accessible EPR. However, the German health care system has been far too heavily shaped by these specialists.
- Patients may receive highly competent treatment from service providers, such as hospitals; however, on their journey through the complex German health care system, they are often left to fend for themselves. At the same time, patients would benefit from target-

ed treatment without multiple doctor visits or even repeat examinations for the same issue, and from being directed to the most appropriate service for their needs – also saving time in the process. There is a lack of effective **care navigators**, either human and/or AI-assisted, who can support the patients. These can be GPs and, in emergencies, dispatch centers and emergency rooms, but also professional nurses such as district or community health nurses. The EPR can also provide extremely valuable support in this regard.

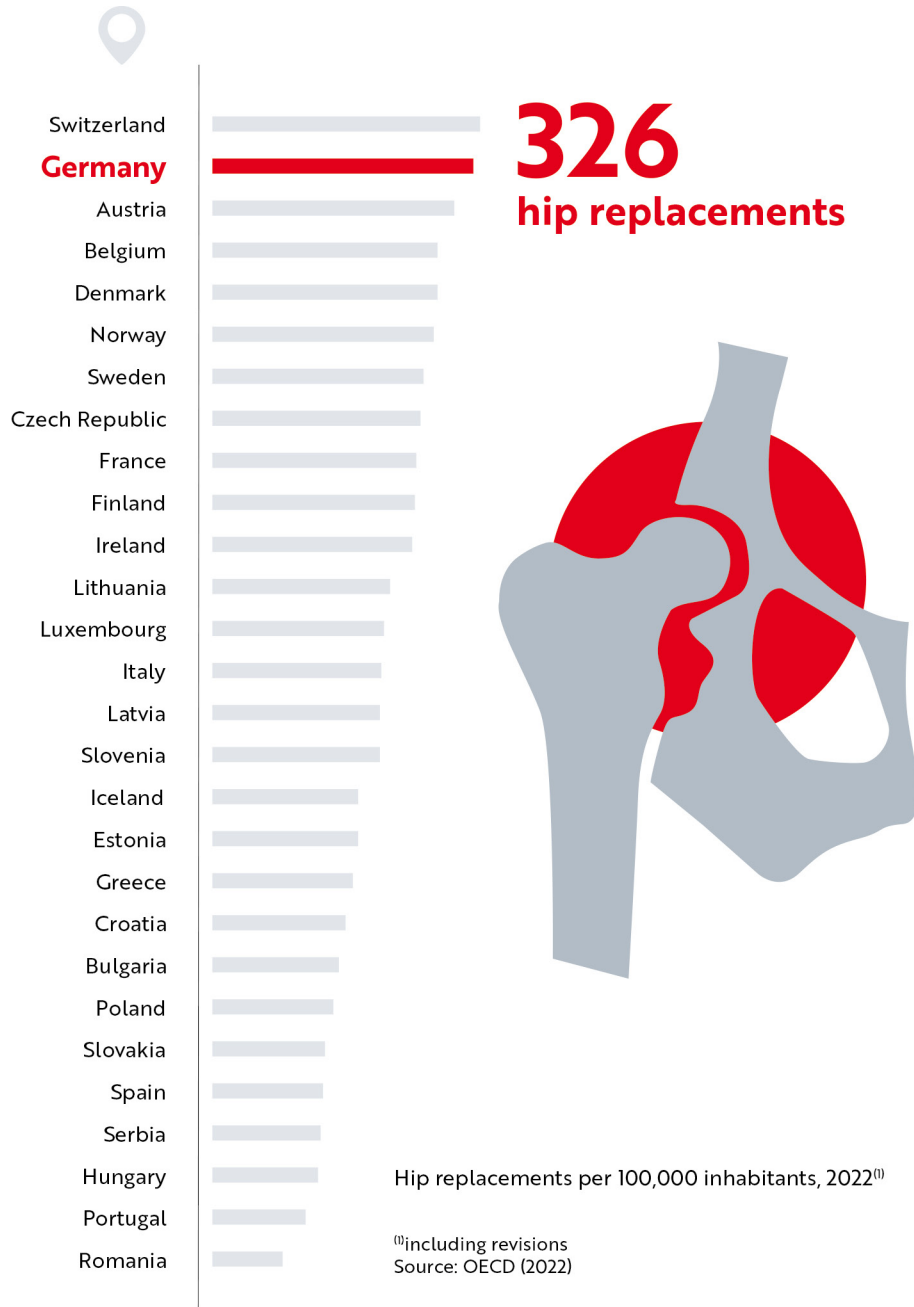
- Unlike in most countries around the world, nursing professionals in Germany are not permitted to treat patients independently, and certainly not to discharge them. If they were, this would lead to considerably fewer doctor visits, especially in outpatient care, and would ease the burden on health care staffing overall.
- The figure on p. 14 shows the high number of doctor visits in Germany compared with other European countries, without this being associated with lower morbidity or mortality. A substantial reduction in these visits, achieved through stronger care navigation, greater use of non-physician providers, AI, and a well-functioning EPR, as well as the introduction of co-payments within the current comprehensive insurance system, would be among the key levers for successful future reforms.
- The hospital reimbursement system, known as the DRG (Diagnosis-Related Groups) system, was introduced in 2004. It has created an unprecedented level of transparency regarding hospital services, establishing uniform pricing across hospitals, and led to improved operational efficiency. But it has also contributed to a significant expansion in service volumes, particularly for specialized procedures, without addressing the scarcity of resources and shortcomings in the quality of care in these areas. The figure on p. 16 shows a typical example of the DRG system: The implantation of hip and knee joint replacements is considered a financially lucrative type of surgery. As a result, Germany ranks at the top internationally in terms of number of hip replacements performed. Even today, according to the Federal Hospital Atlas, there are more than 1,000 hospitals that perform this procedure, far more than the number of



pediatric hospitals. This also raises the question about the quality of indications: Is every surgery truly necessary? Did the patient have at least six months of physiotherapy prior to the hip replacement – except in severe or intensely painful cases? Recent OECD (Organisation for Economic Co-operation and Development) data show, contrary to expectations, that in Germany not only survival rates but also patients' lifespan without mobility limitations, are below the EU average.

Critical self-reflection has occurred only sporadically over the past few decades. In some areas in the German health care system there is a tendency toward overtreatment, and scaling it back may even improve the prognosis of certain health conditions. More medical care doesn't necessarily mean better outcomes. This applies, for example, to the ventilation therapy in intensive care units, which is associated with a particularly high mortality rate in Germany. A considerably more measured and self-critical approach by physicians to the issue of overtreatment is urgently needed, involving medical ethicists, nursing professionals, geriatricians, internists, and general practitioners, as well as many other professional groups.

- Only by strengthening the health literacy among our citizens, implementing effective prevention, and also embedding appropriate incentives within the system, can an increase in life expectancy – narrowing the gap on other countries – be achieved. Above all, however, this applies to healthy life years.
- Overtreatment does not necessarily mean that inpatient hospital care should be replaced by no treatment at all. In some cases, it can be offered on an outpatient basis instead – without compromising quality. The potential for outpatient treatment in Germany is substantial and needs to be better utilized.



- Local stakeholders often have good ideas on how to make local care more patient-centered, how they can advance outpatient care, support patients with care navigators, or how to give prevention a greater role. Yet the implementation of their ideas often fails due to existing rigid regulations: sector boundaries, historically entrenched reimbursement systems, legal requirements and liability concerns, as well as data protection rules. Very rural areas in particular are already struggling to maintain their existing services under these rigid frameworks. What is needed, therefore, is more room for innovation, with greater flexibility to experiment with new approaches in patient care. These innovative scenarios must demonstrate that, by freely recombining existing resources, they can achieve outcomes that are at least equivalent to – or even better than – those delivered today.
- In the coming years, the already skyrocketing costs associated with targeted and personalized drug therapies are expected to increase further. Regulatory mechanisms are urgently needed to ensure that treatment remains accessible to all, as available resources fail to keep pace.

The golden future of health care does exist. In 2025, for the first time, we find ourselves at a crossroads: Either we pursue genuine structural reforms or we face medical and economic decline, with the risk of rationing care. *We as the authors* are more concerned about the pull of the past and the system's tendency to preserve the status quo than we are about the challenges of the future. With that in mind, let us now take a closer look at the specific reform proposals in the chapters that follow.

# Where We Stand in 2025

And where are we heading

**Younger generations are funding older ones – but there are fewer and fewer young people: A demographic tsunami is approaching**

In health care, and even more so in the pension system, younger generations are providing for the older ones. In 1992, there were around 4.2 people aged 20 to 64 supporting one person over 65; by 2022 that number had fallen to just 2.7.



1992:

**4.2** people

aged 20–64 provided for an  
older person aged at least 65

2022:

**2.7** people

aged 20–64 provided for an  
older person aged at least 65