Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ) xxx (xxxx) xxx

Contents lists available at ScienceDirect

Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ)

journal homepage: http://www.elsevier.com/locate/zefq

Schwerpunktreihe / Special Section „Zukunftsorientierte Kriterien für strukturierte Versorgung"

Financing health promotion, prevention and innovation despite the rising healthcare costs: How can the new German government square the circle?

Finanzierung von Gesundheitsförderung, Prävention und Innovation trotz steigender Gesundheitskosten: Wie der neuen deutschen Regierung die Quadratur des Kreises gelingen kann

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ARTICLE INFO

Article History:
Received: 17 May 2022
Received in revised form: 21 August 2022
Accepted: 17 October 2022
Available online: xxxx

Keywords:
Germany
Health systems
Health politics
Coalition agreement
Resilience
Prevention
Health promotion
Innovation
Digitalisation

ABSTRACT

The German health system is under pressure due to increasing costs of healthcare provision and rising demand for health services. With the new coalition government, Germany has increased efforts to build a modern, innovative infrastructure for prevention and high-quality health services. The coalition agreement has a strong climate, innovation, and sustainability focus, reflecting at the same time the ambition of the new government to implement a preventive, inter-connected, and modern healthcare system in Germany. However, the agreement lacks detailed information on the achievement of the plans, especially concerning the question of how those measures should be funded in light of increasing expenditures for healthcare. Thus, the objectives of this study are to interpret the new government's plans and answer the question of how Germany can ensure and fund in the new legislative period population-based prevention programmes, health-promoting measures and innovative solutions despite the rising healthcare costs. By analysing the relevant content of the coalition agreement and drawing on an expert workshop, this paper suggests the establishment of a prevention fund and flexible remuneration model for digitalised and innovative forms of care in the new legislative period. Our findings may help identify feasible approaches to sustainable financing of health promotion, prevention and innovation in the German healthcare system.

ARTIKEL INFO

Artikel-Historie:
Eingegangen: 17. Mai 2022
Revision eingegangen: 21. August 2022
Akzeptiert: 17. Oktober 2022
Online gestellt: xxxx

Schlüsselwörter:
Deutschland
Gesundheitssysteme
Gesundheitspolitik
Koalitionsvertrag
Resilienz
Prävention
Gesundheitsförderung
Innovation
Digitalisierung

ZUSAMMENFASSUNG

Das deutsche Gesundheitssystem steht unter Druck, weil die Kosten für die Gesundheitsversorgung steigen und die Nachfrage nach Gesundheitsdienstleistungen zunimmt. Mit der neuen Koalition hat Deutschland seine Anstrengungen zum Aufbau einer modernen, innovativen Infrastruktur für Prävention und hochwertige Gesundheitsdienste verstärkt. Der Koalitionsvertrag hat einen starken Fokus auf Klima, Innovation und Nachhaltigkeit und spiegelt gleichzeitig die Motivation der Koalitionsparteien wider, ein präventives, vernetztes und modernes Gesundheitssystem in Deutschland zu schaffen. Allerdings fehlen in der Vereinbarung detaillierte Angaben zur Umsetzung der Pläne, insbesondere zur Frage, wie diese Maßnahmen angesichts steigender Ausgaben für das Gesundheitswesen finanziert werden sollen. Ziele dieser Studie sind es daher, die Pläne der neuen Regierung zu interpretieren und die Frage zu beantworten, wie Deutschland in der neuen Legislaturperiode preventive sowie gesundheitsfördernde Maßnahmen und innovative Lösungen trotz steigender Gesundheitskosten sicherstellen und finanzieren kann. Durch die Analyse der relevanten Inhalte des Koalitionsvertrages und die Auswertung der Ergebnisse eines Expertenworkshops schlägt diese Studie die Einrichtung eines Präventionsfonds und eines offenen Vergütungsmodells für digitalisierte und innovative Versorgungsformen für ein modernes und finanzierbares Gesundheitssystem in der neuen

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https://doi.org/10.1016/j.zefq.2022.10.001
1865-9217/

Please cite this article as: T. Schmitt and A. Haarmann, Financing health promotion, prevention and innovation despite the rising healthcare costs: How can the new German government square the circle?, Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ), https://doi.org/10.1016/j.zefq.2022.10.001

Legislaturperiode vor. Unsere Ergebnisse können dazu beitragen, praktikable Ansätze für eine nachhaltige Finanzierung von Gesundheitsförderung, Prävention und Innovation im deutschen Gesundheitssystem zu entwickeln.

Introduction

Almost all health systems in Europe are under tremendous political pressure due to fiscal constraints, increasing costs of healthcare provision, growing demand for health services, demographic changes and social inequalities. One of the key challenges that societies in welfare states will continue to face is their ageing population and rising healthcare costs due to chronic and complex health conditions [1], and a shrinking workforce that must generate enough wealth to finance the welfare of an expanding group of older people. This paradoxical situation will soon have substantial impacts on social security systems. In the near future, there will be fewer people of working age for each elderly person aged 67 and over in Europe, placing enormous pressure on welfare states to sustain their health, care and pension systems [2]. Germany is no exception to this trend. Currently, almost 22% of people in Germany are 65 years or older. By comparison, this figure was slightly more than 15% in 1995 [3]. According to the population projections, the old-age quotient[1] in Germany will increase from 31% to somewhere between 44 and 49% in 2038 [4].

Thus, with every passing year, Germany will follow a trend towards an ageing population with increasing chronic disease burdens and health expenditures in the face of a shrinking workforce [5–6]. This situation implies a higher burden on individuals to secure sufficient public funds for social services in the future. Currently, Germany has already the highest total health spending in the European Union (EU), both in terms of EUR purchasing power parity (PPP) per capita and share of gross domestic product (GDP). With EUR 4,505 per capita spending on health, Germany spent 28% more than the EU average in 2019 [7]. More recent data confirm that with a great proportion of its GDP devoted to healthcare, Germany has still the most expensive health system in the EU [8],12.5% of its GDP was spent for healthcare in 2020, with steady growth over the years. By comparison, this figure was only 9.4% in 1992 [9]. In other words, over the past three decades the amount of total health expenditure in Germany has been rising in the face of increasing demand for healthcare services (see Figure 1).

One of the reasons for the high cost of healthcare is the broad benefits basket in Germany, going well beyond the essential health services [3]. A more fundamental explanation, however, can be sought in its financing system. Although no European country is following a purely National Health Service (NHS) or Statutory Health Insurance (SHI) model anymore [10–11], this historical distinction provides a good starting point for a deeper analysis of the integration of health services in health systems and the cost of fragmentation. The primarily tax-financed health systems have governments as the sole payer, pursue a relatively stronger preventive approach than SHI, and seek to keep costs as low as possible. It is known that the uptake of digital health services is relatively high in NHS countries since the oversight and governance control are in the hands of a small number of organisations in those settings [12].

The greatest challenge in SHI-based health systems, on the contrary, is that the governments in those countries lack central power and have difficulties with cost control in health expenditure [13]. However, compared with other similarly wealthy countries, the SHI funding scheme alone does not explain why spending on healthcare in Germany is disproportionately high without a greater payoff. Although the country has the most expensive healthcare system in EU, both in terms of health expenditure per capita and share of GDP, the life expectancy is not much higher than the EU average [7]. Many European countries, including those with an SHI system, spend less money per person and achieve lower rates of mortality and morbidity (see Table 1). Indeed, international comparisons demonstrate that the German health system has a comprehensive catalogue of health services and a high level of contributions to sickness funds, but a relative oversupply of services and comparatively modest health and quality outcomes [3,14].

The main reason for this unbalanced cost-benefit ratio is that the healthcare provision in Germany is based primarily on the treatment of diseases in isolated regulatory and administrative silos, foregrounding the supply of services rather than the quality of entire treatment chains. Traditionally, the health system in Germany is fragmented across levels of service delivery, providing only minimal incentives to achieve better coordination between primary and secondary care levels [15–16]. Separate health services are incentivised over health promotion and population-based measures, and focus is placed on curative medicine instead of prevention and the empowerment of citizens to maintain good health [17]. As such, illness and treatment are emphasised in the health system whereas the end users (patients) are seen as consumers of the care they purchase. As a consequence, the relationship between physicians and patients is limited to the moment of consultation and does not typically address holistic well-being aspects [14], even though activities towards population-based prevention and health promotion can be cost-effective and yield at the same time positive results for society [18–19]. This highly fragmented and uncoordinated health system leads to inefficiencies, diminished quality of care and higher rates of patient admission [16].

To tackle the aforementioned demographic and financial challenges as in Germany, several industrial countries are improving their health systems by adopting preventive and innovative healthcare models [20]. Indeed, there is a major shift in the health systems of welfare states from the treatment of individual clinical cases in separate healthcare settings towards better integration and coordination of health services via multi-disciplinary teams [21]. When countries drive integrated care forward, they also capitalise on digital technologies; thus, their health services are increasingly becoming interconnected and person-centred [22]. Yet, in spite of this trend, Germany remains a laggard in health technology infrastructure and performance [22]: the health system is characterised by a low degree of digitalisation, e.g. in infrastructure, digital tools and uptake of online health services [3,23]. This underperformance is evident not only in absolute terms but also when compared to other European countries; the use of online health services and medical data exchange between the healthcare providers in Germany remain well below the EU average [3]. The transmission of health data and administrative processes of referrals, sick notes, hospital admissions and discharges are still usually paper-based with an error rate that is often considered to be too high [23].

In addition to the above, the challenges concerning modernisation and sustainable funding of the German health system created a perplexing situation in the face of the Covid-19 pandemic. With the increased need for health services, the pandemic has

[1] The ratio of the number of people in the retirement age relative to the number of people in the working age

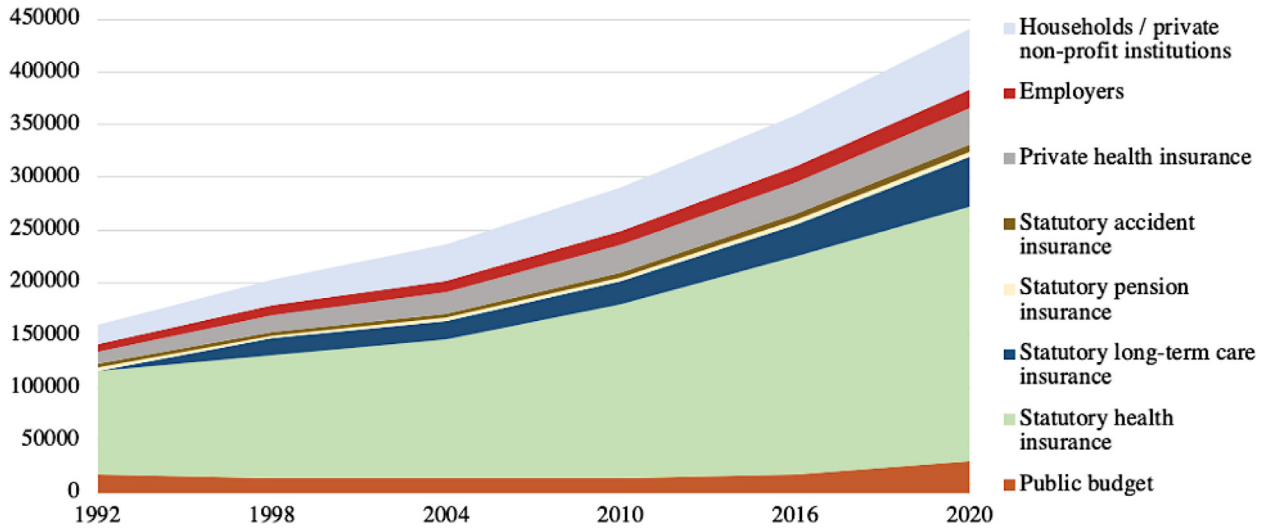

Figure 1. Germany health expenditure in million EUR between 1992 and 2020, own elaboration based on data from [9]. Not adjusted for inflation; the value of EUR 159,468 million (total spending) in 1992 equals to ca. EUR 262,460 million in 2020.

Table 1
Health status and spending in six European countries, 2019 or nearest year. Health spending per capita includes compulsory and out-of-pocket payments, adapted from [8].

	Life expectancy: Years of life at birth	Avoidable mortality: Deaths per 100,000 population	Chronic disease morbidity: Diabetes prevalence (% adults)	Population in poor health (% population aged 15+)	Health spending per capita (USD PPP)
NHS-countries					
Finland	82.1	176	5.6	5.6	4,561
Spain	83.9	141	6.9	7.2	3,600
UK	81.4	188	3.9	7.4	4,500
SHI-countries					
Austria	82.0	170	6.6	7.8	5,705
Germany	81.4	175	10.4	8.5	6,518
Netherlands	82.2	145	5.4	5.5	5,739

exacerbated the effects of rising health expenditures owing to the demographic changes [24]. Given the increased load during the pandemic, the sickness funds are expected to have a deficit of almost EUR 17 billion in 2023 [25], which will lead to higher SHI-contributions, making the statutory health insurance even more expensive for the SHI-enrollees [26]. On the other hand, the Covid-19 crisis has demonstrated the urgent need for a preventive, innovative, and digitally-enabled health system. Germany's pandemic response capability remained limited primarily due to the lack of modern infrastructure in public health authorities to process health data and integrate the relevant data from different sources to take precautionary measures [7]. These challenges in the health system raise a pressing question: how can Germany ensure population-based prevention programmes, health-promoting measures and innovative solutions in the new legislative period in spite of rising costs of healthcare?

After Germany's parliamentary election in September 2021, a new coalition government was sworn in on 8 December 2021. Entitled 'Daring more progress – Alliance for Freedom, Justice and Sustainability', the coalition agreement of the Social Democrats (SPD), Greens, and Free Democrats (FDP) guides the policies in Germany between 2021 and 2025 [27]. The agreement has a strong climate, innovation and sustainability focus, reflecting at the same time the vision of the coalition parties for a preventive, integrated and modern health system in Germany. It lacks, however, detailed information on the implementation, especially concerning the question of how those plans should be funded in light of increasing expenditures for healthcare [28–29]. As the coalition agreement draws only an outline, this article makes suggestions to provide guidance for further steps. By applying a policy-oriented approach, the study discusses ways of achieving a modern and sustainable healthcare system in Germany in the face of growing financial constraints, based on an expert discussion conducted within the framework of the Robert Bosch Foundation's *Neustart* project.

Methods

Two documents were central to this study. First, the relevant parts of the coalition agreement were analysed, insofar as these include population-based prevention, health promotion and innovation in healthcare. Composed of seven thematic sections, the chapter '*Respekt, Chancen und soziale Sicherheit in der modernen Arbeitswelt*' (Respect, opportunities, and social security in the modern world of work) of the coalition agreement was of particular interest to this study, as it describes how long-term care and healthcare should be organised in the near future. Under this chapter, the section '*Pflege und Gesundheit*' (long-term care and health) was analysed to this end. The following seven sub-sections out of eleven were found to be relevant by the authors and included in the analysis, in line with the focus of this study: public health, digitalisation in health, health promotion, in- and out-patient care, planning and financing of hospitals, patients' rights, and lastly, health financing. Unclear cases concerning the relevance of the content to prevention, health promotion and innovation in healthcare were discussed and agreed upon by the authors.

Within the framework of the *Neustart* project, a two-day scientific workshop (organised by the Hertie School and the Robert

Bosch Foundation) was attended by 25 renowned experts from the field of health policy and economics on 3 and 4 September 2020 in Berlin. Two weeks ahead of the workshop, the experts (selected based on their relevant knowledge and experience) were invited to participate in a survey for their initial assessments on the further development of healthcare financing in Germany. The aim of this survey was to prepare a suitable structure for the workshop and suggest topics that could guide working group discussions during the workshop. On the workshop days, the participants discussed in distinct thematic working groups, among others, the financing and remuneration models for prevention, health promotion and digital innovation in healthcare in Germany. They not only exchanged views on the challenges in these fields but also provided feasible policy options along with recommendations for implementation. To decide on the final outcomes, the interim and final results of the working groups were presented in two steps and discussed during the workshop plenary. The results of the experts workshop were summarised in a report [30], which forms the basis of the second main source of this article. Detailed information about the workshop participants can be found in Table 2.

The two authors of this paper scrutinised both sources independently to identify the statements on i) prevention and health promotion and ii) digitalisation and innovation for health, in line with the objective of this paper. Where disagreements occurred, the authors discussed their results until agreement was reached. Hence, based on the relevant content of the coalition agreement [27] and the findings from the workshop report [30] this article suggests feasible approaches on how to best implement and fund a preventive and modern healthcare system in Germany in the new legislative period in the face of growing financial constraints. Given the pressing need for integrated and modern health services, this policy-relevant study that details how the plans of the government can be achieved is more than timely and necessary.

Table 2
Experts participated in the workshop.

No.	Field	Expertise
6	Academia	Health economics
2	Academia	Health policy
5	Foundation	Health policy
2	District administrator	N/A
1	District public health authority	Health policy
3	Private company	Health innovation
2	Private company	Healthcare management
1	Private company	Health communication
1	Association (sickness fund)	Health policy
1	Association (patients)	Health policy
1	Association (healthcare management)	Health policy

Results

Statements in the coalition agreement on prevention and health promotion

From the agreement, it becomes apparent that the coalition parties devote a great deal of attention to prevention. As a lesson to be drawn from the pandemic, the coalition states that there is a need for a strengthened public health service, which is to be provided for via cooperation between the federal government, the federal states and the local authorities. The coalition parties want to extend the Pact for the Public Health Service,[2] which aims to modernise the public health authorities and hire hundreds of new staff. They also call on the social partners to develop an independent collective wage agreement for those who work in the field of public health and create environment that is sustainable and more attractive. Based on the results of an interim report after the initial funding phase for this topic, they want to provide the necessary resources for a permanently functioning public health service. With passage of a health security act, they aim to put in place decentralised stockpiling of medicines and medical devices as well as regular emergency case simulations for healthcare staff to deal with health crises. They plan to create a nationwide network of competence centres and interdisciplinary out-patient clinics to further research and ensure needs-based care around the long-term effects of Covid-19 and chronic fatigue syndrome. It is moreover planned that the Federal Centre for Health Education be merged into a (new) Federal Institute for Public Health at the Federal Ministry of Health, in which the activities for public health, interconnection of public health services and health communication at the federal level is aimed to be located. The Robert Koch Institute should continue to operate autonomously in its scientific work, according to the agreement.

As for health promotion, the coalition aims to further develop the Prevention Act and strengthen primary and secondary prevention efforts. The governing parties want to prevent ill-health among the entire population by focusing first on specific diseases. They plan to encourage the sickness funds and other stakeholders to actively work together to keep everyone healthy. Moreover, they want to create a national prevention plan as well as a concrete set of measures, focusing on topics such as dental health in old age, diabetes, loneliness, suicide, resuscitation, and the prevention of climate and environmental health hazards.

The coalition agreement also includes specific plans about the future of out-patient and in-patient care. To promote the provision of services in out-patient settings that have so far been unnecessarily provided in hospitals, the coalition wants to rapidly implement a uniform remuneration system for suitable services through so-called hybrid diagnosis-related groups (hybrid-DRGs). Through the expansion of multi-professional integrated health and emergency centres, they want to ensure that out-patient and short-stay in-patient services are provided close to home and are in line with demand, financed through specific remuneration structures. In addition, they aim to increase the attractiveness of population-based healthcare contracts (*Versorgungsverträge*) and expand the legal scope for contracts between the sickness funds and health service providers to better support innovative forms of care.

Moreover, the coalition aims to establish low-threshold counselling services such as health kiosks in particularly disadvantaged municipalities and urban districts for treatment and prevention. In rural areas, they plan to expand services through, for example, community nurses. They want to develop out-patient and in-patient demand planning into an intersectoral planning system together with the federal states. The coalition is also committed to a stable and reliable financing of the SHI system. Based on minimum requirements, the sickness funds are to disclose information about their service and healthcare quality in the future. They will also be given more opportunities to grant their members (SHI-enrollees) monetary bonuses for participating in prevention programmes, according to the agreement.

Statements in the coalition agreement on digitalisation and innovation

As for digitalisation and innovation in healthcare, the coalition parties declare that they aim to accelerate the implementation of electronic health records (EHRs) and electronic prescriptions to connect all the relevant actors to the telematics infrastructure,

[2] See: https://www.bundesgesundheitsministerium.de/service/begriffe-von-a-z/o/oeffentlicher-gesundheitsheitsdienst-pakt.html

among other goals. All insured persons should be provided with a General Data Protection Regulation (GDPR)-compliant EHR; its use should be voluntary, following an opt-out implementation policy. They state that *gematik*[3] should become a digital health agency. In addition, they plan to introduce a register law and health data utilisation law that would promote better scientific use of those data in accordance with the GDPR and to establish a decentralised research data infrastructure.

Furthermore, the coalition wants to use digitisation to relieve the burden of documentation, to promote social participation, and for therapeutic applications. They aim to make telemedicine services possible on a regular basis, including video consultations, telemonitoring services and tele-emergency medical care. Moreover, the coalition parties state that they want to review the Social Security Code, Book Five (SGB V; the national social law that defines the SHI and health promotion governance, serving as the foundation of health service policies) regarding the documentation requirements that become out-dated given the technological advancements. With a bureaucracy reduction package, they want to remove obstacles to high-quality patient care. Language mediation, also with the help of digital applications, is planned to become an integral part of the SGB V. The Federal Joint Committee (the joint self-government of physicians, dentists, hospitals and sickness funds) finances regularly pilot projects on new models of organisation and funding of health services, called innovation fund. This fund is planned to be made permanent for transferring successful pilot projects to standard care.

Expert discussion on prevention and health promotion

In terms of prevention, the experts state that the focus of the German healthcare system is on the cure of sick people and not on the prevention of illnesses. This situation is clearly demonstrated in the share of expenditure on medical and long-term services and goods, which amount to 80% of all health expenditure, in contrast to those on preventive measures that make only 3% of the budget [31]. However, prevention will play an increasingly important role in the future as they can contribute to the efficiency of health services. The current focus of health policies in Germany is on primary prevention, namely the prevention of the development of diseases and injuries. Yet, thus far only a few preventive measures have been able to demonstrate evidence-based effectiveness. The greatest challenge in primary prevention is to create incentives for the stakeholders to develop and offer new forms of preventive services and prove the effectiveness of those services.

In the current financing system, there is little incentive for policy stakeholders to introduce preventive measures and health promoting activities that are less technology- and resource-intensive than curative medicine. Due to the remuneration framework oriented towards the treatment of diseases, healthcare providers and industry are not motivated to offer preventive solutions. It is also challenging for sickness funds to take a broad spectrum of preventive measures into account. Although prevention is favourable and possibly profitable in the long term, in the short term, sickness funds must bear the costs for any additional services. A major part of funding for prevention and health promotion is spent on pilot projects with favourable results that could form the basis for future policies; however, these rarely become part of standard care. The main reason for this is that, compared with medical operations, expected effects of preventive measures lie very far in the future. This time lag complicates the generation of evidence, including the study design and desired effects. In addition, the range of policy stakeholders involved in the development and the testing of preventive measures is broad; spanning from public health, healthcare providers and sickness funds to non-traditional health actors such as those involved in education. A shift from curative treatment to a broader view on well-being, health promotion and prevention is hampered by a lack of evidence that can prove the effectiveness of preventive measures: even for cost-saving measures there is little financial support to conduct comprehensive scientific research and to test the potential benefits.

In spite of this situation, two rounds of representative citizens' dialogues in Germany, conducted by the Robert Bosch Foundation [32], called for a paradigm shift in the health system: moving away from curative medicine towards a more holistic view of health that considers all levels of prevention, including early detection of diseases. To reach this goal, the concept of prevention in the German health system must be defined much broader. More consideration should be given to educational and social measures that can reduce social inequality and promote participation and co-production, since these measures have long-term effects on population health. For instance, type 2 diabetes mellitus can be prevented through healthy environment, physical activity and diet [33]. Yet according to the experts, all levels of prevention should be taken into account in the health system in addition to primary prevention: advanced technology in diagnostics offers many possibilities with which secondary prevention, namely early disease detection, can take place much earlier than before. Similar technological developments can be observed also in tertiary prevention, the aim of which is to alleviate the burden of existing diseases.

To finance a wide range of preventive services, appropriate intersectoral framework conditions must be created in which prevention can be addressed holistically. For this, the experts are in favour of strengthening the role of public health services and the institutions involved in public health, especially the Robert Koch Institute, local public health authorities and the Federal Centre for Health Education. The experts moreover argue that prevention should not be financed in public health services or the SHI system in isolation. Instead, they envisage a population-based prevention fund that should incentivise the cooperation among actors, lead to effective programmes, and be jointly financed by taxes and SHI contributions.

Establishing this kind of a prevention fund would offer an appropriate financial framework to promote health and prevent diseases at the level of the entire population. Indeed, the fund can serve several purposes: first, it would help conduct research to collect necessary evidence for cost-effectiveness of preventive measures. Second, the fund can provide the financial capacity to develop preventive measures that have not yet been thoroughly explored and reached enough maturity. Lastly, it can support the roll-out of good practices that are proven to be effective. Since the health needs of different regions in Germany require distinct preventive measures, the fund can offer a flexible funding framework across the regions. It can also finance health promotion and prevention separately from the SHI benefit catalogue and other areas of social insurance.

As a first step towards the implementation of the prevention fund, priority should be given to reviewing the existing legal and organisational structures as well as agreeing on the type of health data that should be collected for prevention. Legislative proposals should be scrutinised to assess to what extent these support achieving a preventive health system. One particular challenge in establishing a population-based prevention fund is to ensure that all relevant institutions and actors work together to solve prevention-related problems and to give regions and local population a say in decision-making. Ultimately, it is the legislator that

[3] See: https://www.gematik.de/

should call for a better cross-sectoral cooperation and mandate also other sectors than healthcare for action towards population-based prevention.

Expert discussion on digitalisation and innovation

The experts state that rapid changes in the areas of prevention, medicine and biotechnology pose new challenges in the healthcare financing. The Covid-19 pandemic called into question the traditional functioning of health systems in many respects. It also required the adoption of new innovative services in a rapid pace. Indeed, virtual consultations in Germany have only recently started to be reimbursed in the SHI system, and the number of promising digital solutions are growing faster than previously expected. In combination with a higher treatment load in particular in the high-cost sector (e.g. in intensive care) such developments have led to an accelerated widening of the financing gap between revenues and expenditures in the SHI system. The experts assume that innovations in the field of health will not deliver cost reductions in the short term, as the number of innovative solutions will be very high. Accordingly, the question of how a modern and digitally enabled healthcare system can be financed will be more important than ever before.

Currently, a clear trend is visible in the use of digital health services. In the future, medical care for many clinical cases will be provided in a digital environment before physical treatments. Digital health applications that are available by prescription since September 2020 have already been integrated into the German health system; examples include different care programmes to support migraine patients (M-sense) or online psychological training (deprexis, HelloBetter, velibra). In addition to these new solutions for treatment and care, digitalisation offers great opportunities to measure therapy success and health outcomes on a regular and efficient basis, paving the way for a performance-based remuneration of the health workforce (pay-for-performance). Moreover, digital innovation can enable effective patient management between healthcare providers and payers.

Given the diversity and complexity of new technologies and healthcare models, the need for further analysis of their effectiveness is increasing. Although robust scientific evidence is still necessary, it can be expected that in the long-term efficiency will increase through the reduction of bureaucracy and administrative costs in the health system. Apart from that, a shift will be visible from inefficient and unnecessary health services to the provision of more efficient prevention and health promotion measures. In this context, the experts make the case for a flexible remuneration model for digitalised and innovative forms of care, which could offer room for innovation. This model would consist of two elements and comprise a modular and a public welfare-oriented remuneration system. The first one builds the core and should be allocated to regions. The second element includes a performance-based component that varies depending on the actual health outcomes of the population, similar to the value-based healthcare concept from Sweden. This remuneration model is considered to be an appealing approach, as it would involve the establishment of a digital infrastructure for new forms of care and the provision of digital services at the same time.

Within the framework of this model, transparent evaluation schemes based on predefined criteria should be introduced for new technologies. To this end, an institution (i.e. data hub) should be established, which could monitor the evidence on the benefits of new technologies and help take decisions about their sustainable financing after a trial period. The hub should not only store and process data but make data usable for research as well. At the same time, data should be protected centrally. For data providers, it would be necessary that data interfaces become as accessible as possible. It is crucial that the access to these interfaces, which are resource-intensive to set up and operate, is defined by a regulatory body. Thus far, such structures have not been initiated and should ideally be ensured by the data hub.

As explained above, part of the flexible remuneration model for digitalised and innovative forms of care should provide stakeholders with necessary financial incentives. Those incentives, however, should be designed in such a way that the deployment of new technologies takes the entire population into account and includes preventive measures. A prevention fund as presented in the previous section could be a suitable tool to introduce incentives for this purpose. Apart from a sustainable funding model, the health system should be prepared to integrate innovations into health services in a gradual way. Moreover, in order for (patient) data to be exchanged and healthcare providers to collaborate, sectoral boundaries within and beyond the traditional health system should be overcome. Since digital applications incorporate several disciplines, interdisciplinary cooperation should be ensured and promoted. In line with this objective, the remuneration of different healthcare providers should be adjusted, which can be piloted at the regional level.

Lastly, in the framework of this suggested open remuneration model, healthcare providers and citizens should have a low-threshold access to digital technologies. As the literature shows, not all end-users have the necessary information technology (IT) skills to participate in telemedicine treatments or digital prevention programmes [34]. According to the experts, the open remuneration model would receive support by citizens and private companies that are active in the field of health innovation. Still, the concerns of citizens about data protection should be taken into account during the implementation.

Discussion and conclusion

The German health system is under pressure due to increasing costs of healthcare provision and rising demand for health services, exacerbated by the Covid-19 pandemic. Taking into account the fast-paced developments in digital and data-driven services in health systems during the pandemic, it is almost certain that this trend will reshape how health systems are designed in the near future. With the new coalition government, Germany has increased efforts to build a modern, innovative infrastructure for preventive and high-quality health services. By interpreting the relevant parts of the coalition agreement and expert workshop outcomes, this chapter turns to the question of what the government's plans could mean for the German health system in the future. Before that, the experts workshop results are summarised below.

In many respects, the workshop results are in line with the content of the coalition agreement, especially concerning the recommendations for strengthening the role of public health authorities and incentivising prevention and innovation. To implement preventive and innovative measures, the experts call for new financing models and incentives: i) a prevention fund that is financed by taxes and SHI contributions, and ensures the supply of effective prevention services, leading to a shift from the dominance of curative medicine in the health system to a holistic view of health and well-being; and ii) a flexible remuneration model for digitalised and innovative forms of care, which ensures that the health system adopts innovations in the areas of digitalisation, biotechnology and cross-sectoral care. Based on these findings, the following paragraphs reflect on the content of the coalition agreement and provide recommendations on how to implement the intended policies in the coming years.

From the overall analysis of the coalition agreement, it becomes apparent that the new government is committed to fostering more

cooperation and coordination in the health system. By using the technology and innovative solutions for health, and connecting healthcare workers and public health institutions, the coalition wants to strengthen the position of patients and citizens. The plans of coalition parties relating to governance, the health system, and research and innovation are consistent with each other, pointing towards person-centred care. Especially, their drive to support health promotion and prevention is commendable. As this study has demonstrated, a preventive and digitally integrated approach to modernisation of the German health system is more than necessary. For this, a fundamental shift in the existing mindset is required: moving away from treatment to health promotion, from medical specialisation to primary care, and from curative medicine to preserving good health.

More specifically, the coalition intends to impel the sickness funds, among other actors, to keep the population healthy. As such, the plans on health financing are central to realising this aim. The governing parties seek to stimulate competition between sickness funds by setting minimum requirements as the basis for assessing their service and healthcare quality on the one hand and by encouraging them to offer their SHI-enrollees incentives to participate in the prevention programmes on the other. While the intent is praiseworthy, some points of caution should be mentioned. Notably, the prevention of the lifestyle diseases that are a major cause of burden of disease in Germany [35] depends on, as the name suggests, changing lifestyles; integrating a healthy diet and regular physical activity into daily life would be the most helpful actions to this end. Policies that encourage those actions should be initiated and supported by a broad spectrum of sectors, including agriculture (food pricing strategies through taxes and subsidies), transport (a less car-dependent society, cycling infrastructures) and education (health literacy). Such holistic policies would take the social and environmental determinants of health into account and reduce socio-economic inequalities. They would also seek to influence people's lifestyles before they become unwell and need to go to a physician's office, at which point changes are often too late or too difficult. The suggested population-based prevention fund is a feasible approach to finance activities in the field of primary prevention and health promotion.

This does not mean, however, that the coalition's plans relating to the SHI system are unnecessary. Some sickness funds have already successfully introduced bonus programmes that provide their enrollees financial incentives to pursue healthy lifestyles, tracked by wearables such as fitness trackers or smart-watches [36]. Building on this experience, a framework policy could be laid out, which could eventually transform the *sickness* funds into *health* funds. Currently, across sickness funds the contribution rates are largely fixed, and apart from some minor additional health services their benefit packages remain mostly the same. An alternative policy to fostering competition between the sickness funds would be ensuring that the services that promote health and well-being become part of the core services of SHI. This approach is especially noteworthy, as the sickness funds are not the key actors in ensuring good quality healthcare provision in the existing financing system that is based predominantly on collective agreements.

In this context, the coalition parties' plans to expand the legal scope for contracts between the sickness funds and health service providers to strengthen innovative forms of care (stated under the heading out-patient and in-patient care) as well as the permanent and further financing of the Federal Joint Committee's (G-BA's) innovation fund and transferring pilot projects to standard care (stated under the heading patients' rights) are commendable and consistent with their intention to bring person-centred care to Germany. Based on the results of the successful pilot projects funded by the G-BA's innovation fund, integrated care models can be expanded. Indeed, the G-BA has recently recommended incorporating the project *Gesundheitskiosk Billstedt/Horn*[4] into standard care, paving the way towards a new model of population-based and cross-sectoral care in Germany. The implementation of a population-based prevention fund, financed both by taxes and SHI contributions, would be in line with the plans of the coalition, as it focuses on the health needs of different local populations.

Furthermore, the coalition agreement states that stable financing of the health system is a prerequisite for modern, high quality and intersectoral healthcare. Although financing mechanisms are cited as a major barrier to the implementation of integrated care [37], sectoral planning and remuneration systems in Germany have provided thus far hardly any incentives to overcome the sectoral boundaries [14,16]. The coalition aims to promote intersectoral care by re-arranging healthcare financing, which is more than timely and commendable. To ensure a truly preventive and integrated approach, it is crucial that the regulatory and administrative boundaries between the health sectors are erased since integrated health systems ultimately aim to combine payments across sectors to facilitate a more coordinated approach to care [38]. Thus, the planned policies in out-patient and in-patient care such as introducing hybrid-DRGs, integrated health and emergency centres, and needs-based hospital planning and financing will help reduce the oversupply of health services and enhance their coordination. Notably, carrying out a quality assessment of in-patient and out-patient care implies also the overall responsibility of a federal-level authority for health services. Given the complexity of the health system and the multitude of institutions with different mandates at different administrative levels, an institution should be authorised to ensure that the rights of decision-making bodies go strictly hand-in-hand with their liability to patients.

Concerning better use of health data, the intention of the coalition to pass a register law and health data utilisation law is praiseworthy and would be very much in line with the suggested flexible remuneration model for digitalised and innovative forms of care. However, due attention should be given to embedding these policies into overall modernisation strategies. Unlike in many other European countries, such as Denmark, Estonia, or Spain, past policies to digitalise the German health system have not been part of an overarching political agenda to modernise public services. Rather, this issue has been addressed in isolation, mainly by either the Ministry of Health or the Ministry of Education and Research. Yet, it is known that the success of digitally enabled, intersectoral health systems depends heavily on factors that are outside of the traditional health sector such as national security policies, the roles and responsibilities of key agencies for data protection and the overall regulatory environment that could foster or hinder integrated care [39]. Contrary to expectations, it is empirically proven that a higher GDP does not necessarily correlate with the adoption of digital health applications in European countries [40]; even access to high-speed broadband, as a measure of information and communications technology (ICT) infrastructure, has little effect on digital health deployments [40]. Rather, studies show that the national context is central to the diffusion, dissemination, and implementation of complex innovations, determining their success or failure [41–43].

Indeed, as policies affecting human health are developed by a closely knit network composed of interdependent policy actors [44], health outcomes in society are strongly influenced by the policies that go in many respects well beyond the competencies

[4] See: https://optimedis.de/gesundheitskiosk-billstedt-horn-g-ba-empfiehlt-uebernahme-in-die-regelversorgung/

of the Ministry of Health. As discussed above, decisions taken by other ministries have a substantial impact on the health and well-being of the population; fiscal, employment, food and transport policies are to name a few [45]. Their influence on health outcomes becomes even more visible in lifestyle-related morbidities and mortalities. Behavioural risk factors, such as dietary risks, tobacco smoking, alcohol consumption and low physical activity, account for about 40% of deaths in Germany [3], pointing towards the area of responsibility of different ministries such as the Ministry of Education and Research, the Ministry of Food and Agriculture or the Ministry for Digital and Transport. Known also as health-in-all-policies, a collaborative policy approach towards better health outcomes can be achieved by establishing intersectoral governance structures to reorient existing ministries around a shared, intersectoral priority [46]. Indeed, countries such as Estonia or Spain that adopt the whole-of-government approach develop policy responses to increased fragmentation in the public sector by fostering integration, coordination and capacity across government departments and agencies, having also a positive spill-over effect on the digital transformation of their health systems.

Hence, the implementation of a preventive, digital and innovative health system in this legislative period will be less of a technological and more of a governance issue [47]. The governance structure of the overly institutionalised German health system is embedded in the overarching regulatory arrangements of the society, and the high number of institutions rooted deeply in those established structures make disruptive reforms in healthcare unfeasible [48]. Seminal studies from the past showed that industry's influence on technology policies is also much lower in the fragmented German political system than in other countries with a higher concentration of power [48]. Still today, ICT stakeholders in Germany are neither powerful nor numerous enough and, most importantly, have no particular goals regarding healthcare governance, building thus a marginal force in the health system [49]. Nonetheless, developments over the past years in preventive services and endeavours towards bringing innovation to the German health system have been promising. As the Covid-19 pandemic brought the advantages of population-based prevention and digitalisation to the fore, there are good reasons to be optimistic about the future.

Focusing on health promotion, prevention and innovation for better healthcare in Germany, this study provided insights into the key trends and developments in the health system, analysed the content of the coalition agreement and suggested implementation strategies. Known also as situational factors, impermanent or idiosyncratic conditions and events have a substantial impact on policymaking [50]. Although such factors are virtually infinite, they can be categorised mainly as i) violent events (e.g. wars); ii) economic cycles (e.g. depression, inflation); iii) natural disasters (e.g. epidemics); iv) political events and conditions (e.g. change of government); v) technological changes; and vi) the policy agenda, i.e. competition among policy issues [50]. Notably, this study could not pay equal importance to all these six domains. For instance, although the effects of the Covid-19 pandemic, technological changes and the change of government were detailed in the study, the impact of violent events on national health policies (most notably the ongoing Russia-Ukraine conflict) could not be covered. Future studies can address effects of different situational factors on the health policies in Germany and explore how they compete for the time, attention and resources available to decision-makers.

Lastly, similar to the majority of scholarly works concerned with expert discussions this study is subject to limitations. The workshop report provided insights based on the participants' expertise. Although a balanced and good number of health experts were invited to the workshop, the findings were limited, first of all, by the number of experts that were available and willing to participate in the workshop, and, secondly, by their professional background and judgement on prevention and digitalisation in healthcare. Moreover, although the content of the coalition agreement was systematically and independently analysed by the two authors of this study, it cannot be ruled out that this approach may have influenced the outcomes. Even though this article could not cover all aspects that affect health policies and its scope was limited by the resources available, the results may provide some useful ideas for designing feasible approaches to sustainable financing of preventive and innovative services in the German healthcare system.

Funding

The project *Neustart* was funded by the Robert Bosch Foundation.

Acknowledgement

We are grateful to the participants of the workshop that was held on 3 and 4 September 2020 within the framework of the project *Neustart*. We moreover thank Prof. Dr. Katharina Blankart from the University of Duisburg-Essen and Prof. Dr. Mujaheed Shaikh from the Hertie School for leading the workshop as well as the two anonymous reviewers for their valuable comments and suggestions that improved the manuscript.

Conflict of Interest

The authors declare no conflict of interest. The sponsors had no role in the design, execution, interpretation, or writing of the study.

CRediT author statement

TS: Conceptualization, Methodology, Investigation, Writing - Original Draft, Writing - Review & Editing. AH: Validation, Writing - Original Draft, Writing - Review & Editing.

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