Germany and health 1

Statutory health insurance in Germany: a health system shaped by 135 years of solidarity, self-governance, and competition

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This is the first in a Series of two papers about Germany and health

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Bismarck's Health Insurance Act of 1883 established the first social health insurance system in the world. The German statutory health insurance system was built on the defining principles of solidarity and self-governance, and these principles have remained at the core of its continuous development for 135 years. A gradual expansion of population and benefits coverage has led to what is, in 2017, universal health coverage with a generous benefits package. Self-governance was initially applied mainly to the payers (the sickness funds) but was extended in 1913 to cover relations between sickness funds and doctors, which in turn led to the right for insured individuals to freely choose their health-care providers. In 1993, the freedom to choose one's sickness fund was formally introduced, and reforms that encourage competition and a strengthened market orientation have gradually gained importance in the past 25 years; these reforms were designed and implemented to protect the principles of solidarity and self-governance. In 2004, self-governance was strengthened through the establishment of the Federal Joint Committee, a major payer–provider structure given the task of defining uniform rules for access to and distribution of health care, benefits coverage, coordination of care across sectors, quality, and efficiency. Under the oversight of the Federal Joint Committee, payer and provider associations have ensured good access to high-quality health care without substantial shortages or waiting times. Self-governance has, however, led to an oversupply of pharmaceutical products, an excess in the number of inpatient cases and hospital stays, and problems with delivering continuity of care across sectoral boundaries. The German health insurance system is not as cost-effective as in some of Germany's neighbouring countries, which, given present expenditure levels, indicates a need to improve efficiency and value for patients.

Introduction

The German statutory health insurance system is recognised as one of the prototypes of modern health system configurations. Since its introduction in 1883 by the German Chancellor Otto von Bismarck, the guiding principle of the German health system has been solidarity among the insured. Solidarity manifests itself both on the income side and the provision side of statutory health insurance: all insured persons, irrespective of health risk, contribute a percentage of their income, and these contributions entitle the individuals to benefits according to health needs—irrespective of their socioeconomic situation, ability to pay, or geographical location. In this pooled-risk system, people with high income support people with low income, young people support elderly people, healthy people support people who are sick, and people without children support people with children.[1,2] The Bismarck model is often compared with the Beveridge health system, which underlies a tax-financed national health service, and with health systems that are based on market principles.[3,4] This highly stylised differentiation persists even though health systems worldwide have evolved by incorporating elements of each of the three models to meet new challenges, such as an ageing population, new diagnostic and therapeutic technologies, and doubts about quality and cost-effectiveness, and to accommodate the advent of new instruments, such as health-technology assessment and diagnosis-related groups.

The G20 summit hosted by Germany in July, 2017, and the approaching 135th anniversary of the German statutory health insurance in 2018 provide impetus for taking stock of Germany's health insurance system and its development, trends, performance, and opportunities for change.

In this Series paper, we describe how the German health insurance system expanded both the population coverage and the benefits package while keeping cost-sharing low, and we explain how the characteristics of the German statutory health insurance were modified to achieve this. We review developments since 1993, with empirical analysis of data to assess the performance. We look at the statutory health insurance system through the prism of its 135 year history, recognising its remarkable resilience: it survived, with key principles intact, different forms of government (an empire, republics, and dictatorships), two world wars, hyperinflation, and the division and subsequent reunification of Germany. We describe the delegated regulation of the health insurance system through self-governance, both within and between associations of providers and payers. Self-governance is particularly difficult to appreciate because, on the one hand, payers and providers are jointly mandated to ensure equal access to and provision of health services, contain costs, and maintain quality; on

the other hand, the same actors are increasingly facing a regulated environment in which they compete for patients and insured individuals (figure 1). Finally, we highlight the specificities of the statutory health insurance's service provision structure and its separation into two large sectors, one for ambulatory care and one for inpatient care—a side-effect of self-governance that is increasingly seen as the root of problems with care coordination and continuity, although this separation is also seen as an asset in terms of access.

Key messages

- In 1883, Germany became the first country in the world to establish a social health insurance system based on solidarity; continued expansion and improvement over 135 years have shaped a system with universal coverage and a generous benefits package
- The key principle of self-governance initially applied only on the payer's side; a payer–provider joint system of governance was introduced in 1913, and further developments culminated in the founding of the Federal Joint Committee in 2004
- Since the introduction of choice among payers (the sickness funds) in 1993, elements of competition and a market orientation have been gaining momentum but have not threatened the principle of solidarity and the strong degree of self-governance of the system
- Joint self-governance has developed alongside competition and has contributed to a system with good access to health care; however, joint self-governance has also jeopardised continuity of care and has led to an oversupply of pharmaceuticals and inpatient care
- Since the late 1990s, the German health system has moved towards integrated care and evidence-based health care, with new financial incentive schemes for both sickness funds and providers to improve quality and efficiency of care
- The German statutory health insurance system has proven to be remarkably resilient and capable of extensive changes, while modernising gradually rather than through radical reforms; however, today it faces the same challenges as health systems in other developed countries, such as population ageing and increasing chronic disease burdens

The first 110 years of Germany's statutory health insurance system (1883–1993)

The statutory health insurance system was established with the Health Insurance Act (Krankenversicherungsgesetz) of 1883. Chancellor Otto von Bismarck had created a welfare state based on solidarity as part of a political response to the emerging workers' movement.[5] The implementation of comprehensive health coverage for workers removed the fertile ground for discontent for the social democrats and the labour unions and supported Bismarck's idea of German unification, as already pronounced in the Royal Proclamation of Emperor Wilhelm I in 1881 (appendix p 1).[6] Although often portrayed as the originator of statutory health insurance, Bismarck built on traditions and pre-existing structures, particularly with regard to the five types of solidarity-based relief funds (for journeymen, craftsmen, factory workers, workers or tradespeople, and community funds), which can partly be traced back to the Middle Ages.[1]

Innumerable reforms took place until and after the German reunification in 1990; however, from a historical perspective, the statutory health insurance system is characterised by a high degree of structural continuity.[7] The 1883 law defined the founding principles of today's statutory health insurance. First, according to the principle of solidarity, the size of the insurance contributions is based on the ability to pay; in turn, the insured individual is entitled to benefits according to need. Second, statutory health insurance is compulsory insurance in which employers take part in the financing. Finally, statutory health insurance is based on self-governing structures, which means that competencies are delegated to membership-based, self-regulated organisations of sickness funds and health-care providers.

Germany's many historical events have shaped its statutory health insurance system. Despite setbacks and interruptions due to political circumstances, the structural continuity of statutory health insurance endured and is one of the key features of the development of Germany's health system (appendix p 2).

From compulsory workers' insurance to population health coverage

Health insurance coverage was originally limited to blue-collar workers. In 1885, just 10% of the population were insured in one of 18 776 sickness funds. Between 1885 and 1914, the number of contributing members tripled from 4·3 million members to 13·6 million members. Including co-covered dependants, the total number of insured individuals quintupled from 4·8 million to 23 million individuals, which amounted to 37% of the population.[7] The reason for this increase was the rapid growth of German industry, which during that time inevitably accompanied the expansion of statutory health insurance. By 1914, statutory health insurance had become mandatory for transport workers, commercial office workers, agricultural and forestry workers, domestic servants, itinerant workers, and white-collar workers (including individuals employed by lawyers, notaries, bailiffs, industrial cooperatives, and insurance funds). The inclusion of these groups of workers had three visible effects. First, they were all given additional rights, such as the right to maintain membership in separate sickness funds; they had a choice between primary (mainly for blue-collar workers) and substitute funds and could opt out of the system entirely if their income was above a certain threshold (such inequities were only abolished 75 years later). Second, a clear distinction could now be made between private and statutory health insurance. People who were not covered by statutory health insurance, such as civil servants, people who were self-employed, teachers, and clerics) could purchase private insurance. Third, the number of people with statutory health insurance became so large that doctors protested in fear for their income, which led to the development of self-governance mechanisms between sickness funds and provider associations.

See Online for appendix

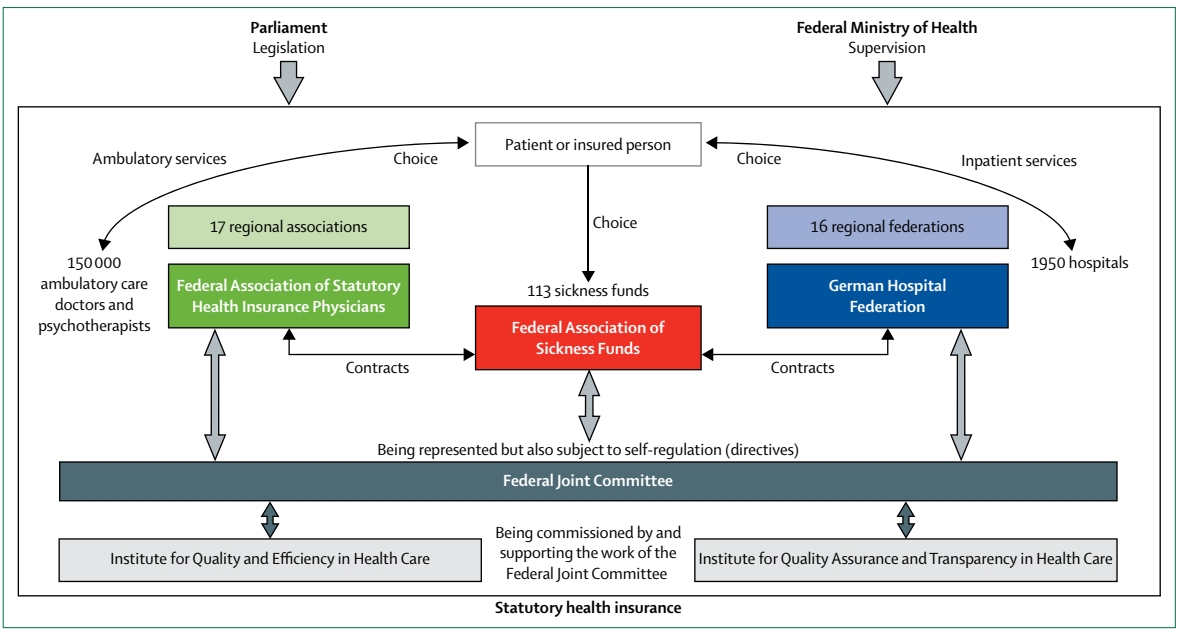

***Figure 1*: Central actors in Germany's statutory health insurance system**

Statutory health insurance coverage was gradually expanded further to include unemployed workers by 1918 (after World War 1), non-earning wives and daughters by 1919, all primary dependants by 1930, and people who have retired by 1941.[1] Insurance became mandatory for farmers in 1972, for disabled persons and students in 1975, and for artists in 1981. In 1987, statutory health insurance was mandatory for 76% of the population. Slightly more than 10% of the population, mainly self-employed and white-collar workers earning more than the income threshold, had statutory health insurance on a voluntary basis, which brought the total population coverage up to 88% in 1987.[7] The size of the voluntarily insured population is an important litmus test for the sustainability of the statutory health insurance system as most members pay the maximum contribution, based on their high incomes, and have the option to buy private insurance instead.

From cash benefits to services-in-kind

Just as the population coverage increased, so did the scope and scale of covered benefits. The Health Insurance Act of 1883 described insured individuals' entitlements to cash benefits in case of illness (up to 50% of wages for a maximum of 13 weeks), death, and childbirth. The act also granted in-kind services such as medical treatment and drugs. Alternatively, sickness funds could offer their members coverage of inpatient treatment. Individual sickness funds could extend benefits beyond the minimum statutory benefits package for some areas, such as by increasing the amount of cash benefits, extending the maximum duration of sick pay up to 1 year, and offering additional services-in-kind, including what today would be classified as complementary and alternative remedies.[7,8]

Further extensions of standard benefits followed, including the doubling of the duration of sick pay to 26 weeks in 1903, the introduction of maternity pay in 1919, and allowances for dependants in 1930. Sickness funds became legally obliged to provide coverage for hospital care to both members and their dependants in 1936. Although seemingly major, this change was in fact incremental because most funds already had been providing this benefit on a voluntary basis. In the difficult economic period after World War 2, the length of entitlement to service and the amount of cash benefits were further increased.[7]

Between 1965 and 1975, development of care structures and improvement of services also led to increased expenditures. In 1969, blue-collar workers were given up to 6 weeks' full salary when sick (a regulation that had applied to white-collar workers since 1930). In 1970, preventive medical check-ups and paediatric screenings were included in the benefits package. During the same period, the provision of immunisations was shifted from public health offices to office-based doctors (panel 1), especially paediatricians, which further diminished the weak role of the public health sector. The 1973 Act to Improve Services removed the time limit of hospital care and introduced sick pay to compensate for wages lost while caring for a sick child. Furthermore, the act granted a domestic aid during inpatient stays and extended the coverage of rehabilitation services and of dental and orthodontic services. As a result, statutory health insurance expenditures dramatically increased in the following years. As a share of gross domestic product

(GDP), the cost of statutory health insurance expenditure increased from 3·5% in 1965 to 5·9% in 1975, with a growth of 2·1 percentage points between 1970 and 1975 alone,[7] hence the neologism "Kostenexplosion im Gesundheitswesen" (cost explosion in health care).[13]

The combined effects of the oil crisis and the end of an economic boom in Germany in the post-war years compromised the sustainability of the expanded statutory health insurance benefits package in the following years. In response, the 1977 Cost Containment Act imposed a spending policy based on actual revenues that forced doctors in ambulatory care and sickness funds to negotiate an overall remuneration. Benefits were removed from the insurance package for the first time, drugs for minor ailments were no longer covered, and copayments for medicines were introduced at this time.

Self-governance structures: from appeasement of workers to joint decision-making bodies

The shift from cash payments to benefits-in-kind was associated with an increase in the number of health-care professionals.[14] Conflicts between the sickness funds and office-based doctors have been particularly important in shaping Germany's health system, with office-based doctors having had a dominant role in the ambulatory sector and in steering the general direction of developments in the health system from the 1890s.[15]

The 1883 law had defined in detail that sickness funds had to be governed by administrative boards of representatives elected from both the workers and their employers, in line with their contribution shares. The ratio of workers to employers on these administrative boards was initially 2:1, reflecting the respective contribution shares. The workers were represented by trade unionists, who were thereby given an area to devote their activities to rather than protesting against the government.[16]

The 1883 law, however, had not addressed the relationship between sickness funds and doctors or the qualifications of health-care professionals, leaving both matters to the discretion of the funds. At first, doctors took little notice of this aspect of the regulation, but in the 1890s they began lobbying and striking for an increase in autonomy and income.[15] This change of approach can be attributed to the increasing number of patients with insurance coverage, restrictions on their access to statutory health insurance-accredited doctors, and the dependence of salaried doctors on the worker-dominated sickness funds (which, among other things, led to a decline in the social status of this group of doctors). Through its campaign at the national level, in 1900, the medical profession had convinced various rival groups of doctors to unite and make common demands despite internal divisions, such as those between statutory health insurance-accredited doctors who were dependant on the sickness funds and non-statutory health insurance-accredited doctors who were not. When statutory health insurance coverage was extended to white-collar workers, doctors threatened to go on strike

Panel 1: A short history of public health in Germany

The science and practice of public health have important origins in Germany.[9] Very early examples of public health systems in Germany include cheap-meat departments (introduced in Augsburg in 1276 to provide rigorous safety testing of meat from sick or injured animals), antenatal care, and professional midwives (introduced in Ulm in 1491).[10] The origins of insurance were introduced by Paracelsus (1493–1541), a Swiss-German physician and philosopher who established the field of toxicology and who is accredited with demanding systems of social protection for sick and disabled mine workers, which led to the creation of the early German sickness funds. Johann Peter Frank (1745–1821) wrote *System of a Comprehensive Medical Police*, a groundbreaking, six volume tractate describing the first comprehensive strategy to improve population health by regulating public life and influencing private life. In 1800, Franz Anton Mai, professor of obstetrics at the University of Heidelberg, followed in Frank's footsteps and published a detailed policy proposal for what he referred to as medical police, which would address a wide range of public health subfields such as nutrition, antenatal care, epidemic control and hygiene, and health literacy. Rudolf Virchow (1821–1902), a German physician-scientist and politician, and one of the founding fathers of public health, identified social and political factors as both causes of disease and instruments for intervention, stating famously that "[m]edicine is a social science, and politics is nothing else but medicine on a large scale".[11]

At the turn of the century, public health in Germany advanced substantially through the work of the doctors and public health researchers, such as Alfred Grotjahn, Adolf Gottstein, and Alfons Fischer.[9] Building on Virchow's work, Alfred Grotjahn championed the idea that public and population health sciences ought to develop a deeper understanding of the health effects of the social conditions in which human beings are born, live, work, enjoy, procreate, and die. With powerful foresight, Grotjahn laid out a vision of public health as an interdisciplinary field integrating methods from medicine, statistics, demography, anthropometry, economics, and sociology to serve as a scientific counter-movement to the increasingly specialised clinical medicine of the day.[10]

Today, public health sciences are taught at several German universities.[12] Within the German health system, the practice of public health is the responsibility of a network of public authorities at the federal, state, and local levels. Seven institutes operate at the federal level; for example, the Robert Koch Institute and the Paul Ehrlich Institute have responsibility for epidemic prevention and control and for vaccines, respectively. Authorities at the local level are in charge of managing the health offices (Gesundheitsämter) with broad public health responsibilities, such as hygiene monitoring, infection prevention and control, child health checks, HIV and pregnancy counselling, and health promotion.

The concept of a medical police legitimised by the state was realised by a number of early local public health authorities (Öffentlicher Gesundheitsdienst) and was subverted from its original benevolent purpose to serve nefarious activities. The Öffentlicher Gesundheitsdienst, in its present administrative form, was established under the Nazi regime with the 1934 Law of Standardisation of Public Health Authorities. The Nazi regime nationalised the public health authorities and co-opted their infrastructures and doctors as instruments in the barbaric policy system of racial hygiene. The local health offices were tasked with carrying out the 1934 Compulsory Sterilisation Law, which led to the forced sterilisation of 400 000 individuals and caused an estimated 7000 deaths. The public health authorities also implemented major components of the Nazi regime's eugenics programme and genocide in eastern Europe. Shamefully, the Nazi period of German public health authorities has only very recently been systematically examined in medical-historical projects (after 2000).

***Panel 2*: The National Socialist period: a period of violated structural continuity[18]**

Access to medical and cash benefits from statutory health insurance, accident insurance, and old-age insurance were restricted or denied to the Jewish population and other stigmatised minorities. This was part and parcel of the Nazis' racist policies, which began with the exclusion of these and other groups from all social life and ended with detention in concentration camps, torture, mass murder, and genocide. Forced migrant labourers were obliged to contribute to the statutory health insurance system without any guarantee of receiving benefits, and the services they did receive were often substandard. Moreover, members of the medical profession were instrumental in legitimising social selection, cruelty, and murder.[19]

The organisation of the health-care sector and the balance of power among the main actors were also changed during the Nazi regime. The sickness funds (1934), community health departments (1935), as well as professional associations, medical chambers, and charitable institutions dealing with public welfare or health education (1933–35) were each centralised and placed under the authority of a director nominated by the Nazi party. Members of the self-governing institutions within the system of joint self-government were chosen by the Nazi party rather than elected, and the participation of employers and employees was limited to serving on advisory councils.

In 1933, most socialist and Jewish employees working in the administration of the sickness funds—which amounted to a quarter of all employees—were expelled by law. In the same year, a third of doctors working for public health agencies were forced to leave their positions. Subsequent legislation prohibited Jewish doctors from treating patients covered by statutory health insurance by 1933 and, soon after, all non-Jewish patients by 1937. Finally, in 1938, Jewish doctors were banned from practising medicine altogether. As a result, 12% of doctors in Germany—and 60% of doctors practising in Berlin—were prohibited from pursuing their vocation, which greatly restricted access to health care, especially among Jewish patients. Non-Jewish medical professionals were the occupational group with the largest proportion of members in the Nazi party, and most them welcomed the exclusion of Jewish doctors from medical practice.

As the influence of the sickness funds was weakened, that of office-based doctors was bolstered. The regional associations of statutory health insurance doctors and the newly founded National Association of Statutory Health Insurance Physicians were established as corporations under public law in 1934 and were entrusted with negotiating collective contracts with the sickness funds, ensuring the availability of emergency services, and supervising individual doctors contracted by the sickness funds. These associations were also granted the right to decide on the registration of office-based doctors without negotiating with the sickness funds. In return, their members were forbidden to strike.

Between 1940 and the end of World War 2 in 1945, Nazi Germany occupied the Netherlands. In 1941, Germany enforced the Sickness Fund Decree, which introduced a statutory health insurance system in the Netherlands identical to the German one, with mandatory health insurance for employees under a certain income threshold and voluntary health insurance for employees with earnings above that threshold or who were self-employed.[20]

shortly before the law was to take effect in 1914.[17] In December, 1913, the government intervened in the conflict between sickness funds and doctors for the first time. The resulting Berlin Convention stipulated that representatives of the doctors and the sickness funds were to form joint commissions to channel their conflict into constructive negotiations; this intervention marked the beginning of a system of joint self-governance within the statutory health insurance scheme. Contracts with doctors had to be agreed to collectively by all sickness funds.[7,16] These contracts served as the basis for codifying the right to freely chose one's doctor and ended the practice of sickness funds allocating their members to particular doctors.

Office-based doctors went on a series of strikes when the Berlin Convention expired at the height of the German hyperinflation in 1923. They felt threatened by the broad range of preventive health education and social care services offered by local communities and welfare organisations. The government responded to the strikes by creating a joint body responsible for decisions on benefits and the delivery of ambulatory care. Known as the Imperial Committee of Physicians and Sickness Funds, this new body pacified office-based doctors, but it disconnected ambulatory care (for which the office-based doctors were granted a monopoly) from both population-based and public health institutions (which were charged with a narrow set of traditional public health functions; panel 1) and from hospitals that had to limit their scope of work to inpatient services. The result was a fragmented provision of care, a situation that endures to this day. From 1931, office-based doctors providing services for individuals who were covered through statutory health insurance were required to hold membership of their respective Regional Association of Statutory Health Insurance Physicians, which was charged with negotiating collective contracts with the sickness funds. The contracts had to be based on the premise of a total payment for all doctor services. It was (and still is) the responsibility of the self-governed doctor associations to choose the approaches and processes by which to distribute the payment to their individual members, the doctors.

During the period of National Socialism (1933–45), the fundamental structures of the social insurance system, including those related to health financing and delivery, remained unchanged. Despite this structural continuity, the principles of the social insurance system were grossly violated because the totalitarian Nazi regime did not tolerate self-governance in any social sector (panel 2).

The self-governance structure was largely restored after 1945, with only slight modifications in West Germany in 1955 (appendix p 2). Contributions and representation on boards were now shared equally between employees and employers, and joint regional associations of sickness funds and statutory health insurance doctors became the main stakeholders, with the Federal Committee of Physicians and Sickness Funds responsible for defining general rules and regulation. Although the political path was different in East Germany, important features of the statutory health insurance system were kept (panel 3).

The past 25 years (1993–2017)

Very soon after the German reunification in 1990, the structures of the West German statutory health insurance system were transferred to the former East Germany.[5] In

addition to merging the health systems of the west and east, Germany faced the challenge of rising health-care costs due to the ageing population, growing health-care demand, and progress in medical technology. These challenges led to recurrent deficits and increasing debts in the statutory health insurance, even as sickness funds increased their contribution rates. In 1992, €108 billion in statutory health insurance expenditures stood in contrast with €105 billion in revenues.[23] Calls for improvements in efficiency and transparency of service provision were made. Some of the reforms that have taken place in the past 25 years marked strategic new directions, whereas others were readjustments of existing trajectories (figure 2).

The main thrust of legislation reform after Germany's reunification was to foster competition, initially with the goal of controlling expenditure and enhancing technical efficiency. Any new initiatives toward that goal were strictly regulated to avoid risk-selection and other adverse effects of competition.[24] Rationalisation was given priority over rationing, and only a few items were removed from the statutory health insurance benefits package.[25] Many new drugs and technologies were added to the benefits package during this period, and the service profile pivoted towards long-term and palliative care as well as towards prevention. From 2000, the emphasis on cost containment weakened (although the law still includes cost containment as an overall objective), and efficiency and quality—initially considered secondary issues—became core values. The shift in priorities was a response to a growing dissatisfaction among providers with crude cost-containment measures and the recognition of serious quality problems, especially with the coordination of care for patients who are chronically ill.

The attempt to improve a solidarity-based system through competition

The first major reform, the Health Care Structure Act, took place in the early 1990s. This politically driven compromise combined seemingly contradictory elements, namely the introduction of fixed budgets or spending caps for most health-care sectors and the introduction of competition between sickness funds to improve efficiency, all under the watchful eye of regulators and while maintaining the principle of solidarity.[26]

Competition among providers in the statutory health insurance system had been strengthened by granting patients a free choice of office-based doctors and hospitals. However, competition among payers was lacking because people were mostly assigned to a particular sickness fund. Giving insured individuals the option to choose their sickness fund and to change funds on a yearly basis (with 3 months' notice as of 1996) was the first essential initiative to strengthen competition in the provision of statutory health insurance. The Health Care Structure Act marked the most important paradigm shift in the history of statutory health insurance, since it not only eliminated the century-old occupational classification and the privileges that white-collar workers had compared with blue-collar workers, but also provided a new regulatory basis for competition among sickness funds and contracts between sickness funds and providers.[5]

With people choosing a sickness fund irrespective of their occupation, the funds had to market themselves to attract new members and retain existing ones, part of which included reducing their contribution rates.[27] In response to the new freedom and growing willingness of members to switch between sickness funds, the sickness

Panel 3: The health system in the German Democratic Republic

In East Germany, the Soviets took an authoritarian approach to controlling infectious diseases and, despite protests from many doctors, gradually moved towards a centralised, state-operated health system in the German Democratic Republic. But despite socialist ideology, the health system kept important features of the Bismarck model. Although the Central Planning Act of 1950 put the system under central state control, the principle of social insurance—with employers and employees sharing the cost of insurance contributions of 60 Marks a month—was maintained by law. Insurance was made universal, and the administration was concentrated in only two large sickness funds: one for workers (89%) and one for other occupational groups, including members of agricultural cooperatives, artists, and people who were self-employed (11%).[21] From 1971, the contribution was never increased, which, given the rising costs of health care, led to enormous underfinancing of the system.[5]

Unlike in the neighbouring Soviet-dominated countries, not all health-care institutions in East Germany were formally nationalised. Some doctors continued to provide ambulatory care in single-handed practices, although most worked at community-based or company-based, state-owned polyclinics staffed by a range of medical specialists and other health-care professionals. Thus, while the structural division between ambulatory and hospital services was preserved, these sectors often collaborated and were often located on the same premises. Independent hospitals continued to exist, albeit under increasingly difficult circumstances. Indeed, between 1960 and 1989, the number of not-for-profit hospitals decreased from 88 to 75, and the number of private hospitals dwindled from 55 to two. Nevertheless, in 1989, about 7% of all hospital beds were still not state-owned, and some doctors had remained in private practice.[22]

Local communities provided preventive services, including health education, maternity and child health care, and specialist care for people with chronic diseases such as diabetes or psychiatric disorders. In this manner, the German Democratic Republic created what the political left in West Germany and in many other western countries considered to be, at least until the 1960s, a model health system. However, because of insufficient financing and investment as well as shortages of skilled personnel and modern technologies, the health system in East Germany began to lag behind western standards in the 1970s, leading to a visible worsening of care by the late 1980s. The number of hospital admissions per capita was about 25% lower than in West Germany in the 1980s.

This lack of modern medical care has been linked to trends in population health. Although other factors must also be taken into account, such as a high burden of disease in the East German population, these findings point to the possible effect of differences in medical care on population health and the widening mortality gap between the two Germanys. This gap began to develop in the mid-1970s after decades of mostly parallel improvements in life expectancy and even a slight advantage for men in East Germany during the 1960s and early 1970s.

In November, 1989, shortly after a National Health Conference resolved to introduce fundamental health-care reforms along with an increase in investment, the Berlin Wall fell.

Year	Reform	Contents and selected measures
Christian Democratic–Liberal coalition (Chancellor: Helmut Kohl, CDU); Health Minister: Horst Seehofer (CSU)		
1993	Health Care Structure Act	• Free choice of sickness funds for most members of the statutory health insurance, supported by the introduction of a risk-adjusted compensation scheme to redistribute contributions equitably among sickness funds (as of 1996) • Needs-based health workforce planning for ambulatory care doctors and accreditation requirements for statutory health insurance doctors • Abolition of full-cost cover principle for hospitals • Introduction of legally fixed budgets or spending caps for the major sectors of health care • Increased copayments for pharmaceutical products and differentiation according to price (1993) and pack size (1994) • Introduction of a positive list of pharmaceutical products
1994	Statutory Long-Term Care Insurance Act	• Introduction of statutory long-term care insurance as of 1996 managed by sickness funds or private health insurance companies
1996, 1997	Health Insurance Contribution Rate Exoneration Act; First and Second Statutory Health Insurance Restructuring Acts	• Reduction of all contribution rates by 0·4% percentage points • Reduction of benefits (eg, rehabilitative care, health promotion, dentures for persons born after 1978) • Increased copayments (eg, hospital care, pharmaceutical products, medical aids, ambulance transportation, and dentures) • Introduction of hospice care benefit • Increased possibilities for non-collective contracts between sickness funds and providers
Social Democratic–Green coalition (Chancellor: Gerhard Schröder, SPD); Health Ministers: Andrea Fischer (Greens, 1998–2000), Ursula Schmidt (SPD, 2001–05)		
1998	Act to Strengthen Solidarity in Statutory Health Insurance	• Dentures for persons born after 1978 reintroduced • Lowering copayment rates for pharmaceuticals and dentures
2000	Statutory Health Insurance Reform Act of 2000	• Removal of ineffective or disputed technologies and pharmaceuticals from the statutory health insurance benefit package • Option for selective contracting (integrated care) • Separate budgets for general practitioners and specialists in ambulatory care • Mandatory collection of quality indicators for hospitals
2001	Act to Reform the Risk Structure Compensation Scheme in Statutory Health Insurance	• Introduction of disease management programmes and linkage to risk-structure compensation scheme
2002	Case Fees Act	• Introduction of German-styled diagnosis-related group system for inpatient services as of 2003
2004	Statutory Health Insurance Modernisation Act	• Exclusion of over-the-counter drugs and prescription eyeglasses from the statutory health insurance benefit package • Transferring financing of family planning and family policy services not related to insurance to the federal budget • Copayment of €10 per quarter for the first doctor or dentist visit (abolished in 2012) and other increases in copayments • Option for supplementary insurance within statutory health insurance (in cooperation with private health insurers) • Shifting the contribution rate towards the insured (by charging them 0·9% extra, thereby moving away from the 50:50 employee-employer split) • Creation of the Federal Joint Committee (replacing the Federal Committee of Physicians and Sickness Funds and similar entities) • Founding of the Institute for Quality and Efficiency in Health Care
Grand coalition: Christian Democrats and Social Democrats (Chancellor: Angela Merkel, CDU); Health Minister: Ursula Schmidt (SPD)		
2007	Act to Strengthen Competition in Statutory Health Insurance	• Mandatory universal coverage (either through statutory health insurance or in private health insurance) • Introduction of a uniform contribution rate, a central reallocation pool (Gesundheitsfonds), and resource allocation to sickness funds according to a morbidity-based risk structure compensation scheme • Introduction of specialised ambulatory palliative care • Choice of tariffs in statutory health insurance (eg, no-claim bonuses) • Reform of doctor payment in ambulatory care
Christian Democratic–Liberal coalition (Chancellor: Angela Merkel, CDU); Health Ministers: Philipp Rösler (FDP, 2009–11), Daniel Bahr (FDP, 2011–13)		
2011	Statutory Health Insurance Care Structures Act	• New regulations for supplementary premiums and introduction of social adjustment in health-care financing • Reduction of the minimum binding period for chosen tariffs • Reform of needs-based health workforce planning for doctors in ambulatory care
	Pharmaceutical Market Reform Act	• Regulation of reimbursement for new pharmaceutical products • Introduction of benefit assessment and value-based pricing
Grand coalition: Christian Democrats and Social Democrats (Chancellor: Angela Merkel, CDU); Health Minister: Hermann Gröhe (CDU)		
2014	Act to Further Develop the Financial Structures and Quality in Statutory Health Insurance	• New regulations for contribution rates (sickness funds charge an additional rate on top of the uniform rate, to be paid by the policy holder only) • Founding of the Institute for Quality Assurance and Transparency in Health Care
2015	Statutory Health Insurance Care Provision Strengthening Act	• Several measures concerning better access in ambulatory care
2016	Hospital Structure Reform Act	• Institute for Quality Assurance and Transparency in Health Care tasked with developing indicators for (1) quality-based hospital planning, (2) four areas of selective contracts between sickness funds and hospitals, and (3) pay-for-performance in hospitals • Financial support for hospitals to employ more nurses • Improving emergency services by establishing new emergency out-of-hours practices in or near hospitals

Figure 2: **Main health reforms and acts since 1993**
A narrative of these developments is provided in the appendix (p 3). CDU=Christian Democratic Union. CSU=Christian Social Union. FDP=Free Democratic Party. SPD=Social Democratic Party.

funds also began merging, which reduced the number of funds by 70% between 2000 and 2015 (appendix p 5); however, the market share of the three biggest sickness funds did not increase by much, unlike in the Netherlands.[28] To be a member once carried a political connotation rooted in the history of statutory health insurance and the workers' movement, but the option to choose where to make one's insurance contribution reframed the relationship between insured people and the sickness funds—a member is now more likely to be treated as a customer. This, however, has not led to any legislative changes as far as the make-up of self-governing boards, and customers still vote to select their representatives.

As an assurance that all sickness funds would compete on equal grounds, their opening to individuals of all occupations was accompanied by the implementation of a risk-adjustment scheme that was designed to minimise incentives for risk selection and reduce extreme differences in statutory health insurance contributions between the sickness funds.[29,30] Previously, because membership in the funds depended on regional and occupational criteria, there were large differences in the contribution rates due to the varying income and risk profiles of the members. For example, the average contribution in 1992 was 12·7% of an individual's income, but that contribution varied from 11·2% for the group of substitute funds traditionally insuring white-collar workers to 13·3% for the regional funds insuring mainly blue-collar workers. Even more striking were the differences in contributions between individual sickness funds, which ranged between 9% and 18%. The risk-adjustment scheme redistributed fund contributions to ensure that members with low income and high disease risk were as attractive to the sickness funds as people with high income and low disease risk. The scheme underwent several improvements with time; by 2009, it had changed from retrospective redistribution (based only on sex, age, and invalidity status) to using measures of morbidity to capture disease-risk differentials. As a testament to the success of the risk-adjustment scheme, the proportion of individuals paying highly variable rates decreased to 7% in 1999 (in 1994, 27% of all members had paid a contribution differing by more than 1 percentage point from the average).[23,31] However, the remaining differences in contribution did not decrease to below 1 percentage point until the introduction of a uniform contribution for all members in 2009 (appendix p 5).[32,33]

With the implementation of the risk-adjustment scheme, the only leverage the sickness funds had to compete for members was on the basis of changes to the contribution. The decision to incorporate market regulation mechanisms into the statutory health insurance entailed a number of other important reforms. Competition for service provision or benefits was still severely restricted since individual selective contracts between sickness funds and providers, which overruled the existing system of collective agreement, were only possible in exceptional cases. This restriction was removed in 2000, allowing sickness funds and providers to engage in selective contractual arrangements, often in the form of integrated care, which meant that a group of providers could be contracted by a sickness fund to provide services across sectoral boundaries.

The step towards integrated care enabled sickness funds to compete over more than price and to differentiate themselves in a competitive environment. Selective contracting was carefully extended in subsequent years after both a broad discussion of the legislative framework and an examination of the share of statutory health insurance expenditures involved in these contracts. By way of comparison, only 0·02% (€31 million) of total expenditures for statutory health insurance services had been linked to selective contracts between sickness funds and providers in 2002, whereas in 2015, this share increased to 1·5%, equalling €3·13 billion (appendix p 6).[34] Between 2009 and 2010, as a result of the introduction of family doctor care models in 2009, expenditure for services based on selective contracts increased from 0·75% to 1·61%. Sickness funds are legally obliged to offer their members the option to enrol in such a programme. In doing so, members accept to comply with gate-keeping rules before seeing a specialist and, in return, receive certain privileges such as exemption from copayments or shorter waiting times.

In the mid-2000s, sickness funds gained the right to negotiate discounts with pharmaceutical drug manufacturers. The system is mainly used for generics; once such discount agreements have been reached, pharmacies are obliged to dispense the respective products and, because the discounts are confidential, the manufacturer retrospectively reimburses the sickness fund. By 2015, the proportion of total discounts surpassed 10% of total statutory health insurance expenditure on pharmaceutical products and amounted to more than €3 billion (appendix p 6).[34]

In 2007, sickness funds began offering a choice of tariffs—a feature previously reserved for private health insurance companies. Different benefits packages and pricing allowed the funds to adapt to the individual needs of their members, for example through plans with a higher-than-standard cost-sharing requirement, which makes statutory health insurance more attractive to people with high incomes and low service use. Tiered rates in statutory health insurance can both strengthen competition between sickness funds and prevent the opting out of low-risk members from the solidarity system. In 2015, 3·5% of the 53·7 million statutory health insurance members (about 1·9 million people) claimed at least one such plan—considerably fewer than the number of members who enrolled in disease management programmes. Most people (60%) who chose a tariff opted for monetary reimbursement, which

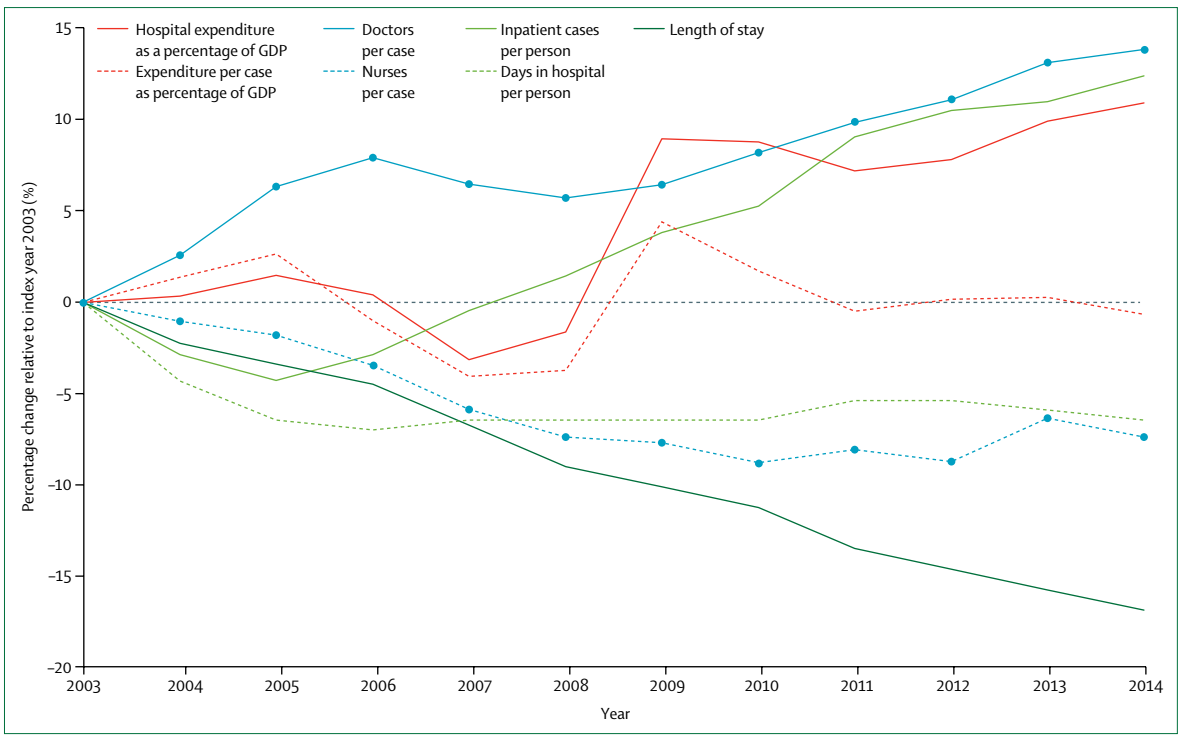

***Figure 3*: Expenditures, human resources, and use of hospital care, 2003–14**[43-45]
GDP=gross domestic product.

replaces the traditional benefit-in-kind system. 27% of members chose plans with deductibles, and 20% of members chose no-claim bonuses, which refer to the refunding of contributions in case no service is used (appendix p 6).[35–37]

From cost containment to quality (and achieving universal coverage along the way)

Apart from the increased management of competition among sickness funds, the 1990s and 2000s were times of many cost-containment interventions. Some interventions, such as the exclusion of certain rehabilitative benefits in 1996–97 and, controversially, of dentures for people born after 1978 (denture coverage was reintroduced in 1998), were unpopular. In 2004, a second wave of cost-containment measures removed insurance coverage for drugs sold over the counter and prescription eyeglasses, which reduced statutory health insurance expenditures for pharmacies from €22·9 billion in 2003 to €20·5 billion in 2004.[34]

Rather than remove benefits, legislators preferred a cost-containment approach that set budgets or spending caps for entire sectors such as hospitals, ambulatory care, and pharmaceutical products. Budgets helped to keep statutory health insurance expenditure slightly above 6% of GDP, whereas overall expenditures increased moderately from 9·0% in 1992 to 10·3% in 2003.[18] These crude budgetary restrictions were politically unwise and impractical in the long term, and the government tried to replace them with alternatives that would also tackle some of the weaknesses of the German system. A primary concern was, and still is, the fragmentation of health-care provision, especially between primary and specialised services in the ambulatory care sector and inpatient services in the hospital sector. Fragmentation of care sectors has led to discontinuities in the provision of health services, reduced effectiveness of interventions, and increased costs. To address this reduced cost-effectiveness, sickness funds were given additional autonomy in 2000 to explore new and innovative ways to provide services.[38,39] Within this policy context, disease management programmes were introduced for patients with chronic disorders in 2002. The primary policy objective of these programmes was to improve the quality of care by overcoming fragmentation, but the programmes also had a competition-related objective: as patients enrolled in these programmes were factored in separately in the risk-structure compensation scheme of the statutory health insurance, it reduced the chance of adverse selection by the sickness funds.[40] Although disease management programmes can be considered a success in terms of securing participation (appendix p 6), the official evaluation of their clinical effectiveness by the Federal Insurance Authority uses a weak intervention-only design, and results of control-group-design studies are inconsistent.[41]

The political shift away from cost containment to efficiency-enhancing policies was most visible with the introduction of diagnosis-related groups in 2004 as a basis for reimbursing hospitals for inpatient services. As

the relative cost weights for the diagnosis-related groups are based on actual resource use, they served as a benchmark for spurring competition between providers (ie, hospitals) to increase the efficiency of health service provision.[42] These incentives were effective: hospitals reacted by adjusting the composition of clinical personnel assigned to inpatient cases—increasing the ratio of doctors to nurses because it was doctors who provide the coding-relevant procedures—and thereby achieved a stable cost-per-inpatient case measured against GDP during a period of considerable technological progress (figure 3). With the introduction of diagnosis-related groups, policy makers had expected that inefficient hospitals would cease to provide such services, or even cease to provide services altogether and close. The reduction in hospital capacities was, however, modest, leaving Germany with a bed capacity of 65% above the average EU15 average. The number of inpatients increased by 17% between 2005 and 2015 and was 50% higher than the EU15 average in 2015.[46,47] In other words, beds that had been emptied because of improved efficiency were filled by the increase in patient admissions, resulting in a stable but high mean duration of hospital stay per person (around 1·74 days per person; appendix p 7). By comparison, the mean duration of hospital stay in Denmark was 0·71 days per person in 2014.[48]

Legislators were not oblivious to the potentially negative effects of diagnosis-related groups on quality that would be caused by the potential underprovision of services to individual patients on the one hand and by the unnecessary admissions leading to an overprovision of care on the other hand. Hospitals are now required to provide annual quality reports documenting structural, process, and outcome indicators at the hospital level and medical department level for 30 tracer diagnoses and procedures, covering 25% of inpatient cases across the country's 1600 acute care hospitals. 434 process and outcome indicators are collected at present, which include evidence-based care compliance, readmission, infection, and mortality. Increasingly, the reporting outcomes of these indicators must be made public by the hospitals.[49,50] The Hospital Structure Reform Act of 2016 defined the next steps for improving quality, which are to select four areas of selective contracting between sickness funds and hospitals and to initiate pay for performance reimbursements for a limited number of indications or disease areas, but the specific indications are yet to be defined by the Federal Joint Committee.[51]

Ensuring quality in pharmaceutical care was less straightforward. The 1993 Health Care Structures Act announced the creation of a positive list of all pharmaceutical products that would be covered by statutory health insurance, but this regulation was later cancelled. Instead, all prescription drugs remained covered, and pharmaceutical cost-containment policies relied on spending caps, discounts mandated by the government, and reference prices that were set for groups of comparable drugs. This incentive-based system was used for older drugs for which generics were filling a growing market share because of their low prices.

These quality and cost-containment incentives in the pharmaceutical sector left the issue of new and often prohibitively expensive and clinically unproven drugs untouched for a long time. Only in 2011, with legislation referred to as the Pharmaceutical Market Reform Act, did the government require that manufacturers of newly licensed pharmaceutical products submit a dossier with sufficient data to assess the drug's added benefit relative

Panel 4: Long-term care insurance

Municipalities have supported the health needs of an ageing population through taxes, and after years of discussion at the political level, the federal government introduced statutory long-term health insurance in 1994. Fully operational in 1996, statutory long-term health insurance closed a gap in the system of social security and is often denoted as its fifth pillar of social security.[55] Long-term care insurance is based on the same organisational principles that define German statutory health insurance: insurance is mandatory and usually provided by the same insurer as health insurance, which means that statutory health insurance members and privately insured individuals are both automatically covered by long-term care insurance, comprising a similar public–private insurance mix. Long-term care funds are affiliated with sickness funds, which handle all administrative tasks; however, financing pools and management are strictly separated.[56]

Like statutory health insurance, long-term care insurance is financed by contributions that are levied on wages up to a certain limit (in 2017, up to €3938 per month). Contributions were initially set to 1·7% of gross wages and shared between employers and employees. Today, the contribution has increased to 2·55% of gross wages. Since 2005, people who are 23 years or older and do not have children must pay a 0·25 percentage point increased contribution.[57]

By contrast with statutory health insurance, benefits provided through long-term care insurance are only available by application and for persons who have contributed for at least 2 years. Entitlement to benefits is assessed by the Medical Review Board, which can issue a denial or assign the applicant to one of five levels of care. Beneficiaries can choose between in-kind benefits and cash payments; the latter account for about a quarter of all long-term care insurance expenditures. Both home care and institutional care are provided almost exclusively by private, not-for-profit, and for-profit providers.[58]

The most important difference between statutory health insurance and long-term care insurance is that for long-term care insurance, like in the British model, benefits do not cover the full costs of care, and copayments are standard.[59] As benefits usually cover only about 50% of institutional care costs, people are often advised to buy supplementary private long-term care insurance. In 2013, with the aim of encouraging the development of private insurance to close gaps in the financing of social long-term care insurance, the German Government began offering subsidies for the voluntary purchase of qualified, private long-term care insurance. This type of coverage is known as "Pflege-Bahr," named after the Minister of Health at the time, Daniel Bahr.[60]

A reform of long-term health insurance was soon needed to redefine the concept of long-term care. The original interpretation of long-term care had been rather narrow and strongly related to somatic illnesses and restrictions of so-called functions; it also excluded dementia and other cognitive impairments, which affected patients who had slight physical impairment.[5] The impending underfunding of long-term care insurance was also subject to intense controversy between different stakeholders. As a result, several reforms have been implemented since 2008, particularly between 2013 and 2016.

to existing products. If a drug had no additional benefit, it would be placed in a reference price group and the cost would be reimbursed at the same rate as existing drugs. For drugs with an added benefit, the Federal Association of Sickness Funds would negotiate a reimbursement amount with the manufacturer.[52] Until August, 2016, 319 drugs (excluding orphan drugs) had been assessed, 102 (32%) of which were found to have an added benefit.[53]

A trend that has yet to be publicly acknowledged in the German debate is the increase in consumption of medicines, or defined daily doses, by more than 50% between 2004 and 2015 (appendix p 8).[54] This trend should raise concern about potential patterns of overprescribing.

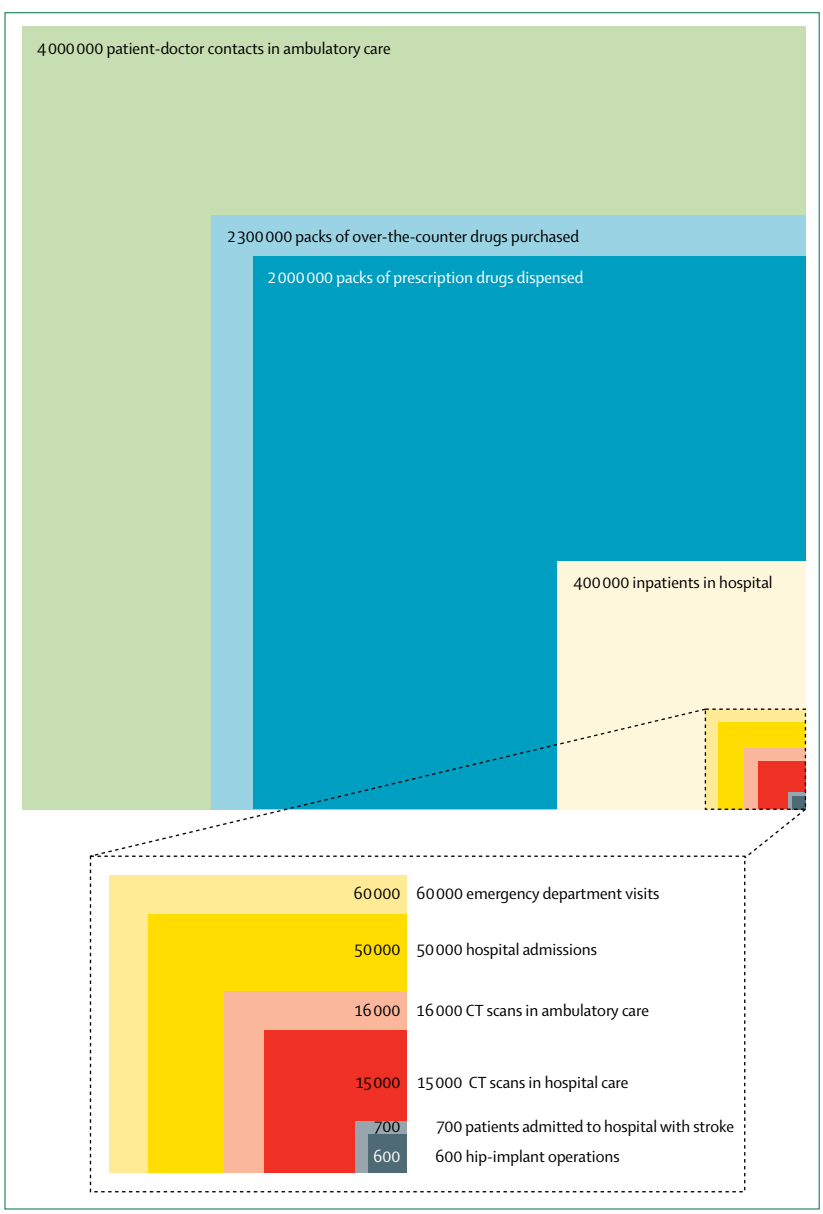

Figure 4: **Daily activities within the German health system, estimated for 2015**[43,54,67]
The values have been rounded for ease of presentation.

In line with the international debate and developments since 2010, the focus of health reforms in Germany has also brought attention to health service access, especially as a function of geography. Various interventions aim to encourage doctors to work in rural areas or in deprived urban neighbourhoods.

To meet new needs and to ensure equal access to services on the basis of solidarity, the benefits package was expanded even during phases of cost containment. For example, palliative care and hospice services were included in 2000, at about the same time as integrated care was introduced in an attempt to reduce fragmentation and restrain associated costs. The most important expansion of benefits, however, came with the introduction of long-term care insurance in 1994 (panel 4).

Last but not least, population coverage was expanded to include individuals receiving welfare benefits, thereby transforming what was already near-complete coverage to complete universal health coverage by 2009. The original intention was to ensure that nobody would lose their private insurance coverage through no fault of their own, but this only became possible by mandating health insurance for everybody, either through membership in the statutory health insurance scheme or through private health insurance.[61]

Self-governance and the Federal Joint Committee

The increasing emphasis by legislators on competition, efficiency, quality, and access issues was accompanied by the introduction of joint self-governance, which, at first sight, runs counter to these priorities. In 2000, the Federal Committee of Physicians, Dentists and Sickness Funds was joined by the Committee for Hospital Care, which was entrusted with quality assurance functions and decision-making capacity with regards to benefit exclusions. A coordinating committee was also formed to coordinate the activities of the committees for ambulatory doctor, dental, and hospital care, to develop integrated care guidelines, and, since 2002, to oversee disease management programmes. However, this solution was insufficient, especially as intersectoral issues became increasingly relevant. Inspired by the National Institute for Health and Care Excellence in England, the Statutory Health Insurance Modernisation Act in 2004 created two new institutions: the Federal Joint Committee, which was merged with the various specialised committees, and the Institute for Quality and Efficiency in Health Care (figure 1; appendix p 9).[62,63]

The German health insurance system in 2017

Today, Germany offers universal health coverage. Statutory health insurance is provided by 113 competing, not-for-profit, self-governing sickness funds.[64] All employed citizens and other groups, such as pensioners and individuals earning less than the opt-out threshold (€57 600 per year in 2017), have mandatory statutory

health insurance, and their non-earning dependants are insured free of charge. Individuals with a gross income that exceeds the threshold and people who are self-employed can keep statutory health insurance on a voluntary basis or purchase substitutive private health insurance. About 87% of the population receive their primary coverage through statutory health insurance, and 11% of the population are insured through substitutive private health insurance. The rest of the population (eg, soldiers, police officers, and refugees) receive health insurance through specific governmental schemes. Statutory health insurance is mainly financed through a contribution of 14·6% of wage-related income, which is divided equally between the employee and the employer. These contributions are collected in the Central Reallocation Pool (Gesundheitsfonds) and are supplemented with a relatively modest tax subsidy of €14·5 billion (about 7% of the pooled money). The pooled funds are reallocated to the sickness funds according to a morbidity-based risk-adjustment scheme.[58,61] Each sickness fund charges an additional contribution fee directly to its members to cover total expenditure; at present, these additional contributions spread around a mean of 1·1% of wage and vary between 0·3% and 1·8%.

Balancing solidarity and competition

Germany spends a substantial amount of its wealth on health care. According to the Organisation for Economic Co-operation and Development, total expenditure on health was €333·5 billion in 2015 (11·1% of GDP).[45] The German health system has relatively large human, infrastructural, and technological resources for both ambulatory care and hospital care.

Ambulatory care, which includes primary care and highly specialised outpatient services such as radiology and laboratory medicine, is provided by about 150 000 doctors and psychotherapists. About 60% of these medical staff work in single-handed offices, 30% work in group offices, and less than 10% work in health centres although this proportion is increasing.[65] In 2015, 1956 hospitals, or one hospital per 42 000 inhabitants, provided 6·1 beds per 1000 inhabitants.[43] At first glance, the high number of hospitals gives the impression of a needs-based distribution and a low-threshold access to care. However, according to the National Academy of Science,[66] an abundance of hospitals results in insufficient concentration of both human and technological resources, which in turn compromises quality of care.

The German health system also provides a large number of activities, possibly more than any other system. Each day, an estimated 4 million contacts take place in ambulatory care and 400 000 patients are admitted to hospital (figure 4).[67]

An assessment of these vast amounts of services and goods with an eye towards technical efficiency (ie, unit costs per service) would yield different conclusions than when considering their allocative efficiency or cost-effectiveness. We have already discussed the low and stable expenditure per inpatient case with respect to technical efficiency (figure 3). The result is similar for ambulatory care: every doctor–patient contact in ambulatory care costs on average less than €30—a low cost, given that about half of these contacts are with specialists.

The quality of health care provided by the German system can be compared with that of other countries, both in terms of treatment of ambulatory-care sensitive disorders and in terms of process and outcome parameters of inpatient care. Given the large ambulatory care sector, which ought to help patients avoid complications, the high incidences of admissions for chronic obstructive pulmonary disease and diabetes in Germany are concerning (figure 5).[45,61] Mortality-associated inpatient stroke is relatively low (most cases are treated at stroke units within hospitals), but the incidence of acute myocardial infarction (which is not always treated at catheter units) is high (figure 5).

An objective assessment of the cost-effectiveness of the health system is difficult. Although the data suggest an overprovision of services (certainly in hospital-based and pharmaceutical care, and possibly also in primary and specialised ambulatory care; figure 4), money is probably

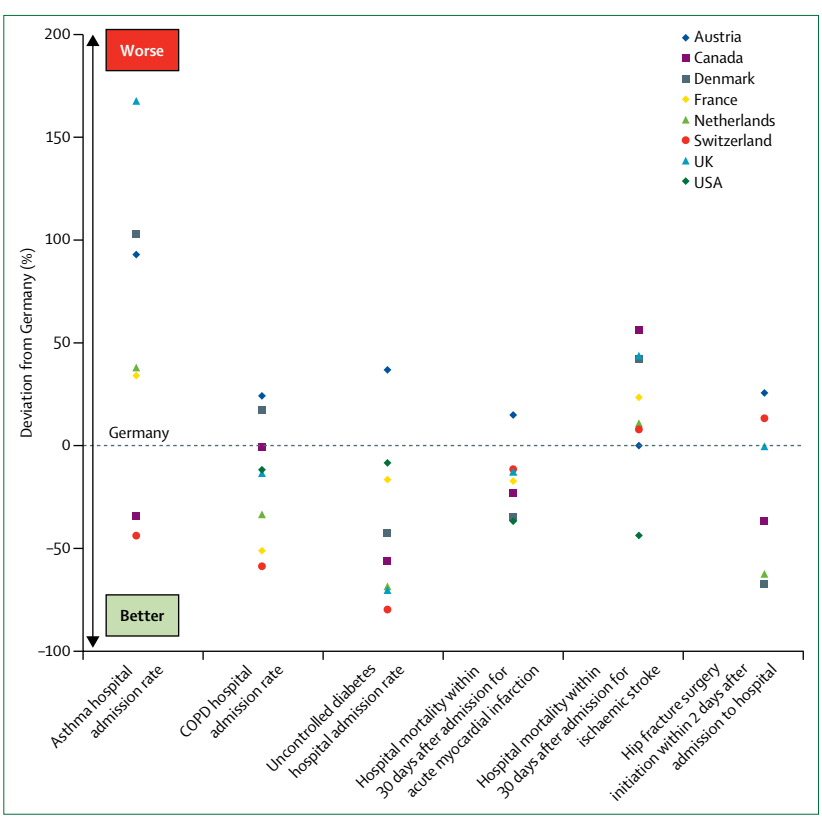

***Figure 5*: Quality of care for patients with chronic and acute illness by country in 2013 (or most recent data)[45,61]**
The data show measures of selected quality indicators defined by the Organisation for Economic Co-operation and Development. The deviation for asthma hospital admission rate in the USA is 356·2%; this outlier is not shown on the graph. COPD=chronic obstructive pulmonary disease.

being wasted on unnecessary care, even if service is technically efficient. However, the problem of care overprovision is especially challenging in the context of self-governing actors.

Regarding health outcomes as a function of health-system performance as a whole, amenable mortality is increasingly used as a valid indicator for quality since it shows the number of deaths related to certain diseases that could have been prevented by accessible, timely, and effective health care.[68] This approach provides an opportunity to assess the contribution of health care to population health.[69] Although amenable mortality seems to have decreased as total health expenditures have increased, the absolute amenable mortality and the rate by which it has decreased vary between countries (figure 6). Between 2000 and 2014, amenable mortality in Germany decreased by 37%, which is slightly less than in most comparator countries. If the decrease is compared with the increased expenditure in the same period, the incremental cost-effectiveness is 19 fewer deaths per 100 000 population for every additional US$1000 spent—a greater improvement than in France or the Netherlands, but a weaker improvement than in countries with health expenditures that are lower than Germany's.[70]

Public opinion is another way to assess the system. Although the population widely supports the underlying four principles of solidarity (between 2001 and 2015, about 80% of respondents in a representative panel agreed that the principles were fair), satisfaction with health care is much less pronounced.[71] In international comparative surveys of health-system satisfaction, such as the Commonwealth Fund's 2013 survey, Germany ranks relatively low, coming in sixth among seven European countries.[72] Survey data from the Gesundheitsmonitor also show the change in the German public's satisfaction with the health system with time: after a low of about 25% satisfaction between 2002 and 2004, a time of major reform discussions over exclusion of benefits, satisfaction increased to more than 40% in 2014 and 2015.[71]

Conclusions and recommendations

Bismarck's Health Insurance Act of 1883 established the first social health insurance system in the world. Its distinguishing characteristics and emphasis on solidarity and self-governance are collectively referred to as the Bismarck model—a model that is not well understood because of its incremental and continuous development.

Germany's pragmatic policy-making style, with its limited state control of the health system, means that the legislator is charging the same actors with solving the problems that they created in the first place: that is, with mandating the Federal Joint Committee, the main self-governance institution of payers and providers, to define areas for quality improvement by selective contracting and pay-for-performance. Although the population's increasing satisfaction with the system does not suggest a need for fundamental reform, the practice of setting policy objectives at the federal level and leaving it to self-governing

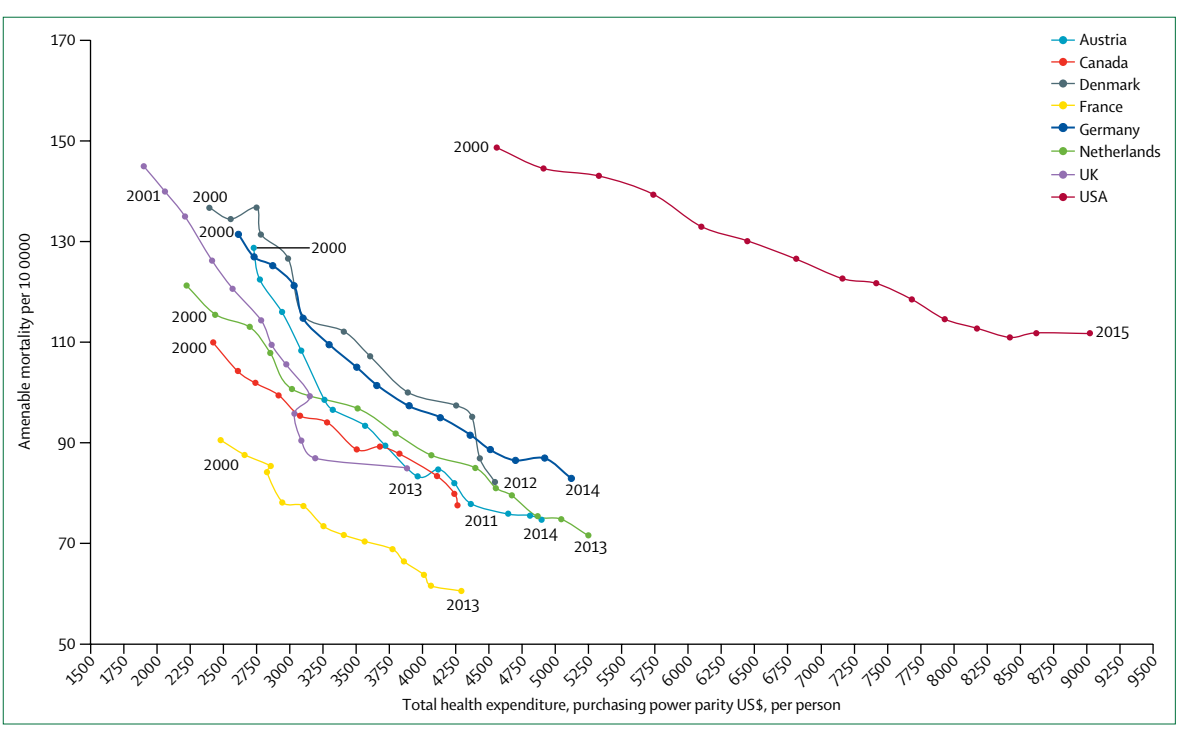

***Figure 6*: Amenable mortality per 100 000 people and changes in total health expenditure in Germany and selected countries, 2000–14[70]**
The graphs show age-standardised changes in amenable mortality and include all persons aged 0–74 years of age.

actors to work out the specifics might need to be reassessed. Going forward, if self-governing actors are too slow, too unambitious, or simply too divided, the government might need to define quality and efficiency targets in the law and be more vigilant about implementation and enforcement.

In addition to quality improvement, we recommend the following key actions: (1) redefine the legal framework for statutory health insurance and private health insurance to address inequities in financial contributions associated with the principle of ability to pay in statutory health insurance and the risk-related premiums in private health insurance, which benefit well earning employees but disadvantage self-employed persons with low incomes; (2) close the gap between ambulatory and inpatient care, with particular attention to issues that fall between the two sectors (eg, emergency care and continuous care for highly specialised cases); (3) reduce total hospital capacity and centralise services in those hospitals that consistently provide high-quality care; (4) reform the payment system for doctors to further address imbalances between regions (eg, rural *vs* urban, areas with low *vs* high shares of privately insured persons) and specialties; (5) strengthen primary care vis-a-vis specialists in ambulatory service provision; and (6) explore and test new roles for health professionals such as nurses.

As Germany's health system continues to adapt and modernise—as it did through a period marked by revolutions, wars, economic crises, and the division and reunification of a nation—it must address problems of discontinuous care and oversupply and cope with the important long-term challenges posed by population ageing, increasing chronic disease burdens and multimorbidity, migration, digitalisation, and urban–rural discrepancies.

Contributors

All authors contributed to the design and the writing of this report. RB and MB were responsible for the calculation of the empirical data.

Declaration of interests

FK was Head of Department in the German Federal Ministry of Health between 2003 and 2009; since 2013, he has acted as Chief Executive Officer of the BKK Dachverband, the association of company-based sickness funds. TB is a recipient of the Alexander von Humboldt Professor Award, which is awarded by the Alexander von Humboldt Foundation and financed by the German Federal Ministry of Education and Research. RB and MB declare no competing interests.

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