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Tackling the COVID-19 pandemic: Initial responses in 2020 in selected social health insurance countries in Europe[☆]

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ABSTRACT

Countries with social health insurance (SHI) systems display some common defining characteristics - pluralism of actors and strong medical associations - that, in dealing with crisis times, may allow for common learnings. This paper analyses health system responses during the COVID-19 pandemic in eight countries representative of SHI systems in Europe (Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Slovenia and Switzerland). Data collection and analysis builds on the methodology and content in the COVID-19 Health System Response Monitor (HSRM) up to November 2020. We find that SHI funds were, in general, neither foreseen as major stakeholders in crisis management, nor were they represented in crisis management teams. Further, responsibilities in some countries shifted from SHI funds to federal governments. The overall organisation and governance of SHI systems shaped how countries responded to the challenges of the pandemic. For instance, coordinated ambulatory care often helped avoid overburdening hospitals. Decentralisation among local authorities may however represent challenges with the coordination of policies, i.e. coordination costs. At the same time, bottom-up self-organisation of ambulatory care providers is supported by decentralised structures. Providers also increasingly used teleconsultations, which may remain part of standard practice. It is recommended to involve SHI funds actively in crisis management and in preparing for future crisis to increase health system resilience.

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1. Introduction

Like the majority of countries worldwide, European countries with social health insurance (SHI) systems, which are at the centre of this paper, were hit hard by the COVID-19 pandemic in spring 2020. Countries' capacity for crisis management is closely linked to the configuration and capacity of their health workforce, service delivery, health information and medical products; the organisation of their national and local health systems; leadership and governance during the crisis [19]; and pre-existing crisis preparedness plans. In this paper, we analyse health system responses in

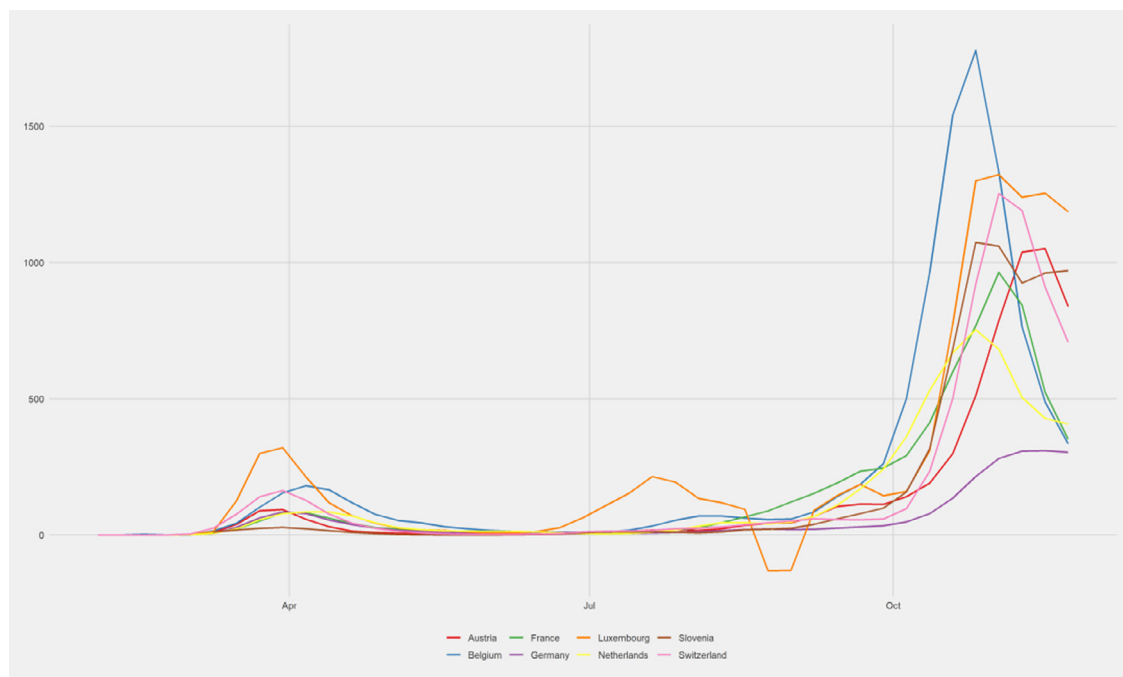


Fig. 1. Newly reported COVID-19 cases in selected SHI countries between February and November 2020 (per 100,000 population)

Note: 14-day notification rates reported from February to November 2020. The 14-day notification rates are calculated based on data collected by the ECDC Epidemic Intelligence from various sources and are affected by the local testing strategy, laboratory capacity, the effectiveness of surveillance systems, and the difference in the definition of COVID-19 deaths reported) [6].

Source: [6].

the pandemic's initial phases (March 2020 to November 2020) in eight countries with SHI systems representing the variety of SHI models in Europe: Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Slovenia and Switzerland. Our analysis then highlights some key trends that may help strengthen health system resilience for future crises.

The consequences of the pandemic in terms of infection rates and death toll (Figs. 1 and 2) as well as measures tackling its economic, social and health impact were highly heterogeneous. Austria, Germany and Slovenia were at first considered to be countries that weathered relatively well through the initial stages of the pandemic with low numbers of COVID-19 related deaths. In contrast, the infection rates per population in Belgium, France and the Netherlands were significantly higher as was the rate of COVID-19 related deaths during early stages. Luxembourg was already experiencing a second wave in summer 2020; while the second wave occurred in the other selected countries starting in October.

We argue that the overall organisation and governance of health systems, particularly the defining characteristics of SHI systems, shaped how countries have responded to the challenges of the pandemic, including (but not limited to) the original role of SHI funds in adapting pandemic preparedness plans and coordinating with central governments. We seek to identify and compare similarities and differences of policy responses implemented in these SHI countries and draw out trends. The aim is not to explore why some countries have dealt 'better' with the pandemic than others, but rather to draw out interesting patterns, key contrasts, and innovative approaches in policy responses aimed at addressing common challenges. Before analysing countries' responses to the COVID-19 pandemic, we highlight the common characteristics of SHI countries and, in particular, how institutional settings in the areas of service provision, regulation and financing potentially interact with these responses.

A common feature to all SHI countries is the pluralism of actors, including sickness funds, providers, national and regional gov-

ernments, and non-governmental bodies, which have an important role in setting the rules for and managing service provision, and a lesser role for central government. Moreover, SHI countries have common features regarding ambulatory care provision and similar financing/payment mechanisms. In all countries analysed, health care providers are separated from payers [13] and independent ambulatory care providers are mostly paid on a fee-for-service basis [5, 8], or in combination with capitation [15]. Furthermore, the medical profession has a high level of autonomy and is organised in powerful professional associations. Finally, an often-found feature of SHI countries is decentralisation of health systems, regarding the organisation of health services [4, 17]. In most countries, the pluralism of actors creates shared responsibility between public health authorities at national and regional levels and autonomous institutions such as SHI funds and professional bodies [17], albeit the role of public health authorities and SHI funds is not uniform across countries. We explore how the level of (de)centralisation of responsibilities and providers had an impact on countries' responses to COVID-19, particularly in the ambulatory care sector.

We start by describing the methods used, then identify six themes with regard to countries' responses to the pandemic. These include: governance, SHI funding, role of general practitioners (GPs), surveillance strategies, provision of services, paying for services. Following on from the analysis, we discuss key findings and provide conclusions and learnings for the future.

2. Materials and methods

Information in this paper derives from the ongoing investigation and reporting of the COVID-19 response in the eight countries under the auspices of the COVID-19 Health System Response Monitor (HSRM). Countries were included on the basis of information available to perform a comparable analysis. They provide a representative sample of SHI countries in Europe. The HSRM col-

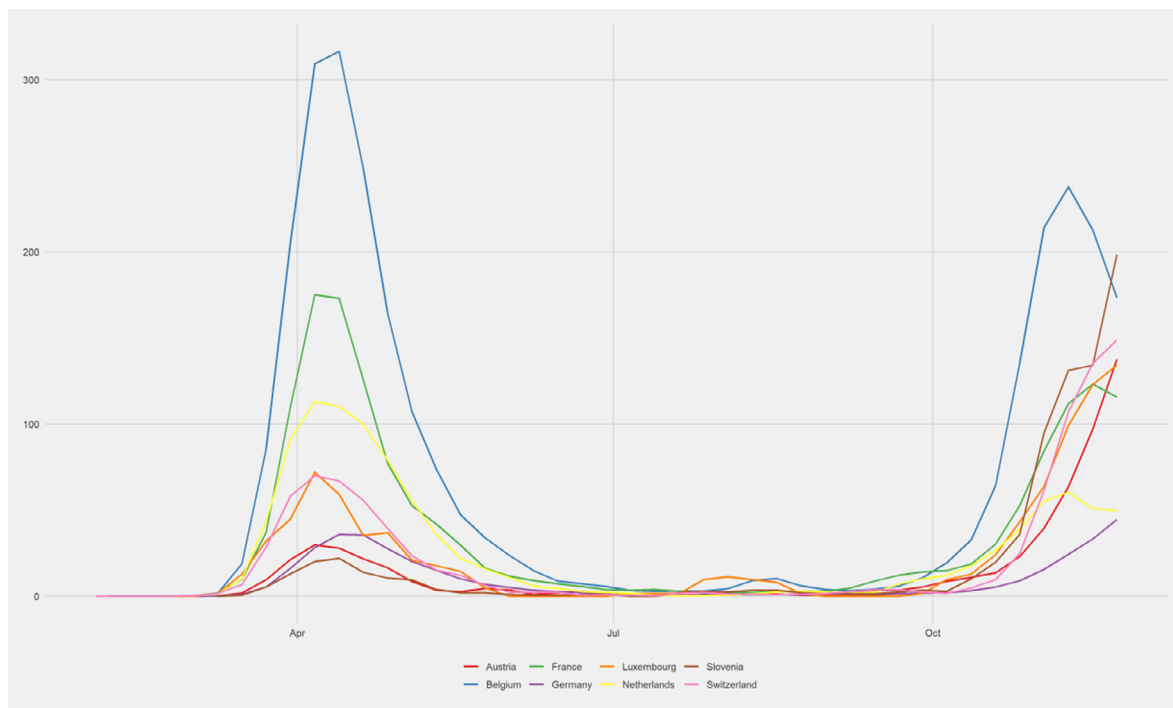


Fig. 2. Newly reported COVID-19 deaths in selected SHI countries between February and November 2020 (per 100,000 population)

Note: 14-day notification rates reported from February to November 2020. The 14-day notification rates are calculated based on data collected by the ECDC Epidemic Intelligence from various sources and are affected by the local testing strategy, laboratory capacity, the effectiveness of surveillance systems, and the difference in the definition of COVID-19 deaths reported) [7].

Source: [7].

lects and organises up-to-date information on how countries are responding to the pandemic. It is a joint undertaking of the World Health Organization (WHO) Regional Office for Europe, the European Commission, and the European Observatory on Health Systems and Policies.

HSRM teams of experts in the respective countries utilized a common template to search for and collect information about their country's COVID-19 response. The template divides the responses into the following categories: 1) preventing transmission; 2) ensuring sufficient physical infrastructure and workforce capacity; 3) providing services effectively; 4) paying for services; 5) governance; 6) borders and mobility. From March through November 2020 HSRM teams scanned reliable news sources, academic reports, and peer-reviewed papers in their countries using key words related to the template categories. Findings were published online in the HSRM website at: <https://www.covid19healthsystem.org/mainpage.aspx>. In October and November 2020 the HSRM teams of the eight countries in this review filled out a questionnaire detailing their country's COVID-19 responses from January through November in each of the template categories and met virtually to discuss their findings. Teams synthesized and compared results across countries. First-hand information was required from the selected experts. Their participation was voluntary. Unless otherwise noted, citations for the results are posted online in the countries pages on the HSRM. Additional citations not in the country pages are noted in the text and referenced at the end of the article. This article is part of a series of articles which analyse the initial COVID-19 response; a related article on four North Atlantic countries has been published [16].

We refer in some parts of the paper to ambulatory care providers as an overarching term for outpatient specialists and GPs and/or primary (health) care, while in other parts we refer to GPs and/or primary care only.

3. Results

3.1. Governance: SHI funds initially had no major role in the management of COVID-19

Social Health Insurance (SHI) funds tend to be powerful players in the health system of SHI countries in non-crisis times. However, during the crisis, while SHI funds remained important for administering funding measures taken in the course of the pandemic (e.g. testing, PPEs), national and regional governments became the central actors in decision-making, introducing new laws and regulations, and defining emergency responses. Moreover, SHI funds were not foreseen as central players in pandemic management or pre-crisis pandemic plans in any of the countries. In fact, in all SHI countries analysed, SHI funds were not represented in crisis teams, security councils or national focal points during the pandemic. Even in the Netherlands, where health insurers were represented in the Regional Committees of the Organization of Acute Care (ROAZ) (already before the pandemic hit), SHI did not play a role in the key decision-making processes.

Overall, health governance structures and the level of decision-making for health system related responses to COVID-19 varied largely across the countries analysed. In France, which is a very centralised country compared to the other countries in our sample, decision-making was highly centralised with policies and measures developed by the central government and limited involvement of SHI funds, professional associations and regional governments and authorities. In contrast, Germany and Switzerland had highly decentralised health systems with regard to decision-making of service provision, testing and contact tracing, although important emergency legislation was adopted at national levels. Belgium took a joint approach such that all policy decisions for managing COVID-19 were taken in consultation with both the Fed-

Table 1
Overview of organisation of contact tracing, testing, and role of GPs as first contact points in 2020.

Country	Contact tracing organised by	Role of GPs as first contact points for COVID-19 patients
Austria	Local public health authorities (district level)	No specific role in the beginning, increasing with ongoing pandemic (e.g. for testing)
Belgium	Regional health agencies (Federated entities), with inter-ministerial consultations	First contact point with special consultation hours, monitoring of patients, performing tests
France	SHI funds, regional health agencies, GPs	No specific role in the beginning, increasing with ongoing pandemic
Germany	Local public health authorities (district level)	First contact point with special consultation hours, sometimes monitoring of patients, testing (on prescription) at GPs possible
Luxembourg: (advanced care centres)	Ministry of Health	GPs involved in special outpatient care centres
The Netherlands	Local public health authorities (groups of municipalities)	First contact point with special consultation hours, no role in testing and tracing
Slovenia	National Institute of Public Health, supported by regional units	PHC as first contact point, e.g. testing, monitoring and special outpatient “COVID-19 clinics”
Switzerland	Cantonal authorities	No specific role (different between cantons)

Source: authors' own compilation; SHI = social health insurance, GP = general practitioner, PHC=primary health care

eral state and the Federated entities (3 regions and 3 communities) within the National Security Council; however, the organisation of service provision, testing and contact tracing was mainly decentralised.

As the pandemic continued through its early stages, in some countries the role of SHI funds changed. In Slovenia, SHI funds were observed to take on a stronger role. Also, in July 2020 a revised preparedness and response plan was published, which foresees the participation of Slovenian SHI funds in reaching agreements and regulations, a role for the provision of funds for medical activities in epidemic or pandemic conditions, as well as a supervisory function over the implementation of agreements reached. The new plan also defines that the Ministry of Health (MoH) in Slovenia provides a source for additional financing in cooperation with SHI funds and the Ministry of Finance. In France, SHI took on contact tracing after the end of the first lock-down, unlike at the very beginning of the pandemic.

3.2. SHI funding: central for managing COVID-19 related expenses partly mandated by the national governments

SHI funds mainly played a role for administering funds for COVID-19-related costs (e.g. in some cases, free testing or providing for lost income of self-employed physicians), in defining payment mechanisms (e.g. for teleconsultation services in Belgium, France and Luxembourg) but also regulations for service provision (e.g. in Germany on directives for screening among children, minimum staffing levels in hospitals) and for adjusting the rules of the health insurance (e.g. in Belgium, the National Institute for Health and Disability took exceptional measures to respond to the crisis and to ensure continuity of care). While SHI funds were essential to administer funding (e.g. to ambulatory care providers) they did not necessarily have to cover all expenses by themselves – sometimes in contrast to pre-crisis times. For example, in Austria and Slovenia, expenses for specific health services (e.g. testing, COVID-19 clinics in Slovenia) as well as consumables (e.g. PPE) were exceptionally covered from the state budget. Also, in Austria, the federal government's crisis fund covered additional expenses for a social security fund for artists. In Switzerland, the competent or cantonal authorities are obliged by the Epidemics Act to grant compensations to persons affected by individual measures, whose damage is not otherwise covered (by employer, health insurance, other social insurances, etc.) or who would be in an economic or social emergency situation without compensation.

In fact, in some countries, the pandemic moved decision-making power regarding the reimbursement and organisation of ambulatory care providers from SHI funds to the federal /national government (e.g. MoH). In Germany, Austria and Slovenia, federal/ national governments took on a larger than usual role in co-determining SHI-related expenses. At the same time, most countries represent a mixed bag in terms of decision-making on COVID-related expenses that touched upon SHI funds. In Germany and Austria, decisions regarding reimbursement for teleconsultations were taken by the SHI funds alone (Austria) or together with the association of SHI physicians (Germany). In Luxembourg, the government asked SHI funds to provide compensations and mandated teleconsultations (to be reimbursed). In Switzerland, national recommendations for coverage for services (e.g. teleconsultations) were based on prior coordination of the Federal Office of Public Health (FOPH) with health insurers' associations and the Medical Tariff Commission. Only in France and Belgium, the national umbrella organisation of SHI funds remained mostly in charge of determining reimbursements for COVID-related expenses or services, including reimbursements for teleconsultations, fees for protective materials or compensatory payments to physicians. In all the countries analysed, decisions on COVID-19 related expenses by SHI funds were determined consistently for all SHI funds and did not differ between individual SHI funds.

With additional COVID-19 expenses covered in all countries by SHI funds such as for tests, vaccination or personal protective equipment (PPE), though sometimes co-financed by the national government, the question of financial sustainability of SHI funds arose in some countries, also due to high unemployment levels and lacking SHI contributions. In Belgium and Austria for example, social contributions for self-employed persons were deferred. In France, the government called upon complementary health insurance companies to help fund some of the costs of the crisis for the national health insurance fund. An increase in the taxes charged to these companies was therefore planned in the frame of the social security finance act for 2021. In Germany, tax subsidies were used to support SHI funds that suffered shortfalls due to the pandemic. German SHI funds expected deficits following many years of surplus, which prompted the government to introduce higher supplementary contribution rates from the insured, increasing by 0.2 percentage points which would result in a contribution rate of 15.9% in 2021 [9]. In the Netherlands, an adjustment of premium levels was announced, with a raise of 4% compared to premiums in 2020 [20].

Box 1**SafeLink in Belgium.**

In Belgium, applications were developed to allow GPs to closely follow the health status and development of symptoms in their non-hospitalized COVID-19 patients, such as the “Safelink” application. The objective of Safelink is that, every 12 hours, registered patients (or a third-party contact person) would receive an SMS inviting them to fill in an online questionnaire with details on their biological parameters (such as temperature, heart rate, respiratory rate, oxygen saturation, etc). GPs would have access to a “dashboard” giving an overview of all patients they have registered. The parameters transmitted by each patient are analysed by an algorithm which assigns to each patient a colour code (green: stable health state; orange: health state at risk; red: critical health state). However, no evaluation of the initiative is available.

3.3. Role of GPs in testing and managing COVID-19 patients: variation across SHI countries

In most SHI countries, the pluralism of actors involved in the organisation and financing of the health system is a defining characteristic, with medical doctors, rather than other health professionals, playing a strong role. Therefore, physicians were given the central role in the pandemic in many of the countries analysed. Ambulatory care providers are mostly independent contractors with strong representative bodies while federal/national and regional/cantonal authorities do not have direct planning control over ambulatory services (Table 1). Ambulatory providers, especially GPs, play an important role in the management of non-COVID-19 and COVID-19 care despite some variations across the SHI countries analysed. In Germany, Belgium, the Netherlands, Luxembourg, and Slovenia, GPs were central in fighting the pandemic at the outset, e.g. by being the first contact point for suspected cases, referring them to COVID-19 outpatient centres, and issuing certificates (e.g. quarantine or disease certificates).

In Germany, the majority of COVID-19 patients were treated in ambulatory settings already during initial phases. SHI physicians organised themselves at federal and local level and operated in a decentralised manner with a wide variety of regionally adapted solutions including special consultation hours and regional SHI physicians’ associations organising (mobile) testing centres and outpatient clinics. GPs in Belgium were also the first line of the COVID-19 response (Box 1). To reduce the burden on GPs that accumulated with the rising number of cases over time, the role of Belgian GPs was downscaled in late September 2020 with the creation of new testing points, increased capacity in triage centres and a call-centre as an information point for COVID-19 as well as allowing other professionals to issue the “Corona test prescription” (e.g. for asymptomatic close contacts), and encouraging patients to obtain their test results directly online.

In the Netherlands, GPs were responsible for the medical care of COVID-19 patients not admitted to hospitals. This also included care of those who chose not to go to hospital (to be able to convalesce or to die at home, amongst their family members, since visitors were not allowed in the hospital). Many GP practices thus set up special consultation hours for suspected COVID-19 patients following advice from professional associations. GPs in the Netherlands did not perform any testing (in contrast to Germany and Belgium), only hospitalized patients were tested while later on testing was done by the Dutch public health services. Overall, GPs were largely supported by the Association of GPs and College of GPs.

Luxembourg and Slovenia both introduced new entry points for patients as a result of COVID-19. In Luxembourg, the GP out-of-hour offices (Maisons médicales) were transformed to advanced care centres with the purpose of channelling patients with symptoms of a severe respiratory infection and keeping them out of hospital emergency departments and general practices. In Slovenia, all suspected COVID-19 cases were referred to 18 so-called entry points in primary health care centres where COVID-19 tests were being carried out, and new outpatient “COVID-19 clinics” were organised, ensuring separated patient pathways for COVID-19 and non-COVID-19 patients. Appointments were made via GP referral.

Only in some smaller towns, primary health centres and GPs were charged with supporting the management of outbreaks.

By contrast, in France, Switzerland and Austria, GPs did not have a central role in the beginning for testing and caring for COVID-19 patients. In France and Switzerland, they provided care without coordination with other health care providers or without much support from public authorities. Patients with a suspected COVID-19 infection were instead advised to go to hospital to get a test and treatment. In the first week of April 2020, less than 20% of all tests were conducted outside of French hospitals. The role of GPs was only clearly defined after the end of the country’s first national lock-down with guidelines for clinical management of COVID-19 patients being issued. In Switzerland, the low involvement of primary care providers was due to the different strategies and guidelines between cantons. In Austria, patients with suspected COVID-19 infection were initially not recommended to visit a GP but to call a COVID-19 hotline, which is co-financed by the SHI, the federal level (national) and the states (regional). However, with the pandemic progressing, GPs played an increasingly important role both in Austria and France, receiving financial support from the SHI. In Austria, GPs were only allowed to carry out tests from October 2020.

3.4. Surveillance: contact tracing in most SHI countries at decentralised levels with multiple actors

Our findings show that most SHI countries took a decentralised approach to managing COVID-19 public health surveillance in the pandemic’s initial phases. In Austria, Belgium, Germany, Slovenia, Switzerland and the Netherlands responsibility for contact tracing primarily lied with decentralised public health entities (e.g. regional public health services, local health authorities, cantonal authorities) (Table 1). In addition to contact tracing, these authorities performed monitoring and surveillance of COVID-19 cases.

However, challenges remain with regard to coordination. In the Netherlands, collaboration across regional public health authorities proved often difficult as different policies and information systems were used, relating to weak leadership across local authorities. In Germany, the lack of expanded use of digital tools for tracking and information in public health authorities was a main challenge for rapid reporting and contact tracing. With cases rising in autumn 2020, Austria, Germany, the Netherlands and Switzerland experienced difficulties in maintaining effective contact tracing primarily with local authorities. In Germany, the 375 public health offices provided information and counselling on COVID-19, assessed whether a person needed a PCR test, performed tests (at home, often relying on support from students in medical training), and monitored medical conditions and quarantine of COVID-19 cases by phone. Since the outbreak, the capacity of local health offices in Germany was boosted by public employees from other areas of the bureaucracy and soldiers transferred to help with COVID-19 contact tracing. In contrast, in the Netherlands, regional public health organisations were slow in scaling-up and utilising external personnel.

In Slovenia and Luxembourg, contact tracing was organised by the National Institute of Public Health and the MoH, respectively. For these countries, their small sizes may have contributed to the

Box 2

Outpatient monitoring system in Schleswig-Holstein (Germany).

The German federal state of Schleswig-Holstein created an outpatient monitoring system in which ambulatory physicians and public health authorities work together. The system aims to detect disease complications early and ultimately reduce hospital admissions. Doctors contact infected persons isolated at home twice a day to assess their health status, while public health officials are able to focus on contacts tracing and arranging isolations. The monitoring system has been in place since early April 2020 with GPs, respiratory specialists, digital translators, a mobile team of anaesthesiologists and health authorities working from the system's interactive database to provide proper care.

centralization of pandemic management. In Belgium, the contact tracing process was managed at a local level by health administrations of the federated entities (Table 1). A working group with representatives of both the Federal State (national) and Federated entities (regional) was created to ensure identical procedures were followed throughout the country. In the northern German state of Schleswig-Holstein, a newly established outpatient monitoring system (Box 2) provides an innovative example of collaboration within the decentralised structures between providers and regional authorities.

In France, until the end of 1st confinement (10th May 2020), there was no clear policy on testing and contact tracing. After that, health insurance funds (local units) became in charge of tracing contacts (by phone calls) of positive cases reported by GPs, except for “complicated cases”, clusters in schools, etc. which were followed by the Regional Health Agencies (ARS). GPs were also paid for reporting of contacts of COVID-19 cases. Initially they could also do the testing, but in May 2020 GPs started to complain that they have to wait three days for the results. Their role in testing was therefore in practice limited as people were able to go directly to a lab (without prescription). As the pandemic progressed, GPs were increasingly involved in COVID-19 patient care but their role in contact tracing and testing remained limited.

3.5. Provision of services: remote consultation scaled up rapidly but maintenance of ambulatory care varied

Maintaining essential health care services for patients not affected by COVID-19 is a key factor to ensure access to necessary health care. In most countries included in our analysis, emergency health care services were accessible throughout the period analysed. Postponement of elective hospital interventions was recommended in all countries and some countries created lists of procedures to prioritise, as analysed elsewhere [1]. However, there were contrasts with regard to the maintenance of non-urgent ambulatory services. Few countries provided guidance on prioritisation of ambulatory services. For example, in Switzerland, serious consequences of omissions of treatment were defined and the federal government listed examples of interventions that could still be provided, such as telemedical services, prevention services for children and adolescents or all interventions related to pregnancy and childbirth. Ambulatory physicians had a wide range of discretion, which was only limited if the medical assessment of urgency could not be justified *ex ante*. In Belgium and Germany, ambulatory physicians as well as other primary care professionals were to decide about urgency of care for chronically ill patients. In France and Austria no harmonised guidelines were published on the conditions to be prioritised in ambulatory care. In France, most ambulatory care providers, including GPs and other providers (e.g. dentists and paramedics such as physiotherapists) did not maintain their services during the first lockdown mainly due to a lack of personal protective equipment.

Historically, in SHI countries organisational innovation may be more difficult where most care providers are paid on a fee-for-service basis [14]. To maintain ambulatory services all countries rapidly set up teleconsultations that helped to stabilise contacts between patients and health care providers. In France, the SHI launched teleconsultations without any co-payment from patients.

The French SHI eased conditions for entitlement and reimbursement, in particular by opening teleconsultations for new patients and providers (including midwives, speech therapists and physiotherapists). As a consequence, the use of telemedicine increased exponentially to account for 11% of all consultations in March and almost 30% in April, in comparison to 1% before the pandemic [10, 11]. In Belgium, the SHI also launched teleconsultations (by phone or video) without any co-payment from patients for consultations with a wide range of health professionals (such as GPs, medical specialists, psychologists, dentists, speech therapists). In Germany, a large and unbureaucratic roll-out of teleconsultations for physicians and psychiatrists was implemented (and reimbursed), resulting in a more than 2,100-fold increase in teleconsultations in April 2020 compared to the same period of the year before (ZI, 2020). German physicians could also issue sick leave certificates for up to 14 days via video consultation. In Austria and Luxembourg, regulations for teleconsultations (mainly reimbursed by SHI) were also introduced, albeit in Austria only to a limited extent. In Austria, e-prescriptions were introduced, and sick notes could be issued via phone or e-mail. In the Netherlands, tariffs for telephone and teleconsultations by GPs existed prior to the pandemic and could be used. In addition, the requirement for face-to-face consultations with specialists in hospitals before being able to revert to teleconsultations was (temporarily) released. In Switzerland, the FOPH encouraged doctors and hospitals to offer teleconsultations and provided information on the existing tariff structure that allowed for the reimbursement of teleconsultations. However, hospitals and doctors' offices were free to decide whether or not to offer teleconsultation services. Substantial increases in teleconsultation services were also observed in Slovenia, a country which made use of pre-existing regulations on reimbursing telecare. Up to three-day sick leave without medical certification was introduced to reduce the administrative burden.

3.6. Paying for services: ambulatory care providers received compensation for revenue shortfalls and maintaining service provision

Given the widespread use of fee-for-service payments for ambulatory care providers in SHI countries, the degree to which providers were compensated for income losses during the pandemic (whether due to decreased volumes of patients seen or increased costs of prevention requirements), and received extra payments (see also [18]) are important to consider. In Austria, Switzerland and Belgium, the rules for self-employed physicians were the same as the compensation rules for other businesses. However, special regulations existed for medical doctors in Germany, France, Luxembourg, the Netherlands and Slovenia. Compensations for lost income for ambulatory care providers were paid by SHI funds in Belgium, France, Germany, the Netherlands, and Luxembourg, while the state provided these payments in the remaining countries. Only in Switzerland compensation was paid by the unemployment insurance. Regulations are summarised in Table 2.

4. Discussion

This paper aimed to explore how the defining characteristics of SHI countries shaped responses to the COVID-19 pandemic in Europe in the pandemic's initial phases until November 2020. The

Table 2
Overview of payments to ambulatory care providers during the COVID-19 pandemic in 2020

Austria	Self-employed physicians receive a compensation via furlough (Kurzarbeit) for their employees, funding for fixed costs, and funding for businesses from the state. Only tax allowance is possible for any additional costs, i.e. PPE or improved hygiene. Compensation payments for SHI-accredited physicians and psychotherapists working in practices are reimbursed by the SHI funds to the Regional Associations of SHI Physicians.
Belgium	Deferral of social security contributions is possible for self-employed (incl. medical) professionals and a monthly allowance may be paid (if they are unable to work), covered by the social security system. Additional fees covered by the SHI are also foreseen for the payment of protective equipment.
France	SHI-contracted self-employed physicians and other health professionals receive financial aids from SHI funds, covering fixed operating costs during the first national lockdown, while no clear regulation exists regarding reimbursement of protective gear. Generalists also benefit from an extra payment (EUR 30) for consultations with COVID-19 patients (in addition to EUR 25 for a regular consultation). For patients, treatment is covered 100% (instead of 70%) by the health insurance fund.
Germany	SHI-contracted physicians and psychotherapists in practices receive compensatory payments for 'extra-budgetary services' if their losses exceed 10% compared to the previous year. Ambulatory care physicians and psychotherapists receive a compensatory payment for additional costs incurred due to COVID-19 related treatments.
Luxembourg	The National Health Fund (CNS) compensates for income losses due to the decreased number of visits to physician practices as well as the overall investment of the medical profession at all levels, by providing a one-time payment of a guaranteed minimum number of 80 hours between 16 March and 17 May with a special hourly rate of EUR 236.40 per unit (equal to EUR 18,900 per physician). Physicians who exceeded the quota of 80 hours in this period are required to provide justification.
Slovenia	New COVID-19 related community health services, for example in the outpatient "COVID-19 clinics" and testing sites, are paid additionally from the state budget. Health care providers receive additional payments from the state budget for PPE and testing materials, while COVID-19 teleconsultations are included in ordinary FFS payments.
Switzerland	Financial aids and support mechanisms apply for self-employed physicians as for other businesses (e.g. bridging loans, or adapted short-time work compensation). Short-time work compensation was available to employees (short and long-term), persons working in the business of the spouse/ registered partners, and apprentices. Short-time work compensation covers 80% of the recognizable loss of earnings and is covered by unemployment insurance fund. Some cantons have taken subsidiary measures to supplement the federal package of measures.
The Netherlands	Different regulations apply depending on whether a provider covers COVID-19 related care or not. For instance, an extra compensation for GPs for COVID-19 care exists, set at EUR 10 for each registered patient in their practice, and additionally EUR 15 per hour for extra out-of-hours care provided. The SHI also steps in for costs of PPE for ambulatory care providers. The reimbursement of ambulatory medical specialist care is regulated through the hospitals. The health insurers and hospitals have agreed on a model on how to compensate for possible extra expenditures. The exact amounts payable to hospitals will be calculated in 2021.

analysis shows many commonalities but also differences in pandemic response across the countries analysed, with pluralism of actors and partly decentralised organisation of a strong ambulatory care sector being the main characteristics that indeed shaped the responses despite large variation across countries. Further, in most of the countries analysed, federal (national) governments were ceded increased decision-making power over SHI funds than in pre-crisis times, for example concerning compensations for ambulatory care providers. Our findings aim to serve as a basis for future discussions that eventually lead to an understanding of what seems to work, what does not work and why, and to identify current gaps in policy knowledge and areas for future research.

4.1. Trend towards need for more coordination and involvement of SHI funds

The analysis shows that SHI funds were not represented in crisis teams, security councils or national focal points during the pandemic in the majority of countries analysed. Yet, going forward, they may play a larger role as the focus shifts to financing, also due to the fact that providers in SHI countries are financially more vulnerable to reductions in their activity levels because of the greater importance of activity-based payments compared to non-SHI countries [12]. Also, a critical review is needed on which reimbursement mechanisms work best in SHI countries in pandemic times and beyond. A broader involvement of more stakeholders (SHI funds, civil society, scientific experts etc.) in the management within task forces of COVID-19 response would be important for future pandemics, including a clear definition of their respective roles.

The decentralised organisation of health care often found in some SHI systems (Austria, Belgium, Germany, Netherlands and Switzerland) has highlighted the importance of decentralised local authorities' structures in carrying out prevention activities during the pandemic. One important precondition is, however, that cen-

tralised data management systems exist to monitor e.g. infection numbers across the country ([1]b[2]). The benefit of having local health authorities taking the lead on monitoring and surveillance (i.e. contact tracing and quarantine control) is that they may use local knowledge of people and places. By bolstering the existing public health infrastructure, countries have been able to benefit from local expertise and adapt to regional circumstances, but co-ordination of policies and information system flows were often a challenge, as the surges in infections during the second wave already back in autumn 2020 showed. In addition, some of the selected countries are also federal states, which makes coordination perhaps even more demanding. The aspect and role of countries with a federal structure requires further in-depth analysis that was beyond the scope of our study.

4.2. Trend for increasing role of GPs and ambulatory care providers in decentralised structures

With pluralism of actors being an important characteristic of SHI countries [13], some ambiguities have become visible during the pandemic, with regard to the governance and organisation of health care systems in the SHI countries analysed. Partially, the crisis may open up a way to breaking from path dependencies, e.g. as countries have deviated from the way they usually organised emergencies as a result of the large impact of COVID-19. For example, in some countries GPs criticized their lack of involvement in governance mechanisms (e.g. Switzerland), while in others (e.g. Belgium) a shift took place in moving part of responsibilities for surveillance to call centres so as to avoid overburdening GPs. In fact, in some countries analysed, GPs and SHI funds were latecomers in crisis management such as in France and Austria.

One aspect to consider here is path dependency coming from how countries have dealt with previous infectious diseases outbreaks, so their response to COVID-19 will also depend on how health crises are already being regulated in the country before the

pandemic hit. The analysis showed for example that, where pandemic preparedness plans existed, there was no explicit role for SHI funds foreseen. More research is also needed to further understand the important role that strong primary care, and its support for patients as a first point of contact, can provide during a crisis.

4.3. Trend towards introduction of teleconsultations for maintaining essential services

To reduce physical contact in health care facilities, all countries analysed invested in mechanisms to carry out teleconsultations by primary care providers and hospital specialists (i.e. by phone or by video conferencing tools). In most countries, teleconsultations were jointly introduced by SHI funds and national governments, or on the initiative of SHI funds alone. The pandemic provided a moment in time where providers had to find innovative ways to communicate with patients and patients needed to access routine health care services. With a quick move to teleconsultation, and resulting sharp increase in their volume, and the possibilities created to make provider payment align with this new modality, the pandemic may have served as a tipping point such that remote consultations will remain part of standard practice in SHI countries. Innovations also took place with regard to reimbursement mechanisms for ambulatory care providers. With ambulatory care providers being paid on a fee-for-service basis, most of the countries analysed introduced compensatory mechanisms to address any shortfall in income related to a decrease in fee-for-service payments but also to help mitigating additional costs for e.g. PPE. Moreover, rules were relaxed to allow for teleconsultations (also without prior referral where this had previously been the case), including for specialists and allied health professionals and fee-for-service payments. A critical review of the reimbursement mechanisms for teleconsultations may be required to increase system resilience in the future.

4.4. Trend towards early coordination of patient pathways involving multiple actors in most countries

A remarkable observation in the countries analysed is that some countries (Belgium, Germany, Netherlands, Luxembourg, and Slovenia) early in the pandemic explicitly acknowledged the importance of coordinated care in the ambulatory care sector in order to avoid overburdening of hospital capacities. Both primary health care, but in particular GPs played a role in responding spontaneously and quickly by organising themselves, for example taking the lead in setting up separate patient pathways and developing care protocols, with the exception of France, Austria and Switzerland. This was achieved due to the strong scaffolding provided by their professional organisations and decentralised structures often typical to SHI countries. The role of GPs and health centres showed the overall importance of primary health care in the response to COVID-19 in most countries analysed. A learning health system approach could help identify good practices with respect to quick reorganisation of ambulatory care during a pandemic to the benefit of other SHI countries and beyond. As a result of the organisation of ambulatory care physicians, many countries set up separate patient pathways for suspected COVID-19 patients. These efforts seemed to have worked, e.g. in Germany, where the rate of hospitalisations for COVID-19 was lower than in other countries analysed in 2020 [3], and in Belgium where a reflection is in progress on the production of guidelines for GPs to manage patients who should have been hospitalised, but were not e.g. due to lack of capacity in hospitals.

5. Conclusion

The analysis has helped identify trends from the comparison of country responses to the COVID-19 pandemic while at the same time some questions remain unanswered. Based on the observations from eight SHI countries our analysis shows that SHI funds were surprisingly absent during the initial decision-making process of the pandemic. This raises questions on whether SHI countries may back away from centralisation, or only take up centralisation strategies in emergency situations. Going forward SHI funds may play a larger role with pressure on public budgets increasing while facing revenue shortfalls caused by high unemployment rates. SHI funds may thus seek to become more active in helping to manage future crisis responses. The decentralised structures described in our study entails opportunities but also the need for coordination among the multiple stakeholders involved in pandemic management in many SHI countries. Self-organisation of ambulatory physicians supported by professional associations and decentralised structures allowed some countries like Germany to introduce an effective testing and tracing model quickly and maintain the provision of essential services. Further, some SHI countries have shown the key role that GPs can play in pandemic prevention and management, e.g. in scaffolding hospitals. Other countries have moved towards this approach as the pandemic progressed albeit at a different pace. A learning health system approach that is based on the experiences and trends identified in our study could help countries build up pandemic preparedness and health system resilience.

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Andrea E. Schmidt: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft. **Sherry Merkur:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Anita Haindl:** Data curation, Validation, Writing – review & editing. **Sophie Gerken:** Data curation, Validation, Writing – review & editing. **Coralie Gandré:** Data curation, Validation, Writing – review & editing. **Zeynep Or:** Data curation, Validation, Writing – review & editing. **Peter Groenewegen:** Data curation, Validation, Writing – review & editing. **Madelon Kroneman:** Data curation, Validation, Writing – review & editing. **Judith de Jong:** Data curation, Validation, Writing – review & editing. **Tit Albrecht:** Data curation, Validation. **Pia Vracko:** Data curation, Validation. **Sarah Mantwill:** Data curation, Validation, Writing – review & editing. **Cristina Hernández-Quevedo:** Writing – review & editing. **Wilm Quentin:** Conceptualization, Writing – review & editing. **Erin Webb:** Conceptualization, Writing – review & editing. **Juliane Winkelmann:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing.

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