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Post-COVID health policy responses to healthcare workforce capacities: A comparative analysis of health system resilience in six European countries

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ABSTRACT

A cross countries in Europe, health policy is seeking to adapt to the post-pandemic 'permacrisis', where high demands on the healthcare workforce and shortages continue and combine with climate change, and war. The success of these efforts depends on the capacities of the healthcare workforce. This study aims to compare health policy responses to strengthen the capacities of the healthcare workforce and to explore the underpinning dynamics between health systems, policy actors and health policies. The study draws on a qualitative, comparative analysis of Austria, the Czech Republic, Denmark, Germany, Italy and the Netherlands. The findings suggest that policy responses at the national level focused on hospitals and absorptive capacities, while policy responses at local/regional levels also included general practice and adaptive capacities. There were only few examples of policies directed at transformative capacities. The underling dynamics were shaped by health systems, where individual parts are closely connected, by embeddedness in specific service delivery and areas, and by power dynamics. In conclusion, sub-national health policy responses emerge as key to effective responses to the post-pandemic permacrisis, where health professions are central policy actors. Sub-national health policy responses build on existing power relations, but also have the potential to transcend these power relations.

1. Background

During the acute COVID-19 pandemic waves, countries across the world sought to maintain health system resilience. They relied heavily on healthcare workers (HCWs) to make extraordinary efforts and provide a booster for disrupted healthcare [1,2]. Now in the fourth year after the arrival of the pandemic, health policy is seeking to build back and adapt to the 'new normal'. Kluge [3,4] defines this as a 'permacrisis', where the frequency of crises is increasing. The high demands on HCWs and healthcare workforce (HCWF) shortages stretch beyond the pandemic and combine with climate change, the war in Ukraine, and the ongoing rise of non-communicable diseases. This requires a 'dual track approach' that prepares for health emergencies *and* strengthens current healthcare systems. The success of these efforts, just like during the pandemic, depends to no small degree on the capacities and support of HCWs as the backbone of every healthcare system.

Our previous comparative research conducted during the first wave of the COVID-19 pandemic in Europe [5] found that HCWs applied a wide range of absorptive, adaptive, and transformative capacities. Yet the funding, provision, and governance of health systems (health system prerequisites) could not explain the specific combination of these capacities convincingly. Our findings are supported by other research that could not identify any coherent health system patterns of pandemic policies [6–8]. 'Coronavirus politics' [9] do not sit easily with the conceptual frameworks of comparative policy [10]. This challenges the widespread assumption that health policy and implementation can be

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predicted from single institutional prerequisites or a bundle of factors, such as funding capacities, hospital beds, and staffing levels. Health systems do matter, but the pandemic crisis has highlighted a new complexity and the importance of (getting to know them) more fluid combinations of institutions, actors, and policy responses that may intersect and create their own dynamics.

Meanwhile, the HCWF has moved higher up on the post-COVID policy agenda and has now been declared a policy priority by WHO, both globally and for the European region [11,12]. The acknowledgement of the needs of HCWs, and efforts to expand monitoring and data sharing relating to the HCWF are gaining ground, supported by new regulatory and funding efforts of the European Union [11,13]. However, these policy efforts and actions have not been able to keep up with the rapidly growing HCWF shortages, and they also do not respond adequately to the new and existing needs and demands of HCWs. Lack of mental health support, high levels of stress and workload [14], an increase in violence against HCWs [15], and exacerbating inequalities in the HCWF [16] point to shortcomings and failure in governance and policy.

Against this backdrop, a mere 'normalisation' after the pandemic is not the way forward. The pandemic threatened the physical and mental health of the HCWF, and health systems are now struggling with decreasing human resources for health [11]. A cornerstone of the health system is thus shaking and, ultimately, putting resilience at risk. The WHO Regional Director for Europe suggests the 'dual track approach' to respond to the new normal of the permacrisis must include investment in the HCWF [3,11]. The current situation may vary between countries, health sectors and professional groups. For high-income countries in the European region, for instance, health labour market analyses predict significant retirement waves among professional groups due to demographic developments [11], as well as a growing risk of collective job evasion due to burnout and stress, especially among nurses [17]. Therefore, retirement, recruitment, reactivation, and retention are emerging as the biggest challenges in European countries [11].

How do health systems respond to these challenges posed by the 'new normal' of the permacrisis? Although data and research evidence have improved, important knowledge gaps remain concerning the more fluid ways in which health systems, policy actors and policy responses combine, and ultimately create, maintain and transform health system resilience. More specifically, we lack knowledge about these dynamics across different levels, that is, the local/organisational levels (and the role of health professions) in addition to the national level. We also lack more systematic comparisons across different sectors in different healthcare systems. Therefore, in this follow-up study, we adapt our existing framework [5] and include two selected healthcare sectors, hospitals and general practice, as well as two policy levels, the national and the local/organisational levels. This follow-up study aims to contribute to building back better after the COVID-19 pandemic by comparing the policy responses to strengthen the capacities of the HCWF across six European countries, and by analysing how these policy responses are shaped by more fluid combinations with health systems and policy actors. This may offer interpretations of the reasons related to different policy actions adopted in our countries.

2. Methods

2.1. Conceptual framework and country case selection

The conceptual framework initially considered major dimensions of health system prerequisites and absorptive, adaptive, and transformative HCWF capacities [5]. In this follow-up study, we revised and adapted the framework to the 'new normal' of the permacrisis and conceptualised the relationships between health system prerequisites, HCWF capacities, and health system resilience as complex and fluid (Fig. 1).

We have selected Austria, the Czech Republic, Denmark, Germany, Italy, and the Netherlands as country cases for our comparative analysis. As explained elsewhere in more detail [5,7,10], we refer to an approach based on the variation of health systems and related institutional prerequisites. In the absence of a health system typology that adequately considers both, the role of the HCWF in health systems and health policy under the 'new normal' of the permacrisis, we argue that a qualitative

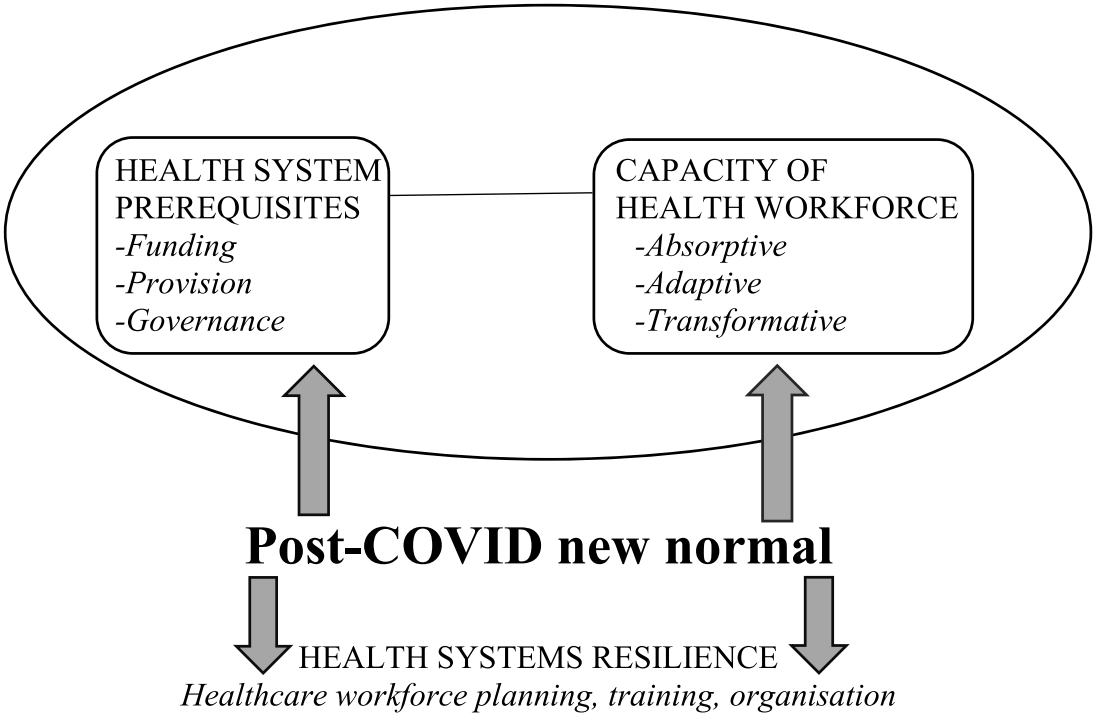

Fig. 1. Overview of analytical framework.
Adapted from (5).

Table 1
Analytical framework.

HEALTH SYSTEM PREREQUISITES	*Funding*	1.1-Regular funding: What are the principles and procedures for raising and allocating funding to hospitals/general practice? 1.2-Relative flexibility of funding: What are the possibilities for redirecting existing funding for hospitals/general practice to new purposes and to allocate extra resources to hospitals/general practice
	Provision	2.1-Organisation of service delivery: How is hospital care organised? Including the mix of public/non-profit/for profit hospitals. How is general practice organised? Including the importance of (publicly) employed general practitioners. 2.2-Organisation of HCWF: What are the main professional groups in hospitals/general practice, and what is their respective scope of practice? What are the most significant shortages?
	Governance	3.1-Relative control of hospitals/general practice and the workforce In what ways can public authorities exercise control over hospitals/general practice and doctors/nurses working in hospitals/general practice? Does this control exist at the national or/and sub-national levels? How do public authorities seek to influence coordination across sectors; how do they support particular skill-mix/skills for coordination? 3.2-Integration of HCWF in hospitals/general practice In what ways are professional organisations of doctors/nurses part of the governance of hospitals/general practice at system level? How do professional organisations seek to influence coordination across sectors; how do they support particular skill-mix/skills for coordination?
POLICY RESPONSES SUPPORTING CAPACITIES OF HEALTH WORKFORCE	*Absorptive*	Supporting ability of HCWF to persist; involves using existing resources without making changes to the structure of health services and the HCWF 1.1-What do governments/public authorities/professional organisations at national/regional levels do, to support the HCWF so that they can protect hospitals/general practices against the challenges of the post COVID-19 new normal? 1.2-What do hospitals/general practices and doctors/nurse managers do, to support the HCWF so that they can protect hospitals/general practices against the challenges of the post COVID-19 new normal?
	Adaptive	Supporting ability of HCWF to make some, gradual adjustments to structures and processes of healthcare delivery; involves drawing on new or different resources 2.1-What do governments/public authorities/professional organisations at national/regional levels do, to support the HCWF so that they can adjust care delivery in hospitals/general practices in response to the challenges of the post COVID-19 new normal? 2.2-What do hospitals/general practices and doctors/nurse managers do, to support the HCWF so that they can adjust care delivery in hospitals/general practices in response to the challenges of the post COVID-19 new normal?
	Transformative	Supporting ability of HCWF to respond in more long-term and significant ways; involves changes to function and structures of healthcare delivery 3.1-What do governments/public authorities/professional organisations at national/regional levels do, to support the HCWF so that they make more significant changes to care delivery in hospitals/general practices in response to the challenges of the post COVID-19 new normal? 2.2-What do hospitals/general practices and doctors/nurse managers do, to support the HCWF so that they make more significant changes to care delivery in hospitals/general practices in response to the challenges of the post COVID-19 new normal?

case study design and focus on a variety of institutional arrangements may be most useful for our purpose.

We operationalised the analytical framework by specifying the individual dimensions of health system prerequisites and HCWF capacities through questions to guide the collection case material for our countries (Table 1).

In terms of sectors, we selected hospitals and general practices. These are the two largest healthcare sectors, which are also closely connected. Further, we distinguished policies directed at HCWF capacities at the macro (national) and *meso* (local/organisational) levels. This underscores contemporary movements towards decentralisation in many health systems, which goes hand in hand with more dispersed and 'fluid' policy approaches [18]. In turn, the breadth of policy actors becomes visible, ranging from national governments and professional organisations to regional health authorities, hospitals and general practices, leading to new dynamics of health policy transition.

2.2. Data collection and analysis

A qualitative case study design was applied. Data were collected from April to September 2022. The collection and analysis followed the same procedures as described for the initial research during the early stages: country experts prepared descriptive country cases, based on expert information and written secondary and primary research. For material on the *meso* level, country experts selected one large, specialised hospital, as well as one general practice with the predominant operational model in their respective country. Following a step-by-step approach, the lead authors developed a first comparative analysis of the country case material and highlighted data gaps; the country case studies were subsequently revised and amended and all authors discussed the comparative results; the procedure was repeated until data gaps were closed and consensus was reached [5].

3. Results

For an overview of our findings please see Table 2 below.

3.1. Policies supporting the absorptive capacities of the HCWF

Policy responses that create, maintain or change the absorptive capacities of the HCWF are concerned with supporting the ability of the HCWF to persist and to protect healthcare services against the challenges of the post-COVID new normal of the permacrisis [19]. This involves using existing resources without making changes to the structure of health services and the HCWF.

At the macro level, there are interesting variations in policy responses supporting the absorptive capacities of the HCWF. There are only a few policy responses in Austria, the Czech Republic, Germany, and the Netherlands. In contrast, the regional governments in Denmark and Italy introduce more policies to support the absorptive capacities of the HCWF [20–23]. Policy responses largely focus on hospitals, reflecting the continued dominance of hospital care in healthcare

provision across the health systems in our countries. The national governments in the countries with few or no policy responses enjoy varying capacities to govern hospitals and the HCWF, hence other institutional pre-requisites must be at play. Healthcare provision in the health systems of Austria, the Czech Republic and Germany is characterised by high numbers of beds [13]. This may offer a (temporary) buffer against the increasing HCWF shortages and higher demands arising from built-up backlogs [24]. The health system of the Netherlands does not have any comparable level of hospital beds hospital capacity [25]. Instead, it seems the lack of national policies related to absorptive capacities reflects a different approach to dealing with the post-pandemic crises.

In the Czech Republic, Germany and the Netherlands, professional organisations step into the void and take initiatives to support and develop the absorptive capacities of the HCWF [26]. In the Czech Republic, the professional association of general practitioners uses weekly webinars initially introduced during the COVID pandemic to facilitate networking and information sharing (e.g. concerning tools to facilitate service delivery for Ukrainian refugees). This extends to supporting service delivery for refugees from Ukraine, where the website of the association provides information on which practices offer services [27]. In the Netherlands, the professional organisations of doctors and nurses join forces and develop a plan on how to improve the well-being and working conditions of the healthcare workforce [28]. The plan forms part of a larger report by an influential corporatist national advisory council (Social Economic Council, SER) on 'Working on Healthcare'. The report underscores the importance of helping HCWs to recover both physically and mentally and strengthening the voice of nurses and other care professions in the health system. In response, the government has introduced research programmes on nurse leadership. This is interesting, as professional organisations play very different roles in health governance in the two countries. In the Czech Republic, the medical associations enjoy considerable influence in the policy process but are not formally integrated into national governance arrangements. In the other two countries, professional organisations are part and parcel of corporatist governance, meaning that professional associations play a key role in informing national and local governments in health policy making, as well as in carrying out those policies [29]. Yet there are also differences; in Germany, governing arrangements are still more hierarchical and traditionally focus on doctors, while in the Netherlands the professional organisations of nurses are increasingly included in health policy making [30].

In comparison, Denmark and Italy have purposefully introduced policies that create, maintain, and change the absorptive capacity of the HCWF. This applies mainly to the sub-national level of the regions, which in both countries are responsible for the provision of hospital care. Here, the closer proximity to healthcare provision may offer a lever for introducing such policies. For example, in Denmark, the five regions have initiated a range of measures to support the HCWF to persist by drawing on existing resources, including the improvement of working conditions, use of health technology to reduce workloads, and retention of HCWs close to retirement [22,23]. In Italy, these autonomous initiatives by Regions built on the independent sub-central policies adopted especially at the beginning of the COVID-19 pandemic [31,32].

Compared to the macro level, policies supporting absorptive capacities appear to be more prominent at the *meso* level, and there are also more policy responses in general practice. Again, this may be a question of proximity, whereby hospitals and general practices are at the forefront of dealing with the immediate medical challenges of COVID-19, thus increasing shortages of the HCWF and the higher demands following the built-up back-log are more visible thus creating more pressure to act. However, across our countries, there are interesting variations in terms of the focus of policy responses and the extent to which they address the challenges of the post-COVID new normal [33]. The policies in the hospitals in Austria and Germany maintain a focus on demands arising from the COVID-19 pandemic. This includes more data collection and monitoring across hospital departments of beds for patients with COVID-19 (Austria), and continued re-allocation of hospital staff to prioritise COVID-19 care (Germany) [33]. In the two countries, this mirrors policy responses at the macro level and may point to the buffers offered by a high number of hospitals, although this did not fully prevent the closure of beds and other service restrictions. Still, this is interesting; the *meso* level of providers enjoy considerable room for manoeuvre, as the combination of federalism and corporatism makes up for fragmentation [8,34,35]. The hospitals in the other countries appear to have moved on and policies respond to post-pandemic challenges such as strengthening elective treatment (Czech Republic, Italy) and retaining health workers (Czech Republic, Denmark, Netherlands), as well as the new crisis of caring for refugees from Ukraine (especially Czech Republic). Hospitals in the Netherlands, for instance, have redefined policies supporting absorptive capacities in more fundamental ways and adopt a professional rather than patient-centred approach when dealing with workforce shortages and high sick leave [30].

Across our countries, general practice has retained policies initially introduced to create, maintain, and change absorptive capacities during the pandemic and has added new policies. The similarities may point to the fact that across our countries, general practice enjoys greater autonomy and flexibility compared to hospitals as general practice is less strongly integrated into the health system. General practices continue to use telephone and video consultations and services (Austria, Czech Republic, Denmark, Germany, Italy). The sustainability of such service offerings depends on the existence of funding streams (for example, fee-for-service payments) and a country's digitalisation capacity (for example, 5 G networks). Some of the new policies are concerned with making more efficient use of existing resources like shifting office hours (Germany) [36], optimising the practice website (Denmark) and increasing supervision of practice staff for immediate handling of queries (Denmark). General practices in the Netherlands stand out, as they focus on reducing demand with the help of patient questionnaires for triage and discouraging patient access during holiday periods, especially by referring to online ('self-help') information.

3.2. *Policies supporting adaptive capacities of the HCWF*

Policy responses that create, maintain or change the adaptive capacities of the HCWF support the ability of the HCWF to make some, gradual adjustments in the structures and processes of healthcare delivery. The adjustments arise from the challenges connected with the post-COVID new normal, and involve drawing on new or different resources [19].

At the macro level, policies supporting this type of capacity have a distinct post-pandemic focus and deal with postponed/cancelled treatments and associated waiting times, as well as the salaries and working conditions of HCWs, but again mainly in hospitals. Here, an interesting distinction is if policies have an acute/short-term or a structural/long-term focus; this indicates to what extent policies support the adaptive capacities of the HCWF in a more sustainable manner. Importantly, countries vary in terms of the relative importance of long-term structural measures: there are few policies in Austria, the Czech Republic [37], Italy and Germany, whereas there are more structurally-oriented policies in Denmark and the Netherlands. An example of the acute type of policies is Italy, where the national government introduced additional funding earmarked to reduce waiting times. At the same time, the regions decided to give HCWs bonuses [38]. Salary increases make permanent changes to the pay of HCWs, but often do leave the underlying pay structure intact and do not, for instance, reduce the existing gender pay gap. In Germany, the salary increases for nurses, as a profession with a high share of women, are minor. Across our countries, salary increases are a widespread policy (Czech Republic, Germany, Italy, Netherlands). Policies with a more structural orientation focus on the HCWF, the private sector and digitalization [39]. However, policies lack a coherent framework or vision and as such appear fragmented. For example, in

Table 2
Overview of health systems prerequisites and policy responses to strengthening HCWF capacities.

	HEALTH SYSTEM PREREQUISITES			POLICY RESPONSES		
	Funding	*Provision*	*Governance*	*Absorptive capacities*	*Adaptive capacities*	*Transformative capacities*
Austria	-Social insurance funding; allocation mainly via DRG-like system (hospitals), and mixture of fee-for-service & contact capitations (contracted general practice) -Negotiations allow high flexibility of funding	-Highly hospital-centred, mixed hospital provision; general practice with independent, private practitioners (no gatekeeping and not changing), some interprofessional primary care centres -Strong medical division of labour with many doctors but falling number of GPs	-Overall, little control as federalist/ corporatist health governance, leads to fragmentation/ regional variation, but reforms to strengthen joint planning/ funding -High integration of GPs through negotiations with social insurance funds	Macro level Default reliance on status quo *General practice*-re-introduction of granting sick-leave by telephone consultation Meso level *Hospital*-more data collection and monitoring of available Covid beds, training in Covid-related hygiene measures *General practice*-overtime, PPE	Macro level More funding for training programmes for HCWs, salary increases for (female) HCWs *Hospital*-paying overtime, recruitment of retired HCWs Meso level Muddling through *Hospital*-introduction of 'Speech Mac' for doctors *General practice*-increased use of digitalisation	Macro level Strengthening of digitalisation (5 G networks, training) *Hospitals*-expansion of competencies of nursing assistants *General practice*-introduction of electronic prescriptions, pilot to introduce community nurses Meso level *Hospital*-with greater use of nursing assistants some task-shifting
Czech Republic	-Social insurance funding; allocation based on DRGs, individual contracts & global budgets (hospitals), and capitation & fee-for-service (general practice) -Variable flexibility of funding, depends on insurance fund and hospital management	-Highly hospital-centred, mainly public hospitals, but diverse management; general practice run by independent, private practitioners (no gatekeeping, but changing) - Strong medical division of labour; some nurses in general practice; shortages of GPs and hospital nurses	-Strong control as social insurance tightly regulated; involves government and national/regional public authorities -Little formal integration, but medical associations play considerable role in policy process	Macro level *Hospitals*-default reliance on status quo *General practice*-professional association supports information sharing Meso level *Hospital*-allowing HCWs to take holidays	Macro level Additional funding for salary increases for HCWs *Hospitals*-additional funding for backlog of operations, well-being programmes for HCWs Meso level *Hospital*-activities to retain HCWs, wellness offers for HCWs, special wards for patients from Ukraine *General practice*-reorganisation/new staff to offer services for patients from Ukraine	Macro level Recognition of Covid-19 as occupational risk & skills of final-year medical students as equal to practice nurses, new university-based degree programme for nurses Meso level Digitalisation *General Practice*-more task sharing and move to larger practice
Germany	-Social insurance funding; allocation DRG-based (hospitals), and jointly negotiated budgets with fee-for-service (general practice) -Negotiations allow for some flexibility of funding	-Highly hospital-centred; mixed hospital provision; general practice with independent, private practitioners (weak gatekeeping) -Strong medical division of labour with high staffing levels but increasing shortages	-Overall, little control as federalist/ corporatist health governance leads to fragmentation/regional variation, but union control of employment conditions in hospitals -High integration of doctors through corporatism, but weak for other HCWs	Meso level *General practice*-changed office hours based on staff availability, continued telephone/video consultations, digital certificates for sickness leave	Macro level Expansion of digital health care (and adaptation of remuneration), increased capacity for training of doctors and some new training programmes for other HCWs *Hospitals*-additional funding for Covid-related care and bonuses for nurses Meso level *General practice*-bonuses/salary increases for medical assistants	Macro level Digitalisation Meso level *Hospital*-selected task shifting within professional groups with high workload *General practice*-some task shifting to trained medical assistants
Netherlands	-Social insurance funding; allocation through DRGs (hospitals) and capitation (general practice) -Negotiations led by government and extra funding allow for some flexibility, but limited by competition among insurance funds and providers	-Moderately hospital-centred; publicly regulated, private hospital provision; general practice in larger practices and primary care centres (strong gatekeeping) -Moderate medical	-Some control as governance based on national corporatism and increasing national regulation of doctors, but challenged by growing decentralisation and regulated competition -High integration of doctors through corporatism, increasingly also nurses	Macro level Plan to improve well-being and working conditions of nurses (joint initiative of professional organisations) *Hospitals*-national monitoring to manage bed capacity Meso level *Hospitas*-professional-centred approach to tackling shortages	Macro level Funding to support move to digital health care (project-based) and for research on professionalisation Meso level Funding to support move to digital health care; private, data-driven platforms for temp work *General practice*-greater use of digital health care	Macro level Agreement to strengthen primary care (regionalisation, digital health care); return to corporatist negotiations (inclusive) Meso level Intersectoral collaboration to reduce work pressures (out-of-hours)

(*continued on next page*)

Table 2 (*continued*)

	HEALTH SYSTEM PREREQUISITES			POLICY RESPONSES		
	Funding	*Provision*	*Governance*	*Absorptive capacities*	*Adaptive capacities*	*Transformative capacities*
		division of labour; shortages in some geographical areas & specialities and in general practice		*General practice*-electronic triage system, guidance to avoid service use during holiday period		*General practice*-task shifting to new professional groups; new professional nursing roles during out-of-hours
	HEALTH SYSTEM PREREQUISITES			*CAPACITIES OF HEALTH WORKFORCE*		
	Funding	*Provision*	*Governance*	*Absorptive*	*Adaptive*	*Transformative*
Denmark	-Funding from national and local taxes, allocation through global budgets/activity-based funding (hospitals) and capitation/fee-for-service (general practice) -Low flexibility as yearly, national negotiations, but possibility of one-off payments	-Moderately hospital-centred; mainly public hospital provision; general practice with independent, private practitioners (strong gatekeeping) -Moderate medical division of labour; increasing number of nurses in general practice; shortages of nurses and GPs	-Governance based on public corporatism allows for high, overall control; formally decentralised but increasing vertical integration -Close integration of professional interests, also beyond doctors	Macro level *Hospitals*-temporary suspension of waiting time guarantee; measures to improve working conditions, use of health technology, retention of HCWs close to retirement Meso level *Hospital*-catalogue of ideas to increase retention *General practice*-optimisation of practice website, extended supervision of practice staff	Macro level One-off additional funding for HCWs *Hospitals*-one-off payments for selected HCWs, favourable working conditions for medical students, increased referrals to private hospitals Meso level *Hospital*-catalogue of ideas to increase recruitment *General practice*-recruitment of new secretary, new text message system to target particular patient groups	Meso level *Hospitals*-recruitment of physio-/occupational therapists to assist clinical nursing work
Italy	-National tax funding; allocation through DRGs (hospitals) and capitation/fee-for service (general practice) -Medium flexibility as regions have some autonomy over changing allocation of funding	-Highly hospital-centred; mix of mainly public and some private hospital provision; general practice with independent, private practitioners (gatekeeping) -Strong medical division of labour; significant shortages of nurses & some specialties, falling number of doctors in general practice & public hospitals	-Overall weak control as decentralised and fragmented governance -Poor integration of doctors, weak but increasing role of nurses and other HCWs	Macro level *Hospitals*-continued suspension of regulations for flexible management of HCWs Meso level *Hospital*-continued use of measures introduce for Covid-19, but now to reduce waiting times for elective/urgent normal care *General practice*-continued use of digital health	Macro level *Hospitals*-funding for bonuses/pay rises for HCWs, measures to reduce waiting times *General practice*-agreement to strengthen collaboration among practices Meso level *Hospital*-training to extend nurse skills, private hospitals contracted to deliver additional activity, recruitment of HCWs from private agencies *General practice*-measures to improve coordination with elder care services	Macro level *Hospitals*-investment in technological innovation (EU) *General practice*-reform shifts provision to multi-professional Community Houses (new role for GPs), invests in new family/community nurses Meso level *Hospital*-re-organisation to develop A&E and increase ICU beds *General practice*-introduction of Community Houses

Austria [40,41] (similarly Italy and the Netherlands) there is more funding for training programmes for HCWs to increase the number of trainees [21,42]. Italy and the Netherlands look to the private sector and the regions have plans to make greater use of temp nurses and doctors to cover vacant positions. The regions in Denmark plan to hire healthcare workers like assistants, physio- and occupational therapists and medical secretaries, specifically to support nurses [22]. Other policies are directed at digitalisation (Austria, Germany, Netherlands) [43] and greater use of private hospitals (Denmark, Italy) [23,38,44].

In comparison, structurally oriented policies are predominant at the *meso* level. This may reflect the fact that hospitals and general practices rarely have access to independent funding sources or the right to decide on salaries (except practice owners in SHI systems who have some flexibility concerning their employees' salaries). For example, in Italy, the Local Health Authority in the locality of the selected general practice has agreed to a new training programme with the local university to extend nurses' competencies and train the "family and community nurses", a new specialist nurse in the Italian healthcare system. This involves gradual adjustments of the study programme (by the local Faculty of Medicine) and the organisation of primary care services to take advantage of the new competencies. In the German hospital, as elsewhere, some ad-hoc efforts were taken to improve competencies related to COVID-19 patient care and pandemic protection, yet more systematic changes are less apparent. In the Czech Republic, this included the introduction of a special department to provide care for refugees from Ukraine.

Examples of similar moves in general practice in the Czech Republic underline the significance of refocusing policies supporting adaptive capacities on the new crisis. The general practice selected appointed new staff with language skills in Ukrainian/Russian. The practice had joined a programme by the professional organisation of general practitioners, which also offered fees. This also applies to the general practice selected in Germany, but this is highly dependent on the practice owner; there is no overall policy with financial incentives. However, across our countries, general practices have introduced policies to strengthen other aspects of adaptive capacity. For example, the general practice selected in Denmark has recruited a new secretary to handle the higher number of patient queries. Austria and the Netherlands stand out from the other countries. The general practice selected in Austria does not seem to have adopted any notable measures supporting adaptive capacity, whereas the policy responses in the Netherlands appear to be particularly far-reaching. The country has seen the emergence of private, data-driven platforms for temp work; the platforms match HCWs with task/shift-based offers posted by healthcare organisations. Market competition in health governance and corporatism has led to marked fragmentation, which has paved the way for for-profit providers, like commercial platforms for temp work.

3.3. Transformative capacities

Policy responses concerned with creating, maintaining of changing the transformative capacities of the HCWF support the ability of the HCWF to respond to the changing environments of the post-COVID new normal in more long-term and significant ways [19]. This involves changes to the function and structures of healthcare delivery. In some instances, the pandemic and the new normal of the permacrisis have offered a catalyst for reform directions that had existed pre-pandemic. But these reform directions need to be molded into very much changed contexts.

Across our countries, there is considerable variation in terms of policy responses supporting transformative capacities at the macro level. There appear to be relatively few policy responses in Austria, Germany and Denmark. Austria (similarly Germany) has taken steps to strengthen digitalisation by introducing 5 G networks [45] and to integrate the doctors association in digitalization plans [46]. However, it remains to be seen if and how this transforms the organisation of service delivery. Austria has also expanded the competencies of nursing assistants as part of a reform of the formal education programme [47]. This may reflect a combination of high capacity in hospital provision and weak health governance. As we have argued before, the high number of hospital beds offers buffers for post-pandemic challenges to some extent. At the same time, federalism and strong corporatism with close involvement of the medical profession weaken the government's capacity to steer the health system. This has proven to be a considerable hurdle for changing the organisation of healthcare in the past; an example is the persisting weak position of the nursing profession in Germany [48] and strong resistance to the introduction of new professional roles [49]. However, as the absence of policies to support transformative capacities in Denmark demonstrates, even more inclusive public corporatism does not offer any guarantees for innovation if national governance capacity is weak. The Czech Republic, in turn, has adopted more distinct policies that are set to transform the skills and shift the tasks of the HCWF. This includes legislation that defines final-year medical students' skills as equal to practical nurses. One university has also introduced a new university-based degree programme for nurses. The existence of more distinct policy responses related to transformative capacities is interesting, as the country has a social insurance system like Austria and Germany [8,9,34,50]. However, in the Czech Republic, corporatism is more liberal in nature. It has much less power in health governance and the national government retains high governance capacity.

In comparison, Italy and the Netherlands have adopted the most far-reaching policy responses to support the transformative capacities of the HCWF. In Italy, the primary care reform, introduced in 2021–22, aims to set up multi-professional Community Houses, as part of the (public) Local Health Authority services. These houses will flank and partially replace traditional solo general practices and include GPs in new roles [51–53]. The same reform considerably strengthens community hospitals to provide intermediate care and develop the new professional role of family and community nurses. The reform also sets up local Units for Continuity of Care initially introduced during the COVID-19 pandemic to support general practice (and primary care services) in the treatment of chronic illness. The reform is a response to the deficiencies of the primary care system, which have emerged during the pandemic and the new normal of the permacrisis, and which contributed to the difficulties managing the ongoing emergency. At the same time, the focus on multi-professional and integrated care outside hospitals builds on pre-pandemic national and regional reforms. In the Netherlands, the ongoing emergency has accelerated organisational and system changes. The country has recently adopted an Integrated Healthcare Agreement, which moves healthcare from hospitals to primary care with the help of regionalisation and digitalisation ('right care at the right place' policy aim) [54]. Importantly, this is underpinned by a return to corporatist negotiations (and move away from the market-oriented paradigm that was introduced in the mid-2000s), but in a more inclusive form. This involves a wide range of actors, including the government together with the associations of healthcare organisations, professions and patients. This more inclusive form of corporatism (together with influential policy entrepreneurs) seems to support policy responses related to transformative capacities. Interestingly, no such institutional pre-requisites are in place in Italy. Instead, the reforms are closely tied to the National Recovery and Resilience Plan, which is part of the Next Generation EU programme [21,55]. This is in line with developments over several decades, where EU integration has been the major driving force for structural welfare reform (not only in healthcare) in Italy over several decades [56,57].

The patterns of policy responses supporting transformative capacity at the *meso* level mirror those at the macro level. In Austria and

Germany, there is some task shifting in both hospitals and general practice. This includes general practitioners and specifically trained medical assistants in general practices in Germany; and nurses and assistants in hospitals in Austria and Denmark. However, task shifting remains generally weak and constrained by medical hierarchy and power, and this is especially strong in Germany [34,48,58] and Austria [50], and in Italy. In the Czech Republic, in general practice, there is more task sharing and support for forming group practices. The measures in Italy and the Netherlands reflect the implementation of the health reforms outlined above. In the Netherlands, one region supports this with the introduction of 'regional nurses' to address shortages of general practitioners [59]. Thus, a more diverse group of professions sees patients at home/in nursing homes during out-of-hours.

4. Discussion

The first aim of this paper was to compare the policy responses to strengthen the capacities of the HCWF post-COVID at national and local/organisational levels as well as across hospitals and general practice in six European countries. Our findings show that national policy responses mainly focus on the HCWF in hospitals. Policy responses are concerned with strengthening the adaptive capacities of the healthcare workforce. The focus is on salaries and working conditions (more funding for training programmes, using temp staff and hiring assistants and therapists to support nurses); and, more indirectly, on how to deal with postponed treatments and associated waiting times (such as earmarked additional funding and digitalisation). In comparison, local/organisational policy responses have a broader focus. They include absorptive in addition to adaptive capacities and a focus on general practice. For example, across our countries, general practice tries to strengthen the absorptive capacities of the healthcare workforce, by retaining telephone and video consultations; and by introducing new policies to make more efficient use of existing resources, like shifting office hours (Germany) and reducing demand with the help of triage questionnaires (Netherlands).

In contrast, there are only a few examples of policy responses directed at the transformative capacities of the HCWF. Concerning nursing as the largest group within the HCWF, this could be policies addressing pay gaps or creating new nursing roles. Instead, policy responses, for example, related to the adaptive capacities of the HCWF in hospitals, are often short-term and focused on bonuses. This includes salary increases, for example in Italy, which makes more permanent changes to pay. However, these policy responses often leave the underlying pay structure intact and do not reduce the existing gender pay gap. Interestingly, the two main examples of policy responses directed at transformation capacities are based on decentralisation. In Italy, the national government introduces multi-professional Community Houses, which the regions must implement, as well as family and community nurses. There are also new Local Units for Continuity of Care to support general practice in the treatment of chronic illness, which are created by converting units initially introduced during the pandemic. The Netherlands has just adopted an Integrated Healthcare Agreement that moves healthcare from hospitals to primary care with the help of regionalisation and digital healthcare [60]. The two reforms make fundamental changes to the function and structure of healthcare delivery. For the HCWF, the building of transformative capacity requires retraining on a large scale; this is challenging in times of serious shortages.

The second aim of our paper was to analyse the more fluid combinations of health systems, policy actors and policy responses, as well as how they intersect and create their own dynamics. On the one hand, the COVID-19 pandemic and its aftermath have sparked a renewed interest in health systems and policy [10]. For example, in the Pan-European Commission on Health and Sustainable Development [1], McKnee argues that the COVID-19 pandemic and its negative impact would have been avoidable if countries had been better equipped especially in three respects: decisive political leadership on how to reduce the spread of the virus; a trained, motivated and equipped health workforce to tackle intensive workloads; and welfare states to offer family support, pensions and income replacement to citizens [2]. On the other hand, we lack knowledge on *how* to build resilience in practice in different contexts [61], for example by looking at how and when politics matter [9]. Based on our analysis health policy responses to HCWF capacities, we argue that the 'how' of resilience is complex, embedded, and subject to power dynamics. This mitigates against the possibility of identifying clear patterns of underlying institutional variations across countries related to different policy actions adopted in our countries.

Firstly, we find that health systems matter for health policy responses by virtue of the close connections and dependencies between the individual parts (funding, provision, governance) of health systems. This also challenges the widespread focus in the literature on identifying strategies for strengthening health systems' resilience by targeting individual institutional prerequisites. For example, in their literature review, Forsgren and colleagues [61] highlight the importance of improved governance and financing to develop policies and financial accountability arrangements and to nurture political commitment to health. Similarly, Winkelmann and colleagues [62] point to coordination mechanisms supported by real-time monitoring as key for adaptive surge capacity in their discussion of strategies to secure sufficient healthcare infrastructure and workforce capacities in hospitals across European countries (see also [2]). Individual parts and capacities of health systems are important, but it is the connections between them and how they unfold in particular health systems that are key to resilience [63].

Secondly, our findings show that the relations between health systems, policy actors and policy responses are highly embedded; they are specific to service delivery levels and areas. Our findings underscore the increasing importance of health policy responses at sub-national levels, which is a common finding of studies of responses to COVID-19 and its aftermath [10]. For example, policy responses at local and organisational levels had a much broader focus, both in terms of the range of capacities and the inclusion of general practice in addition to hospitals. A possible reason is that decentralisation allows for greater flexibility as decision-making occurs closer to the operational level of the health system [61,64]. Policy actors with proximity to service delivery emerge as the driving force, including regional and local public (health) authorities as well as hospitals and general practices. Here, middle managers have a special strength as they are close to frontline HCWs. They are at the forefront of dealing with the higher demands following the built-up of back-logs; this also increases the visibility of shortages.

Thirdly, our analysis demonstrates how the relations between health systems, policy actors and policy response play out reflect important power dynamics and historical legacies [65,66]. The two are closely connected, whereby power relations are reinforced by the institutional mechanisms underpinning the funding, provision, and governance of healthcare, which in turn privilege some policy actors over others. In our findings, this is particularly apparent in the strong focus on national policy responses to hospitals. This reflects the legacy of defining healthcare as specialised services, which historically has been translated into favouring hospitals in the allocation of funding and embedding hospitals much more firmly in health governance [67]. The specialised services in hospitals have been embedded in a strongly medical division of labour, which extends to general practice where doctors continue to dominate. This has repercussions for health policy responses to support the capacities of nursing as the largest group within the HCWF, especially the lack of policies to strengthen transformative capacities. Thus, our study points to some of the structural and institutional factors that have driven, and currently drive shortages in the HCWF [68].

What are the implications for future research? Studies need to pay greater attention to sub-national levels and adopt bottom-up perspectives. For example, the framework of street-level bureaucrats [69] refocuses health policy on all healthcare workers that engage in policies in direct contact with users [10]. These workers realise policies through day-to-day practice, which also reflects specific local contexts. Future studies also need to take seriously the power relations underpinning health systems and policy actors, and how these shape health policy responses to resilience [70]. In relation to the HCWF, Kapilashrami and Aziz [68] suggest adopting an 'intersectional equity lens'. This directs the attention to the influence of the structures and inequalities inside and outside the health system; and the extent to which these policy responses challenge inequalities among groups in the HCWF, including women, ethnic minorities, and LGBT+ persons, as well as improve the health and safety of these groups [similarly, 10].

What are the implications for practice? The COVID-19 pandemic and its aftermath have revealed the centrality of the HCWF for health systems resilience and the significant vulnerability of the same HCWF [2, 68]. This is even more true in the context of the new normal of the permacrisis, which puts a constant strain on public resources and service needs. Policies need to address the structurally rooted challenges the HCWF has been facing for a long time, and which the COVID-19 pandemic and its aftermath have accelerated [1]. This requires more concerted action that is directed at the entire HCWF and major investments in different forms, from acknowledging the needs of healthcare workers to expanding monitoring and data sharing and much more [2,11].

4.1. Limitations

We collected empirical material over a relatively short period of time and at the beginning of the new normal of the post-pandemic. This was a unique point in time, which offered interesting insights into how health policy responses across our countries transitioned to address new sets of challenges. However, this is a complex and ongoing process, which is likely to unfold over a longer period. Such processes can naturally only be explored in future research. Like other shocks, the permacrisis may be cyclical and therefore allow for learning [71]. In turn, these learning processes may further increase the variety of policy responses over time. As we looked at the first cycle of post-pandemic challenges, such opportunities for learning were naturally limited.

We included six countries with a variety of institutional arrangements and examined health policy responses in relation to hospitals and general practice as well as at national and local/organisational levels. This offered a strong springboard for illustrating the wide range of relations between health systems, policy actors and policy responses. However, a smaller number of countries would have allowed going into more depth and would have revealed more detailed knowledge about specific dynamics and their contingencies.

5. Conclusion

We set out to compare health policy responses to strengthen the capacities of the HCWF post-COVID and to explore the underpinning dynamics between health systems, policy actors and health policies. In our comparative analysis we found that while policy responses at the national level focus on hospitals and absorptive capacities, policy responses at local/regional levels also include general practice as well as adaptive capacities. Further, there were only few examples of policies directed at transformative capacities. The dynamics shaping these policy responses are characterised by the importance of health systems, where individual parts are closely connected, by embeddedness in specific service delivery and areas, and by power dynamics and historical legacies. This challenges our understanding of health systems and calls for a reconceptualization of the institutional prerequisites of health system resilience. Two major conclusions can be drawn from our research. Sub-national health policy responses emerge as key to effective responses to the post-COVID-19 permacrisis, where health professions are central policy actors both as frontline workers and collective actors. Sub-national health policy responses build on existing power relations, but also have the potential to transcend these power relations. One important step forward towards health system resilience, therefore, would be to improve health workforce capacities at local/organisational levels and to make investments directed at the entire HCWF.

CRediT authorship contribution statement

Viola Burau: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Sofie Buch Mejsner:** Formal analysis, Writing – review & editing. **Michelle Falkenbach:** Formal analysis, Validation, Writing – review & editing. **Michael Fehsenfeld:** Formal analysis, Validation, Writing – review & editing. **Zuzana Kotherová:** Formal analysis, Funding acquisition, Validation, Writing – review & editing. **Stefano Neri:** Formal analysis, Validation, Writing – review & editing. **Iris Wallenburg:** Formal analysis, Validation, Writing – review & editing. **Ellen Kuhlmann:** Conceptualization, Formal analysis, Methodology, Validation, Writing – original draft, Writing – review & editing.

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