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DOI:
10.1016/j.healthpol.2024.104998

Health policy 141 (2024) 104998

Contents lists available at ScienceDirect

Health policy

journal homepage: www.elsevier.com/locate/healthpol

How did European countries set health priorities in response to the COVID-19 threat? A comparative document analysis of 24 pandemic preparedness plans across the EURO region

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ARTICLE INFO

Keywords:
Priority setting
COVID-19
Europe
Document analysis

ABSTRACT

The COVID-19 pandemic has forced governments across the world to consider how to prioritise the allocation of scarce resources. There are many tools and frameworks that have been designed to assist with the challenges of priority setting in health care. The purpose of this study was to examine the extent to which formal priority setting was evident in the pandemic plans produced by countries in the World Health Organisation's EURO region, during the first wave of the COVID-19 pandemic. This compliments analysis of similar plans produced in other regions of the world. Twenty four pandemic preparedness plans were obtained that had been published between March and September 2020. For data extraction, we applied a framework for identifying and assessing the elements of good priority setting to each plan, before conducting comparative analysis across the sample. Our findings suggest that while some pre-requisites for effective priority setting were present in many cases – including political commitment and a recognition of the need for allocation decisions – many other hallmarks were less evident, such as explicit ethical criteria, decision making frameworks, and engagement processes. This study provides a unique insight into the role of priority setting in the European response to the onset of the COVID-19 pandemic.

1. Introduction

The COVID-19 pandemic has forced governments across the world to consider how to prioritise the allocation of scarce resources. After March 2020 when the virus took hold in Europe, governments introduced measures such as social distancing, restrictions on movement and closure of non-essential businesses and services. Faced with a public health crisis, governments also took decisions to increase funding for health services, and to redirect current fiscal, human and technical resources towards meeting the new threat [4]. Many produced or adapted previous formal pandemic preparedness plans (PPPs) which set out, amongst other things, how the country's health response was to be co-ordinated and delivered. Although these were linked to wider guidance documents produced for example by the World Health Organization (WHO), they also retain some autonomy and reflect the priorities of national jurisdictions [41]. The existence of these plans presents an opportunity to compare and contrast how, and to what extent, priority setting was integrated into pandemic responses in countries across the world. In this paper, we examine and compare the PPPs of 24 WHO European region countries. The paper is part of a larger study which involves similar analyses across other WHO regions including lower income economies and the global south [12,26,36,37]. Our particular

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https://doi.org/10.1016/j.healthpol.2024.104998
Received 25 July 2022; Received in revised form 21 December 2023; Accepted 15 January 2024
Available online 19 January 2024

focus is on the prioritisation and allocation of health-related resources such as (but not limited to) acute care beds, supplies of personal protective equipment (PPE), and ventilators [9,23]. Our paper has important implications not just for ongoing and future pandemic responses, but also for those seeking to design priority setting processes that are effective in times of extreme turbulence.

2. Priority setting and resource allocation

Priority setting is 'the process of assigning precedence to certain areas or services to receive investments' [30]. Explicit models for enacting such processes have long been advocated in health care decision making [1]. During the early stages of the COVID-19 pandemic, countries had to determine how best to set priorities to guide decision making in order to effectively and quickly control COVID-19 under severe resource constraints. Many of the countries involved had previously invested in priority setting procedures and institutions, and many methodologies and frameworks have been advanced in the priority setting literature [7].

However, priority setting methodologies and frameworks have often, and for numerous reasons, failed to become embedded into 'real-world' decision making [17]. This has previously been ascribed to concerns a) that priority setting tools and methodologies are overly technical, and b) that they are misaligned with both decision making contexts and wider social values [11]. The need, therefore, to attend to participative and procedural dimensions of decision making has engendered a shift of focus in priority setting frameworks, with evidence and criteria augmented by stakeholder engagement and procedural justice [40].

Whilst some scholars still retain a focus on the technical elements of achieving 'fair' or 'optimal' allocation, others highlight the intersecting roles of politics, institutions, and values [33]. The need to incorporate contextual factors when analysing and prescribing approaches to priority setting has led to calls for a 'systems' based approach [25], and for attention to the 'structural and institutional factors' shaping priority setting and how it is understood by the actors involved [19].

The continued importance of each of these dimensions of priority setting – criteria; evidence and information; values; engagement; process; politics and systems – means that no simple formula or approach is possible. Instead, researchers have sought to devise and develop integrative frameworks, such as Smith et al.'s [32] framework of 'high performance' in priority setting for health managers and organisations. Of perhaps most relevance to this paper is the framework developed by Kapiriri and Martin [15] specifically to inform and assess priority setting at national and international levels of government. This is an inter-disciplinary, descriptive framework informed by extensive empirical review and validated for use in a variety of contexts [6,14].

In this study, we used the Kapiriri and Martin framework to determine a) the extent to which explicit priority setting was incorporated into PPPs in countries in the EURO region during the initial Covid-19 pandemic, and b) the extent to which this priority setting reflected the quality indicators as defined by the framework

3. Methods

The primary method was document review involving systematic extraction and data analysis using both descriptive and analytical techniques [21]. We used Kapiriri and Martin's [15] framework domains as our organising data extraction tool. Further detail of the methodological approach can be found in Kapiriri et al. [12] and Velez et al. [36].

3.1. The analytical framework

The dimensions of the framework, and translation of these to the specific context of COVID-19 responses, can be seen in Kapiriri et al. [12] and Velez et al. [36]. The many intersecting parameters contained within the framework are categorised into five domains: priority setting context; pre-requisites of priority setting; the priority setting process; implementation of priority setting decisions; and resulting outcomes/impact. The priority setting context domain explicitly addresses the political, governance, economic and other contextual factors shaping decision making. Priority setting 'pre-requisites' include the presence of political will, legitimate decision making institutions, aligned incentives and available human and financial resources. The priority setting process domain assesses whether the prioritization process described included an explicit tool, method or framework, and/or drew on explicit priority setting criteria (including equity considerations), and the role of evidence and stakeholder involvement in these processes. It also assesses the extent to which procedural decision making criteria, such as publicity and appeals/revisions, are met and enforced. The implementation and outcomes domains consider post-decision stages including the extent to which priorities are actually enacted in practice and achieve intended results.

Nine of the 28 parameters within the framework could not be assessed using the PPPs and are therefore not covered in detail in this paper. In order to assess adherence to the priority setting context parameters (which are not extensively covered in the PPPs), we assembled additional sources describing, for example, burden of the disease, and wider system structures.

3.2. Sampling strategy

Countries from across the EURO region were sampled in order to capture variations in health and political system, economic level, experience with priority setting and disease outbreaks. To be included, countries were required to have a publicly available COVID-19 PPP. Our first step was therefore to search for these on government websites and, where they were not available, search other internet sources. In cases where these two strategies yielded no plans, the team reached out to their contacts within the selected countries and requested access to relevant documents.

To be included in the review, the PPPs must have been published between March and September 2020, as we sought to analyse early responses and this period broadly corresponded to the first pandemic wave. Where necessary, plans were translated into English before two members of the team conducted data extraction. Once validity checks were completed, extracted data were synthesised both numerically and thematically, and analysed. The analysis involved assessing the degree to which the descriptions within the plans aligned with the parameters in the Kapiriri and Martin [15] framework. We tabulated the range and number of parameters addressed in each PPP and then compared across countries within the region. Thematic analysis involved more in-depth textual analysis where this was provided in individual plans, followed by comparison across the sampled countries.

4. Results

The review included 24 sampled countries out of a total of 53 countries in the EURO region. We obtained a single document that constituted a national plan in 20 of the 24 sampled countries and in the remaining four we included more than one document in the analysis (Denmark, North Macedonia, Norway, and United Kingdom). Seventeen of the PPPs were published between March – May 2020, and the remainder were published by September 2020. The focus on the WHO EURO region enabled us to compare priority setting in countries that share some geographical and demographic characteristics, and that have all had relatively little recent experience of disease pandemics, prior to COVID-19. However, they also differ in multiple ways such as: income level; political system; economics; health system funding and structure; and social values. The rest of the results section is organized according to the domains of Kapiriri and Martin [15] framework.

4.1. Priority setting contexts

The 24 sampled countries represented variations along the key dimensions that were relevant to the study and to priority setting (summarized in Table 1, drawing on [22,34] and political stability rankings from TheGlobalEconomy.com).

According to the World Bank, all of the included countries provide universal health care to their citizens, with a range of 65 to 87 on the Universal Health Coverage continuum [22]. Table 1 includes information on each sampled country's economic, political and health system, UHC Service Coverage index, health expenditure, relationship between private and public healthcare funding, political stability and number of hosted refugees. Countries within the sample that are 'major destinations' for asylum seekers in the period 2010–2019 include France and Turkey (0.6 million), Italy, Russia and Sweden (0.5) and the UK (0.3) [34]. This is important as there are acknowledged gaps in health care coverage across the region for such groups [24].

Table 1
Country contexts.

	Country	Economic System	Political System	UHC Service Coverage Index	GINI Index (2018)	Health expenditure per capita 2018 (current USD)	% of private insurance coverage	% of public insurance coverage	Political stability index (−2.5 weak; 2.5 strong)	Number of refugees hosted
Central Asia	**Kazakhstan**	Upper-middle	Presidential republic	76	27.8	$ 275.85	NI	NI	−0.26	524
	Tajikistan	Low	Presidential republic	68	34.0**	$ 59.84	NI	NI	−0.52	3791
	Uzbekistan	Lower-middle	Presidential republic, authoritarian	73	35.3*	$ 82.27	NI	NI	−0.44	8242
Eastern Europe	**Moldova**	Lower-middle	Parliamentary republic	69	25.7	$ 212.97	NI	NI	−0.42	423
	Russia	Upper-middle	Semi-presidential federation	75	37.5	$ 609.01	NI	NI	−0.73	42,433
	Slovak	High	Parliamentary republic	77	25.0	$ 1299.91	NI	NI	0.64	977
	Ukraine	Lower-middle	Semi-presidential republic	68	26.6§§	$ 228.39	NI	NI	−1.16	2172
Northern Europe	**Denmark**	High	Parliamentary constitutional monarchy	81	28.2	$ 6216.77	33	94	0.94	37,540
	Ireland	High	Parliamentary republic	76	31.4§	$ 5489.07	45	100	0.98	7800
	Norway	High	Parliamentary constitutional monarchy	87	27.6	$ 8239.10	0	100	1.25	53,888
	Sweden	High	Parliamentary constitutional monarchy	86	30.0	$ 5981.71	0	100	1.02	253,794
	United Kingdom	High	Parliamentary constitutional monarchy	87	35.1§	$ 4315.43	11	100	0.47	133,094
Southern Europe	**Italy**	High	Parliamentary republic	82	35.9§	$ 2989.00	0	100	0.44	207,619
	North Macedonia	Upper-middle	Parliamentary republic	72	33.0	$ 399.10	NI	NI	0.1	208
	Portugal	High	Semi-presidential republic	82	33.5	$ 2215.17	28	100	1.03	2387
	Serbia	Upper-middle	Parliamentary republic	65	36.2§	$ 617.09	NI	NI	−0.09	26,433
	Slovenia	High	Parliamentary republic	79	24.6	$ 2169.58	86	100	0.71	751
	Spain	High	Parliamentary constitutional monarchy	83	34.7	$ 2736.32	18	99	0.4	57,761
Western Asia	**Georgia**	Upper-middle	Parliamentary republic	66	35.9§§	$ 312.75	NI	NI	−0.43	1360
	Turkey	Upper-middle	Presidential republic	74	41.9§§	$ 389.87	NI	NI	−1.19	3597,531
Western Europe	**France**	High	Semi-presidential republic	78	32.4	$ 4690.07	0	100	0.31	407,923
	Germany	High	Federal parliamentary republic	83	31.9***	$ 5472.20	34	89	0.67	1146,685
	Luxembourg	High	Constitutional monarchy	83	35.4	$ 6227.08	NI	NI	1.23	2572
	Switzerland	High	Federal republic	83	33.1	$ 9870.66	28	100	1.19	110,168

*2003, **2015, ***2016, §2017, §§2019, other countries 2018.

4.2. Priority setting pre-requisites

Political will: We sought to assess the extent to which the plans demonstrate an explicit political commitment and support for priority setting and resource allocation. We can infer at least some base level political will from the existence of the plans, and the statements of ownership/involvement they contain from various governmental and associated bodies. All of the PPPs were produced by national/federal government departments or ministries, apart from a small number that were prepared either by international bodies such as the World Bank (North Macedonia) and the United Nations (Ukraine), or by arms-length national organisations such as the Swiss Academy of Medical Sciences, and the National Board of Health and Welfare in Sweden. The internal chain of command and responsibility for the response is clearly articulated in nearly all documents, again indicating political will, (Table 2).

Resources: We extracted data on the extent to which the plans explicitly address the matter of resources. For example, do they a) indicate how the proposed plans will be funded and resourced and b) identify which resources (e.g., material, human or otherwise) are likely to be scarce and therefore subject to prioritisation? We found that the majority of plans did not specify the overall resources available to fund or implement the response plan and, in this respect, they fall short of what is required for explicit priority setting which assumes a clear understanding of available resources. The majority, however, itemise the resources that are anticipated to become stretched during the pandemic (see Table 3). In order of prevalence, these are: human resources and deficits in relevant skills (i.e., training gaps) (identified in 18 plans); COVID-19 testing kits (17); PPE and the materials required for their production (15); health care facilities (15); laboratory equipment (13); essential medicines (11); acute care beds (10); medical equipment and supplies (9); ambulances (8); vaccines (6), and life support equipment (6). Our analysis suggests that a small number of plans refrain from explicitly itemising areas of resource shortage. For example, the PPPs of Ireland and the UK make reference to the need to increase capacity in core roles and facilities but do not indicate a) what current resource levels are b) how these deficits will be addressed or c) what consequences this will have in other areas.

Legitimacy: The majority of plans do not include substantive information on the level of stakeholder support for the plans or the bodies responsible for enacting them. For example, no citizen consultation or involvement is described in any of the plans. It is therefore difficult to assess levels and extent of trust in the validity and authority of the decision making institutions, based on the documents included for analysis.

Incentives for compliance: the reviewed plans did not include reference to any type of (dis)incentives for implementers to comply with the priority setting plans.

4.3. Priority setting processes

Prioritising across service areas: Eight of the 24 plans (France, Ireland, Italy, Kazakhstan, Norway, Portugal, Slovenia, Spain) include a strategy for ensuring continuity of other health services during the pandemic, including routine vaccinations, critical and urgent care, community care for vulnerable groups, mental health and substance abuse services. Whilst most of these plans indicate priority areas to *maintain*, almost none identifying parallel services and/or patient groups for de-prioritisation. The exception to this is the French plan which contains a commitment to maintain provision to 'fragile' patients such as oncology, haematology, geriatrics, cardiology, and acknowledges the need to 'de-programme' non-urgent surgical or medical activity, in order to 'prioritize' the management of COVID-19 patients.

Stakeholder involvement: Eleven of 24 plans include a list of stakeholders involved in their development (France, Georgia, Ireland, Italy, North Macedonia, Portugal, Slovenia, Spain, Sweden, Tajikistan, Ukraine). However, in all cases these stakeholders are dominated by government and expert bodies/learned societies at regional, national and international levels. As noted earlier, no direct involvement of citizen, community or patient groups is recorded in any of the plans.

Use of priority setting tools and criteria: Only two of the 24 included plans - Sweden and Tajikistan - make explicit reference to priority setting processes and/or methodologies. The Swedish plan presents a 'model' for prioritisation of areas of care, acknowledging the opportunity cost of prioritising COVID-19 vis a vis 'healthcare outside of intensive care, which may need to be postponed or not performed at all.' The Tajikistan plan provides a detailed description of a three-day simulation and prioritisation exercise, resulting in 10 key areas ('pillars') and associated resource needs. The Ireland plan refers to the use of mathematical modelling, but does not connect this specifically to resource allocation.

Half of the plans (France, Denmark, Germany, Ireland, North Macedonia, Norway, Portugal, Slovenia, Sweden, Switzerland, Tajikistan, United Kingdom) refer to priority setting criteria, albeit these descriptions vary in terms of comprehensiveness (i.e. the range of decision points they cover) and the extent to which they are conceptualised as decision criteria. Some plans, such as those of Norway, Sweden and Switzerland, cite well-established ethical concepts such as dignity, fairness, and solidarity, alongside cost-effectiveness and severity. In other plans, underlying principles can be inferred from the identification of priority population groups, such as older and clinically vulnerable groups (France, Denmark), and health care professionals (Denmark, Switzerland) (see Table 4). That said, none of the plans note an intention to promote equity among marginalised and/or disadvantaged groups on grounds of, for example, sex, ethnicity, socio-economic status or immigration status.

Two plans (North Macedonia and Portugal) make explicit reference to social and economic factors as being relevant to decision making, and the Tajikistan plan makes reference to 'trust and confidence of response organizations and people/society at large'. The Swiss plan is unique in listing the criteria *excluded* from the prioritisation process. These latter include: age; chance (i.e. via lotteries); 'first come, first served' and 'social usefulness.'

Use of evidence: The use of evidence – broadly defined - in the development of the plans is cited in 16 of 24 documents, and in almost all cases, this includes guidelines/guidance from national and/or international bodies such as the WHO and the European Centre for Disease Prevention and Control. These citations vary from cursory references to a pre-existing document (France, Luxembourg, Moldova, North Macedonia, Russia, Ukraine) to more in-depth descriptions of, for example, previous pandemic plans, published studies and ongoing data collection (Denmark, Germany, Ireland, Italy, Portugal, Slovenia, Spain, Sweden, Tajikistan, UK).

Reflecting public values: The role of, and extent of compatibility with, wider public values is not directly covered in any of the plans, with the partial exception of Sweden which asserts its adherence to principles legally established in the Swedish parliament. Whilst the Ireland, Slovenia, Tajikistan, United Kingdom and Ukraine plans devote some space to discussing public communication strategies, this is generally unidirectional and primarily concerned with minimising the risk of 'misinformation'.

Publicity of priorities and criteria: Four plans include brief statements of how they are intended to be disseminated and accessed, including via government websites (France, Slovakia, Spain, Switzerland). Eight plans contain more active strategies for dissemination and revision, including, for example, via social media (Germany, Ireland, Moldova, North Macedonia, Portugal, Slovenia, Tajikistan, United Kingdom). The remaining 12 plans do not directly address this parameter.

Mechanisms for appeal and enforcement: These are largely absent from the plans, with only Kazakhstan, Slovenia and Spain discussing either mechanisms of appeal, or enforcement.

Table 2
Priority setting parameters included in the plans.

	Regions	Central Asia			Eastern Europe				Northern Europe					Southern Europe						Western Asia		Western Europe				All (%)
	Country	Kazakhstan	Tajikistan	Uzbekistan	Moldova	Russia	Slovak	Ukraine	Denmark	Ireland	Norway	Sweden	UK	Italy	North Mac'ia	Portugal	Serbian	Slovenia	Spain	Georgia	Turkey	France	Germany	Luxembourg	Switzerland	
Aspects of priority setting	Resources	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	21 (88)
	Degree of scarcity	N	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	Y	N	N	N	N	N	N	Y	5 (21)
	Populations	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	Y	N	Y	N	16 (67)
	Geographic regions	Y	N	N	Y	N	N	Y	N	Y		N	N	N	N	N	N	N	Y	N	N	N	N	N	N	5 (21)
	Healthcare settings	Y	Y	Y	Y		Y	N	N	Y	Y	N	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	N	14 (58)
	Interventions	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	17 (70)
	Research	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	N	N	N	Y	N	N	N	N	N	N	3 (13)
	Priority areas	N	Y	N	Y	N	N	N	N	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	N	Y	Y	N	N	11 (46)
Pre-requisites	Political will	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	24 (100)
	Resources	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	22 (92)
	Legitimate institutions	N	N	N	N	N	N	Y	Y	Y	N	Y	Y	N	N	N	N	N	Y	N	N	Y	N	N	N	7 (29)
	Incentives for compliance	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1 (4)
The priority setting process	Plan for continuity	Y	N	N	N	N	N	N	N	Y	Y	N	N	Y	N	Y	N	Y	Y	N	N	Y	N	N	N	8 (33)
	Stakeholder participation	N	Y	N	N	N	N	Y	N	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	N	N	N	11 (46)
	Priority setting process/tools	N	Y	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	3 (13)
	Priority setting criteria	N	Y	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	N	Y	Y	N	Y	12 (50)
	Use of evidence	N	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	N	16 (67)

(*continued on next page*)

Table 2 (*continued*)

	Reflection of public values	N	Y	N	N	N	N	Y	Y	Y	N	N	Y	N	N	N	N	Y	N	N	N	N	N	N	6 (25)
	Publicity of priorities	N	Y	N	Y	N	Y	N	N	Y	N	N	Y	N	Y	Y	N	Y	Y	N	N	Y	Y	N	Y	12 (50)
	Mechanisms for appealing the decision	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	2 (8)
	Mechanisms for enforcement decisions	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	2 (8)
Implementation of the set priorities	**Allocation of resources**	N	Y	N	N	N	N	Y	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	N	N	N	4 (17)
	Improved accountability	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	Y	Y	N	N	4 (17)
Priority Setting Impact	**Impact on swiftness**	N	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	N	Y	Y	N	N	Y	Y	N	N	6 (25)
	Impact on population health	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0
	Impact on reducing inequalities	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0
	Fair financial contribution	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0
	Increased public confidence in the health sector	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	1 (4)
	Total (out of 28)	9	14	4	13	5	7	10	9	16	9	9	12	11	11	11	3	16	19	6	1	15	11	5	6	
	%	32	50	14	46	18	25	36	32	57	32	32	43	39	39	39	11	57	68	21	4	54	39	18	21	

4.4. Implementation and impact

These two domains were largely lacking from the plans, with little by way of formal mechanisms for ensuring decisions are put into practice to ensure the implementation of priorities. The plans also did not describe the expected outcomes and impact of the proposed priority setting plans.

5. Discussion

The existence of these pandemic preparedness plans presents an opportunity to compare the initial responses of governments in the EURO region as the enormity of the COVID-19 pandemic became clear, and in particular to assess the extent to which they reflect good practice in the application of priority setting and resource allocation. Although the included plans vary both in content and in the timing of their introduction, they nevertheless provide a rich source of information on how the challenges posed by COVID-19 were understood, and how the plans for decision making concerning the allocation of limited resources were developed. Despite some commonalities across these plans, each one reflects the unique context in which it was developed, for example with respect to available resources, systems and structures of government, and wider political and civic cultures and values.

Our study suggests, perhaps unsurprisingly, that there was a clear political commitment evident in the plans, to an extent that often isn't observed in 'normal' times [8]. Many governments were also willing to explicitly acknowledge resource scarcity and the implications of this for meeting health needs. In a small number of cases, they went further to itemise the 'pinch-points' and deprioritised services and groups. This level of explicit rationing can be problematic - a social media study of the Swedish priority guidelines for intensive care documented both understanding and distrust among the public, suggesting that such transparency may be both welcomed by some and rejected as unnecessarily distressing by others [3].

Given the fundamental, and largely anticipated, problem of resource shortages to meet the challenges presented by COVID-19, it is telling that so few plans refer to formal priority setting tools and frameworks. This would appear to underline the relative failure of priority setting as a normative discipline to become embedded in governmental decision making processes. This echoes previous literature suggesting that formal priority setting is often a marginal activity in the context of policy decision making [17]. It is therefore not entirely clear how well aligned pre-existing tools (such as economic evaluation; programme budgeting and marginal analysis, and multi-criteria decision analysis) are for priority setting under these conditions, and therefore what the reasons might be for their relative absence from the PPPs. This chimes with criticisms of other disciplines, such as health economics, for being largely absent from the initial planning for the pandemic response [29].

While efforts at formal priority setting do occur to a variable degree across countries in Europe under normal circumstances [5], perhaps pre-existing tools, developed for normal conditions, require adaptation to the turbulence resulting from emergencies such as the COVID-19 pandemic. A key difference is the intensified requirement for *de-prioritisation* of current services (albeit temporarily), in order to accommodate the extraordinary demands posed by the pandemic. Few if any established priority setting methodologies are designed with this scenario in mind, and de-prioritisation in general has proven to be something of a weak link in resource allocation [39]. As well as this, the literature suggests that priority setting itself can be resource intensive as it requires evidence, deliberation, analysis and so on, all of which can be in short supply in times of emergency.

Despite the absence of formal priority setting tools and frameworks, many of the plans cite explicit criteria intended to inform resource allocation. This would appear to represent progress when compared to results from a similar study published in 2006 which concluded that 'plans seldom mentioned ethics in the context of resource allocation' ([35]; 1725). However, ethical criteria can often be viewed as abstract and ambiguous, and many plans express these values in concrete decision making criteria. That countries like Norway and Sweden make explicit references to ethical criteria is likely due to the fact that in these countries, healthcare legislation requires priority setting to follow such criteria [10]. In general, the presence of value-laden or ethical criteria in plans might reflect the extent to which such values are part of the public discourse on healthcare priority setting also under normal conditions in the chosen countries. To adopt such criteria as explicit decision guides

Table 3
Resources identified for prioritisation in the plans.

Country	Human resources and training	PPE and other IPC materials	Lab equipment	Testing kits	Healthcare facilities	Medical equipment/ supplies	Essential medicines	Vaccines	Ambulances	ICU beds	Life support equipment	Financial resources	Blood services	Telehealth
France	x	x		x	x	x	x			x	x		x	x
Denmark		x		x	x		x			x				
Georgia	x			x										
Germany	x	x	X	x	x			x						
Ireland														
Italy	x				x					x				
Kazakhstan		x	X	x	x				x					
Luxembourg	x	x	X	x	x									
Moldova	x	x		x	x	x	x			x	x			
North Macedonia	x	x	X	x	x					x				
Norway	x		X							x	x			
Portugal	x	x		x	x	x	x		x					
Russia	x	x	X	x	x	x	x		x					
Serbian	x		X	x										
Slovak	x	x	X	x	x	x	x	x	x					
Slovenia	x	x	X	x	x	x	x	x	x					
Spain	x	x	X	x	x	x	x	x	x	x	x		x	
Sweden	x					x								
Switzerland							x			x	x			
Tajikistan	x	x	X	x	x	x	x		x	x	x			
Turkey														
United Kingdom								x						
Ukraine	x	x	X	x				x						
Uzbekistan	x	x	X	x	x		x		x	x				
Total	**17**	**15**	**13**	**17**	**15**	**9**	**11**	**6**	**8**	**10**	**6**	**0**	**2**	**1**

Table 4
Patient populations prioritised in the plans.

		France	Denmark	Georgia	Germany	Ireland	Italy	Kazakhstan	Luxembourg	Moldova	North Mac'nia	Norway	Portugal	Russia	Serbian	Slovak	Slovenia	Spain	Sweden	Switzerland	Tajikistan	Turkey	United Kingdom	Ukraine	Uzbekistan	Total
Prioritized in WHO documents	Elderly	x	x			x				x	x	x				x					x					**8**
	Immune-compromised											x				x										**2**
	With comorbidities or predisposing conditions	x					x			x	x	x				x					x					**7**
	Healthcare workers		x			x										x										**3**
	Travellers																									**0**
	Living in institutions	x																								**1**
Prioritized for continuity of services	Pregnant women									x	x	x				x		x								**5**
	Young infants							x				x				x		x								**4**
	In need of sexual and reproductive services																									**0**
	With pre-existing illnesses	x				x																				**2**
	People living with HIV																									**0**
	'Fragile' patients (oncology, hematology, geriatrics, cardiology)	x										x														**2**

(*continued on next page*)

Table 4 (*continued*)

Others	With mental health conditions						x					x													**2**
	Children	x							x	x		x	x			x								x		**7**
Prioritized as vulnerable	Racial/ethnic minorities																								**0**
	Religious minorities																								**0**
	Migrants	x																							**1**
	Refugees/ Internal displaced persons	x																							**1**
	Indigenous peoples																								**0**
	Persons with disabilities	x				x	x																		**3**
	Prisoners& detainees																								**0**
	LGBTI																								**0**
	People living with HIV																								**0**
	People who use drugs						x					x													**2**
	With lower socio-economic status																								**0**
	Population in rural areas																								**0**
	Homeless	x																							**1**

during the pandemic might be viewed as more confusing than enlightening if not previously established in the context.

Despite some references to ethical criteria, there is a marked absence in the plans of prior consideration of equity among marginalized and disadvantaged groups, especially since ethnic, racial, and socio-economic inequities in COVID-19 outcomes have subsequently emerged. This may be due in part to timing: seventeen of the plans were published between March and May 2020, when the extent of disparities was not known, although the prior existence of health inequities might have prompted some consideration. Many European countries avoid breaking down data along racial or ethnic lines, but COVID-19's disproportionate impact on marginalized groups has exposed flaws in this practice. This suggests that any future PPPs in the EURO region should include efforts to increase the availability of data by race, ethnicity, and other demographic variables to identify high-risk communities and distribute resources accordingly.

In the balance between 'technocratic' elements of priority setting (evidence, criteria, expert input) and 'procedural' dimensions (deliberation, participation, appeals), there was a clear emphasis on the former. This reflects in part the enforced speed with which plans were required to be drawn up, the emergency footing adopted by governments and other leaders, and the nature of the pandemic which necessitated limiting in-person interactions (which are necessary for the procedural dimension). During the COVID-19 response, national governments have been ceded high levels of decision making power, even in traditionally pluralistic and/or decentralised systems [28]. However, uncertainty and unpredictability over the impacts on health systems – and resulting strategies to mitigate these – has been a hallmark of the COVID-19 pandemic and reliable evidence has therefore been in short supply. Furthermore, public disquiet and distrust in government has notably increased during the period following the initial phase of the pandemic. This is significant as rates of trust in government and associated public health guidance have been found to be linked to rates of COVID-19 infection [2]. Given that difficult priority setting decisions will be required in the post-crisis phase, as care backlogs and unmet need are addressed, it is likely that a rebalancing towards the procedural/participatory aspects of decision making processes will be essential [13]. This will be challenging as, even prior to COVID, processes for involving wider stakeholders in priority setting can be highly limited, especially in relation to vulnerable populations [16,20,27,30].

5.1. Limitations

First, we reviewed initial PPPs that were publicly available and it is possible that some documents that were not publicly available or were developed later included priority setting. *Second*, the absence of priority setting from the plans does not equate to its absence from decision making processes, as some aspects of resource allocation decision making may simply not have been recorded. We are also aware that the plans were written with subtly different audiences in mind and at slightly varying stages of the pandemic in their respective countries. Furthermore, it is not possible to establish causal pathways from the plans' approach to prioritisation and the effects on population health, as these latter are likely to have been primarily driven by the timing and comprehensiveness of restrictive policies introduced, and the implementers' interpretation and operationalization of the plans [18,38]. Overall, the plans included only cursory reference to vaccines which were not an available resource at the time, and these themes are explored elsewhere (e.g. [31,39]). Finally, we believe that a comparison between the initial period covered in this study, and the more recent period would help to identify ongoing effects and trends and the role of prioritisation in responses to these.

6. Conclusions

Compared to most other WHO regions, the EURO region has a concentration of high income countries, many of which - such as those of Norway, Sweden, the UK and Spain – have national institutions with an established history of formal priority setting. This was partly reflected in our results which indicate that more of the quality parameters laid out by Kapriri and Martin (2010) were addressed than was the case either previously [35] or in other parts of the world [12]. However, many parameters were not covered and whilst some of these – for example relating to implementation and impact – are unsurprising given the

context, others suggest significant areas for potential improvement in future pandemic preparedness planning and in the integration of priority setting into these processes.

Funding

This study was funded by McMaster University COVID-19 research fund.

CRediT authorship contribution statement

Iestyn Williams: Conceptualization, Formal analysis, Methodology, Writing – original draft. **Lydia Kapiriri:** Conceptualization, Funding acquisition, Investigation, Methodology, Writing – review & editing. **Claudia-Marcela Vélez:** Data curation, Formal analysis, Project administration, Writing – review & editing. **Bernardo Aguilera:** Investigation, Writing – review & editing. **Marion Danis:** Conceptualization, Investigation, Methodology, Writing – review & editing. **Beverley Essue:** Conceptualization, Investigation, Methodology, Writing – review & editing. **Susan Goold:** Conceptualization, Investigation, Methodology, Writing – review & editing. **Mariam Noorulhuda:** Data curation, Investigation, Writing – review & editing. **Elysee Nouvet:** Investigation, Writing – review & editing. **Donya Razavi:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – review & editing. **Lars Sandman:** Investigation, Methodology, Writing – review & editing.

Declaration of competing interest

We have no conflicts of interest to report.

Acknowledgements

We are grateful to the GPSet collaboration who have been involved in the wider project that this paper stems from.

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