Priority setting for pandemic preparedness and response: A comparative analysis of COVID-19 pandemic plans in 12 countries in the Eastern Mediterranean Region

S. Donya Razavi [a],*, Mariam Noorulhuda [b], C. Marcela Velez [a], Lydia Kapiriri [a], Bernardo Aguilera Dreyse [c], Marion Danis [b], Beverly Essue [d], Susan D. Goold [e], Elysée Nouvet [f], Iestyn Williams [g]

[a] *Department of Health, Aging & Society, McMaster University, 1280 Main Street West, Kenneth Taylor Hall Room 226, Hamilton, Ontario L8S 4M4, Canada*
[b] *Department of Bioethics, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20812, USA*
[c] *Universidad San Sebastian, Santiago, Chile*
[d] *Institute of Health Policy, Management and Evaluation, Dalla Lana School of Public Health, The University of Toronto, Toronto, ON, Canada*
[e] *Center for Bioethics and Social Sciences in Medicine, University of Michigan Medical School, 2800 Plymouth Road Building 14, G016, Ann Arbor, MI 48109, USA*
[f] *School of Health Studies, Western University, 1151 Richmond Street, London, Ontario N6A 3K7, Canada*
[g] *Health Services Management Centre, University of Birmingham, 40 Edgbaston Park Road, Birmingham B15 2RT, UK*

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ABSTRACT

Background: The COVID-19 pandemic has significantly disrupted health systems and exacerbated pre-existing resource gaps in the Eastern Mediterranean Region (WHO-EMRO). Active humanitarian and refugee crises have led to mass population displacement and increased health system fragility, which has implication for equitable priority setting (PS). We examine whether and how PS was included in national COVID-19 pandemic plans within EMRO.

Methods: An analysis of COVID-19 pandemic response and preparedness planning documents from a sample of 12/22 countries in WHO-EMRO. We assessed the degree to which documented PS processes adhere to twenty established quality parameters of effective PS.

Results: While all reviewed plans addressed some aspect of PS, none included all quality parameters. Yemen's plan included the highest number (9) of quality parameters, while Egypt's addressed the lowest (3). Most plans used evidence in their planning processes. While no plans explicitly identify equity as a criterion to guide PS; many identified vulnerable populations - a key component of equitable PS. Despite high concentrations of refugees, migrants, and IDPs in EMRO, only a quarter of the plans identified them as vulnerable.

Conclusion: PS setting challenges are exacerbated by conflict and the resulting health system fragmentation. Systematic and quality PS is essential to tackle long-term health implications of COVID-19 for vulnerable populations in this region, and to support effective PS and equitable resource allocation.

Contents

* Corresponding author.
  E-mail address: razavisd@mcmaster.ca (S.D. Razavi).

1. Introduction

In the context of global public health emergencies, health needs increase drastically and outpace available resources. This poses critical challenges for policymakers who are under immense pressure to set priorities and allocate resources rapidly [1]. The COVID-19 pandemic presents particularly acute challenges for countries with fragile health systems, and those experiencing active conflict [2–4]. This is the situation for many countries in the Eastern Mediterranean Region (WHO-EMRO), which includes the Middle East, North Africa, the Horn of Africa, and Central Asia [5,6].

Over half of the countries (12 of the 22) in the Eastern Mediterranean region are actively affected by armed conflict [6]. Whether protracted or acute, conflict significantly damages health infrastructure and facilities, contributes to health and human resource shortages, causes mass population displacement, and limits population access to basic health care services [4,5]. The pandemic, layering onto already fragile health systems, conflict, and political instability in this region, has exacerbated pre-existing resource gaps and increased competition for meager resources. Political instability and health systems fragility make priority setting even more relevant for effective allocation of scarce resources [7–9]. However, little is known about how countries integrated priority setting into their decision-making for the limited resources available to deal with COVID-19.

Focusing on the EMRO region provides a unique opportunity to examine priority setting within the contextual challenges of conflict and displacement [10]. Nearly 40 % of countries in the EMRO region are affected by active humanitarian crises [11]. The EMRO region is home to 43 % of those in need of humanitarian assistance globally; it is the source of 64 % of the world's refugees, and home to about one third of the world's internally displaced populations (IDPs) [6,11]. With such a large proportion of vulnerable populations, their explicit consideration of priority setting in the planning documents is critical if equitable priority setting is to be realized during and after the COVID-19 pandemic. Furthermore, the EMRO region is second only to the AFRO region with respect to a crippling lack of COVID-19 related resources, including human resources for health and essential supplies such as personal protective equipment (PPE), diagnostics, medical equipment, and vaccinations [11–13].

This paper, part of a global study [14], explores whether and how priority setting was included in national COVID-19 pandemic preparedness plans within the EMRO region. Specifically, the paper assesses the degree to which the documented priority setting processes adhered to established quality indicators of effective priority setting.

There has been limited investigation of priority setting during the COVID-19 pandemic. Some of the available literature is theoretical [15–18], or has focused on other regions that are contextually very different from WHO-EMRO [19–21]. Hence, examining priority setting within a region that has the highest number of displaced populations, extreme health system fragility, and limited capacity for COVID-19 disease surveillance and management fills a gap in the literature.

Findings from this study will provide insight into priority setting and planning during COVID-19 in the EMRO region, while also serving to clarify and support the strengthening of the role of priority setting and equity considerations during health emergencies. Additionally, lessons learned may be relevant other regions with similar fragile health system, populations profiles, and that experience active and/or protracted conflict.

2. Methods

This paper is part of a larger global study aimed at examining the ways and the extent that parameters of effective priority setting have been incorporated into national COVID-19 preparedness and response plans [14]. We conducted a review of COVID-19 planning documents [22]. The global study included a sample of over 80 countries from all six WHO regions - including WHO-EMRO. This paper focuses on the subset of countries from the WHO-EMRO region and synthesizes how parameters of priority setting were incorporated in COVID-19 preparedness plans to support pandemic preparedness and response in the region.

2.1. Sampling of countries

Eighteen of the 22 countries (82 %) from the WHO-EMRO region were sampled for maximum variation with respect to: regional representation (North Africa and Middle-East regions), economic status (World Bank 2020–2021 country classification) [23,24], type of political system (presidential republic, parliamentary republic, or monarchy), type of health system (public/private, universal/blended), prior experiences with disease outbreaks, and whether the countries were in a state of active and/or protracted humanitarian crisis.

2.2. Document retrieval and review

Search strategy: Two members of the study team searched for national COVID-19 pandemic preparedness and response plans from the sampled countries between August and December 2020. Searches began with official government and health ministries' websites. Focused searches on Google and Google Scholar were used to identify additional plans. In cases where national pandemic plans were referenced but could not be found online, the PI contacted the appropriate health ministries and/or used the research team's contacts in the region, who either shared the plans with us, or referred us to where we could access them. We adhered to these steps until all leads had been exhausted and ended in December 2020. Subsequently, follow-up searches were conducted in September 2022 to see whether new or updated plans were developed. Native language speakers were trained and employed to identify, screen, and review the plans. The

Table 1
Framework for effective priority setting (adapted for the review of the pandemic plans).

Domain	Parameters	Short definition
Contextual Factors	[1]Conducive Political, Economic, Social, cultural and health system context	Relevant contextual factors that may impact COVID-19 priority setting
Pre-requisites	Political will	Documented or implied politicians' support for PS within the COVID-19 plans
	Resources	Availability of a budget in the COVID plan, and clear description of resources available or required (including human resources, ICU beds and equipment, PPE, and other resources)
	Legitimate and credible institutions	Documented priority setting institutions, the degree to which they can set priorities, public confidence in the institution
	Incentives for compliance	Explicit description of material and financial incentives to comply with the PS mechanisms in the pandemic plan
The Priority setting process	[2]Planning for continuity of care across the health systems	Explicit identification of strategies for the continuity of healthcare services during the pandemic
	Stakeholder participation	Description of stakeholders participating in the development and implementation of the COVID plan (and PS activities within the plans)
	Use of clear priority setting process/tool/methods	Documented explicit priority setting process and/or use of priority setting framework
	Use of explicit relevant priority setting criteria	Documented explicit criteria for the priority setting in the COVID plan
	Use of evidence	Explicit mention of the use of evidence to understand the context, the epidemiological situation, or to identify and assess possible interventions to be implemented
	Reflection of public values	Explicit mention that the public is represented, or that public values have been considered for the development or implementation of the plan
	Publicity of priorities and criteria	Documented strategies for communicating PS criteria and decisions, evidence that the plan and criteria for priority-setting have been publicized and documents are openly accessible
	Functional mechanisms for appealing the decision	Description of mechanisms for appealing decisions related to PS within the COVID plan, or evidence that the PS plans has been revised
	Functional mechanisms for enforcement the decision	Description of mechanisms for enforcing decisions related to PS within the COVID plan
	[3]Efficiency of the priority-setting process	Documented proportion of meeting time spent on priority setting; number of decisions made on time
	[3]Decreased dissentions	Documented number of complaints from Stakeholder
Implementation	[3]Allocation of resources according to priorities	Documented degree of alignment of resource allocation and agreed upon priorities
	[3]Decreased resource wastage / misallocation	[3] Reported proportion of budget unused, drug stock-outs
	[3]Improved internal accountability/reduced corruption	Description of mechanisms for improving the internal accountability or reduce corruption
	[3]Increased stakeholder understanding, satisfaction and compliance with the Priority setting process	Reported number of SH attending meetings, number of complaints from stakeholder, % stakeholder that can articulate the concepts used in priority setting and appreciate the need for priority setting
	[3]Strengthening of the PS institution	Documented indicators relating to increased efficiency, use of data, quality of decisions and appropriate resource allocation, % stakeholders with the capacity to set priorities
	[3]Impact on institutional goals and objectives	% of institutional objectives met that are attributed to the priority setting process
	[3]Impact on health policy and practice	Changes in health policy to reflect identified priorities, and swiftness of the pandemic response
	[3]Fair financial contribution	Description of the expected impact of the COVID plan on fair financial contributions
	[3]Increased public confidence in the health sector	Description of the expected impact of the COVID plan for increasing public confidence in the response to the COVID-19 pandemic
	[3]Impact on population health	Description of the expected impact of the COVID plan on the population health
	[3]Impact on reducing inequalities	Description of the expected impact of the COVID plan on reducing inequalities

[1] This parameter was not assessed in the national COVID plans, but the information about the political, economic, social, and cultural context was obtained from different sources and provided in this study to identify similarities and differences among countries in the same region.

[2] This parameter was added to the framework for the specific context of the COVID-19 pandemic.

[3] These parameters could not be assessed based on the review of COVID-19 plans.

same researchers that conducted the searches performed a preliminary scan of the documents to determine their relevance.

Retrieved documents were either a single, national COVID-19 government response plan with information on the health system's planned response, or a health sector COVID-19 response plan.

Inclusion and exclusion criteria: We included documents that contained information on priority setting, and the mobilization and allocation of health resources. Documents that focused on broad government response (e.g., maintaining the economy), non-health interventions (e.g., school closures), and treatment guidelines were excluded. Only documents published before August 2020 were included.

2.3. Data extraction

Data extraction was guided by Kapiriri and Martin's framework for assessing the quality of healthcare priority setting in low- and middle-income countries [25], which was based on a review of the literature on best practices in priority setting and expert interviews. Kapiriri and Martin's framework has been validated globally and utilized to evaluate priority setting in different health programs, including disease outbreaks in Uganda [26].

The Kapiriri and Martin framework identifies five domains for assessing the quality of healthcare priority setting in low-income countries: the priority setting context; pre-requisites; the priority setting process; implementation; and impact. Each of the five domains includes a varying number of quality parameters, for a total of 26 across all domains. This framework established a consistent standard for assessing the quality of the aspects of priority setting included in the national pandemic plans in our study. In a previous study, a data extraction tool based on 20 quality indicators of effective priority setting was developed to assess priority setting during disease outbreaks in Uganda [1]. This tool formed the basis for the research team's initial discussion on the data extraction tool. See Table 1 for short definitions of each parameter. The research team kept those indicators, removed the process indicator 'efficiency of the priority-setting process', which was not able to be tangible discerned from the national pandemic plans, and added 'planning for continuity of care across the health systems', which is an important parameter when considering priority setting during disease outbreaks such as the COVID-19 pandemic. See Table 1 for short definitions of each parameter.

Since implementation and impact of set priorities are difficult to discern from the planning documents, their examination was beyond the scope of our study objectives. However, when they are outlined

in the documents, they are included in the reporting for completeness. See Table 1 for short definitions of each parameter.

2.4. Data analysis

Data analysis was carried out in three steps. First, we described whether and to what extent the plans addressed each of the quality parameters, set out by the Kapiriri & Martin framework described above, for each country in the region. Next, we analyzed the content of the plans and described, in detail, how each of the parameters was addressed in each plan. Then we identified which parameters were and were not included in the analyzed documents. Lastly, we conducted a cross country comparison of the findings based on the parameters of effective priority setting.

3. Results

Of the 22 countries in the EMRO region, 18 were sampled. A total of 12 national COVID-19 plans were retrieved (about 55 %) from the 18 WHO-EMRO sampled countries. We were unable to retrieve publicly available, national plans from 6 countries: Bahrain, Iran, Iraq, Kuwait, Sudan, and Syria. Four countries - Djibouti, Libya, Oman, and Tunisia - were not sampled because maximum variation based on the identified sampling criteria (contextual factors) was achieved. The retrieved plans included three low-income countries (i.e., Afghanistan, Somalia, Yemen), four low-middle-income countries (i.e., Egypt, Morocco, Palestine, Pakistan), two upper-middle-income countries (i.e., Jordan, Lebanon), and three high income countries (i.e., Qatar, Saudi Arabia, United Arab Emirates). The countries were at different stages of the COVID-19 pandemic at the time of publication of the plans.

Six of the 12 plans were found online through simple google searches or through governmental webpages. The other 6 were found through the research team's contacts who either a) searched for the documents in the local languages (Arabic and French) (Egypt, Morocco, Jordan, UAE), or b) knew how to navigate government webpages to access reports (Afghanistan, Saudi Arabia). All documents were published between January 2020 and August 2020.

The follow up search revealed that only one of the twelve countries, Morocco, has publicly accessible, updated national COVID-19 pandemic plans (November 2020 and January 2021). However, the updates included in the more recent version of plans were not related to planning and priority setting, but rather monitoring and managing COVID-19 as new evidence emerged and the national epidemiological situation evolved in Morocco. While more recent documents were found for four of the other countries, these were not national planning documents but rather targeted protocols and guidelines (Qatar and Pakistan), national vaccination plan (Afghanistan), and stakeholder engagement plan (Jordan). Review of these documents was outside of the scope of the study.

The following results section is accordingly organized by Kapiriri & Martin's five domains of priority setting: priority setting context, pre-requisites, priority setting process, implementation, and outcomes/impact. For each domain and related parameters, we describe how each country addressed the parameters in their plans and then describe the results of the cross-country comparison of the relationship between priority setting and the country contexts (including economic, political, and health systems).

3.1. Priority setting contexts

The first domain for effective priority setting, according to the framework, involves attending to context, including political, economic, social, and cultural factors that may impact priority setting. While all the reviewed plans were developed in unique contexts that could potentially impact the evolution of the pandemic in each respective country, none of the reviewed documents included specific information on the countries' political, health system or economic structure. However, according to the literature, five countries were in a state of active and/or protracted crisis (Afghanistan, Palestine, Pakistan, Somalia, Yemen) and had among the highest Fragile States Index[1] [27] worldwide, leading to severe socio-political instability, mass casualties, population displacement, migration, refugee crises across the region [28], and significant disruption of health systems and services [29]. Table 2 includes information on each sampled country's economic, political, and health system; UHC Service Coverage index; prior experience with disease outbreak, and fragility index score – where available. Table 3 identifies the parameters of effective priority setting found in each of the country national plans.

3.2. Pre-requisites

The framework holds that pre-requisites namely, a) political will to support priority setting; b) legitimate institutions with the capacity to support priority setting; and c) human and financial resources to both carry out the priority setting process and implement the set priorities, are necessary for priority setting to be successful.

Political will: Since all the 12 national pandemic plans were either commissioned and/or developed by some type of governmental actor, for example Ministries of Health, we concluded that there was political commitment to and support for the plans.

Legitimate institutions: Only five of the 12 national pandemic plans reviewed identified and discussed the role of any type of institution to support development and/or implementation of the plan and the COVID-19 response processes. Those that did (Yemen, Morocco, Jordan, Lebanon, UAE) explained that different governmental ministries would work together in coordination on the national COVID-19 response without further detail. Morocco and Lebanon's plans referred to international donor and aid institutions that would or could be called upon to support the domestic response as partners to the national Ministries of Public Health, namely the WHO, the UN Country Teams, United Nations Office for the Coordination of Humanitarian Affairs (OCHA), and UNICEF. We can infer that the identified institutions were legitimate by virtue of their roles as a part of elected government (Ministries) or a globally recognized aid organization with a historical legacy of supporting humanitarian relief efforts and the fact that support from these international organizations is often requested by countries that do not have the capability to mount an independent national response. However, their capacity to set priorities could not be assessed based on the pandemic plans.

Resources: Twelve countries' plans identified and/or provided a detailed description of the current and/or anticipated resource requirements for pandemic response, and their availability and/or scarcity Table 4. Seven of the 12 plans referred to the available resources to support implementation of the pandemic plan. These plans either included explicit budgets with line-by-line allocation (Qatar, Saudi Arabia, UAE) or they included budget projections for the resources that would be required to implement the plan (Yemen, Palestine, Pakistan, Lebanon). The plans that had budget projections often included the role that development assistance partners (DAPs), such as WHO and UNICEF, would play in either partially or entirely funding the country's pandemic response.

All but one plan (Jordan) identified the need for personal protective equipment (PPE) and other infection prevention and control (IPC) materials and human resources and/or training as necessary

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[1] The Fragile States Index is based on a conflict assessment framework – known as "CAST" – which examined the vulnerability of states to collapse. The methodology uses both qualitative and quantitative indicators, relies on public source data, and produces quantifiable results. Twelve conflict risk indicators are used to measure the condition of a state at any given moment. (https://fragilestatesindex.org/indicators/).

Table 2
Priority Setting Context.

Economic level (in 2020)	Country	Geographical Region	Political System	Health system Financing (Public, private, mixed)	UHC Service Coverage Index[1]	Pre-COVID Plan	Experience with disease outbreaks	Fragility Index Score (FSI)
Low (n = 3)	Afghanistan	South Asia	Presidential Islamic republic	Blended (out-of-pocket, government/public, donors)	37	Avian & Human Influenza	Yes	102.1
	Somalia	East Africa	Federal parliamentary republic	Private with minimal progress toward national health insurance	25	no	Yes	110.9
	Yemen	Middle East	in transition	Blended (out-of-pocket, government/public, donors)	42	Avian flu	Yes	111.7
Lower-Middle (n = 4)	Egypt	North Africa	Presidential republic	Blended public–private	68	Influenza	Yes	85
	Morocco	North Africa	Parliamentary constitutional monarchy	Blended (public health insurance, private – out-of-pocket and employer health insurance, donors)	70	Avian flu	Yes	71.5
	Palestine	Middle East	Semi-presidential republic	Blended (public-government, private- out-of-pocket, private not-for-profit- donors)	45	H1N1	Yes	86
	Pakistan	South Asia	Federal parliamentary republic	Blended (national health insurance – public, out-of-pocket, external sources)	45	National Epidemic and Pandemic plan*	Yes	90.5
Upper-Middle (n = 2)	Jordan	Middle East	Parliamentary constitutional monarchy	Blended public–private	76	Influenza	Yes	76.8
	Lebanon	Middle East	Parliamentary republic	Blended public–private (social and private insurance)	73	Emergency Health Contingency Plan**	Yes	89
High (n = 3)	Qatar	Middle East	Absolute monarchy	National health insurance	68	no	Yes	44.1
	Saudi Arabia	Middle East	Absolute monarchy	National health insurance	74	Avian and Swine Flu	Yes	69.7
	United Arab Emirates	Middle East	Federation of monarchies	National health insurance	76	no	Yes	40.4

* Covers a range of disease: Crimean Congo Haemorrhagic Fever (CCHF), Dengue, Diphtheria, Acute Gastroenteritis, Acute Viral Hepatitis, Influenza H5N1/H1N1, Leishmania, Malaria, Measles, Meningitis, Pertussis, Polio, Typhoid Fever.

** identifies the following epidemic diseases of concern: Malaria, Dengue fever, Rift valley fever, Meningitis, Cholera, Shigella, Rotavirus, Measles.

[1] The UHC service coverage index is defined as the average coverage of essential services based on tracer interventions. The indicator is an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage. (https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4834).

for their national COVID response. Other commonly identified resource needs and gaps included intensive care beds/capacity (8 plans- Afghanistan, Somalia, Yemen, Palestine, Lebanon, Qatar, Saudi Arabia, UAE), lab kits and equipment (7 plans- Afghanistan, Egypt, Morocco, Pakistan, Lebanon, Qatar, Saudi Arabia), therapeutic interventions and essential medicines (6 plans - Afghanistan, Somalia, Jordan, Lebanon, Saudi Arabia, UAE), facilities and medical equipment (6 plans- Somalia, Pakistan, Jordan, Lebanon, Qatar, Saudi Arabia), testing kits (4 plans- Yemen, Lebanon, Qatar, UAE), and financial resources (4 plans- Afghanistan, Somalia, Pakistan, UAE). Only one plan (UAE) mentioned vaccines, and even this plan did not go into any further detail about the prioritization of vaccines.

Incentives: To achieve successful implementation of the pandemic response plans, three of the plans (Yemen, Pakistan, UAE) indicated that they would provide incentives to enforce compliance with the stipulations of the plans. For example, UAE's plan explained that financial incentives would be provided to local governments that comply with the national government's directives for combatting the virus.

3.3. The priority setting process

The key parameters of an effective priority setting process include: (a) plan for continuity of health services; (b) be participatory; (b) be based on clear and explicit processes; (c) be evidence-based; (d) use explicit criteria; (e) be reflective of public values; and (f) have mecha-

nisms for: (i) publicizing the rationales for decisions, (ii) appealing and revising decisions, and (iii) enforcement of priority decisions. This section is organized according to these parameters.

Plan for continuity of health services: A critical part of pandemic planning is preparing to maintain other essential health services. We examined the national pandemic preparedness plans to understand whether they included strategies to maintain continuity of services across the health system. Of the twelve plans, four (Afghanistan, Somalia, Yemen, Saudi Arabia) identified the need for continuity of essential services, including polio surveillance (Afghanistan), testing for Middle East respiratory syndrome coronavirus (MERS-CoV) and H1N1 (Saudi Arabia), and reproductive, maternal, neonatal and child health services (Somalia). Yemen's plan provided a detailed discussion of the need to maintain continuity across a wide variety of services, which included: services targeting prevention for communicable diseases, particularly vaccination; services related to reproductive, maternal and newborn health; care of vulnerable populations, such as young infants and older adults; provision of medications and supplies for the ongoing management of chronic diseases, including mental health conditions; continuity of critical inpatient therapies; management of emergency health conditions and common acute presentations that require time-sensitive intervention; and maintenance of auxiliary services, such as basic diagnostic imaging, laboratory services, and blood bank services.

Stakeholder participation: Nine of the 12 pandemic plans referred to the involvement of specific stakeholders in the development of pan-

Table 3
Parameters found in the plans.

	Country	Afghanistan	Somalia	Yemen	Egypt	Morocco	Palestine	Pakistan	Jordan	Lebanon	Qatar	Saudi Arabia	UAE	Total
Pre-requisites	Political will	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	**12**
	Resources	N	N	Y	N	N	Y	Y	N	Y	Y	Y	Y	**7**
	Legitimate institutions	N	N	Y	N	Y	N	N	Y	Y	N	N	Y	**5**
	Incentives for compliance	N	N	Y	N	N	N	Y	N	N	N	N	Y	**3**
The priority setting process	Plan for continuity	Y	Y	Y	N	N	N	N	N	N	N	Y	N	**4**
	Stakeholder participation	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N	Y	**9**
	Clear priority setting process/tools	N	N	N	N	N	N	N	N	N	N	N	N	**0**
	Explicit priority setting criteria	Y	N	Y	N	N	Y	N	N	N	N	N	N	**3**
	Use of evidence	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	**11**
	Reflection of public values	N	N	N	N	N	N	N	N	N	N	Y	N	**1**
	Publicity of plan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	**12**
	Mechanisms for appealing priority decisions	N	N	N	N	N	N	N	N	N	N	N	N	**0**
	Mechanisms for enforcement decisions	N	N	N	N	N	N	N	N	N	N	N	N	**5**
Implementation of the set priorities	Allocation of resources according to priorities	N	N	N	N	N	N	N	N	N	N	N	N	**0**
	Improved internal accountability	N	N	N	N	N	N	N	N	N	N	N	N	**0**
Priority Setting Impact	Impact on health policy & practice	N	N	N	N	N	N	N	N	N	N	Y	N	**1**
	Impact on population health	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	**0**
	Fair financial contribution	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	N	N	**0**
	Number of included criteria (of 20)	6 (30 %)	5 (25 %)	9 (45 %)	3 (15 %)	5 (25 %)	4 (20 %)	6 (30 %)	5 (25 %)	6 (30 %)	5 (25 %)	7 (35 %)	7 (35 %)	

demic plans. Plans were largely led by Ministries of Health. Two countries (Jordan and UAE) noted that different governmental sectors, including ministries of health, economy, social development, and tourism, had started their own initiatives and suggested actions to combat the spread of COVID-19. Other countries (Somalia, Yemen, Lebanon) identified international development partners, including the WHO and United Nations Agencies, Funds and Programmes, and the private sector (Afghanistan), participated in the development of the plan. Furthermore, eleven of the 12 plans stated explicitly that they were prepared by a governmental authority, for example the Ministry of Health or Ministry of Public Health. Whereas one plan, the Yemen National COVID-19 Preparedness and Response Plan, was prepared by both governmental authorities in Sana'a and Aden, and the WHO, other United Nations Agencies, Funds and Programmes and partners working in Yemen. None of the plans explicitly mentioned public engagement in the priority setting process.

Clear and explicit priority setting processes: None of the plans used known priority setting approaches and/or frameworks to guide their pandemic preparedness and response plans.

Explicit and relevant criteria: Three of 12 pandemic plans (Afghanistan, Yemen, and Palestine) identified explicit priority setting criteria. For example, both Afghanistan and Palestine identified the epidemio-

Table 4
Resource needs identified in the plans to manage pandemic.

Income	Country	Human resources & training	PPE & other IPC materials	Lab kits & equipment	Healthcare facilities	Financial resources	Testing kits	Therapeutic interventions & essential medicines	Ambulances	Facility & medical equipment	ICU beds	Life support equipment	Vaccines
Low-income	Afghanistan	X	X	X		X		X			X		
	Somalia	X				X		X	X	X	X		
	Yemen	X	X				X				X	X	
Lower-middle	Egypt	X	X	X									
	Morocco	X	X	X									
	Palestine		X			X				X	X	X	
	Pakistan	X	X	X						X		X	
Upper-middle	Jordan						X	X		X	X		
	Lebanon	X	X	X	X		X	X		X	X		
High	Qatar	X	X	X			X			X	X		
	Saudi Arabia	X	X	X			X	X		X			
	UAE	X	X			X	X	X			X		X

logical situation, burden of disease, the capacity of the health sector, and resource scarcity to determine pandemic priorities. Yemen's plan explicitly identified respect for humanitarian principles and ethical principles. These ethical principles included provision of dignified medical assistance and protection from stigmatization, as criteria to be considered when setting COVID-19 priorities.

None of the plans explicitly identified equity as a criterion used to set priorities in their COVID-19 pandemic plans. However, eight of the 12 plans identified and/or prioritized specific vulnerable populations - a key component of equitable priority setting. For the purposes of this analysis, we center our discussion of equity on the vulnerable populations that the plans identify and/or prioritize, and the rationale for doing so. We found that priority populations were identified based on four key justifications: the need to maintain continuity of services for these populations, their state of perceived vulnerability, their risk of transmission, and their risk of serious illness Table 5.

Eight plans (Afghanistan, Somalia, Yemen, Egypt, Palestine, Jordan, Qatar, UAE) explicitly identified populations that should be prioritised during the COVID-19 pandemic. All of the eight plans identified at least one of the following priority populations: the elderly, immune-compromised, patients with chronic health conditions and co-morbidities, and people suffering from malnutrition that were identified as priority populations for COVID-19 interventions due to their high risk of severe disease. People living in border regions and ports, cross-border travellers, and people working in public service were prioritised given their increased risk of contracting and spreading COVID-19.

Only five plans (Afghanistan, Somalia, Yemen, Palestine, Qatar) identified additional populations recognized as vulnerable in the context of COVID-19 by the EMRO Regional Risk Communication and Community Engagement Working Group[2] [30]. Vulnerable populations identified in the plans included: populations living in urban or densely populated areas; immigrants, refugees, migrants, or internationally displaced people; prisoners and inmates; and people who use illicit substances.

Of the plans that identified priority populations, only the Somalia and Yemen plans explicitly identified populations that should be prioritized for the continuity of services due to their vulnerability. Somalia's plan focused on prioritizing continuity of maternal, neonatal and child health, while Yemen emphasized the need to prioritize care for pregnant and lactating women and people who need access mental health services.

Use of evidence: All the reviewed plans, except Palestine, indicated the use of evidence to inform their pandemic plans, to varying extents. Several plans used epidemiological data on mortality, morbidity, and burden of disease, as well as situational and risk analysis to inform their planning and prioritization (Yemen, Morocco, Lebanon, Qatar). The WHO pandemic planning guidelines were used as inputs for the development of 5 of the 12 national plans (Morocco, Jordan, Lebanon, Saudi Arabia, UAE). Only Saudi Arabia's plan explicitly considered past epidemic experiences with MERS-CoV as an additional source to inform the development of their plans. Saudi Arabia's plan explicitly states that its previous experience with the spread of the MERS-CoV allowed them to take precautionary measures before the first case was confirmed in the country and develop infection prevention and control protocols based on best practices developed in response to MERS-CoV.

Reflection of public values: While none the reviewed plans did not include explicit discussions of public values, Saudi Arabia's plan mentioned including public feedback and actively following up on the public's concerns about the pandemic.

Table 5
Prioritized population groups.

Income		Low-income			Lower-middle		Upper-middle		High
		Afghanistan	Somalia	Yemen	Egypt	Palestine	Jordan	Qatar	UAE
	Fragile State Index[1]	**102.1**	**110.9**	**111.7**	**85.0**	**86.0**	**76.8**	**44.1**	**40.3**
Prioritization rationale	**Prioritized populations**								
Prioritized for continuity of services	Pregnant (and lactating) women			x					
	Maternal, neonatal and child health		x						
	People who need mental health services			x					
Prioritized given their vulnerability	Populations in urban/high density areas		x					x	
	Immigrants								
	Refugees/migrants/internal displaced people		x	x		x			
	Prisoners/inmates	X				x			
	People who use illicit substances	X							
Prioritized given their risk of transmission	People living in border regions and ports						x	x	
	Travellers/people who travel for work					x			x
	Healthcare workers							x	
	People who work in public service (ie. public transportation, construction, factories, hotels, and shopping centres, etc.)				x				
Prioritized given the impact of COVID transmission on seriously illness	Elderly			x				x	
	Immune-compromised people			x					
	Patients with chronic health conditions and co-morbidities			x				x	
	People suffering from malnutrition			x					

[1] The Fragile States Index is based on a conflict assessment framework – known as "CAST" – which examined the vulnerability of states to collapse. The methodology uses both qualitative and quantitative indicators, relies on public source data, and produces quantifiable results. Twelve conflict risk indicators are used to measure the condition of a state at any given moment. (https://fragilestatesindex.org/indicators/).

Publicity: We were able to access half of the 12 national plans online, however, the extent to which these documents are truly accessible to the public is difficult to assess. Accessibility is not only affected by varying levels of internet access in these countries, but also the language of publication. For example, two (Egypt, UAE) of the 12 reports were found only in Arabic, one (Morocco) was only found in French, and nine of the 12 reports were available in English. We were unable to discern whether the English and French-language plans were available in Arabic, which is the local language. Furthermore, only Egypt's pandemic plan reported that government priorities and recommendations were to be discussed in the media. The six plans which were not easily accessible through the initial search can be presumed less accessible to the public as well.

Appeals and revisions: While the plans did not include specific mechanisms for appeals and revisions of the priorities, six of the 12 plans (Yemen, Palestine, Egypt, Pakistan, Lebanon, and Qatar), identified review and appeals mechanisms for COVID response as the pandemic progressed, although most did not elaborate on these mechanisms. For example, Lebanon's plan included strategies to assess the overall performance of the program and derive evidence and lessons learned to correct and adjust operations. One plan (Yemen) specifically identified that health authorities, in coordination with WHO and other sector partners, would revise and update risk as the situation evolves and more evidence is generated.

Enforcement: The enforcement parameter focuses on ensuring that the conditions of fair priority setting processes - publicity, appeals and revisions – are adhered to. While none of the plans include mechanisms for enforcement of fair process, some included a description of mechanisms for enforcing decisions related to the COVID plan. Overall, five of the 12 plans (Yemen, Egypt, Lebanon, Qatar, and Saudi Arabia) noted mechanisms for enforcing implementation of the pandemic plans. Yemen developed a particularly robust framework for the monitoring and evaluation of plan implementation with key performance indicators at the national and governorate level. Furthermore, Yemen's

plan explicitly stated that independent monitoring mechanisms would be put in place, with the support of WHO. Three plans (Egypt, Lebanon, Saudi Arabia) also discussed the enforcement of public compliance with quarantine, lockdown, and COVID-related measures.

3.4. Implementation of the set priorities, impact, and outcome

The framework identifies that (a) allocation of resources according to priorities and (b) improved internal accountability and reduced corruption are relevant parameters for the successful implementation of set priorities. It also specifies that effective priority setting considers the outcomes of priority setting processes, including the health and health systems impacts of the implementation of such priorities (see Table 1). However, since these were planning documents, we can only assess if plans included an implementation plan and anticipated impact and outcomes of implementation. Based on this assessment, we found that only Yemen's plan discussed a plan for implementation. The plan explains that a monitoring and evaluation framework (included in the plan's annex) with key performance indicators be used. The plan specifically mentions that the purpose of monitoring and evaluation is to increase accountability towards affected communities. Only Saudi Arabia's document, published in August 2020, addressed outcome and impact. The document identified an impact on health practice by providing a detailed timeline mapping out their response from February 2020 to July 2020.

4. Cross country comparison

The number of quality parameters included in each plan did not vary significantly based on country context. Yemen's plan included the highest number parameters (9/20 parameters), while Egypt's plan integrated the least (3/20). Additionally, no clear difference between which quality parameters included and country context. None of the

plans identified the use of clear priority setting process or tools set priorities and develop their pandemic plans. Finally, the fair processes parameters of publicity, appeals and revisions, and enforcement, were not well addressed across the region.

5. Discussion

To the best of our knowledge, this is the first paper that systematically assesses how the parameters of effective priority setting were integrated in pandemic plans in a sample of countries in WHO-EMRO. While *all* reviewed plans integrated some aspects of effective priority setting, none included all the parameters. All included plans were publicly available, however not all of them were easily accessible. Although the plans were publicized, we are unable to confidently conclude that the priorities too were publicized based on the information provided in the plans. Eleven of the 12 plans referred to having used different forms of evidence to guide their pandemic planning and priority setting. Parameters such as clear priority setting process/tools, reflection of public values, and inclusion of fair process parameters were rarely, if ever, included in any of the reviewed plans. Although, we found that the fair process parameters - publicity, revisions and appeals, and enforcement – were not fulfilled, in many cases mechanisms exist that can be used to facilitate effective priority setting in the future. For example, mechanisms for monitoring and evaluation and subsequent revision of the activities to be implemented for COVID response, can be adopted to also support appeals and revisions of priority setting decisions.

Previous studies demonstrate significant differences in adherence to Kapiriri & Martin's framework for priority setting across democratic, relatively politically stable contexts [1,20,31,32]. The present analysis is consistent with the literature that identifies challenges to priority setting including but are not limited to the existence of legitimate institutions with the capacity to set priorities, public engagement, reflection of public values, mechanisms for enforcing and appealing decisions, and implementation of set priorities [1,31,32]. Our findings demonstrate that priority setting can often be an undemocratic and challenging process, which can be exacerbated in settings experiencing political instability and conflict. For example, countries in the EMRO region often grapple with degraded state legitimacy, which can undermine state authority and its' capacity to govern effectively [33,34], including setting pandemic priorities and enforcement population adherence to public health directives. However, similar levels of adherence to parameters of effective priority setting have been documented in both the African region and Latin American and Caribbean [20,21], suggesting that while a fragile and conflict-affected context impacts the priority setting process, it is far from the only relevant factor.

When considering the priority setting context, many EMRO region countries are in protracted states of war and conflict, and experiencing population displacement and overcrowding of refugees that have exacerbated ongoing health crises, including cholera, polio, and measles outbreaks in Yemen, Lebanon, and Jordan that preceded the COVID pandemic [35]. Within this context, it would have been expected that these countries planned for continuity of services, however, many plans lacked any monitoring of the impact of diverting scarce resources away from other areas of need such as vaccination for preventable disease. In Afghanistan, for example, there was an increase in polio cases, possibly because of the decrease in polio vaccinations and the country's overstrained healthcare system [36].

In addition to continuity of essential services, specific planning and priority setting for COVID-19-related resources is of utmost importance in this region to ensure equitable distribution of resources during response. When the resources needed to manage disease outbreak are not planned for, allocation of sufficient resources for response can be challenging [1]. For example, only one of the countries' national plans

(UAE) identified resources needed for vaccination. While our study focuses on the early part of the pandemic, before vaccines were developed, we have witnessed large inequalities in vaccination coverage as the pandemic has evolved. This may be indicative of a lack of preparedness for vaccination and explain some of the inequalities in access to vaccines, globally [37]. For the EMRO region, lack of planning for vaccination may partially explain the low coverage in some of the EMRO countries included in this study where vaccination rates are below 40 %, namely Afghanistan (~27 %), Somalia (~36 %), Yemen (<3%) [38].

Furthermore, conflict-affected countries often experience fragmentation, in both their political and health systems structures. When countries are in a state of chronic and protracted crisis, both domestic and global resources required for response may be exhausted. Countries that are in a state of protracted crisis have both immediate, acute and, at times, unpredictable needs, alongside long-term needs for recovery [39]. Humanitarian assistance provided by development assistance partners (DAPs), while often earmarked for emergency response, becomes stretched to support the multitude of needs in protracted crisis settings [40]. The need for humanitarian aid is overtaking the available donor funding and donors are unable to fill the growing gap between global humanitarian requirements and available funds [39,40]. Therefore, the well-documented lack of national and donor resource – financial, material, and human resources – at country level, hinder the ability to move from planning to implementation and effective delivery of health services [4]. In the EMRO region, structural constraints including not only resource scarcity, but also the resulting fragmentation and fragility of health systems contributes to COVID-19 inequities experienced across the region (World Bank, 2021; Amnesty International, 2021). When health systems are on the verge of collapse and sufficient mechanisms to facilitate the priority setting process do not exist; any set priorities may lack legitimacy and be challenged with extreme lack of financial and human resources. The tendency then is that more secure regions (with better infrastructure) are favored over the less secure regions which may require more resources to reach [41,42]. Subsequently, the allocation of the meager available resources and the implementation of priorities may be unevenly distributed.

However, our findings show that development assistance partners (DAPs) can play a significant role in both the development of the national COVID-19 preparedness and response plan and the subsequent COVID response. This begs the question: do national governments set their own priorities? Or have various aid organizations assumed a significant role and responsibility for pandemic preparedness planning? For example, Yemen, which is considered the most fragile country in the world and most vulnerable to state collapse, had the most complete and comprehensive planning and response document. The plan was developed by the local governments together with several DAPs. It can be problematized that, in some countries, national plans are not set primarily by national governments but by partners who may push their priorities at the expense of domestic priorities [43,44]. DAPs working in low-income countries can have a powerful influence on local priorities and programs [41,43,45]. Many DAPs leverage their resources and imposed conditions on their funding forcing local decision-makers to forgo their priorities to align with the donor [44]. The perceived imposition of DAPs interest over local interests can cause their legitimacy to be called into question [43]. However, DAPs may also gain legitimacy when their actions are aligned with local priorities, they operate under principles of equity and fairness, and through their expertise [33,41,44,45]. Therefore, there is an opportunity to highlight the role humanitarian organizations can play in fragile and conflict-affected contexts by supporting health systems, priority setting, and pandemic response and leveraging humanitarian organizations' resources, expertise, and perceived legitimacy to support effective priority setting processes.

Finally, there is a growing body of literature that discusses the importance of equity as a priority setting criterion [41,46,47]. Equity in priority setting, means that the most vulnerable, however they are defined within each context, are prioritized [41,48,49]. Hence, since the region is home to a very large proportion of refugees, migrants, and IDPs who were identified as vulnerable to COVID-19 [50,51], equitable priority setting and resource allocation should have prioritized these populations [51]. However, only three plans prioritized refugees, migrants, and IDPs as vulnerable groups. Given the high concentration of refugees, migrant, and IDPs in the region, the risk is that the lack of prioritization of these vulnerable groups in pandemic planning documents, for example in Lebanon and Jordan, which are key asylum countries for both Syrian and Palestinian refugees [52,53], could have long-term implications for the health of populations [13,54]. It may also be in the country's national interest to prioritise these populations. Prioritizing the most vulnerable, whether they are refugees, migrants, and IDPs, people who are incarcerated, or institutionalized elderly, contributes to controlling the spread of infection, since the conditions in which they live (including crowding and precarious access to water, sanitation, and hygiene (WASH) facilities), make them more likely to contract and spread any infectious diseases such as COVID-19. Therefore, adopting equity as an explicit priority setting criterion for health emergencies planning and prioritization has wide-spread implication and is critical to tackle the challenges emerging from the pandemic.

5.1. Limitations

The findings should be interpreted with caution since the national COVID-19 preparedness and response plans that were reviewed were published at different stages of the global COVID-19 pandemic and at different pandemic stages within each country. Prioritized resources, populations, and interventions were likely to have been modified and/or expanded over the various waves of the pandemic and this evolution of planning and prioritization does not appear to have been documented in national COVID-19 preparedness and response plans.

Additionally, while implementation and impact are part of the five key domains of effective priority setting outlined in the Kapiriri & Martin framework, our study focused on planning documents, which limits our ability to analyze the degree to which the plans were implemented and the impact of priority setting on COVID-19 outcomes. Although the planning documents were suitable to documenting the priority setting process, examination of implementation and impact of the priorities was beyond the scope of such documents. Subsequent studies should include interviews with policy and decision-makers who have been central to the pandemic response to examine the degree to which the priorities were actually implemented and the impact of priority setting.

6. Conclusion

Review of a sample of national pandemic plans in the EMRO region allowed us to examine the degree to which these plans included known parameters for effective priority setting. Application of the framework that suggests that despite the documented value of explicit priority setting in health system decision-making, it may not be top of mind for decision- and policy-makers when responding to health emergencies and public health crises.

Furthermore, we learned that when setting priorities in health emergencies in regions experiencing conflict and crisis, such as EMRO, priority setting challenges are exacerbated. While DAPs' legitimacy is often questioned, incorporated them into priority setting process for health emergencies may mitigate some of these challenges. Development assistance partners often have expertise to work in areas of

humanitarian crisis and can provide support and resources that are either lacking or inaccessible due to fragmented infrastructure. Health system fragmentation is exacerbated during conflict and contributes to COVID-19 inequities experienced across the EMRO region. Limited prioritization of vulnerable groups like refugees, migrant, and IDPs in planning documents, could have long-term health implications and exacerbate the burden of COVID within these groups. Therefore, systematic and quality priority setting becomes even more essential to support effective and equitable resource allocation.

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