Priority setting in times of crises: an analysis of priority setting for the COVID-19 response in the Western Pacific Region

Beverley M. Essue [a,*], Lydia Kapiriri [b], Hodan Mohamud [a], Claudia-Marcela Vélez [b,c], Elysee Nouvet [d], Bernardo Aguilera [e], Iestyn Williams [f], Suzanne Kiwanuka [g]

[a] Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health, 155 College Street West Toronto ON M5T 3M6, Canada
[b] Department of Health, Aging & Society, McMaster University, 1280 Main Street West, Kenneth Taylor Hall Room 226, L8S 4M4, Hamilton, Ontario, Canada
[c] Faculty of Medicine, University of Antioquia, Cra 51d #62-29, Medellín, Antioquia, Colombia
[d] School of Health Studies, Western University, 1151 Richmond Street, N6A 3K7, London, Ontario, Canada
[e] Faculty of Medicine and Science at the Universidad San Sebastian, Santiago de Chile, Providencia, Región Metropolitana, Chile
[f] Health Services Management Centre, University of Birmingham, 40 Edgbaston Park Rd, B15 2RT, Birmingham, UK
[g] Department of Health Policy Planning and Management, Makerere University College of Health Sciences, School of Public Health, Uganda

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ABSTRACT

Background: While priority setting is recognized as critical for promoting accountability and transparency in health system planning, its role in supporting rational, equitable and fair pandemic planning and responses is less well understood. This study aims to describe how priority setting was used to support planning in the initial stage of the pandemic response in a subset of countries in the Western Pacific Region (WPR).
Methods: We purposively sampled a subset of countries from WPR and undertook a critical document review of the initial national COVID-19 pandemic response plans. A pre-specified tool guided data extraction and the analysis examined the use of quality parameters of priority setting, and equity considerations.
Results: Nine plans were included in this analysis, from the following countries: Papua New Guinea, Tonga, The Philippines, Fiji, China, Australia, New Zealand, Japan, and Taiwan. Most commonly the plans described strong political will to respond swiftly, resource needs, stakeholder engagement, and defined the roles of institutions that guided COVID-19 response decision-making. The initial plans did not reflect strong evidence of public engagement or considerations of equity informing the early responses to the pandemic.
Conclusion: This study advances an understanding of how priority setting and equity considerations were integrated to support the development of the initial COVID-19 responses in nine countries in WPR and contributes to the literature on health system planning during emergencies. This baseline assessment reveals evidence of the common priority setting parameters that were deployed in the initial responses, the prioritized resources and equity considerations and reinforces the importance of strengthening health system capacity for priority setting to support future pandemic preparedness.

1. Introduction

Policymakers in all settings are faced with the challenge of priority setting amidst resource scarcity and there have been growing expectations among the public for a transparent and rational process to inform resource allocation decision making [1–4]. Priority setting, defined here as the process through which decisions are made about the allocation of scarce resources [5], is evident in some form in most countries in the world, regardless of the size and type of the health system. Priority

setting can occur either implicitly or explicitly or guided by process and evidence. Importantly, fair priority setting that advances equity objectives is recognized as an essential mechanism through which health system strengthening goals such as Universal Health Coverage (UHC) and the Sustainable Development Goals (SDG) can be realized [6]. Valued as an ideal, there are increasing efforts to institutionalize and systematize priority setting within most health systems.

During times of health crises and emergencies, such as the COVID-19 pandemic, there is urgency for a swift and effective response and rapid

access to resources to support effective action. This can circumvent usual processes and result in inequitable distributions of services [7] or the further exacerbation of inequities. For example, the responses to the Ebola and Zika virus epidemics decreased the accessibility of many health services including reproductive, maternal, and child health services, resulting in a significant increase in maternal mortality [8]. The COVID-19 pandemic strained and diverted limited resources and this is forecasted to have lasting impacts on population health and action on noncommunicable diseases [9], while also worsening the conditions that create vulnerabilities for many communities and individuals within health systems [10,11]. Thus, while priority setting may need to change during times of uncertainty and crisis, commitments to maintaining fairness and reasonableness should ideally be upheld. But the application of priority setting during times of emergencies has been less well described in the literature or studied in practice [12,13] representing an important knowledge gap. Determining how priorities are established in emergency response planning efforts and how equity is accounted for in the choices of prioritized services, resources, and populations, is relevant for pandemic recovery planning and to guide future pandemic preparedness efforts.

The evaluation of priority setting, which is seen to be integral to embedding learning in health systems [14] and fostering accountability for decision making, is often adhoc and not conducted systematically. To address this issue, the Kapiriri and Martin Framework for evaluating priority setting in health systems was developed and has been validated globally [15]. This framework enables an objective assessment of the use of explicit criteria, process and evidence in priority setting practices and has now been applied in research in various contexts to evaluate priority setting for health during usual times [16] and during health emergencies [12], including during the COVID-19 pandemic [17–21]. This framework enables an evaluation of equity considerations, for example, which communities are represented among the stakeholders who are engaged in the process, what evidence is used, and how outcomes impact health equity. Centering equity in the priority setting evaluation framework allows for an exploration of the potential impacts of resource allocation decision making on populations who are often marginalized in health systems.

COVID-19 was first recorded in the Western Pacific Region (WPR), with a rapid spread of the virus throughout the region in the period preceding and immediately following the WHO's announcement of a global pandemic on March 11th, 2020 (Appendix Table 1). The initial responses from various countries in this region were closely monitored and informed the planning efforts for neighbouring regions and elsewhere in the world. While there is diversity between the economic contexts and health systems within WPR, the countries share a history of prior experiences with health emergencies (e.g., the SARS epidemic, polio, and measles), climate-related emergencies [22], and several nations have faced the added vulnerability of post-conflict fragility [23]. These common experiences and risks pose ongoing threats to health security in the region [24,25] and have fostered actions to support readiness and resilience through the establishment of anticipatory emergency response and planning processes and procedures in most countries.

Furthermore, there is a track record of the routine use of formal priority setting approaches and practices to inform and support health system decision making and strengthening in this region. For example: Australia and New Zealand offer notable examples of leadership on priority setting [26]; China and the Philippines, through commitments to progress UHC over the last few decades, have expanded capacity for, and use of Health Technology Assessment[1] [27,28] and; in several small island states in the region, there is now emerging expertise and capacity for HTA [29], though health system constraints have limited its routine

use in practice. With this experience and expertise in planning for health as well as managing prior health emergencies, countries in WPR were potentially poised to put in place swift and effective responses at the onset of the pandemic.

In this paper we focus on a subset of countries in the WPR to examine, describe, and synthesize evidence on the priority setting parameters that were used to support the initial pandemic response and to examine how equity was accounted for. This study focuses on the first wave of the pandemic to examine the hypothesis that countries with prior experiences using explicit and systematic priority setting will integrate this experience to formulate and guide the initial response to a health emergency. This study was developed as a baseline assessment from which ongoing and adaptive priority setting in subsequent waves of the pandemic can be evaluated in future research.

2. Methods

This study is part of a multi-country study that has investigated priority setting in COVID-19 pandemic preparedness plans from 86 countries across all WHO regions [17–21]. The global study used document review methods to explore how priority setting was used to support the planning and response to the first wave of the COVID-19 pandemic, as reflected in the initial national preparedness and response plans. The detailed study methods have been published elsewhere [21,30]. In this sub-study, we focus on the results from a selection of member nations in the WHO's WPR.

2.1. Framework

The study is guided by the Kapiriri and Martin framework for evaluating priority setting, described above [15,16]. The parameters of the validated framework were used to develop the data extraction tool and informed the data analysis (Appendix Table 2).

2.2. Sample

We sampled nine countries from twenty-two in the WPR. The sampling criteria were developed to achieve variation in economic, geographic, political, and health system characteristics to include plans from nations that reflected a range of experiences with managing emergencies (health, climate and conflict) as well as experience with health system priority setting. Four criteria were used: the size of the economy using the World Bank 2020–2021 country classification (i.e., low-, middle-, high-income country); regional variation that reflected the three subregions (i.e. Pacific, Southeast Asia and East Asia); the political structure (e.g., presidential republic, parliamentary republic, monarchy, unitary); and the type of health system (e.g., public, private, mixed, with or without universal health coverage).

2.3. Document retrieval

We developed a search strategy to identify COVID-19 pandemic preparedness and response plans (plans hereafter). Between August and December 2020, two research team members explored the websites of health ministries and official government websites; and performed searches on Google and Google Scholar to identify additional plans. When plans were not identified, we contacted key informants in the region, who either shared the plans or referred us to where the plans could be sourced.

2.4. Inclusion and exclusion criteria

We included plans that were published before July 2020, to reflect the guidance that was in place during the first wave of the pandemic. The plans focused on the overall government response to the pandemic and specified the allocation of health resources and prioritized

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[1] Health Technology Assessment is a multidisciplinary and systematic process that uses explicit methods to examine the value of health technologies (39)

populations. We excluded plans that exclusively focused on specific non-health interventions, such as school closures or specific clinical areas. Non-English plans were screened, reviewed, and data extracted by native language speakers, or translated to English and then data were extracted. All plans included in this analysis are outlined in Appendix Table 3.

2.5. Data extraction

Data extraction was guided by an adapted version of the Kapiriri and Martin evaluation framework. The framework includes 26 parameters across five domains (the priority setting context, pre-requisites, the priority setting process; implementation; and impact) and reflects evidence-based best-practice for priority setting for health and health care under normal circumstances. Through discussions with the international research team - who have expertise in priority setting research, ethics, health economics, anthropology, medicine and infectious diseases, this framework was adapted to be applied to examine priority setting in the COVID-19 plans. Through this process, we included a final list of parameters that establish a consistent standard for evaluation of priority setting in emergency planning documents (Appendix Table 2).

To examine the *Priority Setting Context* domain, we sourced publicly available data from the World Bank Open Data global database (https://data.worldbank.org/) to identify economic and health system characteristics of each country (Table 1).

2.6. Data analysis

First, we categorized the extracted data by country and by each of the quality parameters of the Kapiriri and Martin framework to examine the evidence of priority setting reflected in the plans. We conducted a descriptive analysis to synthesize the findings for each parameter. The analysis focused on exploring how each parameter was reflected in the plan and the evidence that was cited. The goal was not to compare between countries but instead, to document and synthesize the examples from each plan and to identify commonalities and differences. The number of indicators of quality priority setting were tabulated by country. In a secondary analysis, we analyzed all resources and priority populations that were explicitly mentioned in the plans. The list of resources emerged inductively in the analysis and plans were re-reviewed to capture all instances of identified resources. For the equity assessment, we generated a list of vulnerable populations, informed by published guidance [33,34] on the populations who were vulnerable to risk of exposure, transmission and outcomes. The plans were reviewed for information on the populations who were identified. The data were managed, tabulated and analyzed in Microsoft Excel.

Ethics approval was provided by McMaster University's Human Research Ethics Committee #MREB# 6468.

3. Results

Nine countries were sampled from the WPR (41 % of nations in the region), including: Papua New Guinea, Tonga and the Philippines – each classified as lower-middle income countries by the World Bank; Fiji and China – classified as upper-middle income countries; Australia, New Zealand, Japan and Taiwan – classified as high-income countries. All COVID-19 plans were published between February and July 2020 and retrieved from public websites.

Most countries performed similarly, with between 35 and 45 % of the quality indicators evident in the plans (Table 2). The plan from China fell outside this norm, with its plan including only three of the 20 quality indicators assessed. The indicators that were most identified across all plans included evidence of political will to act and respond swiftly, identification of resource needs, and an outline of the stakeholders who were engaged in developing the plans.

In the sections below we describe the results according to the five domains of priority setting in the Kapiriri and Martin framework (Appendix Table 2) and detail how the quality parameters were reflected in

Table 1
Summary of economic and health system characteristics for each country in the sample.

World Bank Income Classification[i]	Country	Political System[ii]	Health System Financing[ii]	UHC Service Coverage Index[ii]	GINI Index (2018)[ii]	Health Expenditure Per Capita PPP (USD, 2019)[ii]	Previous Health Crises? (Y/N)[ii]	Gender Parity in Pandemic Planning (Y/N,% women on planning)[iii]
High income	Australia	Federal parliamentary democracy under a constitutional monarchy	Public /private	87	34.4	$5004	Y	N, 33 %
	Japan	Parliamentary constitutional monarchy	Public /private	83	32.9	$4503	Y	N, 17 %
	New Zealand	Parliamentary democracy under a constitutional monarchy	Public /private	87	32.5	$4024	Y	N, 20 %
	Taiwan	Semi-presidential republic	Public /private	86	33.9	$2732	Y	N/A
Upper-middle income	China	Unitary one-party socialist republic	Public /private	79	38.5	$935	Y	N, 14 %
	Fiji	Parliamentary republic	Public /private	64	36.7	$372	Y	N, 43 %
Lower-middle income	Papua New Guinea	Parliamentary democracy under a constitutional monarchy	Public /private	40	41.9	$101	Y	N, 37 %
	Philippines	Presidential republic	Public /private	61	42.3	$393	Y	N, 0 %
	Tonga	Constitutional monarchy	Public /private	58	37.6	$355	Y	N, 20 %[iv]

[i] Based on 2020–21 income region classifications [31]. For the 2021 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of $1035 or less in 2019; lower middle-income economies are those with a GNI per capita between $1036 and $4045; upper middle-income economies are those with a GNI per capita between $4046 and $12,535; high-income economies are those with a GNI per capita of $12,536 or more.

[ii] From the World Bank Open Data: https://data.worldbank.org/.

[iii] UHC service coverage index is a unitless metric that ranges from 0 to 100 to capture the degree of coverage of essential health services in a country
From: [32]

[iv] Based on authors calculation.

Table 2
Overview of quality priority setting parameters reflected in the initial national COVID-19 plans.

Priority Setting Domains	Quality Parameters of Priority Setting[1]	National Plans Reviewed for Evidence of Priority Setting[2]									# of plans	% of plans that reflected each criterion
		Australia	Japan	NZ	Taiwan	China	Fiji	Papua New Guinea	Philippines	Tonga		
Pre-requisites	**Political will**	Y	Y	Y	Y	Y	Y	Y	Y	Y	9	100 %
	Resources	Y	Y	Y	Y	N	Y	Y	Y	Y	8	89 %
	Legitimate institutions	Y	Y	N	Y	N	Y	Y	Y	Y	7	78 %
	Incentives for compliance	N	N	N	N	N	N	N	N	N	0	0 %
The priority setting process	**Continuity of care**	Y	Y	Y	N	N	Y	Y	Y	N	6	67 %
	Stakeholder participation	Y	Y	Y	Y	Y	Y	Y	N	Y	8	89 %
	PS process /tool/ methods	N	N	Y	N	N	N	Y	N	N	2	22 %
	PS criteria	Y	N	Y	N	N	N	N	Y	N	2	22 %
	Use of evidence	Y	Y	N	Y	N	Y	N	N	Y	5	56 %
	Reflection of public values	N	N	Y	N	N	N	N	N	Y	2	22 %
	Publicity of priorities and criteria	Y	Y	Y	Y	Y	Y	Y	Y	Y	9	100 %
	Mechanisms for appealing	N	N	N	N	N	N	N	N	N	0	0 %
	Mechanisms for enforcement	N	N	N	Y	N	Y	N	N	N	2	22 %
Implementation of the set priorities	**Allocation of resources**	N	N	N	N	N	N	Y	Y	N	2	22 %
	Accountability	N	N	N	N	N	N	N	N	Y	1	11 %
Priority Setting Impact	**Impact on swiftness**	Y	Y	Y	N	N	N	N	Y	N	4	44 %
	Impact on health	N	N	N	N	N	N	N	N	N	0	0 %
	Impact on inequalities	N	N	N	N	N	N	N	N	N	0	0 %
	Fair financial	N	N	N	N	N	N	N	N	N	0	0 %
	Increased public confidence	N	N	N	N	N	N	N	N	N	0	0 %
	Number of criteria	9	8	9	7	3	8	8	8	8		
	% of quality parameters evident in the initial plan	45 %	40 %	45 %	35 %	15 %	40 %	40 %	40 %	40 %		

[1] Quality parameters of priority setting developed from:(15) and defined in Appendix Table 2
[2] Plans were published between January and July 2020 and reflected the response to wave 1 of the COVID-19 pandemic. These plans reflect the initial responses to the COVID-19 pandemic of countries in the WPR.
[3] NZ: New Zealand

the plans. We then present the results on the resources and populations described in the plans.

3.1. Priority setting contexts

The priority setting context domain describes relevant political, economic, social and cultural factors that can influence how and what priorities are defined by a given country. Table 1 summarizes these characteristics for each of the countries included in this study. The countries reflect variation in their political systems as well as in the governance, organization, delivery and financing of health and public health care. Australia, New Zealand, and Papua New Guinea have parliamentary democracies under a constitutional monarchy; Tonga and Japan have parliamentary constitutional monarchies; Fiji has a parliamentary republic; the Philippines has a presidential republic; Taiwan is a semi-presidential republic; and China is a unitary one-party socialist republic. The differences in political structure can be expected to influence the authority and reach of the plans as well as the levers that can be used to support implementation and adherence to the guidance.

There are also varying levels of decentralization of authority for health and public health in the countries in this sample. For example, Australia is a federation of six states that have independence in decision making and constitutional responsibility for health protection. In this context the national pandemic plan provided an overarching response framework but each State developed planning and policy directives to guide specific State-level actions [35]. In contract, where decentralization of health authority is less clearcut, as in post-conflict countries in the region (e.g., Papua New Guinea, the Philippines), this can impact the

authority for and implementation of decision-making, especially during crises [23].

The countries also have varying experience using explicit priority setting practices, many with longstanding and established formal processes to integrate economic evaluation evidence into health technology assessments to support decision making (e.g., as used in Australia and New Zealand, [36]). Other countries have emergent capacity development to support formalized priority setting as part of their demonstrated commitments to achieve UHC (e.g., as in China and the Philippines,28, 30). In the Pacific Islands, while there are promising UHC-focused reforms aimed at health system strengthening evident in most of the small island nations, a multitude of complex issues related to governance, workforce, infrastructure and investment challenge and constrain opportunities to formalize explicit priority setting practices in the existing institutions [37].

There was a regional pandemic preparedness strategy, led by the WHO WPR Office. This strategy defined regional leadership and guidance to support country-level responses and thus, the collective preparedness approaches in the region [38] and informed the development of the initial response plans for several countries. Furthermore, an Incident Management Support Team was established in January 2020 to provide leadership during the early stages of the pandemic, propose responses to mitigate the impact in the region and to support collective response efforts and action between countries, together with guidance from the WHO. While not explicitly referenced in all of the individual plans, this body was in place as a support for regional-level planning and guidance.

3.2. Pre-requisites

This domain examines the conditions that are required for, or supportive of, priority setting. Evidence of political will was found in all the plans. Six plans also described and discussed the role of deemed legitimate and credible institutions to support the development of the plan and the COVID-19 response processes, identified as the Ministry of Health in most instances. Four countries explicitly mentioned the establishment of national-level COVID-19 task forces (Fiji, Papua New Guinea, Philippines, and Taiwan) or advisory committees (Australia, Tonga, and Japan) to convene intersectoral and interdisciplinary experts that served the role of informing the planning process for the pandemic response [21–23].

All plans discussed the need to ensure access to essential public health measures. The plans from Fiji, New Zealand, the Philippines, Japan, and Australia mentioned the importance and necessity of maintaining essential health services and managing and providing essential medicines. In China, Fiji, Papua New Guinea, The Philippines, and Tonga, subsidized or free healthcare services were implemented to support the management of COVID-19. In China, where universal health coverage was already established pre-pandemic, medical insurance reimbursement policies improved access to COVID-19 treatments which was made mandatory for the full population [2]. A medical insurance fund and government subsidies ensured that hospitals had exclusive funds beyond their usual budgets to accept patients or severe cases in need of care in the intensive care units. China also temporarily granted reimbursements for pharmaceuticals and services for the treatment of COVID-19 which were not included in the national drug and services reimbursement lists. Additionally, Australia provided testing and treatment for COVID-19 to all citizens and permanent residents and ensured access to ongoing comprehensive primary care through a rapid rollout of telehealth services and a removal of co-payments for virtual care.

None of the plans mentioned incentives (e.g., for providers or the public) to comply with the response and preparedness plan specifications.

3.3. The priority setting process

The priority setting process domain assesses whether there are explicit guiding tools, methods and/or frameworks used to define and set priorities, if the priority setting process was fair (deemed relevant, publicized criteria, explicit mechanisms for appeals/revisions and enforcement), how evidence is used and the articulated priority setting criteria, including equity considerations. Furthermore, this domain emphasizes the need for stakeholder involvement. We also examined the plans to understand the strategies that were defined to maintain continuity of services across the health system.

New Zealand's plan outlined an ethical and legal framework that guided decision making during the pandemic. However, few details were provided about how the frameworks were integrated [24]. Papua New Guinea's national plan drew from the WPRO regional framework [25] and integrated actions to strengthen the core capacities for preparedness and response aligned to six general strategies: i) surveillance, risk assessment and response, ii) laboratories, iii) risk communication, iv) prevention through health care, v) zoonosis, and iv) monitoring and evaluation.

The indicator on publicity of priorities and criteria refers to the importance of ensuring that priority setting process and criteria are transparent and publicized. While all the plans were available on the public websites of national governments, the focus was on communicating public health information on risk and risk management, not how the decisions were made. For example, Australia's initial plan stated that communication was a priority to facilitate informed decision making about adherence to the recommended control measures, including limits on in-person work and travel, and to communicate risk to those populations defined as being at increased risk of transmission and outcomes

[26]. Likewise, Tonga's plan described proactive communication to promote dialogue with communities, the public and other stakeholders.

None of the plans outlined specific mechanisms for appealing the COVID-19 response decisions. Only Fiji's plan included a reference to the enforcement of the decisions outlined in the plan but it lacked detail on the mechanisms to enable enforcement. For Taiwan, Ministry of Health directives were typically adhered to with a risk of legal implications if the guidance was not followed [23].

Tonga's and New Zealand's plans sought to reflect public values in the areas defined for prioritization. For example, Tonga's plan acknowledged the importance of empowering, educating, and mobilizing the Tongan community to support all government endeavours for COVID-19 and embody Tongan cultural values.

A subset of plans emphasized the need for evidence to support the plan's development (e.g., the plans from Australia, Fiji, Japan, Taiwan, and Tonga). Specifically, these plans incorporated country-specific epidemiological data on mortality, morbidity, testing, and projections of health impacts. These plans also mentioned following the WHO global guidelines as inputs to developing the national plans. The constraints associated with developing a response while in a state of evolving evidence, with many unknowns and evidence gaps was acknowledged in most of the plans. None of the plans discussed the availability or use of economic evidence as an input for defining priority resources or populations.

Explicit planning criteria were mentioned in the plans from New Zealand and the Philippines. For example, in New Zealand's plan, ethical values developed in 2007 by an intersectoral committee were cited and the "Getting Through Together" initiative, which identified values for good decision-making processes, specifically, being open, inclusive, reasonable, and responsible. This plan also prioritized explicit shared public values for good decision-making, identified as: minimizing harms, respect, fairness, whanaungatanga (meaning the close connection between people), reciprocity and kotahitanga (meaning unity). The plan from the Philippines described two criteria for the priority setting process: severity of infection and burden of disease.

Except for the plan from the Philippines [29], the other pandemic plans referred to the involvement of specific stakeholders. Ministries of Health led the pandemic response, and many plans mentioned the participation of different ministries and governmental institutions. For instance, Papua New Guinea's pandemic plan outlined a comprehensive list of stakeholders including international development partners and foreign governments, including: the WHO, UNICEF, Australian High Commission, Ministry of Foreign Affairs and Trade (MFAT) of New Zealand, and Médecins Sans Frontières (MSF). In Fiji, the plan's development was an initiative of the COVID-19 Taskforce team. It was made up of experts and liaison personnel from various organizations, including the WHO and various Fijian government ministries. China's plan did not detail involvement from foreign institutions and was developed with intergovernmental agencies (e.g. the Ministry of Health; the Office of Health Emergency; the National Administration of Disease Control; the Department of International Cooperation Ministry of Science and Technology; the China Centres for Disease Control; the Chinese Academy of Medical Science; Chinese Medical Association; and the Chinese Preventive Medical Association). The extent to which the public were engaged or represented in the planning processes and development of initial plans was not evident in any of the plans reviewed.

None of the plans were developed by committees that reflected gender parity and in fact all plans were dominated by male members (Table 1). The closest country to gender parity on their COVID-19 response committee was Fiji where women made up 43 % of the committee. In Japan and New Zealand women comprised only 17 % and 20 % of their committees, respectively. This might generally be indicative of the gender disparity across other governing bodies in the countries and not unique to the COVID-19 planning process.

3.4. Implementation of the set priorities

The implementation domain assesses how the set priorities are implemented in practice. Because we focused on examining priority setting in the initial phase of the pandemic, it was beyond the scope of this study to examine implementation in detail. However, we were able to glean some insights on implementation in some of the plans. Except for China, all the sampled countries are islands Swift border closures and travel bans were implemented as an early response to isolate the population from the global spread of COVID-19 throughout the region. China also imposed unprecedented community containment and lock down mechanisms to isolate the most affected regions in the country.

Budgets were outlined in only three plans (e.g., the plans from Papua New Guinea, the Philippines and Tonga) and considered the financial implications of the defined priorities.

Only Tonga's plan mentioned strategies for improving internal accountability or reducing corruption during the pandemic. Tonga's plan considered a series of procurement regulations with safeguards to ensure transparency and accountability as well as value for money in procurement [39]. Procurement regulations were outlined as were the responsibilities for governance and accountability during the pandemic.

Finally, we assessed the swiftness of the pandemic response. Four country plans (Australia, Japan, Philippines, and New Zealand) mentioned strategies for reviewing the plan and altering public health measures to adapt to the changing circumstances. For instance, Australia's plan stated that individual activities would be regularly assessed and revised when they no longer contributed to the goals of the COVID-19 plan. In comparison, New Zealand's plan mentioned regularly reviewing measures and tailoring their implementation in consideration of the evolving global and national information on COVID-19. This parameter is relevant as a signal of readiness to adapt and evolve the plans for future waves and as the burden of the pandemic intensified.

3.5. Priority resources and populations

All the plans described some resource requirements to support the national COVID-19 response (See Table 3). Most of the countries emphasized the need for personal protective equipment (PPE) and other integrated professional cleaning materials. Several countries also described the need for specific human resources (nurses, intensive care unit (ICU) staff) and training for current and additional health professionals.

Fiji, Papua New Guinea, Tonga, and Japan explicitly described healthcare facility requirements. Those same countries, plus Australia and Taiwan, also described the need for intensive care units and life support equipment. Diagnosis kits and laboratory equipment were identified as an essential resource in Fiji, New Zealand, Papua New Guinea, the Philippines, Taiwan, Tonga, and Japan. Other resources that were identified inconsistently across the plans included: ambulances (Australia, Fiji, Papua New Guinea), patients' meals (Philippines), and body bags and morgue equipment (Taiwan). Japan was the only plan to discuss access to vaccines explicitly in the initial plan developed in 2020, before the vaccines were available.

Across all country plans, the elderly, those with comorbidities or a disability and children were identified as priority populations (Appendix Table 4). New Zealand had the most comprehensive plan, identifying nine priority populations for special protection based on i) age (i.e., the elderly; children), ii) existing health and disability status (i.e., comorbidities and pre-existing conditions; disability; mental illness); iii) residential risk (i.e., residing in institutions; prisoners) and iv) demographic characteristics (i.e., racial and ethnic minorities; Indigenous populations). The plan from Papua New Guinea was the only plan that specified disease populations for the continuity of services and included patients with heart disease, lung disease and diabetes. The plans from Fiji and the Philippines did not specify priority populations. Since Fiji is a small island state, it is possible that the whole population was deemed

Table 3
Resources identified in the national pandemic plans.

Income classification[i]	National plan	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	Clinical guidelines	Patient meals	Body bags and morgue equipment
High income	Australia	x	x				x			x	x					
	Japan		x	x	x	x		x	x		x	x				
	New Zealand	x	x	x	x		x	x								
	Taiwan	x	x	x	x		x	x			x	x				x
Upper-middle income	China										x					
	Fiji	x	x	x	x	x				x	x	x				
Lower-middle income	Papua New Guinea		x	x	x	x	x			x	x	x	x			
	Philippines	x	x	x	x			x					x		x	
	Tonga	x	x	x	x	x		x			x	x	x	x		

Income classifications are based on the World Bank 2020–2021 country classifications [31].
During data collection, the plans were evaluated for evidence of priority setting and where there was explicit mention of resources, each was noted. This table summarizes the resources that were identified in all plans across the columns (Column 3 to 17). The 'x' indicates that the given resource was explicitly mentioned in the plans. The lack of an 'x' does not necessarily entail that this resource was not prioritized in the given country. Rather, it indicates that the resource was not mentioned in the plan.

a priority for the resources outlined in the plan.

The plans often justified the choice of priority populations on the grounds of risk of exposure and risk of poor outcomes (e.g., due to pre-existing conditions or vulnerabilities). The plans lacked details on how these populations were engaged in the development of the plan or consideration of the trade-offs between potential priority populations. Where specified, it was implicit in the plans that focused action on these populations would further the effectiveness of the overall response.

4. Discussion

This study provides an in-depth and critical descriptive analysis of the initial COVID-19 pandemic response plans from a sample of nine countries in the WPR. All plans had evidence of strong political will and government buy-in to support a swift response to limit the spread and impact of the virus in the initial months after the WHO declared the global pandemic. Most plans reflected broad stakeholder engagement, including the involvement of global stakeholders. A minority of plans included detailed discussion of the budget implications. We postulate that the countries in this study that leveraged explicit priority setting to guide their control efforts, and the differences in the priority setting indicators between the plans, likely aligns to the experience that each country had with routine priority setting during usual times. Perhaps unsurprising, this finding does point to the importance of ongoing efforts to strengthen capacity for priority setting in the health sector in this region [40] as countries seem to leverage these practices during health emergencies and in times of uncertainty [21,19].

A subset of the indicators in the prerequisite and process domains were not found in many of the plans. This finding is consistent with other studies of pandemic priority setting [21,41]. It is plausible that given the urgency of the pandemic, these indicators were not incorporated in the approach to devising the initial iteration of the response and that there are necessary trade-offs during a health emergency between swift and decisive action and evidence-based process. Still, these indicators have been deemed critical for garnering public acceptance of decisions [42] as well as for ensuing fair process. For example, early critiques of the responses in Fiji, Papua New Guinea, and other islands in the WPR called for greater transparency in the decision-making [25,43,44]. Lessons learned from Australia have also revealed missed opportunities for inclusive and equity-enhancing consultation and transparent communication as well as weaknesses in data systems and the use of evidence to guide decision making during times of extreme uncertainty [35].

One outlier in the analysis was the plan from China which only included three of 20 quality indicators (political will, stakeholder participation and publicity of priorities). As the first country in the region (and globally) to experience the spread and impacts of the pandemic, China was the first country to close their borders to national and international travel well before the WHO declared a Public Health Emergency of International Concern. China imposed unprecedented community containment and lock down mechanisms to isolate the most affected regions in the country, implementing, at the time, an untested response strategy. The quarantine approach used in China provided a model that was replicated, in part, in several other countries, including in neighbouring island nations in the WPR [10]. While the pandemic plan from China lacked evidence of priority setting best practice, it may reflect the country's usual approach to setting and enforcing health priorities, an area that is under-researched in the current priority setting literature [45].

Despite the uptake of HTA in the WPR, the initial pandemic response was characterized by an absence of economic evidence in the early phases [46]. Concerns about value, efficiency and even distributional equity impacts of decisions may have been overshadowed by the scale and urgency of the health shock caused by the COVID-19 virus. Nonetheless, economic evidence can distill the impacts of alternate public health strategies as well as broader macroeconomic impacts associated with sustained border and school closures and shelter in place policies

[44,46]. The disease models that were developed and applied in the wake of the pandemic, including the establishment of several multi-country consortia [47,48] have been used to better understand and forecast the health and economic implications of subsequent waves and to plan for recovery efforts and thus, hold potential to address this planning gap for future pandemics. Economic modelling can also support a deeper understanding of the health system consequences that may follow from a shifting of priorities during the pandemic. This evidence is especially critical in the small island nations in the WPR where the double burden of communicable and noncommunicable diseases is still a pressing health system challenge.

In all countries in this sample, and seen globally, the study suggests an absence of consultation with the public, especially women, racial and gender minorities and groups otherwise marginalized by systemic disadvantage and disproportionately impacted by COVID-19. The absence of consultation with at-risk populations early in the pandemic, assuming the initial plans would have reported on such consultation, may have missed opportunities to meaningfully engage these communities in risk communication. This trend pre-dated the pandemic and was highlighted as a lesson following the severe acute respiratory syndrome (SARS) outbreak in China in 2002 and the Middle East respiratory syndrome outbreak in the Republic of Korea in 2015 [49]. Such engagement could also have mitigated the disproportionately negative outcomes experienced by some populations. For example, the shelter in place policies were associated with spikes in intimate partner violence [50] as well as interruptions to essential sexual and reproductive health services [51]. This has been linked to an exacerbation of inequities and disparities in COVID-19 outcomes [11,52]. Ensuring diverse stakeholder engagement, representation and accountability as part of fair and inclusive process in pandemic preparedness planning and response measures would embed an equity lens in the planning process and help to anticipate and mitigate a further widening of health inequities in future pandemics.

Finally, there was an unequal balance of women in the COVID-19 planning committees in the subset of countries in this study, a finding that is consistent globally [53]. Literature shows that women were significantly impacted by the pandemic - making up 70 % of healthcare workers, largely taking on the growing burden of unpaid care, while experiencing significant negative gendered impacts of the pandemic [11]. It is reasonable to say that better gender representation in the leadership and planning for the COVID-19 response is important for anticipating and mitigating the disproportionate impacts experienced by women. For example, New Zealand, under the leadership of former Prime Minister Jacinda Ardern, was heralded for the country's approaches to managing the initial waves of the pandemic, attributed in part to a distinctive and inclusive leadership style. Gender balanced and inclusive health system leadership has emerged as a priority in the ongoing COVID-19 planning efforts, as well as for pandemic recovery planning [54].

A strength of this study is that we focused on analyzing the initial response plans in a sample of countries in the WPR. This critical analysis had a deliberate focus on examining what was planned at the early stage of the pandemic to describe the ways in which countries used explicit priority setting to define and guide the early response to the pandemic. This research constitutes a baseline assessment of priority setting based on the pandemic plans.

But subsequent waves of the pandemic challenged economies and health systems and the initial national pandemic response plans in all counties were eventually adapted, updated and evolved to broaden the response in each setting. There are priority setting domains that are not reflected in this baseline assessment what were potentially later integrated into the planning process as the pandemic response evolved and became more robust in each setting. Follow-up research, including interviews with stakeholders involved in the process are needed to build from this baseline assessment to explore and explicate how priority setting was integrated and adapted overtime, and to examine the

potential impact of priority setting on outcomes in each country. Further, health is governed at the sub-national level in several countries in this sample. The focus on national-level plans may not have included details on the domains that were out of national jurisdiction - a key finding from other studies that compared differences in priority setting for health between the national and sub-national levels [17]. This is especially relevant for China, where COVID-19 task forces were established at the municipal and provincial levels and were led by the local government to facilitate coordination across departments. Similarly, this study did not formally include the regional (e.g., WPRO) or global (e.g., WHO) plans which informed the development of several national plans, especially for the smaller island states.

5. Conclusion

Explicit priority setting can facilitate accountability and transparency within health system planning. However, the role of priority setting within pandemic response planning is less well understood. Through a systematic assessment and review of initial COVID-19 plans within nine countries in the WPR, we were able to better understand and describe how priority setting was used to support the initial response to the pandemic in these settings. The analysis found examples of explicit priority setting within all the plans, however few reflected a systematic or consistent use of all quality indicators. This research reinforces the importance of strengthening national capacity for health system priority setting as during health emergencies, countries seem to leverage these practices to support swift response planning. Further, the deliberate and explicit use of priority setting can support countries to make, and gain buy-in for, difficult resource allocation decisions. This paper provides a foundation to explore the relationship between effective priority setting for pandemic responses and country-level outcomes in future work.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.healthpol.2024.105010.

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