Maintains

Research supporting social services to adapt to shocks

What is a Shock-Responsive Health System?

A Framework to Inform Maintains Research

Working Paper – Version 2

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March 2021

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Oxford Policy Management

About Maintains

This five-year (2018–2023) operational research programme is building a strong evidence base on how health, education, nutrition, and social protection systems can respond more quickly, reliably, and effectively to changing needs during and after shocks, whilst also maintaining existing services. Maintains is working in six focal countries—Bangladesh, Ethiopia, Kenya, Pakistan, Sierra Leone, and Uganda—undertaking research to build evidence and providing technical assistance to support practical implementation. Lessons from this work will be used to inform policy and practice at both national and global levels.

Maintains is funded with UK aid from the UK government; however, the views expressed in this material do not necessarily reflect the UK government's official policies. Maintains is implemented by Oxford Policy Management.

Acknowledgements

This is the second version of the working paper: it has been revised after extensive and well-received feedback from Foreign, Commonwealth and Development Office (FCDO) counterparts (including Roger Bellers, Chris Berry, Luwam Gari, Atsednesh Getachew, Annie Homer, Nicholas Leader, Fergus McBean, Ciara Silke, and Beth Scott) and independent peer review by Professor Karl Blanchet and Professor Egbert Sondorp and by the Maintains community of practice.

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Maintains is implemented through a consortium led by Oxford Policy Management Limited as the managing agent. Oxford Policy Management is registered in England: 3122495. Registered office: Clarendon House, Level 3, 52 Cornmarket Street, Oxford, OX1 3HJ, United Kingdom. www.opml.co.uk.

Abstract

This working paper sets out a conceptual framework for a shock-responsive health system for the Maintaining Essential Services After Natural Disasters (Maintains) programme. The framework is designed to support the conceptual approach to country and cross-country research under Maintains, and to facilitate comparative learning and synthesis. The primary audience is therefore the Maintains research teams. The framework is also offered as a contribution to the nascent community of practice on shock-responsive health systems, and Maintains is actively seeking input and reflection on this framework from others working in this space.

The framework draws together ideas from the literature on health systems, resilience, health security, and related areas, and identifies the components of a health system and interactions with the wider context that may be affected by shocks and that affect the ability of the health sector to respond.

A shock-responsive health system is one that can address needs that arise due to the shock while maintaining essential service delivery, to achieve strong, equitable health outcomes. Maintains research focuses on shocks such as drought, flood, and disease outbreaks rather than conflict; consequently, the framework does not explicitly consider the impact of and response to conflict. Although some dimensions overlap, conflict scenarios bring additional specific dimensions such as targeted destruction of facilities and violence against health workers and populations (Martineau *et al*., 2017), which may not apply for the types of shocks that are the focus for Maintains.

The framework and underpinning literature highlight several core elements that affect the capacity of a health system to adequately prepare for and respond to shocks while maintaining essential services.

First, shock-responsive health systems have strong **systems 'hardware'** (for example, human resources, supplies, financial resources, and surveillance and information systems) **and 'software'** (for example, coordination and informal institutions or cultural norms). These underlying system capacities need to be built over the long term, to enable response when shocks arise. Systems need surge capacity and the ability to undertake focused, additional preparatory steps to cope with the shock and reduce future vulnerability. In relation to system software, an important aspect of coordination is effective collaboration and alignment between government and humanitarian actors, to support sustainable and accountable emergency response.

Second, the shock responsiveness of the health system depends on the wider **political and governance context**: for example, national fiscal and policy frameworks, transparency and openness to learning, and political support. Shock responsiveness requires effective leadership of health-related interventions, which may mean addressing and reconfiguring power relationships between and within public sector bodies (e.g. through more inclusive decision making).

Third, the response to shocks and health outcomes depends on **sectors beyond health**, such as water and sanitation, social protection, and transport. Shock responsiveness

requires effective intersectoral collaboration to address interdependencies, and resilience to shocks, in these connected systems.

Finally, the role of **communities** is critical for health outcomes. Considerations here include: recognising and supporting household and community roles and activities that promote and protect health routinely or in response to shocks; building community trust in the health system before, during, and beyond the shock; ensuring health service access; and addressing the multi-faceted challenges (economic as well as social) faced by communities during a shock. Specific attention is needed to address inequalities and marginalisation among communities, addressing gender inequities and ensuring access and protection for groups such as those who are internally displaced and people with disabilities.

In its future work and cross-country analysis, Maintains will examine the areas laid out in this framework, including understanding how shocks affect different health system components; how the health system, community, and wider social service, economic, and governance contexts affect the ability to effectively prepare for and respond to shocks; and how shock responsiveness can be strengthened. This analysis will generate insights into the types of strategies that countries can adopt based on their underlying health system conditions, as well as the different health system components and wider structures that seem particularly important in enabling shock responsiveness.

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1 Introduction

The world is seeing an increased incidence of shocks related to natural hazards such as drought and floods, and epidemics like Ebola and COVID-19. With climate change and rising global mobility, this trend is set to continue (World Economic Forum, 2019; World Health Organization (WHO), 2020a).

The Maintains programme is undertaking operationally relevant research across six countries (Pakistan, Bangladesh, Ethiopia, Kenya, Uganda, and Sierra Leone) to understand how national systems can achieve stronger health outcomes by being more responsive to shocks – scaling up to address needs that arise due to the shock, while also maintaining essential service delivery.

In this working paper, we set out a framework to understand shock responsiveness in health systems. The purpose of this framework is to support the conceptual approach underpinning country and cross-country research under Maintains, and to facilitate comparative learning and synthesis across the Maintains countries. The primary audience is therefore the Maintains research teams. The paper is also offered as a contribution to wider audiences working on shock-responsive health systems. The framework has contributed to a policy brief prepared for the FCDO on health system resilience in the context of COVID-19 (FCDO, 2020). Early versions of the framework have also supported a Maintains cross-country assessment of the early COVID-19 response (Hillier *et al*., 2020) and a literature review that drew on early evidence from COVID-19 and learning from past disease outbreaks to examine COVID-19's impact on health services in low- and middle-income countries, recovery measures, and potential reform policies (Nair, 2020).

A variety of literatures and communities of policy and practice have addressed health sector capacity to withstand shocks, including work in health systems, public health emergency management, disaster preparedness and risk reduction, health security, and humanitarian response, all with different terminologies and emphases (Turenne *et al*., 2019; Warsame *et al*., 2020). This paper attempts to bridge these areas, but focuses primarily on identifying and integrating lessons from the health systems literature. We aim to draw on additional literature and perspectives as the Maintains research continues.

The paper builds upon an evidence review (Witter and Levin-Russell, 2019) and background paper (Witter, 2019) prepared for Maintains by Professor Sophie Witter, an initial conceptual model developed by the Centre for Humanitarian Change for their work under Maintains in Kenya and Uganda (Fortnam et al, 2020), and the literature review for Maintains research in Ethiopia (Gooding et al, 2020).

For Maintains, this consolidated framework will be used to help identify components of the health system and broader context that may be affected by shocks and that affect shock responsiveness, and which should be considered in our research. The framework is designed to be sufficiently broad to encompass the research focus in each Maintains country. A particular advantage of the framework for Maintains is that it extends beyond the formal health system to consider community systems and interactions with other social sectors, as well as national governance and financing systems. This interaction is important given the cross-sectoral nature of Maintains research, which extends to education, social protection, and disaster risk financing, as well as health.

The framework also encompasses the roles of different actors. The response to shocks is often delivered through a combination of government and humanitarian systems. Humanitarian actors can bring expertise and agility, but national government systems have potential advantages for sustainability, long-term efficiency (avoiding parallel systems that often bring higher costs), and accountability to local populations. In some countries and contexts, the role of humanitarian actors will remain important, particularly when these systems work to build local response capacity, and in situations when national systems are unable or unwilling to manage the response, due to the scale of need or lack of state capability or impartiality. The Maintains programme seeks to explore how more of the response can be delivered through national government systems, where appropriate, while retaining the benefits of principled and effective humanitarian response. This integration of humanitarian responses with national health systems is recognised as an important area for research (Blanchet *et al*., 2015).

The concept of shock responsiveness overlaps with the concept of resilience and this paper borrows extensively from the resilience literature. Resilience is a broader concept that considers a system's ability to manage all kinds of change and stress, not just shocks – as seen in the recent focus within the health systems literature on 'everyday resilience' (Gilson *et al.*, 2017). In contrast, and in line with the Maintains business case, we define a 'shock-responsive' health system as one that can adapt and scale up to address needs that arise due to a shock at the same time as maintaining essential service delivery.

Sustained delivery of essential services alongside emergency-specific activities is a key focus for Maintains as, for the vast majority of essential health package interventions, a delay of three to six months can affect health outcomes (Blanchet *et al*., 2020). There is a substantial body of literature relating to Ebola (McQuilkin *et al*., 2017) and an emergent literature on COVID-19 that shows the potential for shocks such as disease outbreaks to have extensive secondary effects on health outcomes through disruption of routine services (Blanchet *et al*., 2020). For example, it is estimated that, during COVID-19, even a modest decline of 10% coverage of pregnancy-related and newborn healthcare could lead to an additional 1.7 million women and 2.6 million newborns experiencing major complications without care, resulting in an additional 28,000 maternal deaths and 168,000 infant deaths (Riley *et al.*, 2020).

The framework will be further iterated throughout the lifetime of Maintains, based on emergent findings as well as other developments in the literature and evidence base. Maintains is actively seeking input and reflection on this framework from others working in this space.

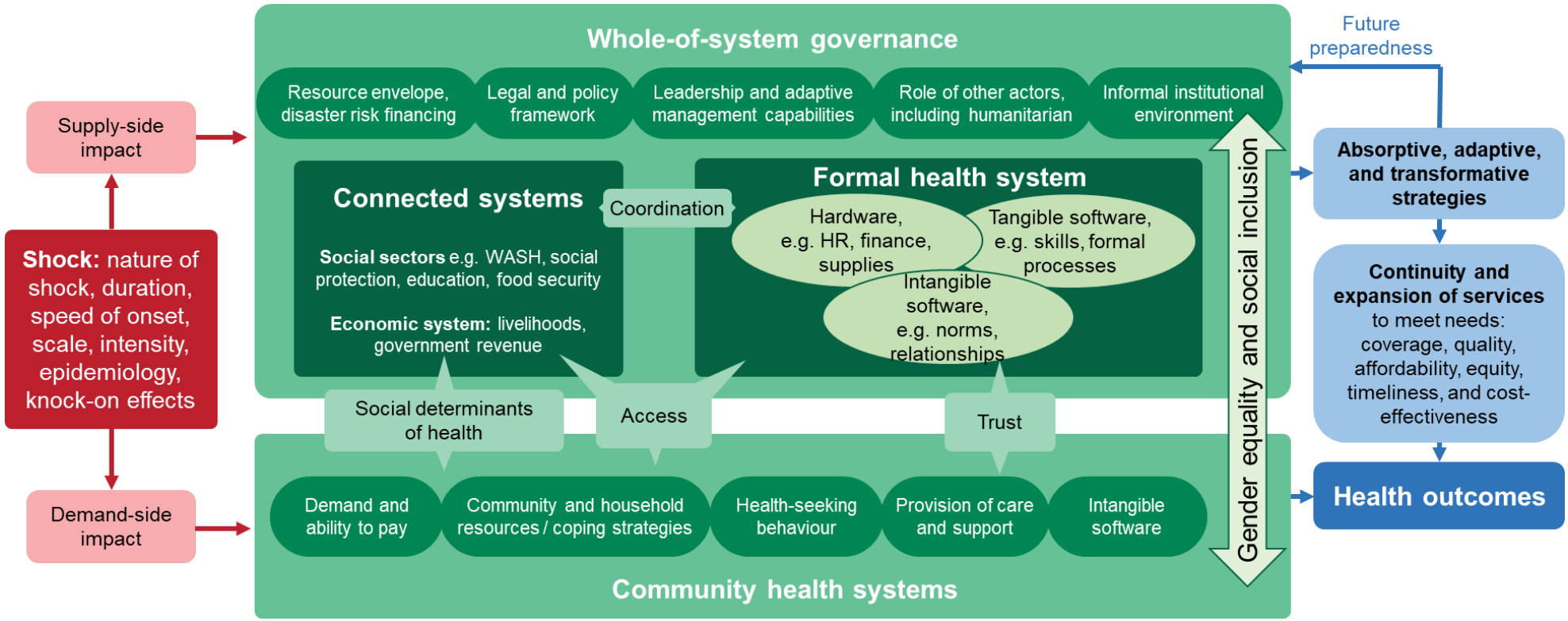
2 The framework

The framework for understanding shock-responsive health systems is presented in Figure 1. A number of elements underpin the thinking behind this framework, summarised here:

- Shock responsiveness depends on a strong underlying health system (WHO, 2019; Kruk *et al.*, 2017; Shoman *et al.*, 2017; Abimbola and Topp, 2018), including systems 'hardware' (for example, human resources, supplies, financial resources, and surveillance and information systems) and conducive 'software' (for example, coordination and informal institutions or cultural norms). Many components of the framework – for example, adequate hardware, community trust, and ability to pay – are important for routine health promotion and protection as well as effective shock response. However, countries also need specific public health and health security capacities to deal with outbreaks or other shocks. Strengthening emergency preparedness needs combined investment in both strong health systems and primary healthcare, and emergency management (Lal *et al.*, 2020).
- Health outcomes are affected not just by health systems but also by other social services and public systems (such as water, sanitation, and hygiene (WASH), education, and social protection) that affect the social determinants of health, as well as broader institutional and governance systems and economic conditions.
- Health services and outcomes also depend on the decisions and actions of individuals and households operating within diverse communities, as well as their relationship with the formal health system.
- Shocks have both demand-side and supply-side effects, and therefore affect services, governance frameworks, and communities.
- A health system is able to maintain essential service delivery and scale up or adapt services to address the needs arising from a shock if health system actors can deploy appropriate absorptive, adaptive, and transformative strategies.
- Shock responsiveness also involves capitalising on the opportunity that shocks present to improve health systems and make them more effective and better prepared for future shocks.

These elements of the framework are explored in the rest of this paper. We start by considering the impact of shocks on the formal health system, communities, connected systems, and wider governance. We then consider the characteristics of these components that can support shock responsiveness, followed by the different categories of system response.

Figure 1: Framework for analysing a shock-responsive health system



2.1 Impacts of shocks

When a shock hits, its impact and the appropriate response will depend on the nature of the shock and its duration, speed of onset, scale, intensity, epidemiology, and knock-on effects. Intensity and scale can vary widely: 'extensive risk' is used to describe the risk associated with low-severity, high-frequency events (for example, localised annual flooding); 'intensive risk' covers high-severity, mid- to low-frequency events, mainly associated with major hazards (such as hurricanes, earthquakes, major disease outbreaks, etc). The speed of onset is also key: cyclones and earthquakes are rapid-onset events with either no or only a few days' notice; drought is a slow-onset hazard, which can mean there is more time to prepare – but, paradoxically, the lack of a start event can also lead to paralysis.

A shock has both demand- and supply-side impacts, with interacting effects on the formal health system, communities, connected social services, and wider governance.

- Shocks can affect every level of the **health system** (Witter and Levin-Russell, 2019). The impacts include: damage to or destruction of hospitals and other medical facilities; emigration or deaths of health workers; shortages in staff and medical supplies; and work overload for those staff and facilities still functioning. Disasters can also produce a breakdown in information systems, making disease surveillance and monitoring difficult, as well as disrupting systems processes such as procurement and health information management. Increased need can lead to overcrowding and strain on services, while economic impacts and diversion of resources can lead to cuts in government spending on health. Transportation and communication systems can also be compromised or destroyed in the wake of disaster, further crippling the health system and detrimentally affecting individuals' ability to seek and access care. Impacts on the private health sector can also have knock-on effects for public services.
- **Community impacts** include the direct impact on health needs and changes in access and demand. Disasters can cause death, injury, chronic illness, and disability (as a consequence of injury), communicable disease outbreaks (often associated with population displacement and consequent overcrowding and lack of safe water, as well as contamination through flooding (Watson *et al.*, 2007)), and psychological trauma, such as anxiety, depression, irritability, post-traumatic stress disorder, and others (Witter and Levin-Russell, 2019). Specific gender-related needs can include increased risk of gender-based violence (GBV), including domestic violence during periods of lockdown. Slow-onset disasters, such as drought, can cause mortality and morbidity as a result of malnutrition, proliferation of communicable diseases, migration, and other factors (Stanke *et al*., 2013). Shocks can also affect communities' ability to access services, both directly through disruption to transport or physical barriers and via economic shocks that affect ability to pay (Witter and Levin-Russell, 2019). Shocks may also affect community demand for services: for example, through impacts on trust or concerns about infection that reduce acceptability (Nair, 2020).
- Shocks can also strain **other social services** and related public and private systems that affect the social determinants of health and the functioning of the health system: for example, disruption to social protection and nutrition services can increase food insecurity and exacerbate health needs. The social determinants of health are also affected by **economic repercussions** following shocks, including loss of household

assets and livelihoods. These household impacts have been evident during COVID-19, as restrictions on mobility have reduced income-earning opportunities and consequently have increased poverty and food insecurity (World Bank, 2020a). Falling household income and unemployment also reduce people's ability to pay for health services, and can reduce coverage of health insurance (Barasa *et al*., 2020). At the national level, economic impacts can include economic contraction or a slow-down in growth, reduced government revenue, and increased demands for government funding, which may lead to reallocation of funding away from long-term development investment and the social sectors, including health (Benson and Clay, 2004; World Bank, 2020b; Barasa *et al*., 2020).

- Shocks can also affect **wider governance systems**: for example, either enhancing or reducing political legitimacy, bringing social mobilisation and new rights claims, leading to political change, shifting international diplomacy, and changing government priorities (Pelling and Dill, 2010). Shocks can weaken state capacity to deliver basic services, and inability or perceived failure to adequately respond and provide services can create tension between the state and citizens and heighten risks of social unrest (Akroyd *et al*., 2020; Witter and Hunter, 2017c). Reduction in state legitimacy is particularly likely when non-state actors become important service providers, and may in turn limit state capacity to collect the taxes and insurance contributions required to fund the health system (Witter and Levin-Russell, 2019). States may also gain increased control: for example, COVID-19 has enabled more autocratic behaviour and abuse of human rights in some countries (The Economist, 2020). Crises also bring risks of increased resource capture by elites, as well as patronage and nepotism, but also opportunities to develop new political settlements and social contracts (Witter and Hunter, 2017c).

2.2 Public systems

The formal health system

Shock responsiveness requires investment in strong health systems and in specific capacities needed to prevent and manage shocks. The importance of strong underlying health systems has been emphasised in relation to COVID-19 by global actors such as the World Bank, WHO, and UHC partnership (World Bank, 2020c; WHO, 2020b UHC2030, 2020). However, as these and other stakeholders suggest, countries also need specific public health and health security capacities to deal with outbreaks or other shocks (Lal *et al.*, 2020). Strengthening emergency preparedness needs combined investment in strong health systems and primary healthcare, and in emergency management. In this section, we start by describing key health system functions and features that affect shock responsiveness, and then consider specific additional elements and frameworks focused on health security.

Health systems can be considered in terms of six key functions or 'building blocks': the health workforce, health information systems, supplies and infrastructure, finance, governance and leadership, and service delivery (WHO, 2010). These blocks are interdependent and interact. For example, reliable information underpins effective human resource management, supplies, finance and service delivery, and governance is a cross-cutting aspect that affects all functions. The formal health system includes both the public

sector (directly) and the private sector (through stewardship and regulation as part of governance).

The functioning of the building blocks depends not just on 'hardware' aspects such as the number of staff or supply chains, but also on the knowledge, attitudes, actions and relationships of people in the system – the health system 'software' (Sheikh *et al*., 2011). This software component involves both 'tangible software', such as skills and formal procedures, and 'intangible software' – the norms, values, incentives, relationships, and culture that influence behaviour. Hardware and software dynamically interact: for example, availability of resources such as funding and medical supplies affects provider motivation, and motivation can in turn affect whether performance is sufficiently accountable and efficient to ensure supplies. This interaction and the combined effect of health system building blocks, capacities, processes, relationships, and culture affects health system activities and outcomes. Thus, health systems are increasingly seen as 'complex adaptive social systems' whose outcomes depend on the decisions and interactions of the people within them (Barasa *et al.*, 2017).

Both the hardware and software components of a formal health system affect how well that system can respond to a shock (Kruk *et al.*, 2017). To maintain essential services while scaling up in response to a shock, a health system needs sufficient hardware resources to deliver services. However, for health system actors to deploy the absorptive, adaptive, and transformative strategies required to maintain and scale service delivery, the software (both tangible and intangible) of their operating environment must be conducive.

Strong functioning in relation to health workers, information, supplies, finance, service delivery and governance, and effective software and community relationships are important for health systems in any conditions. Specific emergency management capacities relate to these underlying health system functions and indicate additional areas needed for shock response. Some of these capacities are indicated in the International Health Regulations (IHR) of 2005, the key global health security framework. The IHR are legally binding and indicate core national capacities required to prevent, protect against, control, and respond to public health threats (Kluge *et al*., 2018). Although the IHR focus on international spread of disease outbreaks, many of the indicated capacities support shock responsiveness more widely.[1]

The literature on embedding IHR capacities within health system strengthening and on health systems approaches to resilience has identified particular components of the building blocks that are most relevant to the ability of a system to prevent, prepare for, and respond to shocks (Hanefeld *et al.*, 2018; Kluge *et al.*, 2018; Nuzzo *et al.*, 2019; FCDO, 2020). These include the following:

- A strong, committed, well-distributed, and skilled **workforce** that is supported, protected, recognised, and encouraged, particularly given the strain they are put under during emergencies (Raven *et al*., 2018; Witter *et al*., 2017). A range of skilled roles is required,

[1] Important limitations in the IHR have also been highlighted, including inadequate consideration of gender, social vulnerabilities, and political factors, risk of focusing on capacities related to international outbreaks at the expense of activities required for more local emergencies, and weak correlations between indices related to the IHR and actual outbreak response; see Haider et al., 2020; Wenham et al., 2020; Wilson et al., 2010.

including clinicians and public health specialists, but also expertise in epidemiology, health information, risk communication, sociology, and anthropology (Kluge *et al.,* 2018). Support for health workers should address the impact of gender relations, including recognising that female health workers often balance family pressures alongside the shock's increased workload and risks to safety (O'Donnell *et al*., 2020).

- Sufficient **supplies**, logistics, equipment, and infrastructure, with emergency stocks, procurement plans, and plans to weather interruptions in relation to critical infrastructure and transportation and ensure distribution.
- **Information** systems with surveillance and early warning systems that can rapidly detect, verify, and track events. Systems need to integrate other sector data with health management information systems, and cultivate informal and local data sources that can overcome the inherent delays in producing formal data. Capacity is needed to analyse data in ways that enables real-time decision making, alongside clear communication channels between health system actors and other sectors, risk communication protocols, and robust engagement with patient populations.
- Adequate and predictable **finance**, with fiscal stabilisers, reserve accumulation mechanisms, robust expenditure management systems, and flexible access to financing, including disaster risk financing approaches. Pre-crisis investment is needed in public health infrastructure, such as information systems and diagnostic services. Financing mechanisms also need to reduce or remove out-of-pocket expenses, given the significance of user fees for inequality in access and increased risks of household poverty during shocks (ReBUILD, 2016; Barasa *et al*., 2020). Given limited resource envelopes, investment in greater systems hardware requires improving the efficiency of expenditure so as to generate sufficient budgetary space and robust prioritisation. Potential opportunity costs also require attention: for example, balancing investment in and time for specific health preparedness activities against support for other services and improvements in routine care.
- **Service delivery** structures with surge capacity (the ability to call on human and capital resources to expand the level of care during shocks), altered standards of care (having adaptable response plans to guide actors in allocating scare resources and health services), and strong infection prevention and control systems.
- **Governance** (Blanchet *et al*., 2017), **leadership** (Fridell *et al*., 2020), and **management** functions involve a range of dimensions and capacities related to overseeing the entire health system, including policy guidance, intelligence, coalition building, regulation, system design, and accountability (WHO, 2007). In relation to shocks, a key requirement is to pre-emptively build a legal and policy foundation to guide responses to shocks, covering all levels of the health system, the private and non-profit sectors, international agencies, and intersectoral coordination (Kruk *et al*., 2015).
- Relationships with international agencies and humanitarian actors need to be carefully calibrated to increase shock responsiveness (e.g. through securing surge capacity) without undermining national systems. An influx of external organisations following shocks can lead to fragmented responses, reduced control for local managers, external dependence, and neglect of longer-term health system needs (Martineau *et al*., 2017; Witter and Hunter, 2017b). In some cases, there is a risk that humanitarian actors create a 'moral hazard' risk, allowing national governments to avoid the need to build sovereign capability. Government systems and strong coordination can help to move away from *ad*

hoc assistance toward more predictable, integrated, and transformative approaches (Resident Coordination Office, 2019).

Planning for shocks, building networks, and appropriate decentralisation to allow decision making by local managers helps to provide a platform for responding to shocks when they occur. This needs to achieve both 'planned resilience' as well as 'adaptive resilience' – the dynamic ability to adapt to unpredictable elements as they unfold. For example, the limited decentralised decision space was highlighted as a limitation of the response to Ebola in West Africa (Abimbola and Topp, 2018). Overall, the capacity to manage actors, networks, and institutions that have an influence on the health system is a crucial determinant of how shock-responsive that system can be. Governance also covers aspects of accountability – both vertical within the health system and horizontal to citizens – which has an impact on performance and responsiveness.

Beyond the formal planning and coordination functions, governance can also be understood as involving **intangible** software – those aspects of the health system that relate to informal institutions and the rules of the game, the implicit and explicit rules and institutions that shape power and the relationships between actors (Topp, 2020). Norms, values, incentives, and relationships that drive behaviour are gaining increasing attention in health systems and policy research, including recognition of their importance in enabling shock responsiveness, particularly the role of values (Whyle and Olivier, 2020) and trust (Palagyi *et al.*, 2019). Values include the political priority given to health during a shock, the values of the society in which the health system and its workers are embedded, and the personal, professional, and societal moral landscapes that impact on how difficult decisions are negotiated (Hanefeld *et al.*, 2018).

Another important aspect of health system software is trust between communities and the health system, increasingly recognised as a precondition for resilience (Diaconu *et al*., 2019): 'Health systems that earn the trust and support of the population and local political leaders by reliably providing high-quality services before crises have a powerful resilience advantage' (Kruk *et al*., 2015, p1910). For example, community distrust of frontline health services generated resistance to seeking care and implementing infection control measures during the Ebola crisis (Thiam *et al*., 2015). Community trust is based on both interpersonal trust in health workers' competence and behaviours and on trust in the wider institutions that affect this behaviour (Topp and Chipukma, 2016; Gilson *et al*., 2005). Trust between health system staff is also important, including trust in the commitment and competence of leaders, so that health workers are willing to engage and maintain professionalism during shocks (Nyarko *et al*., 2015.)

Interpersonal trust within the health system can be promoted (Witter and Hunter, 2017a) through establishing an organisational culture with a strong public mission that leads to pro-social decision making, supportive supervision, and ensuring that staff feel that they are treated fairly and given the resources required to perform. This needs to be underpinned by leadership practices that: build trust, motivation, and empowerment; create a learning organisational culture that promotes collaboration; are amenable to change through coaching and mentoring; and can nurture resilience (Barasa *et al*., 2017). Institutional trust can be promoted through community engagement, promoting responsiveness to community demands and priorities (including through social accountability), and taking into account cultural preferences. In Sierra Leone, for example, community monitoring increased trust

and confidence in health workers and improved the perceived quality of care provided by clinics, which led to increased likelihood of reporting symptoms and seeking care during Ebola – and to lower mortality (Christensen *et al*., 2020).

Whole-of-system governance

Health systems exist within broader institutional and governance systems. These broader public sector institutions act to shape and constrain health systems: for example, the ability of a health system to hire, transfer, and manage the performance of human resources is often determined by broader public service rules and processes. These broader whole-of-system governance considerations can affect health system hardware, software, and shock responsiveness in a number of ways, including the following:

- Macro-fiscal, resource allocation, and disaster risk financing mechanisms determine the resources available to a system both in normal times and in response to a shock.
- Legal and policy frameworks are often centrally determined, particularly the relative roles of the public and private sectors, the stewardship role of the public sector in regard to the private sector, and levels of decentralisation.
- Leadership and management during a major shock is often controlled centrally (for example, through a disaster response agency or a prime minister's office), as are mechanisms of accountability, both vertical and horizontal.
- The political settlement, or the balance of power held by the governing party, can affect the strength of policy implementation. Effective delivery of health system priorities may be faster under dominant ruling parties than in countries with more multi-party competition and less top-down control; in the latter, engagement with non-state actors may be more effective in supporting policy implementation (Kelsall, 2020).
- Coordination with other actors is often managed outside of health systems, particularly coordination with international agencies and humanitarian actors involved in maintaining and scaling service delivery. There may be different governance systems for health emergency management and humanitarian response, requiring coordination.
- State capacity and legitimacy also influence the role of non-state humanitarian actors. While national systems can support the accountability, efficiency, and sustainability of emergency response and routine health service provision, the state may be unable to provide health services in some fragile contexts (Diaconu *et al*., 2019). This includes areas affected by conflict, where the state does not have access and control, or where high exposure to risk limits state capability to build systems (for example, where it is unsafe to deploy health workers). Fragile settings also include those where national governments are unwilling to provide services for certain populations, including both politically marginalised communities and displaced or refugee populations. External humanitarian assistance may play a particularly important role in these contexts.
- Intangible health system software is influenced by the norms and culture of the broader public system and the socio-cultural context within which the public sector operates.
- Gender equality and social inclusion (GESI) considerations cut across all these dimensions, including in relation to the political economy of health policymaking (Kelsall, 2020). There is a need for gendered approaches to policy, and better results occur when women are involved in leadership, but women are underrepresented in international and

national health system decision making, both in normal times and in relation to emergencies such as COVID-19 (CARE and IRC, 2020; Dhatt *et al*., 2017).

- Effective governance of shocks may require reorganisation of existing structures of authority, including changes to power relationships. For example, this may involve enhancing decision space at local levels for a decentralised response, policy making structures that include marginalised groups, new collaborations between sector ministries, and willingness on the part of different departments to work with a national coordinating committee that can lead and supervise emergency management (Rosser *et al*., 2021; Thomas *et al*., 2020).

Connected systems

Health outcomes depend on sectors beyond health, such as education, social protection, WASH, food security, and disaster risk management. The functionality of these other sectors influences both demand for health services through the social determinants of health and supply of health services through interdependencies in service delivery. For example, education affects the impact of behavioural change interventions, while social protection affects the ability of households to pay for health services. These connected sectors also have important inequities in provision related to gender and other dimensions that affect social inclusion; these inequities in turn affect the impact of services in other sectors on the need for and access to health services. For example, inequitable access to WASH has been highlighted in relation to COVID-19 and ability to apply preventive measures (Lancet Global Health, 2020).

These other connected systems can also be affected by shocks – amplifying the impact on health outcomes and rendering more complicated decisions about how to prioritise responses: for example, restoring critical infrastructure such as roads and power may be needed before health services can function and be accessible to the population.

Coordination and partnerships between the health system and other sectors are important in ensuring positive interdependencies and convergence in service delivery. These interdependencies need to be identified and planned for in advance. The strength of this coordination is heavily determined by broader whole-of-system governance. Further evidence is needed on effective approaches to intersectoral intervention (Blanchet *et al*., 2015).

Community health systems

Key aspects of the community health system include community-level health workers, household health-seeking behaviour and decisions, access, and demand, inequities in health needs and access, and community engagement.

Community health systems comprise a large number of actors engaged in supporting and mediating household production of health and access to health services (Sacks *et al*., 2019). This includes community health workers (who provide a bridge to the formal health system), informal providers (such as traditional birth attendants), and other community organisations and governance structures, all of which interact in complex ways (Schneider and Lehmann,

2016). The important role of community health workers in shock response has been highlighted in relation to COVID-19 (Srinivasan and Arora, 2020).

Most health outcomes are determined at home, through healthy behaviours and home treatment of ill health. Households play an important role in providing care for their members and other households: for example, through assistance with emergency transport and peer support. Families and communities are also the first to be affected by, and to respond to, shocks, so it is critical to support effective health-seeking behaviour before, during, and after shocks. Communities' material assets and resources, governance, and interests affect their ability to promote and protect health, and the interface between communities and the formal health system (George *et al*., 2016). Effective collaboration with communities and households to support health-seeking behaviour also depends on institutional trust in the formal health system, and the quality of – and engagement with – informal providers. Investing in the resilience of households and communities is a key aspect of building shock responsiveness.

Other factors at the community and household levels also have an impact on individuals' access to healthcare and their health-seeking behaviour, including the ability to pay for health services, perceptions of risk, community and individual ability to withstand shocks, and household and gender dynamics. The resilience literature emphasises the importance of dismantling physical, economic, and social barriers to healthcare access so that all women, men, and children can access care during shocks (Nuzzo *et al.*, 2019). These barriers are higher for marginalised and vulnerable groups, including displaced populations, refugees, and people with disabilities. For example, during COVID-19 refugees have faced reductions in services due to restrictions on humanitarian access and lockdowns around refugee camps (Hillier *et al*., 2020). Overcrowded conditions in camps increase health risks, and for refugees and migrants uncertain legal status or loss of documents can hinder access to health and other social services, affecting the social determinants of health by restricting employment and income generation (Kluge *et al*., 2020). People with disabilities experience higher rates of mortality and abuse during crises, as well as reduced access to humanitarian assistance as a result of attitudinal, physical, and communication barriers (Inter-Agency Standing Committee, 2019).

Inequalities often increase during and in the aftermath of shocks, whether in terms of health impact, out-of-pocket payments, or access to the system (Hanefeld *et al*., 2018). Women have specific health needs around maternal, reproductive, and child health, for which disruption during a short-term shock can have long-term consequences. Women may also have extra needs during shocks, including around safe access to services, support for GBV, and broader protection. They can also face greater financial and physical barriers to accessing care (Witter *et al*., 2017; Vijayasingham *et al*., 2020; UNFPA, 2020).

GESI considerations are therefore critical in shock response, requiring an intersectional approach, action before, during, and after crises, and attention at all levels. While the consequences of inequalities may be most visible at community level, these inequalities often result from decisions and actions in other parts of the system, including legal and policy frameworks and national decision-making structures (Rosser *et al*., 2021).

This diversity and these inequities point to the nature of communities as heterogeneous and complex social systems (George *et al*., 2018), which are heavily influenced by intangible

software issues such as contested power relations and discrimination. This heterogeneity within and between communities works against universal solutions and requires local problem solving, experimentation, and learning about what works to address specific problems in a particular context. Approaches are needed that can mobilise commitment to implement these context-specific solutions: for example, through participatory learning and action techniques (Tripathy *et al*., 2016).

The importance of effectively engaging with communities and their institutions (such as traditional leaders) during shocks is well established – particularly drawing on learning from the roles communities played in overcoming the Ebola crisis in West Africa (Marston *et al.*, 2020). Community engagement was crucial in Liberia, including the formation of community-based surveillance teams and treating communities as active participants of health response efforts rather than just passive recipients. Inclusive dialogue, efforts to enhance accountability, and the engagement of local actors in the formulation and implementation of recovery strategies and service delivery are important in rebuilding institutional trust and community resilience after shocks (Konyndyk and Saez, 2020).

2.3 System response

As outlined above, a shock-responsive health system is one that can adapt and scale up to address the needs that arise due to shocks, while maintaining essential service delivery. This requires system actors to prepare for shocks and to deploy absorptive, adaptive, and transformative strategies when shocks arise (Thomas *et al*., 2020; Blanchet *et al.*, 2017).

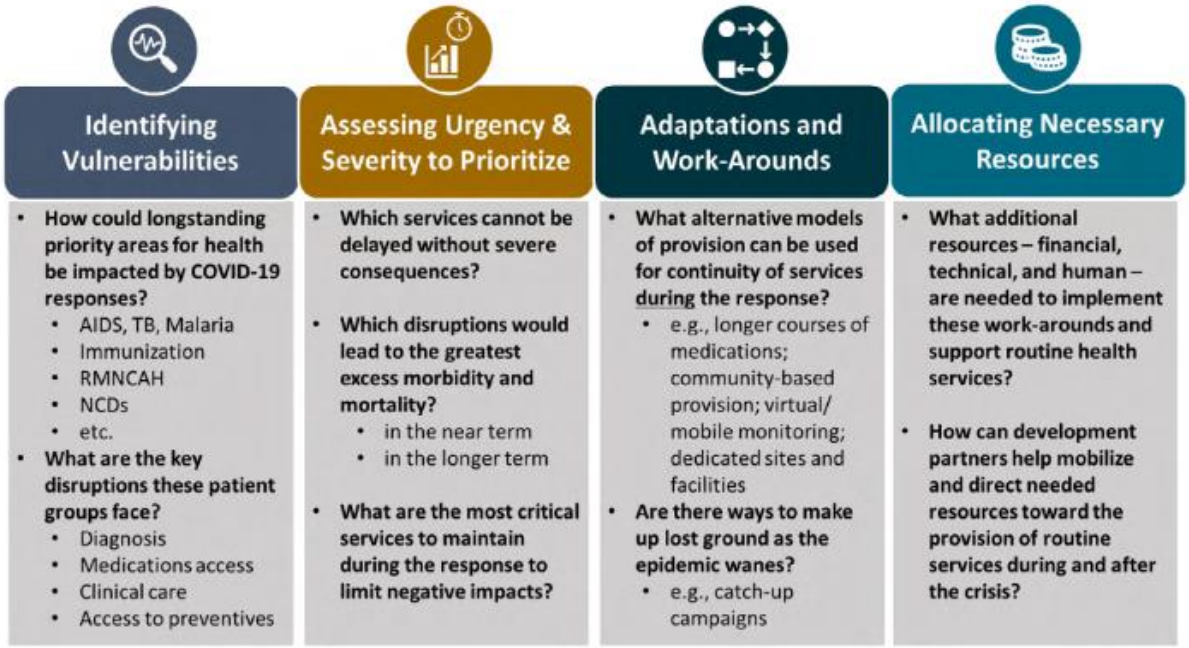
Preparedness involves reducing vulnerability and building the planned and adaptive resilience of a system so that it can effectively respond to shocks. This means strengthening the hardware and software that system actors need to draw upon in order to deploy appropriate response strategies when shocks occur. Strategies include improving risk management and governance, engaging in pre-emptive risk reduction, applying interventions to address the causal drivers of vulnerability, and developing appropriate financing mechanisms. In general, there is a current over-emphasis on reacting to events, instead of prevention and proper preparation (WHO, 2019).

When shocks occur, **absorptive** strategies involve a health system continuing to deliver the same quantity and quality of services without major changes or a redistribution of resources. With more intense shocks that place bigger demands on health systems, **adaptive** strategies are required. These involve continuing service delivery with fewer or different resources by reallocating resources or changing policies and procedures. **Transformative** strategies involve more substantial changes to health system functions, structures, and ways of working (FCDO, 2020; Blanchet *et al*., 2017). For example, surveillance and contact tracing systems developed in response to Ebola have supported the response to COVID-19 in West Africa (Ihekweazu and Agogo, 2020). Emerging findings from an ongoing Oxford Policy Management evaluation in East Africa suggest that, in some cases, COVID-19 has enhanced coordination among local government health actors and with development partners, potentially establishing relationships that can continue to support health systems post-crisis.

Effective response strategies depend on the type of shock, its intensity and impact, and the required degree of structural change. A mixture of responses is often needed. Strategies can

include changing the service delivery bundle (either adding services or stripping them back to their core), amending pricing policies (making services free or making non-core services more expensive, to generate resources), redistribution of the health workforce, and provision by informal, private, not-for-profit, and international organisations. A number of guidelines and reports (e.g. WHO, 2020a) suggest key approaches that governments in low- and middle-income countries can take to identify and mitigate the indirect effects of shocks (such as COVID-19) on essential service delivery. Some key steps and considerations are summarised in the framework below. Implications for equity and strategies to ensure inclusion need attention in all these steps.

Figure 2: Key considerations for identifying and mitigating the indirect health effects of epidemics



Source: Krubiner *et al*. (2020)

Shock responsiveness also involves capitalising on the opportunity that shocks present to improve health systems and make them more effective in general, as well as better prepared to respond to future shocks (through building both planned and adaptive resilience). Ideally, strategies will generate long-term improvements in the health system that improve service quality, coverage, or value for money, and thus resilience will emerge post-crisis as new capabilities are developed (Barasa *et al*., 2018). Particular care has to be taken that humanitarian support to deal with shocks builds shock-responsive capability, rather than weakening national systems. For example, following the Ebola crisis in West Africa, international efforts by governments, multilateral organisations, and financial donors supported the alignment of global health security and health systems strengthening. The Ebola outbreak was thus an enabling event that generated opportunities for actors in the health sector to propose solutions for national health system reforms. Leadership, financing, and capacity were necessary prerequisites for windows of opportunity to be taken advantage of in this case (Witter *et al.*, 2016).

However, strategies can be unsuccessful and systems may maladapt or collapse in the face of severe shocks or ineffective preparedness and response (Department for International Development, 2011). The deployment of appropriate strategies requires sufficient hardware and conducive software so that health systems can adapt without negative consequences – a situation termed 'robustness' (Abimbola and Topp, 2018). Without this system strength and robustness, adaptation is 'coping and not resilience', indicating the importance of health system strengthening as part of preparedness (Abimbola and Topp, 2018).

The resilience literature emphasises that effective response, transformation, and use of opportunities for reform requires a commitment to continuous quality improvement, multi-directional learning, feedback loops, and a conducive environment for sense-making and learning (Kruk *et al.*, 2017; Thomas *et al*., 2020). Ongoing learning and adapting to improve future preparedness are crucial for improving shock responsiveness.

3 Conclusion

This working paper has set out a conceptual framework for understanding a shock-responsive health system for Maintains. A shock-responsive health system is one that can adapt and scale up to address the needs that arise due to the shock, while maintaining essential service delivery. Such systems are able to deploy strategies for preparedness, adaptation, absorption, and transformation in ways that support good health outcomes. Through these strategies, a shock-responsive health system also combats persistent inequities in health and wider society, and prevents shocks from exacerbating these inequities.

Shock-responsive health systems have strong internal capacity (hardware and software) to deal with the shock. They have in-built surge capacity and are able to undertake focused, additional preparatory steps to cope with the shock. Strong hardware and software need to be built over the long term, in order to provide a sound basis for response when shocks arise. Stop-gap arrangements in health systems to cope with shocks might work temporarily, but they have only transient benefits.

Shock-responsive health systems cannot be established in a silo, as the public health system response is affected by the overall response of other public sector bodies. While working within a 'whole-of-government' response, shock-responsive health systems must be able to establish leadership in regard to health-related interventions, and to act as one of the guiding pillars of the response rather than being restricted to implementation only. For this to happen, existing power relationships between public sector bodies may need reconfiguring in certain contexts, with new structures and distribution of decision-making authority.

The public health system response to shocks also influences and is influenced by the response of communities. Shock-responsive health systems take into consideration the multi-faceted challenges (economic as well as social) faced by communities during a shock. Such health systems acknowledge, respect, and work in solidarity and partnership with community-led initiatives during the shock. Credibility, trust, and legitimacy in the eyes of the community are important features of shock-responsive health systems, and need to be established prior to, during, and beyond the shock.

Lastly, shock-responsive health systems need immediate as well as continued political support. A robust, transparent response that acknowledges gaps and contributes to self-learning in systems can only be fostered in supportive and non-punitive political environments.

For the Maintains programme, our next step will be mapping country research activities against the framework, to understand which components are being examined through the research, and to identify any potentially important components where further research focus may be needed. We will then use analysis and cross-country synthesis to examine specific components and links in the framework. In particular, we will assess how shocks affect the demand and supply sides of health systems, what factors influence these impacts, and how the different health system, community, and wider governance components affect the nature of absorptive, adaptive, and transformative strategies, as well as the effectiveness of these strategies for health outcomes. This analysis will generate insights into the types of strategies that countries can adopt based on their different underlying health system

conditions, and the different components of their health system or the wider structures that seem particularly important in enabling effective strategies for shock responsiveness (for example, particular aspects of human resources or the community health system). We will continue to work with wider partners beyond Maintains to maximise the evidence base and learning.

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