Table 4: Response to Humanitarian crisis/armed conflict & migration and mobility according to health system functions and cross-cutting dimensions

	Health systems dimension		
	Health and Management Information Systems	**Funding/financing mechanisms**	**Health workforce**
Humanitarian crisis/armed conflict & migration and mobility	The HMIS in such a shock is often unable to function properly or capture the type of data necessary during armed conflicts (e.g. injury- and surgery-related data). Armed conflicts are challenging as it may be difficult to predict when they will occur, and with what intensity. Some countries have information systems in place: Monitoring of rumours to identify tensions between communities within countries. Regional geopolitical analysis to identify potential tensions between countries and any movement of troops. Analysis of trends on the likelihood of armed conflicts in countries that	Emergency response requires a large amount of funds mobilised in a very short time. Affected countries do not usually have sufficient reserves, so funds need to come from international agencies. Pooled funding is available through various multilateral (e.g. UN agencies, European Civil Protection and Humanitarian Aid Operations) and bilateral (e.g. Disasters Emergency Committee and START Network (UK), Office of US Foreign Disaster Assistance, Qatar Government) mechanisms.	Armed conflicts result in the disruption of health services and the closure of facilities due to populations and health care workers fleeing the region, and violence against healthcare workers by combatants. Emergency responses during armed conflicts are often accompanied by deployment of external health staff and managers to support existing national staff in the delivery of health services.

	experienced conflict during the last 15 years.
Values (cross-cutting)	Humanitarian interventions during conflicts are guided by humanitarian principles based on neutrality, impartiality and independence to ensure that all humankind shall be treated humanely and equally in all circumstances, by saving lives and alleviating suffering, while ensuring respect for the individual. This requires offering health services in all regions, and more specifically in regions directly affected by conflicts and those hosting displaced populations trying to find refuge from violence. To facilitate access to health services, free healthcare is offered to affected populations. This has in the past created tensions between displaced and host populations, who do not have access to the same quality of care and have to pay user fees.
Governance (cross-cutting)	Humanitarian coordination mechanisms are in place through the Cluster approach coordinated by UNOCHA, and to which all humanitarian actors (national and international) are supposed to contribute. In reality, the system is not fully functional, and is often criticised for not being coordinated and for creating inefficiencies in the health system. The emergence of new humanitarian actors from Qatar, Brazil and Korea, and many individual initiatives funded through crowdfunding, make including all actors even more difficult.

Table 2: Response to Financial crisis according to health system functions and cross-cutting dimensions		
	Health systems dimension	
	Health and Management Information Systems	**Funding/financing mechanisms**	**Health workforce**
	HMIS are largely unfit to monitor health impacts of economic crises as: i) there is a delay before population health and health	Many countries in the EU demonstrated pro-cyclical patterns of public spending on health during the crisis, which	The crisis had a negative impact on workers' pay and numbers in many countries in Europe, with substantially

	systems performance data become publicly available; ii) changes in population health are not always directly attributable to one crisis due to multiple underlying changes in health determinants; iii) delayed health effects are largely unreported due to difficulties in attribution and interpretation; and iv) no forecasting of financial crisis is considered in planning for health.	made them vulnerable to economic shock. Countries adopted a mix of measures to mitigate budget shortfalls, ranging from explicit cuts to attempts to mobilise public revenue. Yet public spending on health fell in many EU countries during the crisis. The scale of cuts combined with high levels of OOPs led to worsening of access to care e.g. in Greece and Latvia. Adequate levels of public funding before the crisis helped some countries respond. Automatic stabilisers (built-in countercyclical mechanisms in the form of reserves and formulas for government budget transfers) made a difference in maintaining public revenue for the health system for at least some time. Health coverage was affected, with an increase in user charges and a reduction in entitlements (e.g. access to medicines). However, a few countries increased levels of financial protection for some of the most vulnerable groups.	reduced wages and staff lay-offs in the hardest-hit countries.

Values (cross –cutting)	The need to respond to economic shocks should be an integral part of health system policy goals. Evidence suggests that the important economic, social and health system benefits of promoting financial protection and access to health services at a time of economic crisis played little (if any) role in fiscal policy decisions. Disadvantaged groups are likely to be first or worst affected in terms of access and OOPs. When data on increases in mortality due to crisis were available, e.g. suicide rates in men, these did not lead to action.
Governance (cross-cutting)	There is a need for health to connect more closely with wider economic governance, to argue in non-crisis times for greater investment in health and policies aimed at stabilising health systems and protecting population health during crises. It is important to note that health will not be the leader of these discussions, but rather play a role in integration and advocating for these policies. Greater integration into economic governance mechanisms also enables better forecasting of impending crises.
Case-specific lessons learned	The most vulnerable populations were worst affected. Responses varied greatly between countries, depending on underlying importance and values surrounding health. Policy responses before and during a crisis had a real impact on systems' ability to withstand shock.

Table 3: Response to climate change according to health system functions and cross-cutting dimensions

	Health systems dimension		
	Health and Management Information Systems	**Funding/financing mechanisms**	**Health workforce**
Climate change	Early-warning systems for climate-related natural disasters are in place in some middle-income countries that are significantly and historically affected (e.g. the Philippines). Extreme weather events are increasingly unpredictable and existing models have been unable to	Climate Investment funds are available through various mechanisms. International Bank for Reconstruction and Development (World Bank) is chairing several of these.	Some initiatives exist under the One Health agenda to better connect animal and human health in terms of workforce preparedness. Attention to effects on health workforce mainly in relation to responding to extreme weather

	predict some disasters e.g. the Haiti tsunamis in 2010. Some disease surveillance and population data trends exist but there is no systematic forecasting of more chronic climate-related health changes, or cross-sectoral sharing of information (e.g. on weather events, changing crop and zoonosis patterns) except through *One Health* initiatives.		events as a humanitarian or disaster-related emergency.
Values (cross-cutting)	Rich countries are often to "blame" (emissions) while poorer countries are considered "victims", but these lines are blurring with the advent of the emerging economies (e.g. India and China). This "blame" brings with it moral obligations (with varying commitments) by rich countries to support poorer countries in adapting to the effects of climate change, but this agenda is driven by economic development actors not health actors.		
Governance (cross-cutting)	This is the weakest part of thinking to date. There is no inter-sectoral governance, only ad hoc inter-sectoral planning initiatives mostly around One Health and disaster response. The health sector needs to connect to climate change governance at national and global levels.		
Case-specific lessons learned	Development of workable, useful models of inter-sectoral coordination is needed. Experiences from disaster-response approaches to extreme weather events – for example the UNOCHA Cluster system – demonstrate how difficult it is to coordinate and sustain these initiatives. Lessons need to be translated into a continuous systems response in which the health sector is able to map and act on the critical multi-sector links it needs to make to share forecasting information and multi-sectoral response.		

Table 5: Response to migration and mobility according to health system functions and cross-cutting dimensions

	Health systems dimension		
	Health and Management Information Systems	**Funding/financing mechanisms**	**Health workforce**
Migration & mobility	HMIS is not designed to capture mobility or migration status or to respond to these pressures. This is complicated by the fact that migrants find it difficult to hold onto their medical history, so cannot share it with clinicians.	Citizens feel strongly about national health systems, and anti-migrant feelings can be exacerbated by foreigners using health services. Pressure from the general public to stigmatise migrants and exclude them from the mainstream health system is not uncommon.	Clinicians may not speak the same language as newly arrived patients. Migrants may have different expectations of care and find it difficult to accept care from clinicians in the new country. Staff must approach potentially sensitive topics (i.e. family planning and abortion) in a culturally sensitive manner.
Values (cross-cutting)	Migrants may not know their rights and if they are not covered by the humanitarian or new country's system they may need to pay for health services. In many national health systems entitlement to health services for migrants is not assured.		
Governance (cross-cutting)	The unpredictability of migration can make it difficult for governments to estimate necessary financial and staffing resources. International funding mechanisms are slow and funds are rarely released quickly. There is no current functional mechanism at global level to address mobility/migration between health systems in a way that addresses these concerns.		
Case-specific lessons learned	Likely to increase inequities, as currently no adequate financial mechanisms to address migration and mobility exist at international level. Criminalisation or possible financial penalties make monitoring harder as migrants may seek to hide their migratory status. Current responses rely on health workforce initiative and less on systems responses. For systems to become and remain resilient they need to be supported systematically.		

Table 1: Response to Ebola according to health system functions and cross-cutting dimensions

	Health systems dimension		
	Health and Management Information Systems	**Funding/financing mechanisms**	**Health workforce**
Ebola	Staff in most affected areas and facilities had little time to prioritise data entry and analysis and to use this for decision-making. Military responders set up parallel surveillance systems, raising issues of sustainability. The rapidly evolving response required intense daily monitoring with a few easily measurable indicators. However, these indicators only gave a partial view of the situation (e.g. early national indicators focused on bed numbers, not ambulances or contact tracing line lists). There was little operational consideration of the value that qualitative data had to contribute to making sense of the HMIS.	Large amounts of money from Western governments were dedicated to eradicating Ebola; governments and organisations sometimes found it difficult to absorb this level of funding. The "no regrets" model of donor funding increased the potential for innovative and bold programming, but financial accountability practices meant that the majority of funds went to international rather than national or local organisations. Funds allocated to go through national governments to pay health workers or buy supplies were hamstrung by inadequate financial management systems. In the post-Ebola/recovery stage there continues to be increased donor attention, but with a relatively narrow focus on recovery priorities. There has been a shift away from sectoral areas (e.g. gender empowerment and sexual violence, core health	Facilities affected early in the epidemic sustained far higher staff mortality than those affected later on once training and supplies were mobilised and coordinated. Wide-scale training of national clinical, hygiene and burial staff by international organisations. The ability of the health system to absorb these trained lay-people was limited. In the recovery period international expertise continues to build national capacity in clinical and laboratory research around infectious disease. Comprehensive training of district-based surveillance officers, who in Sierra Leone have taken on other work post-Ebola.

	education/training) that are not included in the recovery frameworks.
Values (cross-cutting)	Global humanitarian crises and the militarisation of aid, as seen in the Ebola crisis, raises questions around the moral obligation to intervene and the style of such an intervention, in particular the tensions between the humanitarian imperative (altruism) and global health security (self-protection). Additionally, unanswered questions exist about the moral obligations of alerting others to a health threat that may spread beyond household/village/national borders (obligation to others) versus the potential personal sanctions that may result (obligation to self). This public health response required citizens to transgress deeply ingrained moral codes that are critical in day-to-day health, economic and social survival. The need for international expertise to support this work required specialised services for sick international staff to which national staff did not have guaranteed access.
Governance (cross-cutting)	Early response oversight mechanisms struggled to effectively reconcile epidemic control priorities with wider political and economic priorities. The establishment of top down, military-style command and control operational institutions, with the involvement of national and international military in all three most-affected countries (although in different ways), proved better able to manage these tensions. National and international oversight of the wider impacts of the epidemic and the response was, however, lacking. Local (village/district) governance was often disconnected; local leaders who are important in governance and planning of local responses were not brought in at the outset, although may have been involved later on in varying degrees depending on the country. International and national governance of the ownership of clinical data and biological samples was weak, leading to controversial 'extractive' research practices.
Case-specific lessons learned	Negotiating competing crisis-specific and wider health, social, economic and political priorities remained challenging throughout the response. Critical gaps between local, national and international organisations, particularly in terms of institutional and workforce capacities, seriously undermined the ability to effectively scale up the immediate response and translate this into sustainable capacity building. A failure to situate response interventions in dynamic local social contexts compounded the ineffectiveness of early response efforts. While this improved somewhat as the response evolved, an incomplete integration of social considerations into operational-level decision-making mechanisms led to missed opportunities to improve the effectiveness and acceptability of the response.