

## Optional Sectoral Module HEALTH



In a resilient city, the health care system is responsive to the changing health risks in its service area (*reflective*). It has excess capacity and is able to accommodate both projected and sudden increases in demand (*redundant*). Faced with a shock or stress, the health care system is able to provide emergency health relief to affected communities while continuing to offer basic health services to the entire population (*robust, redundant, and coordinated*). Within a resilient health care system, basic health care services are affordable and accessible to all segments of the population (*inclusive*). In a resilient city, the burden on health care is lessened through structural improvement in living conditions which removes underlying health risks.

TOPIC	GUIDING QUESTION	APPLICABLE RESILIENCE QUALITY	RELATIONSHIP TO RESILIENCE QUALITY
Institutional Capacity	Who manages the health care facilities and services in the city, including hospitals, clinics, community health centers, and other health service delivery points? If there are multiple providers, are they well-coordinated in terms of management, development planning, and emergency response?	Coordinated	Close coordination among health service providers facilitates planning for future demand, and accelerates emergency response and targeted distribution of medical staff and equipment.

Institutional Capacity	Does the city have programs for minimizing public health risks through structural improvements in housing, transportation, energy systems, water supply and sanitation?	Robust	Removing imminent health risks caused by poor living conditions and inaccessibility to basic services allows residents to think beyond basic vulnerabilities and start developing coping strategies for potential disturbances.
Institutional Capacity	Are hospital and health systems familiar with and in contact with environment ministries, met-services, or disaster preparedness and response teams?	Coordinated	Hospital and health systems cannot be expected to manage all risks alone; it is important that they link up and rely on others with more nuanced understanding. It is helpful if these relationships are initiated before a disaster.
Institutional Capacity	Does the city have a disease surveillance system that monitors changes in health risks, including climate-sensitive risks? Can the surveillance system provide early warnings about potential health disasters?	Reflective	Disease surveillance systems are essential public health platforms for monitoring and preparing for changes in health risks. Incorporating climate-sensitive health risks into public health surveillance systems allows for identification of appropriate intervention and adaptation to these risks. Public health surveillance systems can be used to trigger early warning systems.
Institutional Capacity	Does the city have an effective communications strategy to disseminate accurate and on-time information about potential health risks to the population?	Coordinated	An effective and coordinated communications strategy about potential health risks can help the population prepare for and/or avoid such risks. The communication strategy should be able to reach all segments of the population, specially the most vulnerable. This should be a joint effort between the surveillance system agencies and the health care providers.

<p><b>Institutional Capacity</b></p>	<p>Are health professionals able to detect and respond to climate and weather stress? Are they trained and prepared to deal with a health-related climate or environmental crisis?</p>	<p><b>Coordinated</b></p>	<p>There is a need for a strong and committed health workforce, characterized by health personnel who is ready to deal with difficult and dangerous situations. Health systems that earn the trust of the population by reliably providing high-quality services before crisis have a powerful resilience advantage.</p>
<p><b>Finance</b></p>	<p>Have climate and environmental funds been considered for health system upgrades? E.g. GCF, GEF, NDC-Partnership support facilities, which could help increase climate-smartness of health systems</p>	<p><b>Redundant</b></p>	<p>There is an increasing number of funds and financing facilities available for climate upgrades. Health systems in many cases may now be eligible.</p>
<p><b>Finance</b></p>	<p>What are the funding sources for health care facilities and services? To what extent is the funding discretionary at the local level? To what degree are funding sources and uses coordinated across agencies?</p>	<p><b>Robust; Coordinated</b></p>	<p>A health care system that strives for complete coverage and continuous operation relies on sustained and predictable funding. When a local government has discretionary control over funding for health, it can be held accountable for achieving pre-determined health standards and coverage (number of hospitals beds) with the available funding. Where human resources and financing for health services are limited, coordination among agencies (both public and private) helps improve coverage, efficiency and targeting of both ordinary health services and emergency response.</p>

Finance	Is contingency financing available for health care facilities and services?	Redundant	A contingency fund covers unexpected disruptions in the health system as caused by external factors such as health service demand increase due to an epidemic outbreak or disaster event. A contingency fund can also help overcome sudden changes in demand as caused by urban immigration.
Access	Do all segments of the population have access to basic health services?, including preventative health measures? Are basic health services financially accessible to all groups?	Inclusive	Exposure to diseases is exacerbated by the presence of multiple vulnerabilities (e.g., poverty, lack of self-care skills, etc.). Access to basic health services is essential for improving the health status of vulnerable groups. Ability to provide affordable health services to all groups in the city prevents health care costs from becoming another driver of poverty and exclusion.
Access	Do all segments of the population have physical access to health facilities? (e.g., are clinics and hospitals located within walking distance and if not, is there transport available so that people can access if ill or in an emergency?)	Inclusive	Physical access is important to all segments of the population. Distant or inaccessible facilities are the cause of many deaths; this characteristic is even more important in an era of increased disaster risk or climate threats.

<p><b>Nutrition</b></p>	<p>Does the city have programs to help the poor and otherwise vulnerable residents avoid malnutrition and poor diet during food crises? In case of food crisis, does the city have spare food resources to provide nutritious and healthy food to all segments of the population? [Lens 3 – CRF 3]</p>	<p><b>Robust; Redundant</b></p>	<p>Negative coping strategies that poor and vulnerable households adopt to overcome food shortages (e.g., reducing the amount of food eaten, eating less nutritious food, etc.) can have deteriorating impacts on their health. Food crises can be avoided through adaptive programs aimed at improving accessibility to secure food sources, and shifting to sufficiently nutritious types of food. During a food crisis, cities which have spare capacity to provide nutritious and healthy food to all segments of the population avoid nutritional deficiencies among the populations that have no alternative to the negative coping mechanisms.</p>
<p><b>Planning</b></p>	<p>Does the city have the capacity to adjust and/or increase the provision of basic health services in line with projected and sudden population growth, accelerated by rural to urban migration, influx of refugees etc.?</p>	<p><b>Reflective</b></p>	<p>Reflective capacity management of health facilities requires regular service demand estimates to be made based on demographic changes (e.g., type of services needed to accommodate their health needs). Ability to adjust/ scale up the provision of basic health services according to changes in the population and/or during emergencies is essential for ensuring public safety and well-being of all residents.</p>
<p><b>Facilities</b></p>	<p>Do facilities implement low-carbon approaches including: investing in renewable energy and energy efficiency, waste minimization, sustainable transport and water consumption, etc.?</p>	<p><b>Robust</b></p>	<p>Implementing low-carbon approaches can improve health through a reduction in environmental pollution and climate change, as well as more efficient and less costly health systems.</p>

Facilities	Is new health infrastructure development 'climate-smart'? (e.g., use on-site renewable energy sources, water efficiency methods, and passive solar heating and cooling strategies, etc.)	Robust	The design and architecture of health facilities should incorporate 'climate-smart' approaches, which can improve the delivery of services and reduce costs.
Facilities	Are facilities equipped with medicines and diagnostic capabilities to address new climate-sensitive health risks, i.e. treatments for certain vector-borne diseases, rapid diagnostic labs, and cholera beds?	Robust	Well-stocked and well-prepared facilities are essential in meeting new demands associated with emergent climate-sensitive disease risks.
Facilities	If there are open air clinics or hospitals, are they equipped with vector-barriers or deterrents (e.g., mosquito nets and insecticides)? This may be important in regions where this is not an issue now.	Robust	Facilities must anticipate environmental shifts as a result of climate change which will influence insect distribution and infectious disease transmissibility.
Facilities	Are facilities equipped with solar generators and water purification systems that will function in extreme weather related black-outs?	Redundant	Energy supply is critical.
Facilities	Are health system supply chains susceptible to climate or disaster impacts? i.e. are essential medicines coming via ports which may be susceptible to hurricane risk or might critical roads be washed out during extreme weather?	Robust	Guaranteeing the supply chain is critical in maintaining appropriately stocked hospitals and clinics.

Facilities	Are all the relevant types of health services available in the city? Are any vital services missing (e.g. specializations, operating theatres, etc.)? If necessary, is there an agreement for patient transfer to facilities that offer these services?	Robust; Coordinated	An effective health system has a diverse set of health services which reflect current and projected medical needs of residents. Cities missing vital functions in their health system should safeguard their population by collaborating with health institutions that provide such services.
Facilities	Are existing health care facilities located in disaster prone areas and/or vulnerable to the consequences of climate change? If yes, are there plans to retrofit existing exposed health facilities? Are new facilities built in safe areas or designed to be resilient to the hazards that are relevant for the areas in which they are built?	Robust	Health care facilities play a key role in emergency response and therefore need to be located in safe areas. For the purpose of reducing impacts of potential disasters, exposed health facilities should be appropriately retrofitted.
System Continuity	How prepared is the health system for emergency situations? Do all hospitals have emergency preparedness plans?	Robust	A few ways that a health system can be better prepared for disasters is by training the staff to handle emergency situations and warehousing of relief material, such as medicine, equipment and machinery, in protected areas.
System Continuity	Is the probability that health facilities will remain operational in post-disaster situations assessed? If yes, does the assessment include information about hospital capacity and proportion of healthcare beds exposed according to hazard intensity?	Reflective	For the purpose of preparing backup equipment, it is useful to know the total capacity of facilities that can continue to function after a disaster, as well as the coverage that can be achieved with these.

System Continuity	If a major health facility in the city has been impaired, does the system have the flexibility for the patient demand to be absorbed by other facilities? If accessibility to health facilities is compromised, are there alternative modes of health service delivery?	Redundant	Preparation of backup systems for damaged facilities with disrupted/ limited health services is essential for continued provision of health services during a disaster, when they are needed the most.
System Continuity	Are alternative models of health service delivery assessed? In case of disaster, does the city have the capacity and material to establish emergency response cells where needed?	Redundant	During disaster events access to health services may be compromised. In such cases, alternative service delivery methods need to be identified to ensure that medical assistance can reach those that need it. Temporary emergency response cells can be established in affected areas to offer immediate treatment to injured individuals.