



UNDRR

UN Office for Disaster Risk Reduction

DISASTER RESILIENCE SCORECARD FOR CITIES

APR 2020

PUBLIC HEALTH SYSTEM RESILIENCE ADDENDUM
Consultative Version 2.0



Disaster Resilience Scorecard for Cities: Public Health System Resilience - Addendum

One of the known issues in the UNDRR's [Disaster Resilience Scorecard for Cities](#) ("the Scorecard") is that the public health issues and consequences of disasters are not adequately emphasized. While the more obvious health factors such as hospital services capacities and structural and non-structural safety are covered in the Scorecard (under Essential 8 – see below), other disaster-related public health issues have not been well addressed. This Addendum, promulgated by UNDRR, with the support of World Health Organization (WHO) and partners, aims to remedy this. The Addendum should be used in conjunction with the UNDRR Scorecard, and WHO's [Health Emergency and Disaster Risk Management \(Health EDRM\) Framework](#).

The term "public health issues" is used here to cover generalized impacts on the health of a population that accompany emergencies and disasters.

These may include:

- Events in their own right (for example, a disease outbreak or pandemic, drought, earthquake, flood, tornado, famine, wild-fires, air pollution peaks);
- Immediate consequences of a disaster (for example, mass casualties, physical trauma, illnesses, and mental health effects);
- Secondary consequences of disasters with health risks and impacts (for example, malnutrition, water-borne disease outbreaks from damaged sanitation systems, disruption to livelihoods, disruptions to vaccination programs, long term psychological impacts, increased incidence of non-communicable diseases, or the multiple effects of long term stays in temporary living arrangements);
- Interruptions in health care services for individuals with pre-existing health issues (for example, access to medications for chronic conditions, or where a lengthy power outage disables home dialysis machines or electric wheelchairs);
- Consideration of needs of vulnerable populations in the wake of a disaster (for example, the poor, very young, people with disabilities, older persons, women);
- The ability of the health system (broadly conceived – see below) in a city to deal with these issues while continuing to execute its day-to-day functions of caring for the sick and injured and mitigating health risk to the public at large.

The term "public health system" includes but may not be restricted to all of the items listed in Annex 2 of the Health EDRM Framework, and certain other items. As examples:

- Health care services;
- Hospitals;
- Residential facilities and nursing homes;
- Community health clinics, family doctors' offices, and outpatient care facilities;
- Mental health facilities;
- Public sector health departments;
- Disease surveillance systems;
- Health laboratory facilities;
- Pharmaceutical and medical device and equipment supply and distribution systems;
- Environmental health systems (for example for hazardous materials);
- Water and sanitation systems;
- Food distribution and safety systems;
- Community information, engagement and outreach processes and facilities;
- Emergency management control-centers;
- Non-health systems on which health care may be critically dependent – energy, water, communications, roads, community awareness, etc. (for which, see the UNDRR City Scorecard);
- All health and other staff, volunteers, assets, facilities equipment and protective equipment required to manage and operate the above.

A broader description of the health system includes all the activities whose primary purpose is to promote, restore and/or maintain health. Thus, it can include people, institutions and resources who are in health and other sectors. The City Scorecard and this Addendum can be used to demonstrate the contributions of all sectors to improving health outcomes from disasters.

This version of the Public Health System Resilience Addendum is built upon the consultative version 1.0 launched in July 2018.

Structure of the Public Health System Resilience Assessment

The Addendum is structured in sections around the same “[Ten Essentials for Making Cities Resilient](#)” as the Scorecard. It inevitably overlaps with the coverage of hospitals and food distribution in Essential 8 and can be regarded as an amplification of these.

- Integration of public health and governance (Essential 1);
- Integration of public health and disaster scenarios (Essential 2);
- Integration of public health and finances (Essential 3);
- Integration of public health and land use/building codes (Essential 4);
- Management of ecosystem services that affect public health (Essential 5);
- Integration of public health and institutional capacity (Essential 6);
- Integration of public health and societal capacity (Essential 7);
- Integration of public health and infrastructure resilience (Essential 8);
- Integration of public health and disaster response (Essential 9);
- Integration of public health and recovery/building back better (Essential 10).

In total, there are 23 questions/indicators, each with a score of 0-5, where 5 is best practice.

Required data for analysis

Data you will need to complete this Addendum will include:

- Public health system capacity, stakeholders, planning and procedural documentation;
- Emergency management planning and procedural documentation;
- Public health infrastructure (see Essential 8);
- Data on healthcare outcomes of previous disasters, if available;
- Demographic data, including for vulnerable populations;
- Community and professional feedback on system capacity and effectiveness.

Acknowledgements

UNDRR would like to acknowledge a number of people who have contributed to this Addendum:

- Yoshiko Abe, Ph.D., Sustainability Strategist, International Headquarters, Kokusai Kogyo Co., Ltd.
- Jonathan Abrahams, Health Emergencies Program, World Health Organization
- Sanjana Chintalapudi, Business Transformation Consultant, IBM
- Jon Philipsborn, Associate Vice President, Climate Adaptation Practice Director, Americas, AECOM
- Becca Philipsborn, Assistant Professor, Emory University Department of Pediatrics and Emory Global Health Institute
- Benjamin Ryan, Clinical Associate Professor, Department of Environmental Science, Baylor University
- Dale Sands, Principal, M.D. Sands Consulting Solutions LLC.
- Nik Steinberg, Climate Risk Specialist Consultant, 427 Consulting
- Peter Williams, Ph.D., IBM Distinguished Engineer (Retd.), Founder and Principal Peter Williams Solutions LLC.

Coordinators: Sanjaya Bhatia & Mutarika Pruksapong, Global Education and Training Institute (GETI), UNDRR.



Essential 01: Organize for Resilience

Addendum - Integration of public health and governance

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A.1	Integration of public health and governance (Essential 1)			
A1.1	The health sector is part of multisectoral disaster risk management governance	To what extent does/do the governance mechanism(s) for disaster risk management integrate the full breadth of public health considerations?	<p>5 – The full spectrum of public health functions (see right) routinely provide input to the city’s disaster resilience governance mechanism/meetings, and routinely contribute to all major disaster resilience programs and documents. (Participation may be through a nominated focal point combining input from many disciplines).</p> <p>4 – Representatives of most public health functions usually attend major city disaster resilience meetings and contribute to major programs, but they may not be involved in all relevant activity.</p> <p>3 – Public health functions have their own disaster resilience fora and mechanisms but, while including the full spectrum of functions, these are not thoroughly coordinated with other actors such as city governments, logistics operators or community groups. The focus may be narrowly on immediate event response, rather than broader resilience issues such as longer run impacts.</p> <p>2 – Some public health disciplines are involved in some city disaster resilience activities, but there is not complete engagement.</p> <p>1 – Only rudimentary engagement of public health disciplines in city disaster resilience activities exists.</p> <p>0 – There is no public health function in the region, or if there is, it is not engaged in disaster resilience at all.</p>	<p>As used here, the term “public health functions” includes the full list of items set out Annex 2 of the WHO’s Health EDRM framework, referenced earlier. As examples, it includes but is not restricted to, the following:</p> <ul style="list-style-type: none"> • Infectious diseases treatment and control; • Trauma care; • Primary care; • Pediatric and geriatric care; • Emergency care; • Environmental health; • Epidemiology; • Vector control; • Ambulances and health transport; • Pharmaceutical and medical equipment supply; • Water and sanitation; • Food-safety, cold storage, and distribution; • Chemical and hazardous material (hazmat) safety (in locales with chemical plants, for example); • Mental health and community mental health, including bereavement and mental trauma counselling; • City, state and national public health managers. <p>Representatives of these functions need to be in a position to speak authoritatively about resources available in the city and region to maintain the public health system.</p>



Essential 02: Identify, Understand and Use Current and Future Risk Scenarios

Addendum - Integration of public health and disaster scenarios

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A.2	Integration of public health and disaster scenarios (Essential 2)			
A2.1	Inclusion of range of emergencies and disasters (e.g., disease outbreaks/pandemics, famine, water shortages, etc.) as a disaster scenario in their own right	To what extent are emergencies and disasters including disease outbreaks are included in disaster risk planning?	<p>5 – Emergencies and disasters including disease outbreaks are fully included by the city either as a risk scenario in their own right, or as a component of a “composite” scenario. The likely impact on staff availability and on health facilities is modelled and planned for, both alone, and in combination with other risks where an epidemic or pandemic may hinder ability to respond.</p> <p>4 – Emergencies and disasters including disease outbreaks are addressed as above, but they tend to be considered in isolation from other risks, and thus the interaction with other risks may not be fully addressed.</p> <p>3 – Emergencies and disasters including outbreaks are considered along with their likely impacts, but these impacts are not fully modelled.</p> <p>2 – Emergencies and disasters including outbreaks may be considered, but at a high level only.</p> <p>1 – Risk of outbreaks may be noted as an issue, but without active consideration of the impacts or required responses.</p> <p>0 – No consideration of pandemics at all.</p>	The Scorecard requires the development of (at least) a “worst case” and a “regular case” scenario from which to plan disaster resilience. This question addresses the extent to which emergencies and disasters, including disease outbreaks, are included in risk scenarios adopted by the city. The next question addresses the impact of health issues on disaster management planning, response and recovery.

<p>A2.2</p>	<p>Inclusion of foreseeable public health impacts from other disaster risk scenarios (e.g., flood, heat events, earthquake)</p>	<p>To what extent are public health impacts included in the city’s scenario planning for other disaster risks?</p>	<p>5 – A comprehensive set of disaster health issues is fully included in its disaster planning scenarios. The likely impact on staff availability, health facilities, water and sanitation, treatment and care is planned for and modelled, including immediate impact and for long-term physical and psychological health issues.</p> <p>4 – Disaster health issues are fully addressed as above, but they tend to be considered in isolation from other impacts, and thus the effect that they may have on disaster recovery is not fully assessed.</p> <p>3 – A number of disaster health issues are addressed, perhaps in detail, but there is not full coverage. Longer term issues physical and mental health issues are likely to be omitted.</p> <p>2 – Some immediate post-disaster health issues are considered and planned for, but in an outline treatment only.</p> <p>1 – Disaster health issues may be acknowledged, but without real planning for these.</p> <p>0 – No consideration of post-disaster health issues at all.</p>	<p>The Scorecard requires the development of (at least) a “most severe” (worst case) and a “most probable” (regular case) scenario from which to plan disaster resilience. This question addresses the inclusion of likely disaster health issues in the city’s risk analysis, and scenario development and planning.</p> <p>As set out in the Health EDRM framework, such issues will include (but are not restricted to):</p> <ul style="list-style-type: none"> • Trauma and post-trauma care; • Treatment and care for chronic conditions; • Pediatric and geriatric care; • Water and food-borne illnesses (sometimes referred to environmental health); • Quarantine facilities; • Emergency shelters; • Mental health impacts including bereavement and mental trauma. <p>A further consideration may be the impact of disasters on managing <i>existing</i> public health issues, and how these may in turn impede recovery.</p>
<p>A2.3</p>	<p>Inclusion in disaster planning of pre-existing chronic health conditions including non-communicable diseases</p>	<p>To what extent are pre-existing chronic health issues included in scenarios where disasters are likely to exacerbate these, or where they are likely to impede recovery?</p>	<p>5 – Chronic health conditions are comprehensively reviewed and included in scenario definition and planning; OR no stresses are thought to apply.</p> <p>4 – Broadly, chronic health conditions are identified and included in scenario definition and planning.</p> <p>3 – Most applicable chronic health conditions are included in scenario definition or planning, with some gaps.</p> <p>2 – Chronic health conditions are known but not included in scenario definition and planning.</p> <p>1 – Major gaps exist in identification and inclusion of chronic health stresses.</p> <p>0 – No attempt to identify or consider chronic health conditions.</p>	<p>Existing chronic health conditions in an area – for example, malnutrition, endemic diseases such as malaria or cholera, chronic drug addiction or a large proportion of elderly people – interact with disasters, by</p> <ul style="list-style-type: none"> • Making their impact more severe; • Imposing additional burdens on the recovery effort; • Passing some tipping point, surging to epidemics, or becoming disasters in their own right (see 2.1 above). <p>These should be included in risk assessments.</p>



Essential 03: Strengthen Financial Capacity for Resilience

Addendum - Integration of public health and finances

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A3	Integration of public health and finances (Essential 3)			
A3.1	Funding for public health aspects of resilience	To what extent is funding identified and available to address public health risks and impacts of disasters?	<p>5 – Funding is identified and accessible to address all known health implications from the most severe scenario in Essential 2.</p> <p>4 – Funding is identified and accessible to address all known health implications from the most probable scenario in Essential 2.</p> <p>3 – Funding needs are known but some funding shortfalls are known to exist. These are actively being addressed.</p> <p>2 – Needs are not fully known, and where they are, some shortfalls are identified. Addressing them may or may not be in hand.</p> <p>1 – Health funding needs have only been assessed in outline, and only a generalized knowledge of funding sources is available. These have not been pursued.</p> <p>0 – No consideration of funding needs or sources.</p>	<p>As set out in the main Scorecard, consideration of funding sources should include “dividends”. These may be one of:</p> <ul style="list-style-type: none"> • “Inbound” - expenditures on other things that may confer some public health/resilience benefit, for example raising essential hospital services above flood zones, back-up generators at primary care facilities or where a new community center might also be co-opted as a temporary treatment center; • Outbound” – expenditures on public health/ resilience items where other benefits also arise – for example where concern over waterborne disease leads to modernization or re-siting of a water treatment plant or flood proofing transport routes allows continued access to medical supplies.



Essential 04: Pursue Resilient Urban Development

Addendum – Integration of public health and land use/ building codes

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A4	Integration of public health and land use/building codes (Essential 4)			
A4.1	Conformance of key health facilities with resilient land zoning and building codes	To what extent are key health facilities located and built in a manner that will allow them to continue to be operational after a disaster?	<p>5 – All key public health facilities (see right) are in locations and conform to codes that will allow them to survive in the “most severe” disaster scenario.</p> <p>4 – All key public health facilities are in locations and conform to codes that will allow them to survive in the “most probable” disaster scenario.</p> <p>3 – Some key public health facilities are not in locations or fail to conform to codes that will allow them to survive in the “most probable” disaster scenario.</p> <p>2 – More than 50% of key public health facilities are not in locations or fail to conform to codes that will allow them to survive in the “most probable” disaster scenario.</p> <p>1 – More than 75% of key public health facilities are not in locations or fail to conform to codes that will allow them to survive in the “most probable” disaster scenario.</p> <p>0 – No assessment carried out.</p>	<p>Essential 8 in the main Scorecard deals with hospitals and food distribution. Users may choose whether to include that data in the assessment here. Other key public health facilities may include, but are not limited to:</p> <ul style="list-style-type: none"> • Hospitals where not addressed under Essential 8; • Community clinics, health centers and nursing facilities, especially those with a regional function (for example dialysis units, burns units); • Drugstores and dispensaries; • Feeding centers; • Warming or cooling centers; • Laboratories and testing centers; • Isolation capabilities; • Residential care homes and assisted living units; • Medical supplies, as well as logistics and supply chain facilities; • Emergency food distribution facilities, where not addressed under Essential 8; • Energy and water supplies, and access routes to any of the above; • Workforce availability post-disaster.



Essential 05: Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems

Addendum – Management of ecosystem services that affect public health

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A5	Management of ecosystem services that affect public health (Essential 5)			
A5.1	Preservation and management of ecosystem services that provide public health benefits	To what extent are ecosystem services that provide public health benefits identified and protected?	<p>5 – All relevant ecosystem services are identified, protected and known to be thriving.</p> <p>4 – All relevant ecosystem services are identified and in theory protected but may not be thriving.</p> <p>3 – Some but not all relevant ecosystem services are identified. Those that are identified are protected in theory but may not be thriving.</p> <p>2 – Widespread gaps in identification and protection of relevant ecosystem services. Significant issues with the health of some of those ecosystem services that are monitored.</p> <p>1 – Rudimentary efforts to identify and protect relevant ecosystem services. Widespread issues with the status and health of those that are identified.</p> <p>0 – No attempt to identify or protect relevant ecosystem services and high probability that they would be assessed to be severely degraded if they were formally identified.</p>	<p>Examples of ecosystem services that provide public health benefits include, but are not restricted to:</p> <ul style="list-style-type: none"> • Natural water filtration (through wetlands or aquifers); • Tree cover to reduce heat island effects or reduce air pollution; • Species that predate on mosquitos and other potential carriers of disease; • Food supplies (e.g., fish), land for key nutritional items.



Essential 06: Strengthen Institutional Capacity for Resilience

Addendum – Integration of public health and institutional capacity

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A6	Integration of public health and institutional capacity (Essential 6)			
A6.1	Availability of public health workforce with relevant competencies and skills for disaster resilience	To what extent are the workforce, competencies and skills required to plan and maintain public health systems and services for disaster resilience available to the city?	<p>5 – All relevant workforce competencies and skills identified and assessed to be adequate for disaster planning, health services and post disaster recovery, both in terms of skill depth and numbers.</p> <p>4 – All relevant skills identified, and some minor shortfalls known to exist in certain skillsets or numbers thereof.</p> <p>3 – All relevant skills identified, and more significant shortfalls known to exist in depth and numbers.</p> <p>2 – Incomplete skills identification and significant shortfalls in those that are known, in depth and numbers.</p> <p>1 – Rudimentary attempt at skill identification – shortfalls in depth and numbers suspected to be universal.</p> <p>0 – No consideration given to the issue.</p>	<p>Essential 8 in the main Scorecard deals with doctors', nurses' and first responders' numbers and skills – users may choose to include that data in the assessment here.</p> <p>As set out in the Health EDRM framework referenced earlier, key public health skills include, but are not restricted to:</p> <ul style="list-style-type: none"> • Doctors, nurses and other health workers where not addressed under Essential 8; • First responders where not addressed under Essential 8; • Other hospital or health facility staff; • Psychiatric care – doctors, nurses; • Care home staff; • Pharmacists; • Environmental health specialists (includes water and sanitation experts, food inspectors and vector control) • Epidemiologists; • Testing and laboratory staff; • Supply chain workers.
A6.2	Sharing of public health system data with other stakeholders	To what extent is public health data on health vulnerabilities and capacities, as well as risks and early warning of outbreaks shared with other stakeholders who need it?	<p>5 – Relevant public health data and feeds are identified; quality data is reliably distributed to all stakeholders who need it, including the public as applicable.</p> <p>4 – All key public health data items and feeds identified, and quality data is reliably distributed to most stakeholders, including the public as applicable.</p> <p>3 – Most data items and feeds identified and distributed, but it may be of lower quality and reliability to a limited subset of stakeholders.</p> <p>2 – Some data items and feeds distributed to one or two stakeholders only; quality and reliability known to be an issue.</p> <p>1 – Rudimentary data identification and distribution – erratic and unreliable even where provided.</p> <p>0 – No public health data identified or distributed.</p>	<p>Relevant data in this context might include, but is not restricted to such examples as:</p> <ul style="list-style-type: none"> • Early warning and surveillance data for outbreaks; • Location, capacity and status of public health assets and facilities, pre and post disaster; • Skill levels and numbers of available staff; • Supplies issues; • Likely impacts of disasters – likely public health issues, degradation of capabilities; • Status, performance of outlook data for disaster response measures and post disaster public health issues - sickness extents (including chronic disease, populations not receiving care, etc.) <p>Distribution may be through a central point such as emergency management coordinator.</p>

<p>A6.2.1</p>	<p>Sharing of other data with public health system stakeholders</p>	<p>To what extent is data from other critical systems shared with public health system stakeholders who need it?</p>	<p>5 – Relevant data and feeds for other critical systems are identified; quality data is reliably distributed to all public health stakeholders who need it.</p> <p>4 – All key data items and feeds are identified, and quality data is reliably distributed to most public health stakeholders.</p> <p>3 – Most data items and feeds identified and distributed, but it may be of lower quality and reliability to a limited subset of public health stakeholders.</p> <p>2 - Some data items and feeds distributed to one or two public health stakeholders only; quality and reliability known to be an issue.</p> <p>1 – Rudimentary data identification and distribution – erratic and unreliable even where provided.</p> <p>0 – No critical system data identified or distributed to public health stakeholders.</p>	<p>Relevant data in this context might include, but is not restricted to such examples as:</p> <ul style="list-style-type: none"> • Changes to risk scenarios (Essential 2) that affect public health; • Forecast (for example, weather events), and actual, disaster extents and magnitudes; • Status of other critical systems (for example, energy supplies, water supplies, access roads) and likely impact on public health.
<p>A6.2.2</p>	<p>Protection of, and access to, individual health records</p>	<p>To what extent are individuals' health and prescription records protected from a disaster, and accessible in the aftermath of a disaster?</p>	<p>5 – All citizen health records (health conditions, prescription records) are safe, and also accessible by emergency response workers (for example those providing healthcare in shelters, hospitals where people may be taken if injured).</p> <p>4 – Citizen health records are mostly safe and accessible with some minor exceptions, for example those relating to some health specialists, or those of some small segment of the outlying population.</p> <p>3 – Health records are mostly safe but may not be accessible due to communications issues that can be anticipated after a disaster.</p> <p>2 – More significant gaps in securing of health records.</p> <p>1 – Major gaps – data is likely to be lost for large segments of the population.</p> <p>0 – No attempt to ensure safety or accessibility of health records.</p>	<p>Citizen health records need to be protected from loss or damage (ideally by out-of-area back up and/or redundant systems); and they need to be accessible after a disaster where people may be injured or in shelters being cared for by professionals unfamiliar with their medical history. There may be a tension between out-of-area back up and accessibility after a disaster – it implies the need for resilient communications between the disaster location and the back-up site.</p> <p>There may also be a tension between regulations governing the protection and disclosure of health data and the requirements of resilience and disaster response. Some countries (e.g., Japan) address this by asking people to keep a record card with manual stickers for prescriptions that they present at shelters – although these record cards may become lost and such a system may require an enabling statute to set up.</p>



Essential 07: Understand and Strengthen Societal Capacity for Resilience

Addendum – Integration of public health and societal capacity

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A7	Integration of public health and societal capacity (Essential 7)			
A7.1	Effectiveness of public health system in community engagement in context of disaster risk management	To what extent do communities understand and are able to fulfil their roles in maintaining public health and well-being levels before, during and after a disaster?	<p>5 – Each community or neighborhood in the city understands, accepts and is able to execute the role expected of it before, during and after a disaster, with a designated organization to lead this work.</p> <p>4 – 90% of communities understand, accept and are able to execute the role expected of them.</p> <p>3 – 75% of communities have a broad understanding and are able to execute key elements of their role.</p> <p>2 – Half or less of communities understand their role and in these cases are able to execute only part of it.</p> <p>1 – There is only rudimentary community level understanding across the city of public health role, and very little ability to execute.</p> <p>0 – Community level role is not really defined or communicated. Ability to execute not known.</p>	<p>Community roles might include (but are not restricted to):</p> <ul style="list-style-type: none"> • Community based infectious disease surveillance (detection, monitoring and alerts); • Air and water testing (citizen science); • Awareness; • Assisting people with chronic diseases (for example, supporting medication supply and distribution); • Distributing public health information; • Distributing resources (for example, bottled water, diapers, blankets); • Assisting people with physical or mental disabilities, support for people with vulnerabilities (e.g., older persons, poor); • Assisting families with babies and young children; • Communicating needs to healthcare providers and emergency responders. <p>Designated organizations might be community emergency response organizations and networks, a local hospital or doctor’s office if present, or – with training – a faith-based, school, or other community groups.</p>

A7.1.2	Community access to and trust of public health information	To what extent do communities receive, respect and are willing to act upon public health information?	<p>5 – Public health advice has been shown in prior disasters to be universally received, accepted and acted upon.</p> <p>4 – Public health advice would be expected to be broadly received, accepted and acted upon.</p> <p>3 – Some communities or other sub-groups may fail to receive, accept or act upon public health information.</p> <p>2 – More than 50% of the city may fail to receive, accept or act upon important public health information after a disaster.</p> <p>1 – There is only scattered receipt and acceptance of public health information.</p> <p>0 – No attempt to convey public health information.</p>	<p>Public health information includes, but is not limited to, the following post-disaster needs:</p> <ul style="list-style-type: none"> • Pollution alerts (e.g., boil water notices, remain indoors advisories); • Advice on emergency hygiene and disease prevention; • Advice on food safety; • Advice on caring for those with prior mental or physical conditions; • Advice for people with chronic diseases (e.g., cardiac conditions, cancer, diabetes, respiratory conditions, etc.); • Information on disease outbreaks, signs and symptoms of illness, when and where to seek care, and treatments; • Location of emergency health care facilities. <p>The public should also be aware of what is safe and unsafe in terms of public health before, during and following a disaster? Safety Measures include (but not limited to):</p> <ul style="list-style-type: none"> • Food (what to eat and not eat); • Water (is it drinkable or not); • Air quality or inhalation risks; • Ensuring that people are aware of certain hazardous areas • Building re-entry safety; • Safe transportation routes; • Other behavioral requirements such as additional hygiene measures.
A7.2	Community's ability to "return to normality" – mental health	To what extent are communities' mental health needs addressed?	<p>5 – Community organization(s), psychosocial support, schools, psychological trauma centers, and counsellors exist and are equipped to address full spectrum of mental health for every neighborhood, irrespective of wealth, age, demographics, etc.</p> <p>4 – >75% of neighborhoods covered. Community support groups and trauma centers available.</p> <p>3 – >50–75% of neighborhoods covered.</p> <p>2 – >25–50% of neighborhoods covered.</p> <p>1 – Plans to engage neighborhoods exist but have not been implemented except in maybe one or two initial cases.</p> <p>0 – No mental health needs addressed.</p>	<p>Community organizations should include community support groups for a disaster. Psychosocial first aid, psychological trauma centers and counsellors should be considered to address psychological effects including post-traumatic stress disorder (PTSD) and bereavement.</p> <p>Essential 10 also addresses long term psychological effects of impacted populations and responders.</p>



Essential 08: Increase Infrastructure Resilience

Addendum – Integration of public health and infrastructure resilience

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A8	Integration of public health and infrastructure resilience (Essential 8)			
A8.1	Strengthening of the structural and non-structural safety and functionality of public health infrastructure items not considered in Essential 8	To what extent is public health infrastructure (besides hospitals) resilient?	<p>5 – All public health infrastructure – including the services on which it depends – is rated capable of dealing with “most severe” scenario with minimal loss of service.</p> <p>4– All public health infrastructure – including the services on which it depends – is rated capable of dealing with “most probable” scenario with minimal loss of service.</p> <p>3 – Public health infrastructure would be significantly disrupted in a “most severe” scenario, but some service would continue for 75% of the population of the city. It would mitigate most of “most probable” scenario, however.</p> <p>2 – Public health infrastructure would be significantly disrupted in “most probable” scenario but some service would continue for 75% of the population of the city; and 50% for “most severe” scenario.</p> <p>1 – Public health infrastructure would be significantly disrupted or shut down for 50% of the population of the city or more. It would effectively cease to operate under “most severe” scenario.</p> <p>0 – No public health infrastructure besides hospitals to begin with.</p>	<p>Essential 8 in the main Scorecard deals with hospitals and food distribution. Users may choose whether to include that data in the assessment here. Other key public health facilities may include, but are not limited to:</p> <ul style="list-style-type: none"> • Hospitals where not addressed under Essential 8; • Community clinics, health centers and nursing facilities, especially those with a regional function (for example dialysis units, burns units); • Drugstores and dispensaries; • Feeding centers; • Warming or cooling centers; • Laboratories and testing centers; • Isolation capabilities; • Residential care homes and assisted living units; • Medical supplies, as well as logistics and supply chain facilities; • Emergency food and medical distribution facilities, where not addressed under Essential 8. • Infection protection and control in health facilities • Workforce availability post-disaster. <p>The assessment needs to consider the resilience of healthcare installations to the loss of key supporting infrastructure such as communications, energy, water and sanitation, transportation, fuel, law and order, etc.</p>

<p>A8.2</p>	<p>Surge capacity for public health infrastructure, where not considered in Essential 8</p>	<p>To what extent are hospitals and emergency care centers able to manage a sudden influx of patients?</p>	<p>5 – Surge capacity exists to deal with additional health needs likely to arise from “most severe” scenario and is tested either via actual events or practice drills – can be activated within 6 hours.</p> <p>4 – Surge capacity exists to deal with additional health needs likely to arise from “most probable” scenario and is tested either via actual events or practice drills – can be activated within 6 hours.</p> <p>3 – Surge capacity exists but is known or suspected to have minor inadequacies relative to “most probable” scenario – can be activated within 6 hours. Under “most severe” scenario, more significant shortcomings in geographical coverage or type of service available and can only be activated within 12 hours or longer.</p> <p>2 – Surge capacity exists but is known to have more significant shortcomings in geographical coverage or type of service available and can only be activated within 12 hours or longer. Surge capacity has never been assessed for “most severe” scenario.</p> <p>1 – Surge capacity is theoretically available but has never been assessed or tested for “most probable” scenario.</p> <p>0 – No surge capacity identified.</p>	<p>Surge capacity should be built on the mass casualty management systems including the role of health facilities. This assessment needs to go in hand with estimated loss of critical bed days and estimated urgent medical supplies for trauma care and people with chronic diseases.</p> <p>This assessment should consider ability of key medical and health staff to access critical health facilities in order to address health needs in response to disasters.</p> <p>The required capacity may be achieved through mutual aid arrangements with facilities in neighboring areas – but it will be important to be sure that transportation routes are likely to remain open to allow those facilities to be reached.</p> <p>Surge capacity includes health and other personnel, facilities, goods and supplies (e.g., personal protective equipment) and support from other infrastructure to support health sector.</p>
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<p>A8.3</p>	<p>Continuity of care for those already sick, where not considered in Essential 8.</p>	<p>To what extent can care be maintained for those who are already sick or dependent?</p>	<p>5 – Care could be maintained in “most severe” scenario for all categories of existing patients. If patients need to be moved, transportation facilities and routes are known to have required capacity and resilience.</p> <p>4 – Care could be maintained in “most probable” scenario for all categories of existing patients. If patients need to be moved, transportation facilities and routes are known to have required capacity and resilience.</p> <p>3 – Some impacts under “most probable” scenario on care for specific categories of patients. Movement of some patients likely to be problematic. More widespread impacts under “most severe” scenario on care for specific categories of patients. Movement of many patients likely to be problematic.</p> <p>2 – More widespread impacts under “most probable” scenario on care for specific categories of patients. Movement of many patients likely to be problematic. Serious impacts under “most severe” scenario on care of almost all existing patients, with movement likely to be possible only in most urgent cases.</p> <p>1 – Serious impacts under “most probable” scenario on care of almost all existing patients, with movement likely to be possible only in most urgent cases. Under “most severe” scenario, care of existing patients would fail completely.</p> <p>0 – Care of existing patients would fail completely or almost completely under “most probable” scenario.</p>	<p>This assessment needs to go in hand with estimated loss of critical bed days and estimated urgent medical supplies.</p>
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Essential 09: Ensure Effective Disaster Response

Addendum – Integration of public health and disaster response

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A9	Integration of public health and disaster response (Essential 9)			
A9.1	Early warning systems for health-related emergencies	To what extent do early warning systems exist for impending emergencies that have potential health effects?	<p>5 – Comprehensive and effective monitoring exists and will deliver effective early warnings to address the health risks and impacts for all hazards that a city faces. They will allow time for reaction (as far as technology permits). Warnings are seen as reliable and specific to the city.</p> <p>4 – Comprehensive monitoring exists even if it is not fully effective in all cases. Warnings exist but warning time maybe less than technology currently permits. Warnings are seen as reliable and specific.</p> <p>3 – Monitoring exists for most likely healthcare risks and is broadly effective, but one or more key risks is not covered. Some hazards are excluded, and warning time may be less than technology permits.</p> <p>2 – Some monitoring exists but has significant gaps. Warning time is less than technology permits and there may also be some false positives: reliability of warnings may therefore be perceived as questionable.</p> <p>1 – Monitoring is rudimentary at best and may not deliver warnings. Warnings seen as ad hoc and unreliable. Likely to be ignored.</p> <p>0 – No monitoring or warnings.</p>	

A9.2	Integration of public health with emergency management	To what extent are public health sector and professionals integrated with the emergency management team?	<p>5 – Public health sector is fully represented and engaged on the emergency management team and integrated into all emergency decision taking. Engagement has been tested via drills (within the last year) or live response.</p> <p>4 – Public health is integrated but via remote input (phone, messaging). Engagement has been tested, but maybe more than 12 months ago.</p> <p>3 – Public health is represented but engagement has not been tested in 3 years; or represented, but some key disciplines are omitted.</p> <p>2 – Disaster management processes provide for public health to be consulted, but in the follow-up to events, not as they happen. No testing of processes.</p> <p>1 – Disaster management relies on ad hoc phone calls to public health professionals and facilities.</p> <p>0 – Public health is effectively disengaged from disaster management.</p>	This assessment covers the quality and depth of the working arrangements between health sector, public health professionals (as defined earlier) and other emergency responders in disaster planning and management, including response.
A9.3	Consideration of higher risk populations or those living at home with pre-existing conditions	To what extent are the needs of higher risk populations considered, such as citizens with pre-existing medical conditions, disabilities or loss of function that may mean that they require additional support?	<p>5 – All citizens likely to require extra additional support or specific measures city-wide are identified and provisions exist to help them.</p> <p>4 – 95% of citizens likely to require additional support or specific measures city-wide are identified and provisions exist to help them.</p> <p>3 – 75% of citizens likely to require additional support or specific measures city-wide are identified and provisions exist to help them.</p> <p>2 – 50% of citizens likely to require additional support or specific measures city-wide are identified but provision does not exist to help all of them.</p> <p>1 – Less than 50% of citizens likely to require additional support or specific measures are identified and there are widespread gaps in provisions to help them.</p> <p>0 – No provision to identify or provide additional support or specific measures to citizens requiring extra help.</p>	<p>People likely to require additional support or specific measures will include, but not be restricted to:</p> <ul style="list-style-type: none"> • Children, the elderly, and their caregivers; • People with disabilities and loss of functions, such as impaired mobility; • Patients with multiple medical conditions, dialysis patients, or other patients with significant home health equipment; • Those (for example with diabetes or asthma) requiring additional medication; • Those with temporary health needs such as pregnancy; • Those with mental illnesses or disabilities.

<p>A9.4</p>	<p>Ability to deliver public health supplies to people in need.</p>	<p>To what extent can the city supply items and equipment required to maintain public health during and after a disaster.</p>	<p>5 – A comprehensive list of required items exists, and tested plans are known to be adequate to deliver them rapidly to the entire population.</p> <p>4 – A list exists but it may not be comprehensive, and plans may not be tested or fully adequate for the entire city.</p> <p>3 – A list exists, and key items will be available to 75% of the population.</p> <p>2 – No list but stockpiles and supplies exist for some items. Distribution capability may reach 50% of the population.</p> <p>1 – Some stocks of key items exist but no attempt to plan these, and distribution mechanism unlikely to be successful even if it exists at all.</p> <p>0 – No attempt to address this issue.</p>	<p>Emergency management supplies to communities, homes and places of shelter will include, but are not limited to:</p> <ul style="list-style-type: none"> • Redundancy in the power system or cold chain for storage of temperature-sensitive supplies; • First aid supplies and infection control; • Water and water purification tablets and equipment; • Hygiene and sanitation supplies; • Baby needs; • Common medications and home medical equipment supplies in appropriate formulations and sizes for each segment of the community; • Personal protective equipment (PPE); • Culture- and age-appropriate food. <p>In some countries, ministries of health and emergency management agencies will specify lists of such items.</p>
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Essential 10: Expedite Recovery and Build Back Better

Addendum – Integration of public health and recovery/building back better

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
A10	Integration of public health and recovery/building back better (Essential 10)			
A10.1	Mitigating long term impacts on public health and well-being	To what extent do comprehensive post event public health plans exist?	<p>5 – Fully comprehensive plans exist addressing longer term public health needs after “most probable” and “most severe” scenario.</p> <p>4 – Fully comprehensive plans exist addressing longer term public health needs after “most probable” scenario.</p> <p>3 – Plans exist for post “most probable” event but with some shortfalls. More significant shortfalls for “most severe” scenario.</p> <p>2 – Plans exist for post “most probable” event but with more significant shortfalls. Generalized inadequacy for “most severe” scenario.</p> <p>1 – Plans exist for post “most probable” event but with generalized inadequacy.</p> <p>0 – No plan.</p>	<p>Comprehensive post public health plan should include (not exhaustive list):</p> <ul style="list-style-type: none"> • The impact of disaster to non-communicable diseases; • A long-term plan addressing psychosocial needs of impacted populations and responders; • Rehabilitation services; • Restoring health services and environment safety to pre-event levels and reducing risks of future events; • Maintaining routine health services such as immunization (often problematic with disruption to cold chain); • Medication storage and distribution; • Food distribution; • Water management; • Workforce needs.
A10.2	Learning and improving	To what extent do formalized mechanism to learn from performance of public health system before, during and after disasters exist?	<p>5 – Defined learning mechanism exists that integrates public health with other lessons and has been used with demonstrable results.</p> <p>4 – Defined learning mechanism exists that integrates public health with other lessons but has not yet been used – no disasters.</p> <p>3 – Learning will take place via a public health review mechanism, but it is unilateral or bilateral only – lessons remain within functional public health stovepipe and there is no attempt to integrate public health learnings with other disciplines within the city. Likewise, public health fails to influence learnings in other services.</p> <p>2 – No real defined mechanism, but ad hoc learning exercises either have been used or may be expected in future disasters.</p> <p>1 – Scattered and fleeting attempts to learn and improve in the past have occurred or are anticipated in the future.</p> <p>0 – No attempt to learn and improve.</p>	