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staffing, resources, expertise, and partnerships on all organisational levels in anticipation of increased requests for technical support from member states. The introduction of global targets to measure progress towards 2023 and regular reporting mechanisms, similar to those for NCDs, will build and sustain the momentum for country action. The unmatched burden of oral diseases and the negative impacts of high sugar consumption on many NCDs should, ultimately, lead to recognition of oral diseases as the sixth NCD and of sugar as the sixth major common risk factor.¹⁷ The *Lancet* Commission on Oral Health, launched in 2020, welcomes the adoption of the resolution on oral health and will accompany WHO, governments, and stakeholders with critical analyses, innovative concepts, and actionable policy recommendations to accelerate efforts to, as WHO's Director-General said when the resolution was adopted, "reposition oral health as part of the global health agenda in the context of UHC".²

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For more on the *Lancet* Commission on Oral Health see <https://www.ucl.ac.uk/epidemiology-health-care/research/epidemiology-and-public-health/research/dental-public-health/lancet-commission-oral-health>



Bottom-up citizen engagement for health emergency and disaster risk management: directions since COVID-19

The COVID-19 pandemic has shown how syndemics and protracted crises increase the vulnerability of communities facing concurrent, cascading risks and complex secondary events that aggravate health risks and underlying burdens of infectious and non-communicable diseases.^{1,2} Epidemics start and end

in communities, where citizens are often the first to observe changes in the environment and in animal health, and the first to be exposed to new or re-emerging pathogens. Local stakeholders have crucial roles in the prevention and control of disease transmission, and frequently develop systems of appropriate health and

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social care based on local knowledge. However, current approaches to disaster risk management often do not sufficiently recognise and engage community expertise.²

A combination of whole-of-society, top-down, intermediary, and bottom-up approaches is needed to maximise resources and minimise adverse health impacts in global crises.^{3,4} Citizen engagement is a cornerstone of the WHO Health Emergency and Disaster Risk Management (Health-EDRM) Framework, an interdisciplinary academic field promoting mechanisms for communities to address needs and strengthen social cohesion by bridging citizen action with top-down approaches.⁵ The 2020 WHO report from the Global Preparedness Monitoring Board also called for engaged citizenship to strengthen the COVID-19 response and prepare for future emergencies.⁶ On March 31, 2021, WHO convened a global consultation that called attention to the evidence needed to advance citizen engagement and highlighted the importance of trust, agency, social cohesion, and leadership in driving inclusive, citizen-led responses throughout the health emergency cycle.⁷

Biomedically dominated emergency response models typically perceive citizens as “target groups” or “beneficiaries” rather than as participants with agency and the capacities to contribute to prevention, response, research, and data generation.⁸ Efforts have been made to standardise Health-EDRM approaches, facilitate measurement, and establish multilateral collaboration. However, effective citizen engagement and relevant research in extreme global event responses crucially hinge on recognising the legitimacy and value of local knowledge, competencies, systems, and practices across geographical, cultural, gender, and ethnic groups.⁹

During the COVID-19 pandemic, there have been many challenges to ensuring community inclusion. Clinicians have been confronted with difficulties relating to equitable patient management, and fair distribution and access to diagnosis, therapeutics, COVID-19 vaccines, and palliative arrangements.¹⁰ Meanwhile policy makers have encountered problems in ensuring inclusive information access and ownership, resource allocation, and prevention frameworks across different age, gender, and population groups within a jurisdiction.² Researchers have faced challenges in study implementation, equity of participation in research,

Panel: Ways to advance bottom-up citizen engagement in health disaster and emergency management programmes, policies, and research

Risk communication

- Identify ways to build trust, awareness, and knowledge before, during, and after responses, and address underlying drivers of fear, anxiety, and stigma.¹⁰
- Recognise that resource and information channels vary with demographics, acceptability, and access, and tailor communication to participant groups.¹²

Research participation

- Identify systematic ways to rapidly involve communities in participation, notably clinical research for vaccines and therapeutics.^{10,12}
- Develop protocols for rapid research ethics review to allow impactful and timely community involvement.^{8,12}

Research design

- Identify approaches to encourage participation with urbanised, isolated, and mobile populations equitably.^{8,12}
- Capture disaggregated data to understand the complexity of community diversity, particularly in relation to marginalised, vulnerable, and underserved groups.^{10,12}
- Develop protocols for appropriate research design and outcome evaluation to maximise impact and relevance.¹⁰

Knowledge sharing

- Identify relevant channels for dissemination of research learnings into the source community to better understand and scale up effective and empowering innovation among citizens and vulnerable groups.^{8,12}
- Build mechanisms for multidisciplinary partnerships to analyse and share data related to community preparedness, response, and evaluations.^{8,12}

technical tools needed for digital evidence capturing and evaluation, fair publication opportunities for researchers, and ethics approval that takes into account unique needs and practices within communities.¹⁰ Importantly, many communities have struggled to establish inclusive and relevant governance channels that include their unique needs and perspectives. Throughout the COVID-19 pandemic, well intentioned treatment protocols, protection policies, and research projects have had shortcomings in inclusivity, outcome applications, and implications for vulnerable communities. Mechanisms are often not in place to ensure that hard-won research results that reflect citizens’ experiences make their way back to bring needed changes to these communities.⁸

There is a need to reconceptualise the evaluation of citizen science for Health-EDRM in an increasingly interconnected and digital landscape.¹¹ Health-EDRM responses can be facilitated by strengthening research design and assessments of scientific merit, and streamlining surveillance and data generation throughout all stages of the emergency response cycle (panel).

Global frameworks, including the Sustainable Development Goals 2015–2030 and the Sendai Framework for Disaster Risk Reduction 2015–2030, emphasise the importance of strengthening citizen engagement and facilitating top-down mechanisms that build citizen resilience. Yet there are insufficient multidisciplinary policy platforms and experience-sharing mechanisms that allow bottom-up, citizen-focused Health-EDRM research to be supported through funding and ethics approval systems beyond academic institutions, to maintain research output accountabilities, to seek citizens' insights into research planning and design, and to ensure that results are appropriately disseminated. Such platforms and mechanisms would allow health and non-health stakeholders to advance health risk awareness among citizens, translate scientific developments and adaptive governance mechanisms into effective health emergency implementation, and build evidence-based systems that are inclusive and empower citizens.¹³ COVID-19 offers an opportunity for front-line researchers and policy makers to rethink and build more equitable global health landscapes and ensure the inclusion of voices of a diverse world.

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