May 2021

COVID-19 information note 12

A key COVID-19 lesson: context-specific health research, policies and practices are needed

New knowledge important to understand the unknowns in low-resource settings

Managing a pandemic event brings a number of challenges, especially in a low-resource setting. At the beginning of any "unknown" public health event, its characteristics, likely extent and spread in the population, risk factors and transmission dynamics are unknown. As public health research in low-income countries is underfunded and evidence on what works better in such settings is limited, there is an over-reliance on research findings from high-income countries, and using those findings for public health response measures is the norm. Often, these measures do not reflect the situation in low-income countries and are subsequently shown to have little impact. As the transmission dynamics of any unknown or emerging public health event may vary for demographic reasons, contextual settings and other population factors, extending local knowledge and setting evidence-informed policy based on this knowledge is very importance. Bridging knowledge gaps in low-income settings can contribute to the global public good by providing evidence on what works better in such settings. It can also improve context-informed responses.

Innovation to bridge knowledge and learning gaps in fragile settings

Any fast and rapidly progressing disease event needs reliable, consistent and valid information on effectiveness of any ongoing response operations to slow transmission of the disease and flatten the epidemic curve so the health

system is not overwhelmed. While responding to a crisis such as a pandemic, countries also need to conduct research that can provide meaningful data to ensure the response is effective and transfer the research knowledge into practice. This is particularly challenging for fragile countries such as Somalia that lack the necessary capacity. It is important to change this situation and generate, disseminate and adopt evidence-based interventions specific to Somali settings. Without dissemination, research is a waste of resources.

The coronavirus disease 2019 (COVID-19) pandemic started as an unknown event but very quickly knowledge was generated on how the event could be successfully contained using simple public health measures that could be rapidly scaled up, even in resource-constrained settings. Building an efficient knowledge management system in Somalia will require innovation and a focus on its priorities to maximize the effect of new evidence on improving the health outcome of the Somali people.

World Health Organization
Somalia

Promoting knowledge-enabled action on health for Somalia

The WHO country office in Somalia, in collaboration with the health ministries, other international agencies, and national and international academic institutions is supporting a number of research studies in the country. The main objectives of this support are to:

- Build the research capacity of government institutions to conduct high-quality public health research and translate the research findings into policies and practices.
- Support publication of such research in peer-reviewed medical journals to illustrate the country's success and efforts in addressing important knowledge gaps.
- Develop a culture of continuous learning and innovation to maximize the impact on heath.

Supporting such research has many advantages. First, enhancing research capacity and translation of research findings into evidence-informed policies can help build a more equitable and resilient health system that can withstand the strain of any future public health emergency. Second, these studies are helping WHO and its partners identify critical gaps in the Somalia's severely underfunded health system. This information may stimulate policy discourse on how future health investments in the country should be prioritized so that appropriate strategies, policies and practices can be implemented for real and sustainable health dividends. Third, the knowledge generated by these research studies will help reform and transform the health sector.

Current knowledge management initiatives

WHO, in partnership with government institutions, national and international agencies and academia, has supported and been involved the performance of a number of research studies, and the dissemination of their research findings. It is expected that these research efforts will provide the government with opportunities to align its transformative agenda to reform the health sector in line with the outcome of this research.

Completed studies

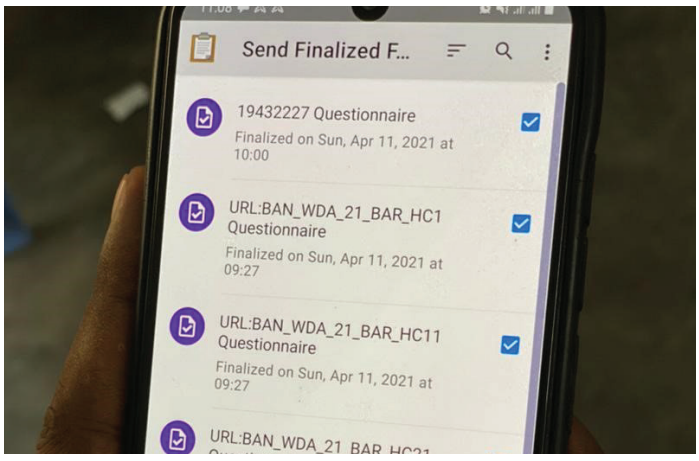
Genome sequencing (manuscript in preparation). Working with the Africa Centres for Disease Control and Prevention and its network of laboratories for genome sequencing, WHO is supporting the Somalia National Institute of Health to investigate and track the evolution and spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to monitor and rapidly identify changes in strain and emergence of new variants, and the effect of these changes on the severity of and mortality from COVID-19 and efficacy of vaccines used in the country. Over 900 SARS-CoV-2 samples (collected randomly from different hospitals at different times) have been sent for genome sequencing and preliminary data have been made available to the government. The study also aims to: (i) build the capacity of public health laboratories in Somalia to conduct genome sequencing; (ii) support the integration of pathogen genomics and bioinformatics into public health surveillance, outbreak detection and investigations; and (iii) improve disease control and prevention in the country for all diseases in the future.

Expected outcome: integration of genome sequencing in public health surveillance.

Seroprevalence study (preliminary findings being analysed and manuscript in preparation). WHO supported the health ministries of the Federal Government of Somalia and of Somaliland in conducting a population-based, age-stratified seroepidemiological investigation of COVID-19 infection. The study aimed to provide estimates of: (i) seroprevalence of antibodies to COVID-19 in different age groups, (ii) cumulative incidence of infection; (iii) infection attack rates; and (iv) extent of asymptomatic infection.

Expected outcome: understanding the extent of population-level immunity and infection against COVID-19.

Rapid serosurvey to determine population-level immunity to vaccine-preventable diseases (manuscript in preparation). WHO supported health ministries of the Federal Government of Somalia and of Somaliland to partner with the Department of Epidemiology of UCLA Fielding School of Public Health (University of California, Los Angeles) and the United States Centers for Disease Control and Prevention to conduct this cross-sectional serosurvey. The purpose of the study was to: (i) determine age-specific susceptibility to vaccine-preventable diseases, including



diphtheria, measles, mumps, polio, rubella and tetanus across the country; and (ii) identify key factors (age, sex, geographic area, nutritional status and other sociodemographic characteristics) associated with insufficient immunity to these diseases in the country. Apart from the vaccine-preventable diseases, the survey covered some other diseases of interest in the country such as neglected tropical diseases and malaria.

Expected outcome: possible policy change in routine immunization.

Risk exposure and compliance with infection prevention and control measures in health care workers (manuscript being finalized for journal submission). This cross-sectional study was done in cooperation with Banadir University to assess the practices of health care workers in hospitals with regard to infection prevention and control measures and their compliance with these measures. Risk factors associated with infection were also investigated.

Expected outcome: development of policies and practices for infection prevention and control measures in the health system.

Community deaths from COVID-19 using verbal autopsy (manuscript being finalized for journal submission). This study, done jointly with Banadir University, used the death registry and a modified verbal autopsy method to compare COVID 19 deaths reported officially through daily or weekly situation reports (deaths mostly occurring in hospital) with direct or indirect deaths attributed to COVID-19 occurring in the community.

Expected outcome: development of a civil registration and vital statistic system; policy and directives to measure excess mortality during pandemics and other public health events.

Survival analysis (preprint available at: https://medrxiv.org/cgi/content/short/2021.01.01.20248966v1). This study, done jointly with the De-Martino hospital, aimed to: (i) determine risk factors for death in critically ill patients with COVID-19 admitted to one of the main hospitals in Somalia; and (ii) identify interventions that contributed to improved clinical outcomes in a low-resource and fragile setting.

Expected outcome: policy and roadmap for bridging gaps in access to medical oxygen.

COVID-19 infection in different types of health care worker (published and available at: https://www.sciencedirect.com/science/article/pii/S1201971221000783). This study used retrospective data on COVID-19 infections in health care workers to identify those at most risk of acquiring the infection among the various groups of health care worker (doctors, nurses and informal health workers).

Expected outcome: understanding extent of COVID-19 infection in health care workers to know which groups to prioritize for vaccination if supplies are constrained.

Role of community health care workers in responding to the COVID-19 pandemic (manuscript in preparation). This study aimed to: (i) determine the contribution of community health workers deployed by WHO to containing COVID-19 transmission; (ii) ascertain the effect of a community-based surveillance system for pandemic response in a fragile setting; and (iii) estimate, through modelling, how many additional cases of COVID-19 were potentially averted by the early detection of cases by these community health workers.

Expected outcome: formal programme for community health workers and a more structured system to engage them in support of primary health care.

Characteristics of the epidemic and transmission dynamics (manuscript in preparation). Using routine surveillance data, this study aimed to: (i) describe the epidemiological characteristics of SARS-CoV-2 infection; and (ii) estimate growth rate, transmissibility rate and doubling time of the infection to establish the trajectory of the epidemic.

Expected outcome: knowledge on the effect of public health measures in controlling COVID-19.

Studies in process or preparation

Secondary effect of COVID-19 on essential health care (in the data collection phase). This study aims to determine the effect of the COVID-19 pandemic on essential health care by assessing changes in the use of routine immunization and maternal health care services. The study uses WHO's pulse survey methodology and quantitative data from District Health Information Software 2 (DHIS-2).

Expected outcome: improved health system by identifying and addressing barriers to access of services.

Vaccine effectiveness (protocol finalized and data collection to begin soon). This prospective longitudinal cohort study aims to measure COVID-19 vaccine effectiveness in health workers based in selected hospitals. The study compares SARS-CoV-2 incidence among COVID-19 vaccinated and unvaccinated health workers.

Expected outcome: evidence of the importance of vaccinating health care workers to use for advocacy.

Cost–effectiveness of solar-powered medical oxygen (in the data collection phase). Supported by the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, this implementation research aims to gather evidence on the feasibility, use, cost–effectiveness and impact on survival of solar-powered medical oxygen systems. The WHO country office set up these systems in Hanano General Hospital in Dushamareb, Galmudug State.

Expected outcome: scaled up access to and use of solar-powered oxygen concentrators across the country.

Impact of COVID-19 on infectious diseases (data collection completed). WHO has partnered with the Centre for Humanitarian Data of the Office for the Coordination of Humanitarian Affairs to model the impact of COVID-19 on cholera, malaria and measles using a susceptible–exposed–infected–removed (SEIR) model.

Expected outcome: evidence to improve health system through knowledge of COVID-19's impact.

Economic evaluation of public health preparedness activities (protocol finalized, data collection to begin soon). This study aims to determine the "value for money" of preparedness activities in terms of, for example, improving health system capacity for outbreak detection, number of events detected early, cases averted and lives saved.

Expected outcome: evidence to support greater investment in preparedness activities.

Translating research into policy: implications for better health, a better future

The gap between research and practice or policy is often described as a problem. Evidence has shown that timely access to good-quality and relevant research evidence, collaborations with policy-makers, and building relationships with and skills of policy-makers are the most important factors influencing the use of research evidence. The use of evidence coming out of fragile countries like Somalia to guide appropriate policy will go a long way to influence decisions that will contribute to improved health outcomes, realization of universal health coverage and achievement of the Sustainable Development Goals. Taking advantage of the experiences of the pandemic and understanding its determinants and effect will help the country to rebuild a resilient health system that is better able to face the next emergency. Such a health system will also result in a more inclusive and equitable society where no one is left behind. Funding research and building research capacity of fragile countries are imperative to generate and manage the necessary knowledge that can lead to better health and a better future.

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Our operational response to COVID-19 is supported by:

UKaid from the British people
Swiss Agency for Development and Cooperation SDC
ITALIAN AGENCY FOR DEVELOPMENT COOPERATION
United Nations CERF Central Emergency Response Fund
Gavi The Vaccine Alliance
Canada
The Global Fund
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