

Evidence Brief

COVID-19 response in resource-limited settings with reference to migrant and mobile populations

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Key messages

- Health systems in low-to-middle-income countries (LMICs) face major challenges in dealing with COVID-19. Populations living in conflict and post-conflict settings, including migrants in displaced persons camps and other high-density settlements may deal with further barriers due to disrupted health systems, limited resources, and their exclusion from national preparedness and response efforts.
- The high degree of heterogeneity in health system capacities impacts on disease transmission gradients and effective public health strategies for disease prevention and control. Different migrant and mobile population groups throughout the migration cycle have distinct vulnerabilities that merit consideration.
- Additional burden associated with recession and loss of employment for internal and international migrant workers may lead to further deteriorations in health status and health system capacities.
- While early and sustained implementation of social distancing and quarantine strategies in specific resource-limited settings like camps may reduce the number of new infections, active COVID-19 transmission could persist in settings where depleted health systems already struggle to manage moderate to severe cases and have limited capacities for testing and scaling-up such capacities.
- With limited testing capacity, boosting contact tracing of suspect cases with highly trained community-based teams become a priority in resource-limited settings, particularly in areas with no established local transmission.
- There is a dearth of modeling studies on the pandemic spread and the effect of various quarantine scenarios and other mitigation measures that can support informed decision making in camps and camp-like settings and other resource-limited settings.
- Compared with high-income countries, many LMICs have relatively younger populations that may be less susceptible to severe forms of COVID-19. However, the burden of vaccine-preventable diseases and the spread of drug-resistant malaria and tuberculosis in LMICs may exacerbate non-COVID related deaths. Designing tailored programs for the elderly and those with co-morbid conditions remains critical.
- Solutions should ensure that district-level health systems continue to prioritize primary health care programs (e.g. maternal and child health, antenatal, vaccination programs) during the crisis. This approach can substantially reduce the number of deaths from other causes and avert new infections of non-COVID diseases.
- Lessons learned from the 2014 Ebola virus disease (EVD) outbreak in West Africa – where the excessive focus on EVD came at the cost of other disease control and public health programs – highlight the importance of a comprehensive primary health care approach.
- Harnessing low-cost innovations and telemedicine in primary care settings is also important.
- As the true ‘exit strategy’ in the form of an effective vaccine is far-off, it is essential for health systems in LMICS to cope with the ongoing waves of transmissions and prepare for emergent therapeutics that aim at reducing viral load in moderate to severe cases. This requires health system planning from primary to referral care.

Background

In response to the need for containing the 2019 novel coronavirus disease (COVID-19) spread, border control measures including stringent local and international travel restrictions have been implemented in many countries.^{1,2} Such measures directly impact low-to-middle-income countries (LMICs) and other vulnerable groups in more severe ways than the general population. Globally, social and healthcare systems – including relatively stronger ones – have been confronted and overwhelmed by a surge of cases.³ Even in high-resource settings, simulation studies of potential outcomes of public health interventions suggest the limited effectiveness of single-approach interventions for mitigating spread.⁴

These scenarios raise important questions for resource-constrained populations and those affected by other humanitarian crises that now need to simultaneously deal with pre-existing social and health issues and the evolving and expanding threats of COVID-19. What can then be expected in settings with weaker healthcare systems? What potential tools and control measures should be maximized in these settings? Within the growing body of research findings and scientific knowledge on COVID-19 to date,⁵ a number of relevant commentaries⁶⁻¹¹ and research studies^{6,12-14} provide key information and insights that will be useful in addressing important concerns that especially affect these populations.

This evidence brief draws insights from a qualitative assessment of key publications using an integrative literature review approach¹⁵ to present an overview of the emerging research surrounding COVID-19 response in vulnerable populations and resource-limited settings. The literature review is intended to address this emergent topic without necessarily covering all the articles ever published but rather to develop useful perspectives that are most relevant to the field.

Special challenges in migrant and mobile populations and resource-limited settings

Health systems in LMICs face major challenges in dealing with COVID-19. Several factors drive the potentially disproportionate impact of COVID-19 on health outcomes in resource-poor settings (Table 1).

Table 1. Mechanisms driving the differential impact of COVID-19 in resource-limited settings

Contributing factors	Mechanisms involved
Higher disease transmission	<ul style="list-style-type: none">larger household size increases exposure of the elderly⁷ who areovercrowding in humanitarian camps for displaced people¹⁶ and urban slumshaving inadequate water and sanitation facilities
Higher chance of developing serious disease	co-occurrence of COVID-19 infection with other underlying health conditions (e.g. hypertension, diabetes, undernutrition, tuberculosis, and HIV)
Higher number of deaths among those that test positive	lack of access to a strong health system that can support increased healthcare needs ¹⁷

Migrants, refugees and other populations in conflict areas

In camp settings, it is imperative for governments to facilitate action plans to evacuate residents and decongest the camps, which are currently ill-equipped with specialist facilities.¹⁶ Already challenged by weakened health systems, vulnerable populations – those living in conflict and post-conflict settings; migrants in displaced persons camps and other high-density settlements – need to deal with additional barriers posed by having disrupted health systems and their exclusion from national preparedness and response efforts. Economic recession and loss of employment further subject internal and international migrant workers to additional vulnerabilities that often intensify deteriorations in health status and health system capacities.

Resource-limited settings

Compared with high-income countries, many LMICs have relatively younger populations that may be less susceptible to severe forms of COVID-19. However, the burden of vaccine-preventable disease and the spread of drug-resistant malaria and tuberculosis may exacerbate non-COVID related deaths in LMICs. Even with a younger population, designing tailored programs for the elderly and those with co-morbid conditions remains critical in LMICs. Older people in LMICs are especially vulnerable to the threats of COVID-19. While the elderly in general already have a higher risk of dying from the virus, older people from resource-poor settings who often live in overcrowded conditions carry the additional burden of getting themselves exposed to the virus due to their caregiving roles in their extended families. They also lack access to quality health services especially in areas with inadequate supplies of healthcare workers.⁷

Developing feasible strategies

Among the drivers of the differential impact of COVID-19 in resource-constrained settings (Table 1), disease transmission stands as the most feasible factor to address.¹⁷ Thus, strengthening disease control measures is considered the most viable strategy for maximizing limited resources especially when expanded prevention and treatment measures are unlikely. However, no standalone strategy in controlling disease transmission is likely to be a panacea that can be applied across all settings. Ensuring that the vulnerable remain protected from infection should be a constant goal until new developments in disease prevention (vaccines) and treatment (therapeutics) become available.¹⁷ The high degree of heterogeneity in health system capacities impacts on disease transmission gradients and effective public health strategies for disease prevention and control. Different migrant and mobile population groups across the migration cycle also have distinct vulnerabilities that merit consideration.

WHO recommendations

Advocating for tailored solutions in preparedness, readiness and response actions, the WHO identified priority areas for COVID-19 according to prevailing transmission scenarios: i.e. no case, sporadic cases, cluster of cases, or community transmission (Table 2). Based on these definitions, many countries are currently observing clusters of cases or active community transmission.¹⁸

Table 2. COVID-19: Critical preparedness, readiness and response actions for each transmission scenario

Priority areas	No case	Sporadic Cases	Cluster of Cases	Community Transmission
Risk communication, public engagement	Educate and actively communicate with the public through risk communication and community engagement			
Case finding, contact tracing and management	Conduct active case finding, contact tracing and monitoring; quarantine of contacts and isolation of cases	Enhance active case finding, contact tracing and monitoring; quarantine of contacts and isolation of cases	Intensify case finding, contact tracing, monitoring, quarantine of contacts, and isolation of cases	Continue active case finding, continue contact tracing where possible, especially in newly infected areas, quarantine of contacts, and isolation of cases; apply self-initiated isolation for symptomatic individuals
Surveillance	Consider testing for COVID-19 using existing respiratory disease surveillance systems and hospital-based surveillance	Implement COVID-19 surveillance using existing respiratory disease surveillance systems and hospital-based surveillance	Expand COVID-19 surveillance using existing respiratory disease surveillance systems and hospital-based surveillance	Adapt existing surveillance systems to monitor disease activity (e.g. through sentinel sites)
Public health measures	Hand hygiene, respiratory etiquette, practice social distancing			
Infection Prevention and Control (IPC)	Train staff in IPC and clinical management specifically for COVID-19			Retrain staff in IPC and clinical management specifically for COVID-19
	Prepare for surge in health care facility needs, including respiratory support and PPE		Advocate for home care for mild cases, if health care systems are overwhelmed, and identify referral systems for high risk groups	Implement health facilities surge plans

Priority areas	No case	Sporadic Cases	Cluster of Cases	Community Transmission
Laboratory testing¹	Test all individuals meeting the suspected case definition Test a subset of samples from SARI/ILI surveillance for COVID-19 Test patients with unexpected clinical presentation or an increase in hospital admissions in a specific demographic group that could be COVID-19	Test all individuals meeting the suspect case definition Considerations in the investigation of cases and clusters of COVID-19 Clinical management of severe acute respiratory infections when novel coronavirus is suspected SARI/ILI surveillance for COVID-19 and reporting: see Interim operational considerations for COVID-19 surveillance using GISRS	Test all individuals meeting the suspected case definition Considerations in the investigation of cases and clusters of COVID-19. Clinical management of severe acute respiratory infections when novel coronavirus is suspected SARI/ILI surveillance for COVID-19 and reporting: see Interim operational considerations for COVID-19 surveillance using GISRS	If diagnostic capacity is insufficient, implement prioritized testing and measures that can reduce spread (e.g. isolation), including priority testing of: <ul style="list-style-type: none">• people who are at risk of developing severe disease and vulnerable populations, who will require hospitalization and advanced care for COVID-19 (see Clinical management of severe acute respiratory infections when novel coronavirus is suspected)• symptomatic health workers (including emergency services and non-clinical staff) regardless of whether they are a contact of a confirmed case (to protect health workers and reduce the risk of nosocomial transmission)• the first symptomatic individuals in a closed setting (e.g. schools, long term living facilities, prisons, hospitals) to quickly identify outbreak
Case management strategy²	Set up screening and triage protocols at all points of access to the health system; Prepare to treat COVID-19 affected patients; Set up COVID-19 hotline and referral system; Ready hospitals for potential surge	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Ready hospitals for surge; Ready communities for surge (setting up community facilities for isolation of mild/moderate cases)	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Activate surge plans for health facilities	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Scale up surge plans for health facilities and ad-hoc community facilities, including enhancement of COVID-19 referral system.
Case management recommendations by case severity and risk factors²	Test suspect COVID-19 cases according to diagnostic strategy ¹ <ul style="list-style-type: none">• For mild cases and moderate cases with no risk factors (Isolation): Health facilities, if resources allow; Community facilities (i.e. stadiums, gymnasiums, hotels) with access to rapid health advice (i.e. adjacent COVID-19 designated health post, telemedicine); Self-isolation at home according to WHO guidance• For moderate cases with risk factors, and all severe/critical cases: Hospitalization (in-patient treatment), with appropriate isolation			
Societal response	Develop all-of-society and business continuity plans	Implement all-of-society resilience, repurpose government and ready business continuity plans	Implement all-of-society resilience, repurpose government, business continuity, and community services plans	
¹ For full details, see WHO's Guidance: Laboratory testing strategy recommendations for COVID-19, available here ² For full details, see WHO Guidance: Operational considerations for case management of COVID-19 in health facility and community, available here . Note: Transmission scenarios: No Cases - no reported cases; Sporadic Cases - One or more cases, imported or locally acquired; Cluster of Cases - Most cases of local transmission linked to chains of transmission; Community Transmission - Outbreaks with the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories). *Reproduced from WHO 2020 ¹⁸				

The WHO's clarion call to 'test, test, test' highlights the need for targeted testing. The guidance indicates testing suspect cases per WHO case definition and symptomatic contacts of probable or confirmed cases, as well as patients identified through respiratory disease surveillance. If testing capacity is overwhelmed, measures to reduce disease spread (e.g. self-isolation) and priority testing of healthcare workers and vulnerable groups must be implemented; testing the first symptomatic suspect cases in closed settings such as schools, long-term care facilities, prisons, etc. must also be prioritized. However, the reality for many LMICs is that even if they manage to implement targeted testing, their weak pre-existing health systems remain ill-equipped to manage patients with moderate and severe disease – suggesting the need to concurrently explore other priority areas for action.

Containment strategies in resource-constrained and conflict areas

The general principles in protecting high-risk populations¹⁷ outlined below can collectively support a workable containment strategy. Detailed guidelines for each component remain to be developed:

1. Identify high-risk populations (e.g. aged 60 and older, patients with TB and HIV)
2. House high-risk community members (i.e. green zoning): neighborhood isolation where sections within a settlement are allocated for high-risk individuals is the relevant strategy in refugee settings where household-level isolation is not possible but supportive services can still be provided
3. Focus on infection control: subject to availability of resources, stringent infection control measures that consider the limitations of the setting should be observed; individuals with symptoms of COVID-19 should be immediately isolated (and tested if there is capacity to test)

Maximizing evidence from modeling studies in high-income settings

Modelling studies using available secondary data have a huge potential to inform decision making and response. However, there is a dearth of modeling studies on the pandemic spread and the effect of quarantine scenarios and other mitigation measures in specific resource-limited settings. To date, only one modeling study measured African countries’ risk of importing cases from China and their capacity to detect and respond to COVID-19 cases.¹² Another modeling study used global data on infections patterns, deaths, and healthcare capacity to compare the estimated impact of various suppression strategies on the number of infections and deaths in different scenarios (Table 3).¹⁴

Table 3. The estimated impact on infections and deaths for two different suppression strategies versus the scenario without any suppression strategy in place over the course of 250 days.

	Unmitigated Scenario		Suppression at 0.2 deaths per 100,000 population per week		Suppression at 1.6 deaths per 100,000 population per week	
	Infections	Deaths	Infections	Deaths	Infections	Deaths
East Asia & Pacific	2,117,131,000	15,303,000	92,544,000	442,000	632,619,000	3,315,000
Europe & Central Asia	801,770,000	7,276,000	61,578,000	279,000	257,706,000	1,397,000
Latin America & Caribbean	566,993,000	3,194,000	45,346,000	158,000	186,595,000	729,000
Middle East & North Africa	419,138,000	1,700,000	30,459,000	113,000	152,262,000	594,000
North America	326,079,000	2,981,000	17,730,000	92,000	90,529,000	520,000
South Asia	1,737,766,000	7,687,000	111,703,000	475,000	629,164,000	2,693,000
Sub-Saharan Africa	1,044,858,000	2,483,000	110,164,000	298,000	454,968,000	1,204,000
Total	7,013,734,000	40,624,000	469,523,000	1,858,000	2,403,843,000	10,452,000

Reproduced from Walker, et al. 2020¹⁴

Evidence suggests that early and sustained implementation of containment strategies can save more lives than initiating the strategy much later in the outbreak. Delayed implementation can overwhelm healthcare capacity even when extensive suppression is applied. The timing of implementation in LMICs should also be re-calibrated because their relatively younger cohort could result in accumulating more cases in the community (meaning increased demands for healthcare) way before reaching the threshold for initiating the strategy (i.e. 1.6 deaths per 100,000 per week).

The sustainability of these measures should be thoroughly considered. In addition to extensive testing and rapid isolation of confirmed cases, the suppression measures outlined will need to be maintained at some level (Figure 1) to limit the possibility of an epidemic resurgence. Resource-limited communities with minimum capacity for implementing suppression strategies – and are unlikely to have access to effective therapies and vaccines when available – should carefully consider these strategies to prevent a likely health system collapse once the suppression strategies are withdrawn.¹⁴

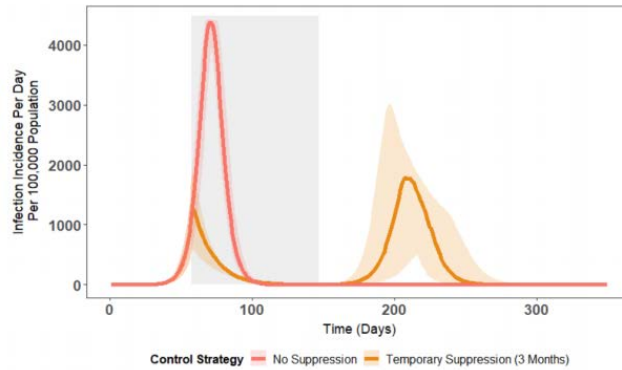


Figure 1. In temporary suppression, the infection patterns are expected to return to previous levels when the suppression is suspended after maintaining it for 3 months. Reproduced from Walker et al. 2020¹⁴

The WHO recently issued a six-point criteria for easing suppression strategies: (1) controlled transmission; (2) health system capacity to detect, test, isolate and treat every case and trace every contact; (3) minimized outbreak risk in health facilities and nursing homes; (4) preventive measures are applied in places where it is essential for people to go (e.g. workplace, school); (5) managing importation risk; and (6) communities are educated, engaged and empowered in adjusting to the new norm.¹⁹

Strengthening health systems in LMICs

Setting up the WHO’s minimum infection prevention and control requirements for health facilities across all levels of government²⁰ can also ensure the capacity to provide the basic protection of patients and health workers in resource-limited countries.¹⁰ Viable solutions should ensure that district-level health systems continue to prioritize primary health care programs (e.g. maternal and child health, antenatal, vaccination programs) during the crisis. This approach can substantially reduce the number of deaths from other causes and avert new infections of non-COVID diseases. Africa’s experience in previous and ongoing outbreaks will prove useful in dealing with containing the virus spread.⁹ Lessons learned from the 2014 Ebola virus disease (EVD) outbreak in West Africa – where the excessive focus on EVD came at the cost of other disease control and public health programs – highlight the importance of a comprehensive primary health care approach.²¹ Harnessing low-cost innovations and telemedicine in primary care settings is also important.

Enabling the efficient use of limited resources in disease testing

With limited testing capacity, boosting contact tracing of suspect cases with highly trained community-based teams becomes a priority in resource-limited settings, particularly in areas with no established local transmission (i.e. all cases acquired outside the location of reporting).^{6,10,21} Adopting an efficient screening algorithm using information on common symptoms (i.e. fever, cough) and exposure to confirmed cases or travel history can facilitate decision making (isolation criteria) and targeted testing. As the true ‘exit strategy’ in the form of an effective vaccine is far-off, preparedness of health systems to cope with ongoing waves of transmissions is essential especially for LMICs. Health systems in LMICs must prepare for emergent therapeutics that aim at reducing viral load in moderate to severe cases. This requires health system planning from primary to referral care.

Inclusion of vulnerable groups in developing strategies

Containing the virus through social distancing and community quarantine¹⁷ – a widely implemented public health intervention – is extremely challenging if not practically impossible to implement in refugee camps and other conflict areas where overcrowding is inevitable. The ubiquity of other infectious diseases in these areas also adds another barrier as the lack of access to water and sanitation facilities cannot even support proper handwashing as a first-line defense from infections.²³

The inclusion of migrants, refugees and other vulnerable populations in the development of feasible and targeted responses across various sectors is strongly encouraged if not warranted,⁷ to avoid self-defeating strategies and allow these initiatives a fighting chance in reducing disease transmission. Ensuring the social acceptability of any strategy¹⁷ and drawing support from stakeholders in the community are important in maximizing the use of scarce resources in these settings. Relevant health and humanitarian aid agencies have also provided guidance in implementing COVID-19 response operations in outbreaks,^{23,24} including the involvement and engagement of vulnerable populations in communication strategies. Specific guidance on extending the scope of readiness and response operations in camps and similar settings is also available.²⁵

The International Organization for Migration (IOM) laid out a strategic response to COVID-19 with the goal of minimizing its unprecedented impact on mobility, migration, and the protection of mobile and displaced populations.²³ Moving towards a whole-of-society and whole-of-government level of engagement, key interventions for addressing the mobility aspects of this pandemic must ensure that strategies reach vulnerable populations and operational capacities are strengthened. Driving key messages on a broad range of mobility and migration health issues (e.g. population tracking in health crises, minimising the impact of job losses on remittances, seasonal working in Europe, and nomadic populations in Africa) must be sustained.²⁶

Conclusion

Awareness of the special challenges in dealing with the threats of COVID-19 in mobile populations and resource-limited settings intensifies the need for targeted approaches that consider the limitations in their capacity to deal with the problem. Intensive containment measures currently being implemented in several countries, combined with extensive testing and rapid isolation of cases, emerged as the most promising option to avoid health system collapse. However, high-level testing and extensive surveillance are not guaranteed in resource-limited settings. While containment strategies in specific resource-limited settings like camps may reduce the number of new infections, active COVID-19 transmission could persist in settings with depleted health systems already struggling to manage moderate to severe cases and have limited capacities for testing and scaling-up of such capacities.

As the pandemic continues to unfold, identifying the most feasible strategies in vulnerable populations and resource-limited areas can help alleviate the potential stress to their weaker pre-existing health systems. Although much has been suggested, this brief does not provide specific approaches in context of each type of resource-limited setting. Such limitation warrants the need to re-calibrate the strategies outlined in the brief to fit a specific setting. Timely communication of relevant information from the latest scientific findings and available guidance from relevant agencies can help relevant sectors in planning and implementing feasible and evidence-based mitigation strategies.

Disclaimer: The article has not been externally peer-reviewed; it should not replace individual clinical judgement and the sources cited should be checked. The views expressed in this commentary represent the views of the authors and not necessarily those of IOM. The views are not a substitute for professional medical advice.

Key resources

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