

BRIEFING NOTE

Implementing Public Health and Social Measures: Using Data to Find the Balance Between Public Health Outcomes and Social and Economic Impact

Purpose

This briefing note outlines how public health and social measures (PHSMs) can be used to slow the spread of COVID-19 and recommends using evidence-based triggers to start and stop implementing PHSMs. Using public health, social science and economic data can improve adherence, limit negative impacts and improve health outcomes.

Background

COVID-19 is an infectious disease that causes respiratory illness, with symptoms including cough, fever, and in more severe cases, difficulty breathing, pneumonia, and even death. As of April 2020, there were more than 2 million cases worldwide, with confirmed cases in nearly every country. Roughly one in five people infected requires hospitalization, with higher rates of severe illness in people over 60 and those with underlying conditions.

Because COVID-19 is transmitted by droplets that require humans to be closer than 1.5 meters, improved hygiene practices and physical distancing measures, known as “public health and social measures (PHSMs),” can slow the spread of disease and save lives. In the absence of effective treatment or a vaccine, PHSMs are the only available tool for governments to reduce deaths from COVID-19. But PHSMs can cause devastating social and economic disruption. They must be managed carefully and adapted for local contexts, and paired with relief measures such as fiscal stimulus to reduce damage to social and economic systems.

Aggressive application of PHSMs has successfully slowed the spread of COVID-19 in a number of countries, including China and South Korea. However, PHSMs can cause devastating social and economic disruption. They must be managed carefully, using evidence to drive decisions and balancing public health benefits with potential erosion of essential health services, and social and economic systems.

Visit [PreventEpidemics.org](https://www.PreventEpidemics.org) for more.

Prevent Epidemics is a project of [Resolve to Save Lives](https://www.ResolveToSaveLives.org), an initiative of [Vital Strategies](https://www.VitalStrategies.org).

Considerations for implementing PHSMs in low-resource settings

USING EVIDENCE TO TURN PHSMs ON AND OFF

Early, decisive action

Experience shows that if PHSMs are implemented early and decisively, they can drastically reduce the severity of an epidemic, limiting shortages of hospital beds and other supplies and saving lives.^{1,2} During the 1918 influenza pandemic, U.S. cities that implemented PHSMs early and thoroughly were able to “flatten the curve,” reducing the peak of their epidemics by up to 50%.^{2,3}

Recent studies of the beginning of the COVID-19 outbreak also show that PHSMs implemented in Wuhan, China had significant impact.⁴ Had they been implemented one week, two weeks, or three weeks earlier, they would have further reduced the number of cases by 66%, 86% and 95%, respectively, significantly limiting geographical spread of the disease.⁵

Successfully implementing PHSMs requires planning, [community engagement](#), clear communication, and consideration of how they may disrupt social and economic activity. PHSMs should be implemented early, adapted to the local context and epidemiology, and continually adjusted based on evidence.

“Stacking” PHSMs to increase effectiveness

It is challenging to distinguish the effect of individual PHSMs on the rate of COVID-19 transmission within a population (reproductive number R_0); effectiveness depends on how fully communities adopt and adhere to PHSMs, additional interventions they are combined with, and other variables like family size and level of intergenerational contact within a community. Still, evidence does show that PHSMs are more effective when implemented in combination, or “stacked,” than when implemented individually.^{2,3}

Models of epidemics in the United Kingdom and United States showed that school closures alone would reduce the need for critical care by 12%, but could achieve predicted reductions of 80% when combined with additional measures (i.e. home isolation, quarantine of households in which there had been one or more cases, population-wide physical distancing, and shielding of vulnerable people).⁶

Policymakers should choose PHSMs that are feasible to implement and effective at limiting disease transmission given the local context. More stringent measures, such as closing workplaces and requiring people to shelter in place, should only be considered as a last resort

- 1 Markel H, Lipman HB, Navarro JA, et al. Nonpharmaceutical Interventions Implemented by US Cities During the 1918-1919 Influenza Pandemic. *JAMA*. 2007;104(18):7582-7587. doi:10.1073/pnas.0610941104
- 2 Hatchett RJ, Mecher CE, Lipsitch M. Public health interventions and epidemic intensity during the 1918 influenza pandemic. *Proc Natl Acad Sci*. 2007;104(18):7588-7593. doi:10.1073/pnas.0611071104
- 3 Bootsma MCJ, Ferguson NM. The effect of public health measures on the 1918 influenza pandemic in U.S. cities. *Proc Natl Acad Sci*. 2007;104(18):7588-7593. doi:10.1073/pnas.0611071104
- 4 Wang C, Liu L, Hao X, et al. Evolving Epidemiology and Impact of Non-Pharmaceutical Interventions on the Outbreak of Coronavirus Disease 2019 in Wuhan, China. *Epidemiology*; 2020. doi:10.1101/2020.03.03.20030593
- 5 Lai S, Ruktanonchai NW, Zhou L, et al. Effect of Non-Pharmaceutical Interventions for Containing the COVID-19 Outbreak in China. *Infectious Diseases (except HIV/AIDS)*; 2020. doi:10.1101/2020.03.03.20029843
- 6 Ferguson NM, Laydon D, Nedjati-Gilani G, et al. Impact of non-pharmaceutical interventions (PHSMs) to reduce COVID-19 mortality and healthcare demand. 2020:20.

in settings where predicted caseloads already exceed health system capacity (for example, the number of intensive care unit beds). These measures should be accompanied by relief measures to reduce the resulting economic and social disruption.

When to activate PHSMs

Recommendations

Implementing PHSMs requires balance. The earlier they are implemented, the more effectively they slow the spread of disease, but implementing them too early can be counterproductive, as people may be unwilling to comply if they do not perceive a tangible threat to themselves or their families. Policymakers should engage community leaders and communicate the need and justification for PHSMs clearly and consistently, putting the risk of spreading COVID-19 into perspective to justify the individual sacrifices people will be asked to make. At the same time, policymakers should limit the implementation of PHSMs to the minimum geographical area necessary to constrain spread of the disease.

Choosing the appropriate measures

PHSMs can be grouped in three broad categories that guide implementation and help governments to decide when to tighten, loosen and turn measures on and off. The three categories are as follows:

- **“Limited”** PHSMs are inexpensive, can be implemented by individuals and have relatively few negative repercussions. If there is any risk of COVID-19 in a community, these measures should be implemented swiftly and accompanied by clear behavior change communication.
- **“Moderate”** PHSMs are more effective at reducing disease transmission but more disruptive of social and economic activity. They should be implemented as soon as community transmission is detected, after clearly communicating their purpose and necessity to affected communities. Relief measures to reduce the impact of these PHSMs on vulnerable groups, households and small business should be implemented concurrently.
- **“Expansive”** PHSMs should only be implemented when there is widespread community transmission and rising caseloads, such as three consecutive days of increasing new cases, or when health system capacity is limited and soon to be overwhelmed. The introduction of expansive PHSMs should be implemented in a measured way and consider the significant impact that they will have on all of society. Relief measures should be implemented concurrently, and will be critical to achieving adherence and minimizing negative impacts. **SEE ANNEX 1 FOR EXAMPLES OF RELIEF MEASURES.**

TABLE 1. IMPLEMENTING PHSMs BY GROUP

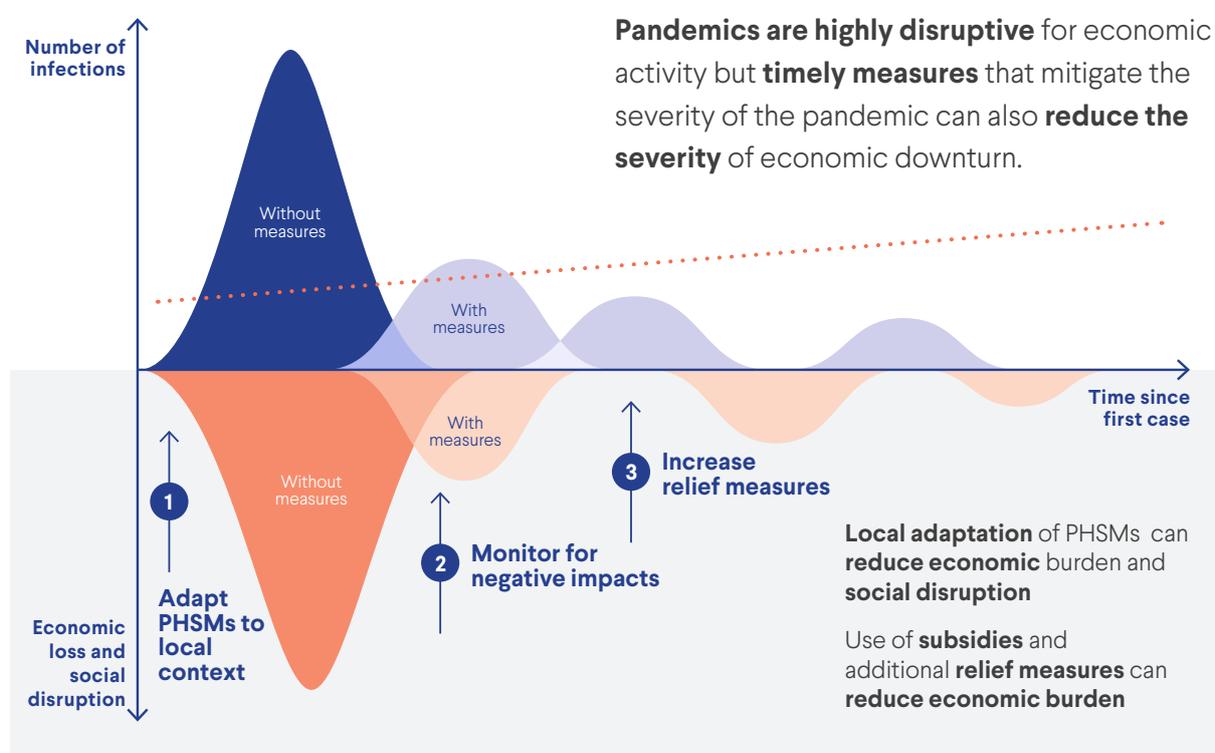
Epidemiological context		Covid-19 not yet spreading widely in the community	Initial community transmission detected or, in absence of lab testing, high suspicion of community transmission	More than three consecutive days of increasing cases and limited critical care bed capacity
		Limited	Moderate	Expansive
Order of Implementation	PHSM			
	Promote hand and respiratory hygiene	✓	✓	✓
	Stay at home if unwell	✓	✓	✓
	Rapidly identify, test, and isolate cases	✓	✓	✓
	Ask contacts of cases to voluntarily quarantine	✓	✓	✓
	Control and prevent infections to protect health workers	✓	✓	✓
	Voluntarily isolate all mild and moderate cases at home <small>(or voluntarily isolate in non-hospital settings such as dormitories or hotels)</small>		✓	✓
	Cancel or adapt mass gatherings		✓	✓
	Close schools (encouraging distance learning wherever possible)		✓	✓
	Shield vulnerable populations <small>(by establishing more strict social distancing measures)</small>		✓	✓
	Modify public transport including disinfection		✓	✓
	Close non-essential workplaces <small>(encouraging teleworking wherever possible)</small>			✓
Stay-at-home orders			✓	

**Note: Measures such as border closures and travel restrictions have been shown to delay the introduction of new cases into new areas by only a few days. While they have been widely implemented during the outbreak of COVID-19, evidence that they “flatten the curve” is limited. These measures would be considered “expansive” with a high negative impact, but unlike other expansive PHSMs, they are most useful at the beginning of the epidemic when containment of the outbreak is still the primary goal.*

Use of relief measures to reduce economic and social disruption of PHSMs

Once PHSMs have been implemented, it is critical to monitor their impacts, especially for vulnerable and minority groups. PHSMs can generate unemployment and food insecurity, expose individuals to domestic violence, and even spark riots or public protests, as seen during the West Africa Ebola epidemic.¹ Negative impacts can be limited and managed when PHSMs are adapted thoughtfully and balanced by effective relief measures to support affected communities. Understanding the benefits, barriers to implementation, and impacts on the community can support improved adherence and allow modulation of PHSMs to ensure a balance between caseloads and impacts.

FIGURE 1: REDUCING ECONOMIC AND SOCIAL DISRUPTION



Communities that have been subject to PHSMs are often eager to discontinue the interventions immediately and reduce their detrimental economic impacts. However, evidence shows that timely measures mitigating the severity of an outbreak can also limit economic downturn in the long run. During the 1918 influenza pandemic, real economic activity fell sharply and persistently, depressing economic activity through both supply supply- and demand-side effects.⁷ Cities that implemented strict PHSMs early did not experience worse economic downturns; in fact, records of manufacturing activity and bank assets indicate that the economy recovered better in areas with more expansive PHSMs.²

1 Abramowitz SA, McLean KE, McKune SL, et al. Community-Centered Responses to Ebola in Urban Liberia: The View from Below. Bausch DG, ed. PLoS Negl Trop Dis. 2015;9(4):e0003706. doi:10.1371/journal.pntd.0003706

2 Correia S, Luck S, Verner E. Pandemics Depress the Economy, Public Health Interventions Do Not: Evidence from the 1918 Flu. SSRN Electron J. 2020. doi:10.2139/ssrn.3561560

Adapt and mitigate

To reduce the negative economic and social disruption from PHSMs and improve rates of adherence from the community, policymakers should ensure that PHSMs that have been successfully implemented in other countries are adapted to the local context and accompanied by context-specific relief measures. Officials should engage with local community leaders early and work with them to adapt PHSMs to the local context; this will increase the success of the measures.

PHSMs have the most impact when they are designed and implemented in a way that respects and relies on individual autonomy, and that appeals to civic duty and community care. PHSMs encouraging the community to comply voluntarily may have the same health impact as mandatory measures without the risk to community trust and burden on the legal system.

Annex 1 outlines potential local adaptations, their legal and ethical considerations, and suggested relief measures to reduce negative socioeconomic impacts. Many countries in Europe and Asia have implemented large fiscal packages to reduce the burden of PHSMs; in addition, there are a number of [lower-cost alternatives](#) that can potentially improve adherence and reduce negative impact if implemented carefully and in coordination with affected communities.

Gradually discontinuing PHSMs

LOOSENING THE TAP, NOT OPENING THE FLOODGATES

Although it is critical that societies facing epidemics promptly implement PHSMs, it is equally critical that they relax measures in a gradual and measured fashion, while maintaining their readiness to quickly reactivate them again should cases spike. Policymakers should only discontinue one or two PHSMs at a time, monitoring the impact on patient caseload and health system capacity for at least two weeks before additional PHSMs are discontinued. Removal of PHSMs should begin with “expansive” measures most detrimental to the community, followed by less disruptive measures.

Policymakers should also adjust PHSMs to protect the most vulnerable community members. For example, people over age 60 or those who are medically vulnerable may need to shelter in place, away from workplaces and schools, for a longer period of time than others. This nimble approach to PHSMs will help minimize disruption while ensuring that caseload remains within the capacity of clinical services and public health systems.

A core element of adapting PHSMs is ensuring policymakers have the data they need to be able to moderate the stringency with which they are implemented—or discontinue them entirely—activating and deactivating individual measures based on epidemiological data, measures of disease transmission, hospital and public health capacity, and indicators of social and economic well-being. As caseloads grow or diminish and the number of infected people increases or decreases, policymakers should adjust the type and number of PHSMs accordingly, essentially

regulating the “flow” of cases by managing disease transmission in the community. This ongoing adjustment to PSHMs may result in a wave pattern of cases, with the objective of maintaining a caseload that is within the estimated clinical and public health capacity to manage cases safely.

SEE FIGURES 2 AND 3.

FIGURE 2: MODULATING PSHMs IN ACCORDANCE WITH CASELOAD AND HEALTH SYSTEM CAPACITY³

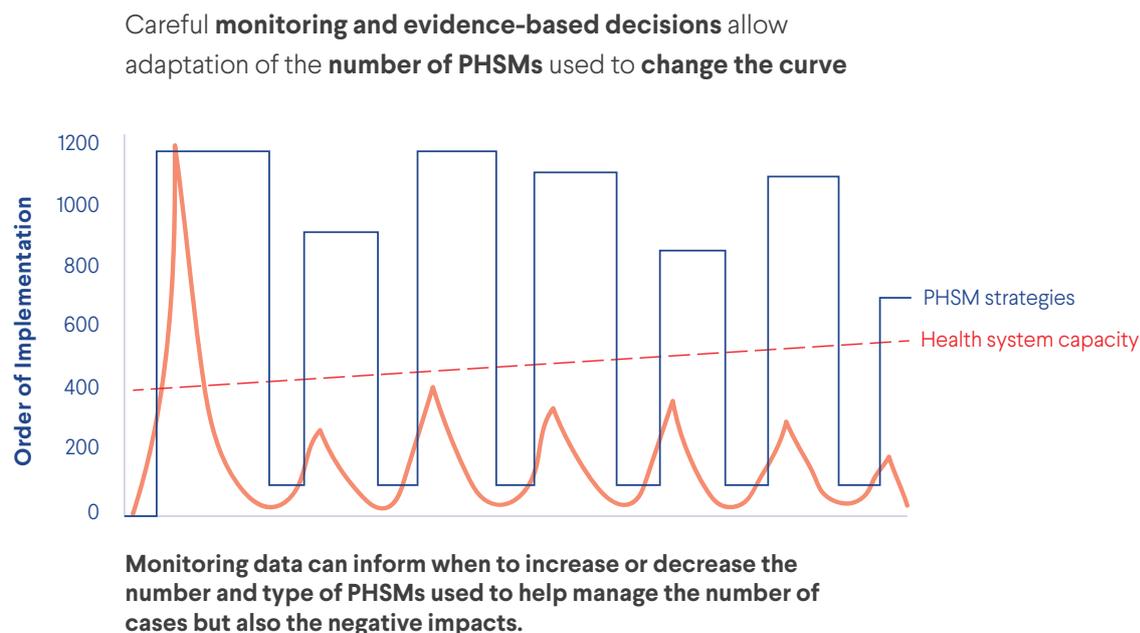


Illustration of adaptive response strategy using triggers to tighten or loosen the level of PSHM strategies implemented (shown by the blue line) to maintain caseload within health system capacity (the red line) to manage new COVID-19 cases (orange line).

In contexts in which PSHMs are causing significant socioeconomic disruption, increases in violence, or political instability, policymakers may have to make the difficult choice between controlling cases and reestablishing community norms. This is not a simple decision and should take into account long-term and short-term impacts. The additional relief measures to reduce negative impacts should be implemented before discontinuing PSHMs and policymakers should engage continually with affected communities to find a balance between the spread of COVID-19 and the measures taken to control it.

Governments must make the most of the time that PSHMs “buy” to focus on improving health system capacity. This includes building critical care capacity, and equally as importantly, focusing on infection prevention and control to ensure health care workers are safe. Health care workers are needed not only to manage COVID-19 but to provide other essential health services.

³ Ferguson NM, Laydon D, et al. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. Imperial College COVID-19 Response Team, London, March 16, 2020. <https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf>

Then, as governments work to gradually reopen society, there are four essential public health actions that governments must commit to—and invest in—in advance. This is the only way to reopen society as soon and as safely as possible and to prevent another explosive spread of COVID-19. These four actions are a part of a strategy called “Box It In” ([full report available here.](#))

Expand and prioritize testing. Make rapid diagnostic tests widely available to swiftly identify newly infected people.

Isolate infected people to prevent disease spread. Support every infected person so the virus stops with them, regardless of the setting. Those who do not require hospitalization but cannot safely be cared for in their homes will need safe and attractive housing until they are no longer infectious.

Identify contacts who may have been exposed by infected people. To get ahead of the pandemic, trace the contacts of infected people and warn them of their exposure. Just as governments provide hurricane warnings so people can protect themselves and their families, the public sector must warn individuals who have been exposed to the coronavirus so they don’t spread the infection.

Quarantine contacts. People who came into contact with infected people and may have been infected themselves are the leading edge of the pandemic. They must be provided with comprehensive services so they can quarantine at home for two weeks and keep the virus from spreading to others.

These four measures will allow PHSMs to be lifted more quickly and safely.

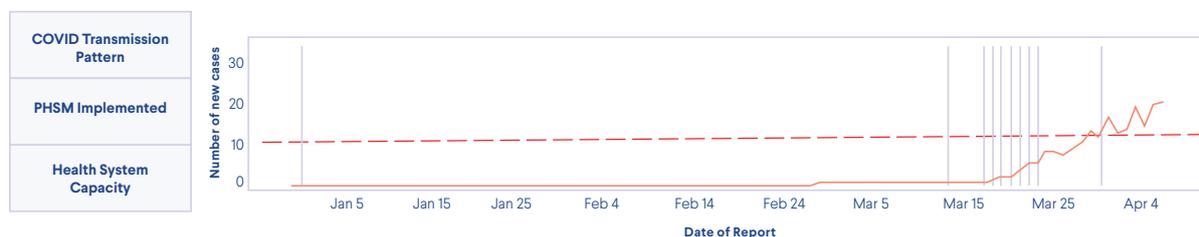
Monitoring data

To support the adaptive use of PHSMs, countries should establish clear monitoring and evaluation criteria including triggers for turning PHSMs on and off. These indicators will be context-specific but should reflect the balance of governmental priorities:

- limiting spread of COVID-19 (indicators such as the rate of new cases, case fatality rate, health care worker infections),
- building public health and health system capacity (indicators including testing capacity and contact tracing capacity)
- limiting social and economic damage (including public acceptability of and adherence to PHSMs, rumors and misinformation, economic and food security and violence and security). **SEE ANNEX 2 FOR EXAMPLES OF DATA TRIGGERS.**

Data collection and analysis should be organized to allow targeted interventions and should ensure that the impact on vulnerable or minority groups is captured. Even as governments must be driven by evidence, that they may find themselves faced with ethical and moral dilemmas in which decisions must be made in the absence of immediately available data. In such situations, reasoned policy decisions may be made following engagement of communities; but it then is the obligation of governments to monitor the impact of their decisions so they may revise or course-correct as needed. **SEE FIGURE 3 FOR AN EXAMPLE OF A DASHBOARD SHOWING CRITICAL INDICATORS BY**

FIGURE 3: SUGGESTED DASHBOARD FOR MEASURING IMPACT AND EFFECTIVENESS OF PHSMs



Proposed dashboard and indicators to monitor the balance between public health outcomes and social impacts

Domain	Political Stability	Household Impacts	Perceptions	Adherence
Trace Indicators	Human Rights	Access to Health Services	Risk Perception	Public Acceptance
	Insecurity	Livelihoods (Food Security)	Prevalence of Rumors and Misinformation	Adherence to PHSMs

The use of monitoring data enables policymakers to balance public health outcomes and socioeconomic impacts, adjusting the use of PHSMs and relief measures to ensure COVID-19 caseloads do not overwhelm health systems and unnecessarily harm households and communities.

Conclusion

The COVID-19 pandemic is unprecedented. There is still much to learn about the disease and the impacts that it will have on individuals and communities, especially in Africa. The evidence base for the use of PHSMs is limited and context-specific. What worked in one country must be analyzed and adapted before being replicated in other contexts. Adaptation and learning will be necessary for a balanced PHSMs implementation, especially in low-resource settings where the diversity and scale of relief measures may be limited and the resilience of households may be inadequate to sustain for for weeks, let alone for the potential months until a vaccine becomes available. The overall objective of PHSMs must also not be lost: public health and social measures buy time to build better capacity to detect and care for COVID-19 cases and to protect essential services. Speed is critical; evidence-based decisions are crucial.

Resolve to Save Lives' COVID-19 PHSMs program

Resolve to Save Lives has partnered with the Africa Centres for Disease Control and Prevention, World Economic Forum, and leading market research firm Ipsos to support decision-makers in countries in Africa to implement PHSMs effectively by providing real-time data and guidance about PHSMs impact on social and economic indicators. A team of researchers will collate and analyze big data from several sources, including social and traditional media, country-based polls, mobile phone movement, and indicators of economic and social unrest. Resolve to Save Lives will produce specific guidance and distribute its recommendations through a variety of channels to stakeholders including civil society, policy- and decision-makers, and business leaders. As the pandemic progresses, more detailed support and guidance will be provided to high-risk countries or countries with a high prevalence of disease.

ANNEX 1
PHSMs AND RELIEF MEASURES

Measure	Consideration for resource constrained settings	Legal and ethical considerations	Relief measures to reduce negative impact
<p>Rapid identification, testing, and isolation of cases</p>	<ul style="list-style-type: none"> • Symptomatic people in isolation should be given proper medical care and facilities. Their privacy should be protected as much as possible, while allowing for contact tracing. Asymptomatic people may need to be isolated as well, if they test positive. • Isolation of cases in crowded households can result in household transmission, which can be either mitigated by identifying areas within the household (e.g., separate room), house-swapping, or assuming all household members are contacts and voluntary quarantine of the household. • Testing and contact tracing capacity will be exceeded at the peak; when community transmission is widespread, ill persons should be advised to self-identify symptoms, isolate at home, and seek medical care if severely ill. • Food, livelihood support, employment protections, child care, communication, medical and psychosocial support will be needed for sustained and effective implementation especially for vulnerable groups in resource constrained settings. 	<ul style="list-style-type: none"> • Confirm proper authority to investigate cases and contacts and to issue isolation instructions or orders. • Safeguard data protection and right to privacy of individuals. • Isolation should be voluntary to the greatest extent possible. However, laws should be in place that allow the government to enforce isolation if it becomes necessary. 	<ul style="list-style-type: none"> • Encourage the community to self-identify quickly when sick. Reduce barriers and stigma to notification. • Provide simple, clear information to those who are sick—and their family members—about when and where to go for medical care and how to safely take care of sick people at home. • Health data is sensitive. Avoid publishing information about exposed individuals to avoid stigmatization and risk. Particular attention should be given to individuals who are already in positions of vulnerability or marginalization in society. • Adopt a clear definition of contact based on science and uniformly applied by public health officials. Clearly communicate changes to case definitions. • Where possible provide for the needs of people who depend on isolated individuals. • Consider isolation in non-hospital settings such as holiday resorts or hotels to reduce risk in overcrowded houses where isolation may not be feasible. • Provide communication support such as phones or internet access to people in isolation to support contact tracing follow up as well as connection with family and friends. • Provide household cleaning and basic home kits for personal protective equipment (PPE) such as masks and gloves, according to WHO guidance. • Encourage regular cleaning of common areas within the household multiple times a day if separate living spaces are not possible. • Financial and employment protections for people in isolation, such as paid sick days, unemployment coverage, rent/mortgage waivers, utility bill waivers or tax deferrals. • Extended social protection including health care coverage, exceptional cash transfers, food subsidies. • Social support to isolated individuals such as ensuring delivery of food, water, medicine, clothing and cleaning supplies. Access to communication, through internet or other means, should be provided. • Additional financial and other support to people who live alone, people with disabilities, and for families with ill caretakers. • Consider waiving costs associated with tests and treatment, and costs associated with isolation, including housing, food, PPE, cleaning supplies, and other basic services. • Distribution of advance payment of regular social assistance/welfare checks. • Unconditional cash transfer scheme designed to support informal workers whose incomes are disrupted, using mobile phones, with larger payouts for women (See Togo's OpEd in the Financial Times)
<p>Stay at home if unwell</p>	<ul style="list-style-type: none"> • Loss of income from unpaid sick leave and risk of losing employment may reduce willingness of low-income or vulnerable populations to comply. 	<ul style="list-style-type: none"> • Social support to household, such as ensuring delivery of food, medicine, clothing and cleaning supplies. • Clear standards for who qualifies for additional benefits based on case definition and procedure (e.g. letter from doctor) 	<ul style="list-style-type: none"> • Quick and accurate identification of the first person in the family to be sick • Providing simple, clear information about when and where to go for medical care and how to safely take care of the sick at home • Other considerations for isolation (above) apply • Financial and employment protections for people in quarantine, such as paid sick days, unemployment coverage, rent/mortgage waivers, utility bill waivers or tax subsidies. • Extended social protection including health care coverage, exceptional cash transfers, food subsidies, in kind NFI donation etc.
<p>Voluntary quarantine of contacts</p>	<ul style="list-style-type: none"> • Voluntary rather than mandatory quarantine should be used. Meaningful and sustained community engagement through local leaders and timely and accurate information from central credible sources will be needed to promote adherence. • Undue securitization or quarantine of communities should be avoided. If mandatory quarantine must be enforced, complaint and redress mechanisms should be put in place and publicized. 	<ul style="list-style-type: none"> • Confirm authority to issue quarantine, isolation, or shielding instructions to individuals or communities. • Social support to quarantined individuals such as ensuring delivery of food, medicine, clothing and cleaning supplies. • Mandatory imposition of measures will be nearly impossible to enforce and may backfire as people lose trust in health officials. Quarantine and home isolation should be voluntary to the greatest extent possible. However, laws should be in place that allow the government to enforce quarantine or isolation if it becomes necessary. 	<ul style="list-style-type: none"> • Food, livelihood support, employment protections, child-care, medical and psychosocial support will be needed for sustained and effective implementation. • If mandatory measures must be enforced, complaint and redress mechanisms should be put in place and publicized.

Measure	Consideration for resource constrained settings	Legal and ethical considerations	Relief measures to reduce negative impact
<p>Relevant, accurate, and timely risk communication tailored to communities</p>	<ul style="list-style-type: none"> Risk communication at each transmission phase should be tailored to ensure public understanding and acceptance of, and adherence to, the PHSMs being implemented. Such efforts, which include meaningful and sustained community engagement, can build trust in the implemented measures, address informational gaps, and motivate adherence. 	<ul style="list-style-type: none"> Internal government procedures should require clear, consistent, and transparent information from government officials to the public. Government officials who violate policies by providing false or misleading information should not remain in their position. Pre-approval or clearance of statements from non-government officials should be avoided. In particular, medical professionals should be encouraged to share relevant information without fear of personal or professional sanctions. Incorrect messages should be countered with official corrections from reliable sources. Censorship or penalties can backfire. Criminal prosecutions and other harsh sanctions should be reserved for extreme instances when people are deliberately providing harmful false information for personal gain. If prosecutions are required, the government should provide a full and truthful justification to the public immediately, and the accused should have a right to a speedy trial and appeal. 	<ul style="list-style-type: none"> Ensure multiple channels and language groups Identify vulnerable groups including migrants or refugee populations who may use different channels or not communicate in local language; ensure direct and relevant communication for these groups. Ensure risk communication messages are tailored to the progression of the outbreak and clear guidance for the weeks ahead is provided. Pay attention to messages that are circulating in different populations, so appropriate information can be adapted to different audiences. Promote two-way communication with communities to understand hurdles in real time and adjust efforts.
<p>Hand and respiratory hygiene</p>	<ul style="list-style-type: none"> Hand hygiene education likely improves effectiveness, particularly in combination with other measures. There is evolving evidence to support the use of face masks among the general public to prevent infection, but surgical masks (rather than N95 masks) are likely sufficient to reduce transmission from persons who are already ill. If surgical masks are sufficiently available for public use, they should be considered when community transmission is widespread. Subsidized access to water and soap or hand sanitizers might be required. Price gouging and hoarding should be prohibited. Provision of hand-washing stations at central points, outside of business and schools can improve adherence and act as a reminder of risk. 	<ul style="list-style-type: none"> Ban price gouging or hoarding soap, hand sanitizers, face masks and cleaning products. Establish and stock hand-washing stations in public spaces, such as government buildings, hospitals, utility companies, and public housing. For people without access to water and soap, procure and distribute free (or subsidized) appropriate hand sanitizers. Establish clear authority for officials to allocate limited supply of masks and other supplies in an equitable, non-discriminatory, and evidence-based manner. Respiratory hygiene should be encouraged, but failure to perform is should not be criminalized. Government should protect people who are connected to public utilities but cannot pay their water bill. Water should be free of cost for the duration of the crisis to people in poverty and those affected by the crisis. Public and private service providers should be made to comply with these measures. 	<ul style="list-style-type: none"> Broad public education to ensure that the public consistently and correctly washes hands, follows cough etiquette and cleans surfaces Raise awareness of population through messages broadcast on loudspeakers, in local language/dialect; have local leaders record messages. https://www.voafrique.com/a/côte-d-ivoire-des-haut-parleurs-pour-sensibiliser-contre-le-COVID-19/5353139.html Provide hand-washing stations at community gathering points, outside of business, schools or other high traffic areas Sufficient access to/distribution of soap, water, hand sanitizers, and cleaning products. Alcohol-based hand wash available, even in jurisdictions that prohibit alcohol for religious and other reasons Involve business owners and corporations in the dissemination of key messages, including through distribution of ready-to-use communication materials for shops and other public places Government-organized water trucking to informal settlements to ensure emergency safe drinking water and hand-washing facilities in key locations.
<p>Infection control and prevention and protecting health workers</p>	<ul style="list-style-type: none"> Strategies including dedicated COVID-19 treatment units, analogous to Ebola Treatment Unit and implementing administrative controls at existing health facilities to minimize spread may be effective when lacking minimal resources for appropriate infection prevention and control measures. Such measures will be critical to prevent disruption of essential health services, which can result in non-COVID-19 specific deaths. 	<ul style="list-style-type: none"> Ensure that health workers have access to appropriate protective equipment and training 	<ul style="list-style-type: none"> Guarantee availability of WHO COVID-19 disease commodity package.¹ Incentivize manufacturers to adapt production to manufacture critical goods (advance purchase; payment guarantees). Consider lifting tariffs on importation of needed equipment.

1 World Health Organization disease commodity package - Novel Coronavirus (nCoV): [https://www.who.int/publications-detail/disease-commodity-package---novel-coronavirus-\(ncov\)](https://www.who.int/publications-detail/disease-commodity-package---novel-coronavirus-(ncov))

Measure	Consideration for resource constrained settings	Legal and ethical considerations	Relief measures to reduce negative impact
<p>Shielding vulnerable populations most at risk</p>	<ul style="list-style-type: none"> While there is a limited evidence base for a "shielding" strategy, certain groups are at risk for severe outcomes (ICU admission, death) for COVID-19. Increased precautions and prolonged social distancing measures for these populations, in combination with appropriate livelihood, food, and medical support, may allow for the phased lifting of other social distancing measures while protecting vulnerable populations until a safe and effective vaccine is available. 	<ul style="list-style-type: none"> Confirm authority to issue quarantine, isolation, or shielding instructions to individuals or communities. Mandatory imposition of measures will be nearly impossible to enforce and may backfire as people lose trust in health officials. Shielding should be voluntary to the greatest extent possible. If mandatory measures must be enforced, complaint and redress mechanisms should be put in place and publicized. Social support provided to shielded individuals such as delivery of food, medicine, clothing and cleaning supplies. 	<ul style="list-style-type: none"> Adaption to local such as neighborhood house or other local solution for shielding of vulnerable population on small scale supported by local community Consider the social and health impact on special populations, including elder care, people with special needs, psychiatric patients, homeless, and prisoners, and others living in long-term care facilities. Engage leaders from these groups and partner with agencies with mandates to care for vulnerable groups to adjust support.
<p>Cancellation or adaptation of mass gatherings</p>	<ul style="list-style-type: none"> Implement within a week of local transmission detection and sustain throughout the pandemic response. Discouraging mass gatherings may slow spread and prevent superspreader events. Rules should be broadly communicated with clear and consistent thresholds for maximum attendance or density (e.g., one person per 3 square meters), and reasonable exemptions for essential service. Special care should be taken to maintain continuity of government functions (legislature, judiciary, elections) and other essential services. 	<ul style="list-style-type: none"> Clear evidence-based rules (such as 50-person maximum regardless of size of venue, or no more than one person per 4 square meters.) Implementation in an equitable, non-discriminatory, and evidence-based manner with particular care for inequitable application to minorities or other vulnerable groups. For example, do not prohibit a religious gathering, but allow a similarly sized sports event or secular concert to continue. Particular care should be taken before restricting attendance at culturally sensitive gatherings, such as religious services or funerals. 	<ul style="list-style-type: none"> Develop evidence-based strategies to maintain essential services, such as food markets, medical facilities and pharmacies, public transportation vehicles and facilities, government offices including legislatures and courts, and voting or election services. Rather than closing entirely, such services may need more intensive distancing requirements and cleaning procedures. Measures such as alternating access by geographic region or by gender has been trialed in several contexts. Broadcasting by radio or TV of entertainment, sporting or religious events to ensure access Engage with community and religious leaders to articulate value-based decisions and encourage local adoption. Adaptation of existing events, including outdoor services or services in shifts, may be helpful in localities where cancellation of gatherings is not practical. Work with leaders to highlight and widely share religious teachings which allow for the temporary suspension of a collective or individual religious practice in the event of a proven health hazard. Ask parishioners not to use <i>Holy</i> water and refrain from communion (Catholic); ask people to do their ablutions at home rather than at the mosque; ask the weakest to pray at home (Muslim); <i>Cancel</i> large gathering and broadcast services live and on line; ask religious leaders to encourage physical distancing but continue praying.
<p>School closures</p>	<ul style="list-style-type: none"> While proactive school closures and other mass gatherings of children before a case in the community is identified might be more effective in reducing transmission, reactive implementation in response to an identified case in the community can mitigate the household and livelihood impacts. Community acceptance may be stronger if alternative services for child care and student learning and provision of nutrition are established. 	<ul style="list-style-type: none"> Appropriate authority should issue restrictions, as appropriate, to child care, preschool, kindergarten, primary, secondary, colleges and universities, whether public or private. Legislation should clarify who makes the decision, and what factors should be considered prior to closing School closures should be applied consistently across each jurisdiction in an equitable, non-discriminatory, and evidence-based manner. Livelihood support and employment protections should guarantee that children who are usually fed at school still get enough food at home and that parents can stay home to provide home child care. 	<ul style="list-style-type: none"> Provide child care solutions for health care workers and other essential workers Attempt to recover lost normal school time and monitor school returns when schools reopen. Provide alternative options for education, including home schooling, access to books, online learning if available. Work with telecom operators to subsidize wireless internet for education purposes Provide multi-platform opportunities to reach the maximum number of children (e.g. <i>Radio</i>; TV; internet live stream; resource center; Youtube channel. Use existing television stations to program daily classes to assist the children left at home to study on their own, give them learning strategies to avoid falling behind, and educate them about the virus Work with internet providers to extend internet coverage to all students and families Work with mobile network operator to support primary and secondary school students with free access to educational e-content Mitigate disproportionate effects on children with barriers to education or vulnerable groups Avoid gatherings of children outside schools. Communicate to parents that when school close children must stay home and limit their contacts with others to the greatest degree possible. Allowing children to play together or congregate socially outside will counteract the effect of closing the schools. Maximum proper notice of cancellation, so caretakers can make alternative child care and other arrangements.

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Market Closures	<ul style="list-style-type: none"> Markets can be high-density areas and there is potential for transmission. However, the impact of market closures could have significant impacts on household food security and economic livelihoods of vulnerable groups. Effects on supply chain from rural to urban areas leading to food shortages 	<ul style="list-style-type: none"> To discourage travel to markets while still providing traders with some income, city governments can also consider temporarily relaxing bylaws that prevent citizens from selling outside their homes or smaller local community markets Consider policies to curb price gouging, addressing both quantity and price of key commodities (e.g. price freeze; rationing of essential foods; price ceilings); e.g. Sri Lanka has introduced price ceilings on essential food items such as eggs, lentils and fish. Consider suspending VAT for food; grant temporary exemption of import duties on most commonly bought food items. Consider measures to reduce the number of people in a market at any time, such as allocating days by neighborhood or by gender (e.g. men on Monday, Wednesdays, and Fridays/women on Tuesdays, Thursday, and Saturdays). 	<ul style="list-style-type: none"> Ensure local political leaders communicate with market leaders about how to best handle restrictions or even a possible shutdown If the markets are to stay open, jointly identify where to set up hand-washing stations, and ways to reduce density by alternating the days traders/clients come. Based on India's experience with a nationwide lockdown thus far, feasible options also include opening markets every other day and sanitizing on the off days, and allowing for trading around the clock to reduce consumer congestion. Due to their diverse backgrounds and volatile incomes, traders can also be insufficiently targeted by cash transfer programs that rely on means or proxy-testing. Government could consider making social protection systems more inclusive of traders. In this regard, South Africa's promise to create a safety net for informal workers in response to this crisis should be closely watched. Consider agricultural response package to support farmers' access to key inputs and credit guarantees/lending to micro and small enterprises producing food, as part of a strategy to sustain food production. For countries with national stocks, consider releasing more food into the system based on needs in particular towns at specific points in time. Create "micromarkets," decentralized markets especially for fresh food and staples to reduce crowding and travel. Engage traders in developing and implementing new measures. Provide training and messages for them to amplify and promote at the market. Install temperatures checks and hand-washing stations on entry and exits.
Work closures	<ul style="list-style-type: none"> Voluntary work adjustments such as teleworking, variable shift scheduling, and desk spacing may be encouraged as soon as community spread is identified. If restrictions on mass gatherings, isolation, and quarantine fail to sufficiently slow spread, further work closures of non-essential businesses may be considered, conscious of undue financial hardship. Informal workers often live hand to mouth, with very limited savings or capacity to save. Whatever the sector, anything which interferes with traveling for work or demand for work risks having disastrous impacts on households. Loss of income has further effects in the absence of any safety nets, in that people may be less able to purchase vital water and sanitation services or return to their areas of origin. 	<ul style="list-style-type: none"> Set maximum capacity limits for work and public places. Appropriate authority shall issue clear rules on which measures are required or encouraged for employers Provide a clear definition of essential services or employees that are exempted from requirements 	<ul style="list-style-type: none"> Set maximum capacity by square meters rather than workplaces to ensure non-discriminatory application. Encourage teleworking or differential hours to limit risk of transmission when possible. Seek commitment of employers and employees. Provide clear proof or passes to essential workers so they can travel to and from work. Ensure accessibility to safe public transport for essential workers Financial and other incentives for employers, such as tax waivers or other subsidies Consideration should be given to how to avoid curtailing people's livelihoods, or compensating them if this becomes necessary. Though governments do not have much leeway, some relief through direct transfers to poor households may limit negative impact. Assessments should be made of how those who have lost means of livelihoods could be re-deployed (and paid) to response efforts. Offer exceptional support to poor families and marginalized groups (e.g. cash transfer; food voucher; food allowance; distribution of food baskets). This can be done by the government through existing social security mechanisms and/or in conjunction with international organizations. Consider support for the self-employed through increased access to existing social assistance and public employment programs. Consider organizing ad-hoc payments or in-kind support for informal, casual, seasonal and migrant workers. Provide targeted support (loan, tax relief) for specific sectors to protect enterprises, especially <i>Micro, Small and Medium Enterprises</i>.

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<p>Stay-at-home orders or Cordon Sanitare</p>	<ul style="list-style-type: none"> • There is a high risk of discriminatory impact and other human rights violations for the targeted community, which can further erode trust in public health officials. If community quarantine is enacted, substantial services and provisions for livelihoods, access to food, and psychosocial supports will be required. • Stay-at-home orders limiting all movement have led to increases in domestic violence within households. • Police and military enforcement of stay-at-home orders has led to violence and abuse of powers. 	<ul style="list-style-type: none"> • Freedom of movement traditionally entails the right to move freely in the whole territory of the country. Restrictions can only be imposed by law, for a legitimate purpose, and when the restrictions are proportionate, including in considering their impact. • Implement in an equitable, non-discriminatory, and evidence-based manner with particular care for inequitable application on minorities or other vulnerable groups. • Ensure availability of basic necessities including food, water, medicine, sanitation supplies, and functioning utilities • Ensure access to health and safety services for the population within cordon, so appropriate measures are taken to protect population and decrease transmission • Need to frequently revisit rationale • Develop a non-violent, non-confrontational plan for public safety sector to assist, if necessary, in the enforcement of this intervention. 	<ul style="list-style-type: none"> • Provision of additional accommodation or support for households where domestic violence occurs. • Provision of passes or authority for essential workers and exemptions from stay at home orders to be provided and recognized by police and authorities. • Ensure support of political leaders and general public • Time the announcement to minimize the number of people seeking to escape before enforcement • Consider which categories of activities and individuals could be exempted from restrictions • Mitigate economic impact on region within lockdown areas.
<p>International travel restrictions and entry screening</p>	<ul style="list-style-type: none"> • International travel restrictions might delay but cannot prevent importation of disease; island states might achieve the greatest benefit. Entry screening is not effective to identify cases, although incoming travelers should be provided disease and contact information for testing and isolation if needed. Entry screening might have greater benefit if rapid point-of-care testing becomes available. • Targeted limitations on incoming travel from transmission hotspots might delay importation, but will be of minimal benefit after importation has occurred. If implemented, international travel restrictions can only be imposed by law, for a legitimate purpose, and when the restrictions are proportionate, including in considering their impact. 	<ul style="list-style-type: none"> • Freedom of movement entails the right of everyone to enter their own country of nationality. Restrictions can only be imposed by law, for a legitimate purpose, and when the restrictions are proportionate considering their impact. • Public health measures implemented at points of entry must be the least intrusive and invasive that would achieve the public health objective of preventing the international spread of disease • Border closures should not have the effect of denying individuals their right to seek asylum or causing them to be returned to where they face persecution or torture. • Entry screenings should be evidenced-based, non-discriminatory, and non-invasive. Travelers must be treated with dignity and respect. The government should not charge international travelers for any expenses related to screening, treatment, or quarantine, unless in compliance with IHR. • Government should notify WHO of any border closures, or other measures imposed at the points of entry on international travelers. 	<ul style="list-style-type: none"> • Collect required information on travelers' itinerary and destination to ensure contact tracing if required • Provide travelers with disease and contact information for testing and isolation if needed. • Implement pandemic response policies which avoid freezing the international supply system for medical goods and other essential items at a time when they are most needed. • Ensure that supply chain and transport risks are assessed as part of procurement, management and governance processes. Develop trusted networks, made up of suppliers, customers, competitors and government officials, that are focused on risk management. Improve the visibility of network risks through information sharing and development of standardized risk assessment and quantification tools.
<p>Internal travel restrictions</p>	<ul style="list-style-type: none"> • Consider during initial containment stage, in conjunction with PHSMs, to reduce the peak of the pandemic and to "buy time" for preparedness in other jurisdictions; however, there is no evidence of long-term benefit of internal travel restrictions, unless other social distancing measures are put in place. 	<ul style="list-style-type: none"> • Trade and travel restrictions are not recommended under IHR 	<ul style="list-style-type: none"> • Quarantine all incoming passengers for 14 days at home with follow up or in a provided location such as a hotel.