



Special Series on Fiscal Policies to Respond to COVID-19

This is one of a series of notes produced by the Fiscal Affairs Department to help members address the COVID emergency. The views expressed in this paper are those of IMF staff and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Managing the Impacts of the Coronavirus: Guidance on Health Spending Policies¹

The immediate response to the COVID-19 outbreak should be to increase health spending as much as needed to prevent (or mitigate) the diffusion of the virus and treat those requiring medical assistance. Until a vaccine becomes broadly available, measures to either stabilize the number of infected people (suppression measures) or slow the spread of infections (mitigation and containment measures) should include both direct medical assistance and so-called non-pharmaceutical interventions (NPIs) such as social distancing, border closures, school closures, isolating symptomatic individuals and their contacts, and large-scale lockdowns of populations.

This note:

- summarizes general considerations about health policies in response to outbreaks of infectious diseases,
- illustrates current responses to COVID-19;
- discusses issues about the spending requirements for implementing these measures, and;
- proposes considerations for building preparedness over the long run.

The principles outlined below can help country teams and policymakers assess whether the health response to the pandemic is appropriate and the magnitude of planned additional health outlays.

Please direct any questions and comments on this note to cdsupport-spending@imf.org.

I. HEALTH POLICIES IN RESPONSE TO AN OUTBREAK: GENERAL PRINCIPLES

Well-accepted mitigation measures have been developed and refined, drawing on lessons learnt from the response to a number of recent epidemic outbreaks. The basic mitigation strategy involves: early implementation of social distancing measures to reduce the peak of the epidemic; testing and rapid case

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identification for isolation, treatment and care; contact tracing; community engagement and mobilization; safe and dignified burials; effective infection control; and laboratory testing.² Expanding efforts to identify and reach high-risk areas and groups is critical for stopping small, localized epidemics from spiraling into national and global emergencies. An effective communication campaign and clear protocols for hospitalization and management of cases can also help reduce the strains on the health care system.

The WHO has recently provided guidelines on how to effectively scale up health and supporting services in response to the COVID-19 pandemics.³ The measures that the guidelines identify can be organized around three pillars:

- **Monitoring/Surveillance.** This includes activities to detect incidences of early infection within a country as well as monitor possible “imported cases” at sea, land, and air border crossings. These activities require resources spanning from personnel to temperature scanning equipment, as well as strengthening national laboratories to facilitate testing and the development of clear protocols.
- **Containment/Prevention.** Early measures include tracing contacts, public health risk communication and community engagement, implementing quarantines, and isolating infectious cases.⁴
- **Mitigation/Treatment.** This includes activities related to the treatment of detected cases and requires quick access to the appropriate medical staff, equipment, and drugs.

II. THE HEALTH RESPONSE TO COVID-19: SPECIFIC ISSUES

In many countries, public health responses to COVID-19 have focused on containment measures. Given the current low rates of testing in many countries and the possibility that around one-quarter of the population may not present symptoms of infection, blanket quarantine and social distancing methods have been the most effective tool in reducing infection rates.⁵ Indeed, the Imperial College COVID-19 Response Team (March 30, 2020) estimates that these measures can halve the speed of transmission. However, they come at the cost of disrupting economic activity by reducing labor supply and consumption by those not infected. While the severity of the economic shock from COVID-19 increases the longer economic activity is disrupted, measures to support or restart economic activity must be taken without undermining public health policy.^{6,7}

Testing is a critical component of the public health response to COVID-19 but low-income and emerging economies may struggle to finance it. The costs associated with testing vary by the type of test undertaken and extend beyond testing kits to laboratory capacity and equipment, transport of samples, and appropriately equipped staff to administer tests on a large-scale. Data from the WHO’s Essential Supplies Forecasting Tool suggests that the cost of a COVID-19 testing kit is around US\$260 for tests that require laboratory analysis,

² Piot, Peter, Moses J Soka, and Julia Spencer, 2019, “Emergent Threats: Lessons Learnt from Ebola”, *International Health*, Vol. 11, No. 5, pp. 334–7.

³ World Health Organization (WHO), February 12 2020, “COVID-19 Strategic Preparedness and Response Plan Operational Planning Guidelines to Support Country Preparedness and Response,” (Geneva: World Health Organization).

⁴ Achonu, Camille, Audrey Laporte, and Michael A. Gardam, 2005, “The Financial Impact of Controlling a Respiratory Virus Outbreak in a Teaching Hospital: Lessons Learned from SARS,” *Canadian Journal of Public Health*, Vol. 96 No. 1, pp. 52–54.

⁵ See <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/covid-19-critical-items>.

⁶ See <https://voxeu.org/article/testing-testing-times>.

⁷ See <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---16-march-2020>.

while the additional laboratory equipment required to obtain the test result (excluding machinery) costs around US\$1,200.⁸ Anecdotal evidence suggests that the cost of machinery required to undertake large-scale analysis of tests can run to thousands of dollars (US). However, these figures may not capture all of the costs associated with transport to laboratories as well as the cost of personal protective equipment for those administering the test. While at-home/field-usage test kits are beginning to be produced at a larger scale and currently retail at prices similar to their laboratory counterparts, their accuracy has been found to be low in many instances.⁹ For countries with limited laboratory capacity, regional and international agreements to use other countries' facilities could serve to reduce costs and speed the testing process. Nevertheless, international cooperation and finance will be required for many low-income countries to develop effective testing capacity. Moreover, as many of these countries already face limited healthcare capacity which they cannot scale up easily, testing and isolation might be the most effective health measure at containing negative health outcomes.

III. HEALTH POLICY RESPONSE TO AN OUTBREAK: GENERAL SPENDING REQUIREMENTS AND CONSIDERATIONS

Governments should plan carefully to allocate increased health spending to activities that are most effective at managing any outbreak. To this end, activities required to monitor and contain the spread of the virus and mitigate its health impact should be identified and compared to existing capacity (for example, number of intensive care beds, stock of respirators or other necessary equipment). This plan should be evidence-based and informed by a careful costing of these activities. Containment and prevention measures entail significant human resource and staffing costs.¹⁰ Similarly, mitigation and treatment increase demand for material inputs (medical supplies, personal protective equipment, and drugs) and might require construction of new facilities down the road. Both can greatly increase health system expenditures, but the final cost will depend on installed capacity, i.e. the resources (human and financial) available to the government, at the beginning of the outbreak, to implement these activities.

The health response actions (in particular, non-pharmaceutical interventions such as social distancing, and lockdowns)¹¹ can be performed by different agencies and might require prompt allocation of resources across different categories of spending. For example, implementing quarantines, communicating risks and engaging with local communities, as well as mobilizing communities and private agents should not fall entirely under the responsibility of one agency (for example, the Ministry of Health). Since this implies that these costs will be spread across different lines of the budget, this also requires coordination and clear communication between different line ministries and levels of government.¹² Also, as outbreaks can escalate rapidly, access to resources may entail building reserves of equipment early on, including as information about the spread in other countries emerges, and keeping them on standby until needed. As an outbreak grows, new facilities may also need to be constructed to manage additional infectious cases.

⁸ See <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/covid-19-critical-items>.

⁹ In some instances, countries have had to send back kits that do not meet accuracy requirements. For an example see <https://www.bloomberg.com/news/articles/2020-04-07/new-test-hopes-dashed-as-u-k-finds-antibody-kits-don-t-deliver>.

¹⁰ Achonu, Camille, Audrey Laporte, and Michael A. Gardam, 2005, "The Financial Impact of Controlling a Respiratory Virus Outbreak in a Teaching Hospital: Lessons Learned from SARS," *Canadian Journal of Public Health*, Vol. 96 No. 1, pp. 52–54.

¹¹ Imperial College Covid-19 response team, March 16 2020 "Impact of Non-pharmaceutical Interventions (NPIs) to Reduce COVID-19 Mortality and Healthcare Demand."

¹² See [Preparing Public Financial Management Systems for Emergency Response Challenges](#).

The cost of prevention and treatment will depend on country-specific features, including exposure to the virus, capacity of existing health systems, and the effectiveness of mitigation measures. The WHO has provided benchmark estimates on the likely fixed and unit cost of containment and treatment for different actions described above.¹³ Costs may vary by country depending on:

- **Demography.** Data currently suggests that younger people are at lower risk of developing COVID-19 than the elderly. Countries with ageing populations may therefore expect a higher number of cases requiring active medical care (hence, higher total costs). A higher share of hard-to-reach groups—those living in remote areas or with limited access to information, such as the internet—would likely increase communication costs.
- **Geography.** Countries with a greater number of points of entry or that share borders with more affected countries may have to invest more heavily in surveillance and monitoring of imported cases.
- **Preparedness and spare capacity of existing health infrastructure.** Countries with good quality health infrastructure will likely experience lower additional costs as facilities and material, knowledge, and health professionals are already in place. Countries with effective emergency preparedness plans will also likely be able to mobilize resources quickly and efficiently. Yet, countries where health care systems have limited spare capacity may experience shortages of vital equipment (such as respirators) and hospital beds or medical staff. Stepping up capacity could imply significant fixed costs for these countries and may require greater reliance on community and private resources. For some countries, the cost of increasing healthcare capacity may be large enough to make such upgrades infeasible given current budgets and financing. While these countries may see limited increases in healthcare spending, health outcomes will likely be correspondingly lower.
- **The effectiveness of non-pharmaceutical mitigation measures.** The use of containment policies and their efficacy to “flatten the curve” and smooth the volume of cases needing care from the health system at any one time, may serve to lower overall costs by keeping the number of cases manageable within current capacity constraints. However, this may involve trade-offs between the health and the economic costs induced by prolonged shutdowns and other mitigating measures. It may also involve trade-offs between short-term and medium-term costs, as capacity would be stretched for longer time.
- **Specific factor costs.** The compensation and wages of health professionals differ greatly across countries. Similarly, the cost of coordination across different agencies within a country might depend on the existing institutional strength.
- **Stage of the outbreak.** In the early stages of the outbreak, screening at ports of entry may be necessary but after entries drop, or once ports of entry are closed, these costs may abate. Similarly, the costs of infection prevention and control might escalate non-linearly as the number of cases increases.

Overall, the WHO¹³ estimates that the variable cost for treating cases that need hospitalization is about US\$5,800 per month per existing case (independently of whether the case is verified or not). Assuming that 20 percent of existing cases need hospitalization, this cost would be the equivalent of US\$29,000 per hospitalized person. The sum of all variable costs amounts instead to US\$28,000 per existing case.

Costs can be expected to vary greatly both across and within country groups:

- **In advanced and emerging market economies** the increase in health spending could be limited as a share of GDP. However, countries will have to increase spending in order to overcome capacity constraints—in

¹³ World Health Organization (WHO), February 12 2020, “[COVID-19 Strategic Preparedness and Response Plan Operational Planning Guidelines to Support Country Preparedness and Response](#),” (Geneva: World Health Organization).

particular, as relates to intensive care units, personal protective equipment, and test kits. Moreover, given the low level of supplies in many countries at the beginning of the outbreak, countries are having to purchase supplies in real-time and rising factor prices as a result of excess demand are likely to place further pressure on spending. Despite this, estimates from the literature¹⁴ and information about capacity constraints in Italy suggest that increasing intensive care capacity by 20 per cent could cost less than 0.1 per cent of GDP in a group of selected advanced economies (USA, UK, Germany, Italy, France, South Korea, Spain, and Japan). This does not include capital costs—for example, from building new facilities from scratch—but these costs are unlikely to change the result. Testing for COVID-19 will need to increase and may need to include multiple tests per individual. For the same selection of advanced economies, rough modelling suggests that testing all of the population twice would cost between 0.15 and 0.35 per cent of GDP.

- ***In low-income developing countries*** and in those emerging market economies with weak health systems, lack of existing infrastructure may mean that an increase in healthcare spending to tackle COVID-19 will likely represent a notable share of GDP.

Where there are binding resource constraints, plans should identify external resources that could be mobilized, including through multilateral and bilateral cooperation. This will require strong collaboration across government, across countries and also with external donors, international development institutions (such as WHO and the World Bank) and NGOs (such as Médecins Sans Frontières) to ensure resources are available and can be delivered in a timely manner to the appropriate population groups. Where feasible, policymakers should also consider reallocating existing external funding, available from donors, to shore up health systems. It is also important to maintain other essential health services so as not to create additional health problems that further stress the health system in the short or medium term. A dramatic increase in demand for health services can put significant strain and even risk damaging fragile healthcare infrastructure if too many resources and healthcare staff are diverted from the most essential services.

IV. CONSIDERATION FOR LONG-RUN PREPAREDNESS

Many of the efforts/investments to address COVID need to be consolidated and strengthened to enhance capabilities for addressing future pandemics while safeguarding the core functions of the health systems. Specifically:

- Health systems need to be capable of dealing with medical conditions experienced by survivors that often linger for many years after an outbreak and health system needs to respond accordingly.
- Legal frameworks may need to be adopted or amended to improve planning, integrate disease surveillance and strengthen coordination across different levels of governments in order to strengthen the capacity of health systems. For instance, planning and disease surveillance may have notable data privacy implications that may need to be governed by a legal framework. Moreover, many countries have fully decentralized healthcare delivery and this may need to be reassessed and subsequently amended in their decentralization laws.

Where the capacity of the health system is weak, significant investment is needed to improve planning and resource allocation, integrate disease surveillance across geographical areas, strengthen the coordination

¹⁴ Dasta, Joseph F., Trent Mclaughlin, Samir H. Mody, and Catherine Tak Piech, 2005, “Daily Cost of an Intensive Care Unit Day: The Contribution of Mechanical Ventilation,” *Critical Care Medicine*, Vol. 33, No. 6, pp. 1266-71.

across different levels of governments and across central and sub-ordinate units, and increase private sector involvement. Development partners can support country-level efforts.¹⁵

- **Countries should step up efforts and resources for greater international cooperation.** The reach and rapidity of the COVID-19 outbreak has highlighted the extent to which countries are interconnected both economically and by the movements of their citizens. As even advanced economies struggle to combat the virus, it is clear that no one country is capable of halting the pandemic on its own and certainly not without severing the international linkages that enrich economic and social life. Coordinated and cooperative policymaking at regional and international levels is then of the utmost importance in the context of this pandemic, but also future outbreaks. An immediate priority is to develop a vaccine for COVID-19, making it available at a global level in order to save lives as well as to reduce the risk of long-term economic consequences. A further priority should be to design, strengthen, and safeguard international structures that ensure quick, effective, and coordinated international responses.

¹⁵ For example, in 2016, the WHO launched an initiative (the Joint External Evaluation) to assess national capacities to address public health threats and to strengthen surveillance, prevention, and response to infectious diseases and health emergencies. The World Bank (Health Security Financing Assessment and Pandemic Preparedness Financing) has established a financing facility which provides surge funding to prevent rare, high-severity disease outbreaks from becoming large scale pandemics.