Center for International Development *at Harvard University*

IGC International Growth Centre

Policymaking in uncertain times

Smart containment with active learning

In brief

- The COVID-19 pandemic is leading to a health and an economic crisis of unprecedented scale for this generation. With limited evidence to draw on, understanding what policies to use is difficult.

- In the face of this uncertainty, blanket lockdowns have been imposed across many developed and developing countries. The global economic impacts of these are already being felt. Particularly in developing countries, the effects are amplified with the cessation of economic activity, threatening to push millions more people into poverty, and other unintended adverse health consequences.

- Protracted, blanket national-level lockdowns are likely to be inefficient and costly instruments. As a vaccine is at least 18 months away, countries cannot afford to sustain complete lockdown measures during this time period. Already the pressure to open up is immense. Refocusing on localised measures of 'smart containment' that both respond to the health crisis and limit economic consequences is key.

- Within a framework of active learning, even governments with limited capacity can develop graded and data-responsive smart containment policies. Once operationalised, these plans will help generate further evidence for policymakers, leading to better contextualised and sustained solutions.

This brief is a collaboration between CID and IGC

Policymaking in uncertain times[1]

The COVID-19 pandemic has caused a global health crisis resulting in hundreds of thousands of deaths across the world already. Although in developing countries, particularly in Africa, the infections started later than in Europe and the United States, disease prevalence is rapidly increasing. At the time of writing, there are over 47,000 cases reported in Africa with the World Health Organization (WHO) warning of the very real possibility that the continent could become the new epicentre of the virus.

We already have relatively good information on the symptoms of the virus, and knowledge that a majority of carriers may be asymptomatic but still transmit it. We also have estimates for potential morbidity which is significantly higher than other flu strains. These are the factors that have resulted in overwhelmed healthcare systems in Europe and the United States in dealing with COVID-19. In Africa and other developing regions in the world, health systems were already significantly weaker prior to the crisis. For example, there are fewer than 5,000 intensive care unit beds across 43 countries in Africa, an equivalent to five beds per one million people. This is compared to Europe which has approximately 4,000 beds per million. Therefore, there is the genuine concern that exponential growth rates in transmission could lead to hundreds of thousands of fatalities.

In an effort to slow transmissions, the majority of developing countries have quickly followed the stringent lockdown measures first undertaken in China. These measures, targeted at limiting the movement of people, are usually being imposed in a blanket fashion across whole countries, irrespective of the within-country transmission rates. Furthermore, in many cases, the lockdowns imposed by developing countries are even harsher than in Europe.

Globally, these lockdowns are resulting in a major economic crisis. The International Monetary Fund (IMF) predicts that global growth could fall below -7.4% in 2020. Commodity prices are plummeting due to decreased

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demand. The International Labour Organization (ILO) estimates this crisis could result in the loss of the equivalent of 195 million full-time jobs. In developing countries already reeling under the pressure of these global shocks, harsh and blanket containment measures are exacerbating the crises locally. With the majority of people employed in the informal sectors and therefore reliant on a daily wage to survive, the complete halt of economic activity has led to massive increases in vulnerability. Every day, more people are being pushed into poverty and hunger. With many already living on the edge of subsistence, and with a range of pre-existing health issues, the adverse health consequences as a result of the response to the pandemic may match the pandemic's morbidity itself.

Even more sobering, policies to address the pandemic are being implemented with very limited information. For example, we do not fully understand the environmental triggers of COVID-19 and whether the disease burden in developing regions will mirror those seen in China or Europe. In addition, most current modelling efforts focus either on the (COVID-19) health or the (broad) economic consequences. Yet it is the combined and interactive effects that are crucially important to help weigh the costs and benefits of different containment measures. Most importantly, we do not yet know when an effective vaccine will become widely available. We can already tell, however, that the longer lockdowns last, the more likely the economic and non-COVID-19 health impact of the lockdowns could outweigh the potential health impacts of the virus for some countries.

This is the motivation for rethinking the way we undertake policymaking in the face of this substantial uncertainty. The framework for containment outlined in this brief allows for a targeted, localised, and dynamic approach that uses real-time testing and refinement of policy responses. Importantly, it can and should be adapted as more information becomes available to better enact policies during this pandemic that improve health outcomes whilst reducing economic burdens.

Framework for decision-making with active learning in times of crisis

We already have a well-developed and tested framework that allows for decision-making in the face of uncertainty. This involves four components:

1. **Decisions that will be the same regardless of the information obtained.** For these types of decisions, acting now and communicating unequivocally is key.
   - *Examples:* procuring more medical equipment or ensuring better testing
2. **Decisions that should be made only after collecting some information**, particularly if that information is relatively costless to collect.
   - *Examples:* quick surveys prior to lockdowns to provide a better understanding of potential socioeconomic consequences, which will contribute to developing and targeting mitigation measures.

3. **For every decision, <u>all</u> available information should be used.** Although decisions are being made with limited knowledge, there is still past information that could be useful.
   - *Examples*: Census and other data on different localities to start developing risk profiles where people may be more vulnerable (e.g., there are is a higher number of old people) and the risk of disease spread is higher (more dense and mobile populations)
4. **All decisions will have consequences that can and should be measured so they can generate new information.** It is critical that this information is actively used to inform subsequent decision-making.

Graded and data-responsive smart containment policy

An active learning process could greatly improve decision-making during this pandemic. In particular, it can be used to develop graded, data-responsive, and locally adapted containment policies. This is in contrast to countries merely copying blanket policies that others have adopted. Graded plans allow for maintaining greater freedom of movement for certain people as well as localised geographic targeting based on health risk profiles. This flexibility to have a heterogenous response within a single country means that dynamic assessments of situations can be done and learnings applied to impose and lift appropriate and targeted containment measures as necessary. The approach therefore looks to address both the health crisis but, importantly, does not require the full shut down of economic activity, therefore easing the burden on livelihoods.

An operational action plan for different levels of a COVID-19 containment strategy, stemming from such a policy, is outlined in **Figure 1**. Its main key features include:

- A critical role for data – both existing data as well as data collected throughout the process;
- Clear policies that are still flexible and modular enough to be data-responsive;
- Containment strategies where the intensity of physical distancing is based on local conditions;
- Community messaging and compassionate enforcement to ensure voluntary compliance;
- Policies that both take into account immediate considerations as well as longer-term needs;
- Testing, management, and enforcement which can and should be done by local authorities;
- Openness to allow for partnerships with local entities to leverage existing capacity.

Figure 1: Graded action plan

	CUMULATIVE →			
	Level 1 – Prepare No infections identified	**Level 2 – Distancing** Infection detected and moderate projections Population is low impact and/or low health risk	**Level 3 – Lockdown** Infection detected and severe projections; underlying vulnerability is high Population is high impact and/or high health risk	**Level 4 – Restore** Widespread disease
Smart testing and data	Testing for high risk/high impact individuals e.g. health care workers, including questionnaire to understand symptomatic presentation (syndromic surveillance). Dedicated surveillance through a targeted network of reporting sites (sentinel surveillance).	Contact tracing and testing. Surveillance robocalls to monitor symptoms across specified populations. Follow up phone surveys of potentially infected persons. Surveys to assess other impacts (including socioeconomic). Monitoring compliance (e.g., through social mobility data). Full logs of all mortality with basic information on cause of death.	Extension of testing and contact tracing of high risk workers in areas adjacent to breakout areas too (including surveillance robocalls). Surveys of recovered cases. Following the lockdown, ongoing prevalence surveys and phone surveys to garner more information about symptoms that could indicate a re-outbreak. Important to collect socioeconomic indicators to effectively respond to vulnerability.	Testing primarily for therapeutic purposes and to understand the presentation of the infection. Begin antibody testing to indicate the degree of infection as well as subsequent herd immunity (needs to have a sufficient sample size). Collect additional data on morbidity and health sector capacity.
Physical distancing	Standard health practices (hand washing, wearing masks etc.) Emphasising basic physical distancing measures. Protective organisational and management practices.	Stronger physical distancing measures and stricter enforcement. Isolation of confirmed cases and quarantine of their contacts. NOT full lockdown.	Full restriction on the movement of people within specific area for a 2-3 week period or until there are only a very low number of infections ensuring that people have the necessary essentials (food, water, health items) for the duration of the period. Potential quarantine of adjacent areas, where there is high risk of transmission.	Full lockdown within specific area and level 3 measures in adjacent areas until there are only a very low number of infections (or based on anti-body testing). A higher level of complementary welfare and health support may be needed. Additional preventative and protective measures for vulnerable populations (e.g. elderly and health care workers) from getting infected.
Community messaging	Particularly around individual preventative measures, e.g., handwashing and consistent with physical distancing	Specific information on a regular basis about how many cases in each area, how people are being cared for and how many recoveries. Messaging on support opportunities with a focus on destigmatisation to ensure that people seek health care and are treated with dignity and compassion.	Regular messaging to maintain trust in authorities and ensure voluntary compliance. Ensure messaging is in adjacent areas as well.	Regular messaging to emphasise the severity but also to reassure people of the government's preparedness to respond and support measures in place. Expedited communication (e.g. helpline) for those in Level 4 areas.
Actionable decisions	Monitor and determine alert level. Prepare contingency plans as well as build capacity to implement them.	Launch and assess effectiveness of implementation plan; monitor and use data to refine response, assess adverse impacts and target support. Depending on infection rate, re-determine alert level.	Prepare for Level 4 and expand necessary capacity accordingly. Expansion of plan to areas adjacent to lockdown as well to ensure targeted support for both health and economic measures where required. Draw on dedicated internal and external human resources e.g., volunteers.	Implementation of expanded medical, food and other social security measures.

This action plan can easily be adapted to suit local needs. Once implemented, it needs to be continuously re-evaluated, and the new data generated can help inform how to assign different localities the appropriate containment levels and when to change them. The evidence can also be used to inform further mitigation measures and tailor these accordingly.

Active learning with clear communication

Understandably, part of the impetus to act is that the political fallout of inaction, especially in the face of many deaths, may be difficult. Furthermore, in politically polarised environments, applying local measures may be seen with suspicion. Clear, transparent, and regular communication with involvement of relevant community leaders on this plan will therefore be key to seeing such a plan succeed. As the positive outcomes are realised, this will further increase trust in authorities, popular understanding, and support.

Active learning, involving the adaptation of strategies as and when necessary to ensure they mitigate the economic consequences whilst still putting at the forefront health considerations, will ultimately better support policymakers in both better addressing the current pandemic as well as increasing resilience to future ones.

We are all facing a global crisis, the likes of which most of us have never seen and hopefully never will see again. The instinct to act – and act immediately – is overwhelming. However, perhaps now more than ever, this is the time not to panic. If we act blindly, our cures may be worse than the disease. Acting calmly, deliberately, and drawing on and building the knowledge needed will serve us best if we are to help the millions of lives and livelihoods at risk.