



# **Adaptive leadership in the coronavirus response**

**Bridging science, policy and practice**

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## **Key messages**

- Tackling the coronavirus outbreak requires adaptation at operational and leadership levels.
- Operationally, there is scope to strengthen evidence-based adaptive management practices, to adjust the mix and type of interventions being implemented and learn as we go so as to achieve shared goals.
- This requires adaptive leadership capacities, being open and transparent about learning, using collective decision-making processes and building trust with communities and individuals.

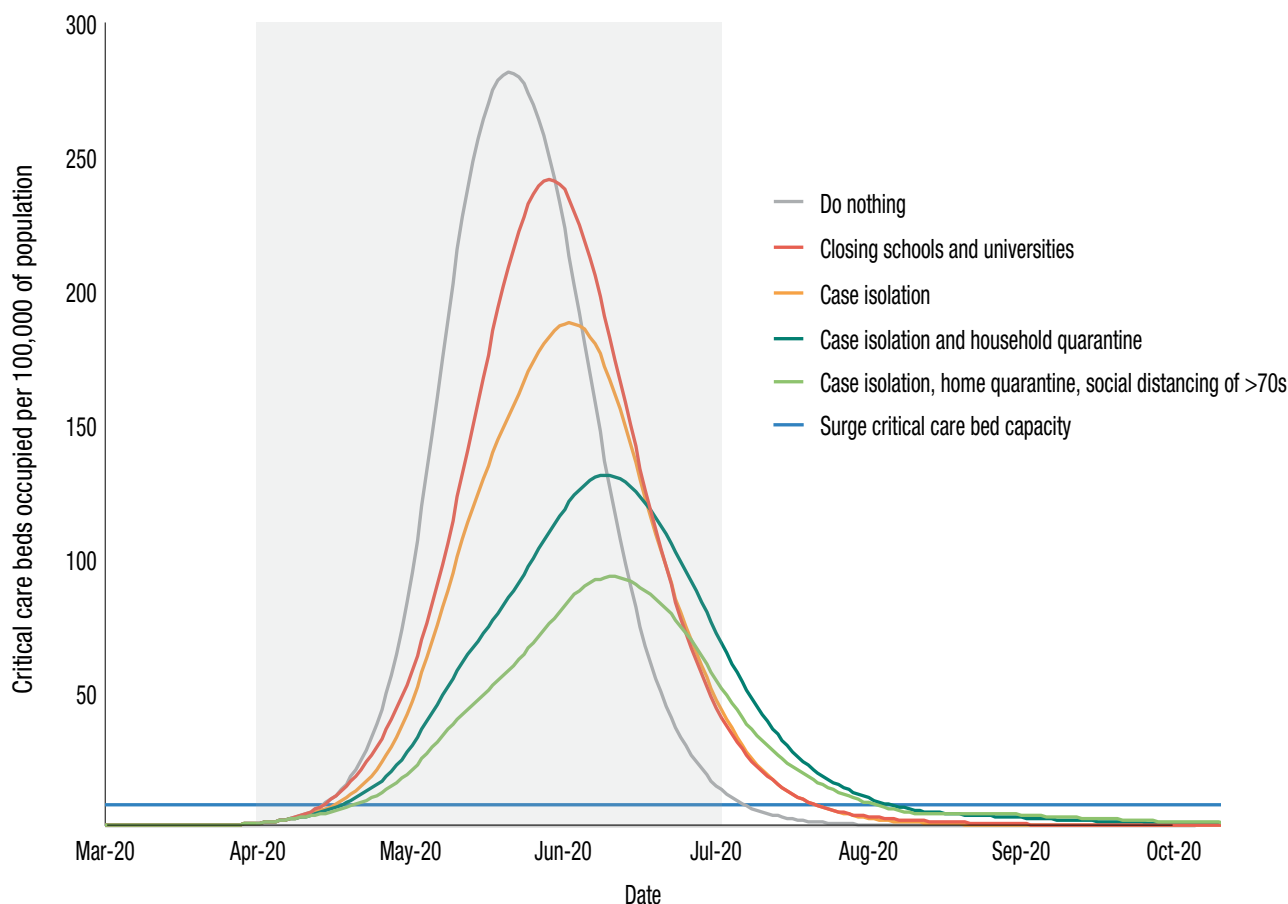
## Introduction

The coronavirus pandemic poses unprecedented challenges to science, policy and the interface between the two. How – and how quickly – policy-makers, practitioners and researchers react to this emerging and complex crisis is making a profound difference to people’s lives and livelihoods (WHO, 2020). But how can we ensure effective collective decision-making on the basis of emerging evidence, changing trends and shifting scientific understanding, all in the face of considerable uncertainty? Recent experience highlights the need for adaptive leadership in national and global responses to the outbreak. This briefing paper sets out key principles for what this might look like, and proposes a roadmap for policy-makers, practitioners and researchers to move towards such an approach as they tackle the unfolding crisis.

## The case for an adaptive response

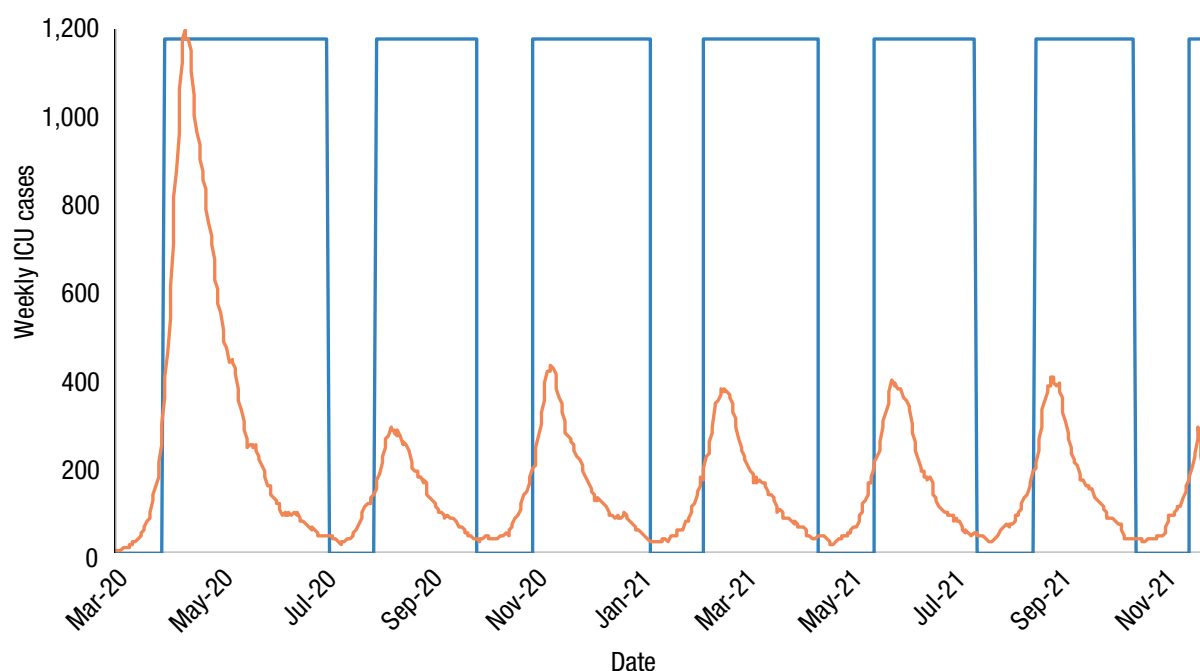
The coronavirus outbreak has transformed the world in profound ways. It has also shone a light on the power of science to guide decision-making in crises. Detailed epidemiological modelling by Neil Ferguson and the MRC Centre for Global Infectious Disease Analysis at Imperial College London helped prompt a shift in the UK, US and other countries from mitigation strategies – allowing a gradual spread of the virus and building up the population’s immunity – to suppression – reducing as far as possible the number of people contracting the disease, and taking steps to delay the growth in cases for as long as possible (MRC Centre for Global Infectious Disease Analysis, 2020). At the heart of that work is the crucial metric of critical care bed capacity, shown in Figure 1.

**Figure 1 Mitigation strategy scenarios for the UK showing critical care bed requirements**



Source: Ferguson et al. (2020)

**Figure 2 Illustration of adaptive triggering of suppression strategies in the UK**



Source: Ferguson et al. (2020)

The modelling also underlined that the best outcomes would result from a combination of different measures: ‘while there are many uncertainties in policy effectiveness ... a combined strategy is the most likely one to ensure that critical care bed requirements would remain within surge capacity’ (MRC Centre for Global Infectious Disease Analysis, 2020). The researchers suggested that very strict initial measures could eventually be relaxed, being reinstated only if incidence increased above a certain threshold (Figure 2).

This ‘adaptive triggering’ of a set of interventions – switching them on and off – could last for a significant period. Crucially, it would help buy time to learn more about how best to treat, respond to and hopefully vaccinate against coronavirus. Scope to trigger and relax different interventions could arguably be even more important in low-income countries, where already weak health systems risk becoming rapidly overwhelmed, and where enacting certain measures for long periods may be very difficult (for instance, social distancing is much harder in densely populated areas which lack infrastructure to ensure that people can access what they need from home) – but capacity for adaptation could be even lower.

## Applying adaptive management in practice

What we see as ‘adaptive management’ is grounded in evidence and learning from many different spheres, including natural resource management (Williams et al., 2009), military planning, international development and humanitarian response.

At the heart of this approach is the collective ability to identify which interventions – or combinations of interventions – might work best and why, as well as understanding the impacts of these interventions. This style of adaptive management has recently gained traction in disease outbreak management, most notably in response to Ebola in West Africa (Shea et al., 2014). Numerous analyses of the successful eradication of smallpox show that success was attributable, more than any other single factor, to processes of strategic adaptation and learning (Hopkins, 1988).

Adaptive management of this kind can address an important criticism of model-based learning, which tends to focus only on epidemiological factors such as transmission rates, and assumes that operational responses can exert complete control – for example, that the public follows the rules; that drugs are delivered on time;

and that beds become available when needed. Experience has taught us the hard way that such assumptions often do not match up to reality, and interventions seldom proceed as planned. Instead, we need to think about strategies that are ‘designed and intended to adapt to change’ (Ramalingam, 2013).

Policy-makers, researchers and practitioners working on the response should consider the following questions to establish ‘adaptation by design’ in the current crisis (Hernandez et al., 2019).

- **Why the need to adapt:** develop and clearly communicate the rationale for adaptation, for instance to minimise total deaths, to address the risk of exceeding healthcare capacity or to alleviate indirect economic hardship.
- **What needs to adapt:** make clear from the outset the specific elements of the response that may be changed, such as scaling back some interventions while maintaining others, or changing how a particular intervention is delivered (for instance relaxing some social distancing requirements or relaxing requirements in some regions or areas).
- **How to adapt:** advocate for an objective and transparent system of governance that reviews evidence and communicates the argument for changes to interventions. This needs to be based on ‘candid, trustful relationship[s] which facilitat[e] the acceptance of the new’ between policy-makers and a range of different kinds of experts (Ramalingam, 2013).
- **The evidence required:** Identify the information and data needed to inform decision-makers and other stakeholders on all of the above (numbers of cases, feedback from frontline staff and local authorities and evidence from other countries, for instance). Determine how this can be used to develop a strategic and operational research agenda and related data strategies that prioritise and accelerate collection and communication of the most useful information.

Box 1 sets out an illustrative view of what such an approach might look like in the current outbreak response.

## Box 1 Adaptation by design in practice

### 1. Why do we need to adapt?

There may be changes in:

- National cases (increase or decrease)
- Serious case numbers
- Hospital capacity (beds/staff)
- Behaviour of different groups in response to policies
- Organisational capacity
- Intervention effects/results
- Unintended effects/second-order changes
- Emergence of new understanding, research, evidence and learning

### 2. What do we need to adapt?

Which may necessitate changes in:

- Allocation of resources to response and resilience efforts
- Type and mix of medical, organisational and social interventions
- Means of delivery or communication of interventions
- Delivery and implementation partners
- Stakeholder and community engagement
- Staff capacity and skills

### 3. How do we need to adapt?

Which would be enabled by:

- Inputs from different expertise (epidemic, medical, behavioural, social)
- Processes for collective sense-making and assessment of available evidence
- Open and transparent communication:
  - Available evidence and gaps
  - Collective judgements and decisions
  - Areas of learning incl what is working well and less well

### 4. Evidence for adaptation

Which would be based on relevant and useful data, such as:

- Data of and from testing
- Usage of hospital beds
- Absence rates of healthcare staff
- Feedback from frontline staff
- Feedback from services and businesses
- Data from community and stakeholders

This data needs to be provided at regular intervals, and linked to appropriate decision-making cycles.

## Towards adaptation by design

‘Adaptation by design’ means developing and communicating a process that recognises that interventions need to change and adapt as learning grows, and establishing clear processes for collecting, interpreting and acting on evidence. The former Director of the US Centers for Disease Control and Prevention (CDC), Tom Frieden, has usefully set out the range of different interventions that need to be considered in an adaptive response (see Figure 3), and has argued for responses that ‘learn intensively [using] real-time data’ (Frieden, 2020). This means identifying the information of most value to decision-makers across the range of interventions, and using this to set out an agreed approach to how learning will inform different kinds of decision-making (Shea et al., 2014).

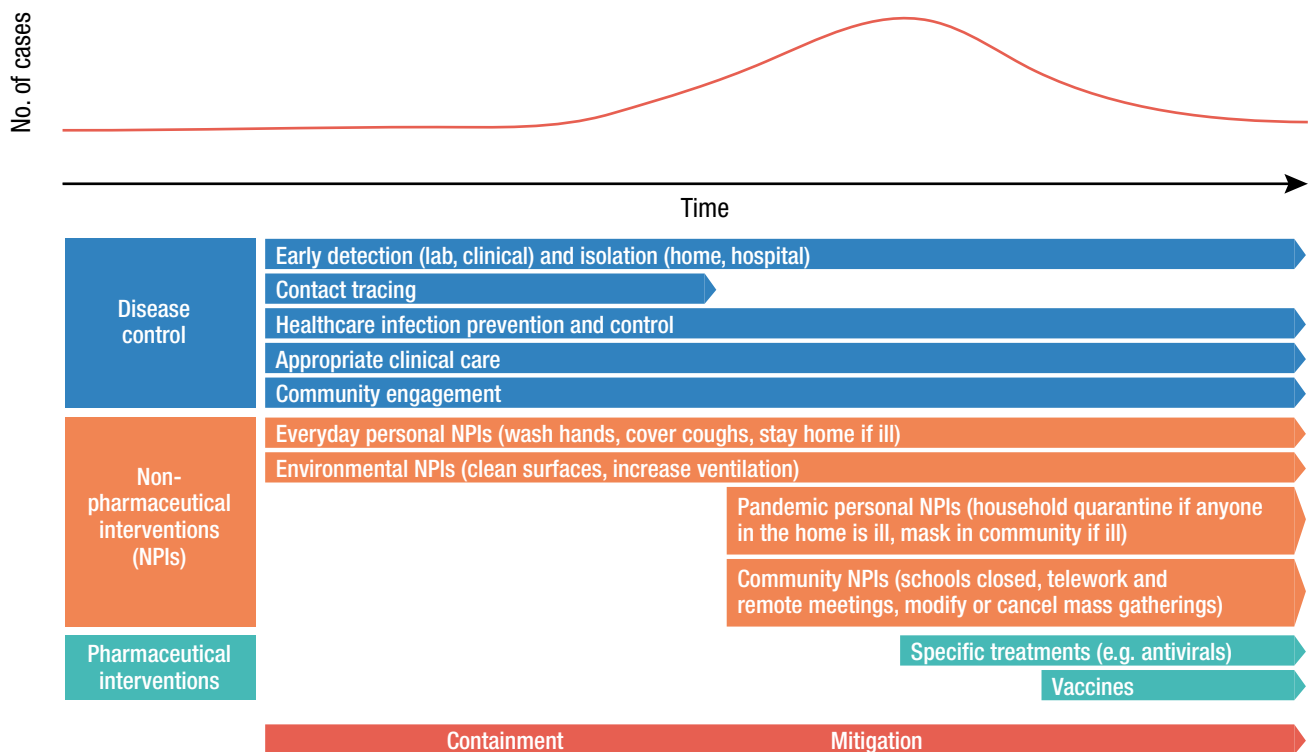
Quantitative and qualitative scientific analysis, such as mathematical modelling, ethnography and behavioural science, can all help in evaluating different sources of uncertainty<sup>1</sup> across these interventions. They can be used to underpin

evidence-based ‘triggering’ of changes to interventions as evidence is gathered and gaps in understanding are filled (Shou-Li et al., 2019).

The key challenge in adaptive management during epidemics is accepting, and formally accounting for, the limitations of the evidence base. While many governments are rightly stating their commitment to ‘follow the science’, the range of different policy responses in different countries reflects different interpretations of this evidence, as well as different social, institutional and political contexts. Rather than looking for a perfect set of solutions, policy-makers will need to rapidly interpret different forms of evidence and data and make ongoing judgements based on their best interpretation – all while learning more about this new disease.

At the same time, policy-makers in each country need to determine exactly what they are trying to achieve: ‘minimising the impact of the outbreak’ is easy to say, but means very different things to different people (for instance the emphasis placed on reducing the overall number

**Figure 3 Adaptation across the Covid-19 response interventions**



Source: adapted from the original in Frieden (2020)

1 For example, the true disease incidence, the role of asymptomatic carriers in transmission, the degree to which social/physical distancing restrictions limit transmission and the indirect economic impacts of movement restrictions.

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of cases, or the economic or social impacts). Variations in national response strategies present an opportunity for mutual learning, and for adopting, emulating or abandoning policies that have been successful or sub-optimal elsewhere (Andersen et al., 2020).

## **A roadmap for adaptive management of coronavirus responses**

An adaptive management approach to the coronavirus response will require a number of key steps. Based on evidence-informed adaptive management in development and humanitarian contexts, we set out the following:

### **Define a set of key measures/metrics to identify triggers for changes to interventions**

These could include evidence of further spikes in cases, increasing mortality rates and overstretched healthcare capacity. They might also include some measures of ‘community resilience’, for instance the strength of local support networks, or evidence of social or psychological impacts. There is a potential role for modelling to identify the measures/metrics that would be most useful in supporting adaptive decision-making.

### **Collect a range of data and evidence, while being realistic about the need for ‘quick enough’ and ‘good enough’ measures given rapidly changing trends**

Networks that can quickly gather and share feedback at different levels and scales of the response (from health professionals, public officials, police officers, community organisers and so on) could be key in providing a ‘temperature test’ for key pressure points, alongside clinical data.

Collecting the most operationally relevant information, when it is needed most, should be prioritised and accelerated.

### **Ensure that evidence is robustly assessed**

Interpreting evidence from a range of different perspectives (medical, social, behavioural) will be key to ensuring that all effects and results of interventions are properly considered. A set of prompts can help ensure that appropriate data collection and analysis methods have been used (following standard quantitative and qualitative data measures), but we need to recognise that, ultimately, judgements have to be made based on the best evidence available. Building a process whereby these judgements are made collectively, with inputs from a range of perspectives with deep knowledge of these types of epidemics and the indirect impacts of interventions, is an important way of mitigating potential biases and providing a sense of key emerging challenges.

### **Document the process of interpreting evidence and agreeing triggered actions, and make this as transparent as possible**

The benefits of transparency are two-fold. First, given the inevitable variation in interventions, implementation and outcomes across communities, transparent accounting of actions minimises biases in decision-making. Second, it can help to minimise anxiety and facilitate the engagement of the public, who may well be confused as interventions change or restrictions are tightened or relaxed. Bringing communities into the decision-making process means being open and transparent about what is known, what learning processes are critical and when changes might be needed, and why.

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## **Building adaptive leadership capacities – recommendations**

In closing, this cannot just be seen as a technical endeavour. As noted by David Nabarro, the Special Envoy to the World Health Organization Director-General on Covid-19, adaptation to the coronavirus outbreak is a leadership imperative, especially at the scale that the pandemic response demands. We recommend the following capacities are urgently prioritised:<sup>2</sup>

### **Build leadership vision and a supportive management culture across teams and units coordinating the response**

Decisions on when and how to trigger a change in response cannot be made by a small number of people behind closed doors. Everyone needs to understand and accept the key thresholds that trigger change, and a range of perspectives and inputs needs to be sought. This is not the usual mode of operating for many governments; it means being transparent about what is being learnt and when changes in actions and interventions are needed to ensure effective delivery. Public trust is critical here.

### **Think beyond specific interventions to embrace the whole system**

A whole-of-system perspective is needed to understand how best to calibrate interventions (Ramalingam, 2013). For instance, if social distancing measures are not proving effective, further steps may be needed that take into account behavioural responses. A system perspective also means paying attention to wider effects, for instance how communities can be supported to become more resilient, especially when faced with knock-on impacts such as social isolation or the breakdown of other key services or disruption to supply chains (Blanchet et al., 2017). This in turn means anticipating such unintended consequences and continually assessing how to respond to them.

### **Encourage locally led innovation and problem-solving**

Many countries have seen a proliferation of community-led support initiatives, organised at a very local level and increasingly coordinated by local government (MacGregor et al., 2020). These initiatives are likely to be key to catalysing changes in behaviour that will need to be maintained over the long term, including ensuring that physical distancing does not mean social isolation. These are by their nature hard to predict, but they will need to be anticipated and incorporated into dynamic planning processes. The diversity of local adaptations presents a powerful opportunity for assessing value and viability, learning and, where feasible, disseminating and scaling. Strong facilitative leadership to encourage transparency about these efforts and to take on board learning from both successful and failed efforts is critical to maximising the societal benefits.

### **Build a vision of desired future outcomes**

The coronavirus pandemic has shown all too clearly how interconnected and interdependent we are. What is done in this crisis response will have repercussions – direct and indirect – for years and decades to come. This too will demand systemic and adaptive leadership, to help us think beyond the shadow of the pandemic to the kind of world we want to forge together.

In conclusion, this brief sets out strategies for support to more agile and adaptive decision-making at both operational and leadership levels. It offers a series of prompts, key questions and ideas for how adaptive management could best contribute to the coronavirus response, with a focus on processes and capabilities to support adaptive management of interventions and learning about what works as part of delivery. It also looks to the future, and sets out how adaptive leadership can help support collective action, build community innovation and resilience and support reflection on how the world might change as and when we move beyond the outbreak.

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2 This also draws on general recommendations for the UK government, previously set out by Wild (2017).

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