



Ambulances lined up in East Rutherford, NJ, on April 20, 2020. (FEMA photo/K.C. Wilsey)

Administration and Leadership, Commentary, Coronavirus

# Managing COVID-19: Applying an Asymmetric Solution to an Asymmetric Problem

By Carmit Rapaport, PhD and Isaac Ashkenazi, MD | 9.18.20



After the initial emergency response, the world has now entered the phase of “living with the virus” in the COVID-19 pandemic. Since the World Health Organization’s (WHO) declaration of an international health crisis in March 2020, the main goal of pandemic management around the world has been to “flatten the curve” to save national healthcare systems from collapsing. Reaching this goal, at the initial emergency response phase, led countries to enact strict lockdowns, social distancing regulations and other steps, and death rates differed even in countries with quicker and more decisive responses.

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These steps included border closures, widespread testing for the virus and full epidemiological investigations for those who tested positive. However, the “cost,” or the consequences of these steps has embodied unprecedented economic losses, with extreme levels of unemployment and a deep global recession. The “acceptable loss” or ‘acceptable price’ — which means finding the fragile balance between the loss of lives and economic losses — sits at the core of pandemic management.<sup>1</sup>

As countries began reopening their economies over the last three months (including workplaces, public transportation, shopping malls and schools), we witnessed an expected increase in infection rates all over the world. This situation raises two main questions: (1) What are the current conditions and expectations for pandemic management? And (2) what has been learned in terms of pandemic management that might change decision makers’ attitudes towards the current acceptable loss and the ensuing appropriate mode/s of action?

Using the framework of medical triaging in mass casualty incidents can be effective in analyzing the response to the COVID-19 pandemic so far, as well as drawing conclusions. In both cases (the current pandemic and mass casualty incidents), there

is a need to evaluate the condition of the “patient” on the basis of the urgency or severity of the illness against the available resources and to prioritize the treatment so that as many people as possible will benefit from the actions being taken.

In the case of the COVID-19 pandemic, each decision that has been implemented resulted in damage or losses in other areas, or deprived someone from something. In the following discussion, we will analyze the responses to the pandemic and their consequences, and suggest new strategic grounds for the next stages of the COVID-19 pandemic management.

## Applying a Symmetrical Solution to an Asymmetrical Problem

So far, it has been known that the CoV-SARS-2 differentially, or *asymmetrically*, attacks males, 60 years old and up and people with pre-existing medical conditions (diabetes, COPD, vascular diseases among other). Nevertheless, most countries chose an abrupt, spherical and *symmetric* solution to this aspheric and asymmetric problem, which included deterministic steps such as total lockdowns on entire populations, with very limited economic sectors continuing their operations. We assert that, as the virus has proven to be an asymmetrical problem (given that it especially endangers certain populations), it should be resolved by applying asymmetrical solutions.

Given the symmetrical response to this asymmetric problem, two initial damages have been witnessed: first – “overlaps” – quarantining the entire population rather than only the high-risk populations, has led to wasted resources and worsened conditions (such as neglected routine medical ambulatory services, massive disruptions to school education, loss of revenues and increasing rates of domestic violence). Second, “gaps” – quarantining the entire population was effective, but populations at risk, such as the elderly at nursing homes, did not receive the full medical attention and care needed.

By promoting asymmetrical solutions to this asymmetrical problem, the effectiveness and the efficiency of the response and crisis management improves, as

the acceptable loss is better defined, and the strategic pandemic management becomes more clear.

# The Meaning of Quarantine and Social Distancing

When responding to mass casualty incidents or emergency events, *time* plays a significant role in deciding how to manage the lockdown vis-à-vis reopening the economy. Such a decision should be made in light of the specific goal: outbreak containment, outbreak prevention, outbreak stagnation or returning to routine. The following scheme illustrates the consequences of locking down public places and reopening over time. Each of these consequences will achieve a different pandemic management goal, and has different impacts on populations and economies.

	Slowly	Quickly
Lockdown	Outbreak deceleration	Outbreak containment
Reopen	Outbreak prevention	Outbreak acceleration

As shown in the scheme, applying a lockdown slowly – in terms of closing some economic sectors (mainly those with inherent significant gatherings, such as culture and sport events, shopping malls, restaurants, and public transportation) – will slow down the outbreak but will cause significant damage to the economy. It will also decrease personal and national resilience due to the negative effect of uncertainty on the public’s coping abilities, increased mental difficulties as well as heightened social inequalities. A quick decision and implementation of lockdown will contribute to reduced mortality and morbidity; it will “buy” time for gaining medical resources and allow for improved control of the pandemic.

At the same time, heavy damage to the economy is expected with each day of lockdown and mass quarantine. A quick reopening of the economy is not desired as it will lead to minimal control of the pandemic and will make detection of outbreak zones virtually impossible. It will also allow, however, a significantly quicker

economic recovery. Given the expected increase in morbidity rates, the population might need to adapt and learn to live with these rates and the presence of the virus.

Lastly, it seems that a slow reopening allows for “trial and error” if the number of positive cases increases and allows detecting outbreak areas and re-lockdown gradually and specifically. Significant pressure to reopen other sectors of the economy, however, is also expected, which endangers the ability to apply the slow reopening strategy.

We suggest that the pandemic should be managed *asymmetrically*, which means applying a distinctive and specific approach which focuses efforts on saving high-risk populations and involving the public as a partner (an active bystander), rather than an “end-user” (a passive bystander). The COVID-19 pandemic is a protracted crisis event and it is now clear at this stage that nations will have to lockdown and reopen frequently in order to prevent local or large-scale outbreaks to control the disease.

Responding symmetrically, however, by applying general lockdowns with more or less enforcement or on wide or restricted areas will have negative consequences on economies – and most importantly on populations. Reopening the economy is expected to increase the number of those infected and as a result, the number of casualties in critical or serious conditions. However, as the high-risk populations are safe in controlled quarantine or specifically treated (in nursery homes or in their communities), all others will keep their routine and cope with the disease.

Consequently, there is a need to carefully examine populations’ behaviors and to prepare the citizens for the next phase- living with the virus. In any case, public cooperation with the instructions, such as social distancing or stay at home orders, is a major part in managing the pandemic. Obviously, asymmetric approaches should be carefully examined and applied so that no discrimination or violation of rights will be caused to any group.

## **Communicating with the Public**

Populations’ behaviors have also changed since the beginning of the outbreak in March 2020. Given the extreme death rates in China, Italy, Spain and France



(February–March 2020), nations had *not* been willing to pay one price – the price of lives (measured by the number of deaths). However, over time it seems that the perception of this price has changed, as economic damage increases and personal freedom, leisure and recreation activities become the alternative costs which individuals are no longer willing to pay. Apparently, the tolerance to accept these losses, or “pay this price” has decreased dramatically over time. What seemed trivial at the beginning, when uncertainty predominated and fear was a strong motive for the public’s acceptance of extreme lockdowns, has now become unacceptable. Consequently, the public is less compliant with social distancing orders and has less trust in their governments’ instructions.<sup>2</sup> Although the situation is still unclear, and is compounded by the risk of seasonal winter flu combining with COVID-19 (the double pandemic), it is important to examine the public’s attitudes and perceptions in order to set the groundwork for managing the next waves.

Public support for governmental policies and actions in the context of public safety and security involves three basic elements: risk perception, trust in authorities and compliance with instructions. In the context of the COVID-19 pandemic, these elements tended to change over time (according to the ongoing morbidity rates), and have set the basis for quantifying the acceptable loss. Perceiving the risk of getting infected as high was a strong predictor of behavioral change – towards compliance with hygiene orders and social distancing.<sup>3</sup>

In terms of trust, Bol et al. have found that at the initial stages of the pandemic, the COVID-19 crisis had increased citizens’ support and trust in leaders who actively reacted to the breakout by ordering quarantines.<sup>4</sup> Over time, however, as the public gained experience with the virus, the initial steps that had been taken may not be valid or accepted in future stages. Citizens demand their freedom of movement, demand their leaders provide appropriate measures to defeat the pandemic, and above all – demand economic and social welfare.

Citizens are adapting to the new routine, but not due to orders and regulations. Rather they assess their risks, prefer working from home, and protect their children from crowded classrooms.<sup>5</sup> Moreover, the elderly are especially aware of the risks and keep away from gatherings and potential infections.

Communication with the public must be transparent and coherent: the careful and gradual reopening must include rational and realistic communications to build trust between citizens and their leaders. Hence the necessity of the asymmetric response: those who need to be protected will be voluntarily quarantined while being provided with all basic goods and services to meet their needs. At the same time, quick and systematic epidemiological testing and investigations will allow those who test negative to keep their normal life routine.

## Living with the Virus?

In disaster management practice, the initial phase of responding to events requires an immediate, total and even extreme reaction. This might include forced evacuation or restrictions on movement such as the “stay at home” orders as well as border closings and lockdowns in many countries around the world. This relies on a symmetric response, which is needed so that the response and recovery phases could begin under conditions of improved information and awareness of the evolving situation. Given this, we suggest responding not by applying general lockdowns, but rather applying a behavioral approach.

Populations should be perceived as partners in the management of this crisis, and should therefore be fully and constantly informed on how people are expected to behave in order to reduce their risks. Data, risk communication, information and guidelines should be widely provided to the public in order to allow people to assess the risks to themselves and their loved ones. People should avoid gathering not because they are being forced to, but because they understand it endangers them and others. Only by activating the public’s awareness and cooperation will we be able to gain control over the spread of the disease.

The role of leaders should be to protect those who are not able to protect themselves, such as those living in nursing homes. This is the advantage of the asymmetric solution: gathering information about the “enemy” – outbreak of the virus – anywhere and anytime, helping vulnerable populations to achieve maximal protection, and allowing all others to assess and manage the risks for themselves.

Such an asymmetric strategy will drive better economic results, as the public will adapt to changing conditions and will eventually reach a new routine.

## References

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