



# EPIDEMIC PREPAREDNESS & RESPONSE

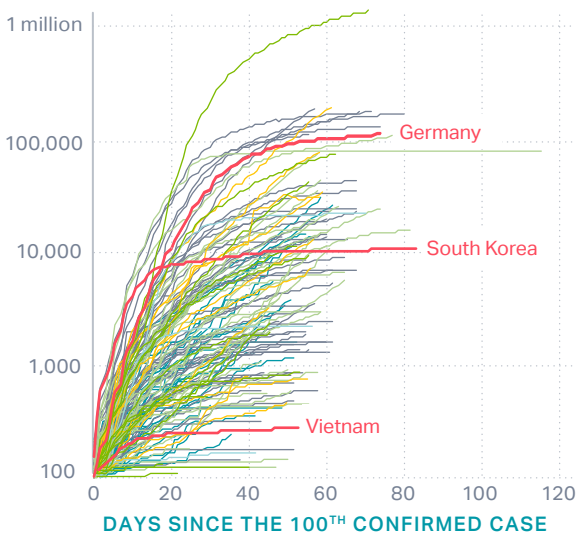
## Exemplars overview

Exemplars in Global Health (EGH) brings together experts, funders, and collaborators around the globe with the mission of identifying positive global health outliers, analyzing and understanding what makes these countries successful, and disseminating the core learnings so they can be replicated in comparable settings. EGH aims to help country-level decision-makers, global partners, and funders make strategic decisions, allocate resources, and craft evidence-based policies in consultation with both their global peers and technical advisors.

EGH is incubated at Gates Ventures, the private office of Mr. Bill Gates, in collaboration with the Bill & Melinda Gates Foundation.

## Total confirmed COVID-19 cases

- AFRICA ● ASIA ● EUROPE
- SOUTH AMERICA ● NORTH AMERICA
- OCEANIA ● PHASE 1 EARLY SUCCESS



Source: Our World in Data, 2020

## PROJECT OVERVIEW

In response to COVID-19, EGH has launched a special project in Epidemic Preparedness and Response. Studying the success of countries that have excelled at preventing and responding to epidemics can help save lives. Given the emergency nature of this crisis, speed is of the essence. As a result, this project will be completed in two phases.

In the first phase, we have moved away from what we developed for other topics: rigorously identifying Exemplar countries and conducting novel in-country research. Instead, we are working with a range of partners to synthesize relevant existing information as quickly as possible.

In the second phase, we will collaborate with academic partners to identify Exemplars in COVID-19 preparedness and response and produce thorough qualitative and quantitative analyses of their best practices.

## AREAS OF STUDY

In the first phase, we are focusing on four areas:

1. With Our World in Data and the UK Public Health Rapid Support Team at the London School of Hygiene & Tropical Medicine, we identify three countries that appear to have achieved early success against COVID-19—South Korea, Vietnam, and Germany—and outline policies and practices that may be responsible for the success
2. With frameworks developed by Resolve to Save Lives, we highlight essential actions to slow the spread of COVID-19 and explore ways to reopen society with a data-driven approach
3. Leveraging case studies from Ending Pandemics and The Johns Hopkins University, we summarize epidemic preparedness and response in several countries, focusing on lessons that may be relevant for COVID-19 and future outbreaks
4. Using published research, we survey key lessons from prior outbreaks, including Ebola, H1N1, MERS, SARS, and COVID-19

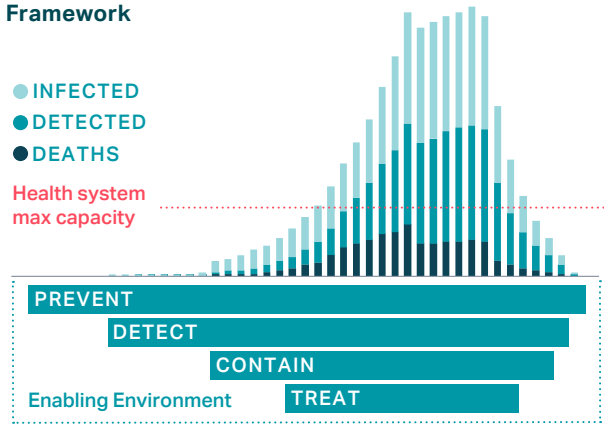
Throughout this early research, we have engaged a diverse array of experts:





Learn more: [www.exemplars.health](http://www.exemplars.health)  
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**Framework**



**A FRAMEWORK FOR EPIDEMIC PREPAREDNESS & RESPONSE**

We have adapted a framework for understanding epidemic preparedness and response based on the Global Health Security Index’s framework (see above). As we consider the epidemic curves that show the trajectory of disease, it is helpful to refer to the four phases that make up the framework. The shape of the curve is determined to some extent by the phase during which a country begins to take effective action. The phases are interdependent; the resources required for each one is determined at least in part by the success of efforts in the previous one. The sooner a country detects an outbreak, for example, the easier it is to contain. In turn, if an outbreak is effectively contained, fewer resources are needed to treat the sick. Obviously, early prevention can keep outbreaks from happening in the first place.

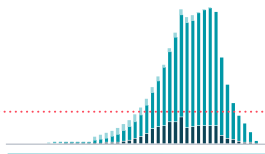
**ENABLING ENVIRONMENT**

Across all four parts of the framework, a country’s ability to manage an epidemic depends on the quality of its “enabling environment.” An enabling environment consists of not only the overall strength of the health system but also the level of commitment among key institutions to adhere to international norms, as well as a country’s level of risk (based on climate and security, for example).

If a country prevents an outbreak effectively, there will not be an epidemic

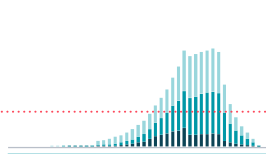
**PREVENT**

Use data analysis and modeling to predict when and where outbreaks are most likely to occur, while investing in capacity to act on this information according to epidemic preparedness best practices.



**DETECT**

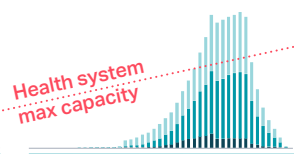
Conduct highly sensitive disease surveillance to find possible outbreaks as early as possible, identify the pathogen—and, if it is novel, determine its means of transmission—and administer rapid, reliable diagnostic tests.



**RESPOND**

**CONTAIN**

Slow transmission through public health measures, including isolating those who are infected, contact tracing, identifying and protecting high-risk groups, and communicating effectively to communities about social distancing and other containment measures.



**RESPOND**

**TREAT**

Strengthen capacity in the health system to “surge” to meet demand for care, including building or repurposing infrastructure, producing extra equipment and supplies, recruiting and training additional personnel, and delivering new vaccines or treatments as soon as they become available.

**Recommendations**

San Francisco-based Ending Pandemics has worked with local partners in Cambodia, Tanzania, and Thailand to create web- or phone-based surveillance systems that empower community members to detect disease much faster than traditional surveillance systems.

Researchers at Johns Hopkins University identified the key measures that have kept the Ebola epidemic in the Democratic Republic of the Congo from crossing over into Uganda for almost two years.

**COVID-19 COUNTRY SELECTION**

Our preliminary process for identifying countries that show evidence of success in COVID-19 preparedness and response builds upon the above framework. We established specific indicators for each phase to identify exemplars within that phase (see below). For now, we are not analyzing successes in “preventing” COVID-19 because it is too early to tell. Later on, as more data emerges, we aim to have a comprehensive, rigorous selection process for COVID-19 exemplars and conduct in-depth policy research to draw robust insights about successful COVID-19 countermeasures.

**Country selection flow**

**FIRST:** Screen countries for scale, length in COVID, and data availability / reliability

**THEN:** Analyze outliers or dual high performers in phase specific measures

ALL COUNTRIES	① SCALE	② COVID CASES	③ TEST DATA AVAILABLE	PHASE-SPECIFIC MEASURES			SOFT FACTORS
				DETECT	RESPOND	TREAT	
<b>Filter</b> None	<b>Filter</b> 2020 pop. >5M	<b>Filter</b> 21+ days since 100 <sup>th</sup> case	<b>Filter</b> Reliable national test data available	<b>Indicator</b> High tests per capita High tests per confirmed case High tests per confirmed deaths	<b>Indicator</b> Low cases per capita High case doubling time Low deaths per capita High deaths doubling time	<b>Indicator</b> Low CFR (confirmed deaths/ confirmed cases)	<b>Examples</b> Geography Policy implementation