

Strategies to support the COVID-19 response in LMICs

A virtual seminar series

Resource Page

Monitoring and Evaluating your COVID-19 Response

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Summary/Key Points:

M & E: What we have

The models that we have are only as good as the quality of these inputs that go into them. But, without good data, these models cannot show us all that we need to know

- Wide variability in estimates/contradictory inferences from dynamic modeling
- Models have an important role to play (not a substitute for real data)
- Models rely on inputs/parameters that need to be accurately measured

Key Challenge with COVID-19: Since our knowledge of COVID-19 develops so rapidly and is changes almost daily, the models result in changes in policies, which affect parameters, then which populate these models. Therefore, we use other forms of data monitoring other than models, such as real-time COVID-19 data resources.

- One thing to remember with real-time COVID-19 data resources is that these resources just use numerators: there are a lot of things that affect these numbers, and we must remember what underlies these numbers (such as testing).

Limitations of existing resources

Since the real-time trackers use existing sources and aggregate based on existing reporting mechanisms that can be updated in real time, you question the reliability of the data that underlies these sources

- How many people are being tested? How reliable is testing data?
- How does that influence your assessment of the trend- Are all deaths captured?
- These absolute numbers of these broad outcomes tell you the what, but perhaps not the how or why- we need more information about denominators and numerators.

M&E: What we need?

- Start with the ideal:

- OPTION 1: Testing at a health center for SARS-CoV-2, regardless of symptoms
 - Monitor outcomes such as hospitalization, death, discharge, and collect data on comorbidities
 - Emphasis on following up in the community, post-discharge (search for long-term outcomes)
- OPTION 2: We recognize that people who come to a health center still come in biased, so an even more ideal approach is to take a true community based sample (for example, taking samples of households) to determine the true burden or prevalence in a population
 - Determine true prevalence of infection from testing a community-based sample (regardless of symptoms) and follow prospectively to ascertain new cases (incidence), monitor adverse outcomes, hospitalization, and death etc.
- But what do we do when we do not have the resources in an ideal setting? What are our alternatives?

Search for the optimal solution by assessing what to do with the resources we have, and how to interpret the data from what we do, recognizing that we're not necessarily collecting data in the most optimal way

Where can M&E be helpful?

Three key areas in capturing information:

1. Transmission, case detection

- i. Testing coverage
- ii. Case counts/rates (per setting, per country)

Implication: This area could take a step further in incorporating testing coverage, by not just how many tests but who is being tested. This way, we can calculate rates per different types of populations.

2. Clinical Consequences

- i. Symptom profile
- ii. Disease severity
- iii. Morbidity/mortality

Implication: How to target testing with a changing symptom profile.


3. Total COVID-19 burden

1. Impact on social and economic well-being
2. Impact on other health outcomes

Implication: There are consequences of delaying care or not receiving care for other health conditions because of COVID-19, so we must integrate ways to monitor that as well.

Some general thoughts:

- Denominators are important
 - Drastically different inference based on different denominator
 - The challenge of measuring mortality: we do not have broad testing, so we do not know the underlying burden
 - Case Fatality Rate: Number of deaths/number of confirmed cases
 - Infection Fatality Rate: Number of deaths/number of actual SARS-CoV-2 cases
- The importance of risk stratification (can better characterize risk faced by specific groups of individuals, communities, states, countries)

Some suggested M&E indicators 

	Recommended Indicator	Proposed stratifications
Transmission	Number of tests completed	Asymptomatic vs. Symptomatic/Secondary contact vs. not/age, gender, comorbidity, occupation
	Number SARS-CoV-2 positive	Asymptomatic vs. Symptomatic/Secondary contact vs. not/age, gender, comorbidity, occupation
	Proportion of those tested who test SARS-CoV-2 positive	Asymptomatic vs. Symptomatic/Secondary contact vs. not/age, gender, comorbidity, occupation
Clinical consequences	Number with respiratory symptoms hospitalized	Age, sex, comorbidity
	Number of known cases hospitalized	Age, sex, comorbidity
	Proportion of known cases hospitalized	Age, sex, comorbidity
	Number of known cases with severe outcomes	Age, sex, comorbidity
	Proportion of known cases with severe outcomes	Age, sex, comorbidity
	Number of deaths	Age, sex, comorbidity
Total burden	Proportion of known cases who die	Age, sex, comorbidity
	Number of non-COVID-19 deaths	Age, sex, comorbidity
	Proportion of deaths that are COVID vs. non COVID related	Age, sex, comorbidity

- The importance of stratification: this resolves the problem of a single issue masking key differences between subgroups. For example, we have really seen this problem with respect to age.
- For LMIC, what are the most meaningful indicators to track COVID-19 response in healthcare facilities, and more importantly the prevention measures against community transmission?
 - Testing and PPE (infection control practices). In terms of the community, basic education of what people need to do and the ability to practice those things at home. Monitoring the procedures and policies put in place are just as important
- Important to understand definitions
- Collect enough data to not overwhelm the system but to answer key questions of interest
 - How frequently does data need to be collected/reported?
 - Ideally daily, (weekly if daily is not possible)
 - Set up simple electronic systems if possible (excel-based) → integrated with required reporting

Tool to measure COVID-19 impacts

- Another method of data collection requires asking people questions:
 - Example: NIH Public Health Emergency and Disaster Research Response

Some Final Points

- Leverage data that is already being collected to monitor your epidemic/response
- Supplementing with some additional information for risk stratification etc. will provide a more comprehensive picture
- Incorporate denominators to improve interpretation
- Understand the limitations of the data/indicator definitions → how does this impact interpretation?
- Monitor changes in measurement over time → how does this impact observation of trends?

Online resources:

- COVID-19 Global Cases (CSSE at Johns Hopkins University)
<https://www.arcgis.com/apps/opsdashboard/index.html>
- Our World In Data (Here we get a sense in snapshot in time, but also trends overtime organized by country) <https://ourworldindata.org/coronavirus>
- COVID-19 Educational Disruption and Response (UNESCO)
<https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures>

- World Health Organization Situation Reports <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>
- Coronavirus Data (EU Open Data Portal) <https://covidtracking.com/data>