You Cannot Manage What You Cannot Measure:

How to Implement Evidence-Based COVID-19 Strategy

By Shlomo Maital

As a management educator, I stress a simple principle: Management begins with measurement. What you do not, cannot, measure, you cannot, will not, manage. But you have to measure wisely, correctly, accurately, and promptly.

Man, does this ever apply to the chaos we find ourselves now, in my country Israel and in other hotspot countries like the US!

So, what should we be measuring? Here is a thorough, reasoned proposal by Tom Frieden and Cyrus Shahpar. Frieden is a former director of the Centers for Disease Control and Prevention, runs the nonprofit group Resolve to Save Lives, and Dr. Shahpar is the director of a team devoted to preventing epidemics. * https://www.nytimes.com/2020/07/21/opinion/coronavirus-state-data.html

Resolve to Save Lives, a coalition of national, state and academic partners including the American Public Health Association and the Johns Hopkins Center for Health Security, has developed a list of 15 indicators. Their report argues: *Every state and county should be able to collect and publish nine of these immediately and the other six within a few weeks.*

If we had these measures, our leaders, policymakers and the general public would know far better where we stand, what the goals are, how we are doing, and what lies ahead.

The mass media continue to report on new cases, total cases, and deaths. The result is misleading, because, for instance, "very ill" cases lag behind new cases by two weeks or more.

Here are the 15 measures that we really need, to manage the pandemic. CLI is COVID-like illness; ILI is influenza-like illness. PCR is polymerase chain reaction, widely used to rapidly make millions to billions of copies of a specific DNA sample, to detect, e.g., coronavirus. No country, I believe, has the full set of 15 – and very few countries have even a partial set of the 15.

So ideally: A team of epidemiologists, virologists and statisticians join together, and put in place a system for collecting data for the 15 indicators. In the US, this should be the Center for Disease Control and Prevention (notice: the acronym CDC omits the all-important P, Prevention!). The results are shown on a dashboard, simple, clear and understandable. And all of us can see for ourselves where we are, what is happening, what's good, what's bad, and how close we are to our

goals. And, derived from the dashboard, what each of us needs to do to help reach the measured goals.

Indicator		Stratification[1]	Suggested target
1	New confirmed and probable cases and per capita rates by date[2] with 7-day moving average	Age, sex, race, ethnicity & zip code Outbreaks vs. community	Decreasing over 14 days or at low level[3]
2	Percentage of new cases epidemiologically linked to at least one other case, stratified by whether part of known outbreak or not, with threshold[4]	Age, sex, race & ethnicity Outbreaks vs. community	>80%[1]
3	New screening (e.g. antigen) and diagnostic (e.g. PCR) testing per capita rates by date, with threshold, with 7-day moving average	Age, sex, race & ethnicity	>1.5 tests/1,000/day[5]
4	Percentage of screening (e.g. antigen) and diagnostic (e.g. PCR) tests positive by date, with threshold, with 7-day moving average	Age, sex, race & ethnicity	<3% positivity
5	CLI and ILI trends from emergency departments[6]		At or below adjusted baseline, declining
6	COVID-19 daily hospitalization per capita rates and 7-day moving average	Age, sex, race & ethnicity	Decreasing or low level
7	Percentage of licensed beds occupied by suspected and confirmed COVID-19 patients		Low proportion (<10%)
8	List (to extent legally permissible in State) of long-term care and other congregate facilities (homeless shelters, correctional facilities), and essential workplace(e.g. meatpacking) outbreaks with COVID-19 cases and deaths in residents and staff[7]	Cumulative and most recent week	Low level of cases Outbreaks, if any, rapidly detected and stopped
9	New COVID-19 confirmed and probable deaths and per capita rates with 7-day moving average	Age, sex, race, ethnicity & zip code Outbreaks vs. community	Decreasing over 14 days or at low level

Indicator		Stratification[1]	Suggested target
10	Diagnostic (e.g. PCR) test turnaround time (specimen collection to test report), by week	Age, sex, race & ethnicity	Median ≤48 hours and a high and increasing proportion <24 hours
11	Time from specimen collection to isolation of cases, by week	Age, sex, race & ethnicity	≥80% within 48 hours[8]
12	Percentage of cases interviewed for contact elicitation within 48 hours of case specimen collection, including all people with positive tests who reside in the jurisdiction, by week	Age, sex, race & ethnicity	≥80%[8]
13	Percentage of new cases from among quarantined contacts, by week	Outbreaks vs. community	≥50%[8]
14	New infections among health care workers not confirmed to have been contracted outside of the workplace, by week	Age, sex, race & ethnicity	0
15	Percentage of people wearing masks correctly in public indoor settings (e.g., mass transit, shopping), based on direct observation or security camera analysis, by a standard, consistent method, by week		≥80%