Refining Who Are COVID-19's Victims

By Chuck Dinerstein, MD, MBA — May 11, 2020

As we move towards social mingling, the official mantra is the three T’s, testing, track, and tracing. There are two bottlenecks, first having enough reliable tests; second, having the labor force, human or technological, to do the tracking. While the process of track and trace remains under development, testing is increasing and is frequently now a daily metric by government officials.

Like any screening test, the unreliability of COVID-19 antibodies tests, as measured by the number of false positives increases as the incidence of the disease within the screening population decreases. Targeting screening tests to at-risk populations improves their performance. A new study from the UK helps to focus on the most at-risk, those dying from COVID-19.
The data reported represent all laboratory-confirmed COVID-19 deaths occurring in the National Health Service (NHS) hospitals from February through April 25th. The fact that this data comes from confirmed rather than probable cases provides firm ground to build an understanding. The underlying sociodemographic and associated medical data comes from electronic medical records compiled by general practitioners in the years before hospitalization for 24 million registered patients, roughly 40% of the UK’s population. The outcome was deaths; the question who was at highest risk?

There were 5,863 confirmed COVID-19 deaths during the interval. They re-confirmed some risk factors already noted. Increasing age resulted in negligible deaths under age 60 and a 12-fold increase between those age 60-70 and those over 80. Male gender doubled the risk. Being progressively overweight increased risk by 50%, morbid obesity [1] doubled, or tripled the risk. Their research also refined other risks.

- Being Black with COVID-19 resulted in a doubling risk of death, as did being Asian or Asian British. The latter finding is in distinction to US statistics showing some protection from risk for Asians. This difference may be due to Asian having a different meaning in the UK. The British make a distinction between the Asian British, those predominantly from Southern Asia, e.g., India and Pakistan and East Asian, those from China, Japan, South Korea, and Taiwan.
- The act of smoking, now or previously, was not clearly a risk factor. It was smoking’s long-term impact; the presence of smoking-related chronic respiratory disease was the actual risk. Smoking adjusted for age, gender, and co-morbidities, was slightly protective. [2]
- Asthma, a chronic respiratory condition brought on by an allergic response, was associated with a higher risk of 20% or more. The more due to the increasing severity of asthma as measured by the recent need for oral steroids.
- The baggage of our health, our co-morbidities, were all associated with higher risk, cardiovascular, and kidney disease doubled one’s peril. Hypertension, by itself, did not seem to increase risk substantially. Generally, as the co-morbidities impact on your health rose, so did the risk of dying. For example, in patients with diabetes, the risk doubled in those well-controlled (as measured by HbA1c) but nearly quadrupled for those uncontrolled.
- Cancer, either of solid organs or blood elements, also raised risk, being highest in those diagnosed within the last year and dropping back towards the baseline as the period of remission increased.
- Increasing deprivation [3] resulted in increased risk, more than doubling for those with the greatest need. The researchers felt that they had partially disentangled deprivation from its fellow traveler, co-morbidities. It was the “environment” of deprivation, and by that I mean, housing, income, types of employment, that had the most significant impact, playing a role in both susceptibility and exposure as we are beginning to recognize in the US.

The study helps refine the profile of at-risk patients. Even though at-risk varies nationally, the patterns should allow us to target testing more effectively.

The data in this study is derived from electronic health records, EHR. The results are limited because the electronic record was only one of several available in the UK, and as in the US, these
systems do not talk to one another. But at least the UK system communicates with physicians. I have yet to see a report using data captured from US EHRs, and that is despite the billions of dollars in spending by the government, health systems, and physicians. Our EHRs are designed to collect data. Unfortunately, the data they collect is primarily for billing with a nodding wink at quality. Entering data can take up half a physician’s time, yet when that information is most needed, it remains locked behind proprietary data structures, with the keys held, although available for an additional fee, by the designers.

[1] smoking is never a good idea, but the findings have prompted a hypothesis that the disease involves portions of our nervous system that employ nicotinic receptors. Studies of the value of nicotine in treating COVID-19 have been started.


[3] Deprivation is the English term for the socioeconomic determinants, like education, income, housing are termed; higher scores equate with more significant deprivation.

DOI:10/1101/2020.05.06.20092999