

What Should We Have Done?

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As you read this, we will be at least six weeks further down the road of the COVID-19 pandemic than we are today. We may have answers to the questions that are causing us sleepless nights. With the benefit of that hindsight, what should we have done differently if we had known in March what we know today, in May?

There are two ways to look at this: the “macro” view and the “micro” view. The first refers to national policy, and the second looks at what we are doing as physicians, in our own hospitals. Let’s start with “micro”, as that’s what we have the most ability (perhaps) to influence.

Did we get serious about personal protective equipment (PPE) too early or too late? Did we waste it on asymptomatic, healthy patients before the pandemic really got started? Or did we fail to take it seriously enough, endangering ourselves, colleagues, and patients?

As I write, some hospitals are still working under a policy of using standard droplet precautions (regular surgical masks and eye protection) for asymptomatic patients, though guidelines are evolving rapidly with recognition that intubation and extubation are aerosol-generating procedures that warrant N95 mask protection. For hospitals with supplies of N95 masks that will only last a few more days, this is a looming problem, not easily solved. Manufacturers can’t meet even the current demand, and at least here in Los Angeles, the surge hasn’t peaked.

Other hospitals have already moved to using enhanced PPE for routine intubation and extubation in asymptomatic patients: for example, otherwise healthy patients presenting for breast cancer surgery. This practice is based on the fear that asymptomatic patients may be coronavirus carriers. Depending on the aggressiveness of the anesthesiology leadership, the recommended precautions may include head-to-

toe coverage – what Atul Gawande, M.D., MPH, referred to, in his March 21 *New Yorker* article on protecting health care workers, as “full Wuhan” (Gawande, 2020). Will they regret this later, if supplies are exhausted? Was this ethically the right call when so many other hospitals lack basic supplies? Will they incur hostility from ICU or ED staff who arguably need enhanced PPE more urgently for critically ill patients? Or will they be very glad they did because their personnel escaped COVID-19 infection altogether? We just don’t know.

Dr. Gawande concluded that coronavirus transmission “seems to occur primarily through sustained exposure in the absence of basic protection or through the lack of hand hygiene after contact with secretions.” In other words, wash your hands and don’t touch your face. The best PPE in the world won’t help you if you contaminate your hands while taking it off, and then touch your face without washing your hands. He believes the “standard public-health playbook” can still manage this epidemic: basic hand hygiene and cleaning; targeted isolation and quarantine of the ill.

Perhaps by May, all personnel in every hospital will be wearing standard surgical masks for patient interactions, as the best way to protect us all from droplet transmission by coughing. That seems sensible, but again, we don’t know if we’ll have enough masks. Perhaps by May, the enduring standard of care will be always to use N95 masks and tight-fitting goggles for intubation and extubation, even after the worst of the COVID-19 surge has ebbed. We’ll see.

The “Macro” View

There are so many questions, and so few answers.

Was it the right call to close schools? Did this help to reduce coronavirus transmission? Or did it slow the rate of acquiring herd immunity among children, the population least likely to develop serious COVID-19 complications? Michael Osterholm, M.D., M.P.H., a public health and infectious disease expert, argued in the *The Washington Post* on March 21 that there has been no real difference in the rate of transmission between Hong Kong, where schools closed, and Singapore, where they didn’t (Osterholm, 2020). Meanwhile, the stress on the health care workforce is worse because of childcare worries on top of all else.

Chandra Ellis, M.D., a plastic surgeon and burn expert, says she is seeing new cases of small children with burn injuries suffered at home from hot coffee spills and open oven doors, and she believes there will be more. Parents trying to work from home aren’t used to watching active toddlers at the



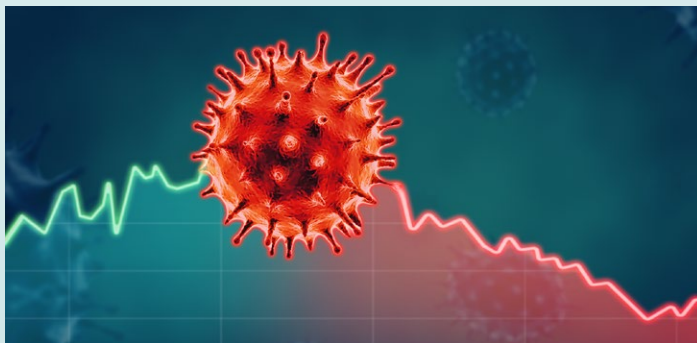
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same time. Is working from home really the best approach, or would healthy parents be better off at work with their work stations further apart, consistent handwashing, and support for generous sick leave policies so that they can stay home if they're ill?

Why are some young, previously healthy adults ending up on ventilators from inflammatory complications of coronavirus? Could the severity of COVID-19 illness correlate with peanut allergy and asthma, which are more common in younger adults, or with vaping?

We understand – or think we do – why older patients are more susceptible to severe COVID-19 illness: their immune systems aren't as robust, and they have more underlying diseases. Does the severity of disease in older patients correlate (or not) with taking angiotensin-receptor blockers, whose biology has complex interactions with COVID-19 (Lowe, 2020)?

What about East Asian patients who have a facial-flushing reaction to alcohol intake – do they survive COVID-19 better than others? We've never completely understood why there is a 30-50% frequency of the ALDH2*2 (acetaldehyde dehydrogenase) allele in East Asian populations (Chang, 2017). That allele is known to raise the risk of certain cancers (esophageal, stomach), but could it also confer resistance to zoonotic coronaviruses, which may have been a recurring source of viral illness in Asia for centuries?



How long can the lockdown last before the economic consequences become so severe that the public mutinies? Will “speakeasy” restaurants and hair salons start to open surreptitiously? It's obvious that the economic hardships are greatest among the lowest-paid workers – restaurant employees, hotel cleaners, ride-share drivers. Will we see families lining up at food banks as they did in the breadlines of the Great Depression?

While major medical centers may be swamped with patients, and some anesthesiologists find themselves pulled from the O.R. to serve as intensive care physicians, ambulatory surgery centers aren't calling in their usual per diem anesthesiologists to do cases. Many anesthesiologists aren't working at all as elective cases dry up. All of us are seeing a

horrifying drop in the value of our retirement portfolios. What will the economic outcome be for our profession as a whole?

Probably the most important remaining question is the one posed by Neil Ferguson, M.A., D.Phil., and his colleagues at the Imperial College of London: Can non-pharmacological interventions reduce COVID-19 mortality and health care demand? The authors believe that intensive intervention – social isolation, business shutdown – would have to continue until a vaccine is developed, which could be as long as 18 months away (Ferguson, 2020). We think these measures work, judging from the experiences in China, South Korea, and Singapore. It's too early to tell yet about Italy, Spain, Germany, and England. The curve can be flattened, but what happens if interventions are relaxed? Will case numbers rebound? The authors conclude:

“While experience in China and now South Korea shows that suppression is possible in the short term, it remains to be seen whether it is possible long-term, and whether the social and economic costs of the interventions adopted thus far can be reduced.”

Dr. Ferguson tested positive for COVID-19 on March 18. Will he survive? What about U.S. Senator Rand Paul, who also has tested positive? Will COVID-19 go on to decimate the highest echelons of government worldwide? Will we conclude after the fact that America relaxed our own restrictions too early or too late?

As the great Danish physicist Niels Bohr said, “it is very difficult to predict – especially the future.” Will the month of May bring warmer weather, reduced viral activity, and a return to normal? Or will the new normal be worse than it is today? Right now, in March, no one knows.

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