

# References for “Reopening” Discussion

James Kahn

## I. Value of human life (probabilistically)

How do we put a dollar value on saving lives? Question originated from the military, which faced decisions trading off strategies and technologies with fatality rates.

Andrew Cuomo:

How much is a human life worth? That is the real discussion that no one is admitting, openly or freely—that we should [have]. To me, I say the cost of a human life, a human life is priceless. Period.

Thomas Schelling, 1968, on the “value of a statistical life” (VSL):

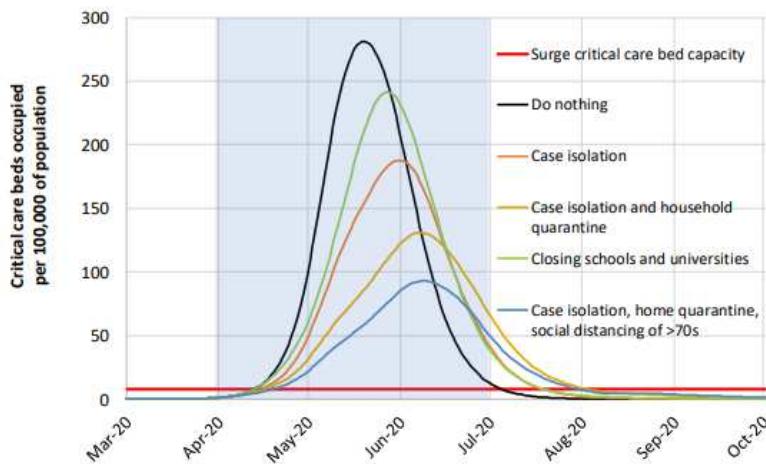
This is a treacherous topic, and I must choose a non-descriptive title to avoid initial misunderstanding. It is not the worth of human life that I shall discuss, but of ‘life-saving,’ of preventing death.”

Kip Viscusi: On average workers earn about \$1,000 a year more for taking on an additional one in 10,000 chance of dying on the job. “In total we would be having to pay the workers \$10 million for the one expected death that would occur to their group.”

## II. Application: To justify ~\$5 trillion GDP cost, at \$10 million/life would need to have saved 500,000 lives.

### A. Thinking on the margin: It's not all or nothing (Ferguson's levels of distancing)

Neil Ferguson's paper claimed “doing nothing” would lead to 2 million US deaths. But doing nothing was never a possibility. There are many levels of mitigation. For example:



Thinking on the margin: Does extra level achieve benefits that outweigh the extra costs? Benefits diminish at each step, costs increase. Was final step of lockdowns (versus “Case isolation/home quarantine/distancing of >70s”) worth it?

### B. How many lives have the lockdowns really saved? Fatality rates are

Sweden did not have mandatory shutdowns, just guidelines. Had about ~30% higher death rate than US. Suggests lockdowns may have ~40,000 lives. Not 500,000. But UK, Belgium, Spain, Italy all locked down and had higher fatality rates than Sweden.

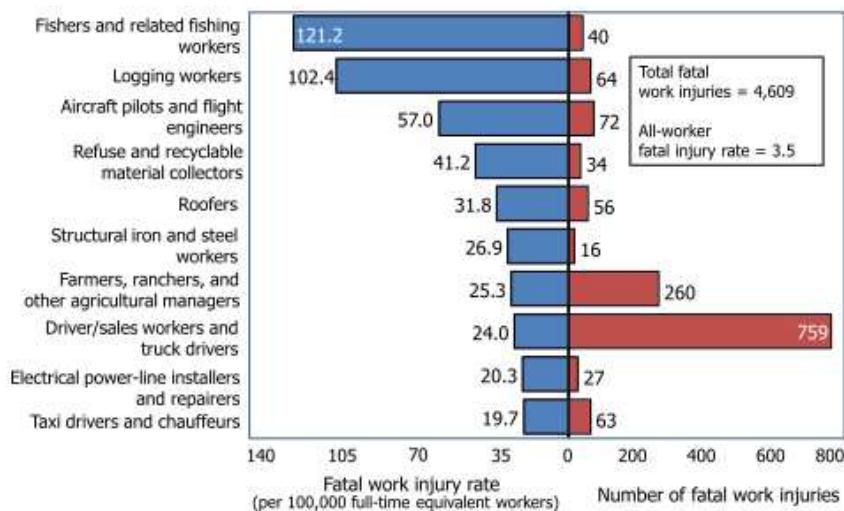
## III. Perspective

### A. COVID-19 forecast: ~35 per 100,000. Other risks we deal with:

1. Automobile deaths: Peaked at over 50,000/year in early 1970s (~25 per 100,000). We did reduce this by ~50% with safety regulation. But still trade off deaths for fuel efficiency. “A Harvard Center for Risk Analysis study concluded that the smaller, lighter cars required to meet the [fuel efficiency] standard led to an additional 2,200-3,900 highway fatalities per year.”

## 2. Workplace fatalities: Some much higher

Occupations with high fatal work injury rates, 2011\*



\*Data for 2011 are preliminary.

NOTE: Fatal injury rates exclude workers under the age of 16 years, volunteers, and resident military. The number of fatal work injuries represents total published fatal injuries before the exclusions. For additional information on the fatal work injury rate methodology changes please see <http://www.bls.gov/ioshoto/10.htm>.

SOURCE: U.S. Bureau of Labor Statistics, U.S. Department of Labor, 2012.

## B. Historical (non) response to other pandemics (1957, 1968)

### 1. Asian Flu (1957): 25% of population sickened, est. 70,000-116,000 deaths in US (population was half of current level)

#### PUBLIC HEALTH AND MEDICAL RESPONSES TO THE 1957-58 INFLUENZA PANDEMIC

D. A. Henderson, Brooke Courtney, Thomas V. Inglesby, Eric Toner, and Jennifer B. Nuzzo

Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science Volume 7, Number 3, 2009 © Mary Ann Liebert, Inc.  
DOI: 10.1089/bsp.2009.0729

New York City seems to have experienced higher attack rates than most cities, but the vast majority of cases in the city were mild.<sup>20</sup> In early October, the *New York Times* reported that “extra beds were being prepared” at one hospital, and at Bellevue Hospital extra physicians were assigned to cope with the “upper respiratory epidemic” and elective surgeries were suspended.<sup>21,22</sup> Some hospital clinics were “jammed to overflowing . . . with suspected Asian influenza victims.”<sup>23(p12)</sup> Private physicians reported seeing 4 to 5 times the number of influenza cases that were usually seen at that time of year; the city’s public clinics were similarly crowded.<sup>14</sup> However, a physician at Bellevue referred to the pandemic as a “newspaper epidemic,” and “the Hospitals Department . . . [saw] it as only a large number of cases.”<sup>21(p16)</sup>

Closing schools and limiting public gatherings were not recommended as strategies to mitigate the pandemic’s impact, except for administrative reasons due to high levels of absenteeism.<sup>7</sup> For example, ASTHO noted that “in some instances there may be administrative reasons for closing schools due to illness of teachers, bus drivers, large absentee rates, etc.”<sup>7(p2)</sup> In early October, the Nassau County Health Commissioner in New York stated that “public schools should stay open even in an epidemic” and that “children would get sick just as easily out of school.”<sup>24(p22)</sup> Many high school and college football games across the country were canceled or postponed because players were sick with influenza.<sup>25-27</sup>

Despite the large numbers of cases, the 1957 outbreak did not appear to have a significant impact on the U.S. economy. For example, a Congressional Budget Office estimate found that a pandemic the scale of which occurred in 1957 would reduce real GDP by approximately 1% “but probably would not cause a recession and might not be distinguishable from the normal variation in economic activity.”<sup>29(p2)</sup>

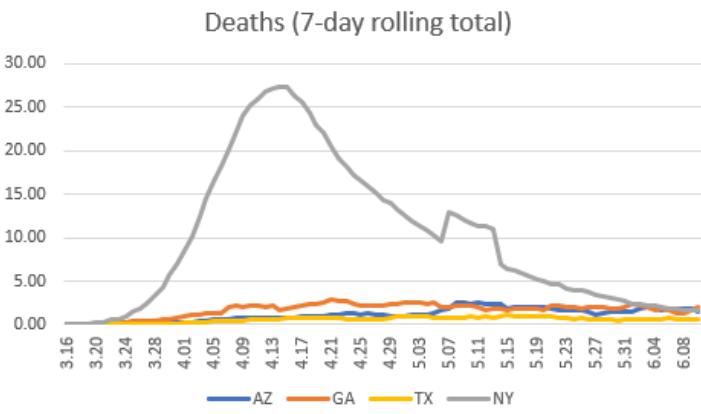
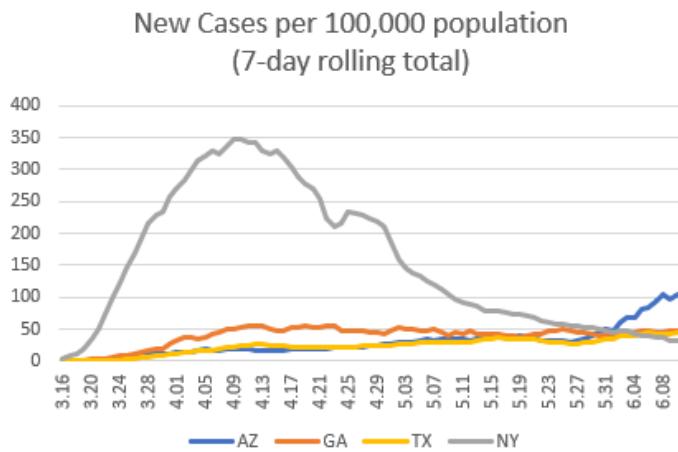
## 2. Hong Kong Flu (1968): est. 34,000-100,000 deaths in US.

From WSJ: "Yet governments and the media didn't call for restrictions on public life and economic activity. The disease was allowed to run through communities virtually unhindered until a vaccine became available to stop it about four months after it surfaced."



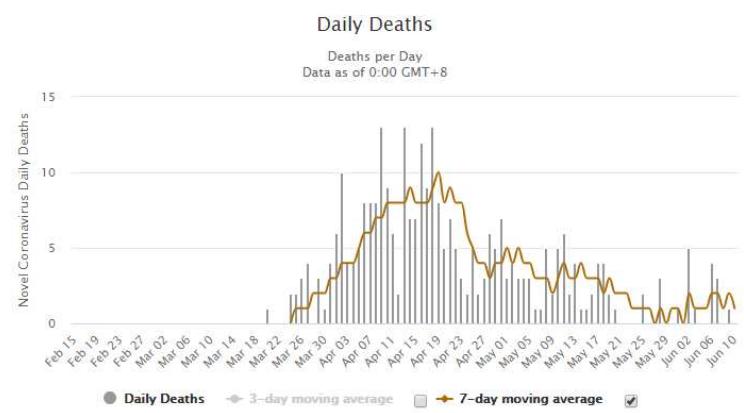
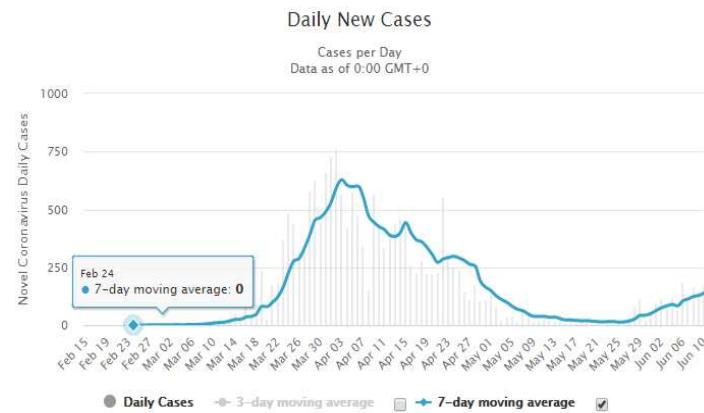
### C. Resurgence? Second wave?

Slight uptick in new cases *in some places that had low incidence to begin with*, partly attributable to increased testing. Smaller or non-existent increases in fatalities. Due to reopening? Hard to say:



NYC likely less vulnerable due to magnitude of cases, likely immunity.

Israel:



## IV. Understanding Risk and Uncertainty

### The Framing of Decisions and the Psychology of Choice

Amos Tversky; Daniel Kahneman

*Science*, New Series, Vol. 211, No. 4481 (Jan. 30, 1981), 453-458.

**Problem 1 [N = 152]:** Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved. [72 percent]

If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved. [28 percent]

Which of the two programs would you favor?

**Problem 2 [N = 155]:**

If Program C is adopted 400 people will die. [22 percent]

If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die. [78 percent]

Which of the two programs would you favor?

## V. Conclusions

Should have

- consistency in response
- historical perspective
- understand costs and benefits (including value of a statistical life)
- think on the margin

Not clear we have done this. Learn the lesson if there's another wave.