

It is not too late to extinguish this pandemic

There are now three possible outcomes of the coronavirus pandemic:

- a. It can blow up like Wuhan, essentially running uncontrolled to a catastrophic burnout when pretty much everybody has been infected. This is the fastest way to end the disease, with millions of deaths.
- b. We can try to “flatten the curve”, which amounts to the same thing as outcome (a) but more slowly. Flattening the curve might help prevent the collapse of health care services; but unless some effective treatment is developed, the pandemic will continue for one to two years. Gradually, as more people recover, they may get back to work where work can be found.
- c. The pandemic can (still) be extinguished by strict isolation and quarantine. That requires suppressing transmission long enough that it will not re-emerge as a second wave when controls are relaxed. This is hard but remains feasible.

Extinguishment is clearly the best option. To be confident that the disease will not re-emerge locally requires about three months of strict controls. Two months probably won't quite do it.

China has claimed essentially no local transmission for two consecutive days. Some people assert this is propaganda, but careful mathematical modeling shows that it is definitely feasible. Disease surveillance can't be perfect, but I don't think the Chinese are lying.

Careful mathematical modeling shows that there is a threshold level of disease transmission which, if achieved, is sufficient to prevent later re-emergence. This is the critical point to understand.

Uncontrolled, in a population that has not become immune, each infected individual transmits the disease to approximately 2.5 more, uninfected people. To truly extinguish the disease, that rate needs to be suppressed to less than 0.5 for about three months.

What would that look like?

- Families must act as if at least one member is unknowingly infected, and try to keep it in the family by staying at home almost entirely. Do this even if nobody feels sick. Half of infected people develop symptoms within 5 days. Probably three quarters of infections manifest within 10 days, and 90% in two weeks. If your family still feels well after two weeks, be happy.
- Even if your family stays well, every external interaction must be treated as if you still might not be healthy, and anybody you encounter might still not be healthy. You must keep this up for 3 months.
- We must all honor a global, or at least national, travel quarantine. The only exceptions would be to transport necessary goods.

So far, America's economic policy reaction has been weak. Congress has focused on keeping damaged industries alive, and providing – sooner or later – a fixed, modest financial support to some families. Denmark's brilliantly logical idea is to pay people to not work. That's not “socialism”, it is doing

something for all of us to save ourselves in a crisis. We should do it, for three months, regardless of the cost. Whatever it costs will be less than having this disease continue for 18 months or two years.

“Flattening the curve” is an inadequate policy idea. It is a surrender when the fight is not lost. Focusing on economic policies to support flattening the curve is also a mistake, because it presumes failure. There will be time for that later. Right now, we must kill this disease.

That will require leadership. It will require communicating a clear, simple goal, and getting everyone focused on it. Leaders must convince the public that this can work. Our governors can do this. The CDC can do this. We can all do this, and we must.

*Until one is committed, there is hesitancy,
the chance to draw back, always ineffectiveness.*

*Concerning all acts of initiative and creation,
there is one elementary truth,
the ignorance of which kills countless ideas and splendid plans:
that the moment one definitely commits oneself,
then Providence moves too.*

*All sorts of things occur to help one
that would never otherwise have occurred.
A whole stream of events issues from the decision,
raising in one's favour all manner of
unforeseen incidents and meetings
and material assistance, which no man
could ever have dreamed would come his way.*

*Whatever you can do or dream you can; begin it.
Boldness has genius, power and magic in it.
Begin it now.*

- William Hutchison Murray in The Scottish Himalayan Expedition

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Public copies of my epidemic papers can be found here: <https://tinyurl.com/PandemicPapers>

My pandemic modeling code is published here: <https://github.com/redantison/PandemicSimulator>