

## Pandemic Modeling

Nerd alert ... If you enjoy this post, you are officially a nerd. Just like me.

Last night I couldn't sleep so literally at 3 AM I watched [this](#) YouTube video which explains a very simple model. It did NOT put me to sleep, rather it started my mind whirling.

If you don't want to watch the video, I'll give a short explanation. This is the SIR model. SIR stand for those who are **S**usceptible to infection, those who are **I**nfected, and those who have **R**ecovered. Sadly recovered, in this simple model, includes those who have died.

People then move from S to I according to the transmission rate. People move from I to R according to the recovery rate. The properties of the virus and the medical community determine the recovery rate. The transmission rate is determined by the properties of the virus and, in short, SOCIAL DISTANCING.

The difficult part is how do you determine the actual value of the transmission rate. For instance, does closing restaurants give you a transmission rate of 2.8 (I'm making this up) and opening them to outside dining a 3.7 and fully open a 5.3. No one knows.

We do have 50 experiments going on in this country alone. You can look at the social distancing laws, when they started and when they ended along with the rate of increase of cases and then reverse engineer the number for each situation. The problem is there are many confounders like are the numbers going up because there is more testing? Or what is the effect of the density of NYC as opposed to Montana?

So, you see it's difficult. I've begun talking to someone who is really into this and light years ahead of me on it. I'm trying to get him hooked up with someone who knows about mining anonymous cell phone data to see if there is a way to determine the extent of social distancing.

If this is possible then we can see the effect, real time, of certain behaviors so we can all make better decisions.