How to Flatten the Curve?

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April 7th, 2020

Many experts are promoting the concept of "flattening the curve" for COVID-19. Majority of people agree that it is a good idea. The challenge is: How do you do that?

We are proposing Pulse Width Modulation. The concept is illustrated in the following graph. You would look at key limiting factors such as "current available hospital beds" and compare it to things like "number of patients who need to be hospitalized." The actions such as "shelter-in-place" should be taken early enough so that the number of patients do not go over the available hospital beds, which is a moving target since patients are checking in and out every day and new field hospitals are being built.

The decision should be made at lower levels since the availability of hospital beds in another state may not be of much help for the patients in a specific state. Ideally, at the city or county level, such models should be built for decision making. The graph is generated based on a simple model just to illustrate the concept. The number of patents is estimated as 15% of the total infected people. In terms of actions, it only has two: no action or shelter-in-place. In reality, you may have multiple levels of actions such as "social distancing", "wearing masks", "no large gathering", "shelter-in-place", etc.
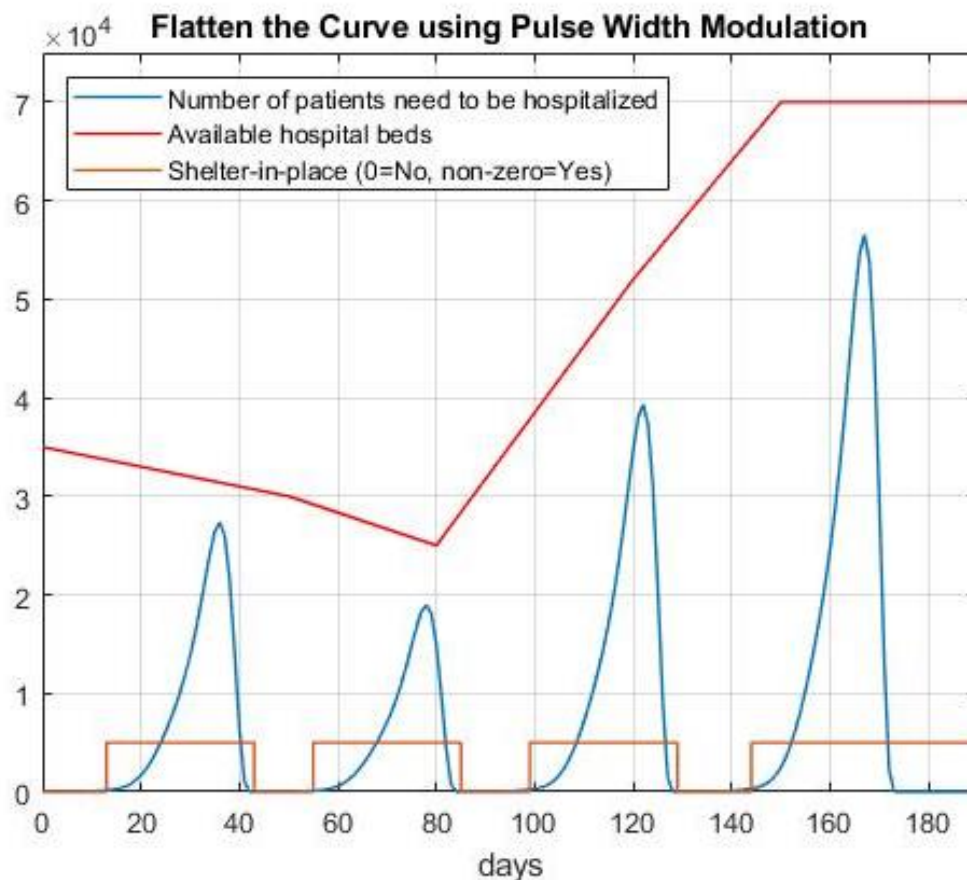
Note: The rising part and majority of the falling part of the 1st pulse are created based on curve fitting using CDC data. The other pulses are generated using a model based on the curve-fitting formulas of the first pulse.