People have awoken in the last week to the reality that the U.S, the U.K. and other European countries will have to lock down people’s movement for up to 18 months, based on a [new and frightening report by the Imperial College of London](https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf). Recent suggestions for “shelter at home” policies in [New York City](https://www.nytimes.com/2020/03/17/nyregion/coronavirus-nyc-shelter-in-place.html) and [San Francisco](https://www.latimes.com/california/story/2020-03-17/san-francisco-bay-area-shelter-in-place-order-compliance), according to this report, are the only way to prevent critical coronavirus cases from overwhelming hospitals. While these harsh measures are necessary in the short run, as soon as is humanly possible we need a sustainable rationing system for social gatherings. By employing mobile app technology to design such a system, which I describe below, we can limit social interactions in a given area while still permitting businesses and restaurants to operate.

The reason lockdowns are necessary is because people aren’t willing to listen to appeals from leaders to change their behavior voluntarily. Crucial to the Imperial College of London’s analysis is their assumption that any government policy other than forced lock downs will have low rates of voluntary compliance (see table on p. 6). Young people especially have shown they are less likely to take [social distancing measures seriously](https://www.theatlantic.com/family/archive/2020/03/coronavirus-social-distancing-socializing-bars-restaurants/608164/). As a consequence, any sustainable long-term strategy must be able to restrain everyone’s behavior if it is to work.

What policy makers need to quickly design is a simplified version of an app like TicketMaster to ration the number of outings people in a given area can take each week. Via a web site or through a mobile app, people will be able to sign up as either hosts or residents. Hosts can be owners of incorporated restaurants, artistic venues, non-profit community centers, and places of worship. Residents are anyone who wants to visit any of these places. To control social distancing, policymakers can allot a fixed number of tickets to residents in their area for a given week based on the number of hosts who have registered. The likely number of social interactions for that week can then be calculated as a weighted average of the total number of tickets issued divided by the number of hosts and the maximum capacity of each host’s building.

In order for someone to attend an event or eat at a restaurant, the resident would need to present their phone or a print-out with a barcode to a greeter whose phone can scan it and check if the resident has an available ticket. To ensure compliance, policymakers will need to make door screening mandatory for any establishment hosting public events.

Because we know how many interactions will happen in a given area, we can let each person decide how to use their tickets. So long as establishments abide by the policy, they can remain open at any hour. In fact, we do not even need draconian limits on the size of gatherings as the limit on total outings will shrink average event attendance. Because everyone who attends will have to use the app, we won’t have the problem of a few people blatantly ignoring guidelines and becoming so-called [“super spreaders”](https://graphics.reuters.com/CHINA-HEALTH-SOUTHKOREA-CLUSTERS/0100B5G33SB/index.html) of the disease.

This app will give policy makers the tool they need to fine-tune restrictions on movement as the epidemic morphs and changes. Statisticians can incorporate the projected number of tickets into epidemiological and [network-based models](https://www.nytimes.com/2020/03/13/science/coronavirus-social-networks-data.html) to predict how strongly we will flatten the curve in a given area. Over time, fine-tuned predictions will enable our leaders to control the epidemic while enabling people to attend the events that really matter, like the wedding or funeral of a close relative, their child’s graduation or a once-a-week worship service.

To make the app work, police and health inspectors would need to actively enforce the policy on establishments in their area with fines and even criminal penalties in rare cases. Enforcement is straightforward as the number of people in an establishment cannot exceed the number of tickets the host app processed. If more draconian measures are necessary, we can also expand the system to cover businesses and even homes.

There are caveats that will need to be taken into account. First, this policy will likely make it harder, especially initially, for the elderly to go out as they may struggle to make the technology work. Over time, the government should introduce electronic cards or mailed tickets for people who lack smart phones and computers. However, in the short term, fewer outings for the elderly will arguably save lives. In fact, if there are any glitches in the rapid development and roll out of the system, which is likely, it will only result in additional social distancing in the short term.

Finally, the system needs to be open to all non-US citizens, both documented and undocumented. Some may be able to cheat the system by opening multiple accounts, though we can restrict accounts by limiting one app per cell phone number and email address. At the same time, we should limit data collection in the app to name, email and cell phone number to protect privacy as much as possible.

We need social distancing policies that minimize social costs while maximizing compliance. We have the technology to do it. Let’s get to work.