

Who should have vaccination priority during a flu pandemic?

Every flu epidemic presents a challenge to health officials, and timely vaccination is known to limit both the number of infected individuals **and** the number of fatal outcomes among them. Flu viruses are constantly changing and the vaccine has to be updated; hence the need to go through the vaccination every year. A particularly challenging situation arises when the amount of vaccine is initially limited, leading to some tough choices.



We will assume that the city of Ithaca will be receiving 4000 vaccinations a month to distribute amongst its approximately 60000 inhabitants. Two strategies have been proposed

- (1) Focus vaccinations efforts on those “more connected”
(e.g., small children & students – from kindergarten through college).
- (2) Focus vaccination efforts on the more frail or susceptible
(e.g., elderly, & people with other special medical conditions).

Health officials would like to know if there is some optimal way of splitting vaccinations between these two populations as to minimize the number of dead and/or infected individuals to be expected in an outbreak.

Your model should produce recommendations for

- (1) a new variation of the H1N1 “swine flu” virus;
- (2) another strain of virus which is twenty times as deadly as H1N1 for those infected.

Since the topic is so emotionally charged, your recommendations are likely to be controversial. Write a short non-technical letter to the Ithaca Journal defending your recommendations and pointing out their limitations.