Discussion: Targeted Vaccine Subsidies for Healthcare Workers

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Susceptible-Infected-Recovered (SIR) Model

- Extended for heterogeneous contact:
- Possible disconnect in Prob(infected) and Marginal Infections.
- Vaccination: low private benefit, but high social benefit.

Model Simulation

- Collected contact data on 140 workers in 16 different roles in hospital.
- Used averages to calibrate contact frequency heterogeneity.
- Found simulations for marginal infections, expected marginal infections.
- Some expected and surprising results extremely relevant for H1N1 policy.
- What is a unit clerk?

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- "General Population" refers to population of hospital workers / patients.
- Protecting patient population is probably most crucial in protecting general population.
- Patients could be your agent j connecting:
  - Group A: Hospital employees.
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- There are no standard deviations / confidence intervals / hypothesis tests.
- Table 1 shows average contacts between worker categories.
- These means have standard deviations, normal sampling distributions.
- Monte-Carlo simulation:
  1. Draw a sample from sampling distributions Table 1.
  2. Generate results of marginal infections
  3. Repeat a couple million times.
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Transmission Probability

- Transmission probability, α, identical across groups and contact types.
- Data was collected on:
  1. Length of contact time.
  2. Whether physical contact was made.
  3. Whether hand washing / sanitizing was done.
- Maybe summarize this data in a Matrix like Table 1.
- Might provide clues:
  - Is transmission rate independent of group and contact type?
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