National Collaborating Centre for Infectious Diseases

Centre de collaboration nationale des maladies infectieuses

Infectious Disease Modelling with an Equity Lens

Alternatively:

- disaggregate modelling
- community-based modelling
- stratified modelling
- heterogeneous modeling

What is it?

"Disaggregated" or **"Heterogeneous"** infectious disease modelling refers to models that divide a large population into subpopulations. This helps to identify where there are within-population **health disparities** and to characterize **variations in transmission**.

Public Health can use this information to adapt policies and resource allocation based on distribution of infection.

Instead of modelling to the average of a large population assumed to be homogeneous, disaggregate modelling can help identify what would be most useful to each subpopulation.

Heterogeneous risk

Heterogeneous infectious disease models account for differential risks of infection among populations.

These differences are dependent on characteristics of the:

- **Infectious host:** contact patterns or super spreaders
- **Pathogen:** virulence or resistance
- **Susceptible host:** risk of severe disease or risk of reinfection
- **Physical environment:** risk of transmission or outbreak
- **Social environment:** access to healthcare, relative support system, living conditions

Opportunities for disaggregated data

- Age
- Gender and/or sex
- Race and/or ethnicity
- Sexual orientation
- Socio-economic status
- Risk status
- Community and/or geographic location
- Venue

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