Disease Scenarios Group Assignments

# Summary

Participants are provided with a generic description of a disease and its pathogenesis.

# Task

* Develop a model that suits the description, taking note of all decisions made, including the model diagram
* Identify a disease that could suit the description. What about the disease fits this description?
* With the identified disease in mind, include more realism by simplifying some of your assumptions.
* Incorporate a simple intervention that will impact disease transmission.
* Code the model up in R.
* Solve the model and generate easy-to-explain figures

# Discussion

Center your discussion around the following:

* The identified disease
* model diagram, equations, and code
* Design choices and assumptions,
* The simulation code and choice of parameter values
* Generated figure(s)
* What assumptions could you relax in your model to make it more realistic?
* The solution can be written in R markdown, Google Docs, or whatever medium works for you.

# Expected outputs (Friday)

* A report detailing how you addressed the problem outlined here and including any deviations.

# Disease Scenarios

## Scenario 1: Acute Infectious Disease with High Mortality and Permanent Immunity

* The disease spreads through direct human-to-human contact, including bodily fluids.
* After exposure, individuals undergo an incubation period before becoming symptomatic and highly infectious.
* The disease has a high mortality rate and those who recover gain permanent immunity.

## Scenario 2: Asymptomatic Carriers and Recurrent Infections

* The disease spreads via direct contact between humans.
* Some individuals become asymptomatic carriers, who can transmit the disease without showing symptoms.
* Symptomatic individuals recover and gain temporary immunity, after which they can become susceptible again.

# Check-in (Tuesday)

* 5 mins presentation:
  + Progress with summarising the problem
  + Plan to solve the problem
  + Anticipated challenges (modeling shortcomings, R, differences in opinion, leadership, etc)

# Groups

## Scenario 1

Group 1:

Group 2:

Group 4:

## Scenario 2

Group 3:

Group 5:

Group 6: