Infectious Diseases for Modellers

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Abstract

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Contents

1 Introduction

There has been a trend in making texts of "math/modelling/programming" for x, where x represents a discipline from a basic science. However, in this manuscript, we would like to go the other direction and provide advanced subject matter on the biological and environmental processes that undergird the mathematics and programming. Understand the science of what is being modelled is in many ways just as important as understanding the equations that govern the analysis. This goes to everything from compartmental models used to represent pharmacodynamics to building vaccine effectiveness analysis.

See more with [1].

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Below is just a test using this macro package of a three compartment model.

$$S \xrightarrow{\beta * S * I} I \xrightarrow{\gamma} R$$

2 The Immune System

This introduces host immune systems.

3 Glossary

PMN polymorphonuclear leukocytes, a type of white blood cell that releases granuals during an infections, allergic reactions, and autoimmune events. Neutrophils, basophils, and eosinophils are PMNs.

Ligature A merged glyph.

Bibliography

[1] M. Achtman, K. Zurth, et al., "Yersinia pestis, the cause of plague, is a recently emerged clone of Yersinia pseudotuberculosis," *Proc. Nat. Acad. Sciences United States America*, vol. 96, no. 24, Nov. 1999.