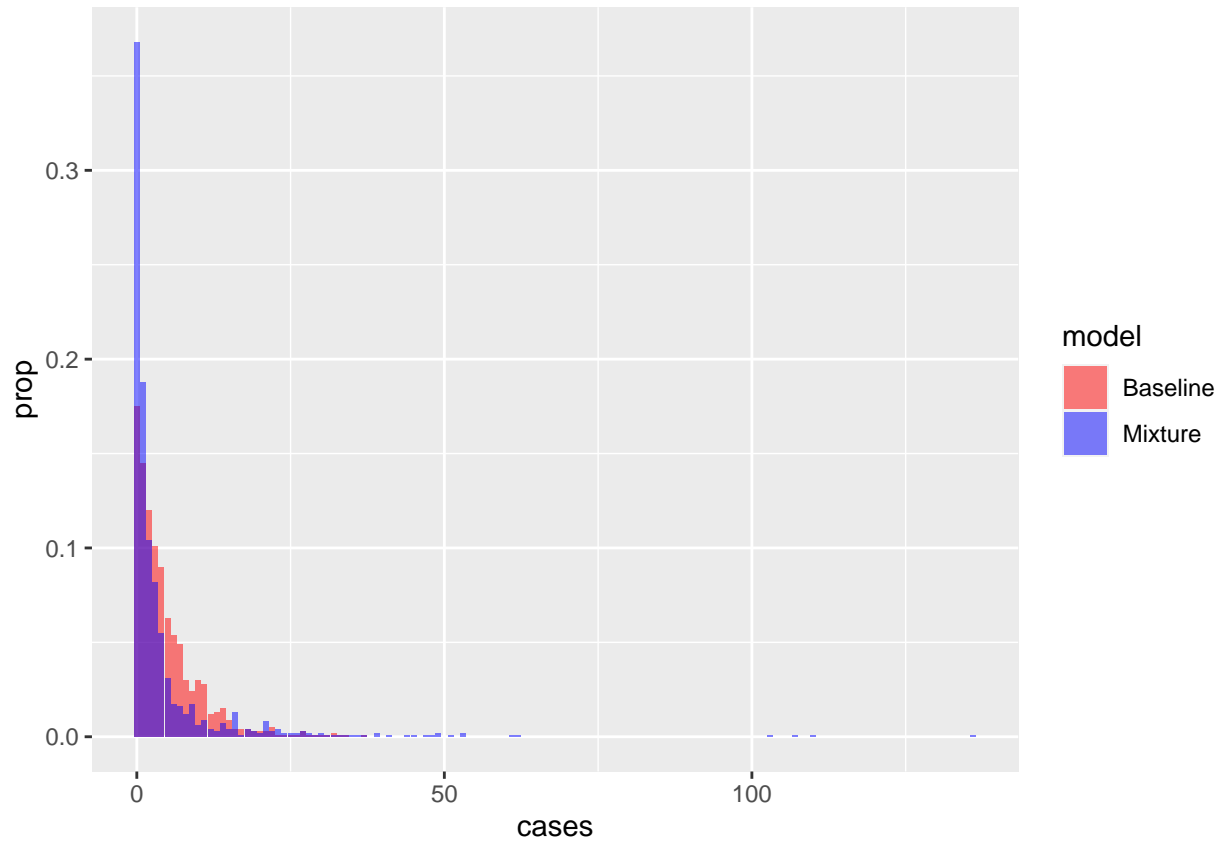


Superspreading geometric mixture branching process

Offspring Distribution



Probability at least one becomes infected

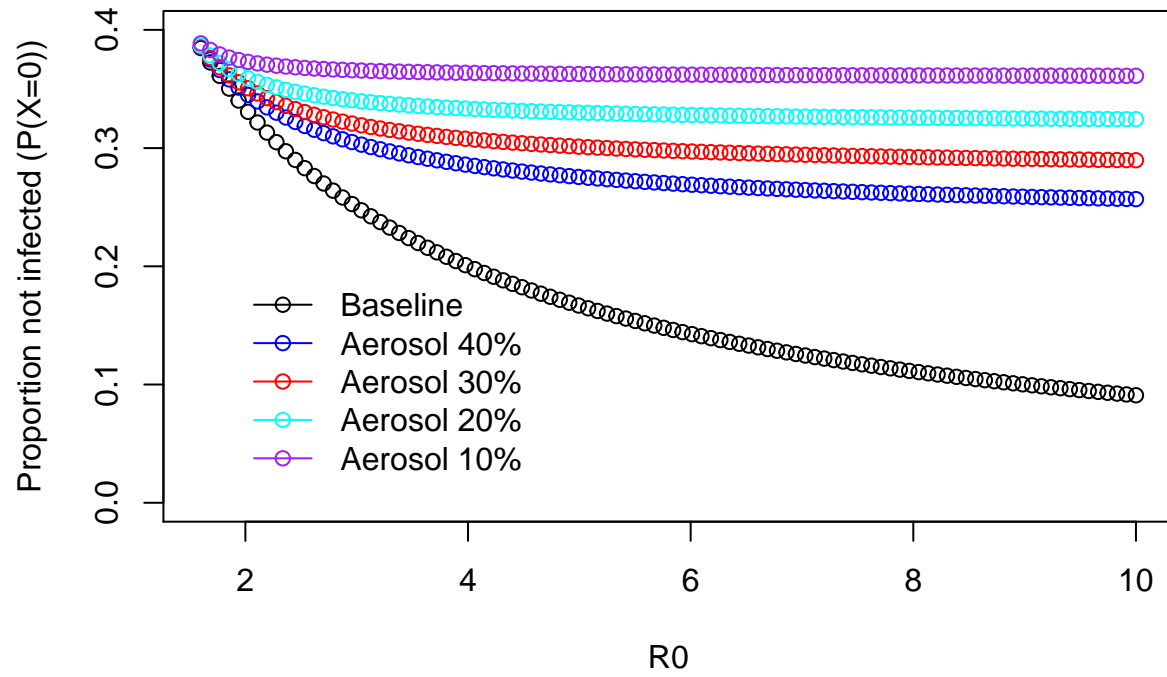


Figure. For each value of R_0 , the mixture models predict that a higher proportion of individuals remain uninfected than the baseline Poisson model, and the proportion decreases with increasing aerosol transmission. Geometric mixture models saturate more slowly than corresponding Poisson models.

Probability of major epidemic

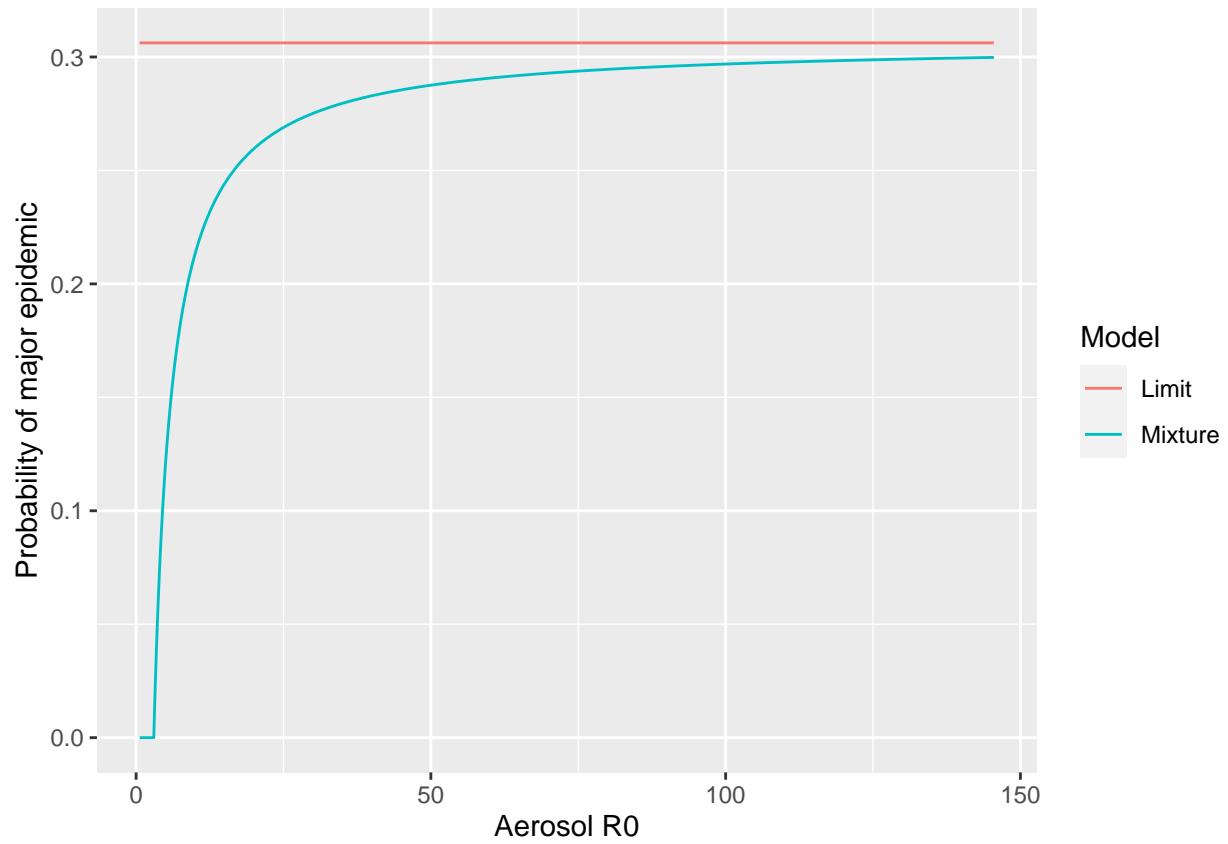
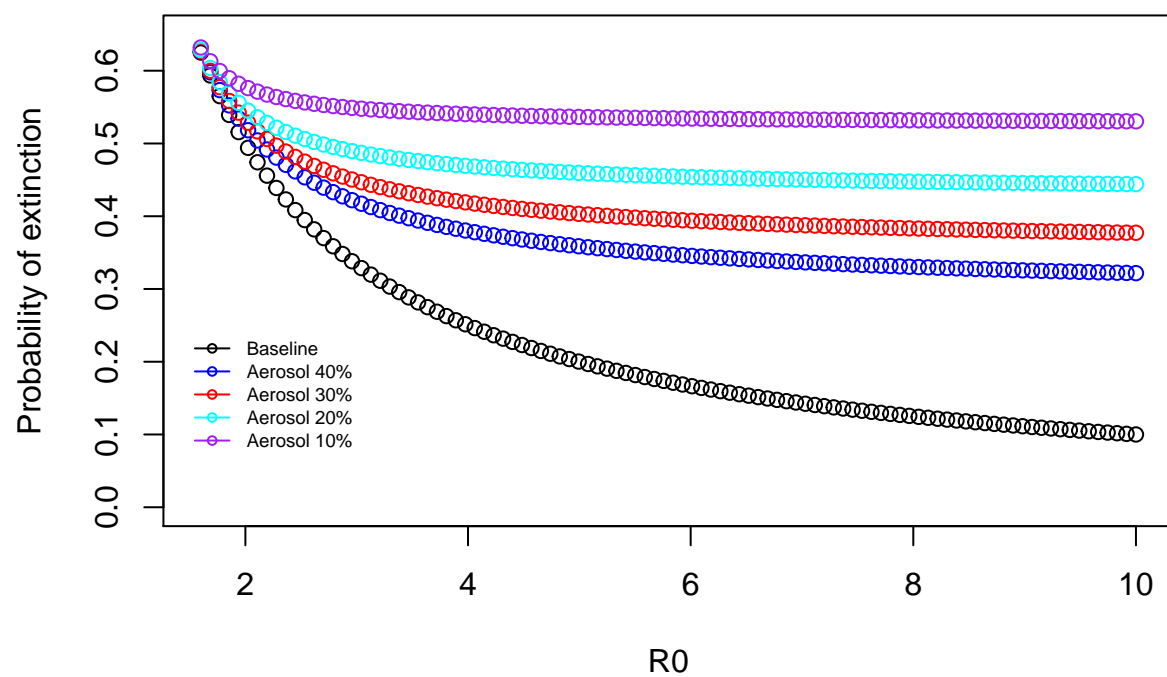


Figure. Approaches the limit of the solution of $z = p/(1 + R_0^D(1 - z))$ much more slowly relative to Poisson epidemic (the equation has two solutions; one lies between 0 and 1).

Probability of extinction of a minor outbreak



First generation to 50 cases

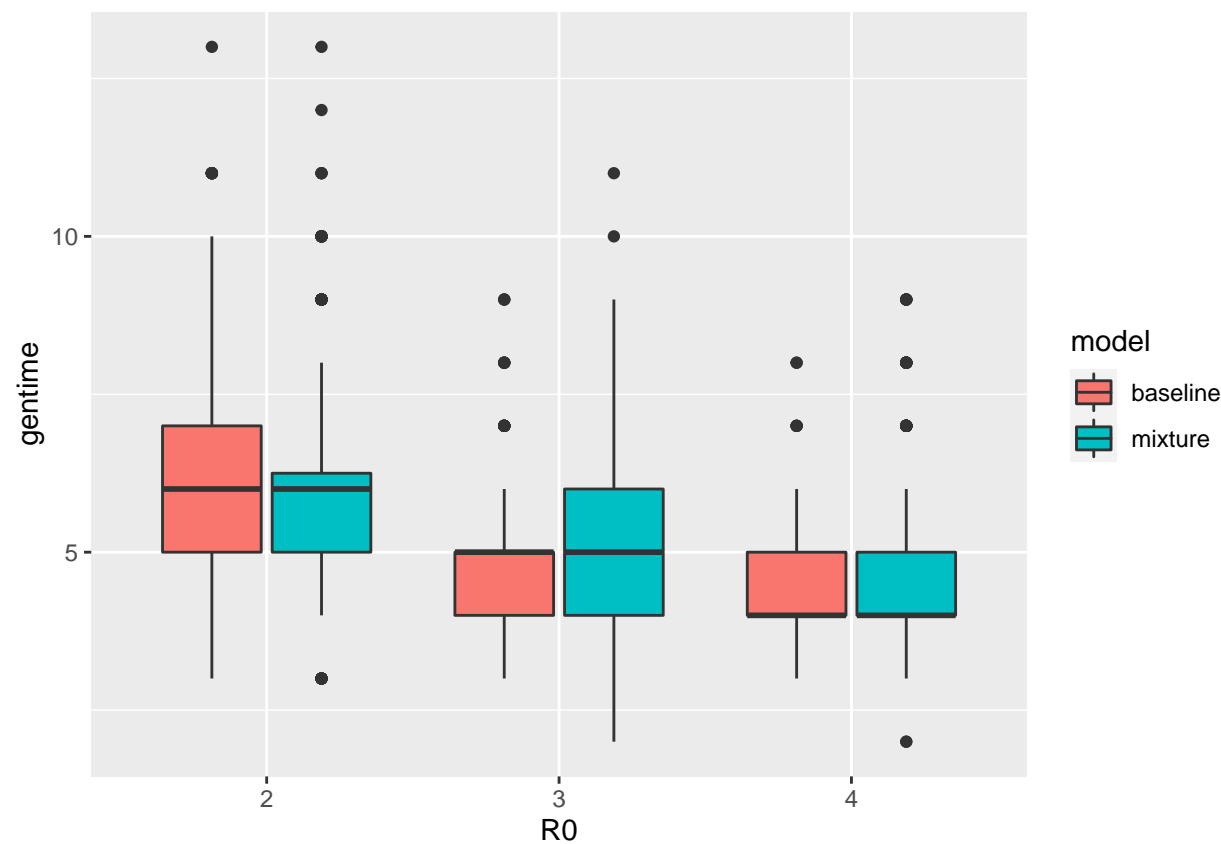


Figure. More variability in geometric epidemics than Poisson epidemics. When $R_0 = 4$ about 21% of epidemics have generation times between 2 and 3 (i.e. are explosive) and about 8% have generation times greater or equal than 7 (i.e are relatively slow).

```
##
##  2  3  4  5  6  7  8  9
##  2 82 139 102 40 19 10 6
##
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  2.000  4.000  4.000  4.558  5.000  9.000
##
##
##   2    3    4    5    6    7    8    9
## 0.0050 0.2050 0.3475 0.2550 0.1000 0.0475 0.0250 0.0150
## [1] NA
```

Cluster size distribution conditioned on extinction

```
## [1] 52043      1
```

