Estimated quantities and parameters for diphtheria

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Clinical Course and Natural History

Incubation period

```r
source('source/IncubPeriod_lognormal.R')
```

Proportion asymptomatic

Calculation of proportion asymptomatic among never vaccinated (p_0)
```r
source('source/Prop_Symptomatic_Calculation.R')
```

Calculation of proportion asymptomatic among vaccinated ($p_{1,2}$, p_3)
```r
source('source/Run_R0stan.R')
```

Duration of colonization

Symptomatic cases and asymptomatic carriers
```r
source('source/colonization_duration_shared.R')
```

Following receipt of penicillin or erythromycin, symptomatic cases
```r
source('source/colonization_duration_treated.R')
```

Case fatality ratio

For untreated, never vaccinated cases
```r
source('source/cfr_nevervac_notreat.R')
```

By age
```r
source('source/cfr_age.R')
```

By outbreak size
```r
source('source/cfr_outbreak_size.R')
```

Epidemiology

Proportion adult

```r
source('source/age_distributions.R')
```

Secondary cases caused by symptomatic and asymptomatic individuals

```r
source('source/Transmissibility.R')
source('source/Transmissibility.stan')
```

CFR, Overall

```r
source('source/cfr_overall.R')
```

CFR, by decade

```r
source('source/cfr_decade.R')
```

Effective and Basic reproductive numbers

```r
source('source/Run_R0Stan.R')
source('source/R0_and_Vc_fromStan.R')
```

Serial interval/ Generation time

```r
source('source/GenerationTime_gamma.R')
```

Treatment and Prevention

CFR by diphtheria antitoxin treatment

```r
source('source/cfr_antitoxin.R')
```

CFR by antitoxin treatment delay

```r
source('source/cfr_antitoxin_delay.R')
```

Clearance of diphtheria with antibiotics

```
source('source/colonization_duration_treated.R')
```

Vaccine Effectiveness

Overall
```
source('source/VE_by_dose.R')
```

Against severity/mortality
```
source('source/severity_by_vaccination.R')
```

Case fatality ratio, by vaccination status
```
source('source/CFR_vaccination.R')
```

Against colonization
```
source('source/VE_against_colonization.R')
```

By age
```
source('source/VE_by_age.R')
```

Decline in proportion immune

By time since vaccination
```
source('source/immune_decline_time.R')
```

By age
```
source('source/immune_decline_age.R')
```

Control and Outbreak Response

Critical vaccination threshold

```
source('source/Run_R0stan.R')
source('source/R0_and_Vc_fromStan.R')
```

```
source('source/sensitivity_Vc_tau.R')
```

Proportion of symptomatic individuals needed to isolate to halt the Rohingya outbreak at the beginning

```
source('source/Prop_Sympt_Treat.R')
```