

MochModel4 Tests

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Setup and Run Model

Folders and scenario creation

Run modgen on all scenarios

```
## Warning: package 'foreach' was built under R version 3.0.3
## Warning: package 'doSNOW' was built under R version 3.0.3

## Loading required package: iterators

## Warning: package 'iterators' was built under R version 3.0.3

## Loading required package: snow

## Warning: package 'snow' was built under R version 3.0.3

## [[1]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
##
## [[2]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
##
## [[3]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
##
## [[4]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
##
## [[5]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
##
## [[6]]
## [1] "modgenTester" "ggplot2"      "RODBC"        "snow"
## [5] "methods"      "stats"        "graphics"     "grDevices"
## [9] "utils"        "datasets"     "base"
```


Mother Max Age

Scenario(s): Base

The max age of a mother cannot be greater than 92

##	metrics	Value	CV	SE
## 1	Population size	10000.000000	NA	NA
## 2	Minimum duration of life	0.001127	NA	NA
## 3	Maximum duration of life	91.993240	NA	NA
## 4	Life expectancy	49.989346	NA	NA

Result: TRUE

Percentage ever infected bounded

Scenario(s): Base

The percentage of mothers ever infected in the base case should be between 40 and 50%

```
## $total_infections
## [1] 4498
##
## $total_population
## [1] 10000
```

Result: TRUE

Percentage ever infected zero in NoHIV

Scenario(s): NoHIV

The number of mothers ever infected in the NoHIV case should be 0

```
## $total_infections
## [1] 0
```

Result: TRUE

Infected vs Healthy Mortality

Scenario(s): Base

The mortality of uninfected mothers must be lower than the mortality of infected mothers. Mortality is tricky to measure accurately thus a proxy is used. Total deaths from state is compared to the total years spent in the state for each state. Further refinements should be made to this test

```
## $total_time_in_healthy
## [1] 452228
##
## $total_time_in_infected
## [1] 47666
##
## $deaths_in_healthy
## [1] 5502
##
## $deaths_in_infected
## [1] 4498
##
## $crude_healthy_mortality
## [1] 0.01217
##
## $crude_infected_mortality
## [1] 0.09437
```

Result: TRUE

No deaths from healthy in NoHealthyMortality

Scenario(s): NoHealthyMortality

No mothers should die from the Healthy state in the NoHealthyMortality Scenario

```
##               metrics    ..1
## 1      Dead Population      0
## 2  Death from Healthy State      0
## 3 Death from Infected States  4918
## 4      Healthy Population 634221
## 5      Infected Population  51903
## 6      Total Population 686124
```

Result: TRUE

No deaths from Infected in NoInfectedMortality

Scenario(s): NoInfectedMortality

No mothers should die from the Infected state in the NoInfectedMortality Scenario

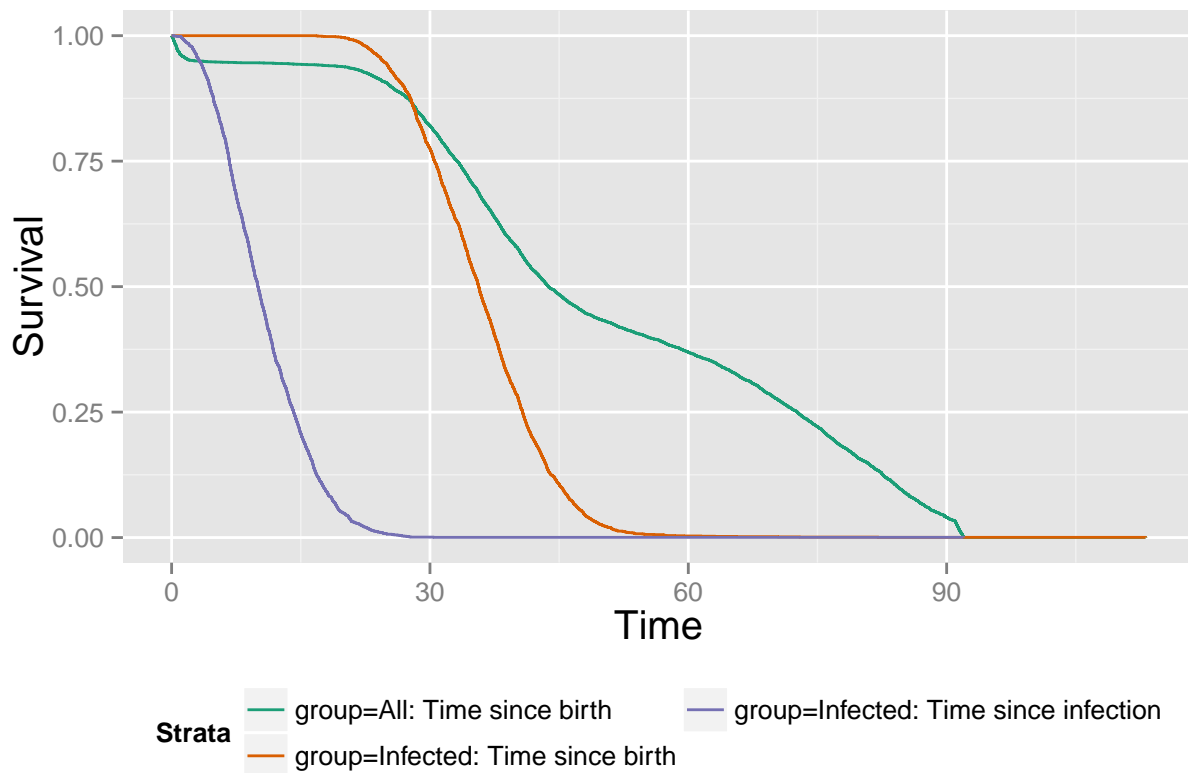
```
##               metrics    ..1
## 1      Dead Population      0
## 2  Death from Healthy State 5502
## 3  Death from Infected States    0
## 4      Healthy Population 452228
## 5      Infected Population 336320
## 6      Total Population 788548
```

Result: TRUE

All survival curves

Scenario(s): Base

Plots of all the survival curves. The curves must be inspected manually



Result: Manual

OnlyInfectedMortality scenario has most people dying from infected state

Scenario(s): OnlyInfectedMortality

This test make sure that in the scenario where there is only mortality in the infected state, that all people who die before age 100, die from the infected state

```
## [1] 9066
```

```
##
```

```
##    0    1    2
```

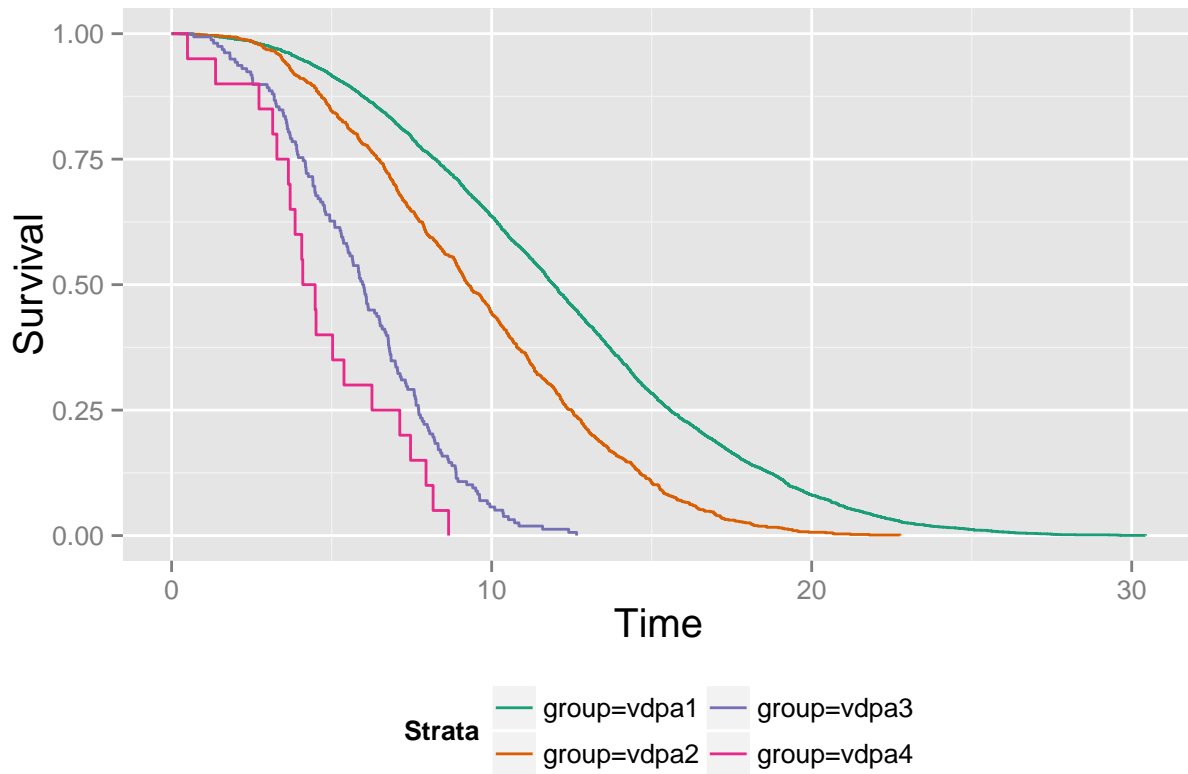
```
## 471 4527    1
```

Result: TRUE

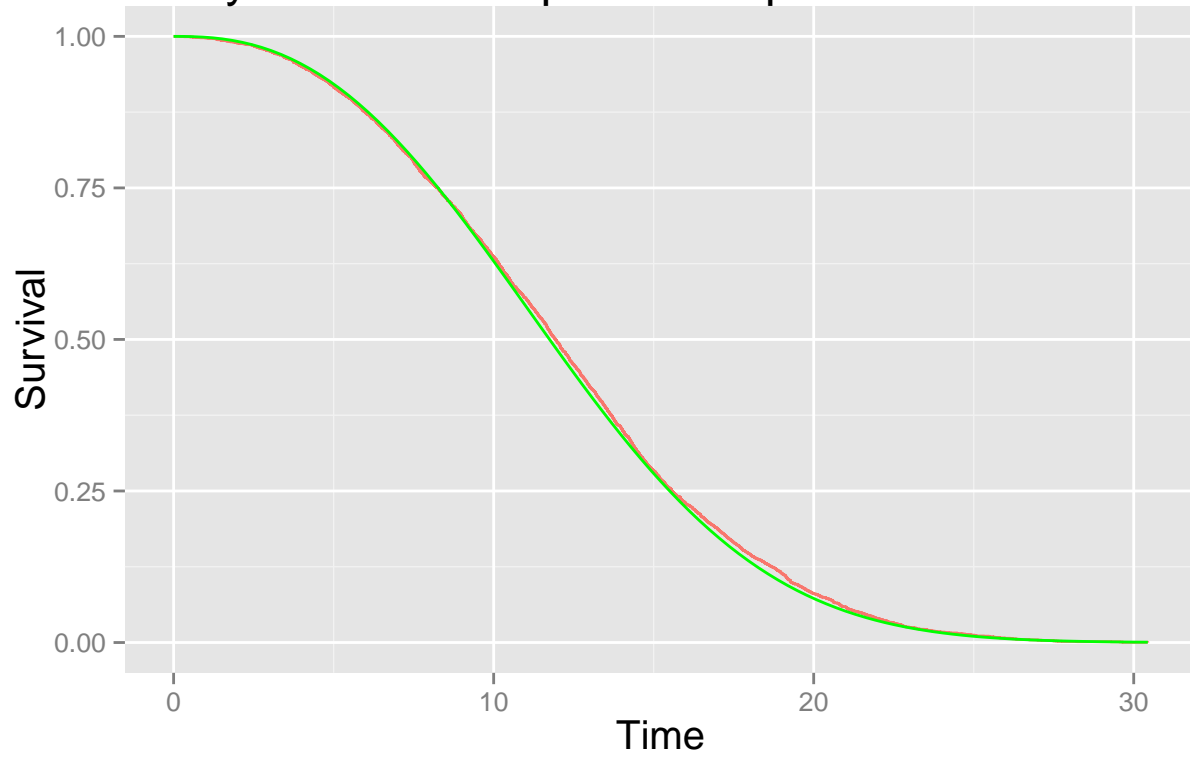
Infected Mortality Match van der paal

Scenario(s): OnlyInfectedMortality

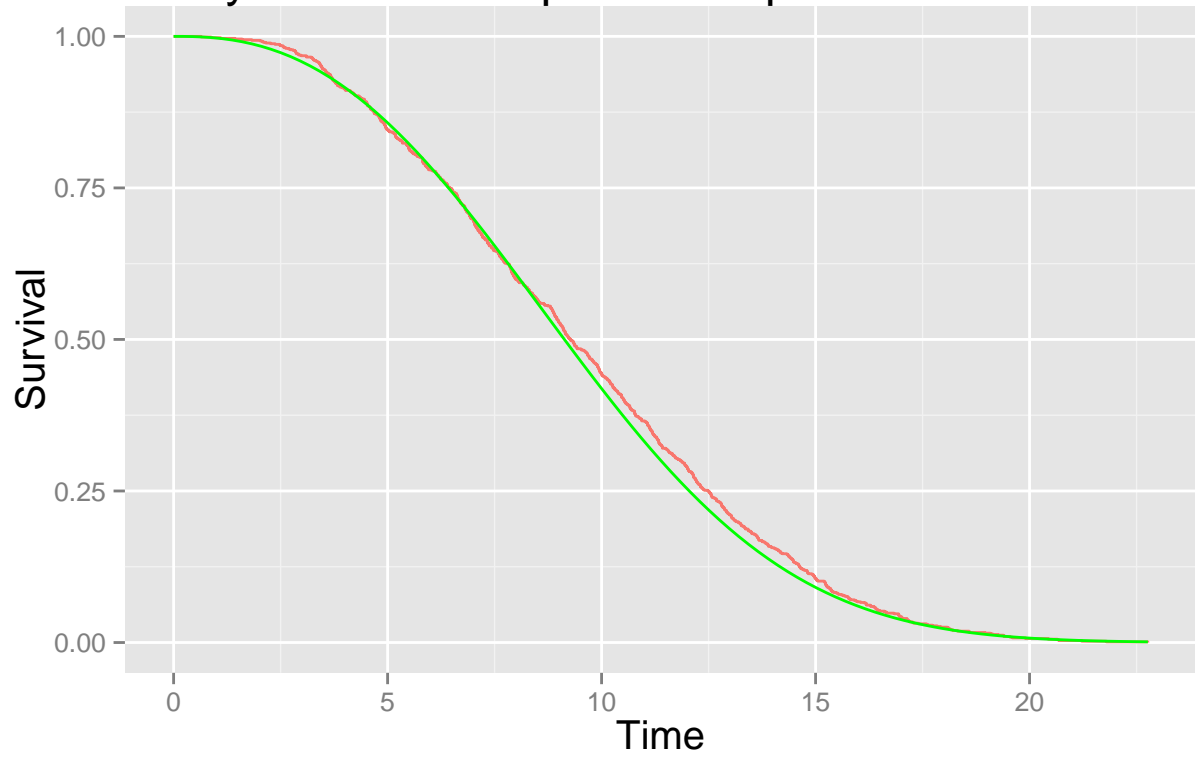
When the kaplan meier curves of the infected mortalities are fitted with Weibull curves, the parameters must be similar to those obtained from the van der paal article



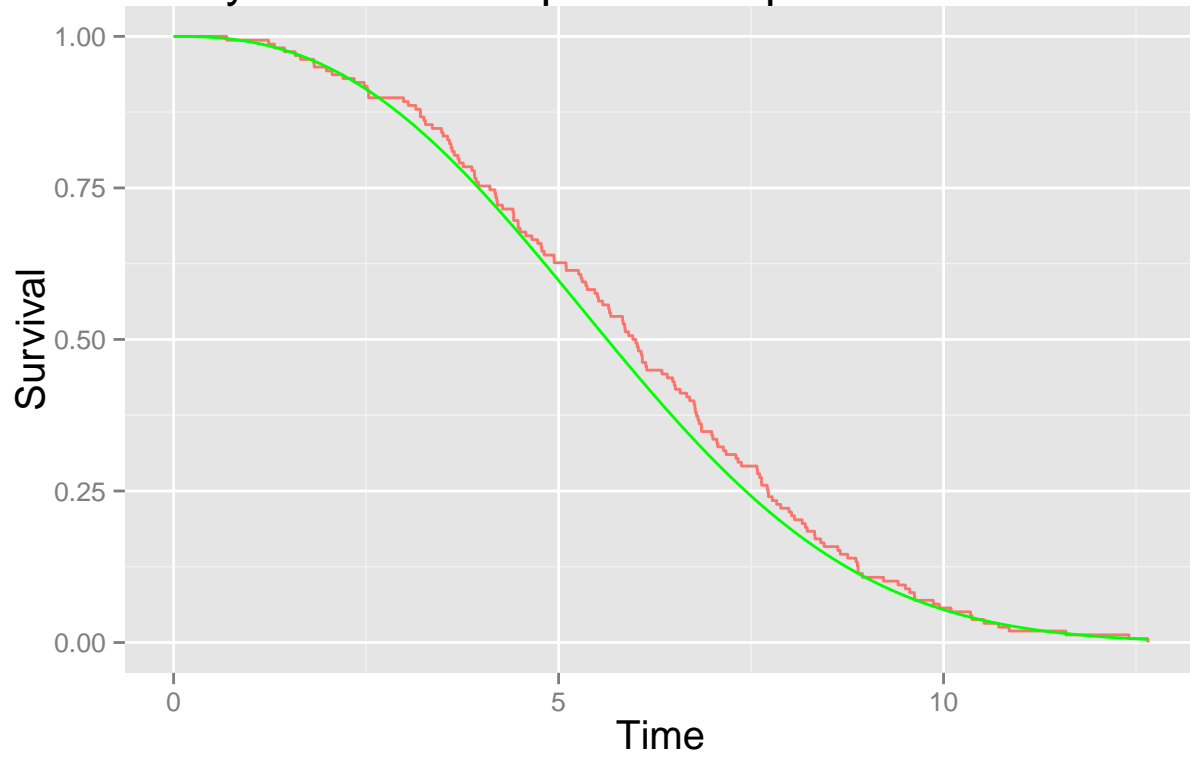
Overlay of data for vdpa1 and input weibull distribution



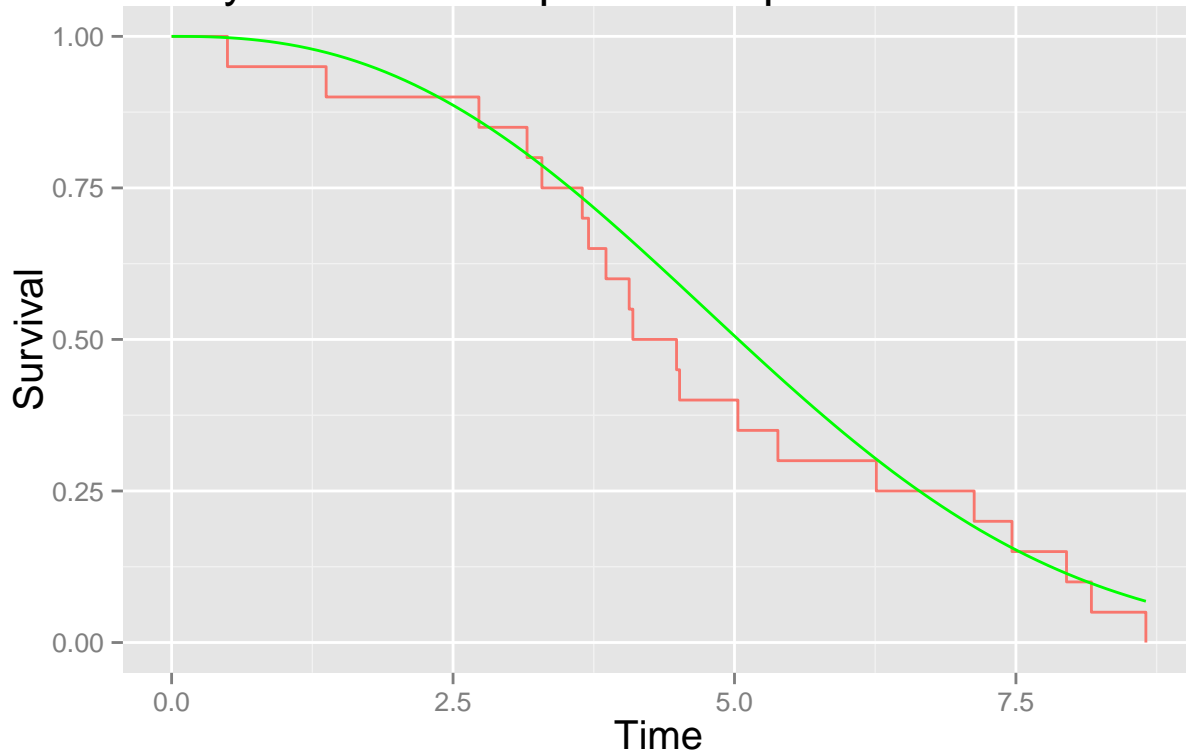
Overlay of data for vdpa2 and input weibull distribution



Overlay of data for vdpa3 and input weibull distribution



Overlay of data for vdpa4 and input weibull distribution



Result: Manual

Percentage ever symptomatic bounded

Scenario(s): Base

The percentage of mothers who ever became symptomatic in the base case should be between 30 and 34%

```
## $total_symptomatic_mothers
## [1] 3202
##
## $total_population
## [1] 10000
```

Result: TRUE

Percentage ever diagnosed bounded

Scenario(s): Base

The percentage of mothers who were ever diagnosed in the base case should be between 36 and 40%

```
## $total_diagnosed_mothers
## [1] 3841
##
## $total_population
## [1] 10000
```

Result: TRUE

Summary of all tests

Model Version: 11

Name	Result	Scenarios
Life Expectancy Healthy Mother	TRUE	NoHIV
Mother Max Age	TRUE	Base
Percentage ever infected bounded	TRUE	Base
Percentage ever infected zero in NoHIV	TRUE	NoHIV
Infected vs Healthy Mortality	TRUE	Base
No deaths from healthy in NoHealthyMortality	TRUE	NoHealthyMortality
No deaths from Infected in NoInfectedMortality	TRUE	NoInfectedMortality
All survival curves	Manual	Base
OnlyInfectedMortality scenario has most people dying from infected state	TRUE	OnlyInfectedMortality
Infected Mortality Match van der paal	Manual	OnlyInfectedMortality
Percentage ever symptomatic bounded	TRUE	Base
Percentage ever diagnosed bounded	TRUE	Base