tests_03-decision-tree-model.R

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```
library(data.tree)
```

```
## Warning: package 'data.tree' was built under R version 3.3.2
```

```
library(magrittr)


osNode.cost <- treeSimR::costeffectiveness_tree(yaml_tree = "C:/Users/Nathan/Dropbox/TB/LTBI/R/LTBIscree


# calculate total probabilities along each branch, from root to leaf
path_probs.screen <- treeSimR::calc_pathway_probs(osNode.cost)
osNode.cost$Set(path_probs = 10000 * path_probs.screen)

print(osNode.cost, "type", "p", "path_probs", "distn",
      "mean", "sd", "min", "max", "a", "b", "shape", "scale", limit = NULL)
```

```
##                                          levelName     type    p
## 1  LTBI screening cost                                logical   NA
## 2   ¦--LTBI                                            chance 0.30
## 3   ¦   ¦--Not Agree to Screen                       terminal 0.65
## 4   ¦   °--Agree to Screen                            chance 0.35
## 5   ¦       ¦--Test Negative                        terminal 0.05
## 6   ¦       °--Test Positive                          chance 0.95
## 7   ¦           ¦--Not Start Treatment              terminal 0.50
## 8   ¦           °--Start Treatment                    chance 0.50
## 9   ¦               °--Symptoms hepatotoxicity        chance 1.00
## 10  ¦                   °--Symptoms nausea            chance 1.00
## 11  ¦                       ¦--Complete Treatment     chance 0.90
## 12  ¦                       ¦   ¦--Effective        terminal 0.90
## 13  ¦                       ¦   °--Not Effective    terminal 0.10
## 14  ¦                       °--Not Complete Treatment terminal 0.10
## 15  °--non-LTBI                                       chance 0.70
## 16      ¦--Not Agree to Screen                      terminal 0.65
## 17      °--Agree to Screen                            chance 0.35
## 18          ¦--Test Negative                        terminal 0.95
## 19          °--Test Positive                          chance 0.05
## 20              ¦--Not Start Treatment              terminal 0.50
## 21              °--Start Treatment                    chance 0.50
## 22                  °--Symptoms hepatotoxicity        chance 1.00
## 23                      °--Symptoms nausea            chance 1.00
## 24                          ¦--Complete Treatment   terminal 0.90
## 25                          °--Not Complete Treatment terminal 0.10
##    path_probs distn mean sd min max  a  b shape scale
## 1  10000.0000  unif   NA NA   0   0 NA NA    NA    NA
## 2   3000.0000  unif   NA NA   0   0 NA NA    NA    NA
## 3   1950.0000  unif   NA NA   0   0 NA NA    NA    NA
## 4   1050.0000  unif   NA NA  30  30 NA NA    NA    NA
```

```
## 5     52.5000  unif   NA NA   0   0 NA NA    NA    NA
## 6    997.5000  unif   NA NA   0   0 NA NA    NA    NA
## 7    498.7500  unif   NA NA   0   0 NA NA    NA    NA
## 8    498.7500  unif   NA NA 200 200 NA NA    NA    NA
## 9    498.7500  unif   NA NA   0   0 NA NA    NA    NA
## 10   498.7500  unif   NA NA   0   0 NA NA    NA    NA
## 11   448.8750  unif   NA NA   0   0 NA NA    NA    NA
## 12   403.9875  unif   NA NA   0   0 NA NA    NA    NA
## 13    44.8875  unif   NA NA   0   0 NA NA    NA    NA
## 14    49.8750  unif   NA NA   0   0 NA NA    NA    NA
## 15  7000.0000  unif   NA NA   0   0 NA NA    NA    NA
## 16  4550.0000  unif   NA NA   0   0 NA NA    NA    NA
## 17  2450.0000  unif   NA NA  30  30 NA NA    NA    NA
## 18  2327.5000  unif   NA NA   0   0 NA NA    NA    NA
## 19   122.5000  unif   NA NA   0   0 NA NA    NA    NA
## 20    61.2500  unif   NA NA   0   0 NA NA    NA    NA
## 21    61.2500  unif   NA NA 200 200 NA NA    NA    NA
## 22    61.2500  unif   NA NA   0   0 NA NA    NA    NA
## 23    61.2500  unif   NA NA   0   0 NA NA    NA    NA
## 24    55.1250  unif   NA NA   0   0 NA NA    NA    NA
## 25     6.1250  unif   NA NA   0   0 NA NA    NA    NA
```

```
costs <- list()
costs$test <- 30
costs$treat_init <- 50
costs$drugs <- 100
costs$treatment_support <- 100
costs$active_TB <- 5000


# Cost components        ----------------------------------------------------

# No. tests 3500
osNode.cost$Get('path_probs', filterFun = function(x) x$name=="Agree to Screen") %>% sum()
```

```
## [1] 3500
```

```
# Test positive     1120
osNode.cost$Get('path_probs', filterFun = function(x) x$name=="Test Positive") %>% sum()
```

```
## [1] 1120
```

```
# No.start treatment        560
osNode.cost$Get('path_probs', filterFun = function(x) x$name=="Start Treatment") %>% sum()
```

```
## [1] 560
```

```
# No. completing        504
osNode.cost$Get('path_probs', filterFun = function(x) x$name=="Complete Treatment") %>% sum()
```

```
## [1] 504
```

```
# Active TB     129.800625
0.05 * (3000 - osNode.cost$Get('path_probs', filterFun = function(x) x$name=="Effective") %>% sum())
```

```
## [1] 129.8006
```