

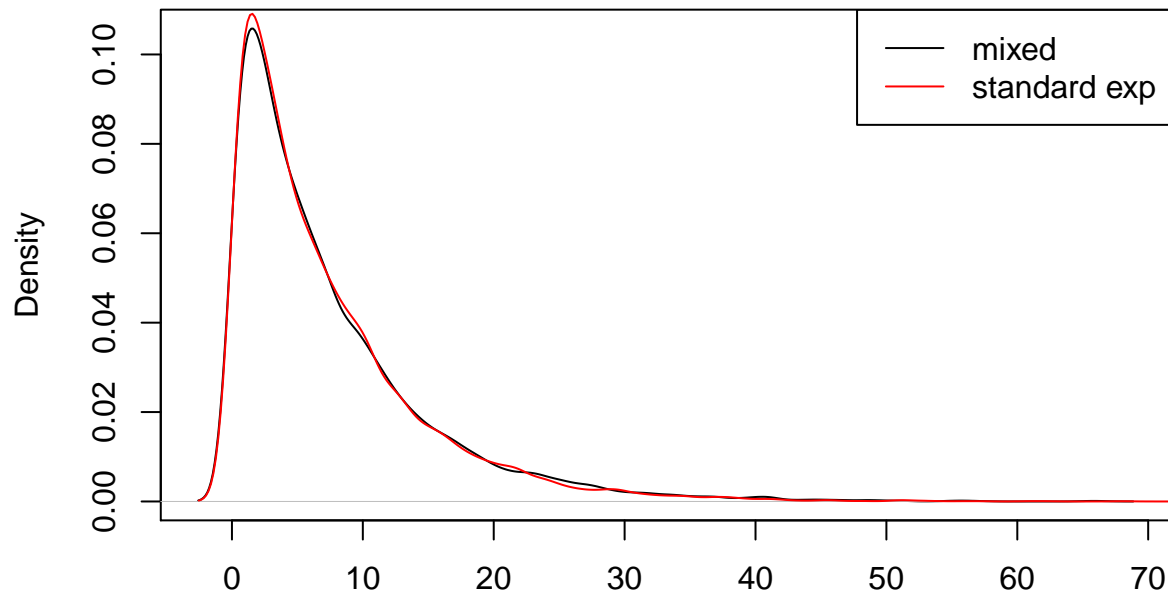
# simulate multiple prognostic factors

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## 1 factor cases

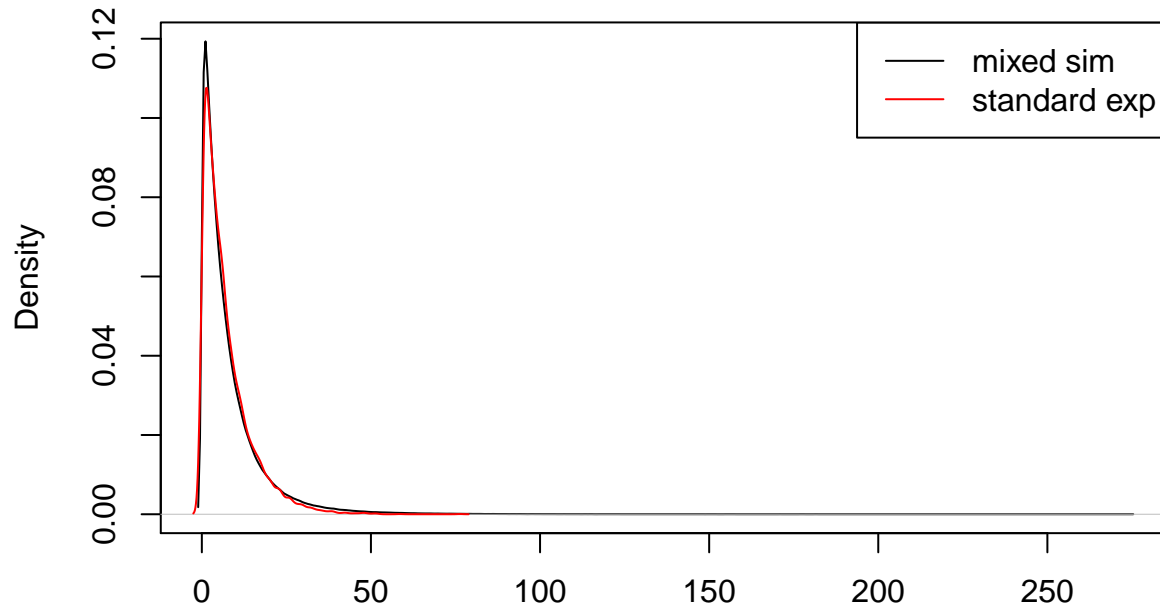
**density.default(x = c(x1, x2))**



N = 10000 Bandwidth = 0.86

median of the positive group with 0.2 prevalence is 5.4617313 ; median of the negative group with 0.8 prevalence is 3.93347. The hr ratio is 0.7201874 and the overall median is 5.1256607

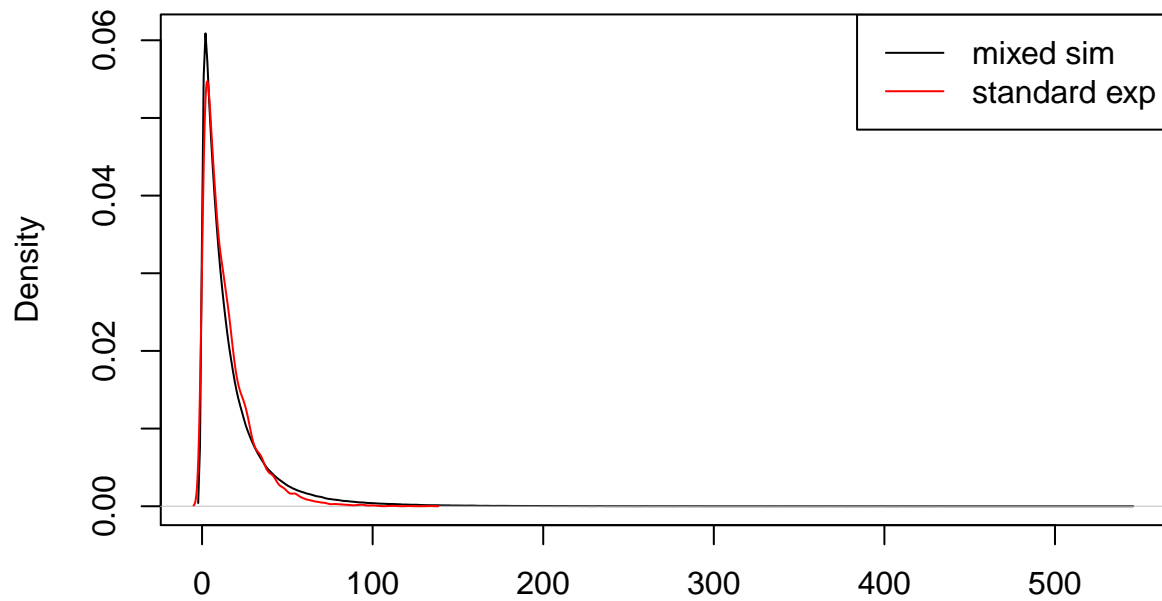
## overall distribution from simulation



N = 1000000 Bandwidth = 0.3602

```
## [1] "M1"
## [1] "conditional on M2+"
##      [,1]
## [1,]  0.7
## [1] "conditional on M2-"
##      [,1]
## [1,]  0.7
## [1] "marginal hr 0.700408763289769"
## [1] "M2"
## [1] "conditional on M1+"
##      [,1]
## [1,]  0.4
## [1] "conditional on M1-"
##      [,1]
## [1,]  0.4
## [1] "marginal hr 0.399785105345908"
```

## overall distribution from simulation



N = 1000000 Bandwidth = 0.7573

```
## [1] "M1"
## [1] "conditional on M2+,M3+"
##      [,1]
## [1,]  0.7
## [1] "conditional on M2-,M3+"
##      [,1]
## [1,]  0.7
## [1] "conditional on M2+,M3-"
##      [,1]
## [1,]  0.7
## [1] "conditional on M2-,M3-"
##      [,1]
## [1,]  0.7
## [1] "marginal hr 0.702490322065371"
## [1] "M2"
## [1] "conditional on M1+,M3+"
##      [,1]
## [1,] 0.55
## [1] "conditional on M1-,M3+"
##      [,1]
## [1,] 0.55
## [1] "conditional on M1+,M3-"
##      [,1]
## [1,] 0.55
## [1] "conditional on M1-,M3-"
##      [,1]
## [1,] 0.55
## [1] "marginal hr 0.550002711692425"
## [1] "M3"
```

```
## [1] "conditional on M1+,M2+"
##      [,1]
## [1,]  0.4
## [1] "conditional on M1-,M2+"
##      [,1]
## [1,]  0.4
## [1] "conditional on M1+,M2-"
##      [,1]
## [1,]  0.4
## [1] "conditional on M1-,M2-"
##      [,1]
## [1,]  0.4
## [1] "marginal hr 0.398230151292716"
```