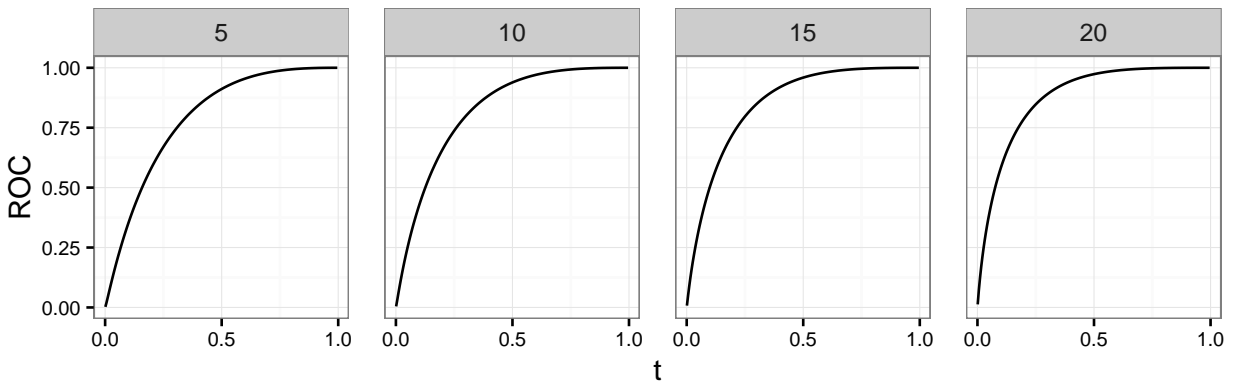# 1 Adjusted CPAO Example

The data used in the following example is taken from the CPAO data set used by Alonzo (adj-cpao.csv). Repeated measures are not considered. Values are averaged across patients. Only age is considered as a covariate.
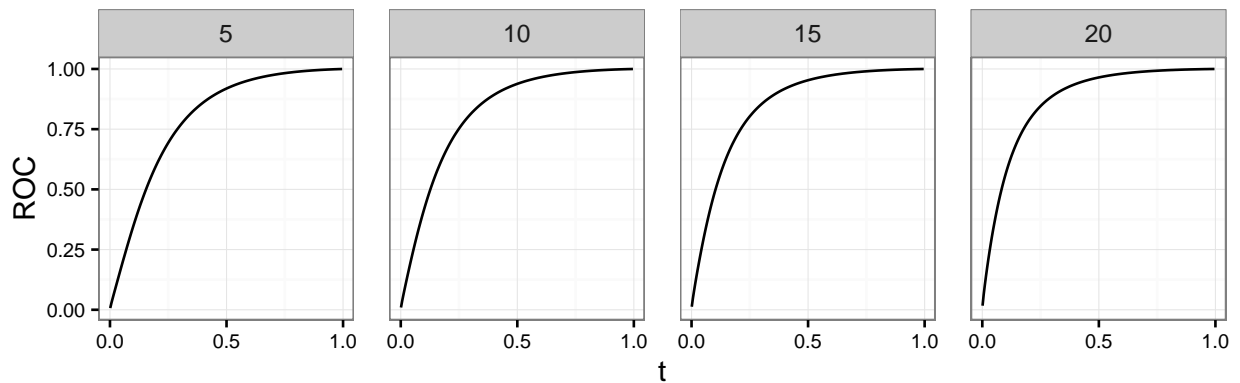
1.1 Parametric Method

Parametric ROC for Specified Ages –– Probit


```
##         5yr       10yr       15yr       20yr
## 1 0.7853245 0.8172178 0.8458844 0.8713056
```

```
##              Estimate  Std. Error   z value      Pr(>|z|)
## (Intercept) 1.155313 0.080344092 14.379559 6.953667e-47
## phiInv      1.348564 0.028352566 47.564103 0.000000e+00
## age         0.038935 0.008200448  4.747912 2.055276e-06
```
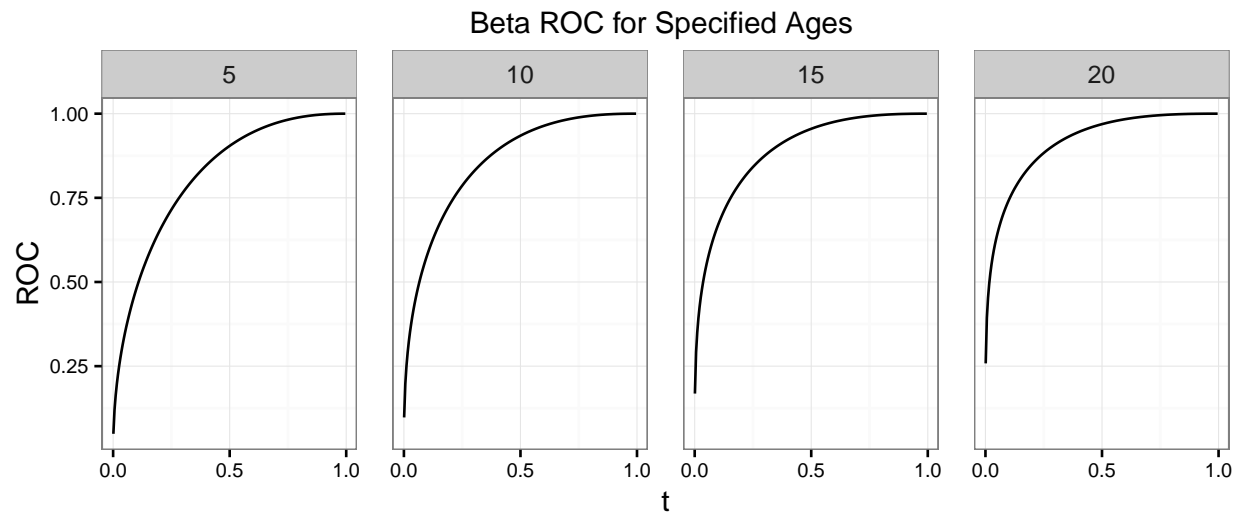
Parametric ROC for Specified Ages –– Logit


```
##         5yr       10yr       15yr       20yr
## 1 0.7899617 0.8170366 0.8416895 0.8639171
```

```
##                Estimate Std. Error   z value      Pr(>|z|)
## (Intercept) 2.13033666 0.14478253 14.714045 5.238041e-49
## phiInv      2.38532852 0.05384322 44.301371 0.000000e+00
## age         0.05906639 0.01463710  4.035389 5.451194e-05
```

1.2 Beta Method

Beta ROC for Specified Ages

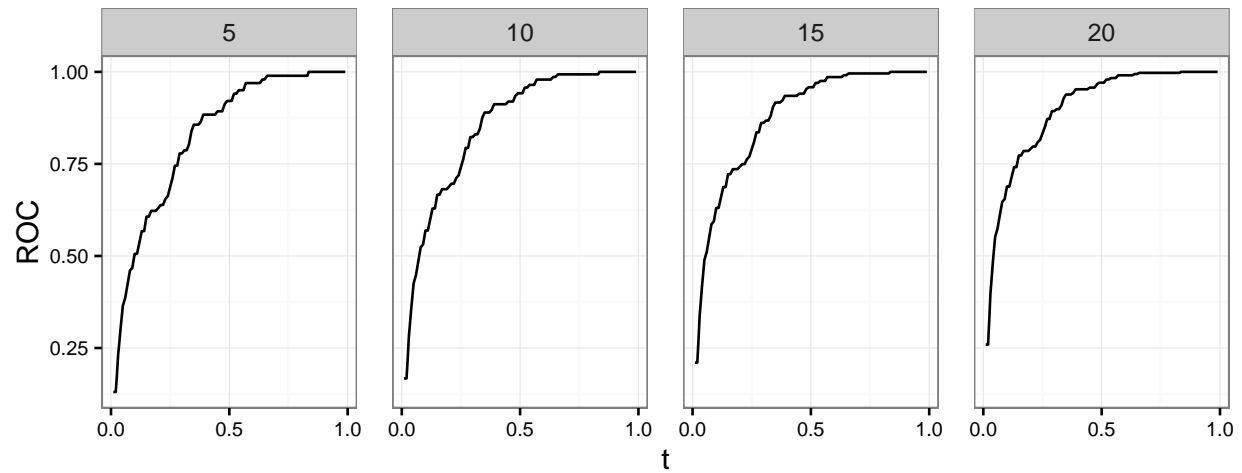```
5yr   10yr   15yr   20yr
1 0.8118151 0.8516329 0.883999 0.9098116
```

```
$mean
Estimate Std. Error   z value   Pr(>|z|)
(Intercept) -1.19699711 0.38999427 -3.069268 0.002145837
age   -0.05832206 0.03899794 -1.495517 0.134779694
##
$precision
Estimate Std. Error z value   Pr(>|z|)
(phi) 2.740296   0.366874 7.469311 8.061571e-14
```
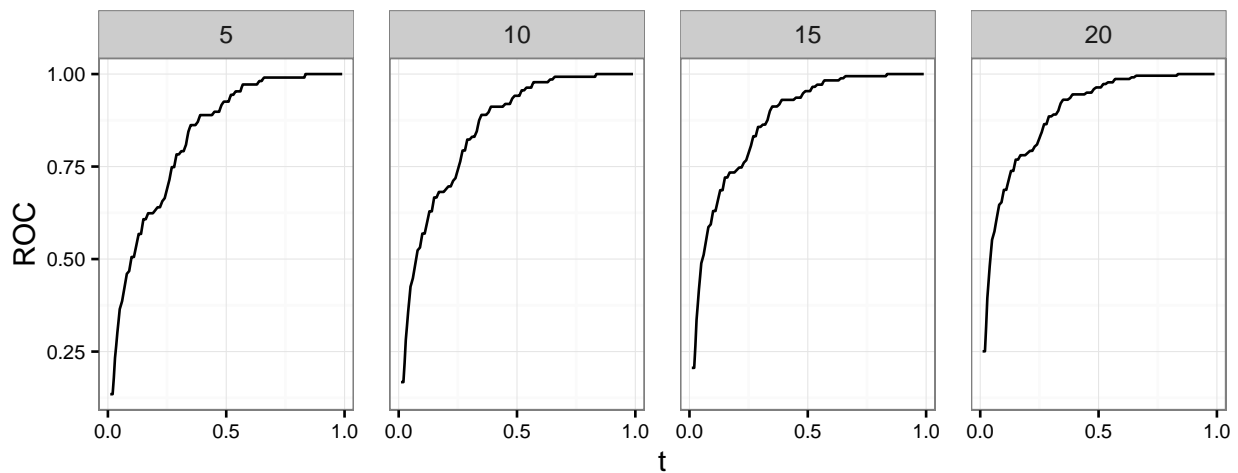
## 1.3 Semiparametric

### Semiparametric ROC for Specified Ages –– Probit



```
##         5yr       10yr       15yr       20yr
## 1 0.8142705 0.8395715 0.8624241 0.8828051
```

```
##         Estimate Std. Error  z value     Pr(>|z|)
## ageDiff 0.03183259 0.00406959 7.822064 5.196422e-15
```

Semiparametric ROC for Specified Ages –– Logit


```
##         5yr       10yr       15yr       20yr
## 1 0.8163528 0.8393022 0.8602187 0.8790368
```

```
##         Estimate  Std. Error z value    Pr(>|z|)
## ageDiff 0.05091919 0.006526243 7.80222 6.08273e-15
```