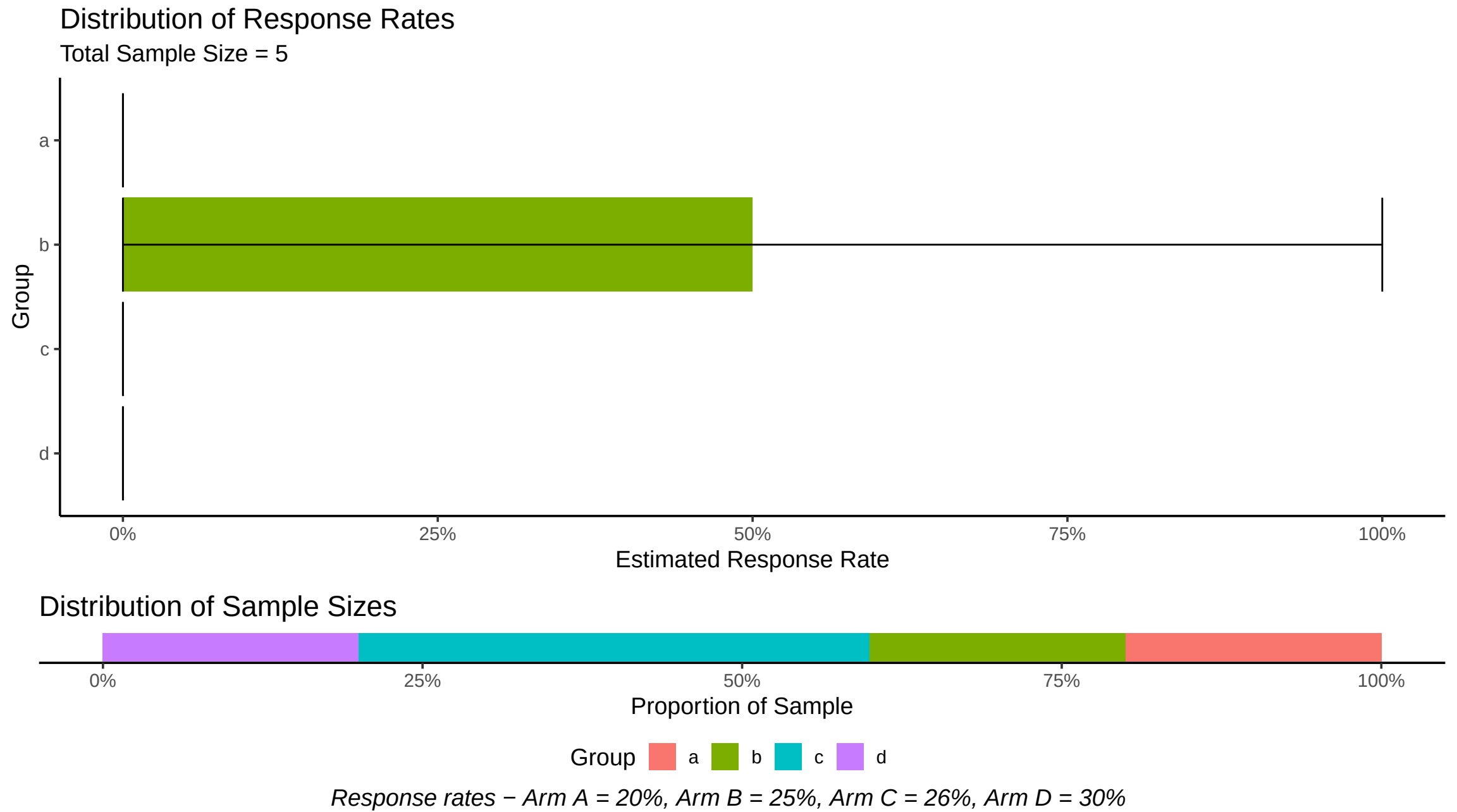
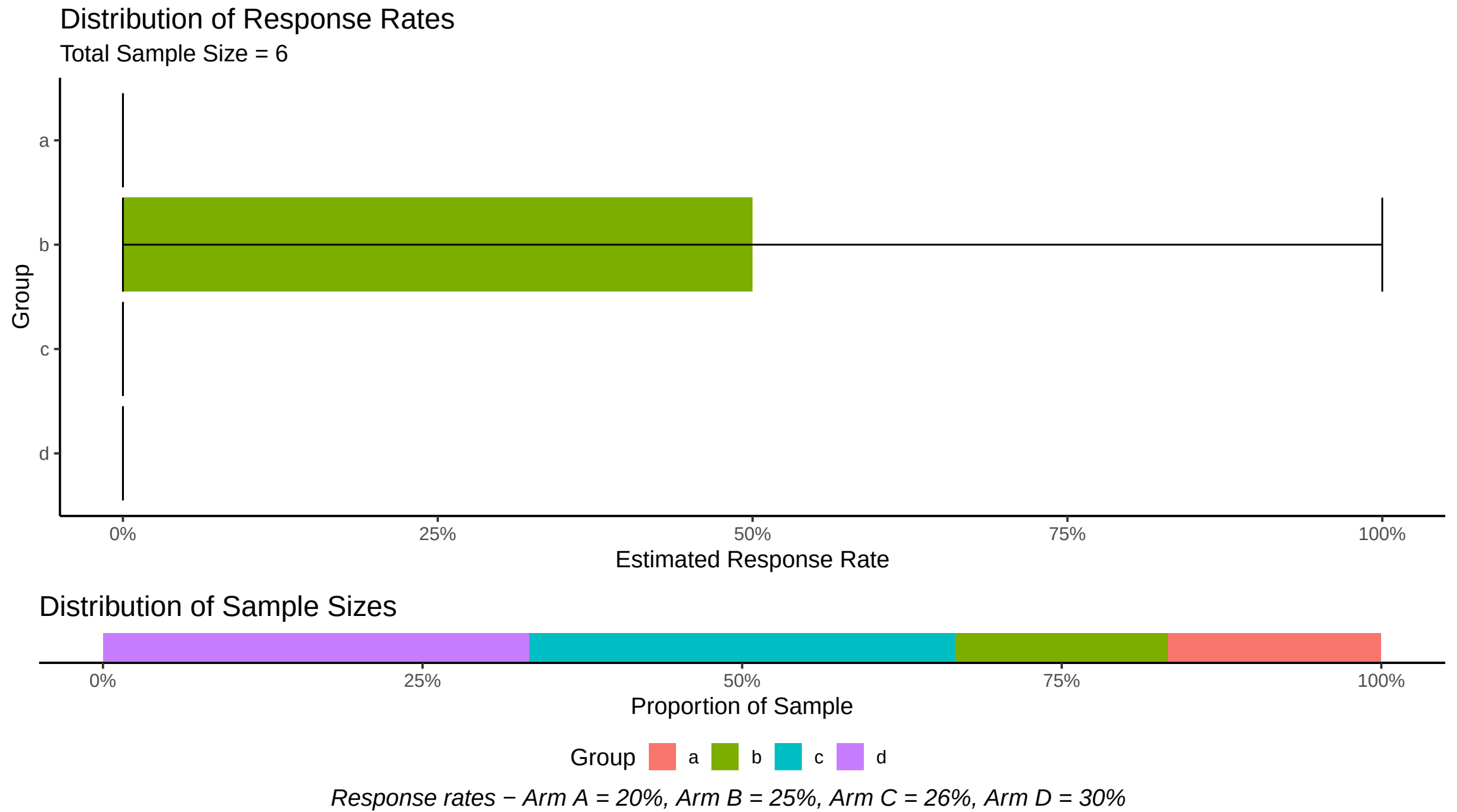
Upper Confidence Bound: Sample Sizes and Respose Estimates



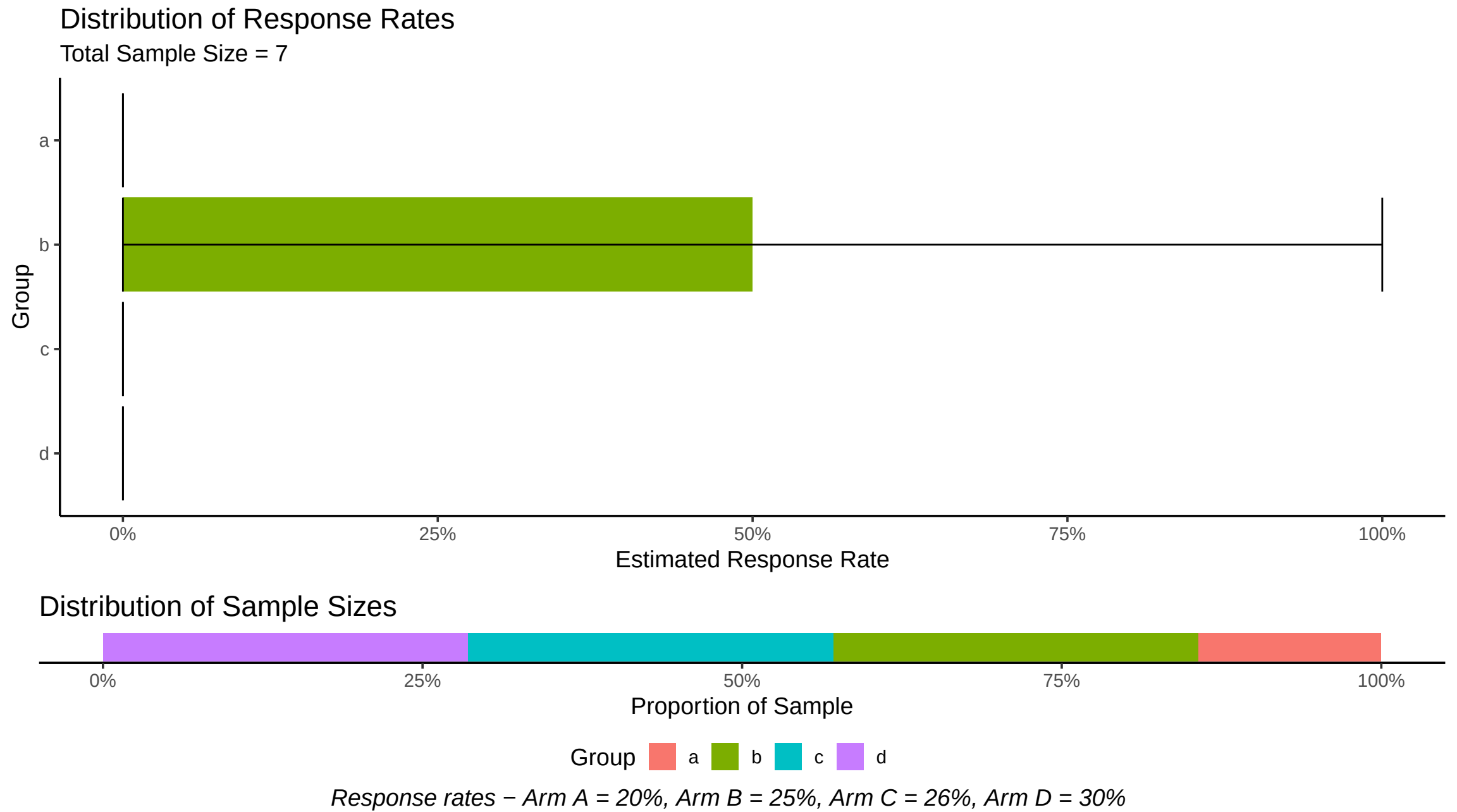
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

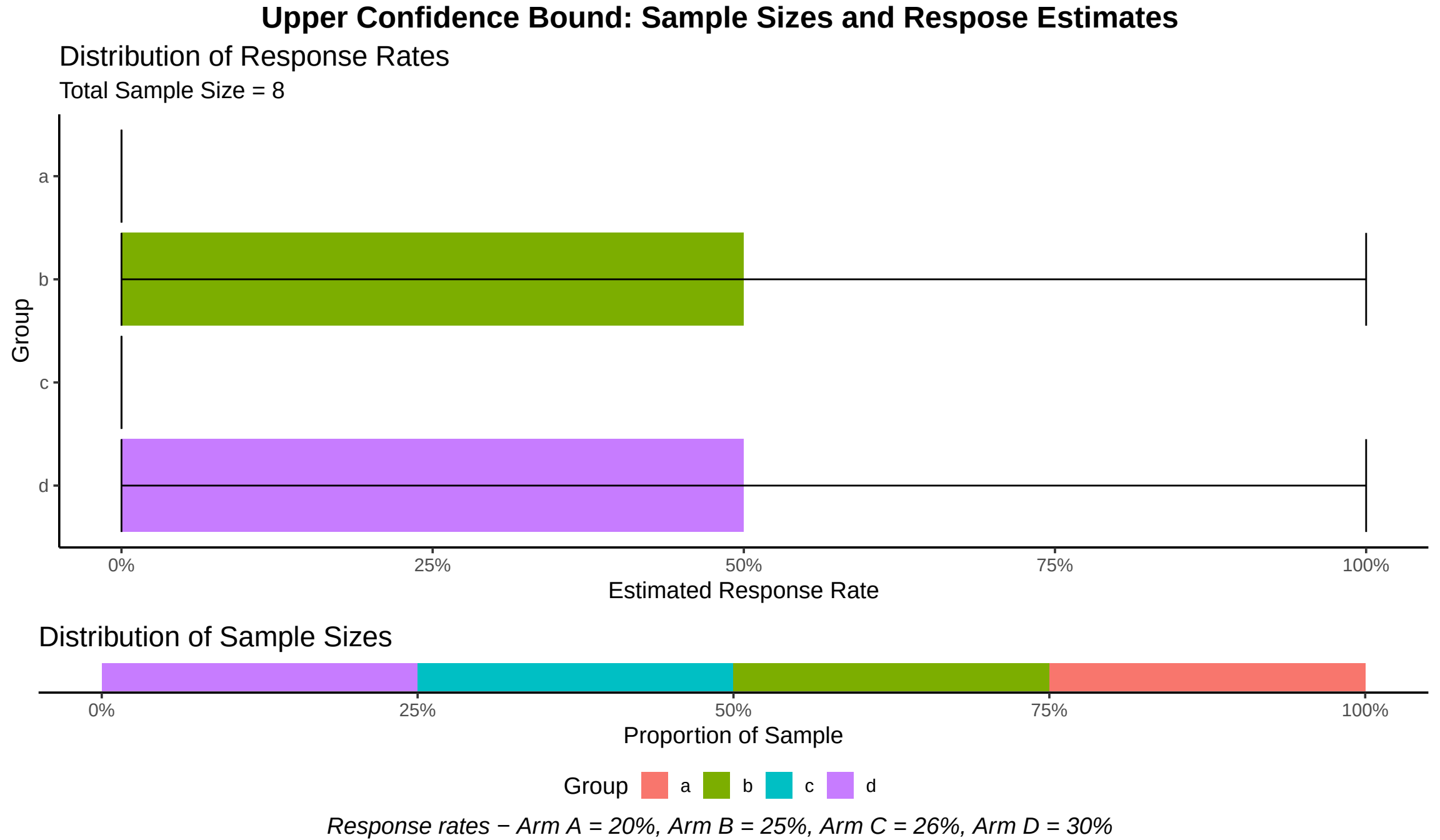


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

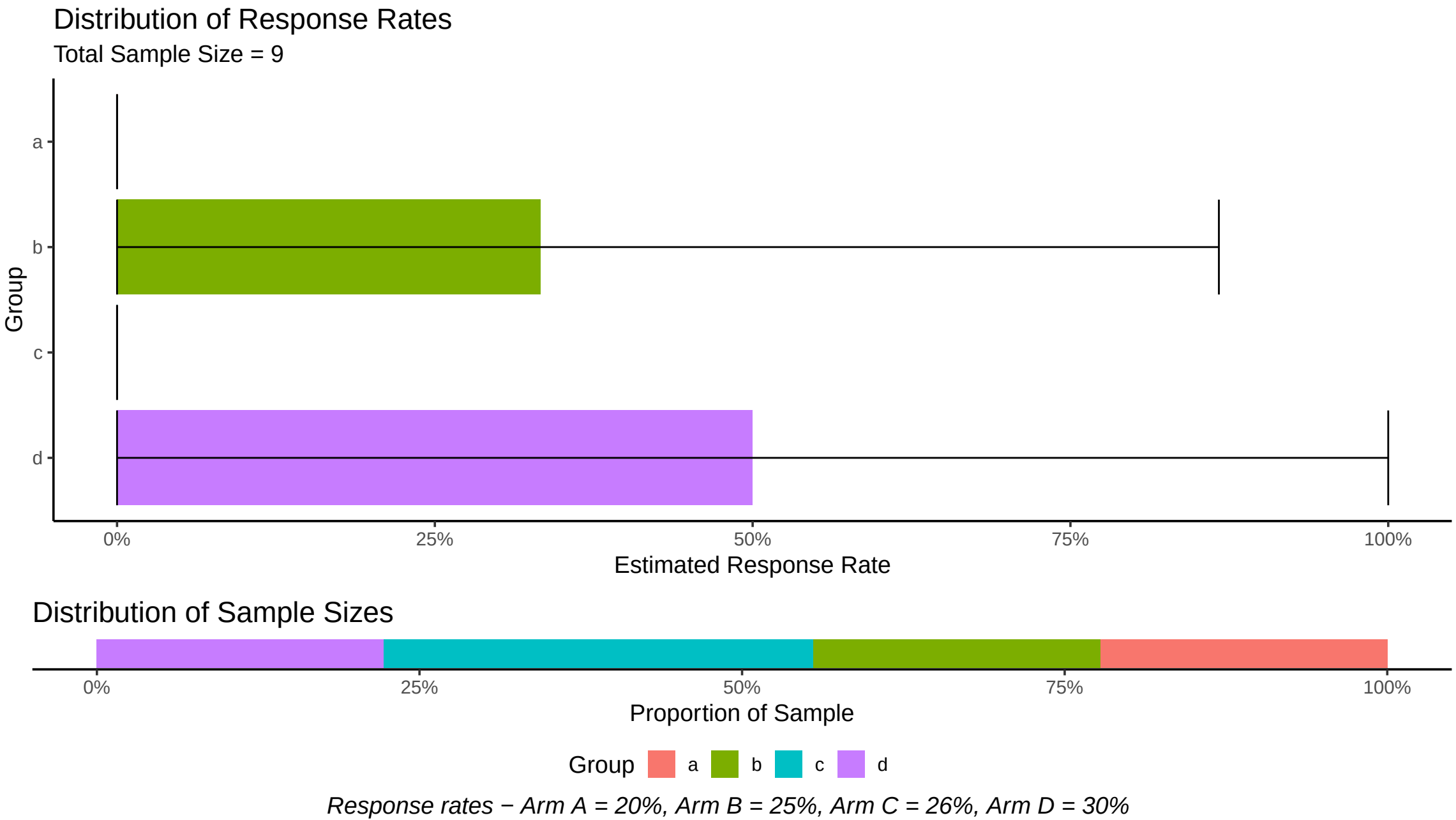
Upper Confidence Bound: Sample Sizes and Respose Estimates



Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

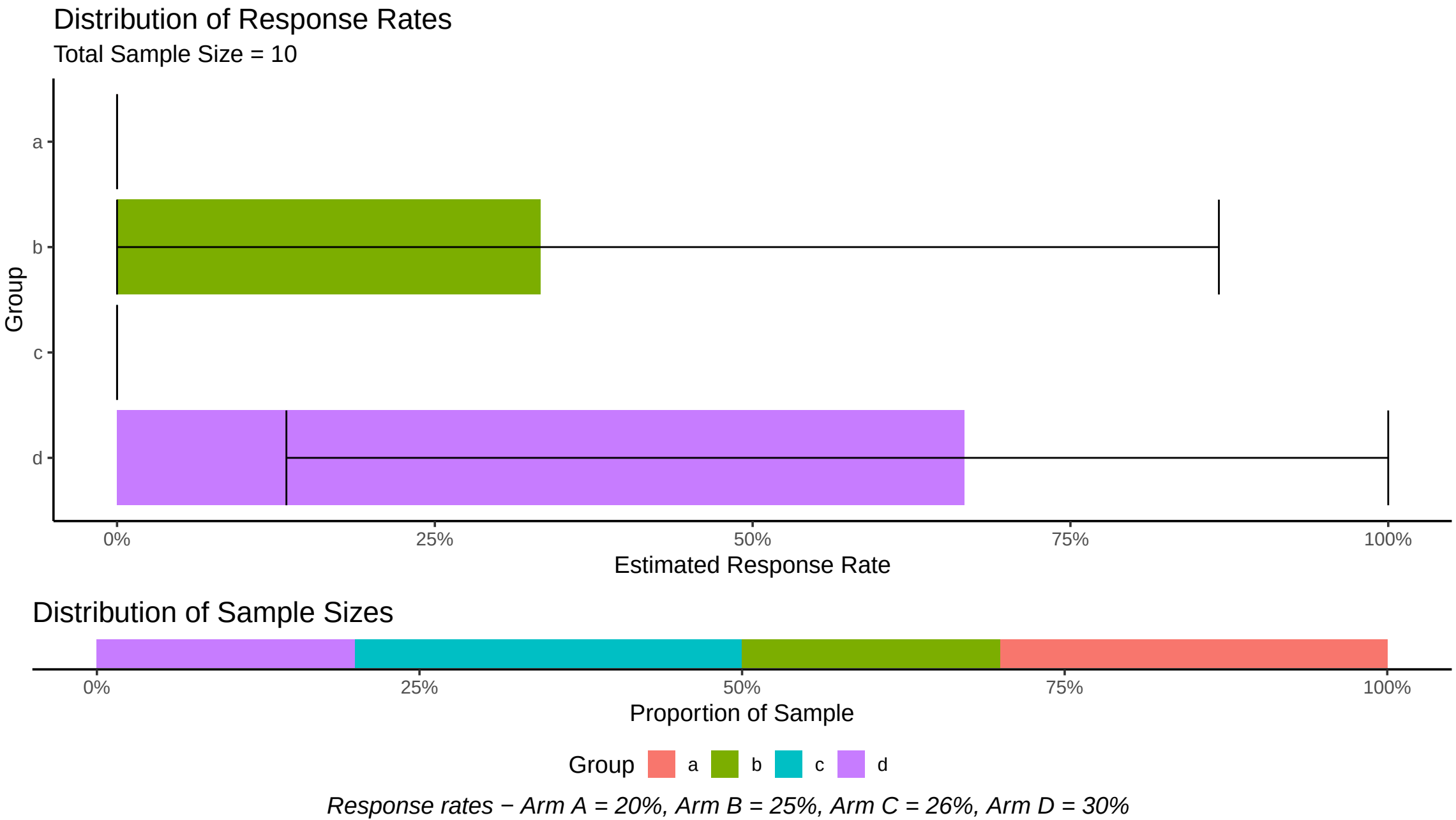

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates



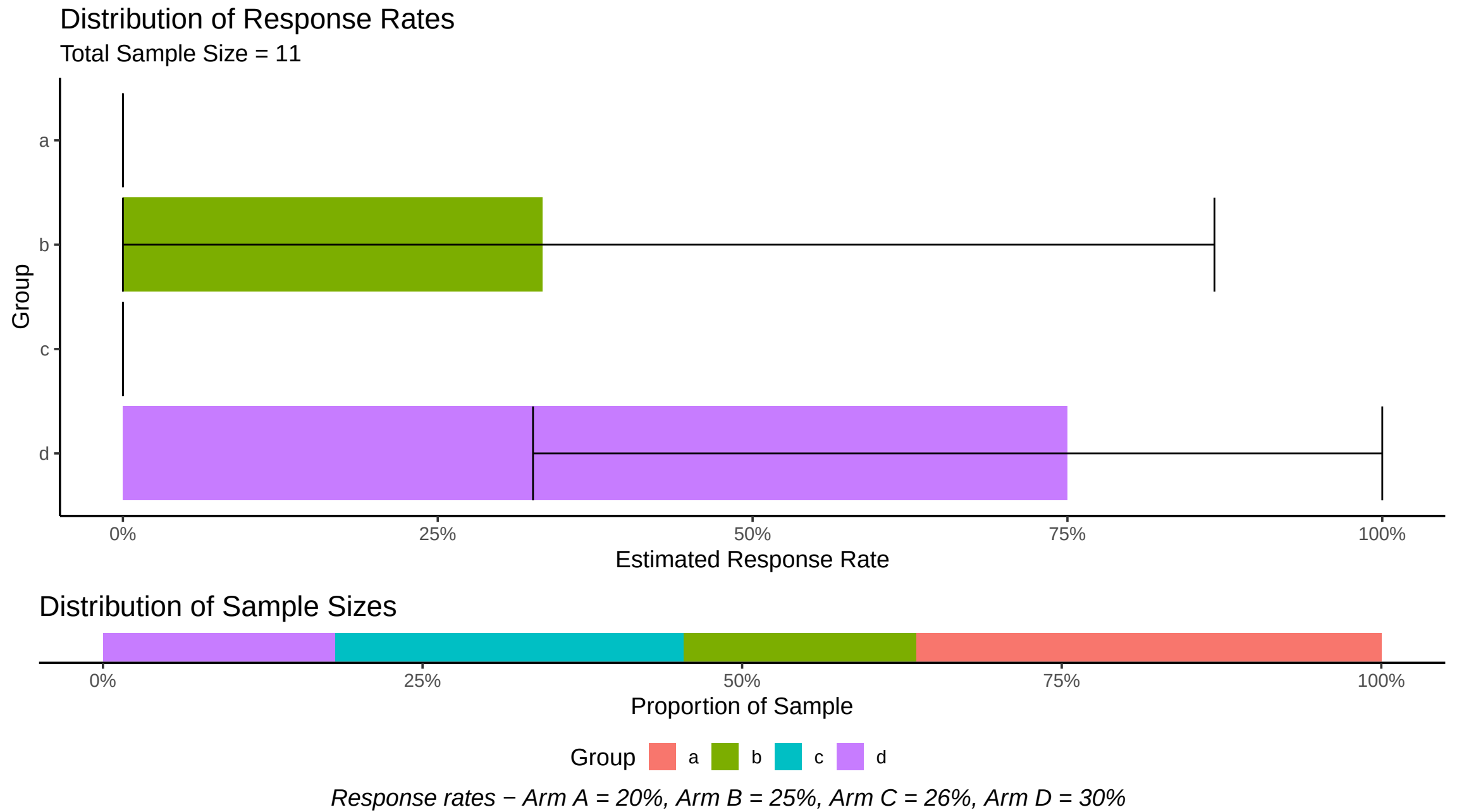
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

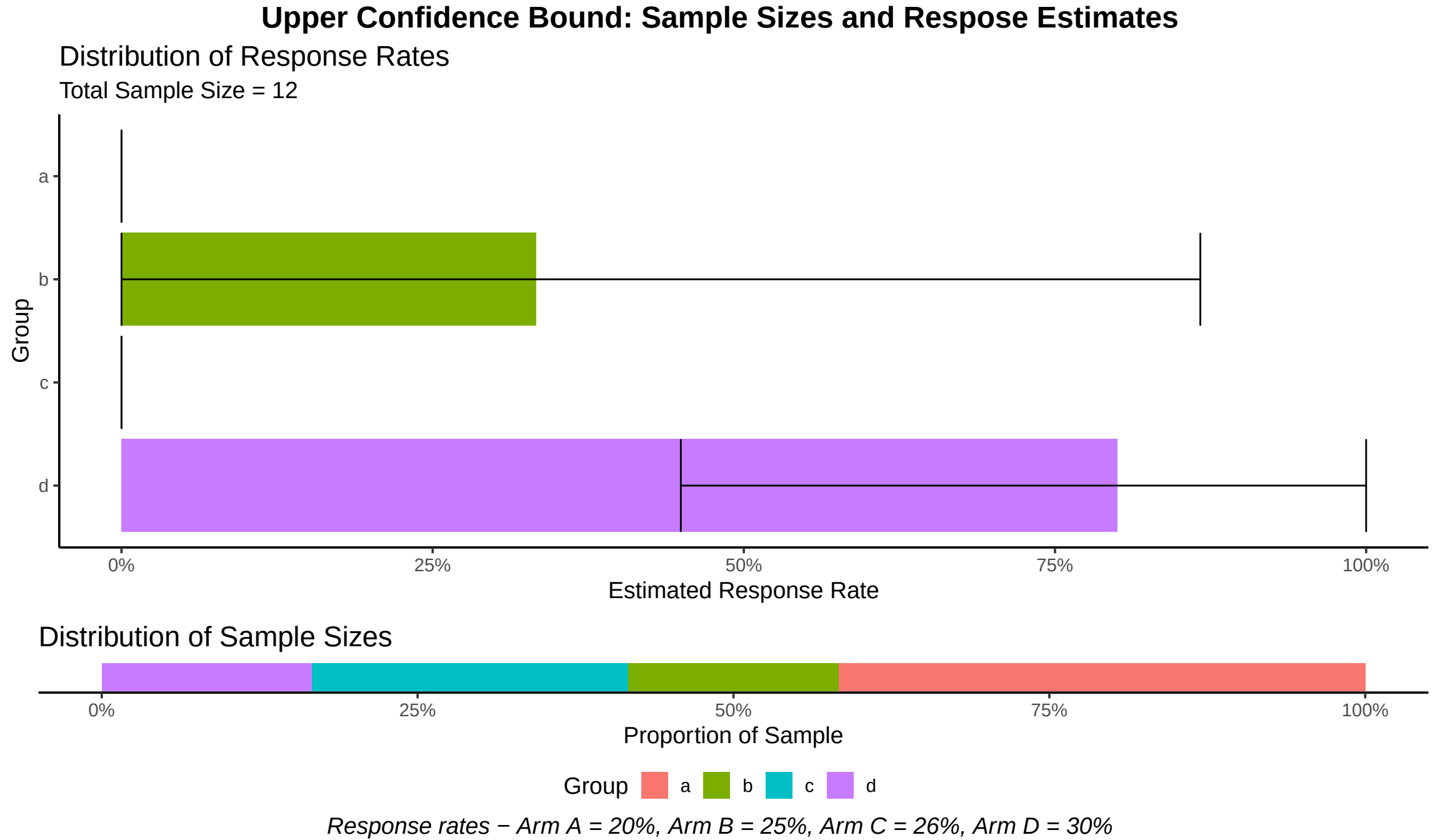
Upper Confidence Bound: Sample Sizes and Respose Estimates



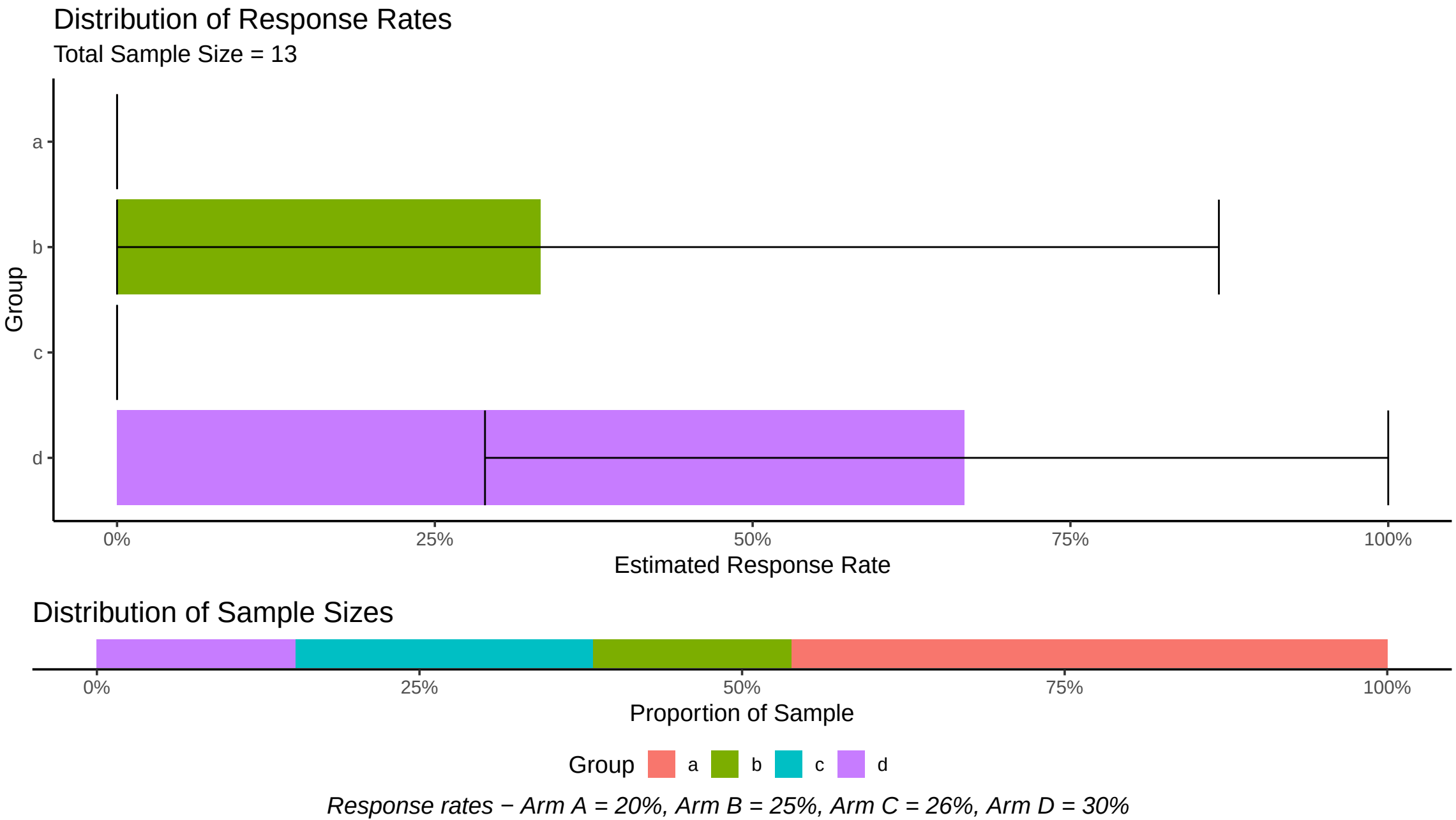
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates



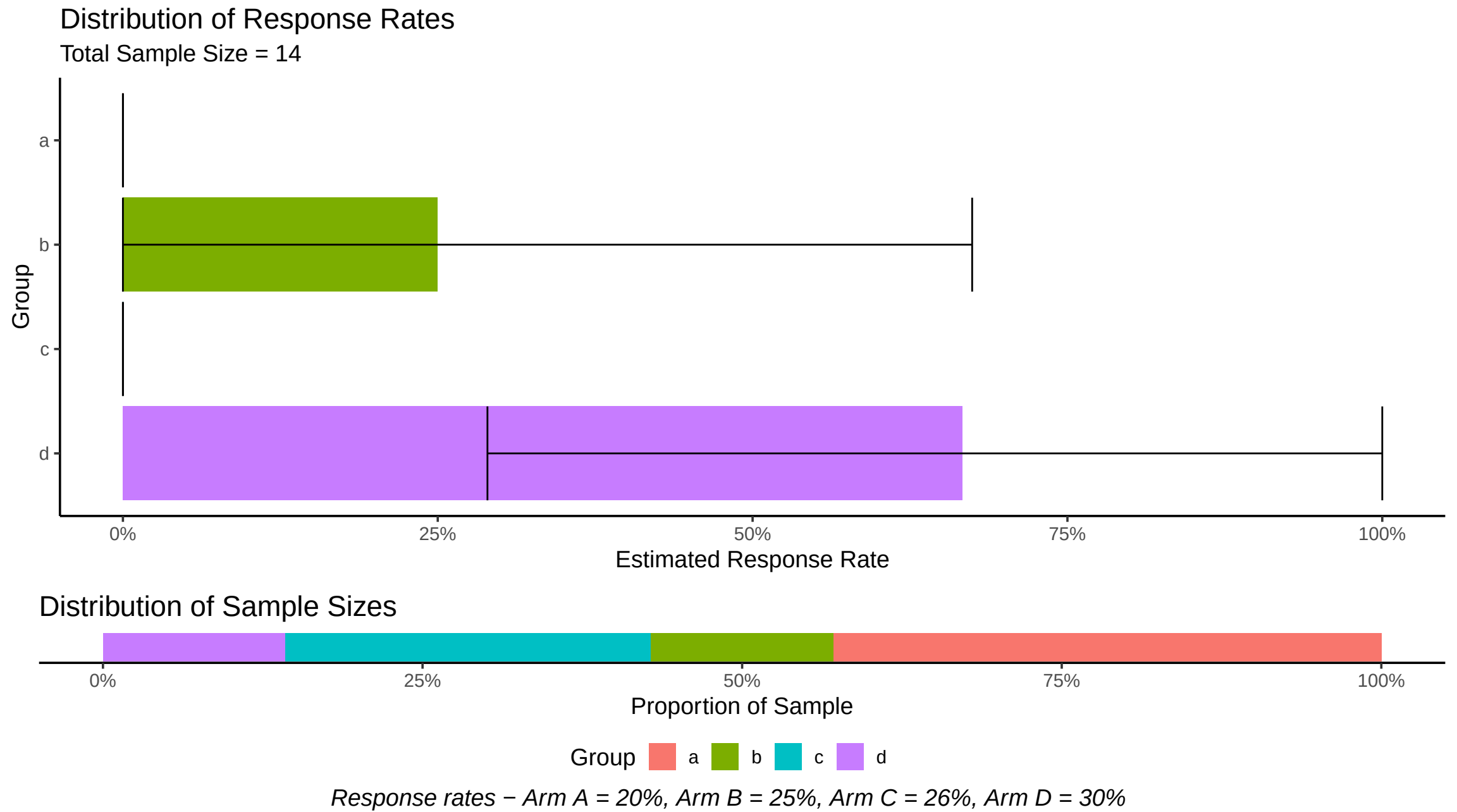

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

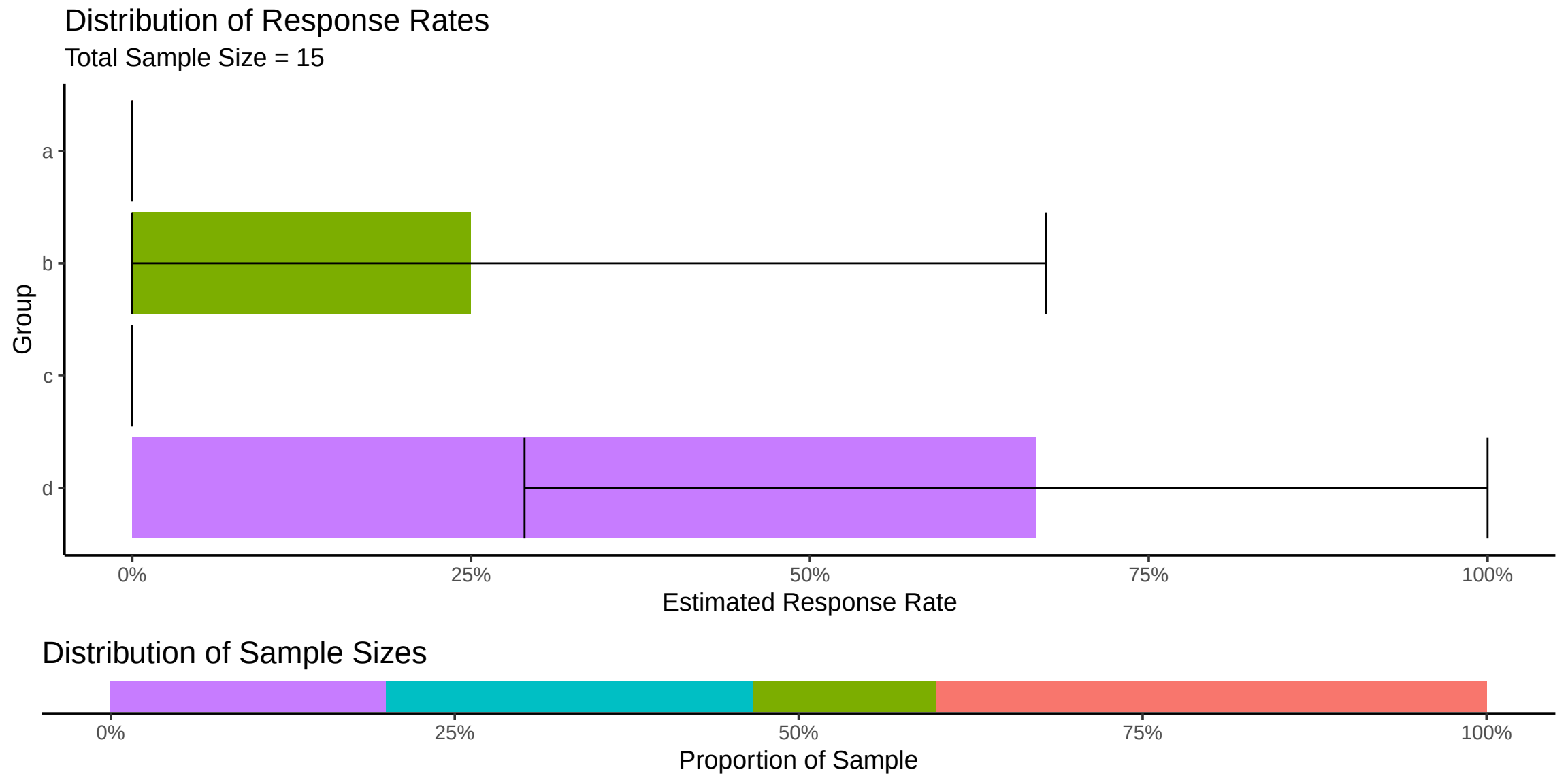


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

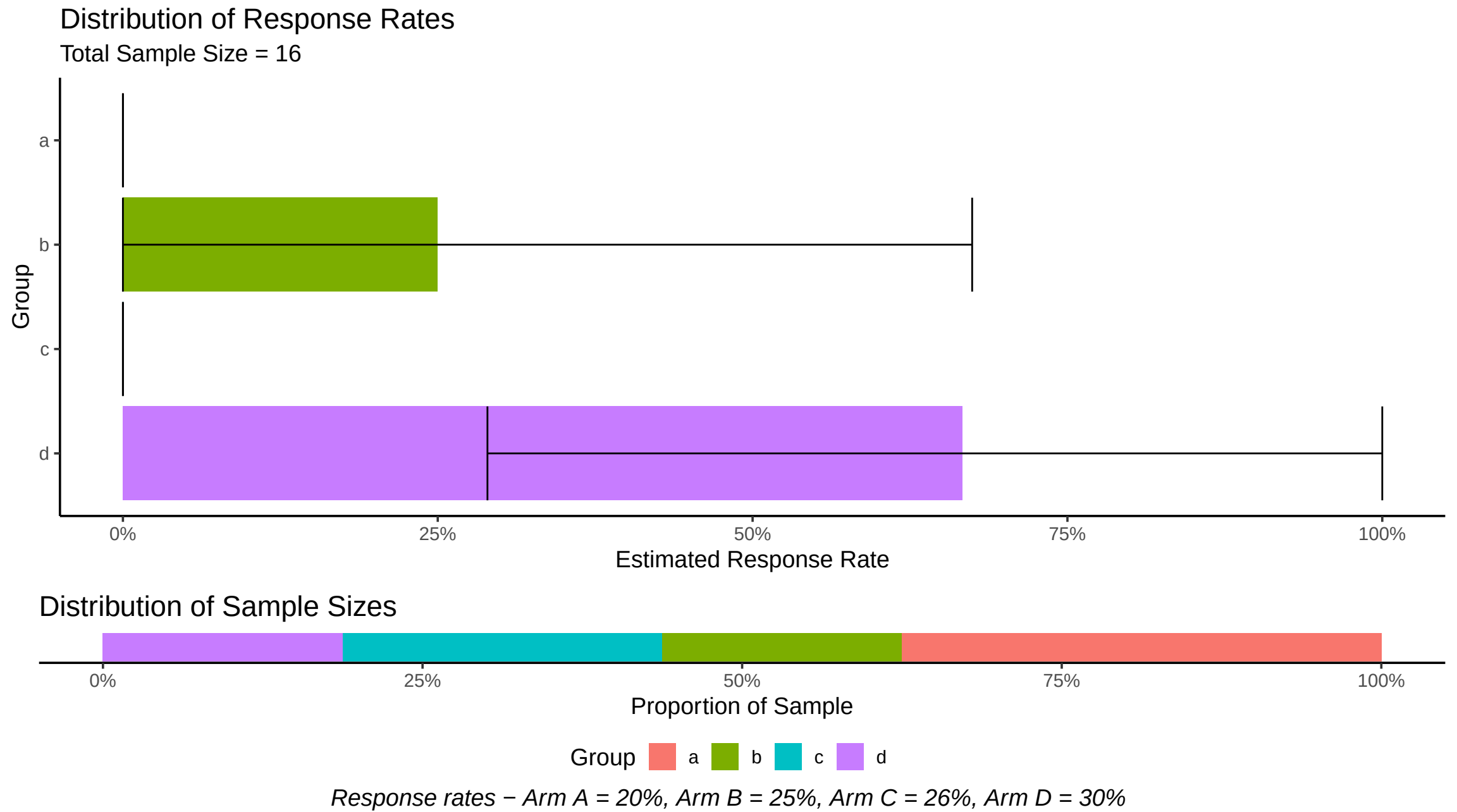


Upper Confidence Bound: Sample Sizes and Respose Estimates



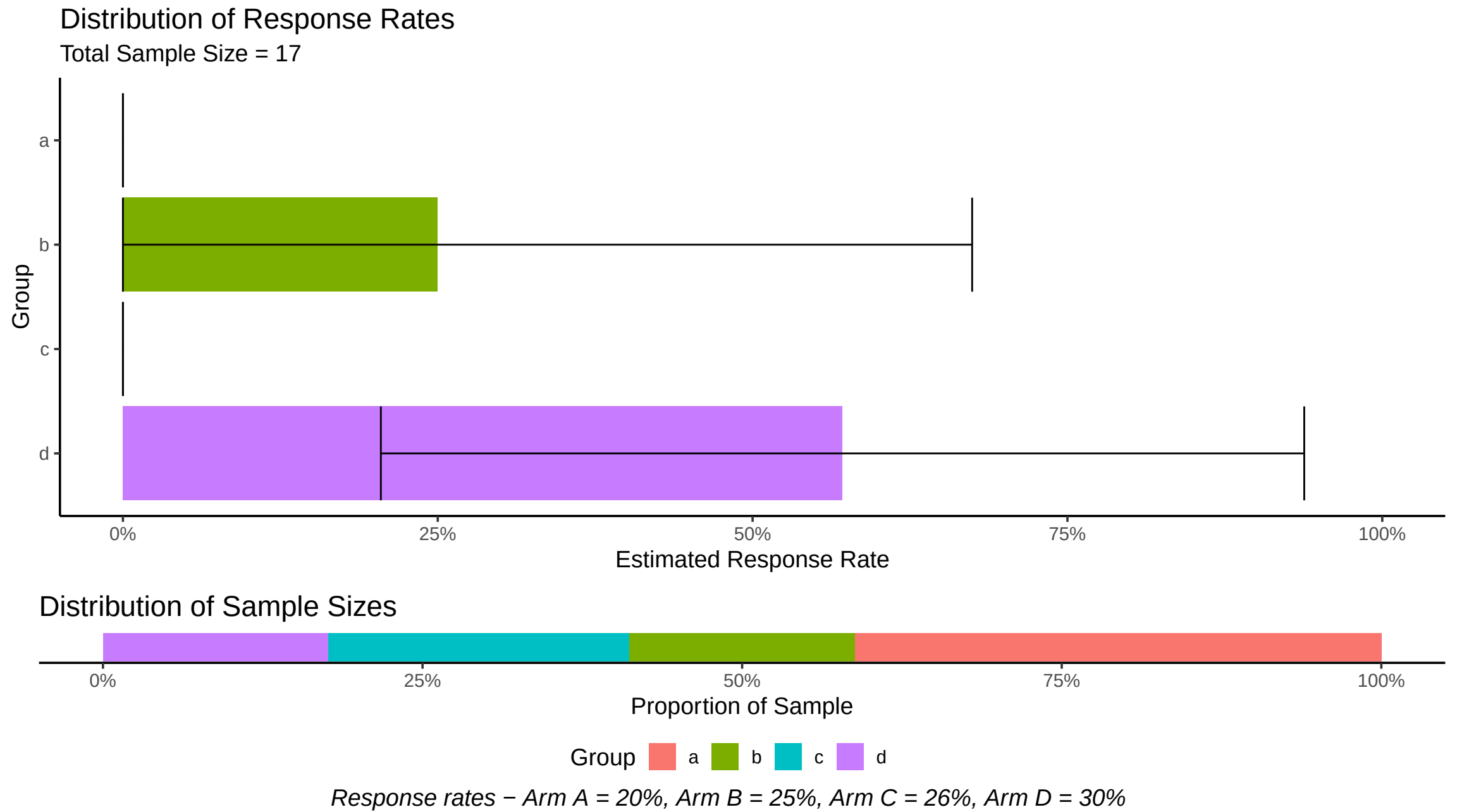
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

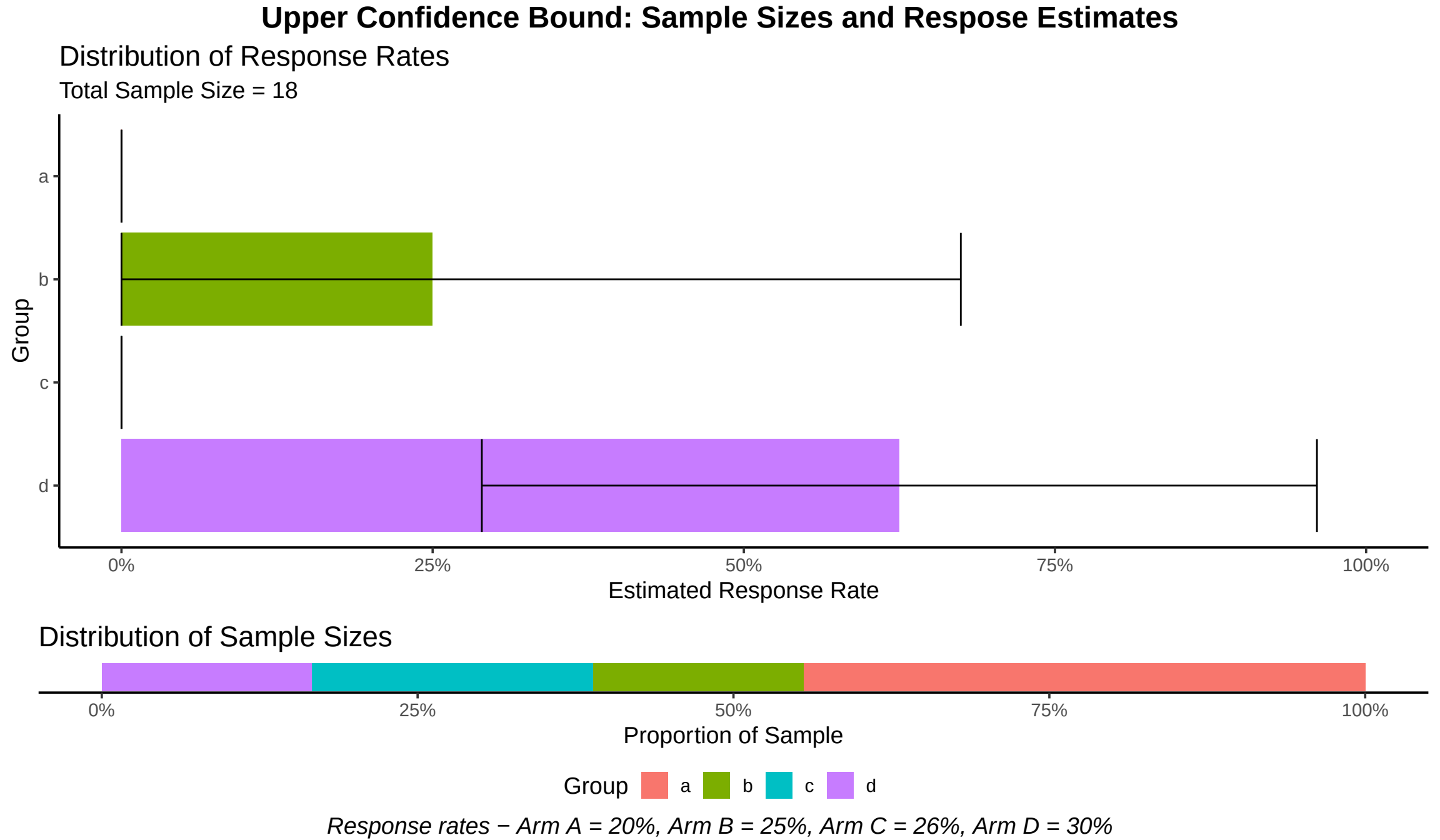


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

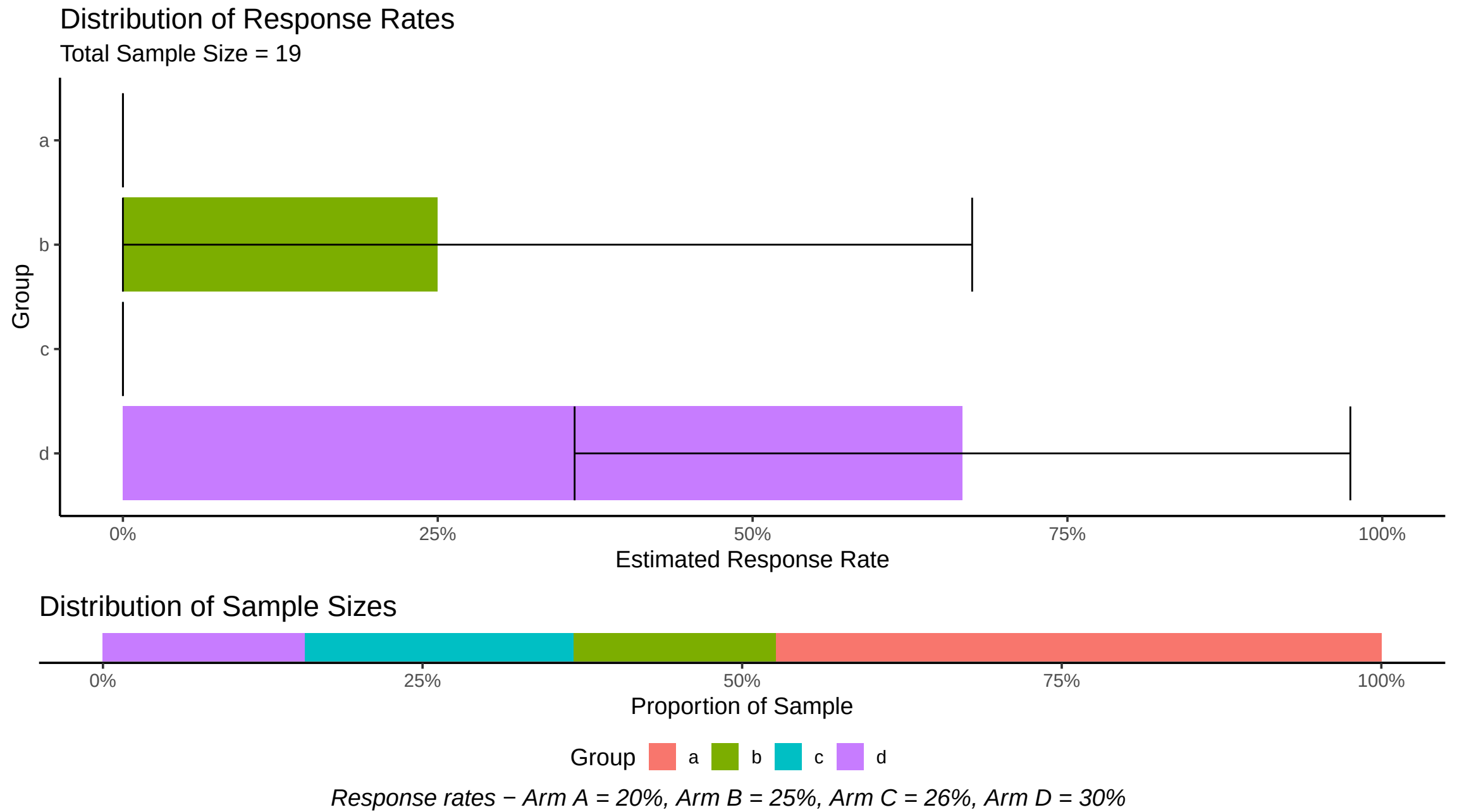
Upper Confidence Bound: Sample Sizes and Respose Estimates



Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

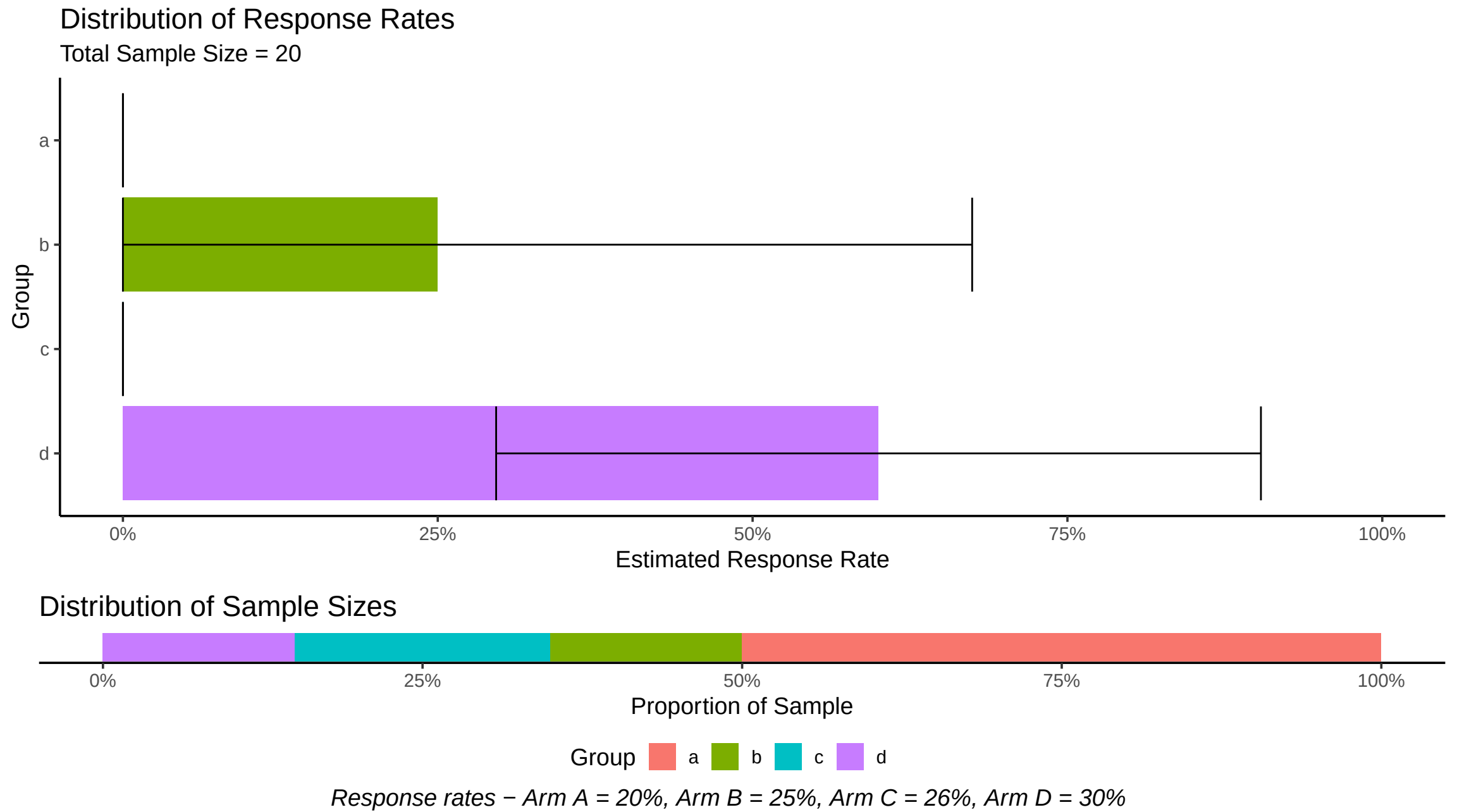

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates



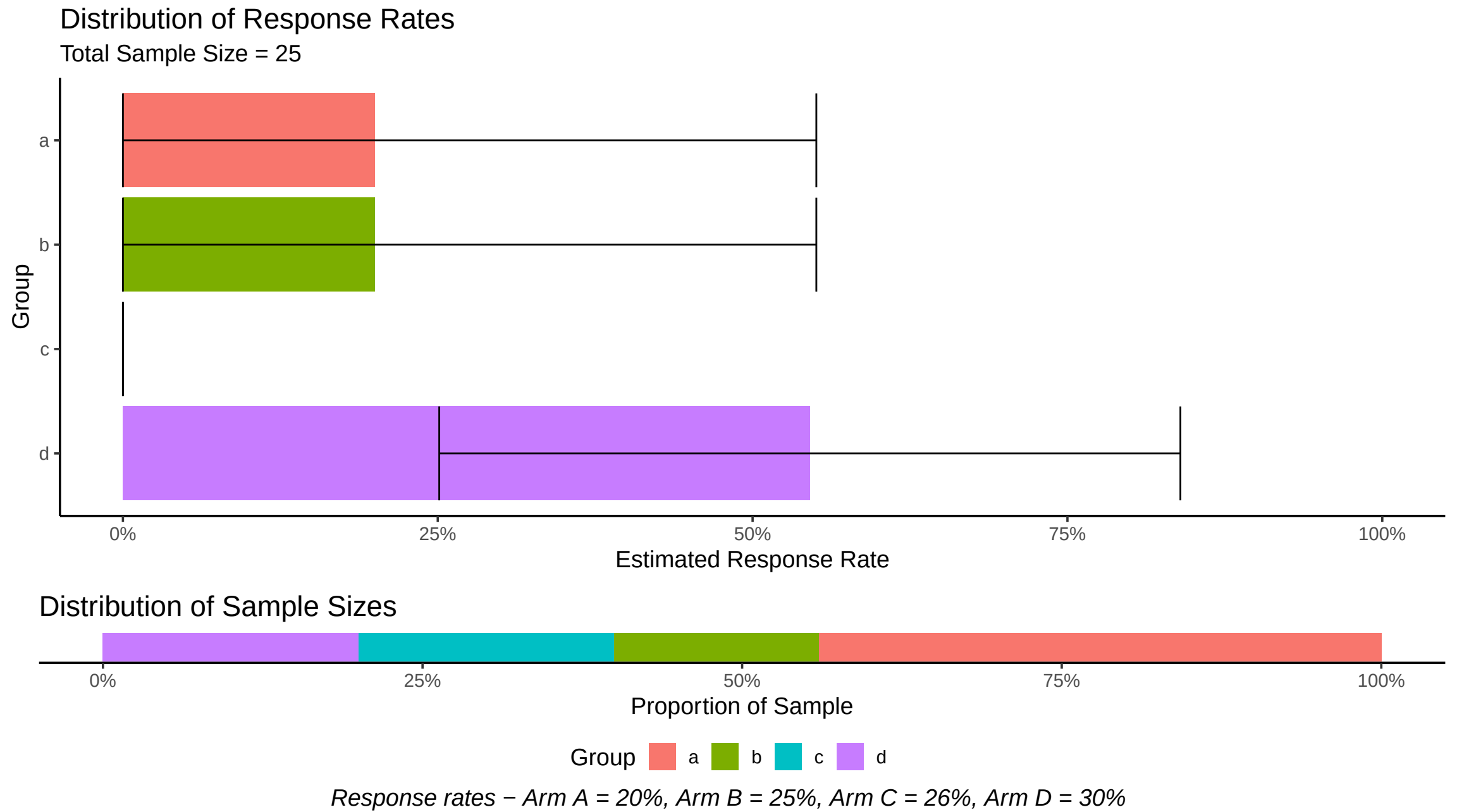
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates



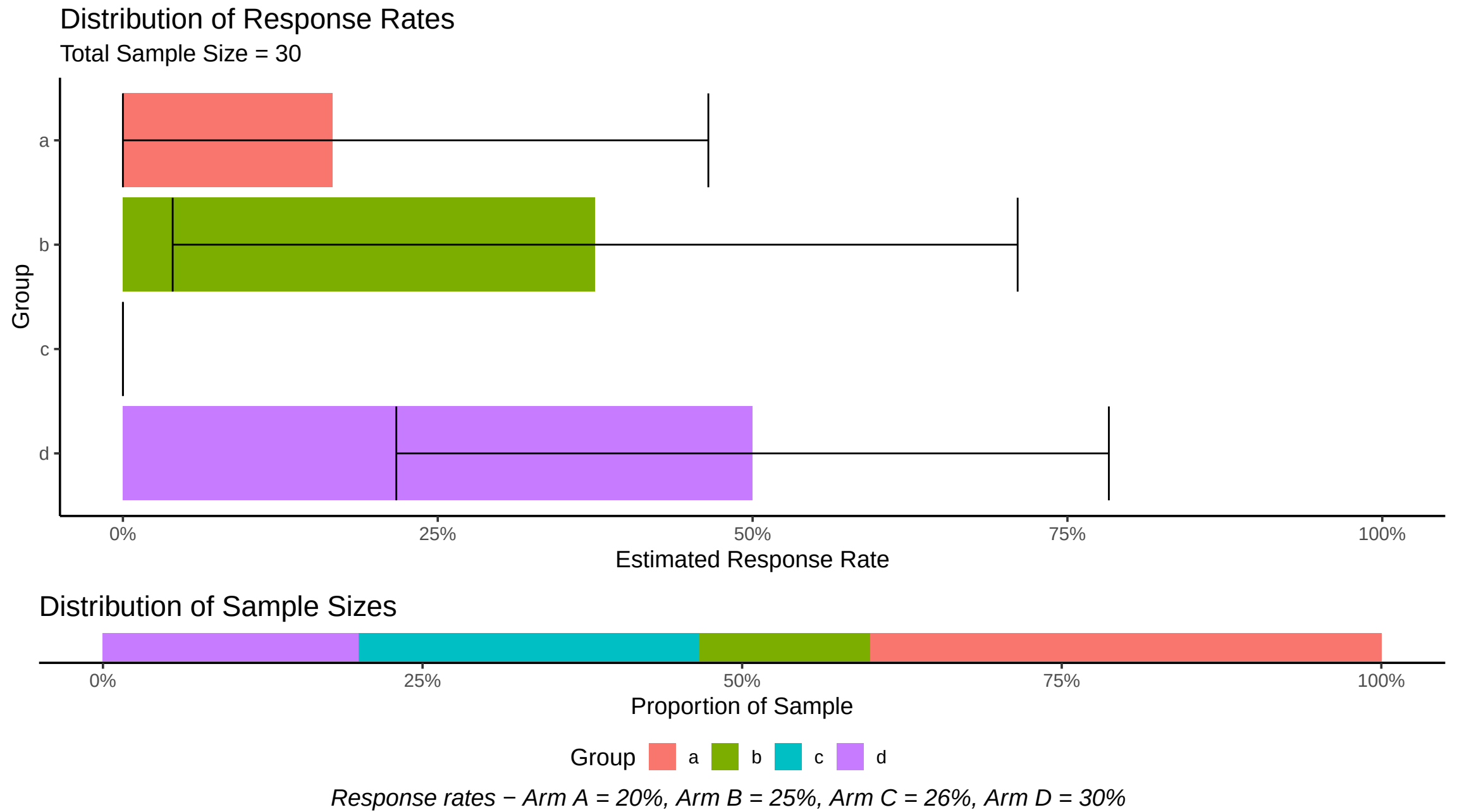
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

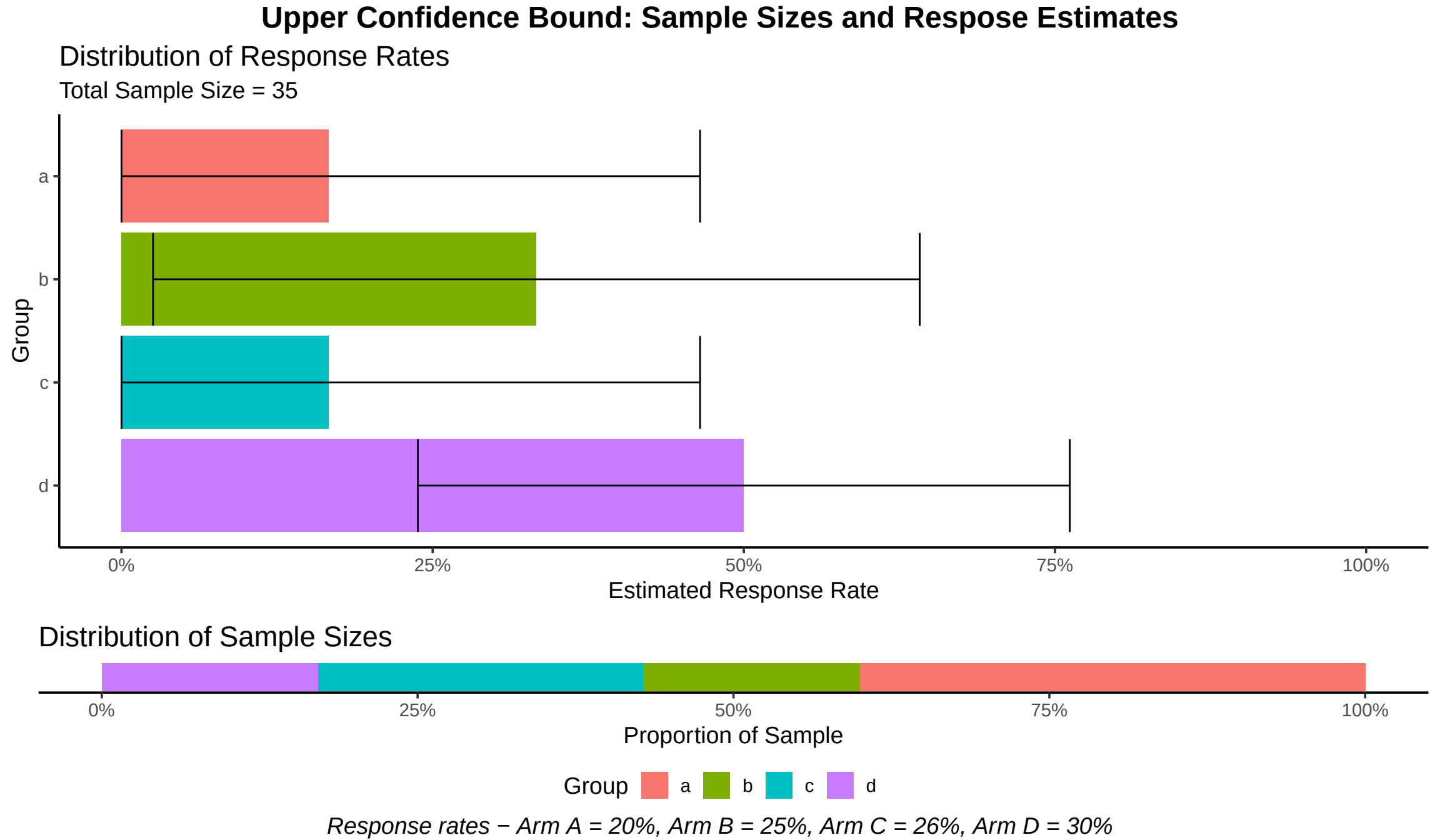


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

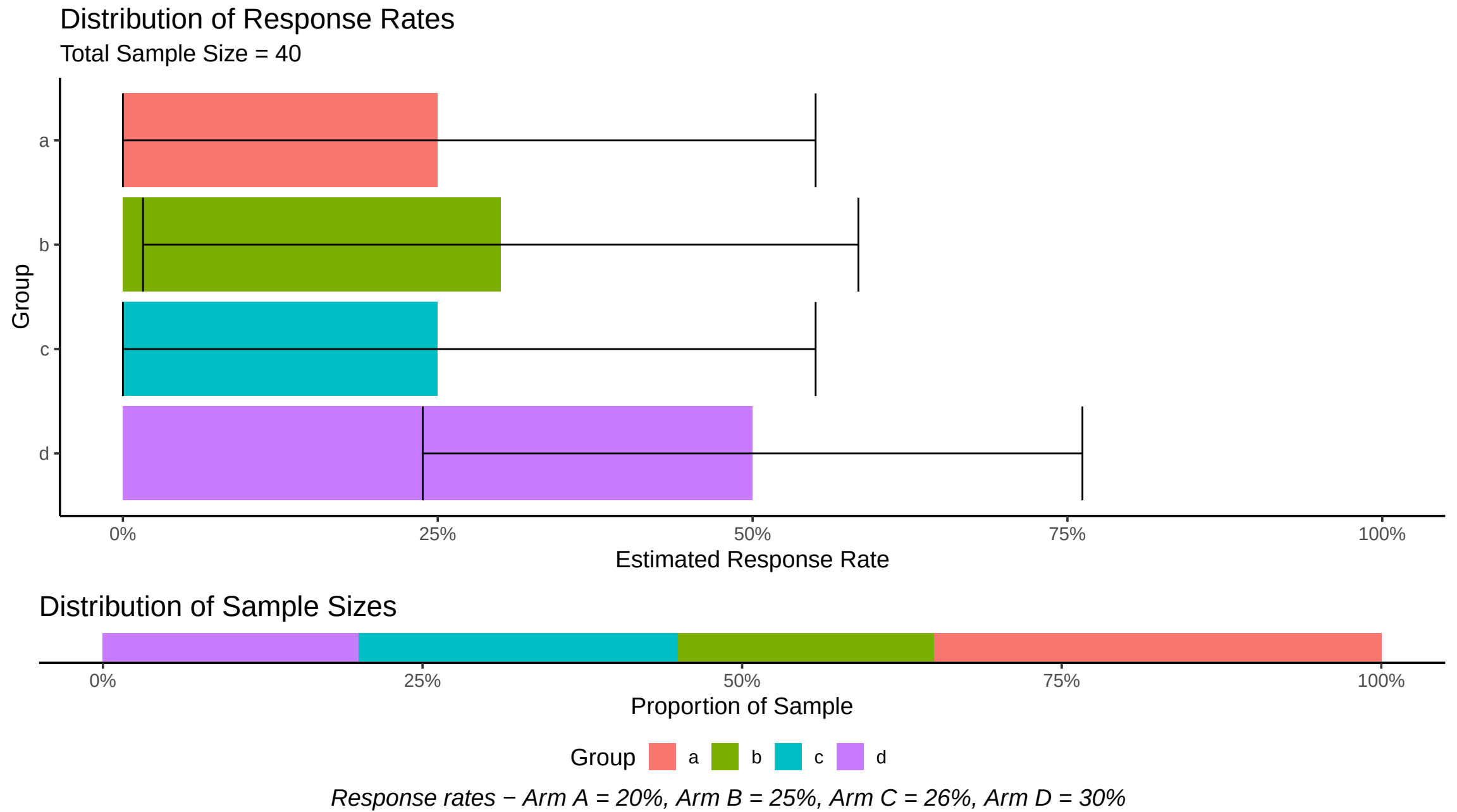
Upper Confidence Bound: Sample Sizes and Respose Estimates



Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

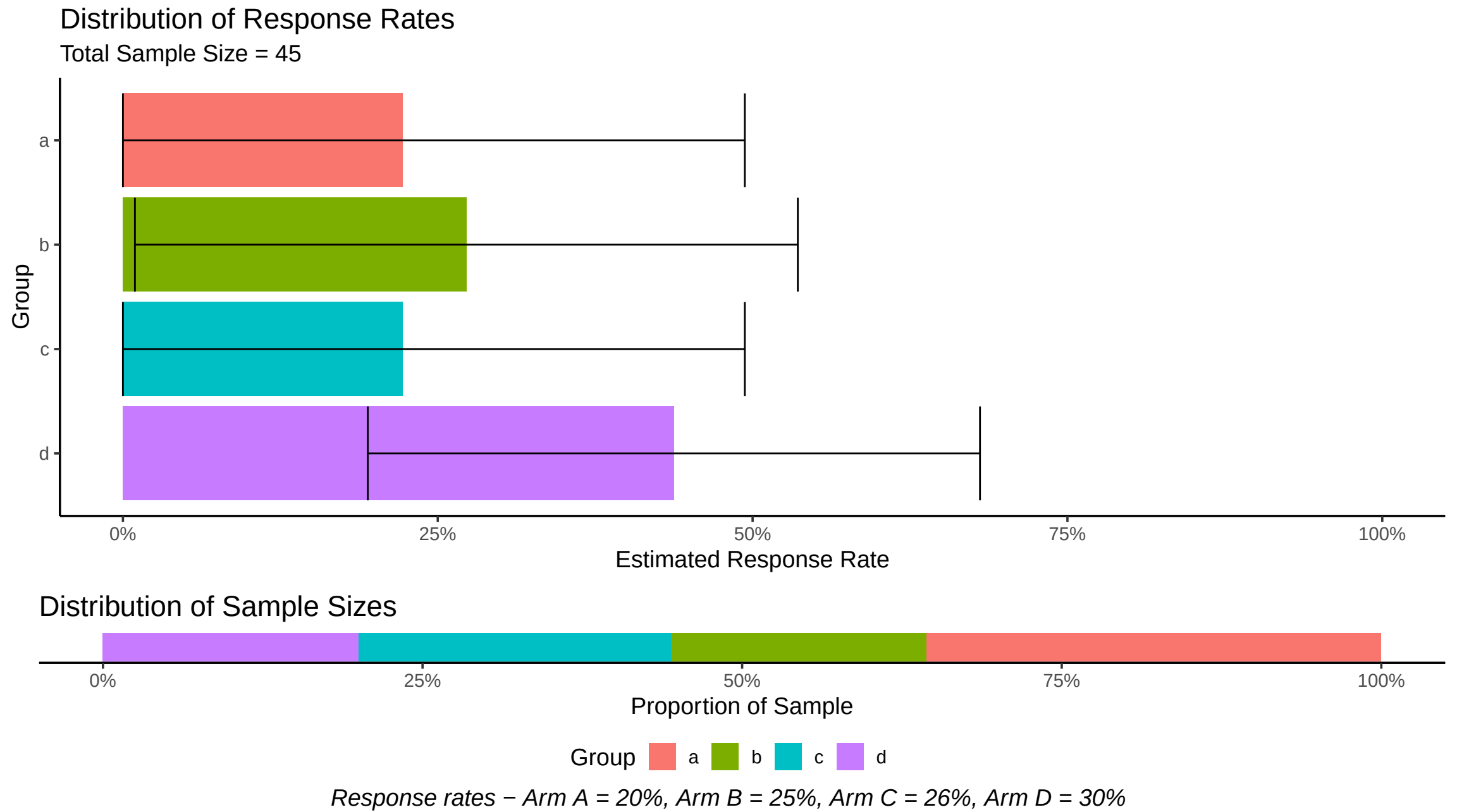

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 35
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

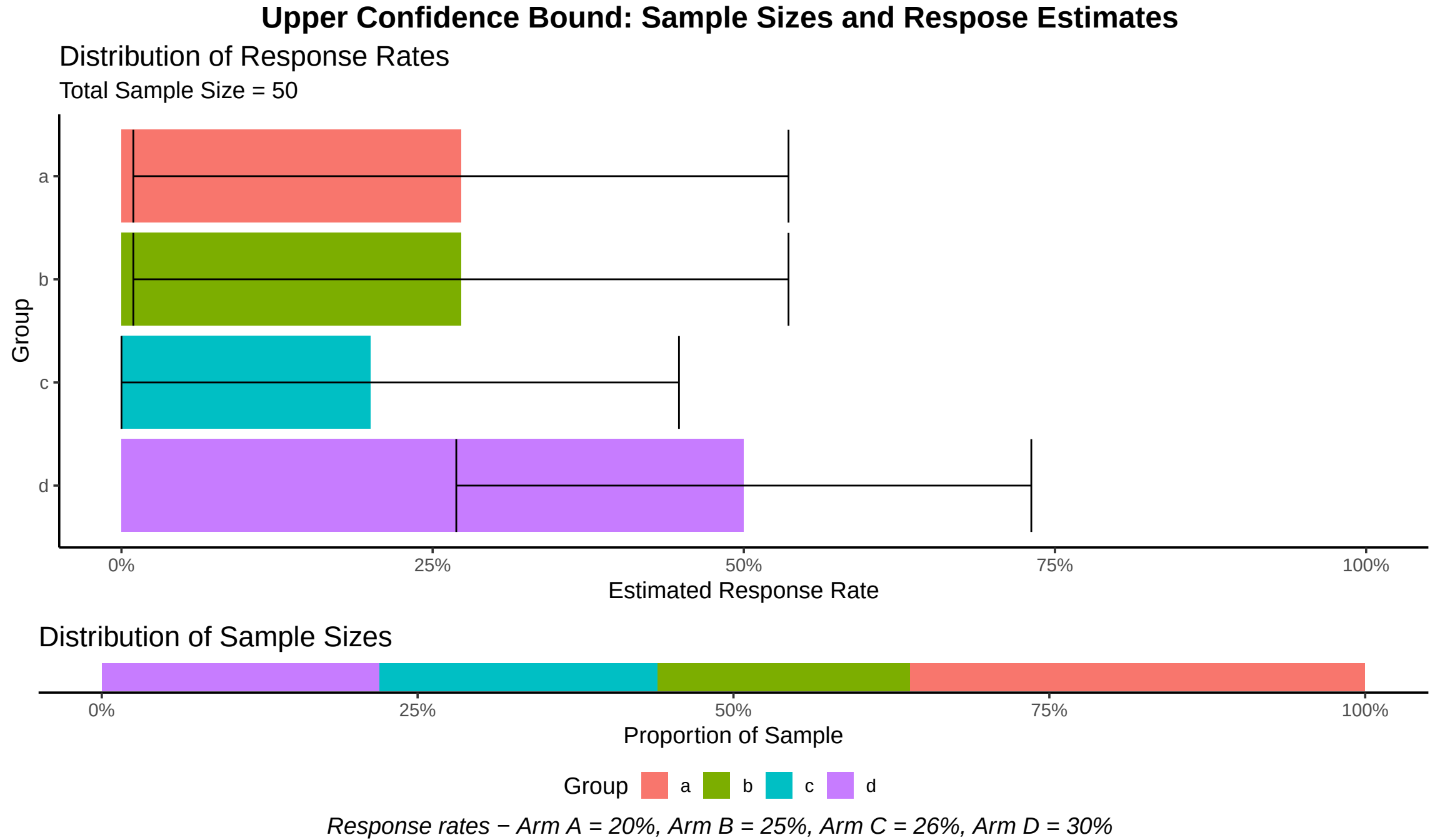


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

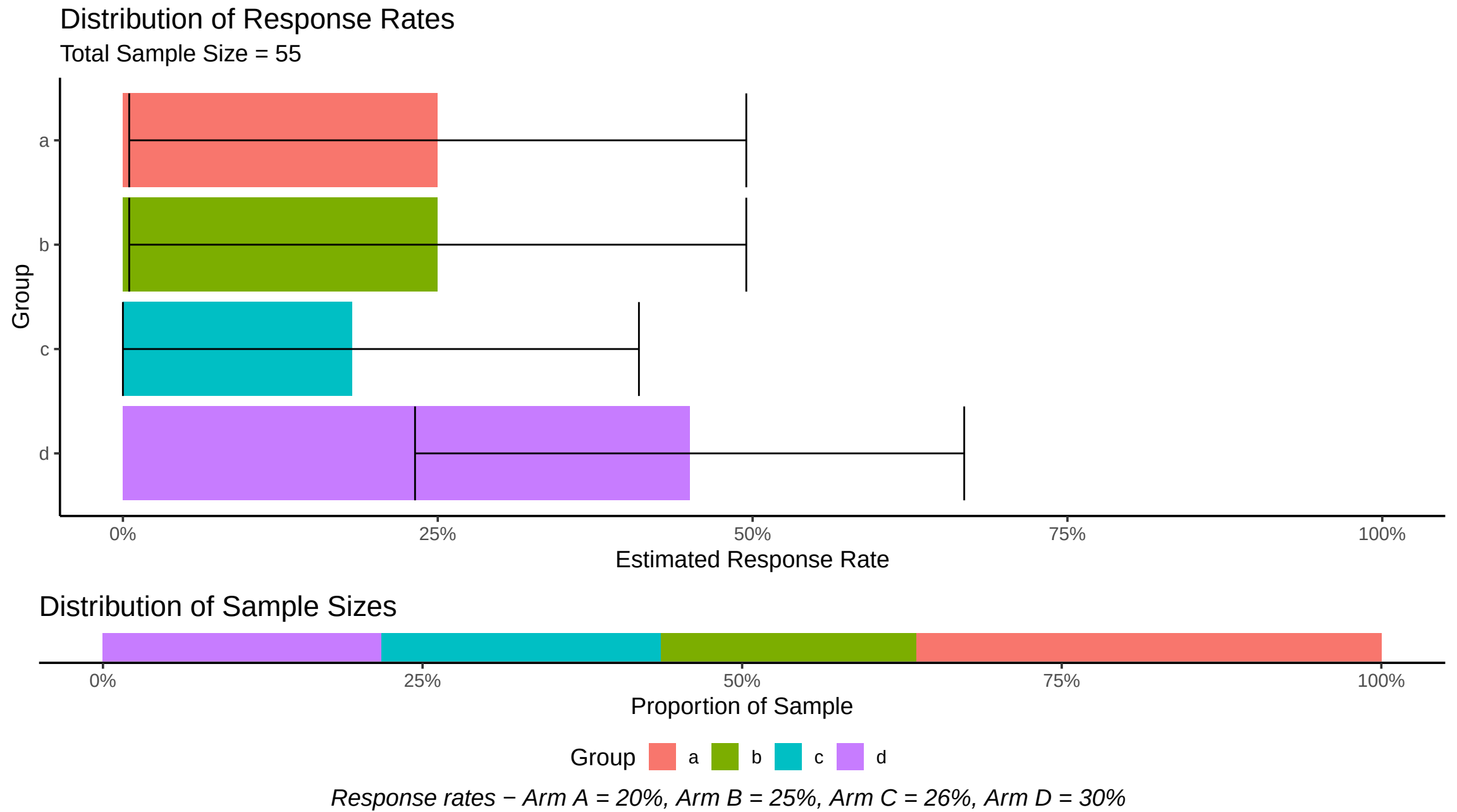
Upper Confidence Bound: Sample Sizes and Respose Estimates



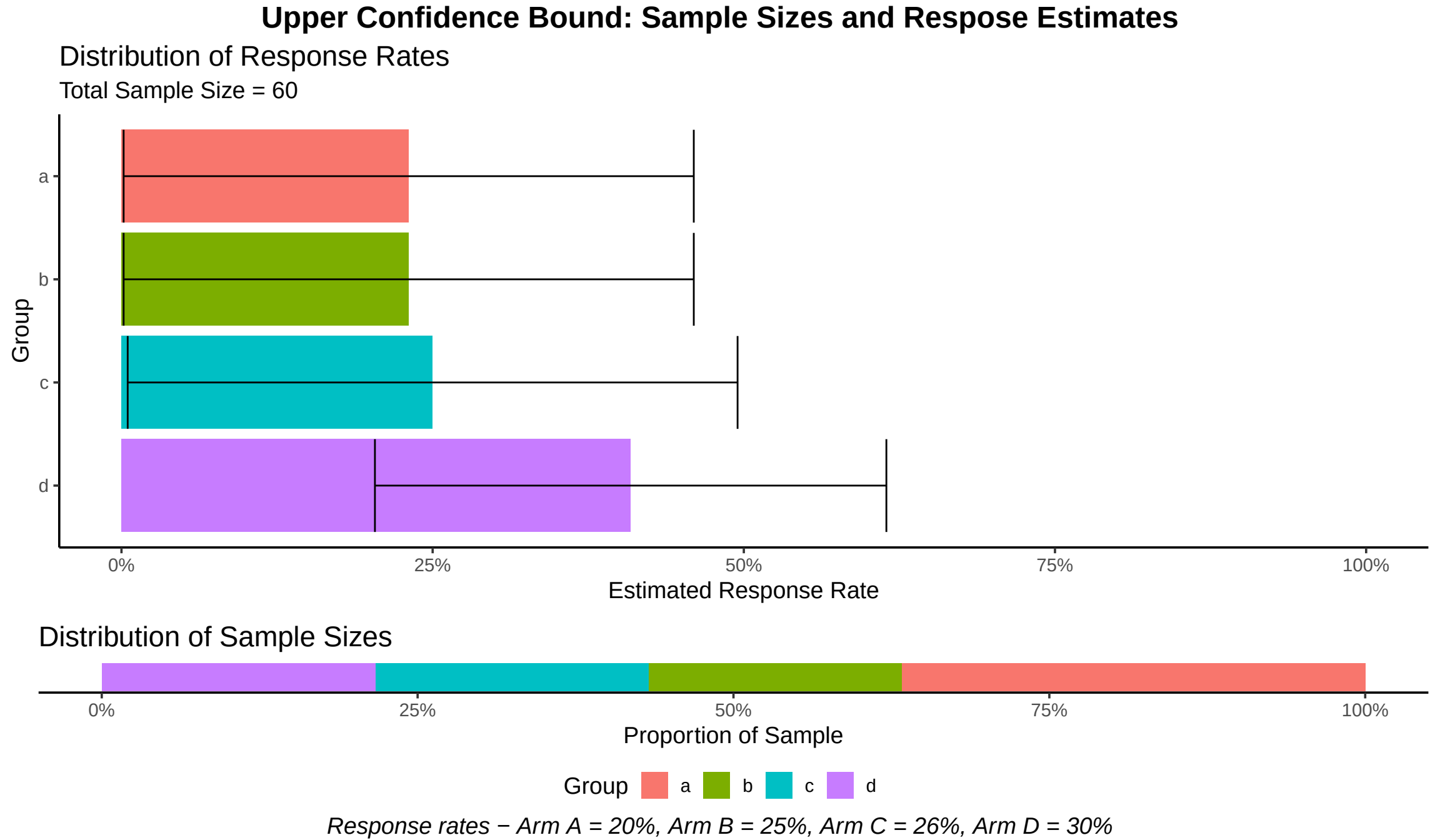
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

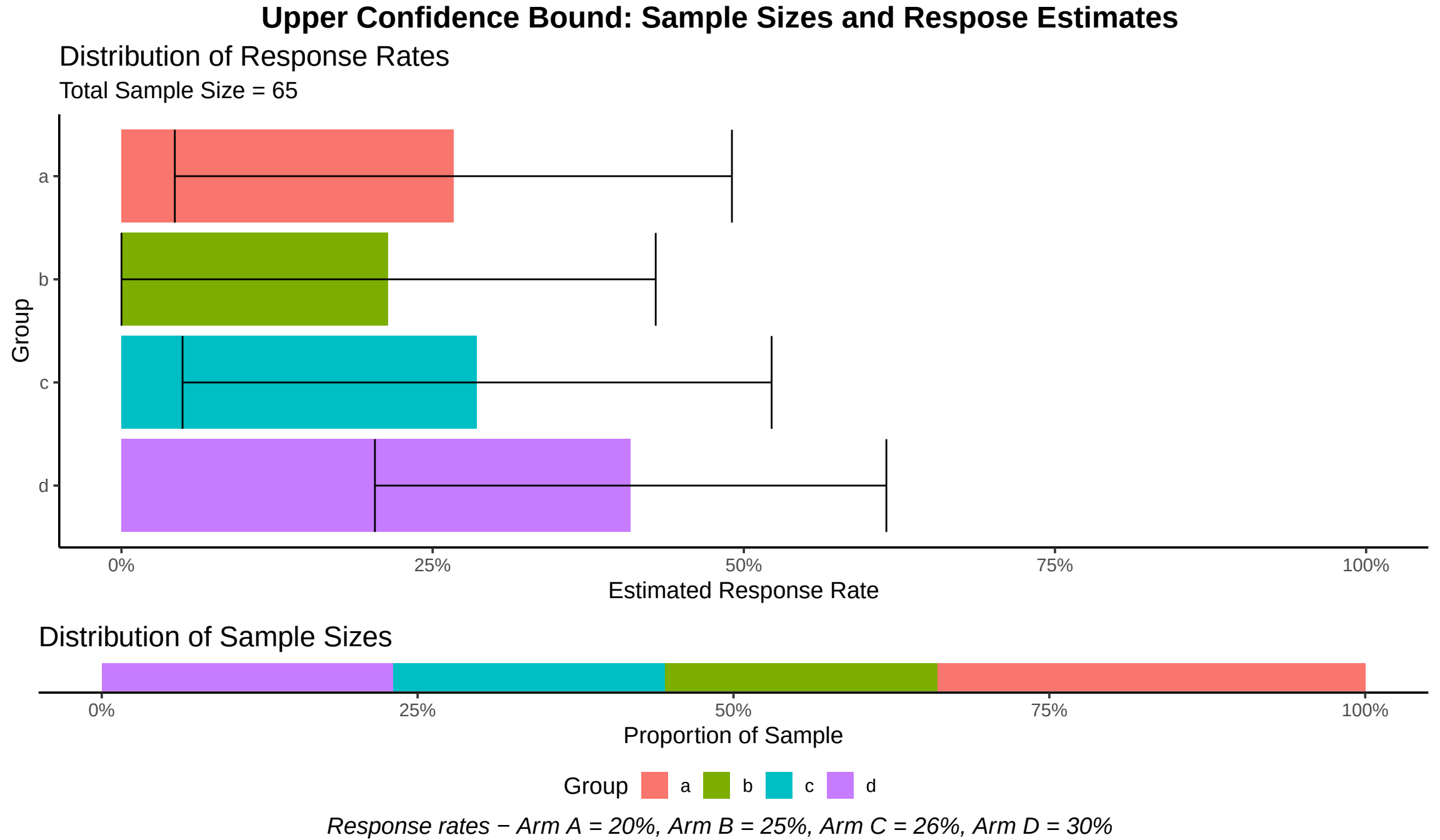

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 50
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

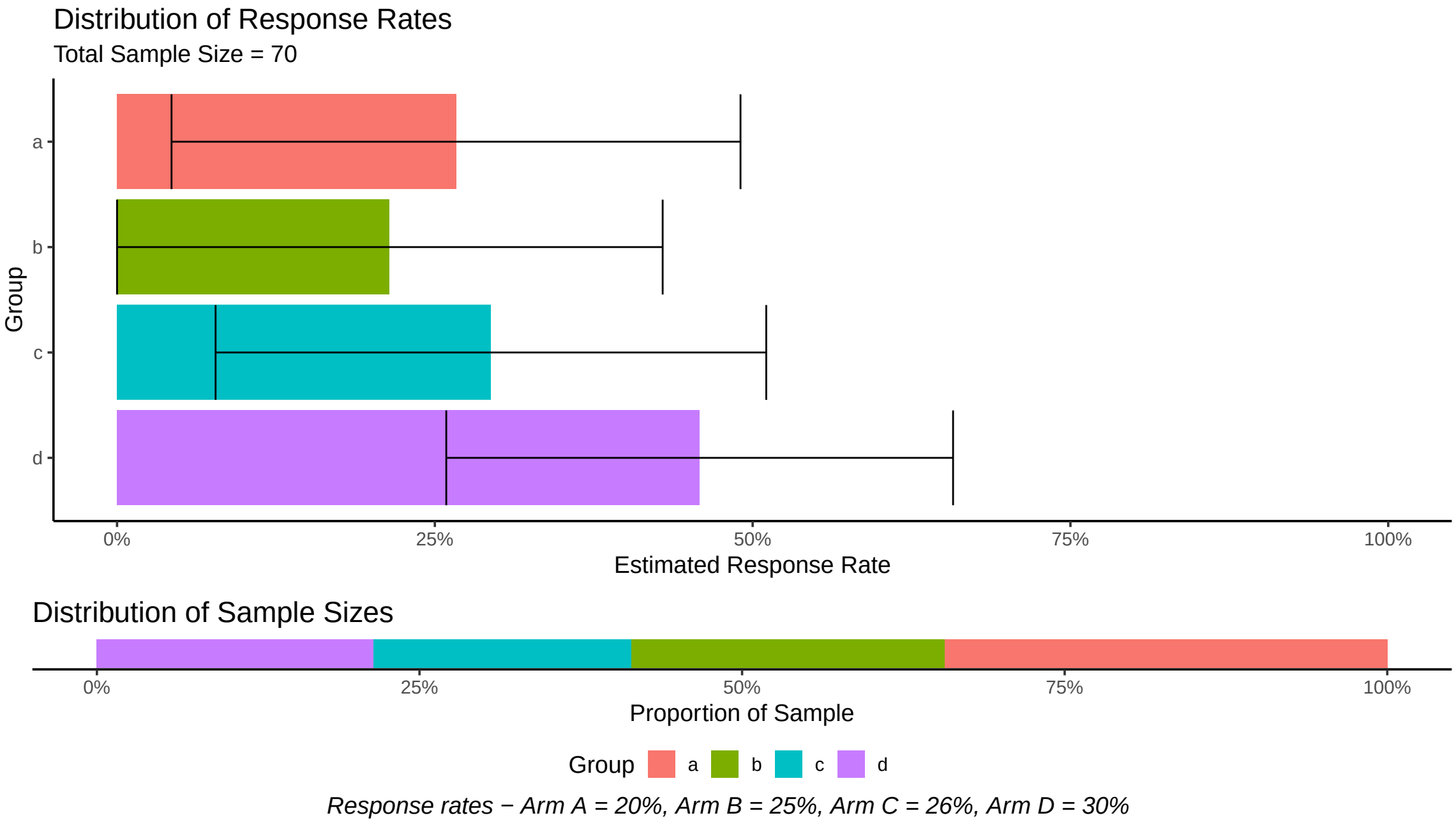


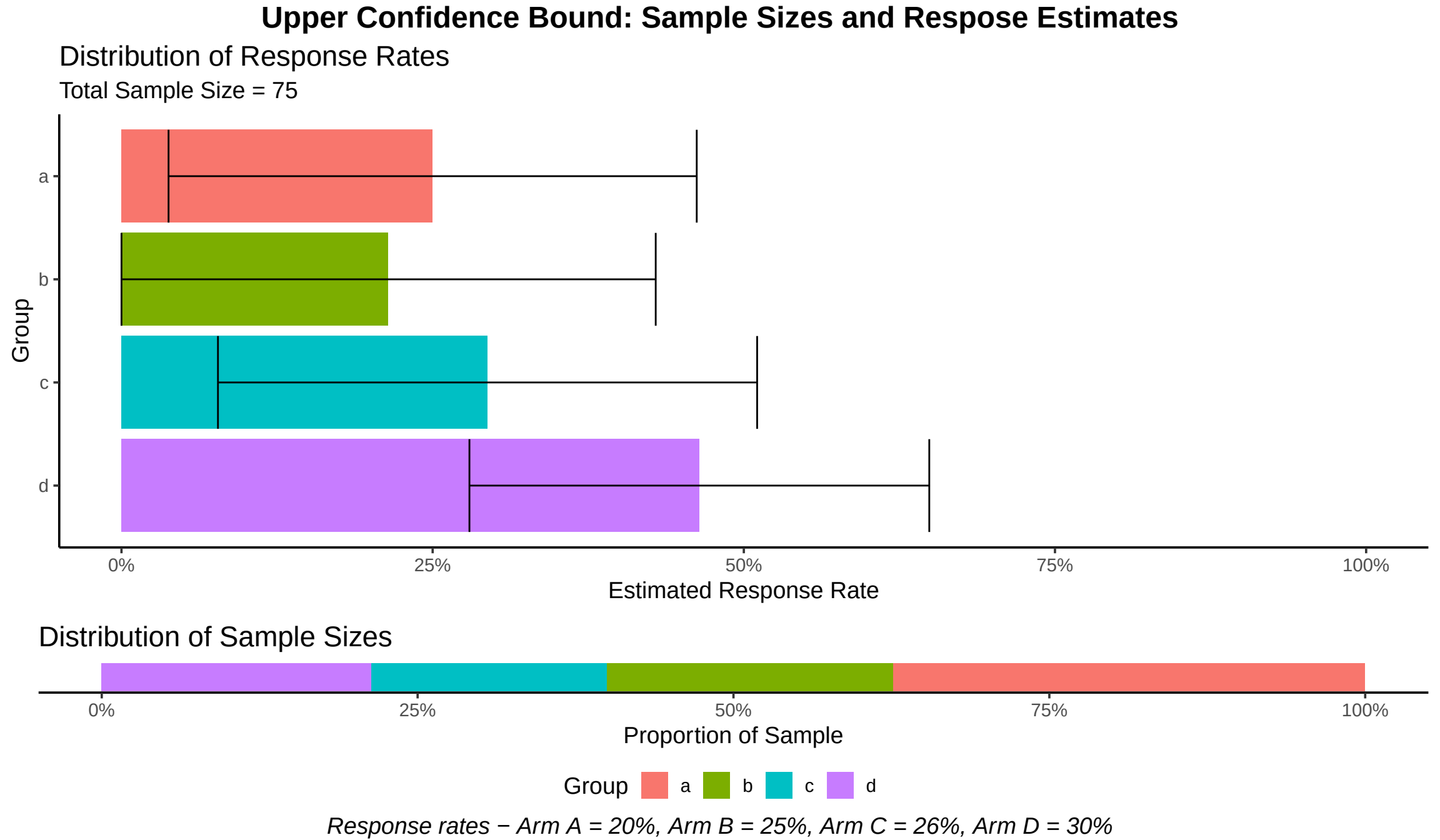
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

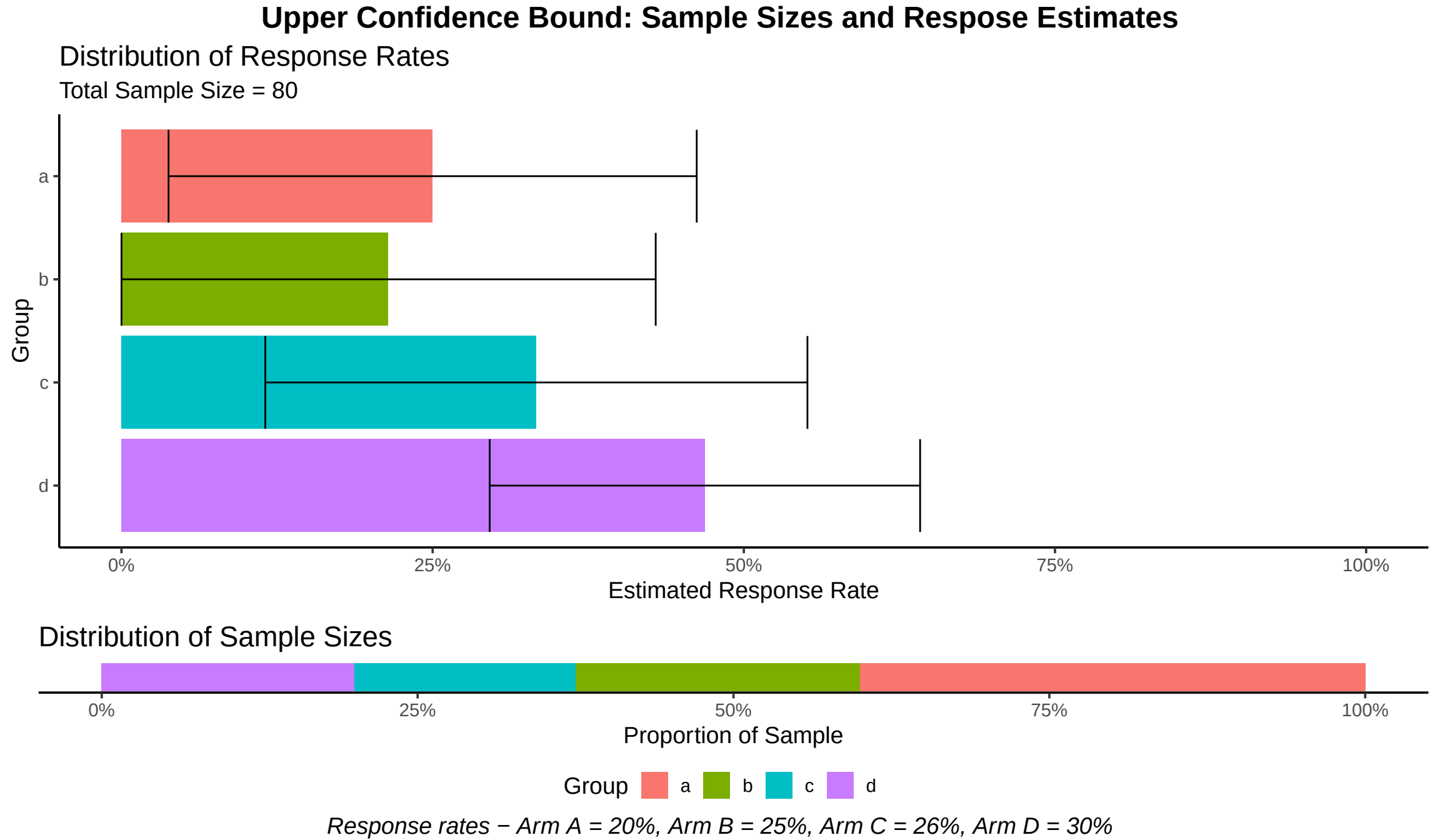

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 60
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

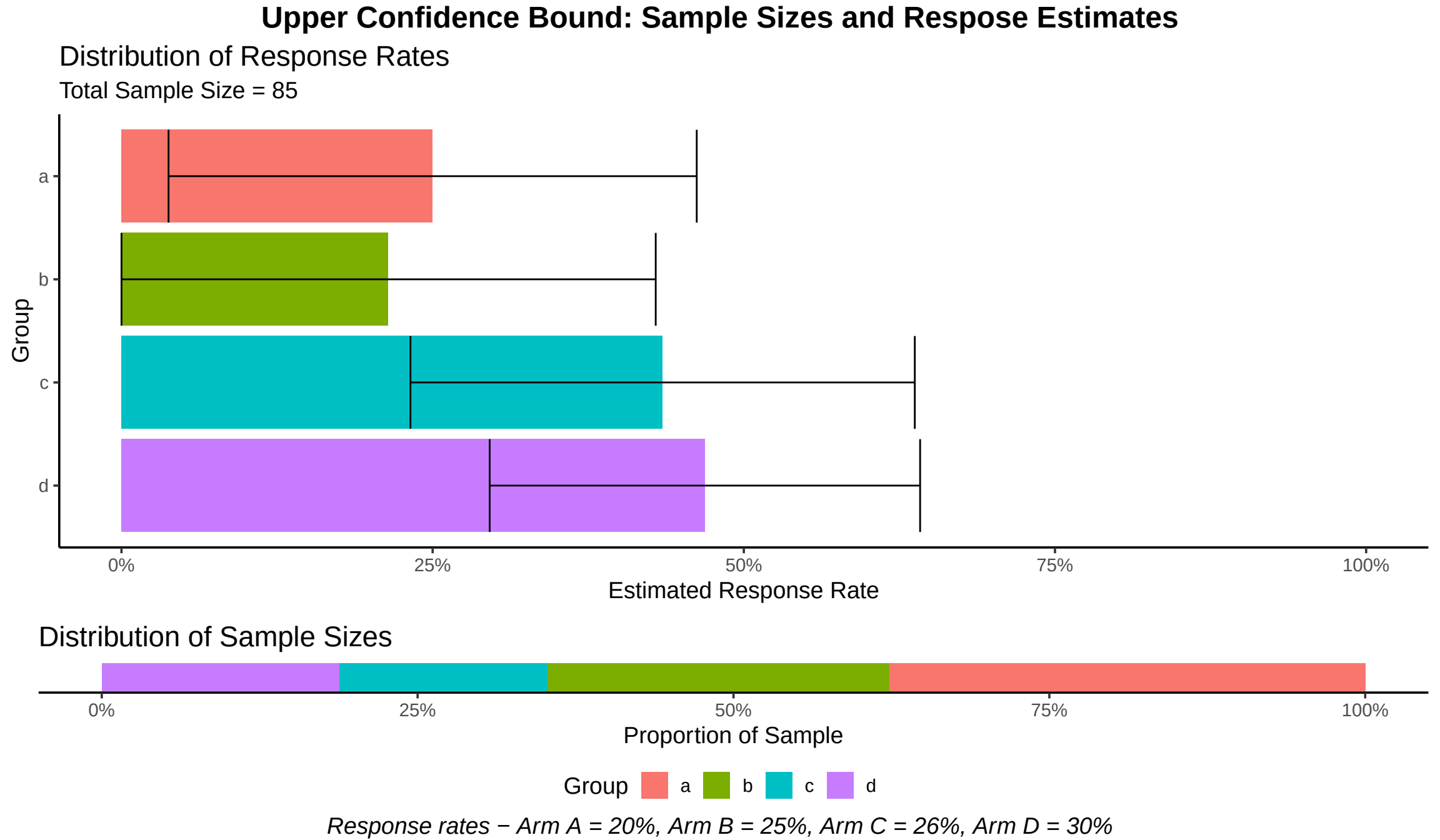

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 65
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

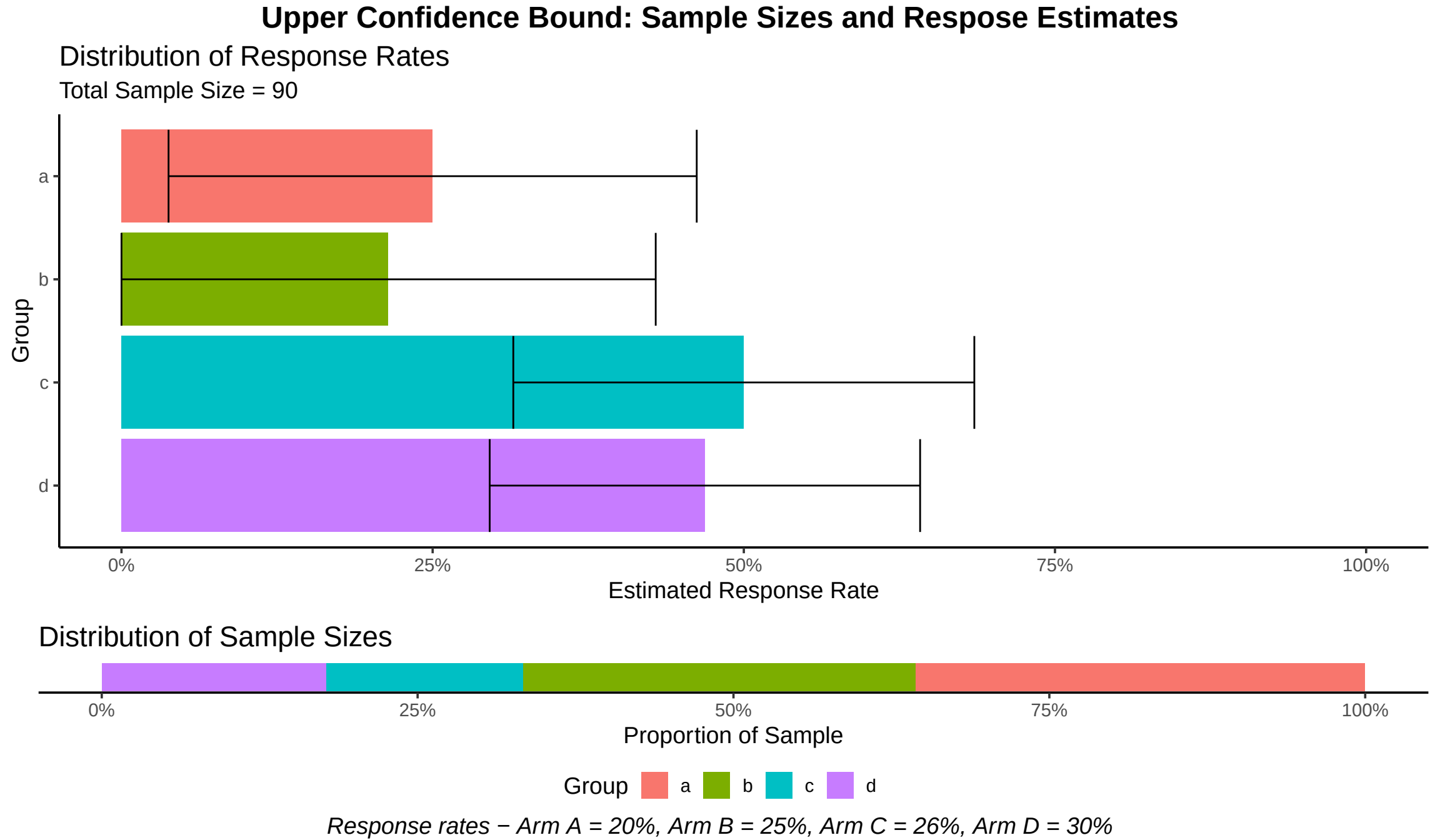
Upper Confidence Bound: Sample Sizes and Respose Estimates

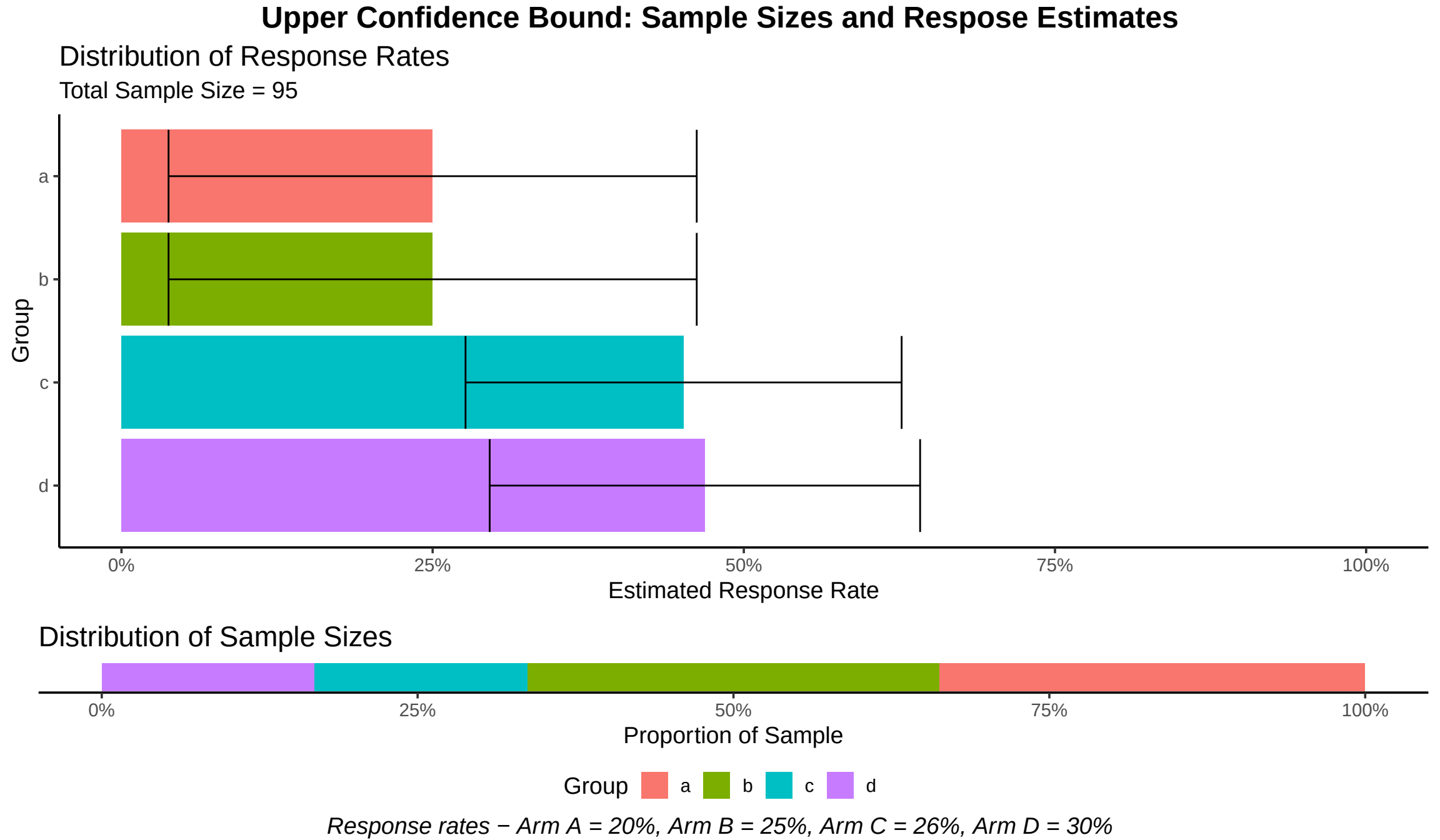


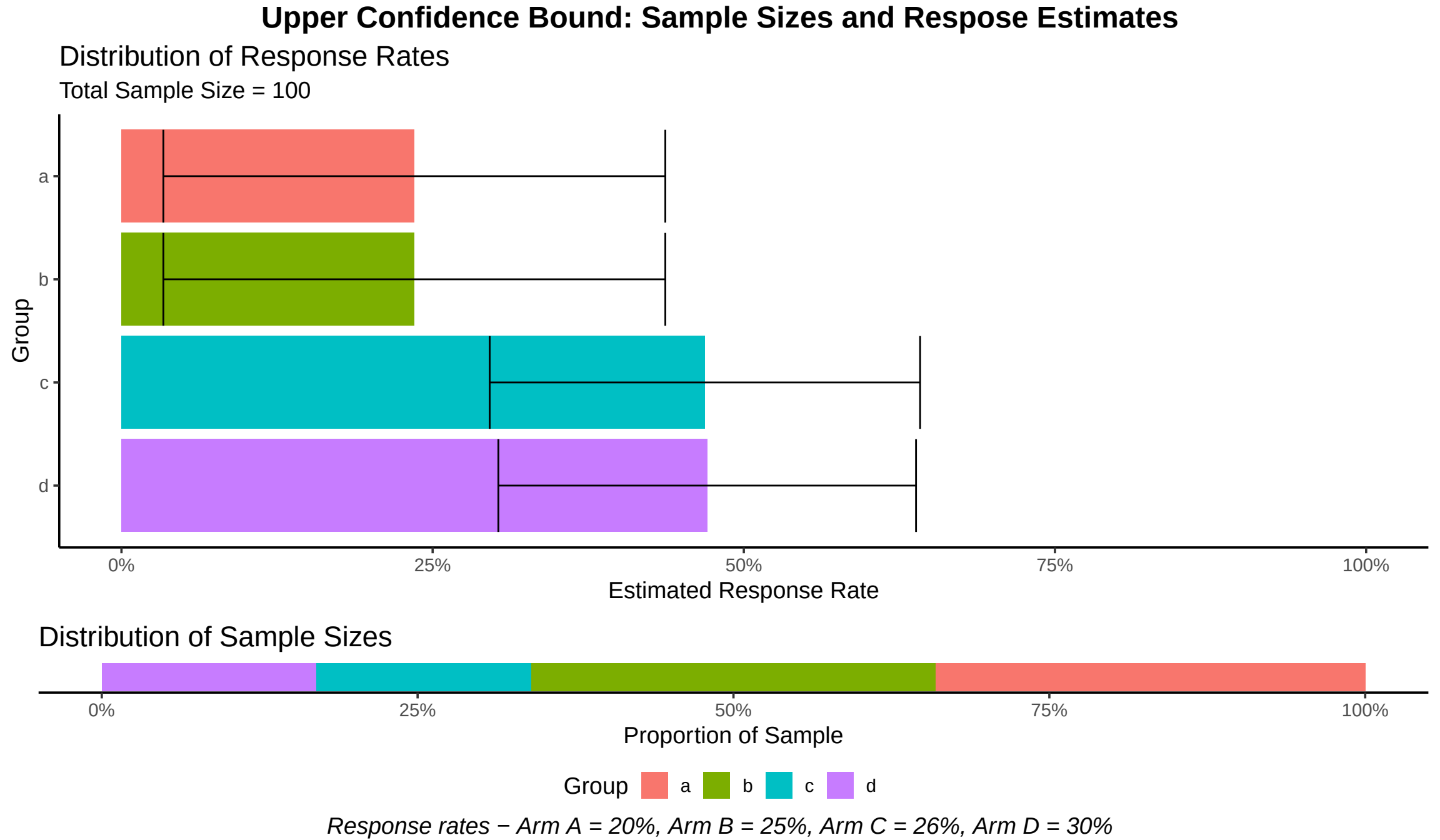

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 75
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

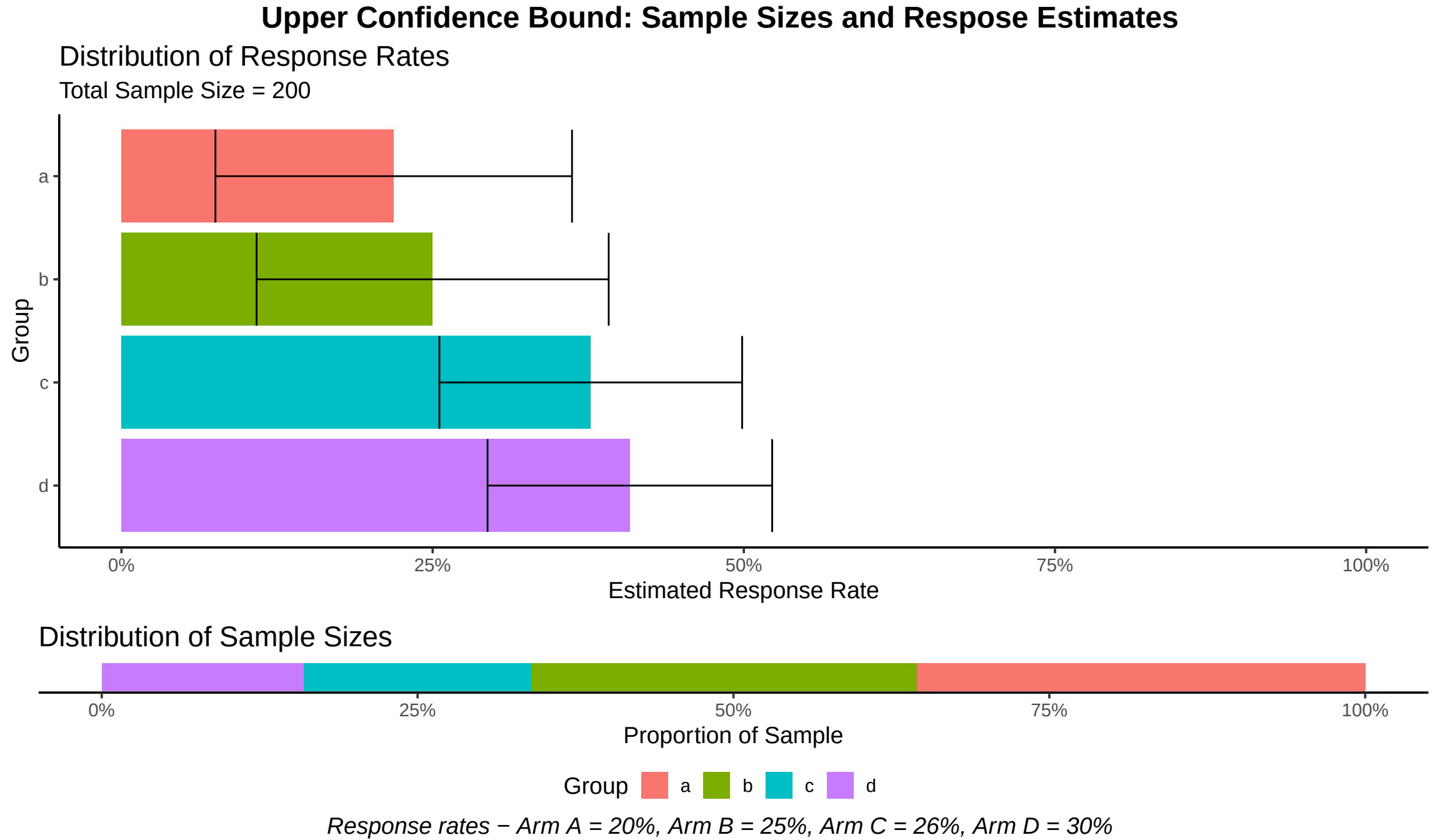

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 80
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

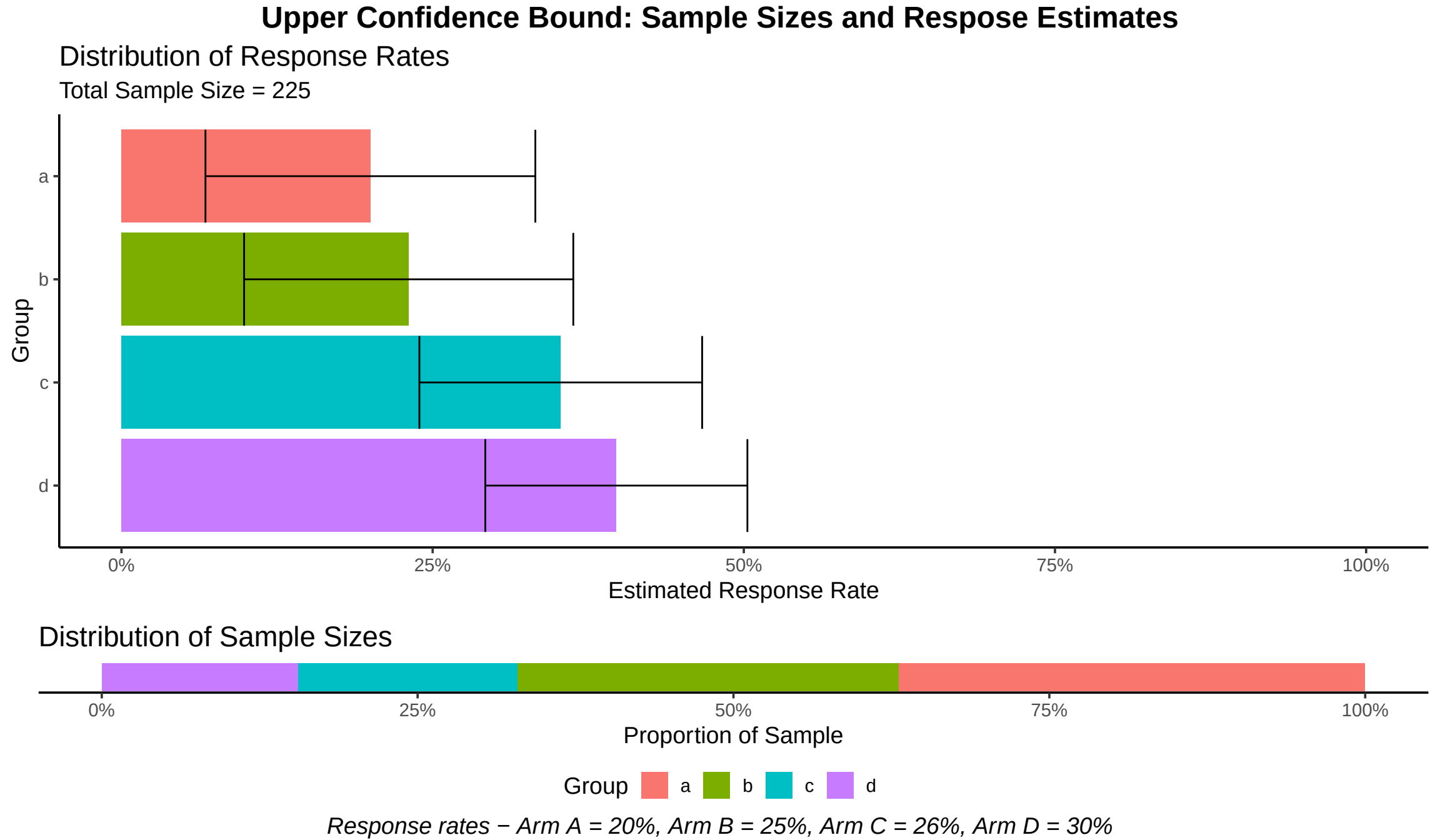

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 85
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

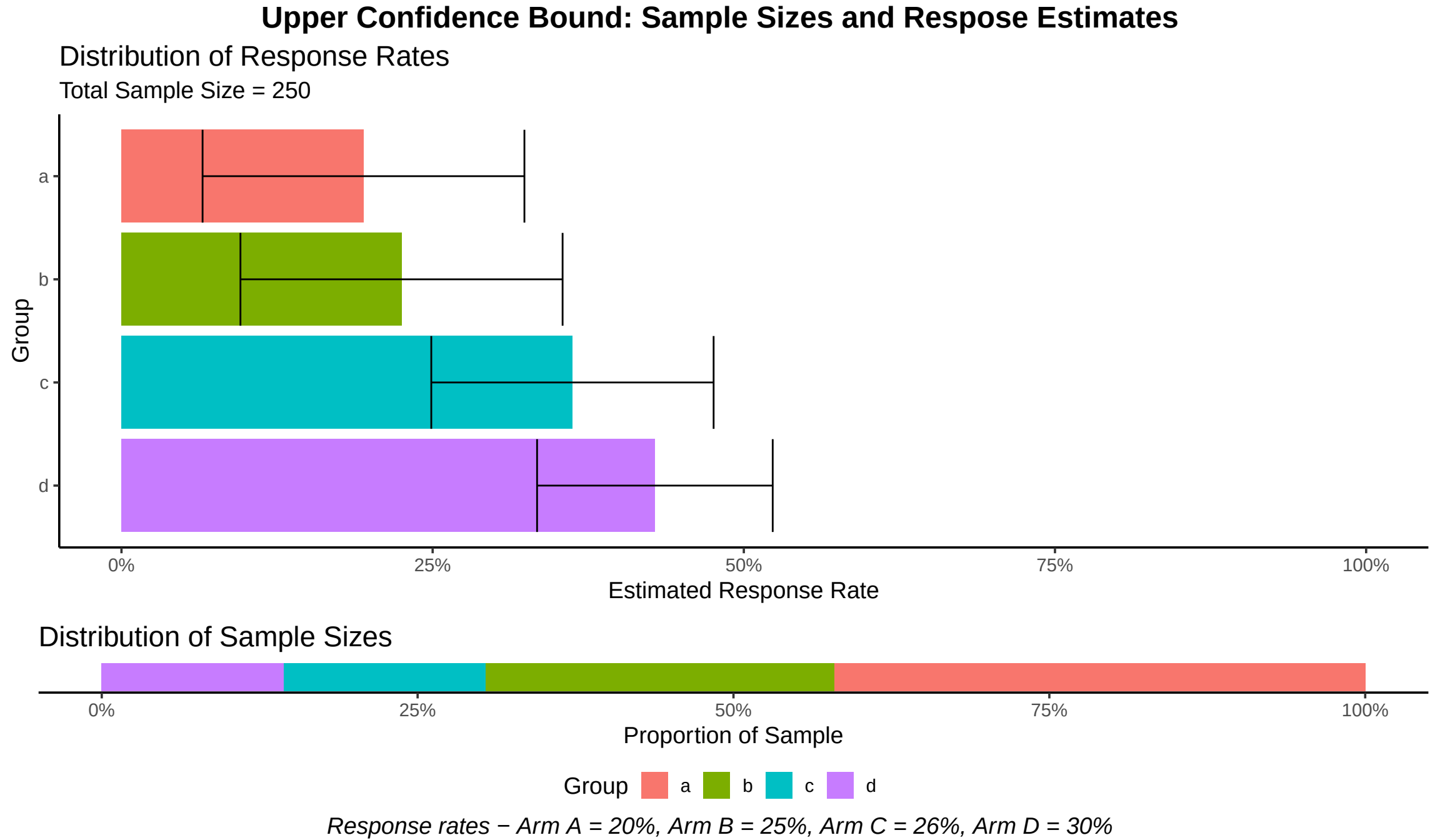

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 90
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

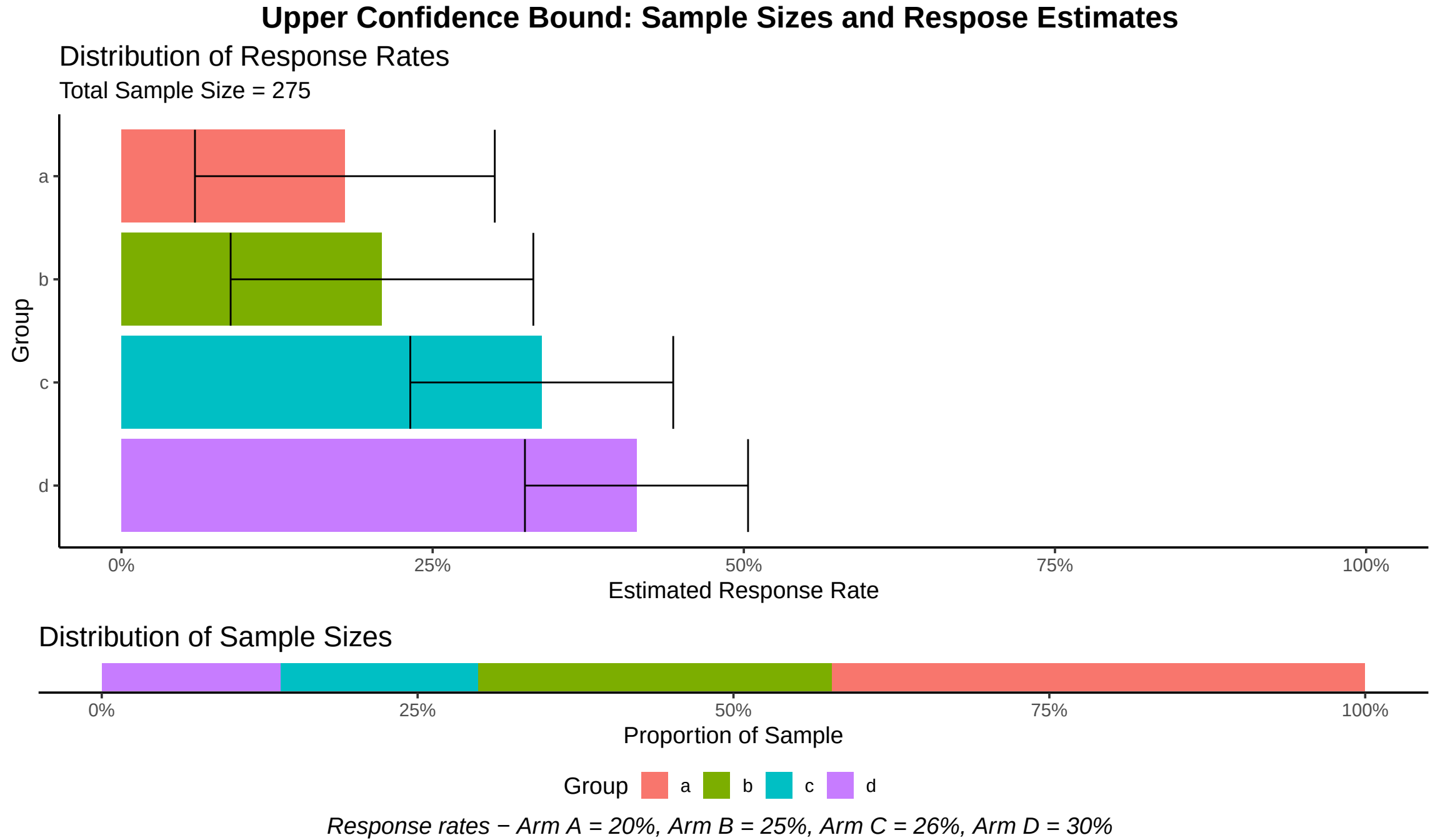

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 95
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

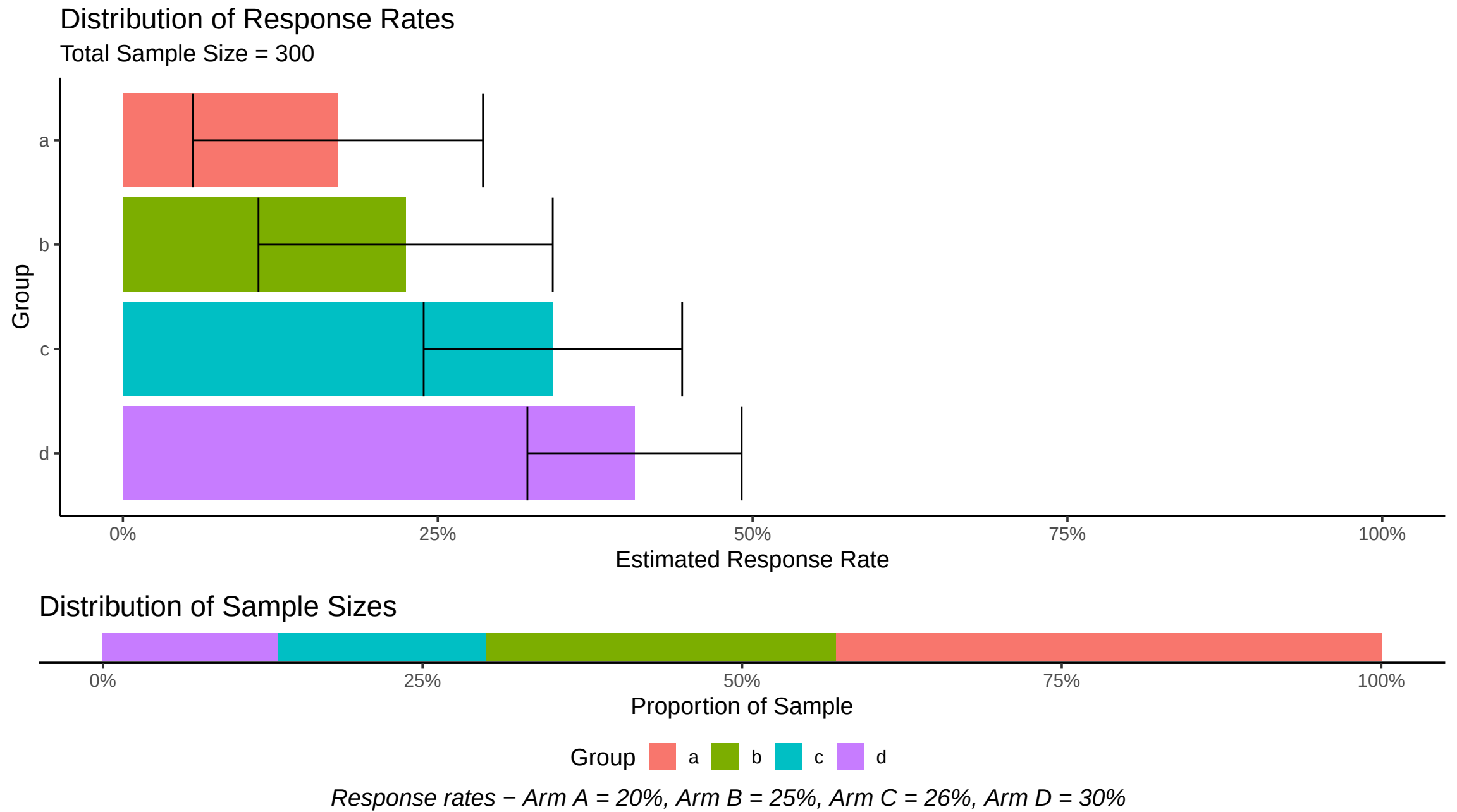

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 225
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

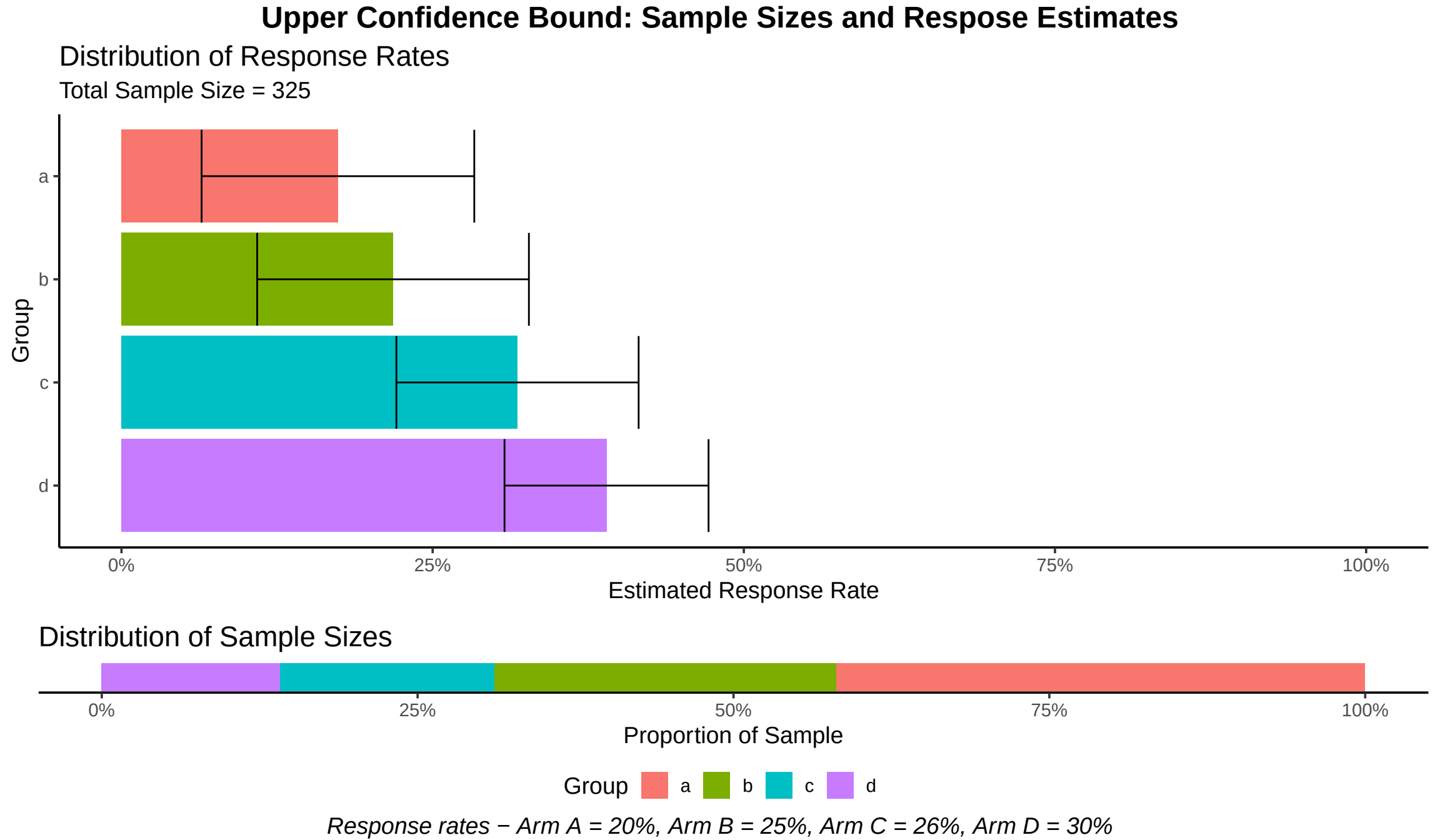

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

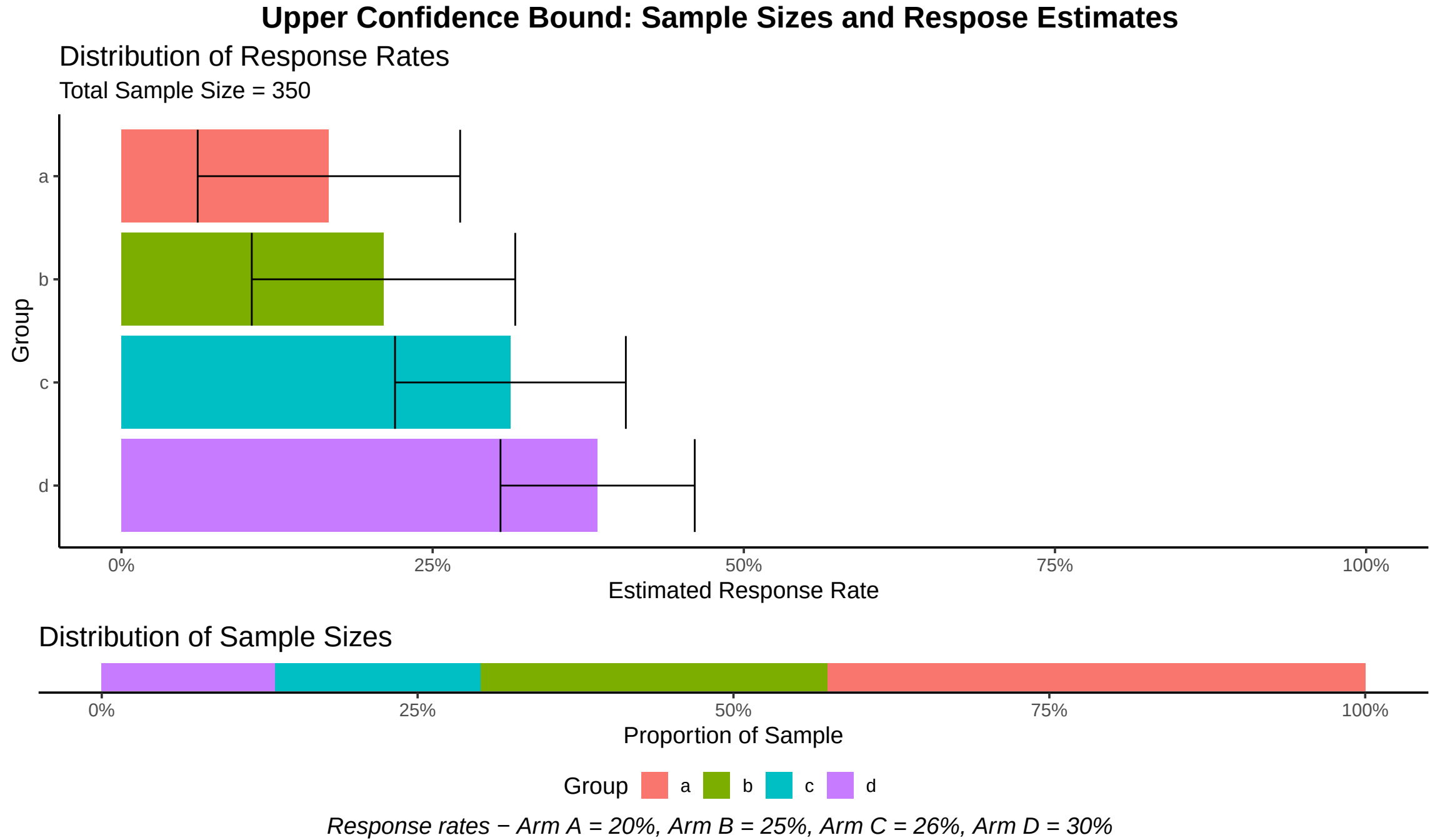

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 275
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

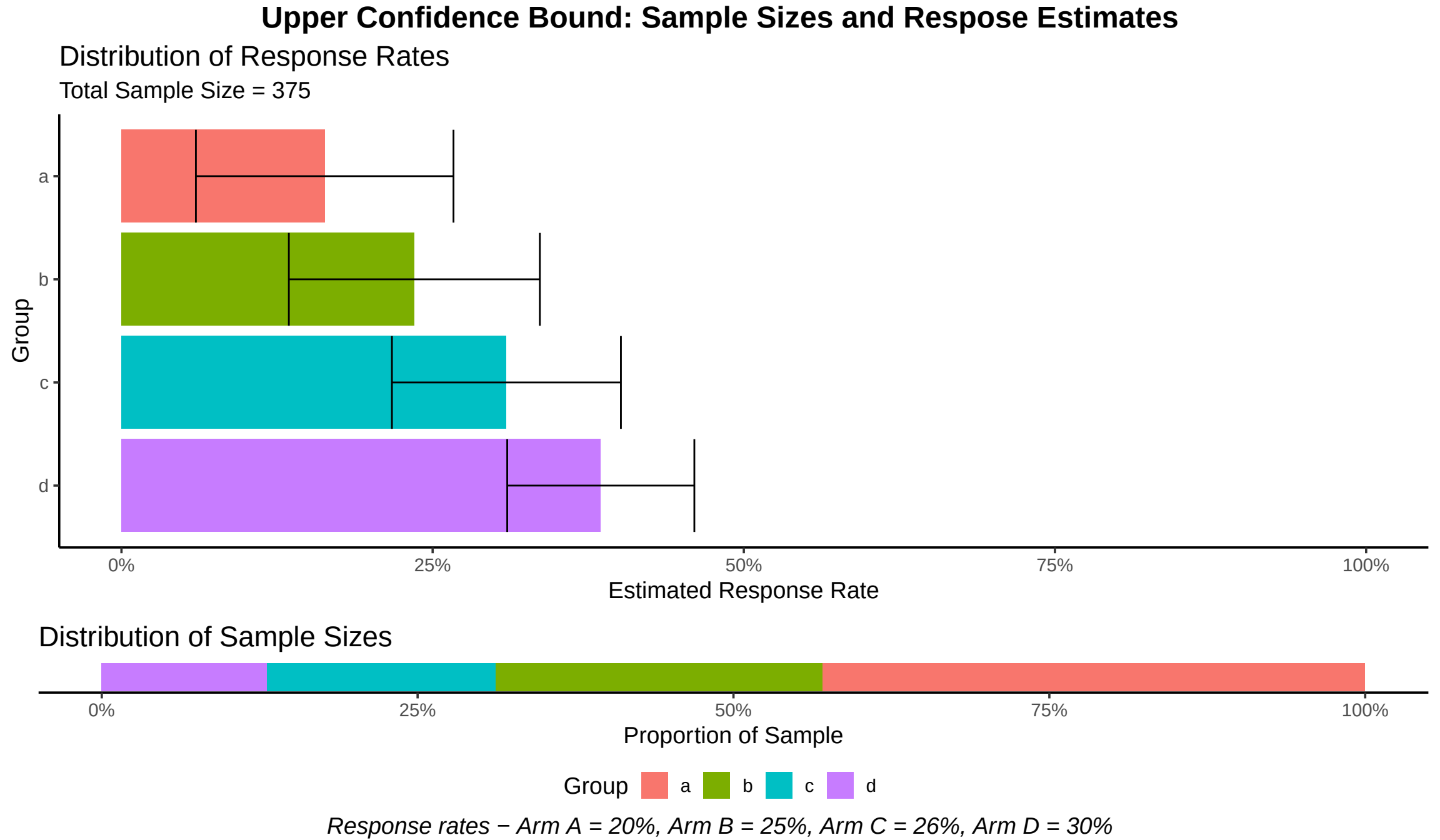
Upper Confidence Bound: Sample Sizes and Respose Estimates

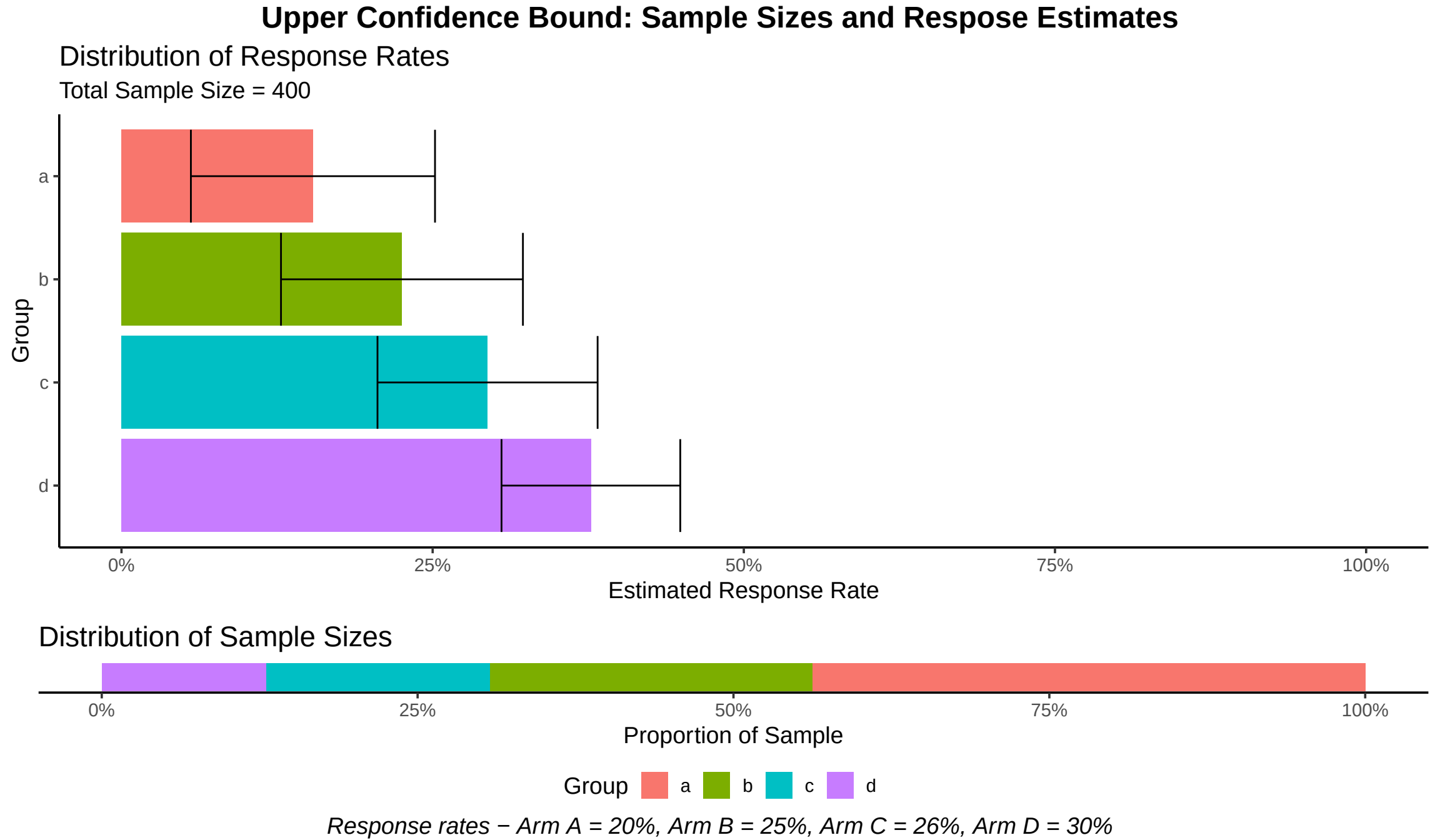


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

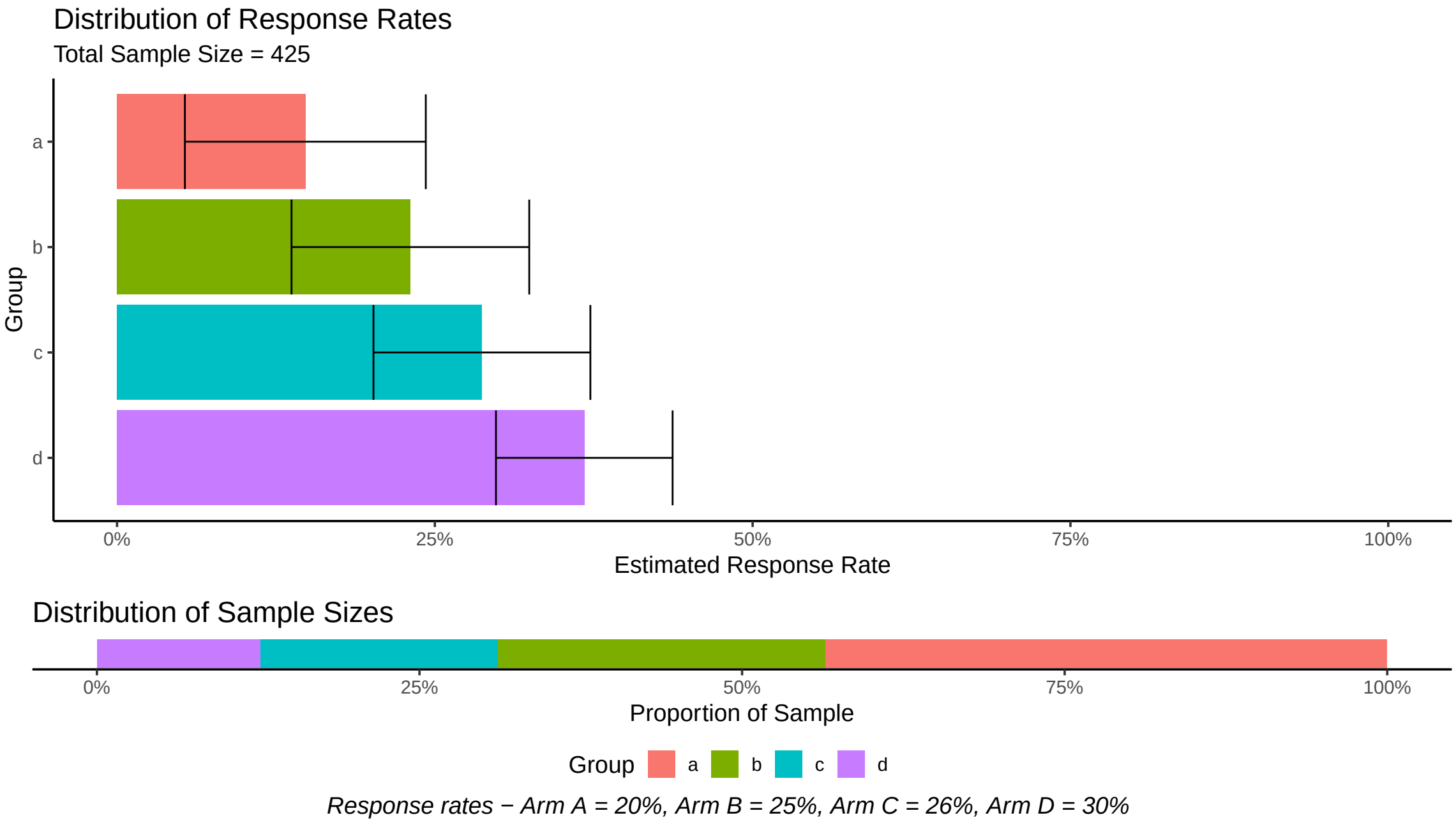

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 325
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

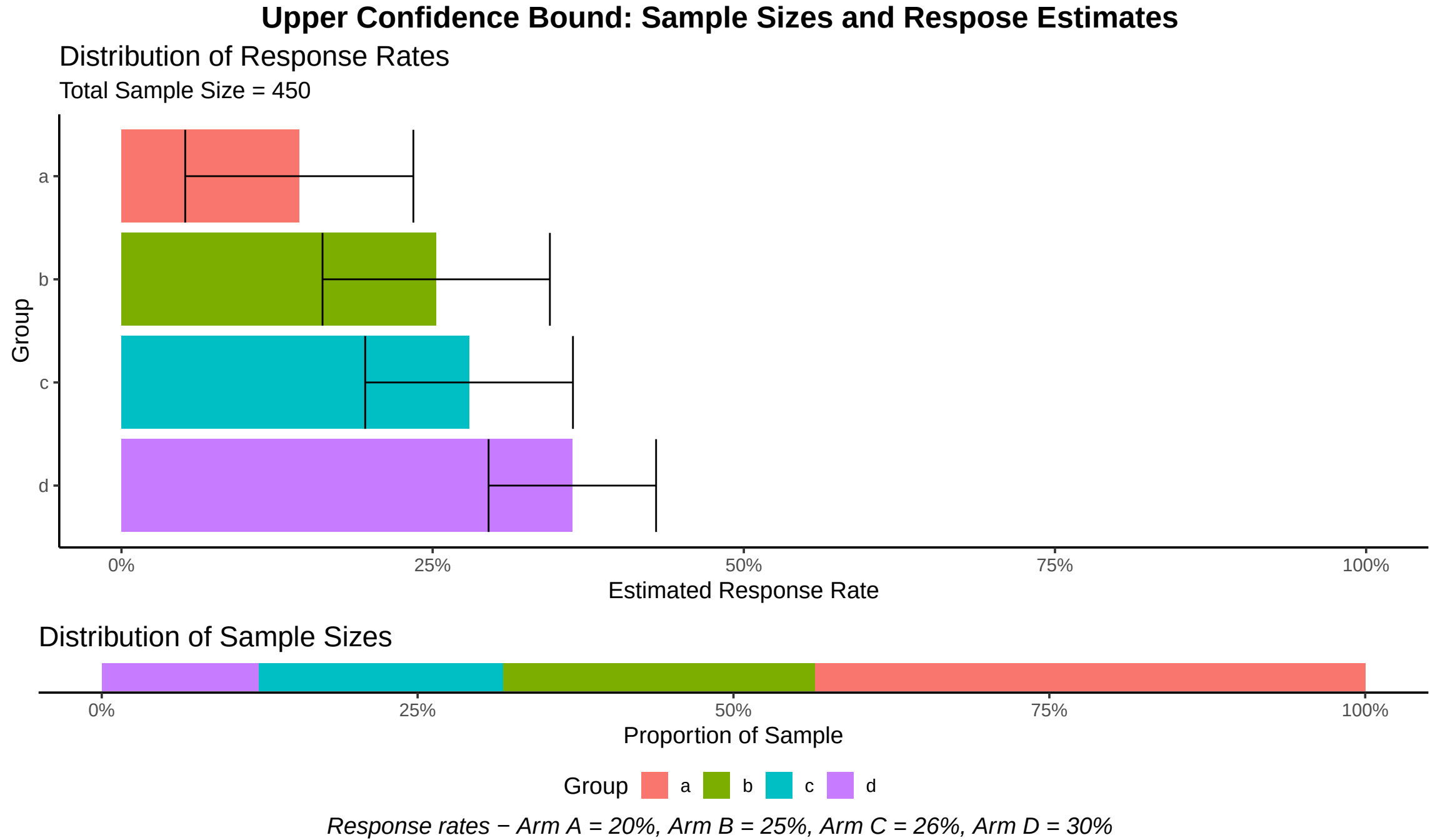

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 375
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

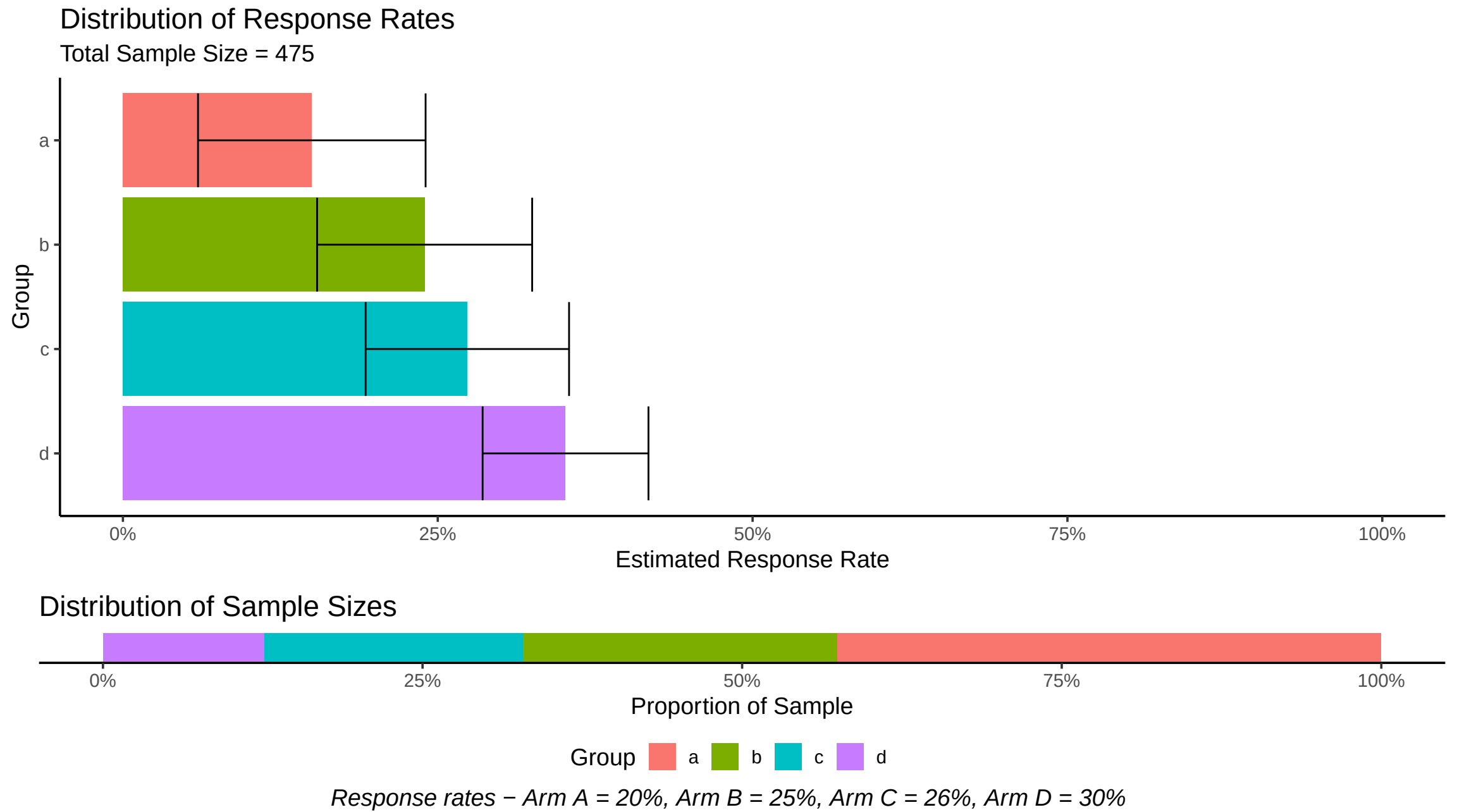
Upper Confidence Bound: Sample Sizes and Respose Estimates



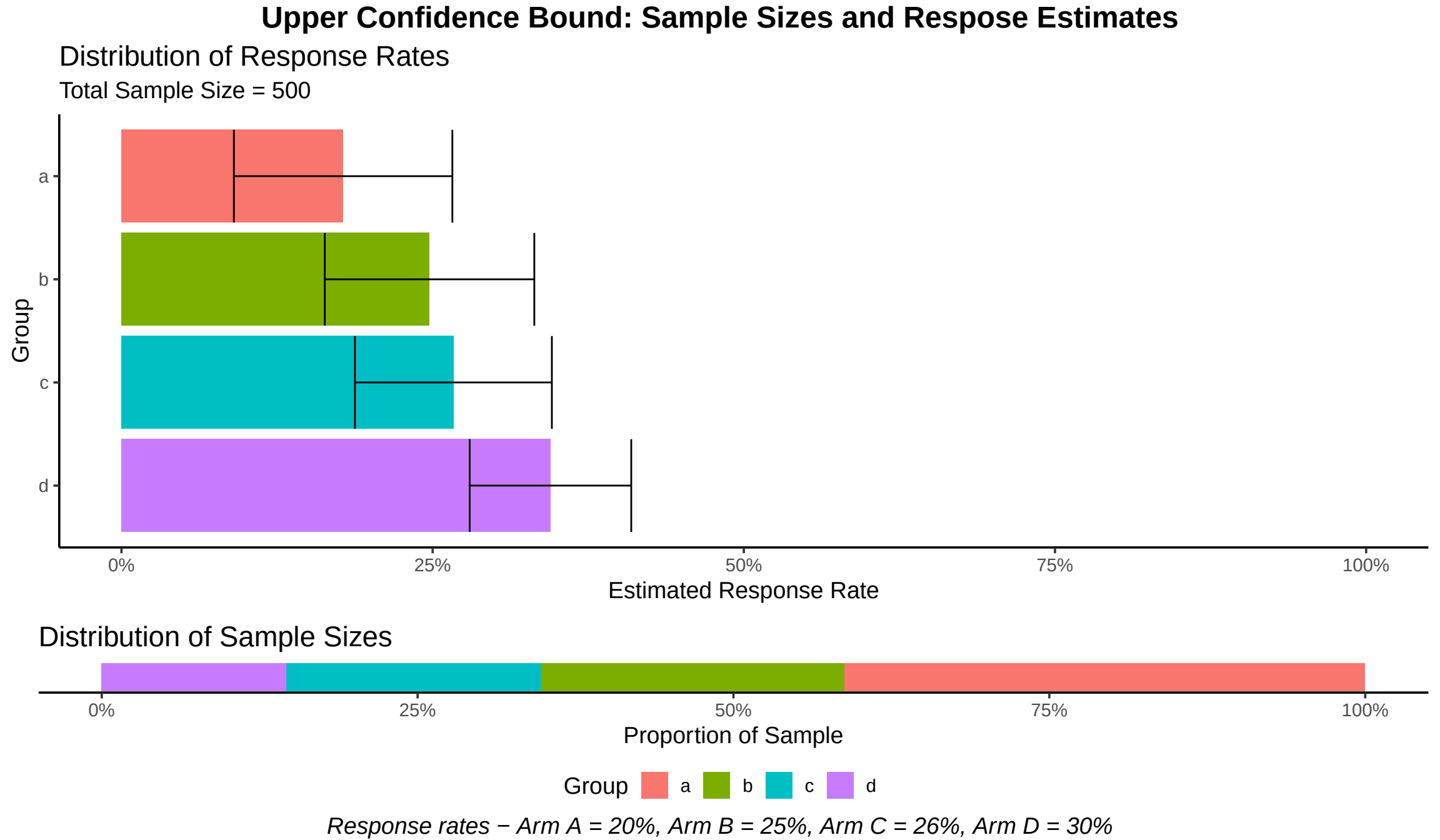
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

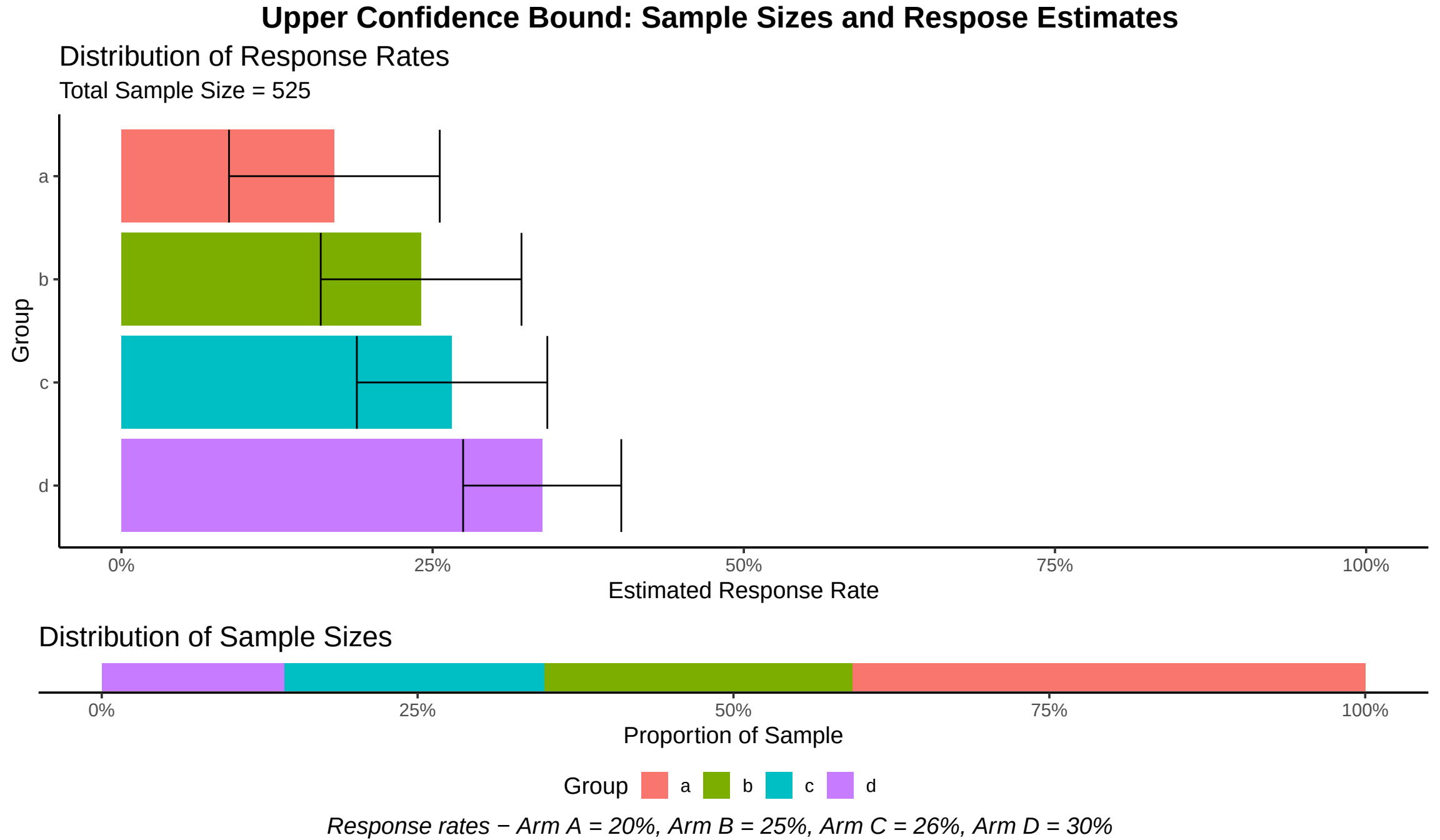

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

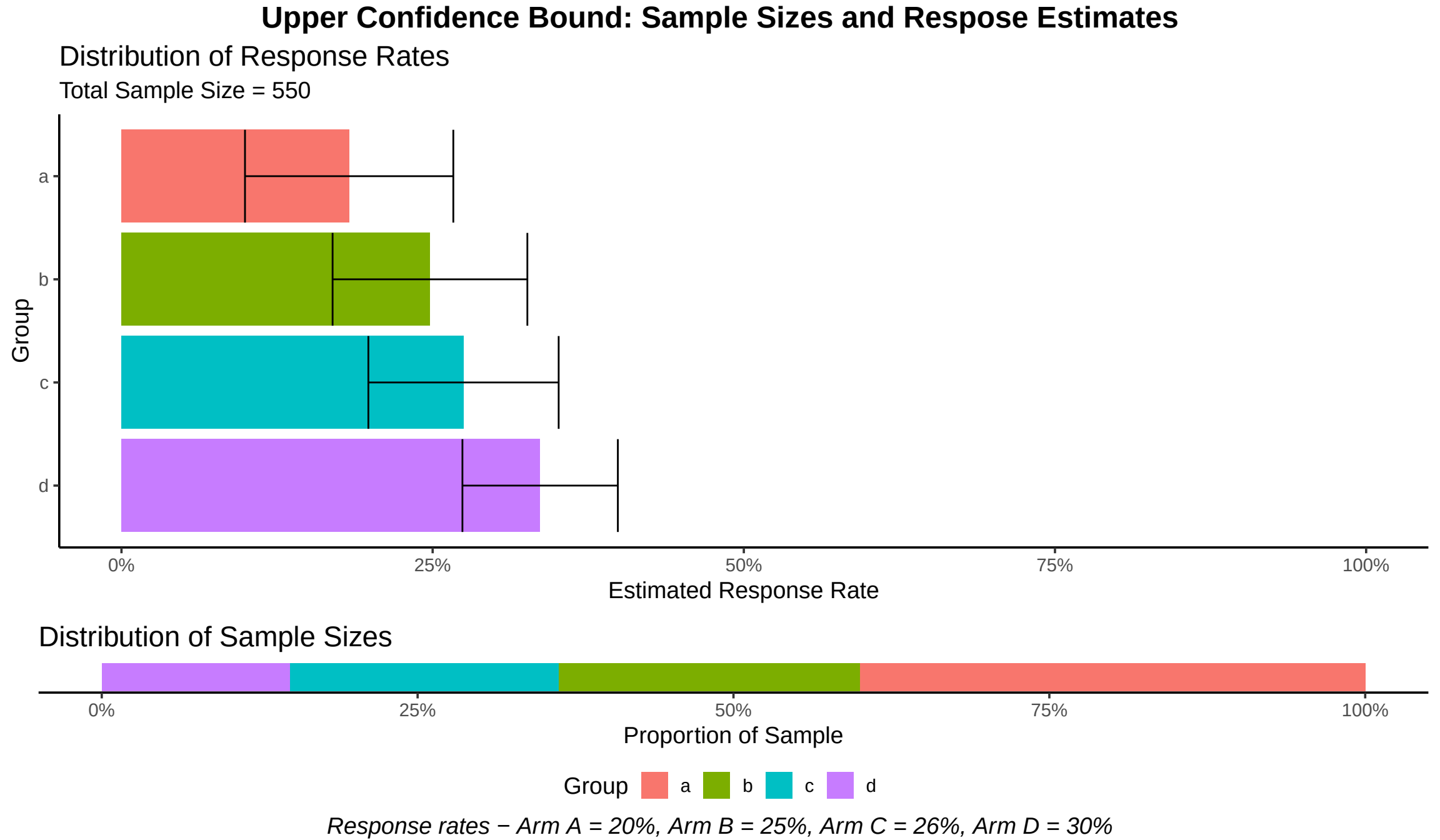
Upper Confidence Bound: Sample Sizes and Respose Estimates

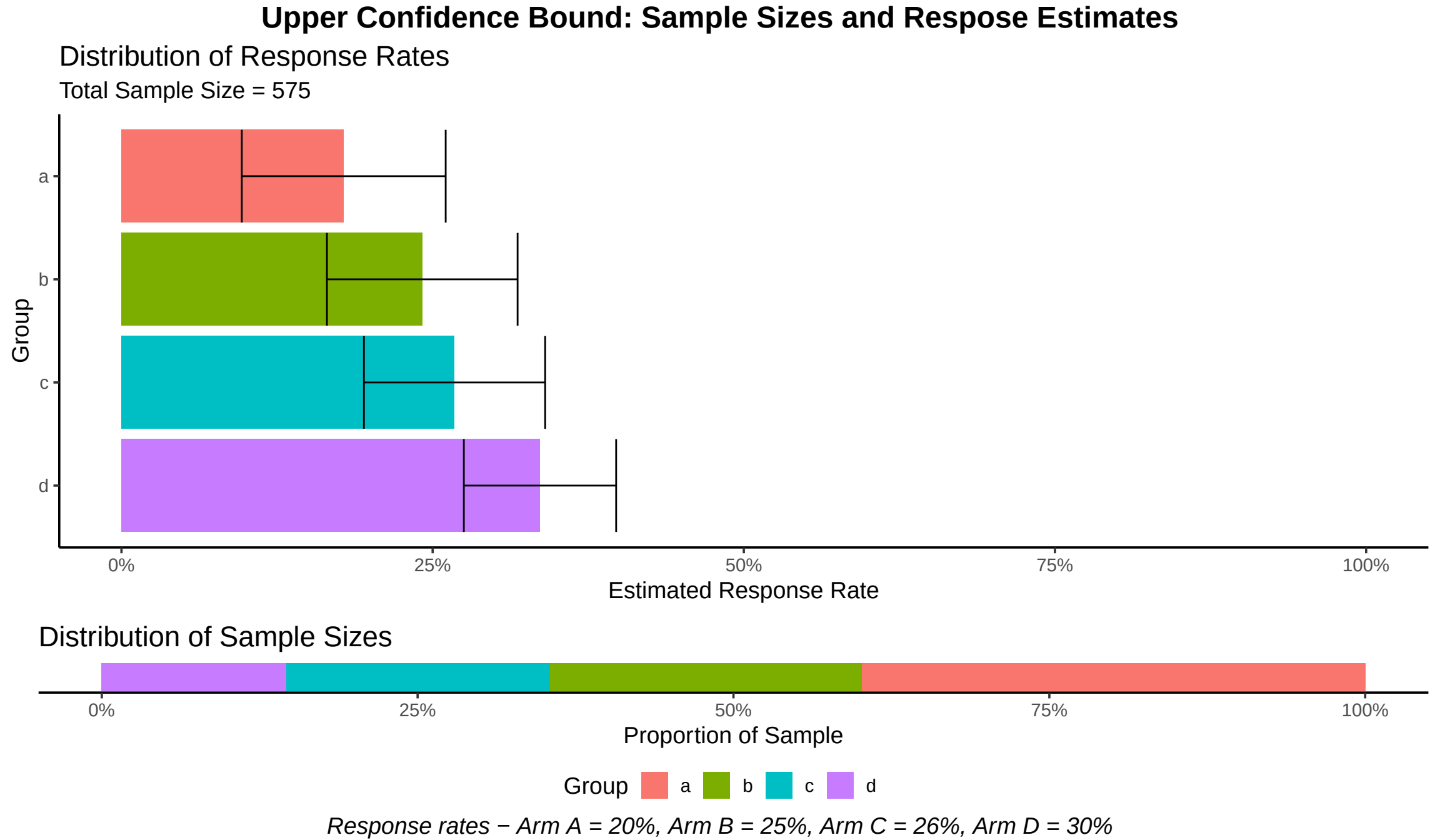


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

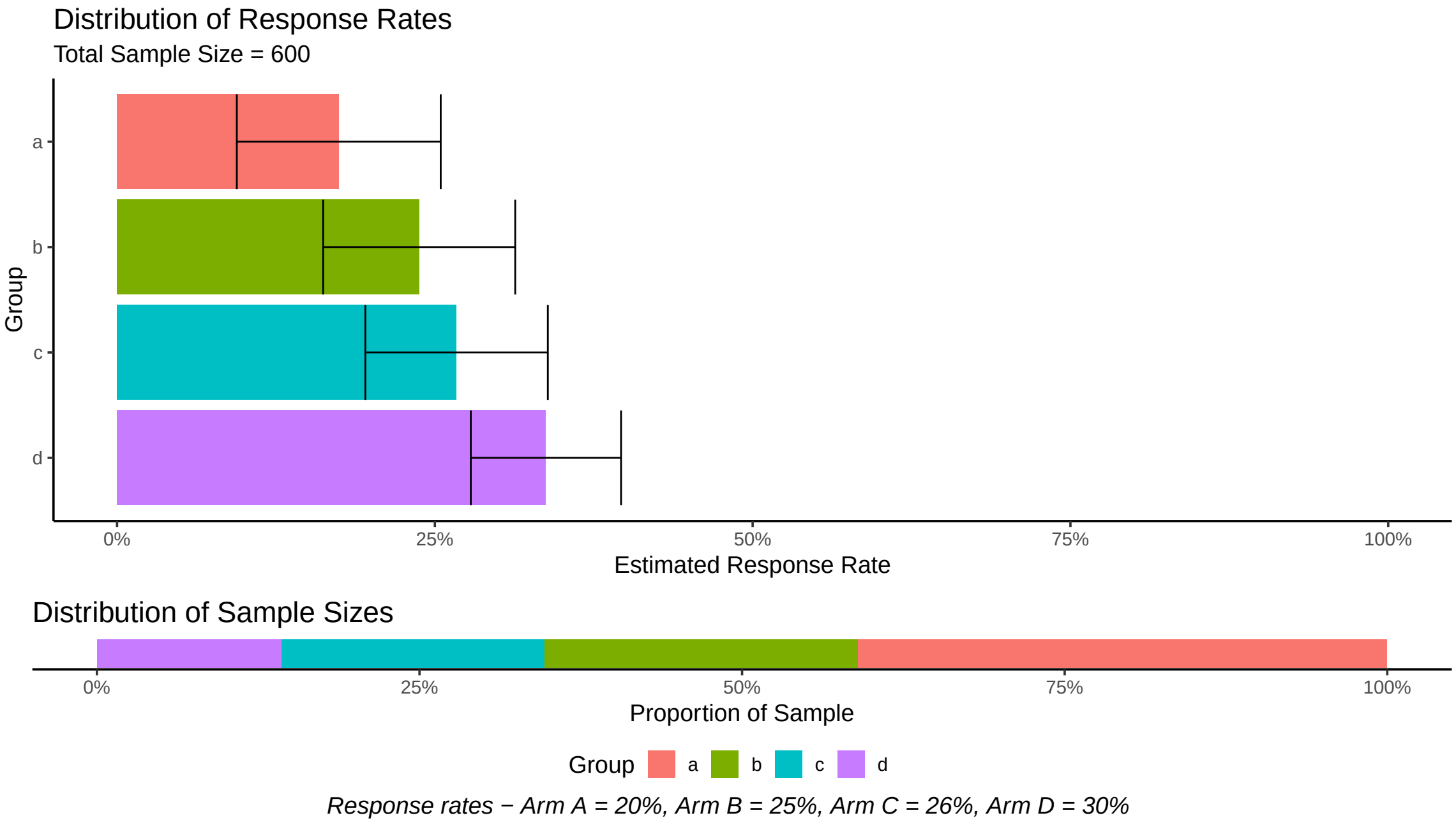

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 525
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

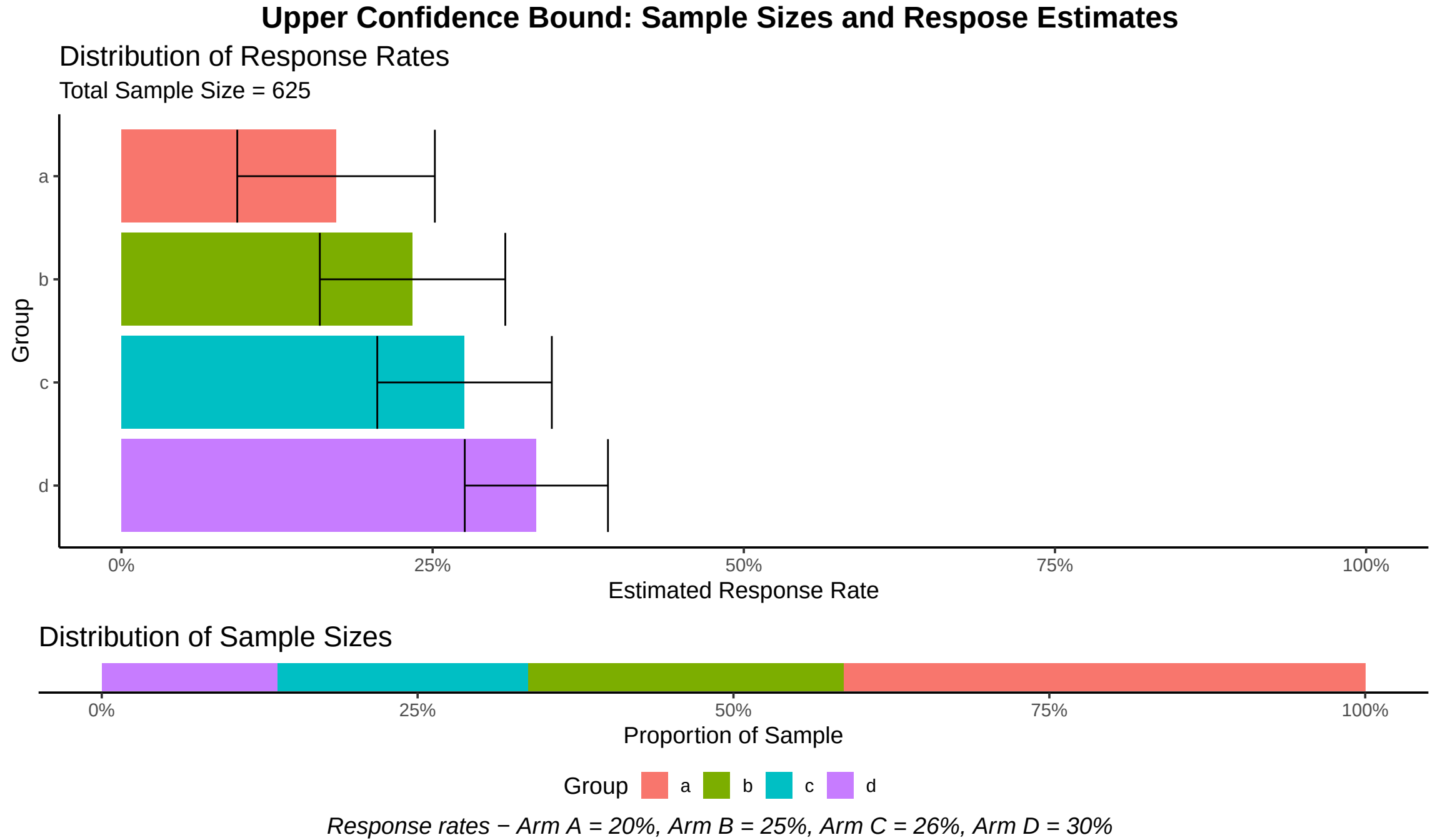

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

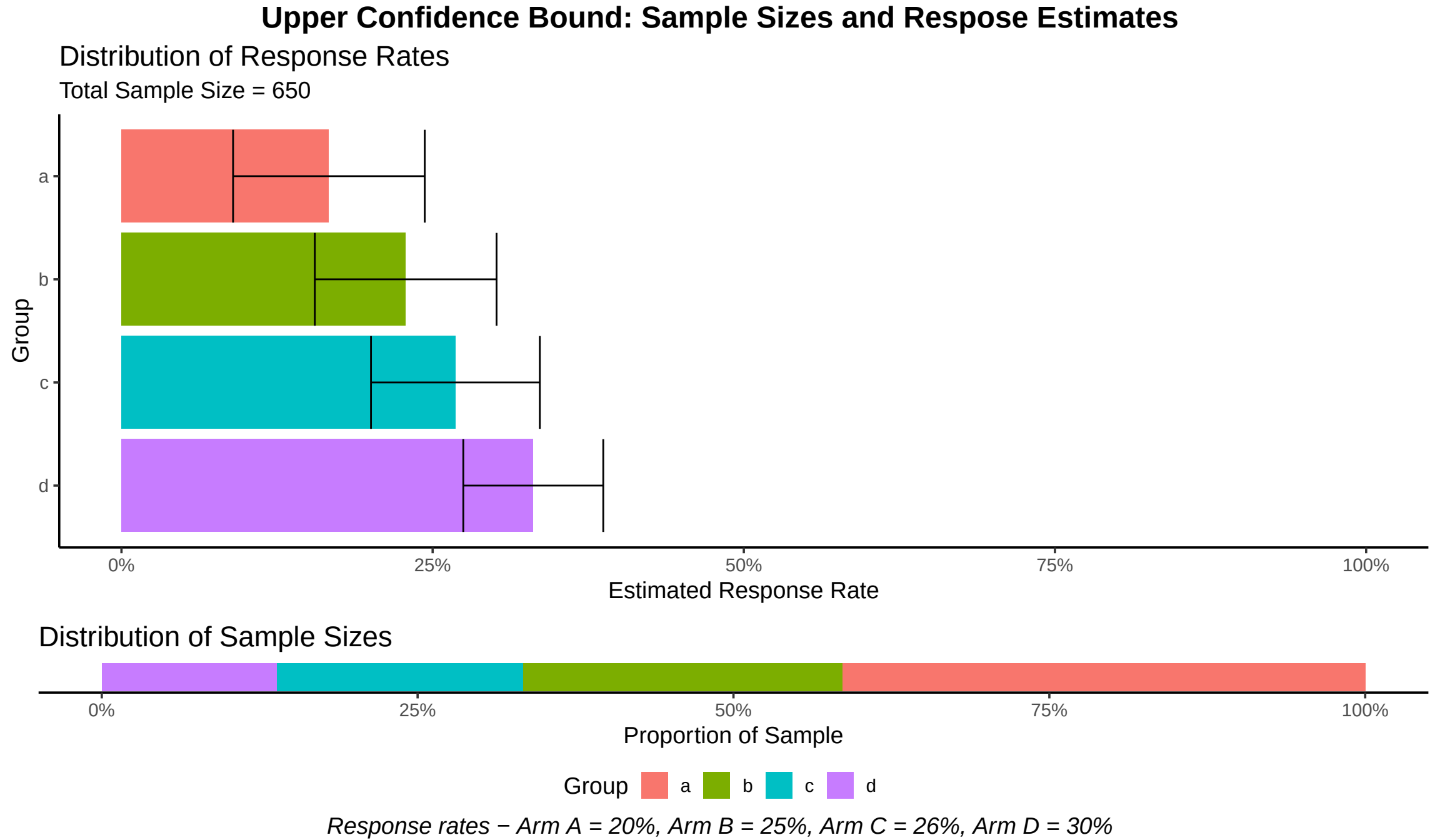

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 575
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

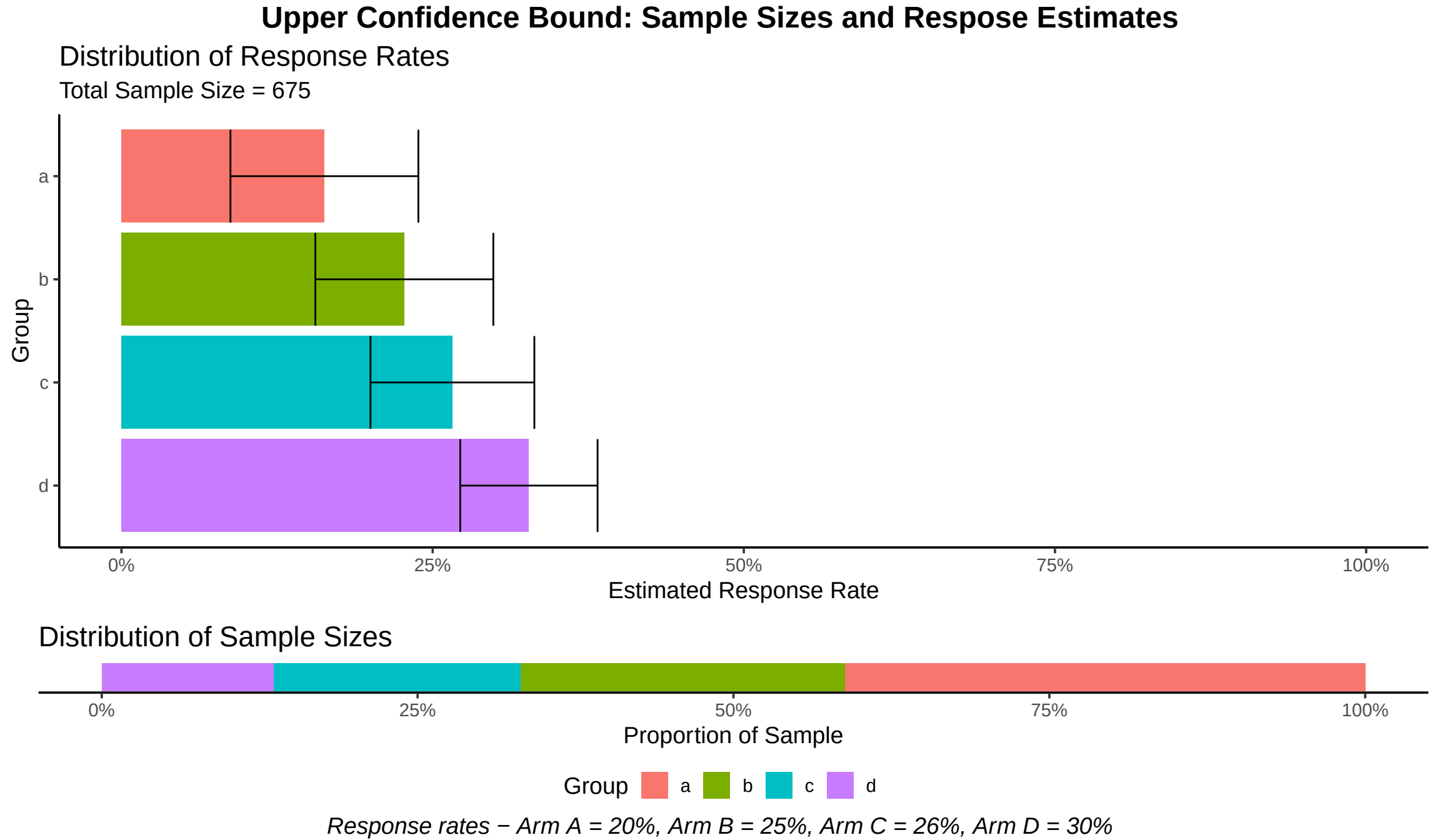
Upper Confidence Bound: Sample Sizes and Respose Estimates

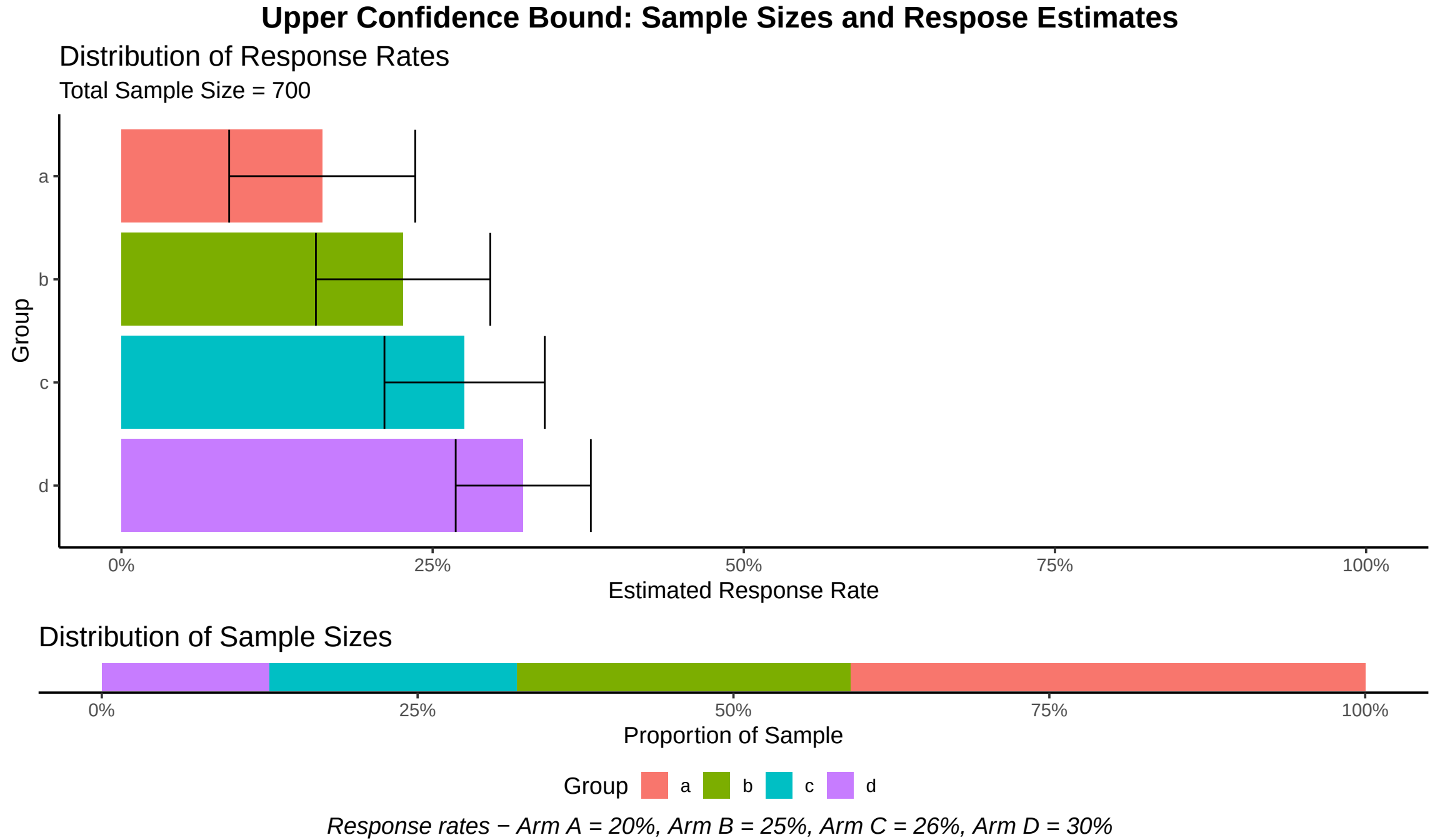


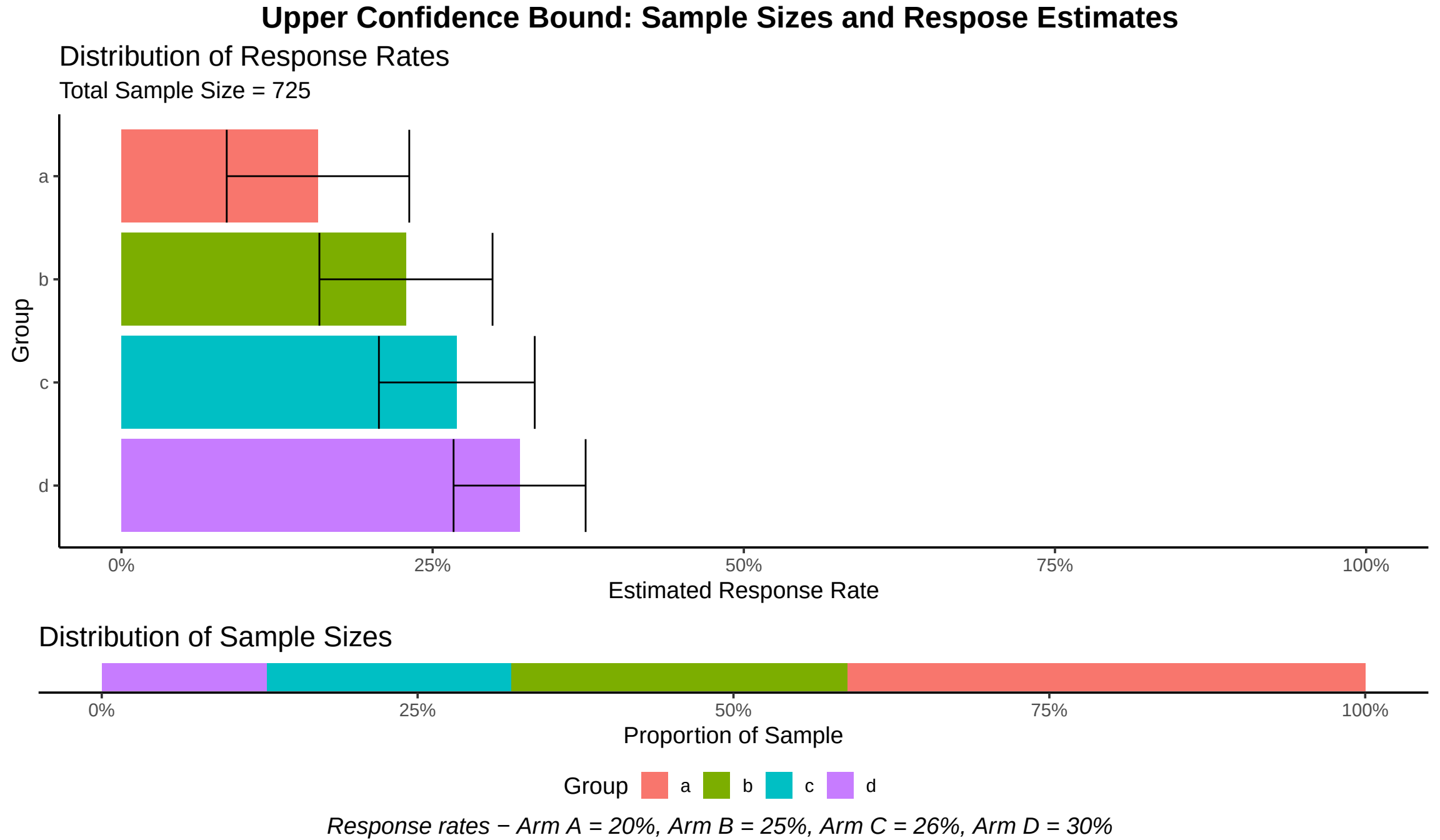
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 625
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

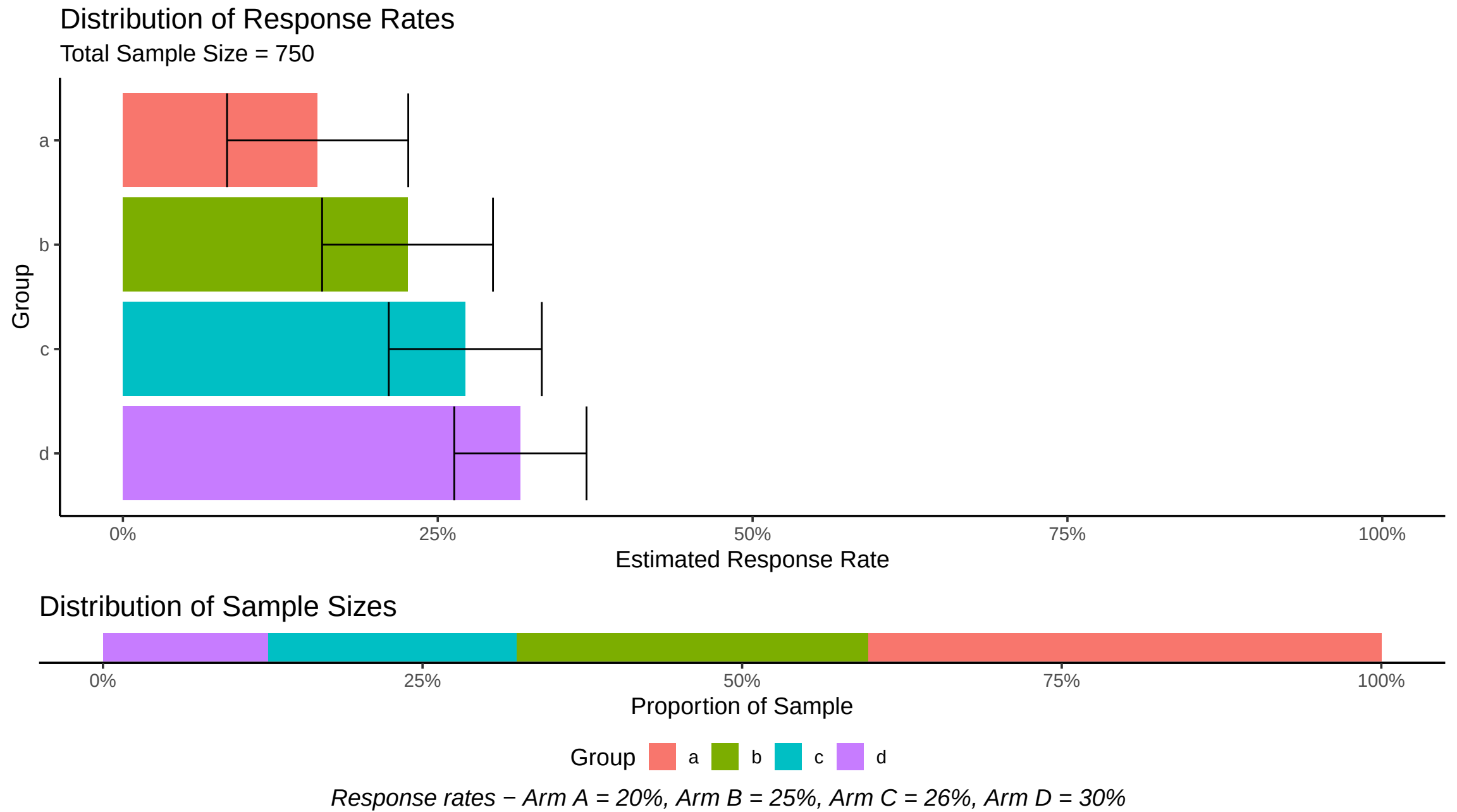

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 675
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

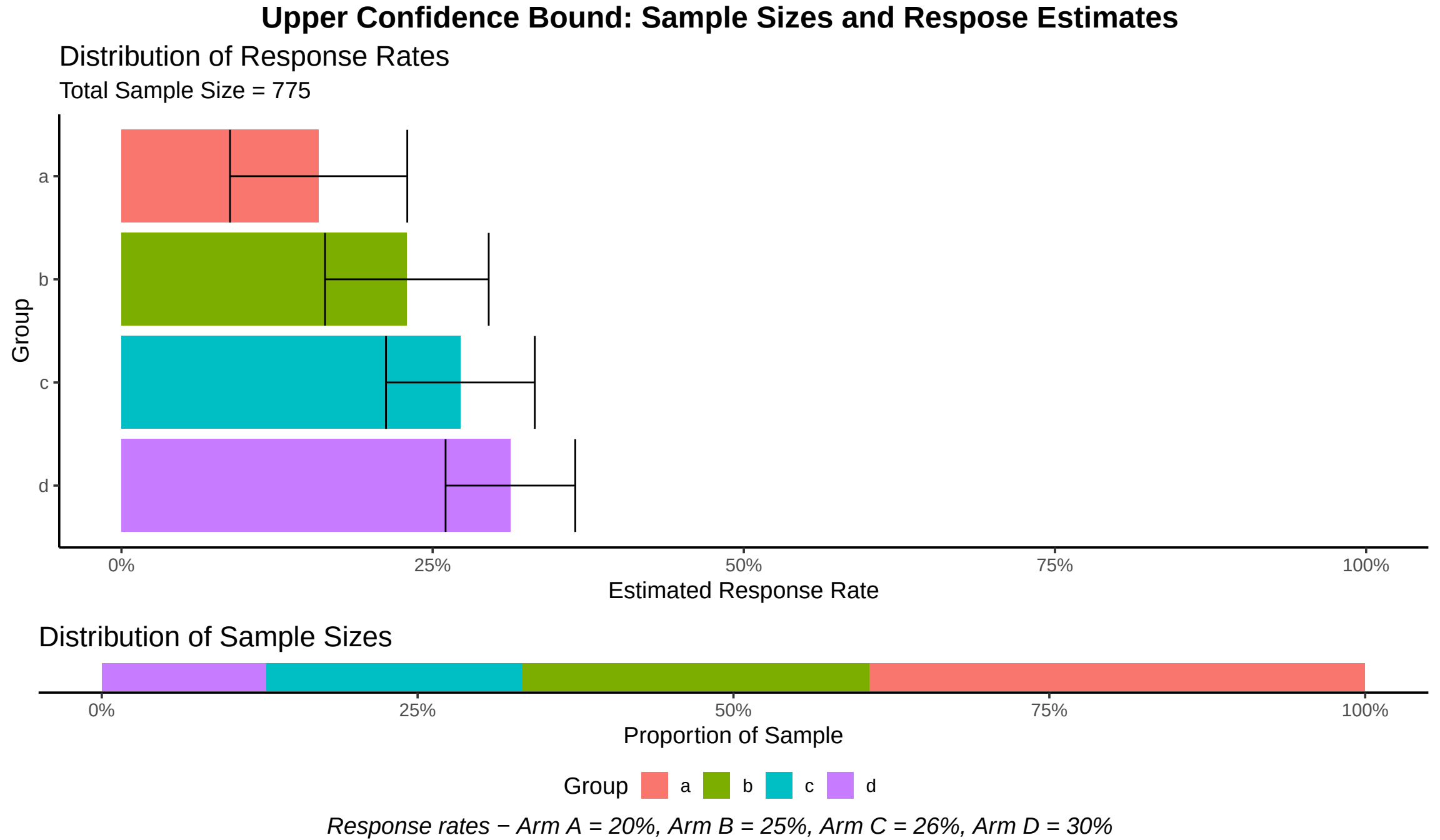

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

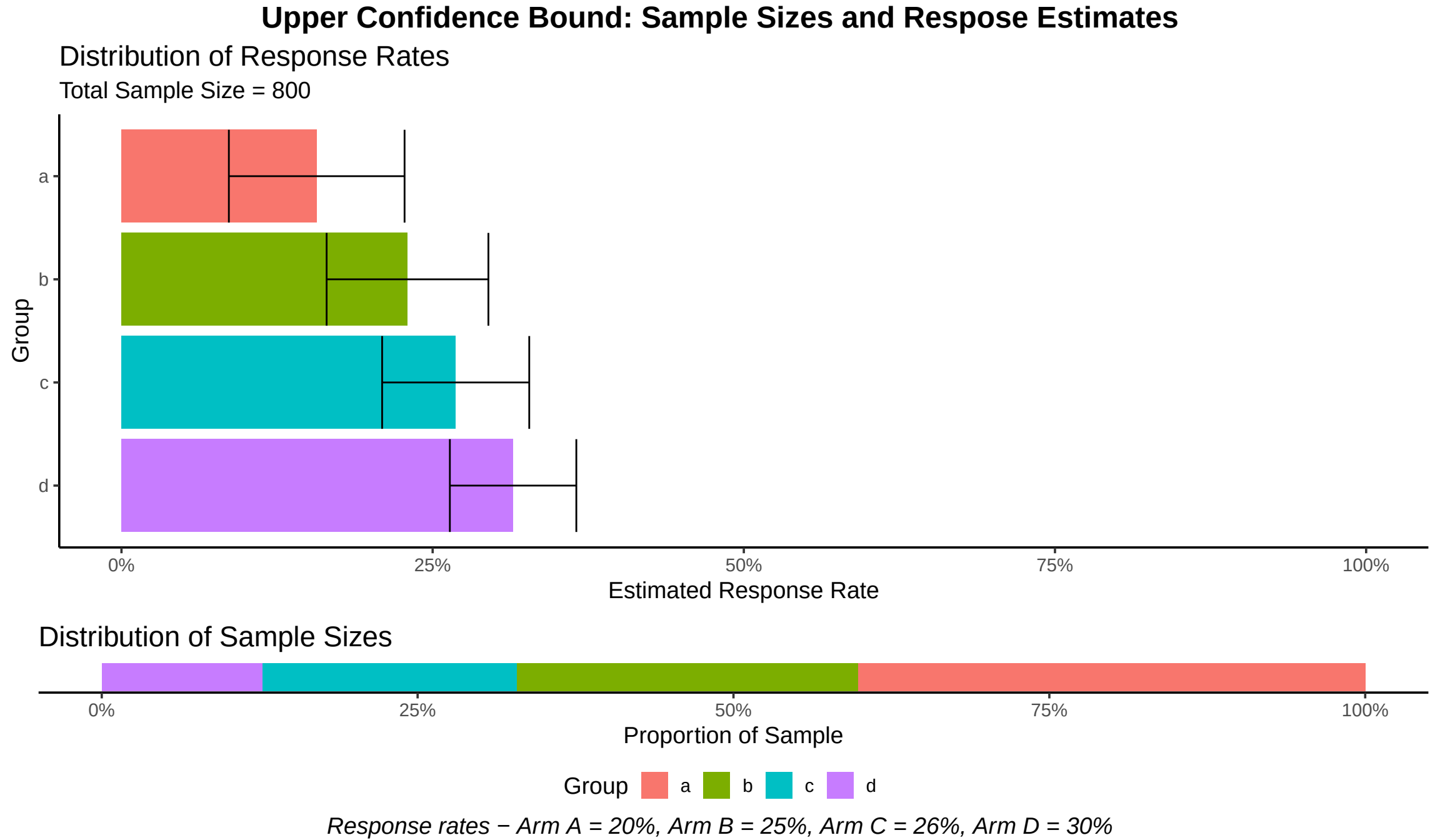

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 725
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

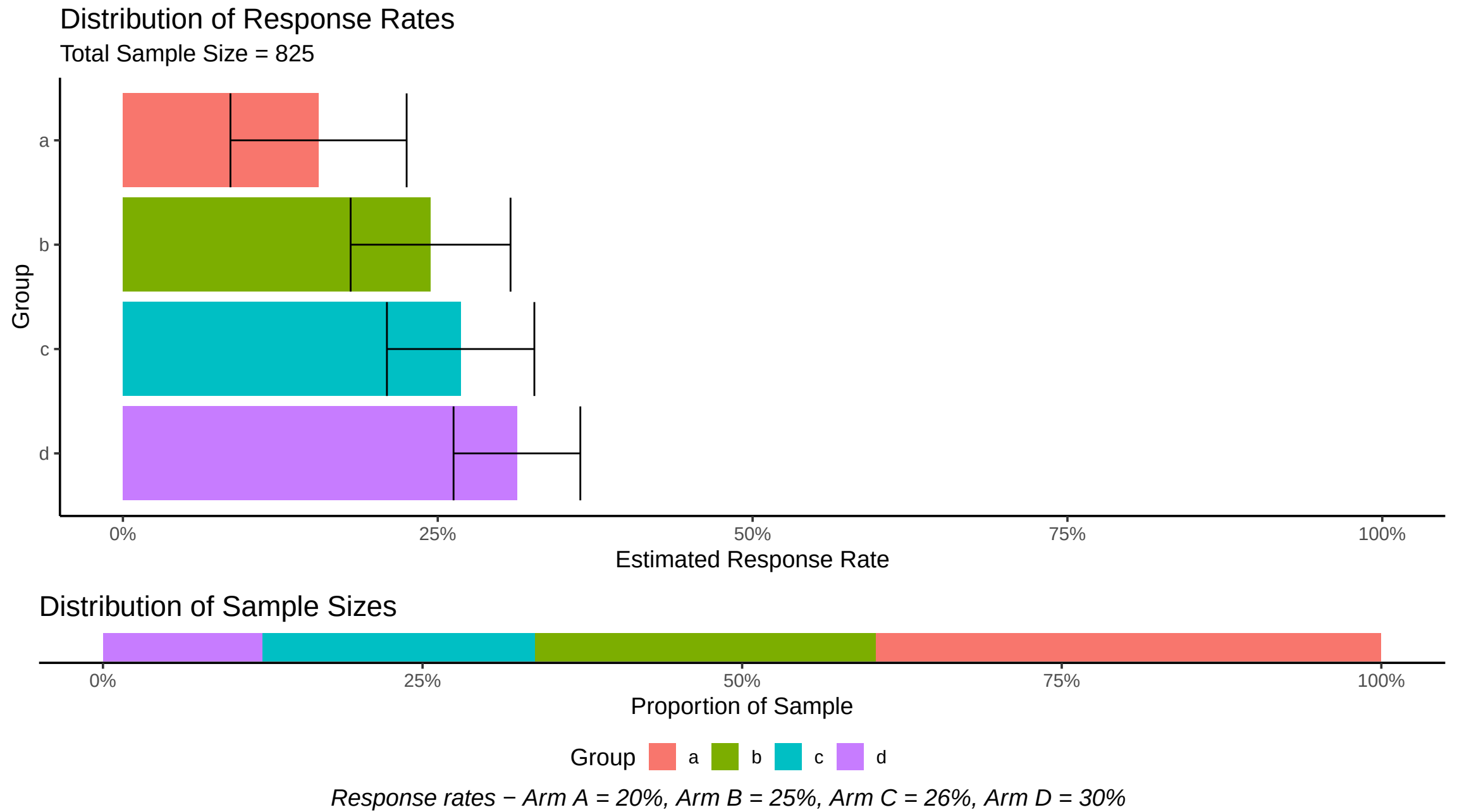


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

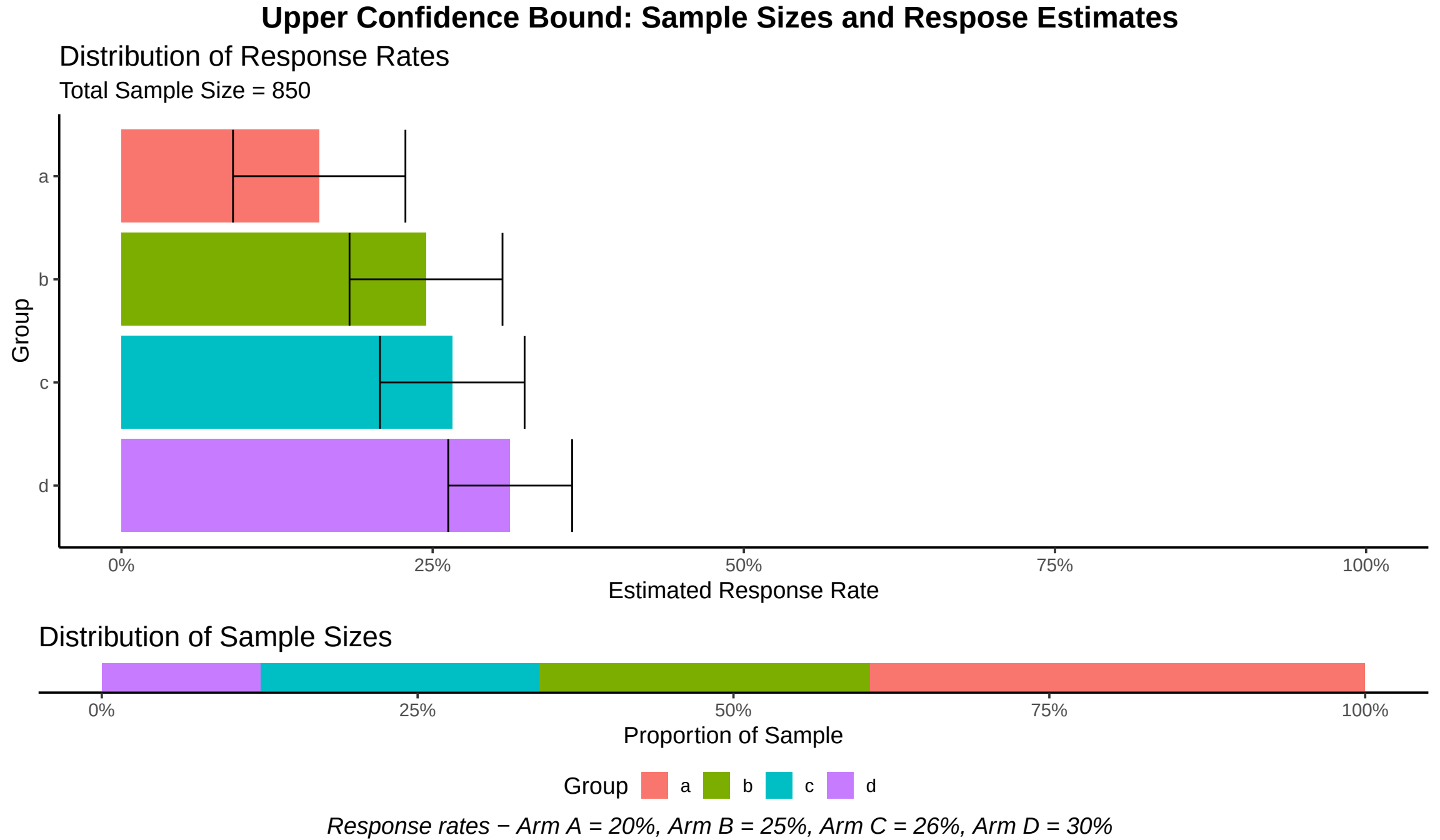

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 775
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

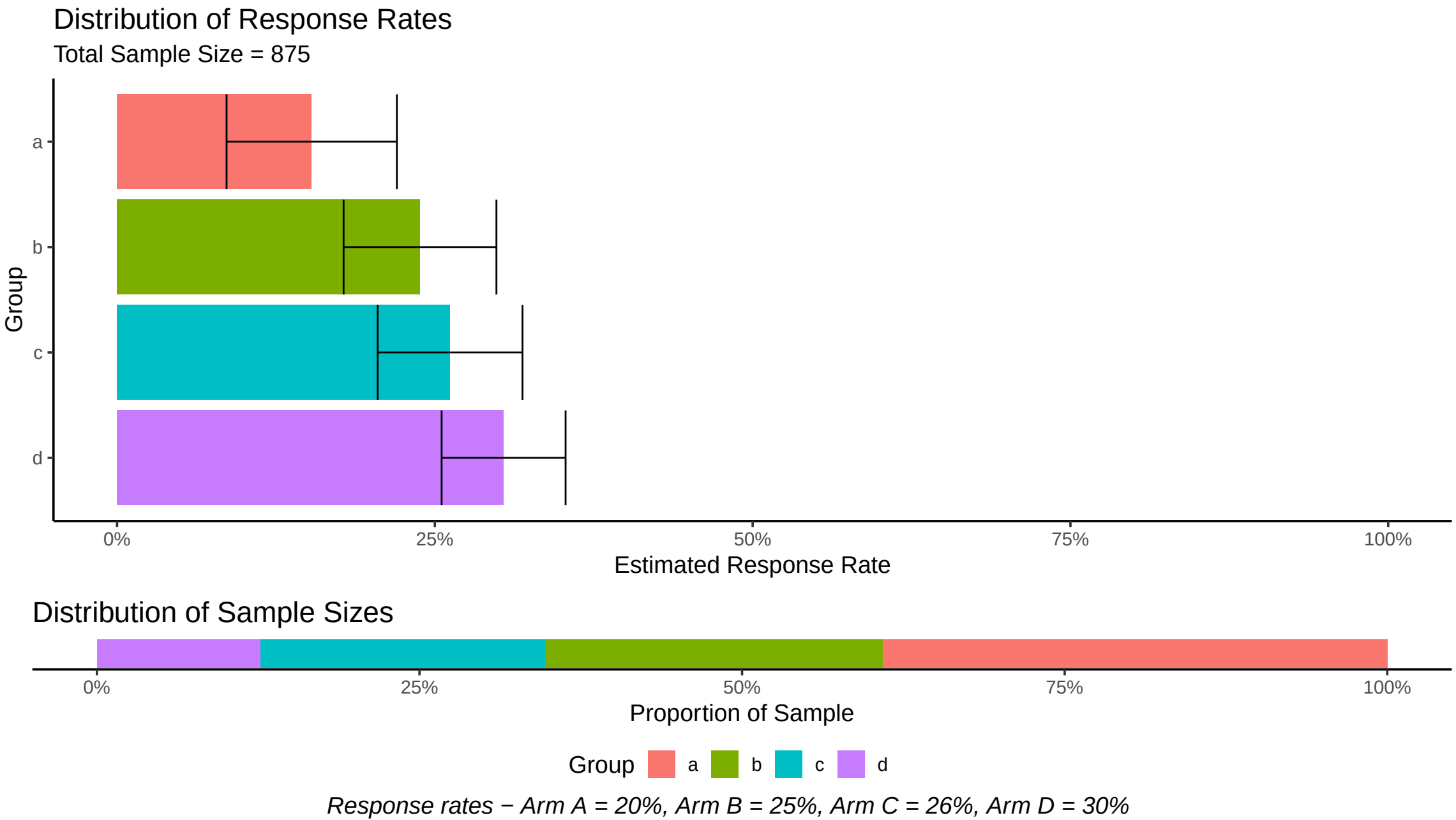
Upper Confidence Bound: Sample Sizes and Respose Estimates



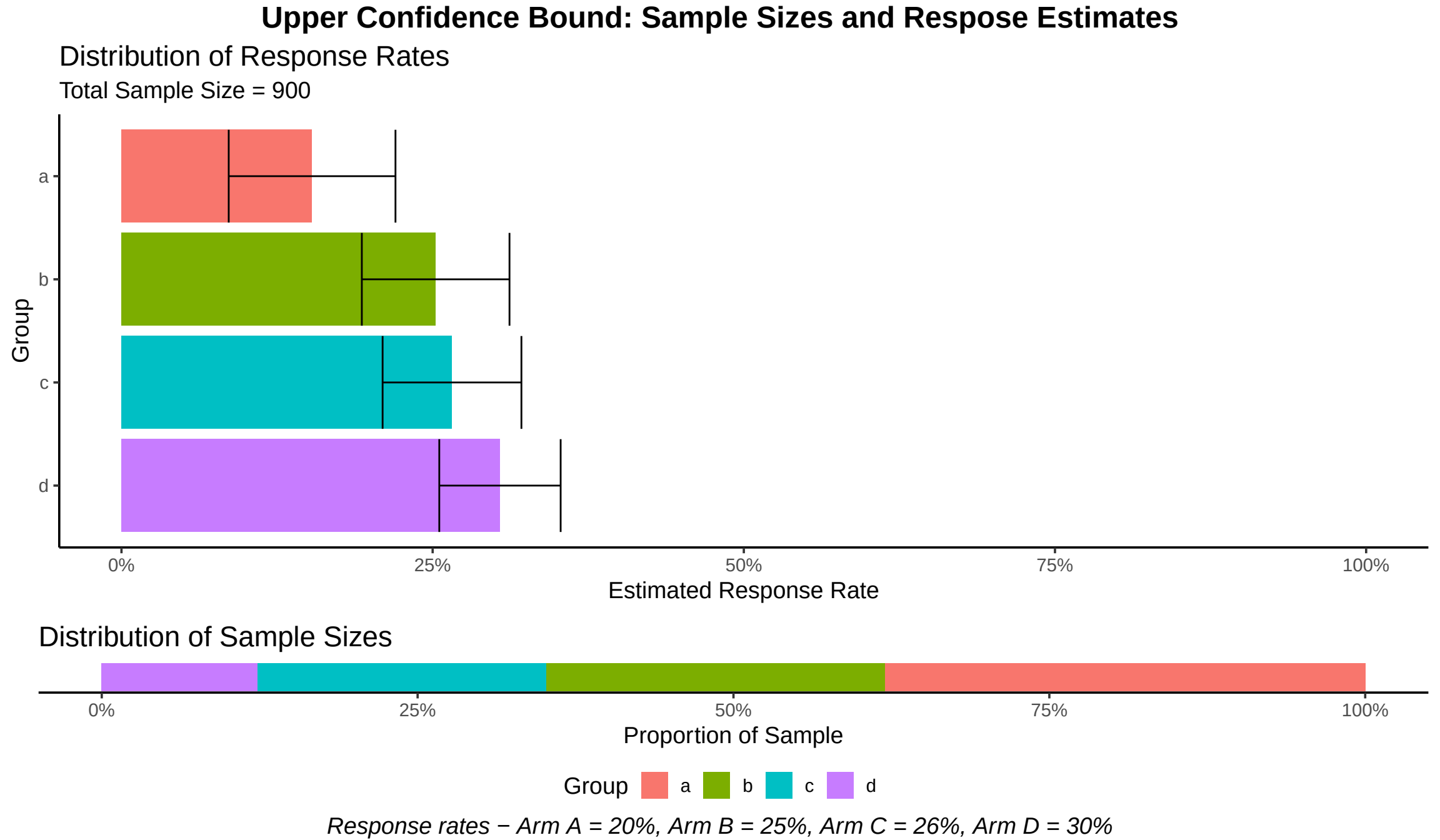
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

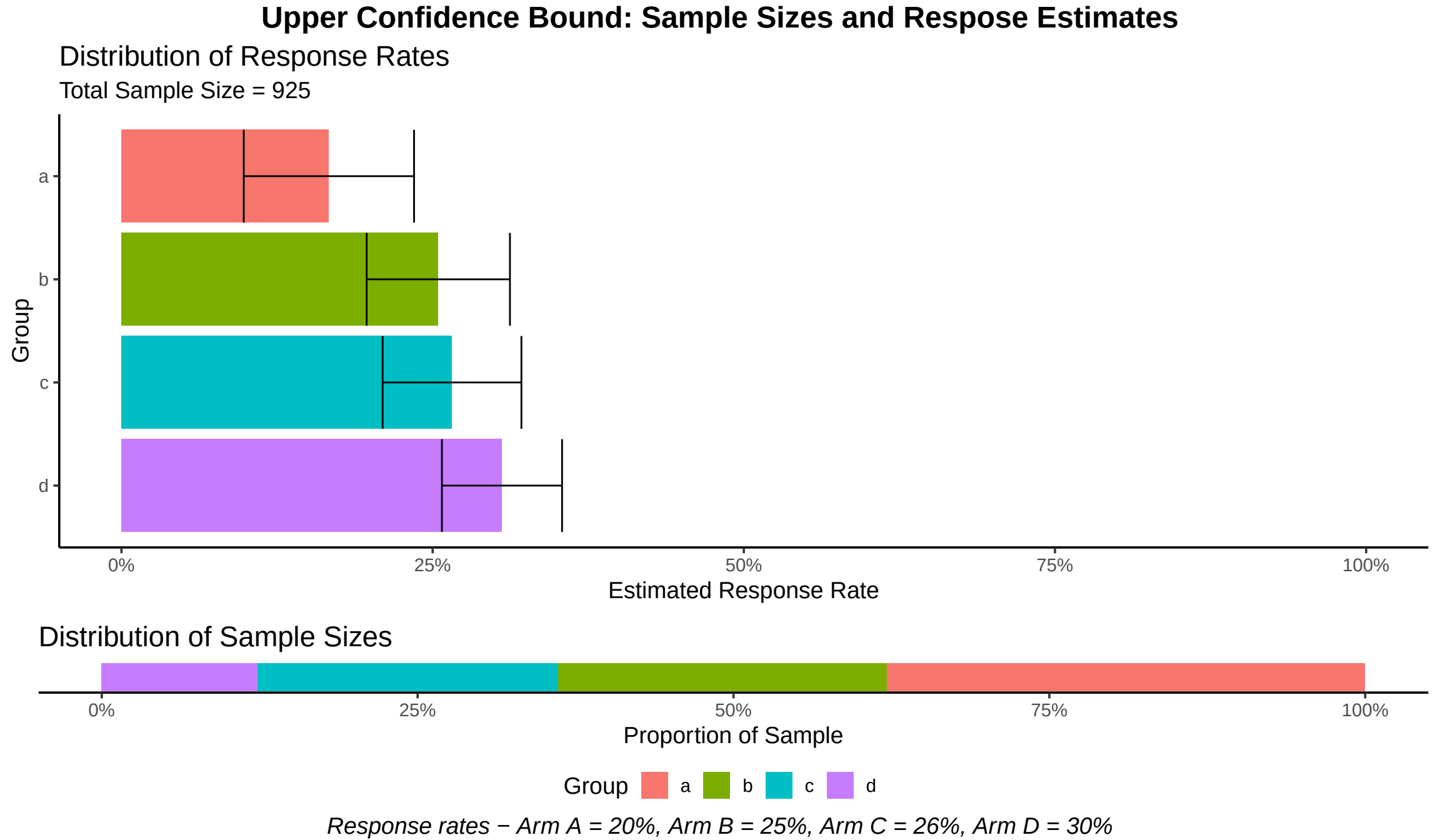

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

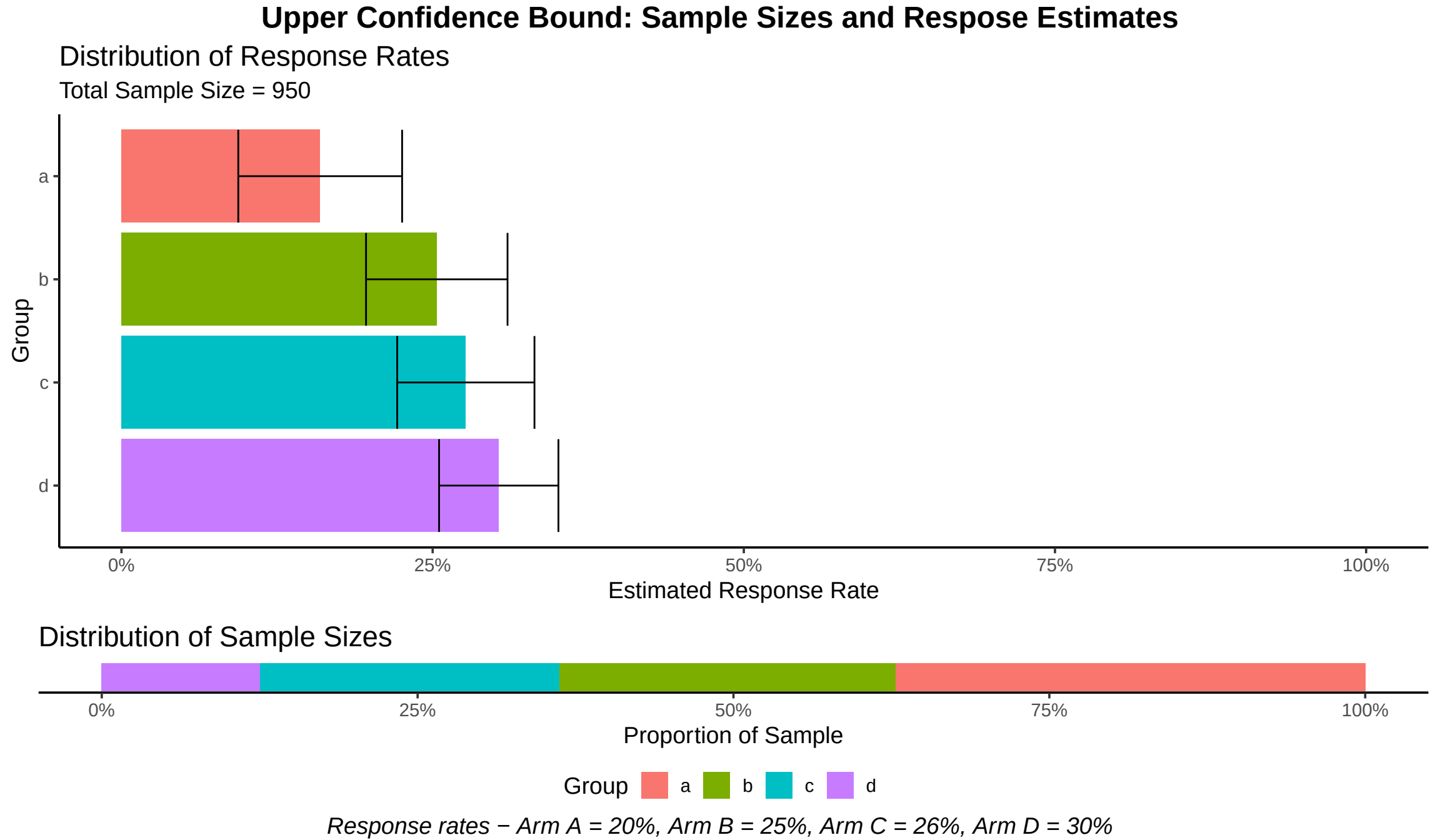
Upper Confidence Bound: Sample Sizes and Respose Estimates

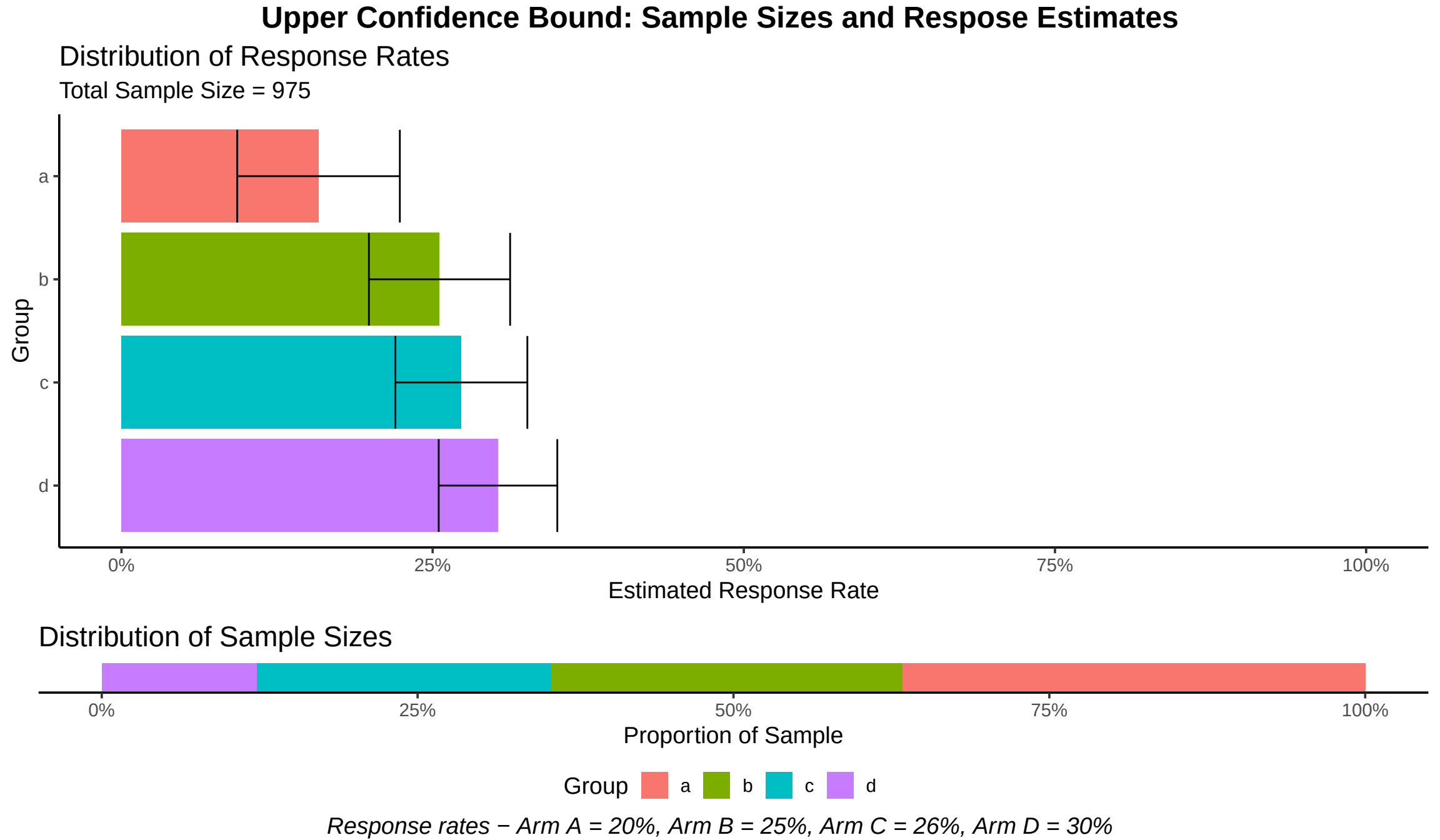


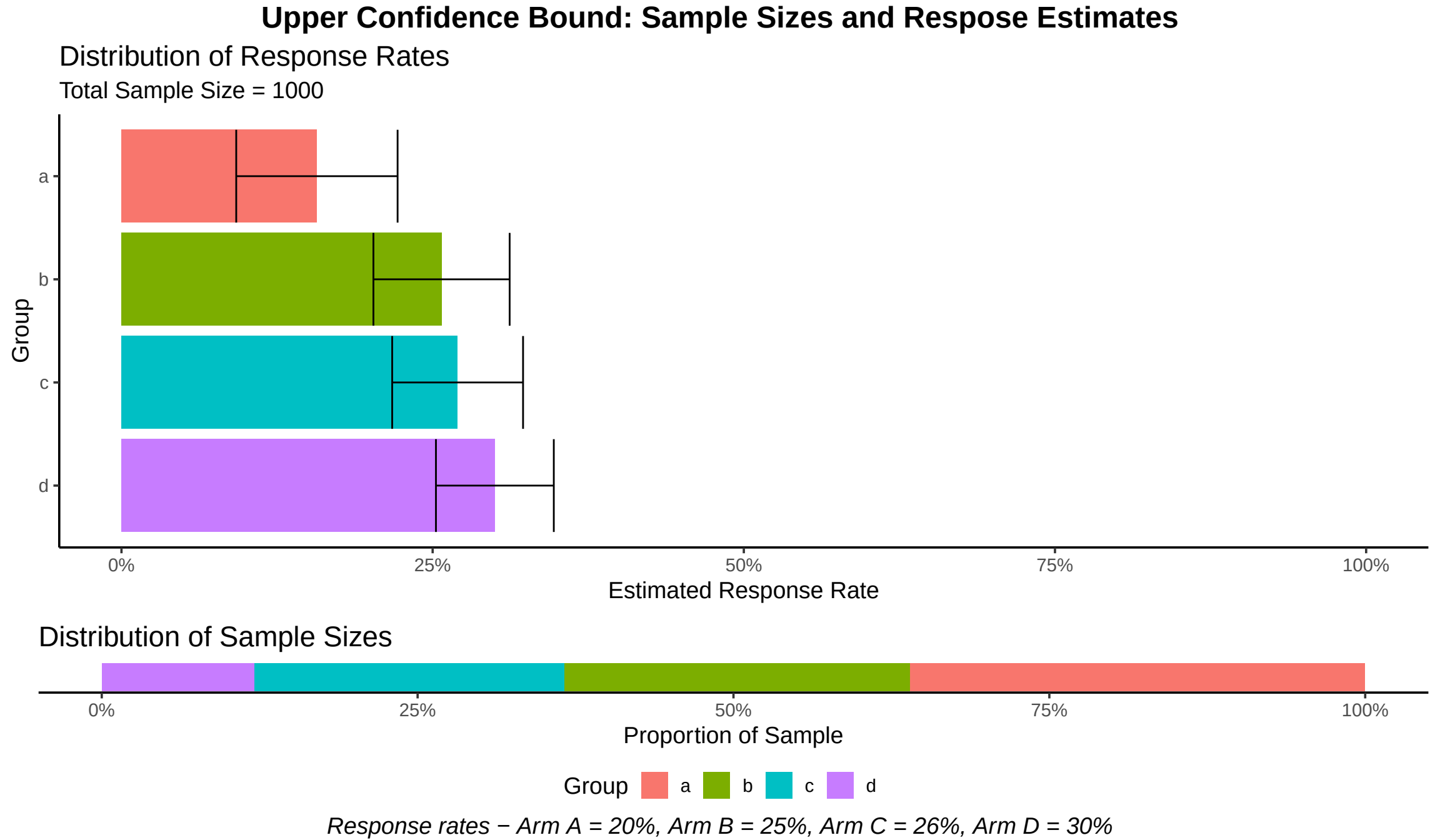
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

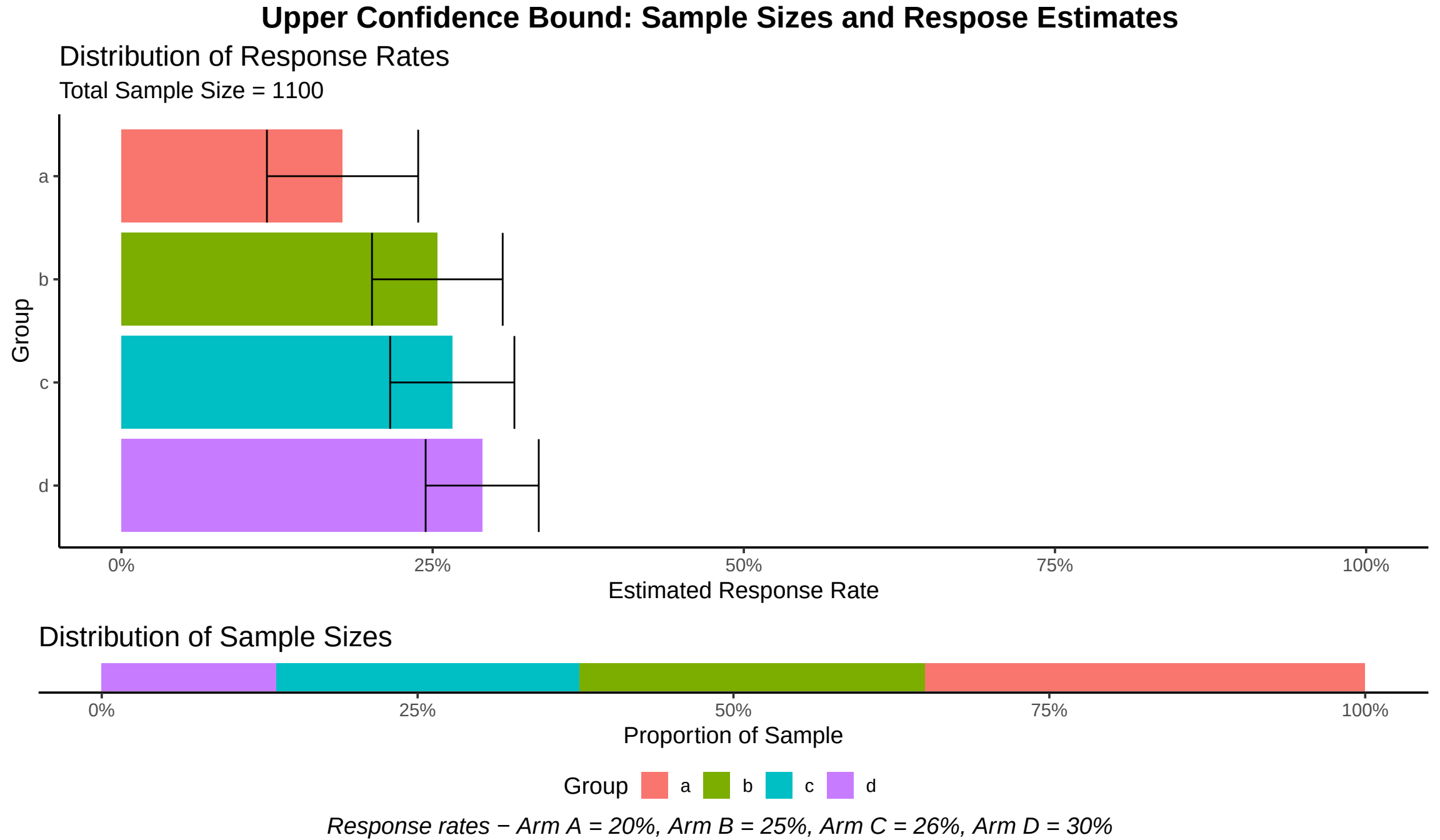

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

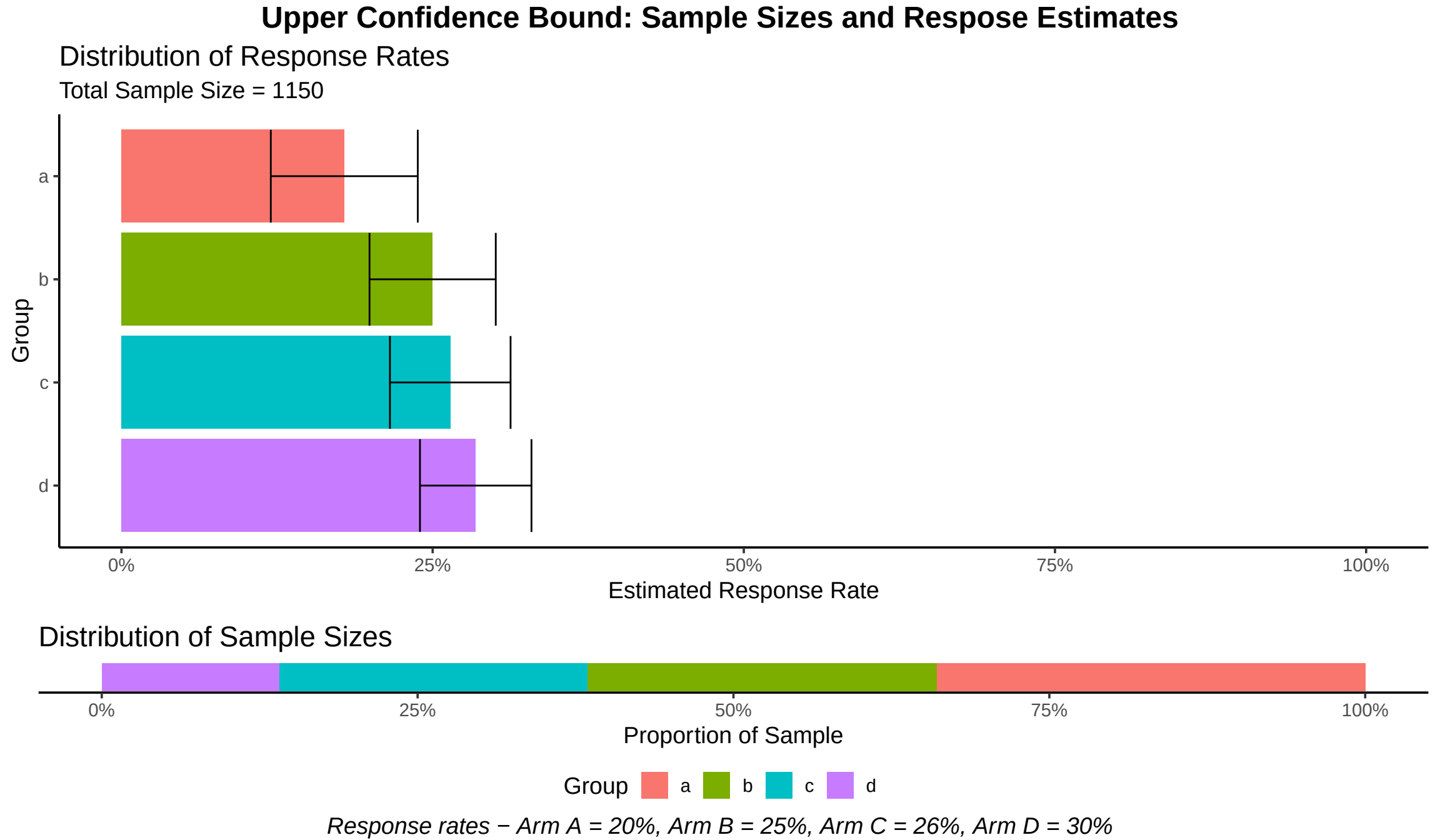

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 925
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

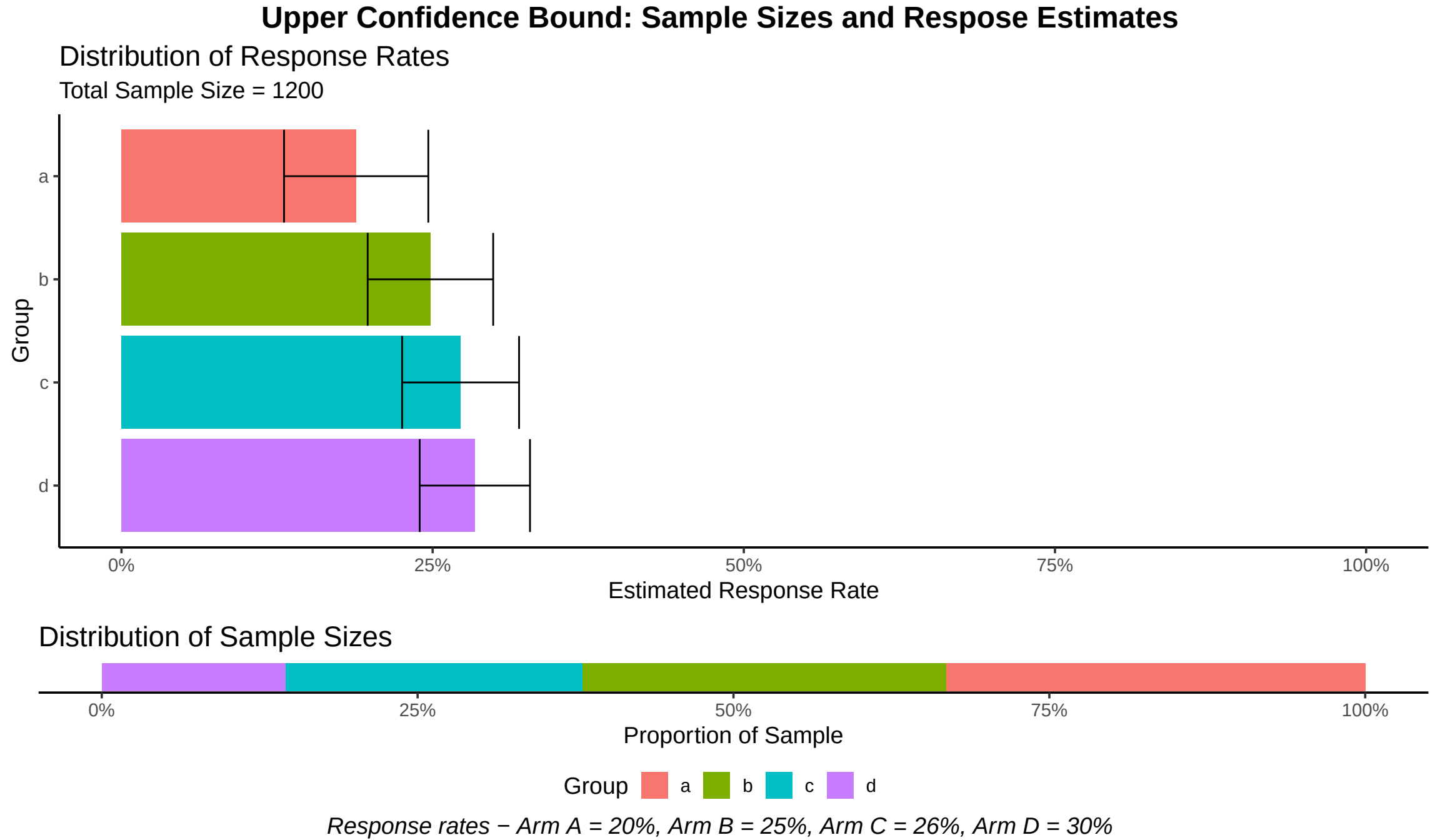

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

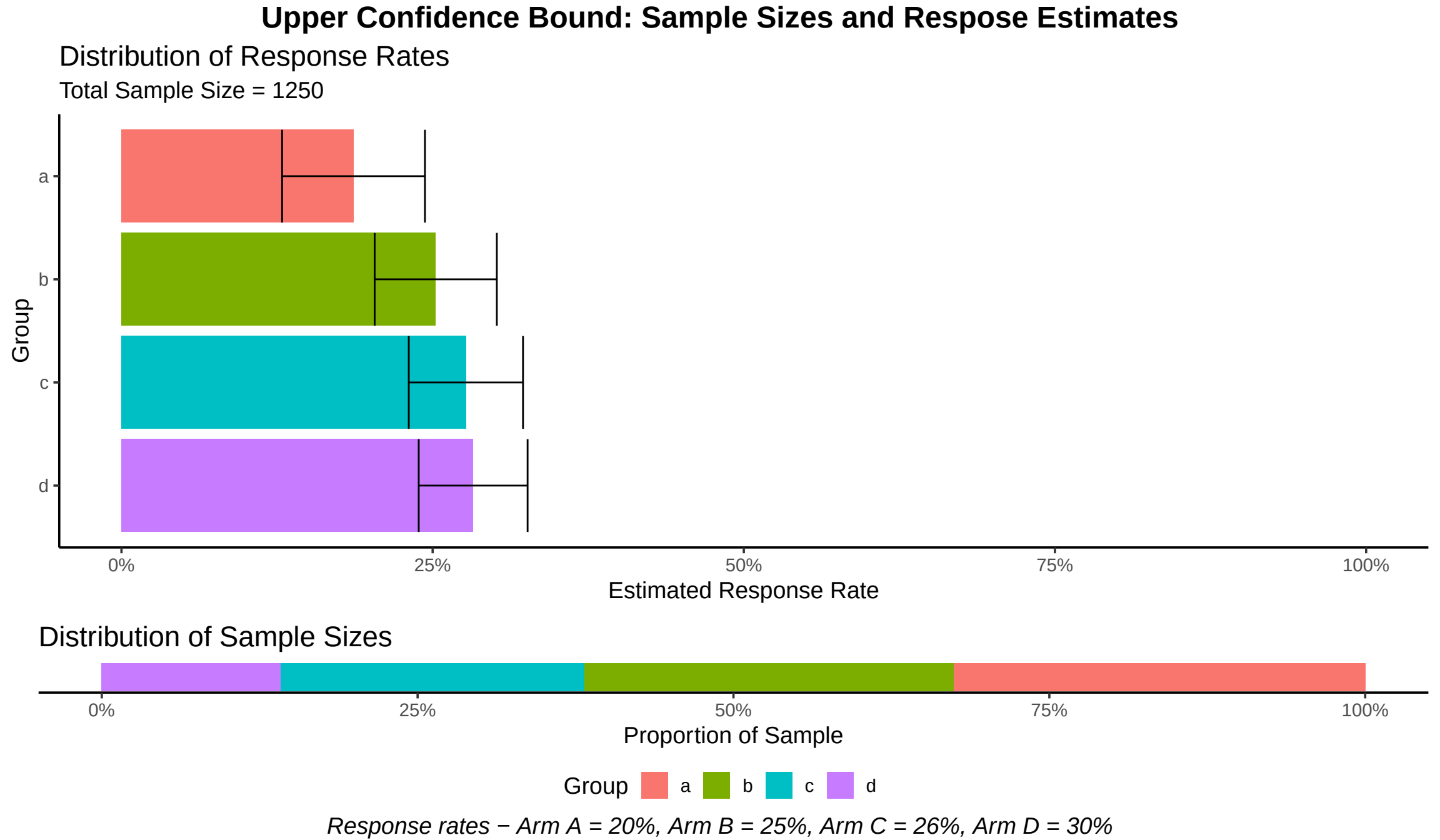

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 975
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

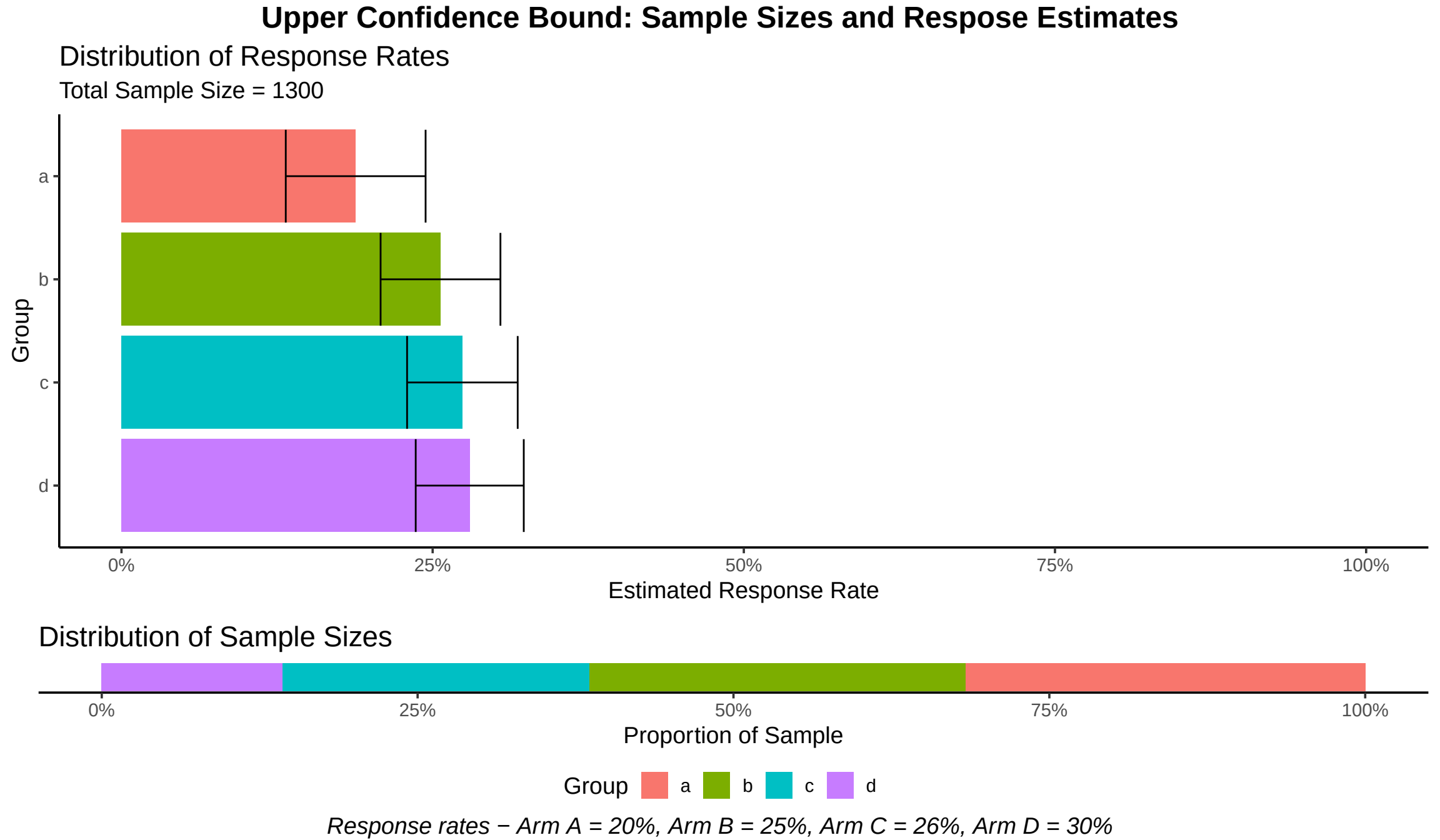

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

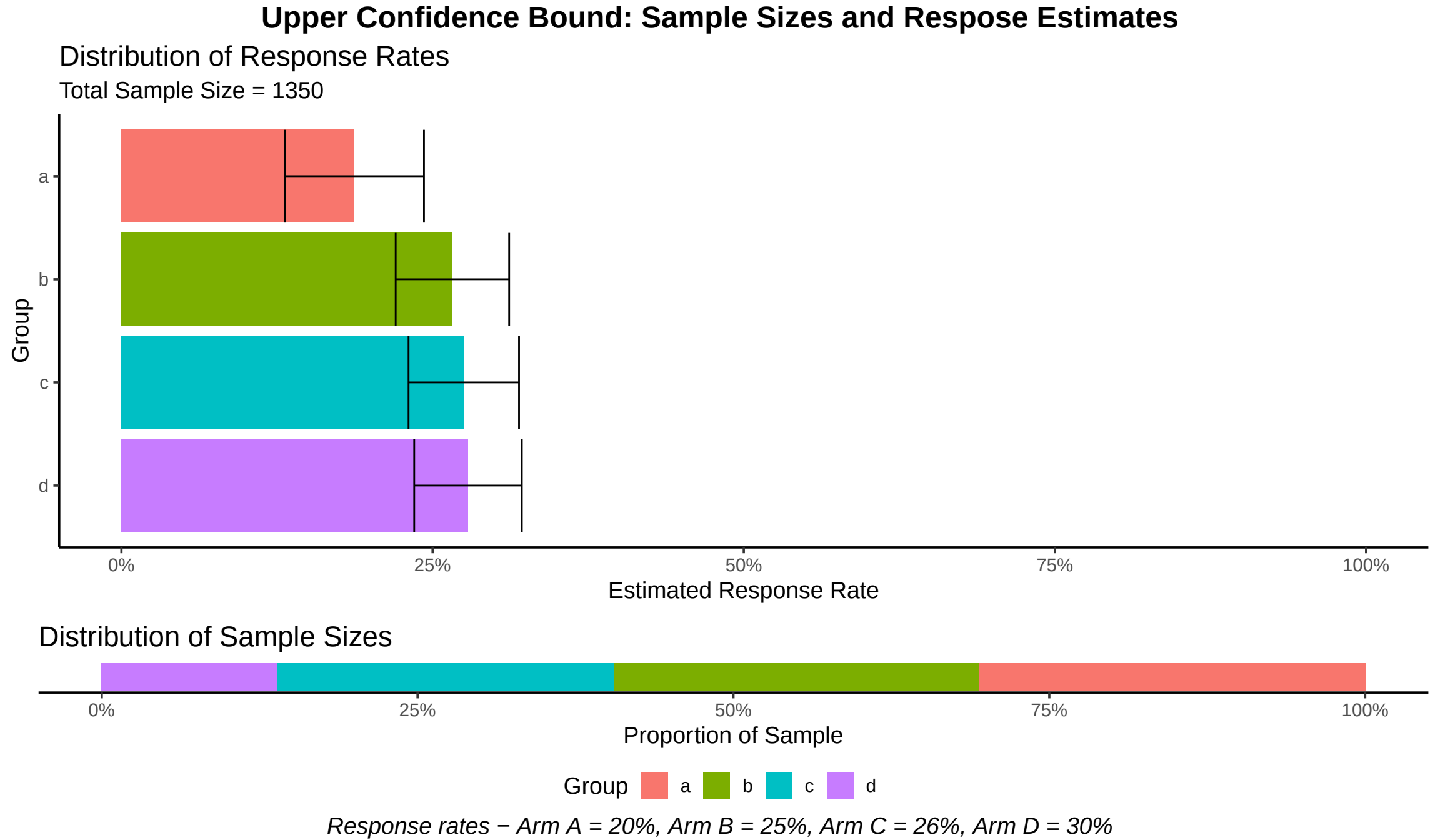

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

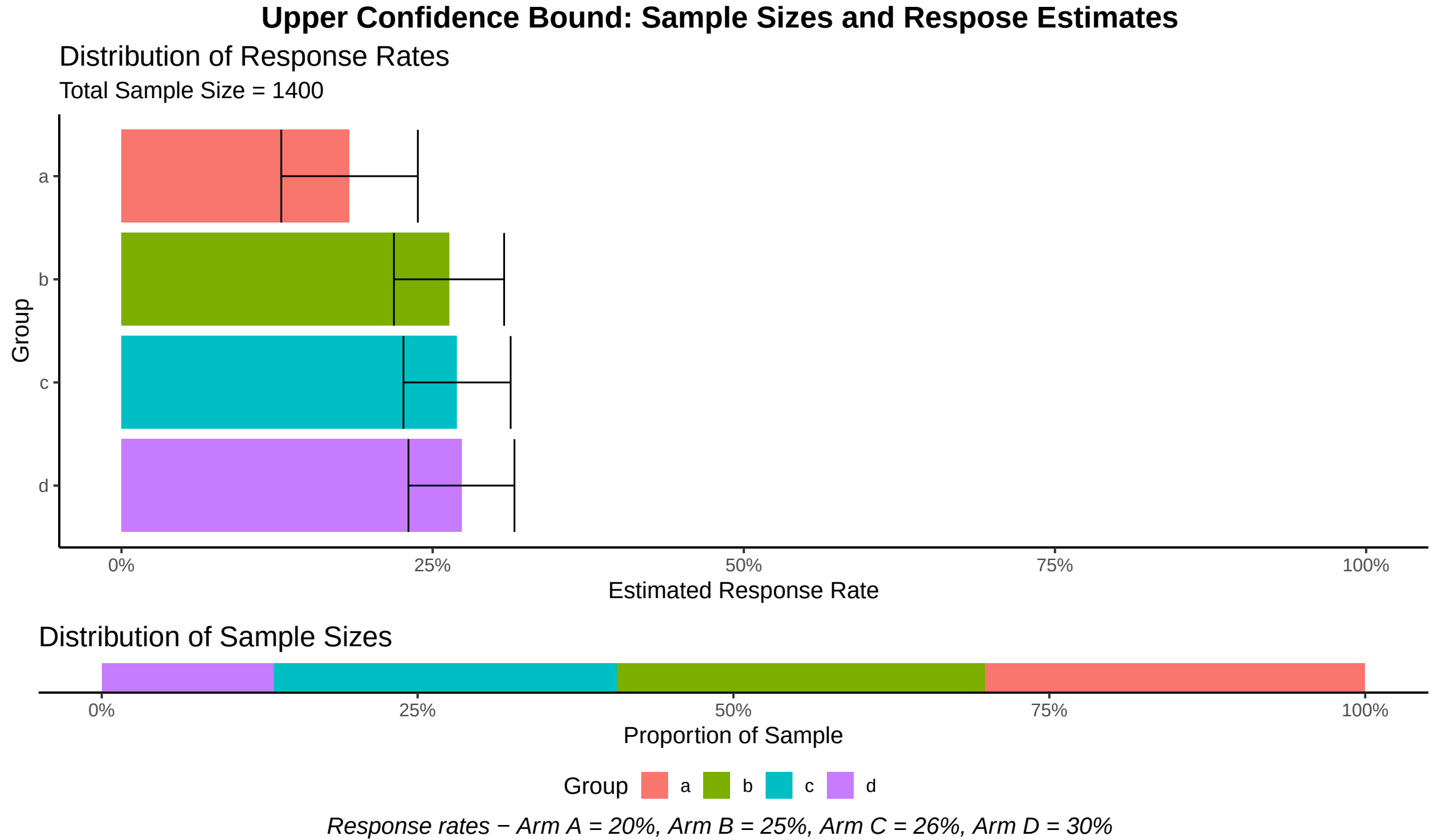

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

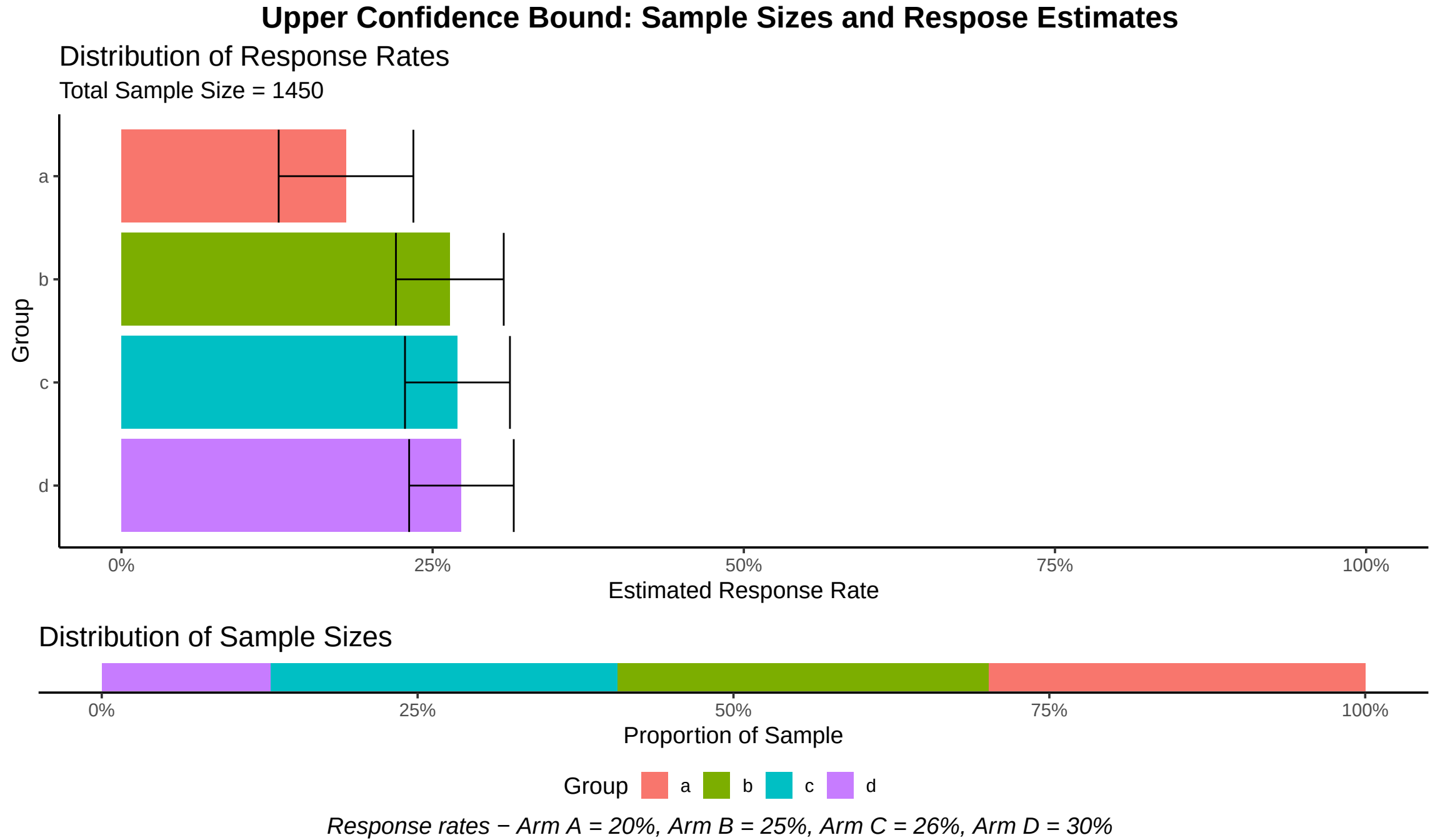

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

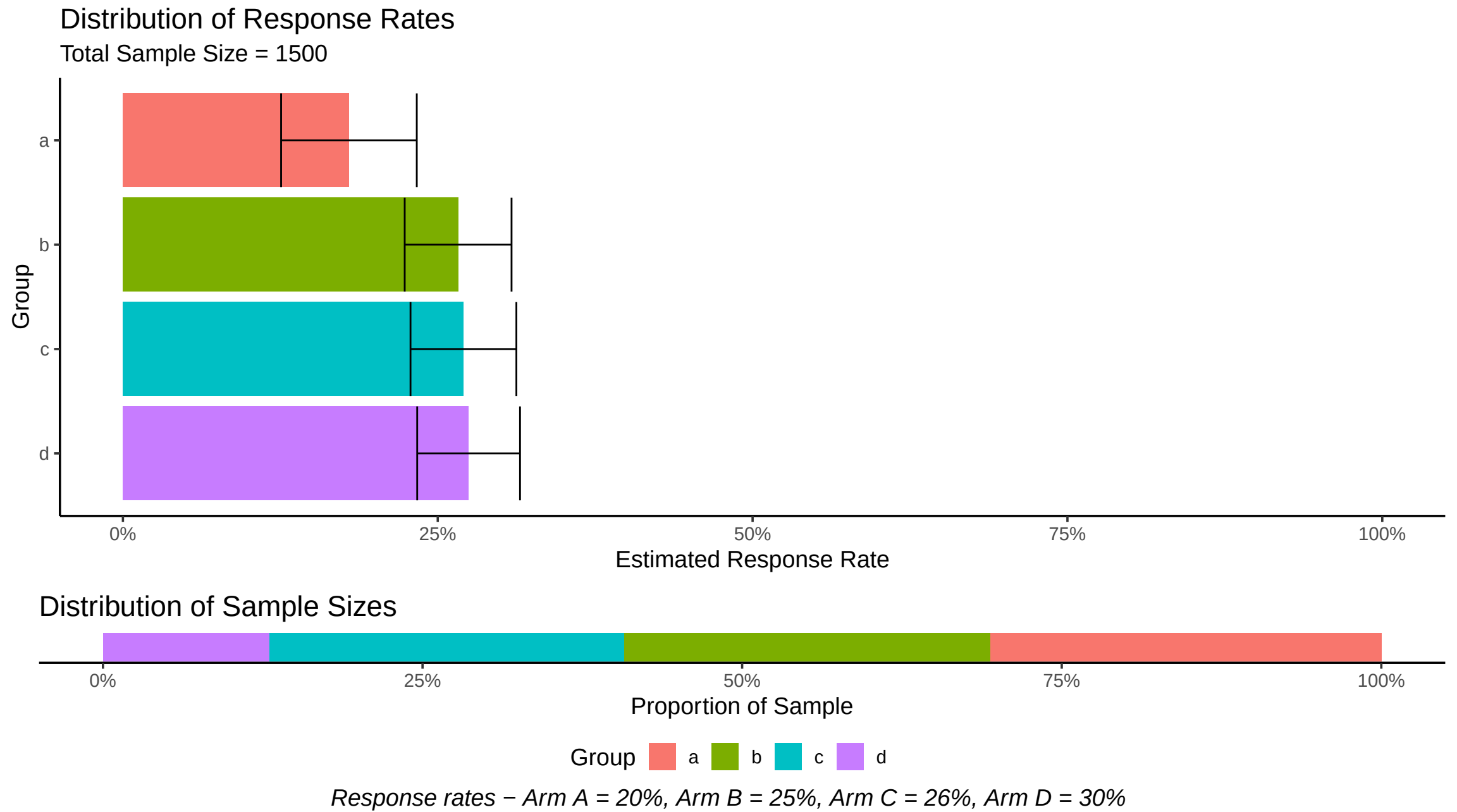

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

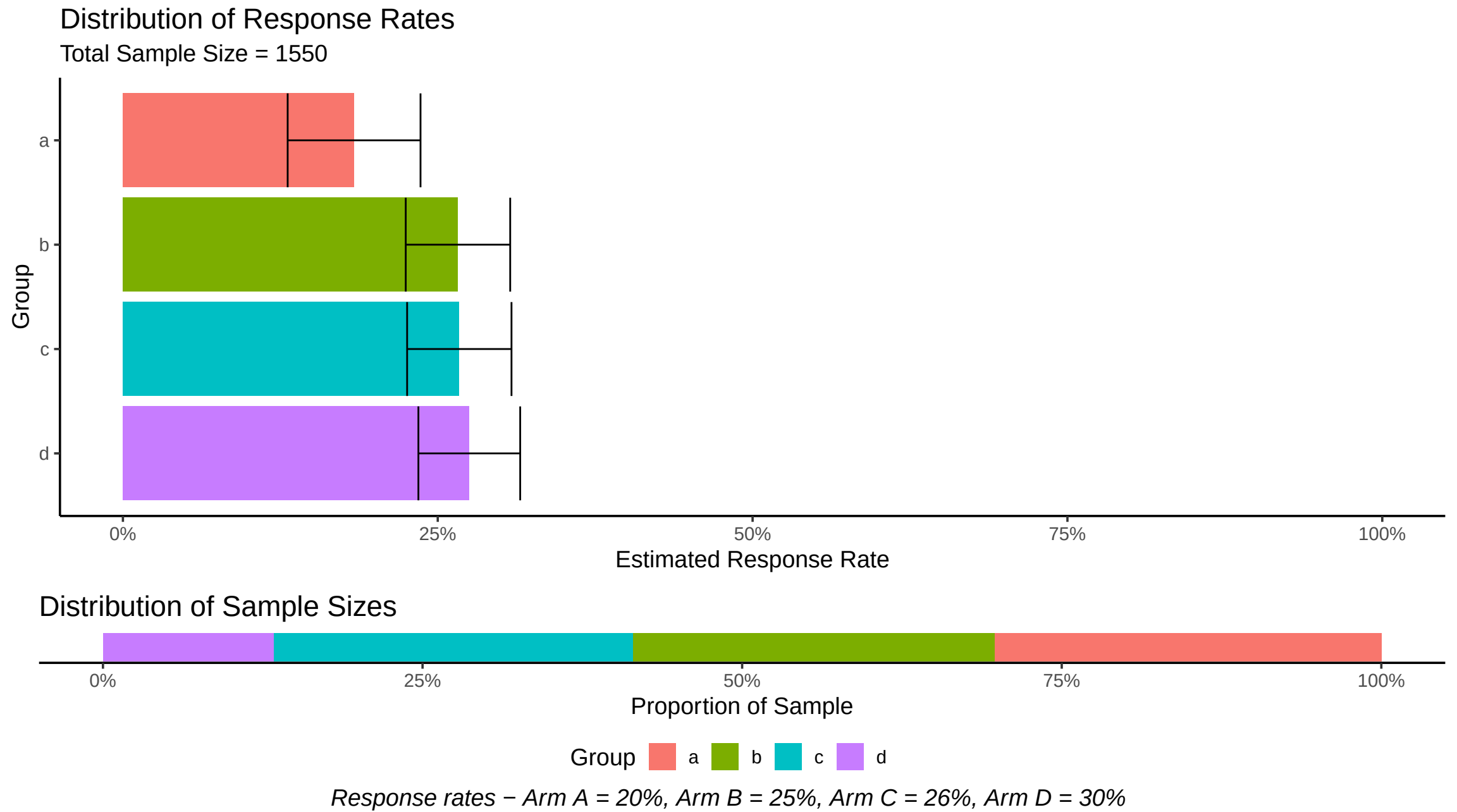

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

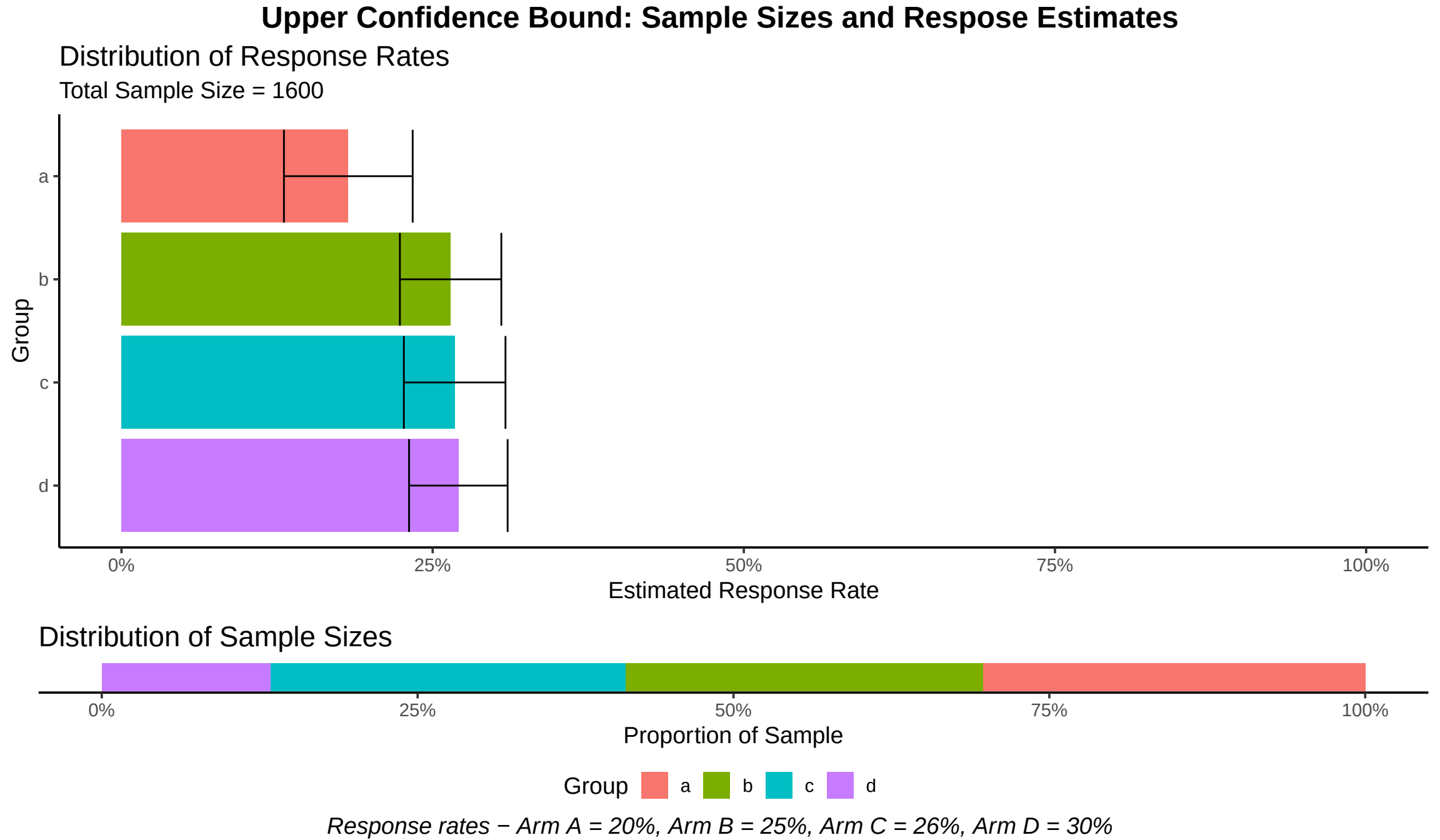


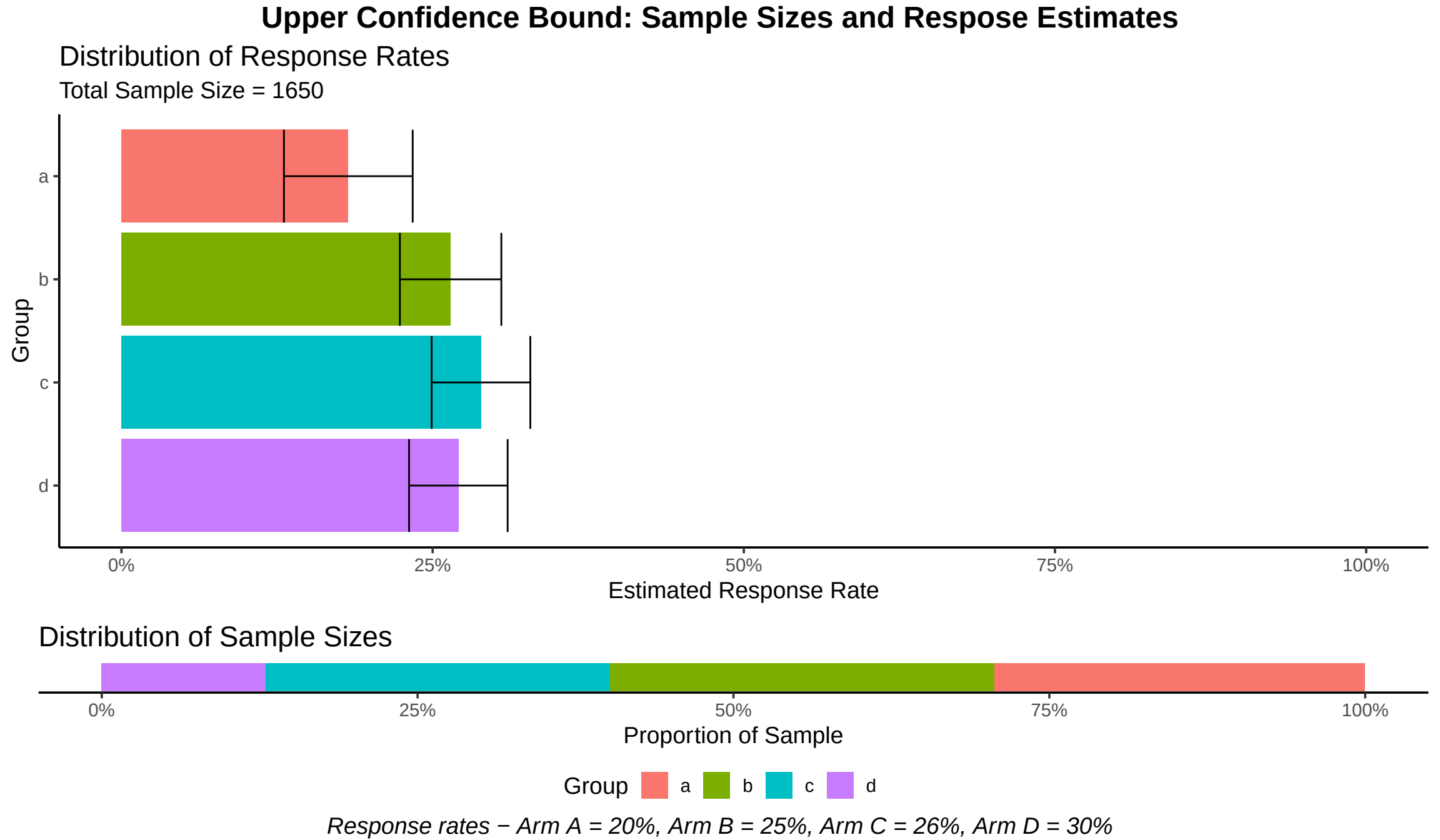
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

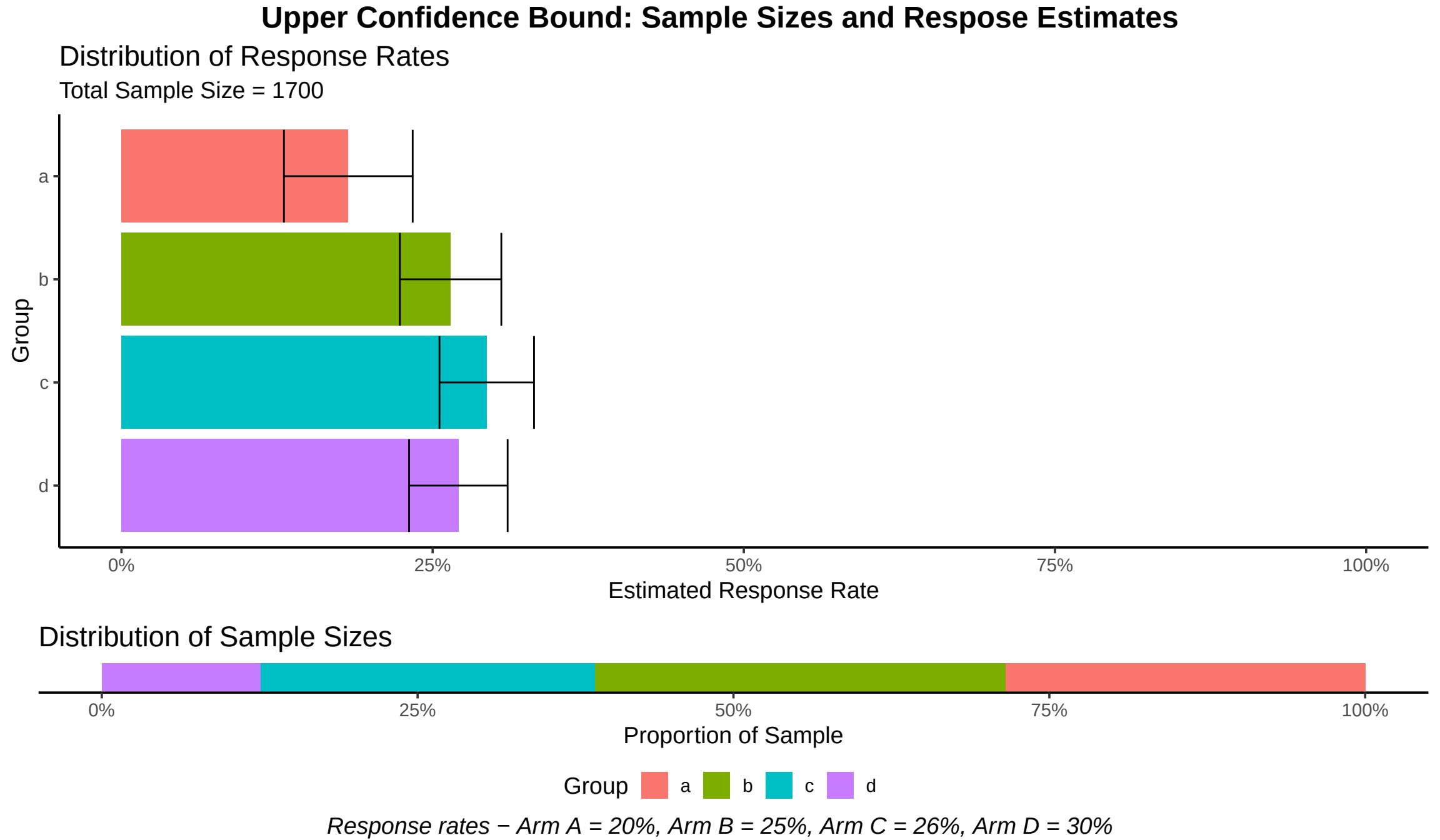
Upper Confidence Bound: Sample Sizes and Respose Estimates

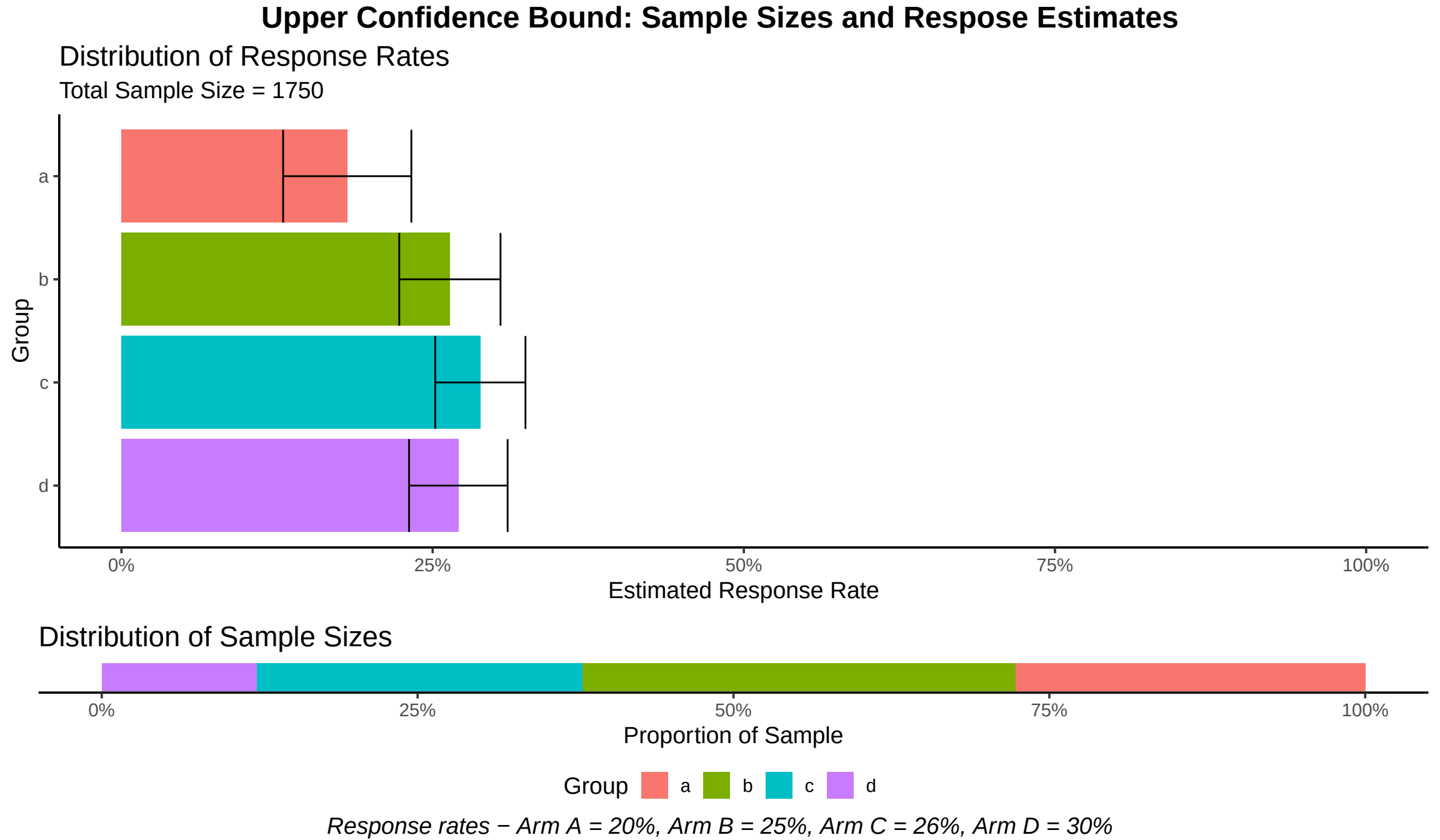


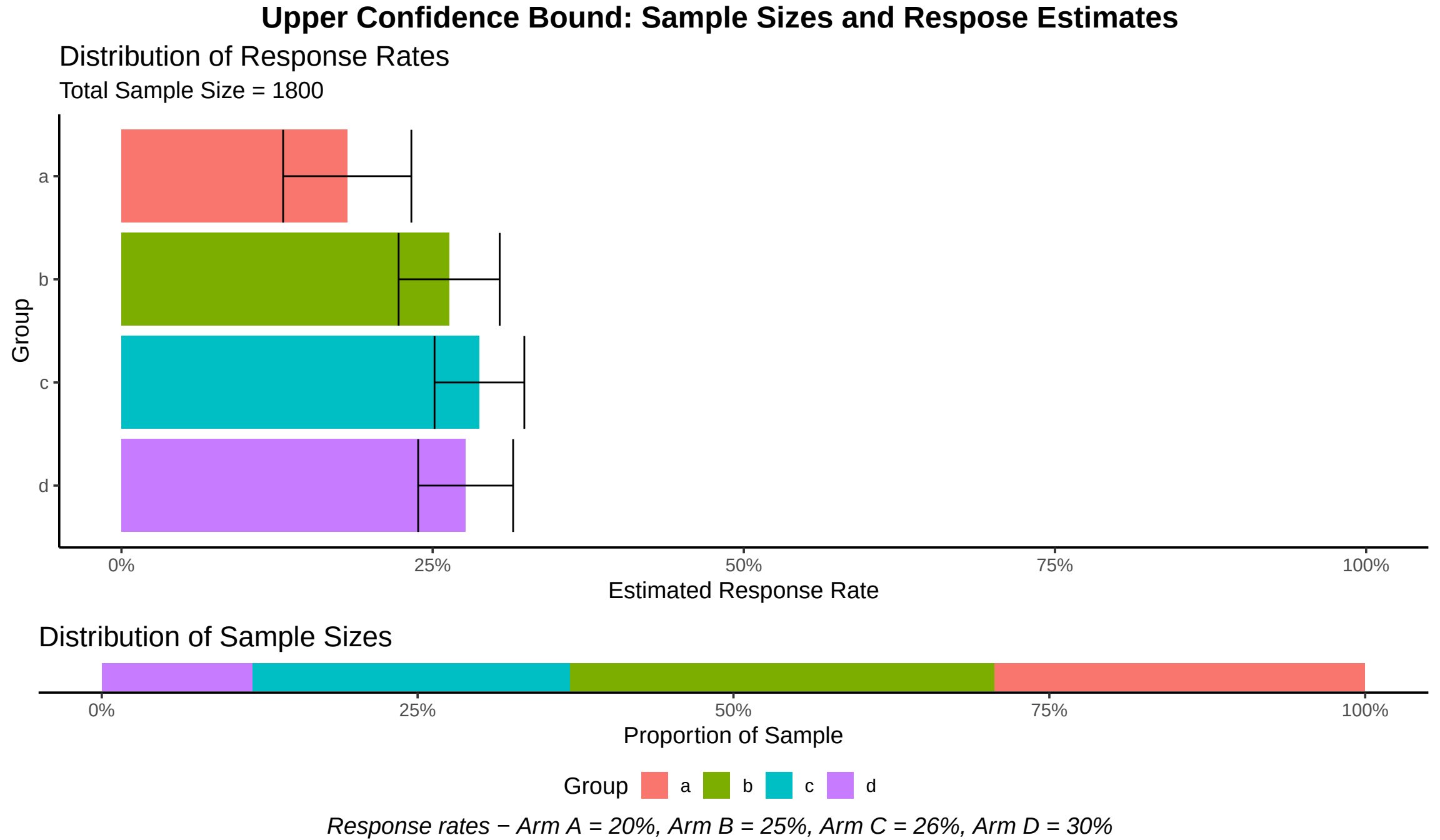
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

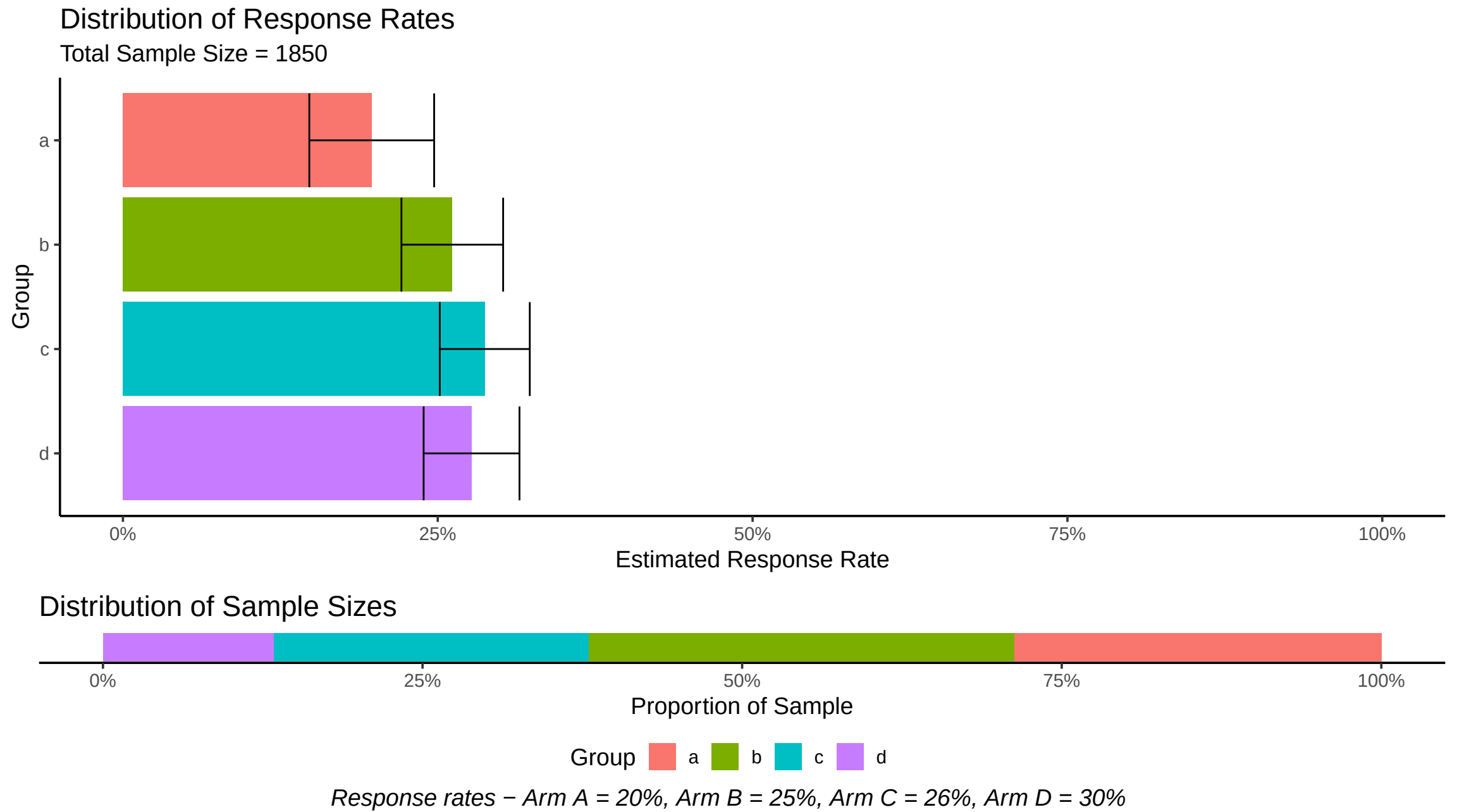

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

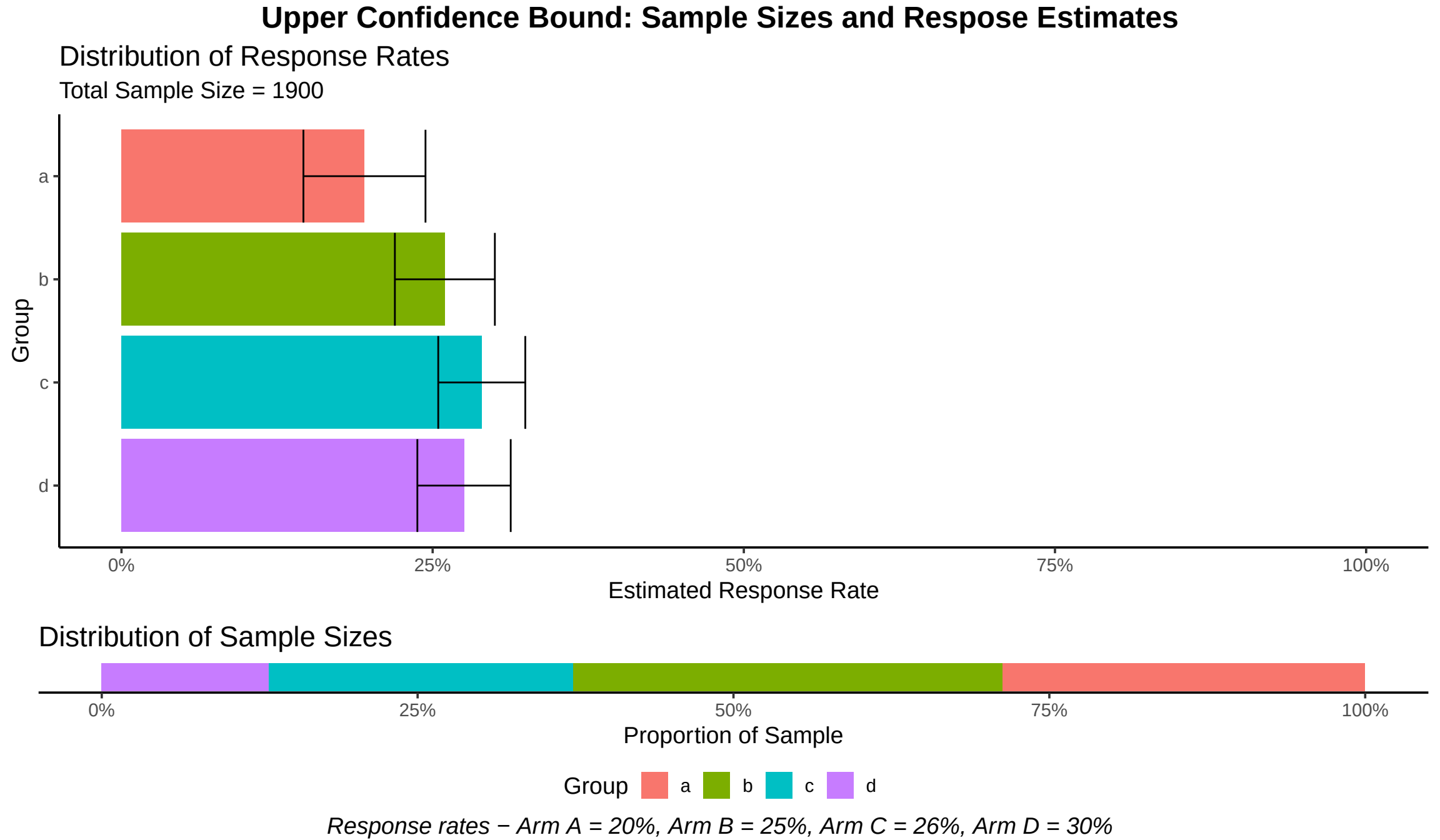

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

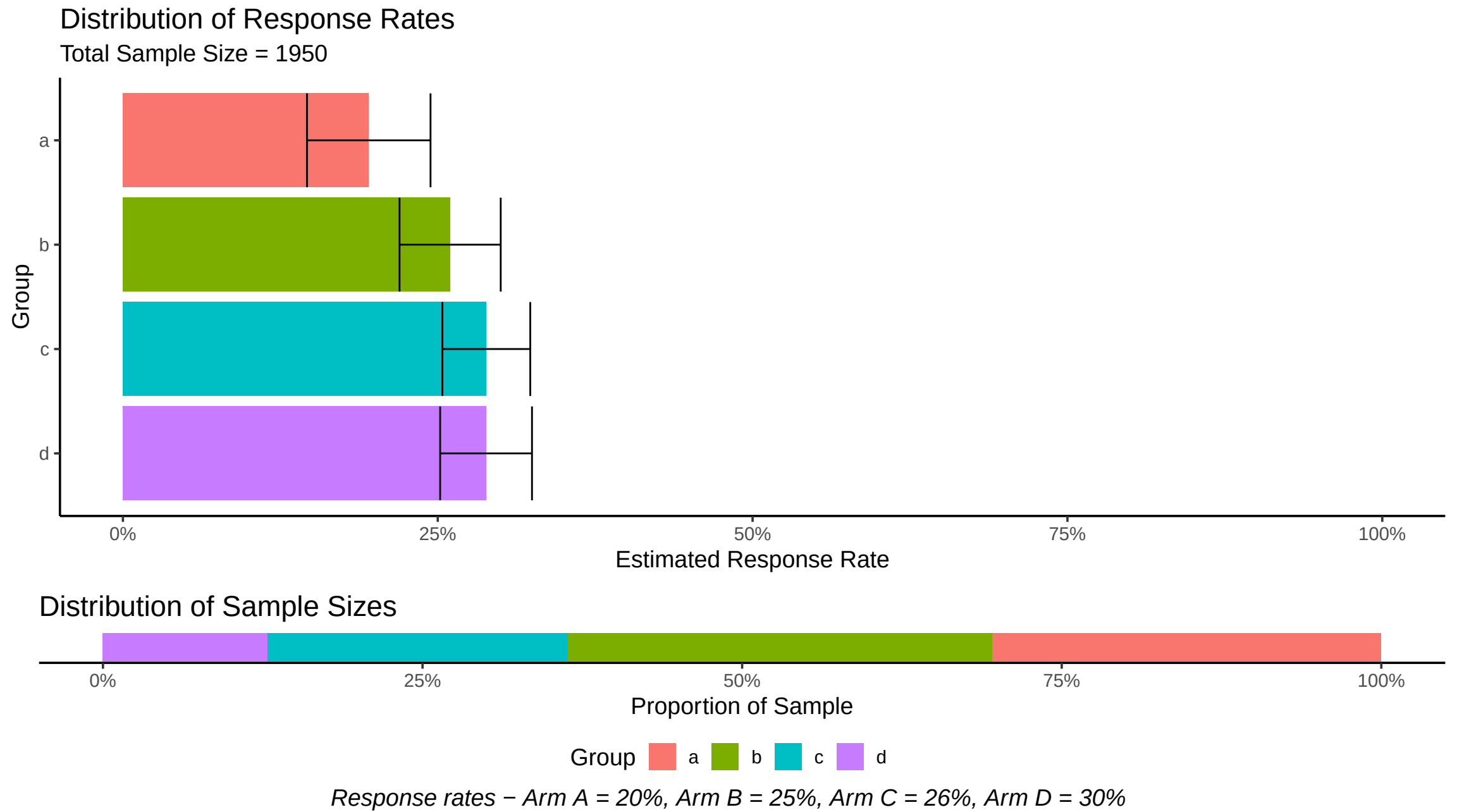
Upper Confidence Bound: Sample Sizes and Respose Estimates



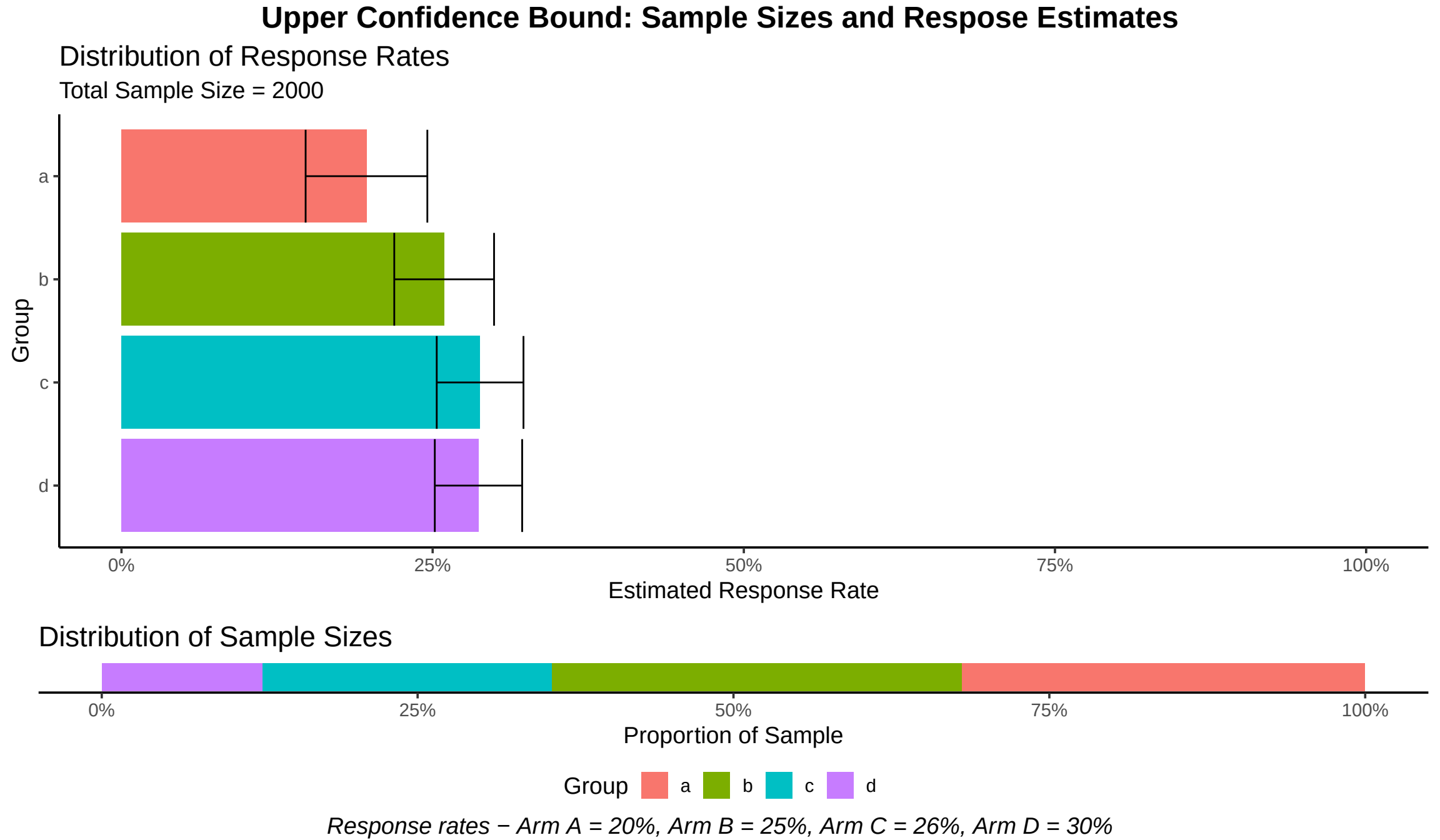
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

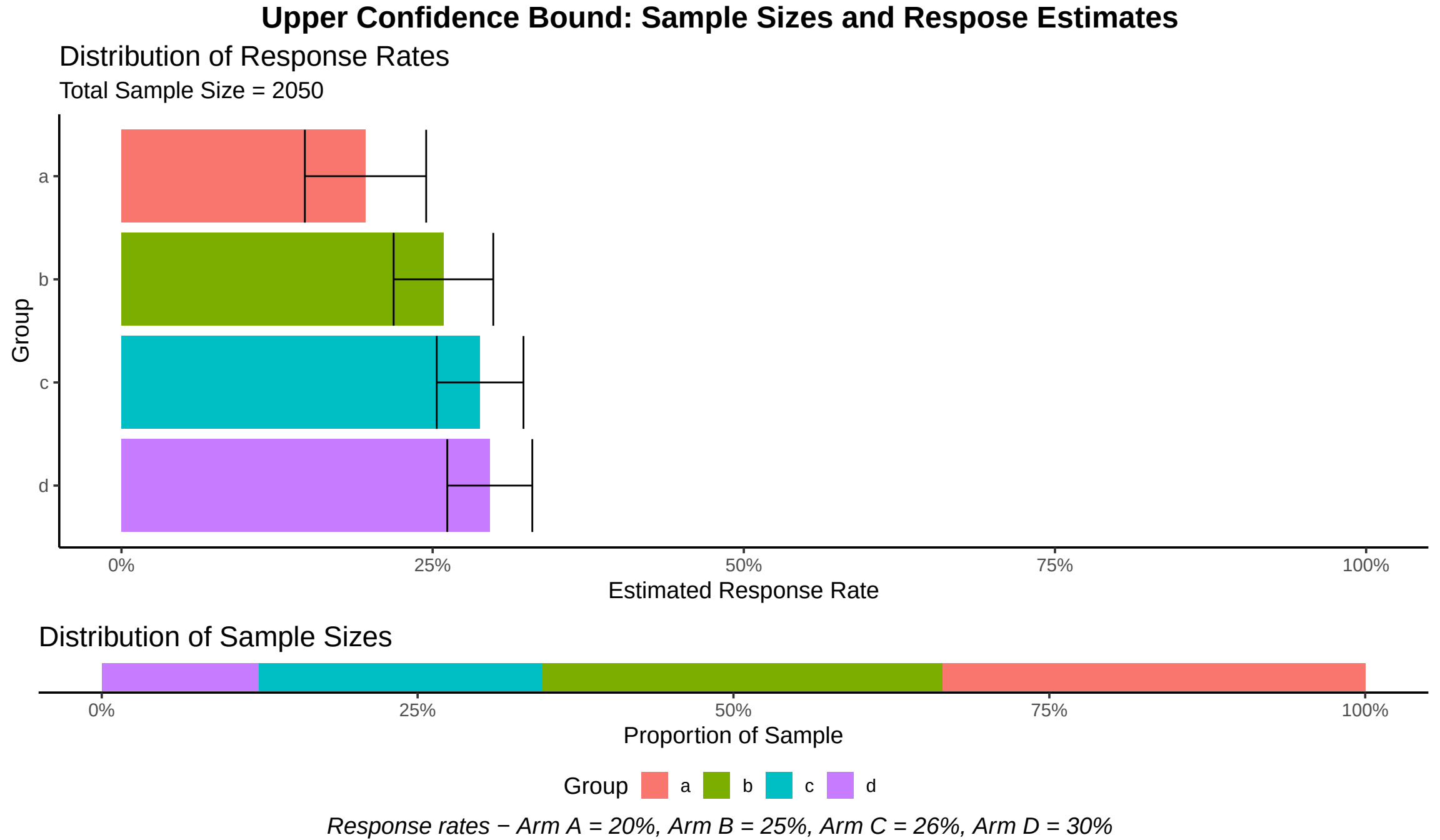

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 1900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

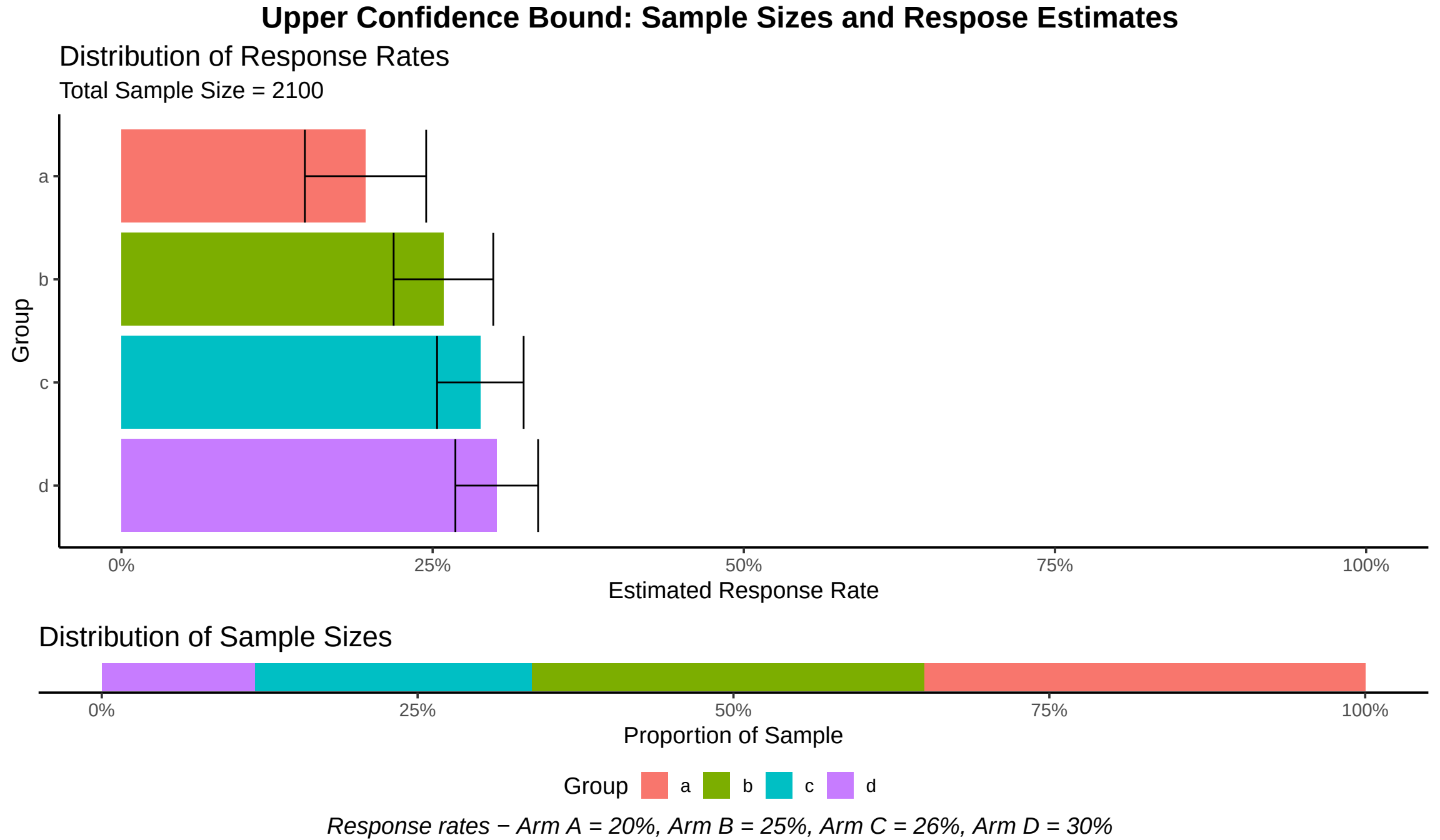
Upper Confidence Bound: Sample Sizes and Respose Estimates

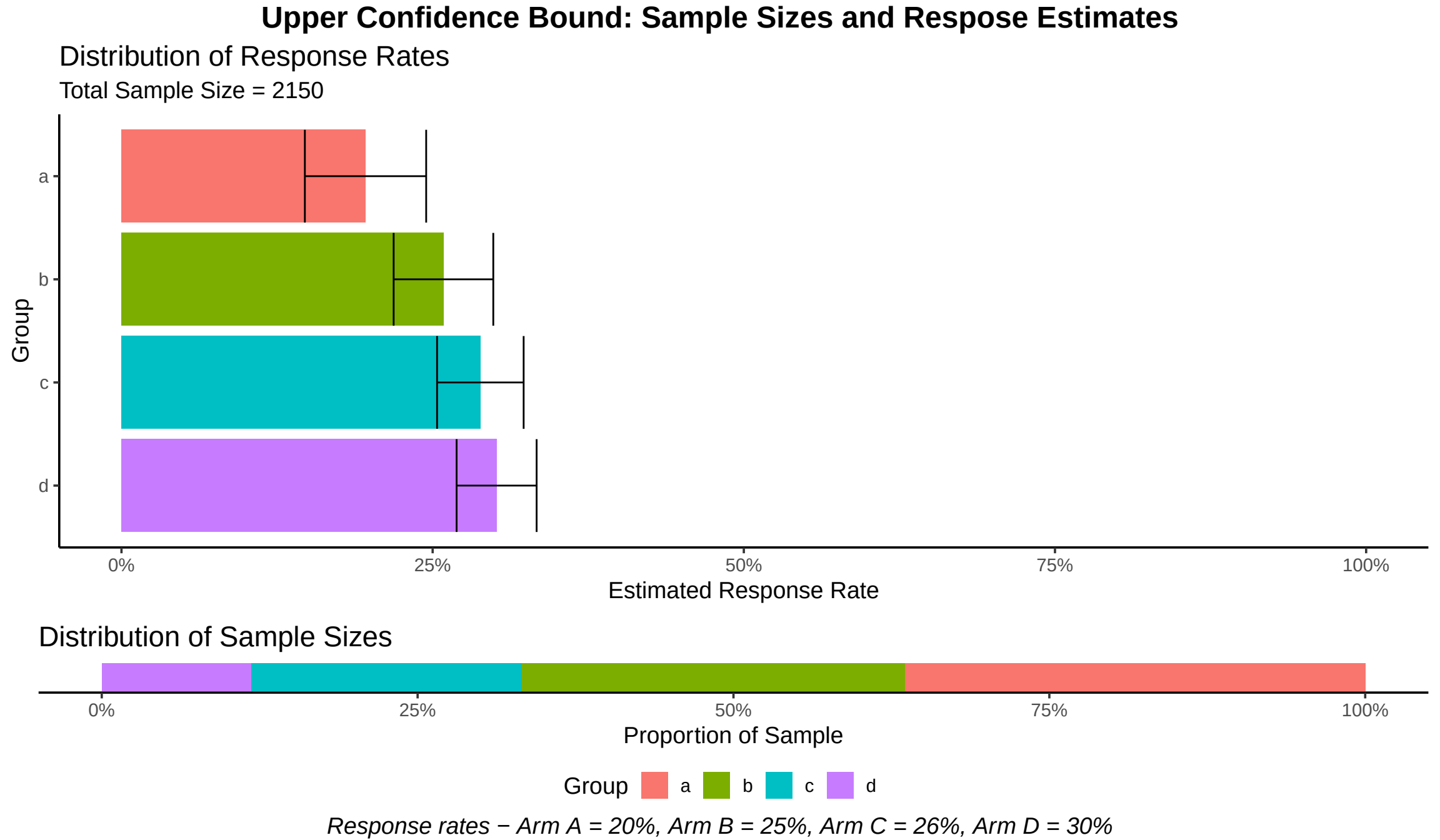


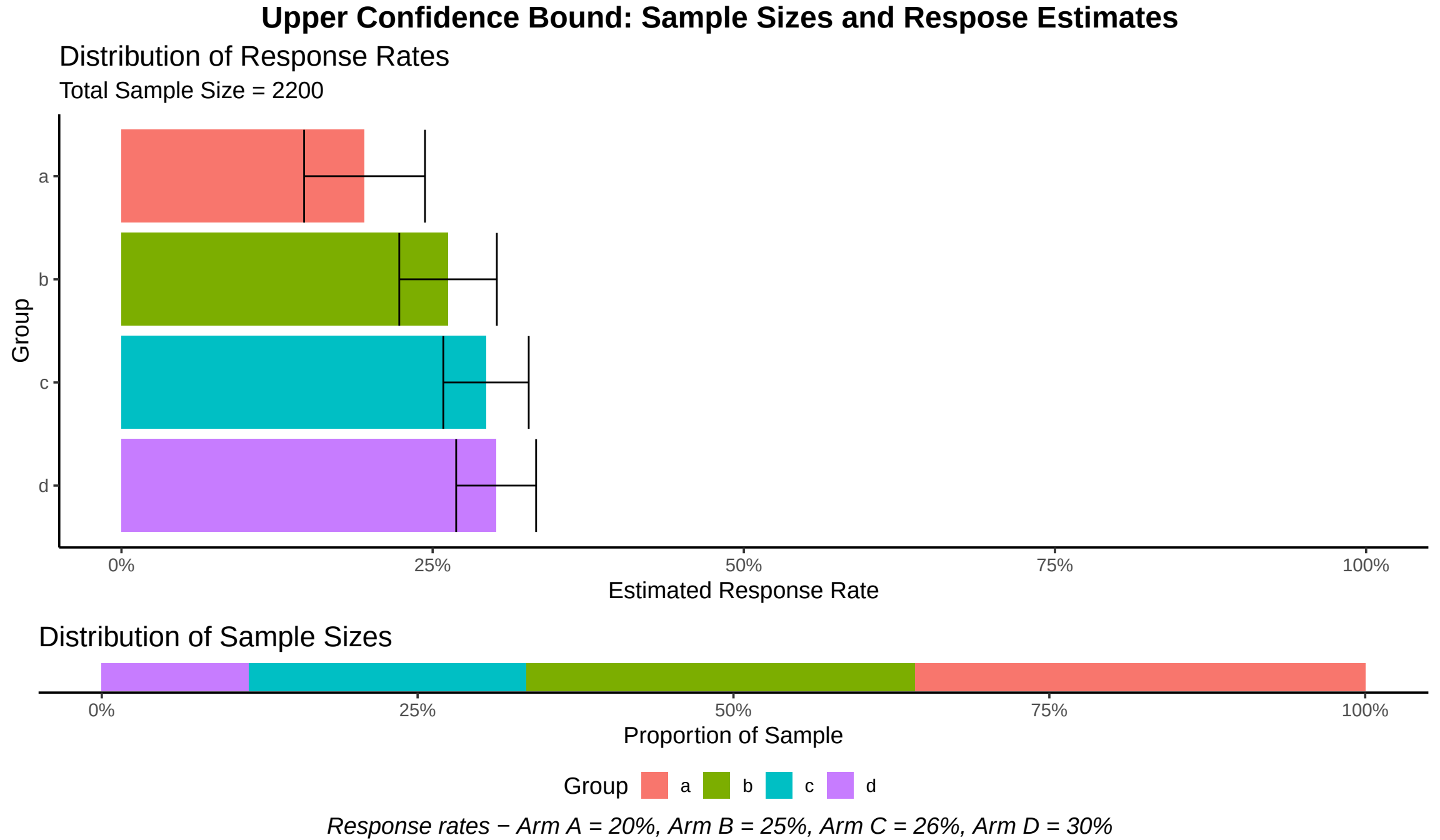
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

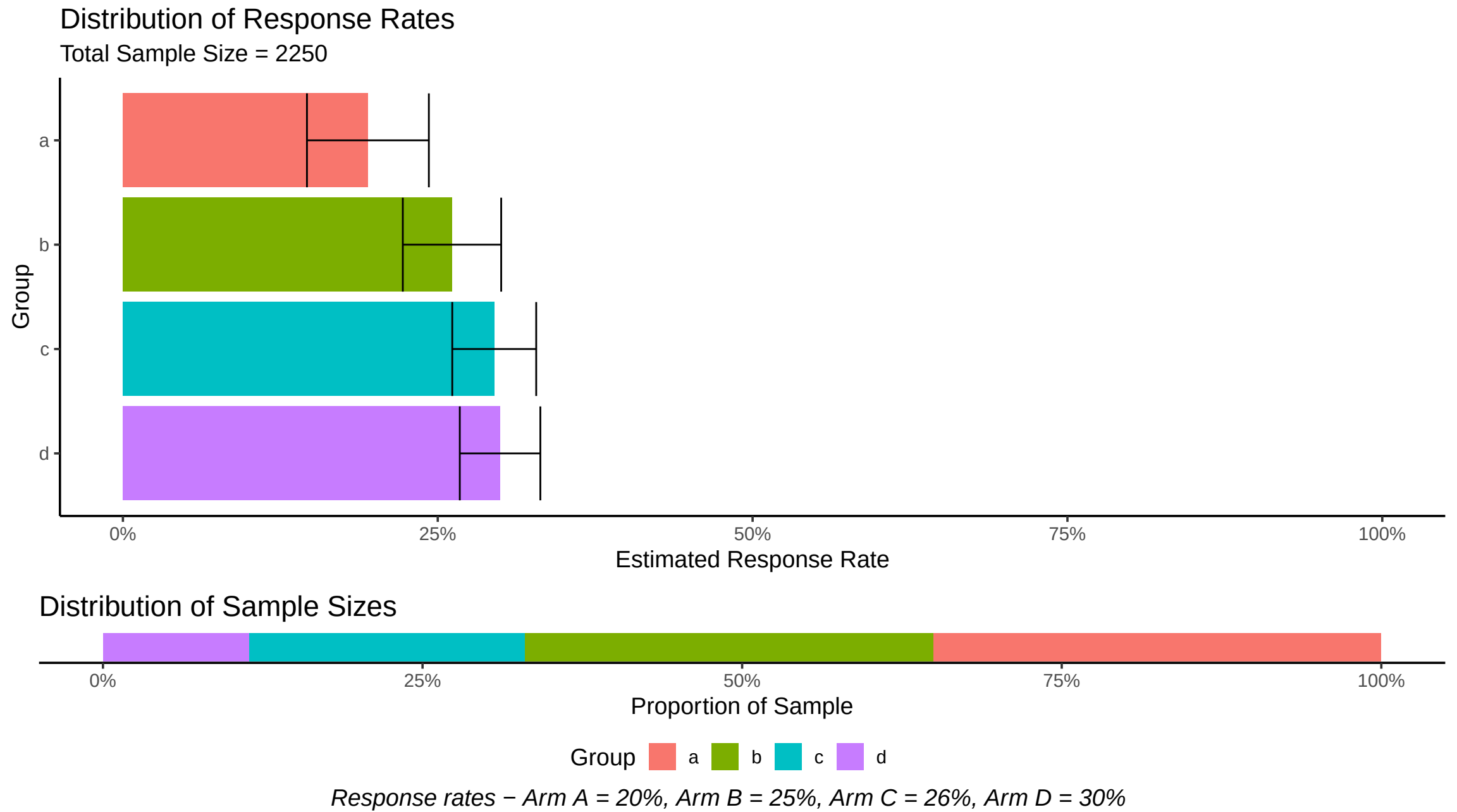

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

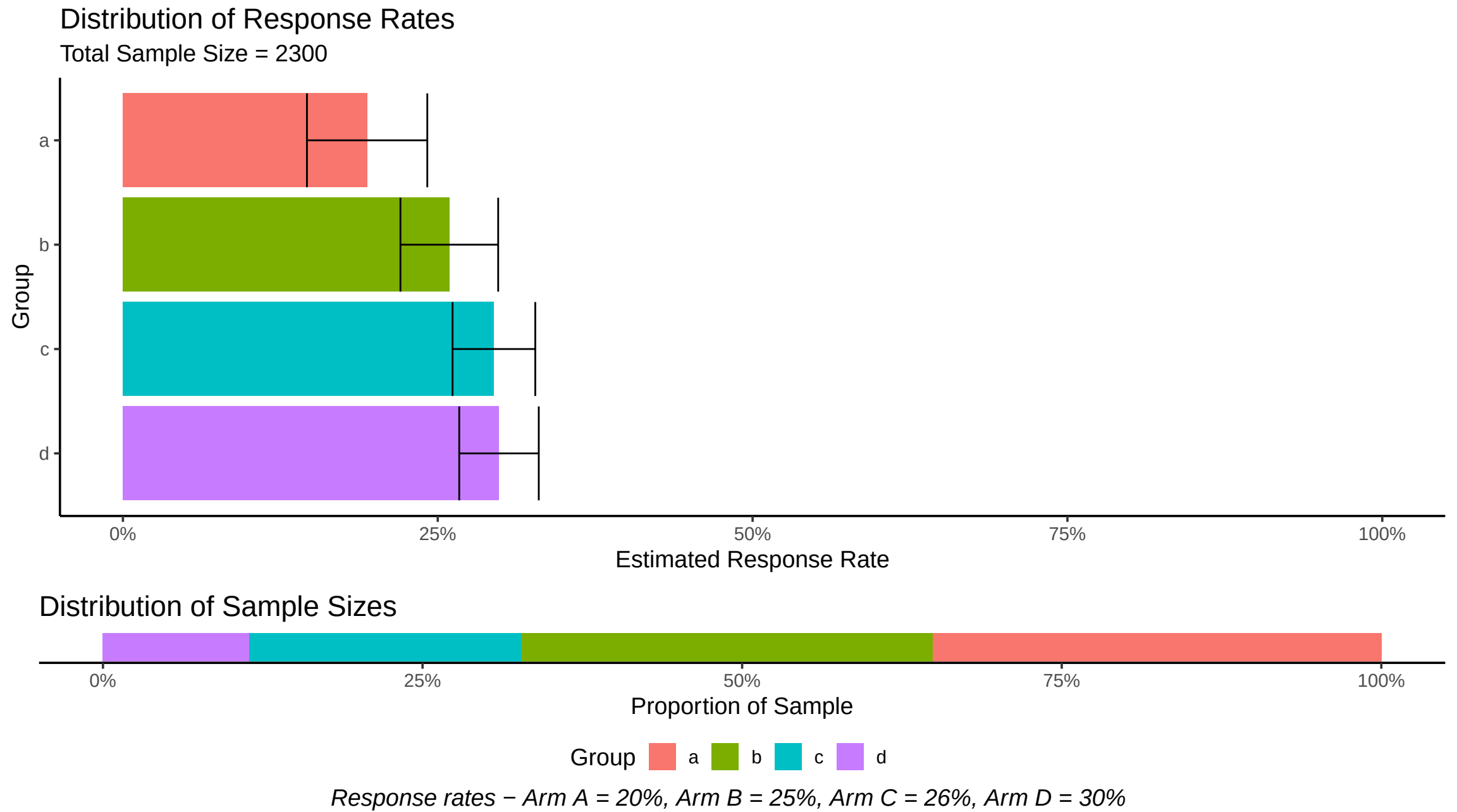

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

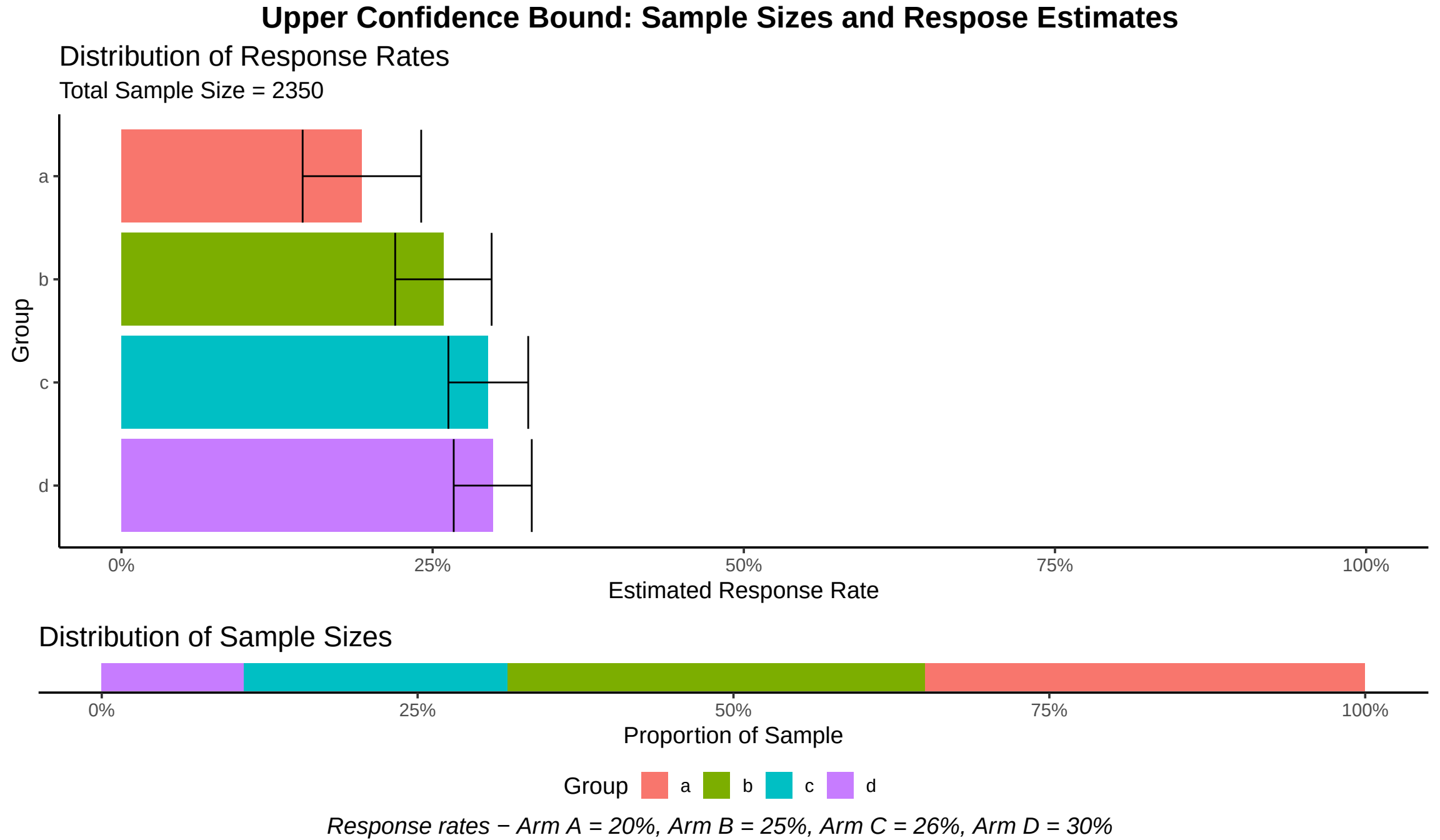


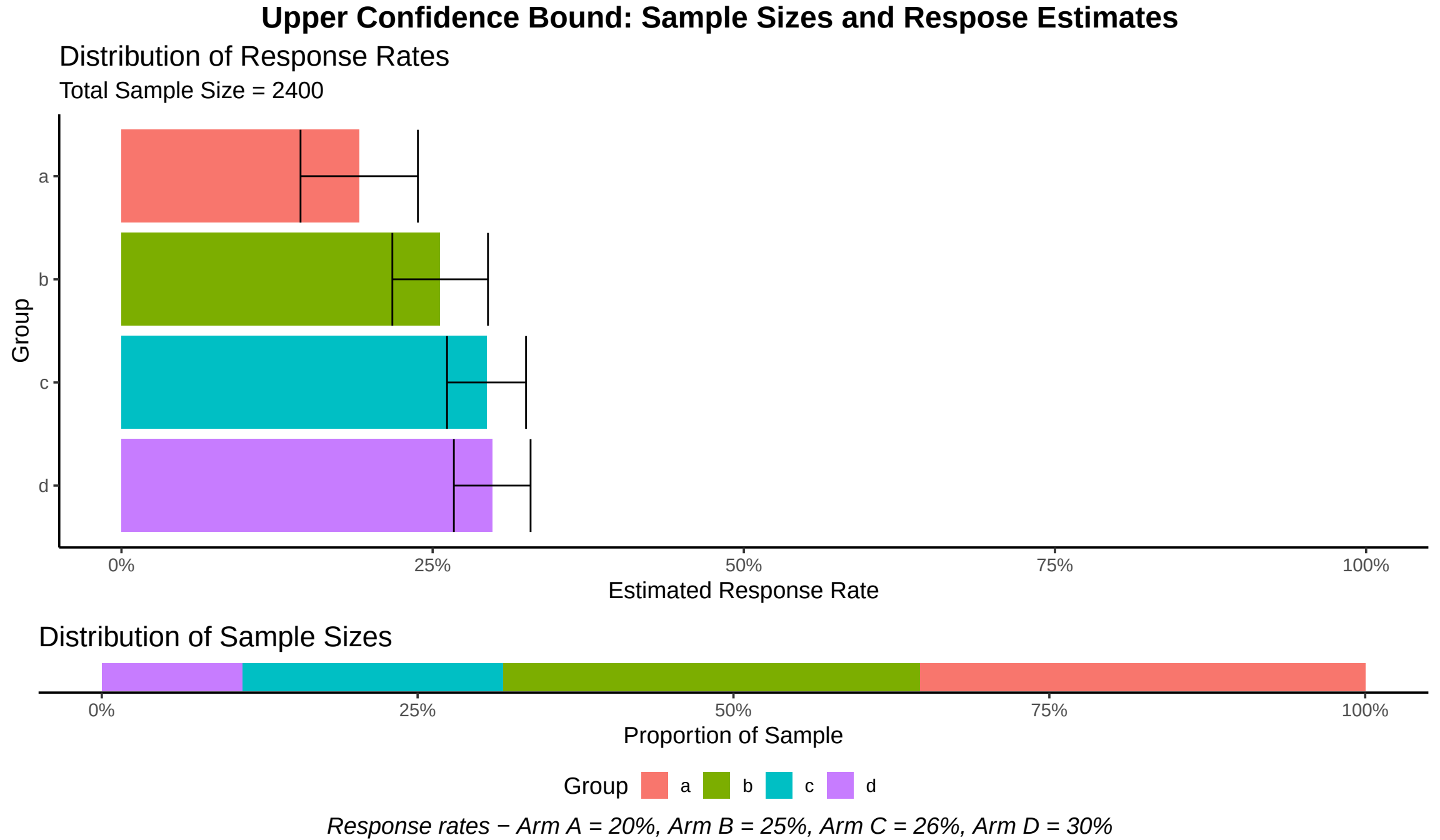
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

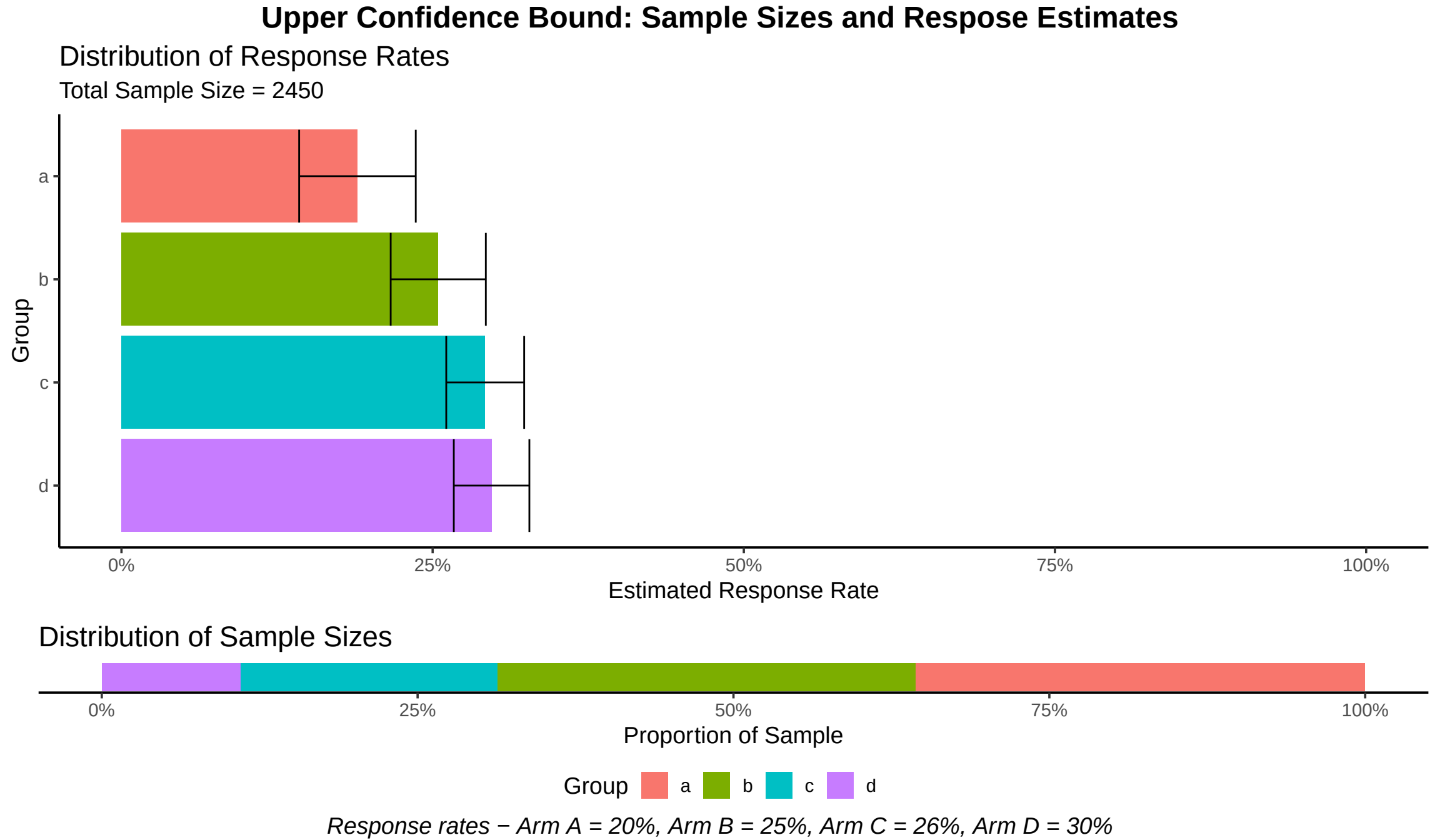
Upper Confidence Bound: Sample Sizes and Respose Estimates

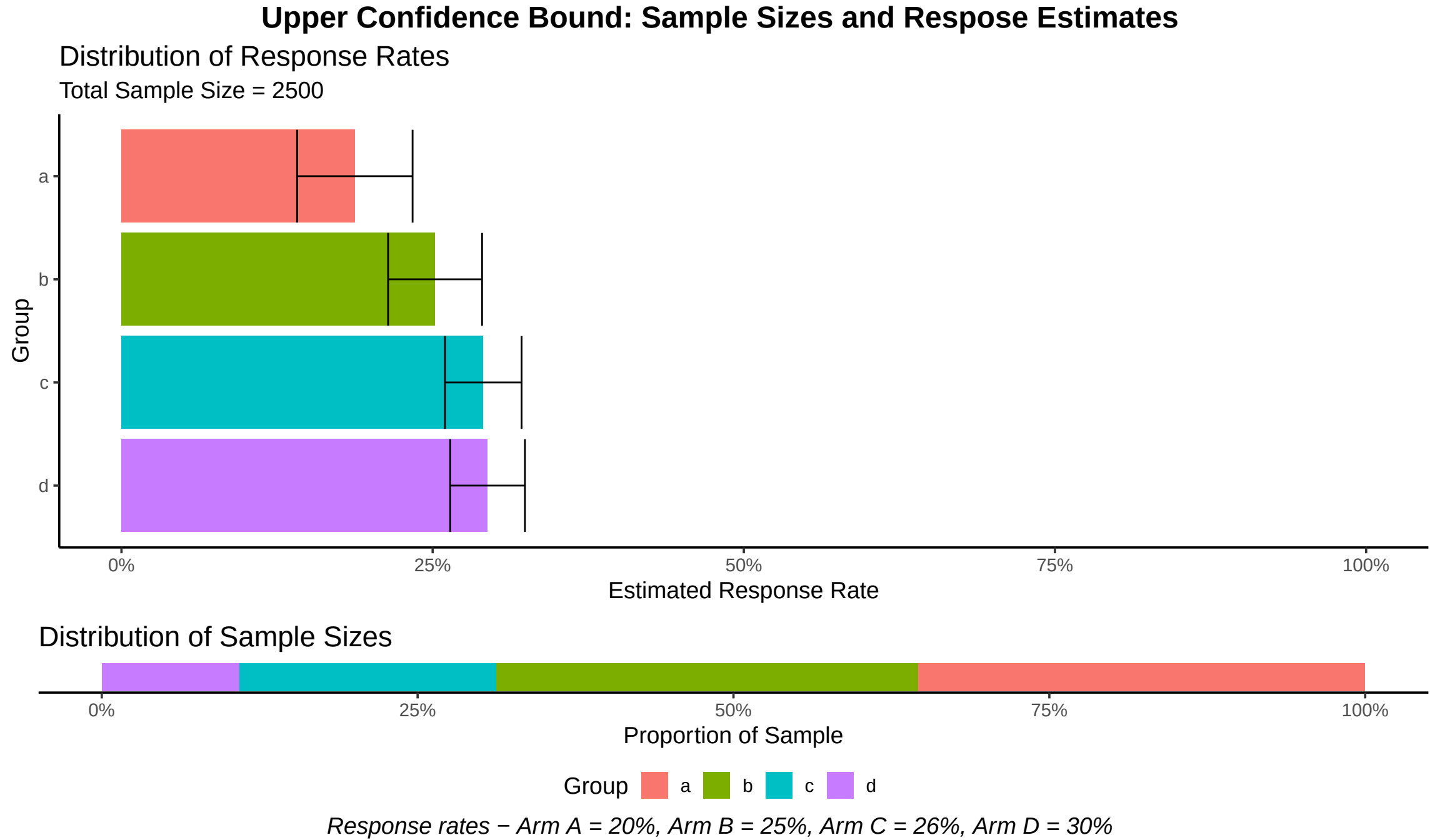


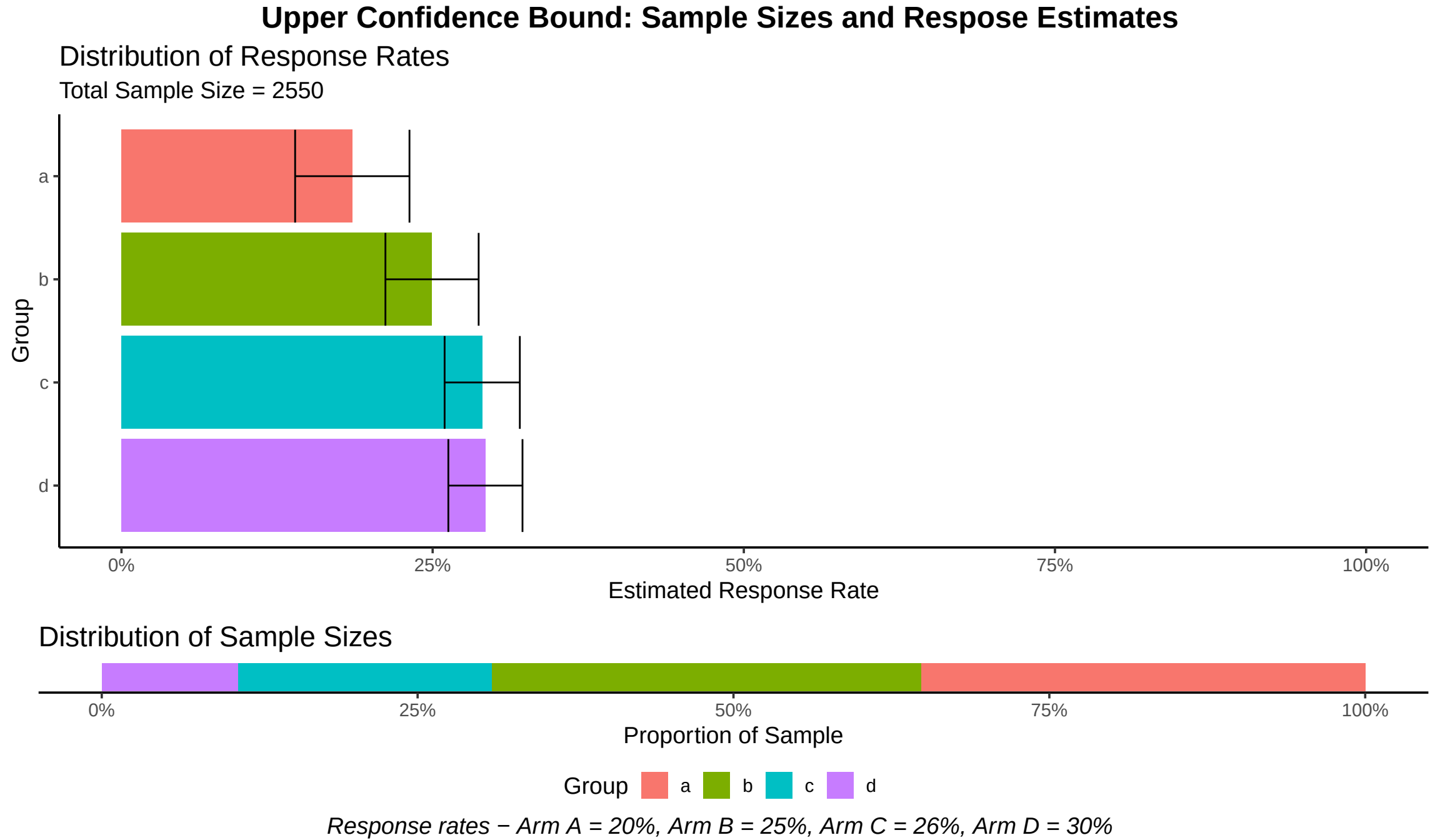
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

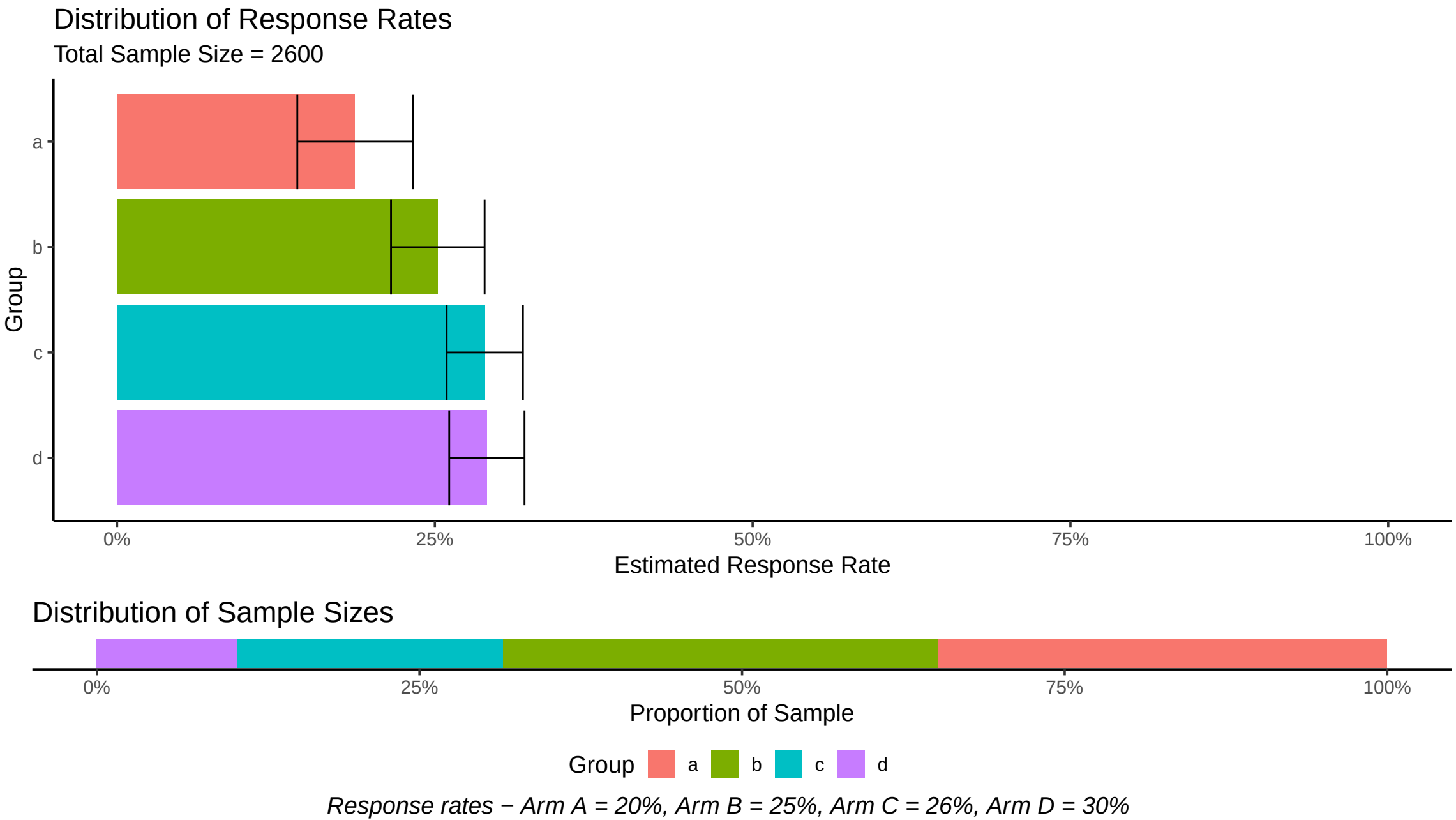

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

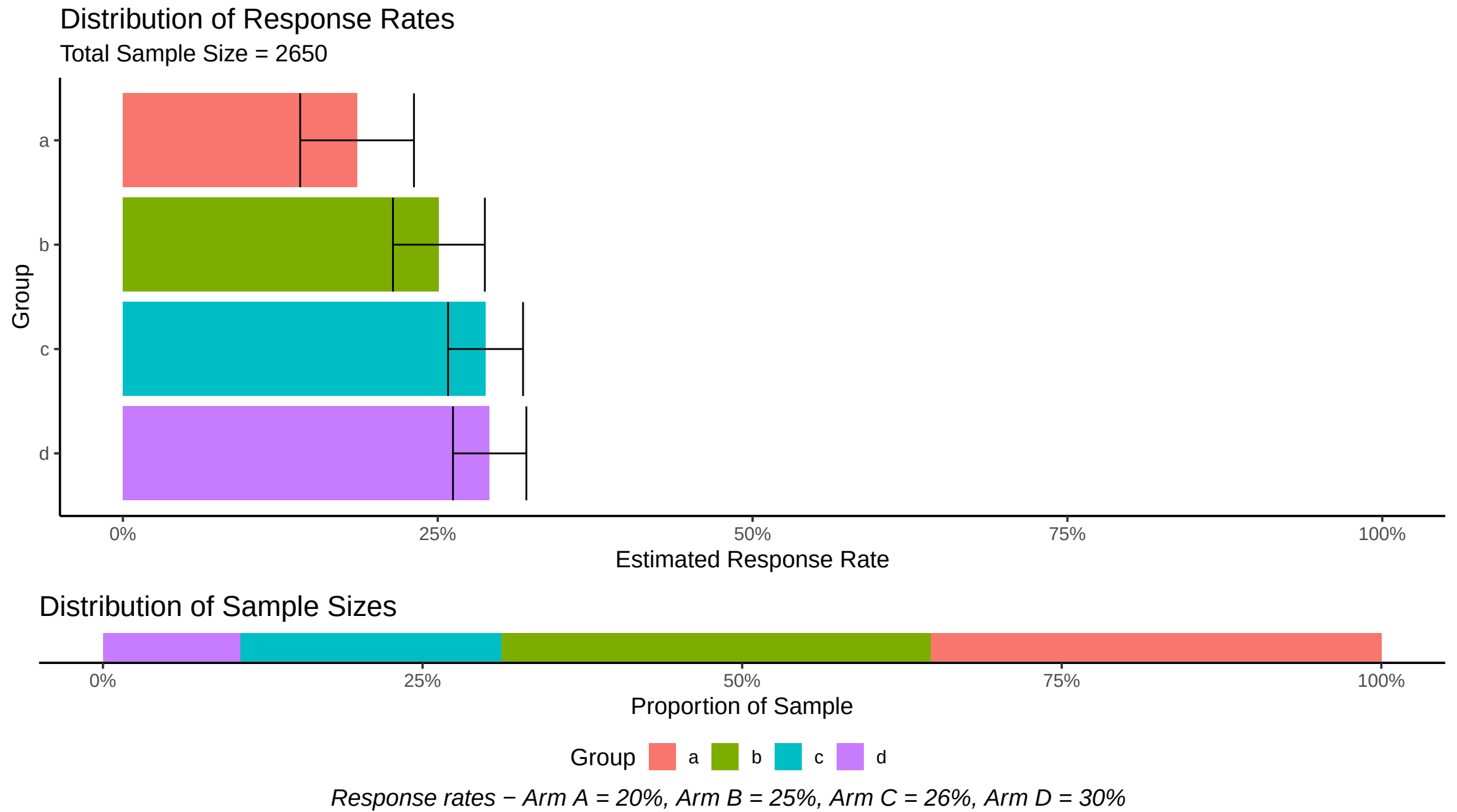

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

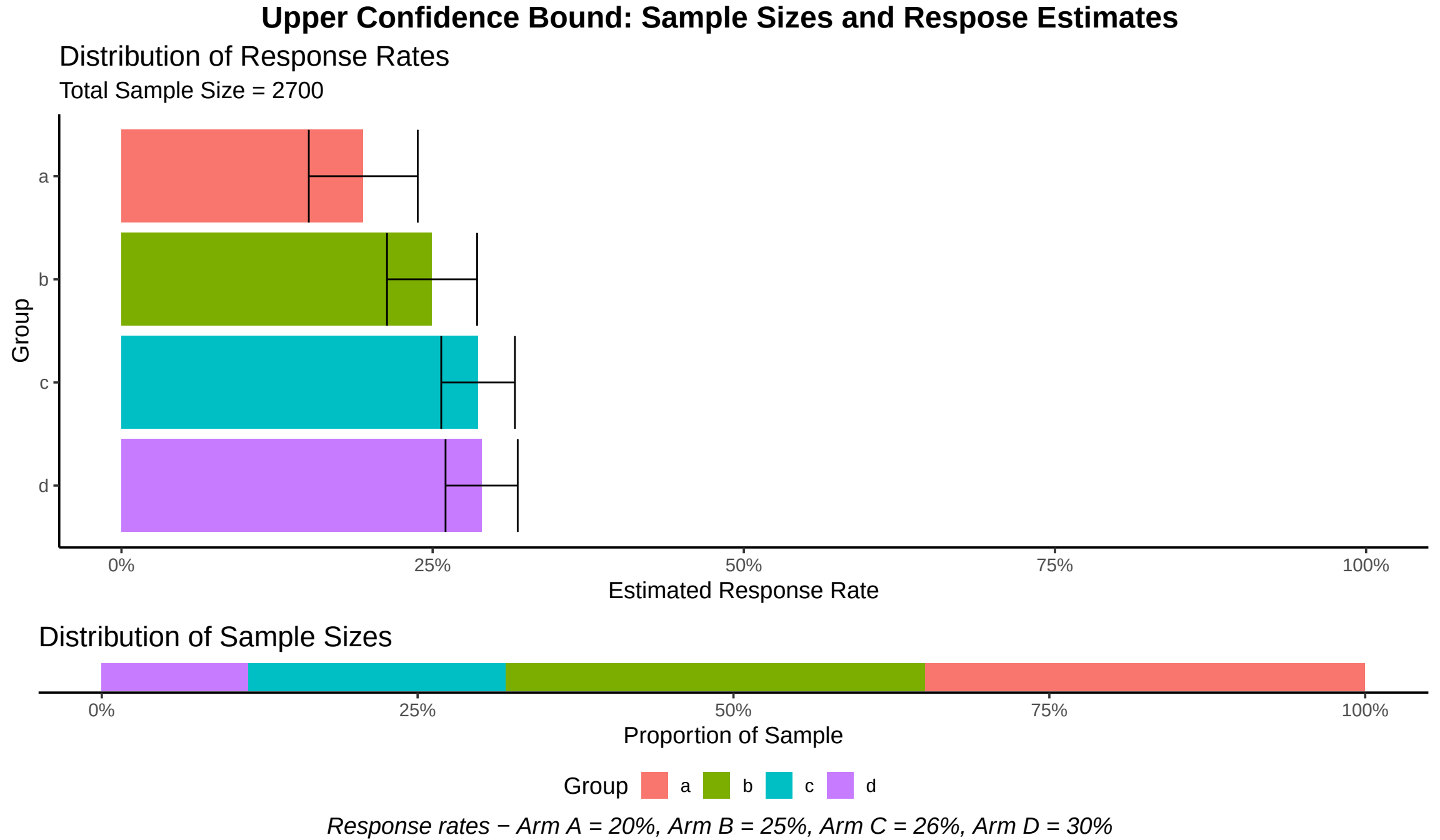


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

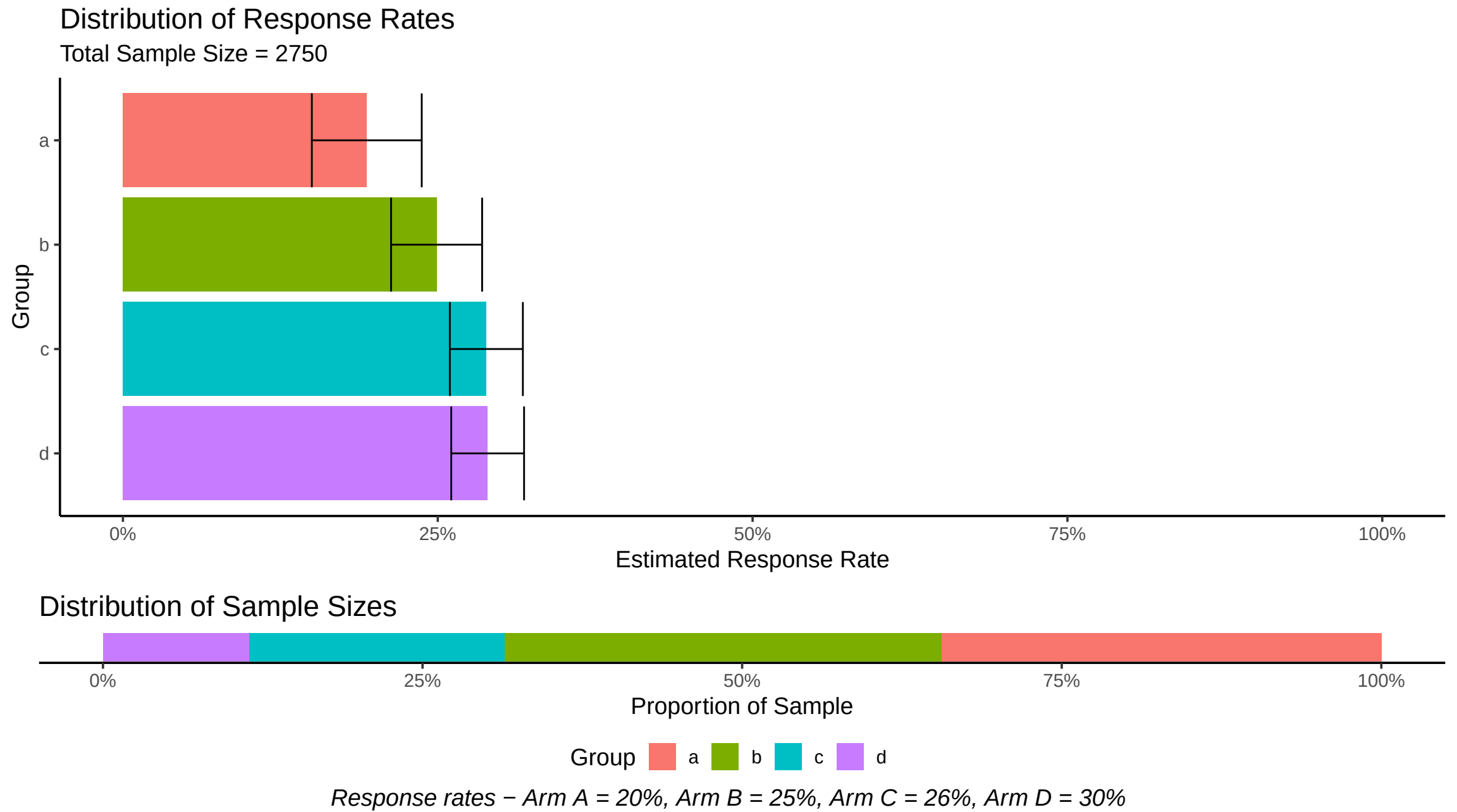
Upper Confidence Bound: Sample Sizes and Respose Estimates



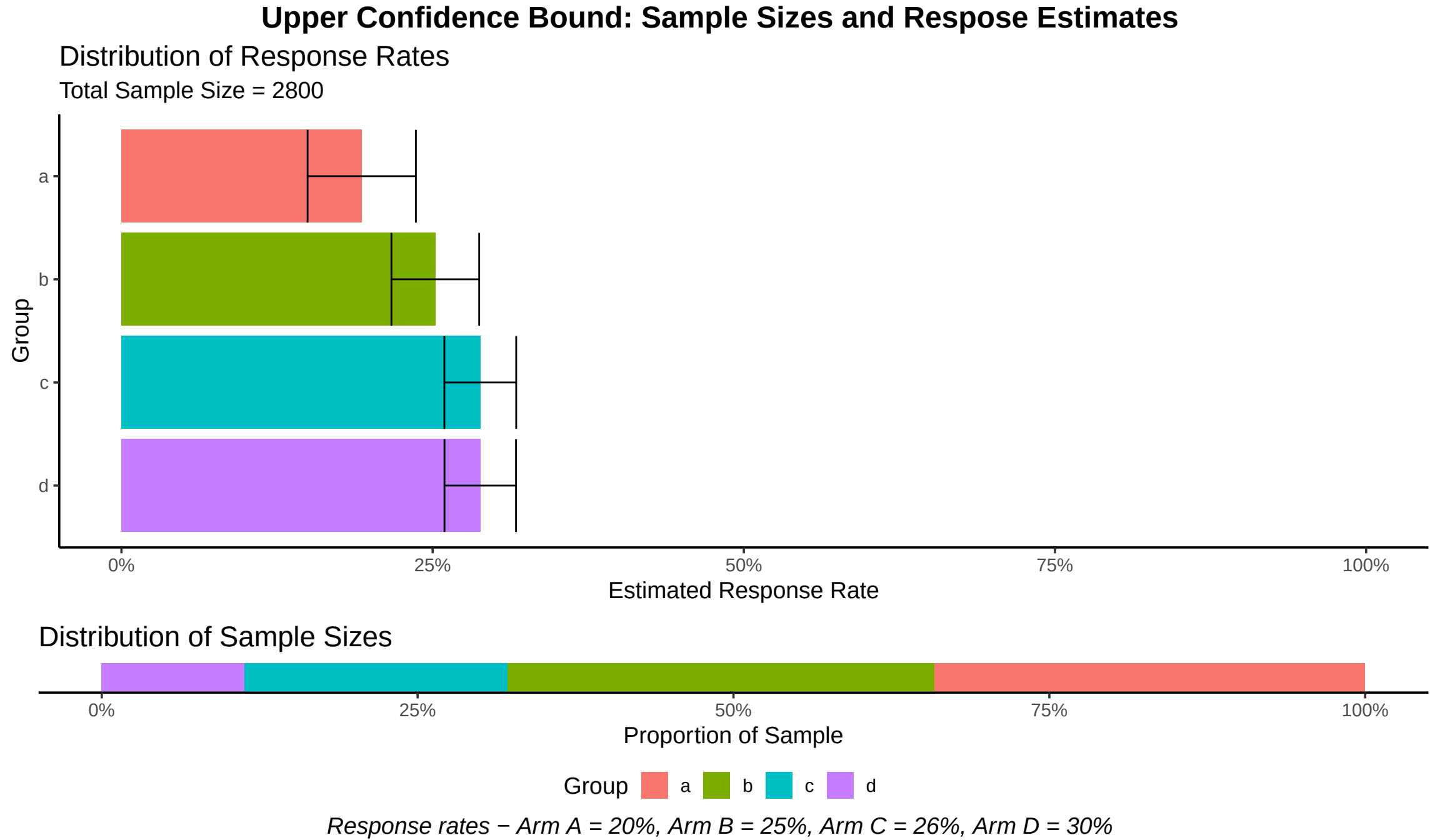
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

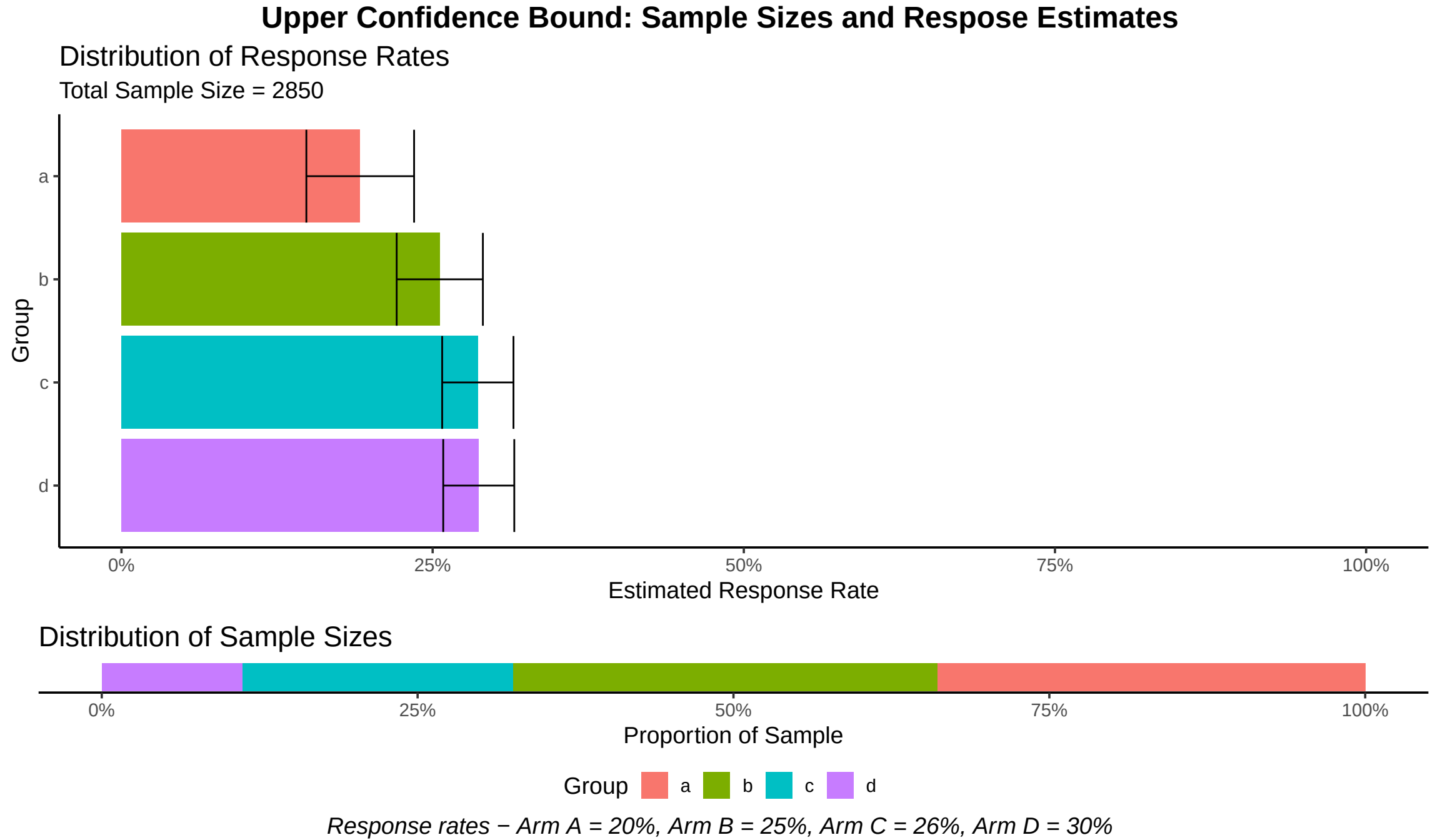

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

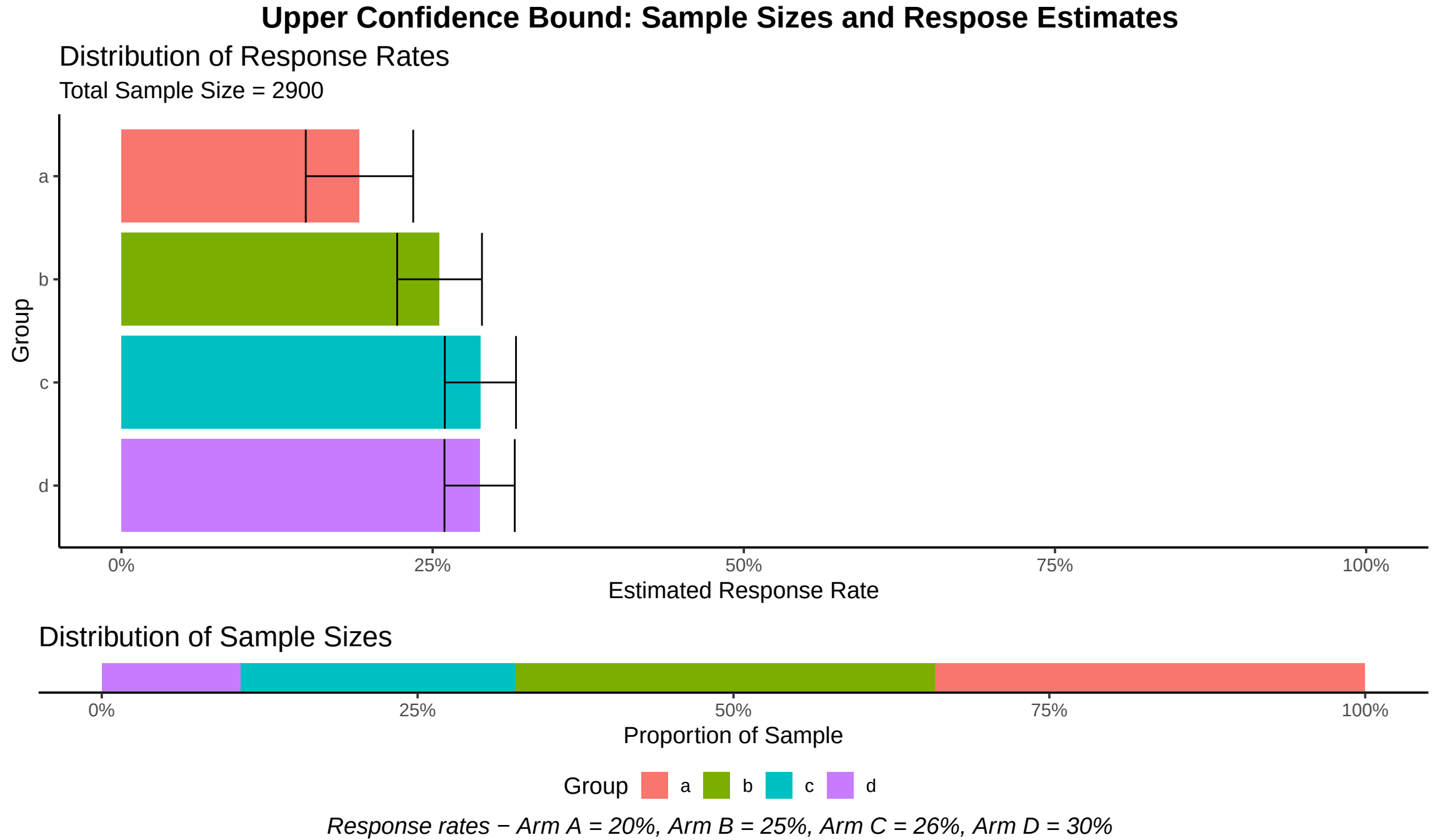
Upper Confidence Bound: Sample Sizes and Respose Estimates

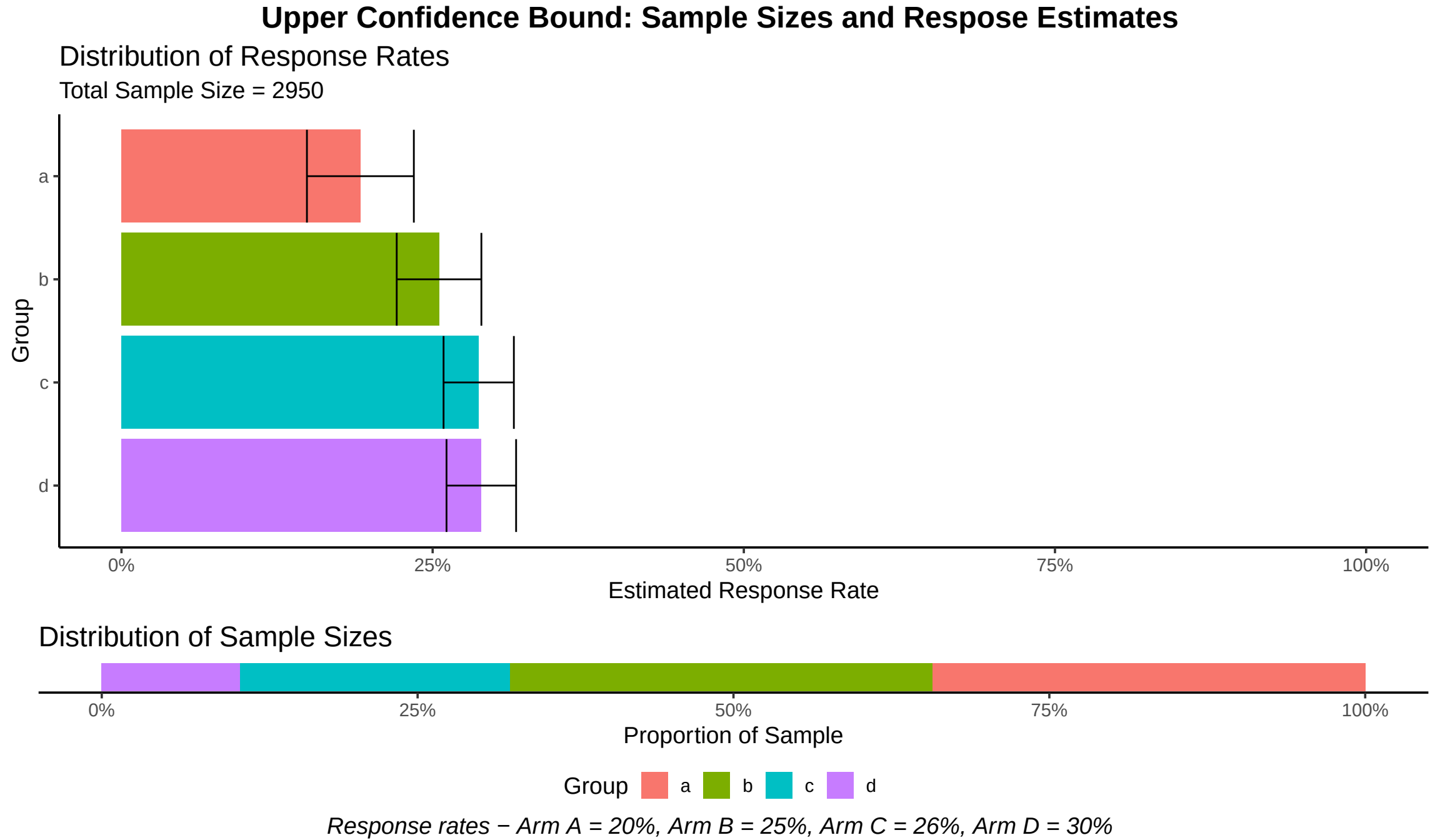


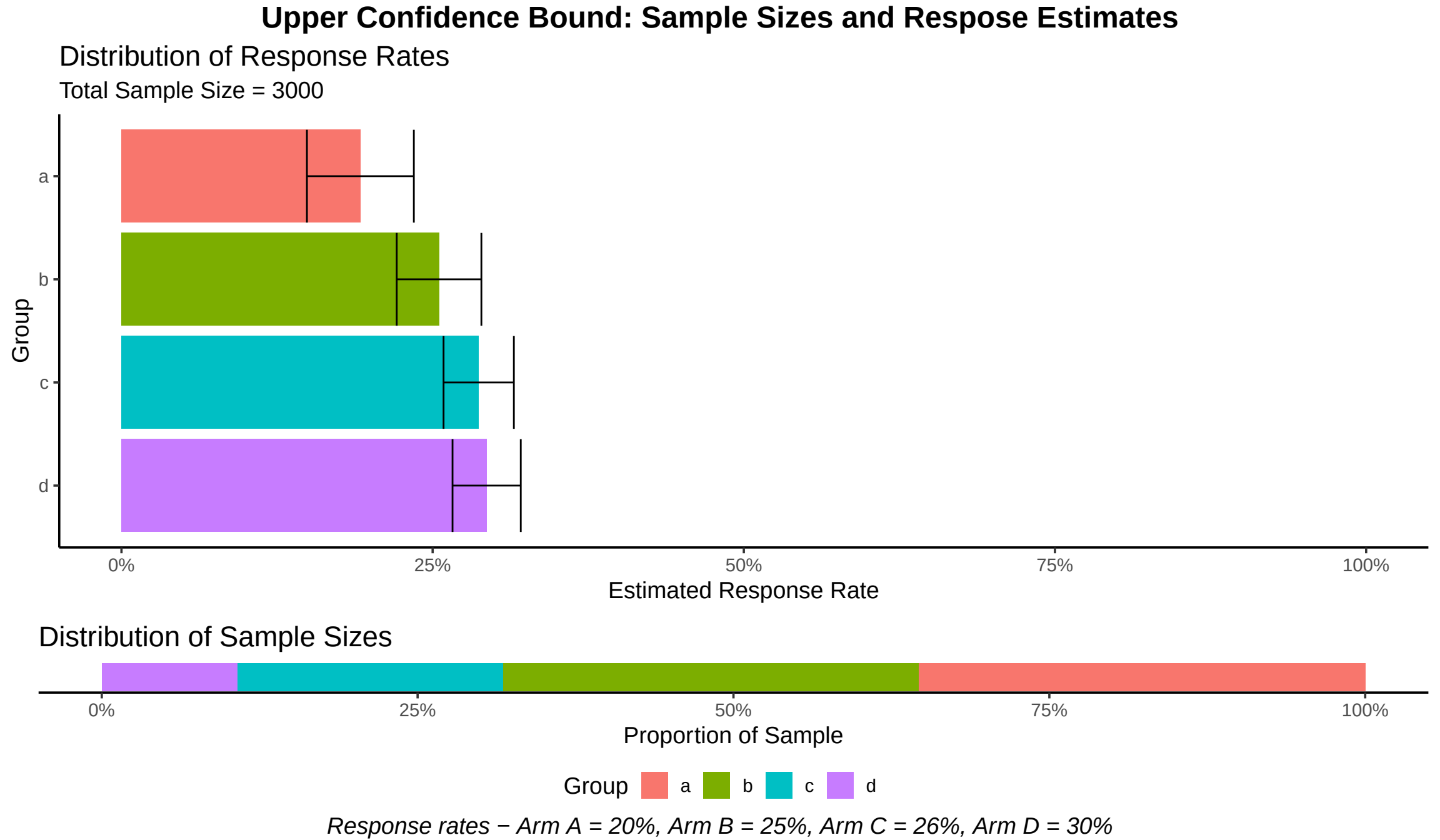
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

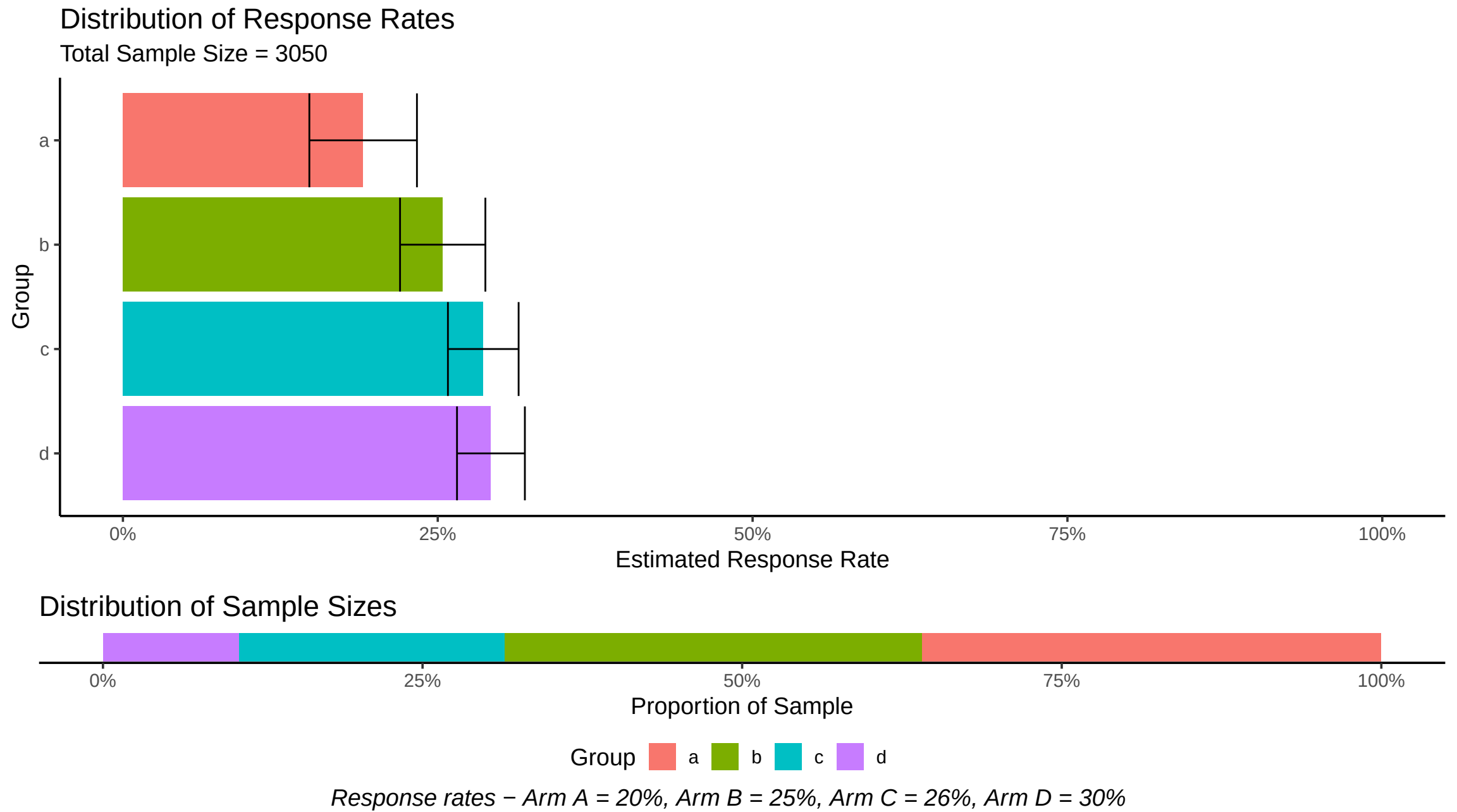

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

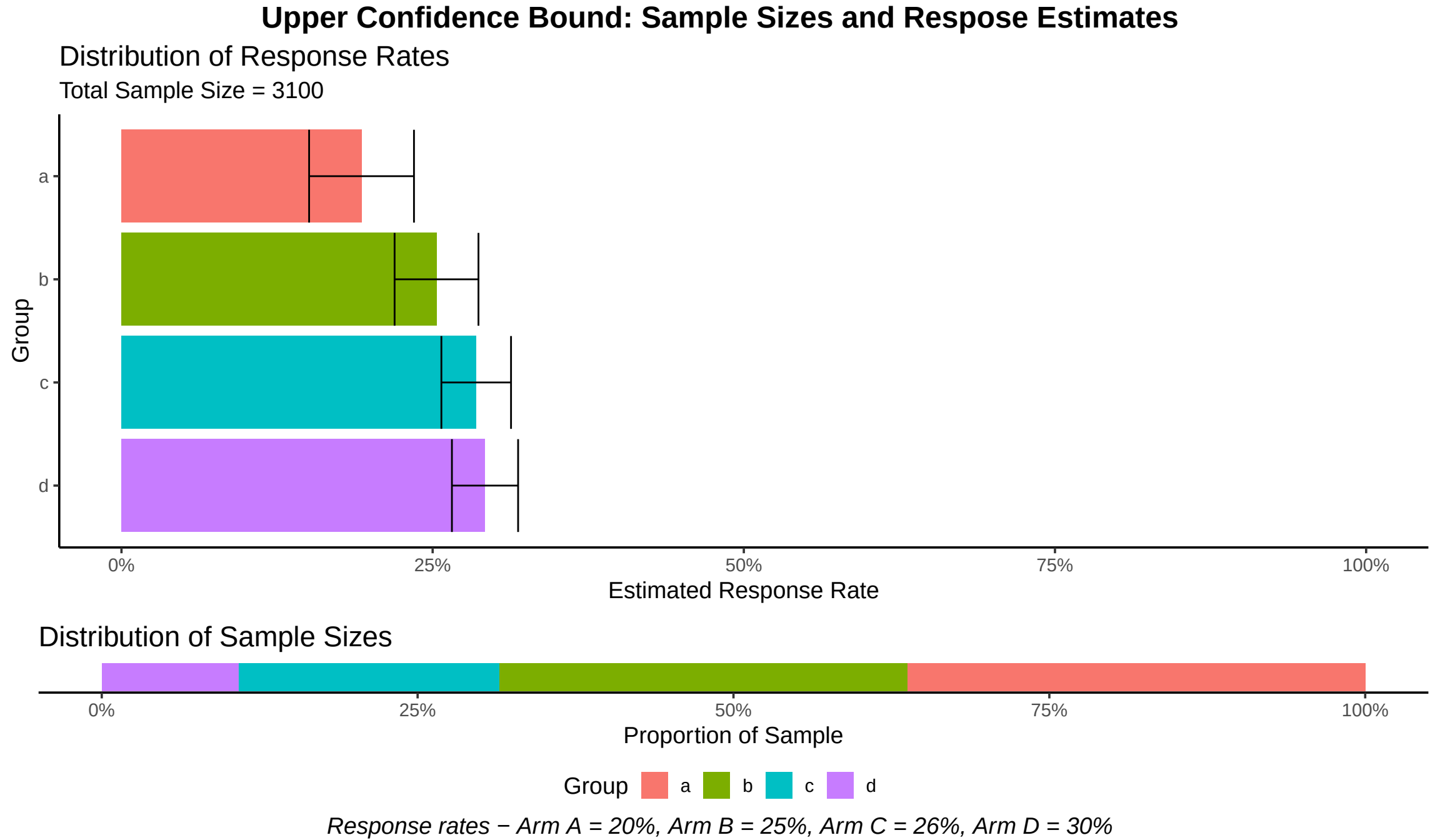

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 2950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

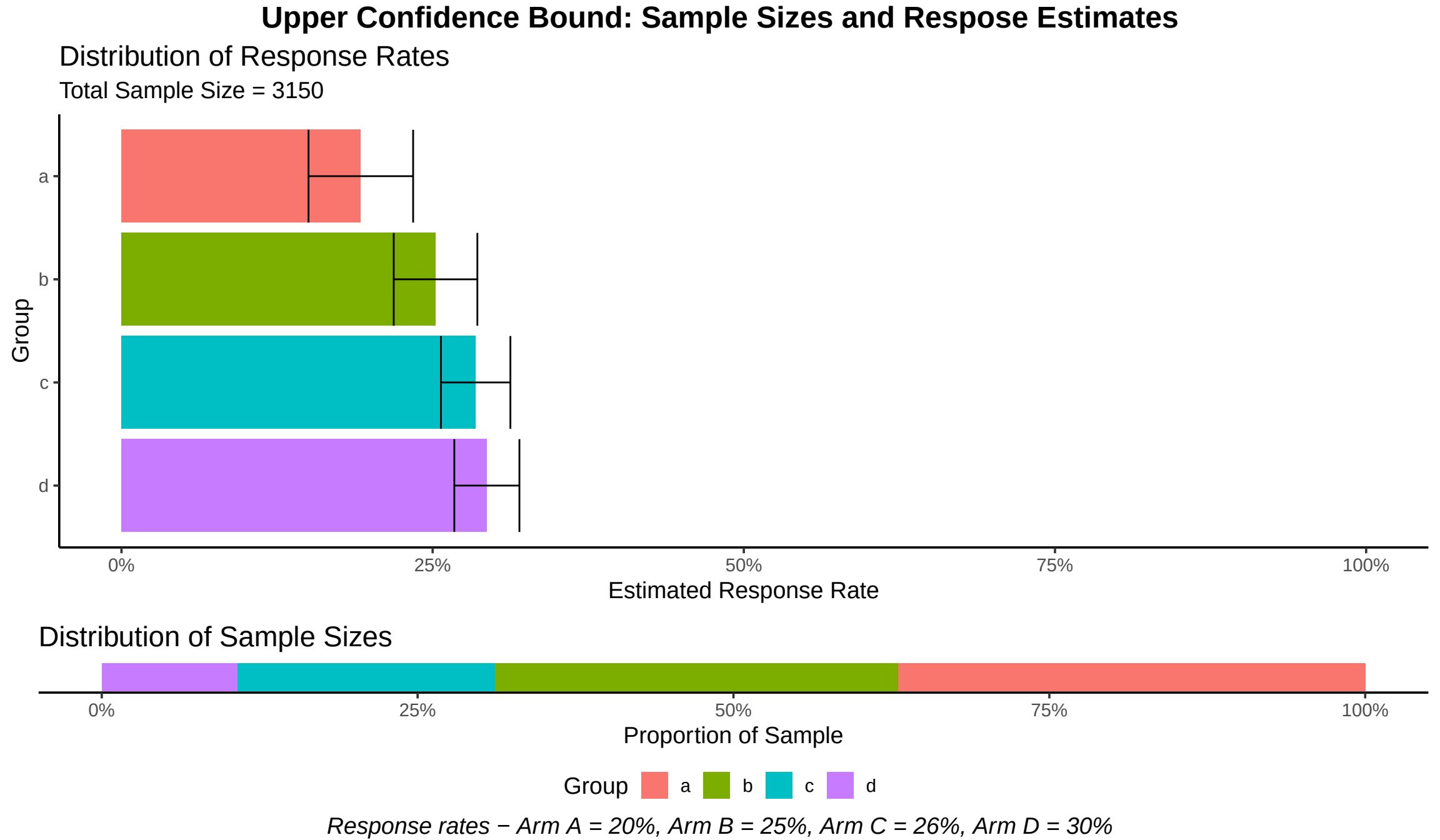

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

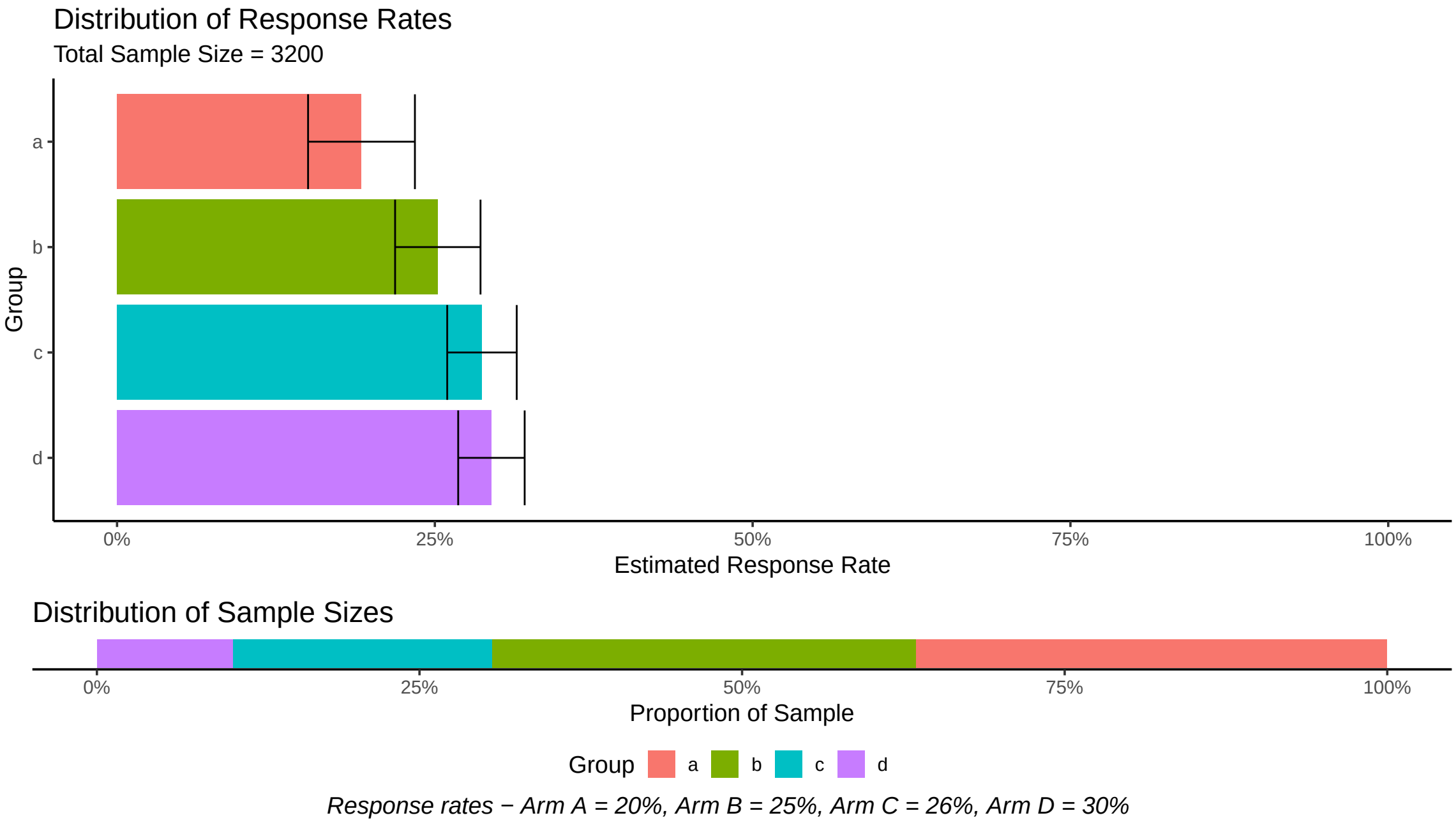


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

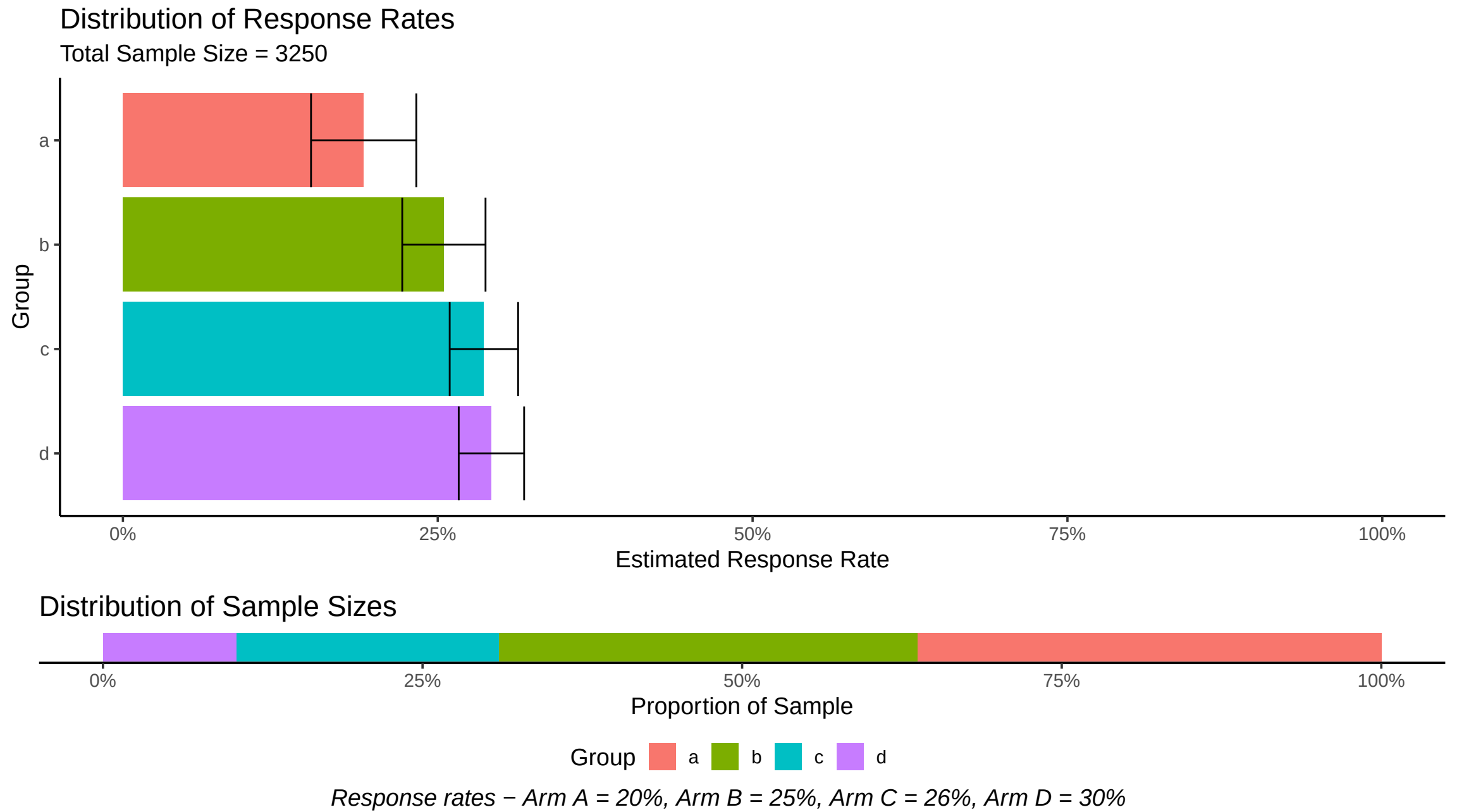

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

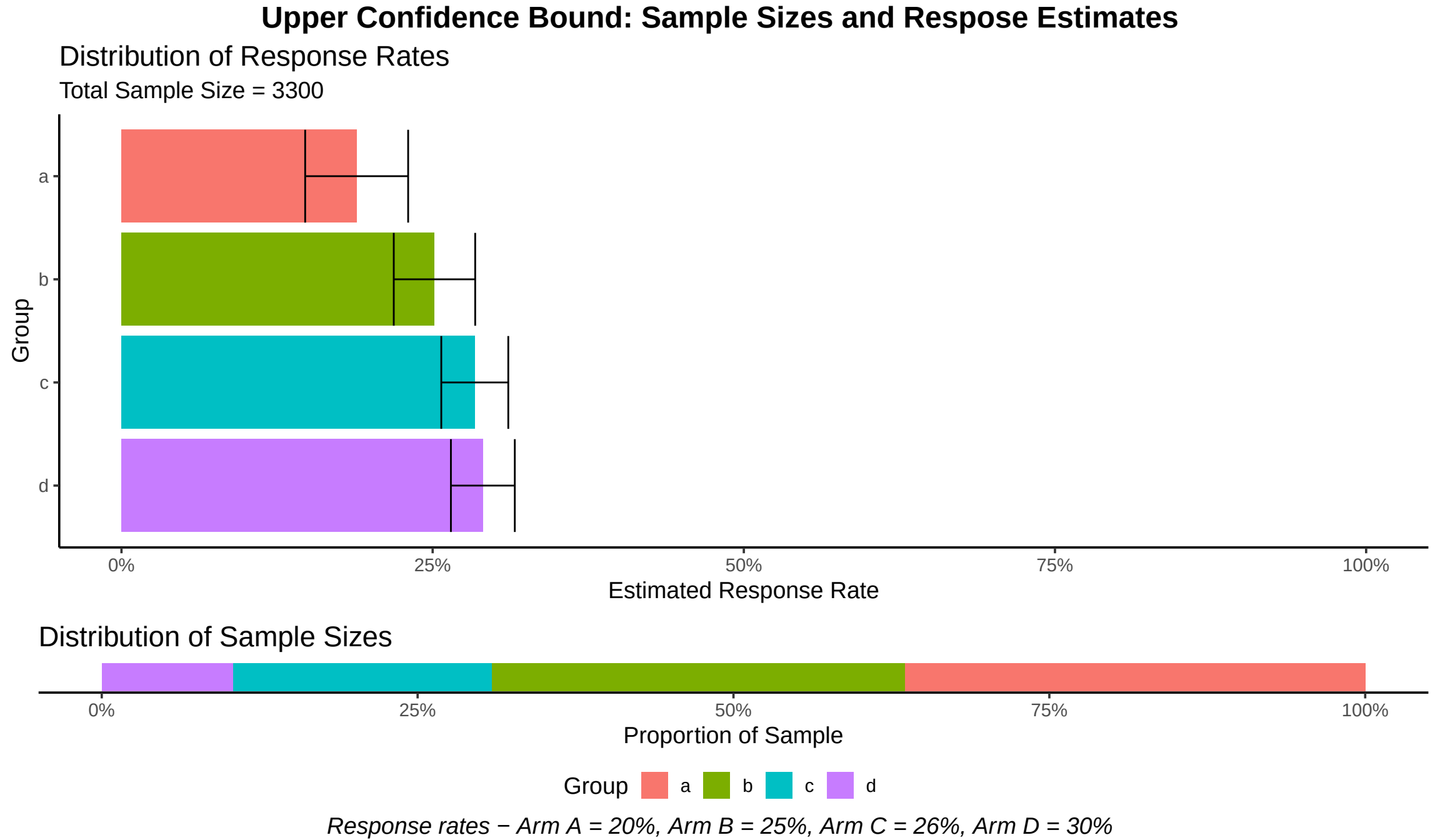


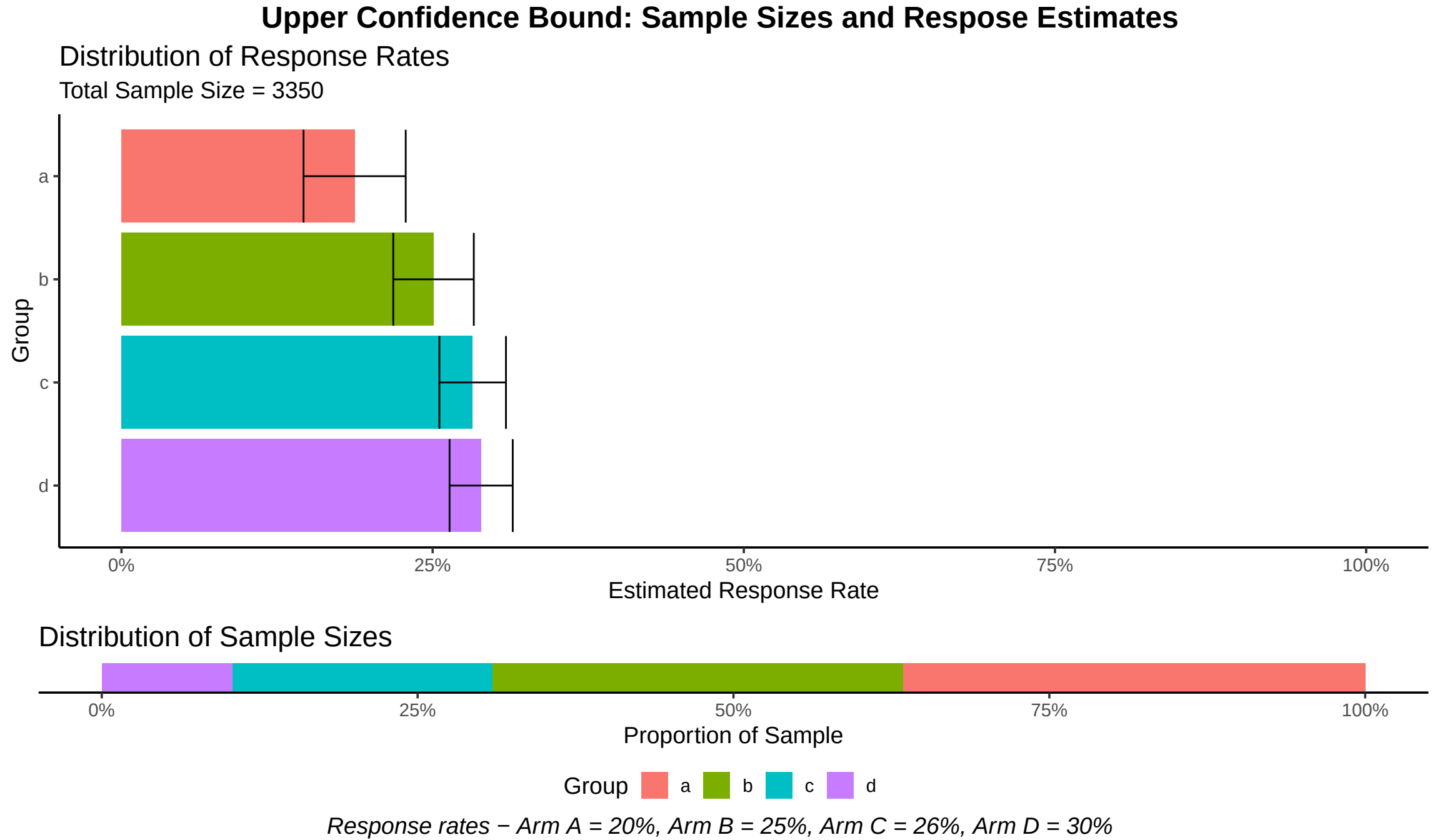
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

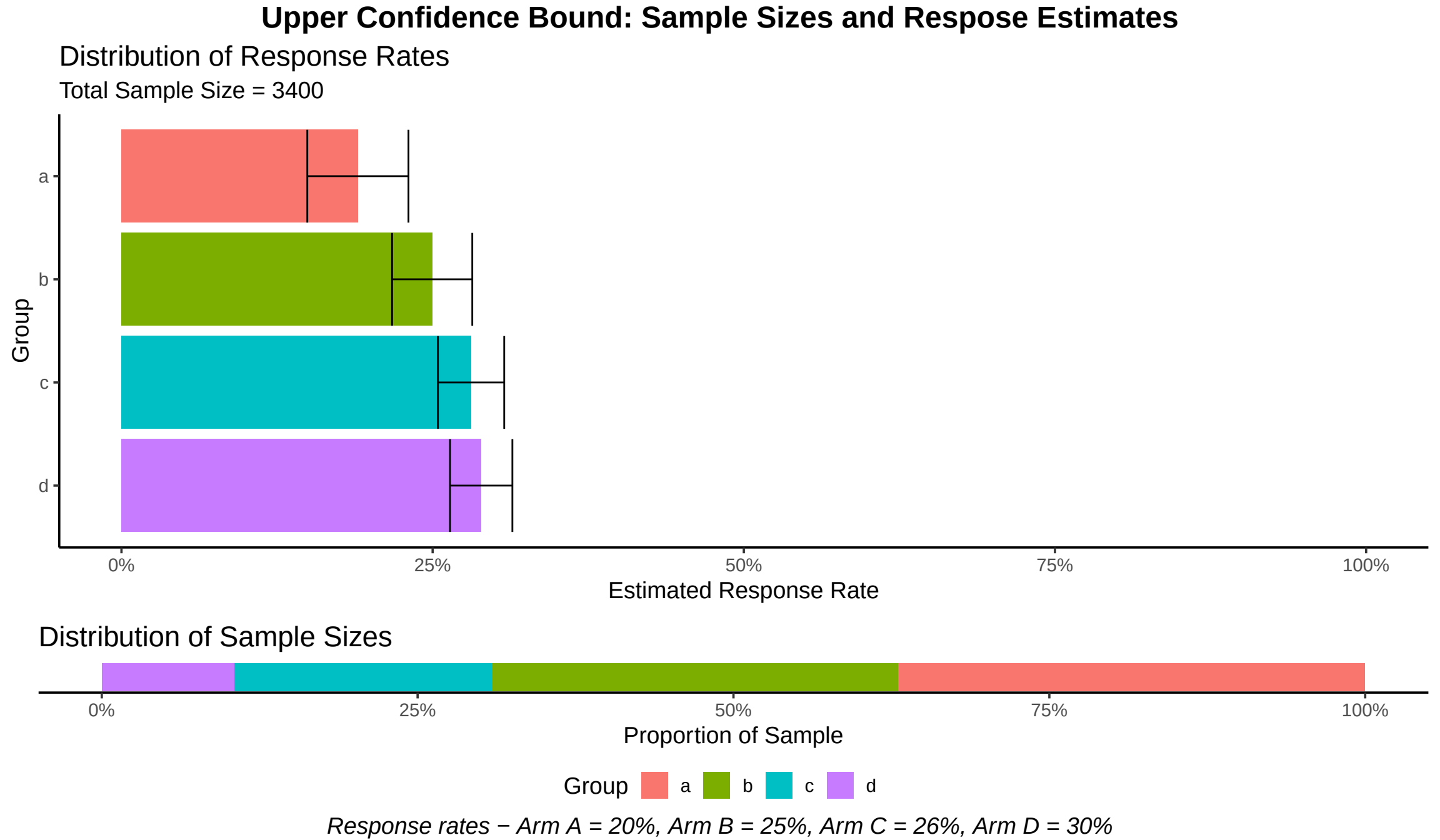
Upper Confidence Bound: Sample Sizes and Respose Estimates

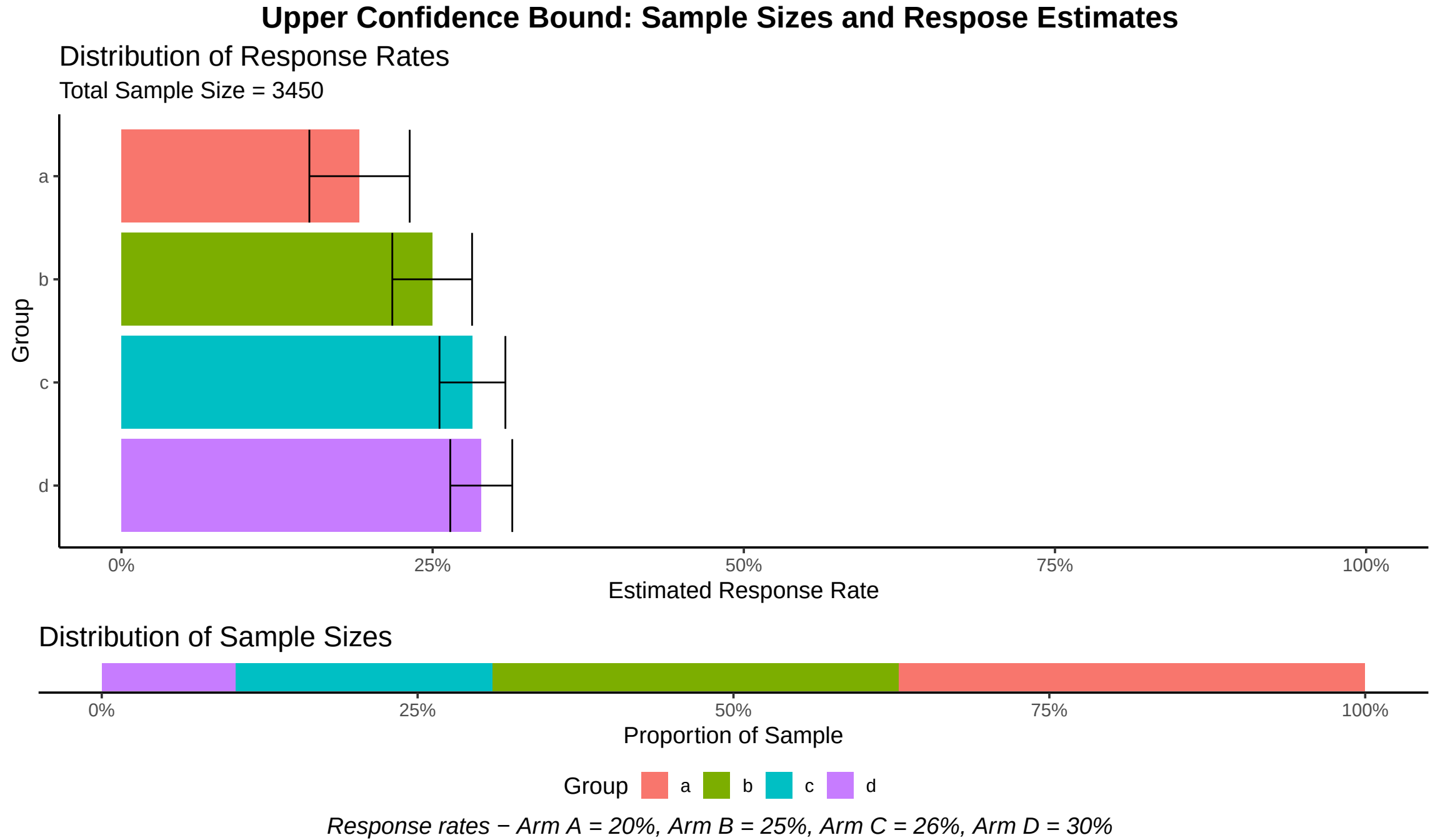


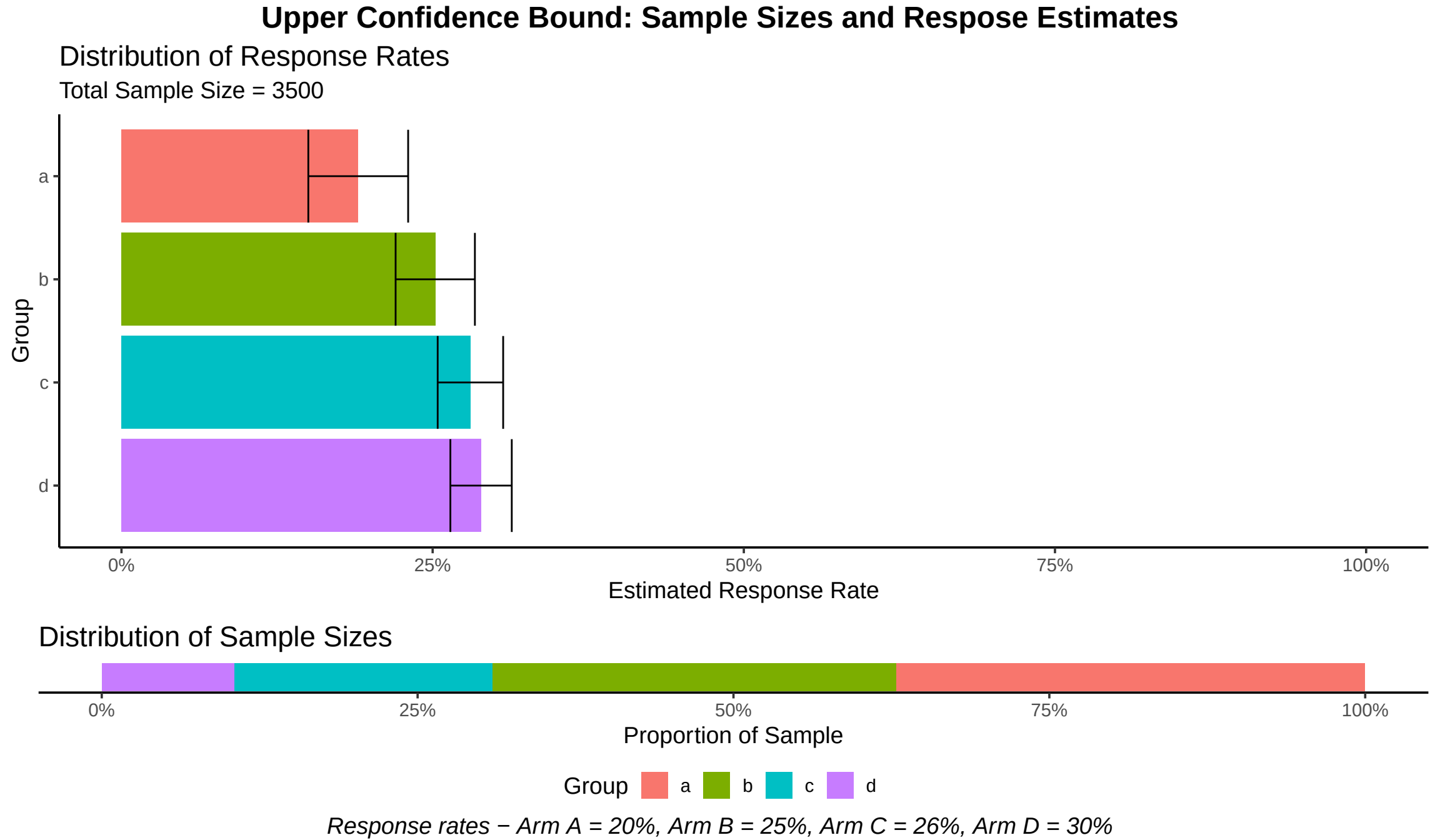
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

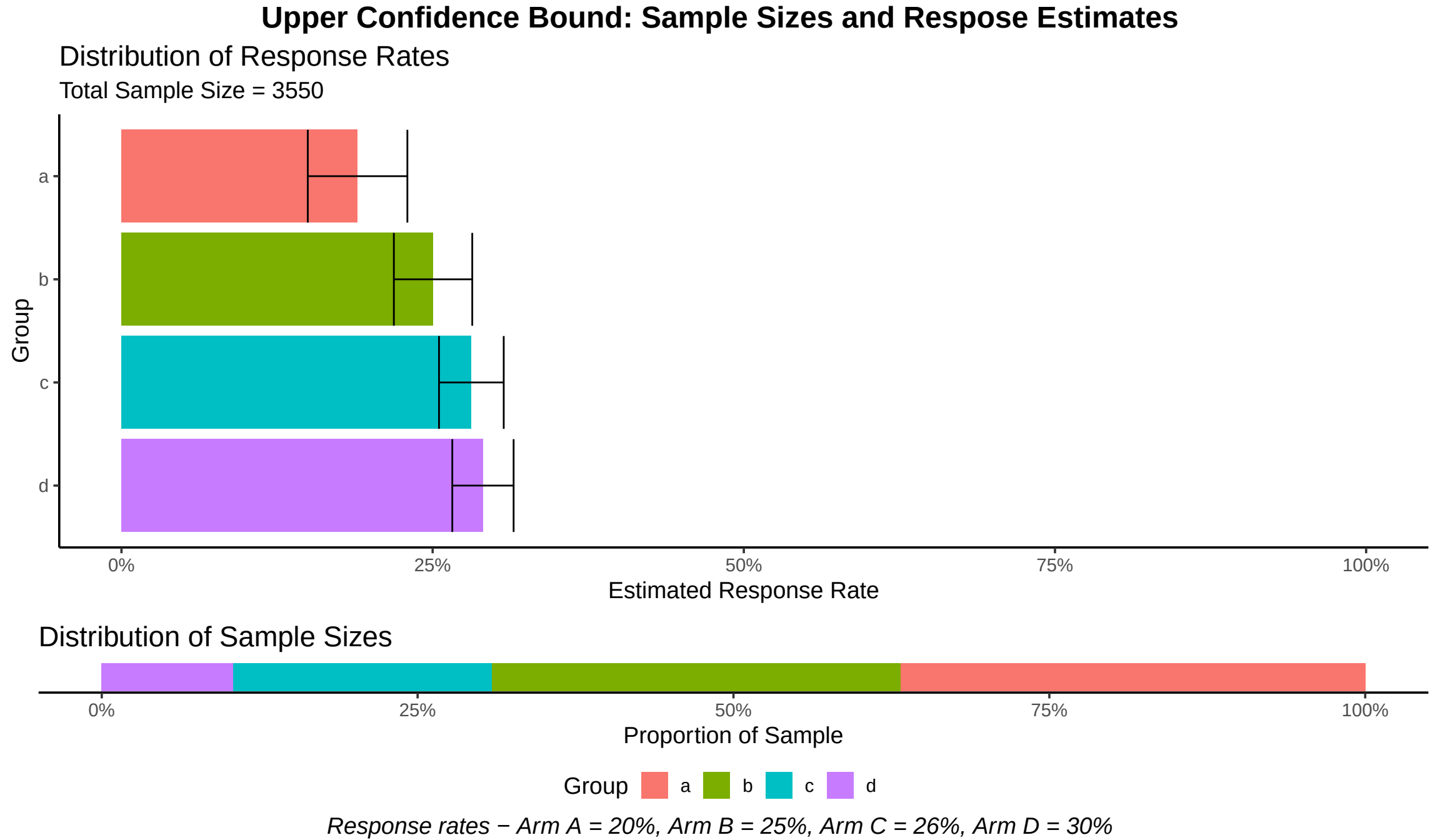

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

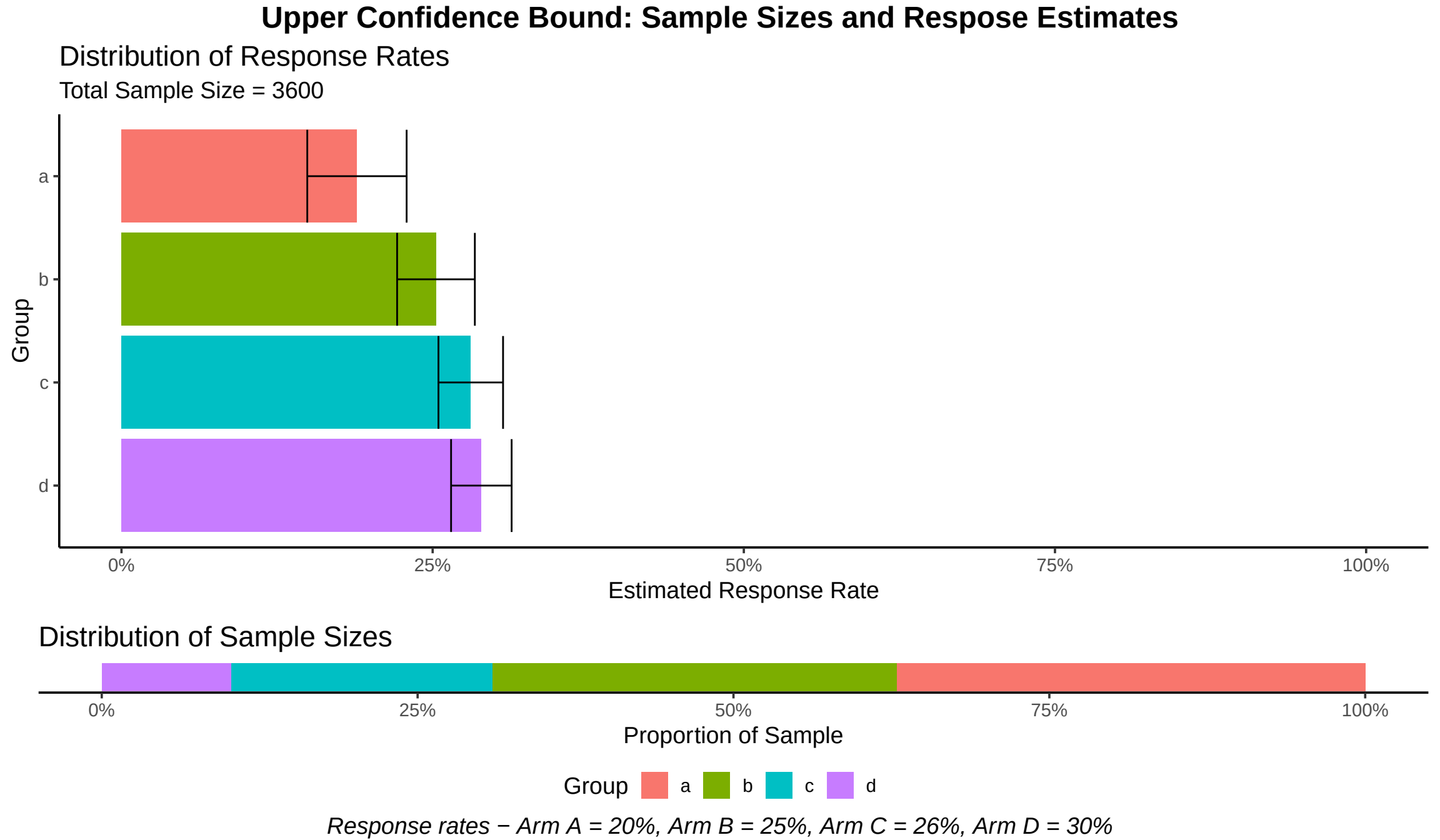

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

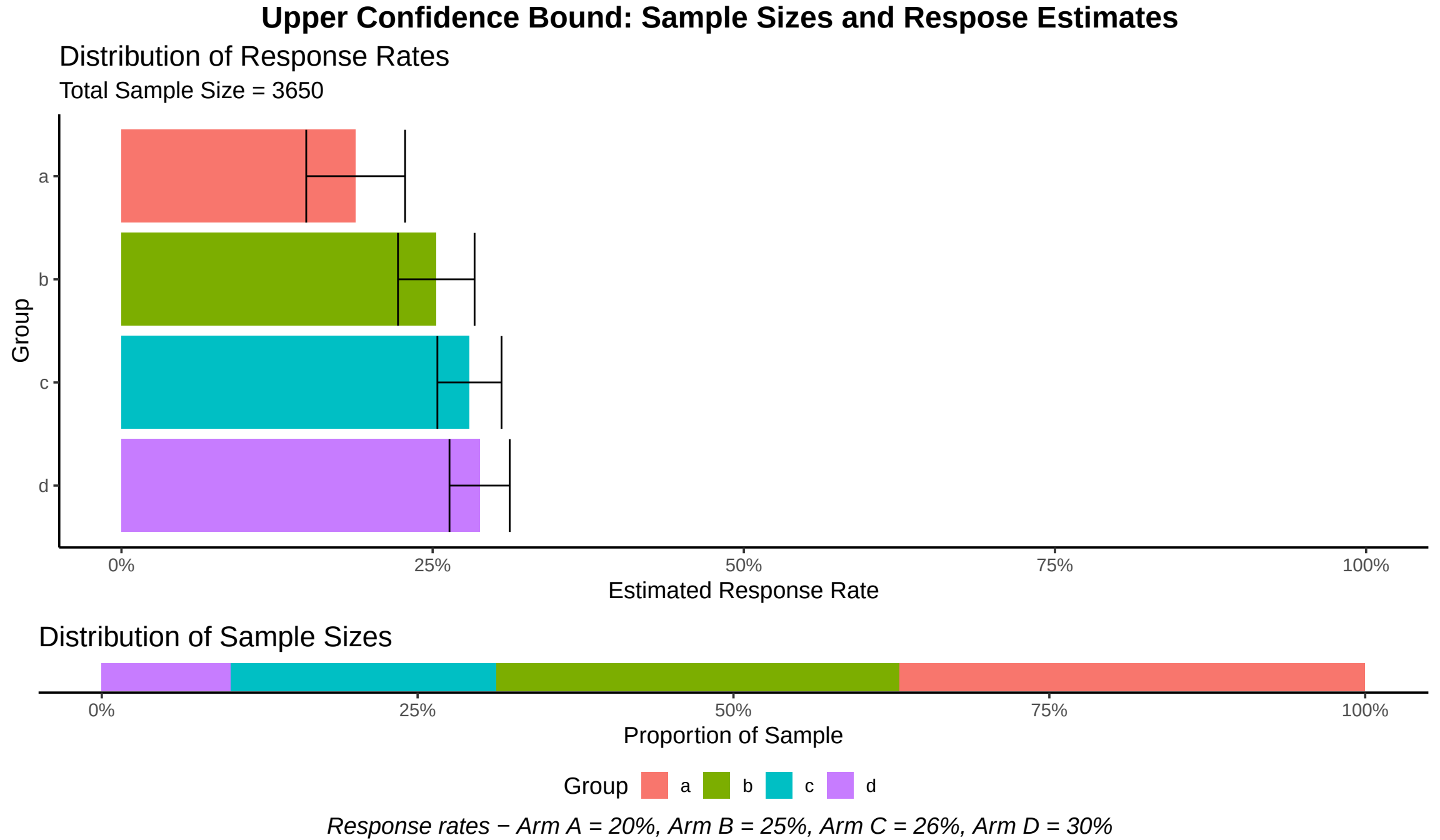

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

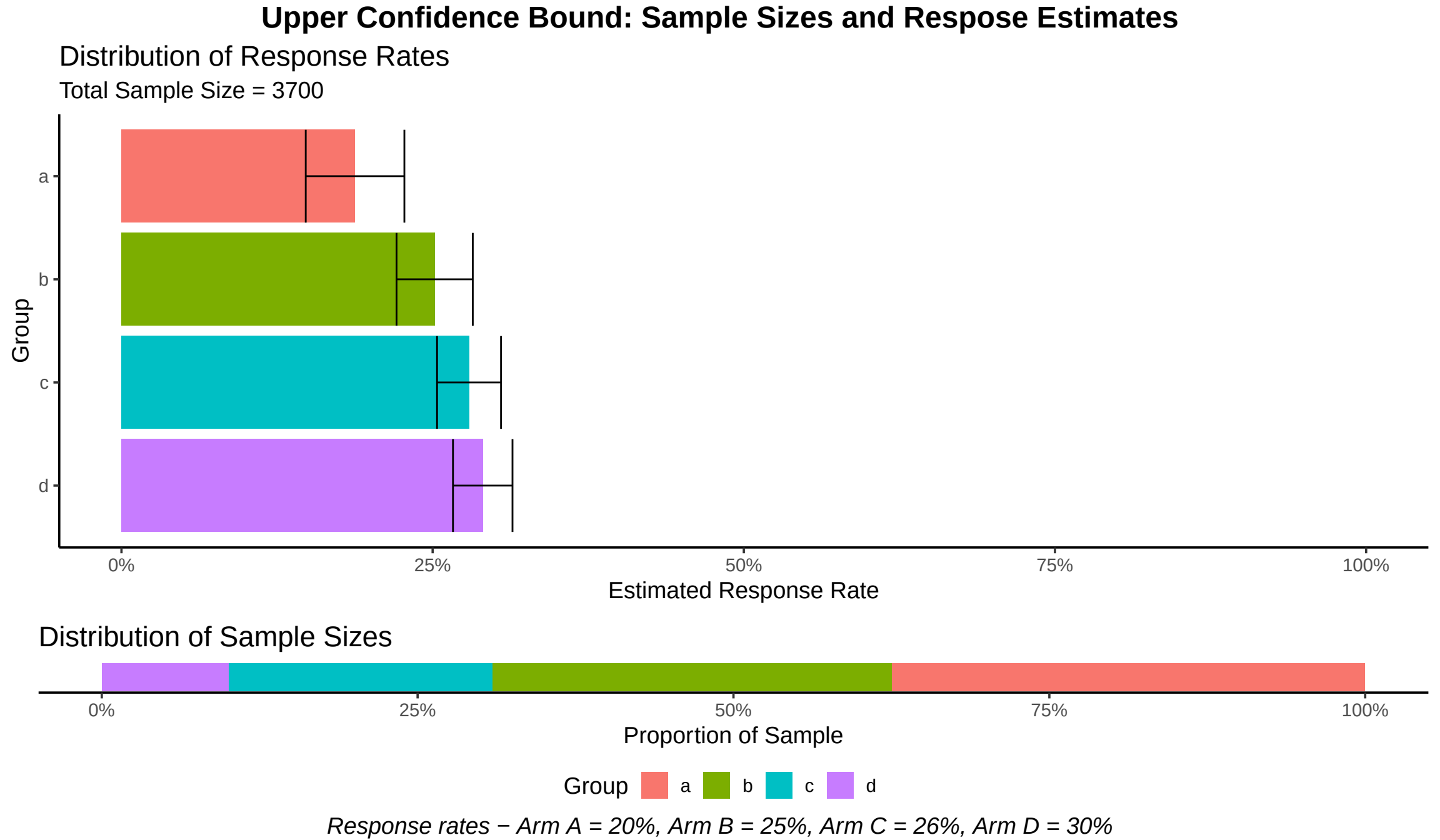

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

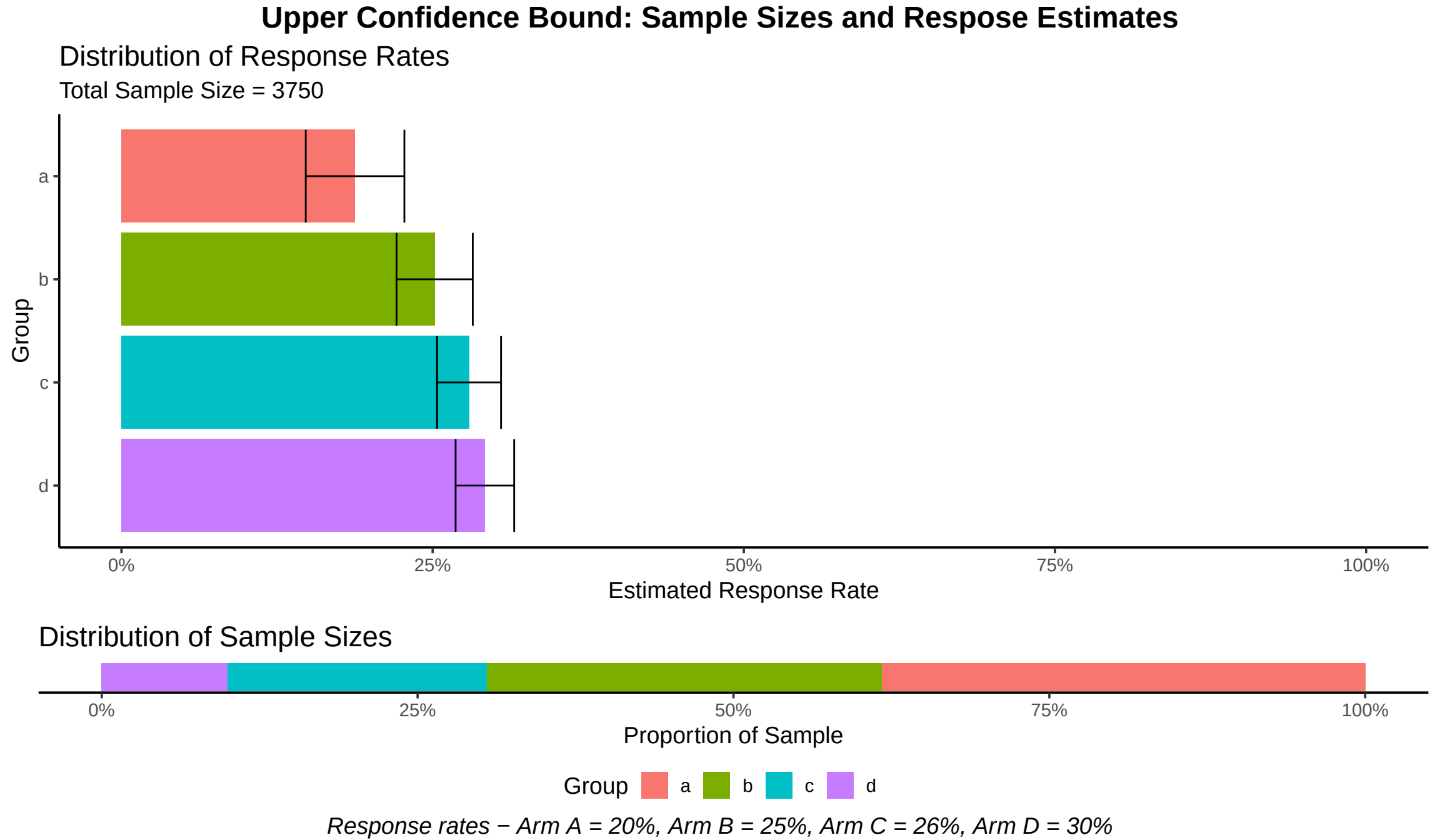

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

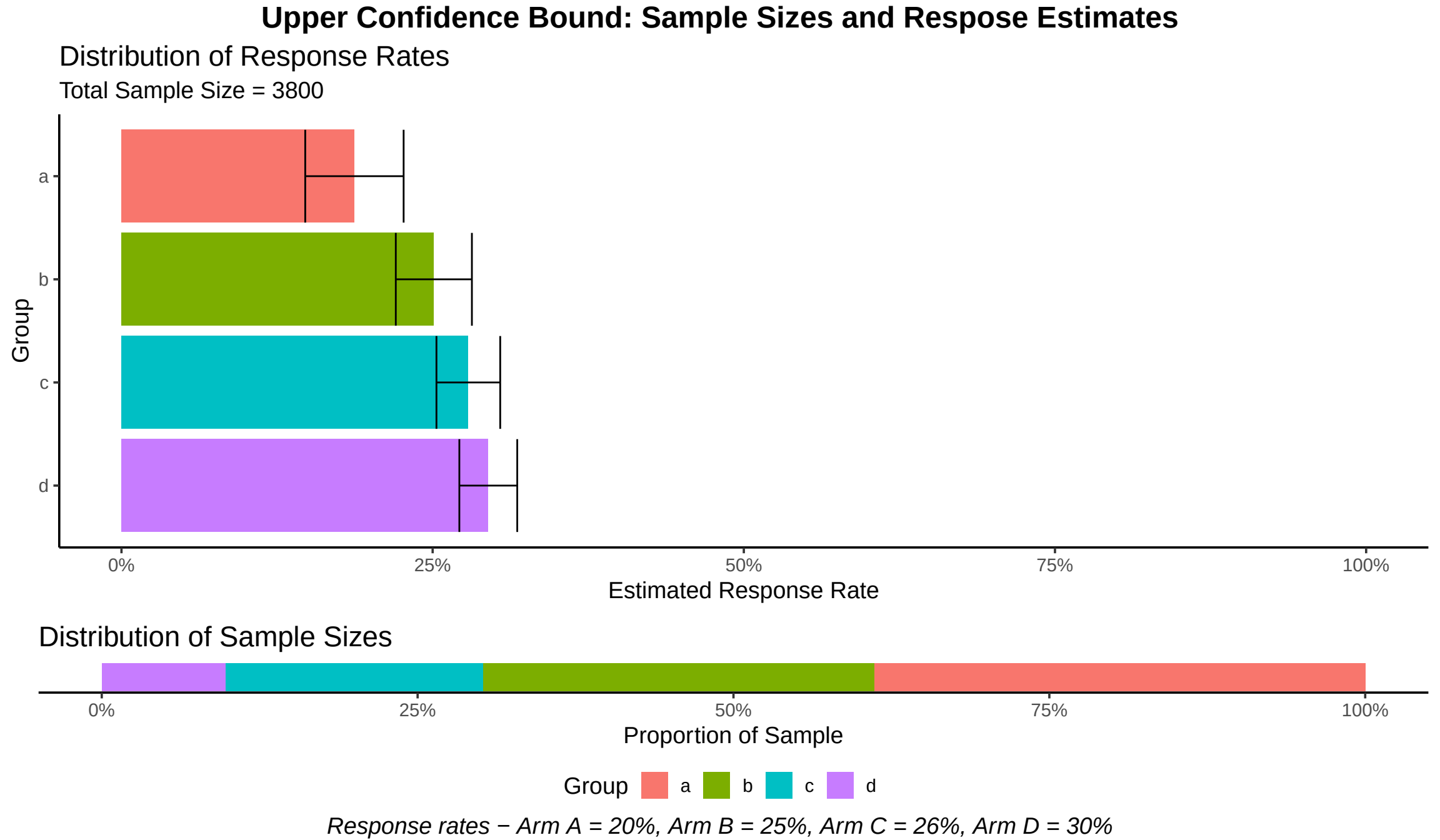

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

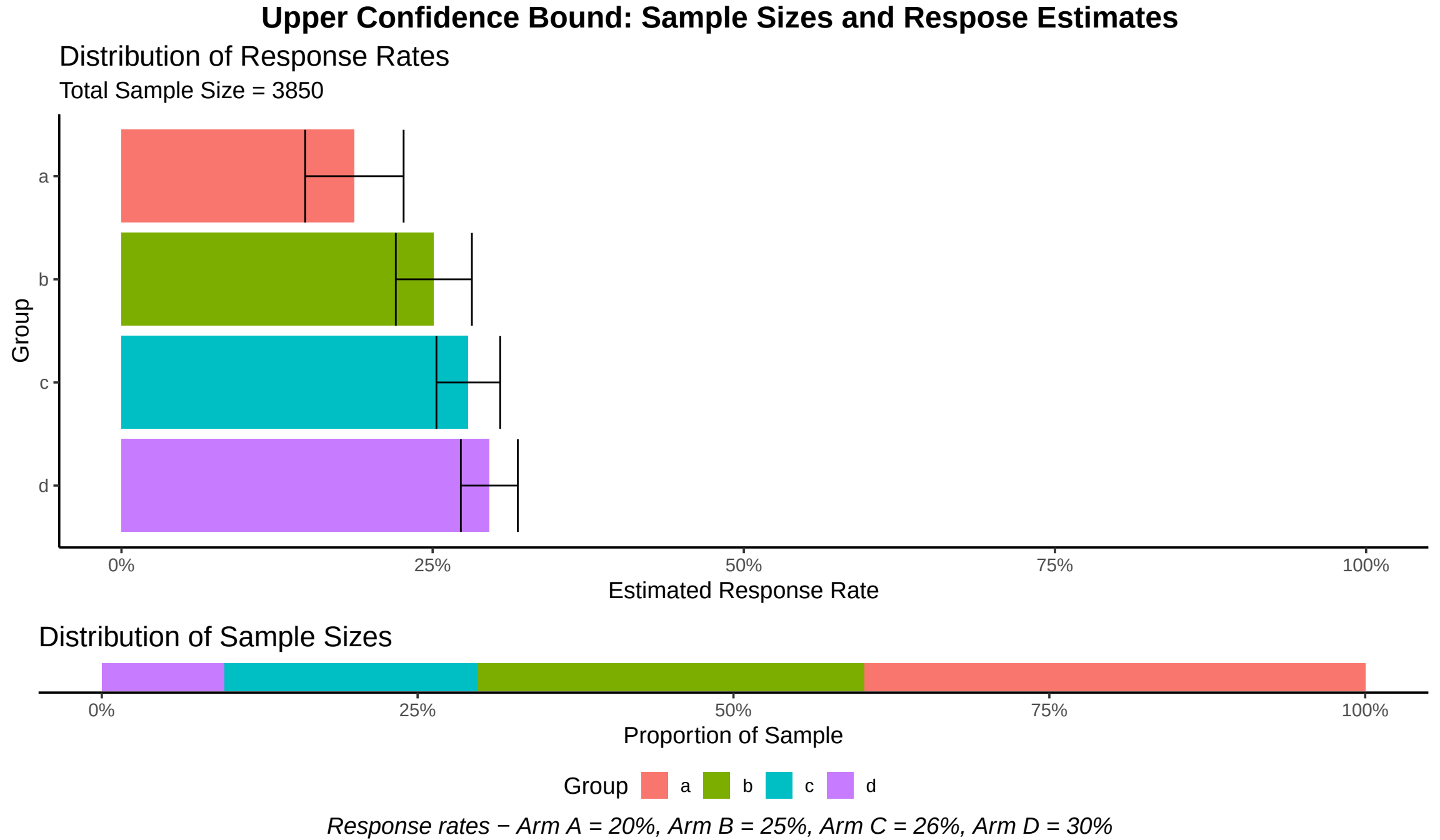

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

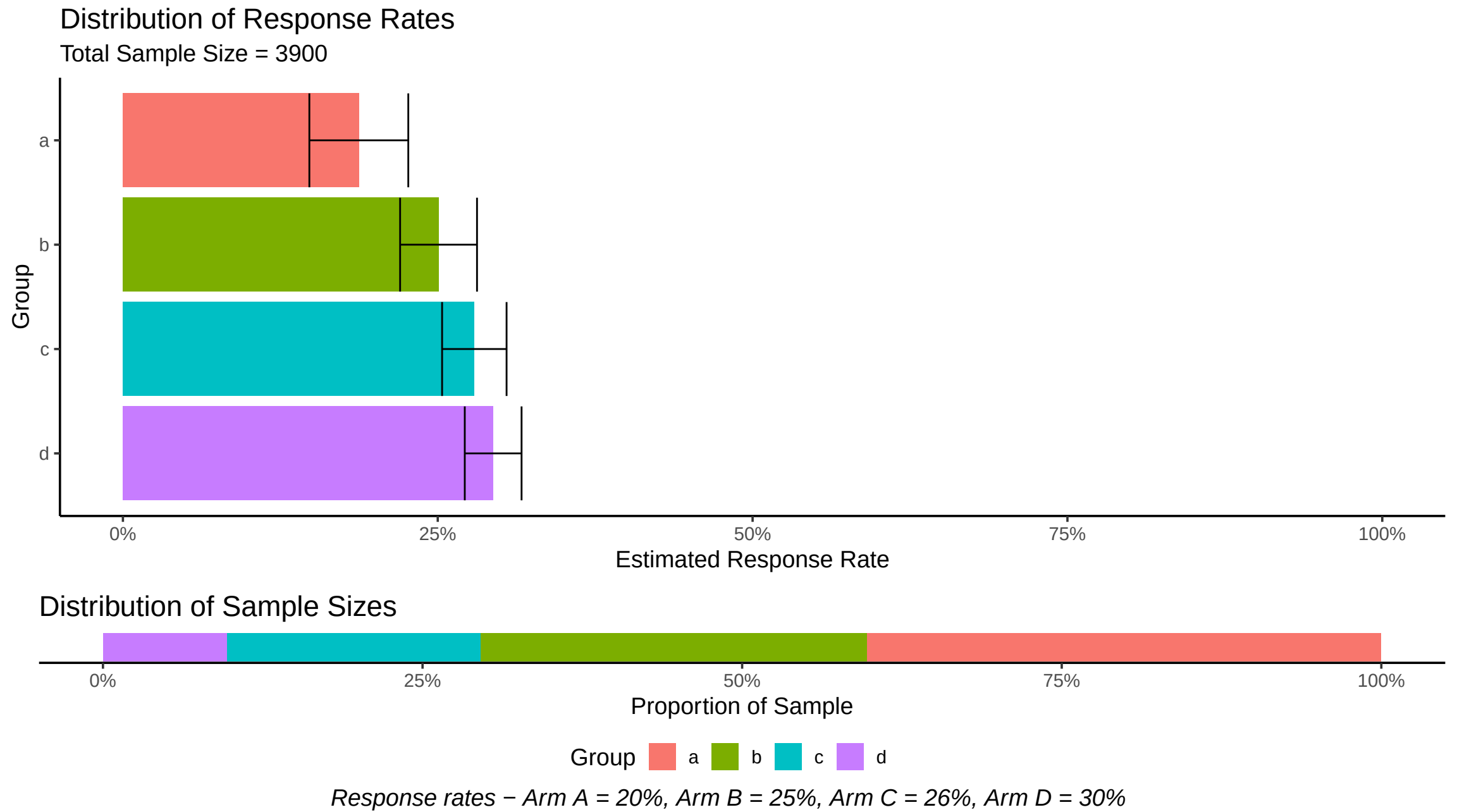

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

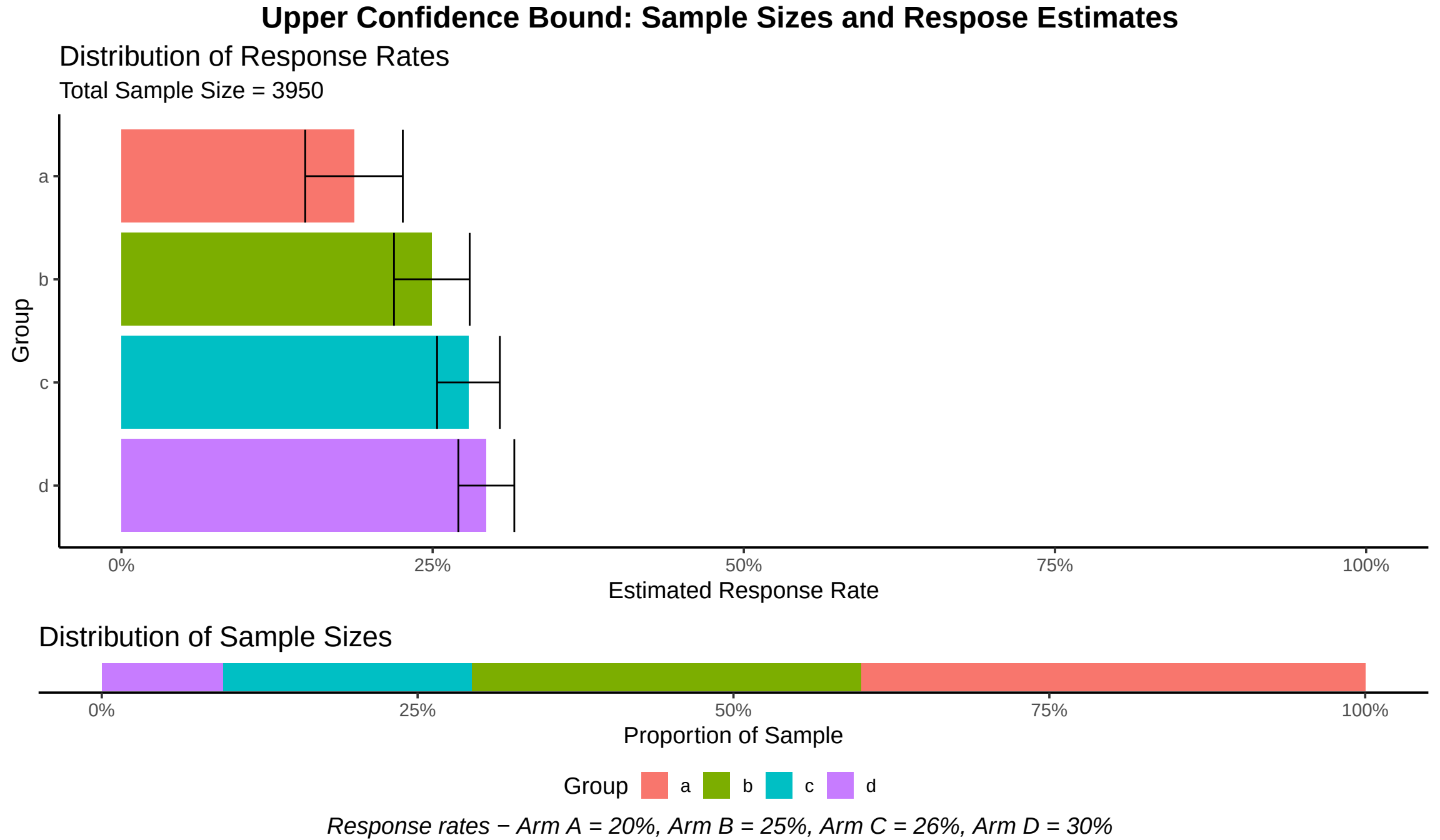

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

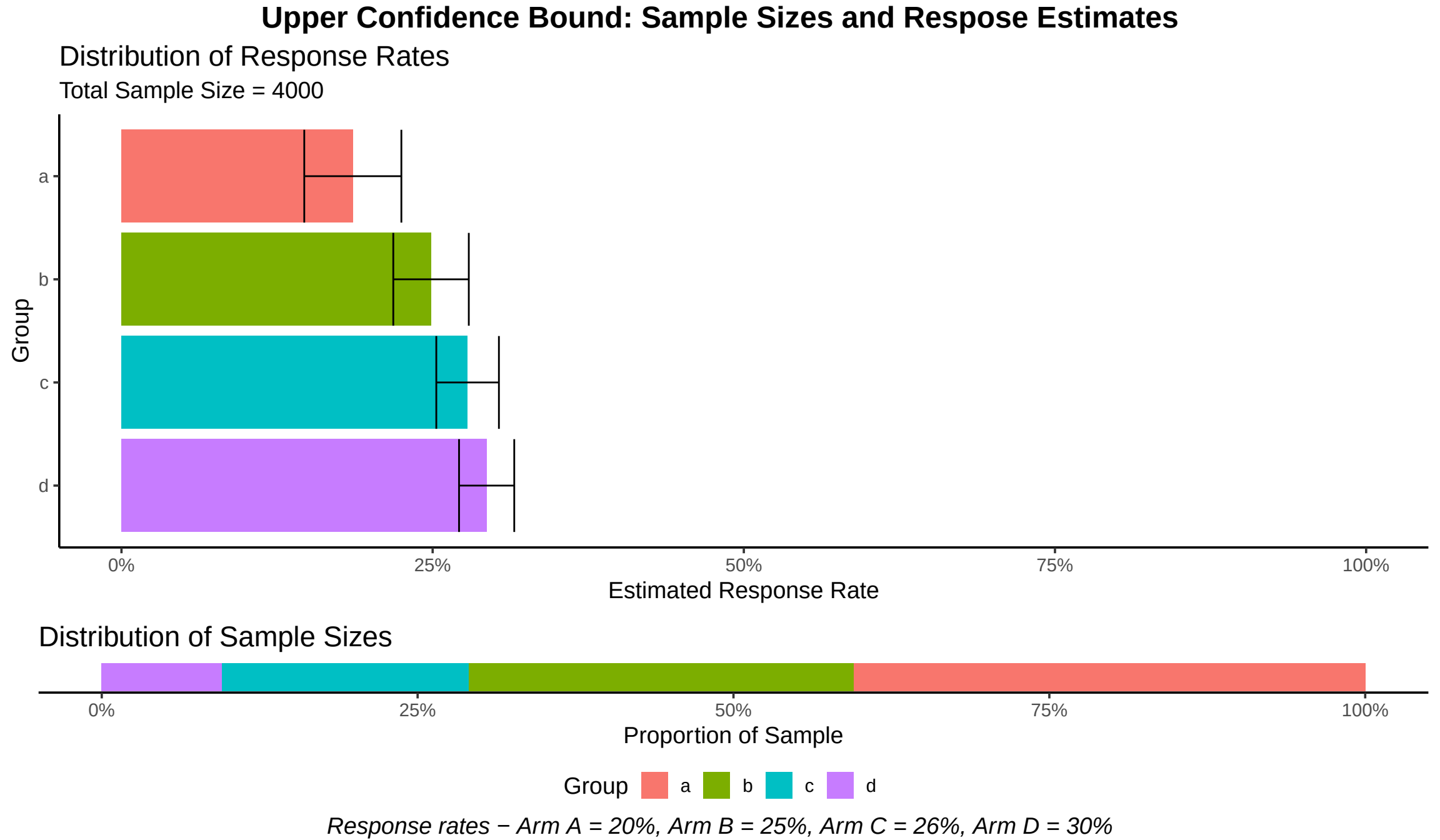

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

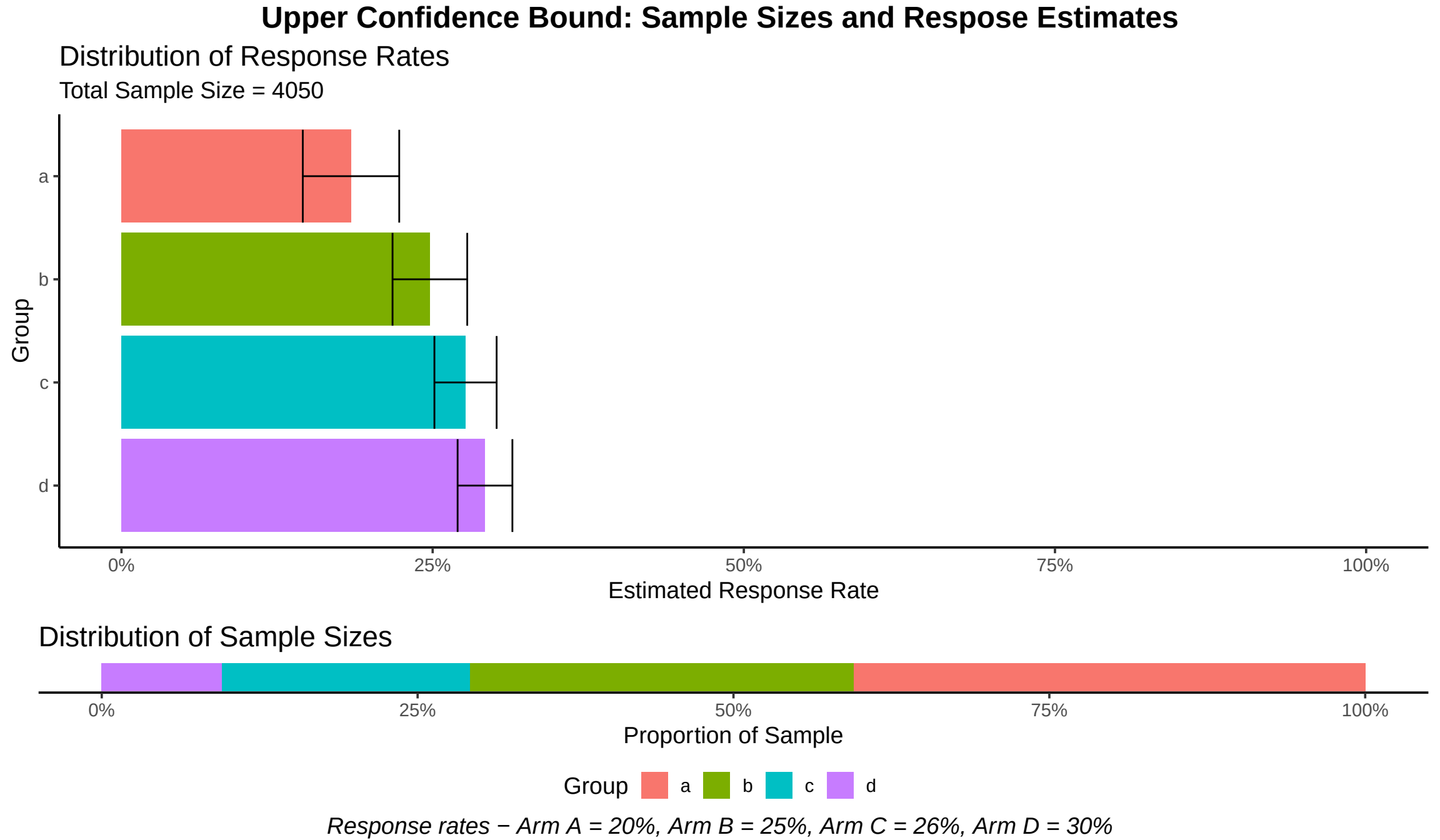
Upper Confidence Bound: Sample Sizes and Respose Estimates

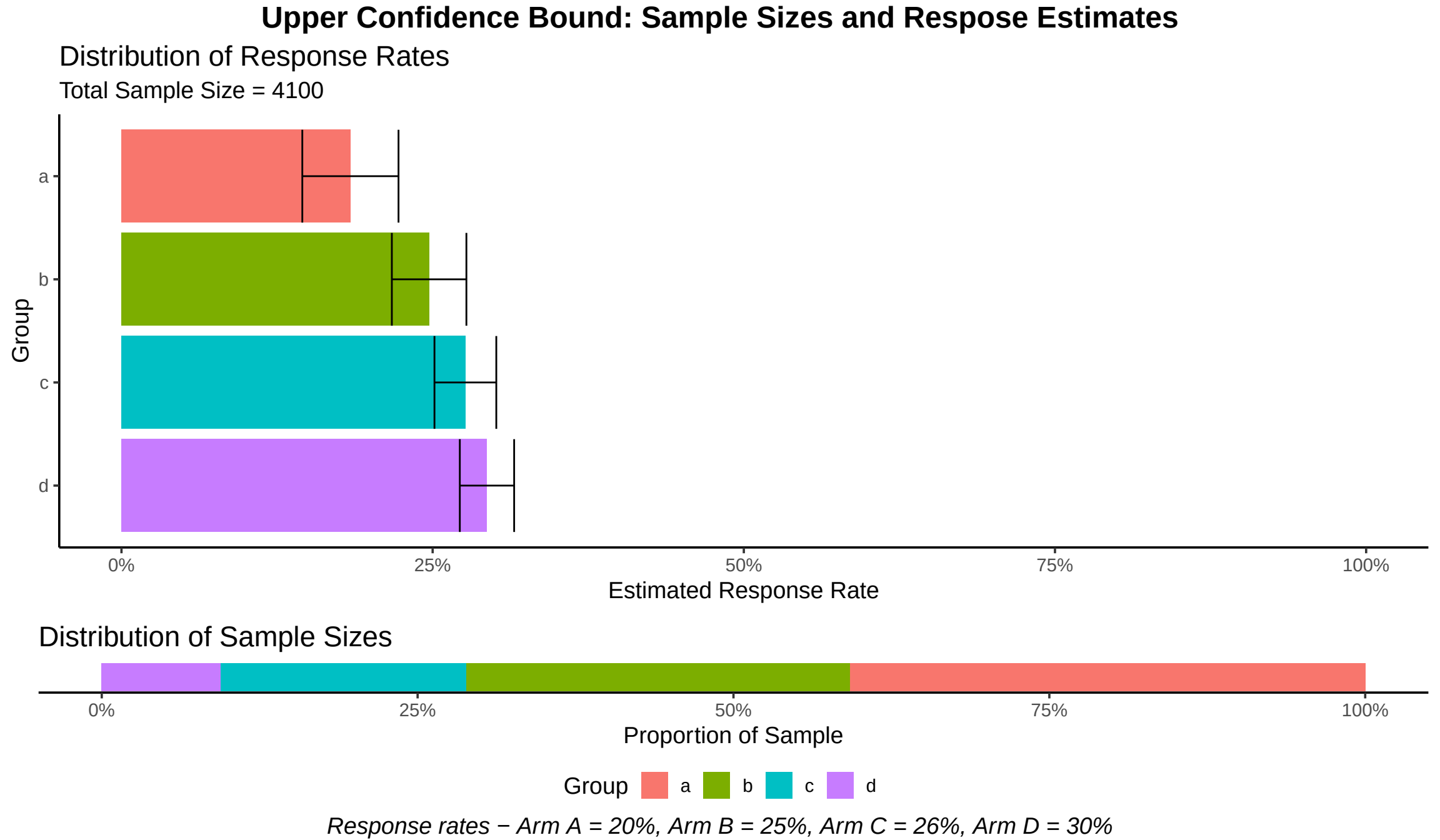


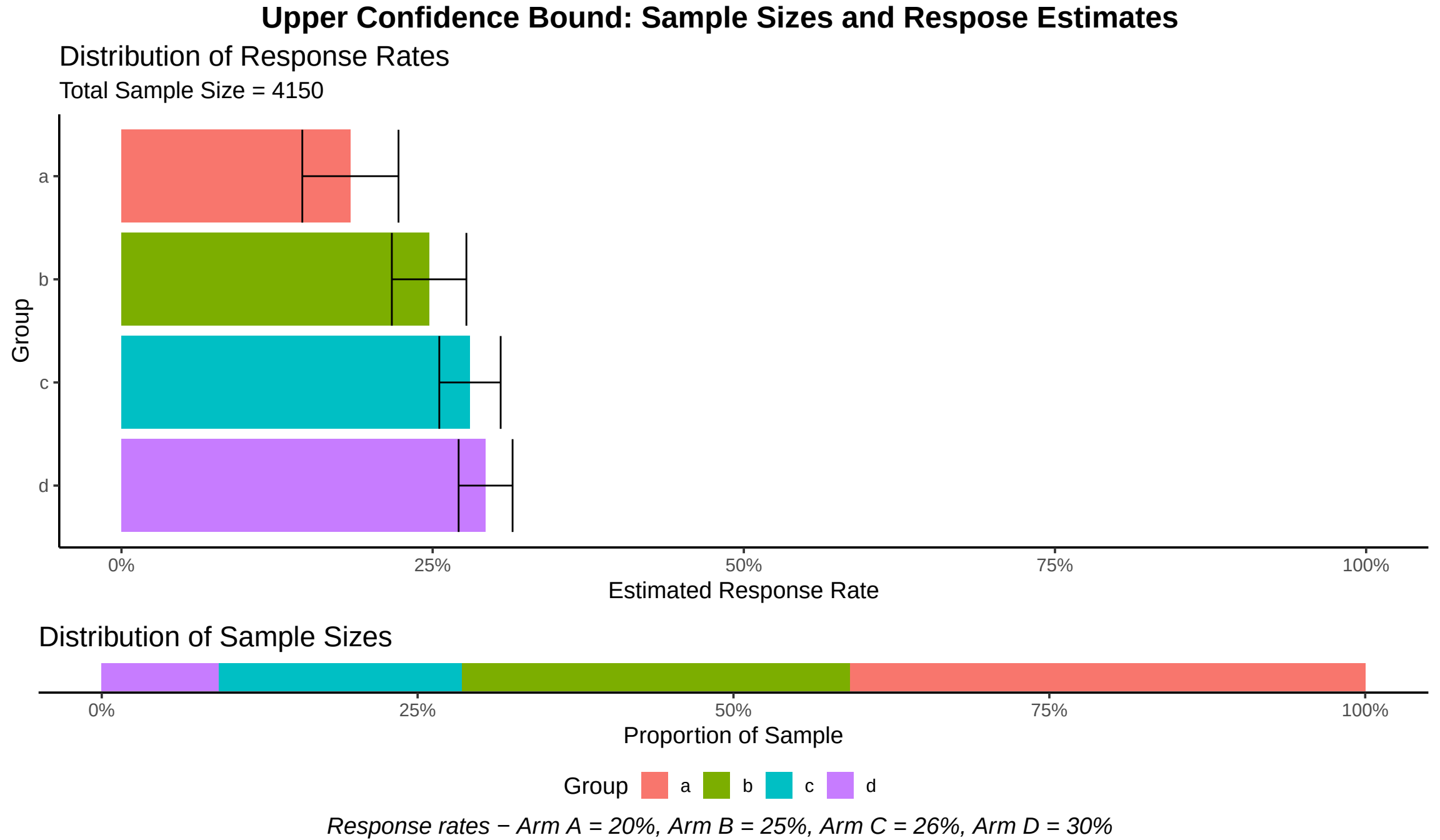
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 3950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

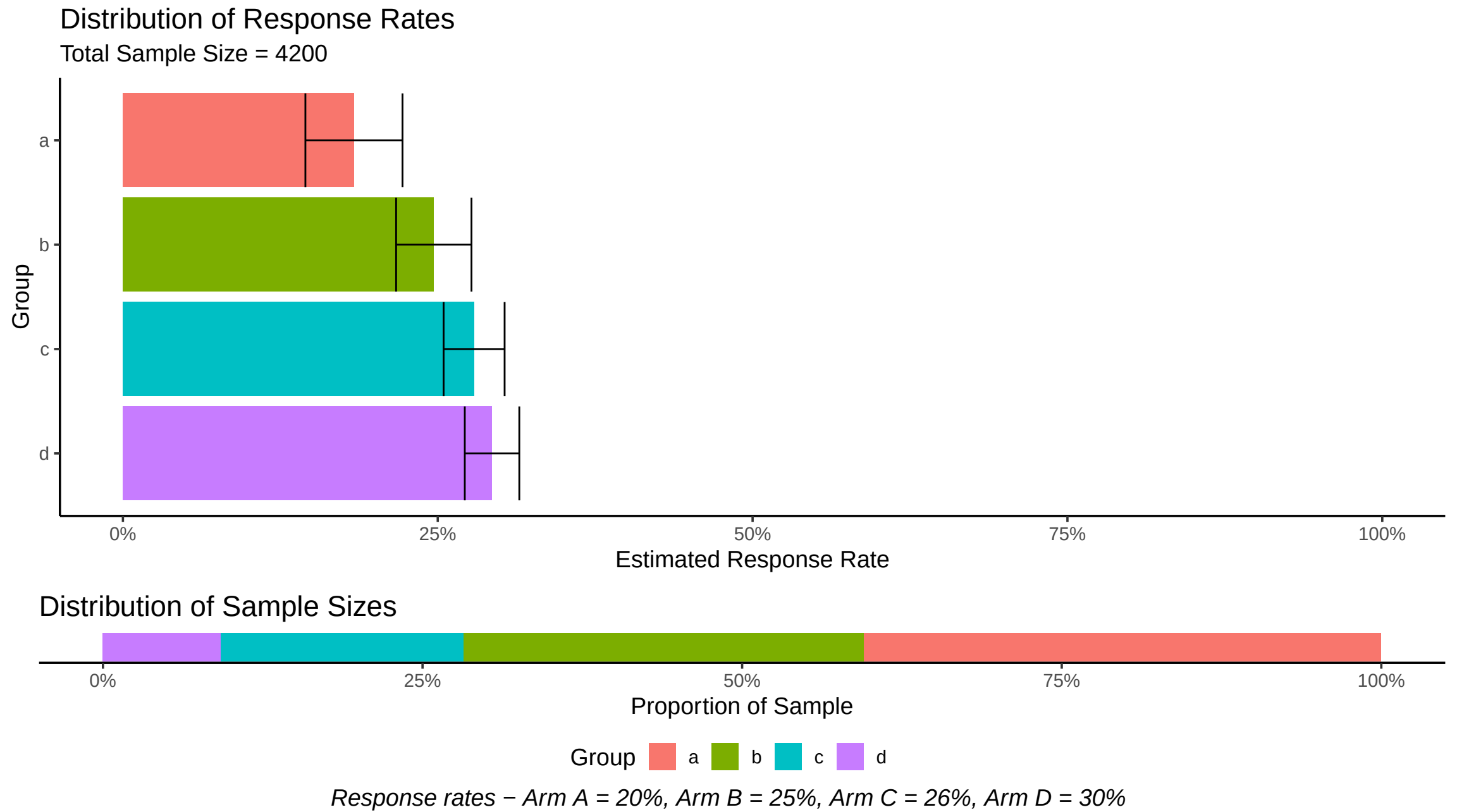

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

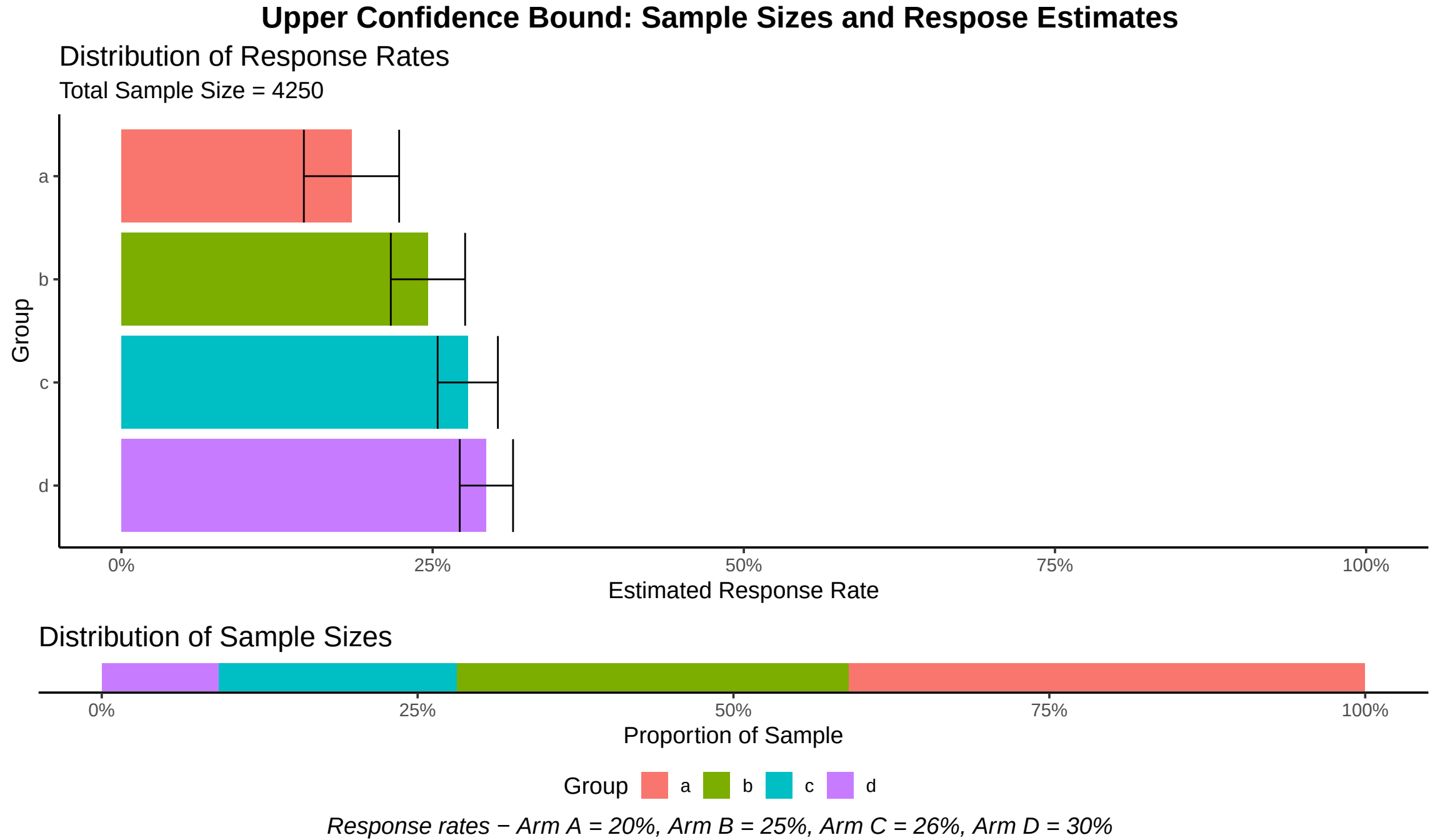

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

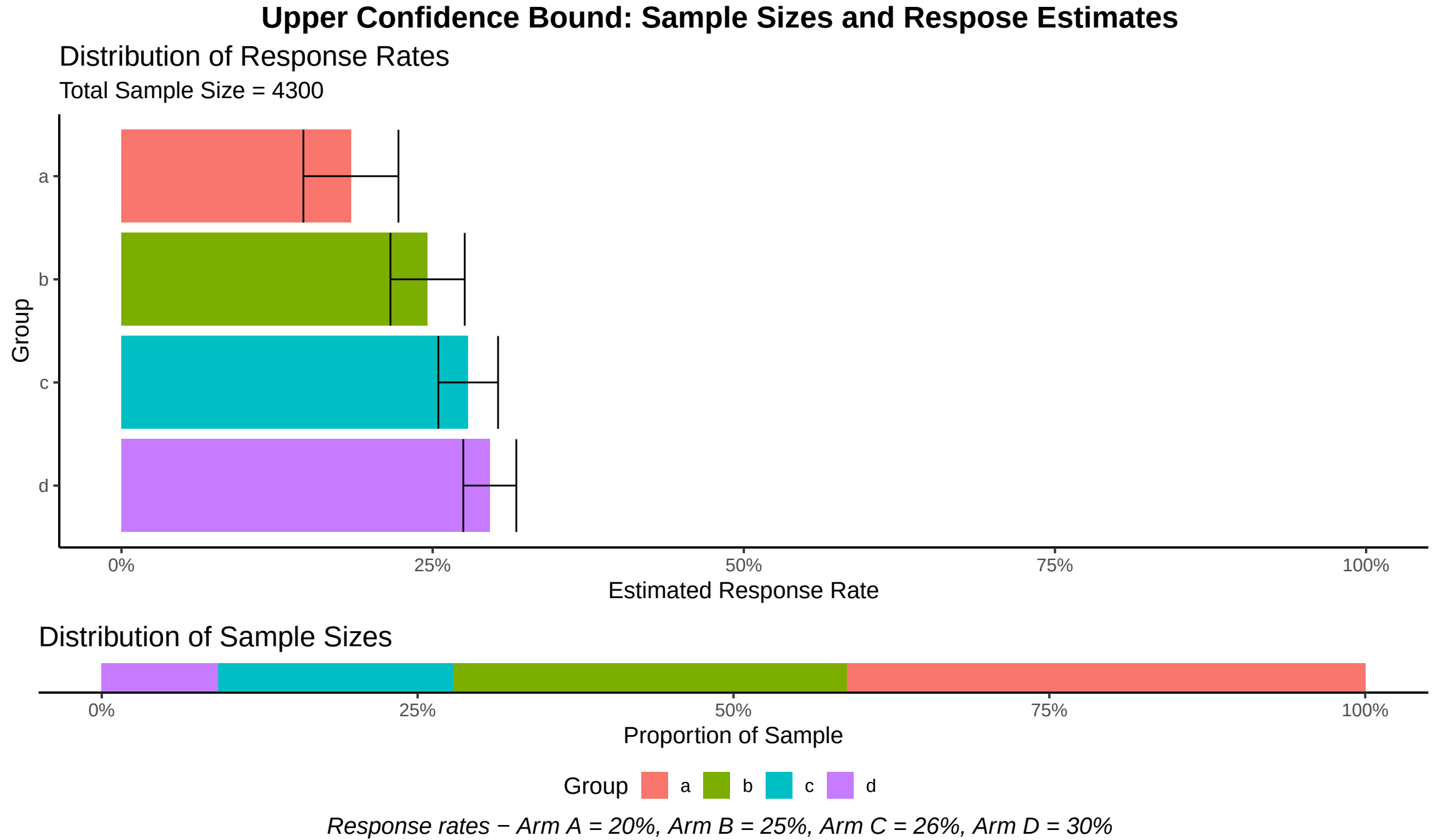

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

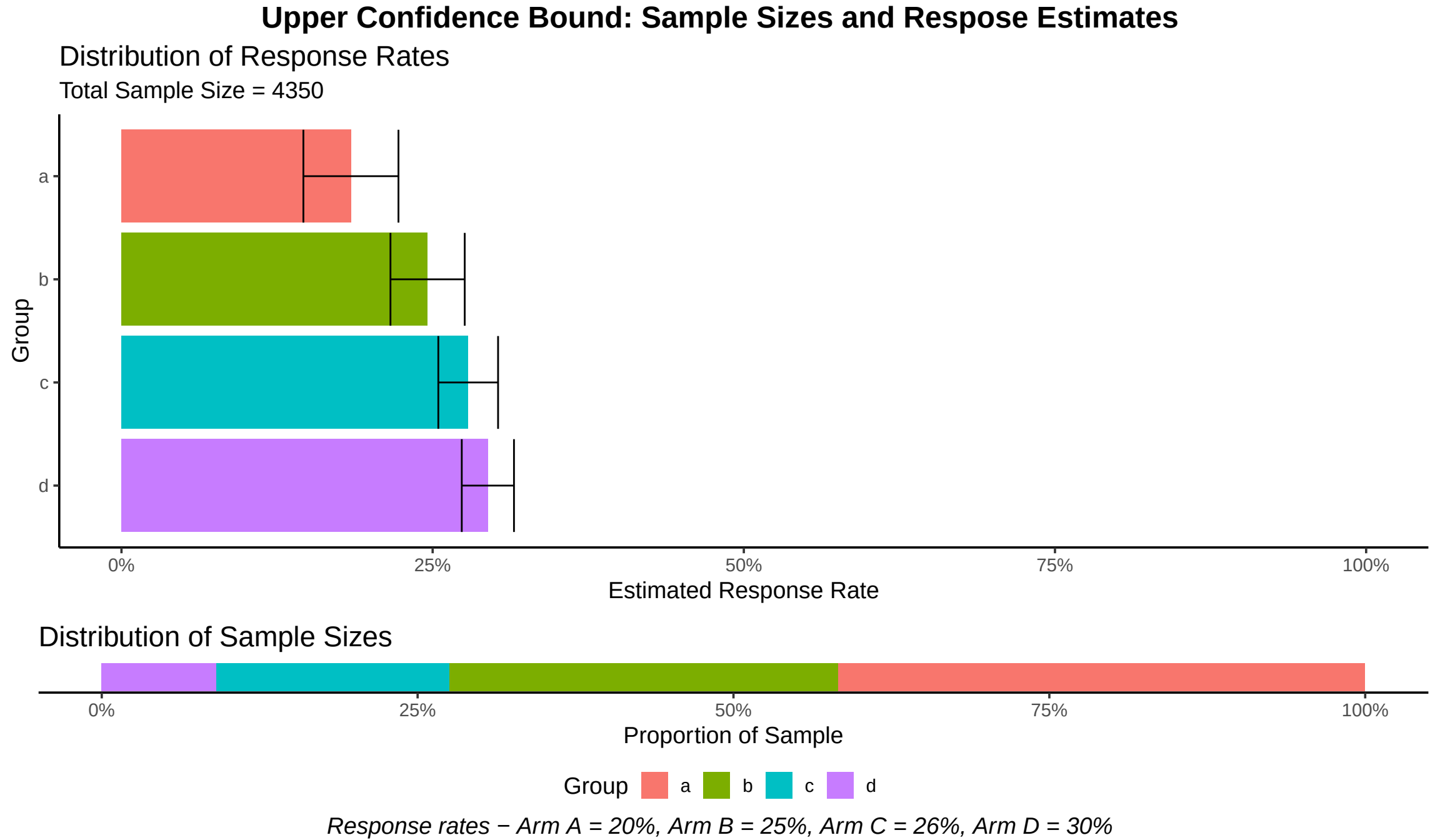
Upper Confidence Bound: Sample Sizes and Respose Estimates

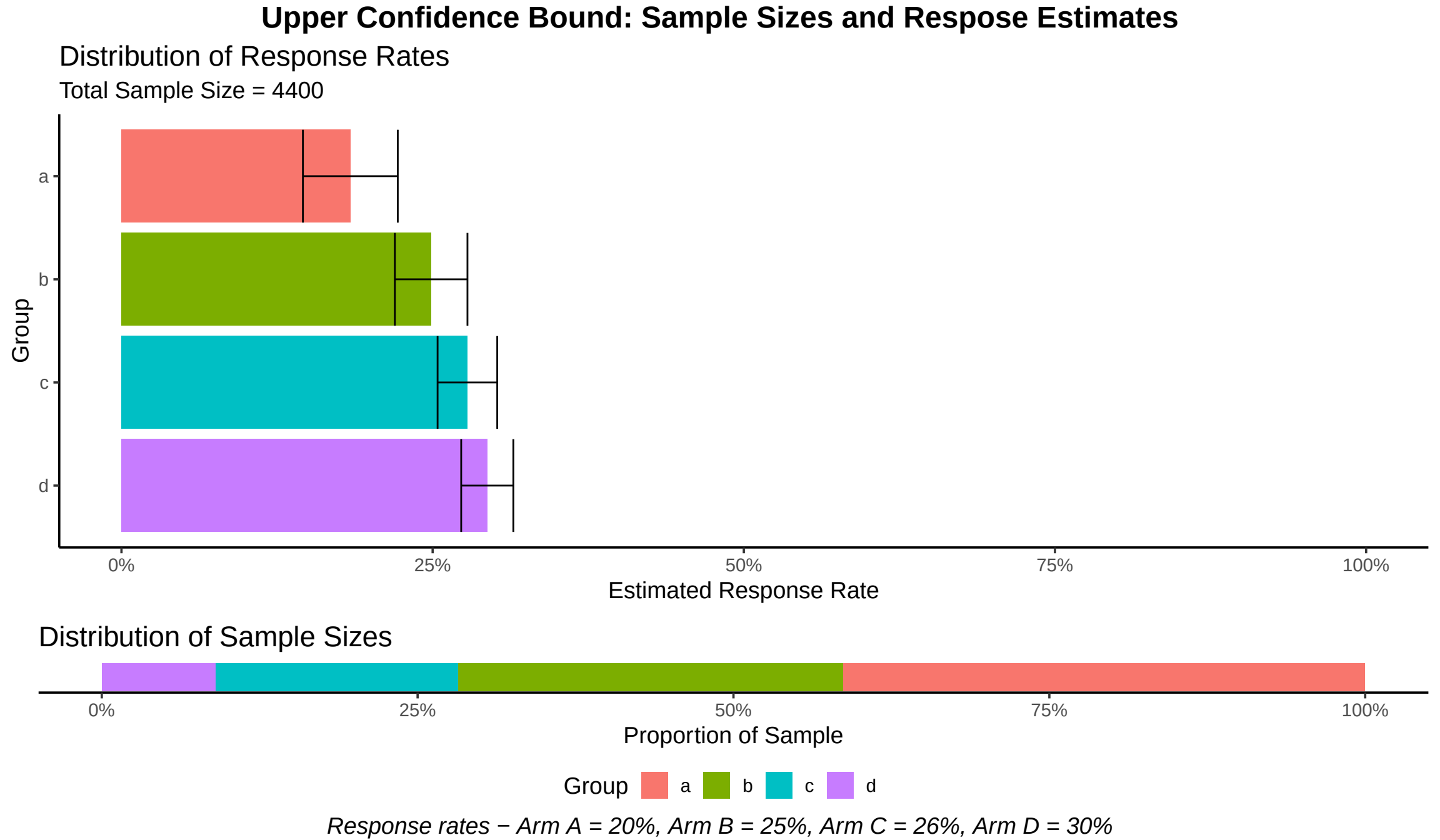


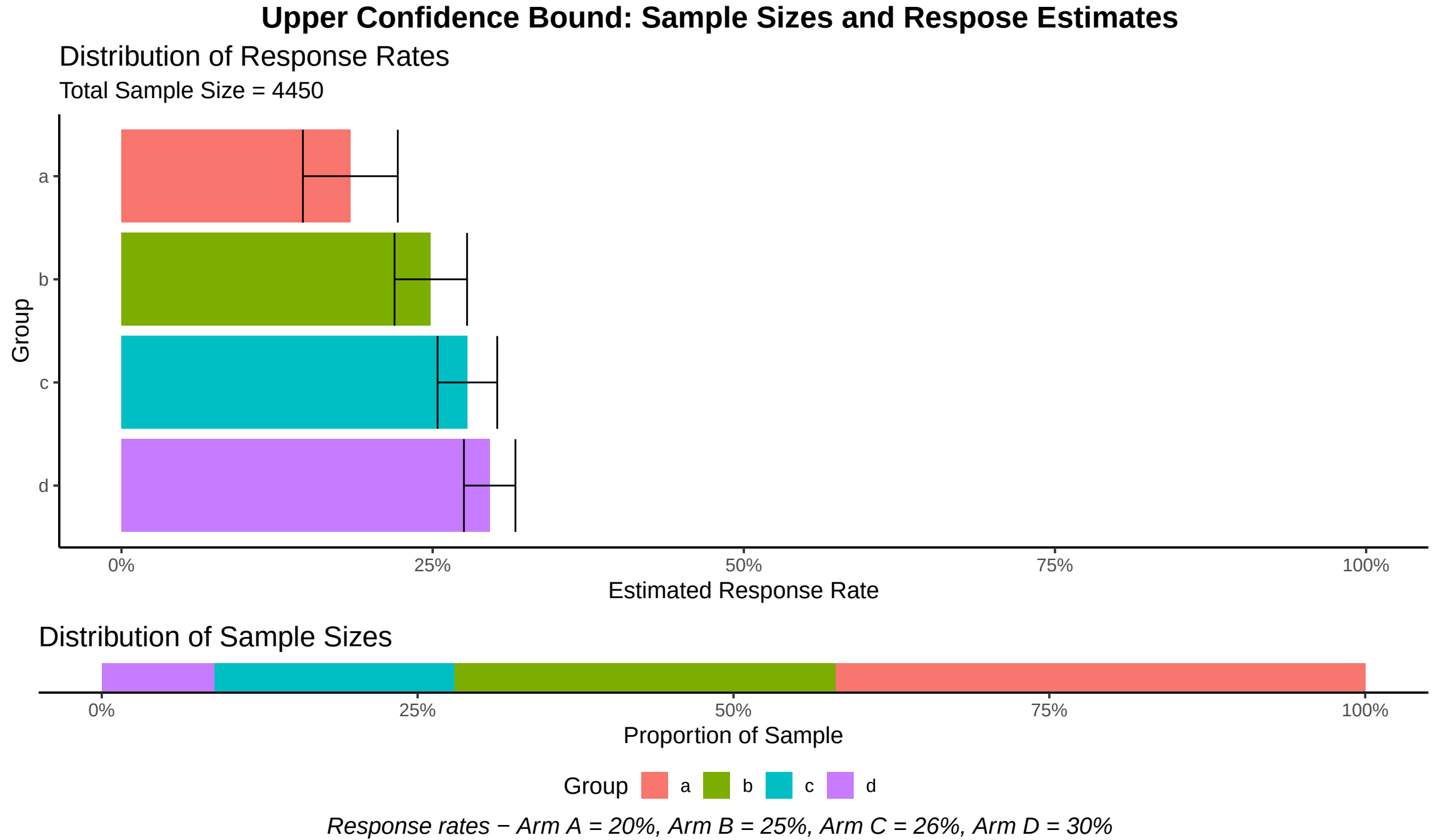
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

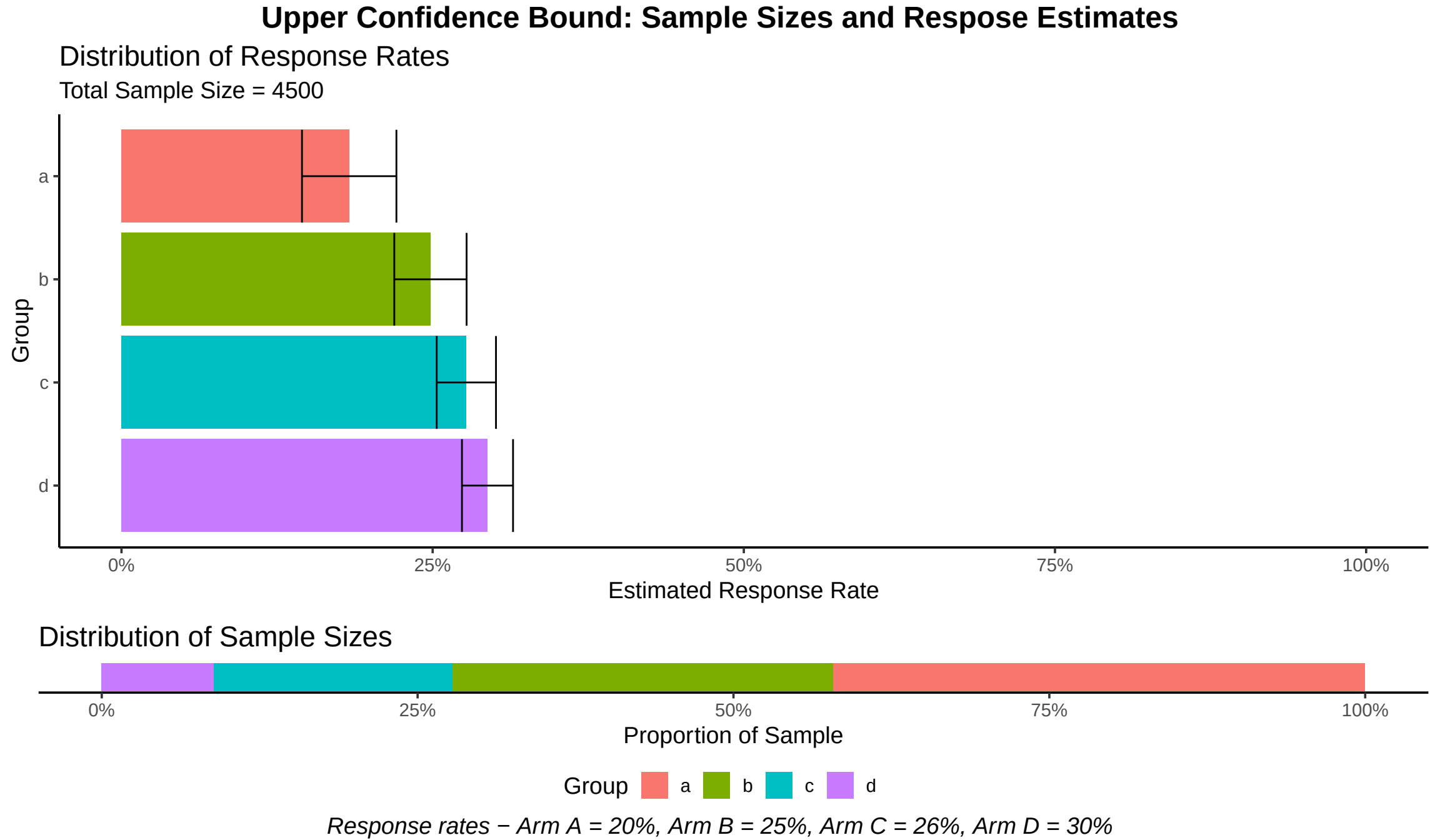

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

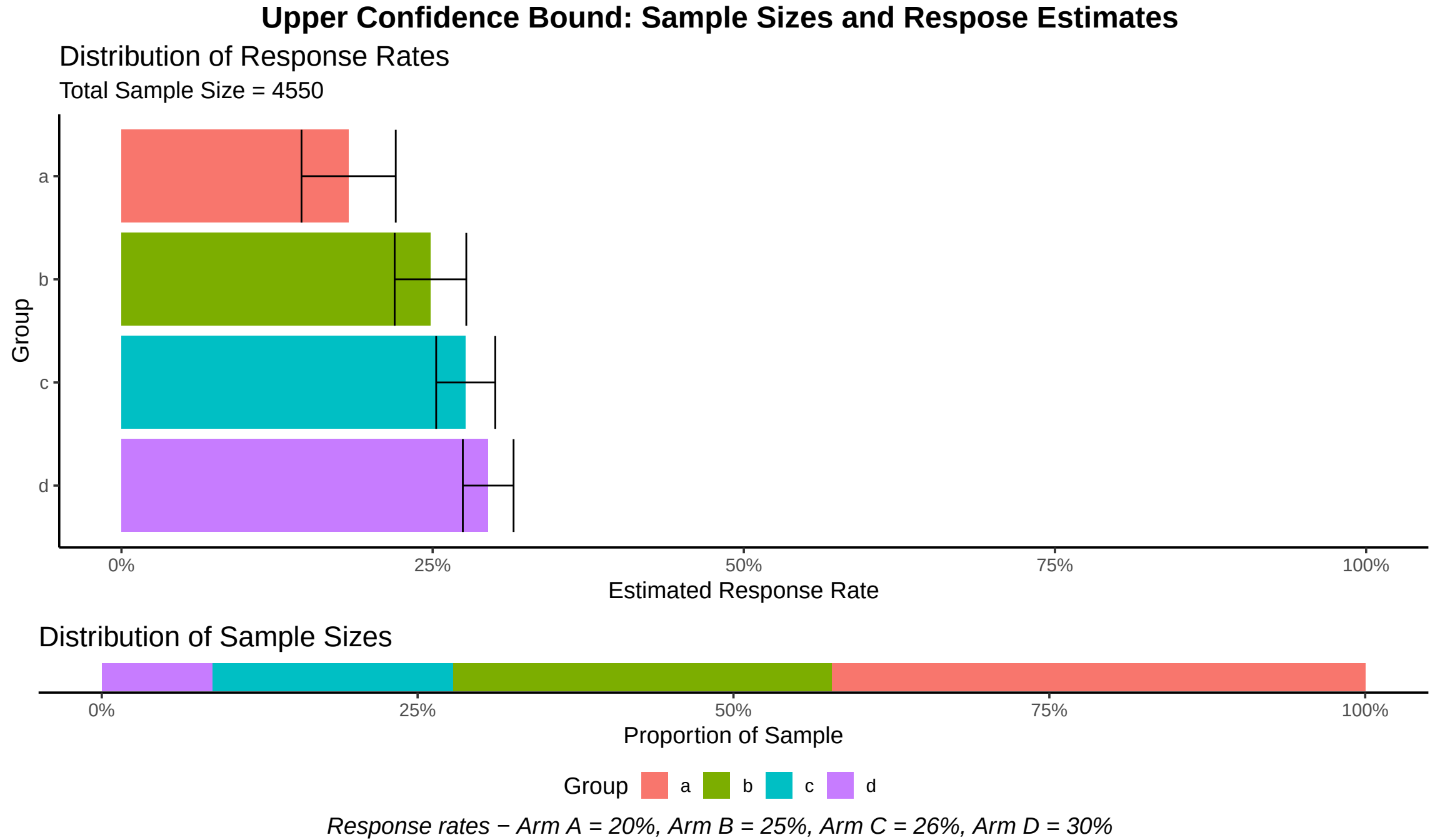

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

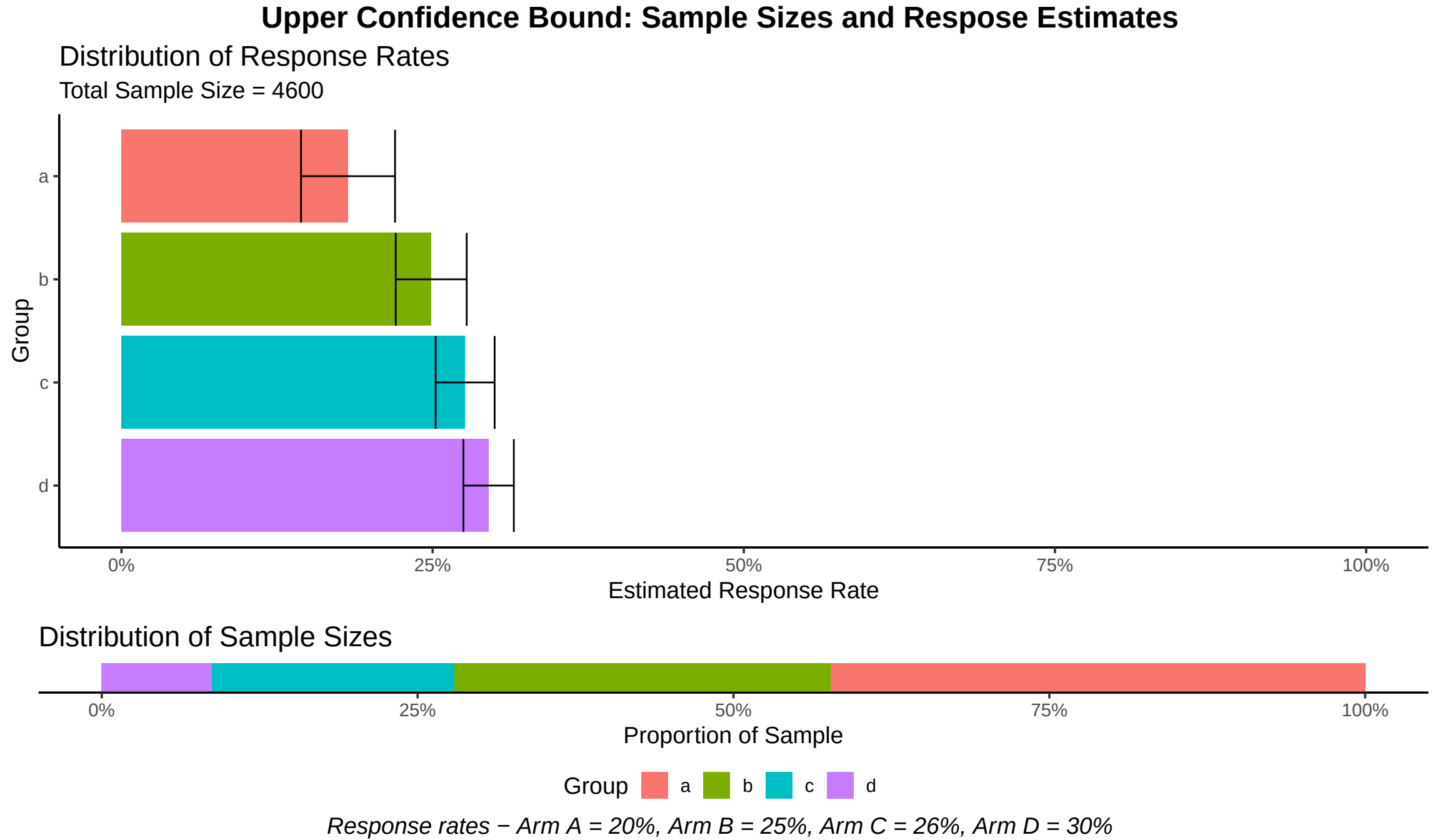

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

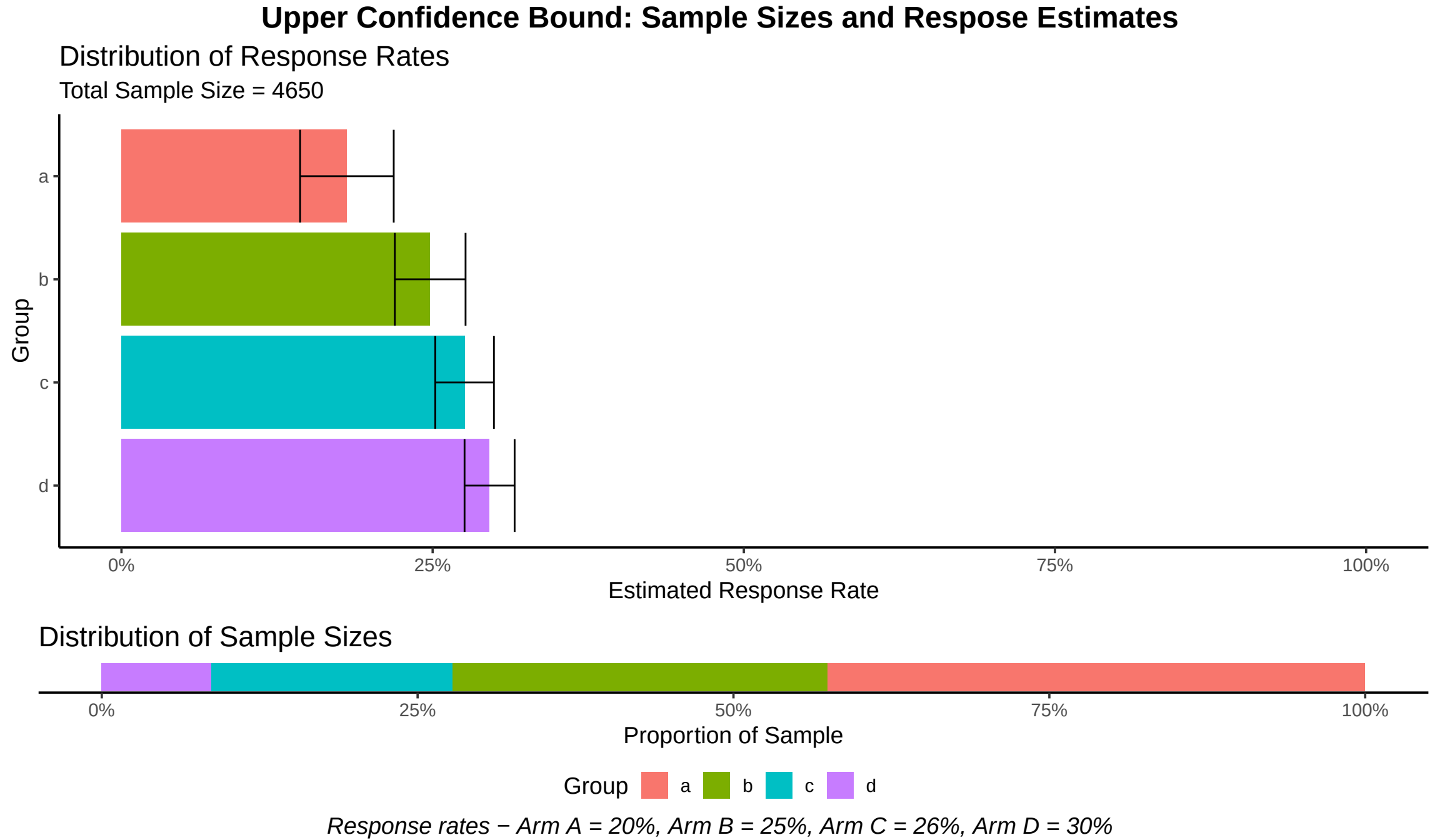

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

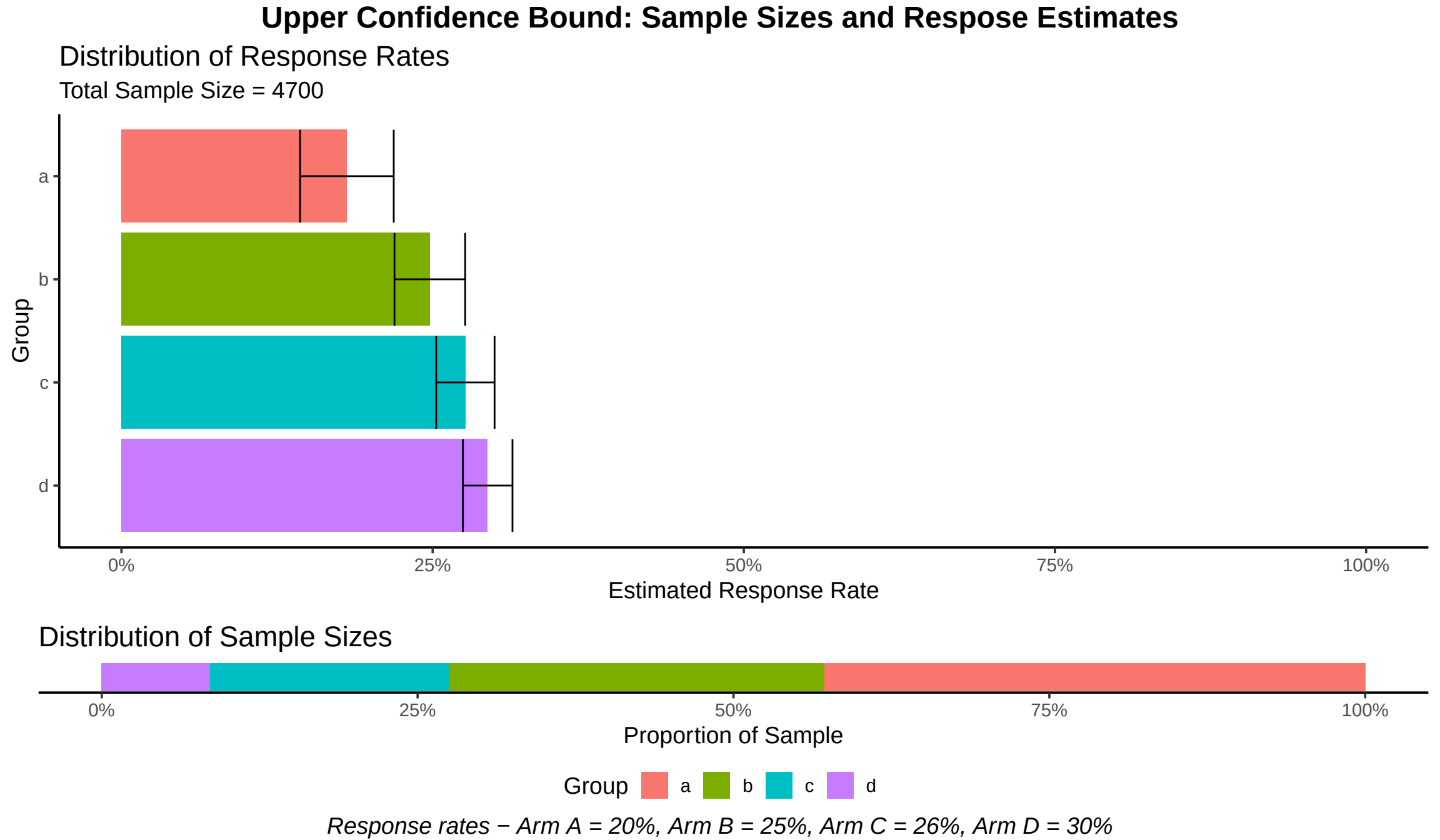

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

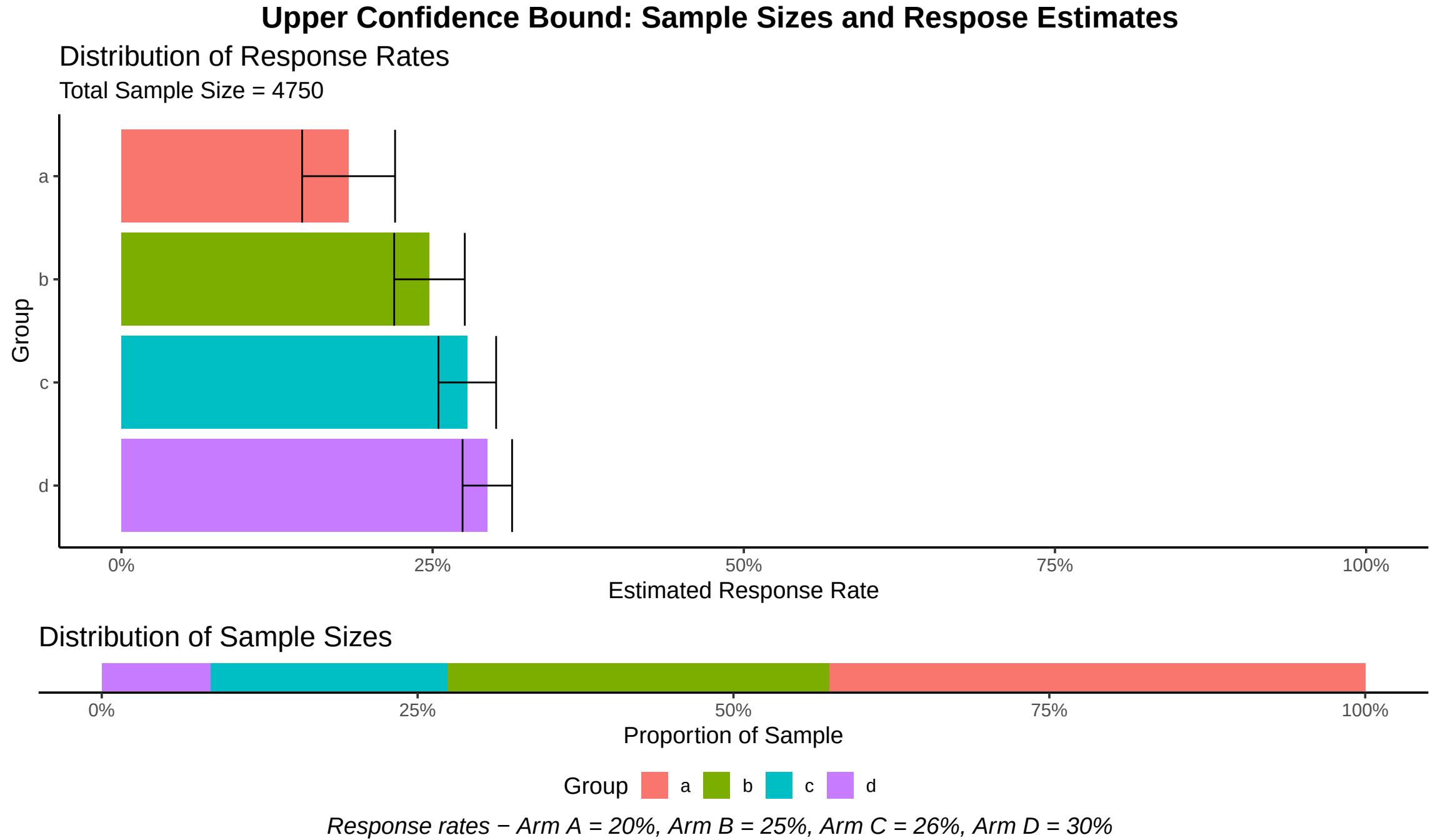

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

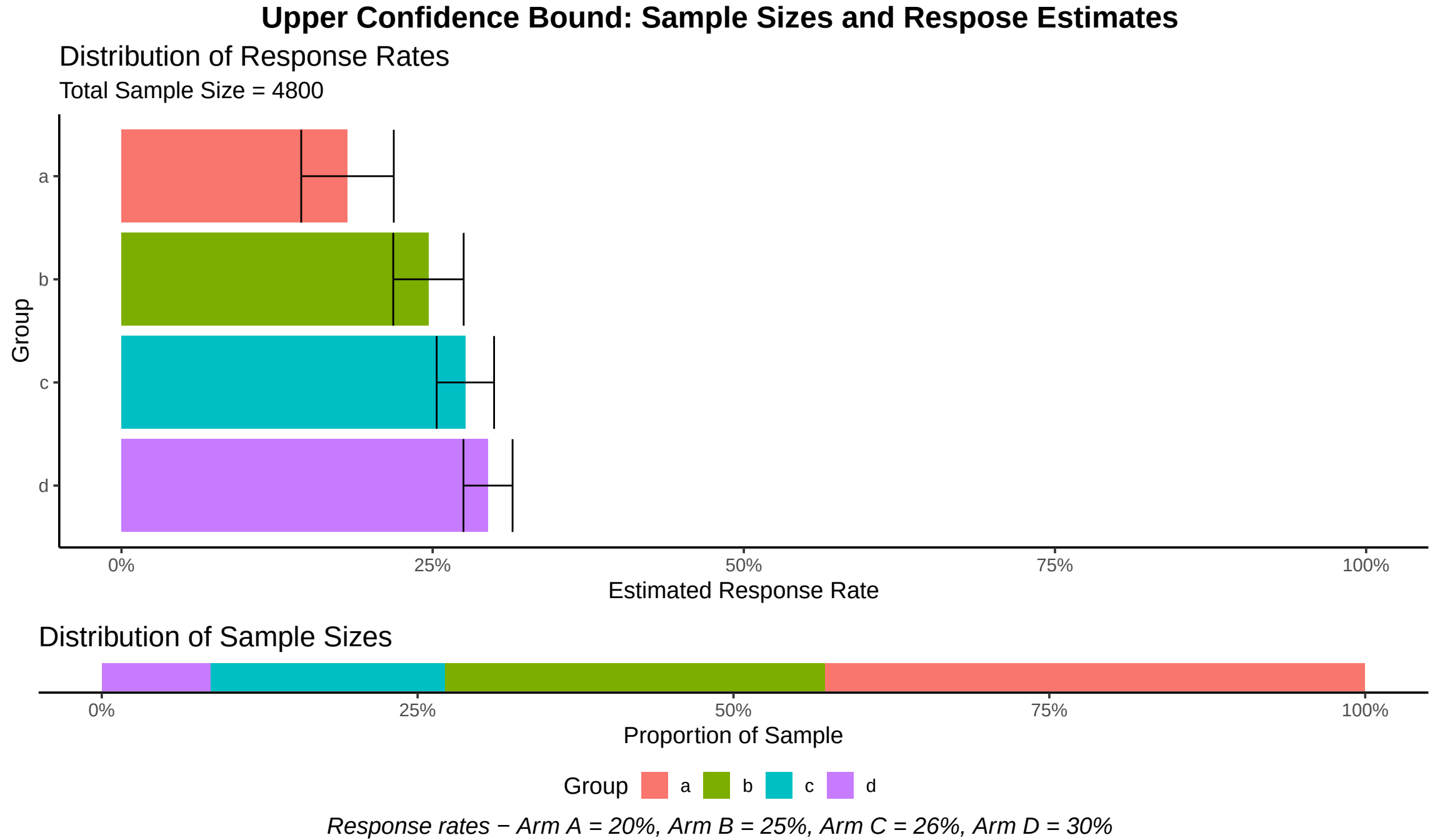

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

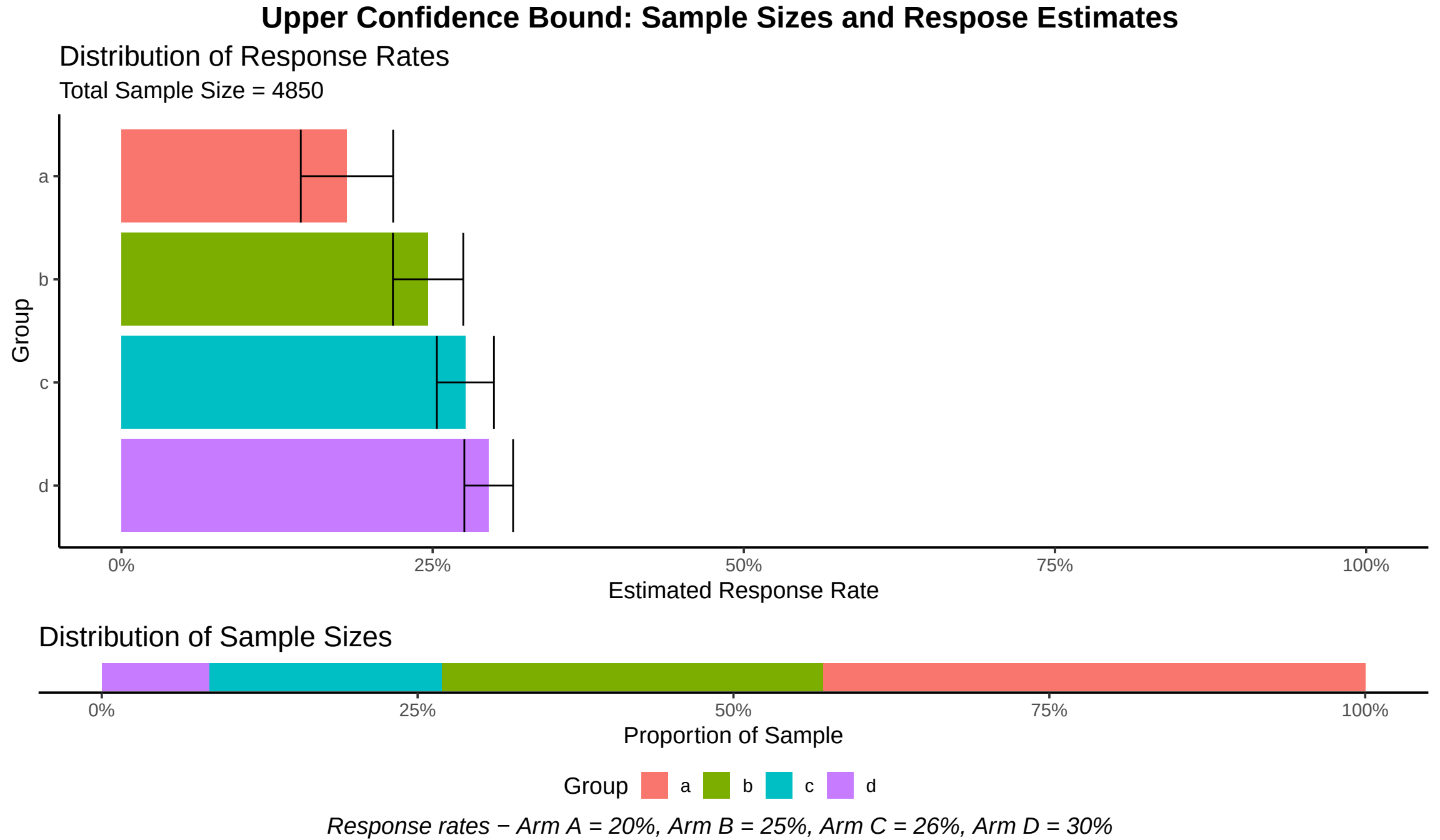

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

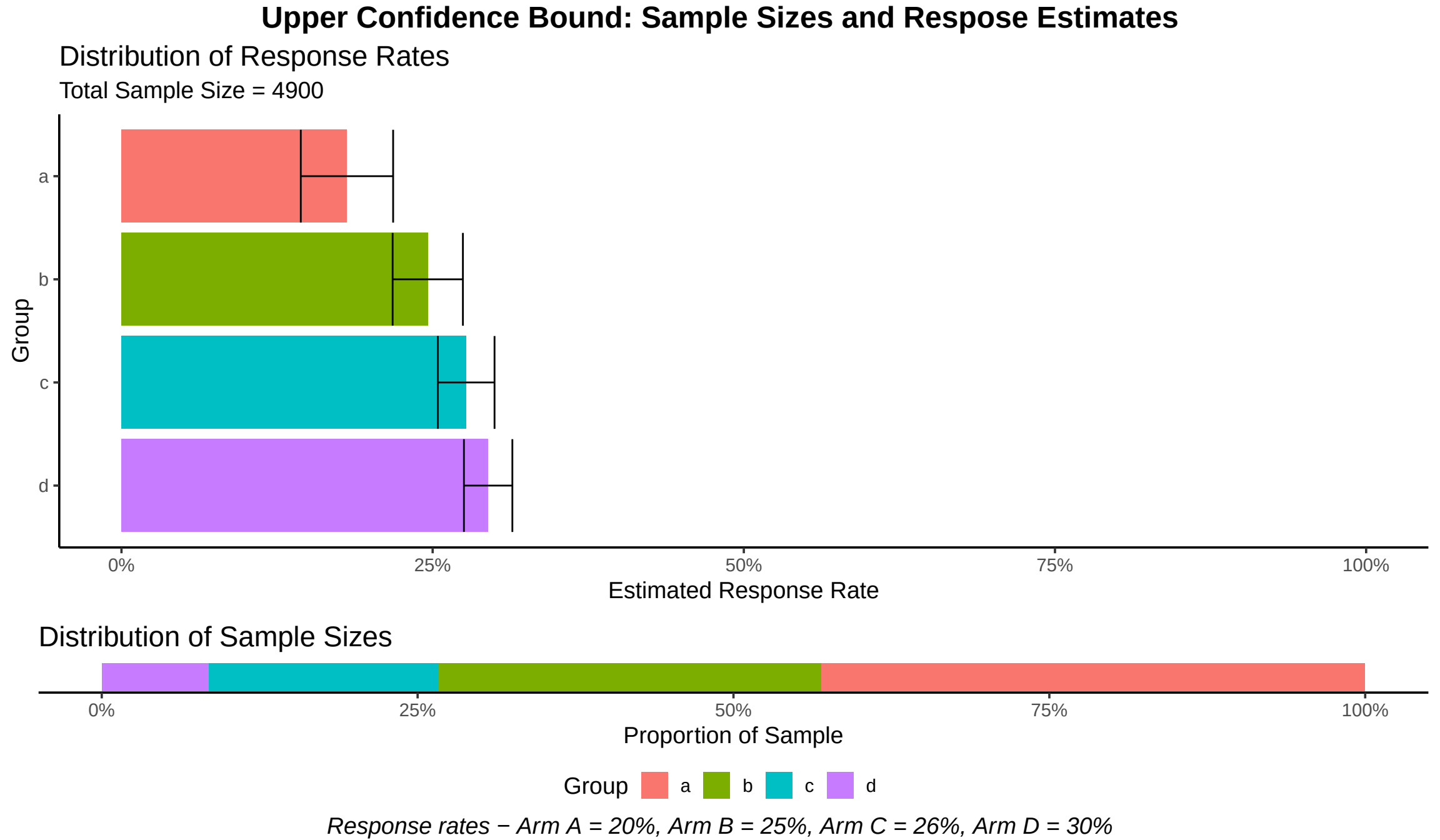

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

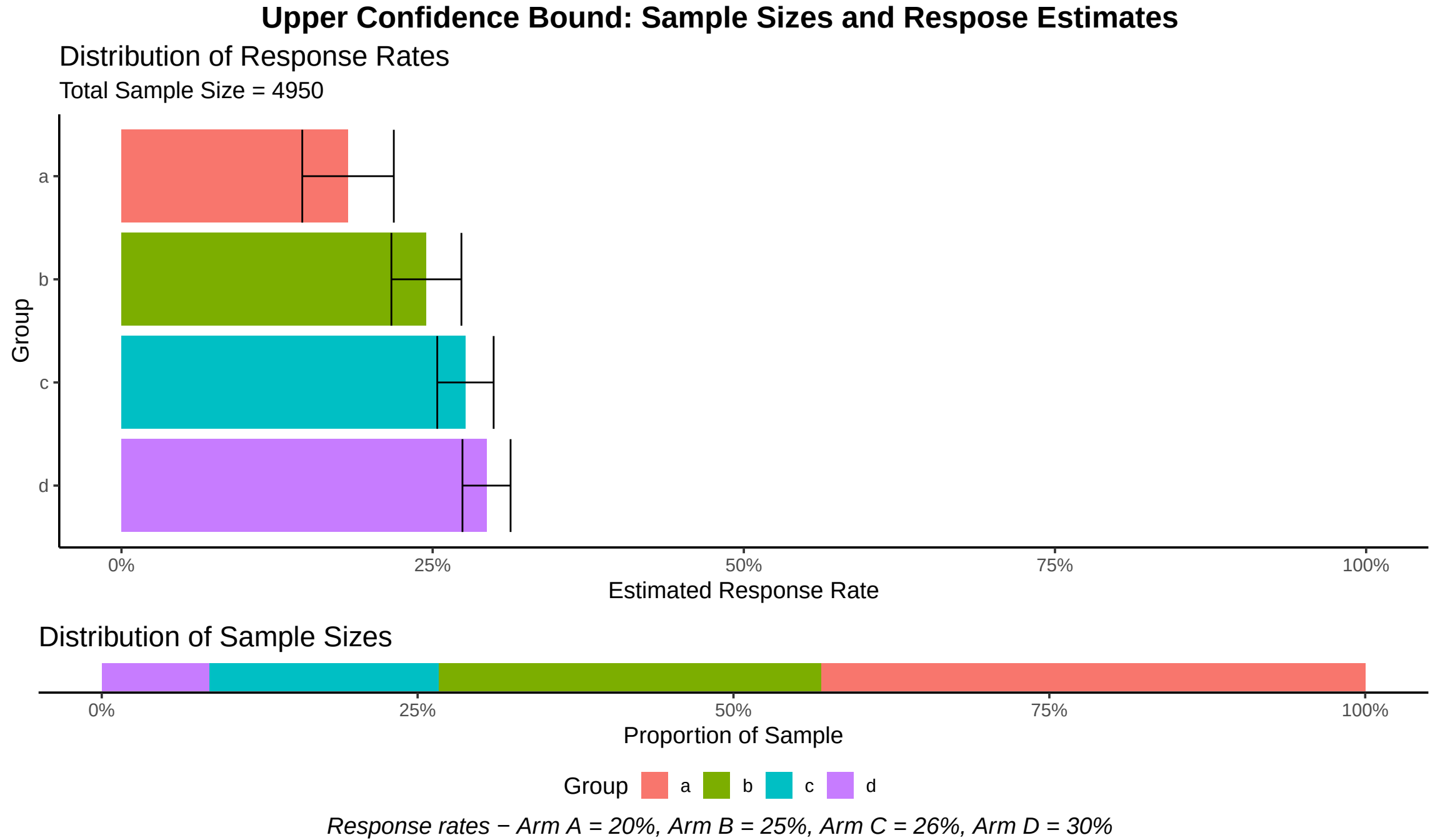

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

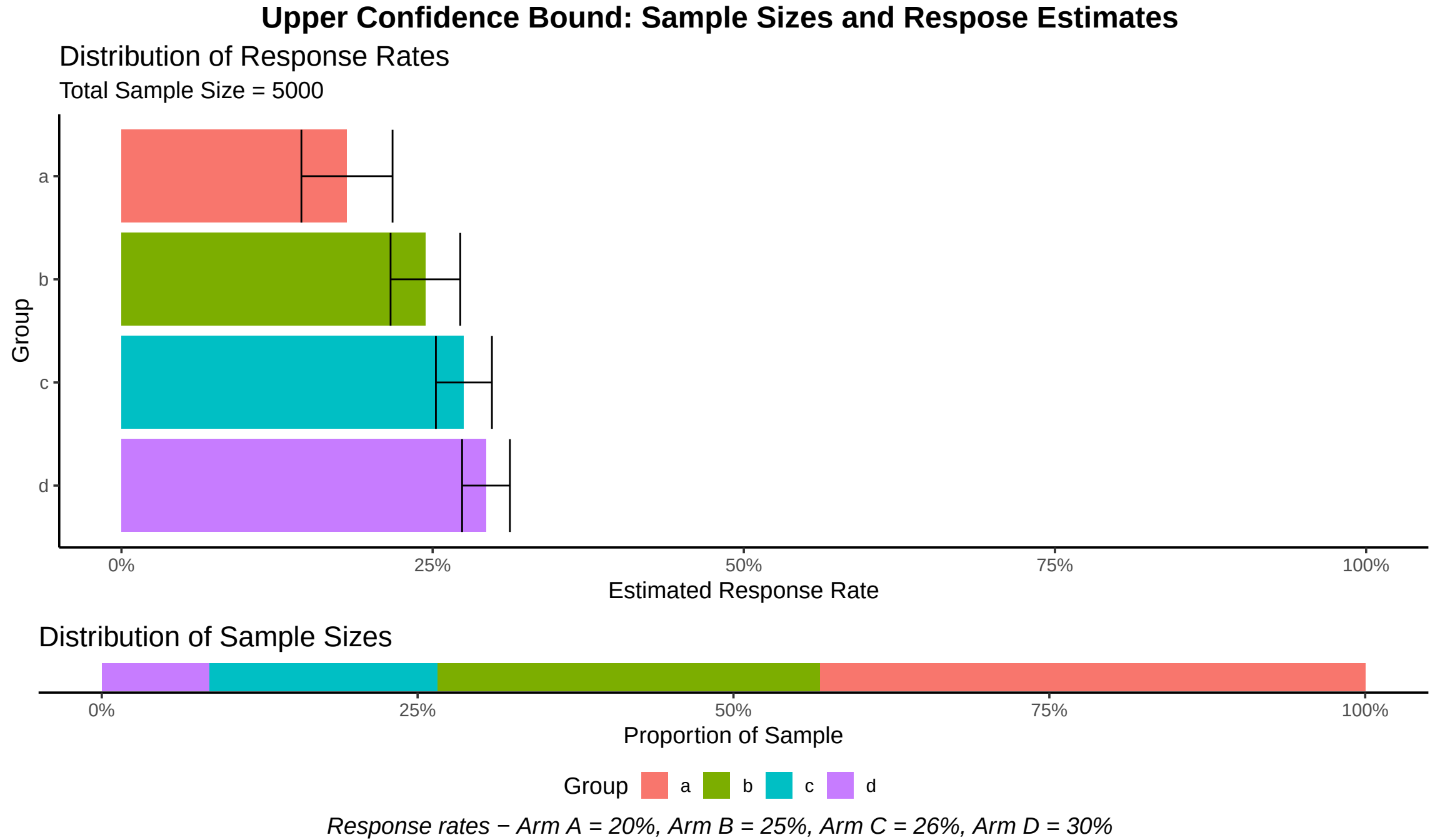

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

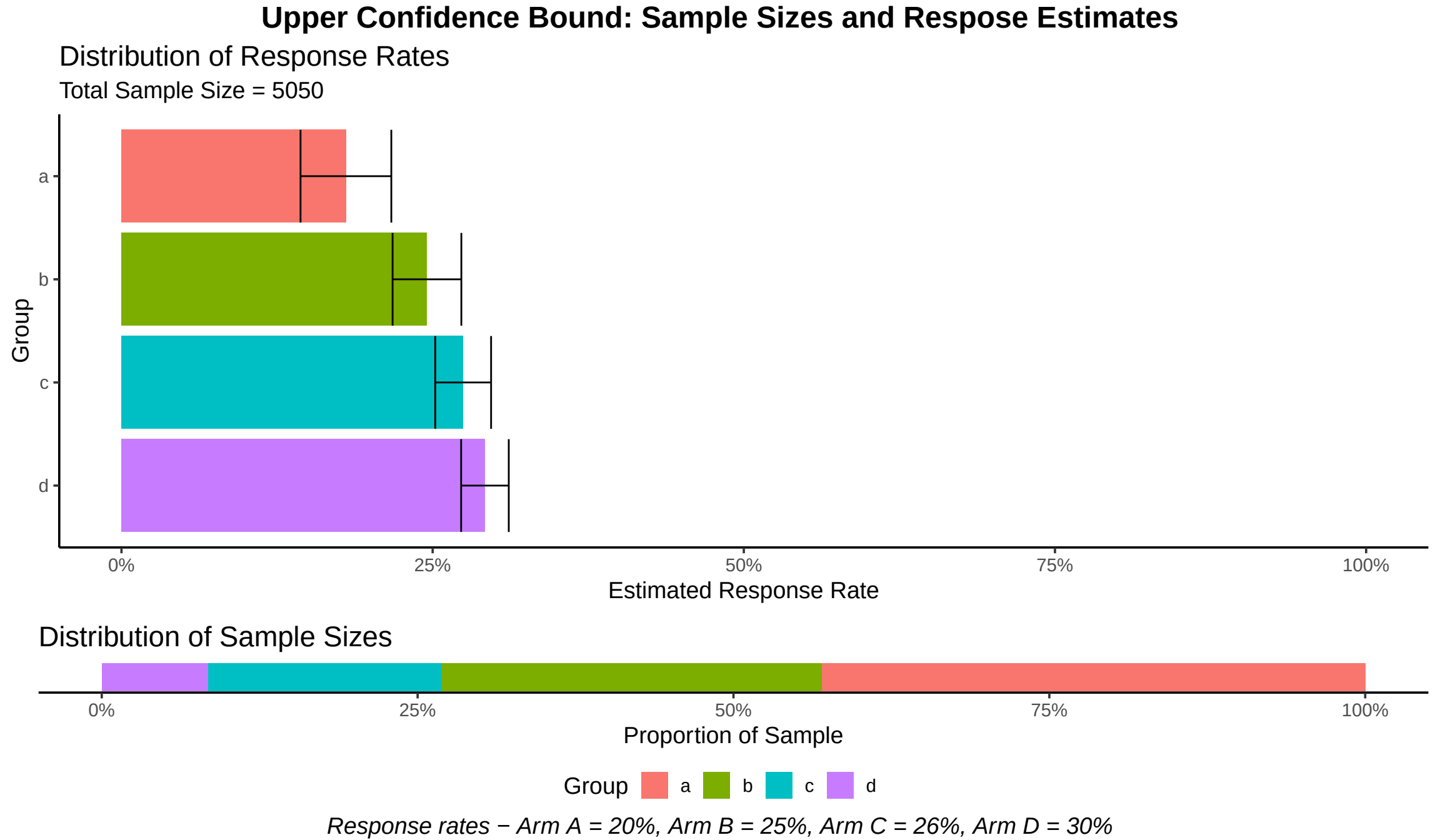

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

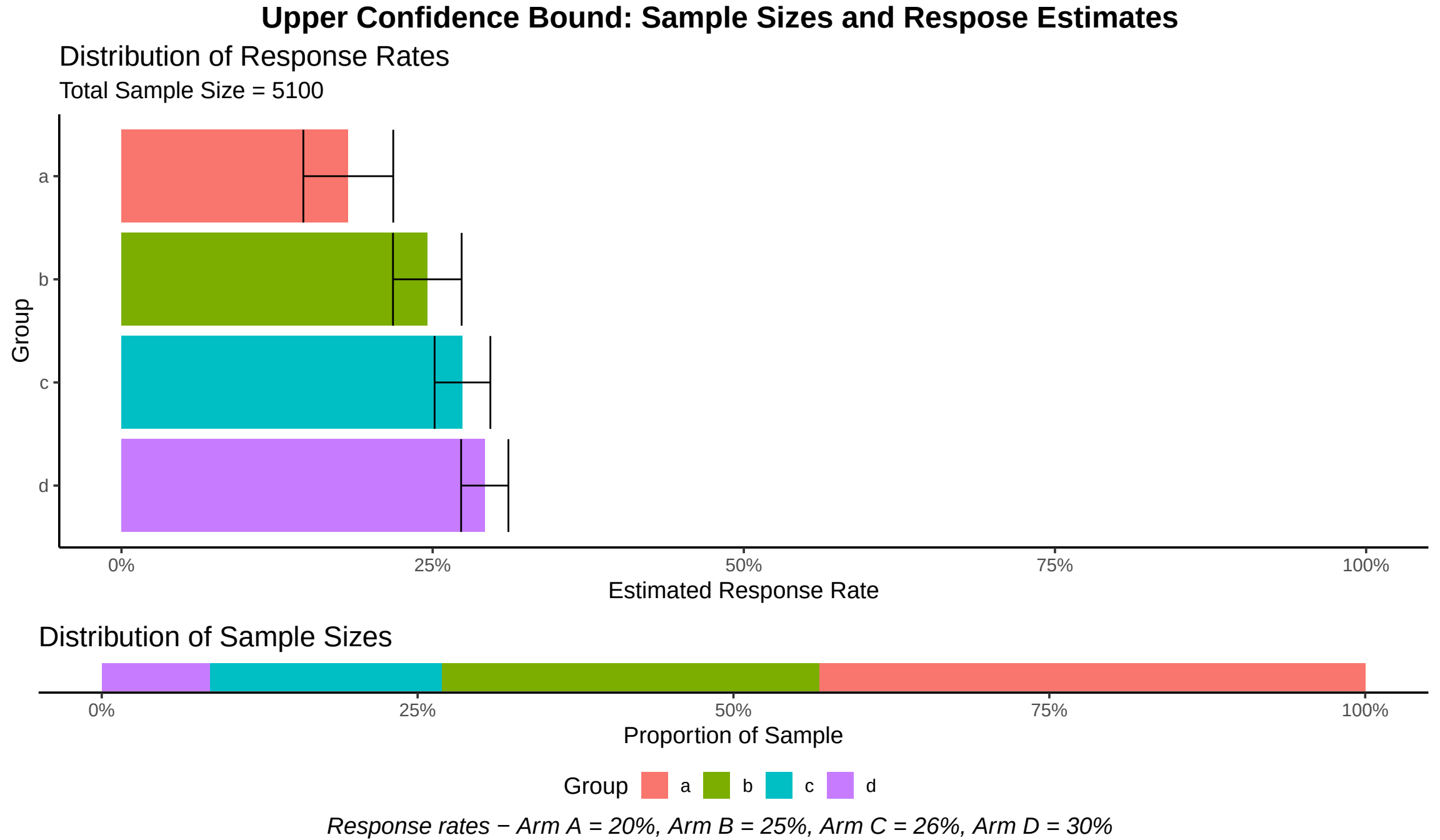

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

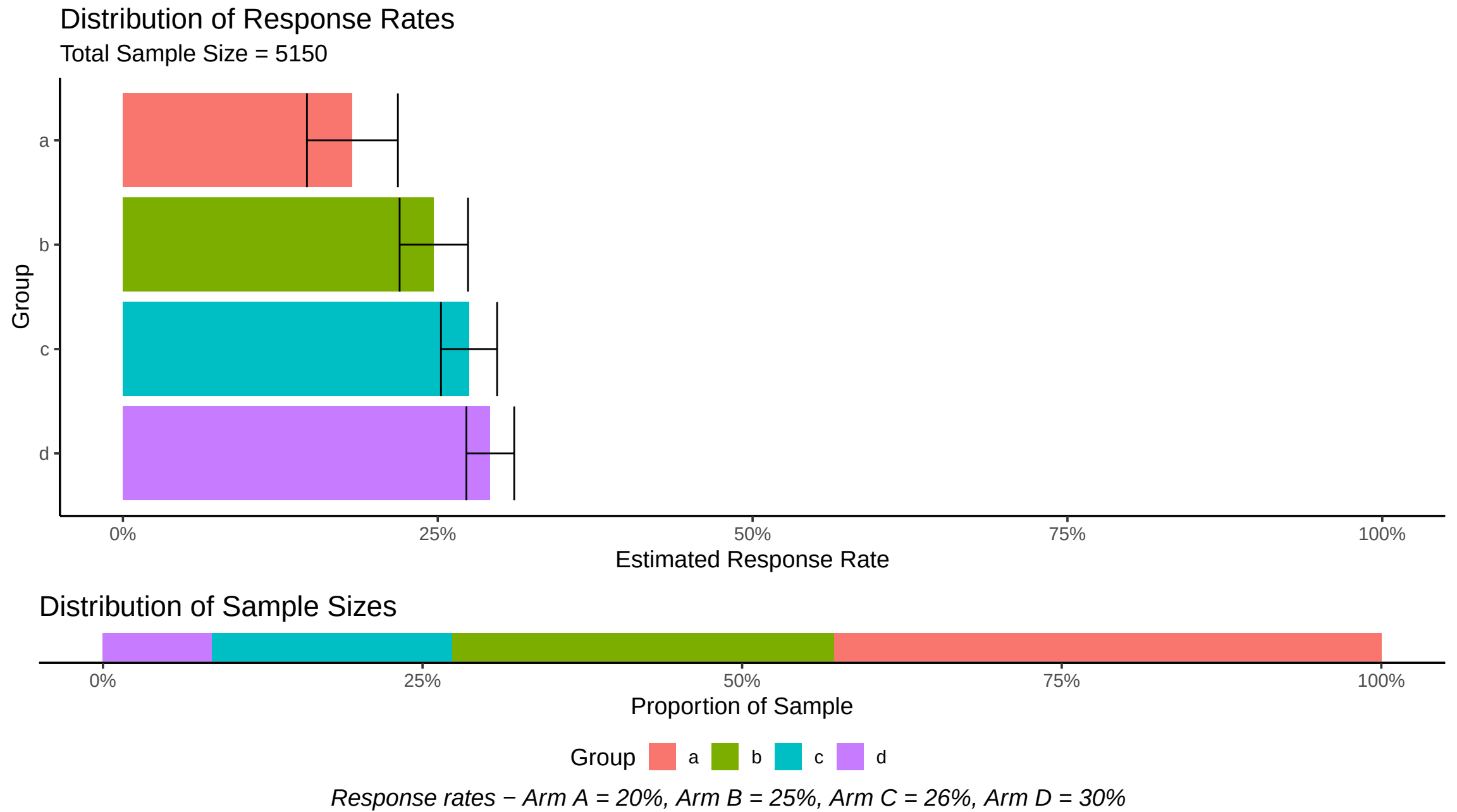

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 4950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

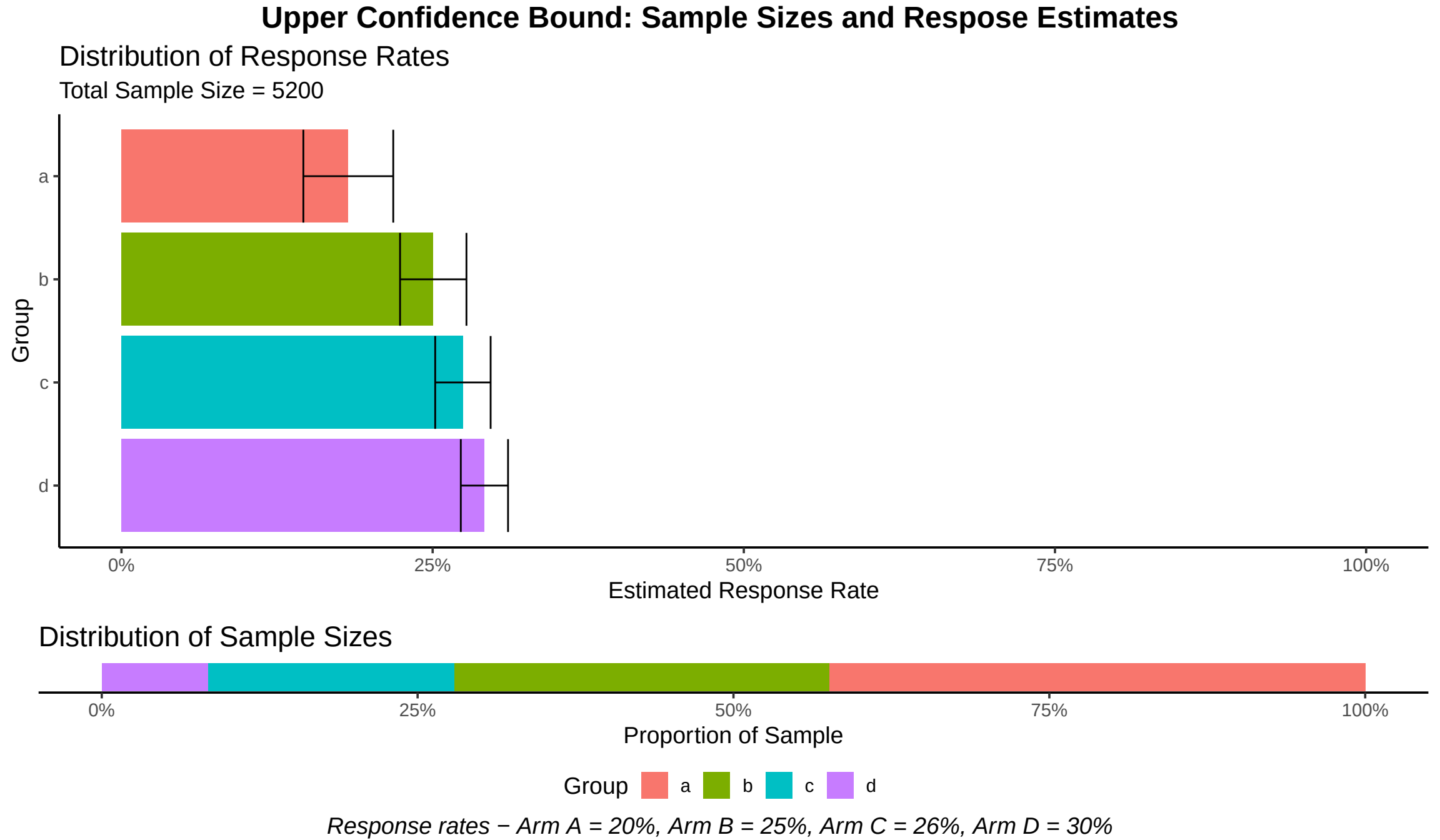

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

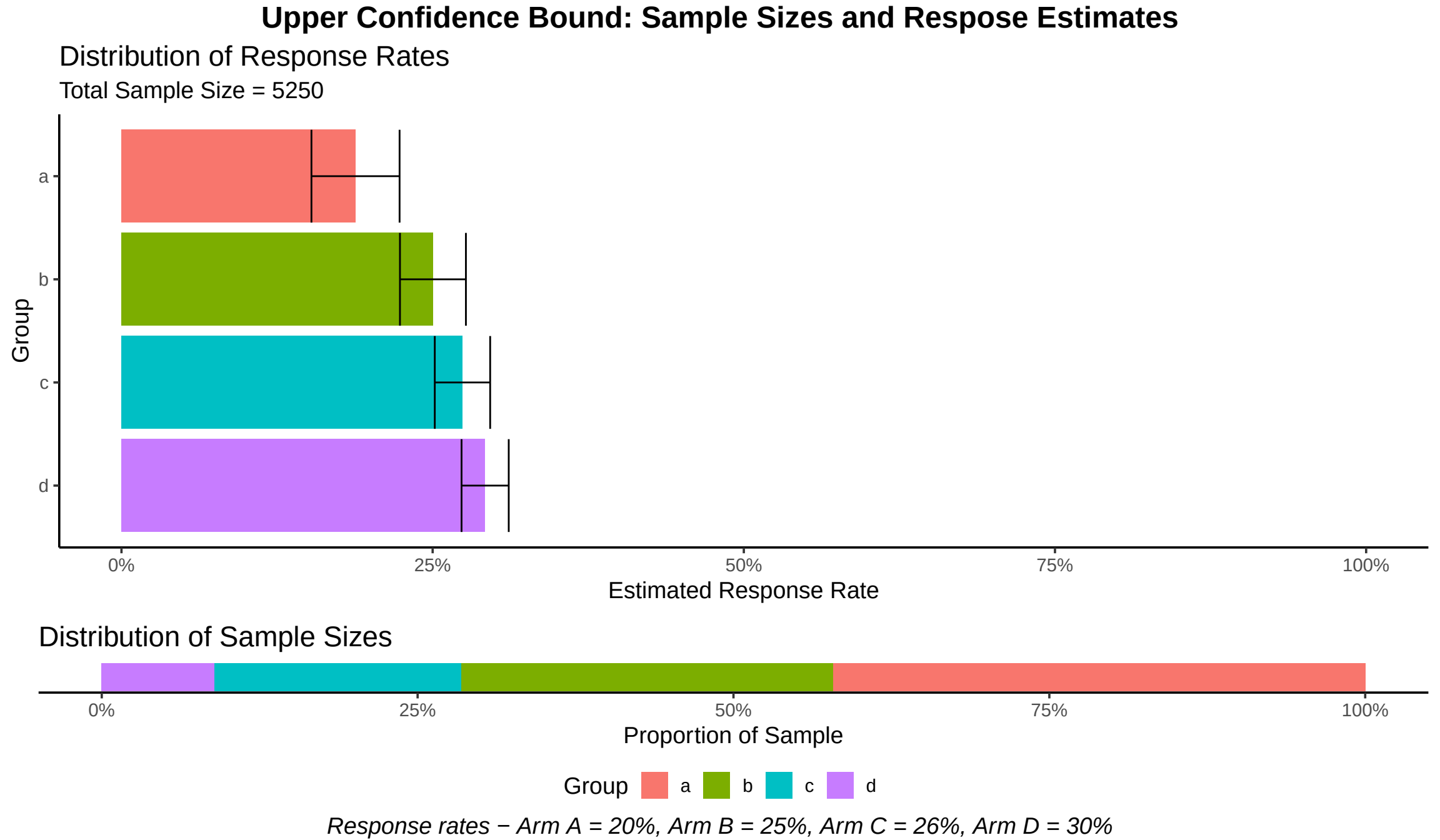

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

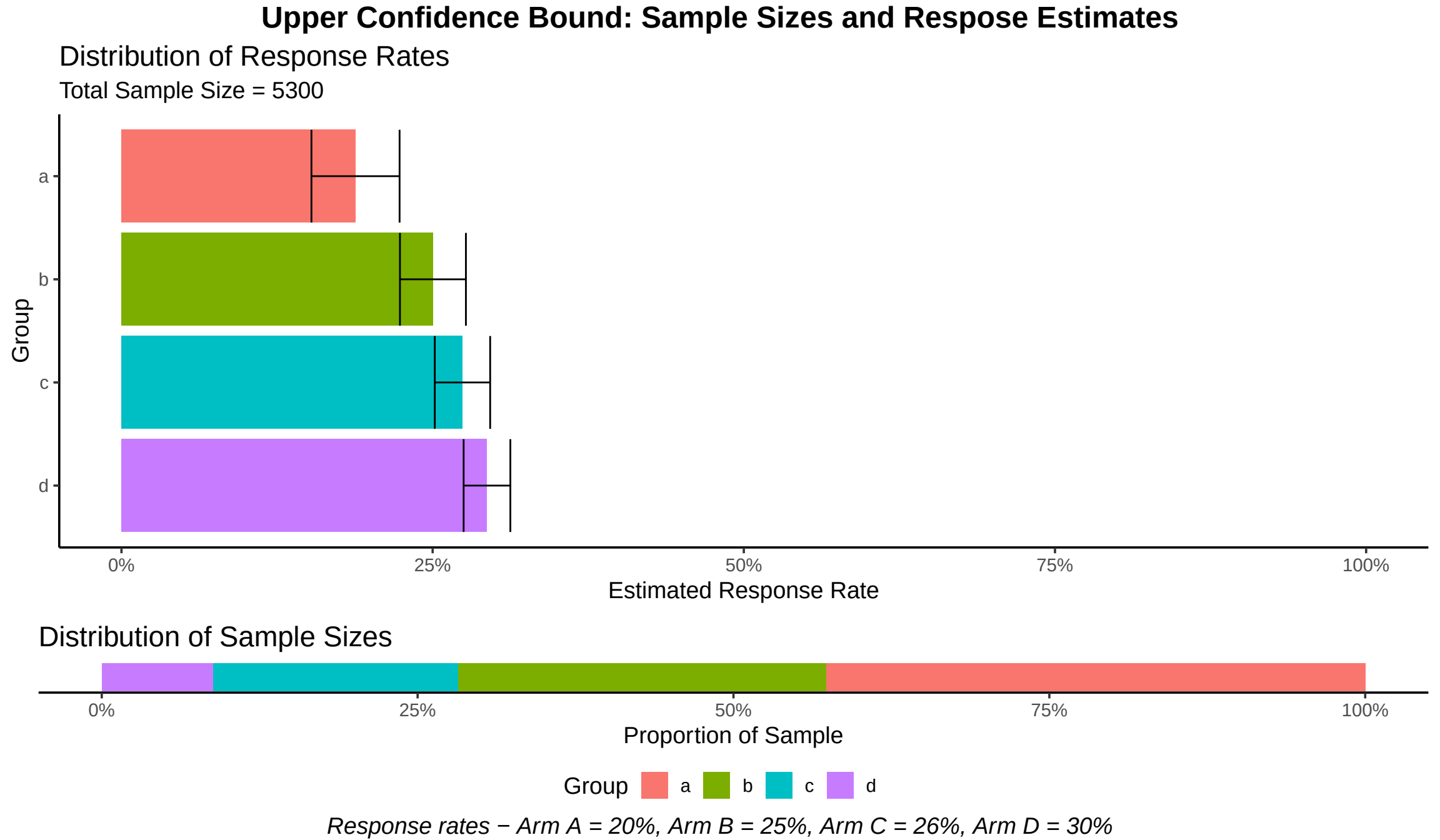
Upper Confidence Bound: Sample Sizes and Respose Estimates

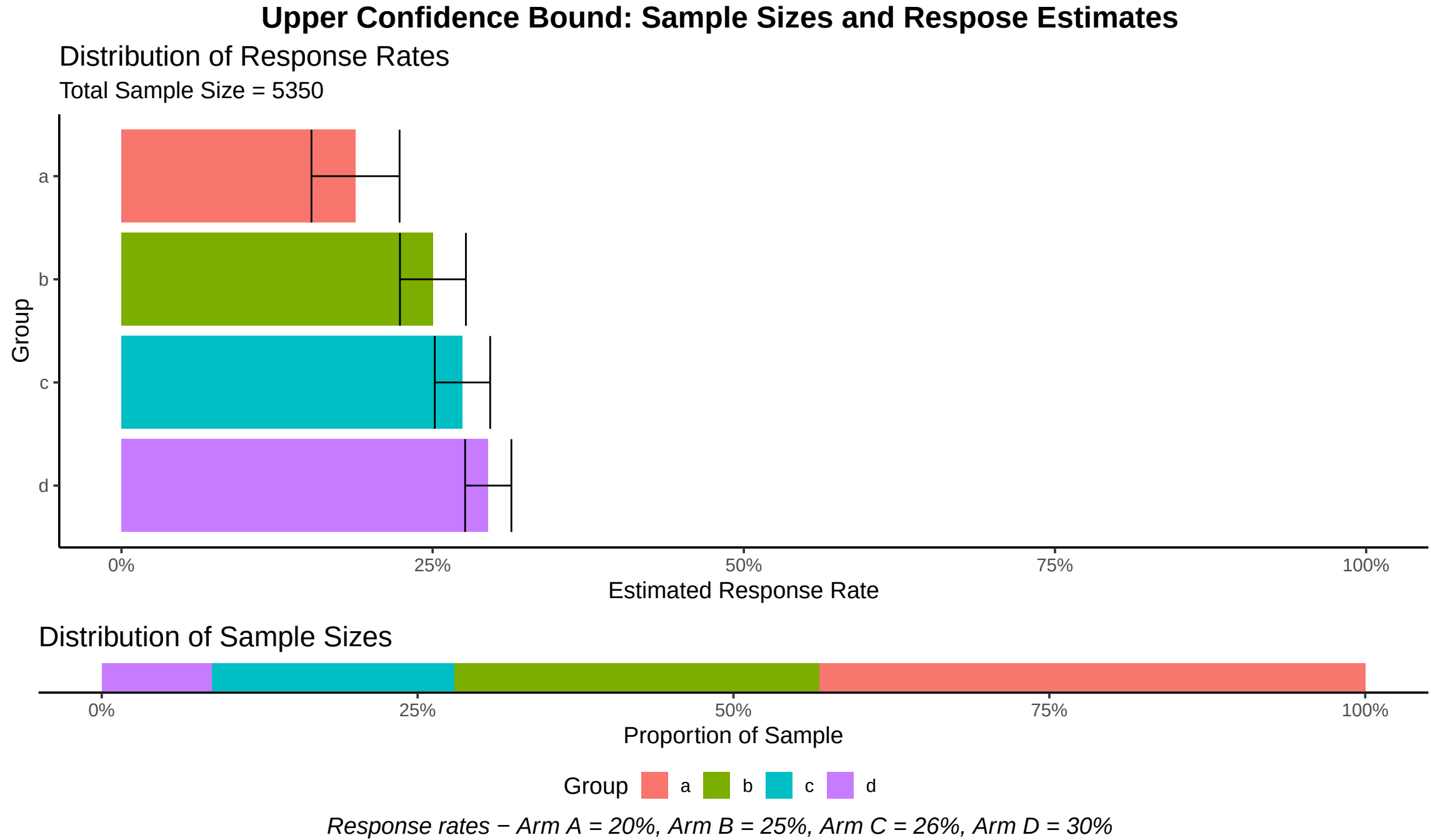


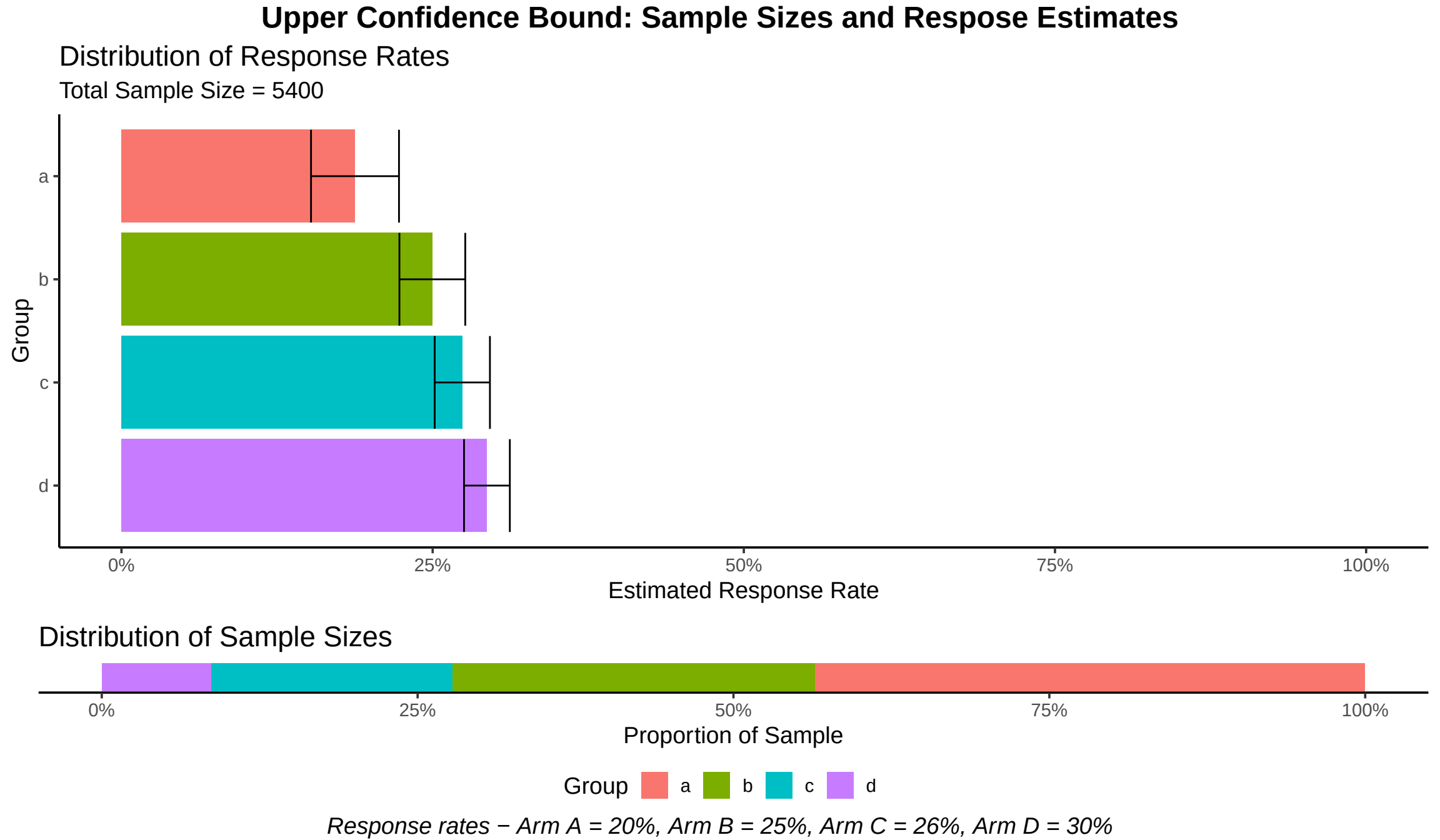
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

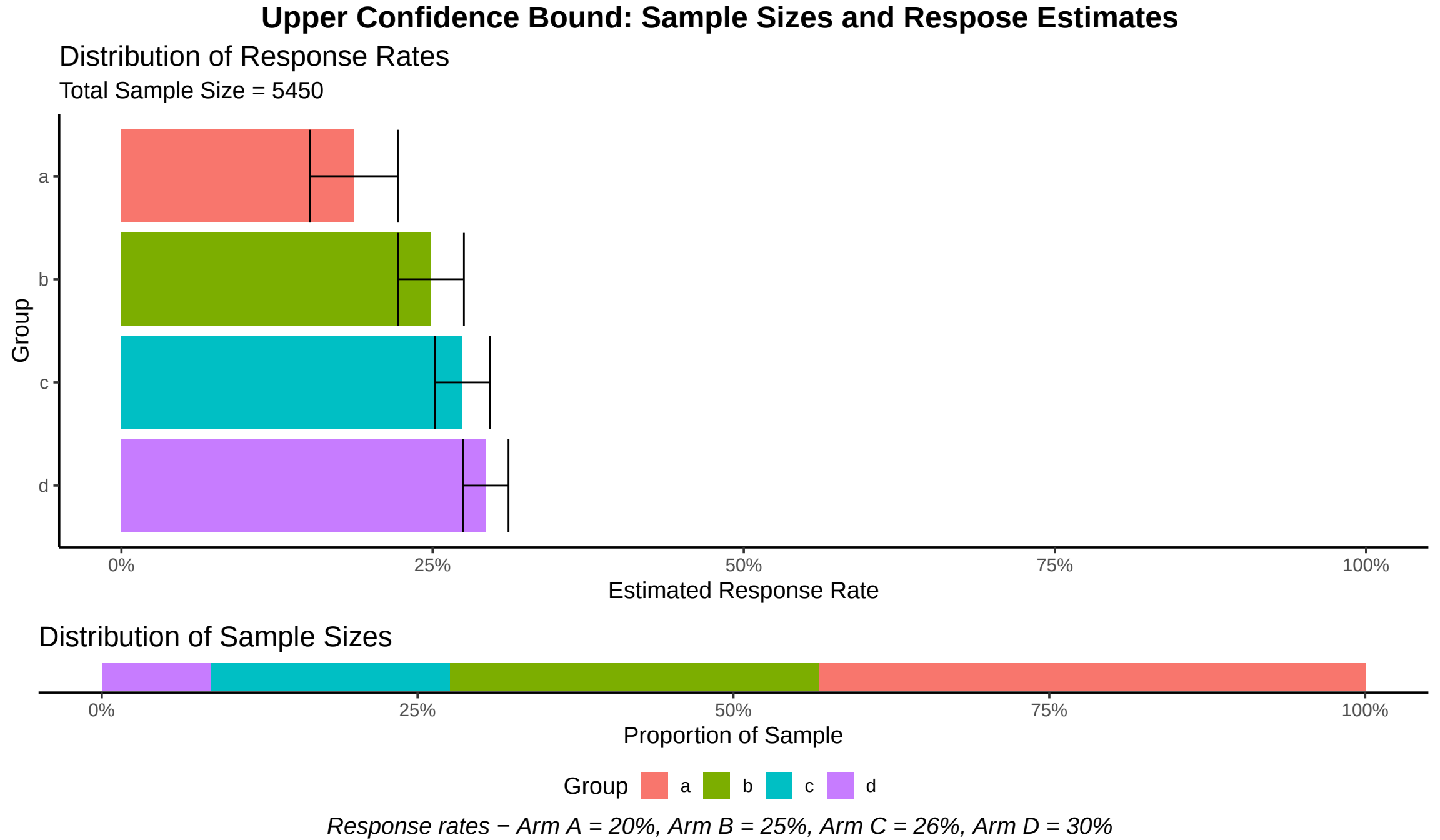

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

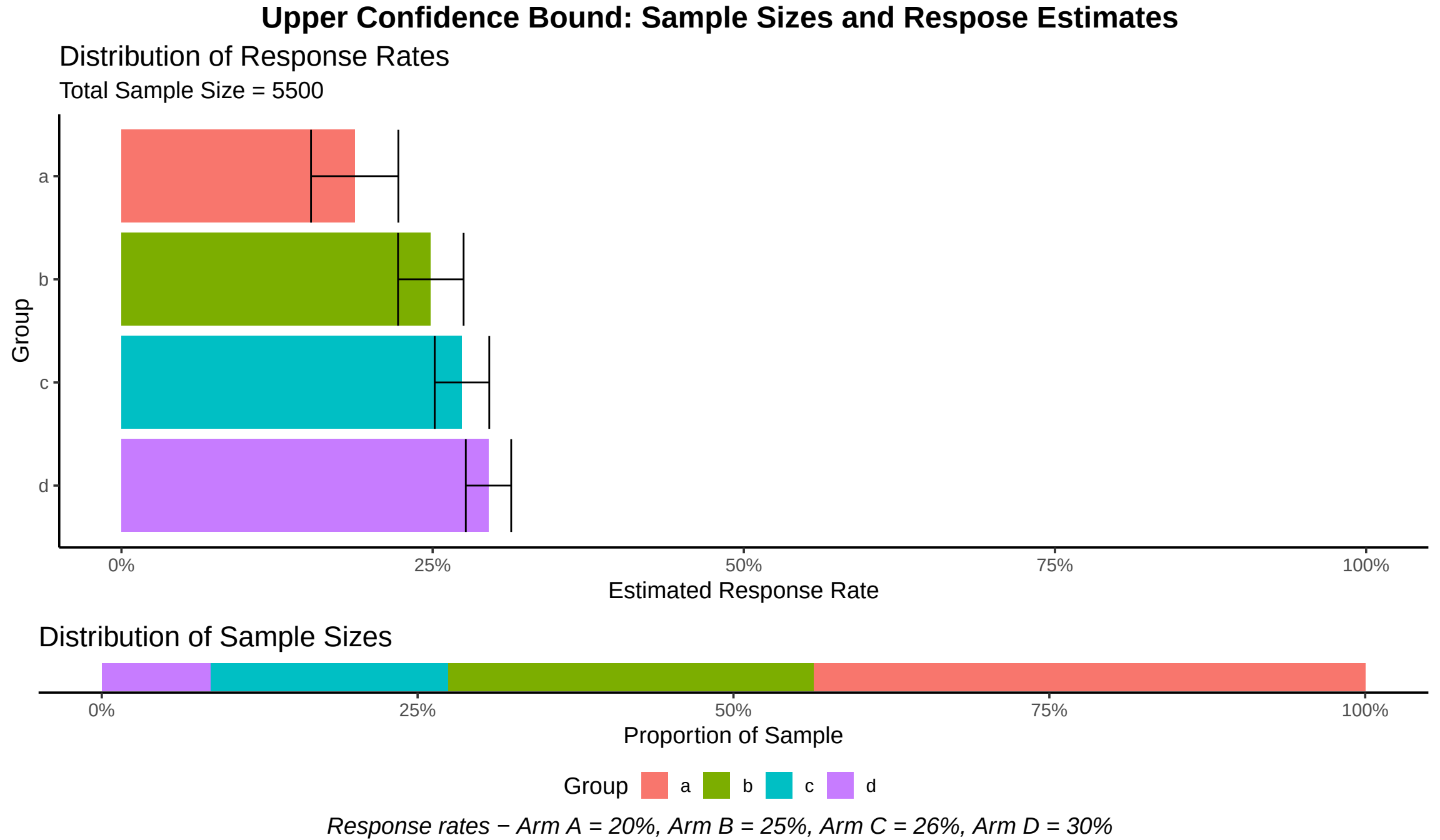

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

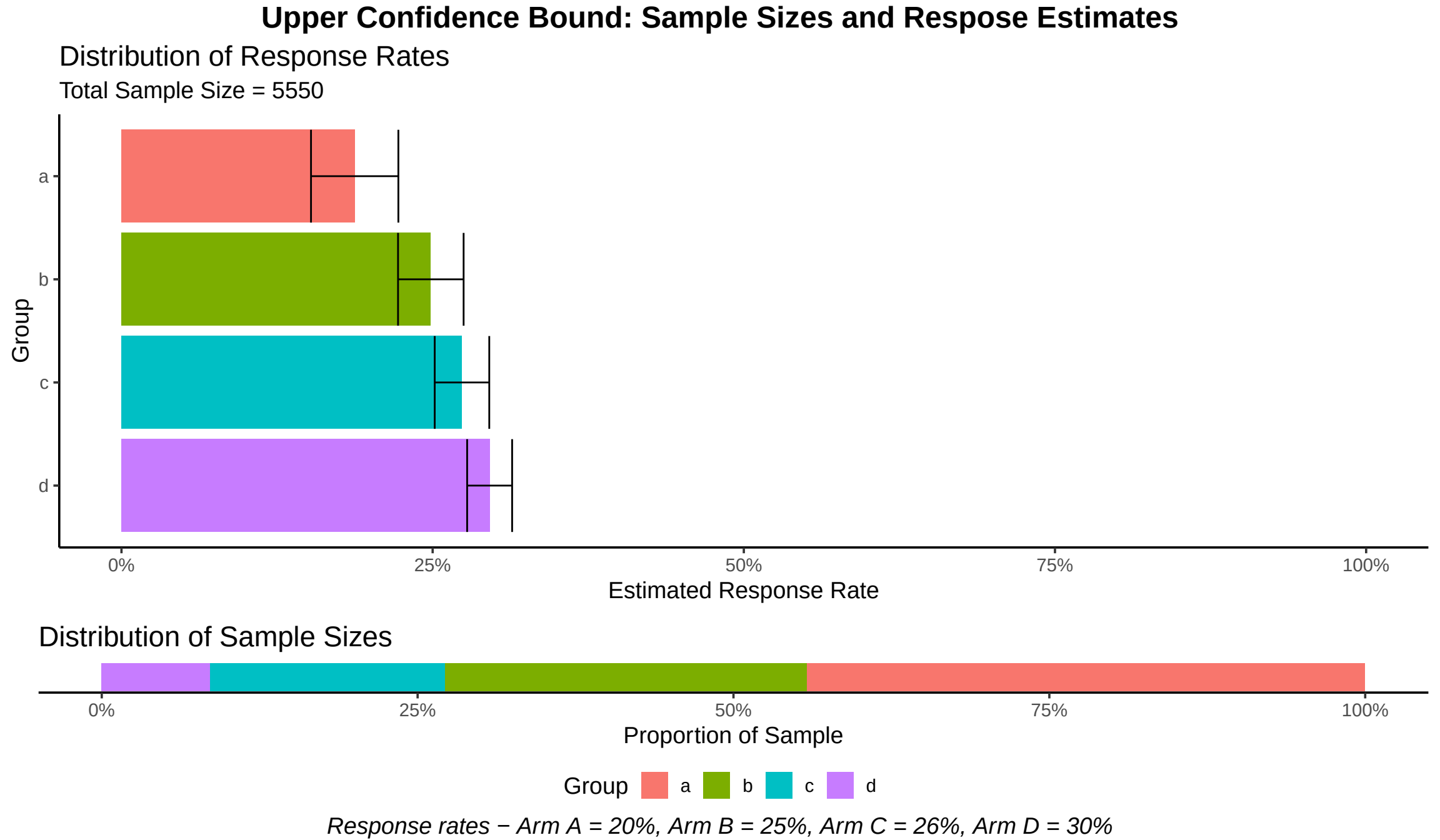

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

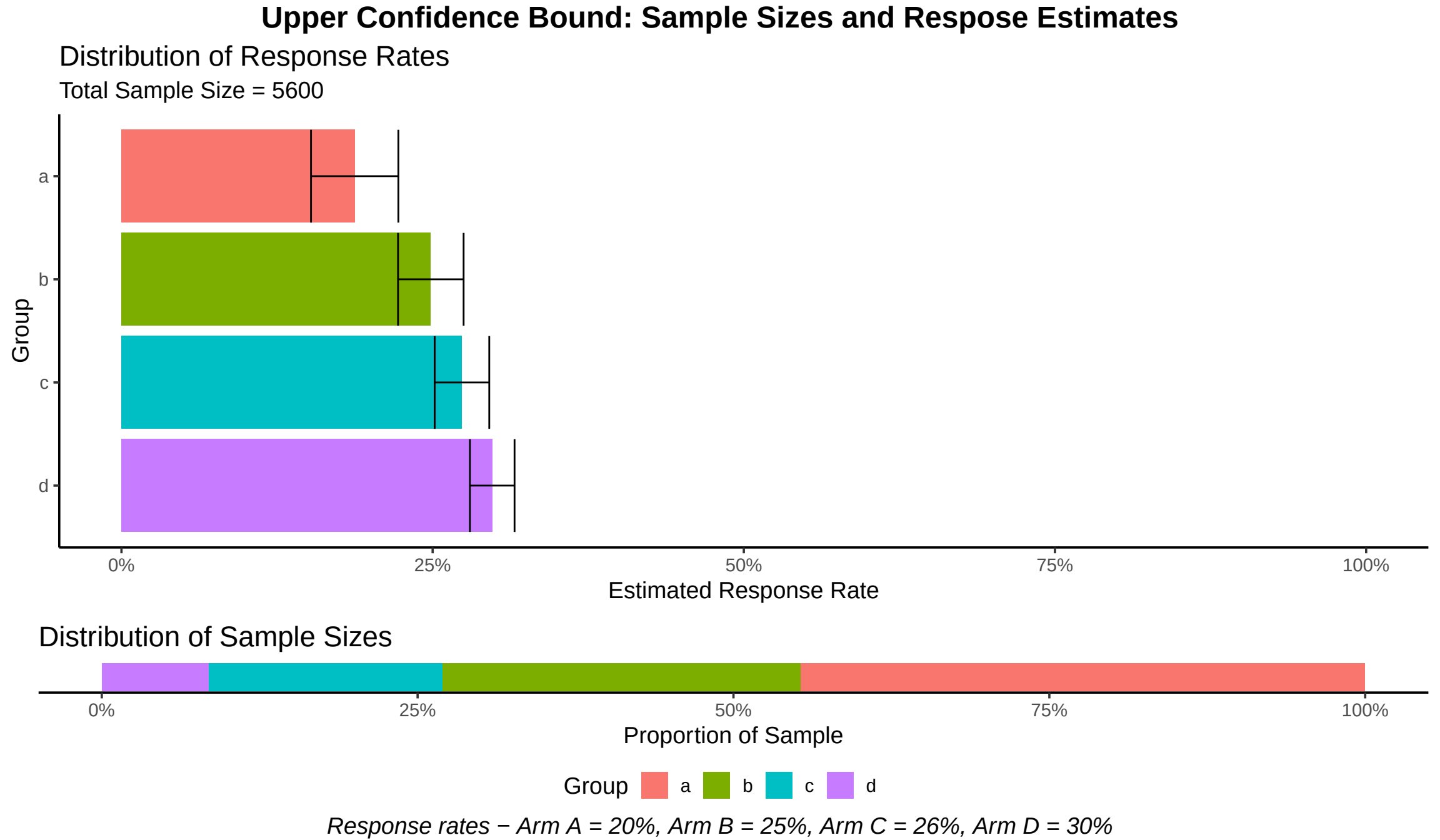

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

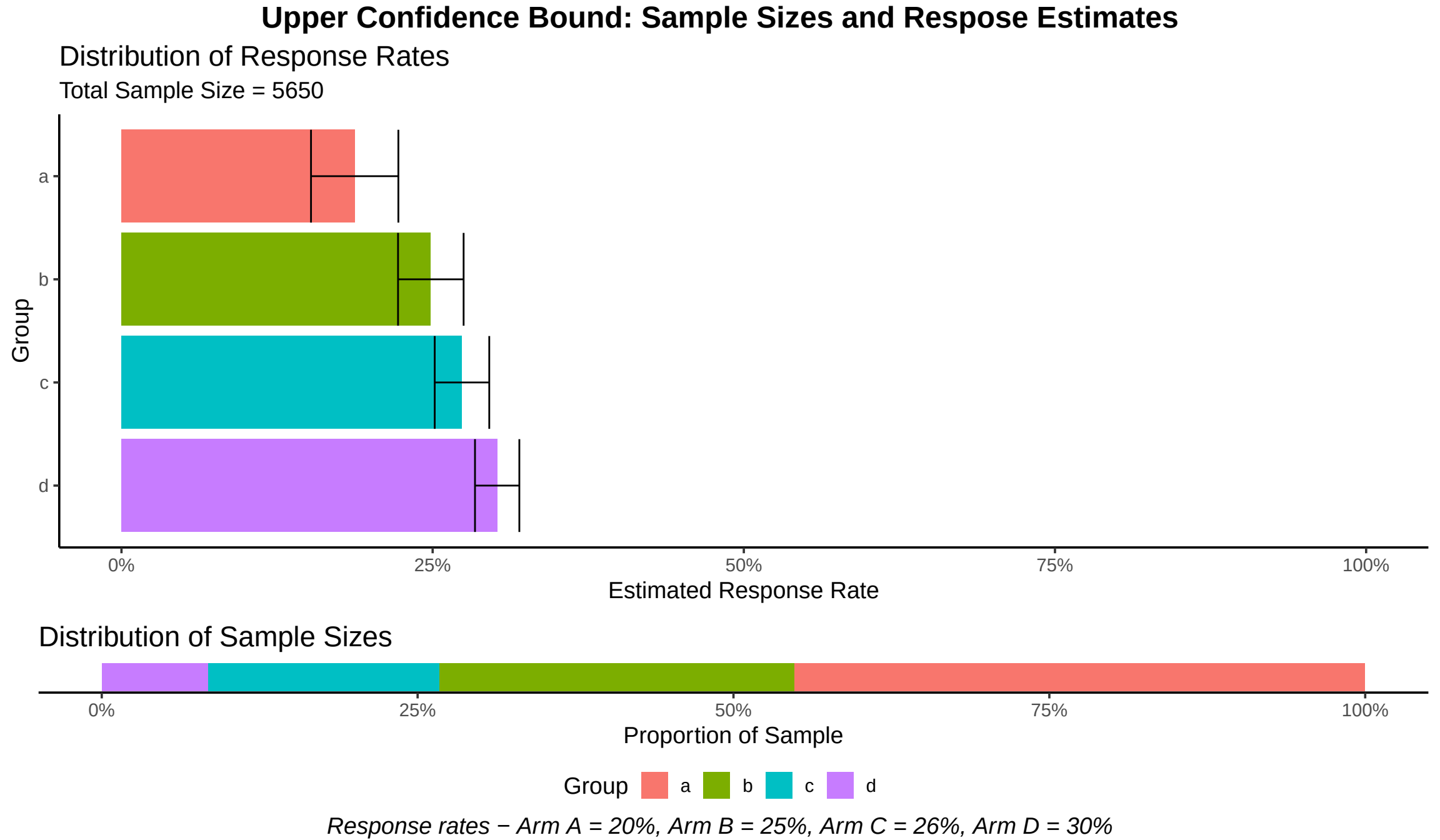

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

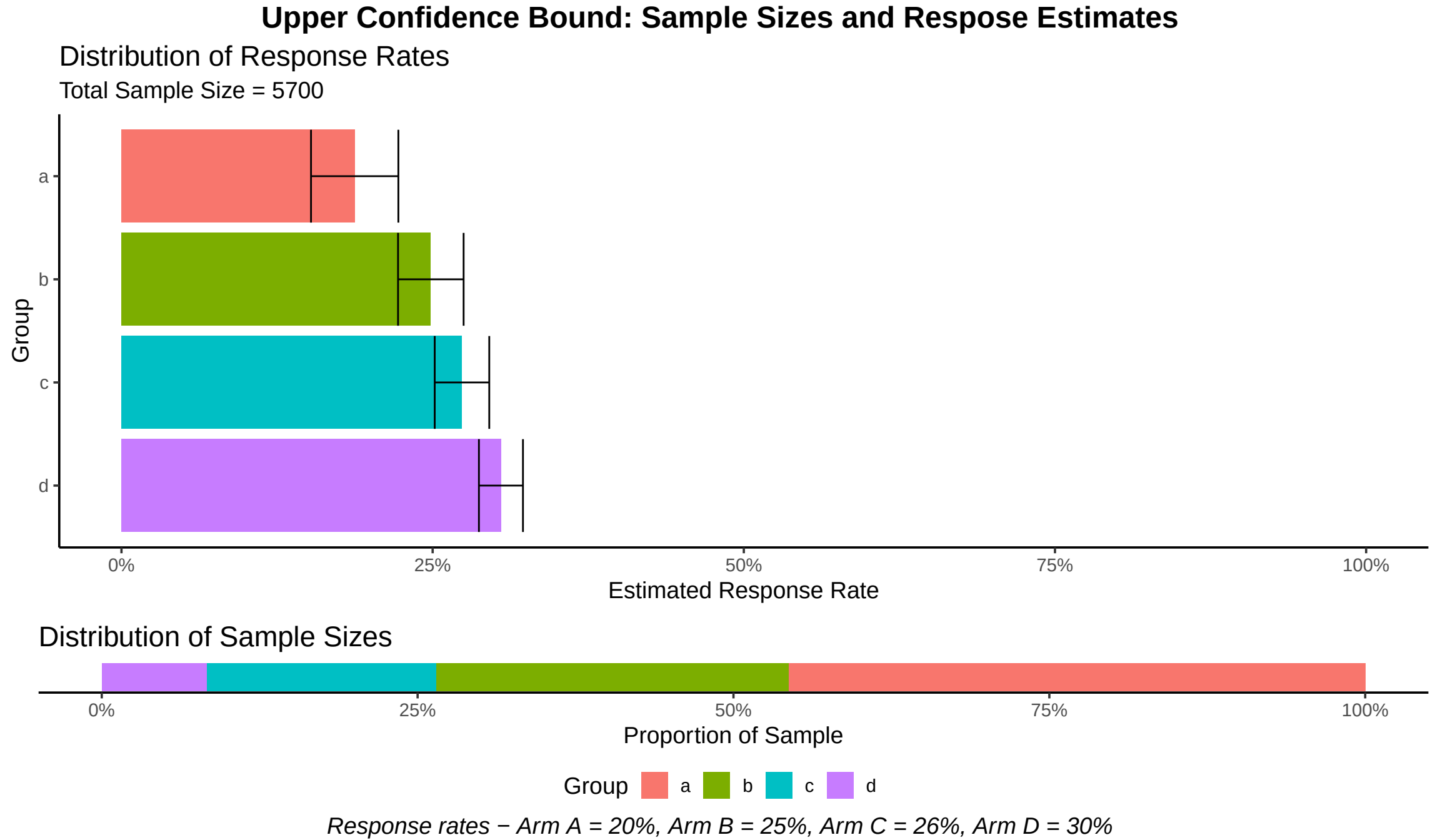

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

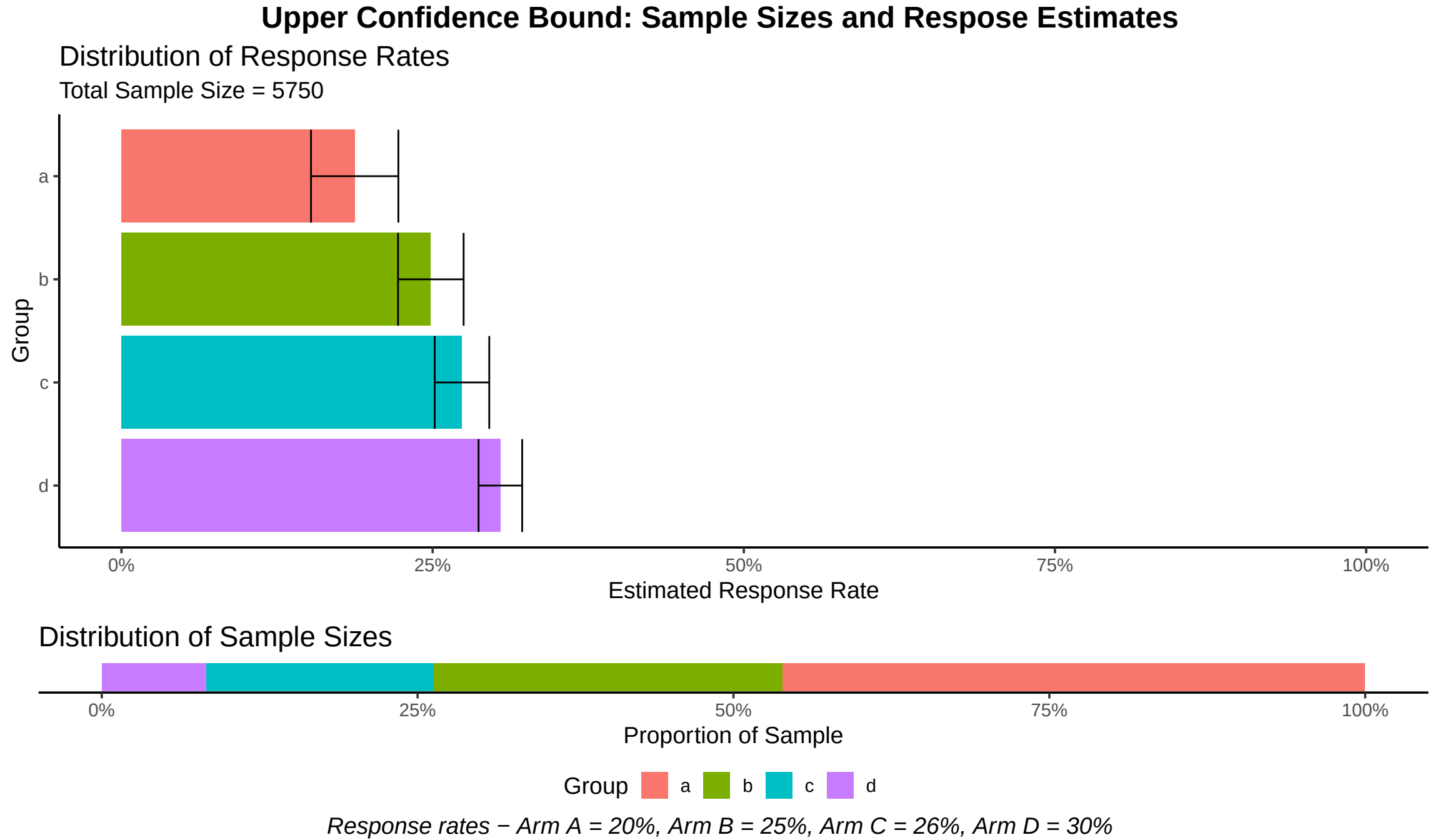

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

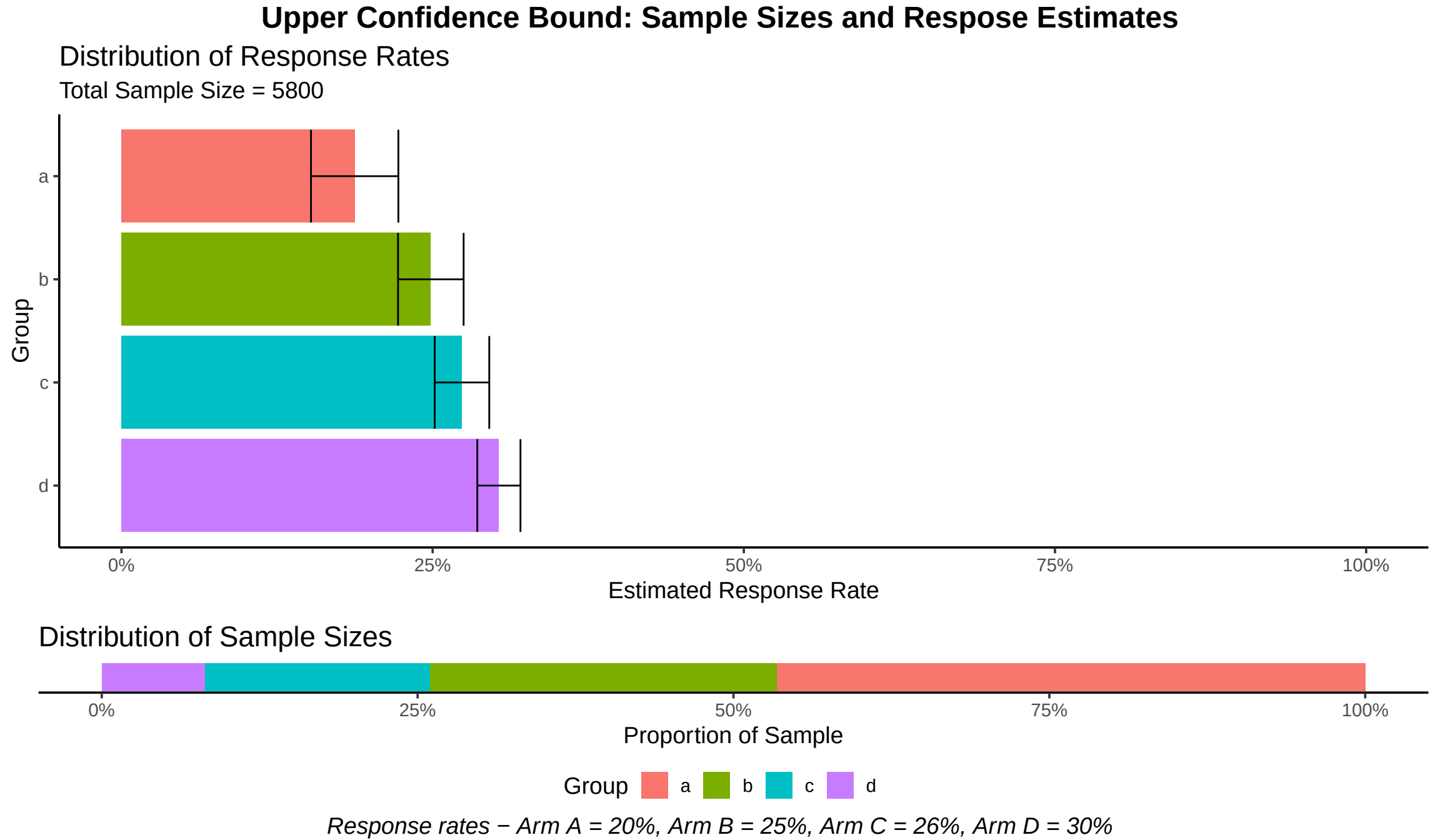

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

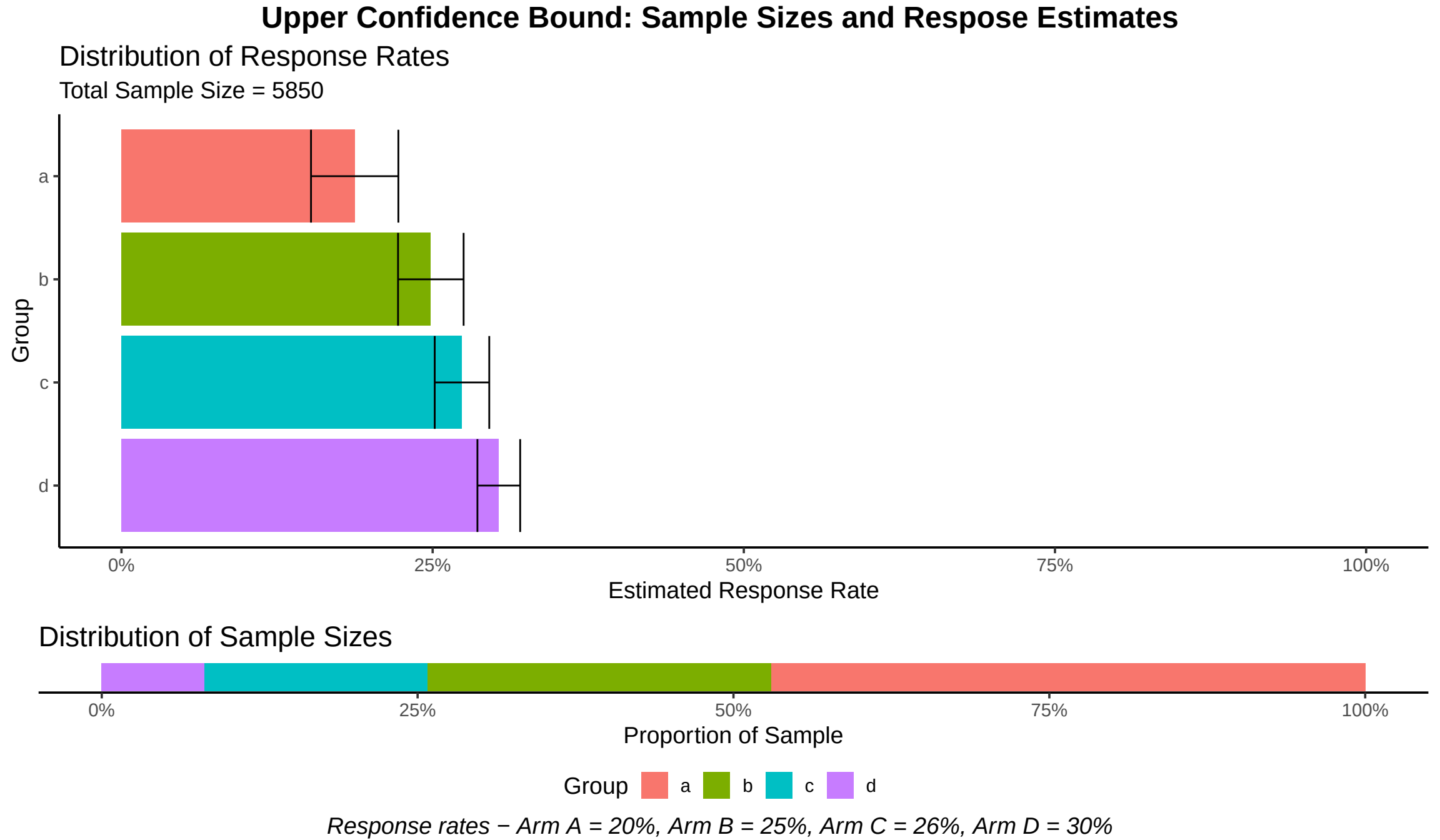

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

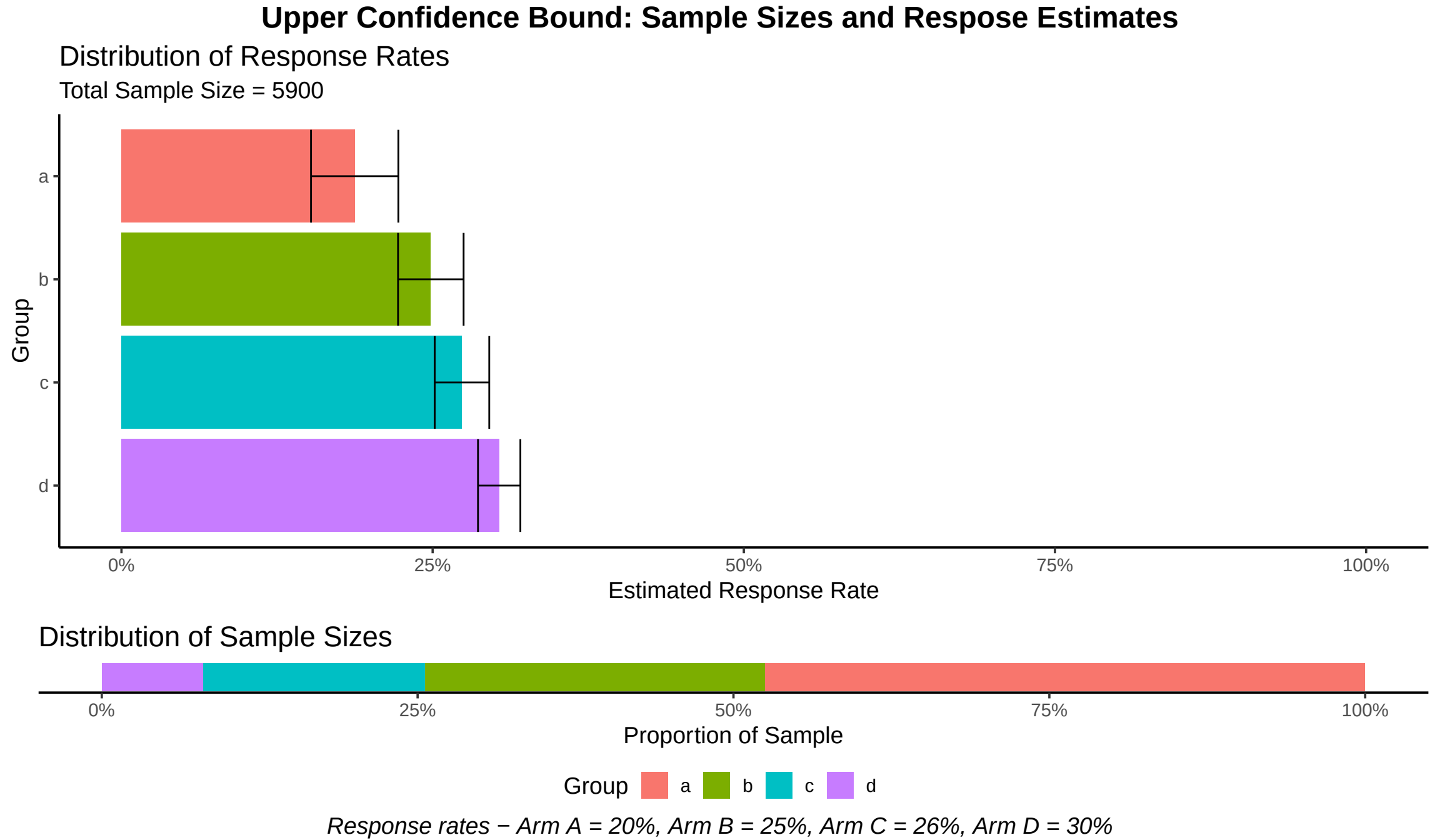

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

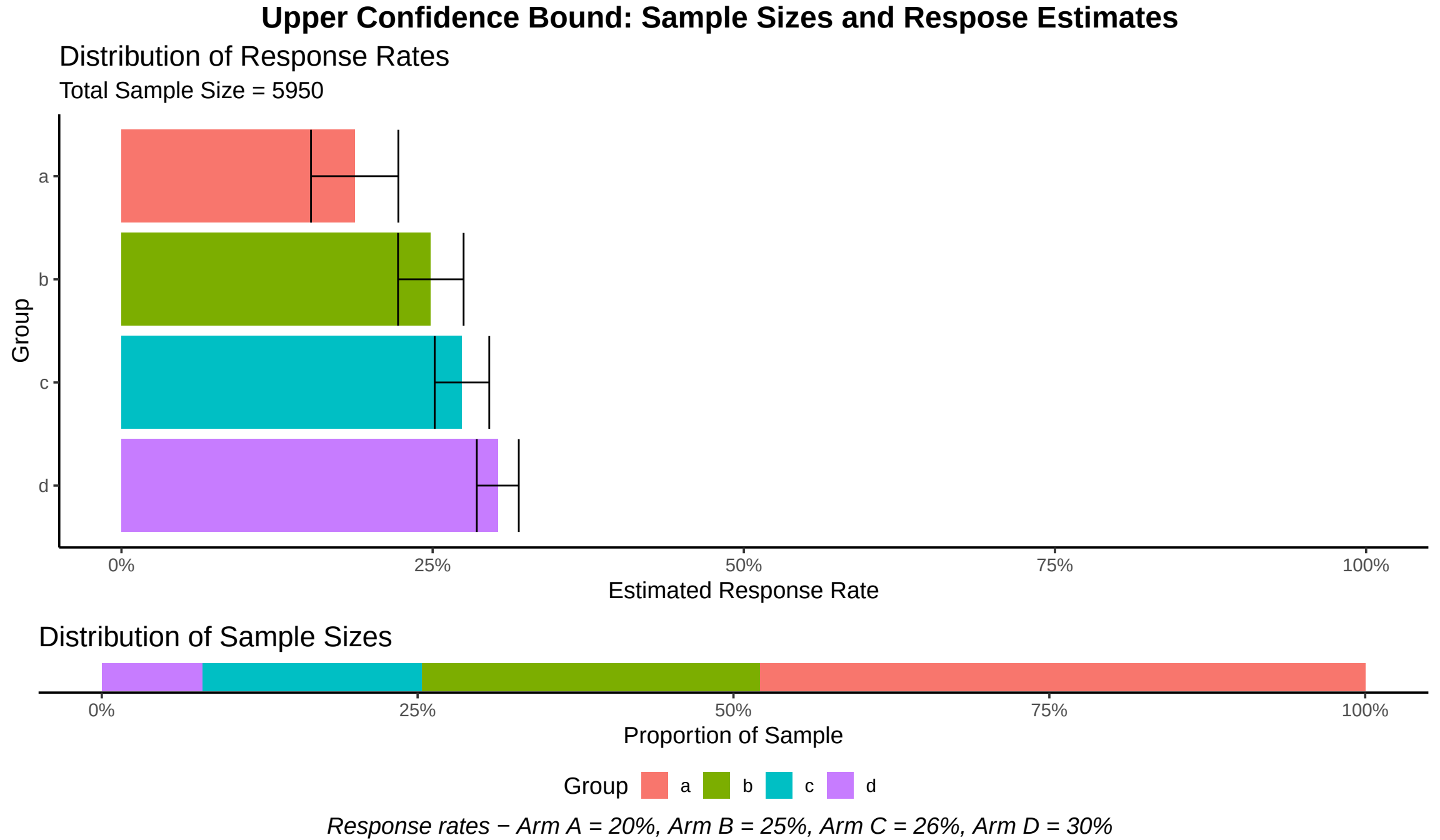

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

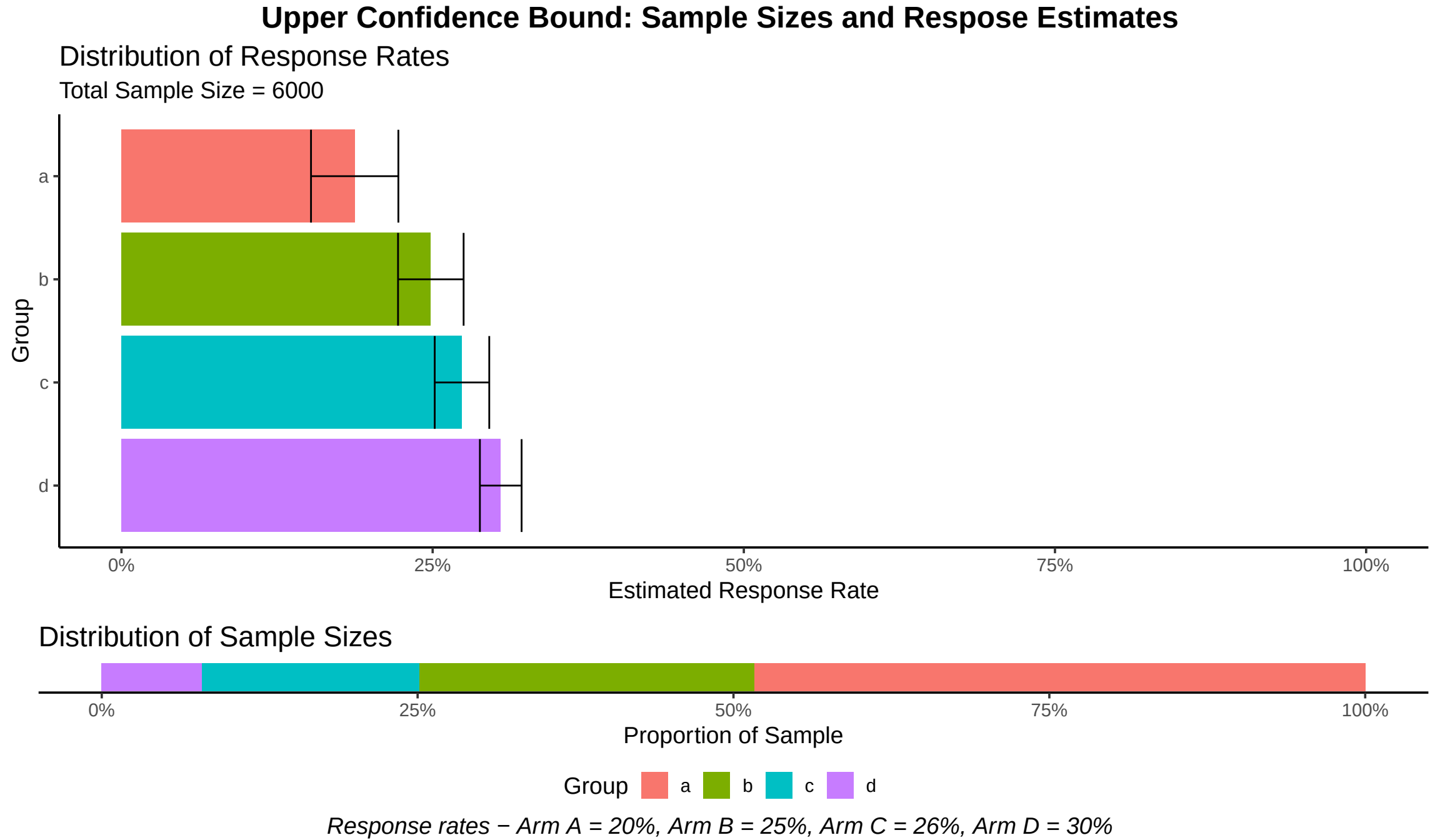

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

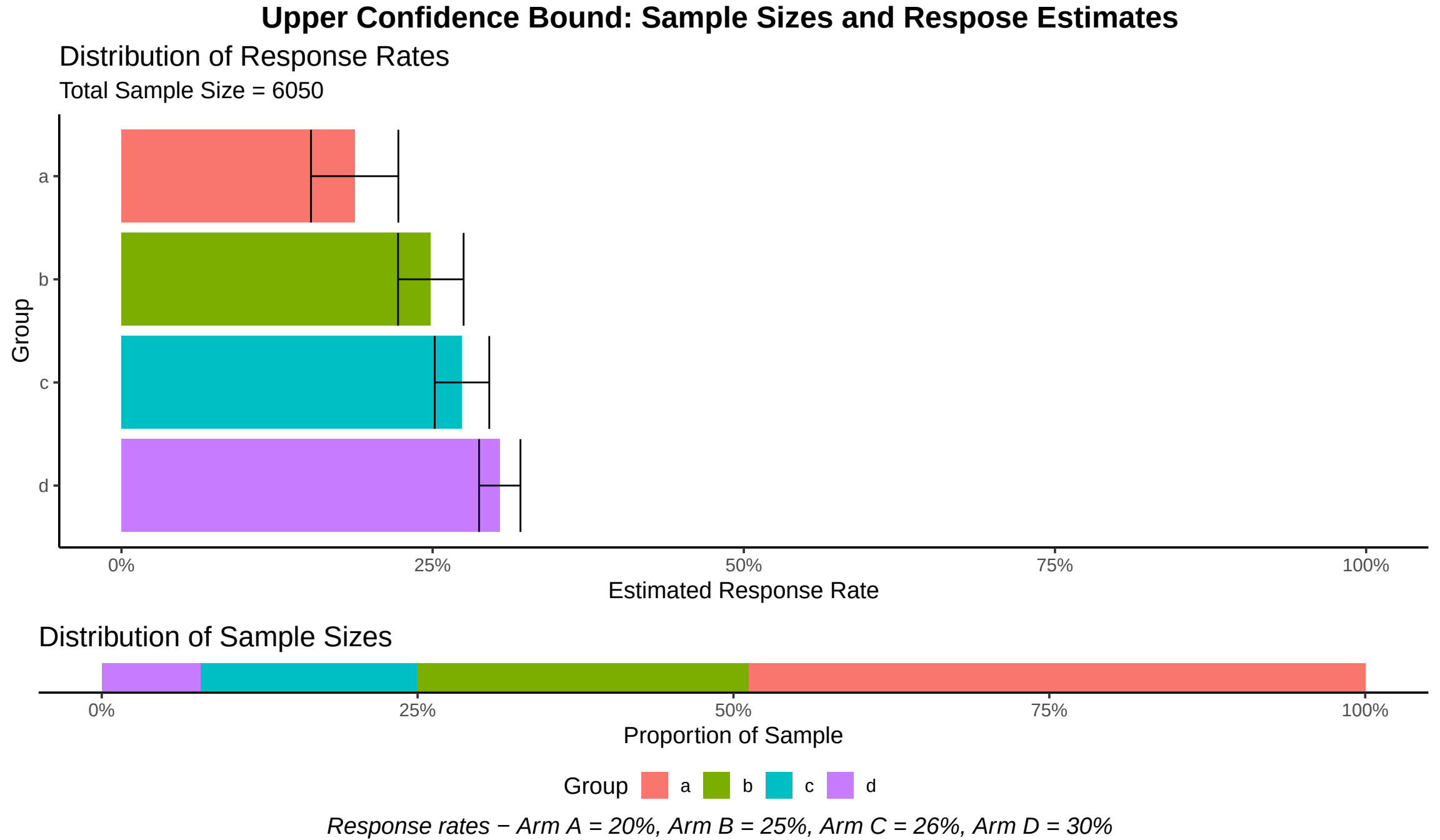

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

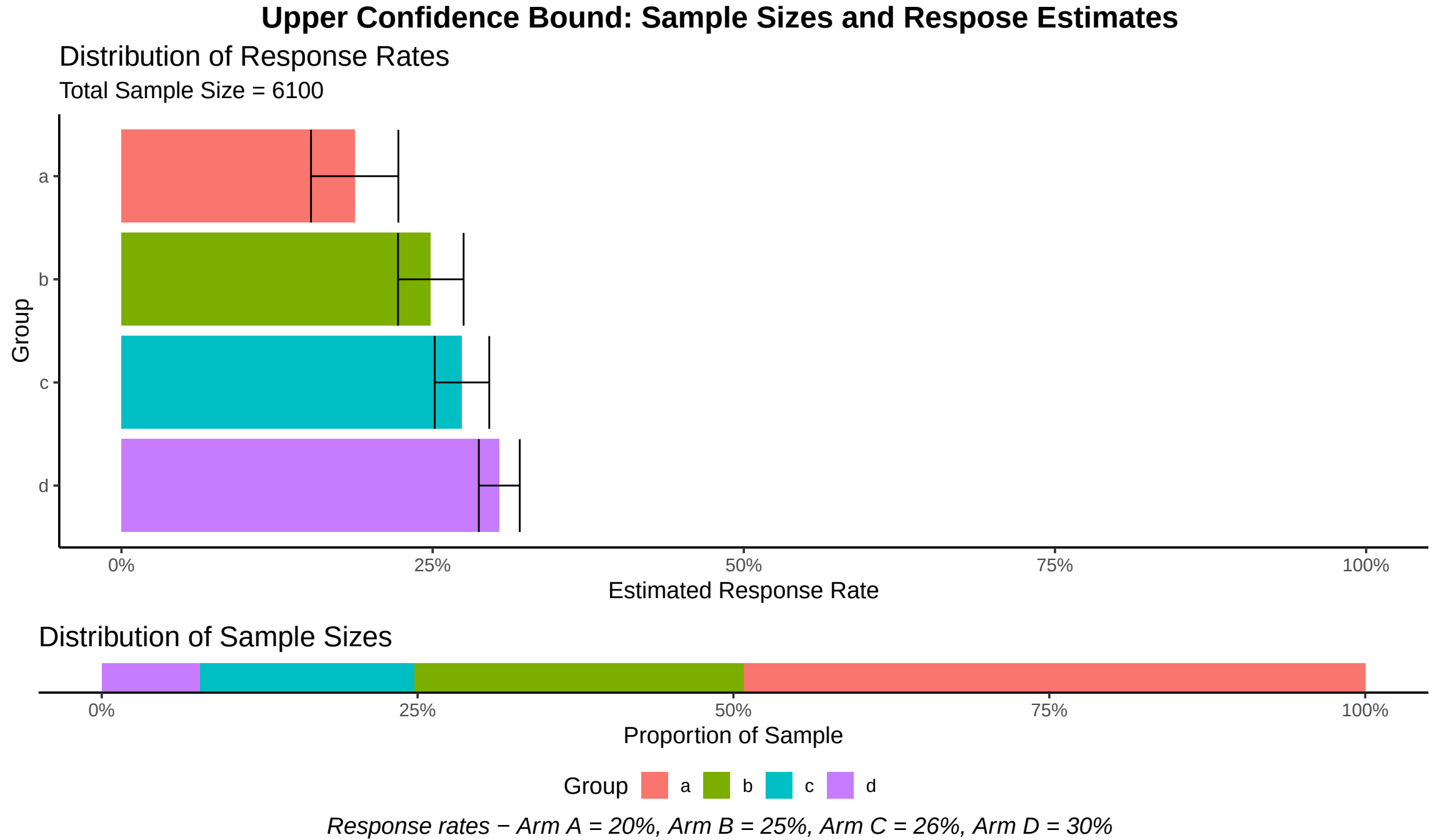

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

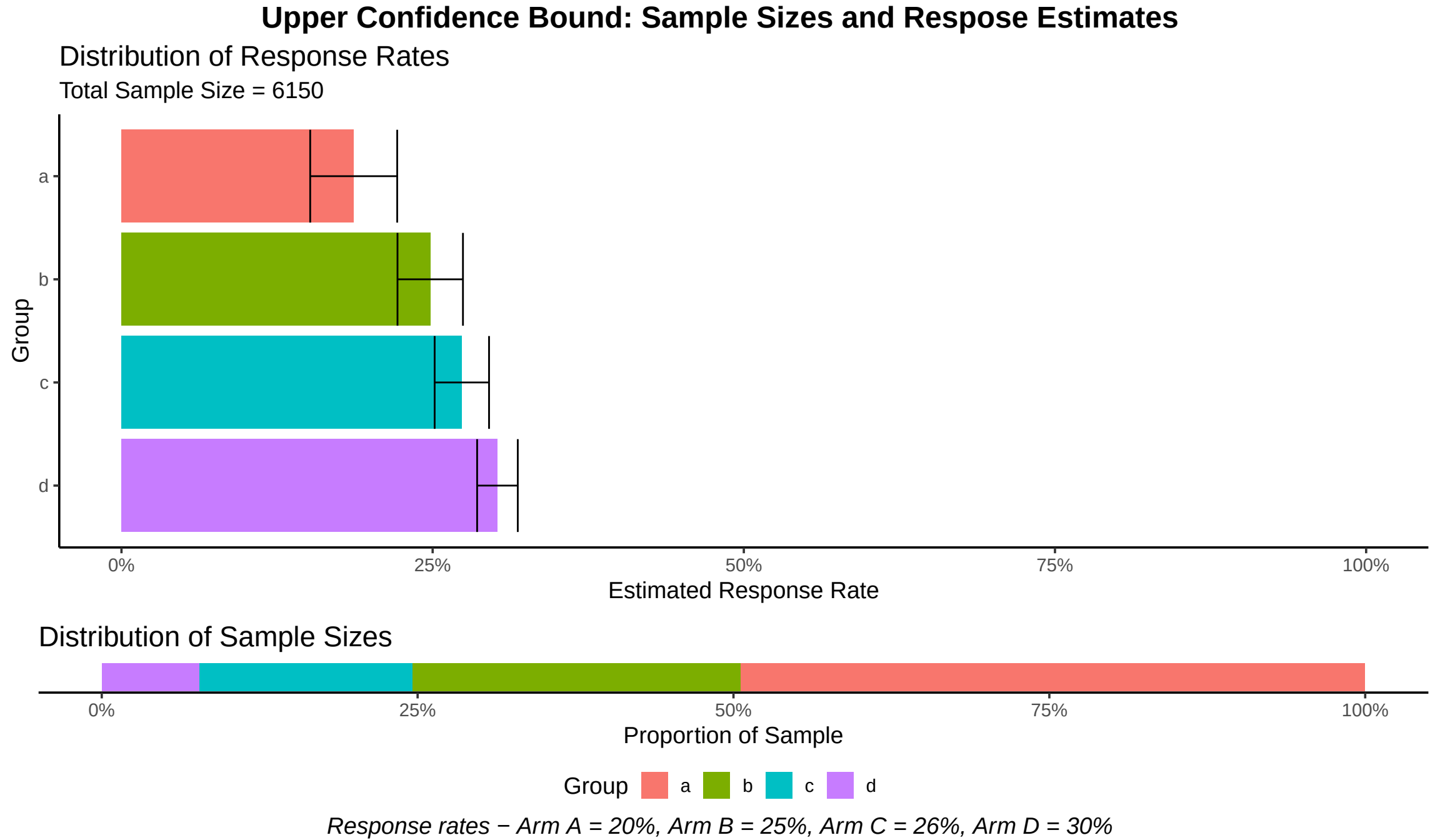

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

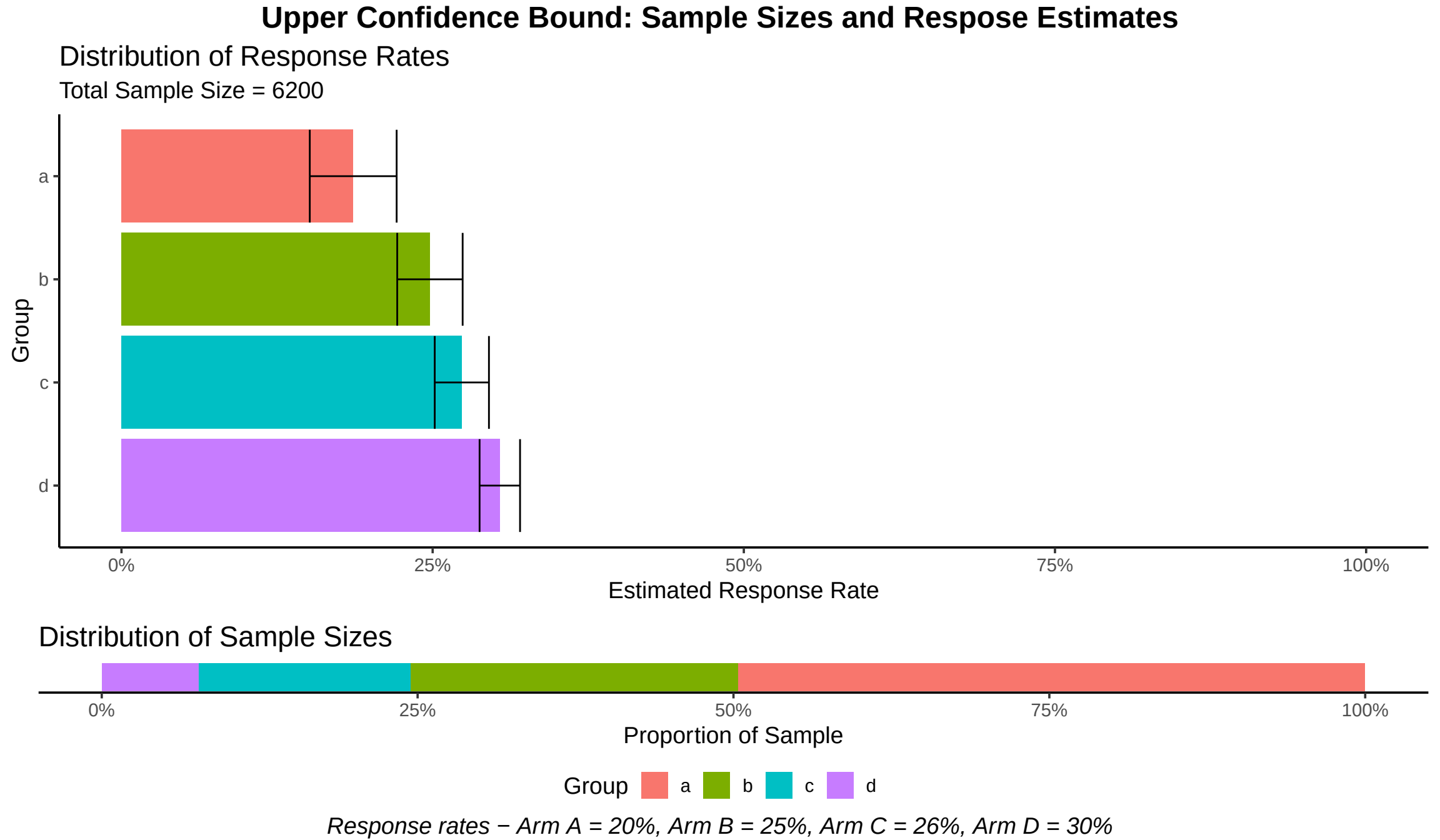

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 5950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

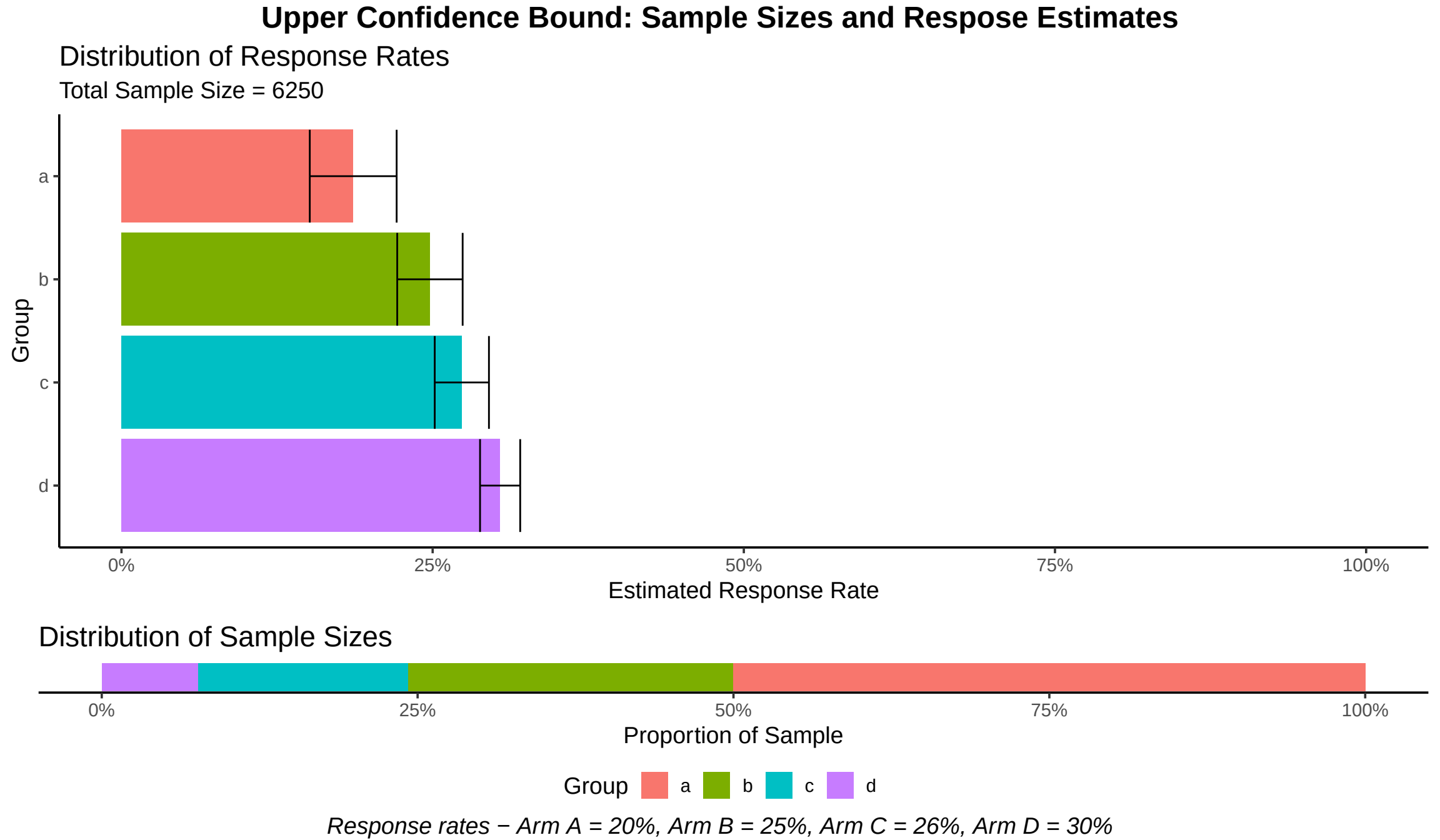

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

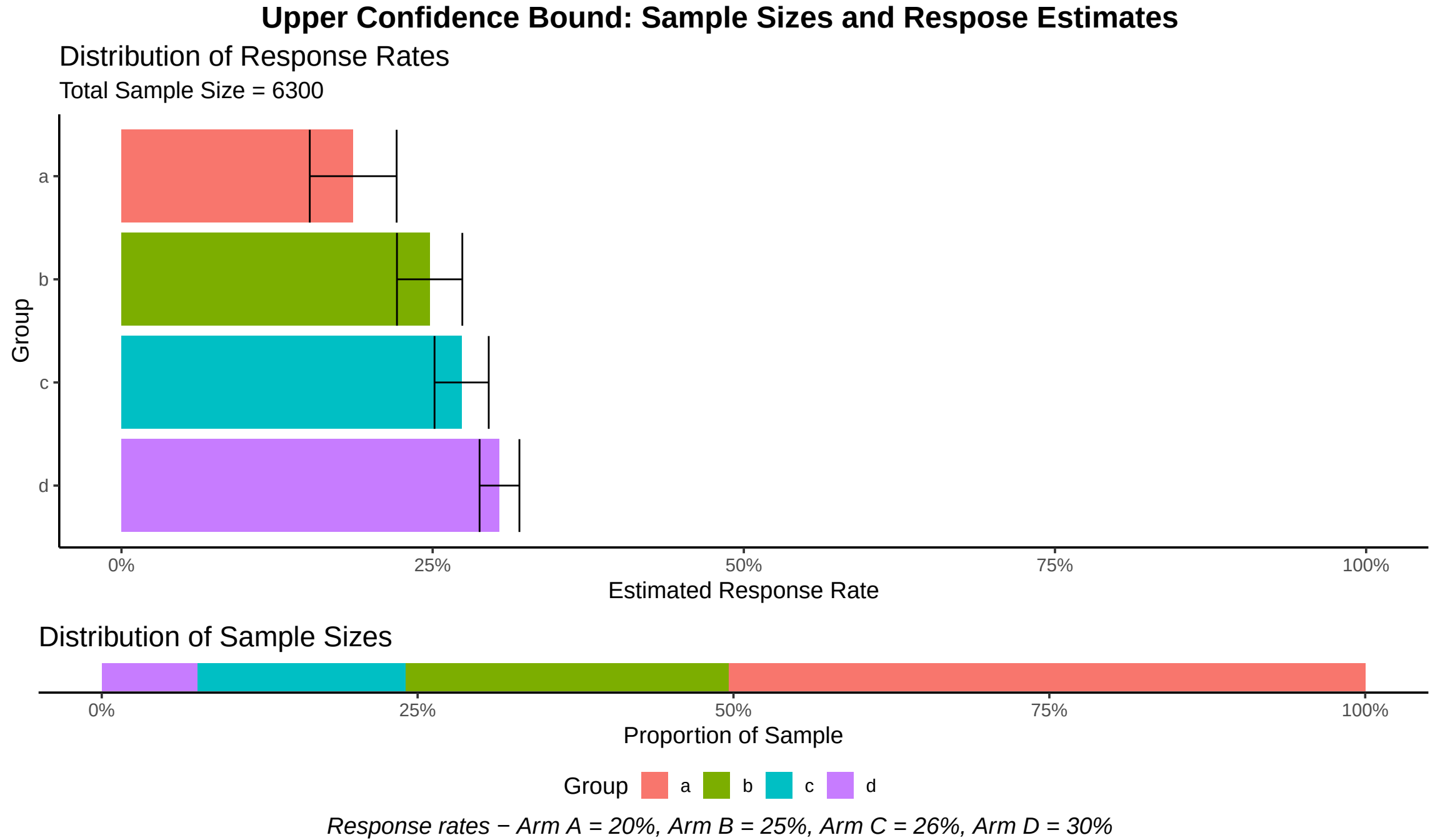

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

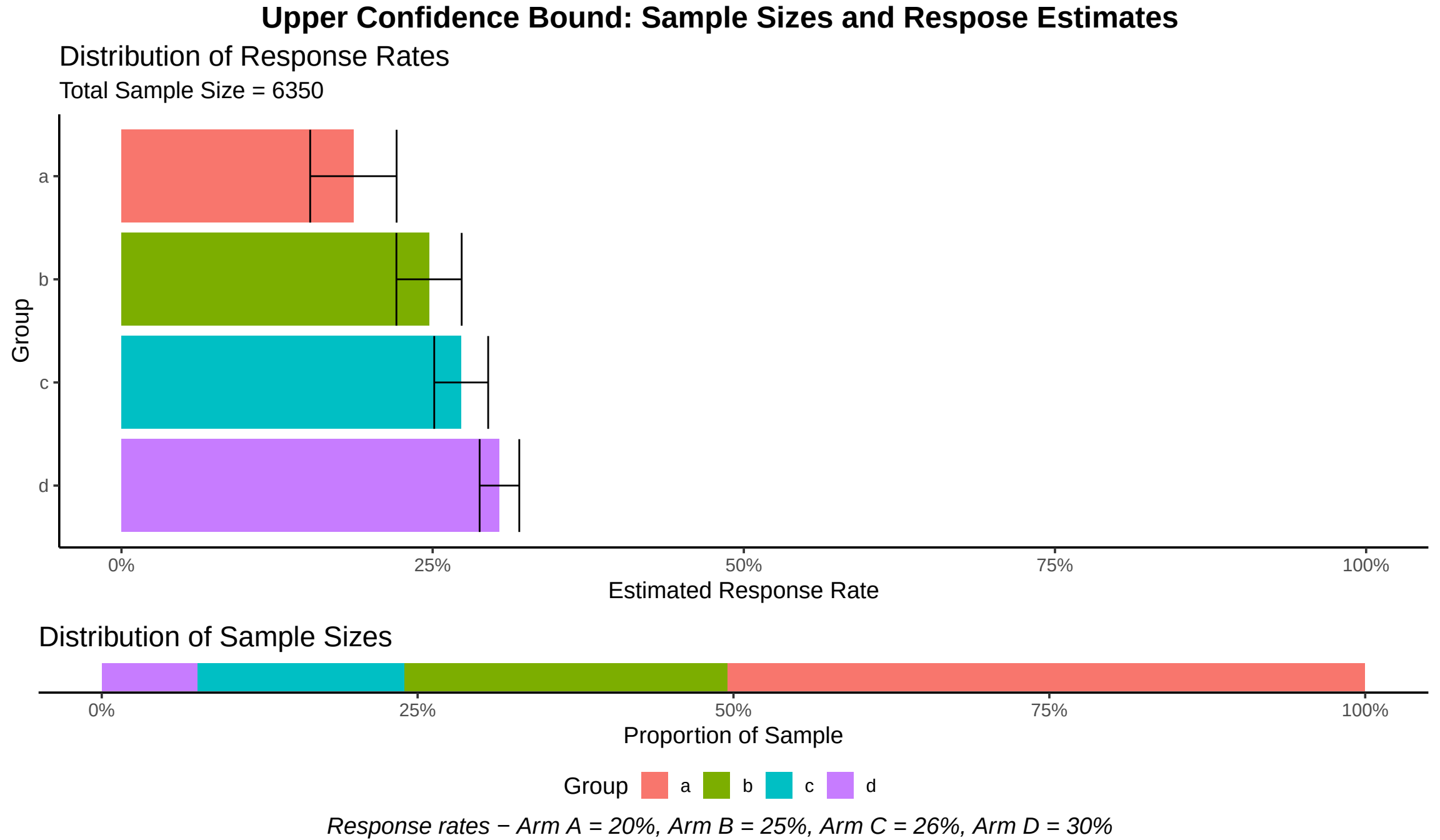

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

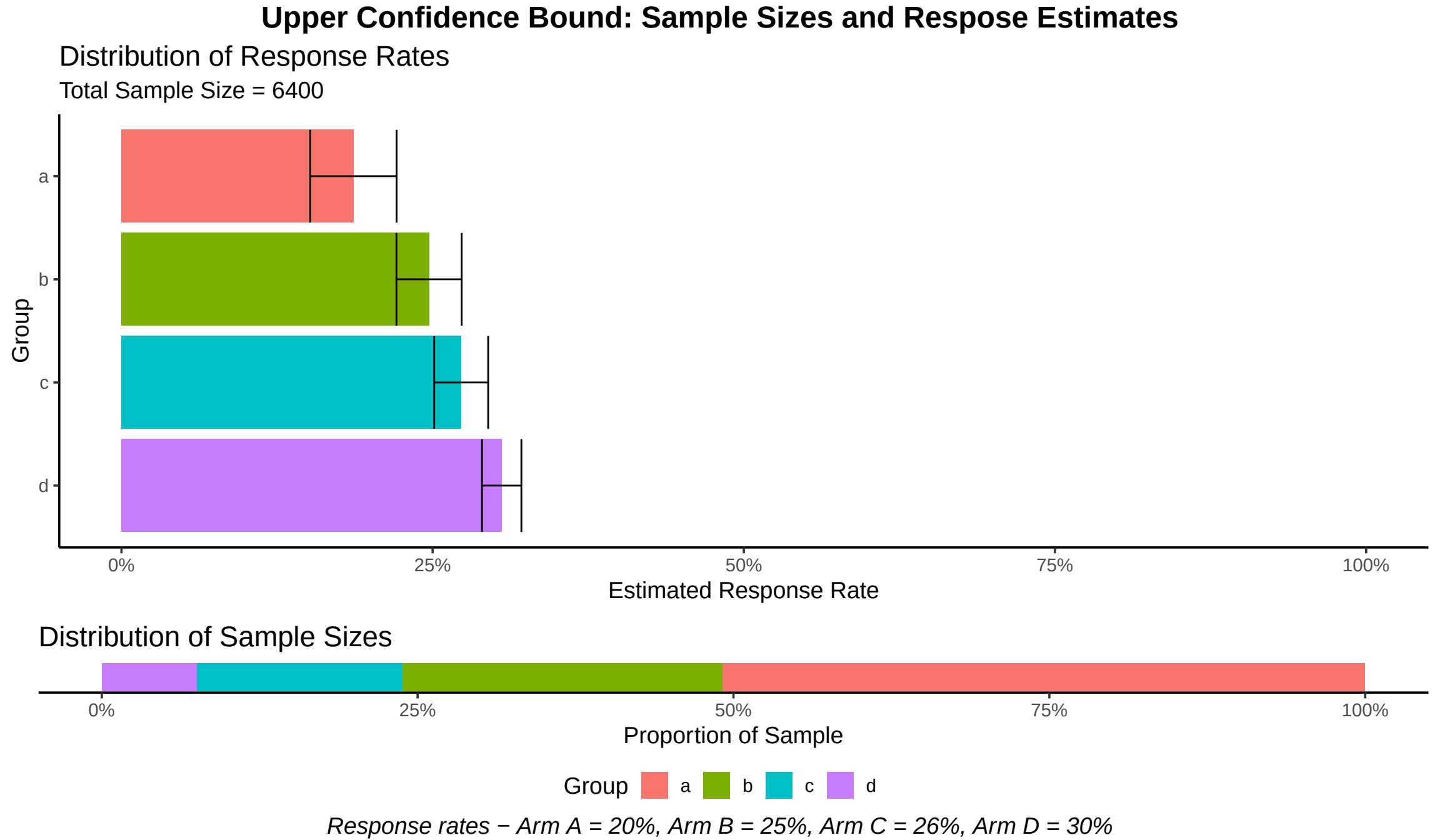

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

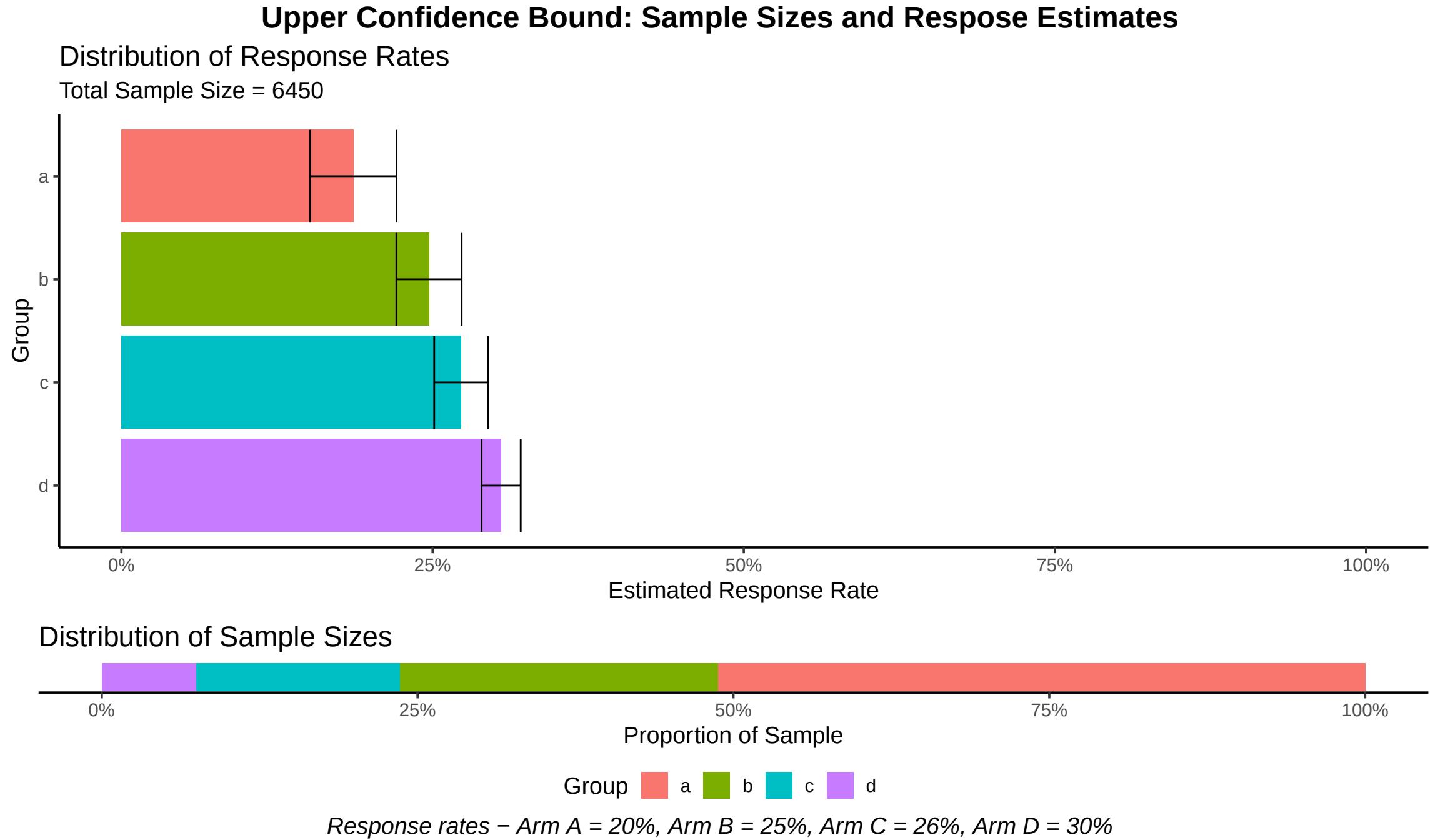

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

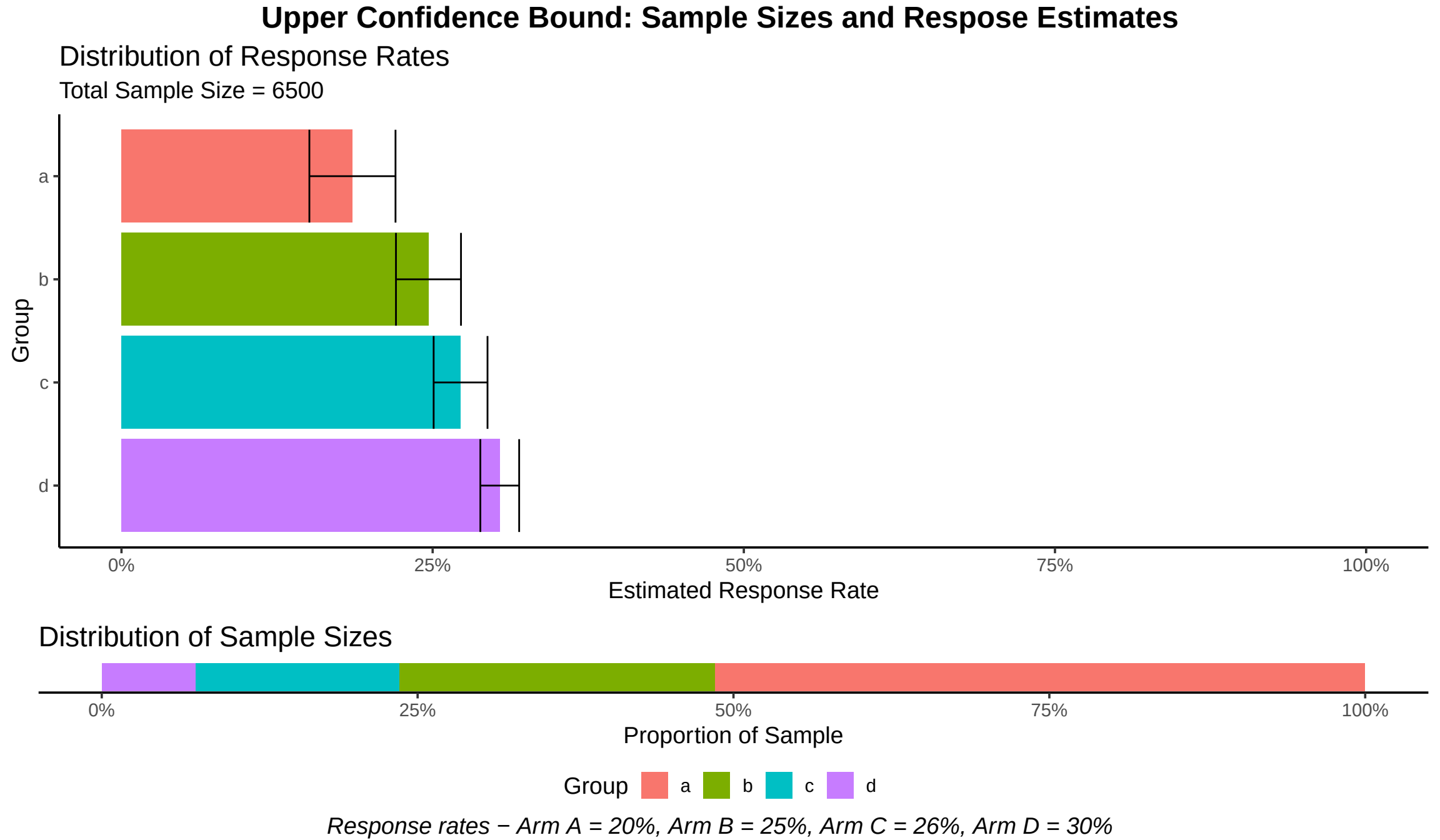

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

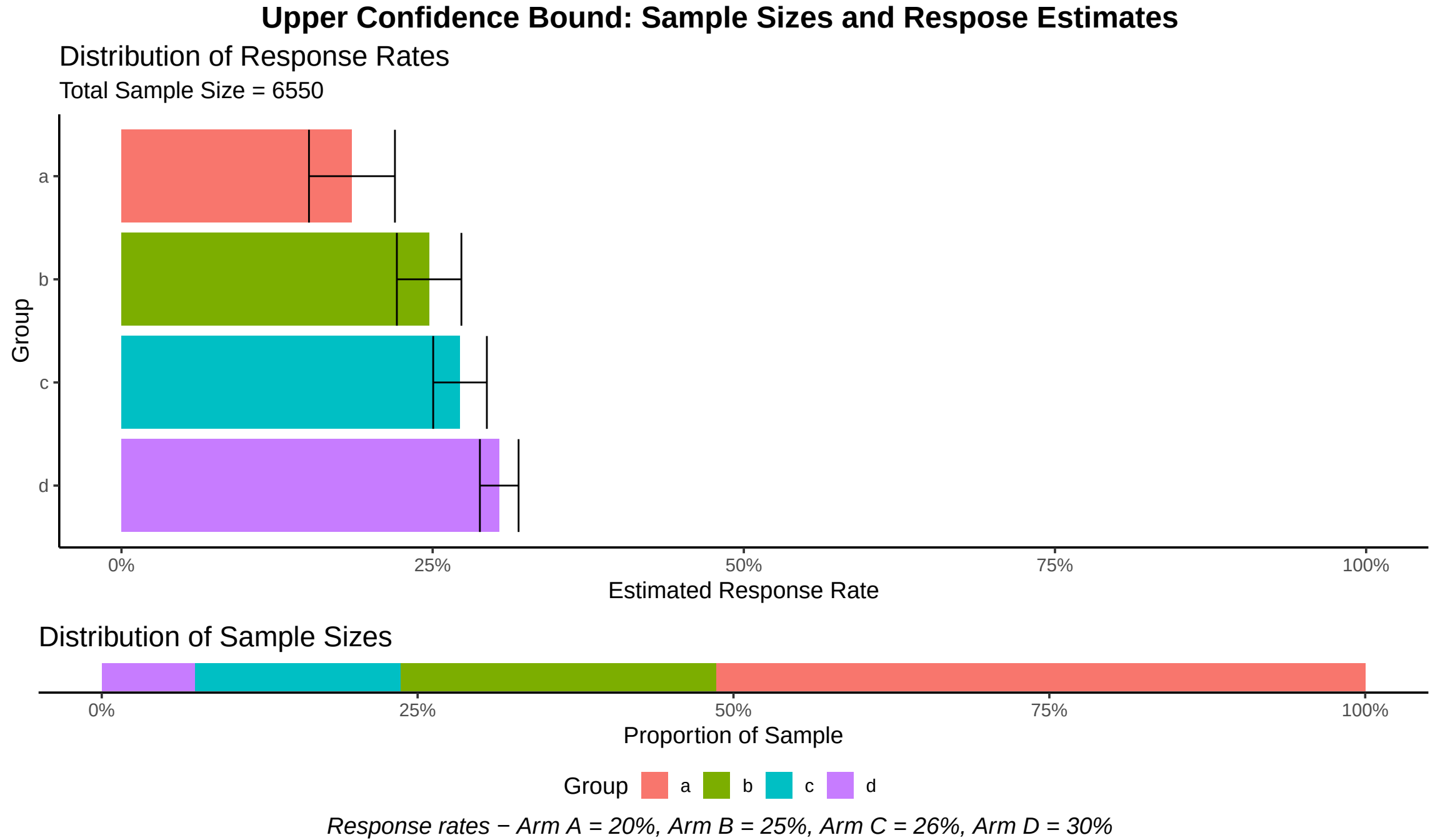

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

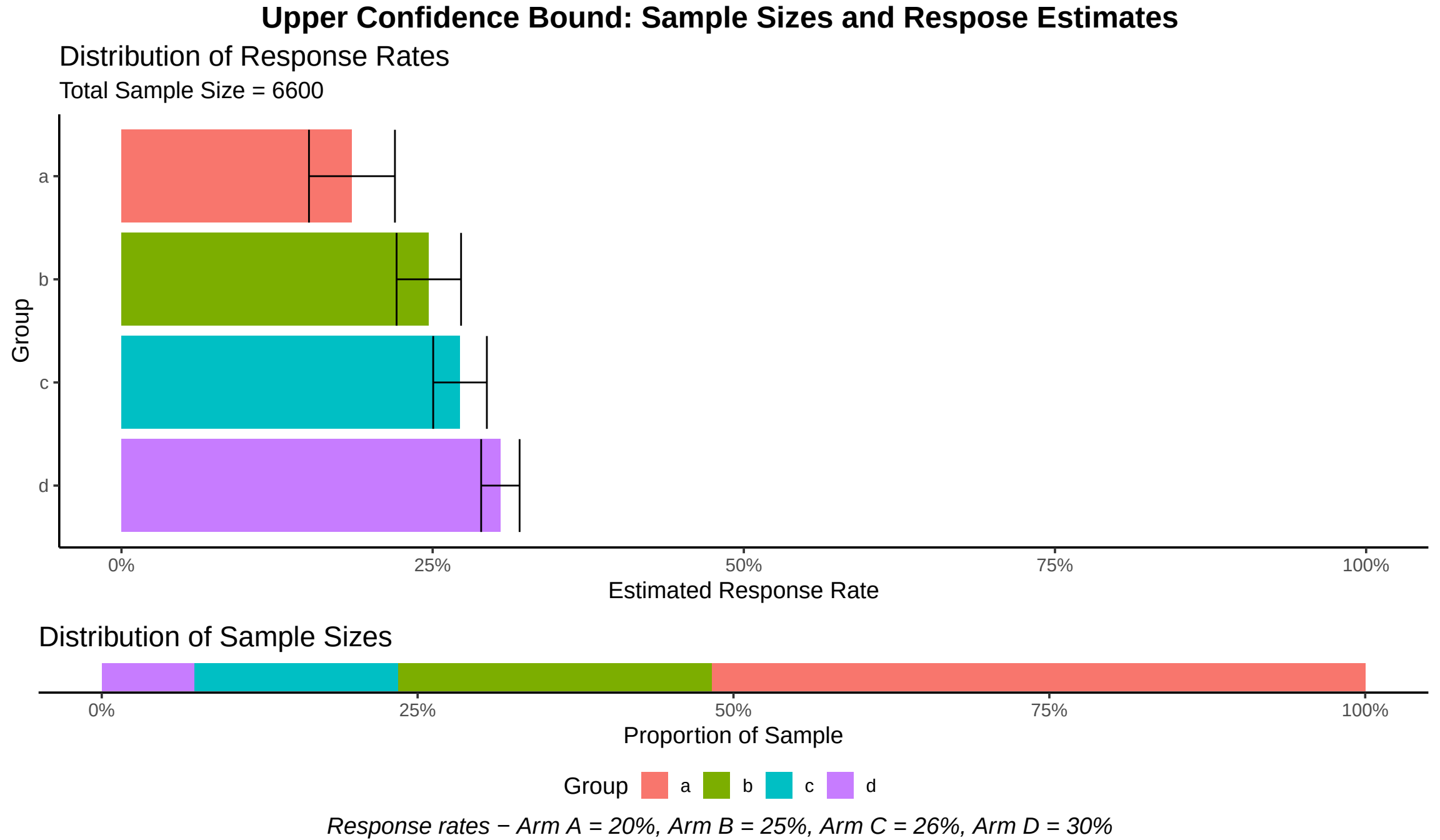

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

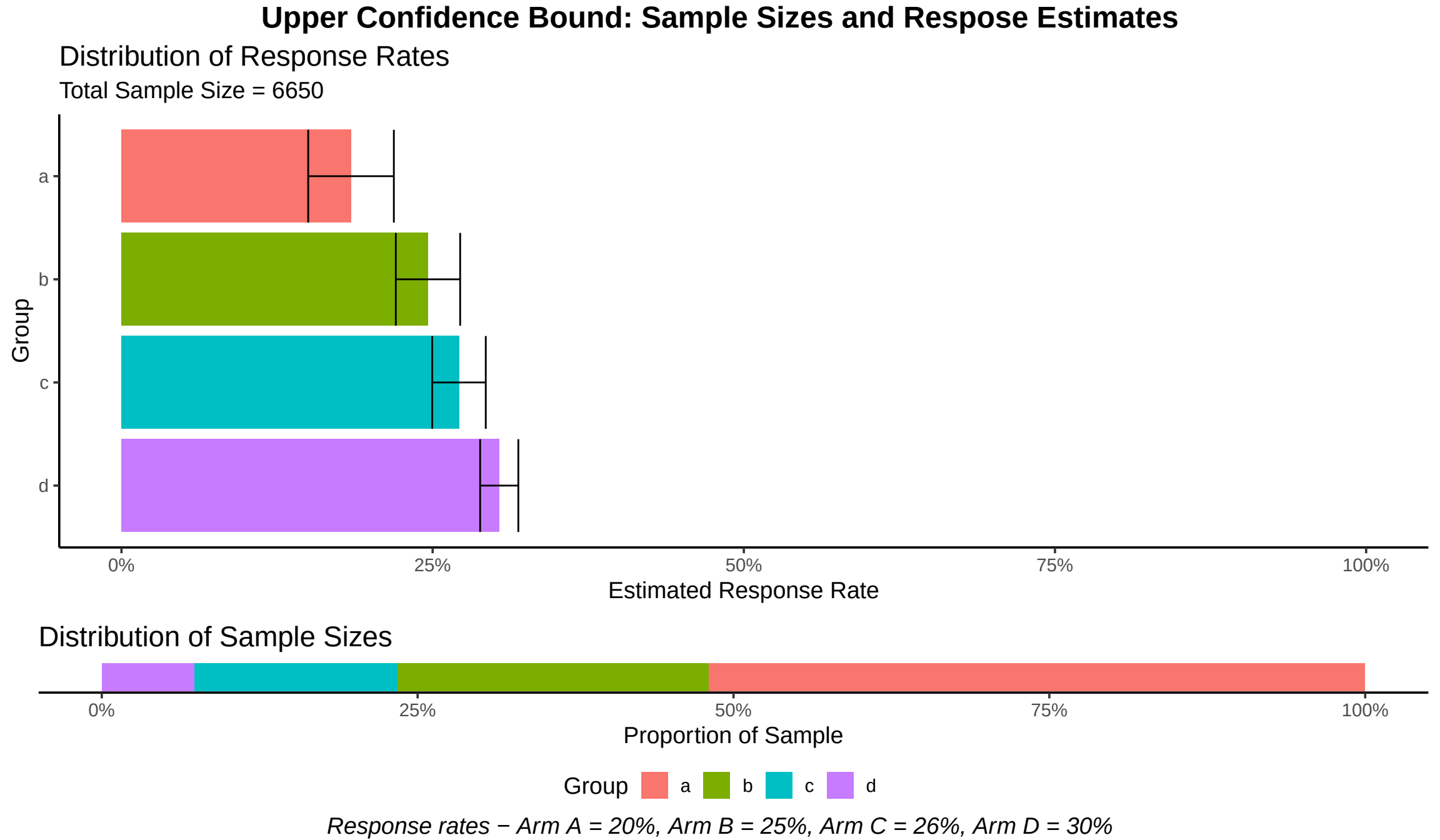

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

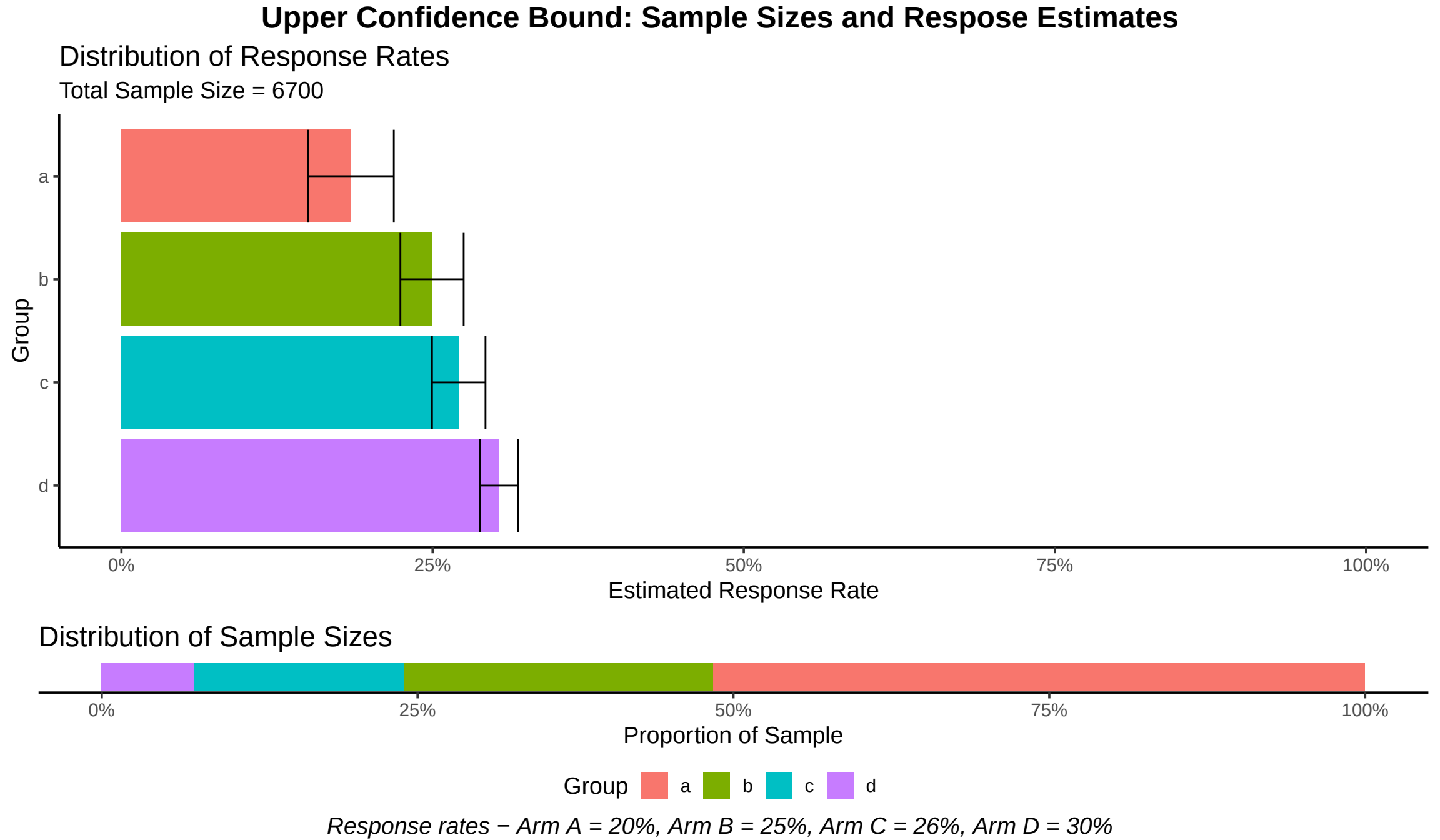

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

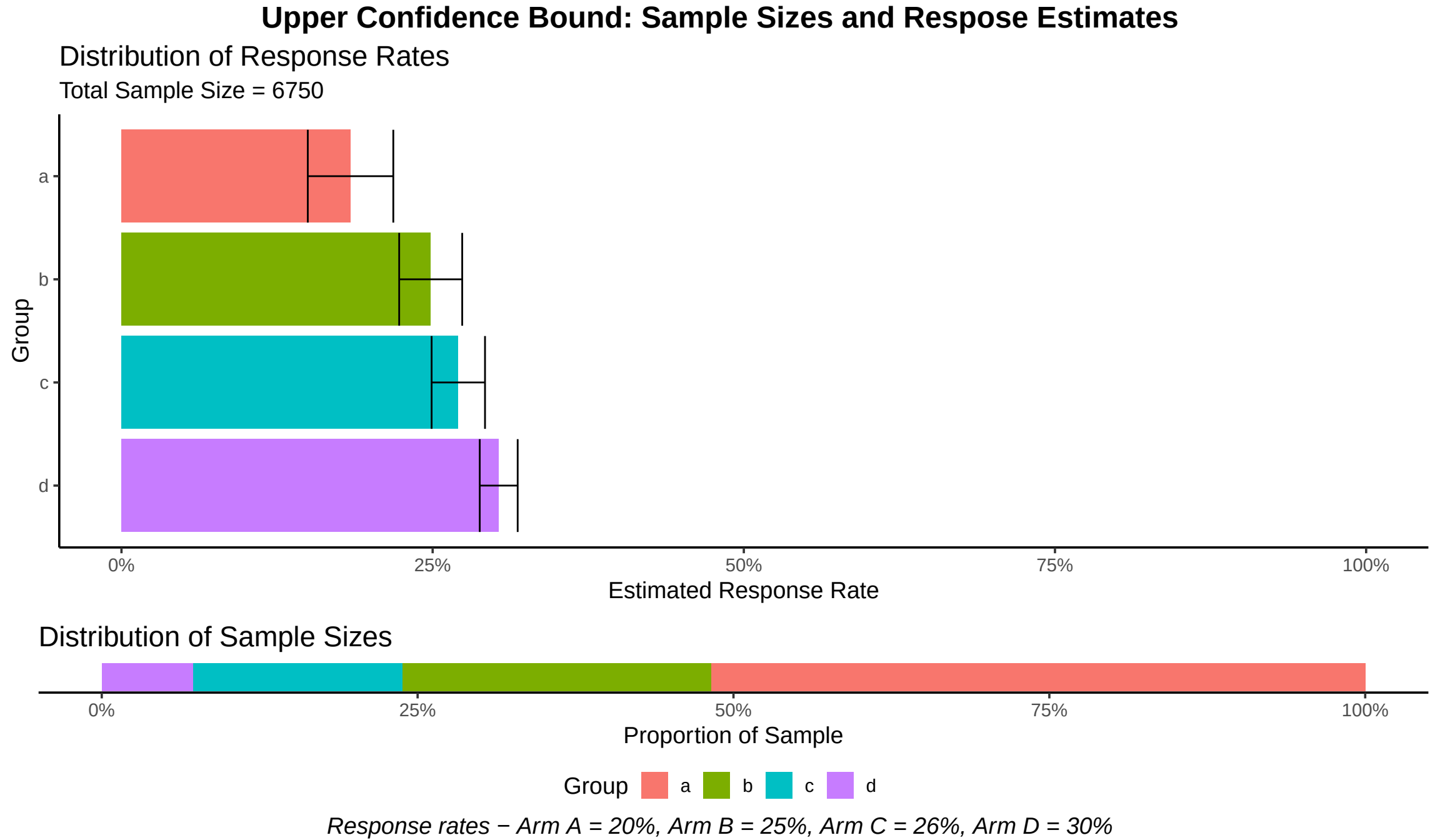

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

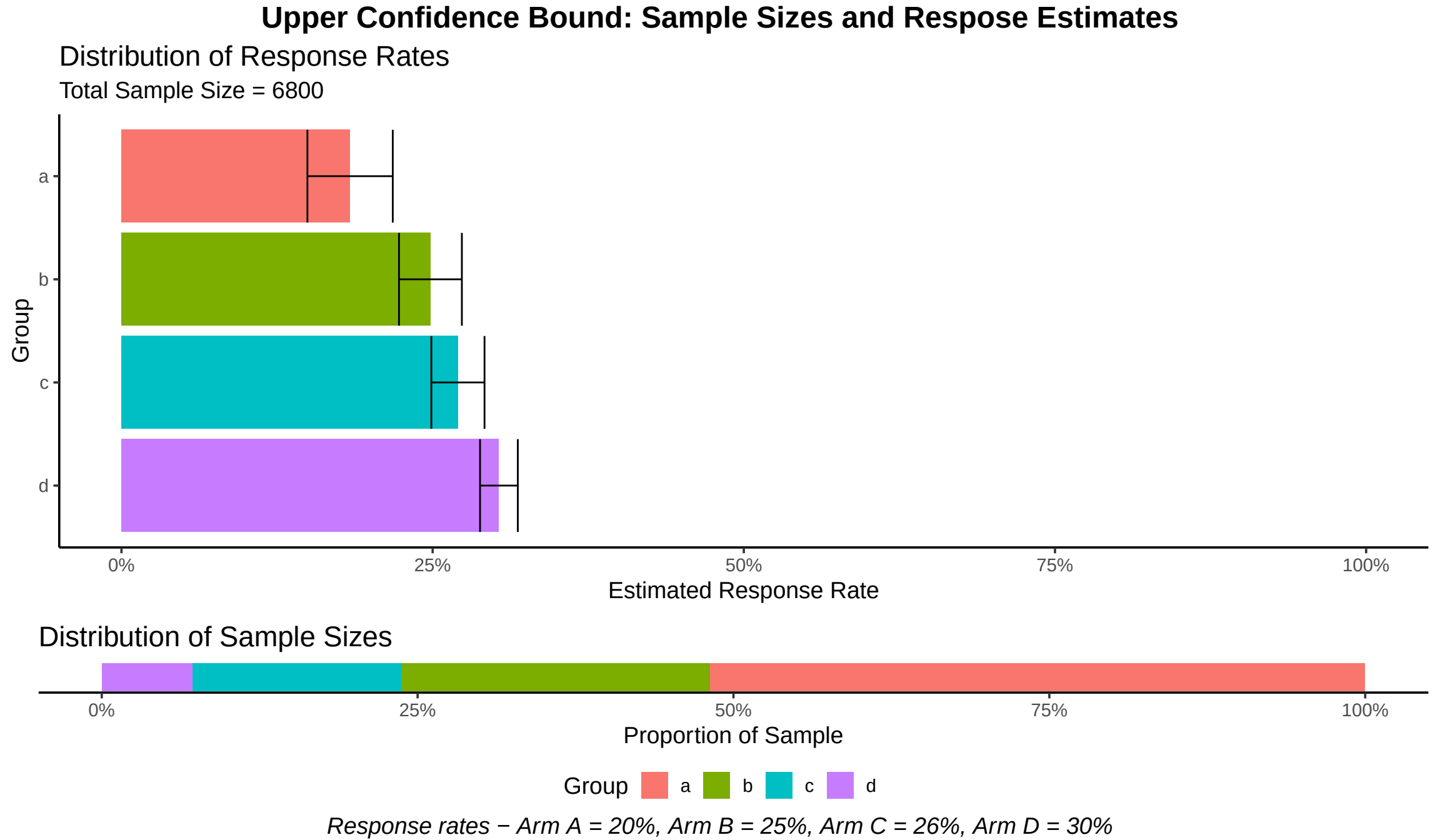

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

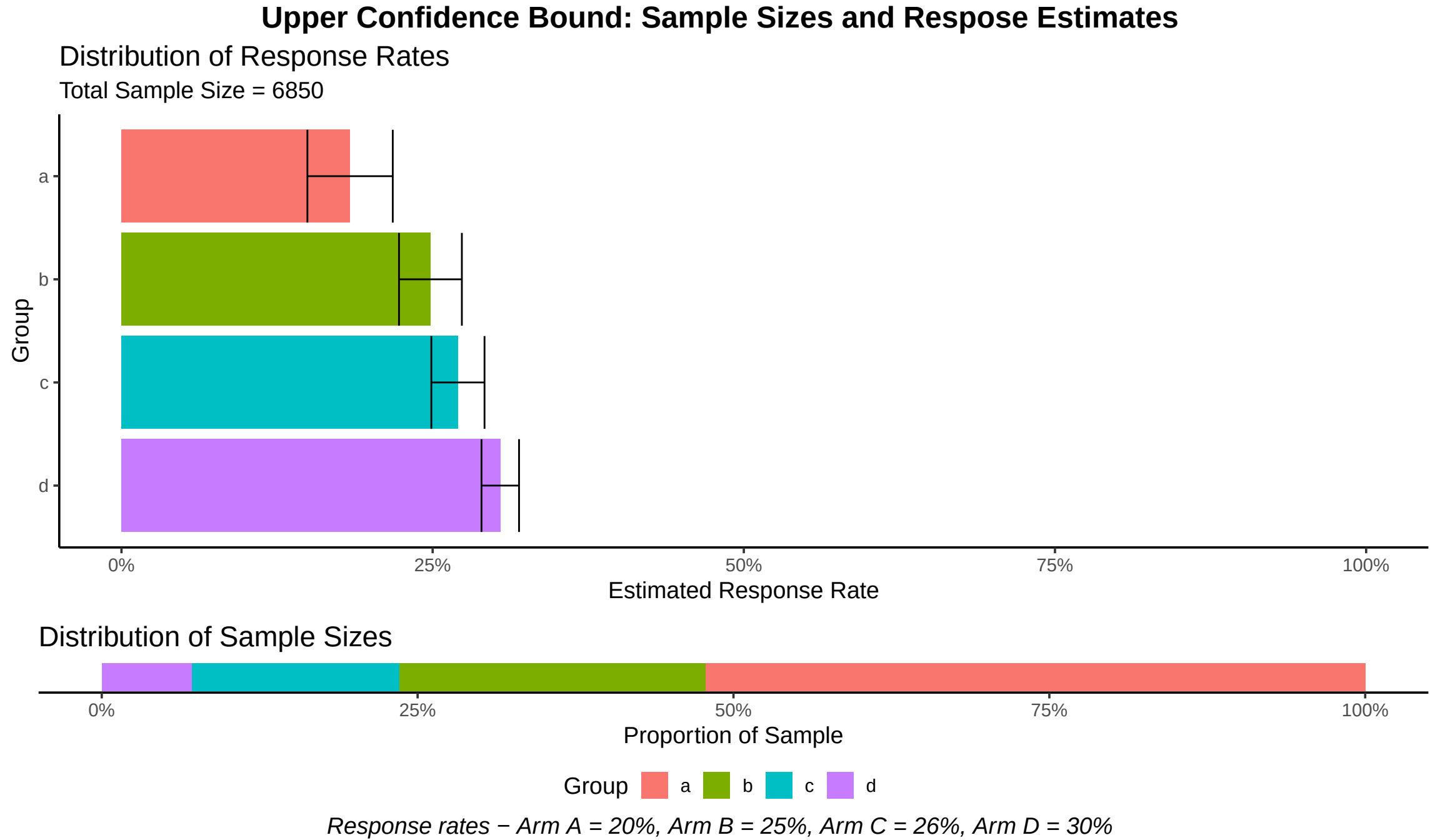

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

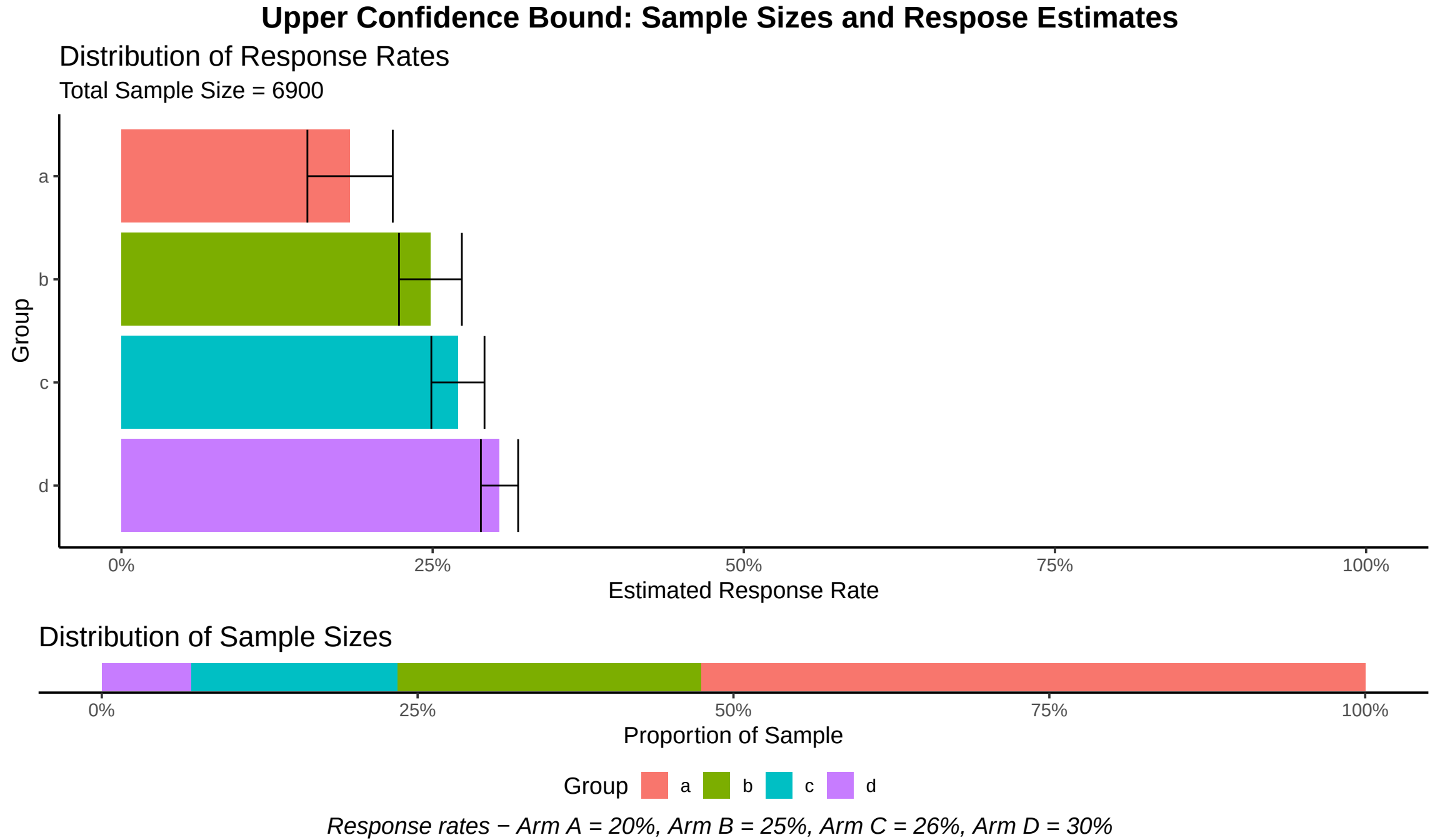

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

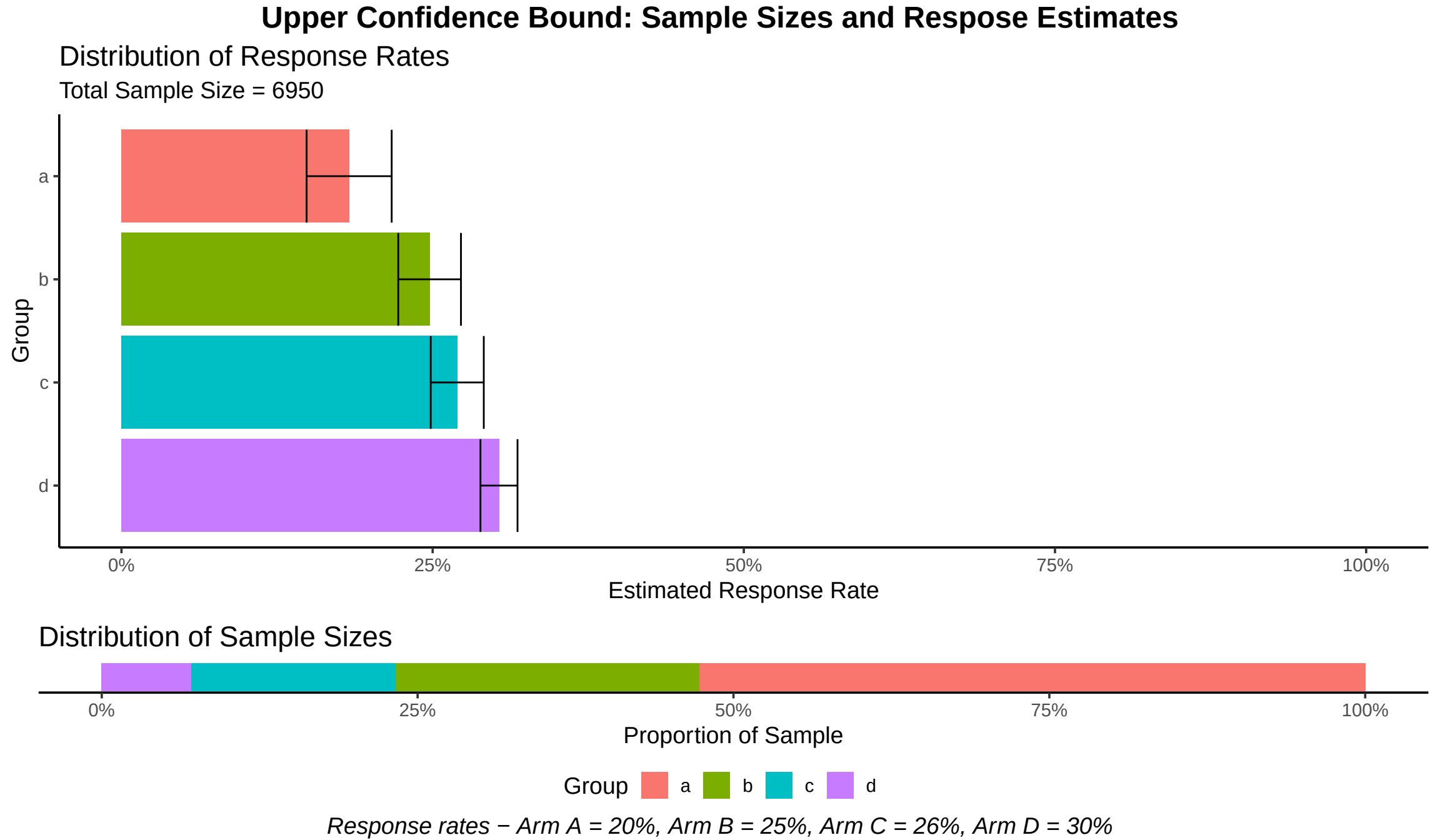

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

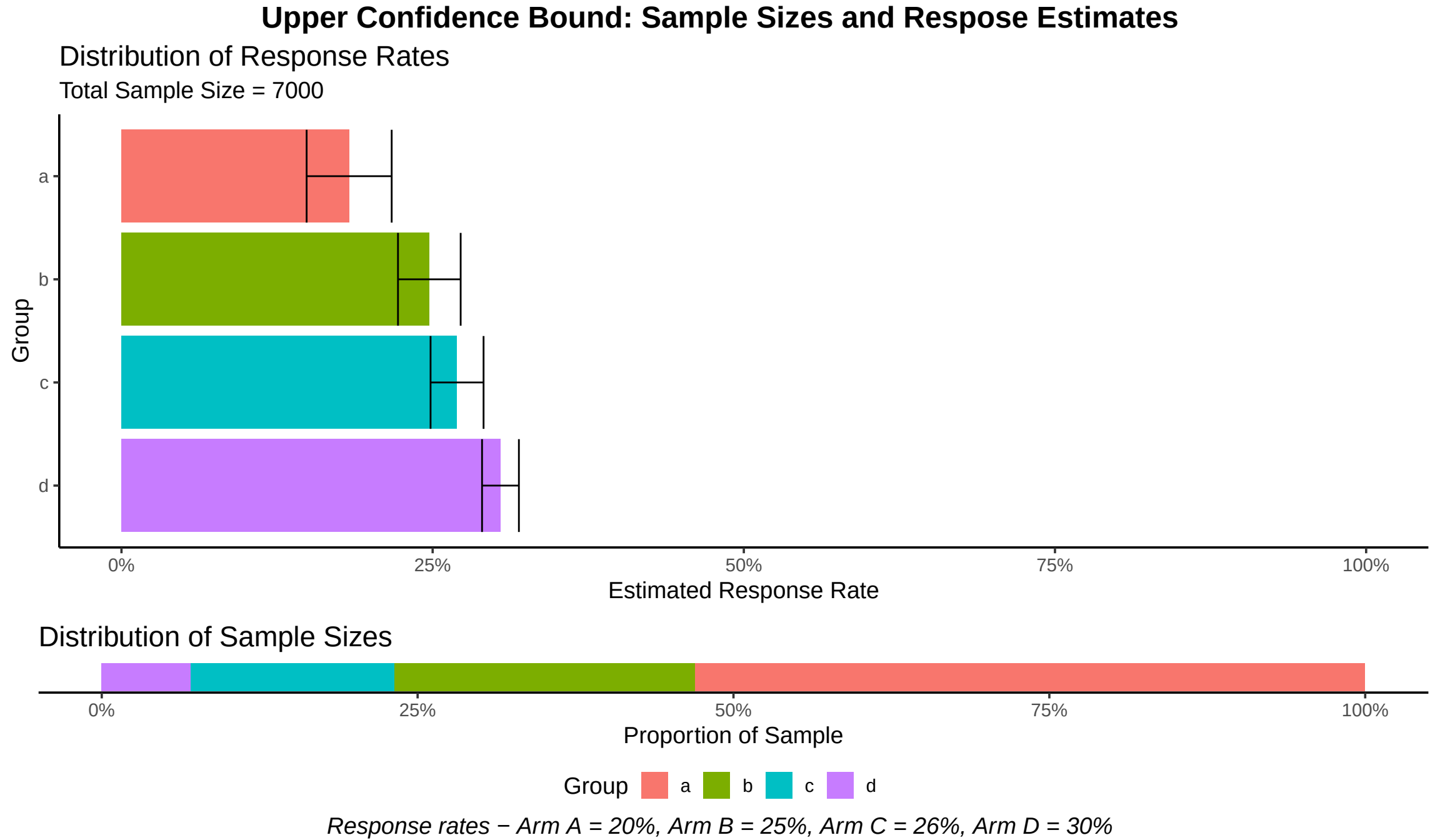

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

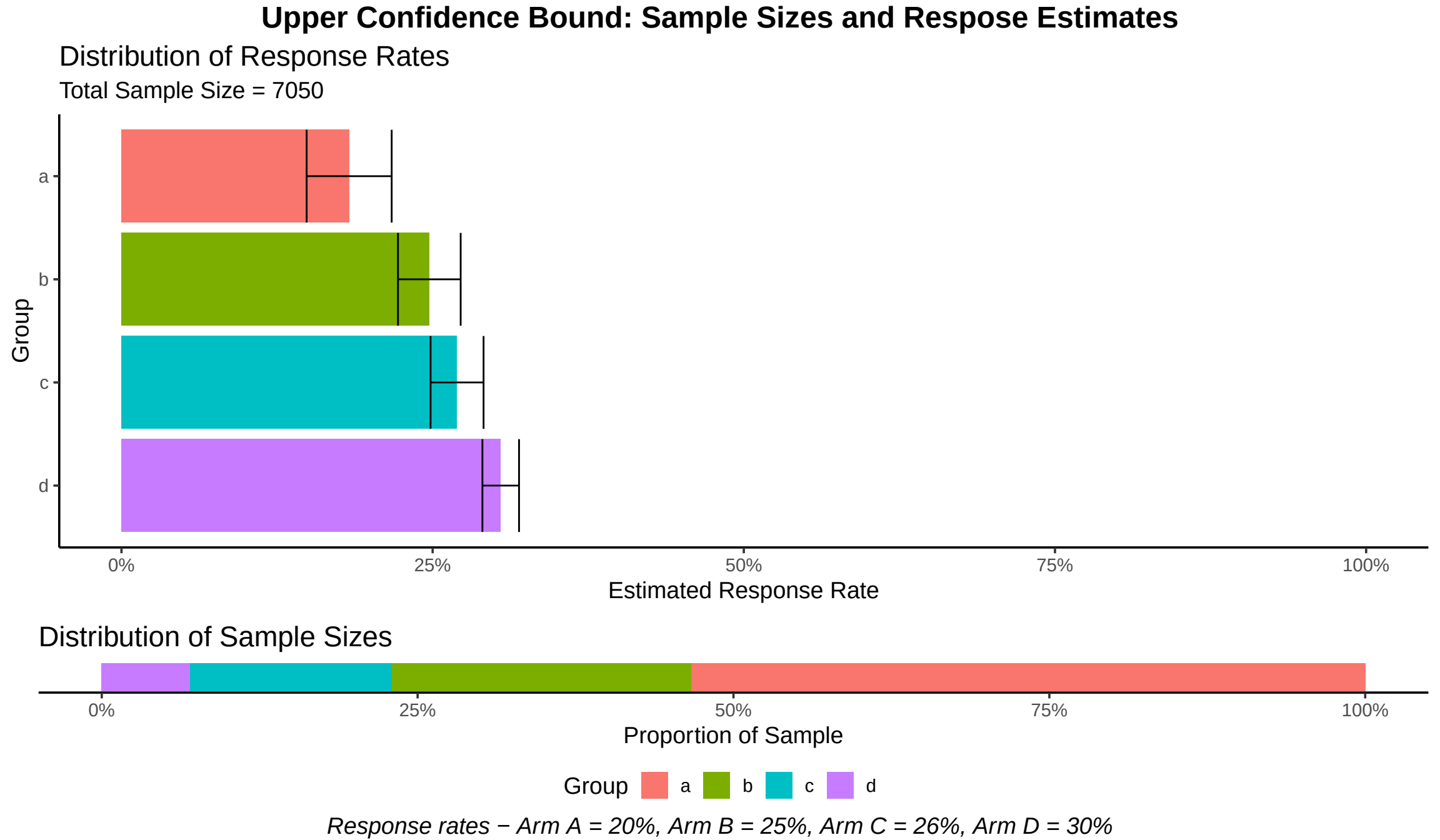

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

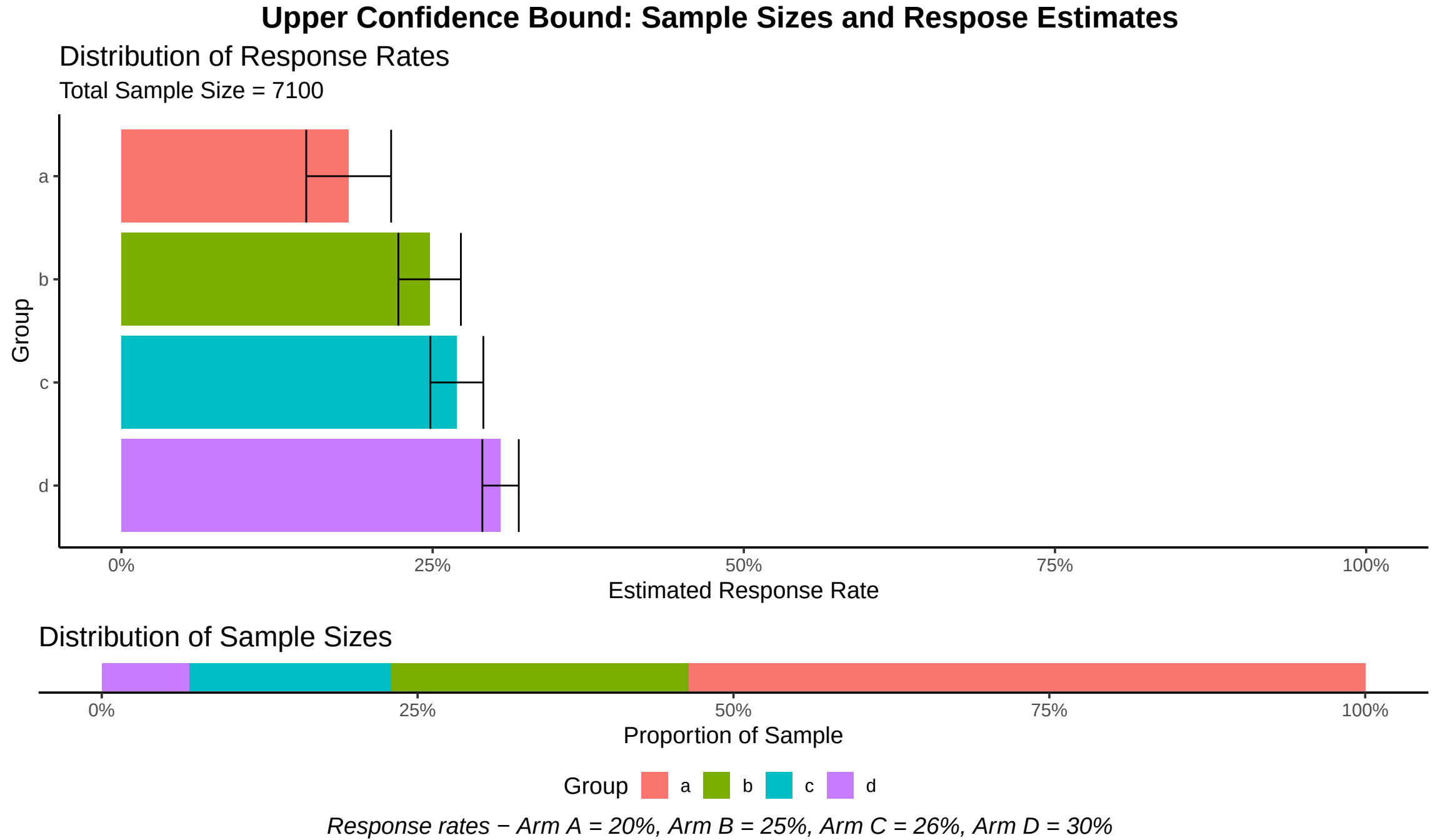

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

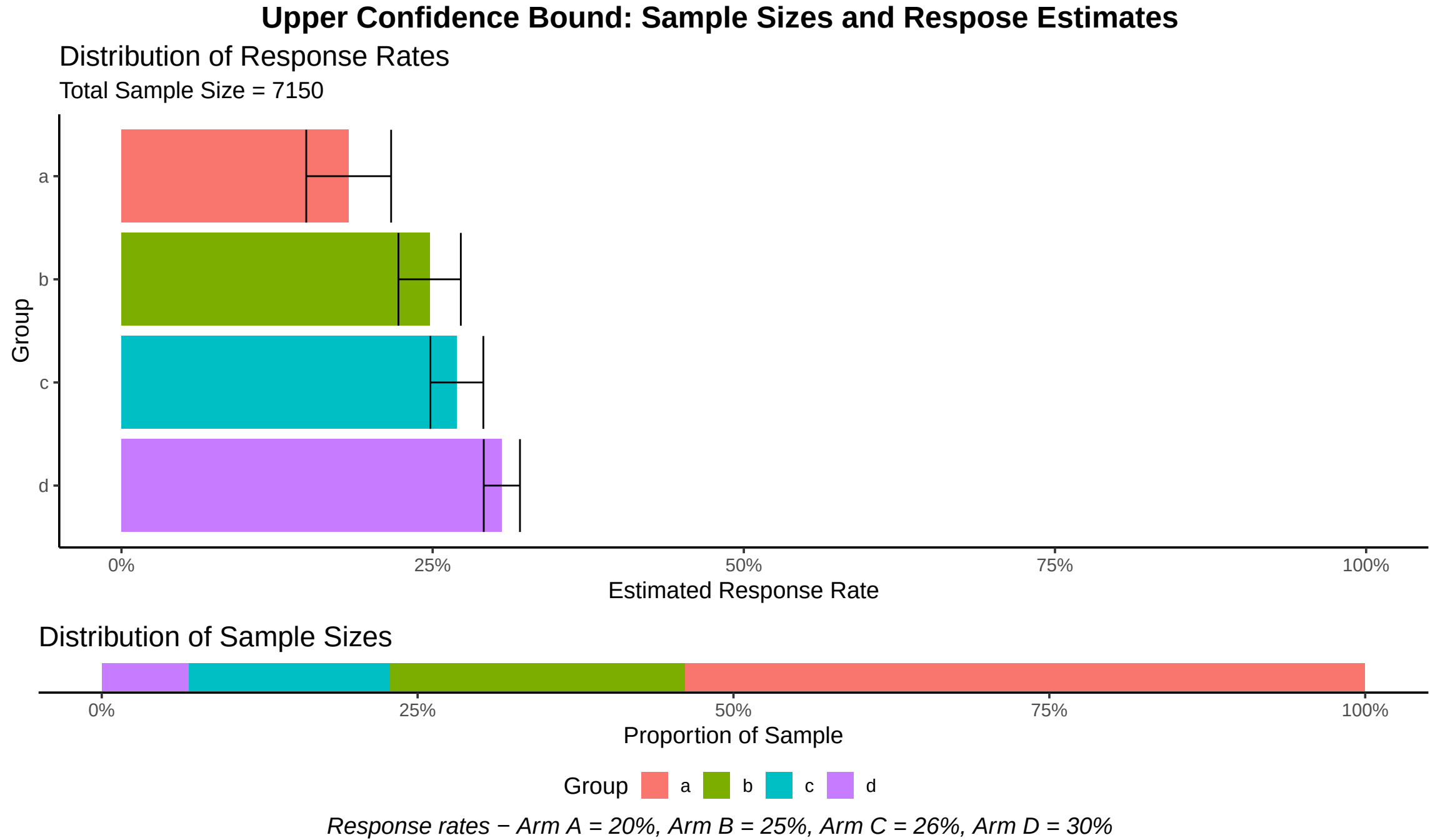

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

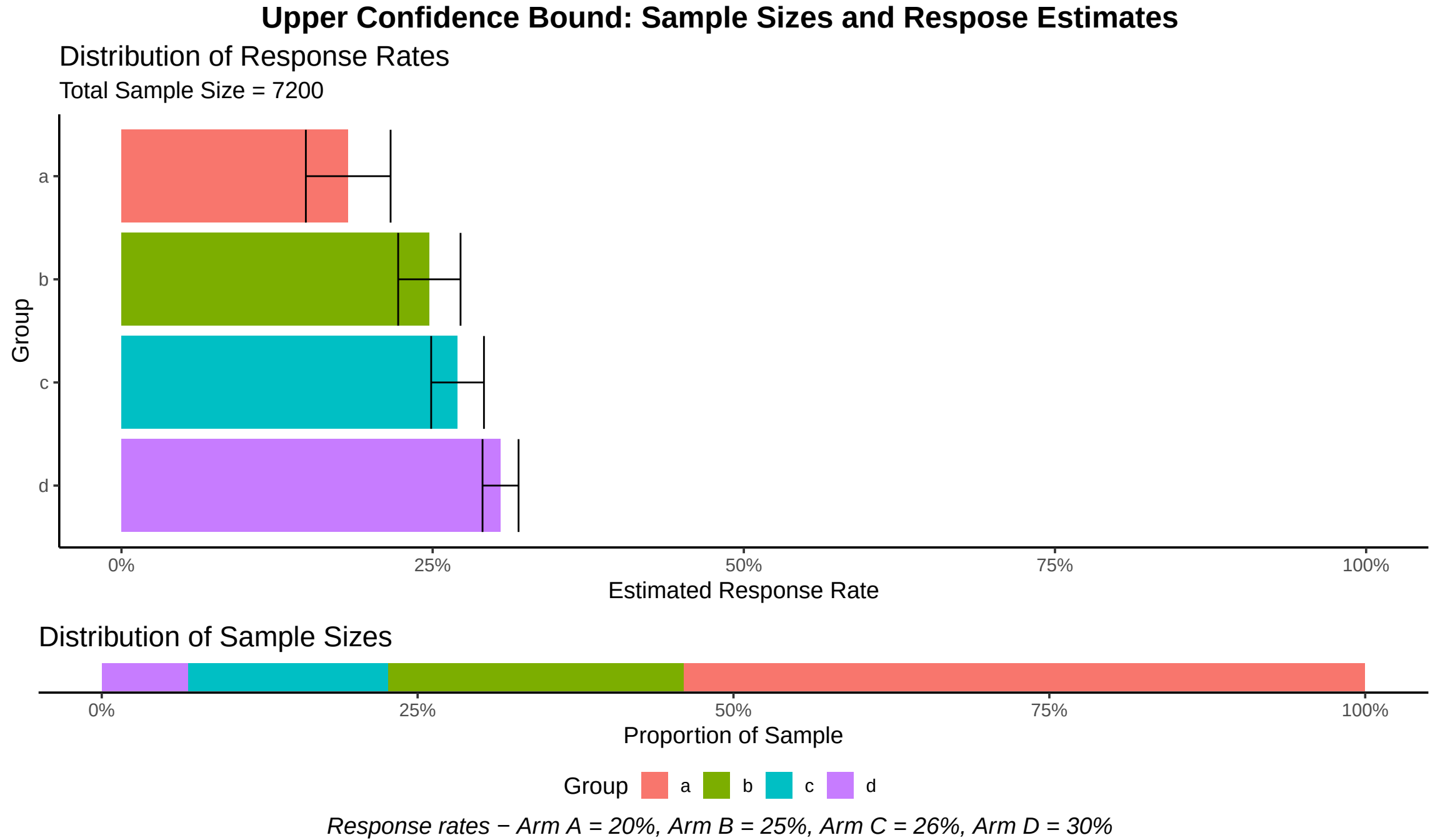

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 6950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

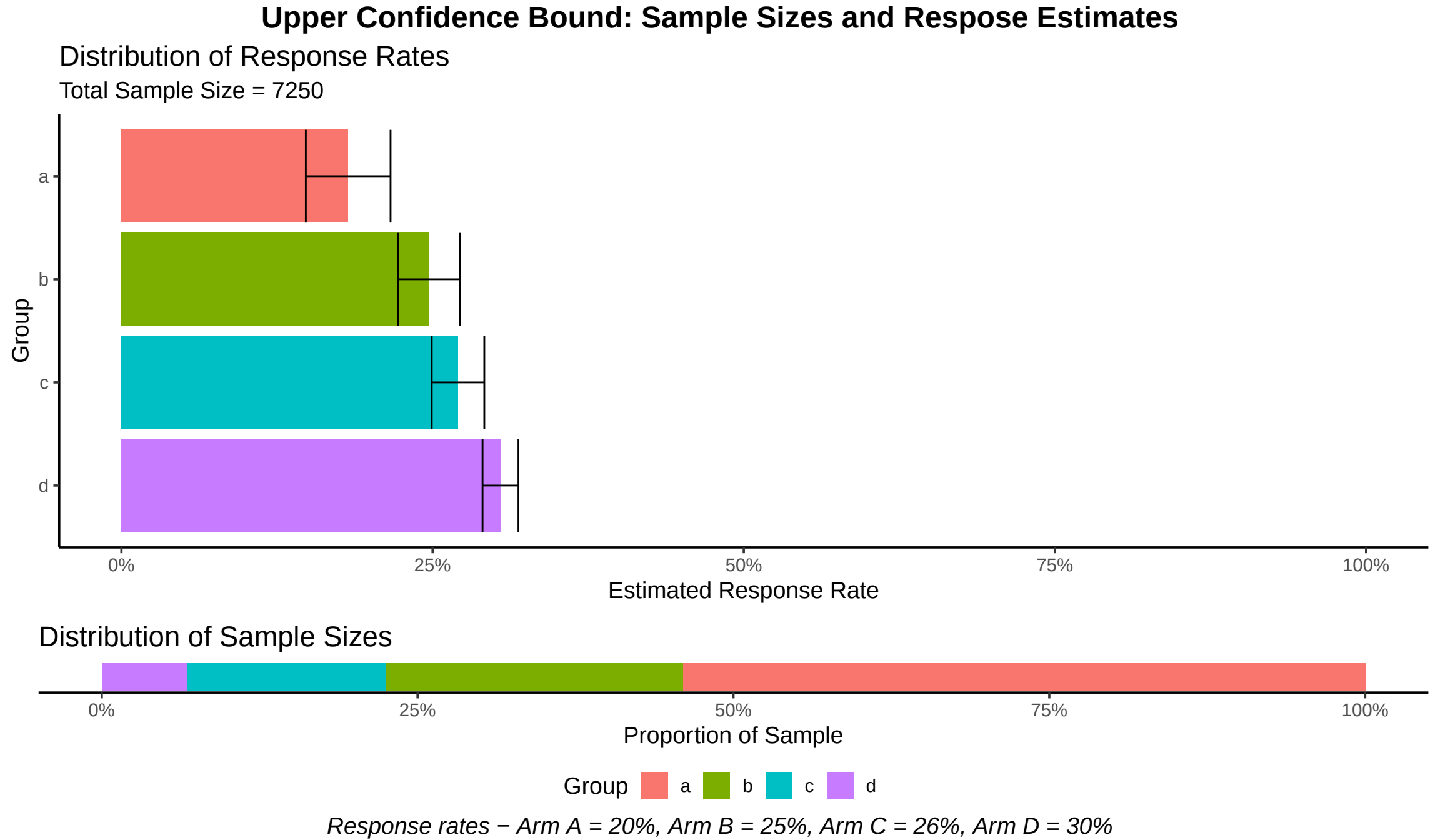

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

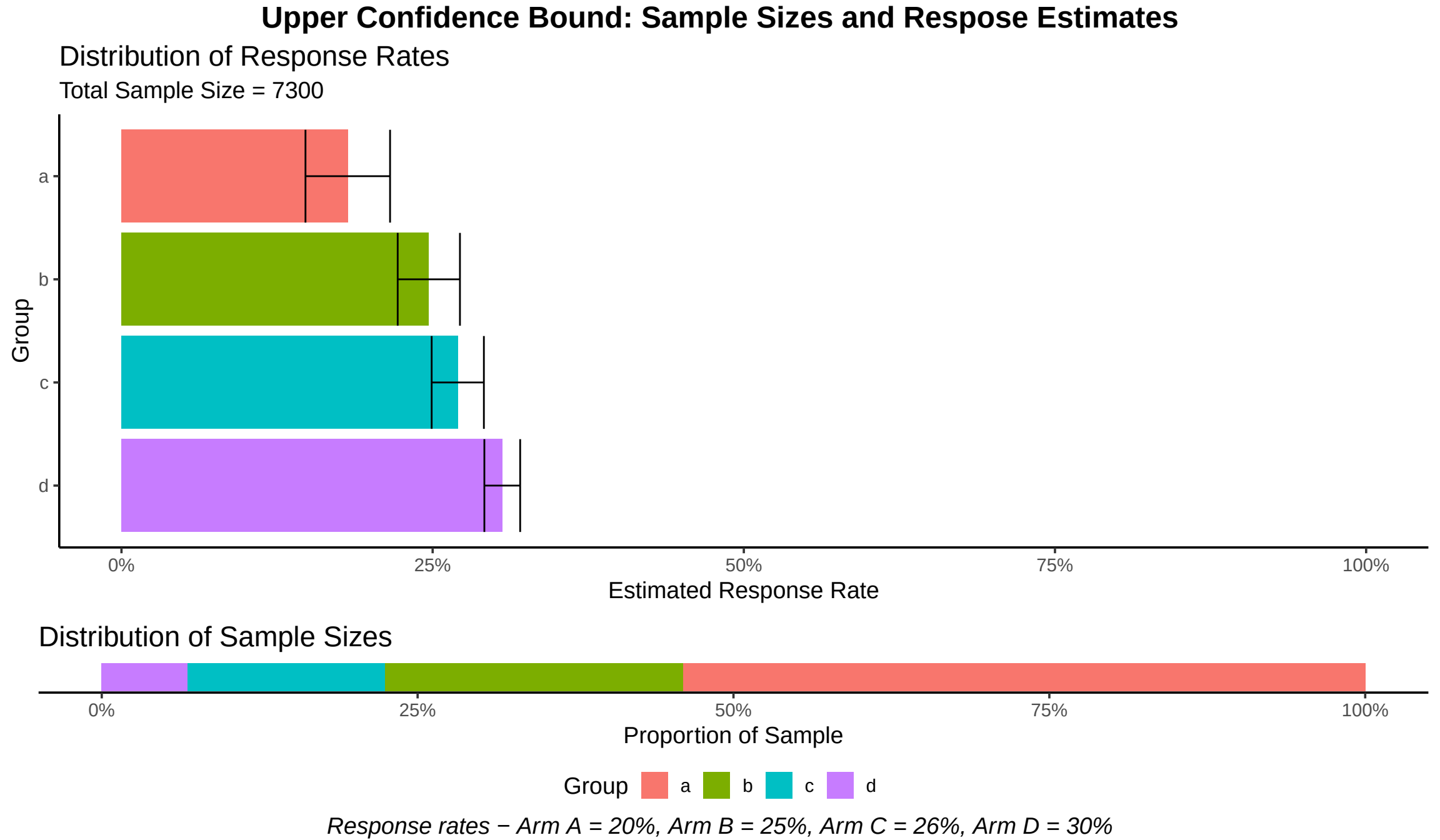

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

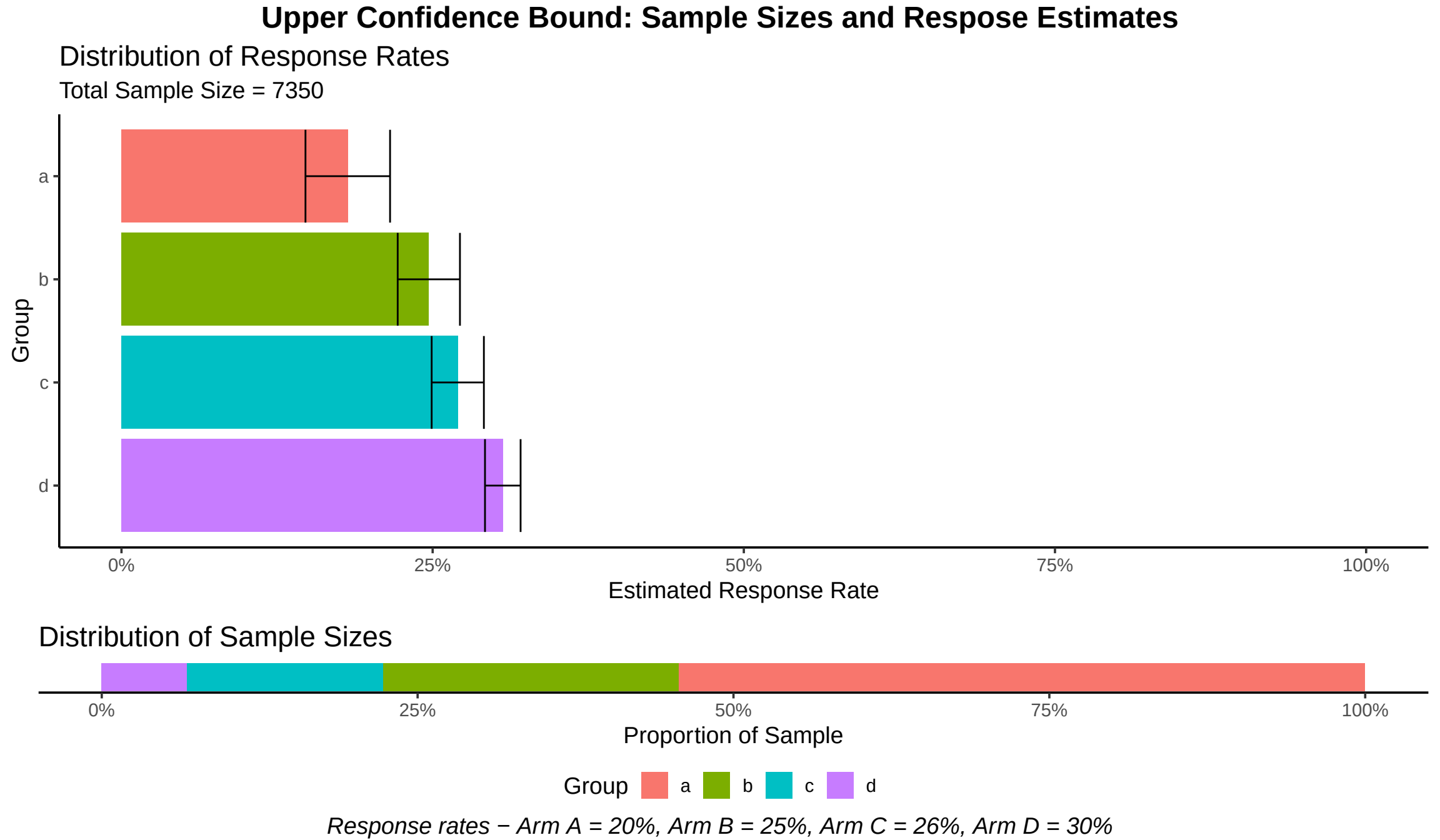

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

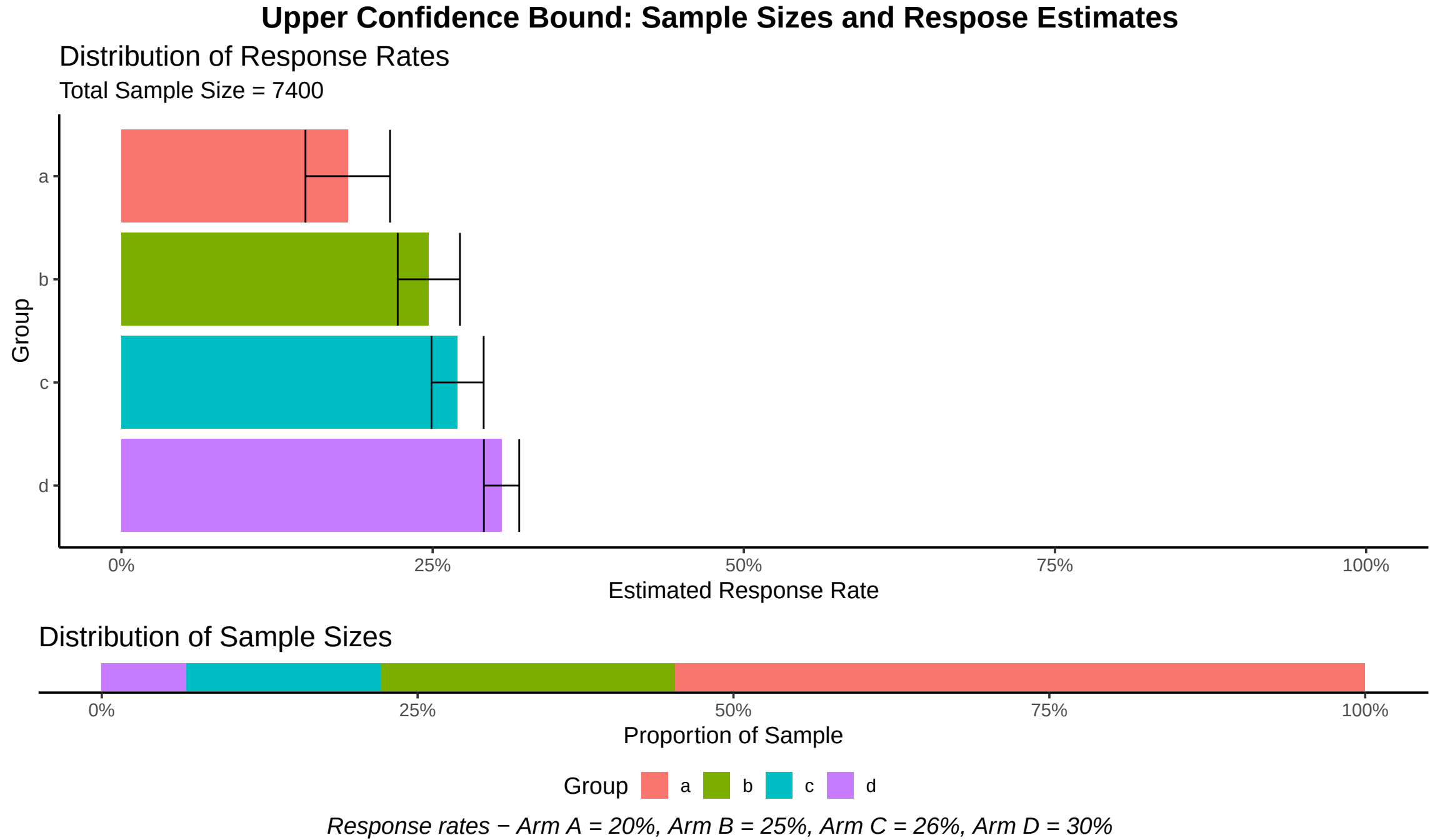

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

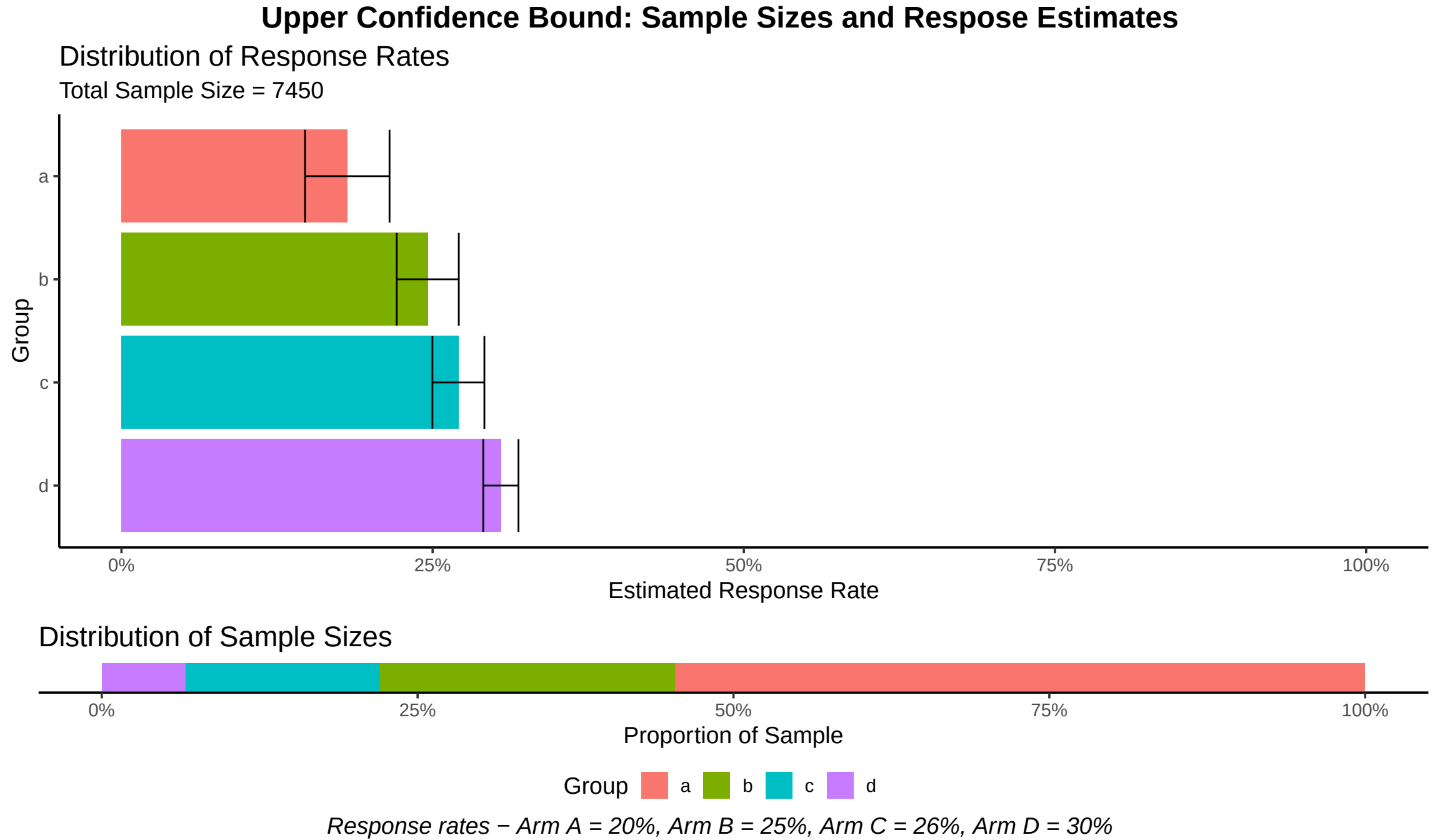

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

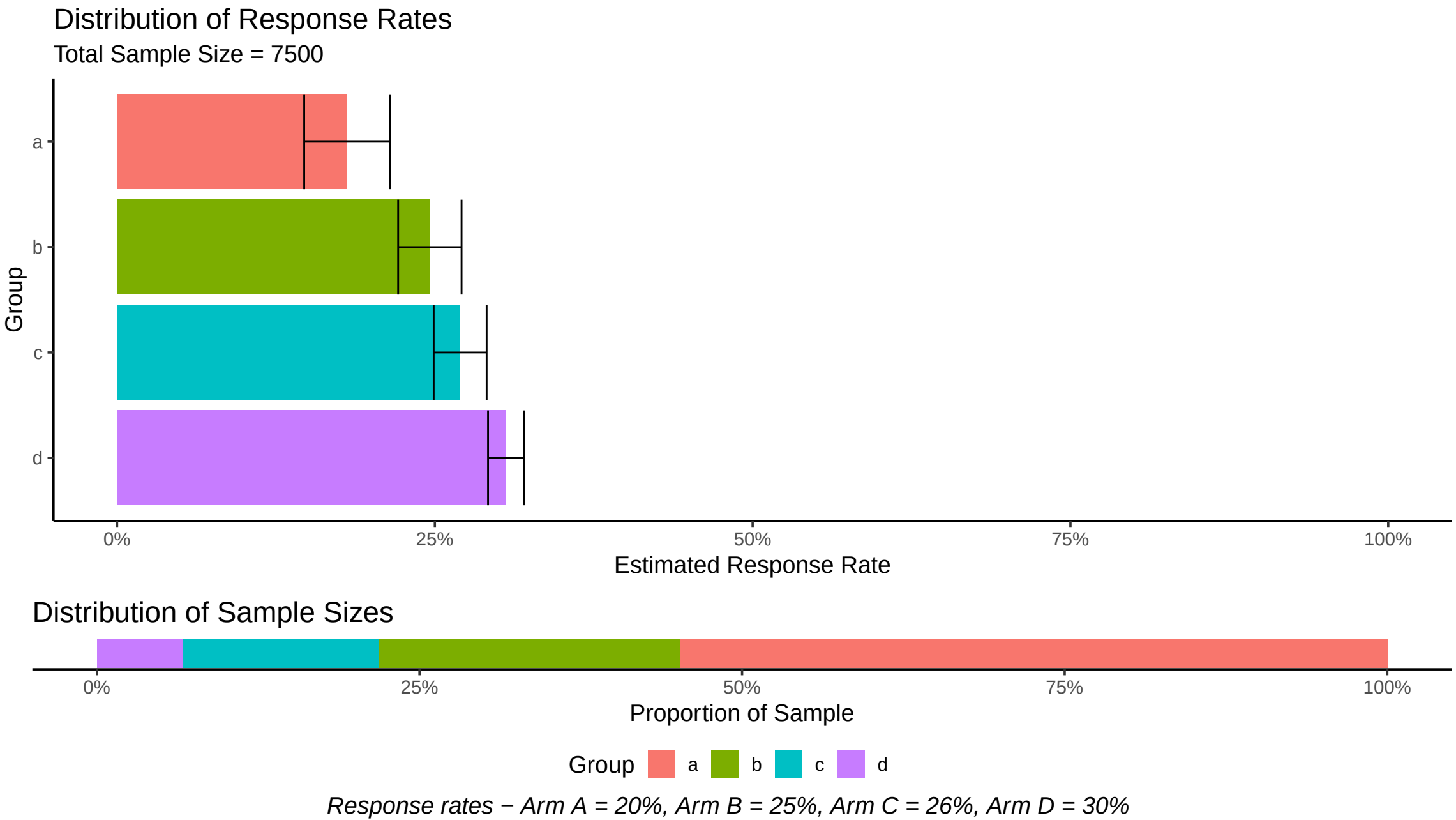

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

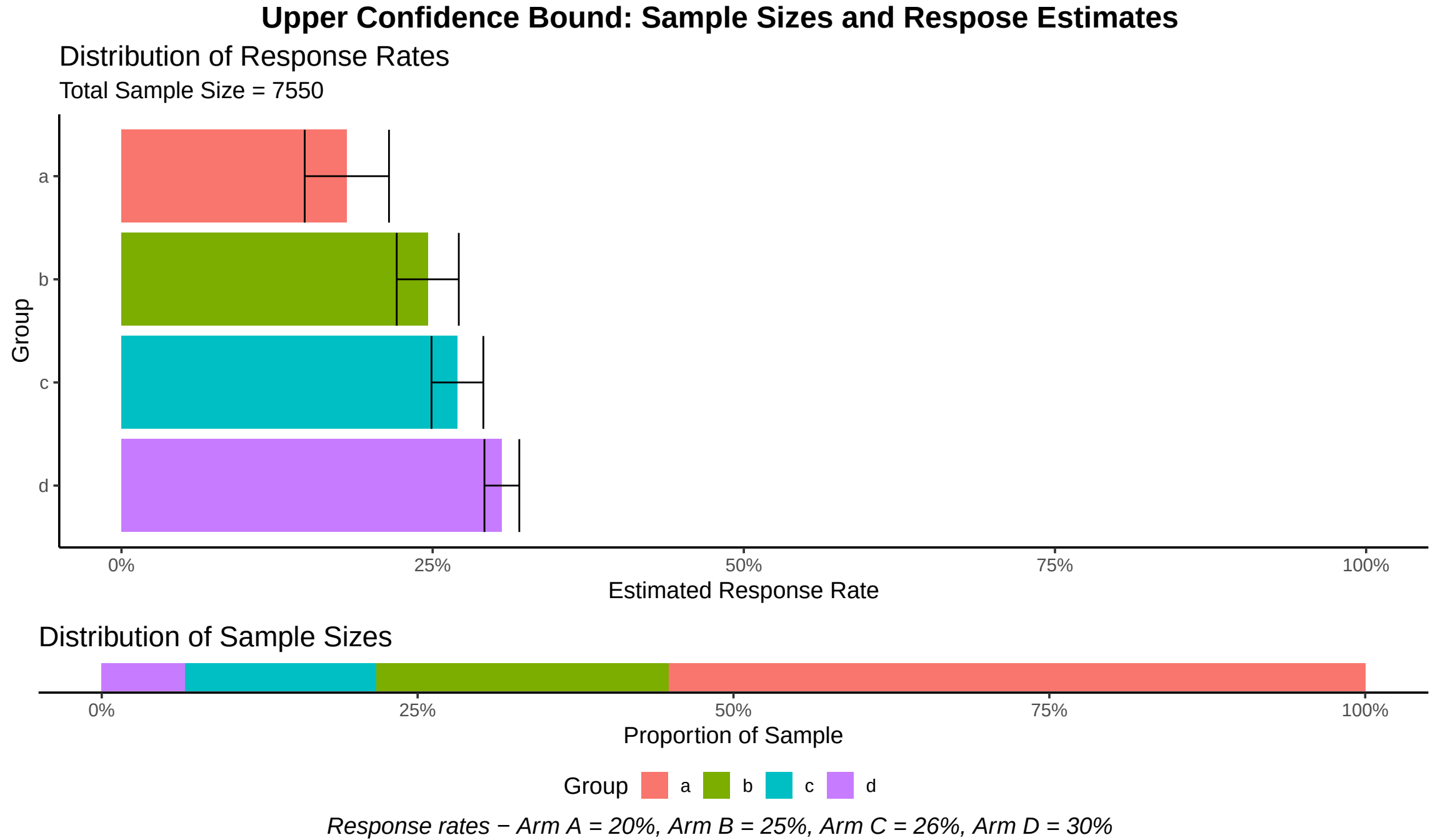

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

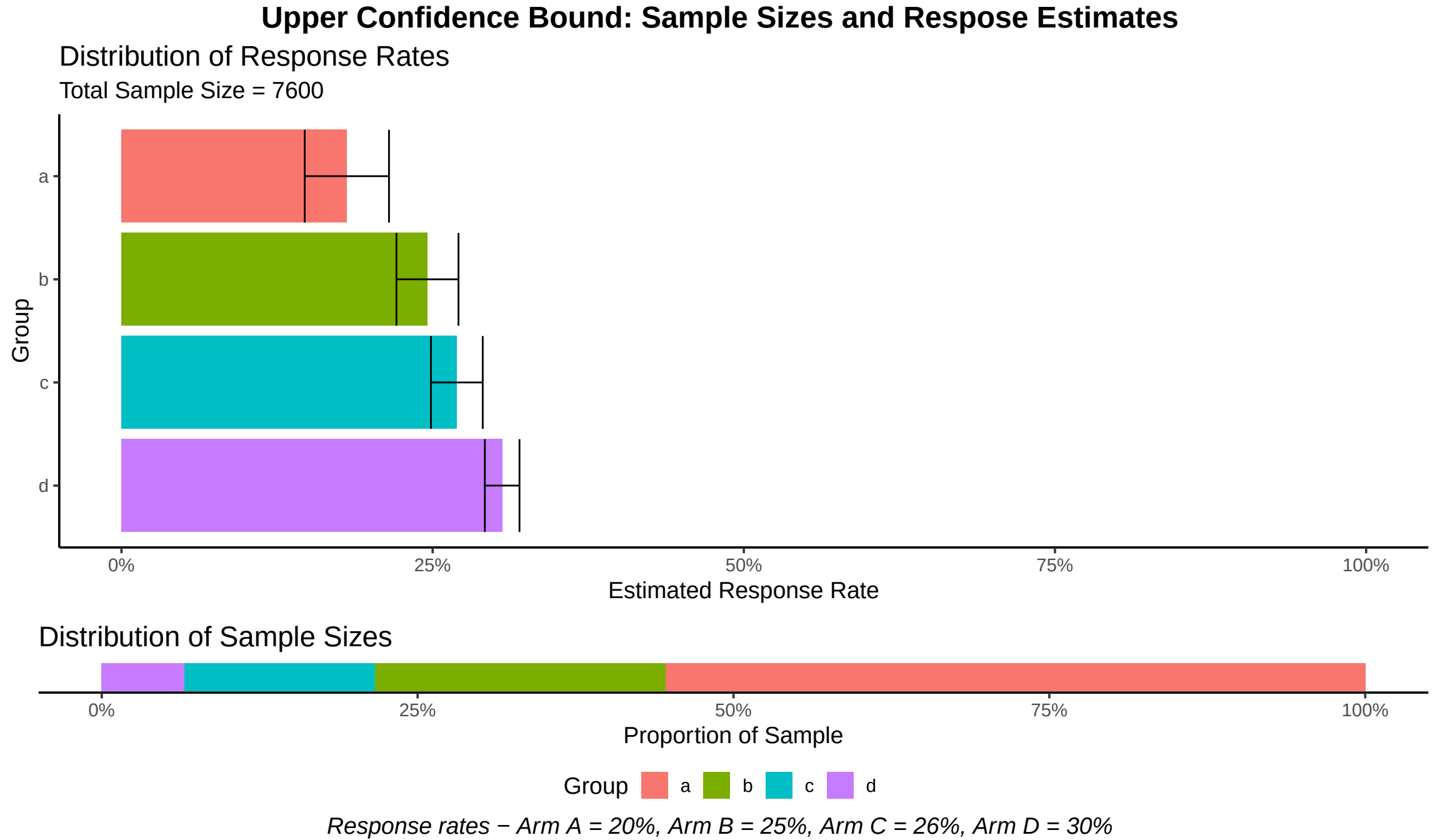

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

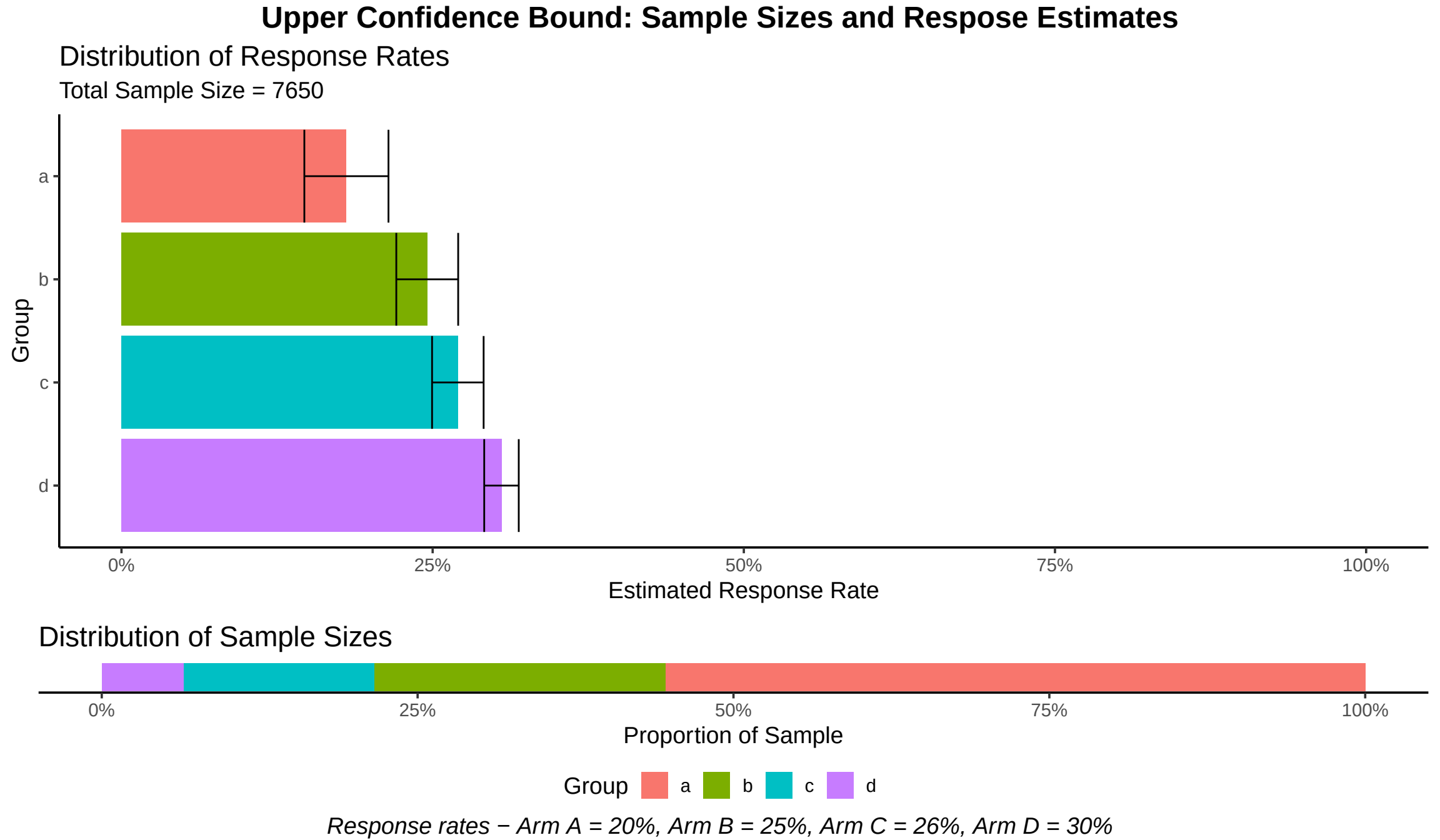
Upper Confidence Bound: Sample Sizes and Respose Estimates

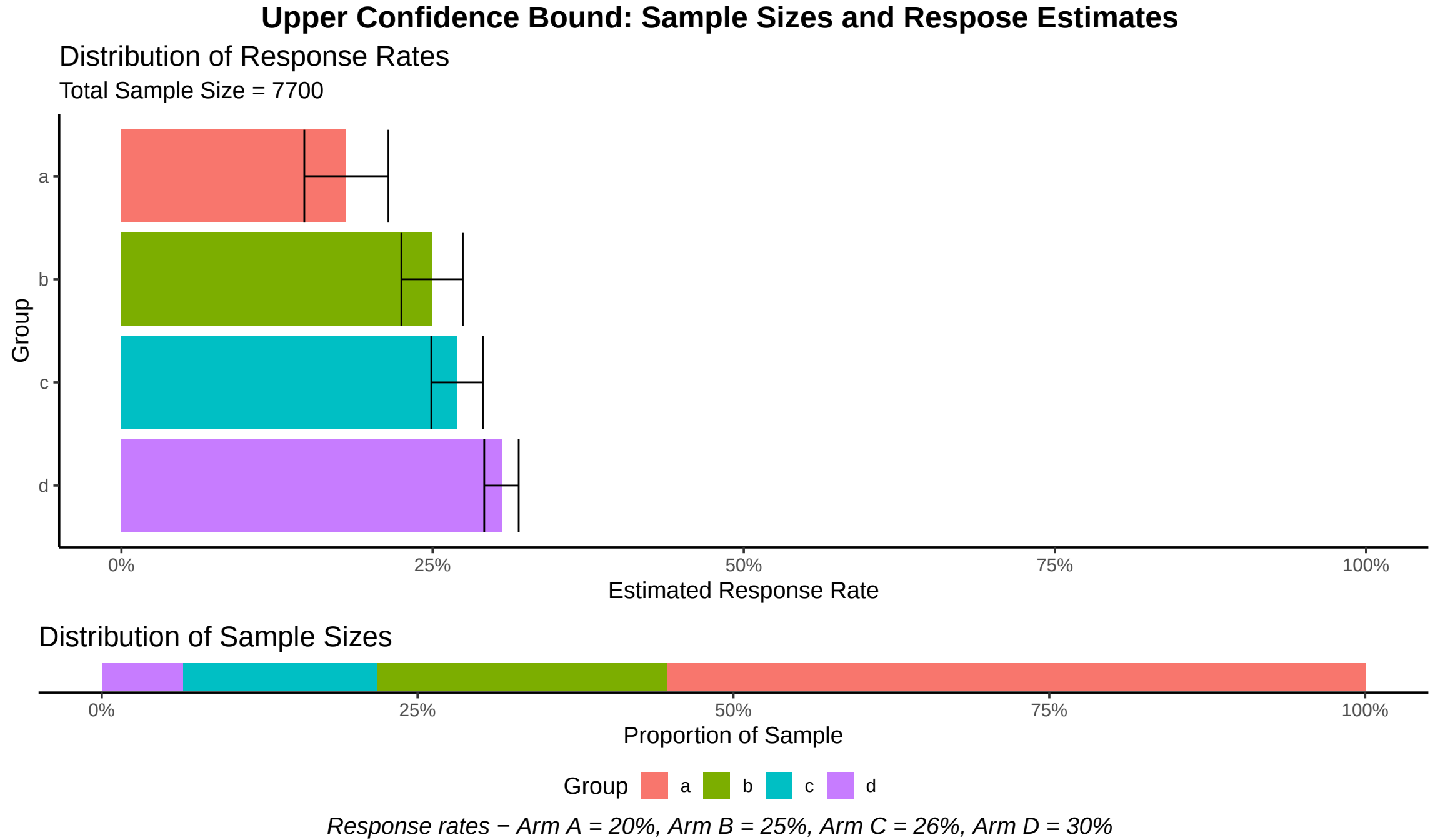


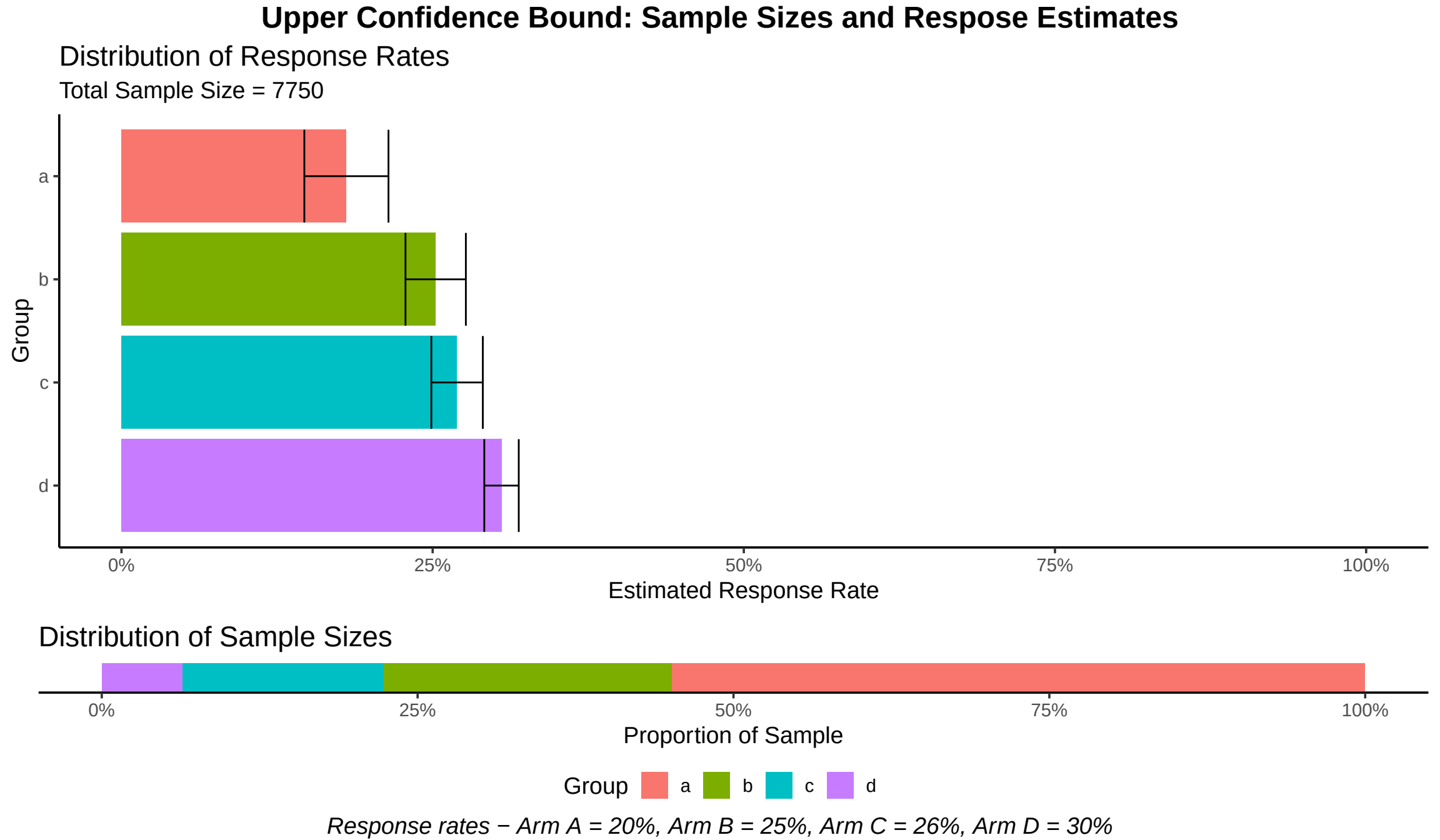
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

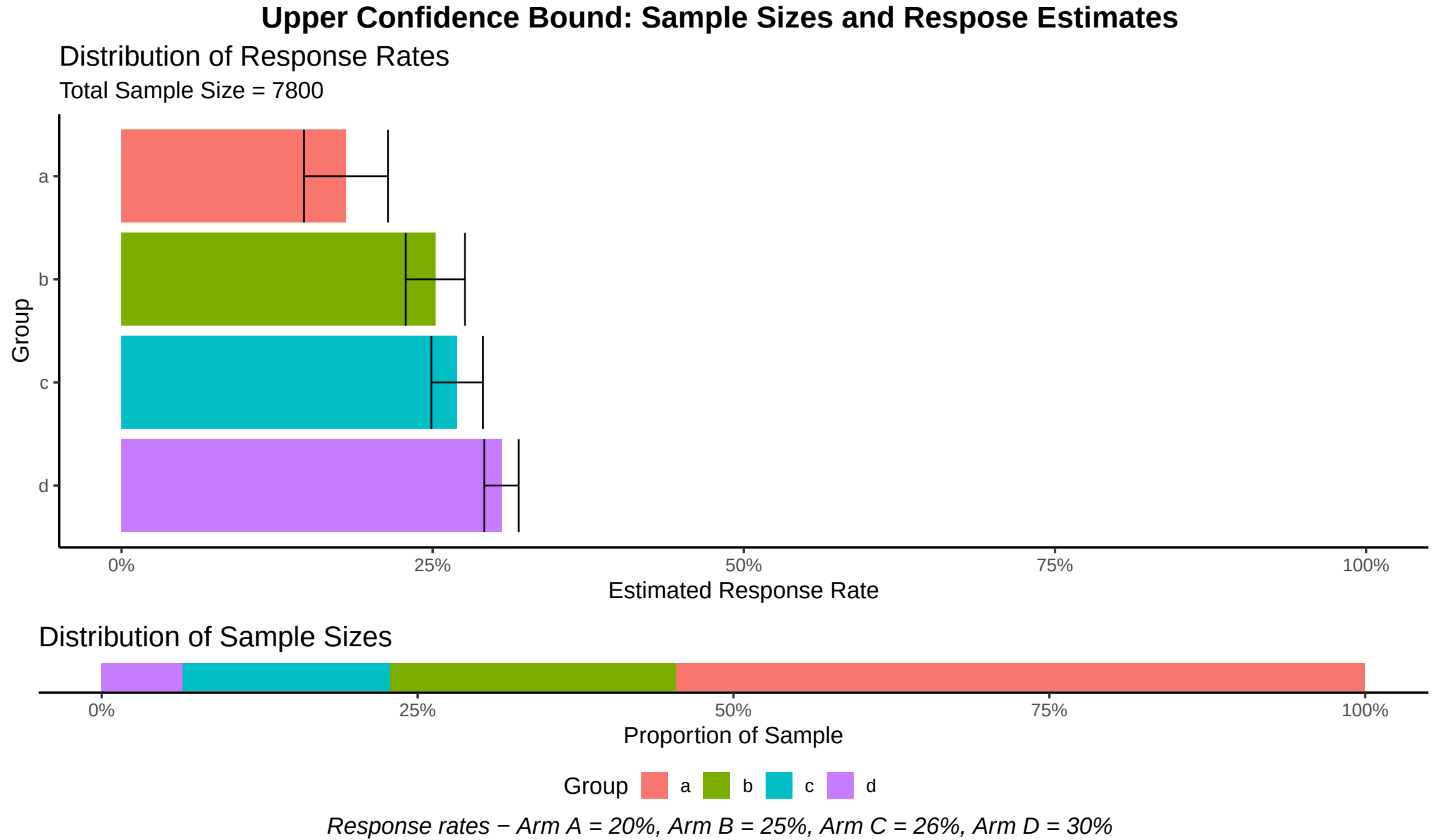

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

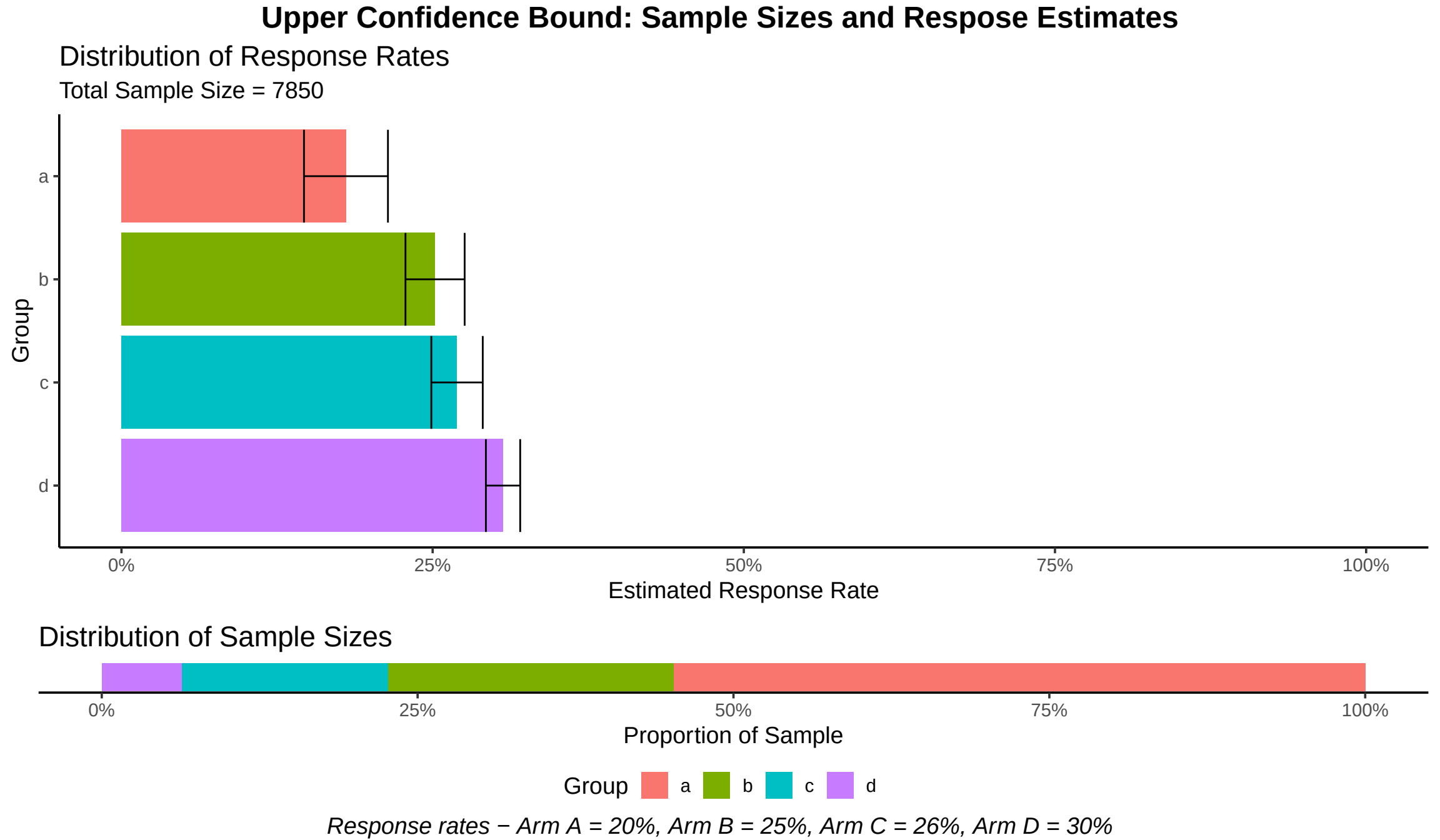

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

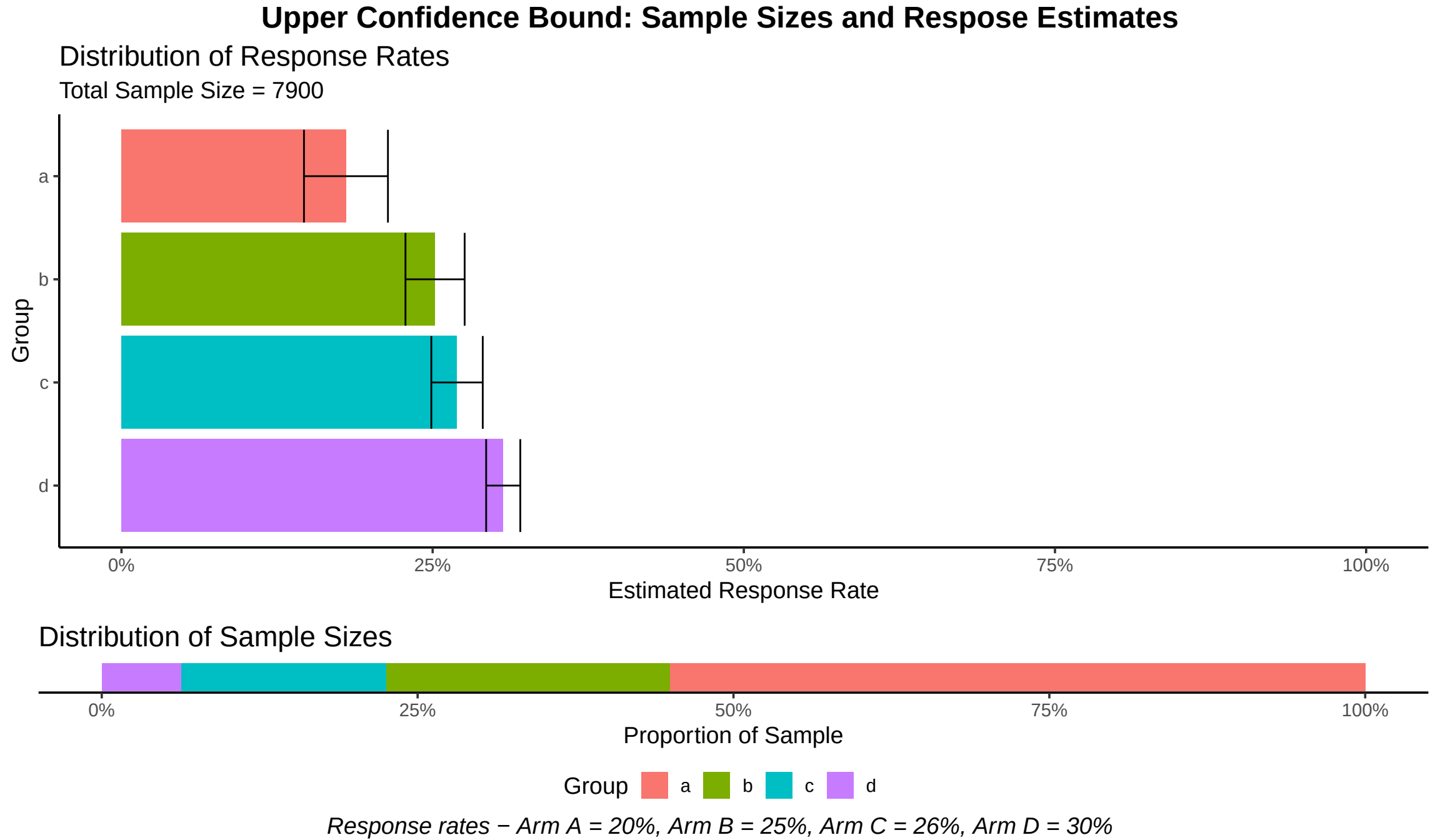

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

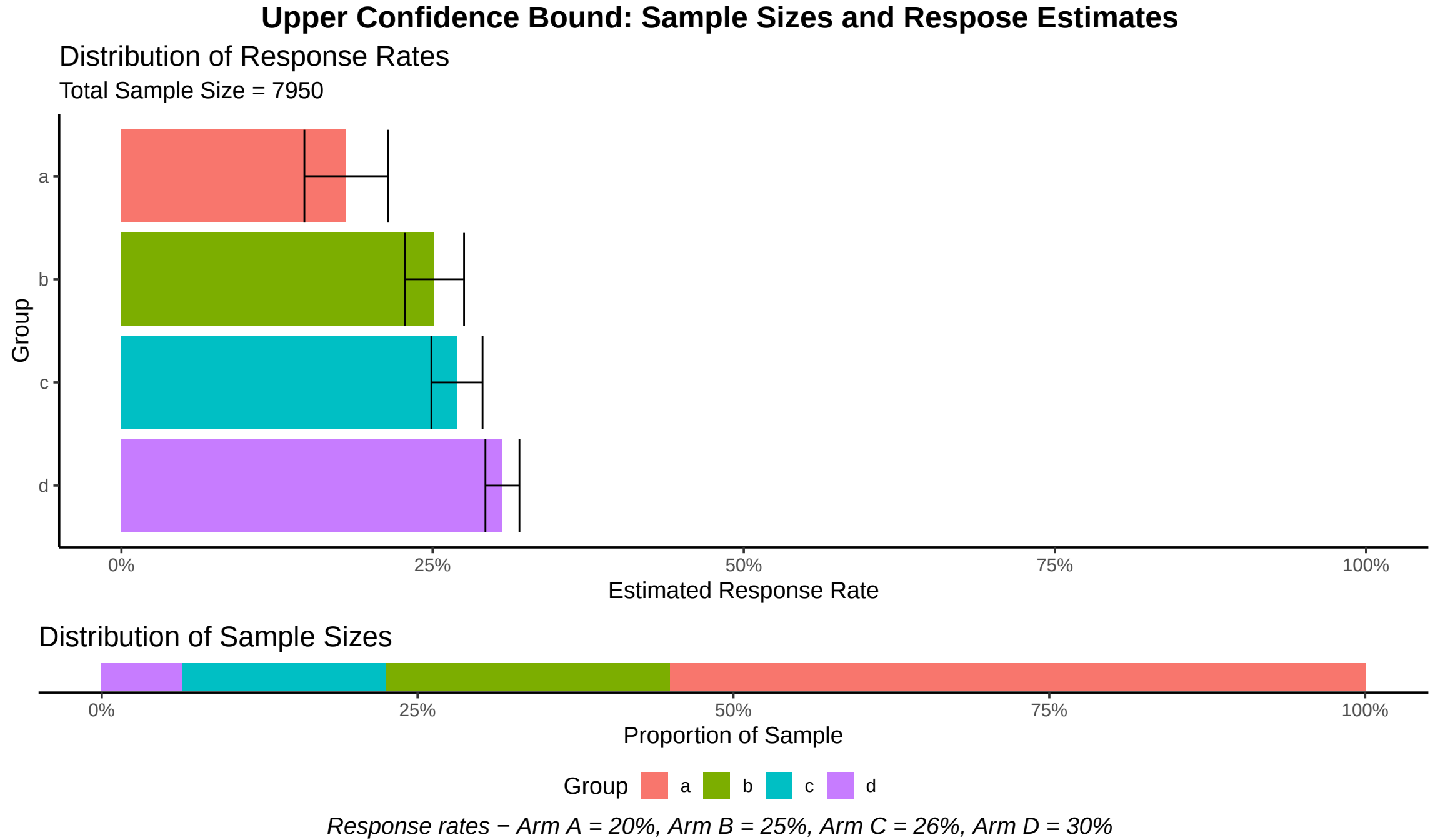

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

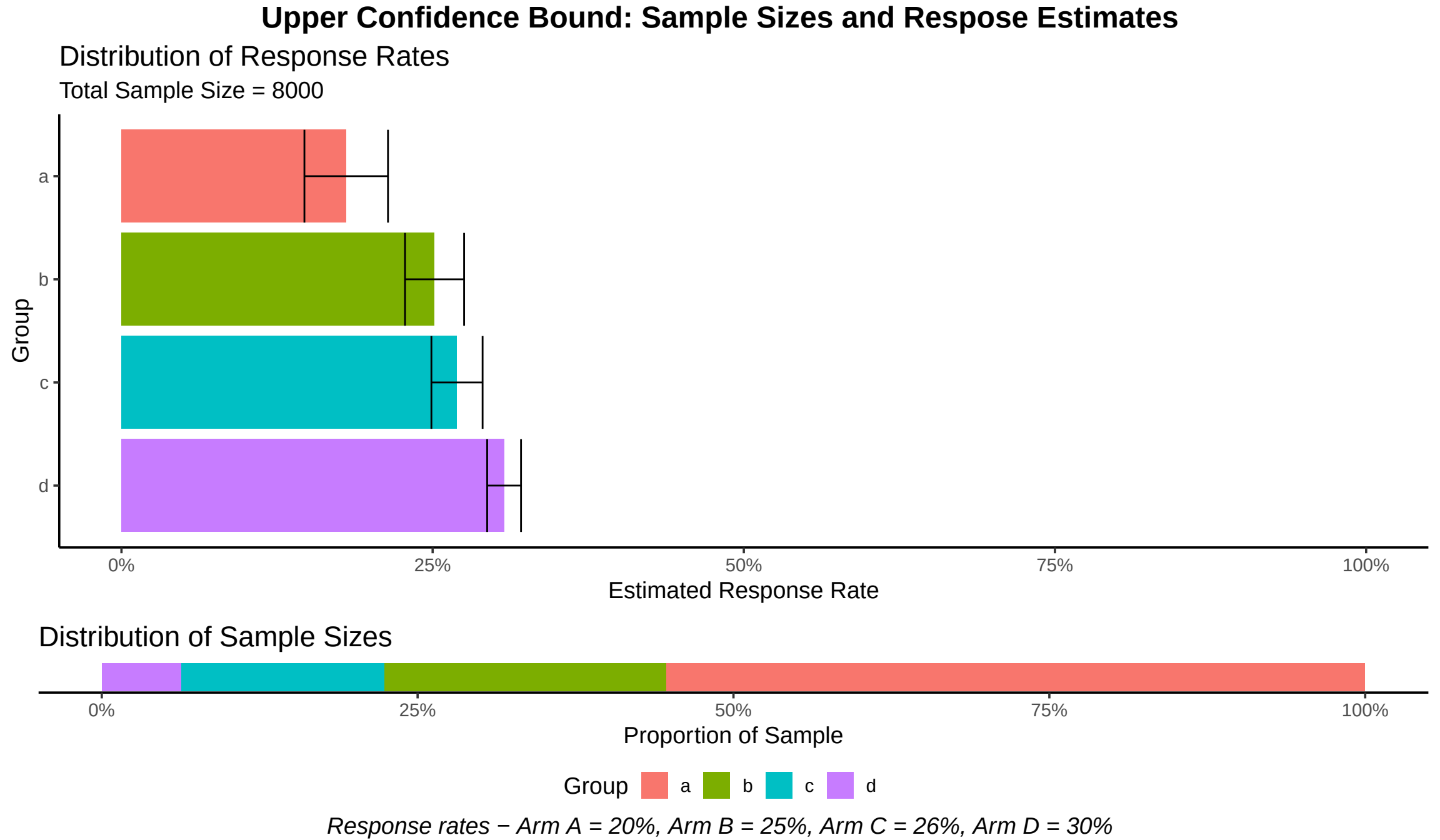

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

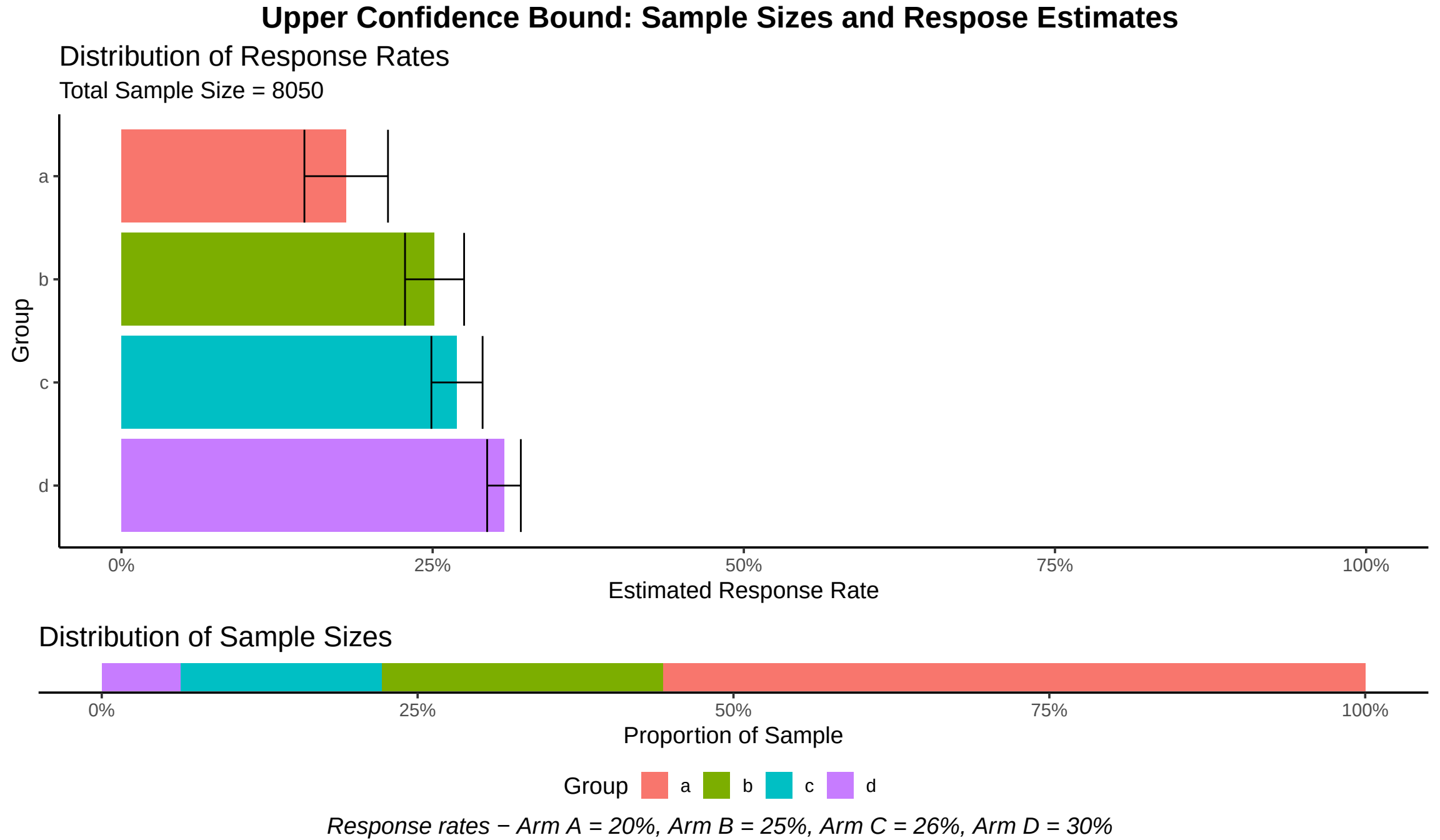

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

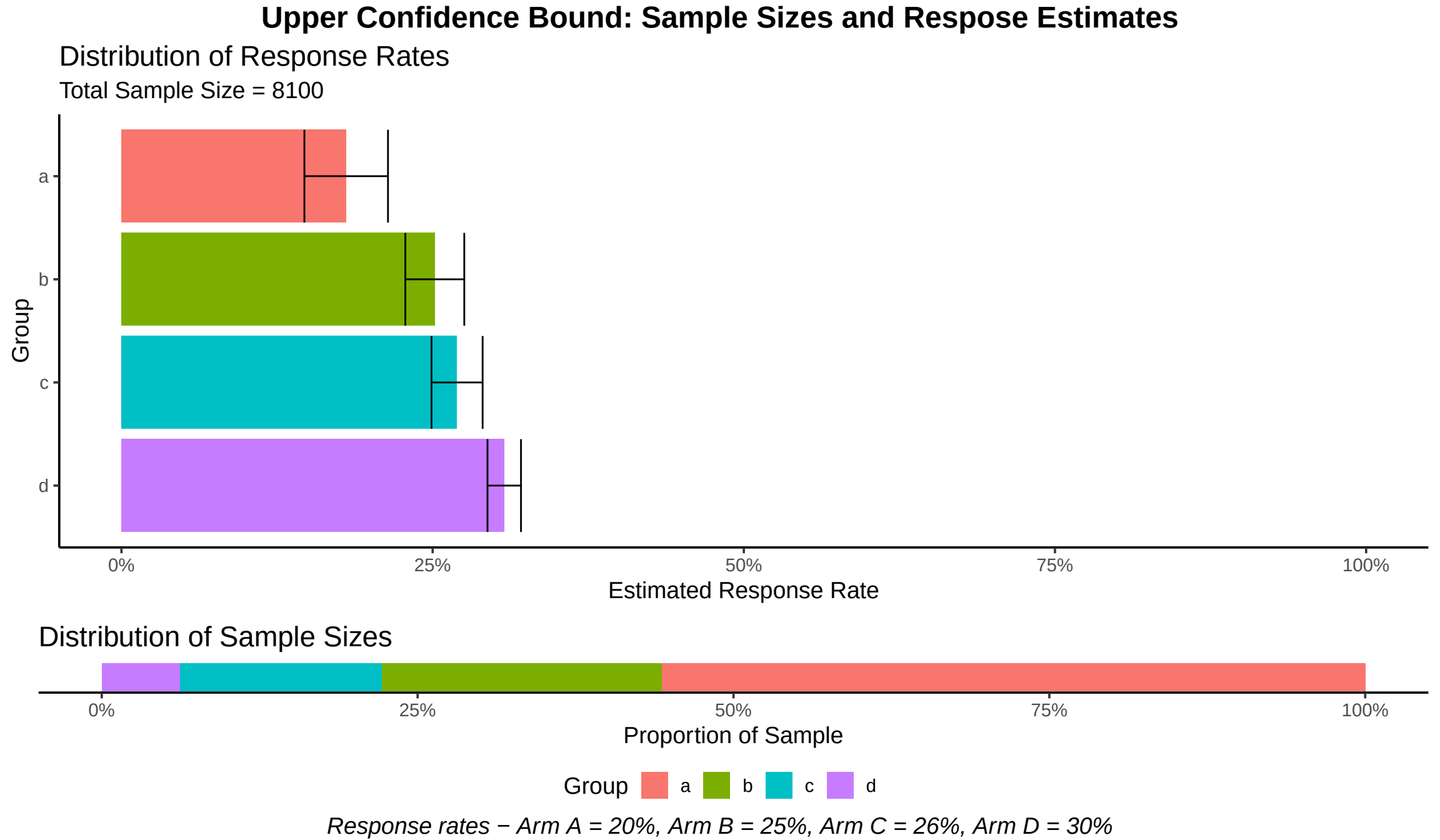

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

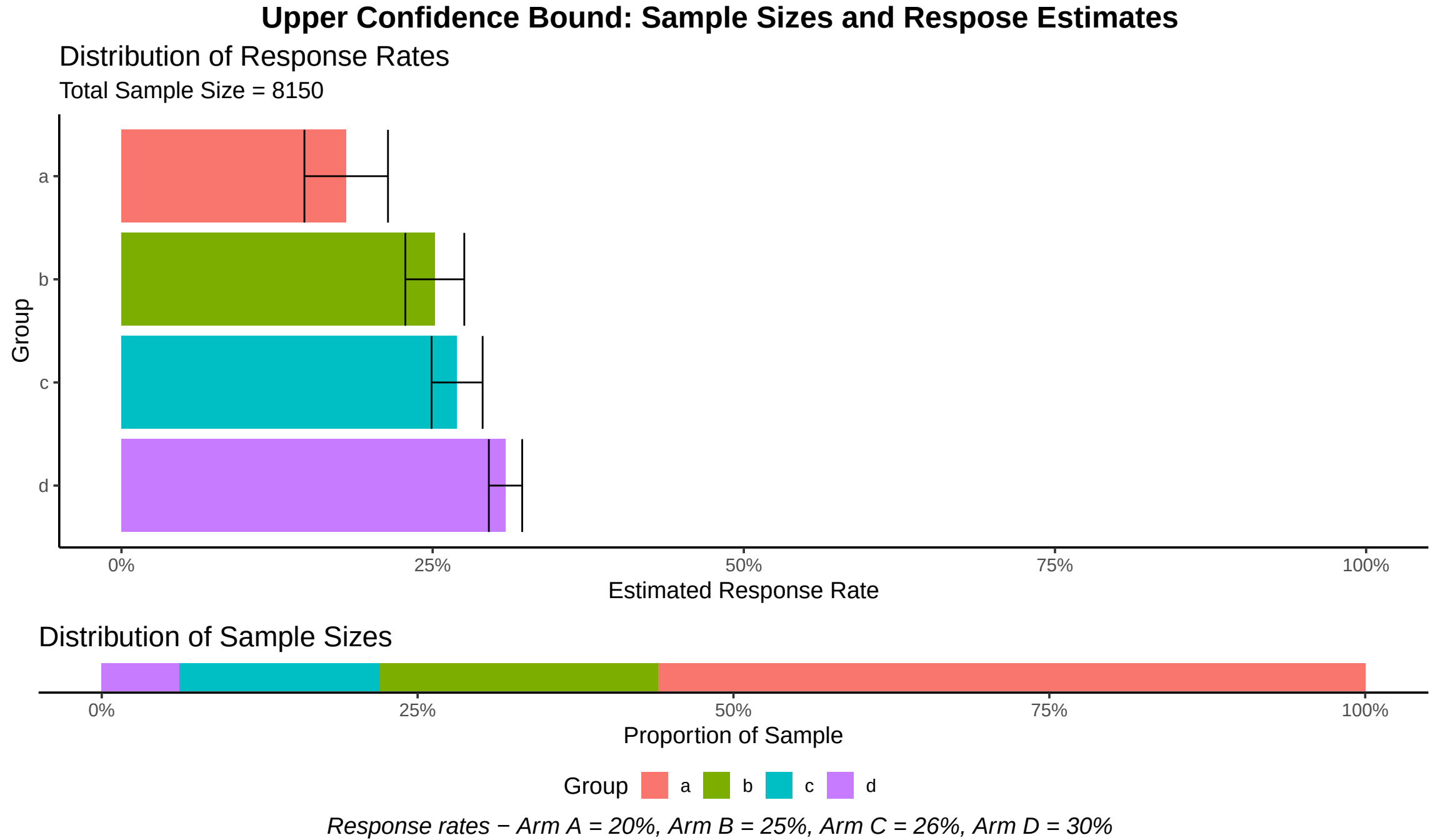

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

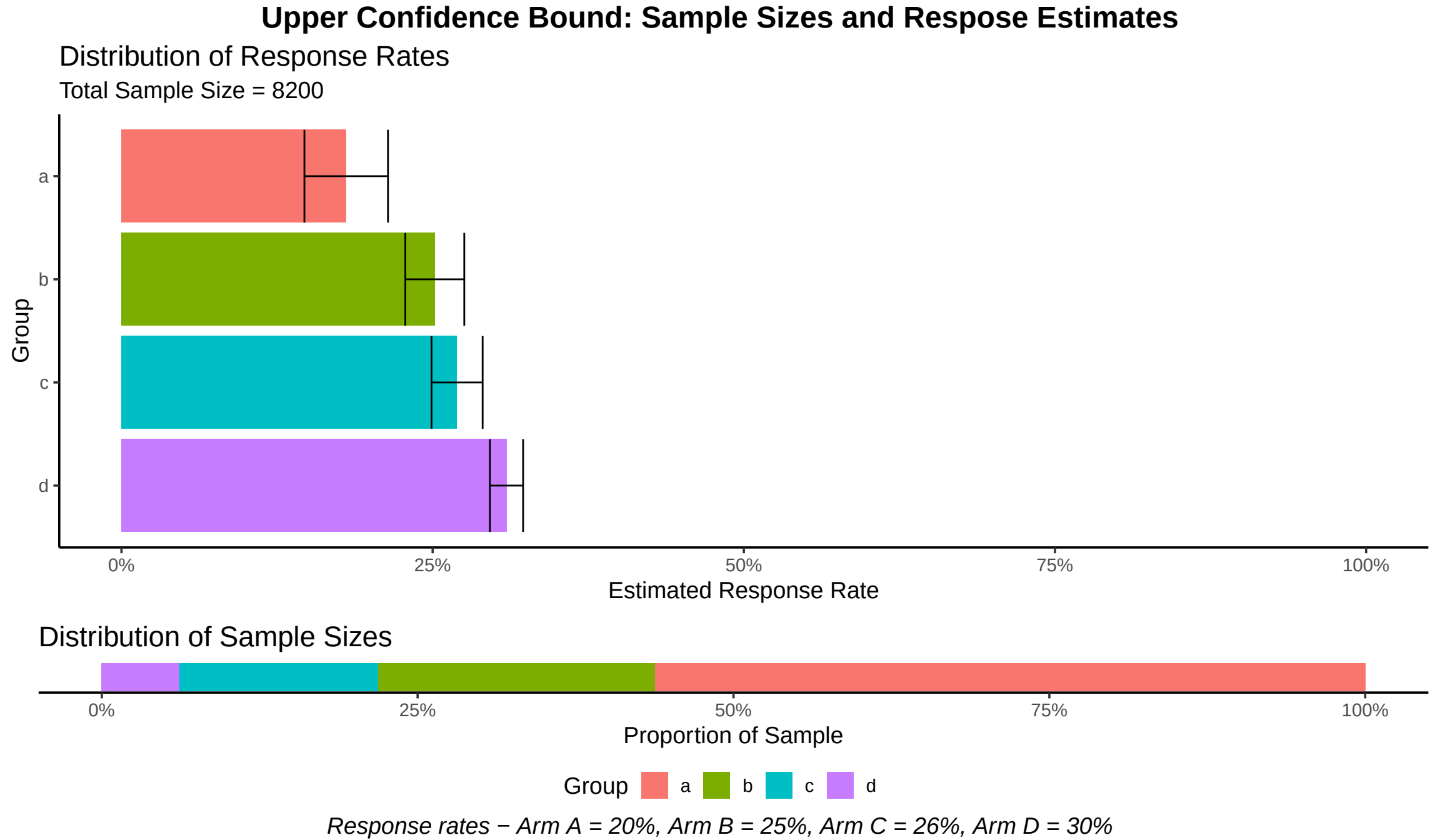

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 7950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

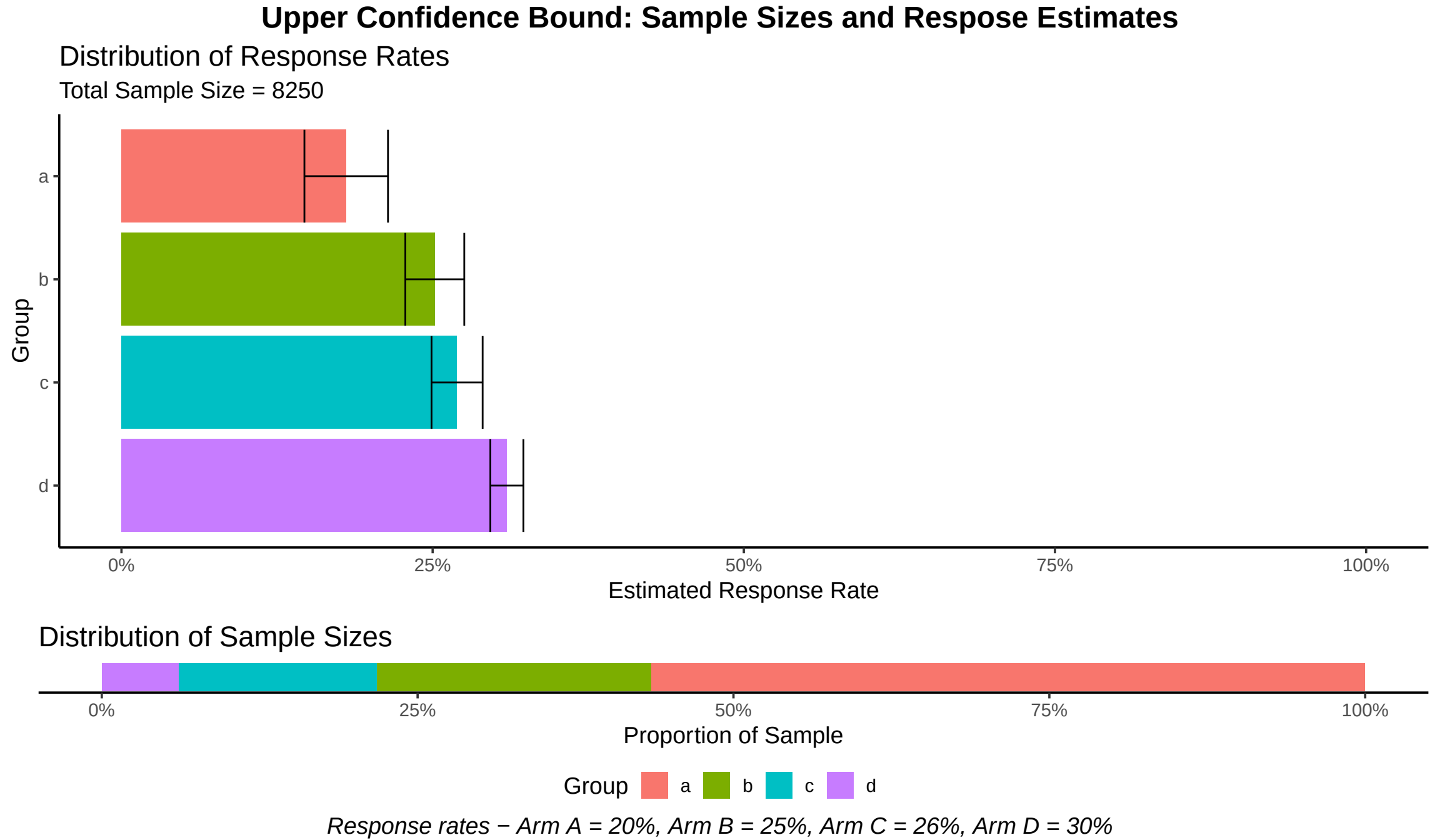

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

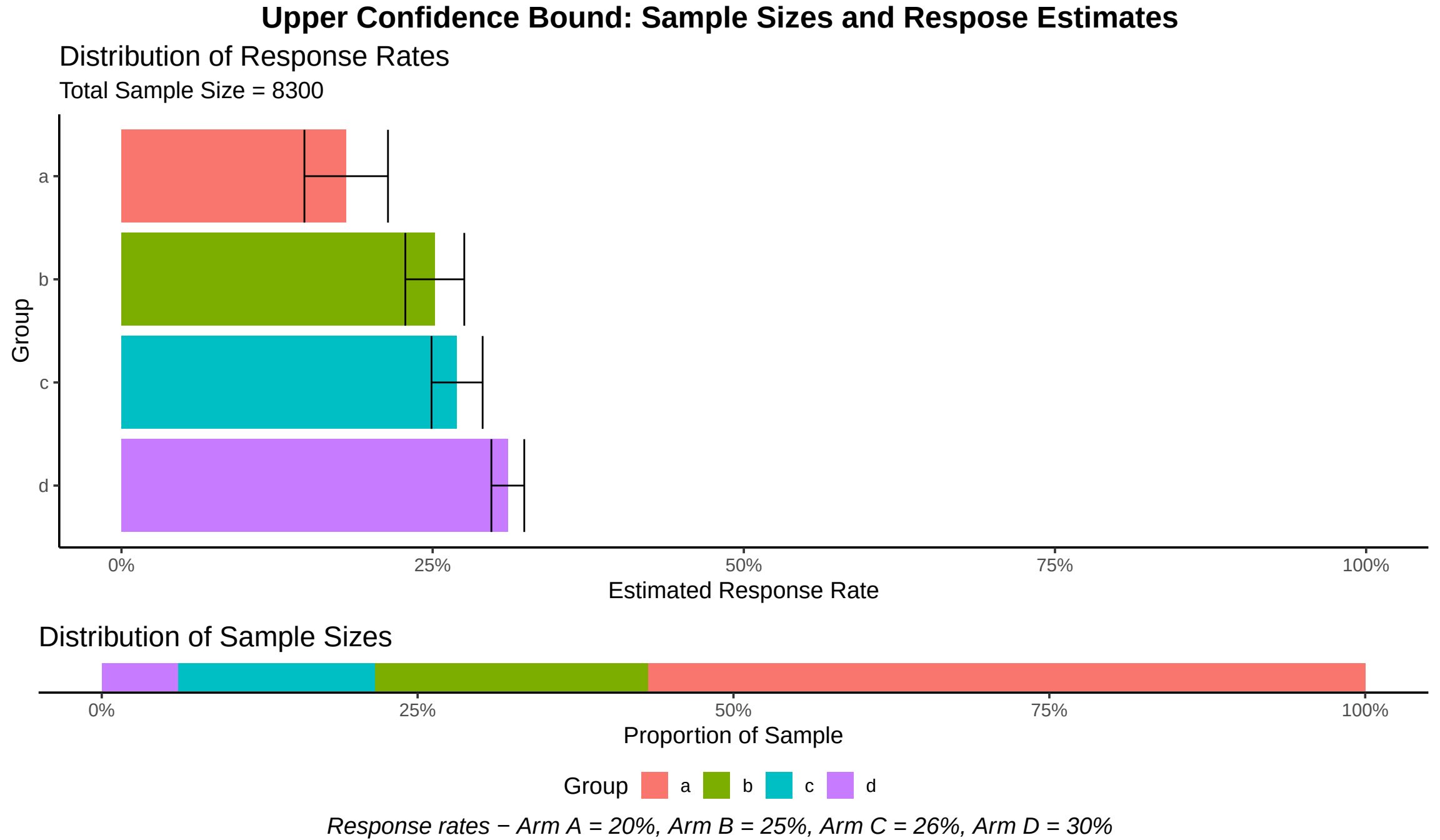

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

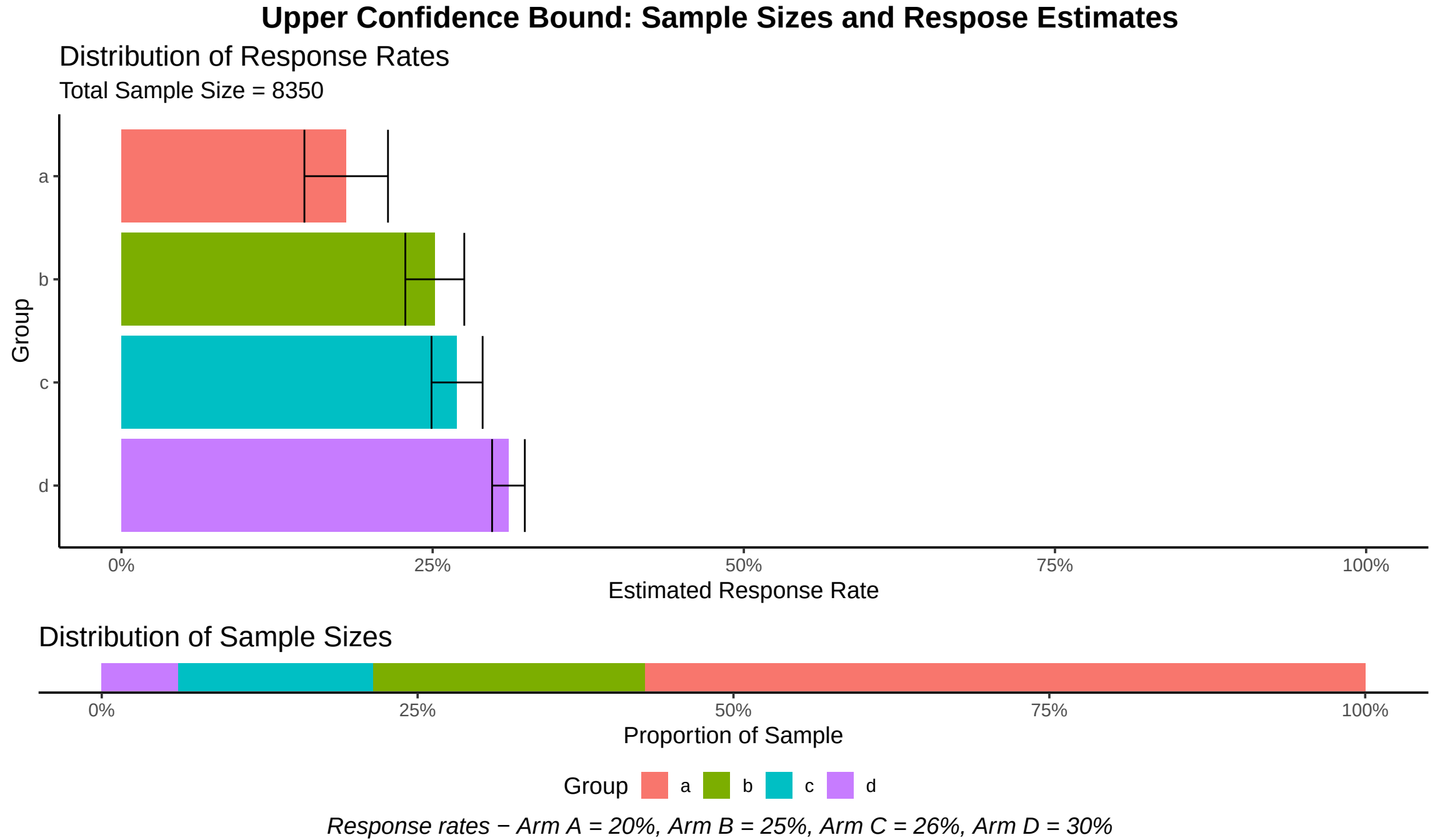

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

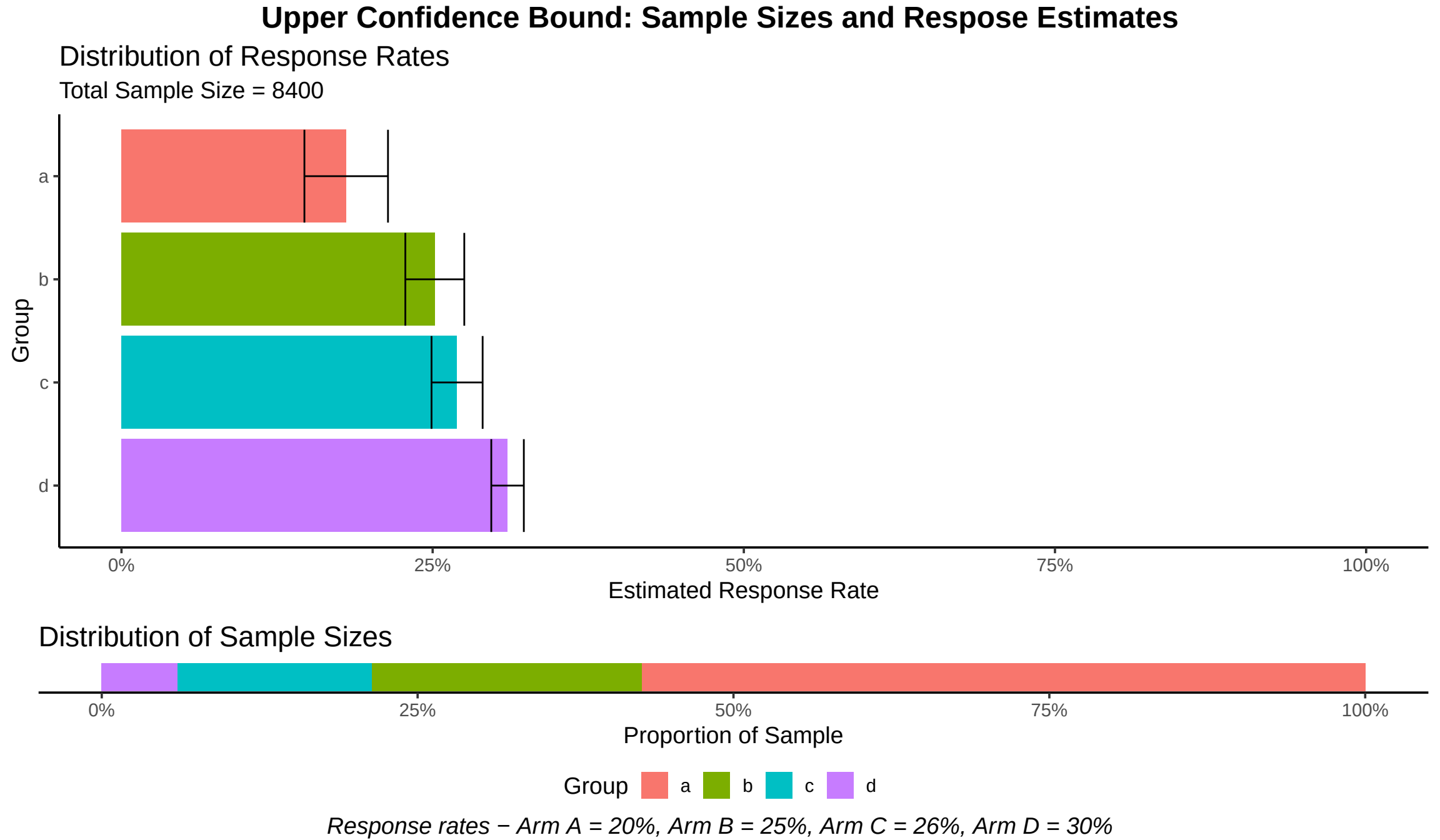

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

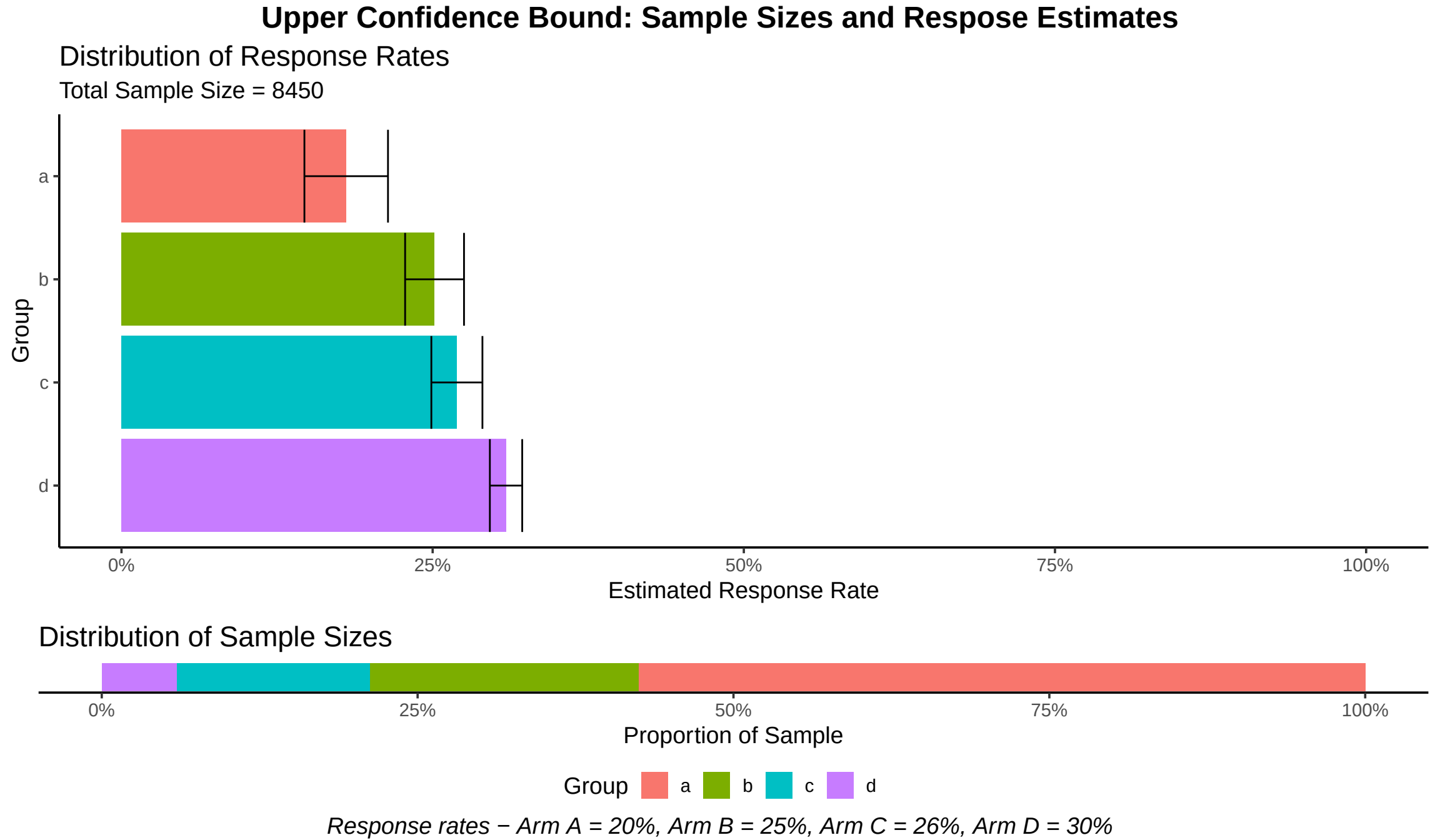

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

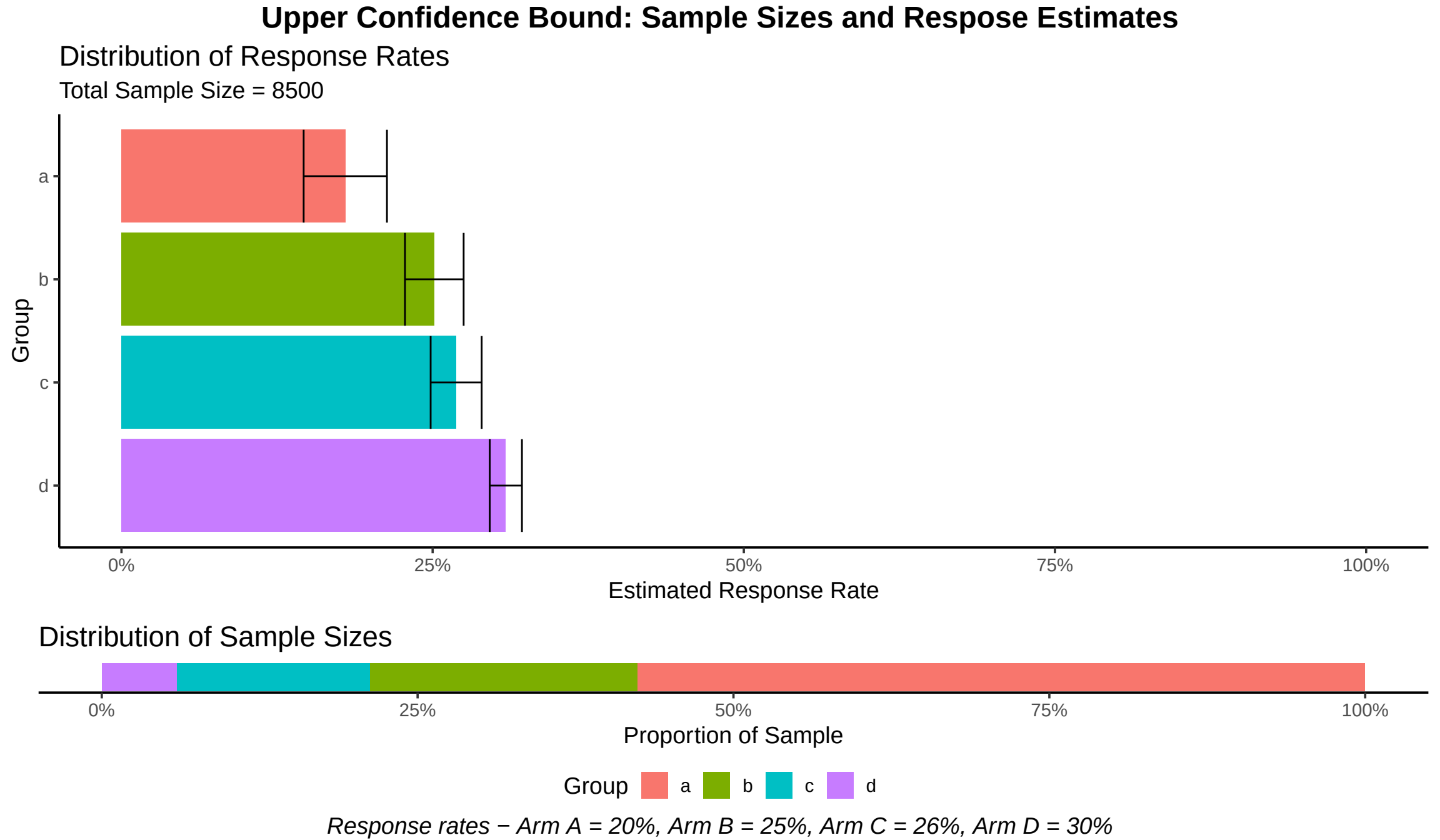

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

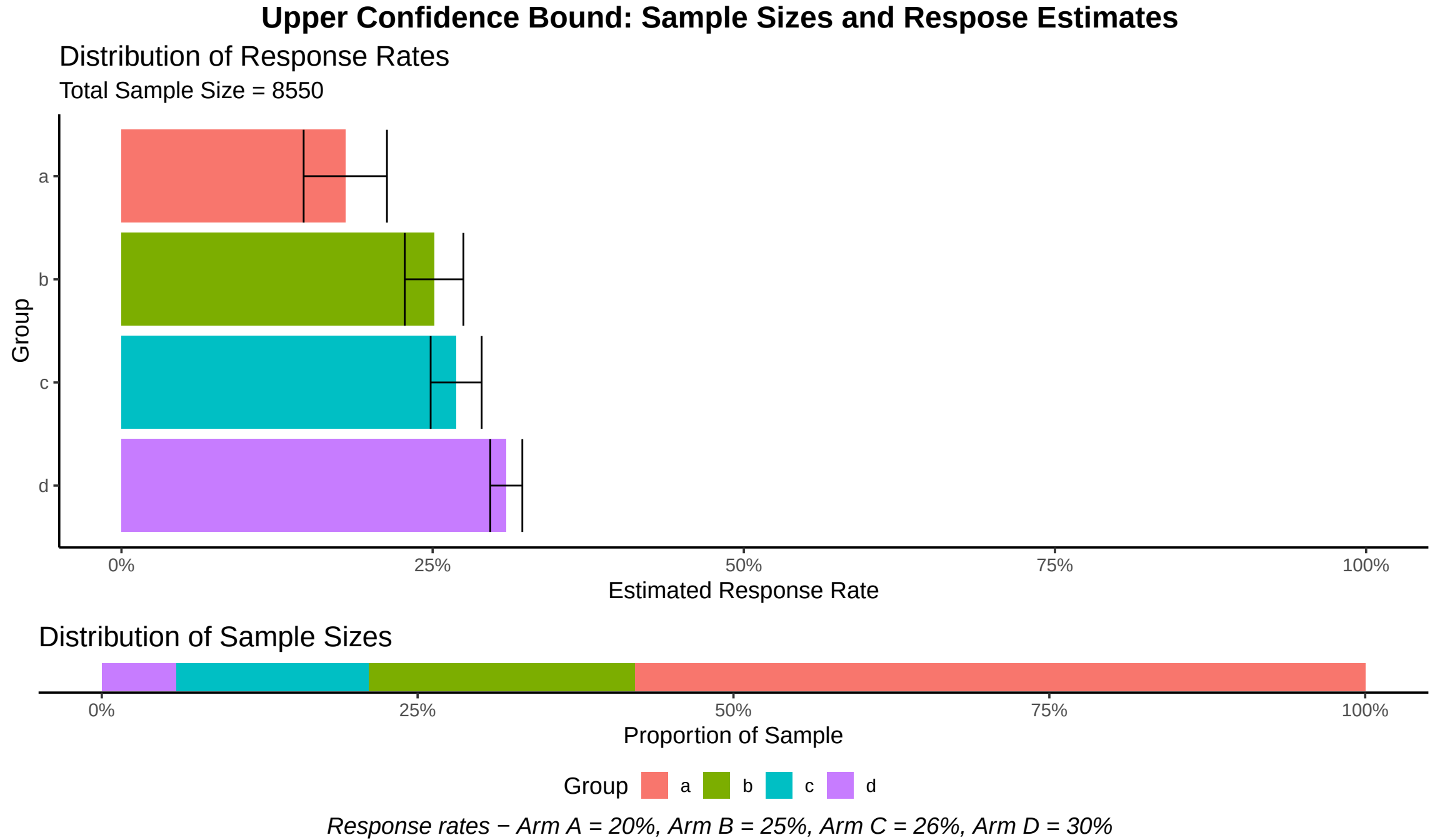

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

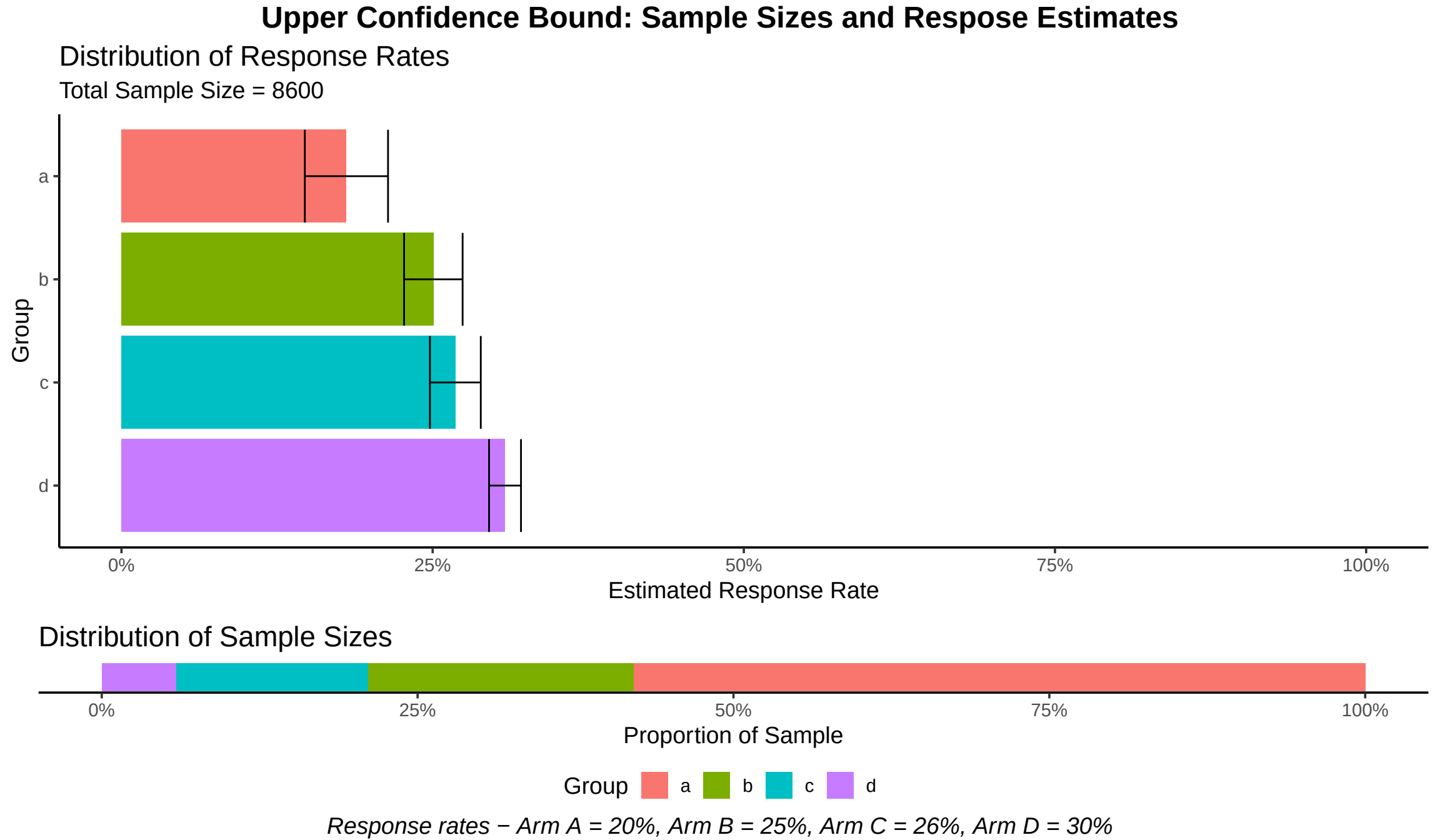

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

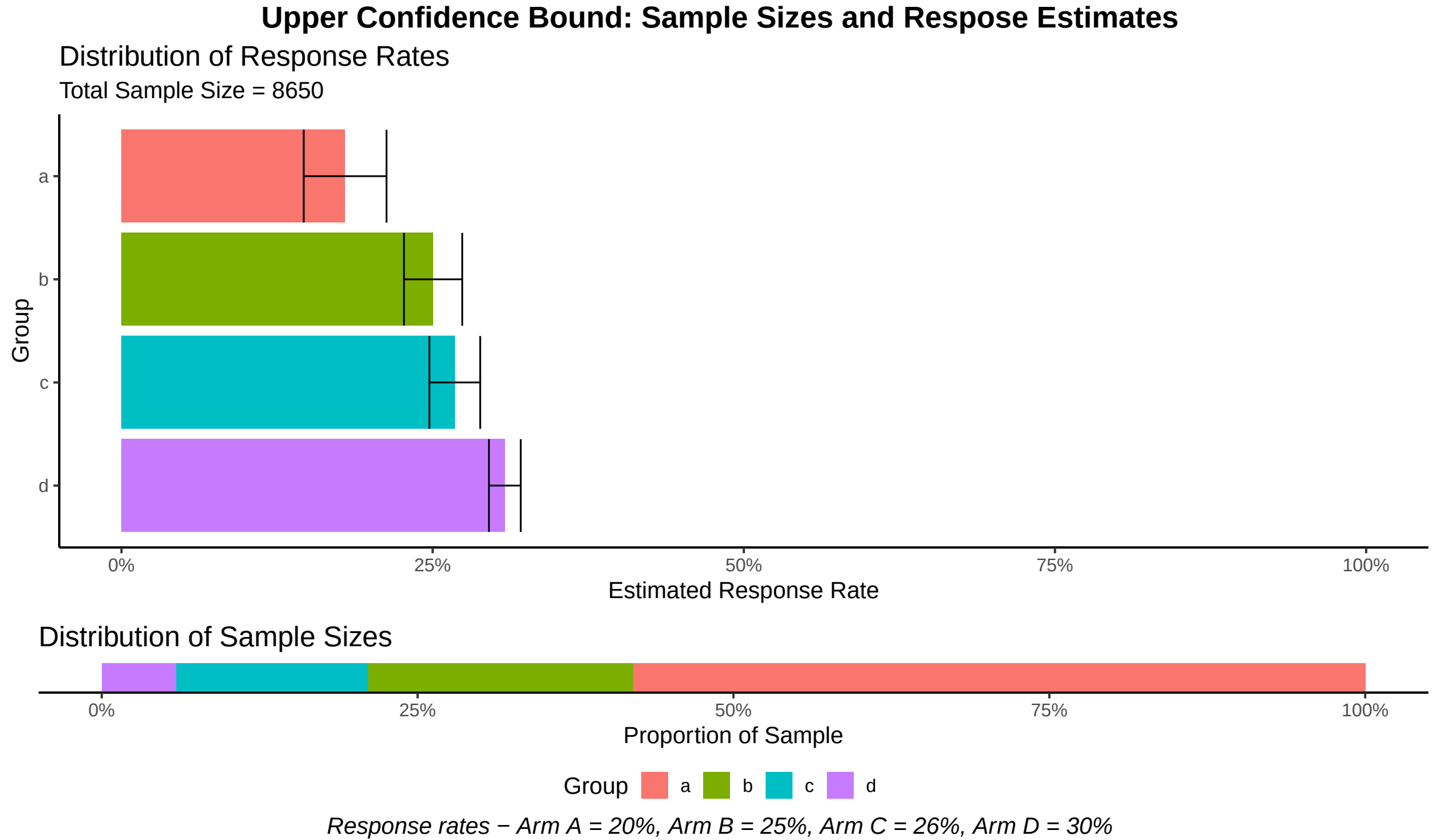

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

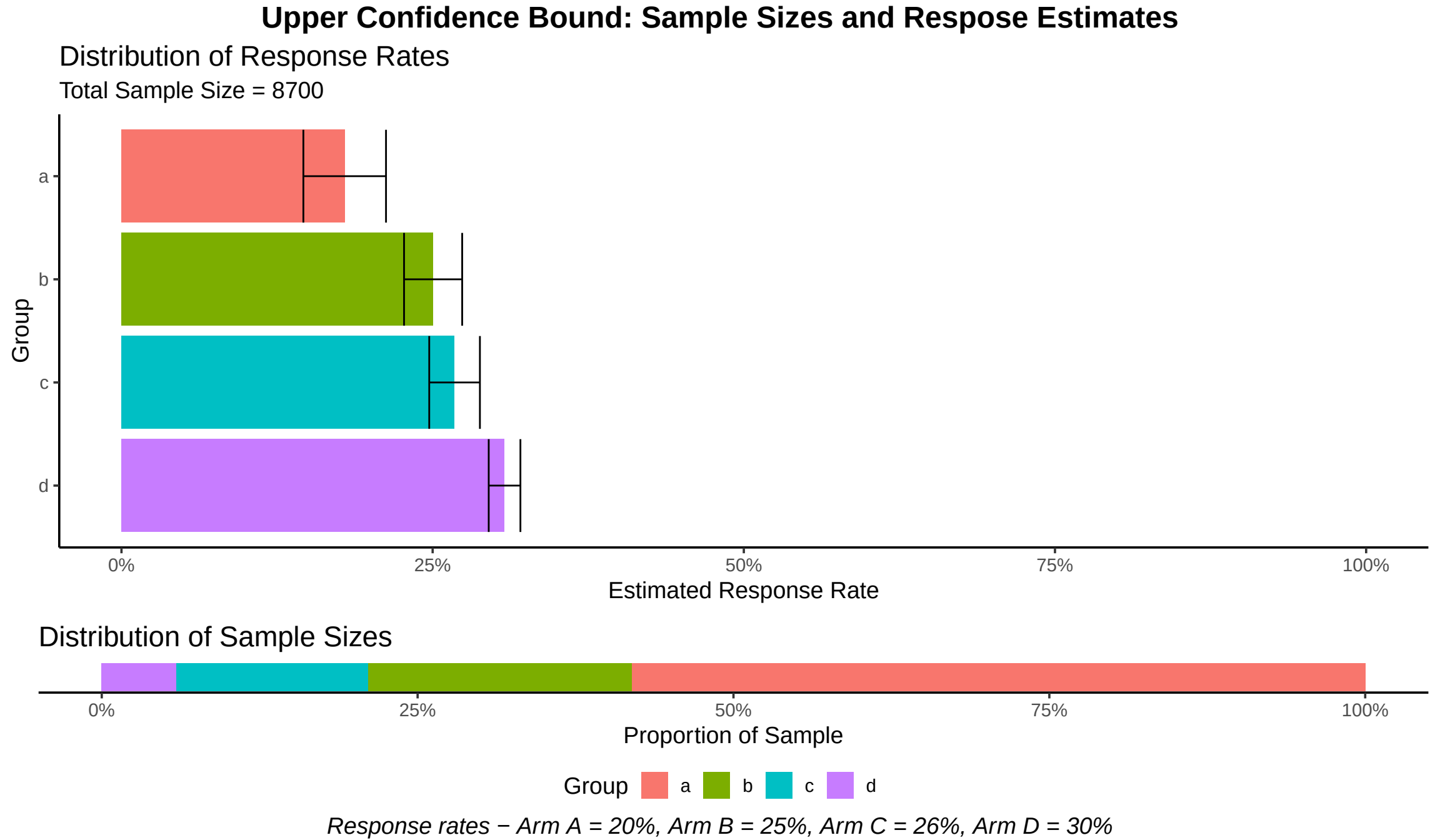

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

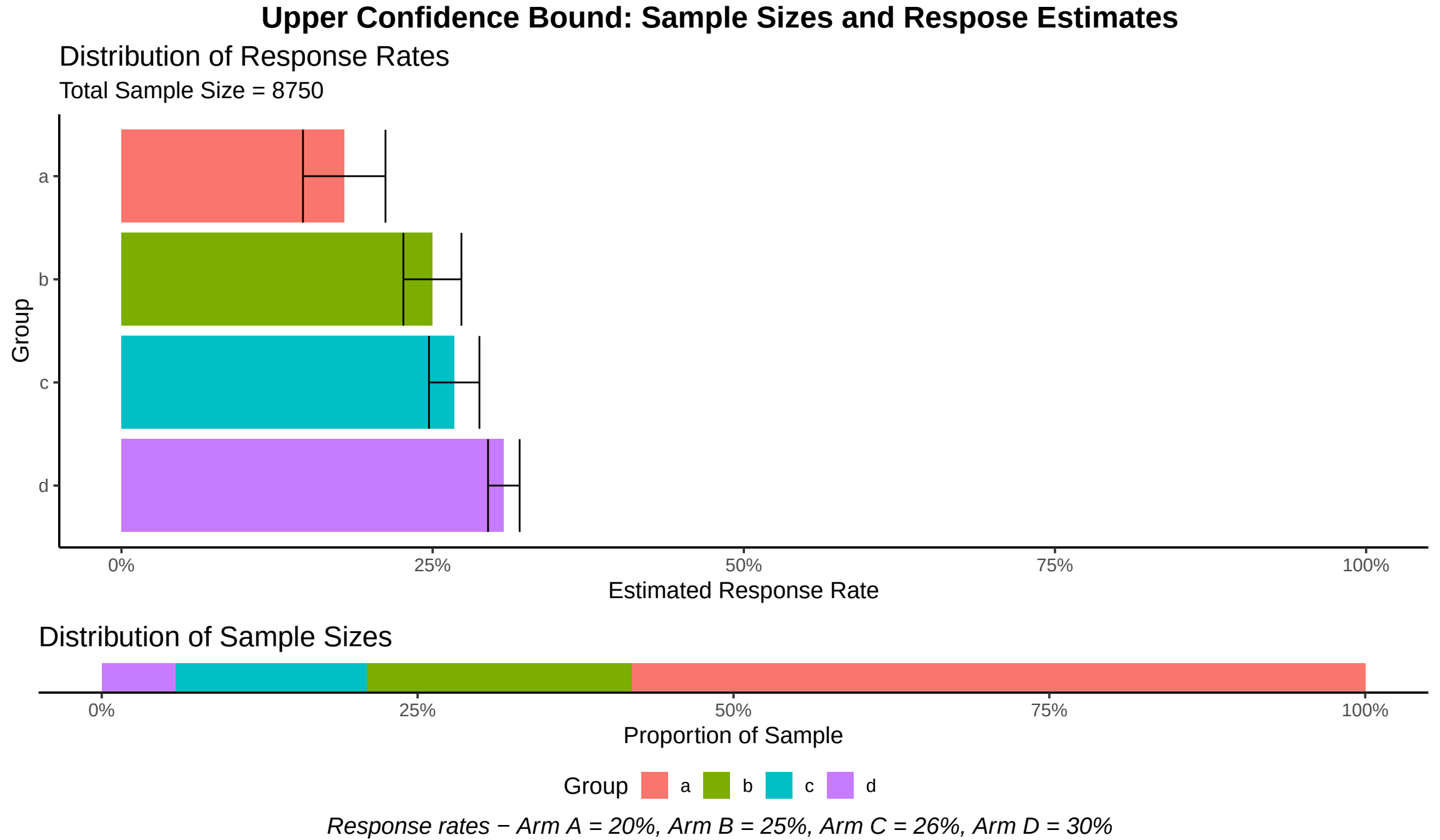

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

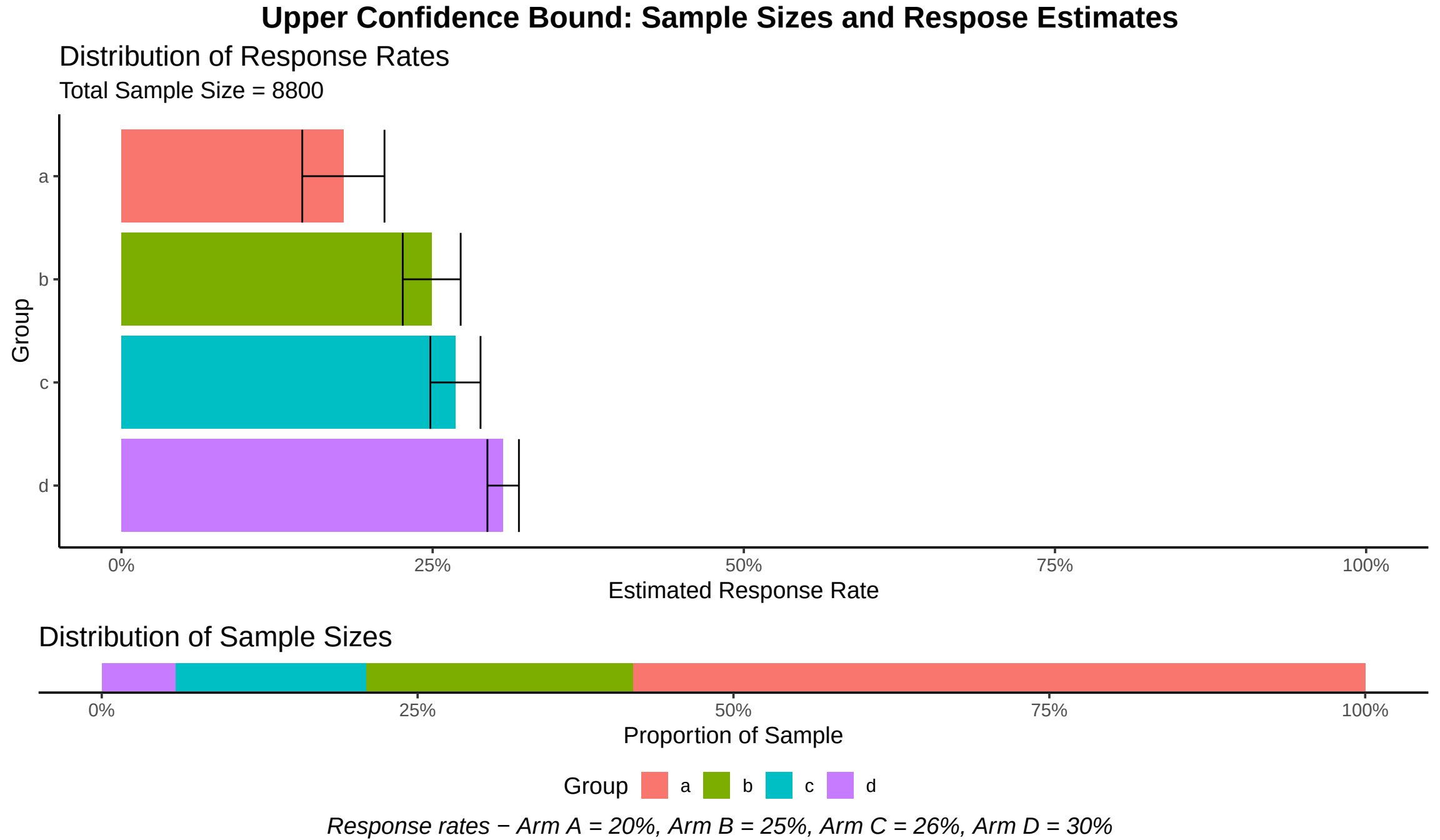

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

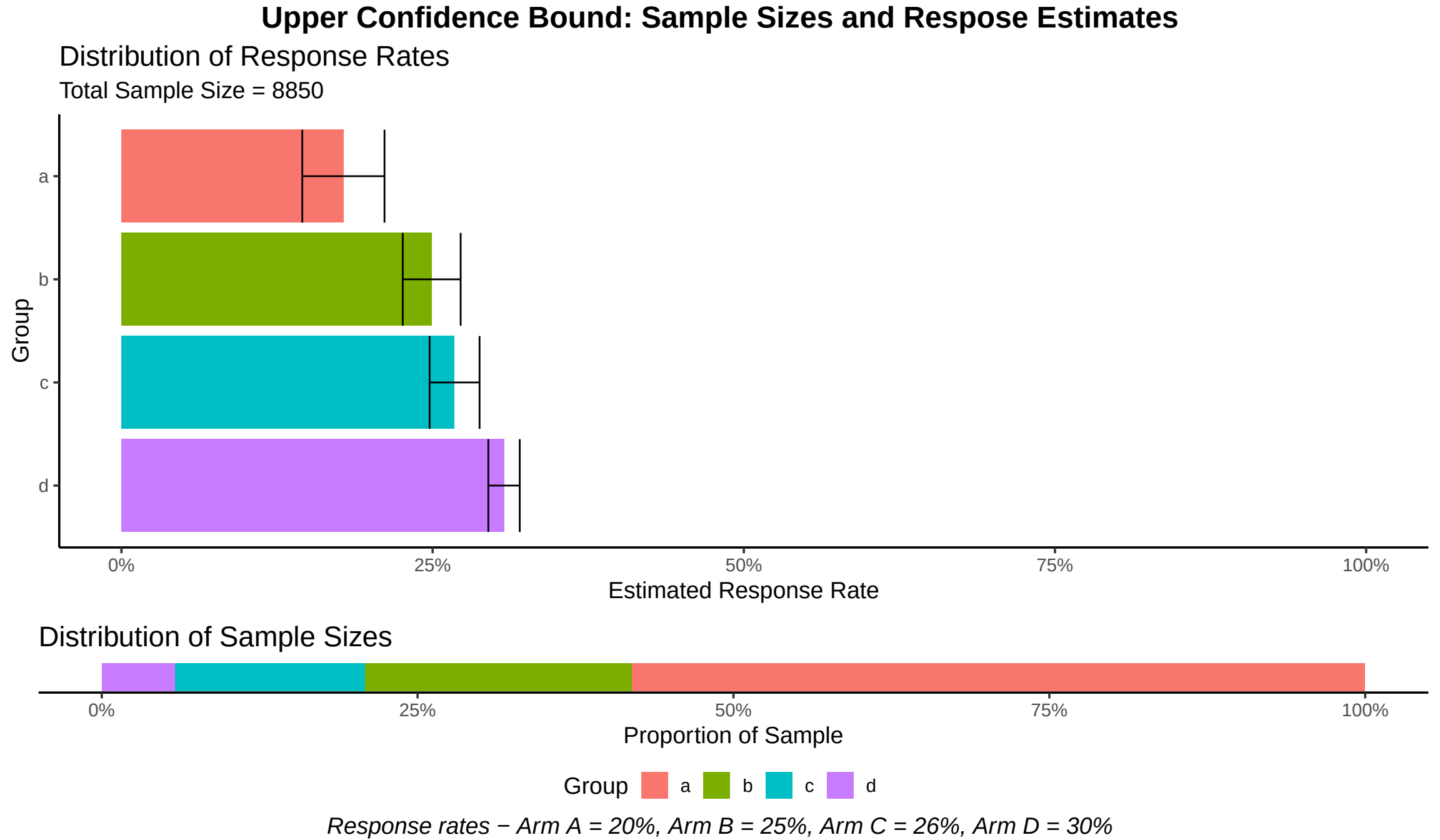

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

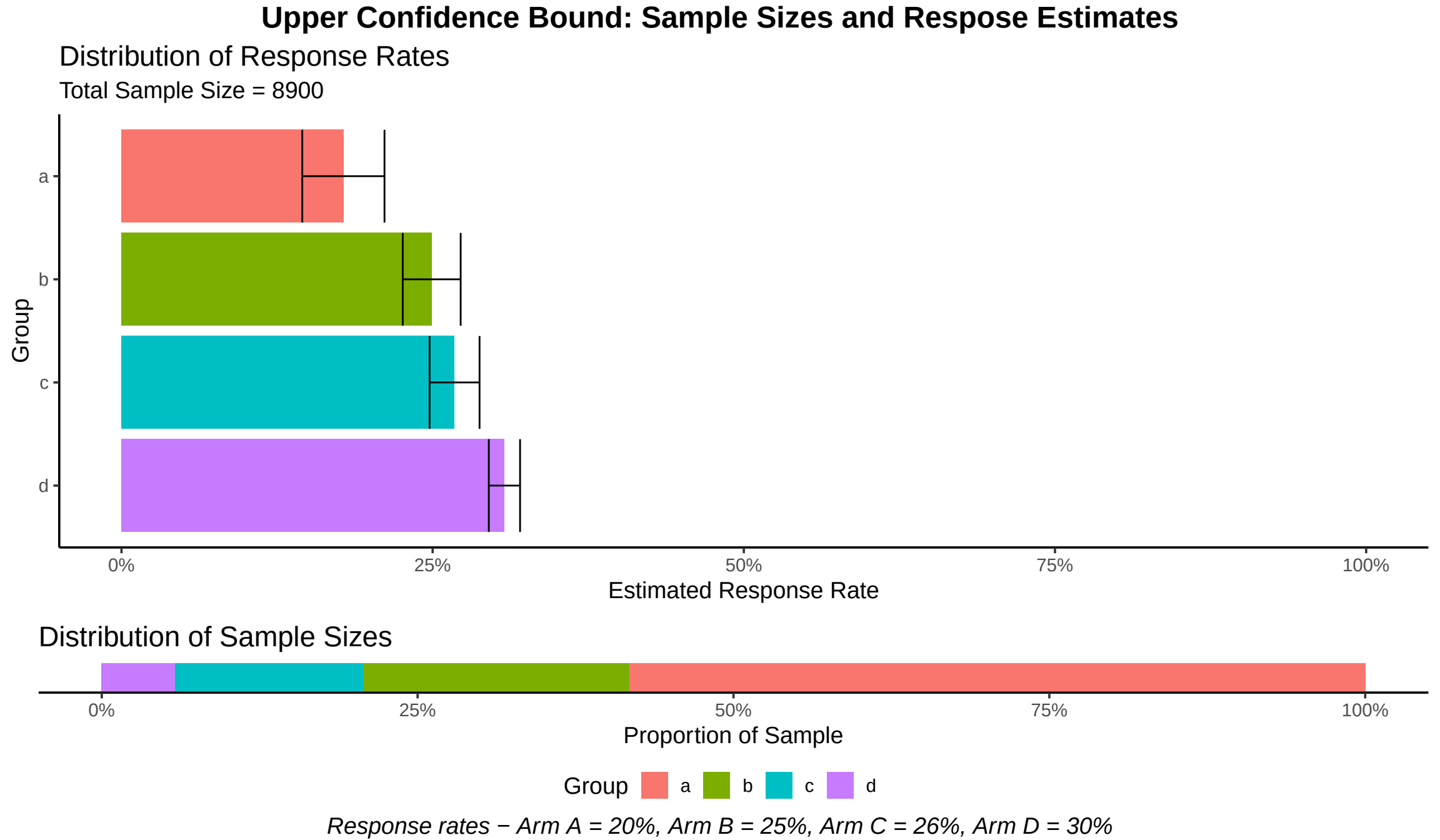

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

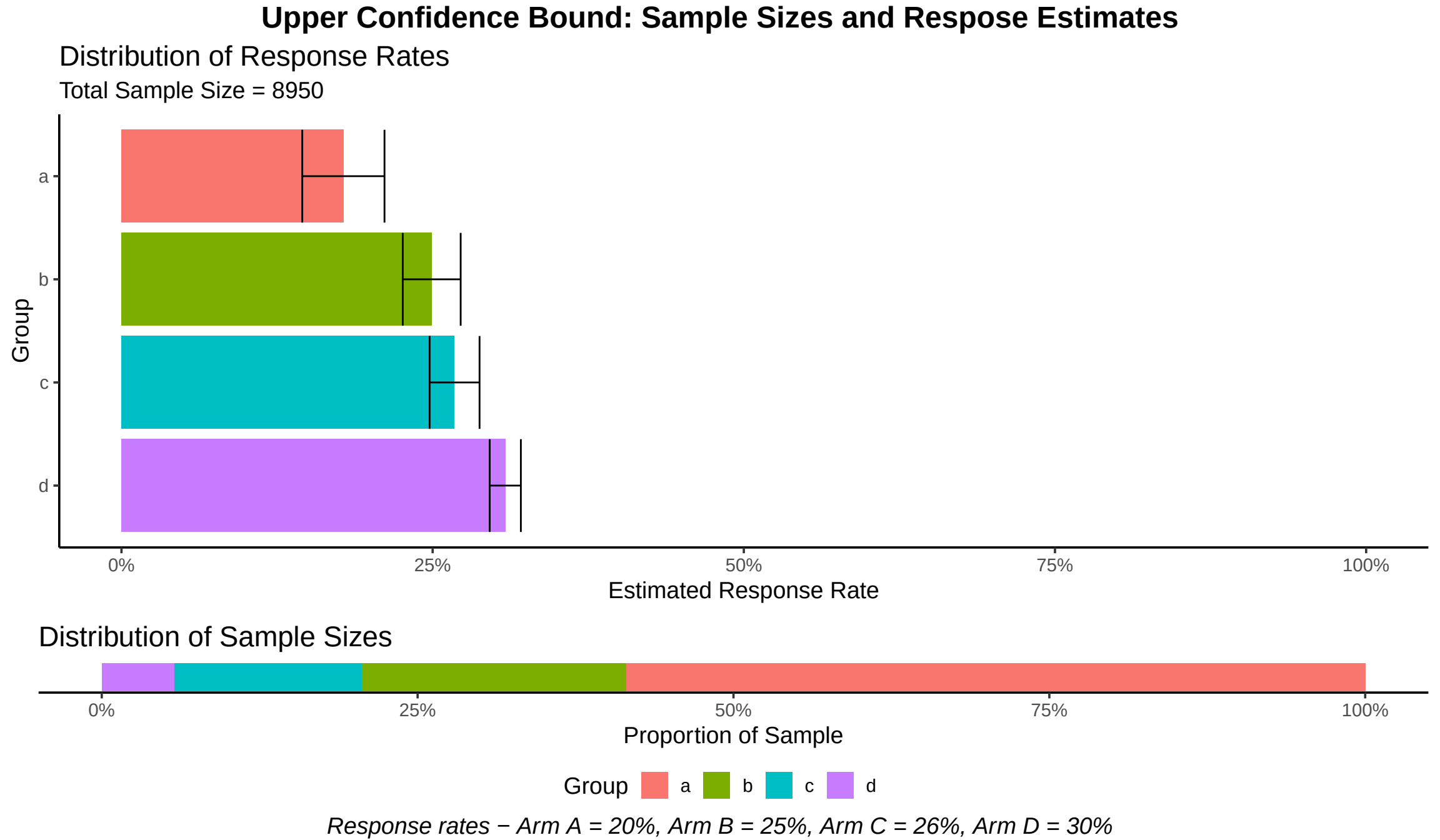

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

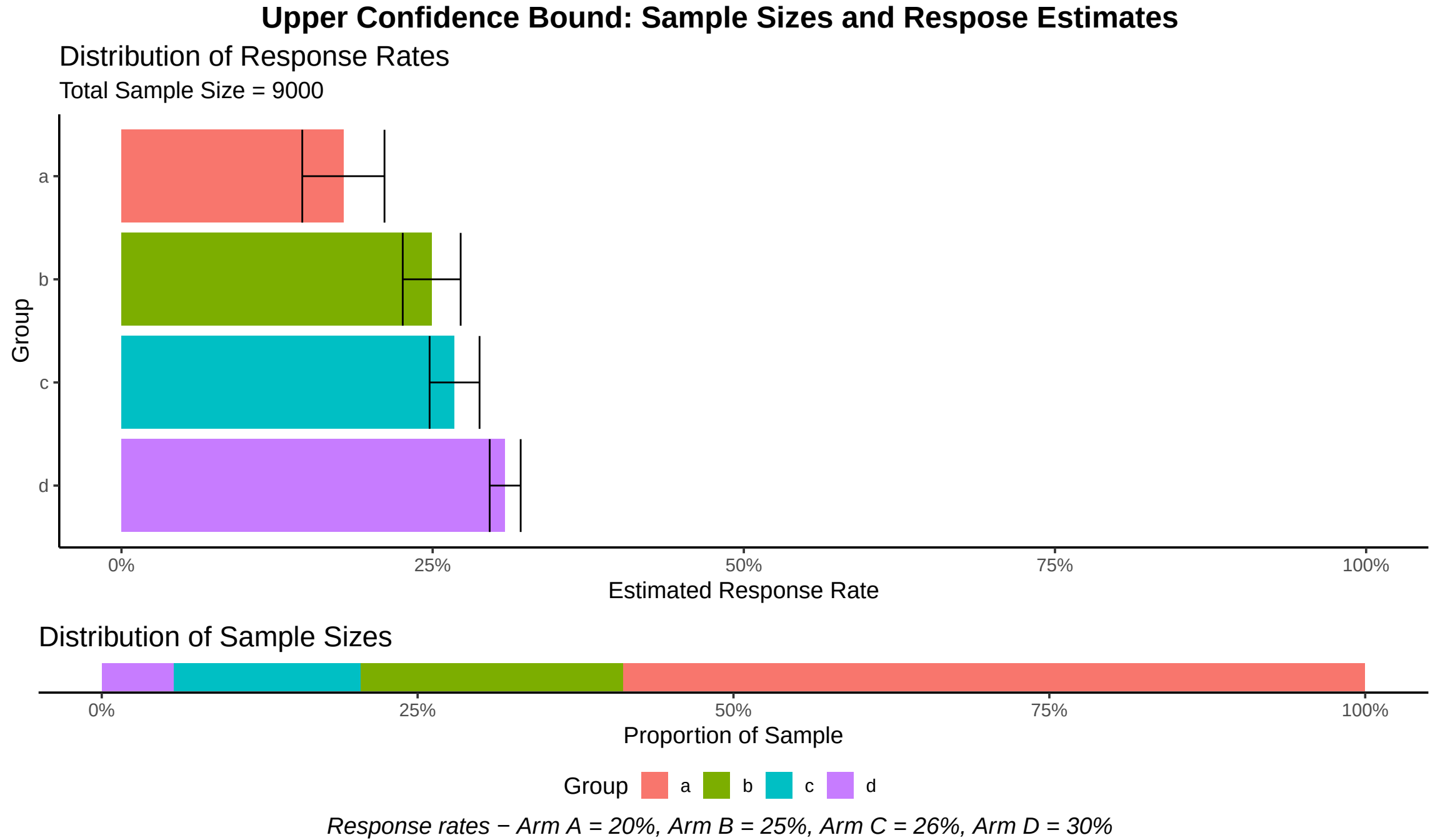

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

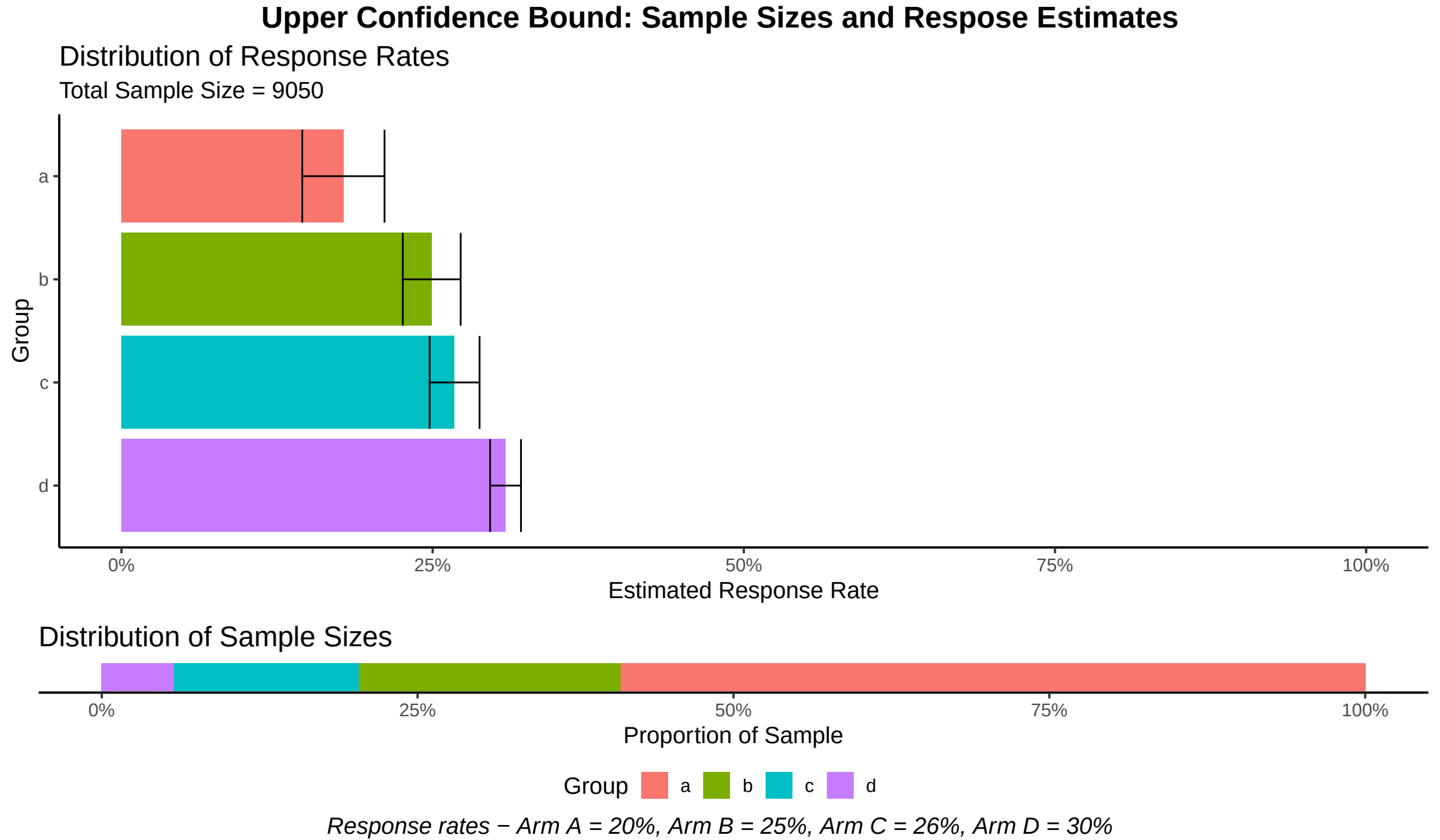

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

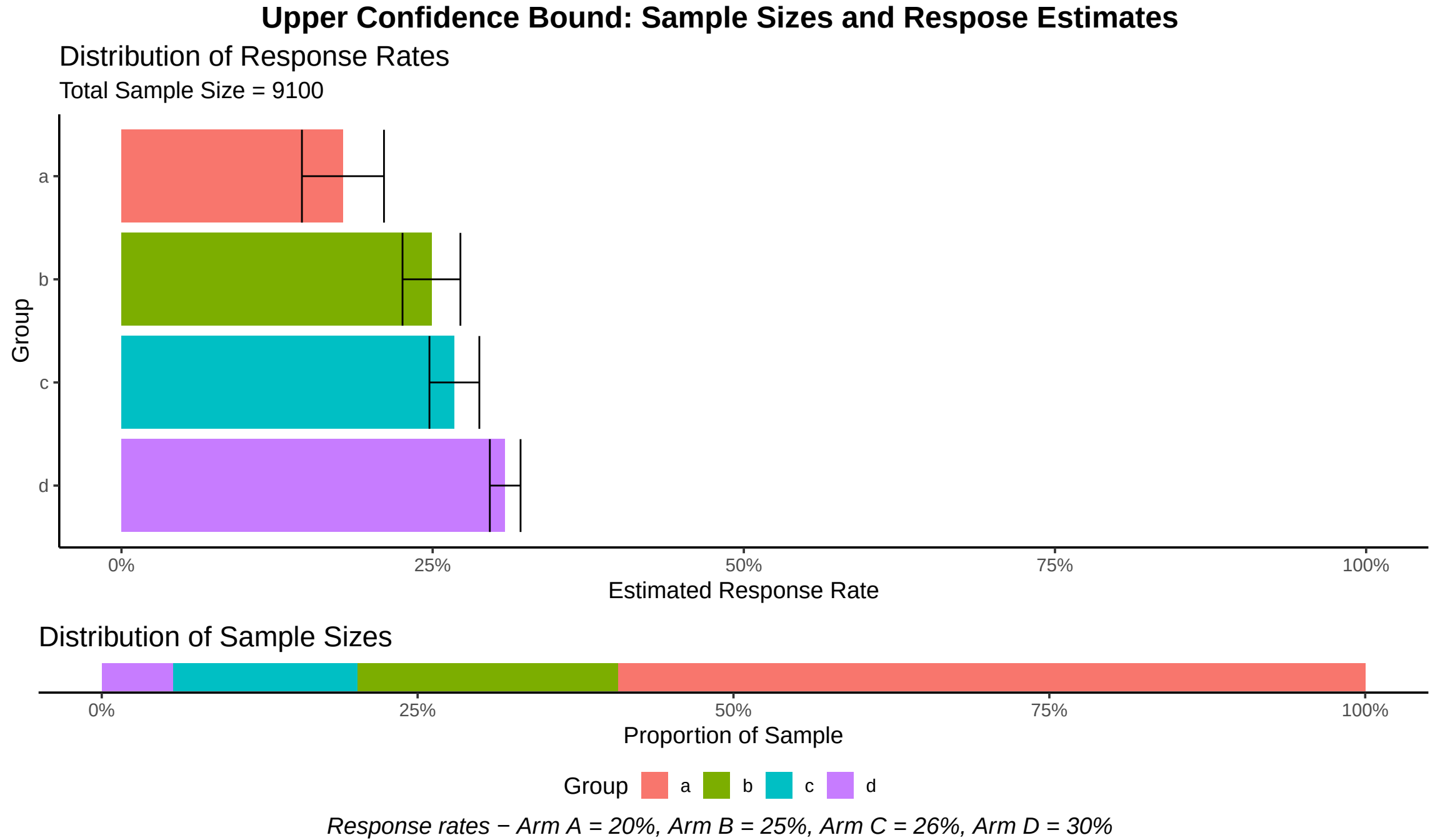

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

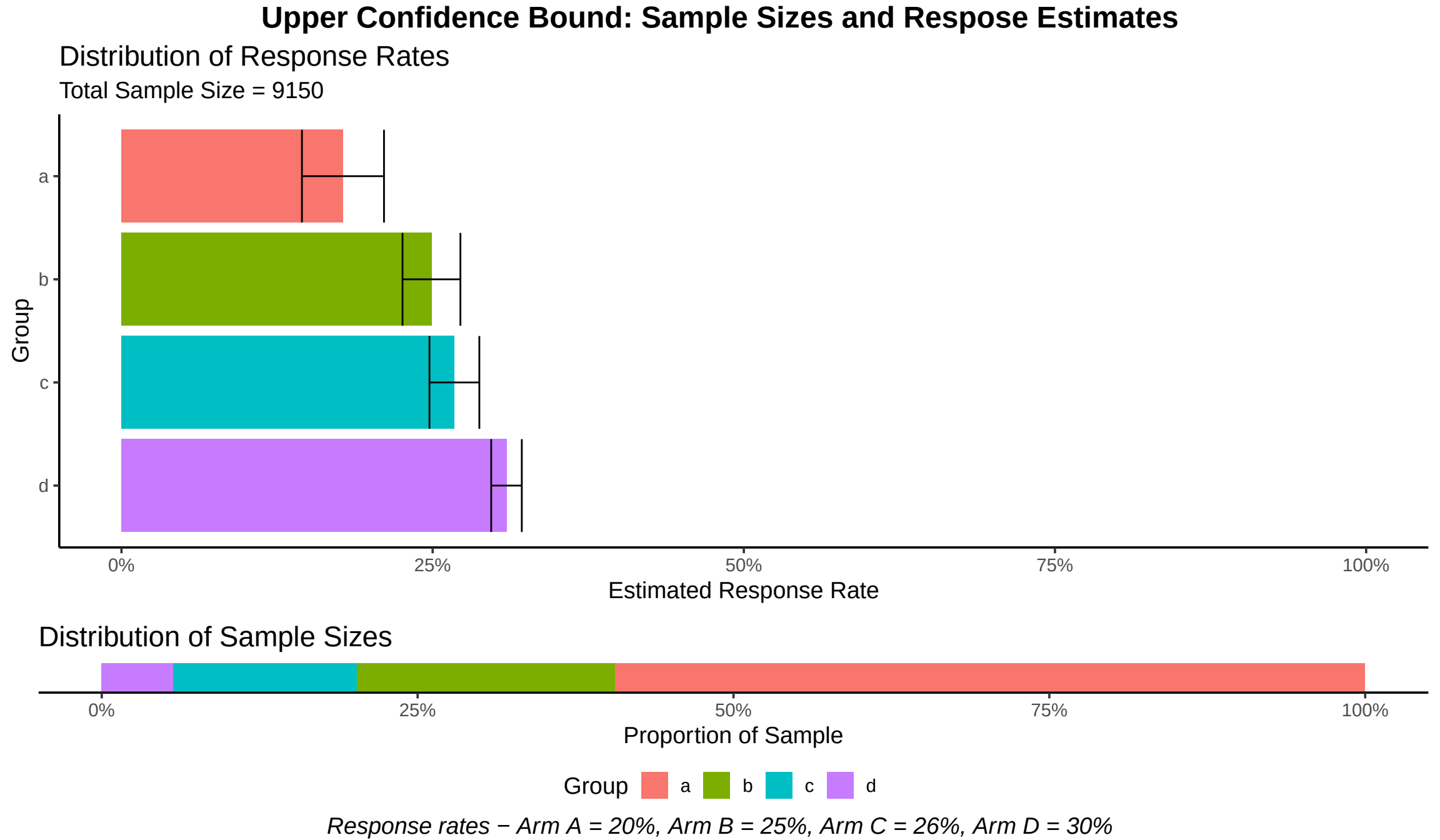

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

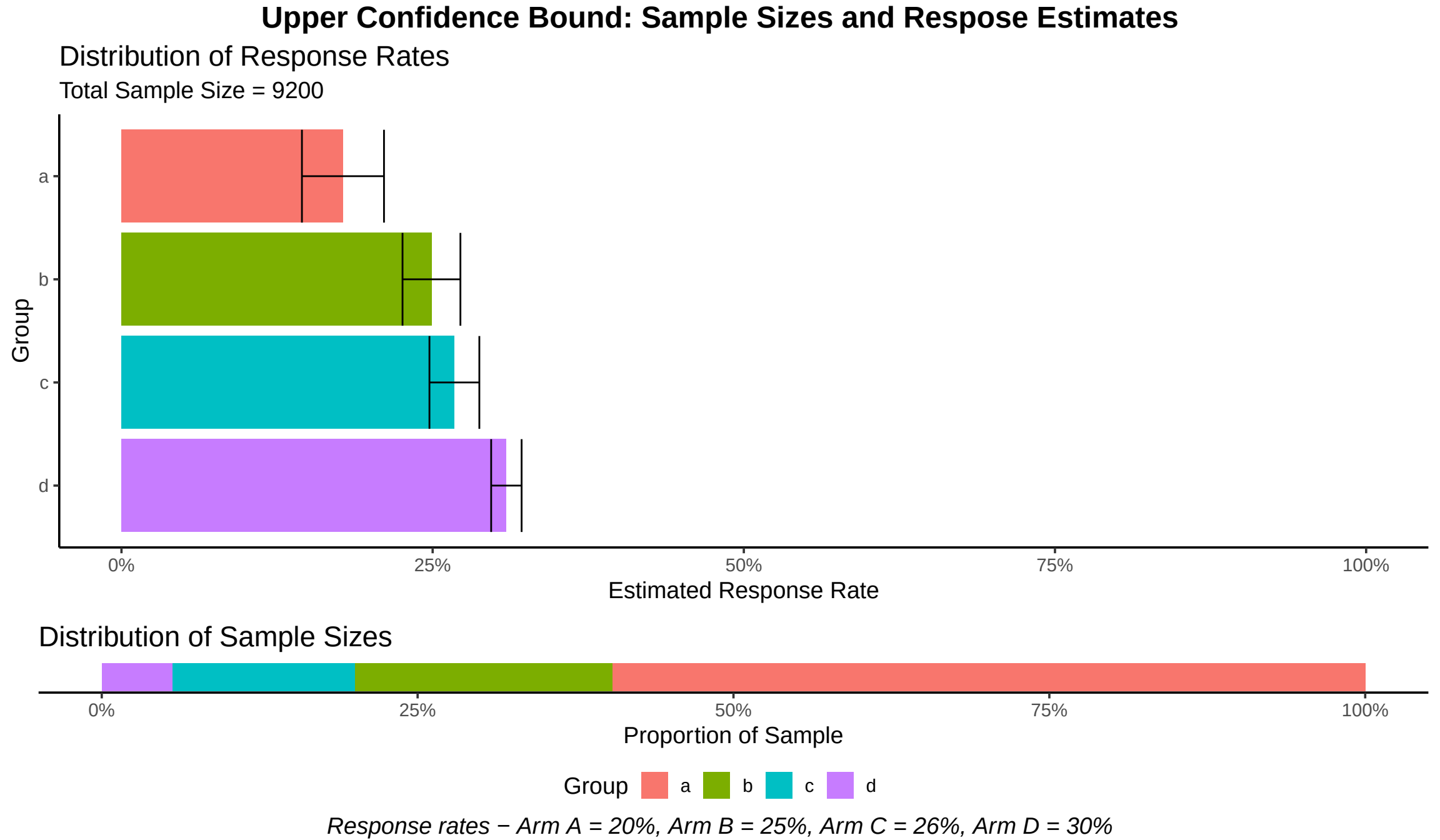

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 8950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

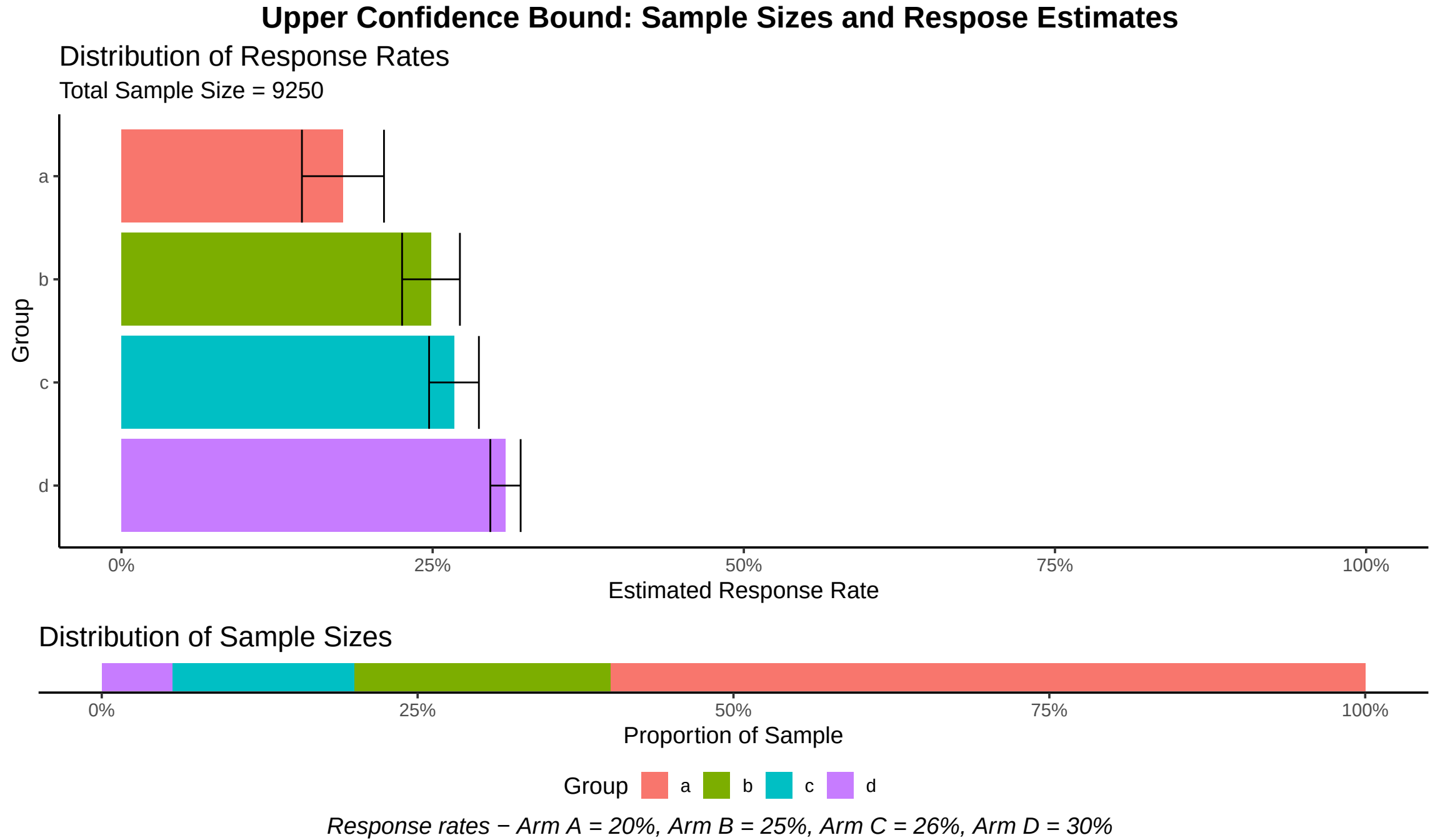

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

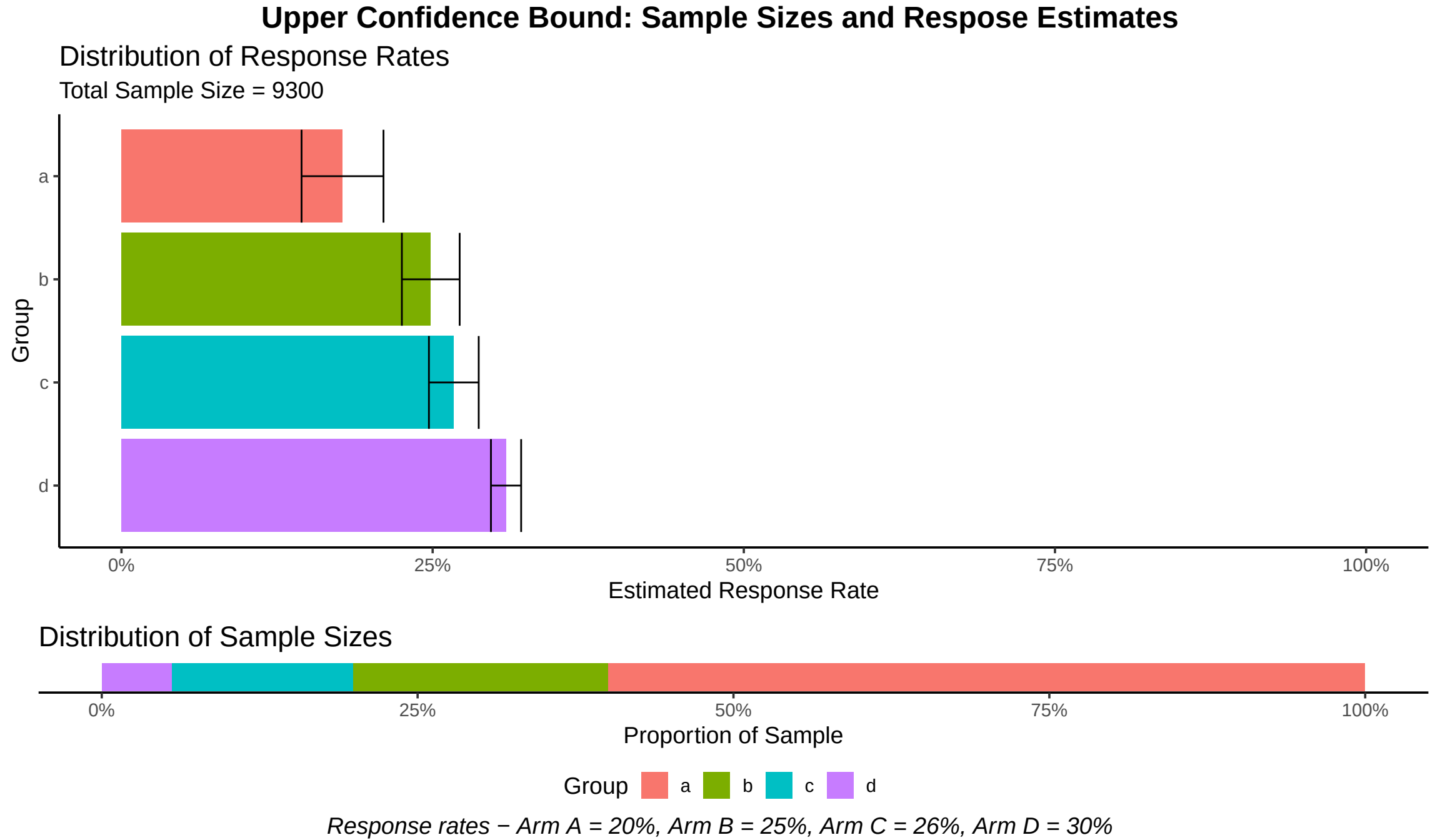

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

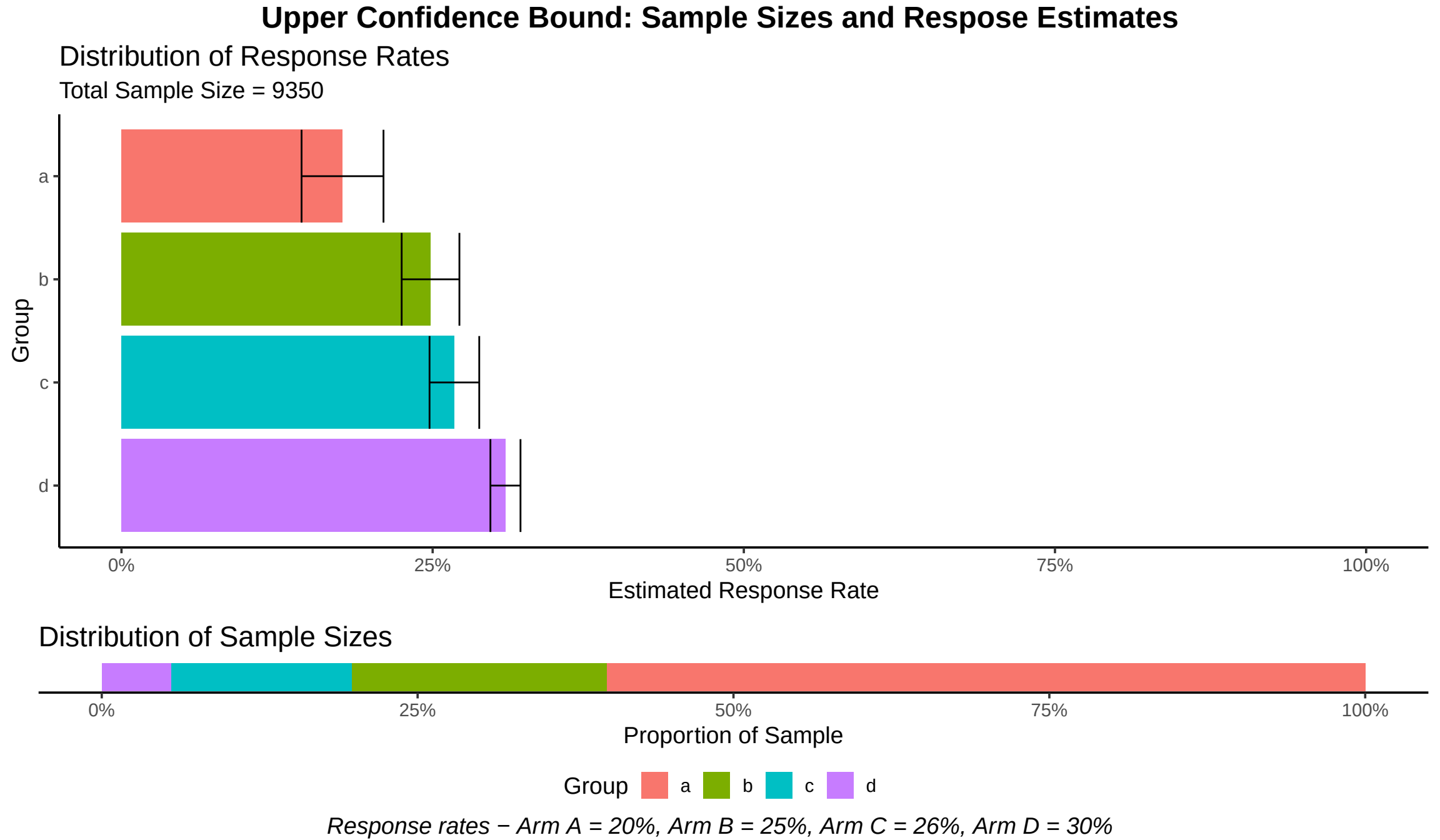

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

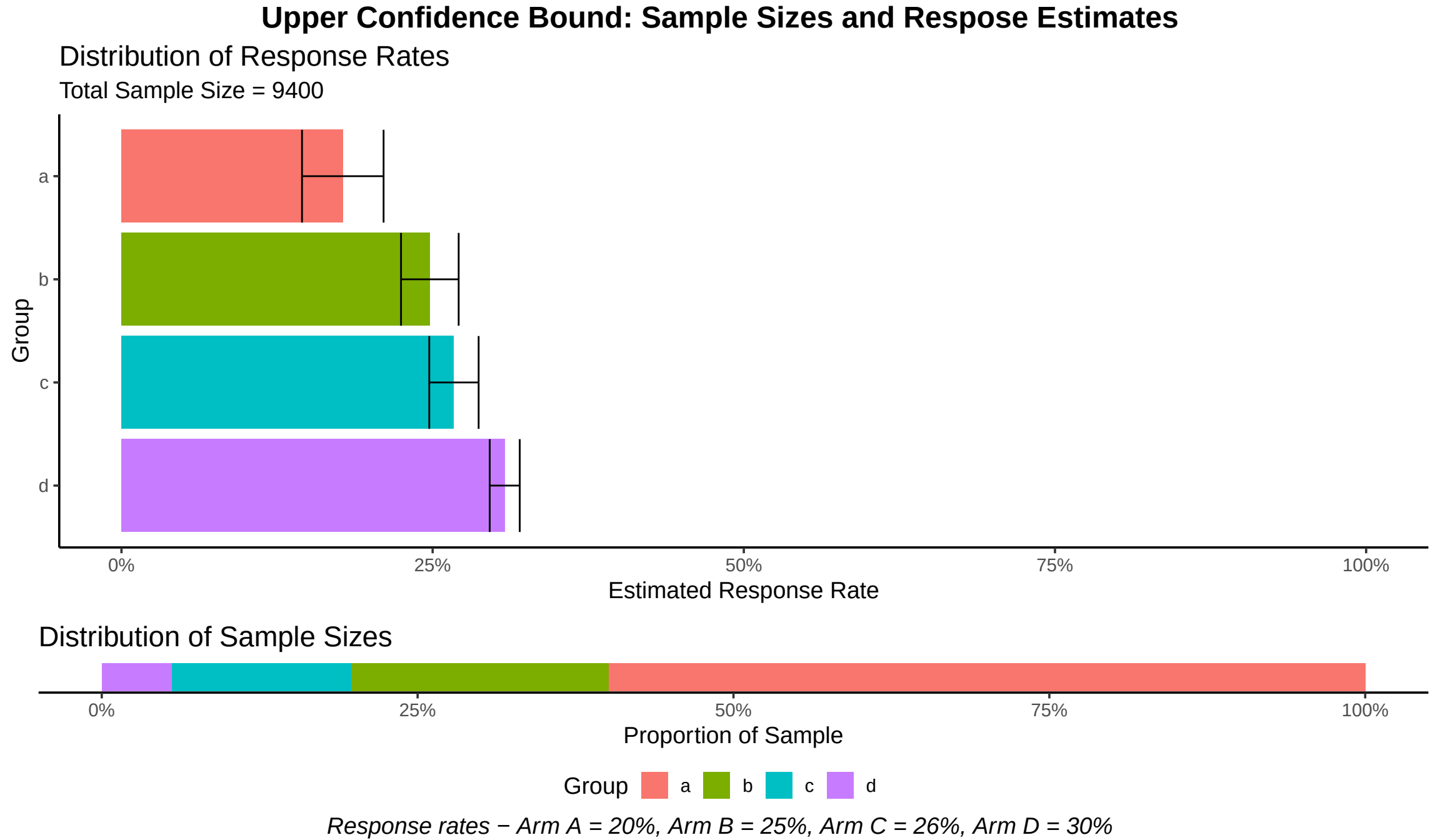

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

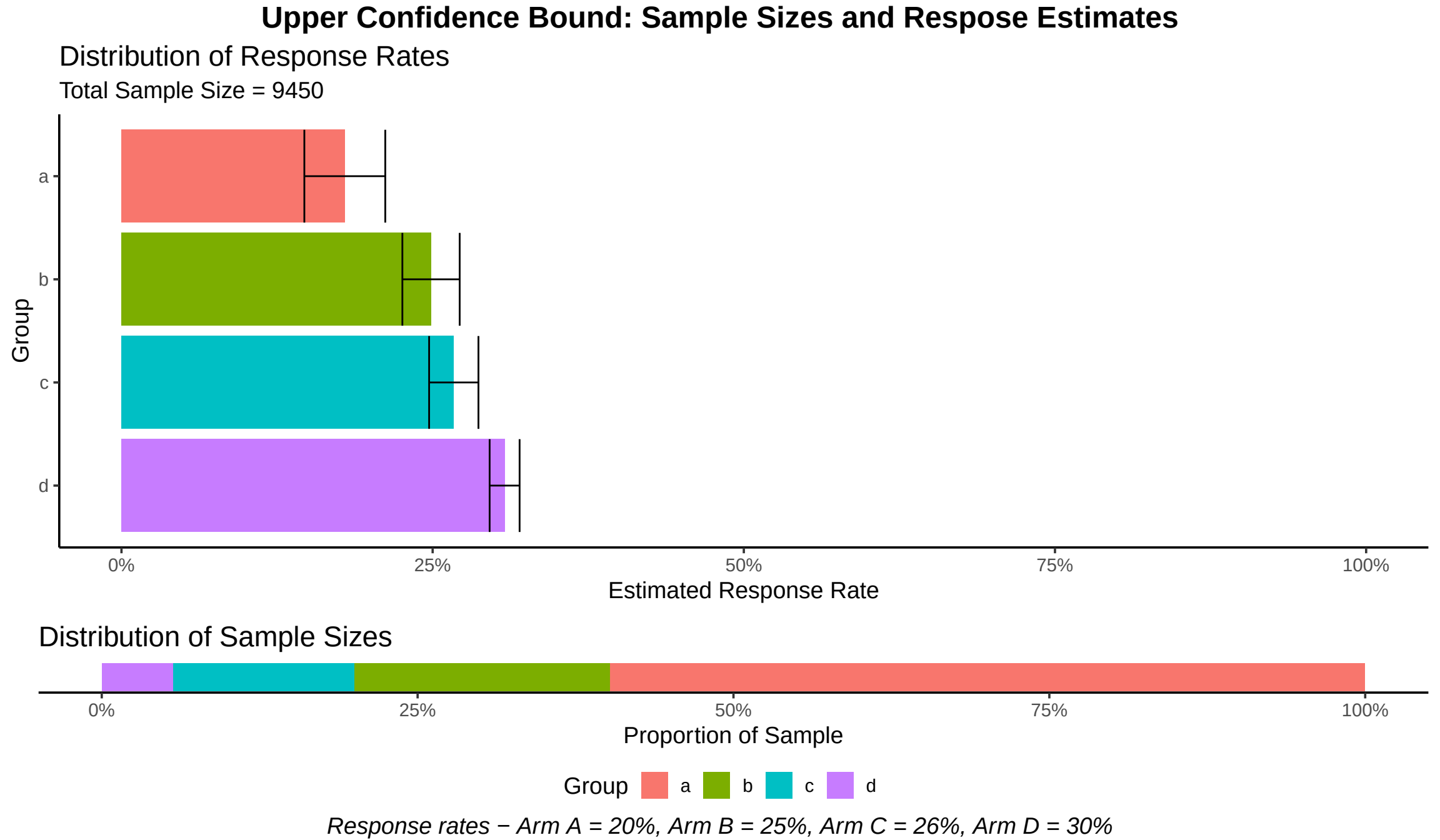

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

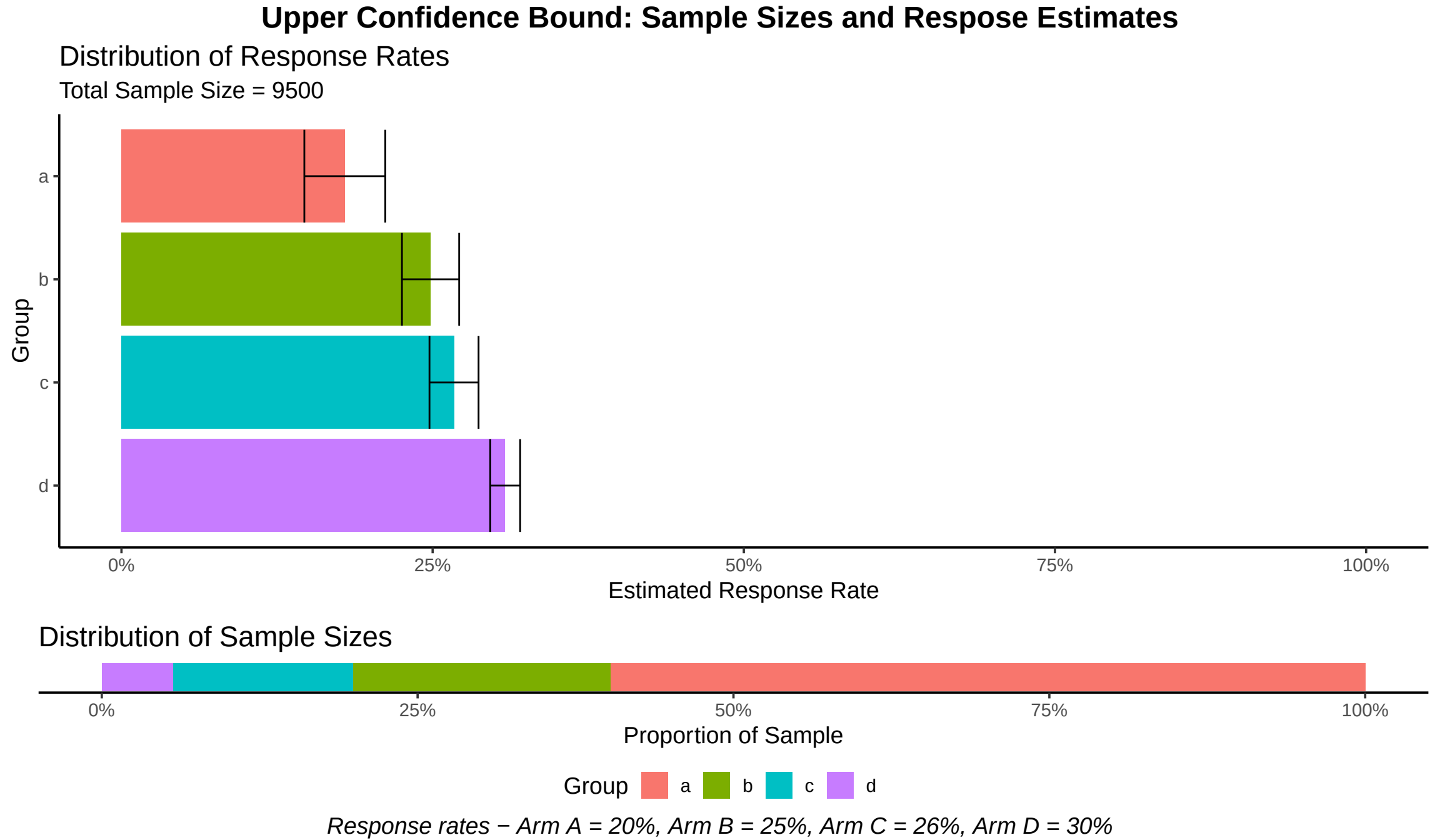

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

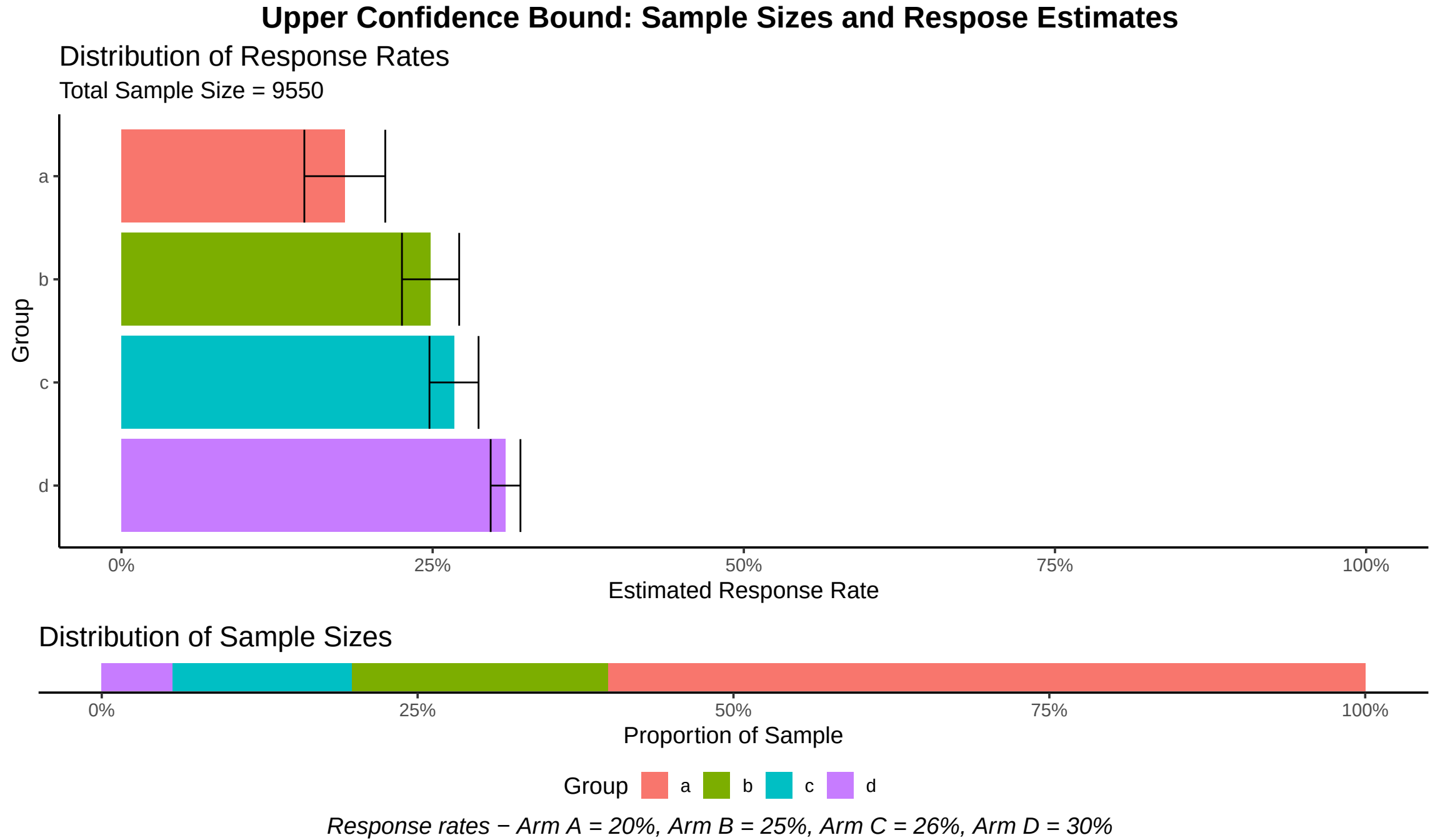

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

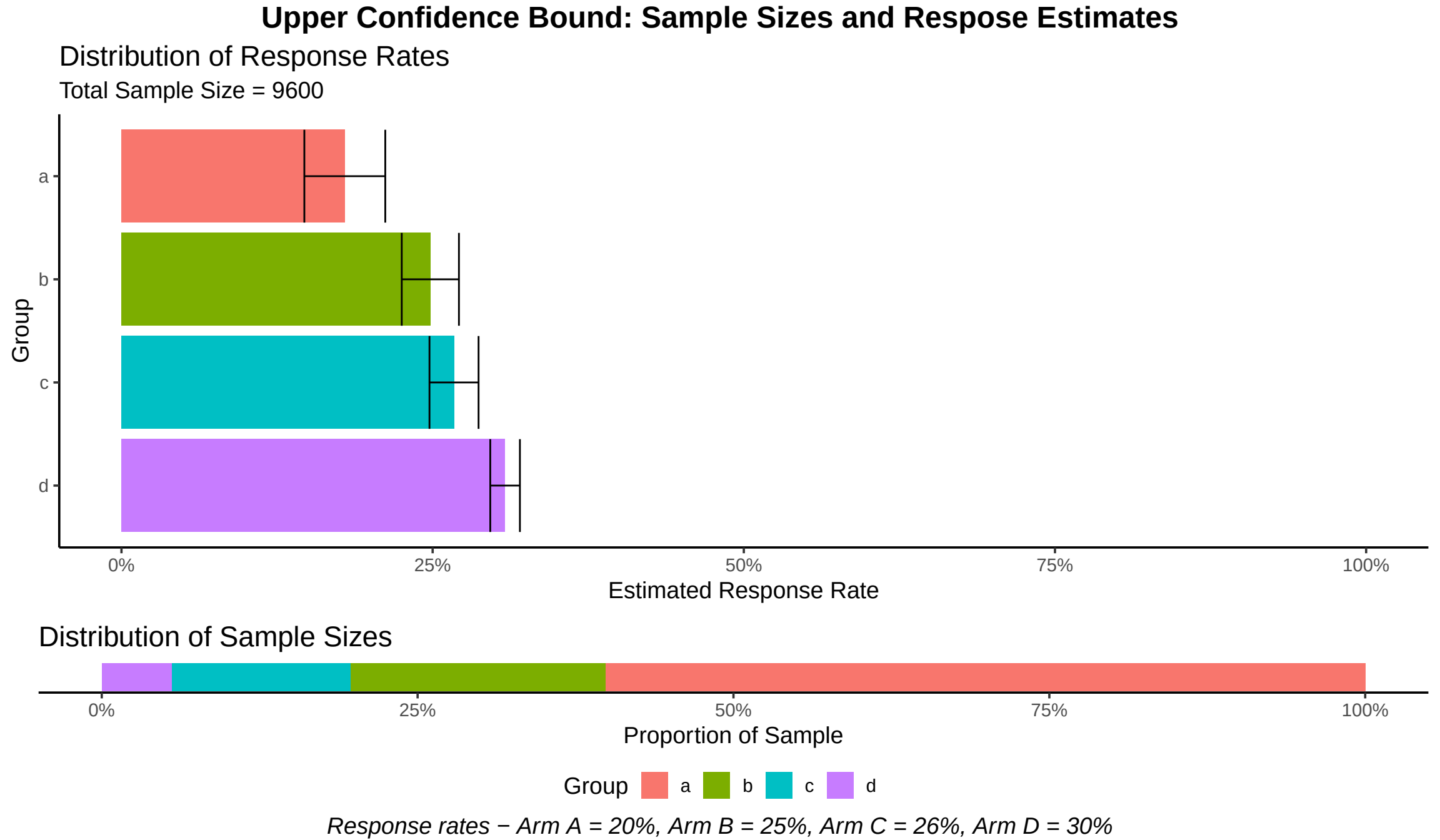

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

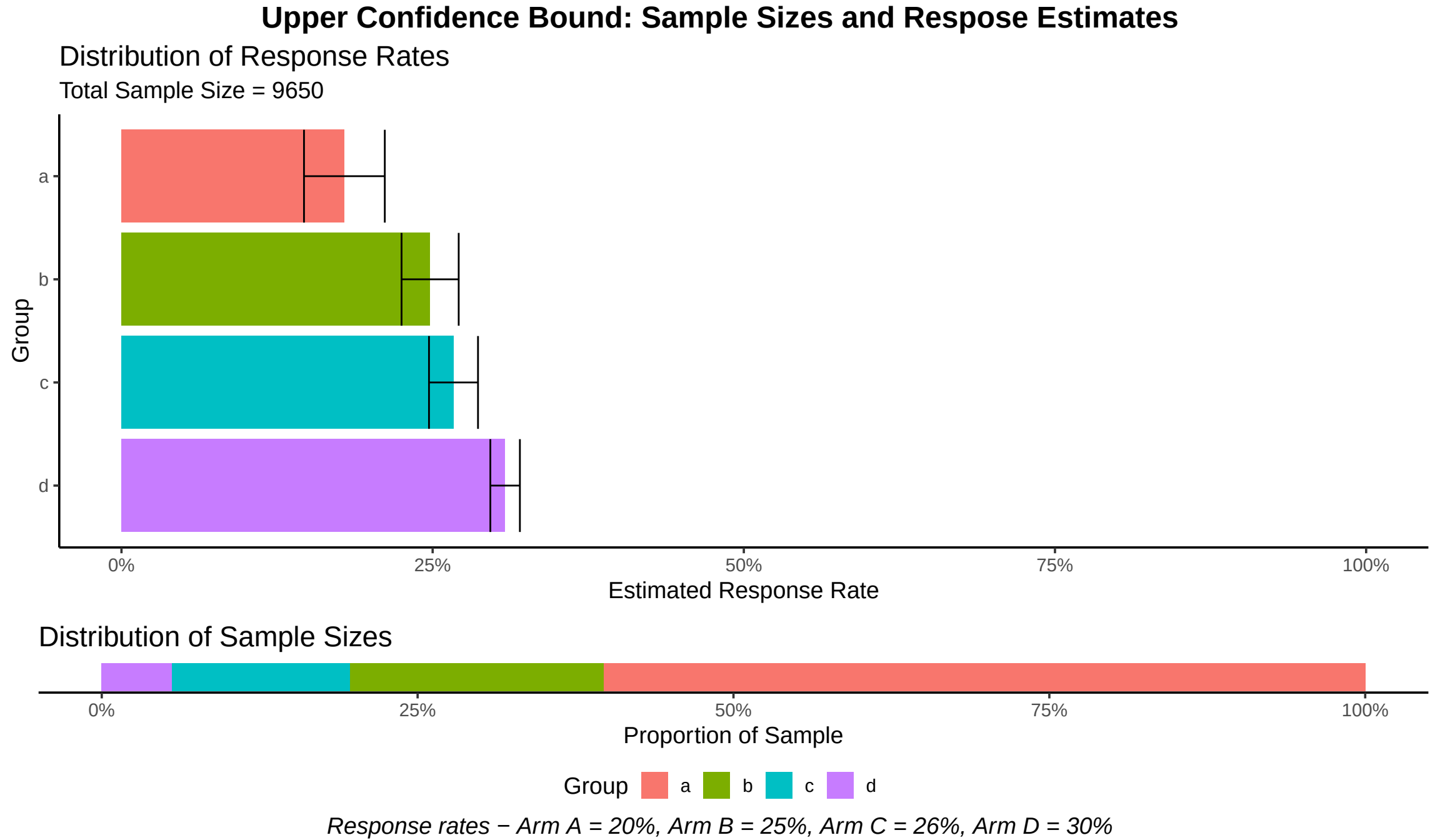

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

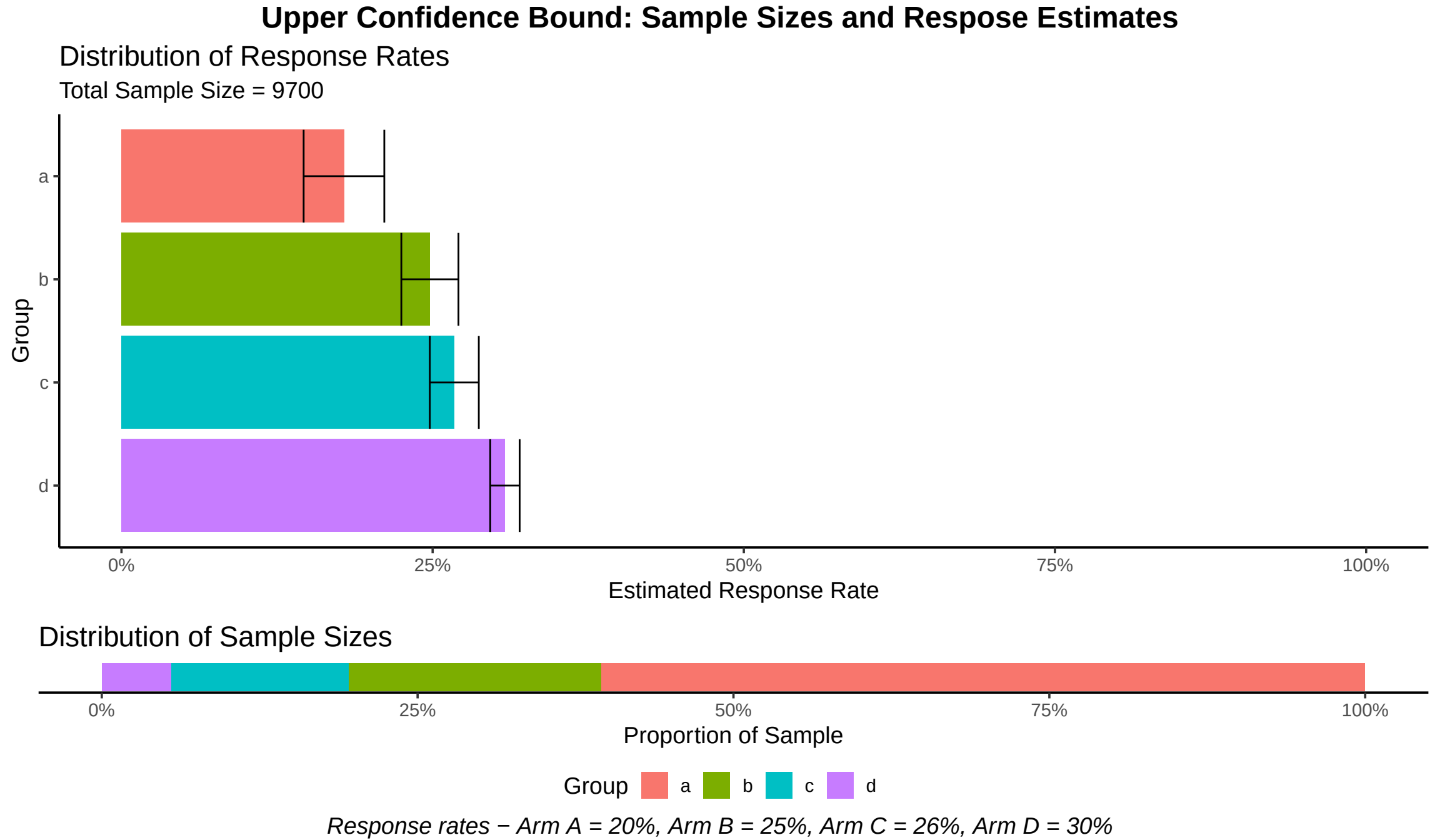

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

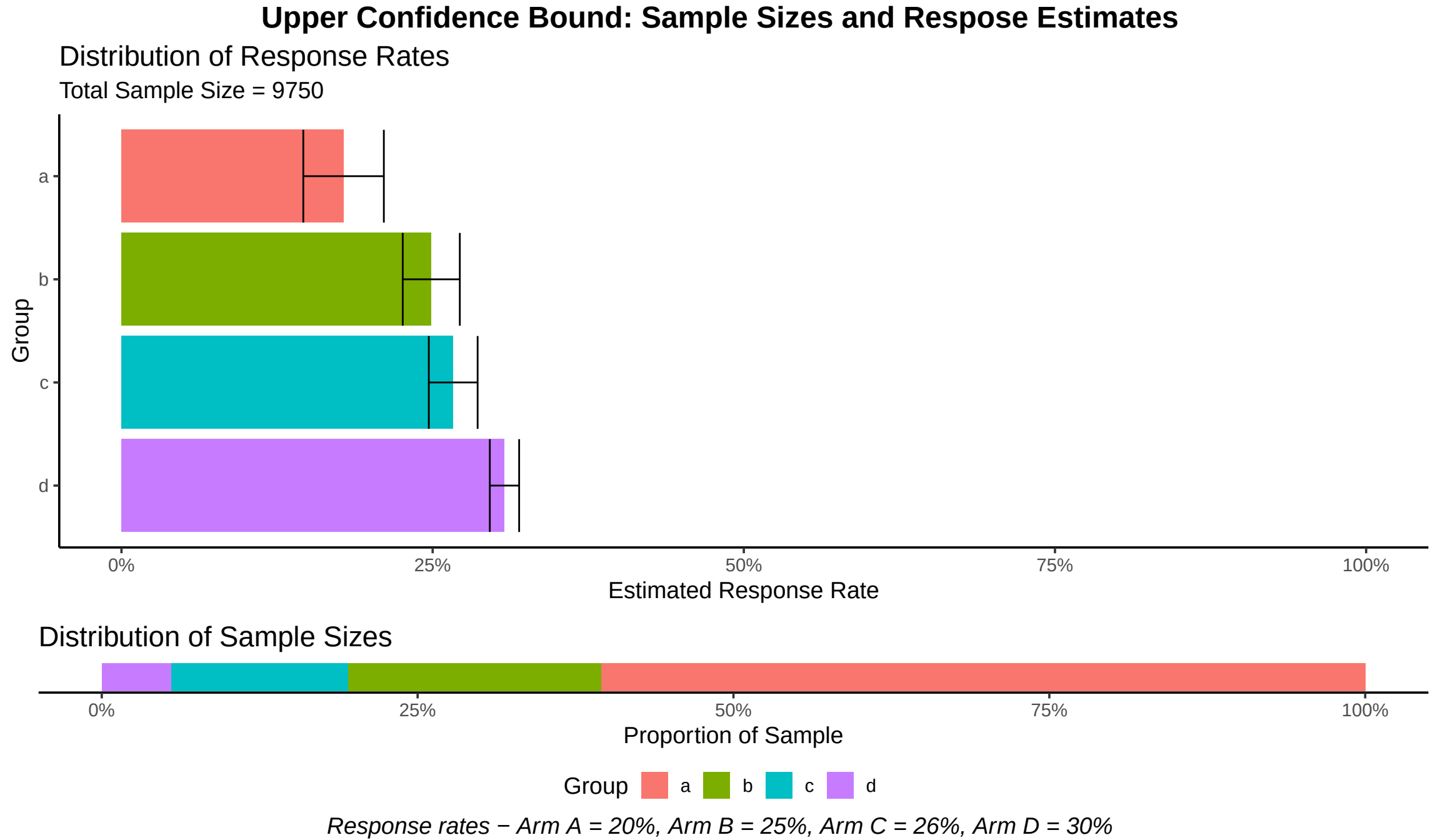

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

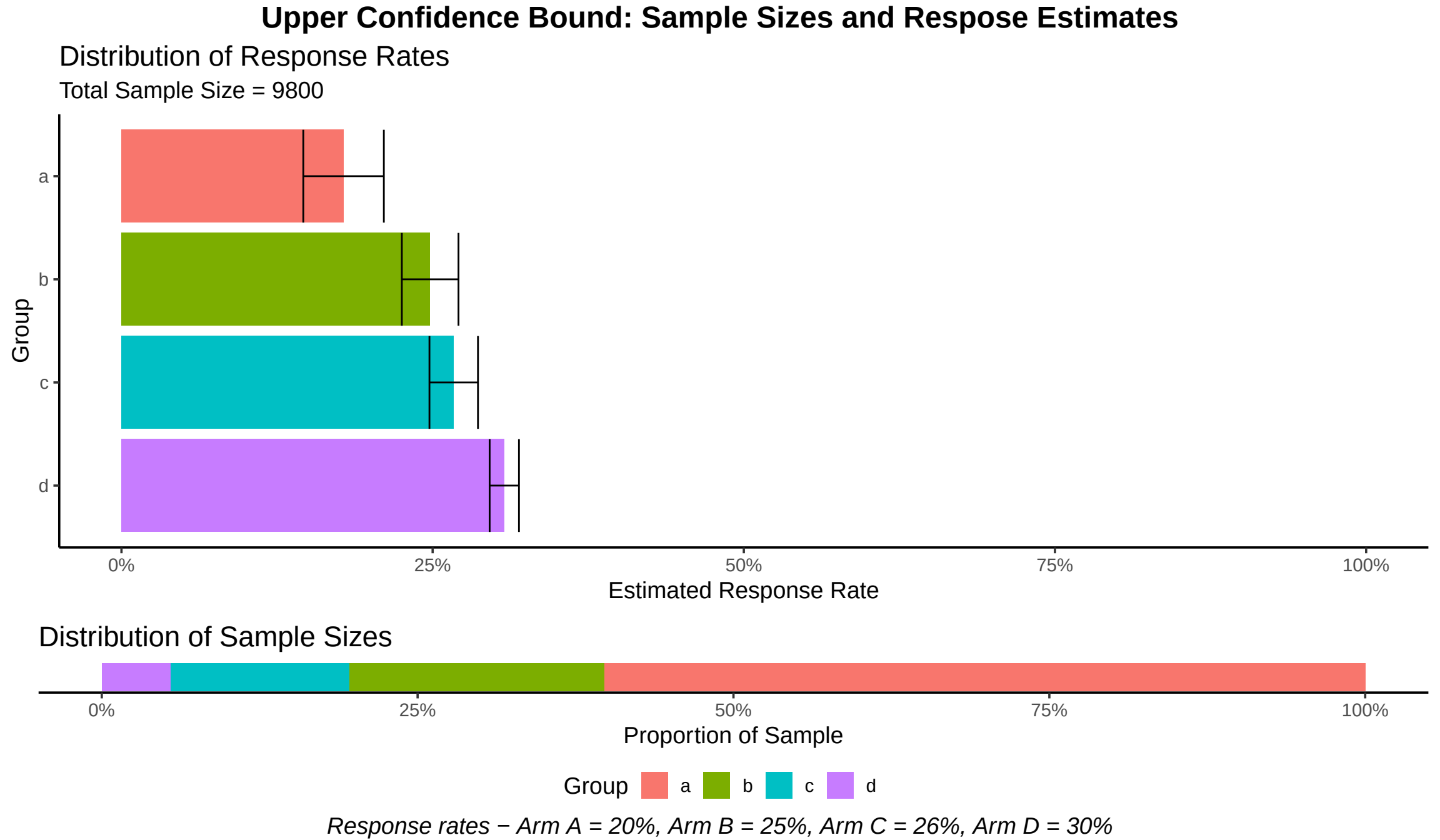

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

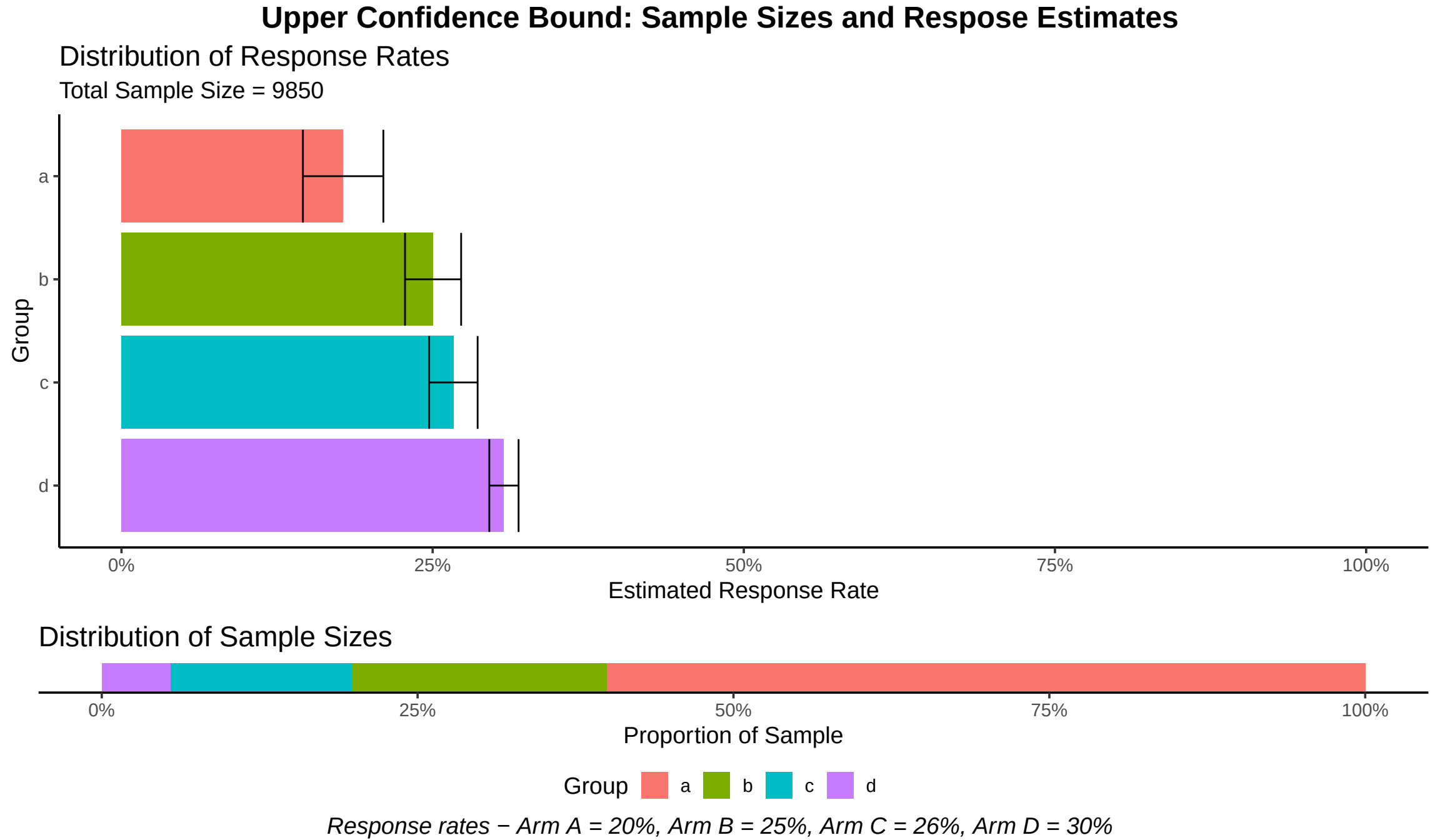

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

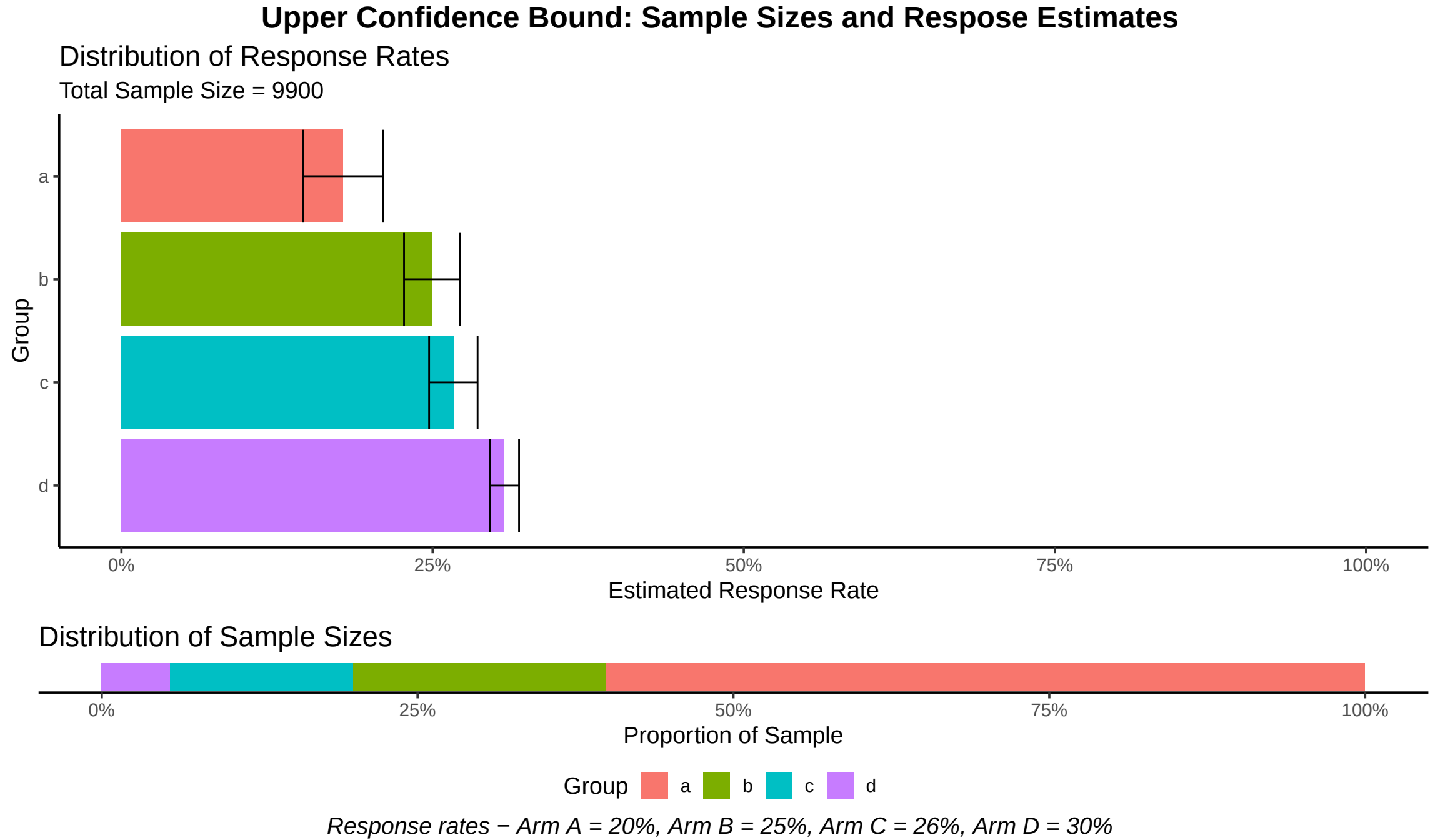

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

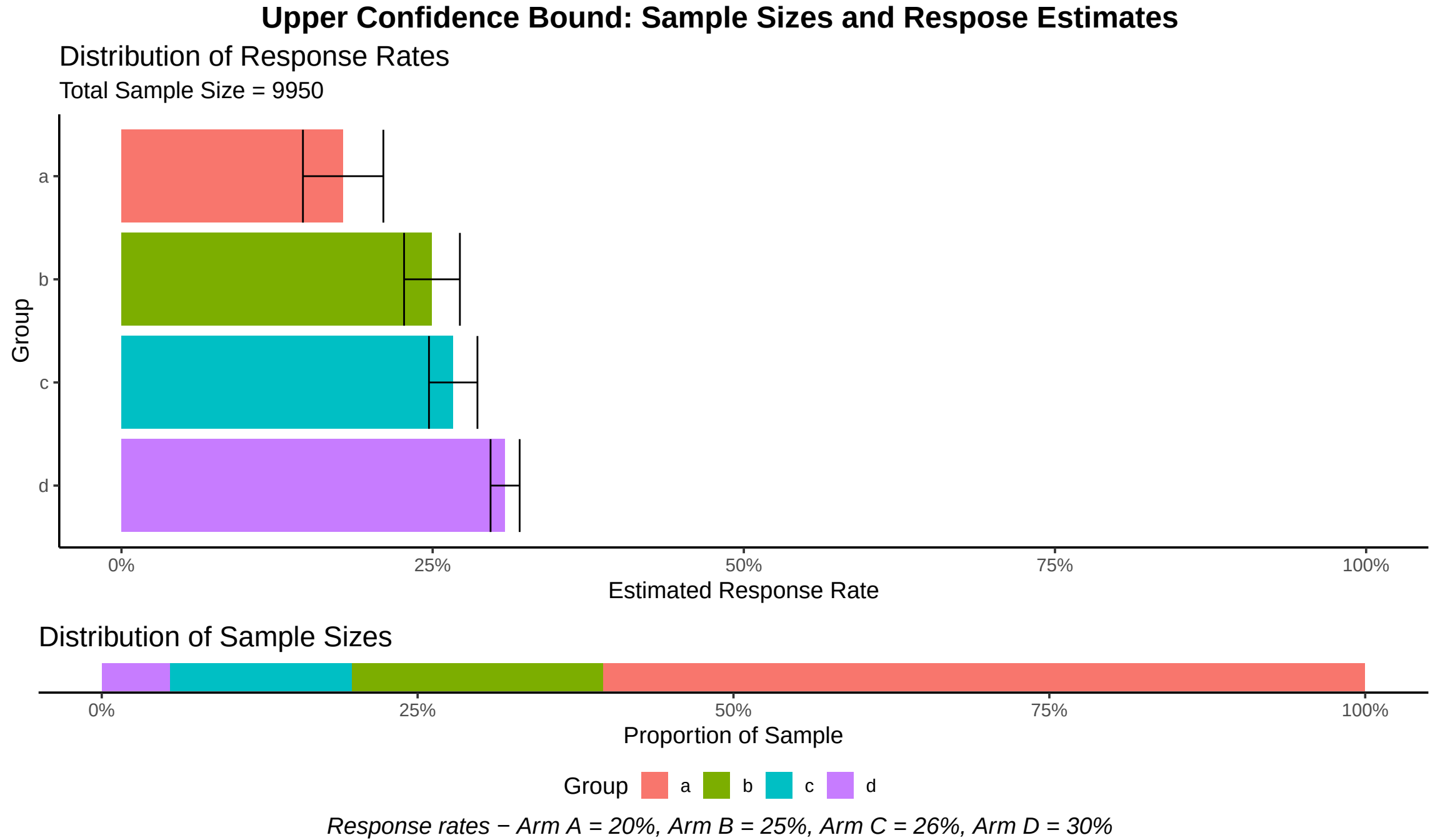

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

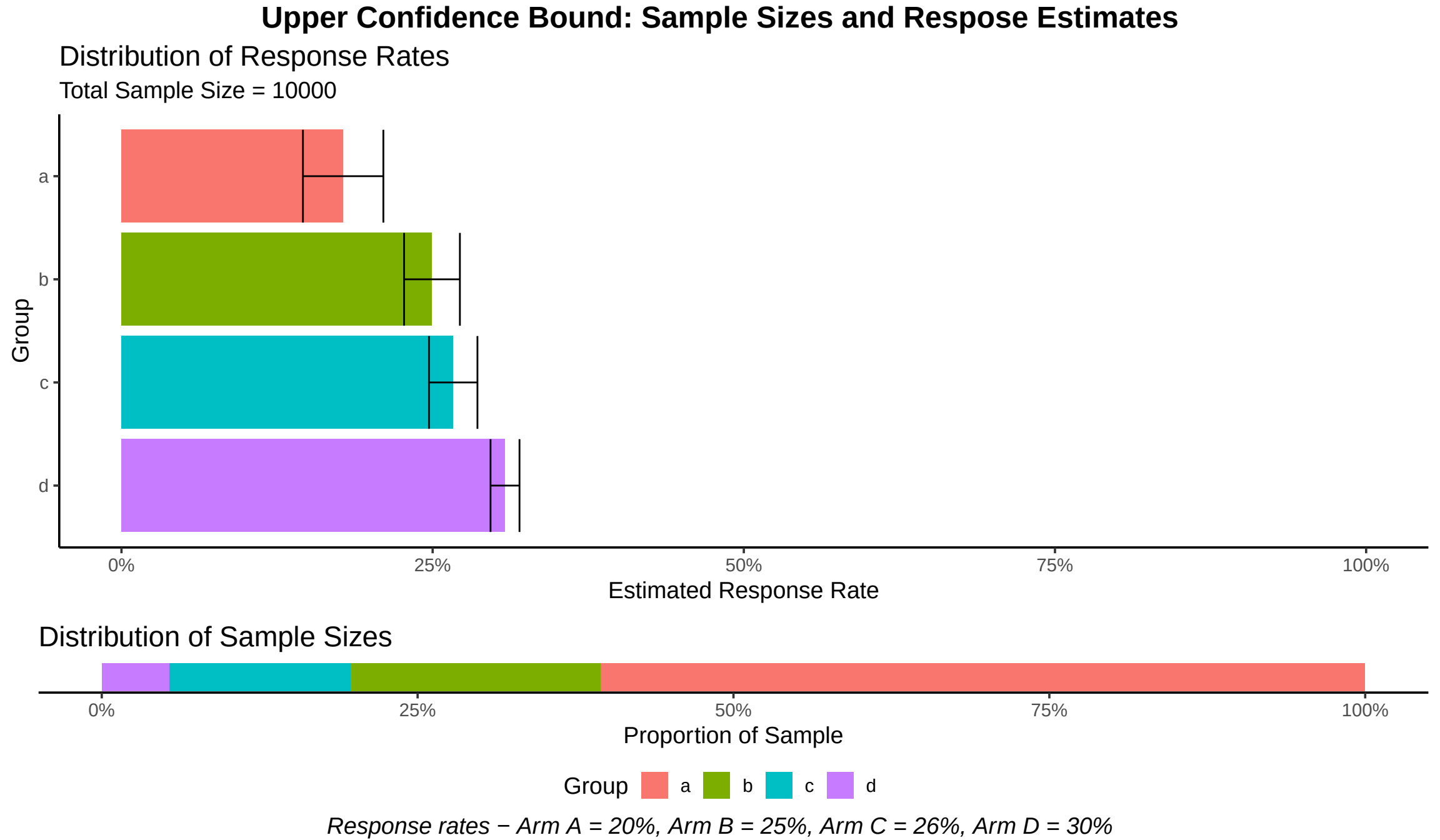

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

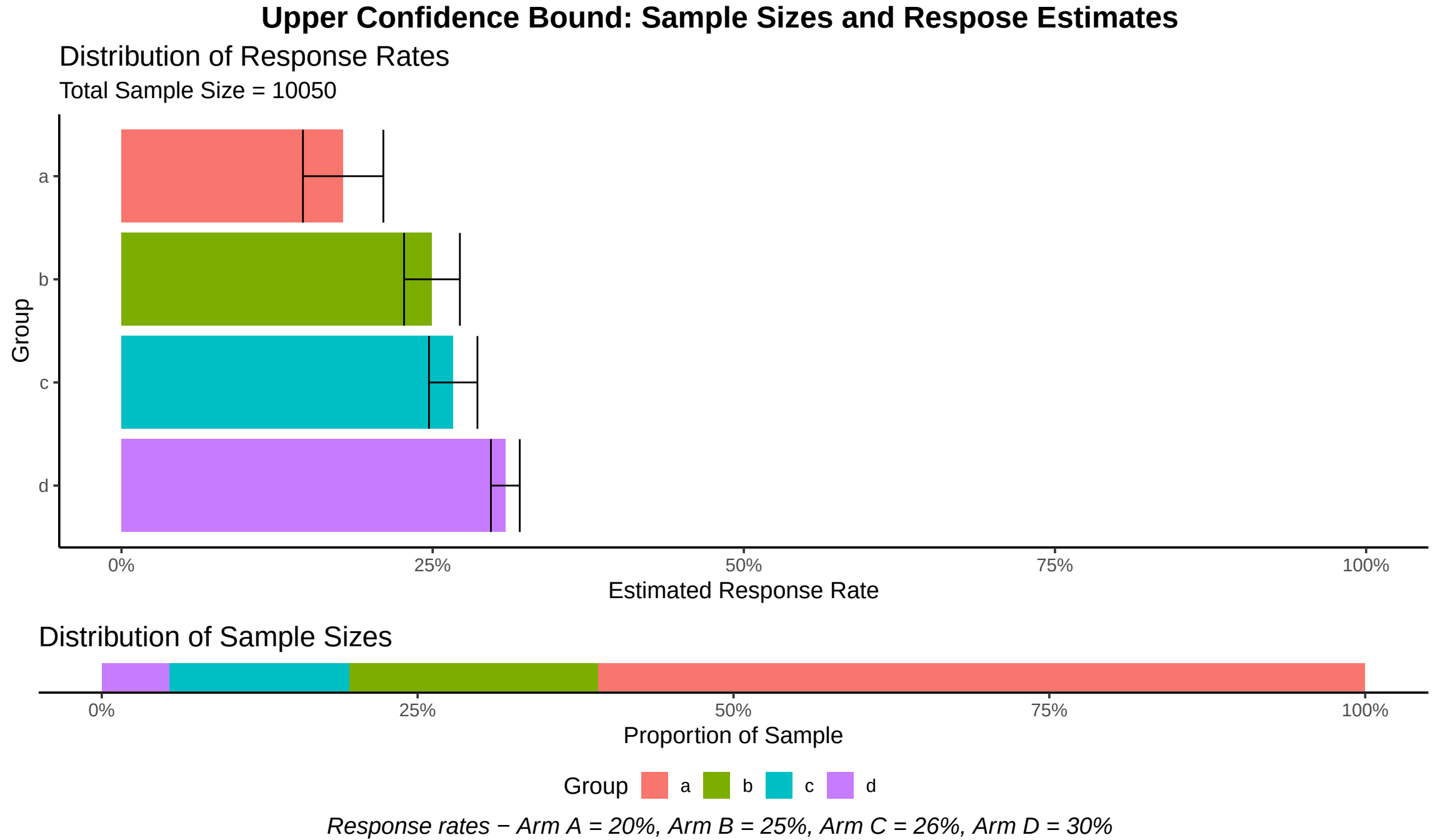

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

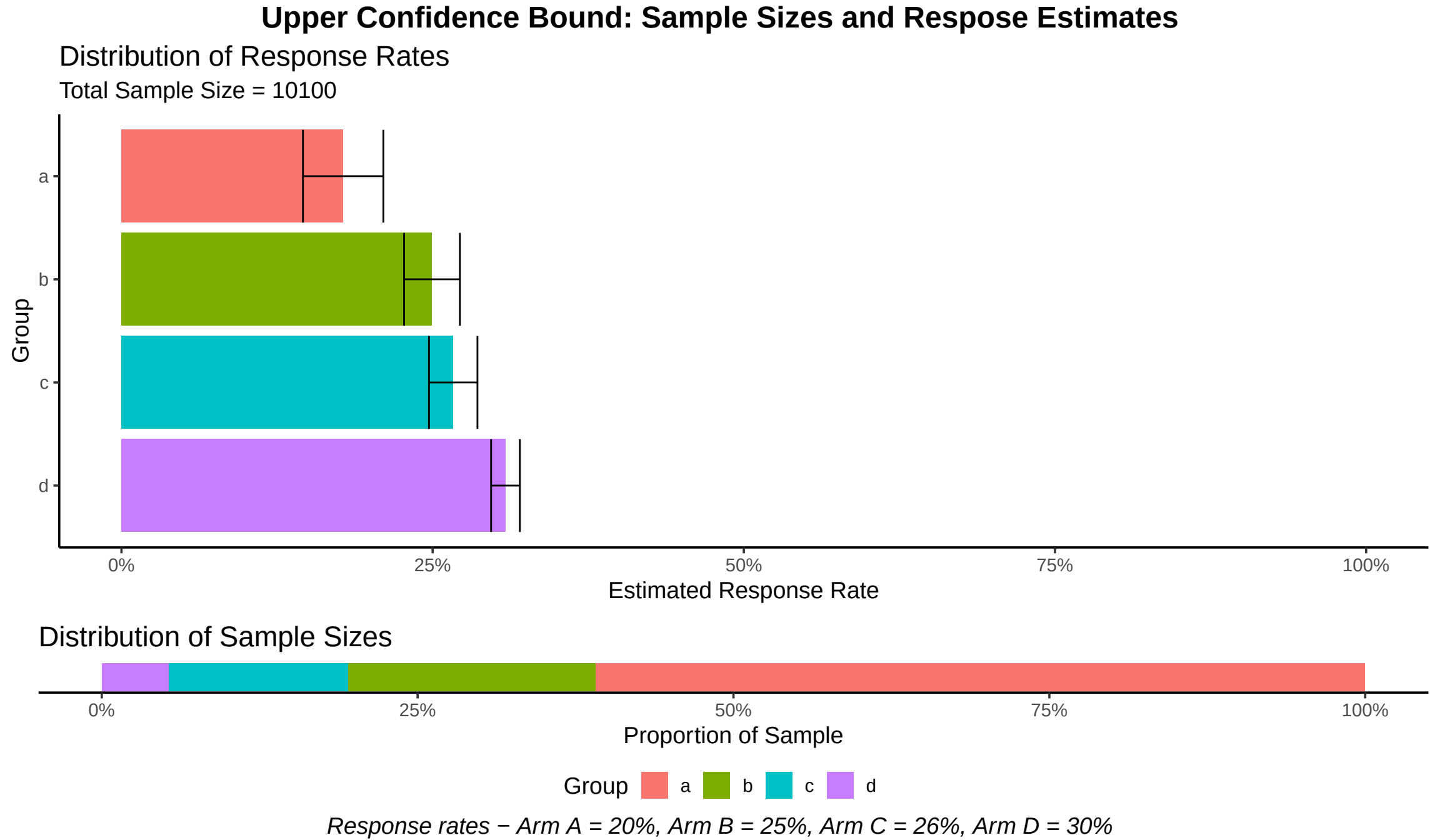

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

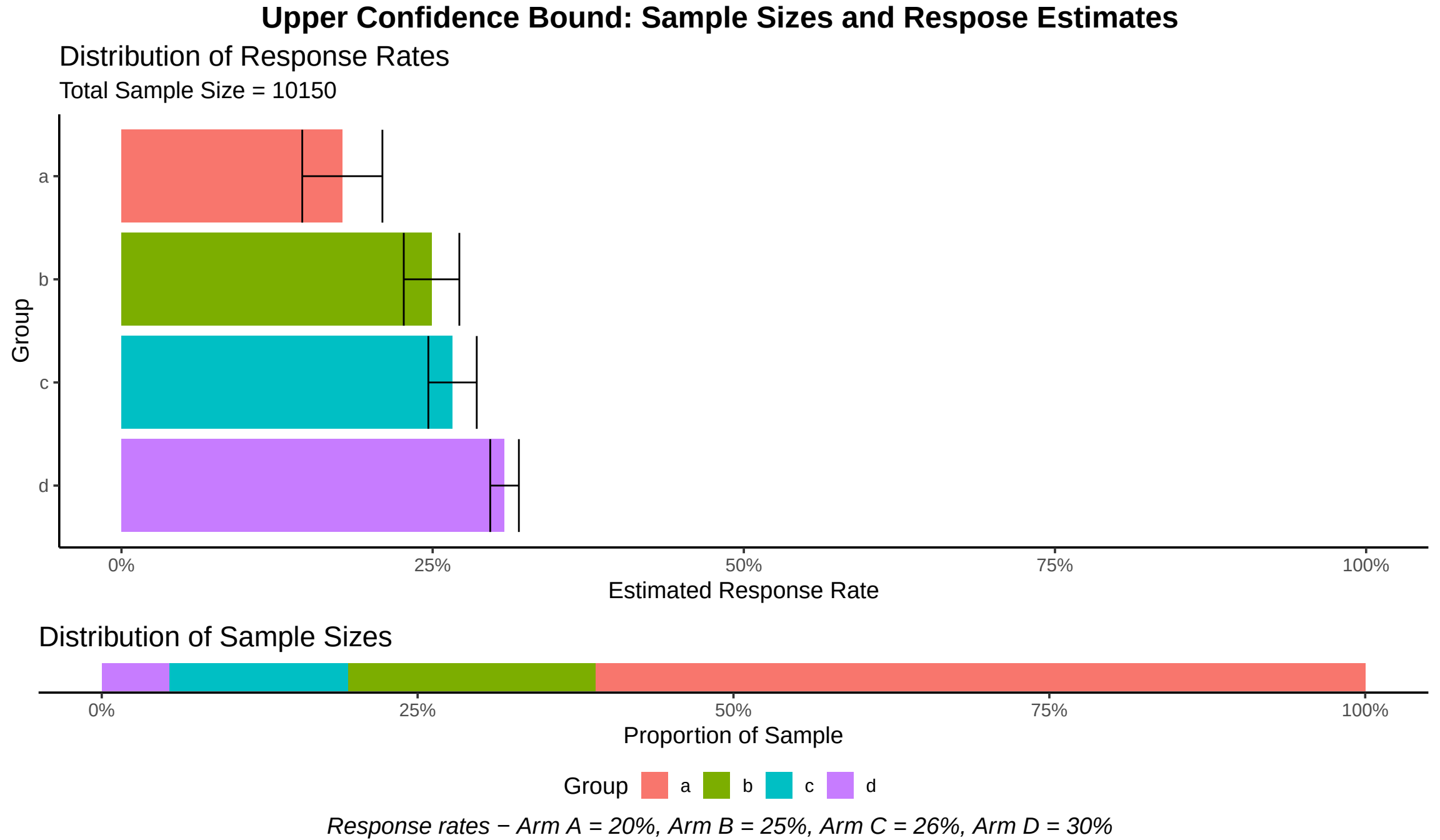

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 9950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

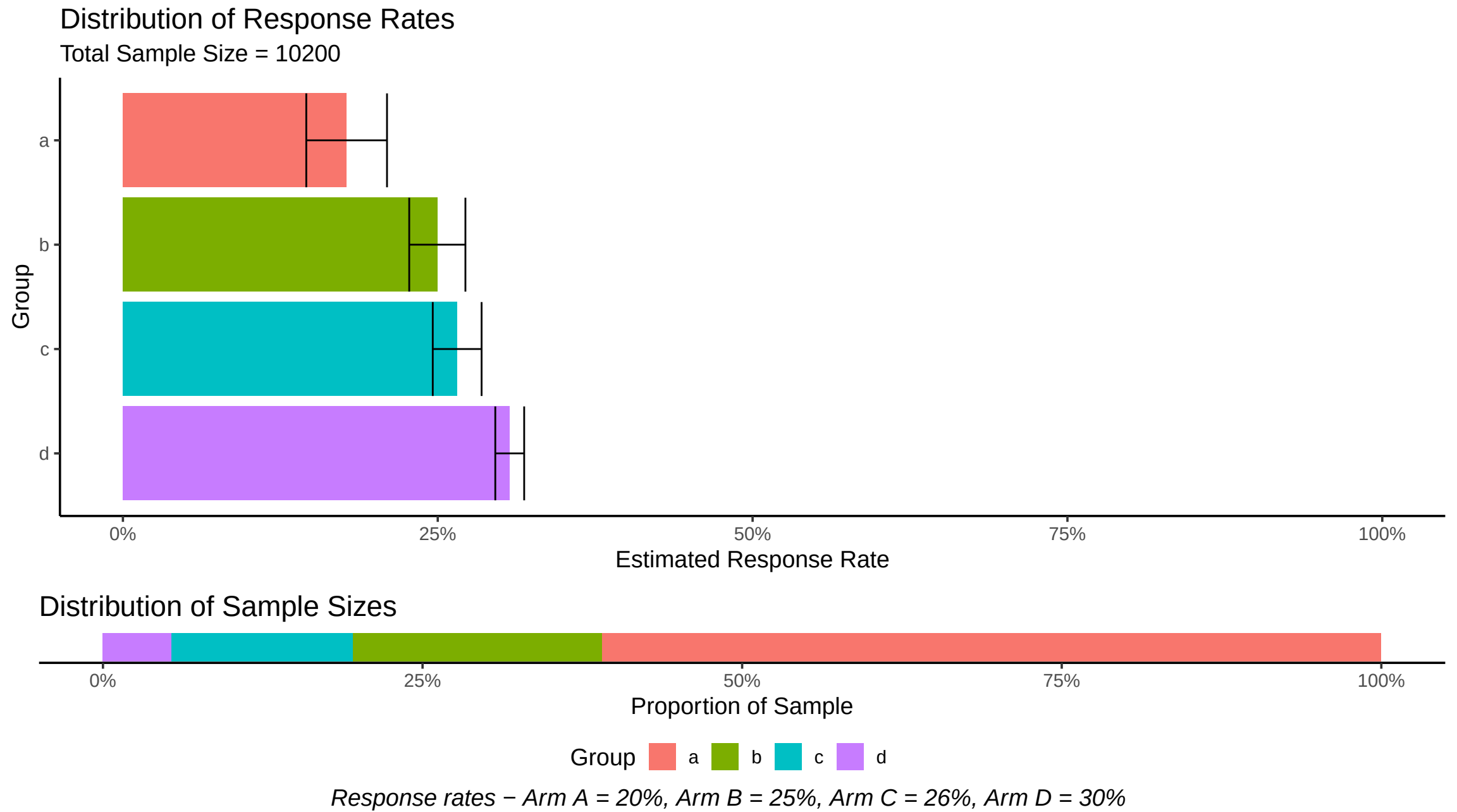

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

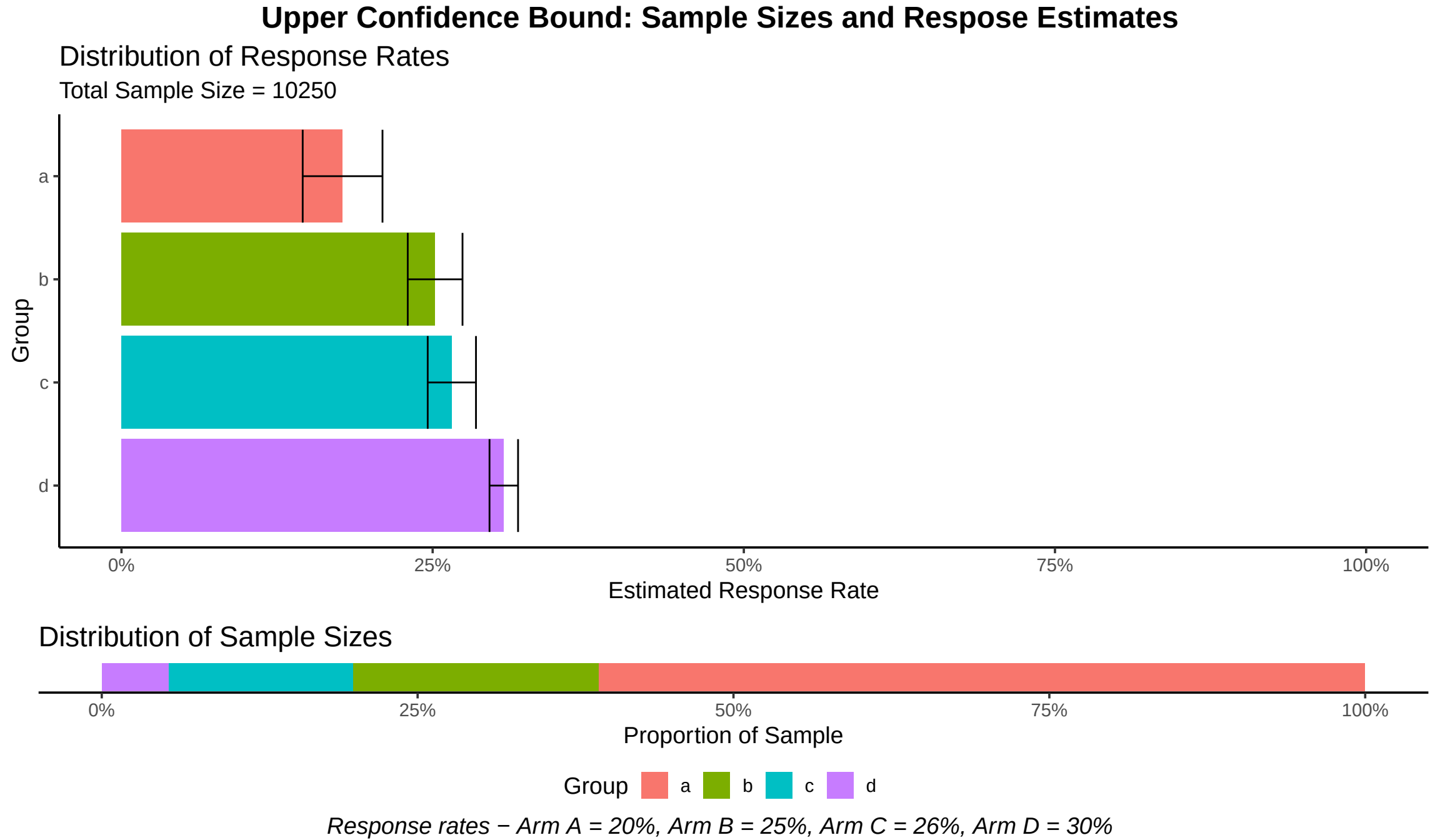

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

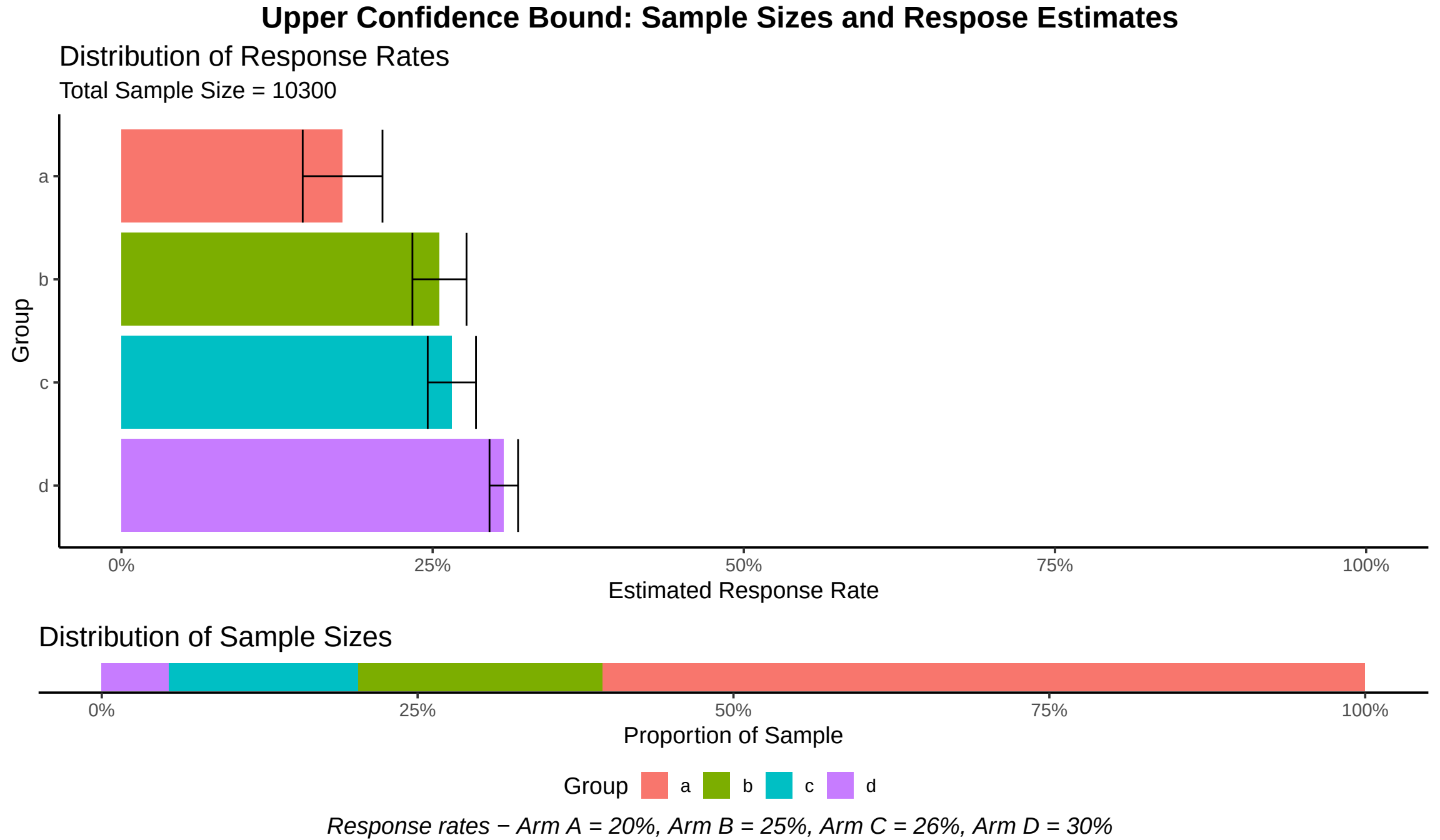

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

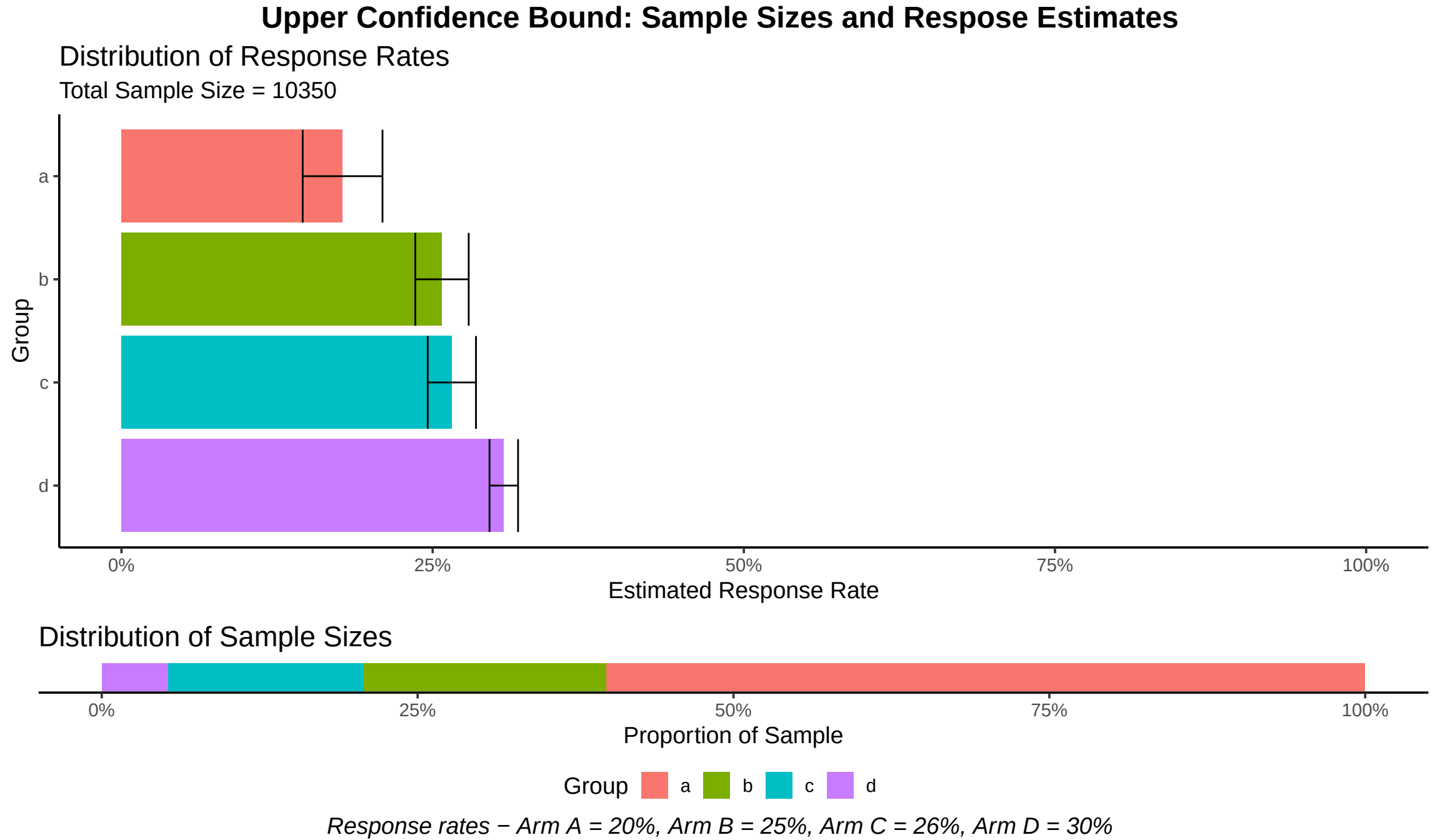
Upper Confidence Bound: Sample Sizes and Respose Estimates

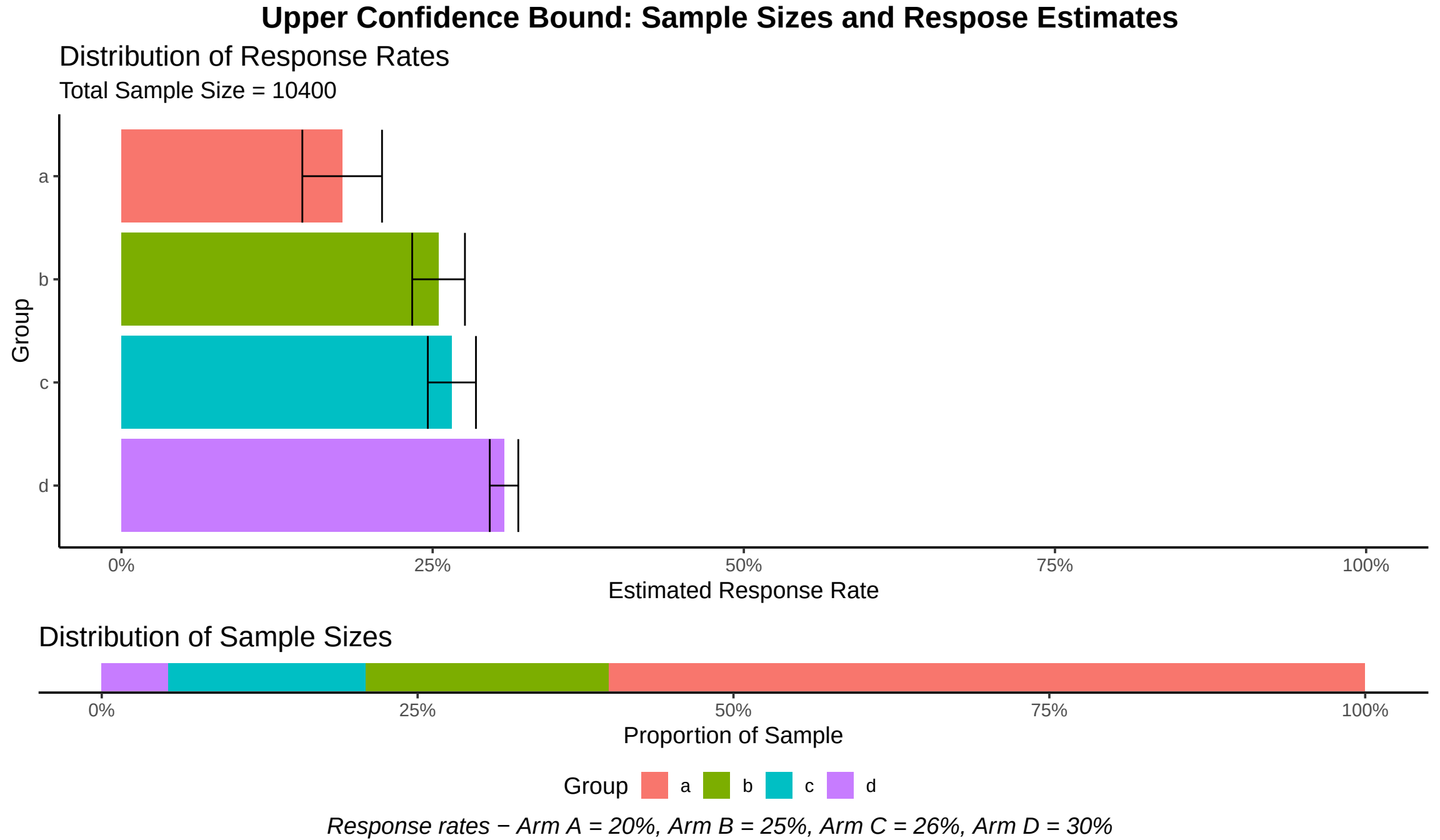


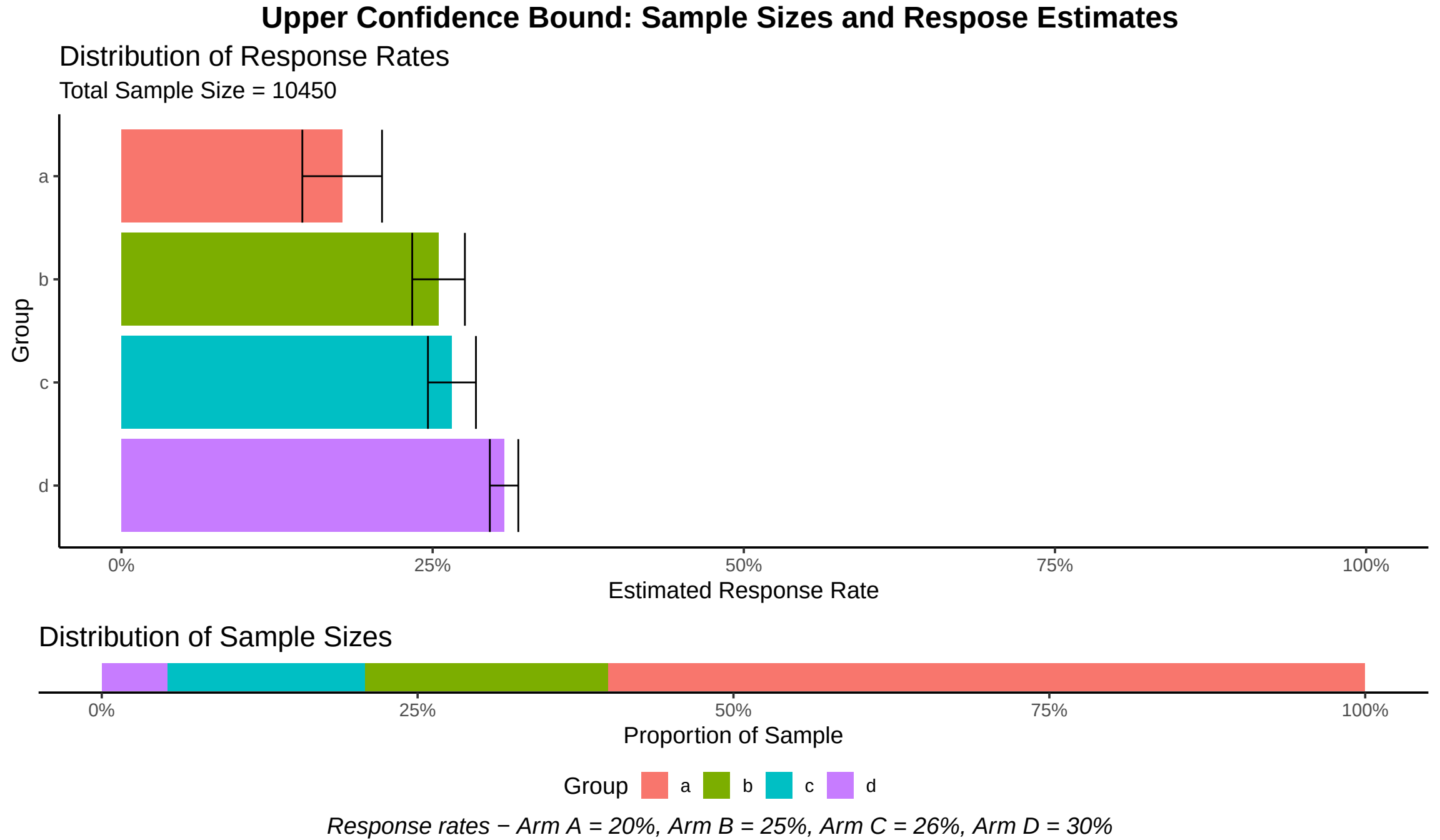
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

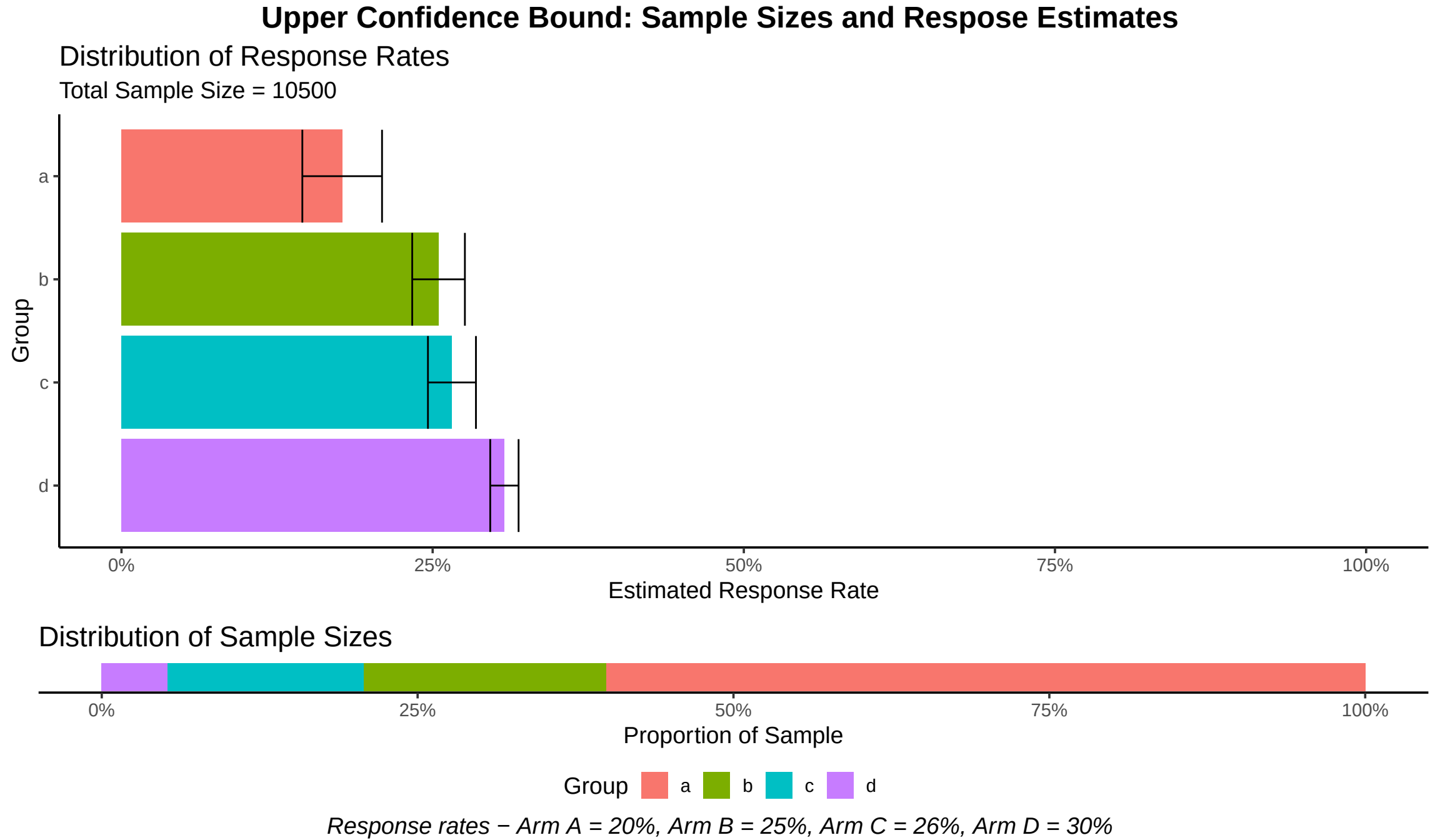

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

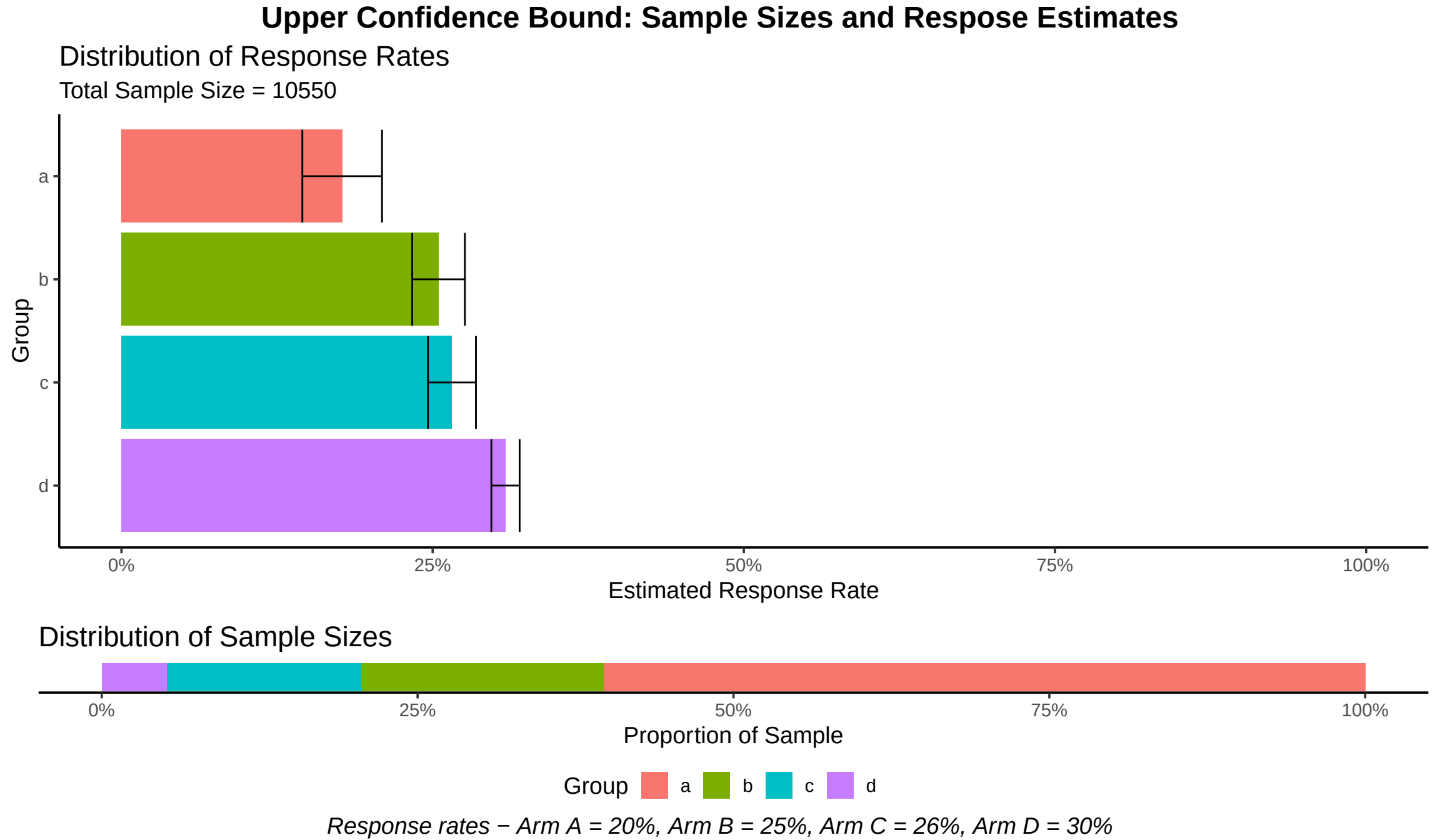

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

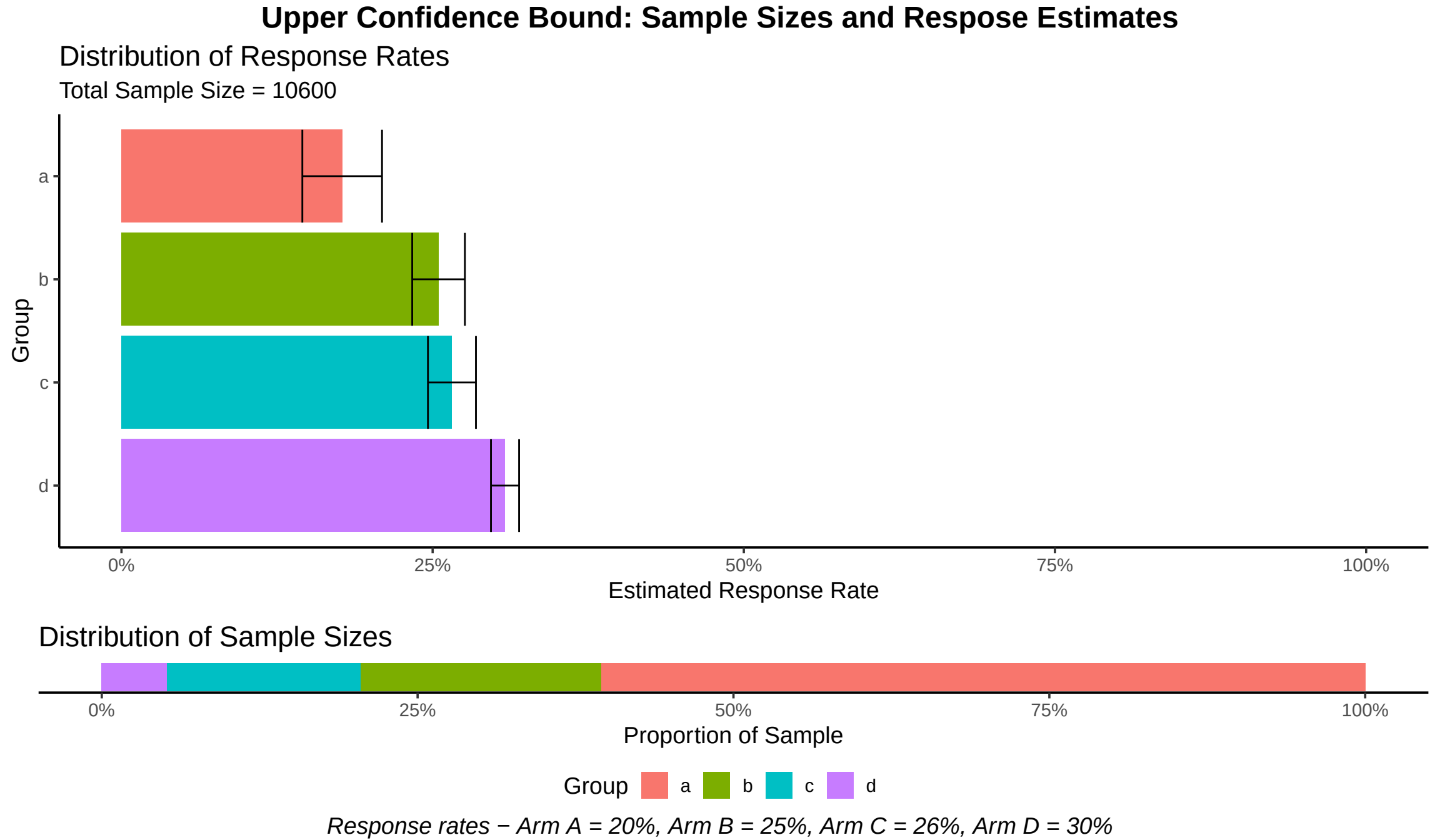

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

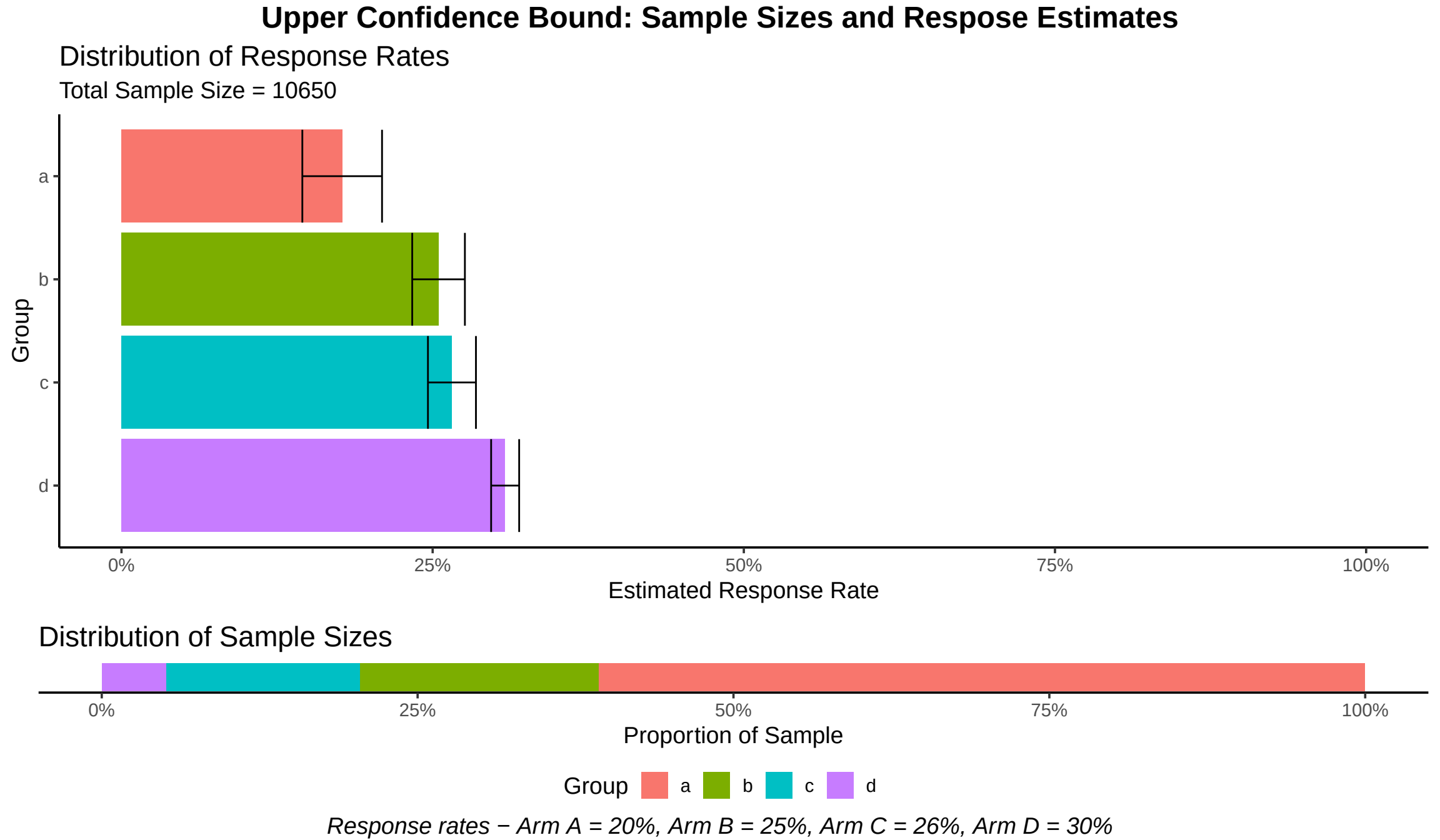

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

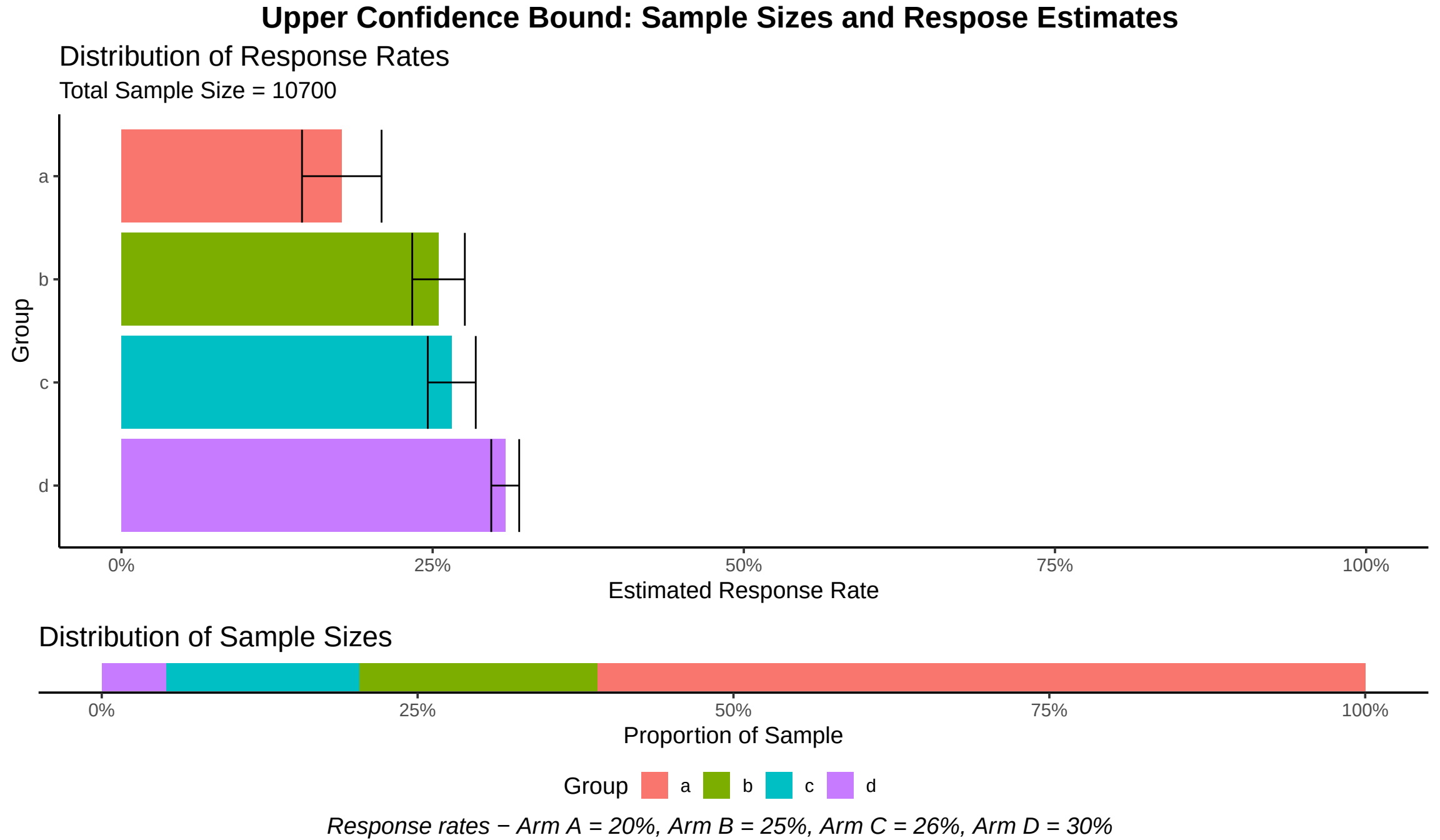

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

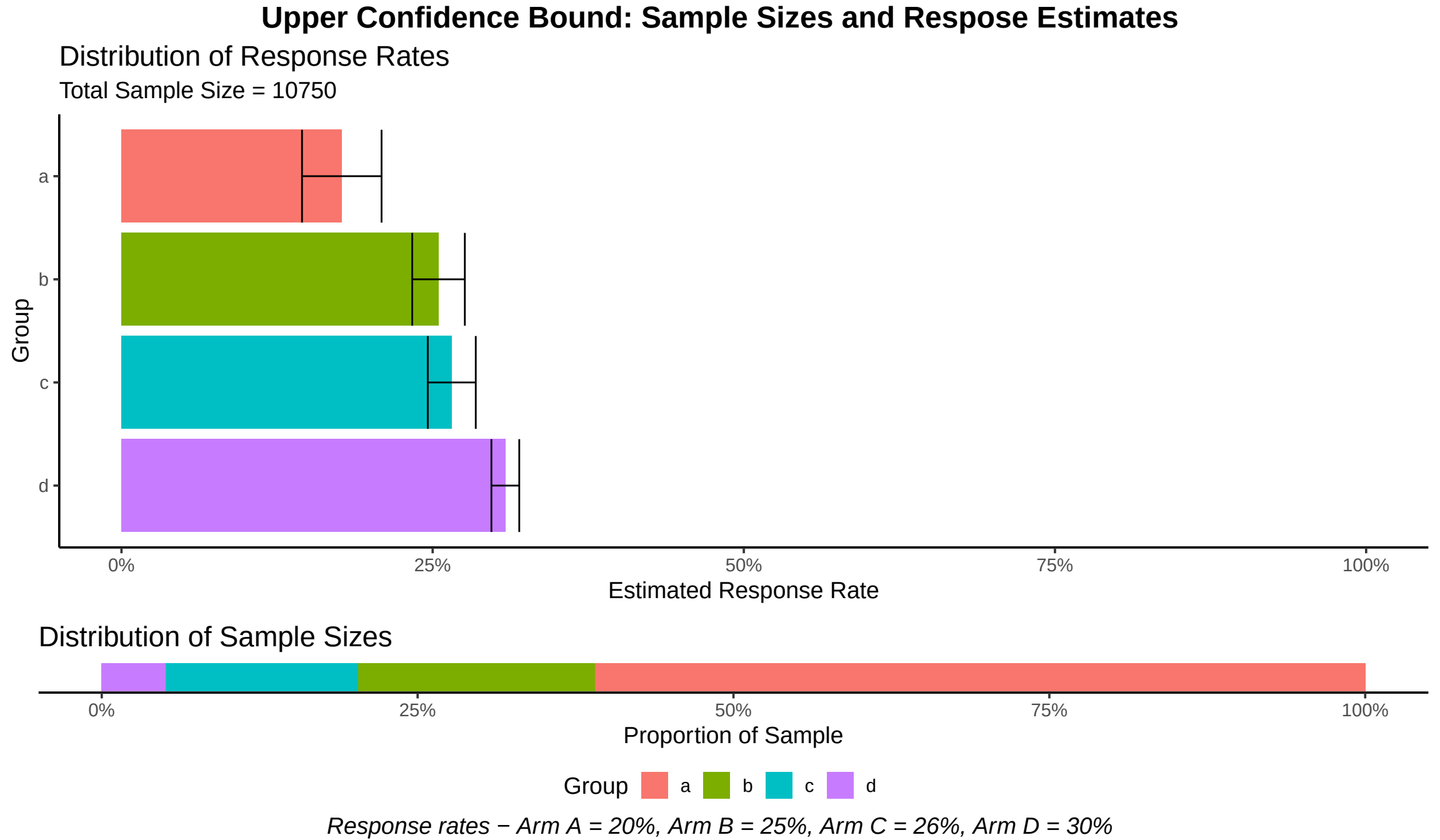

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

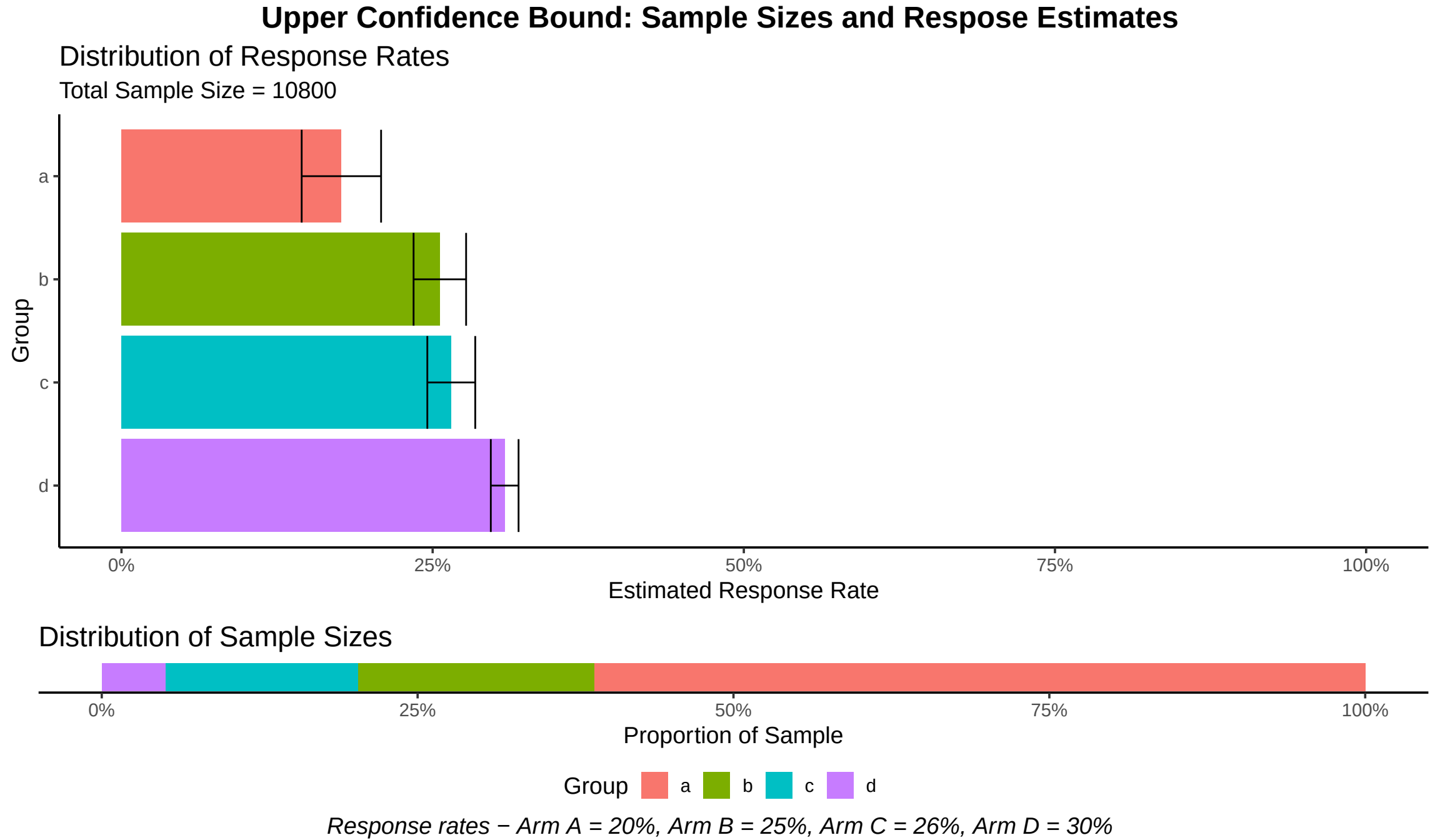

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

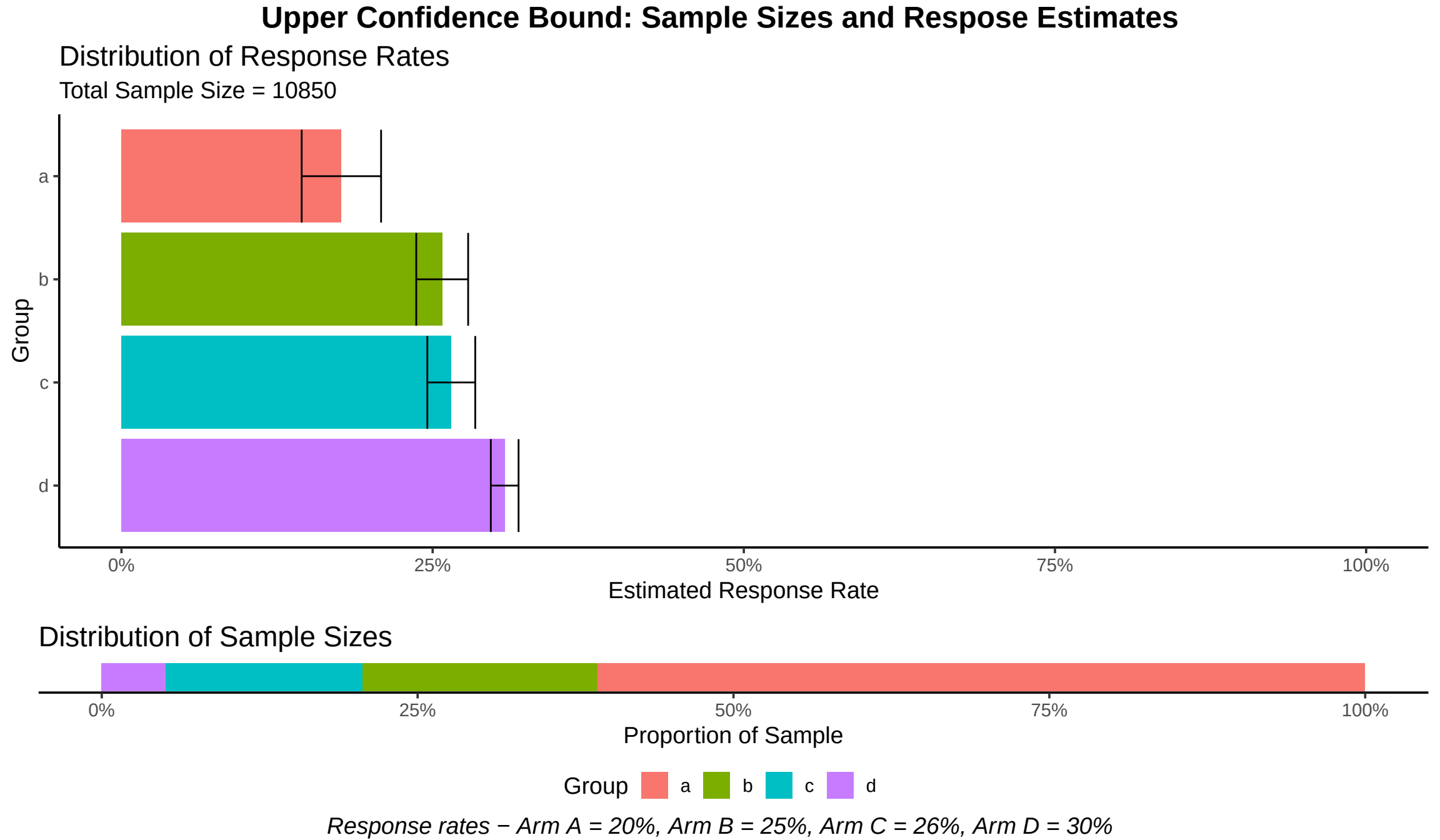

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

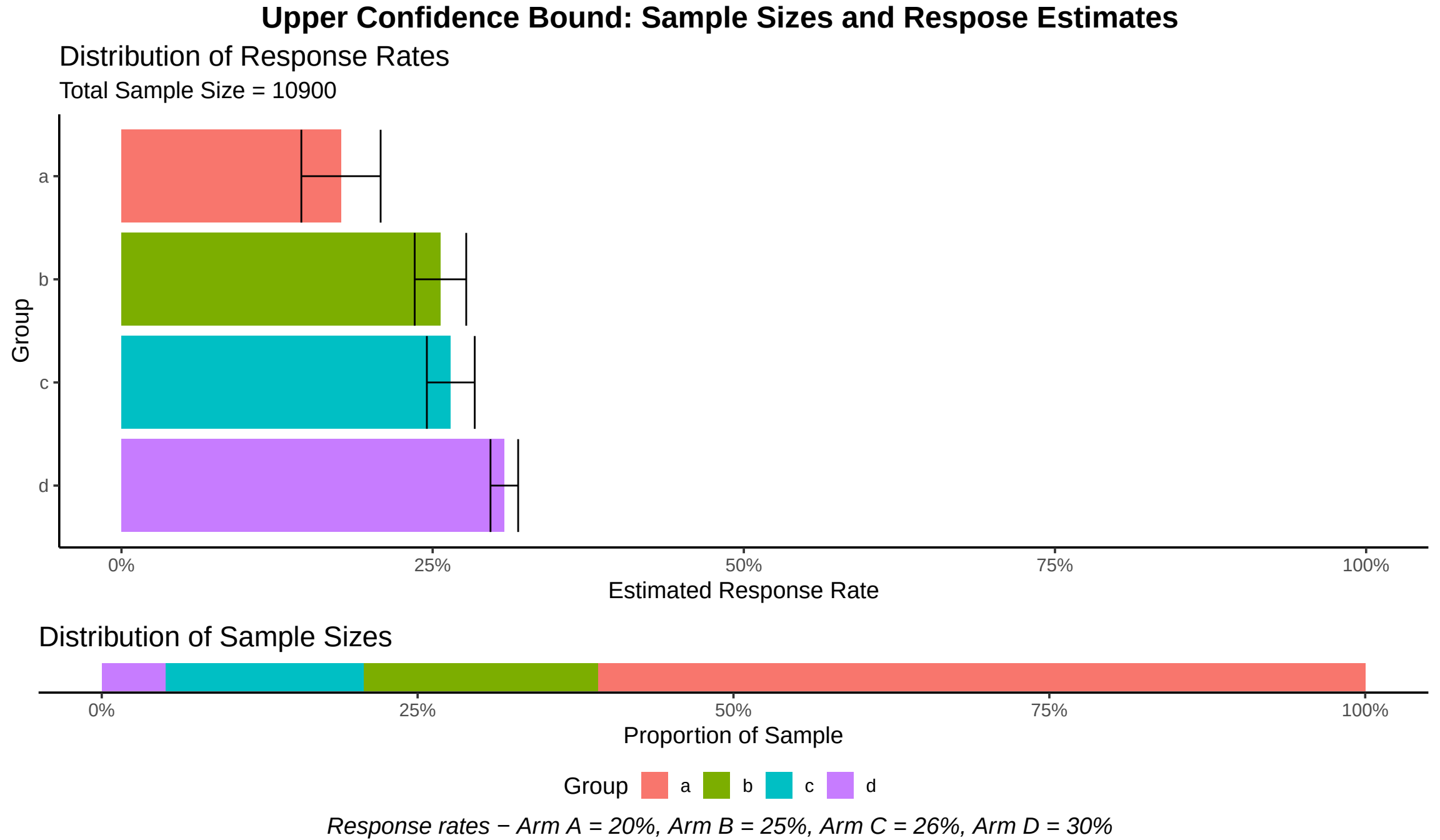

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

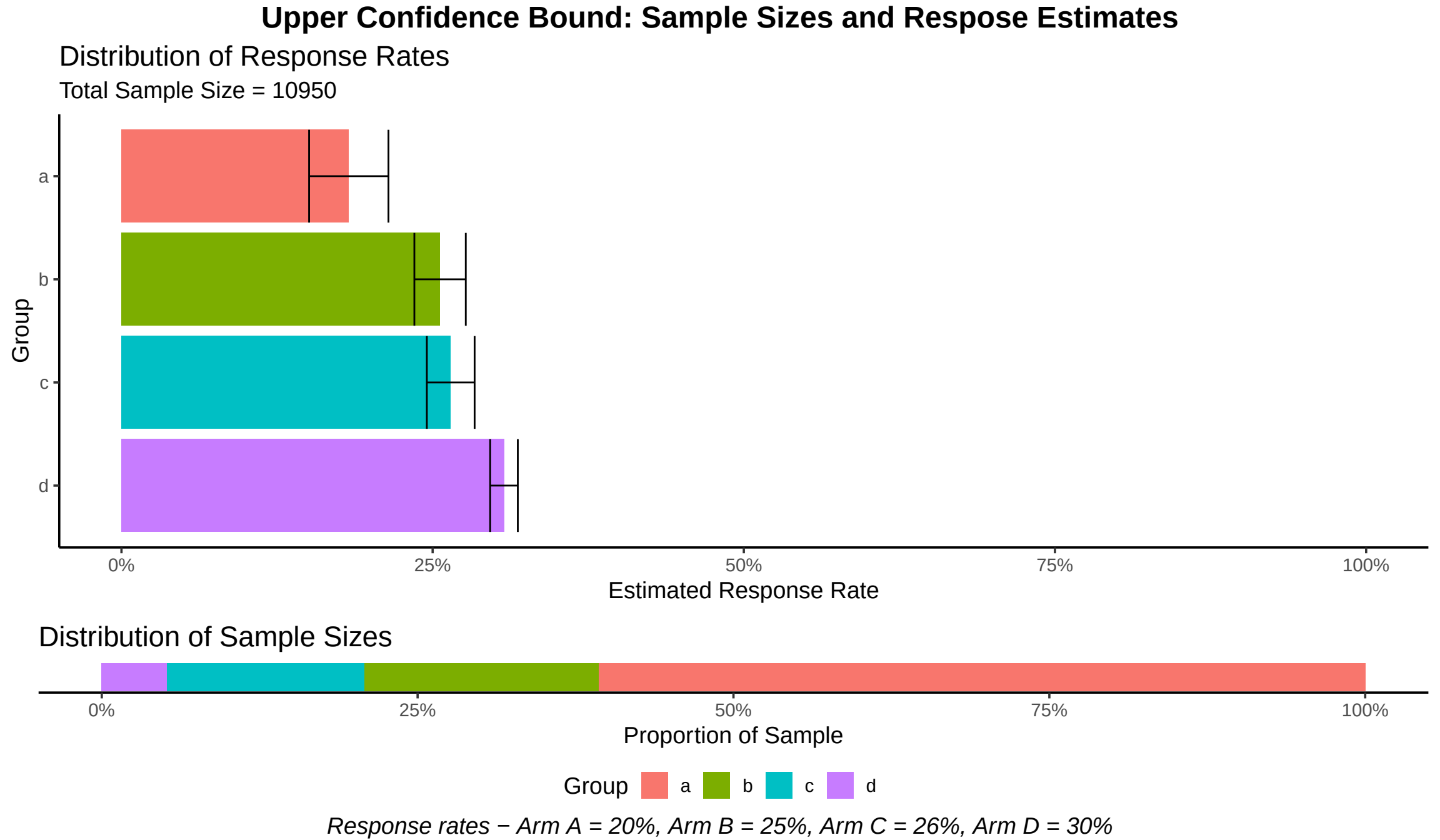

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

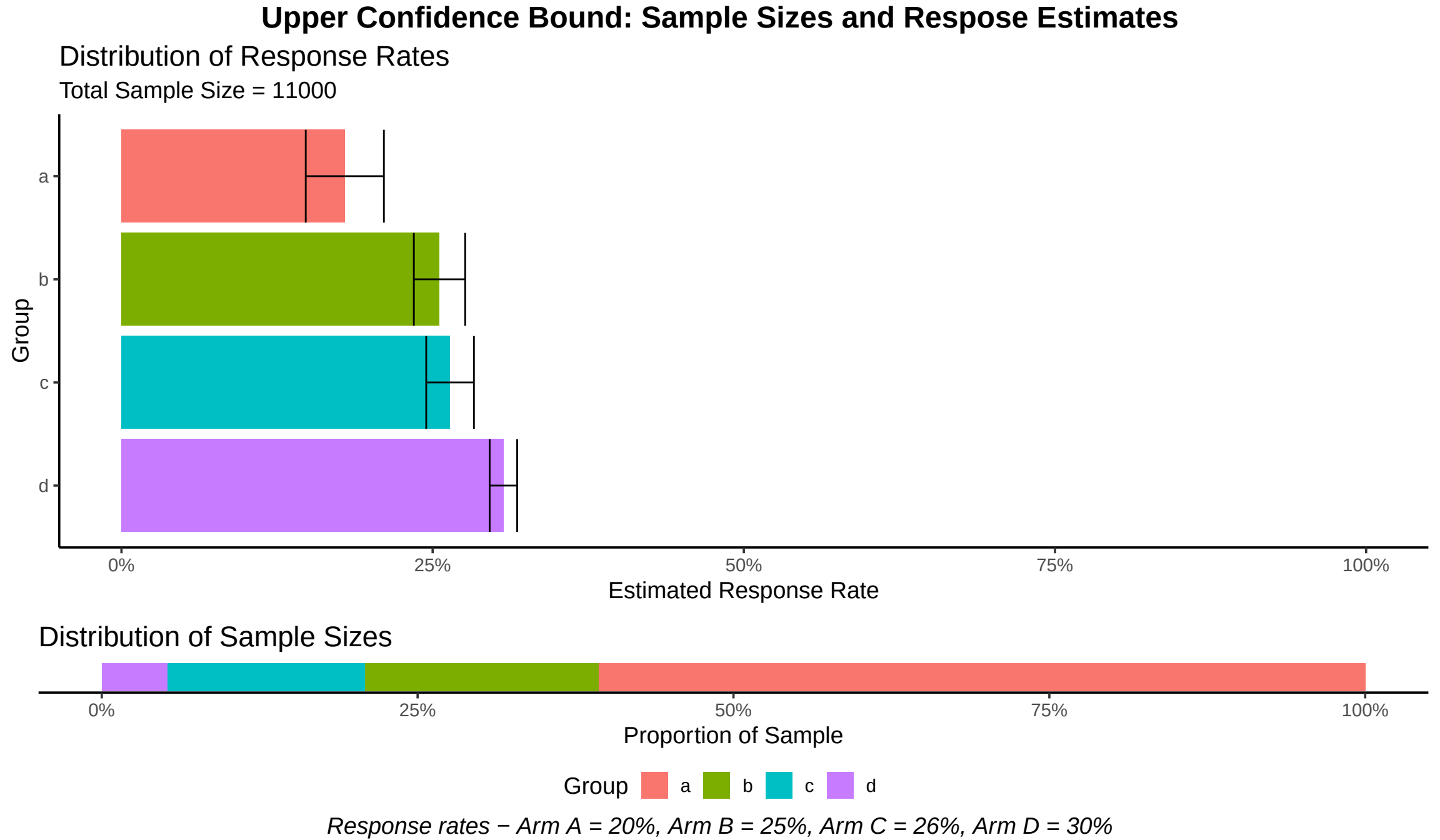

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

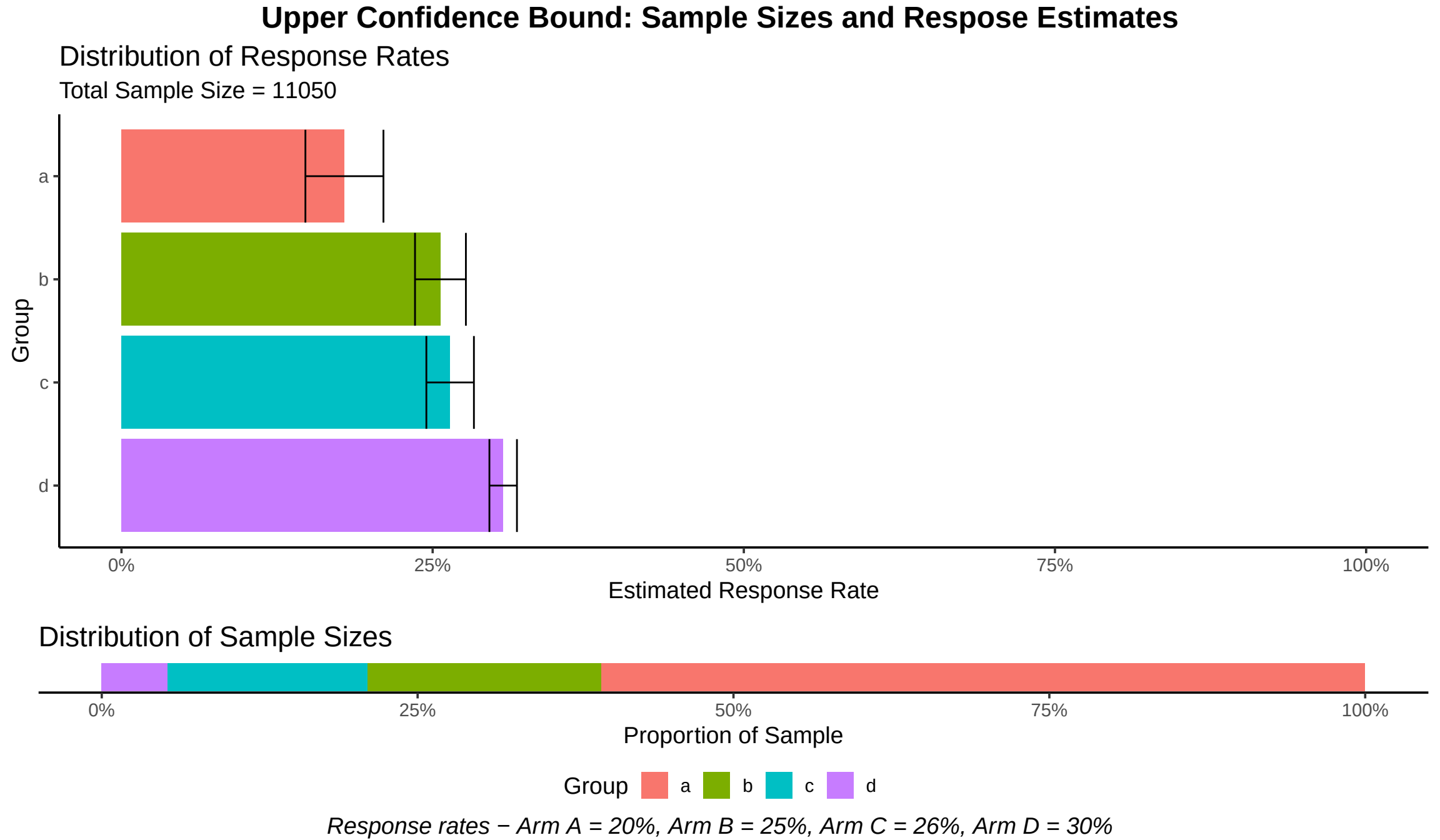

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 10950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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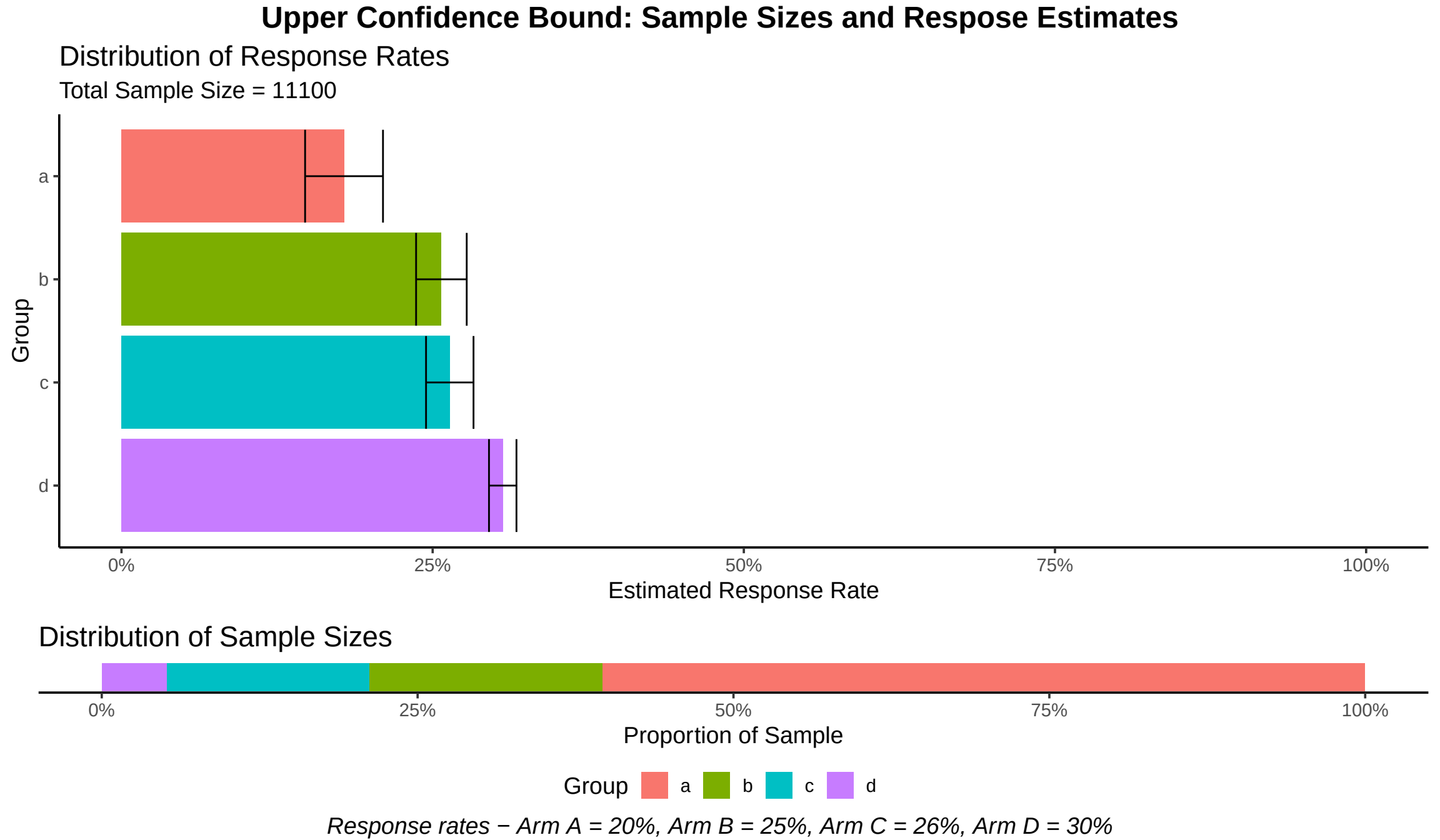
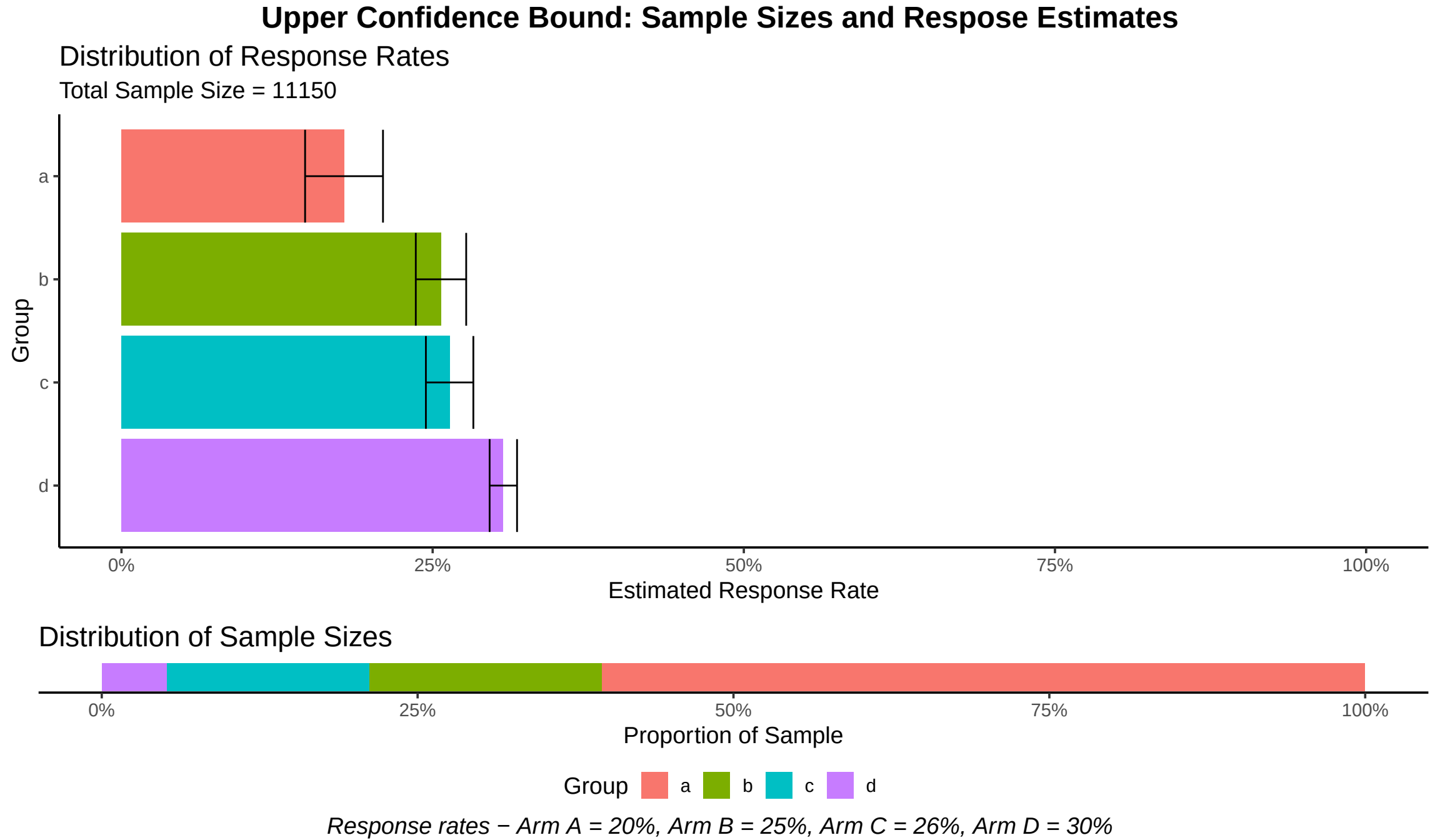
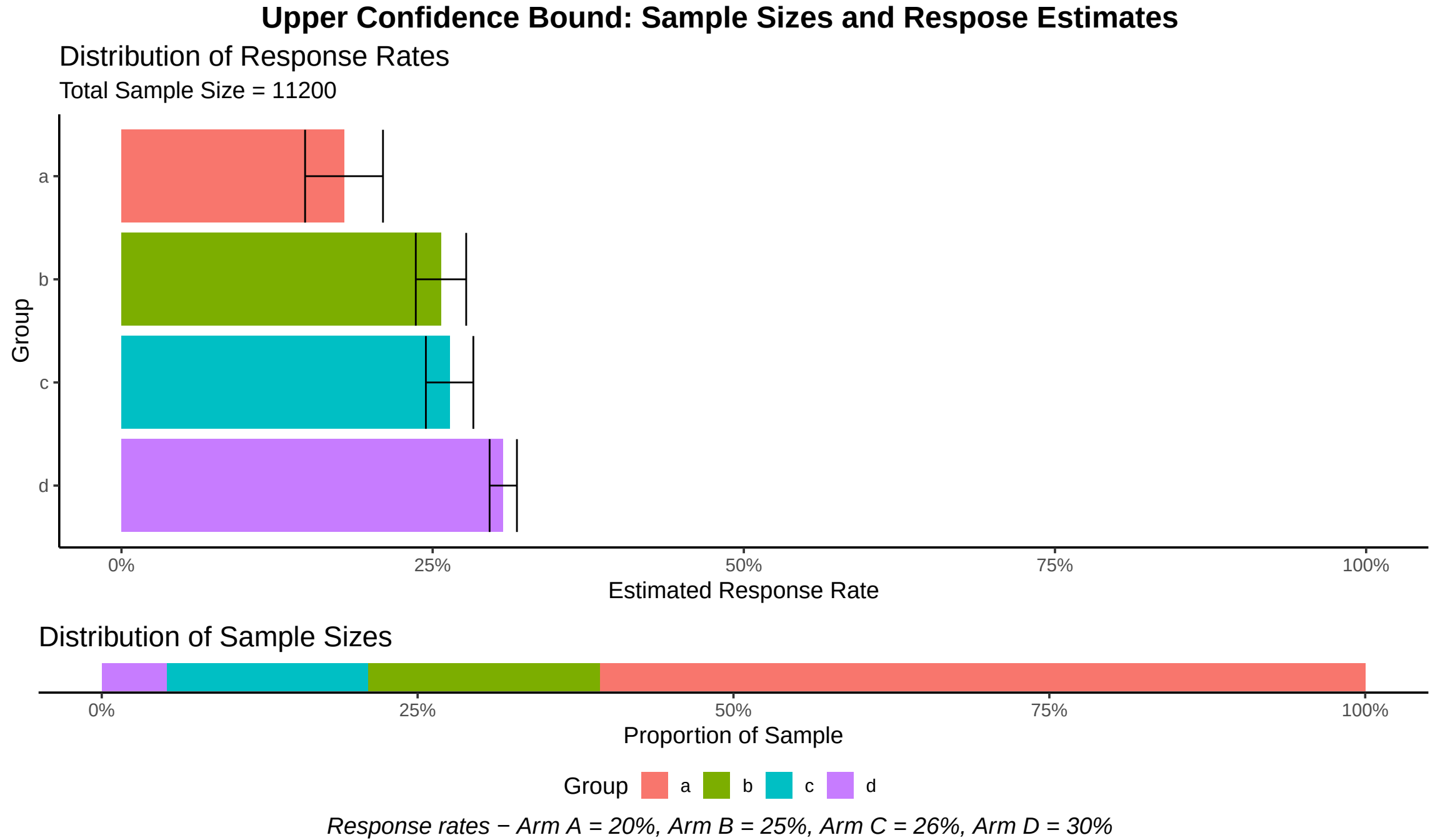
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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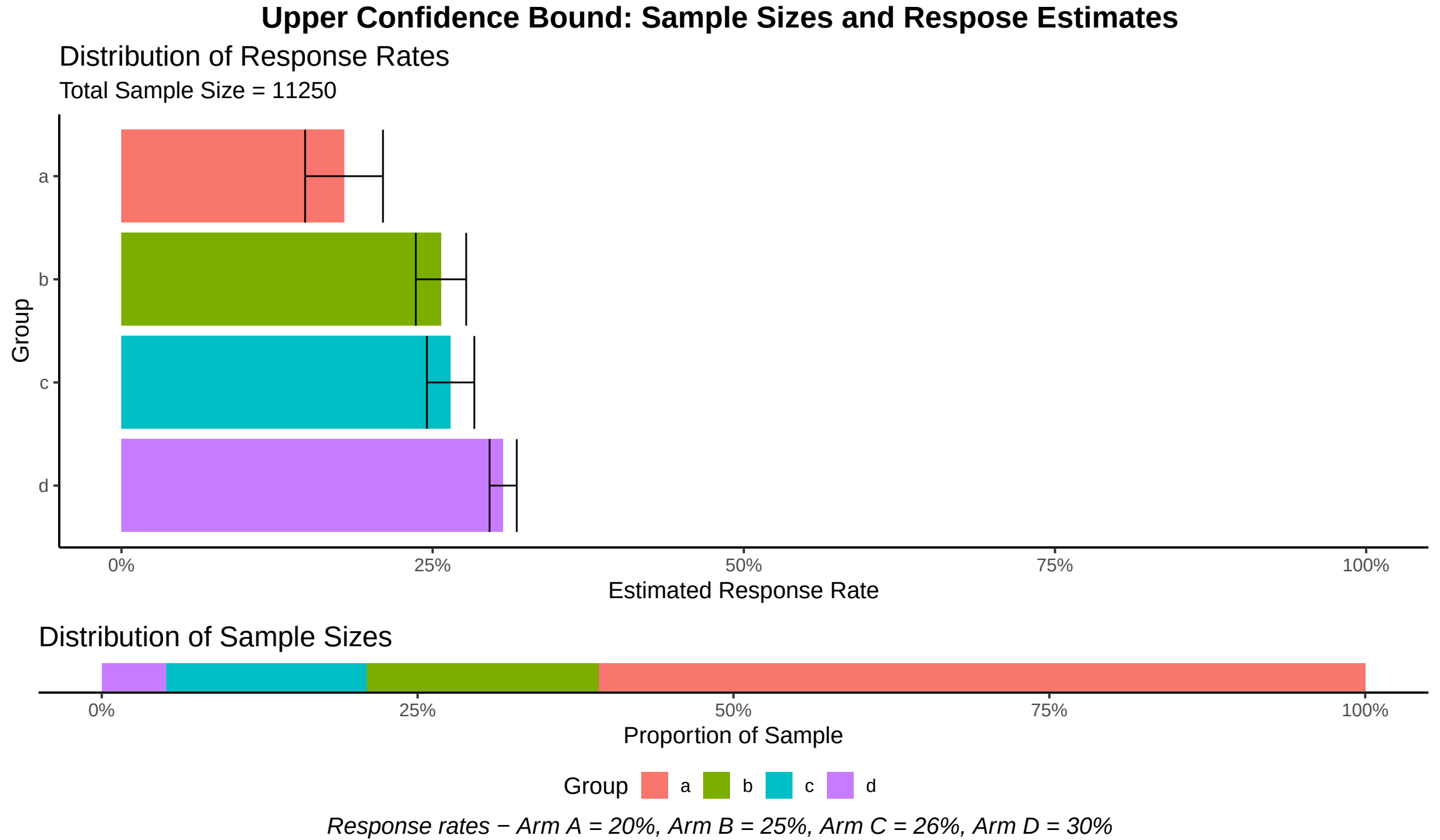
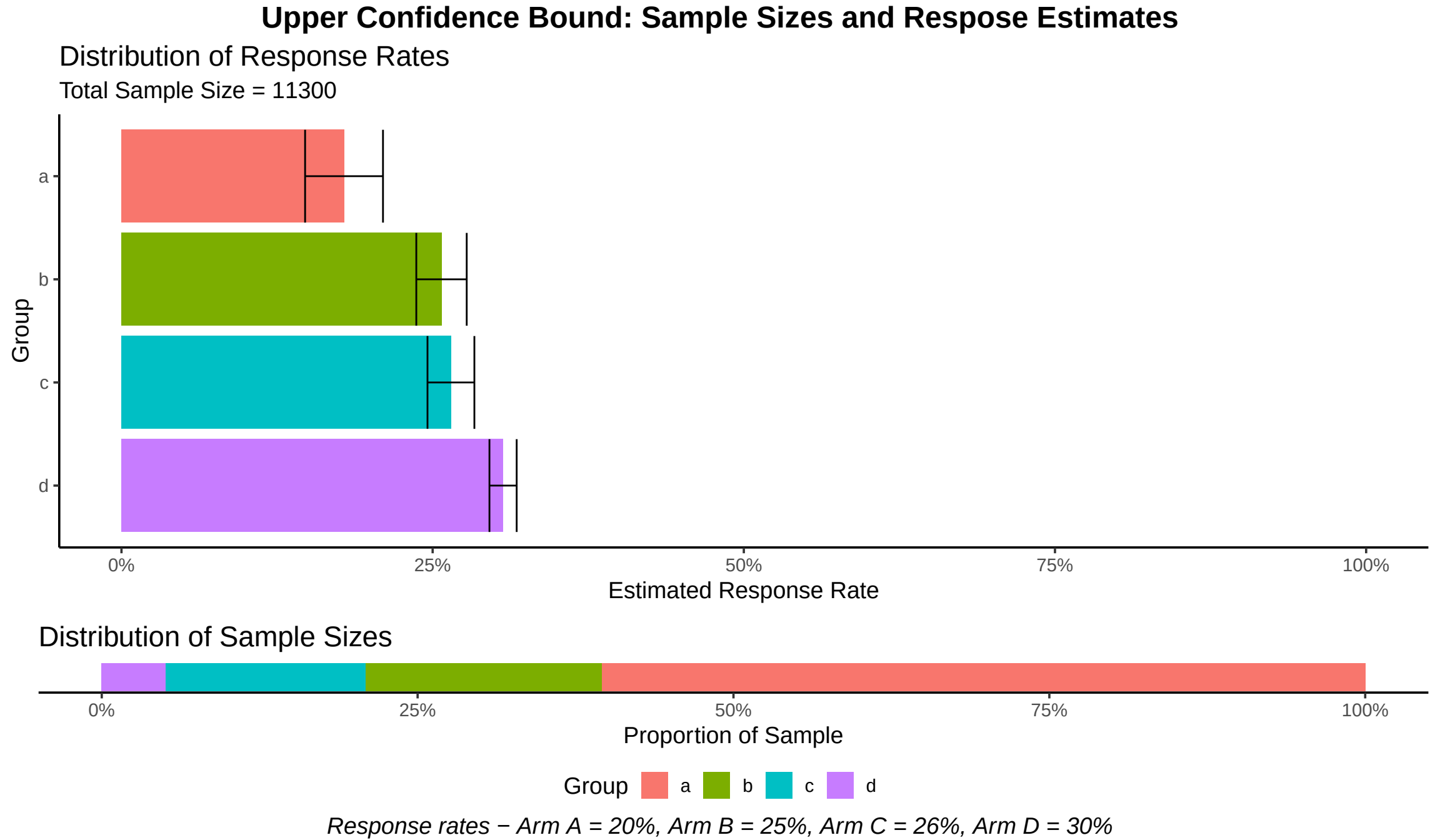
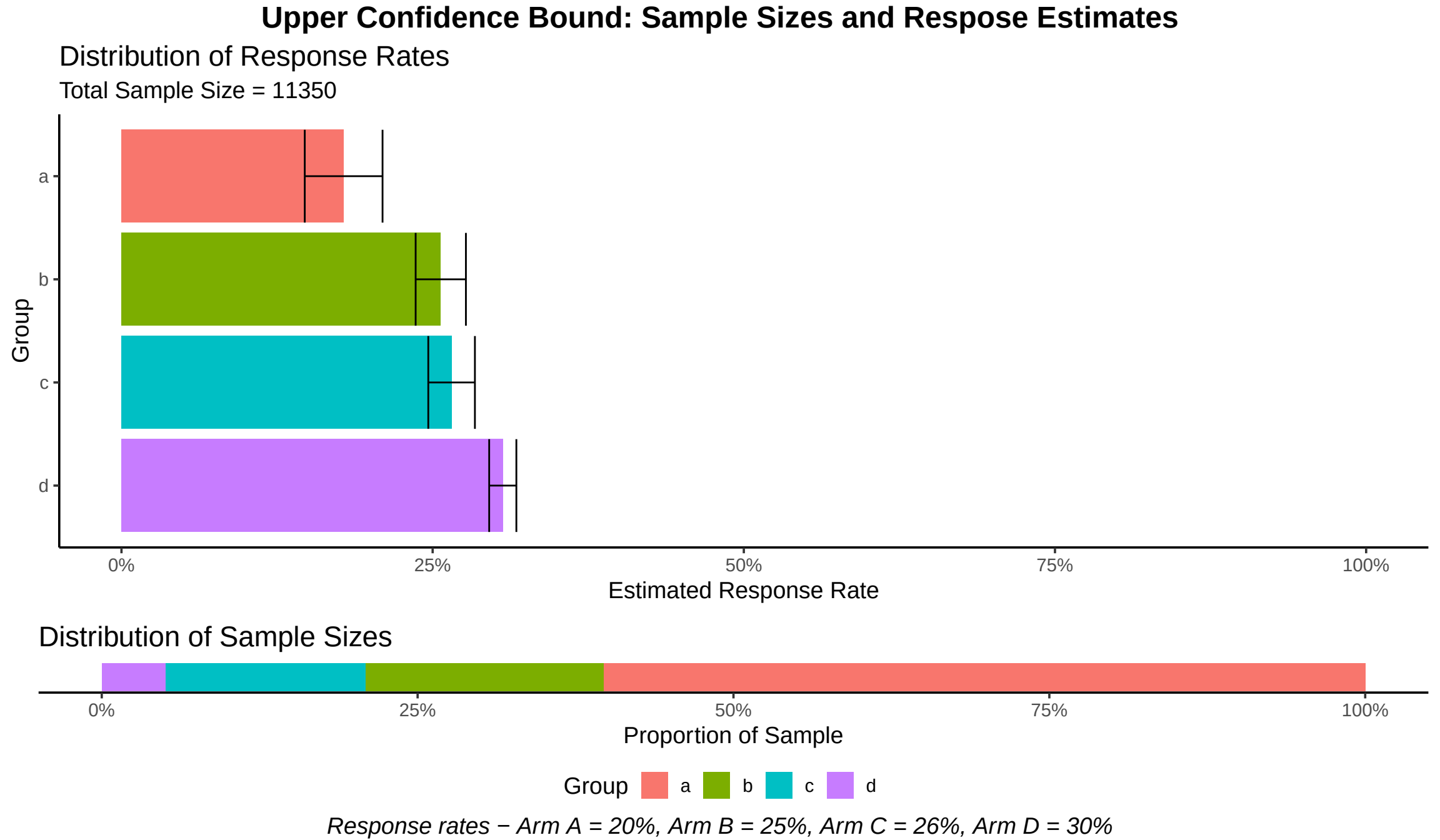
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
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Proportion of Sample
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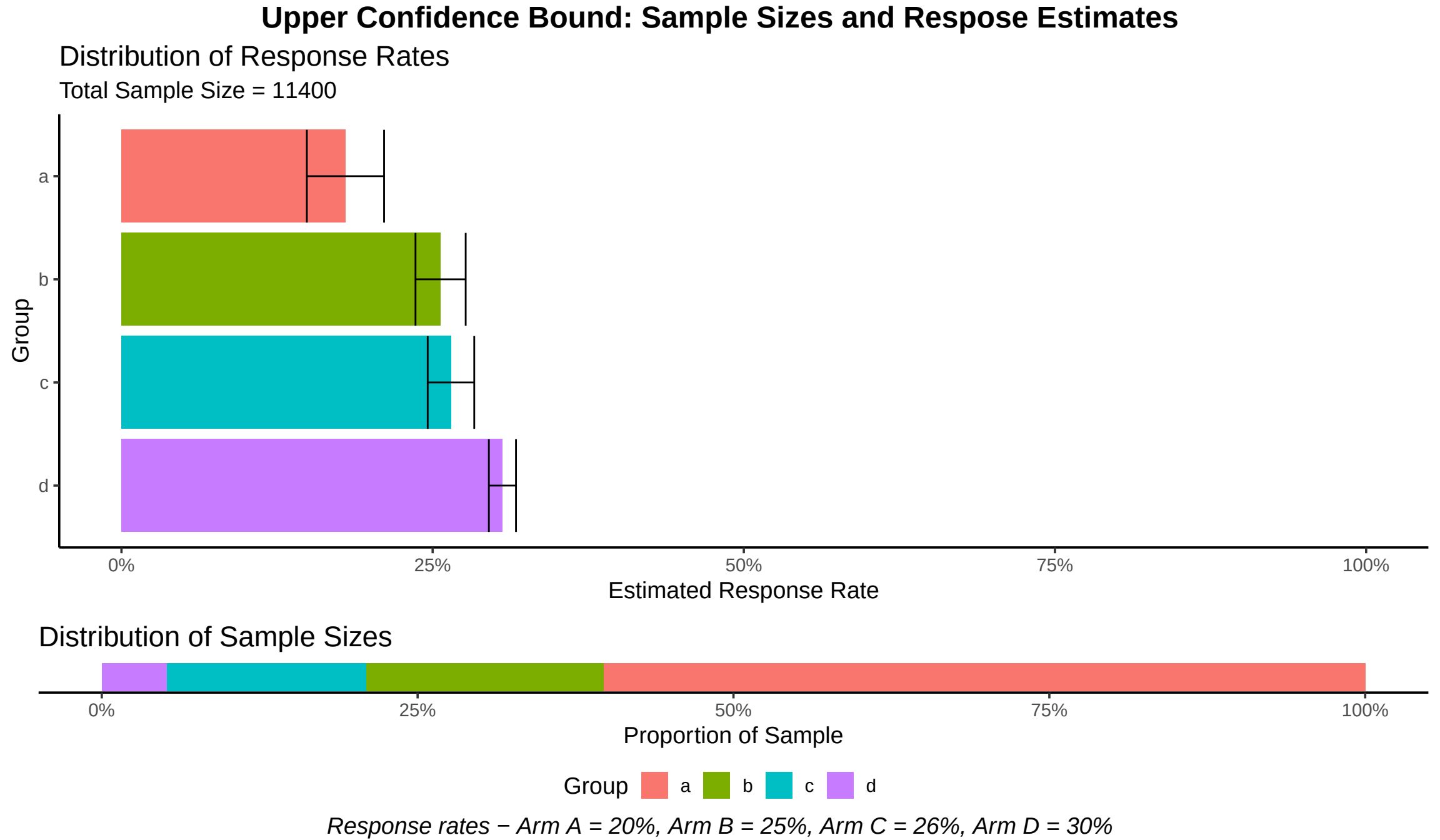
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
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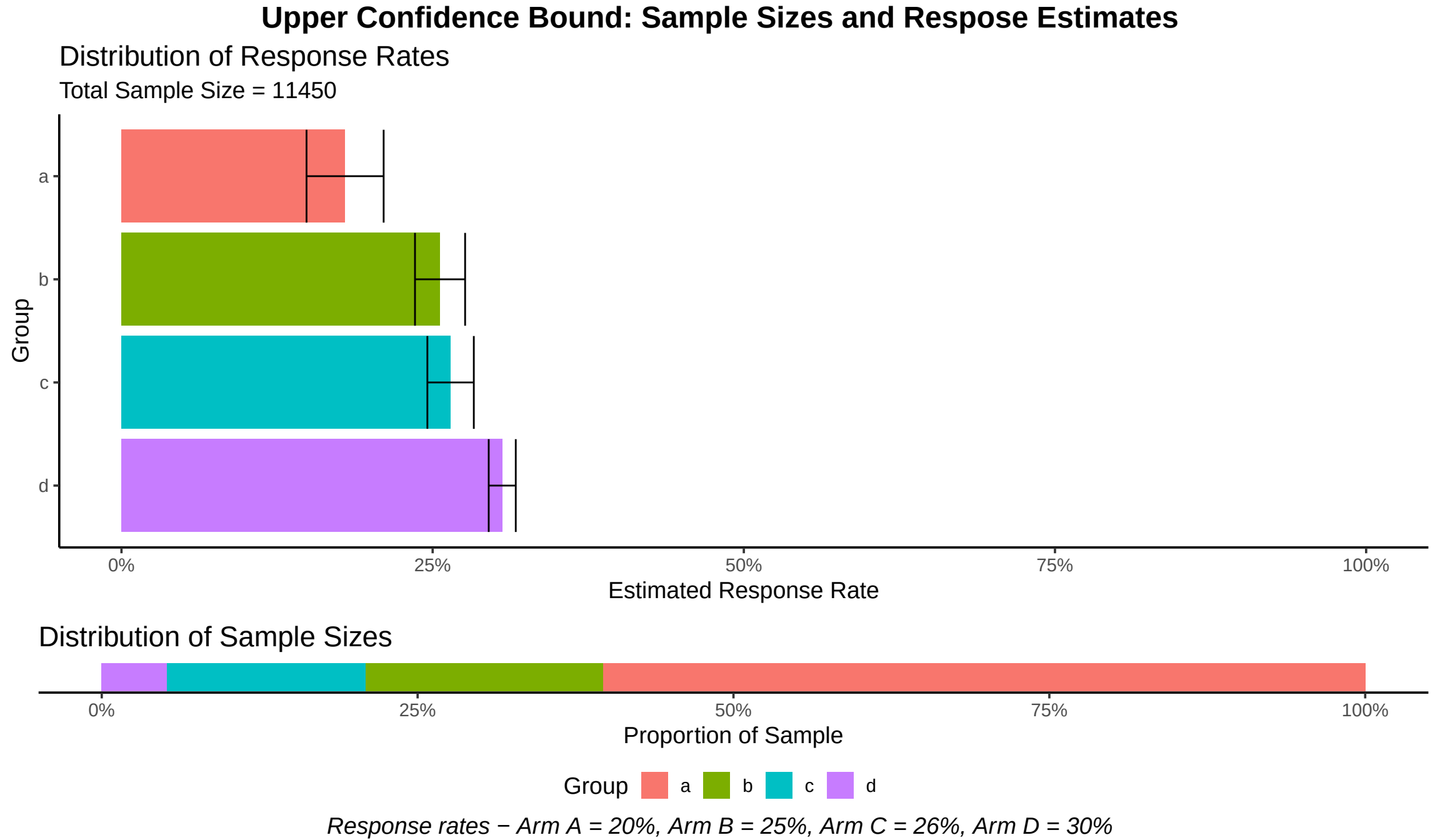
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11450
Group
a
b
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d
0%
25%
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100%
Estimated Response Rate
Distribution of Sample Sizes
0%
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100%
Proportion of Sample
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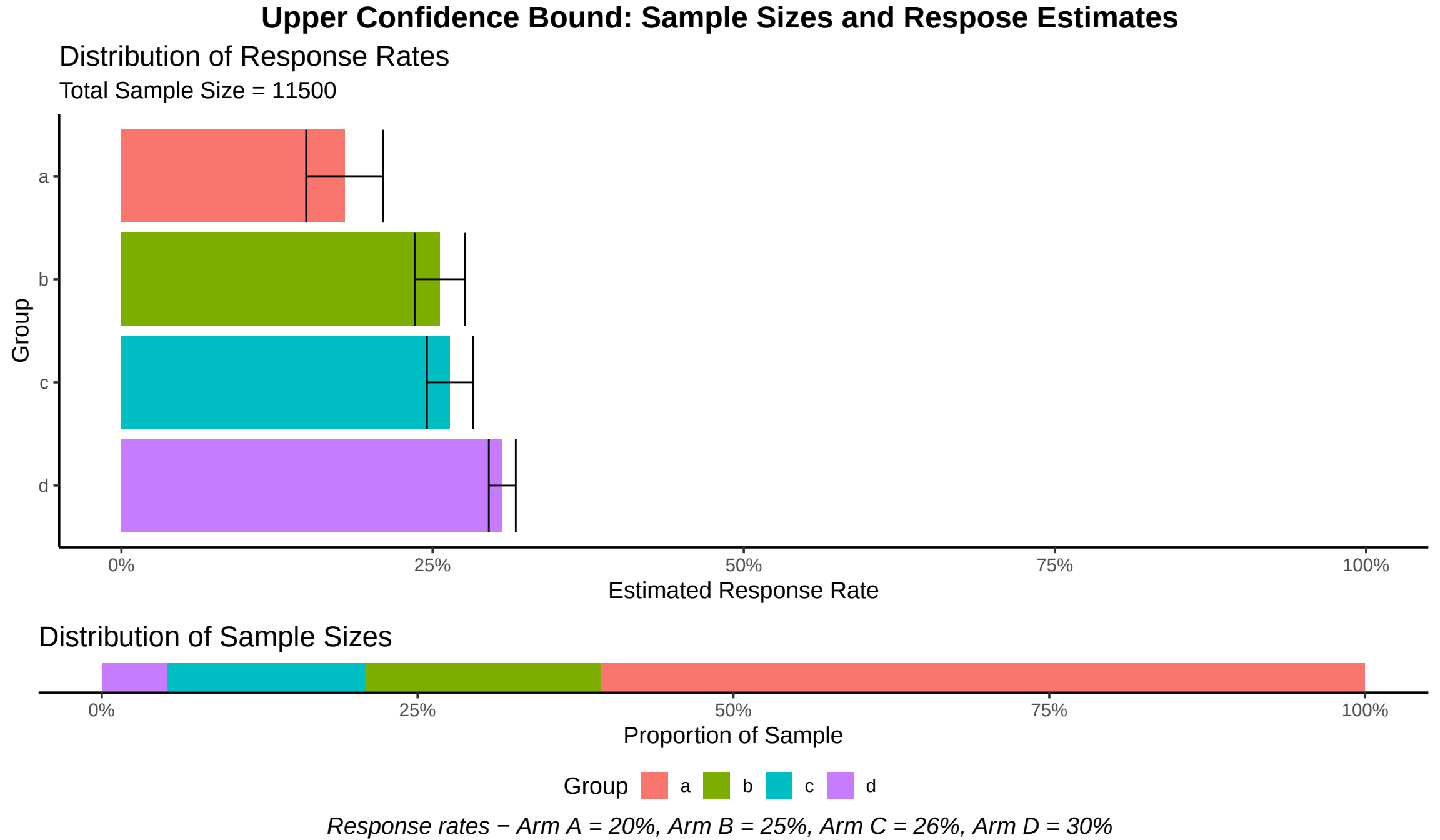
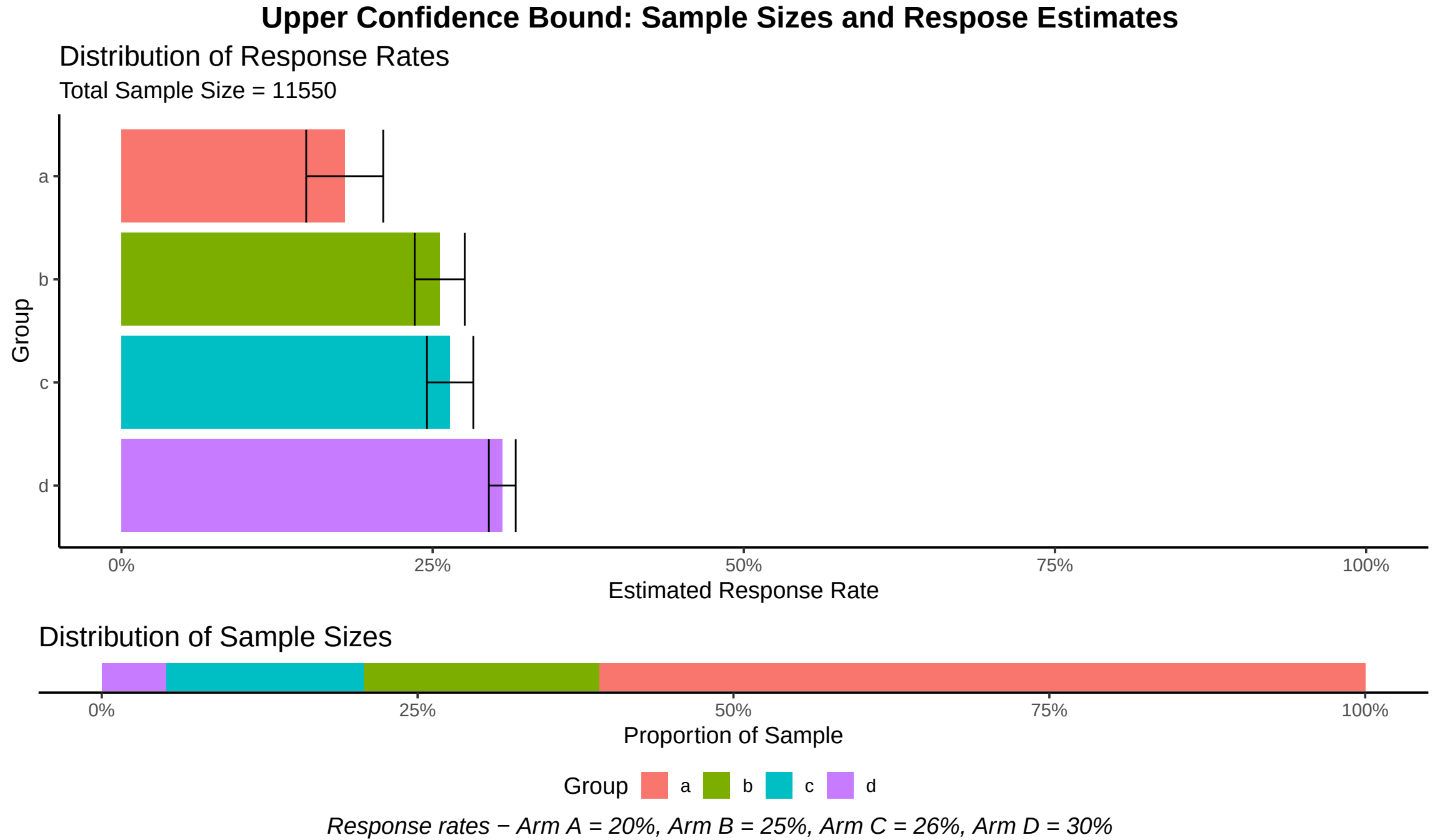
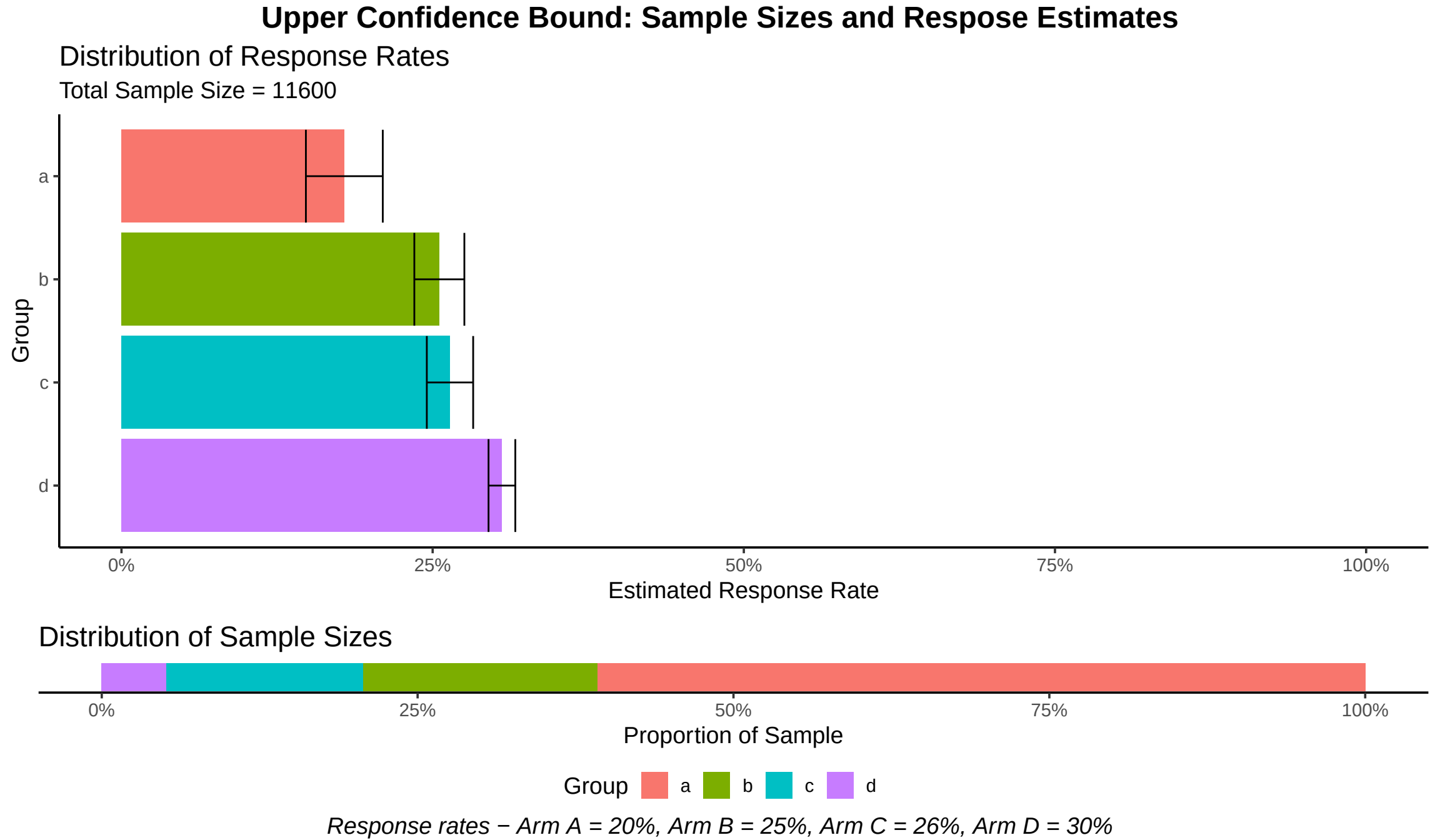
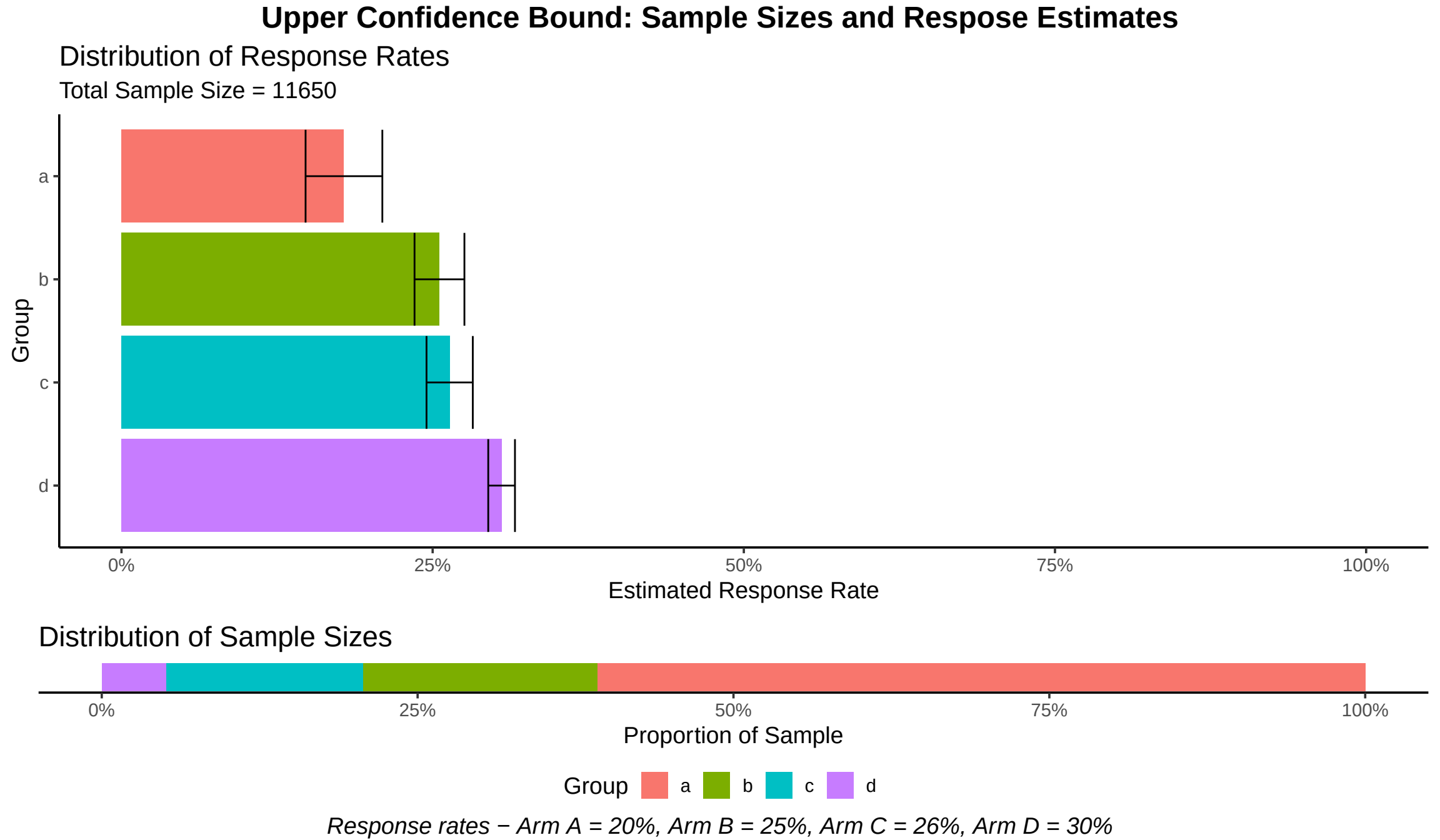
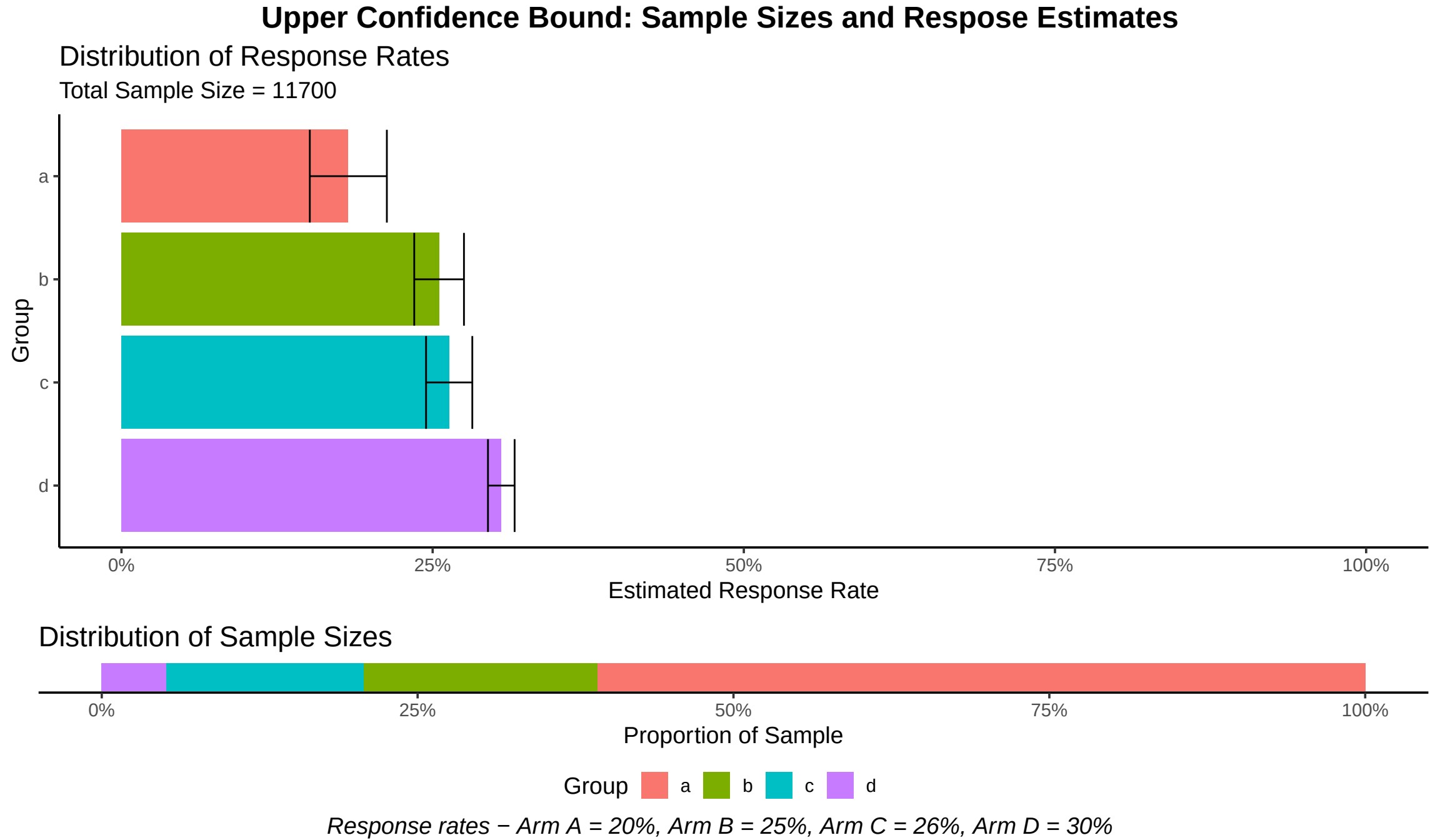
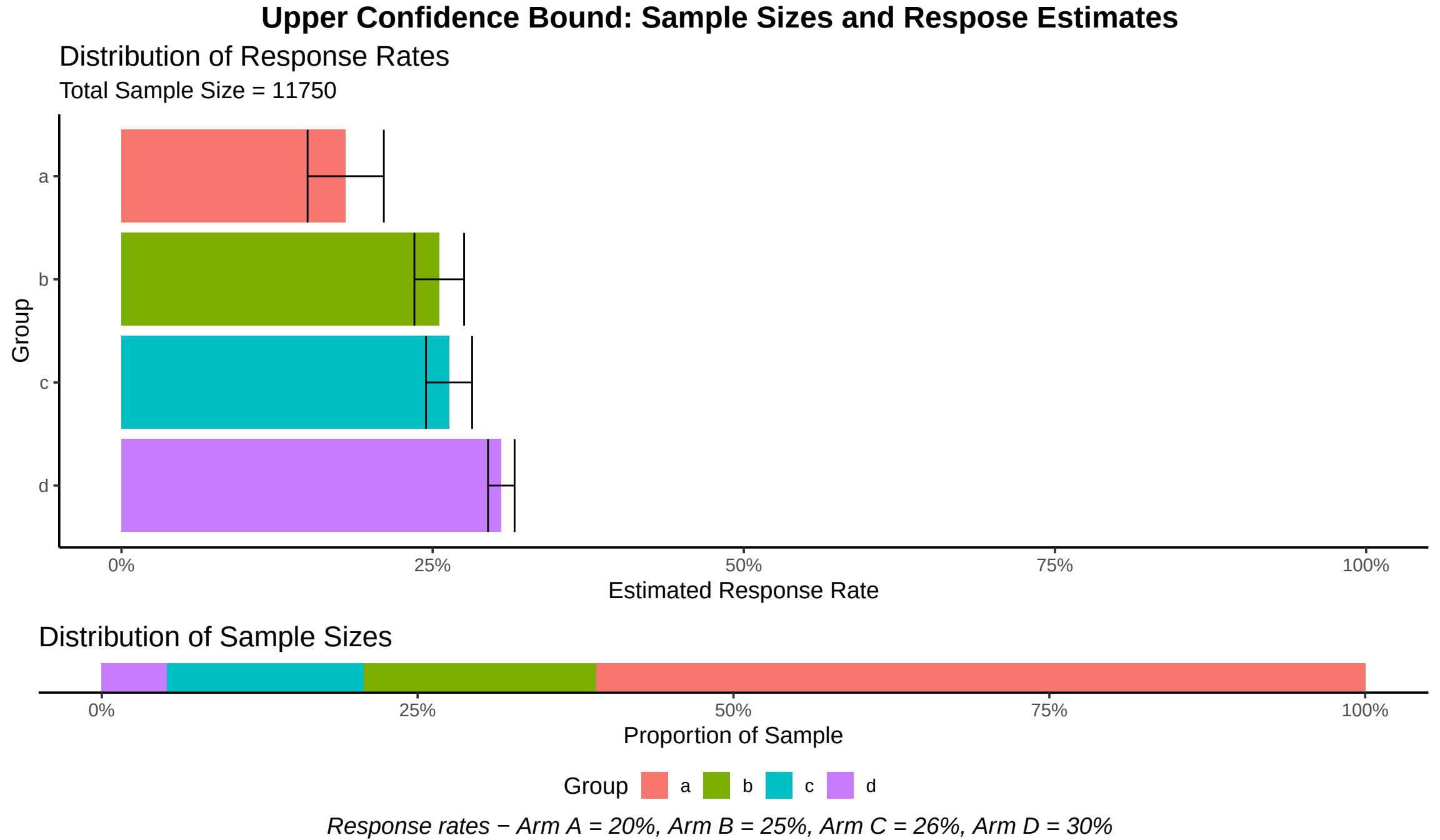

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

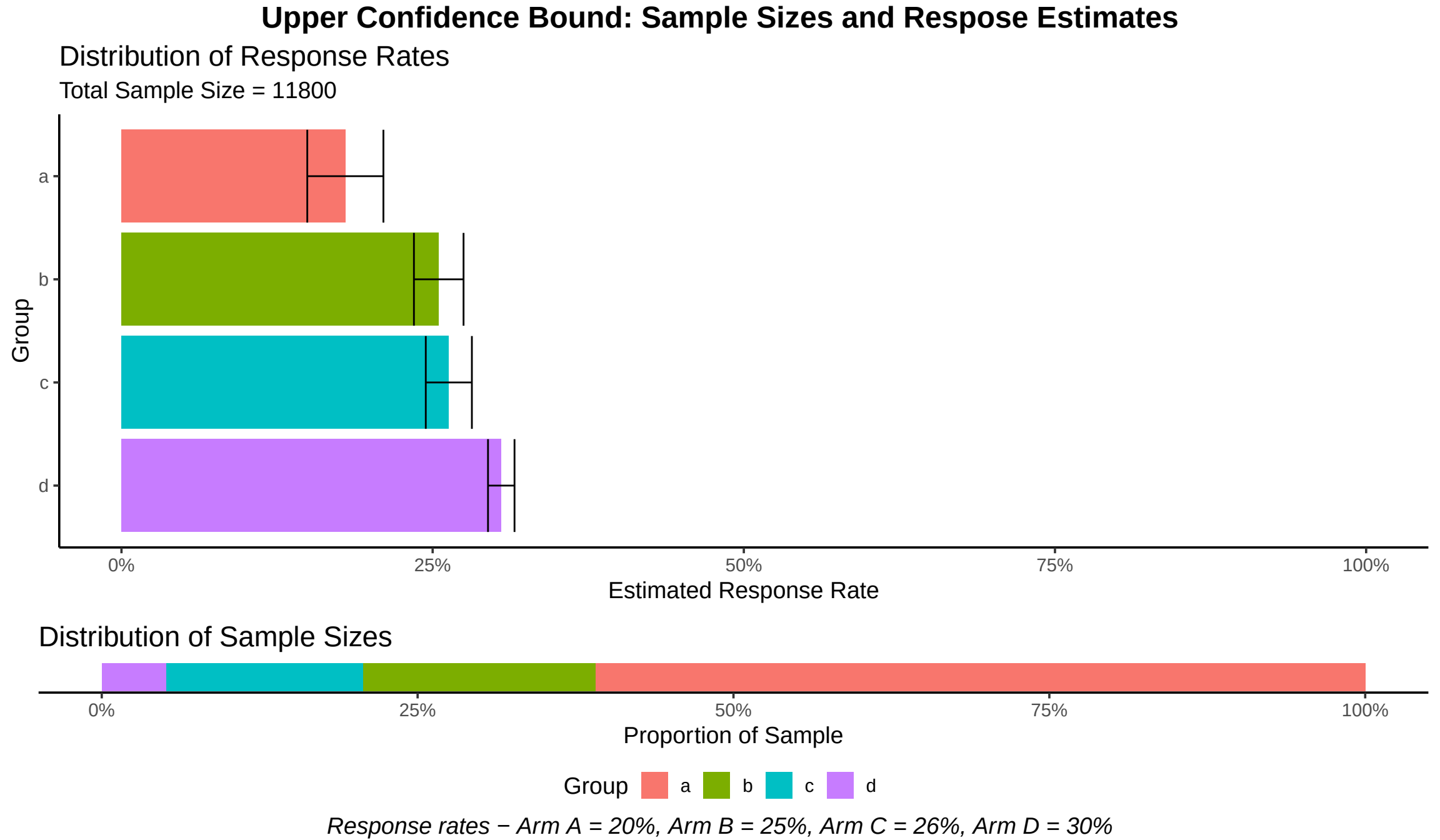

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

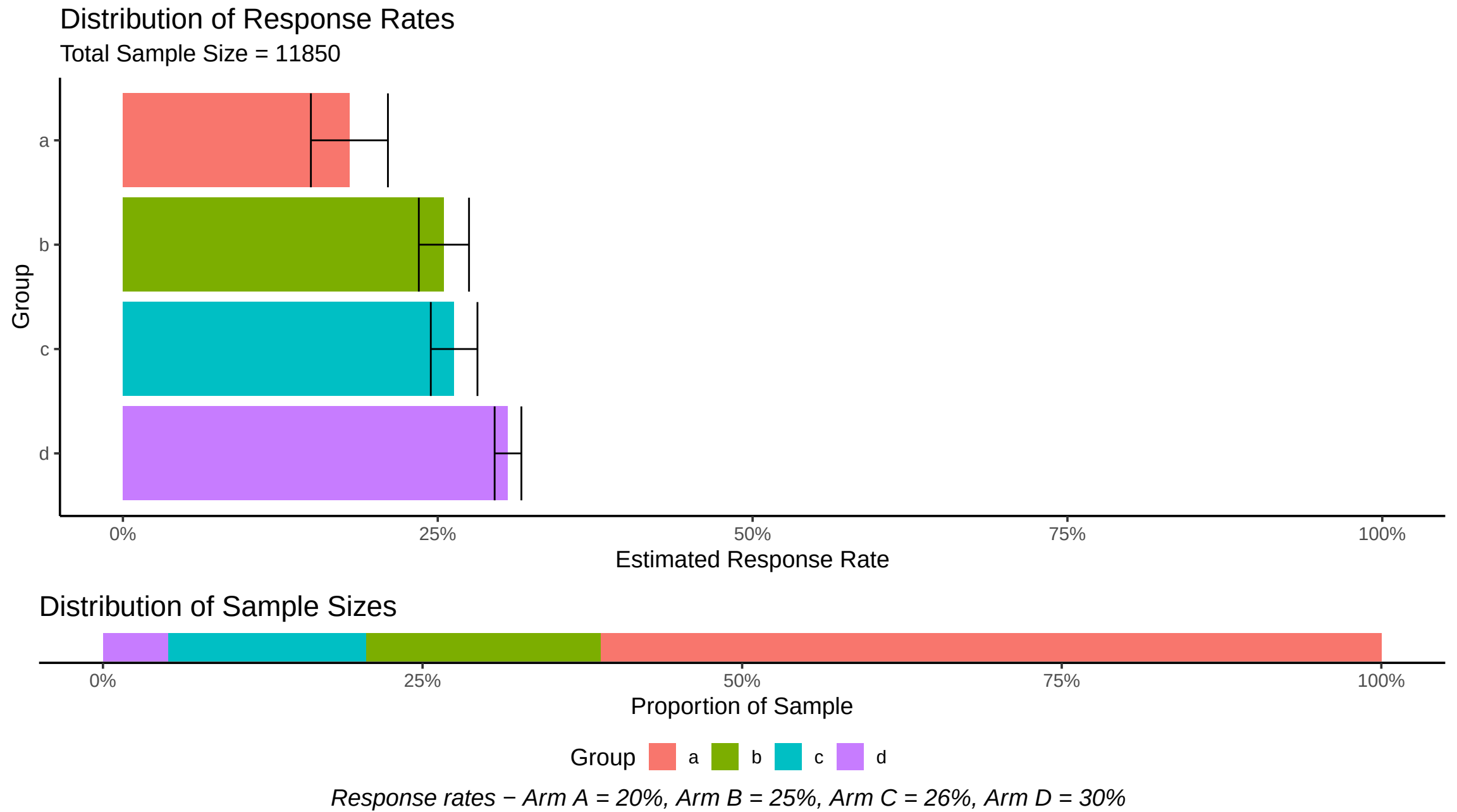

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

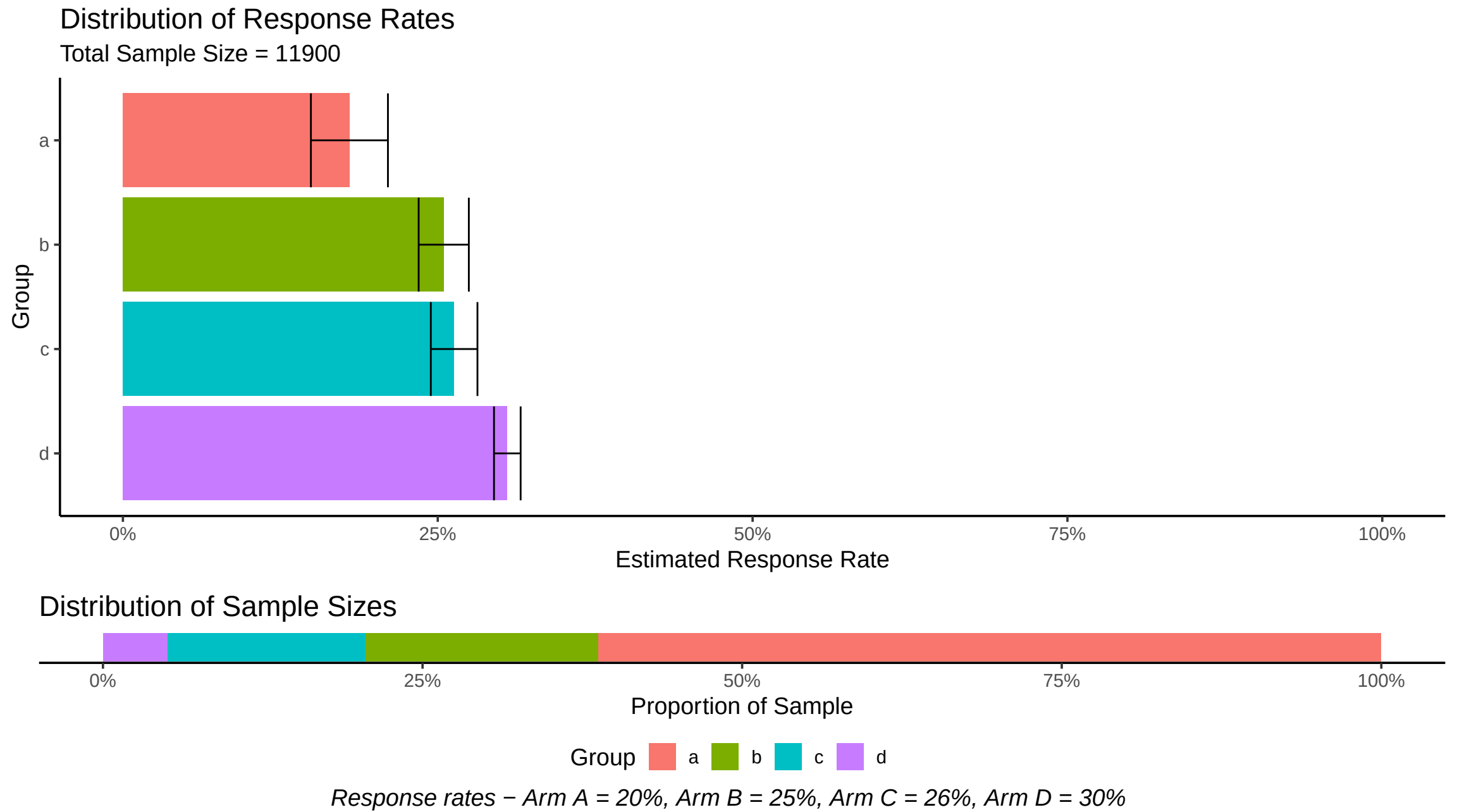

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

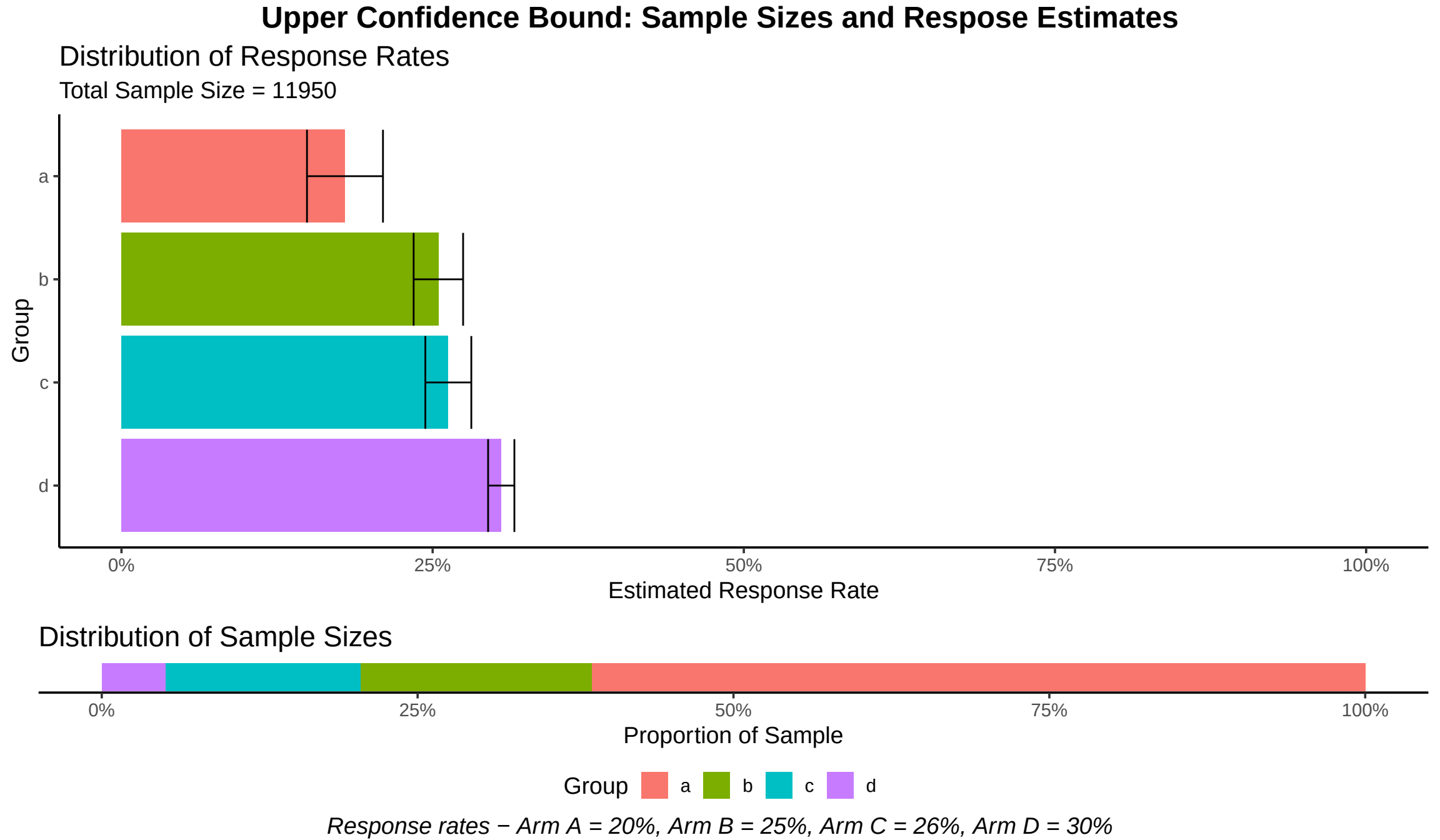


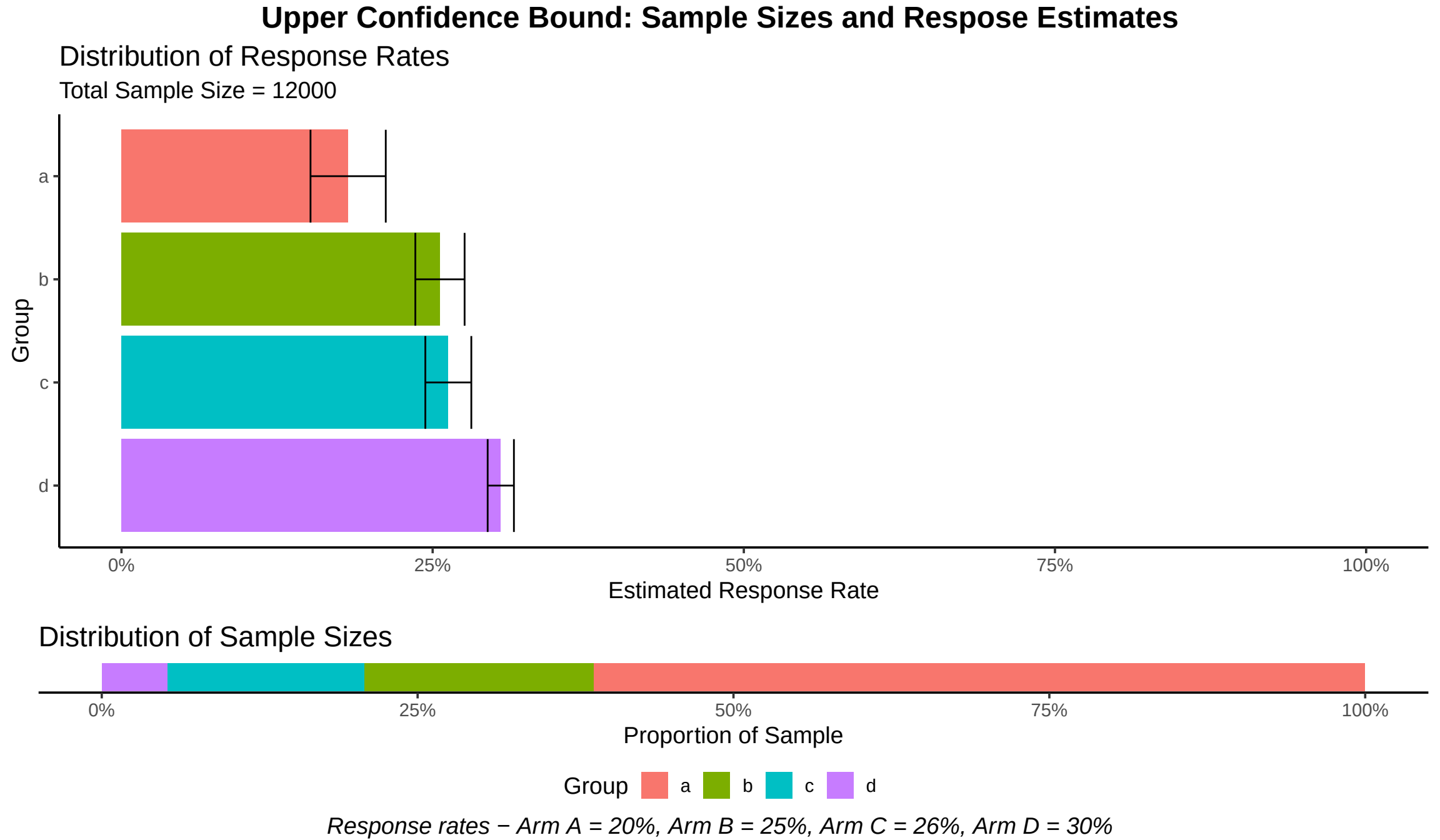
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

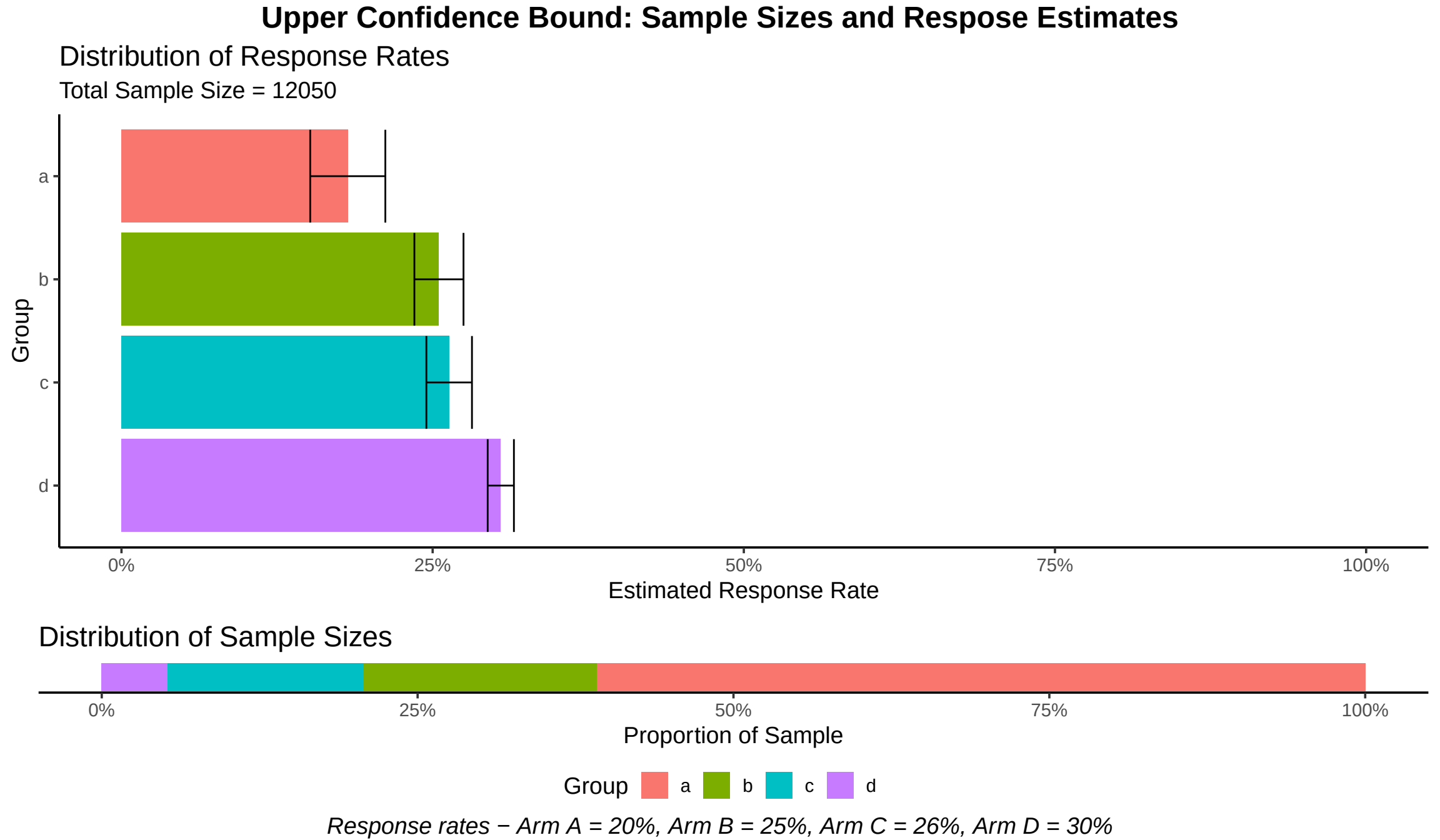
Upper Confidence Bound: Sample Sizes and Respose Estimates

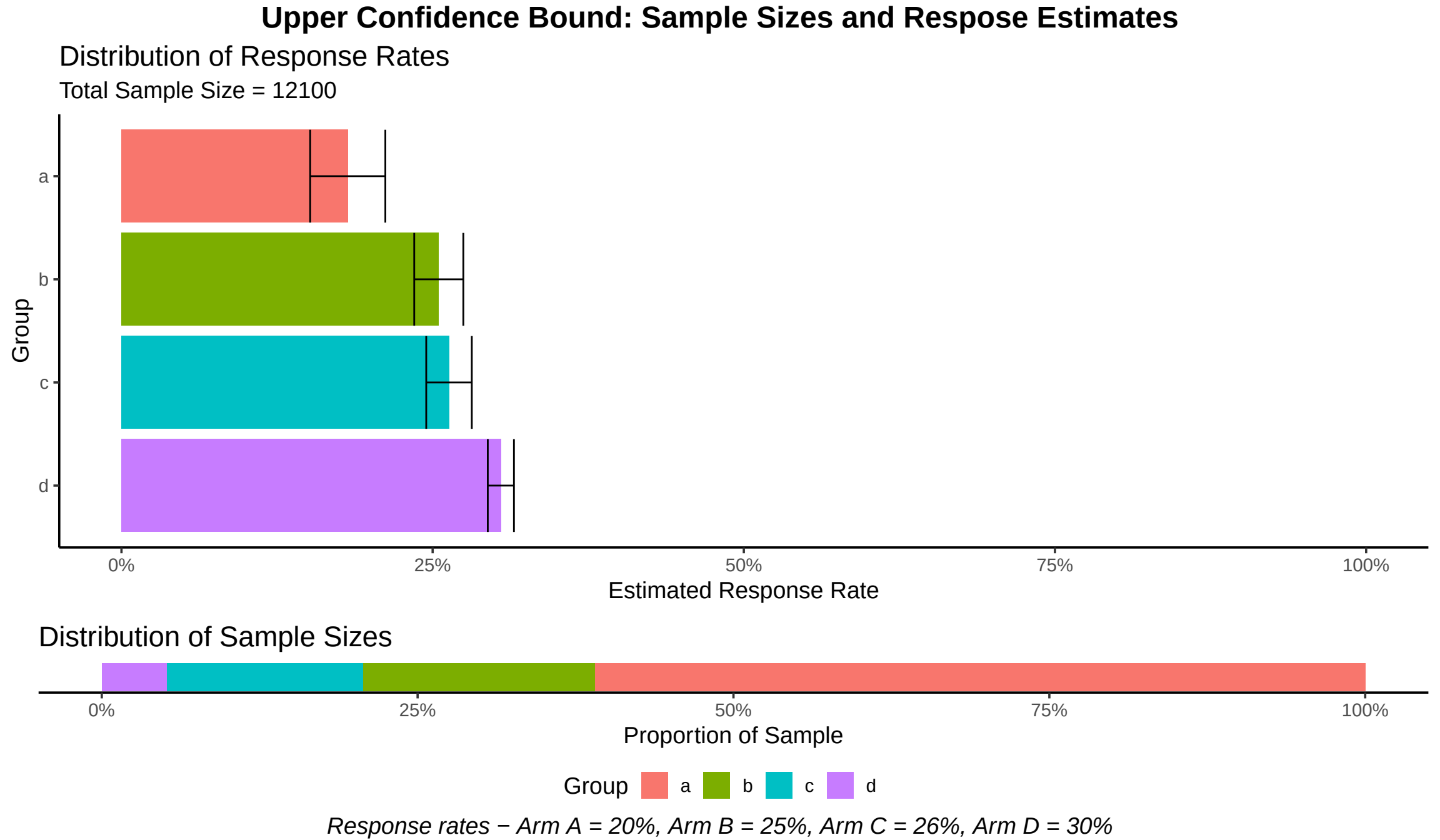


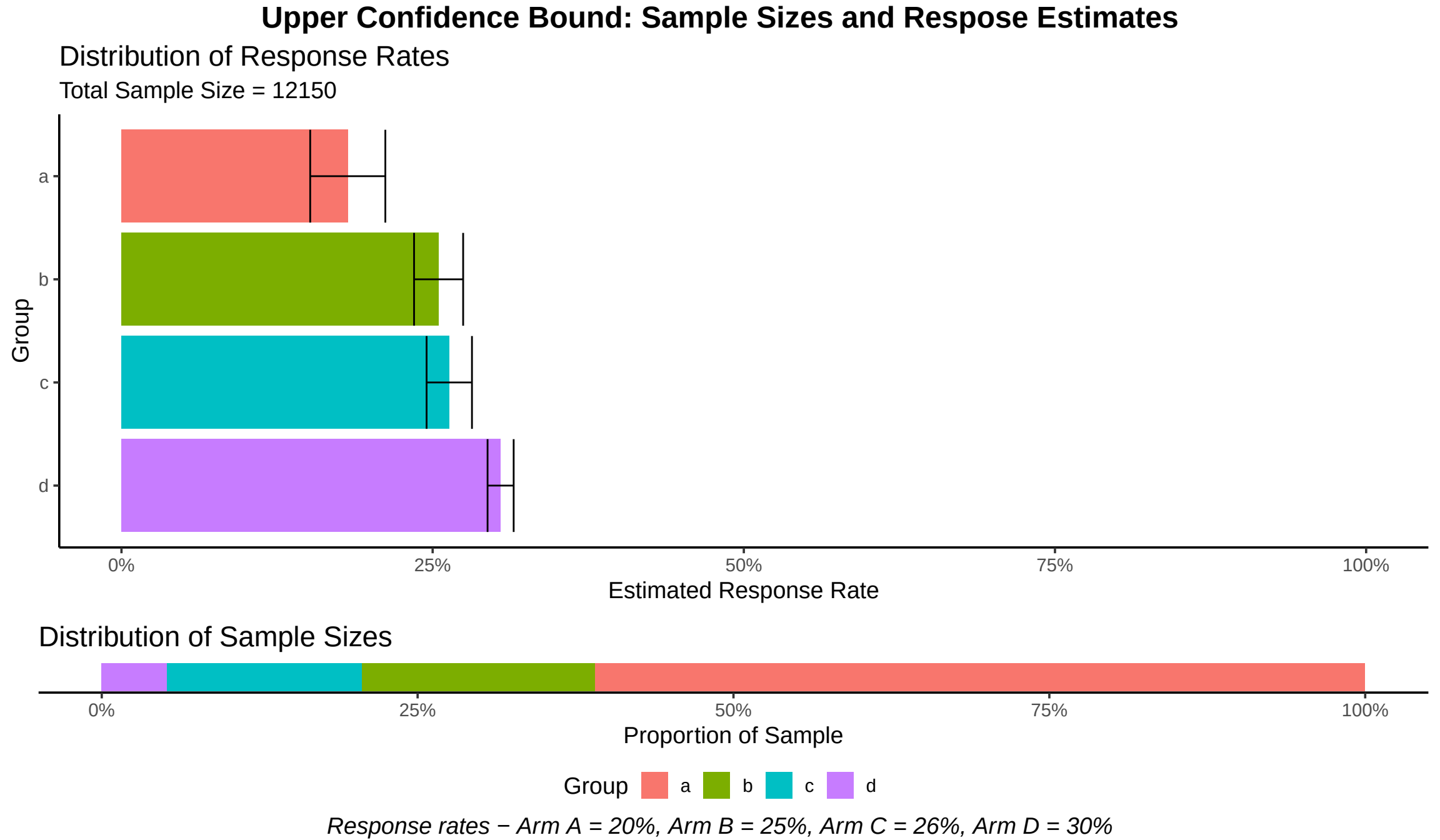
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

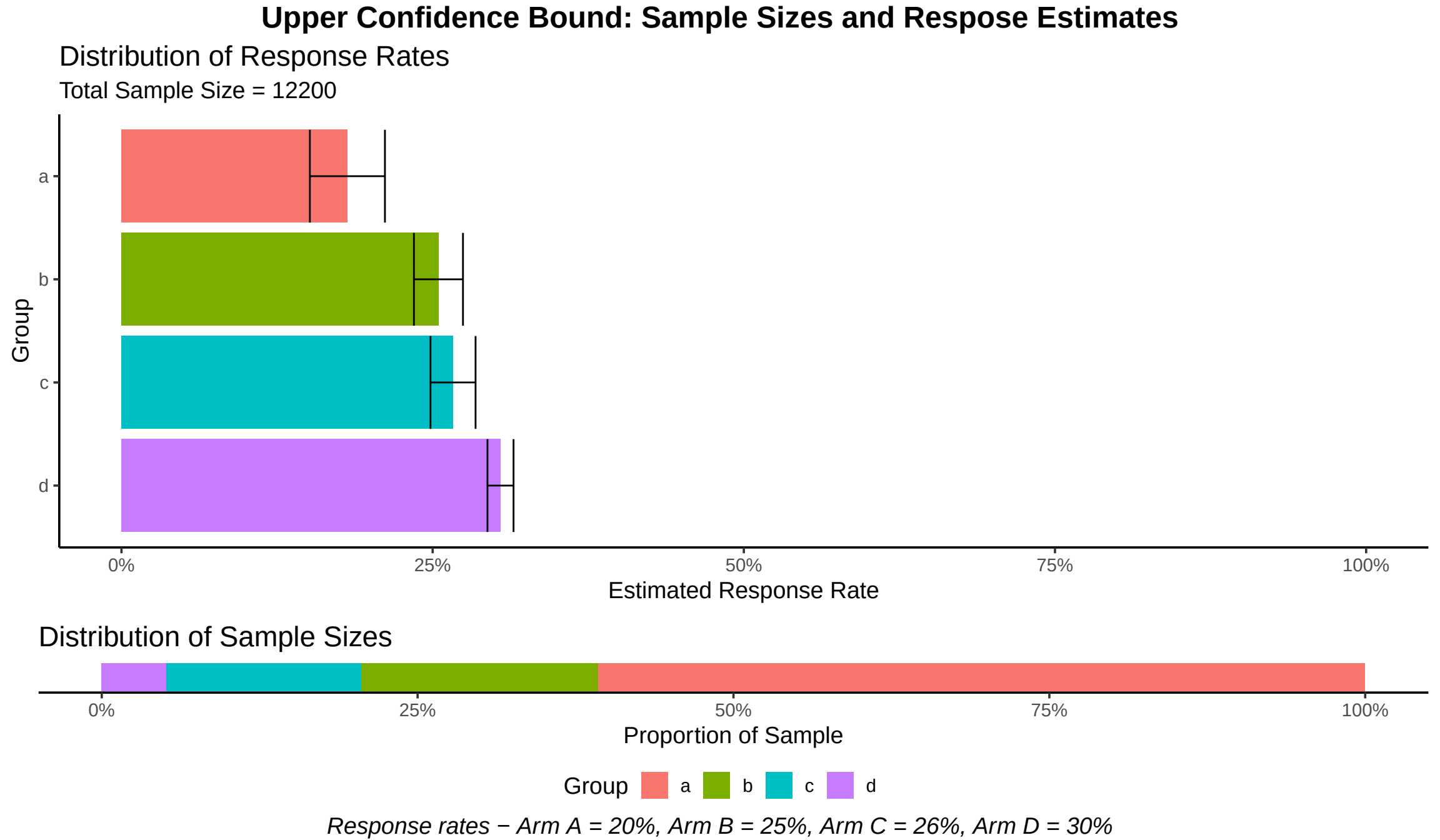

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 11950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

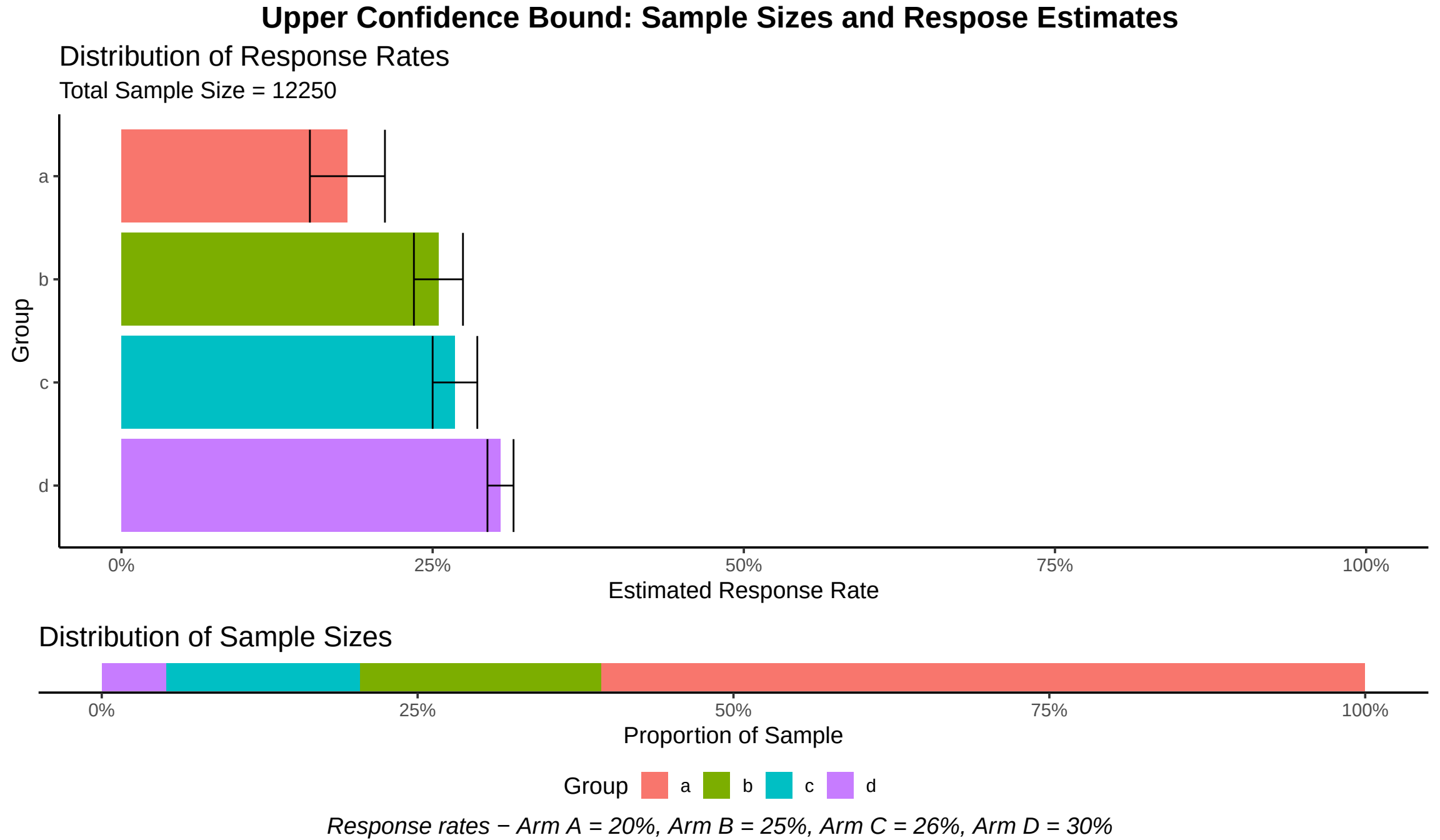

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

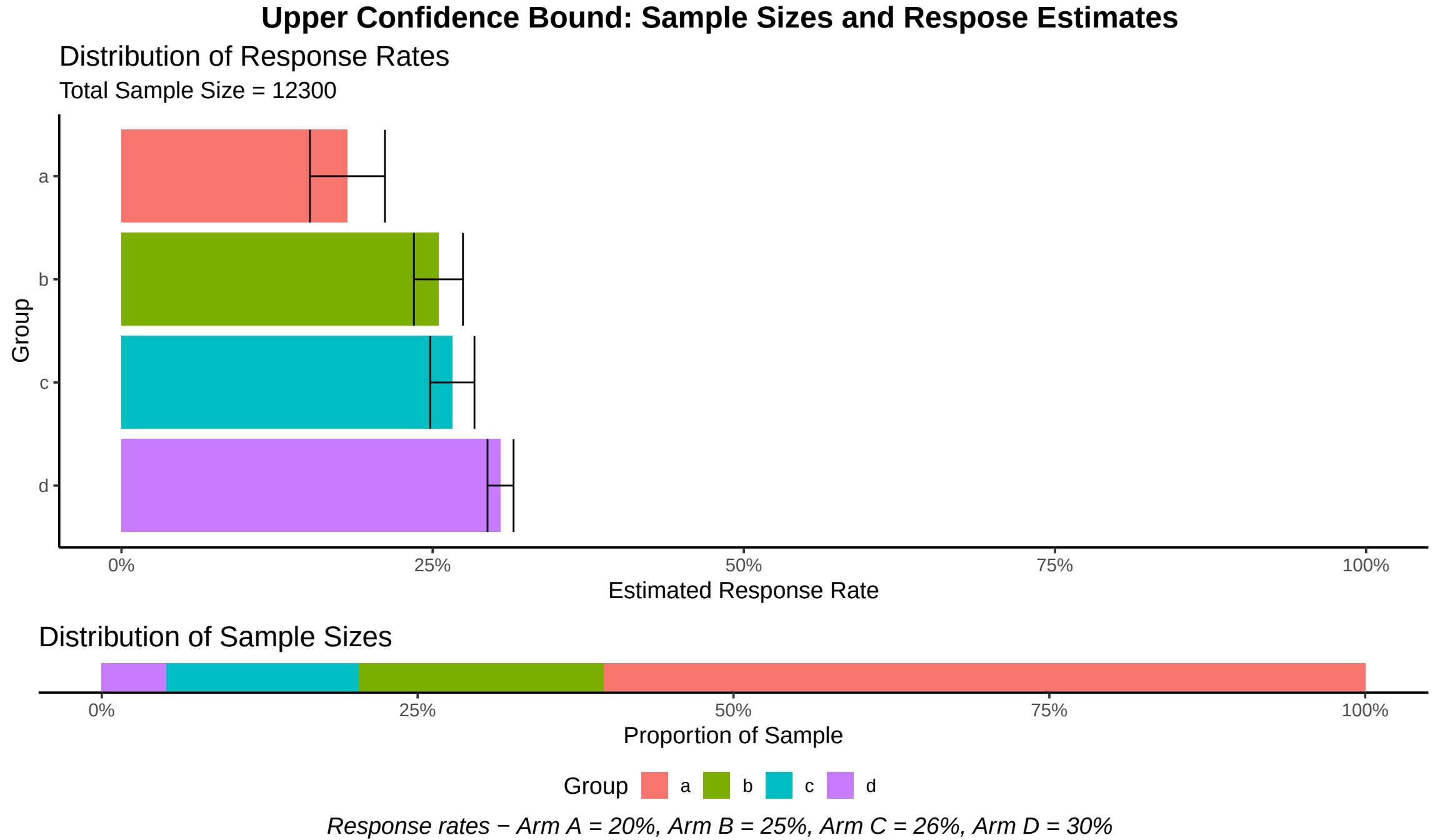

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

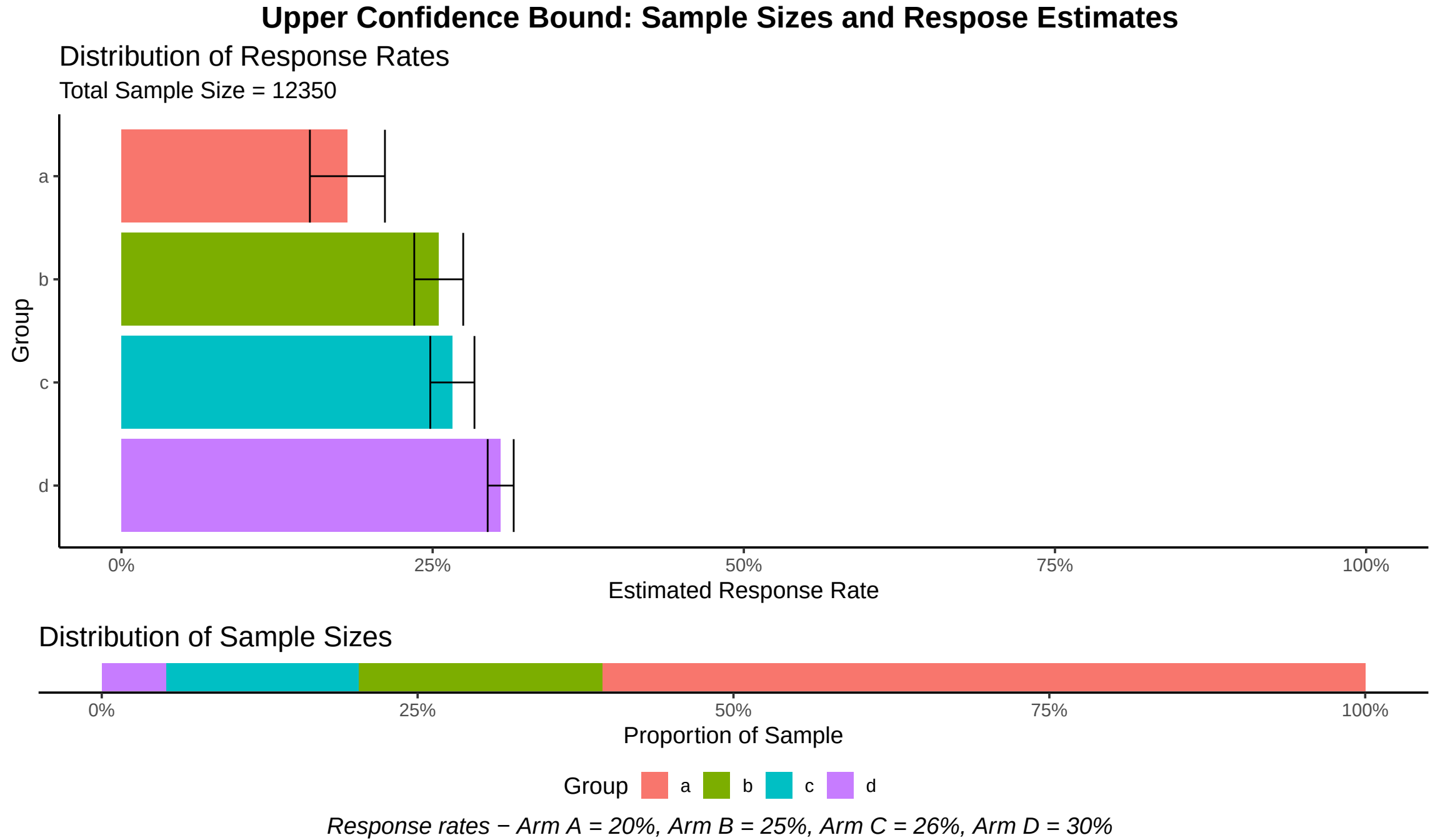

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

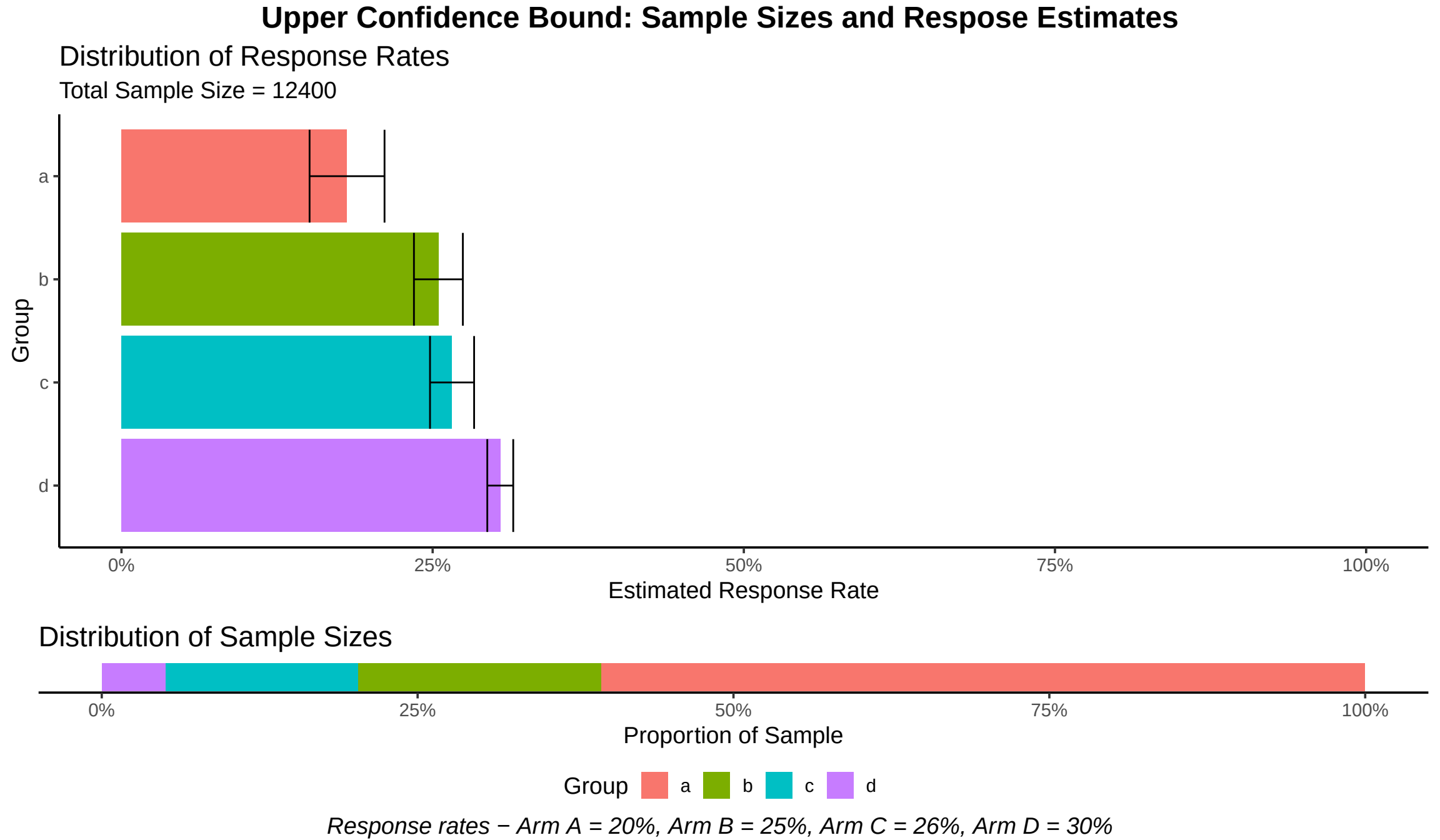

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

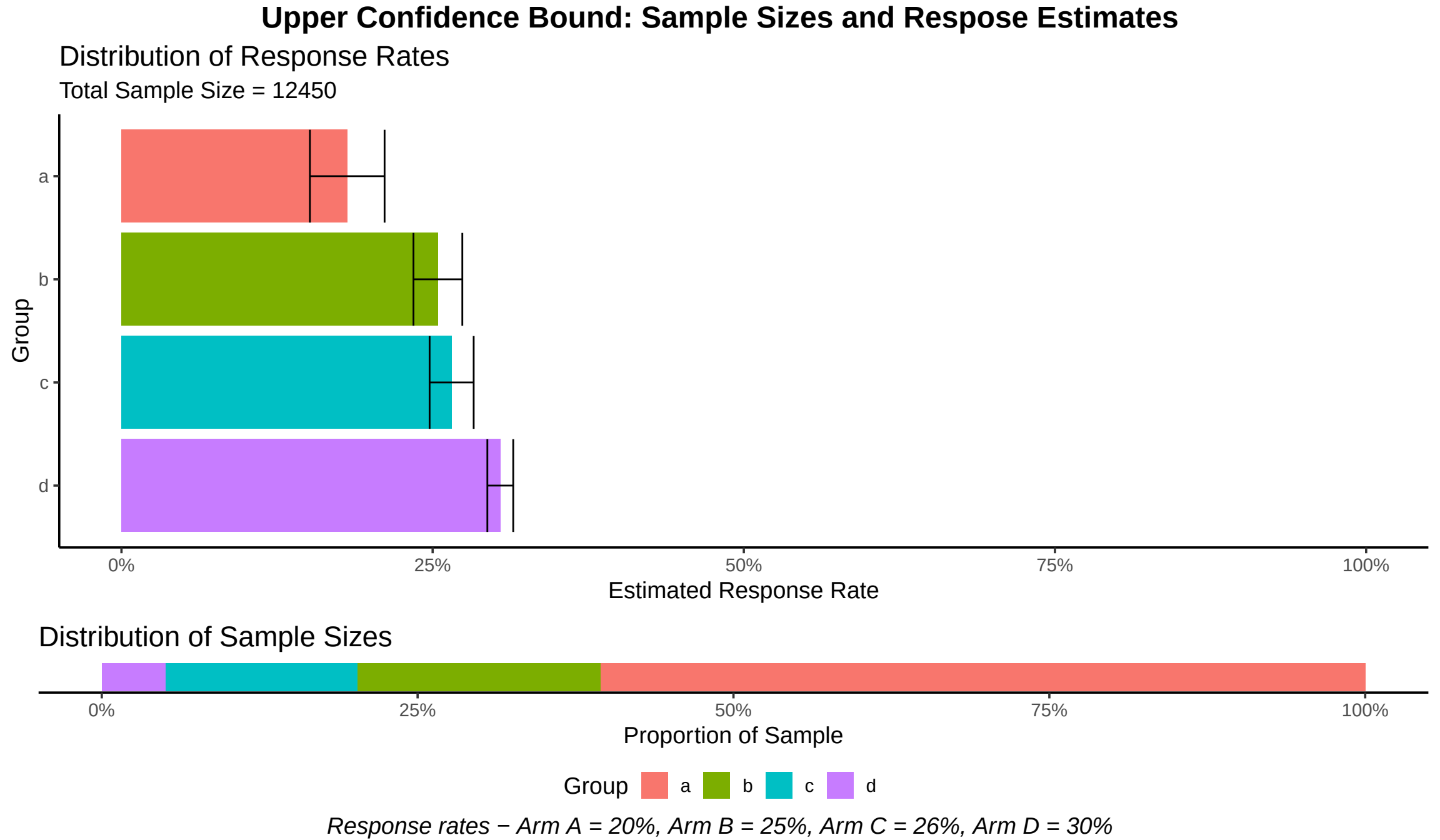

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

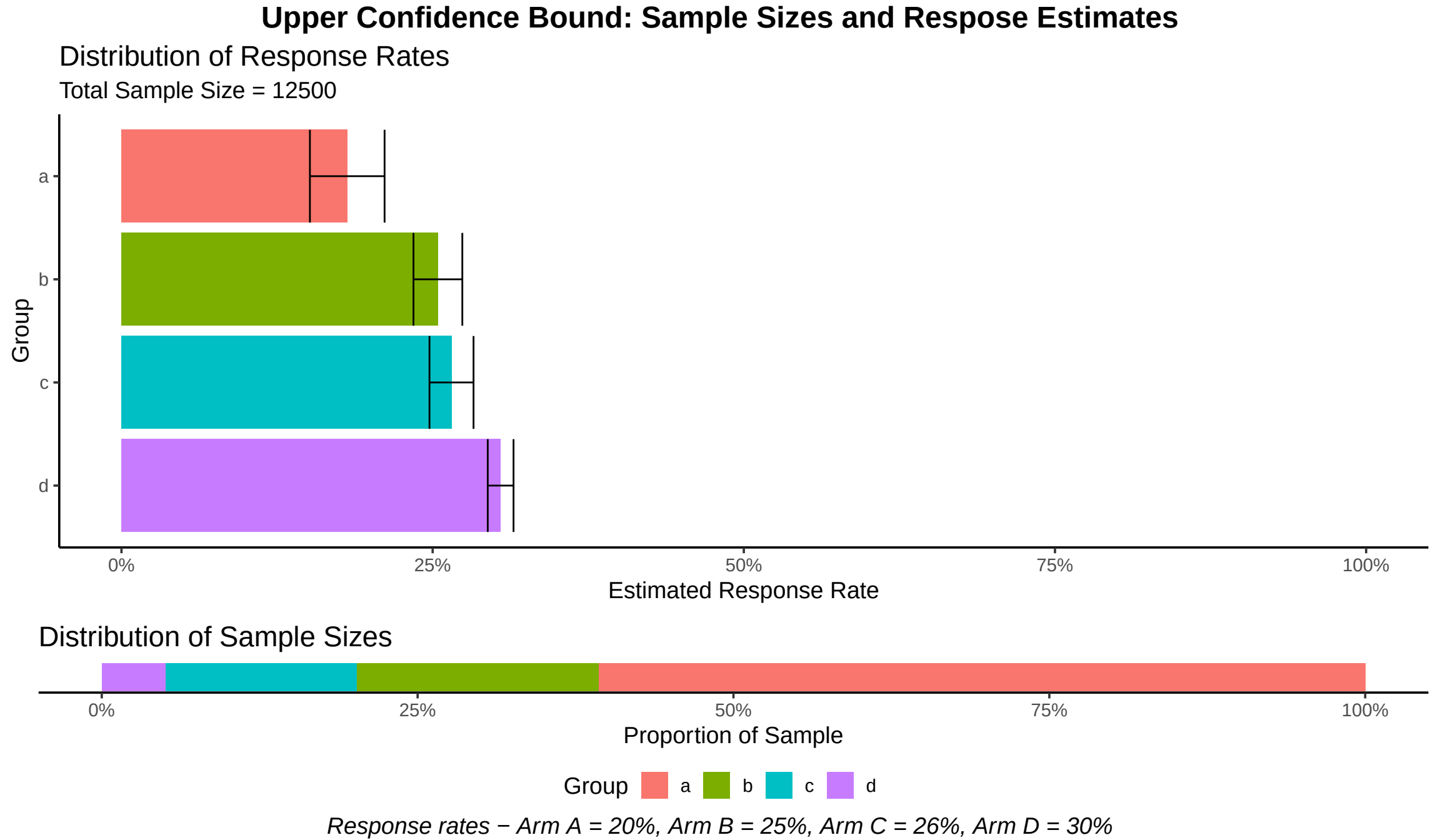

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

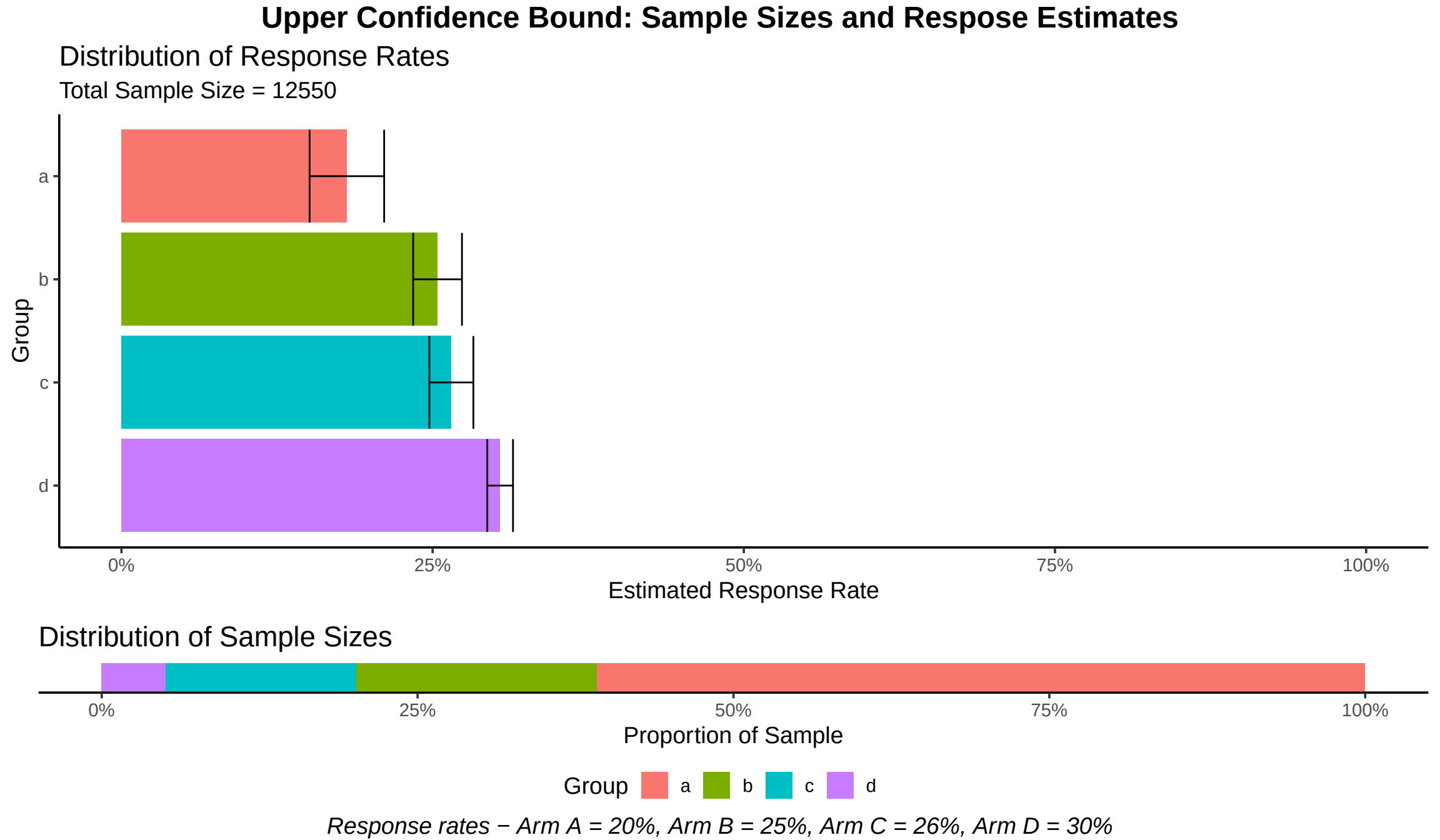

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

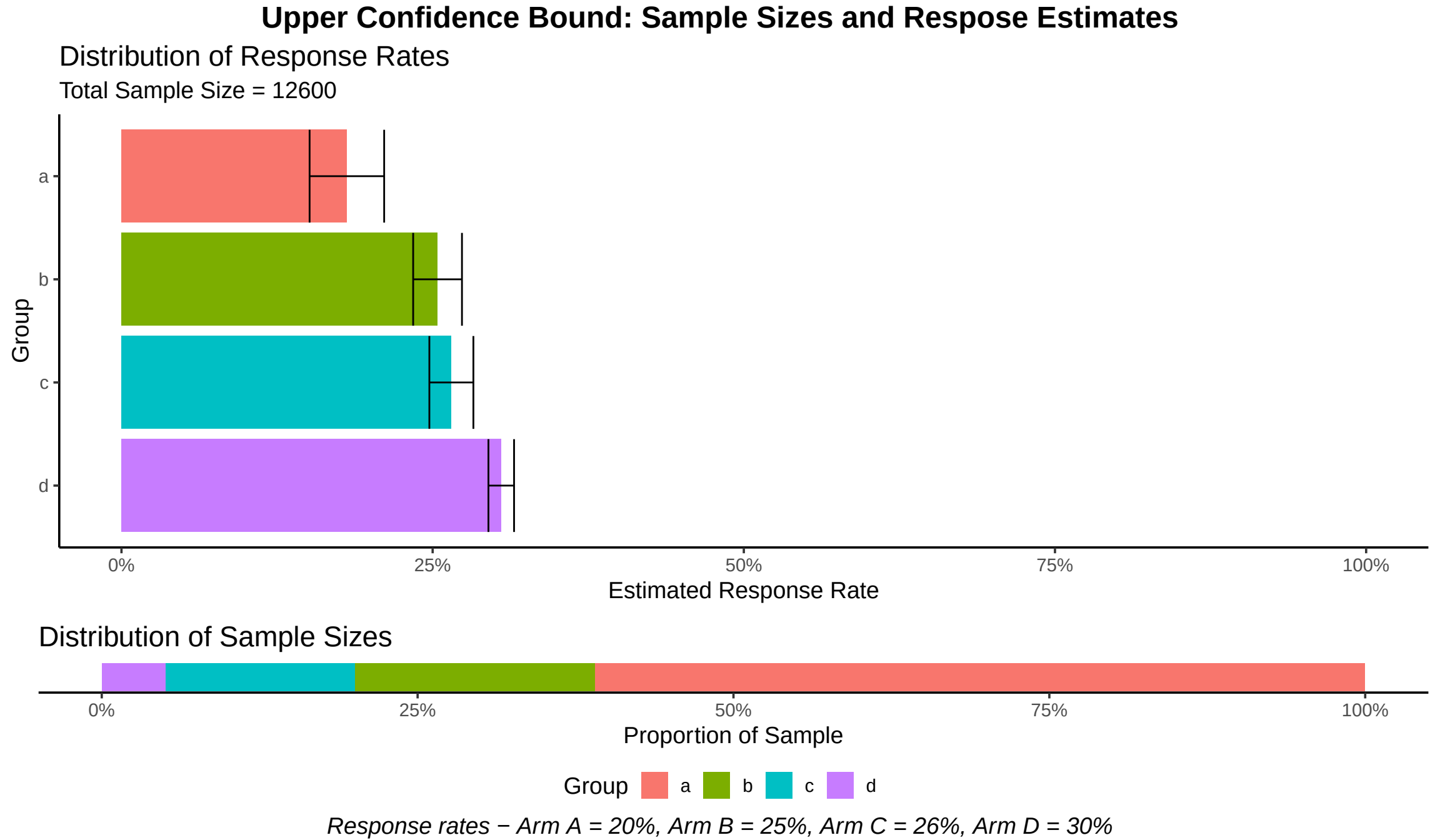

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

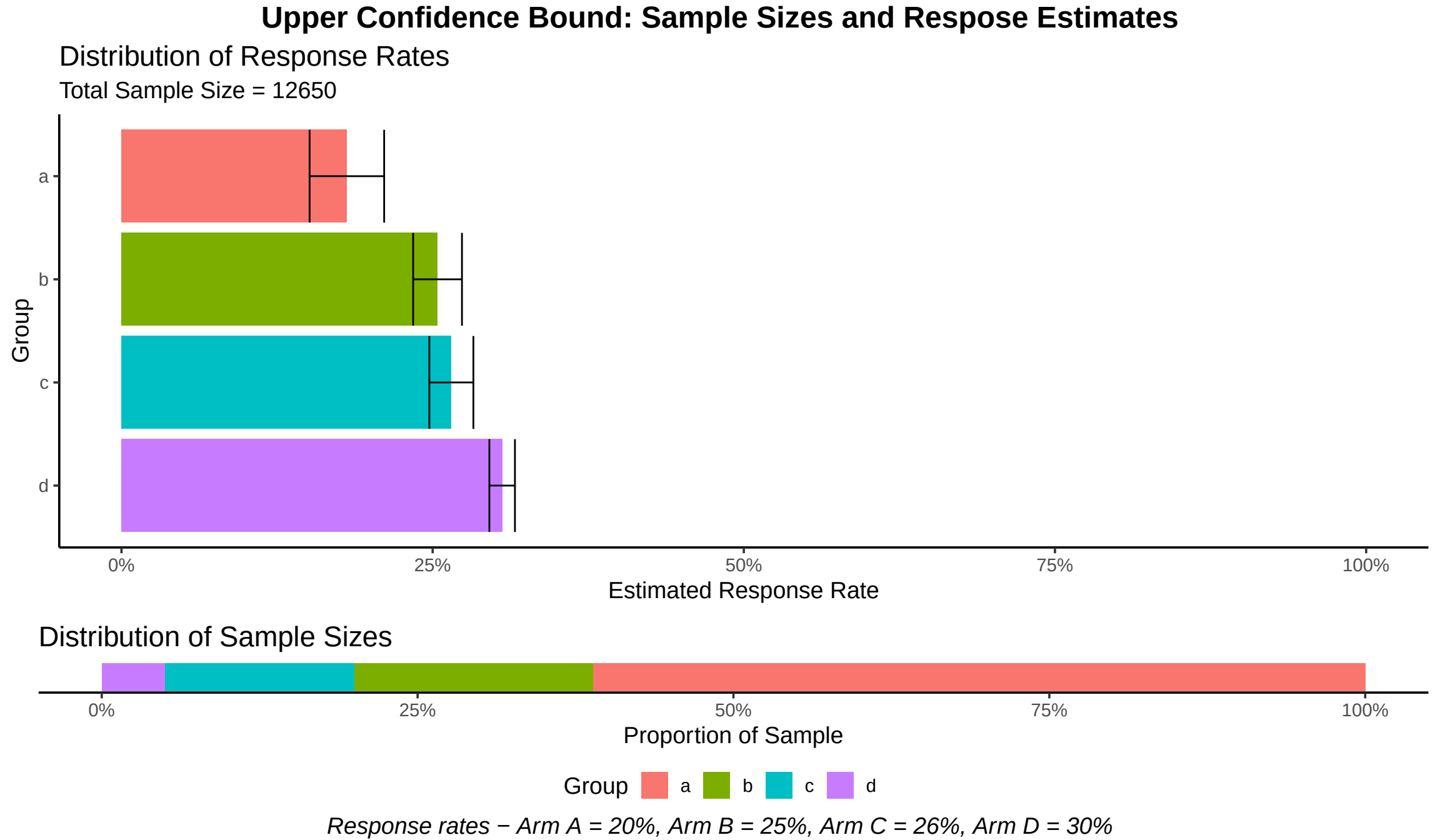

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

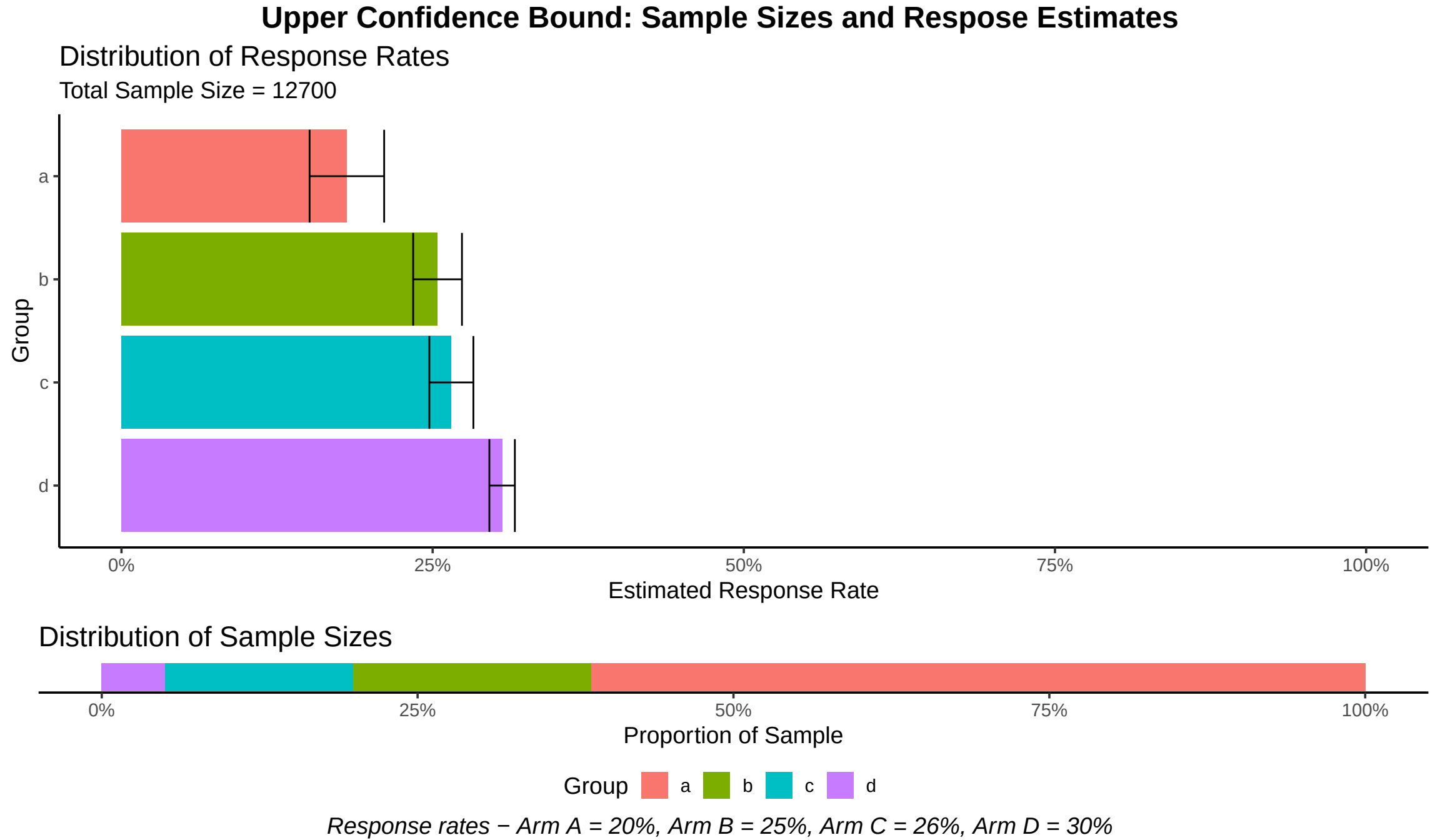

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

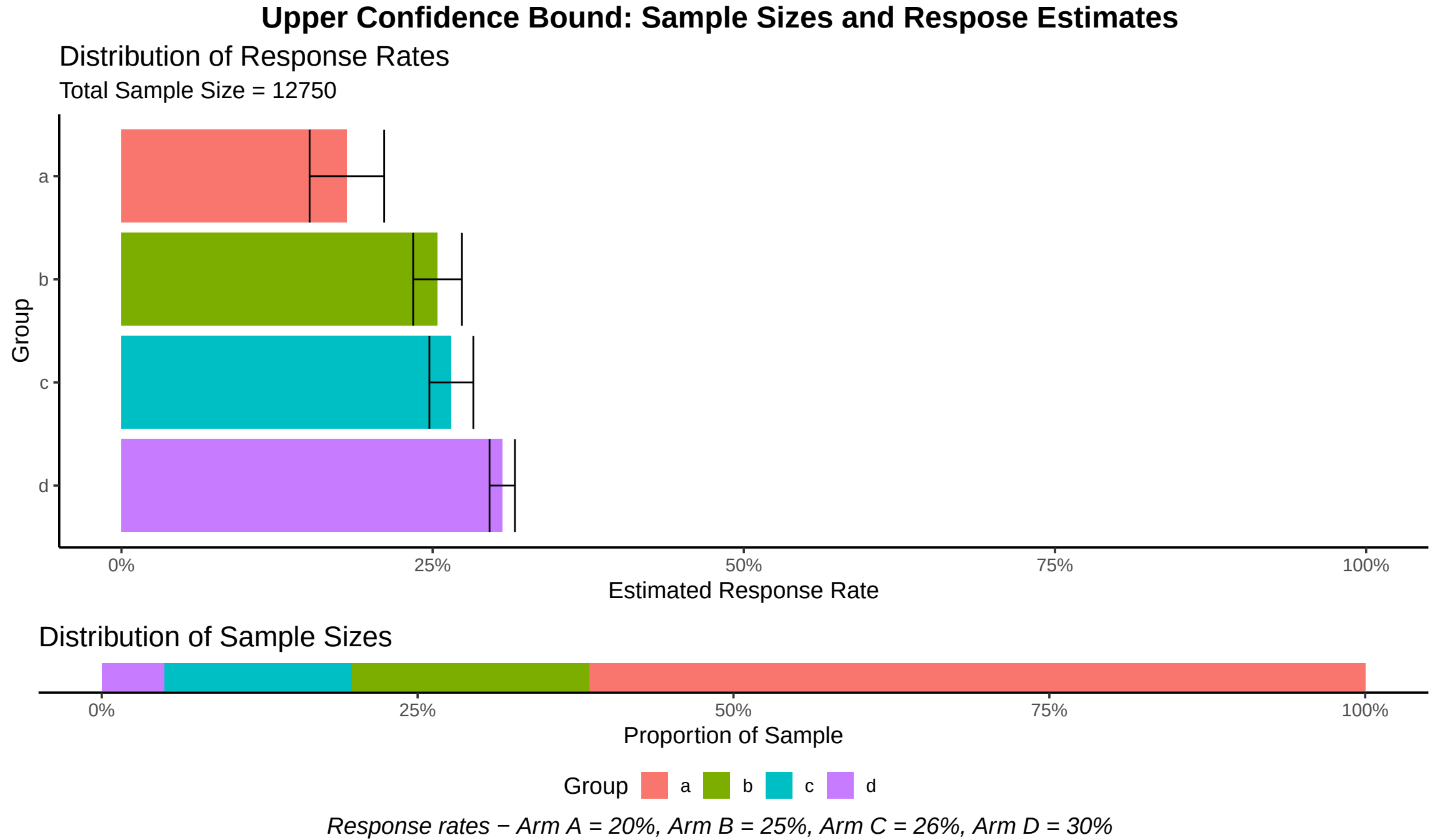

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

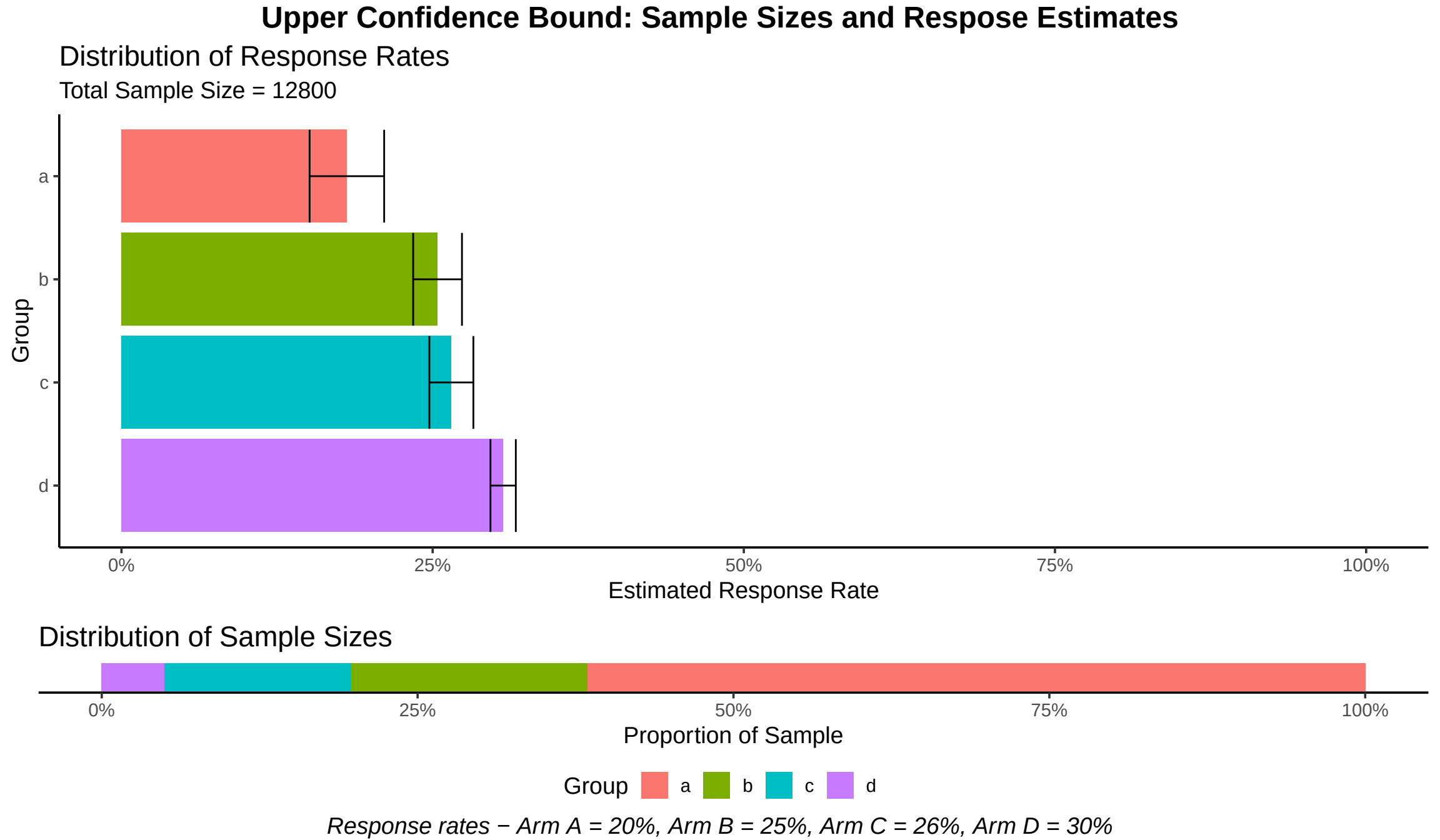

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

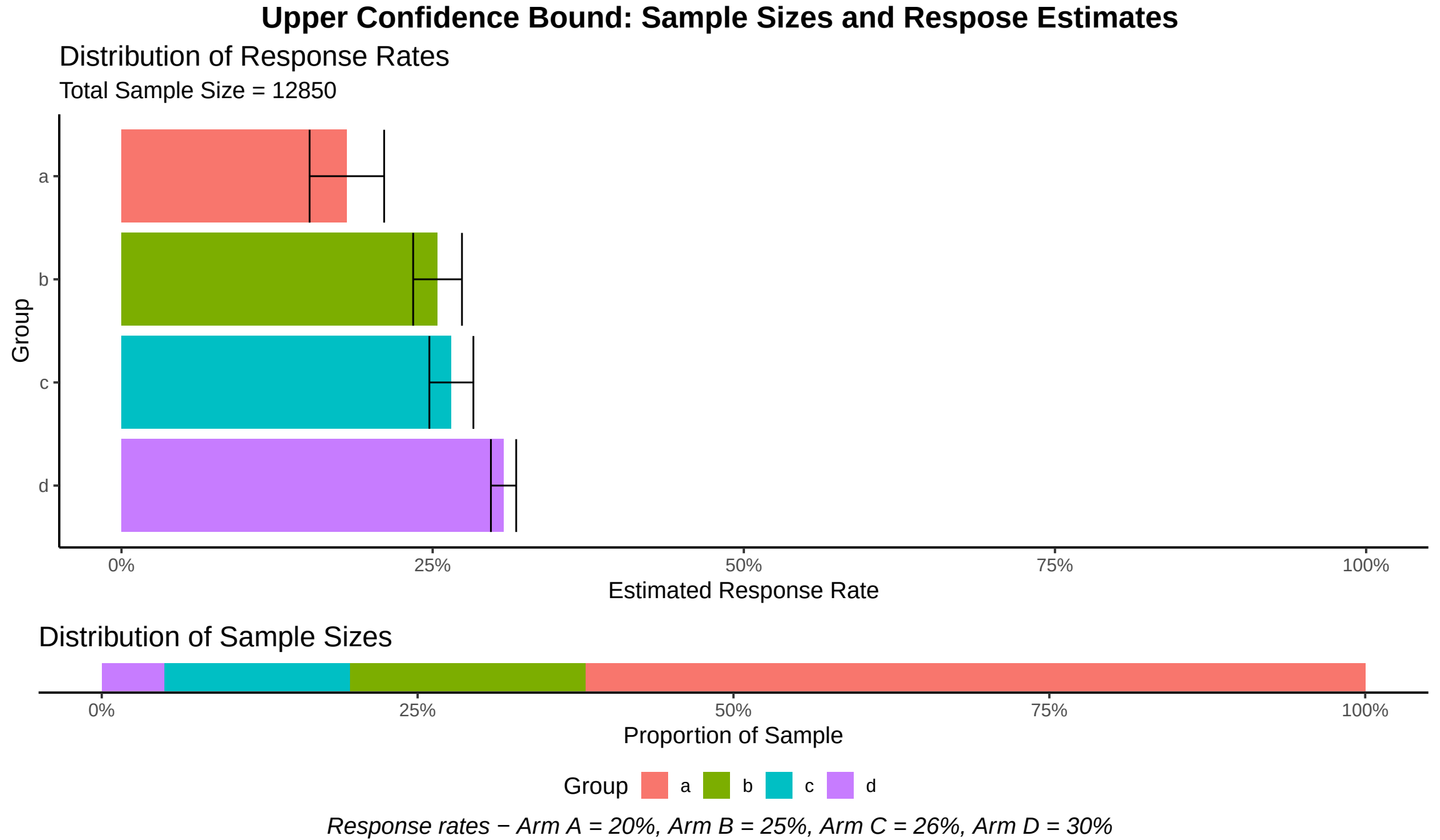

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

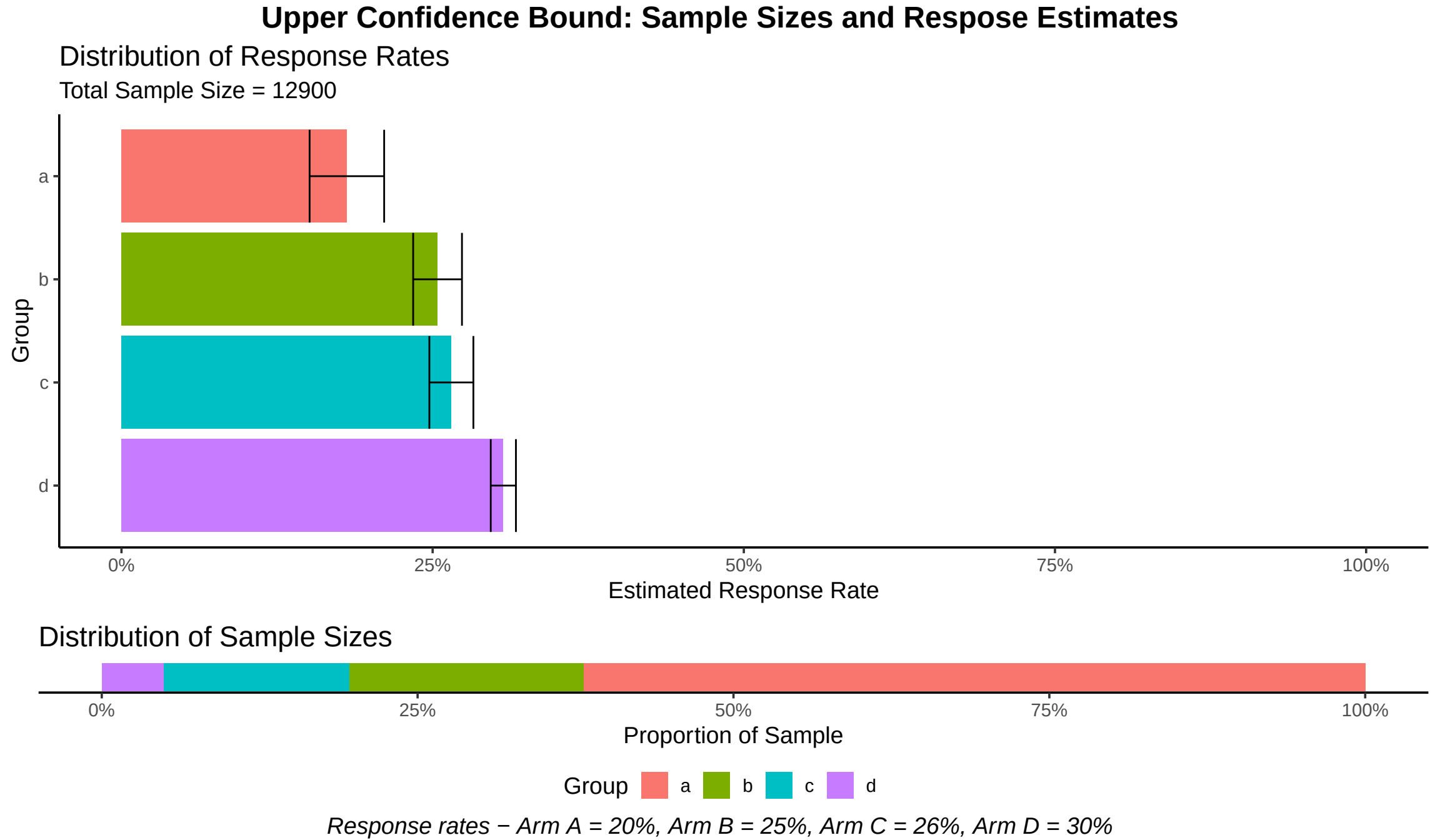

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

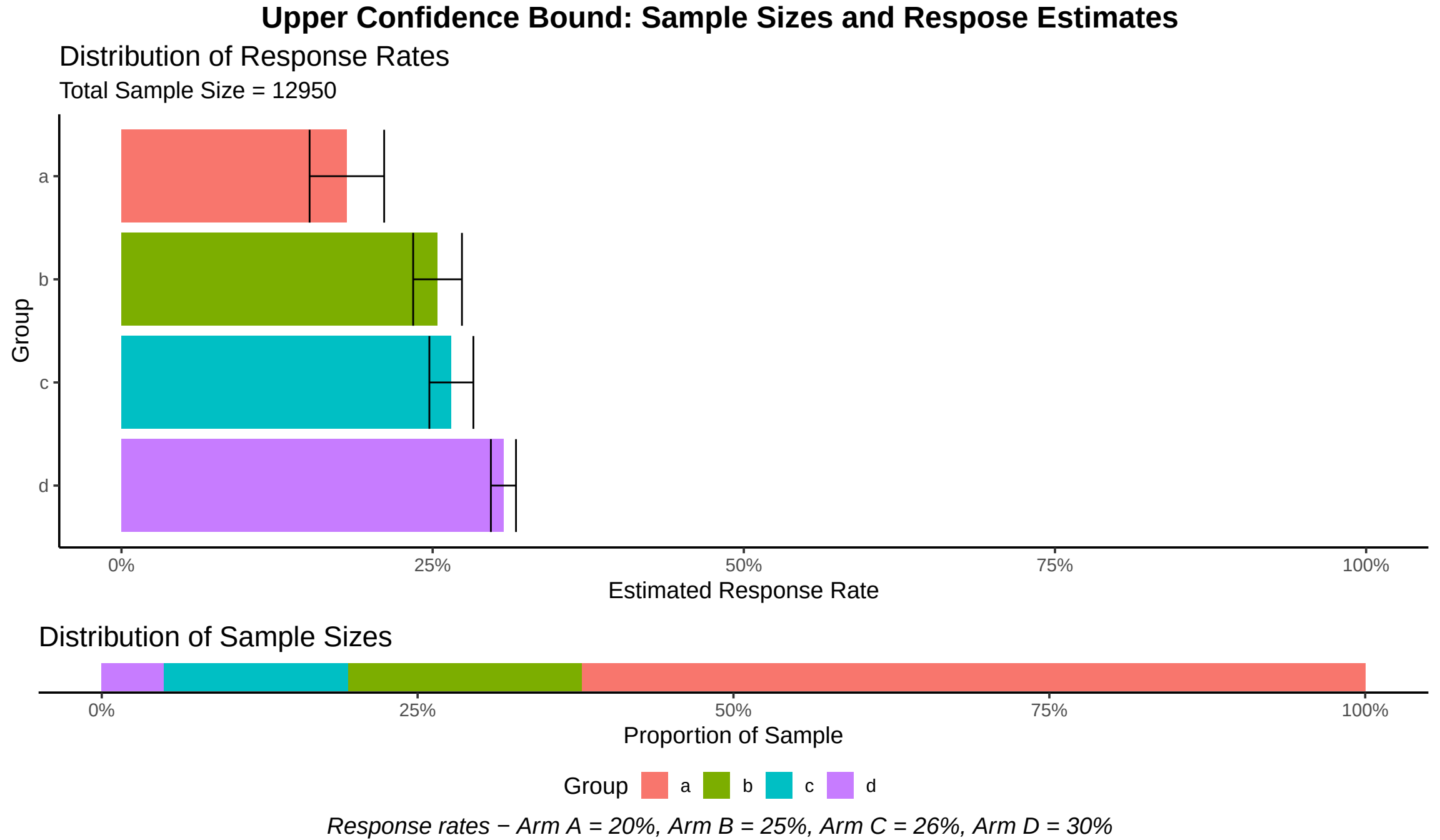

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

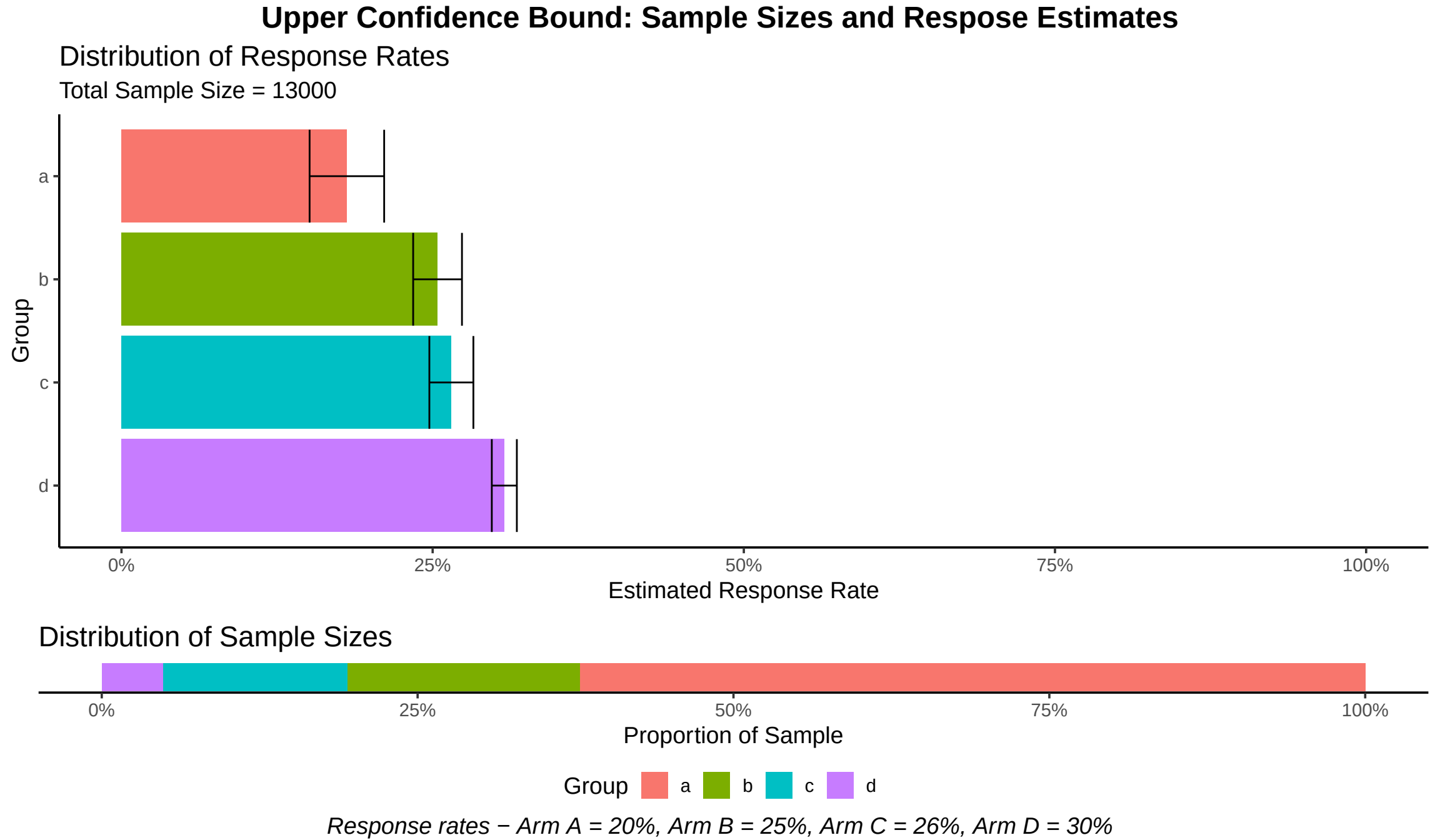

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

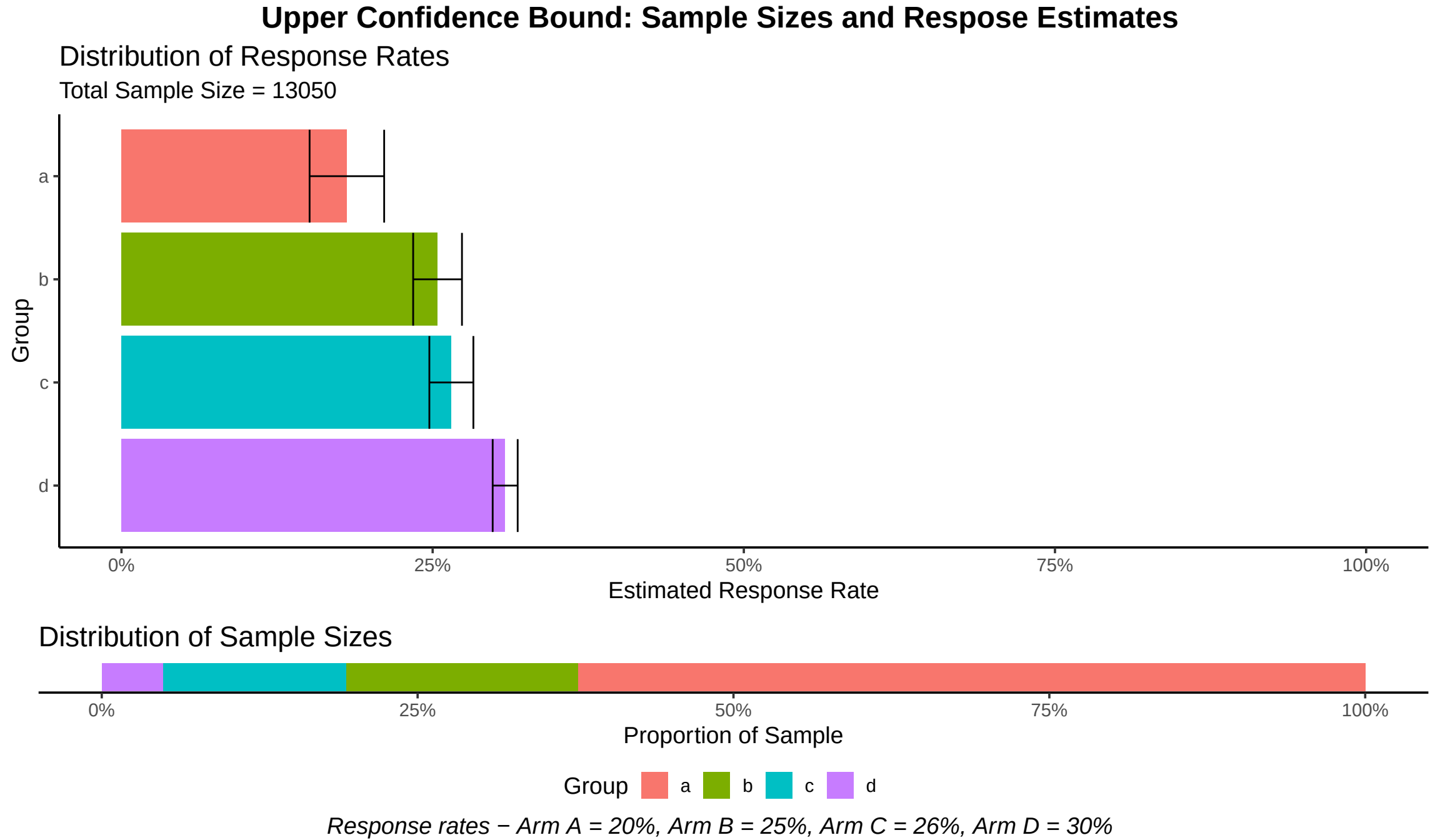

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

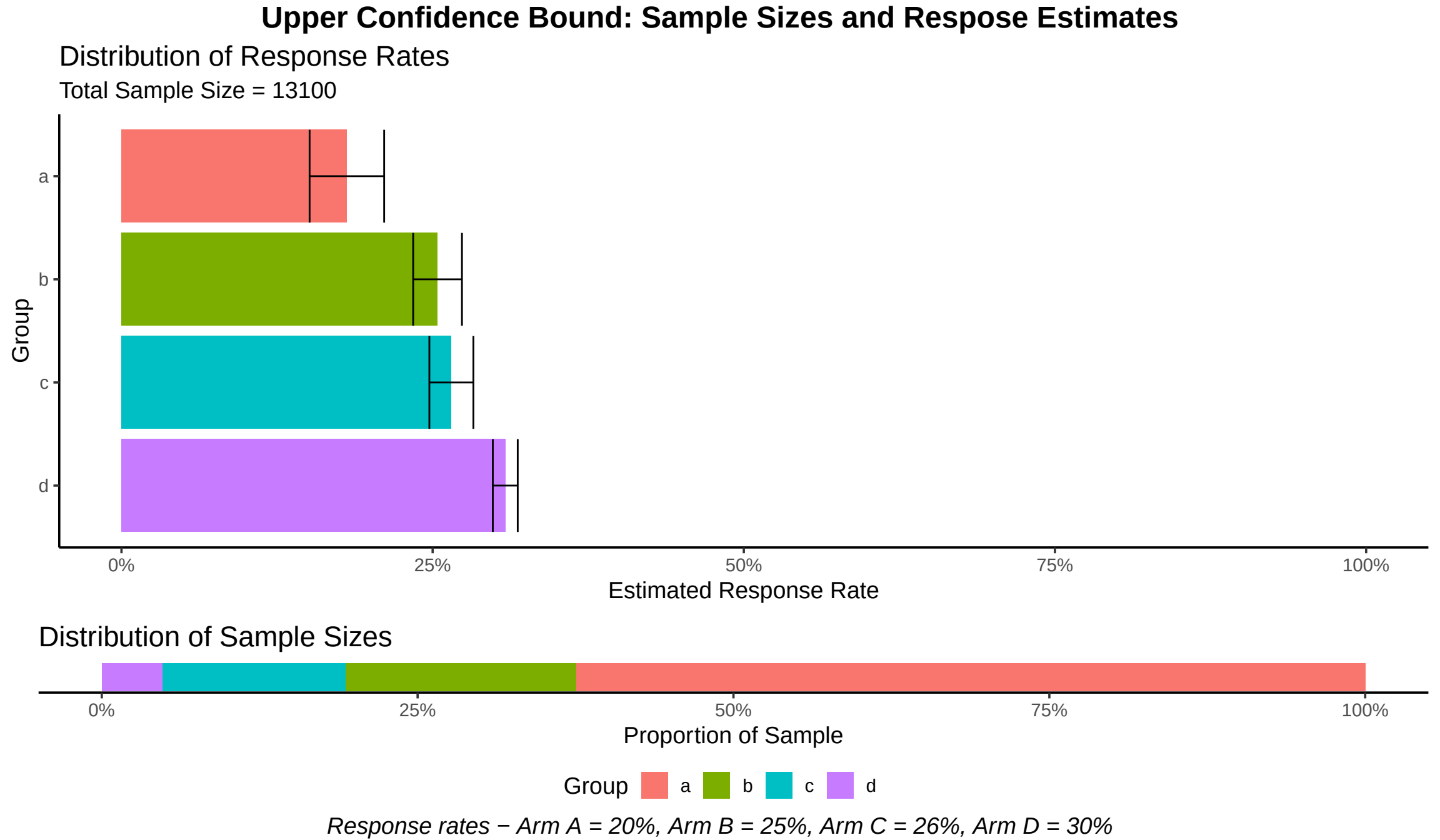

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

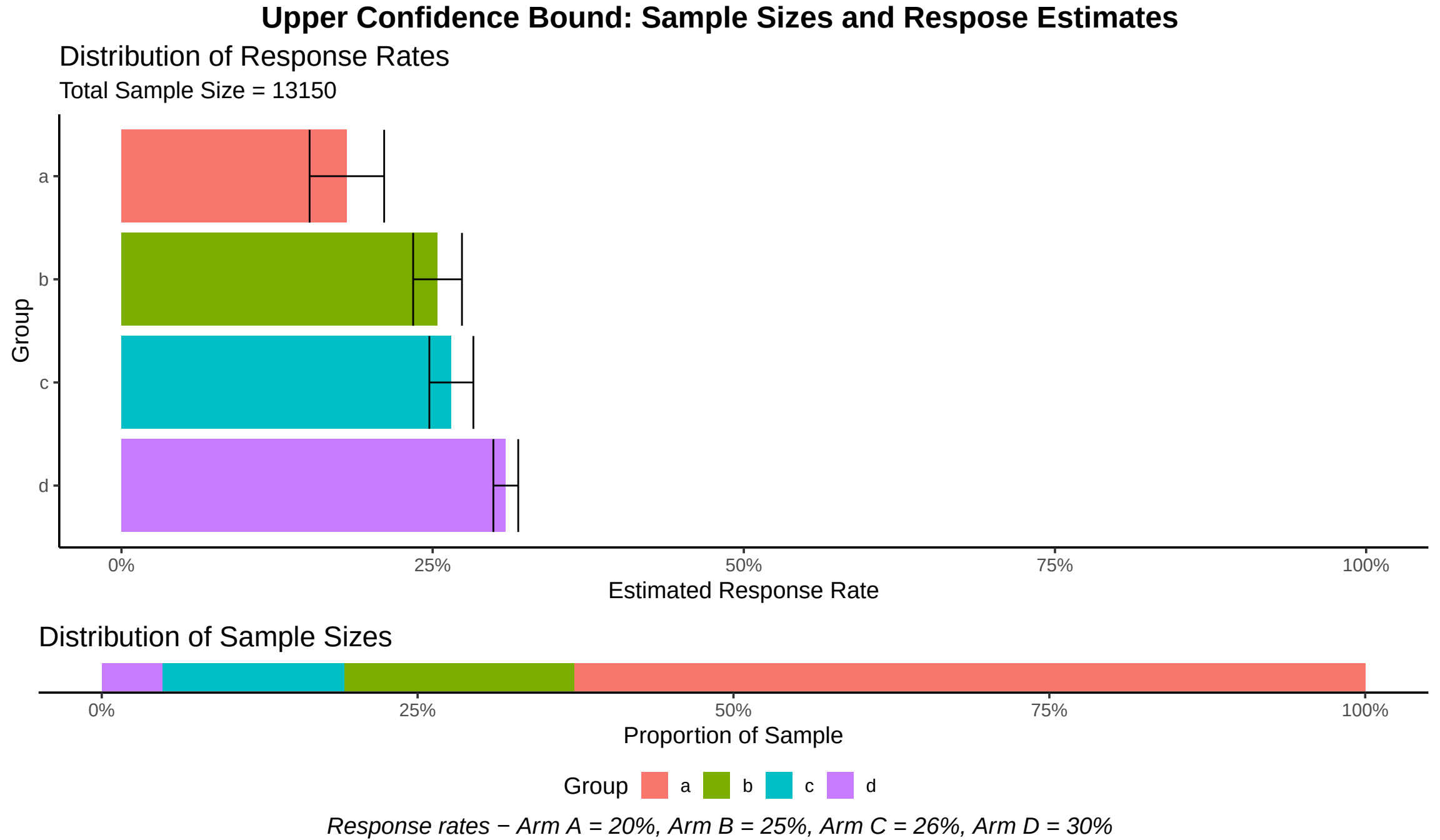

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

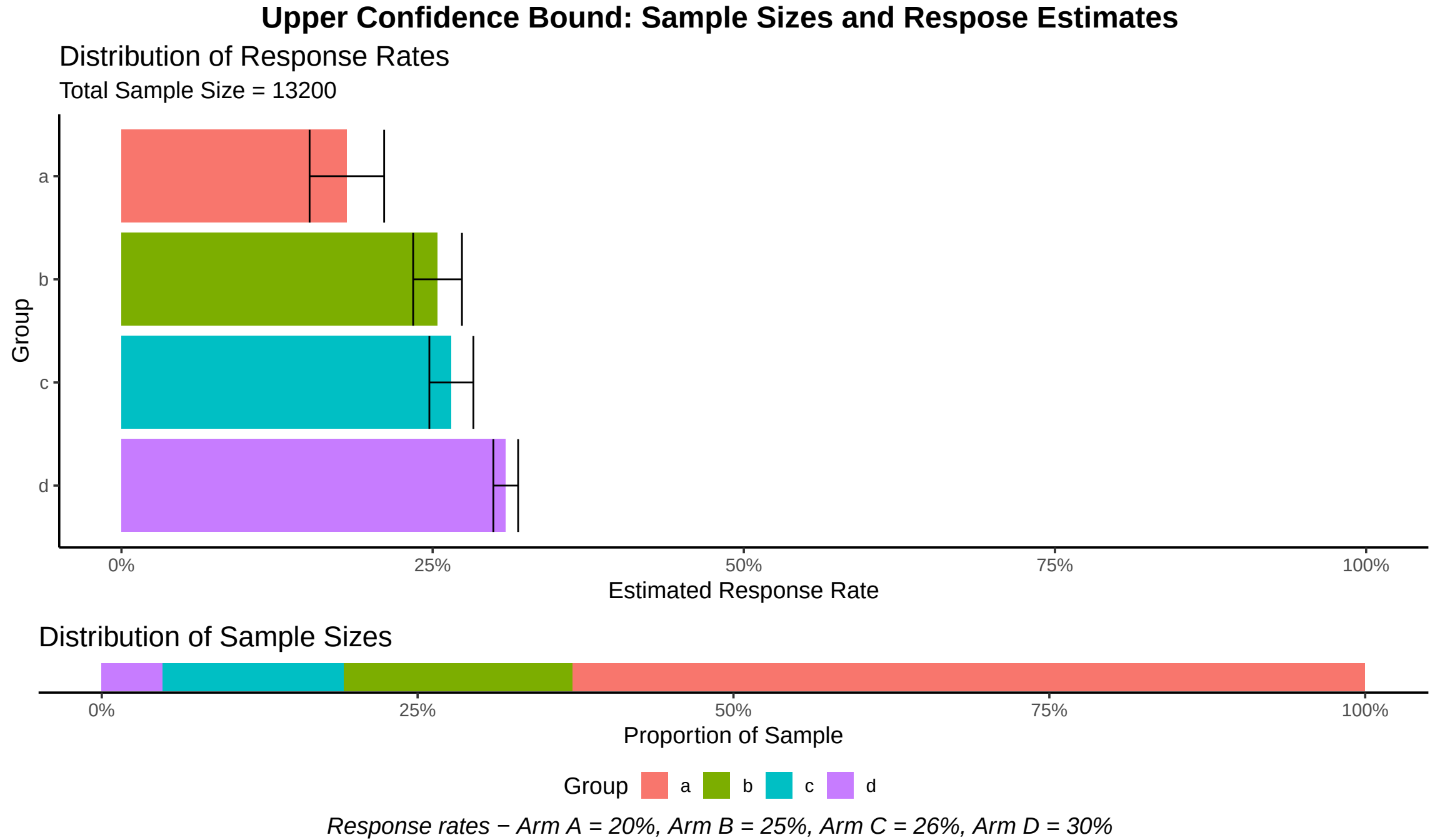

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 12950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

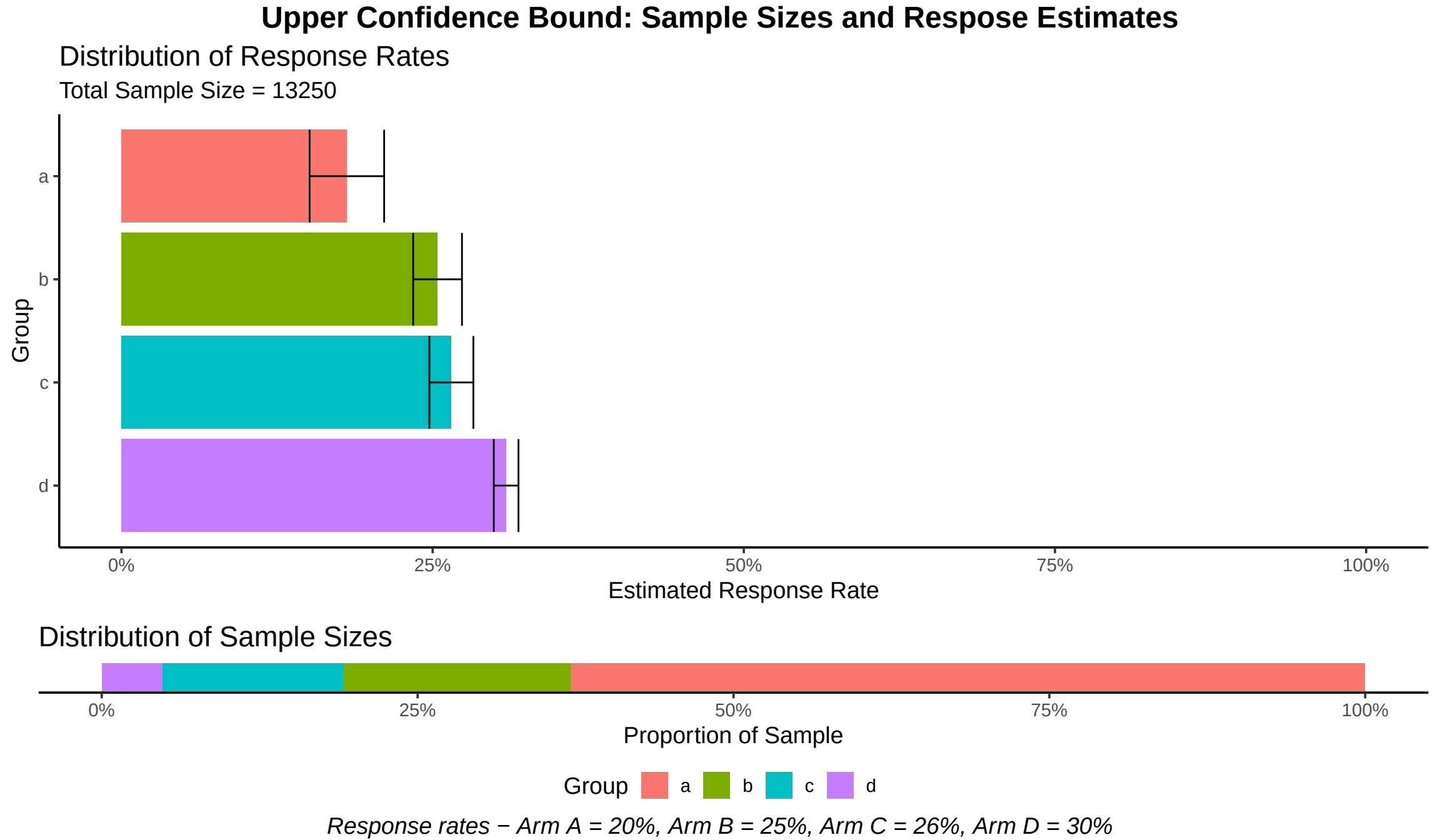

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

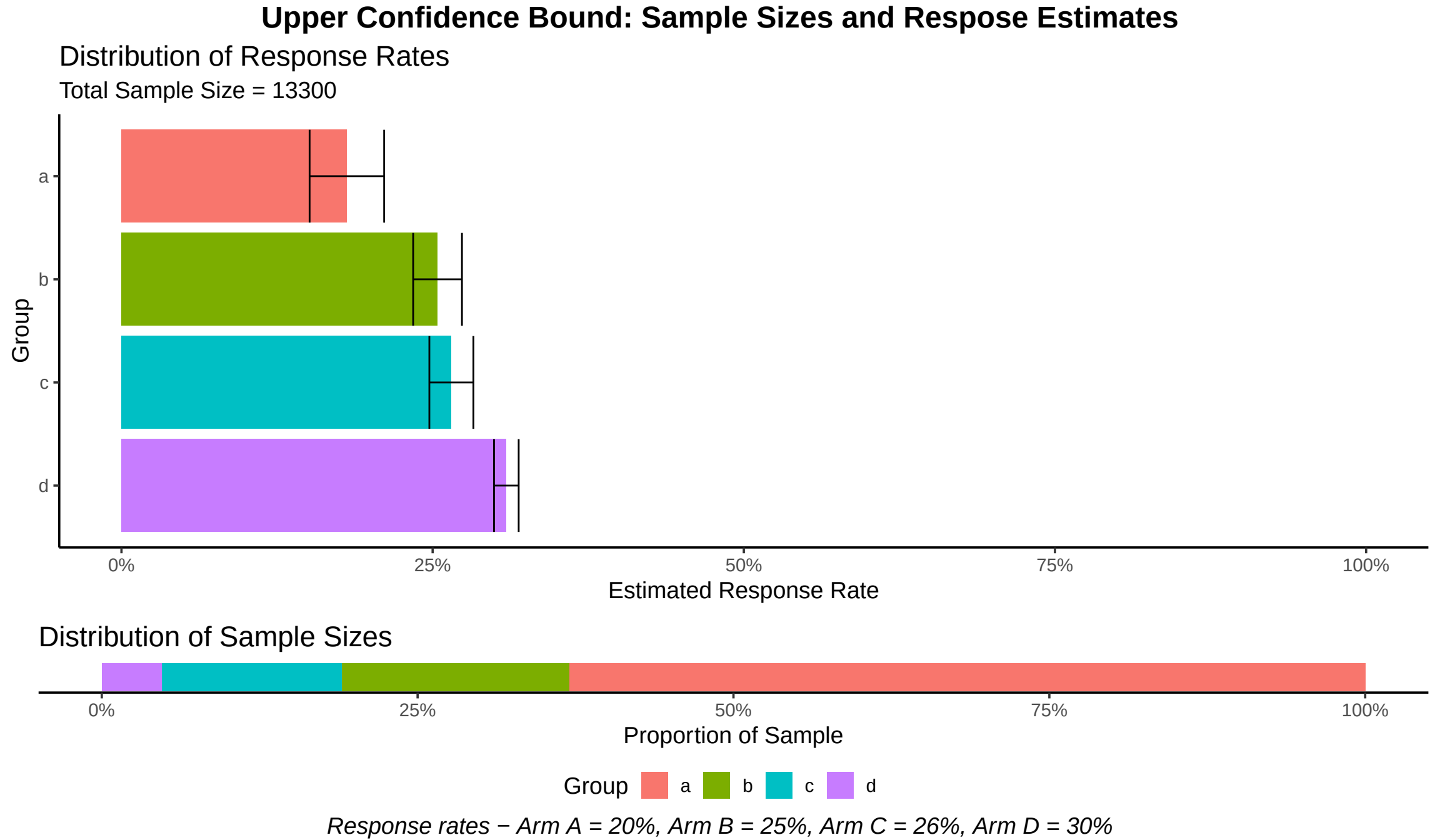

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

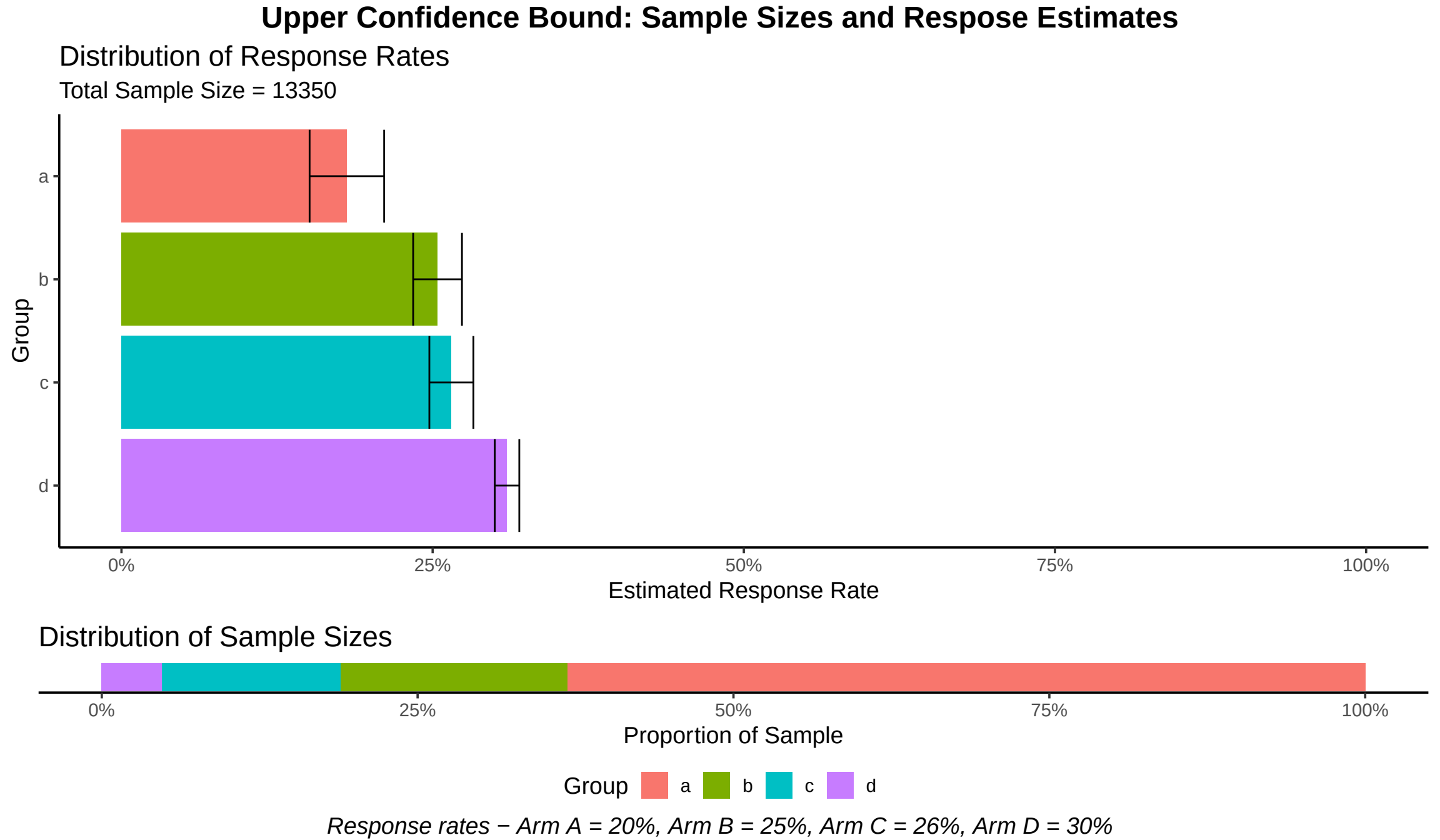

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

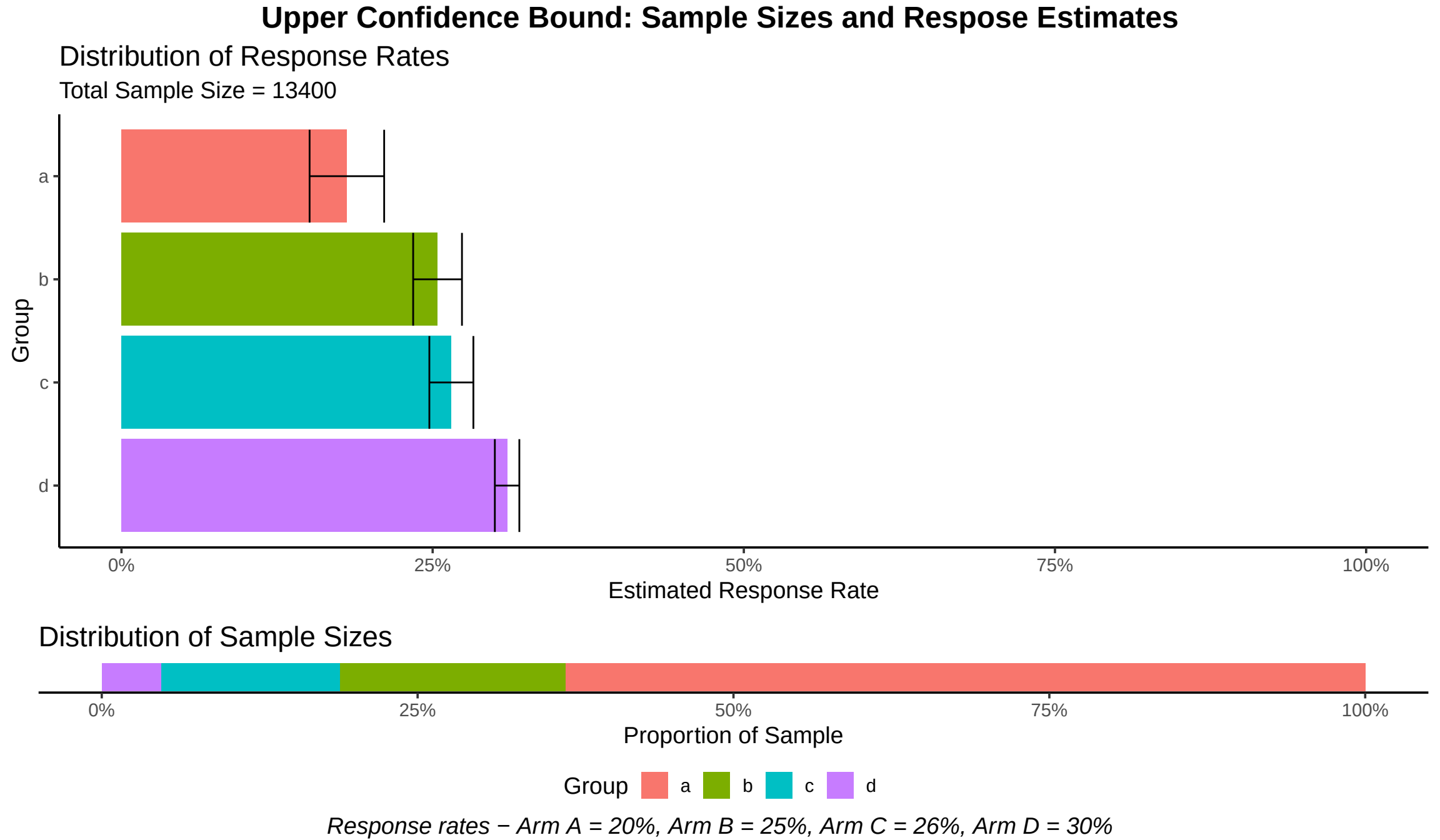

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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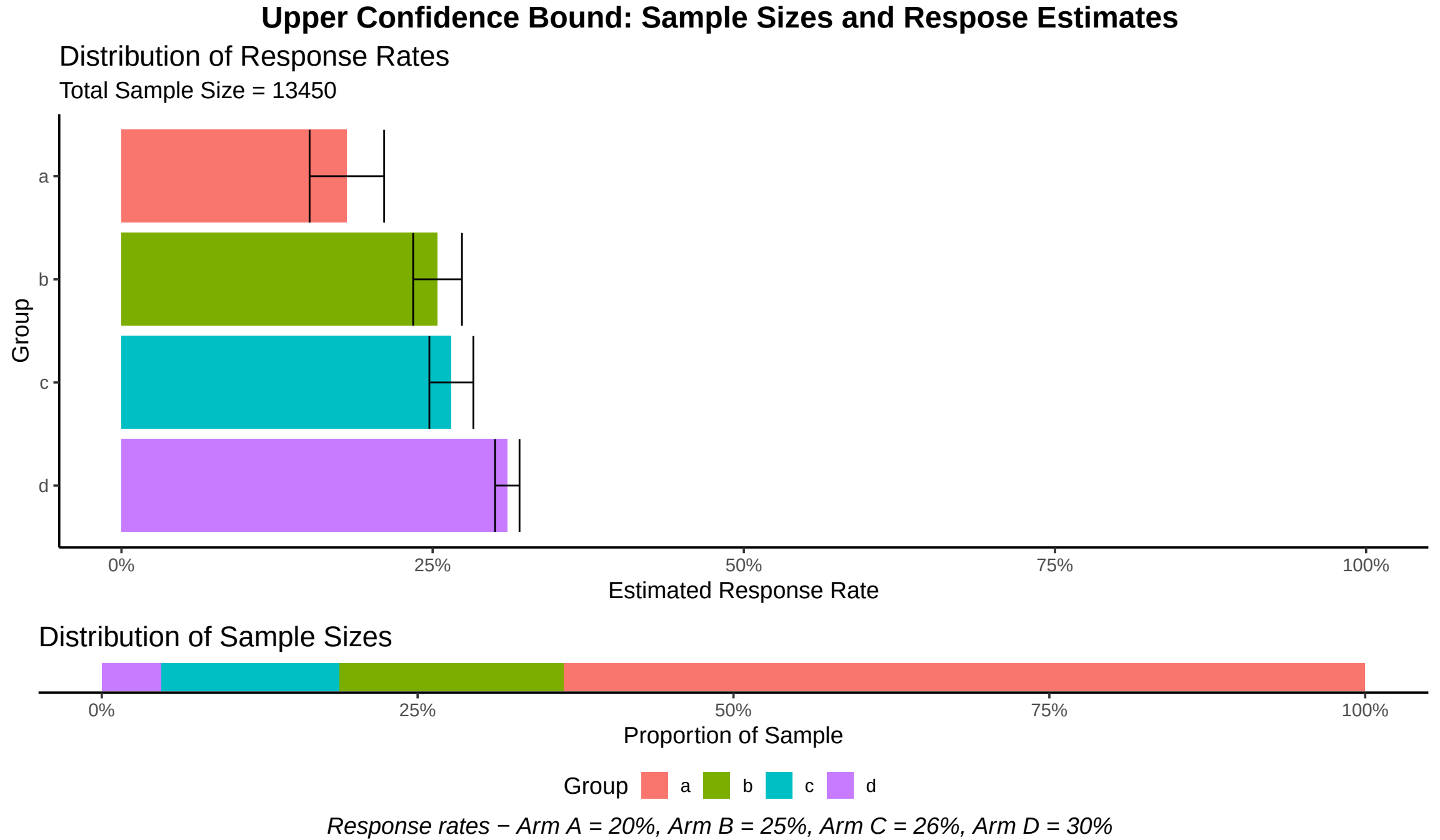
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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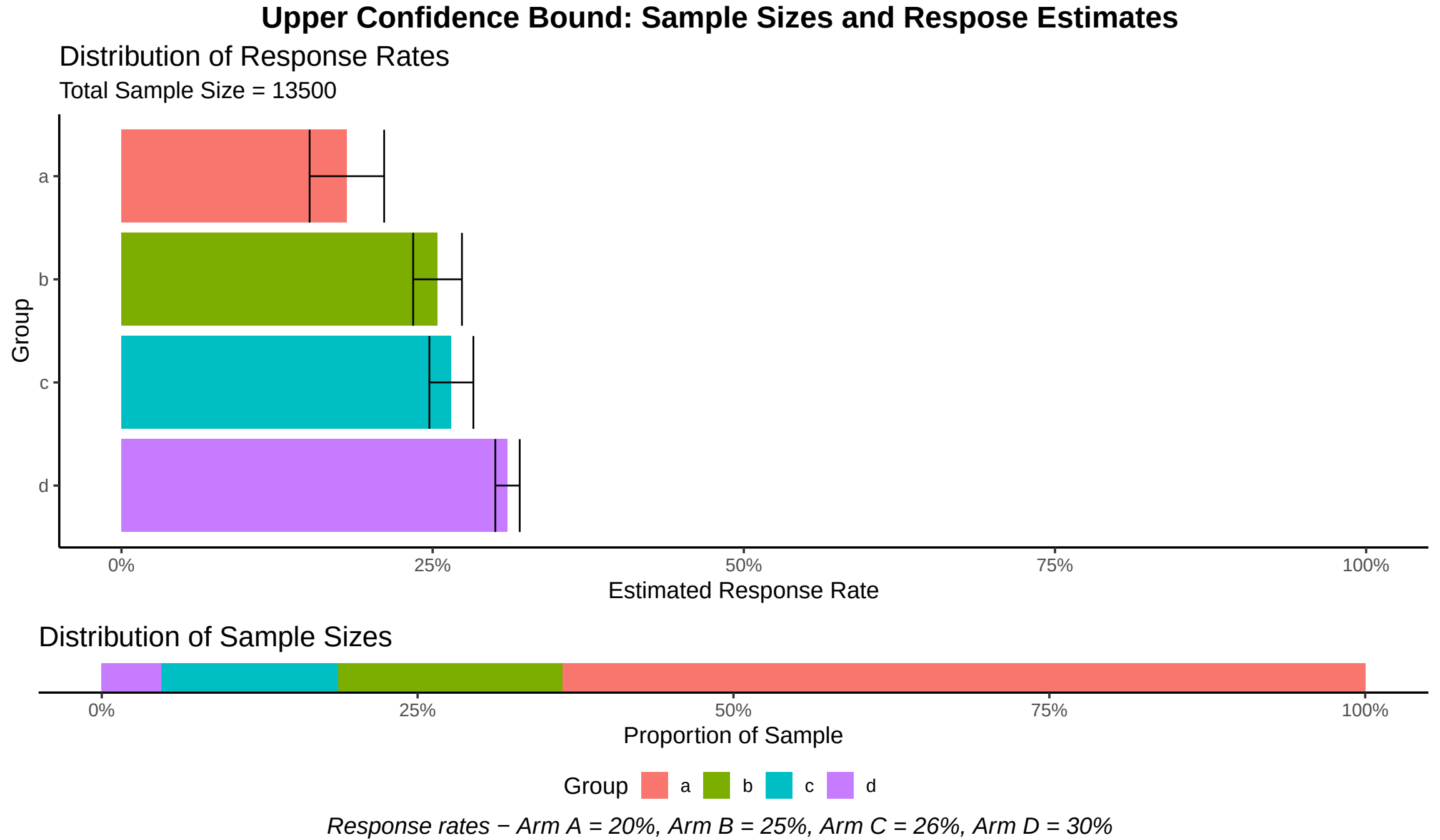
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13500
Group
a
b
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d
0%
25%
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75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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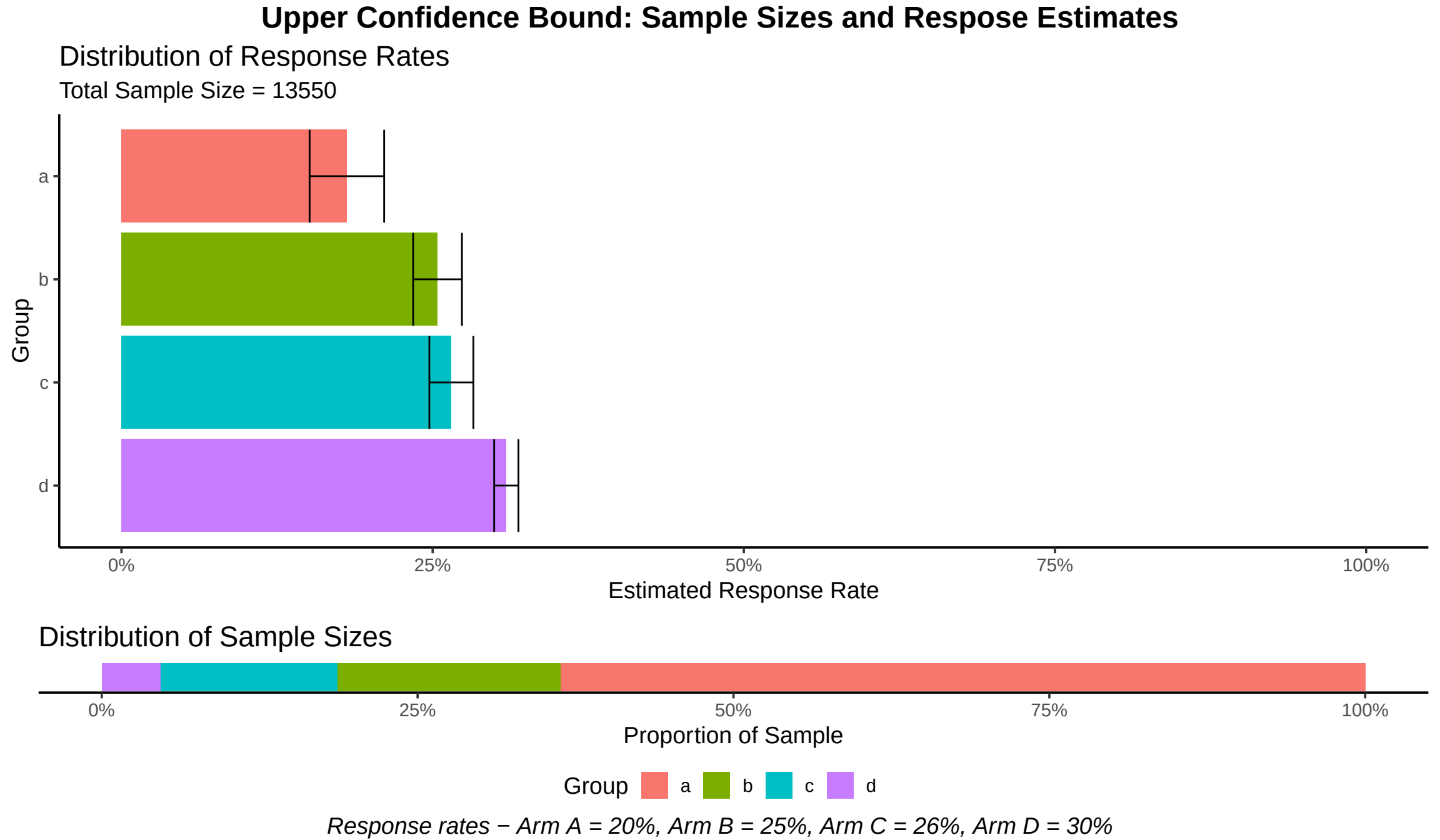
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13550
Group
a
b
c
d
0%
25%
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100%
Estimated Response Rate
Distribution of Sample Sizes
0%
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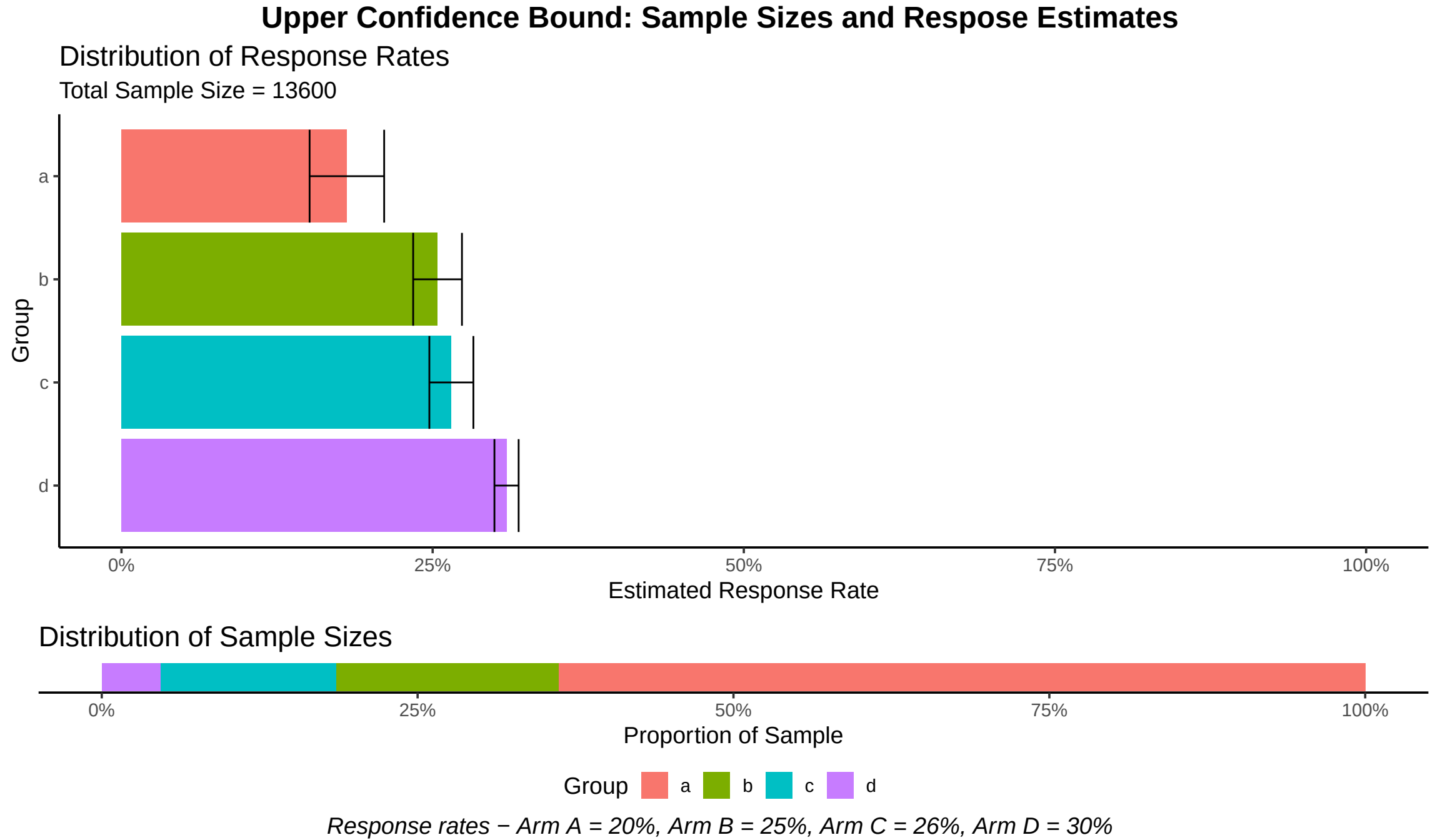
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13600
Group
a
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d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
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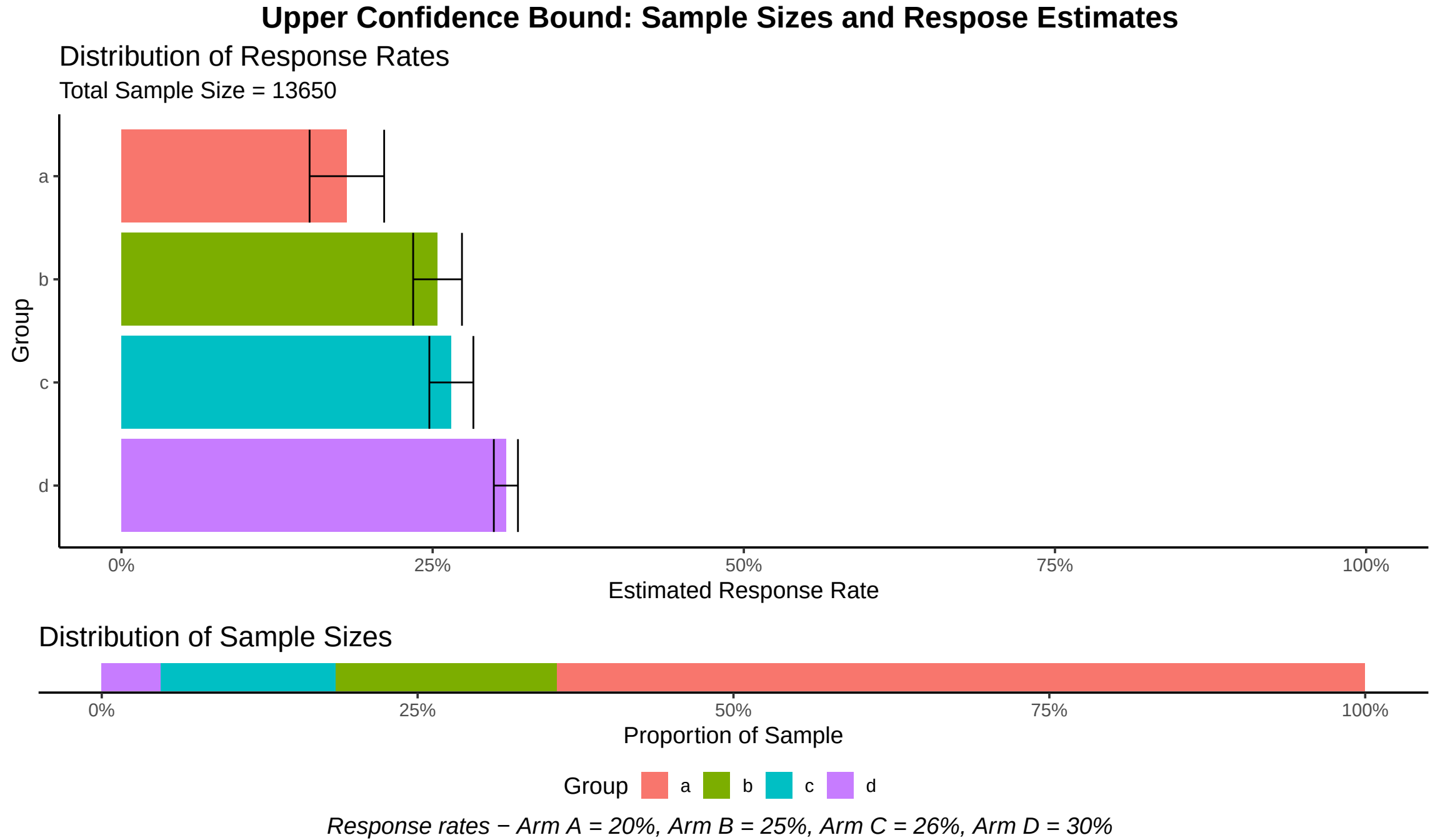
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13650
Group
a
b
c
d
0%
25%
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75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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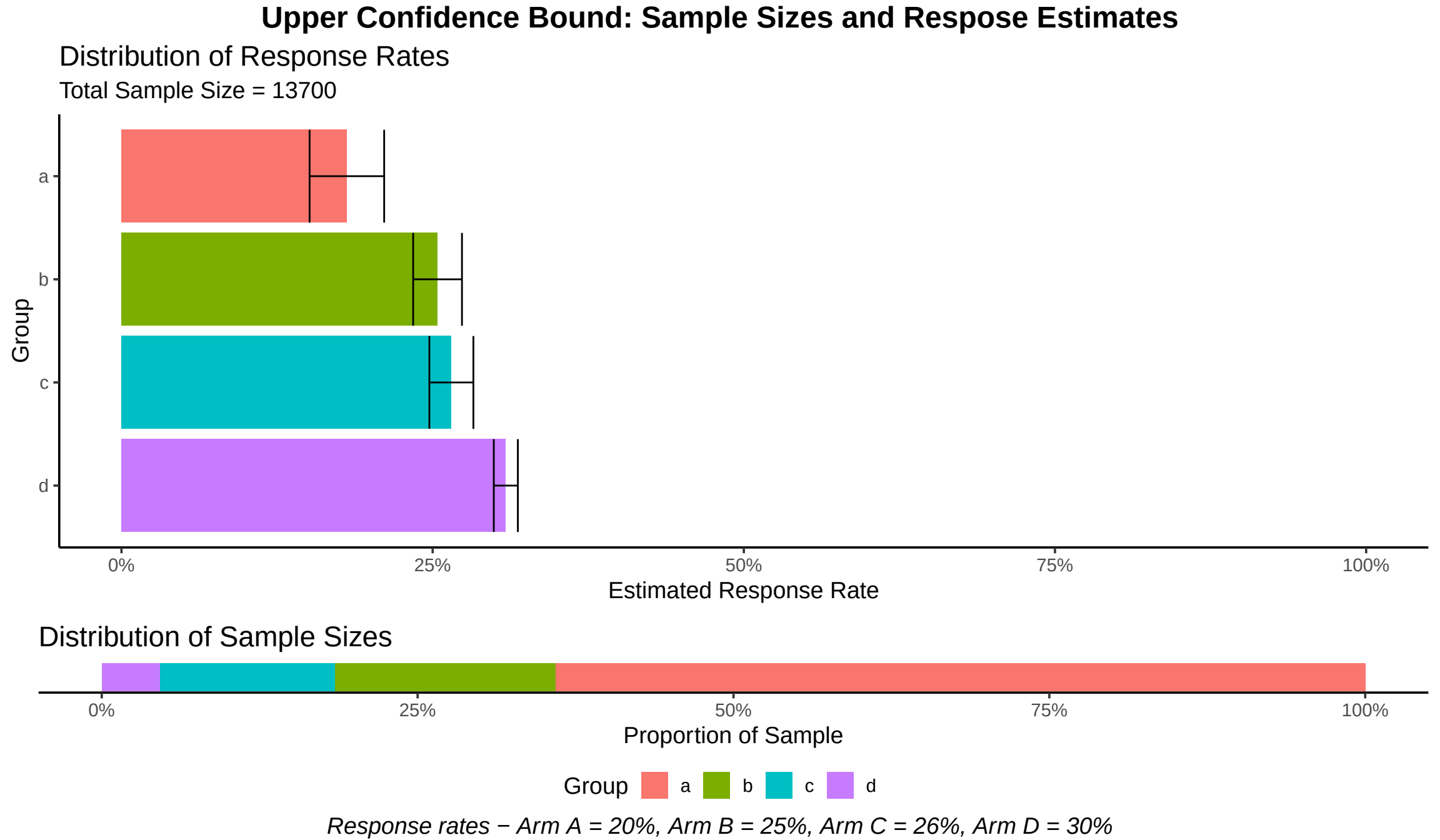
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13700
Group
a
b
c
d
0%
25%
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75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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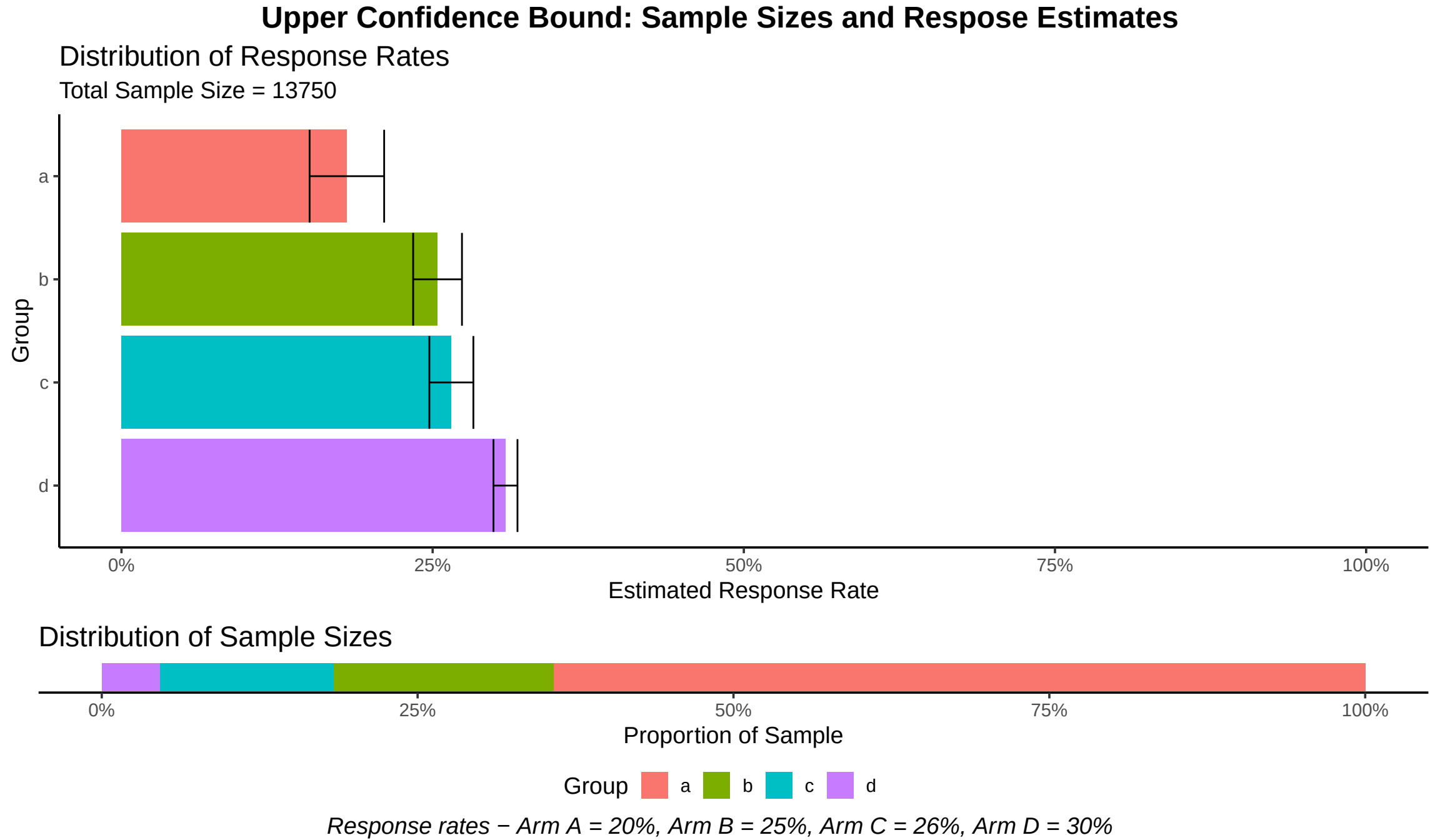
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
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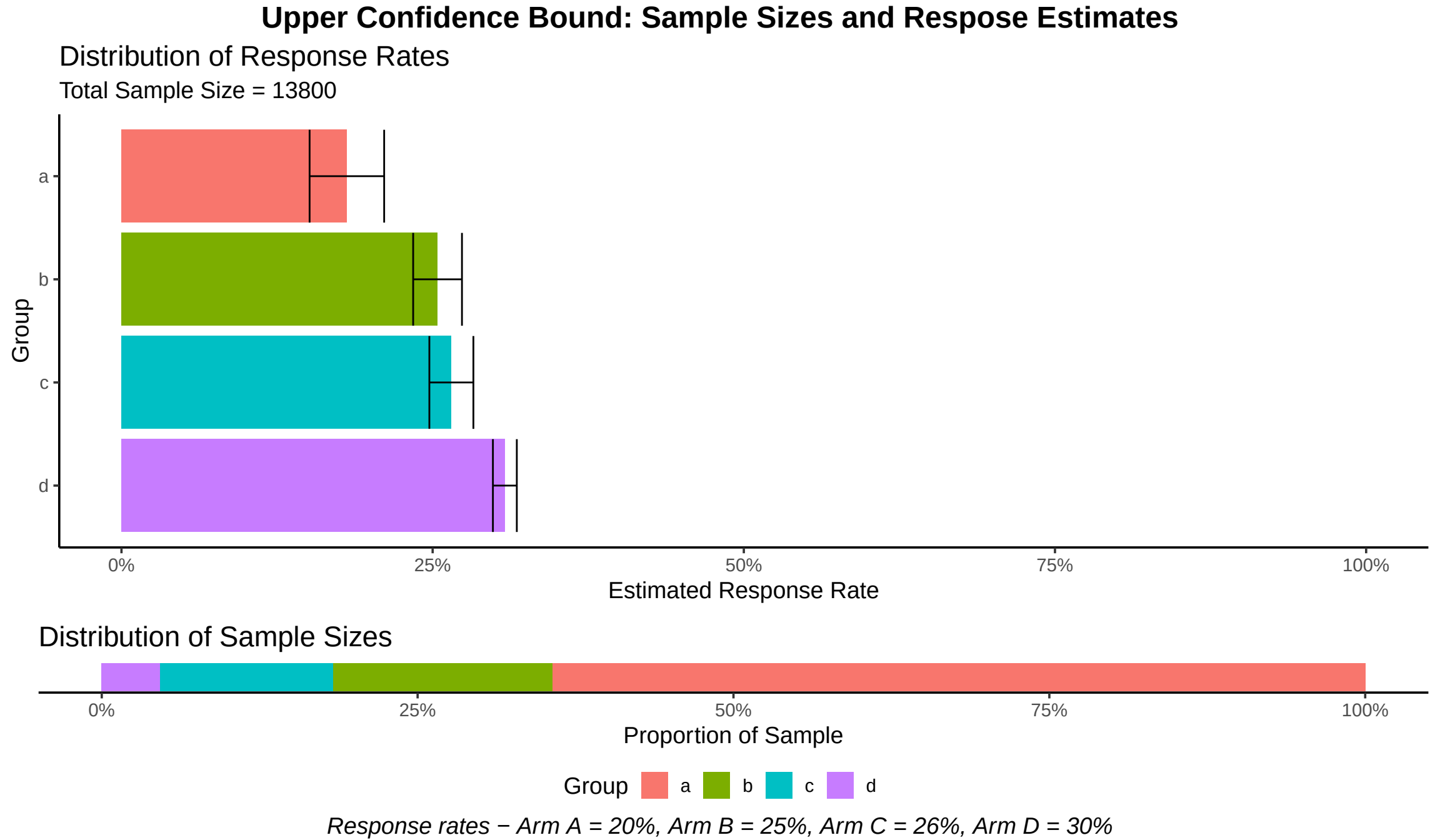
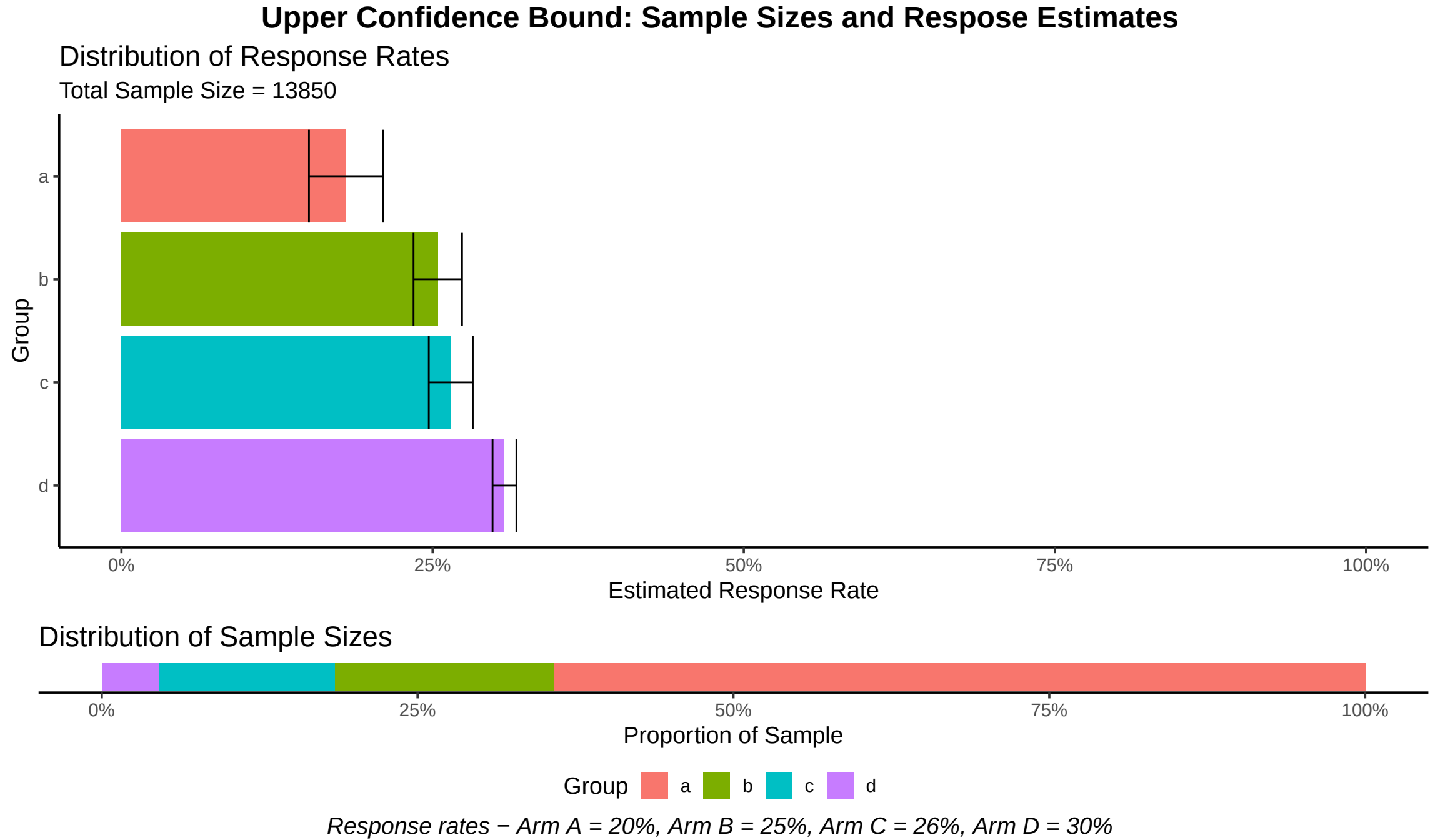
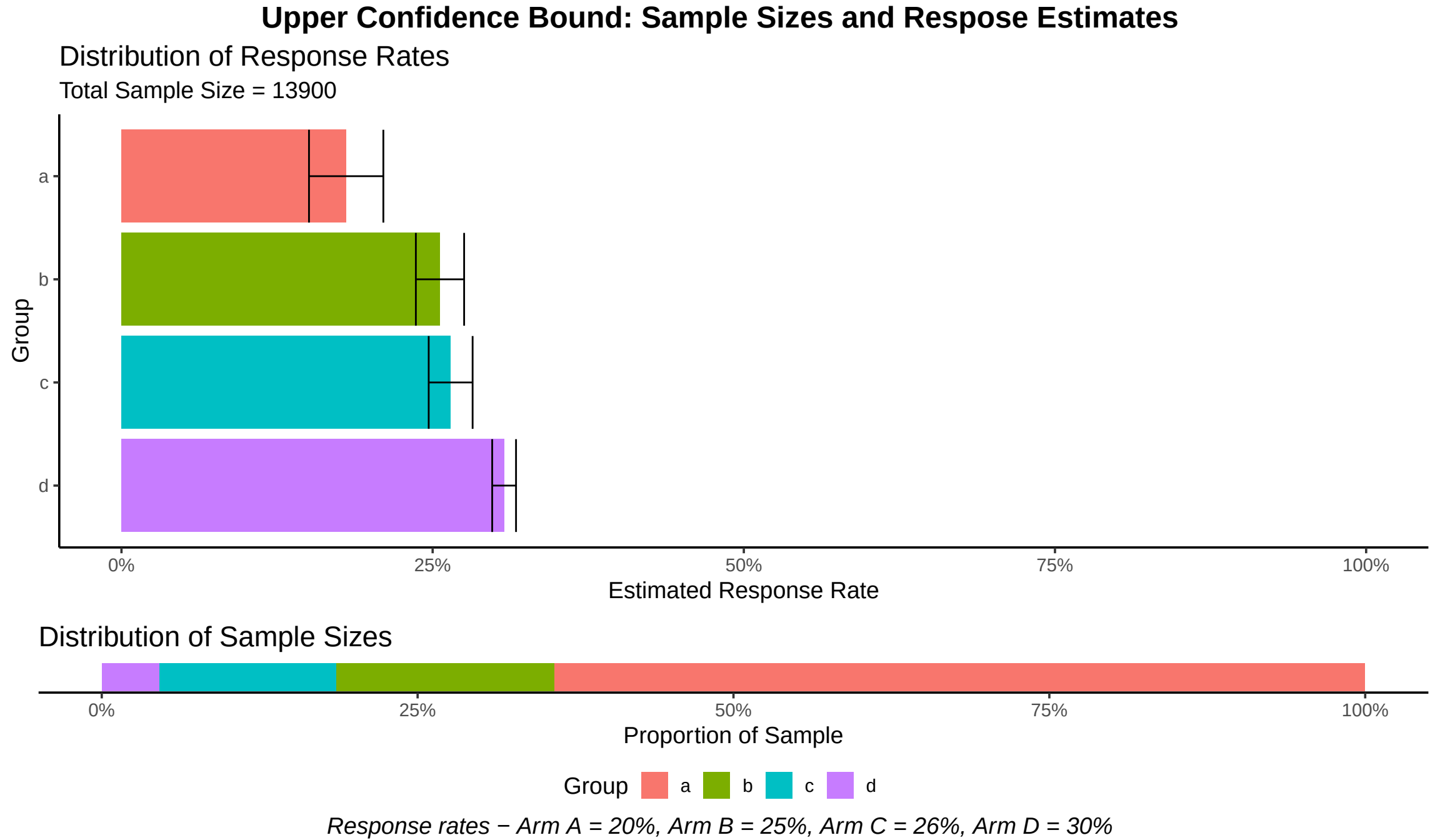
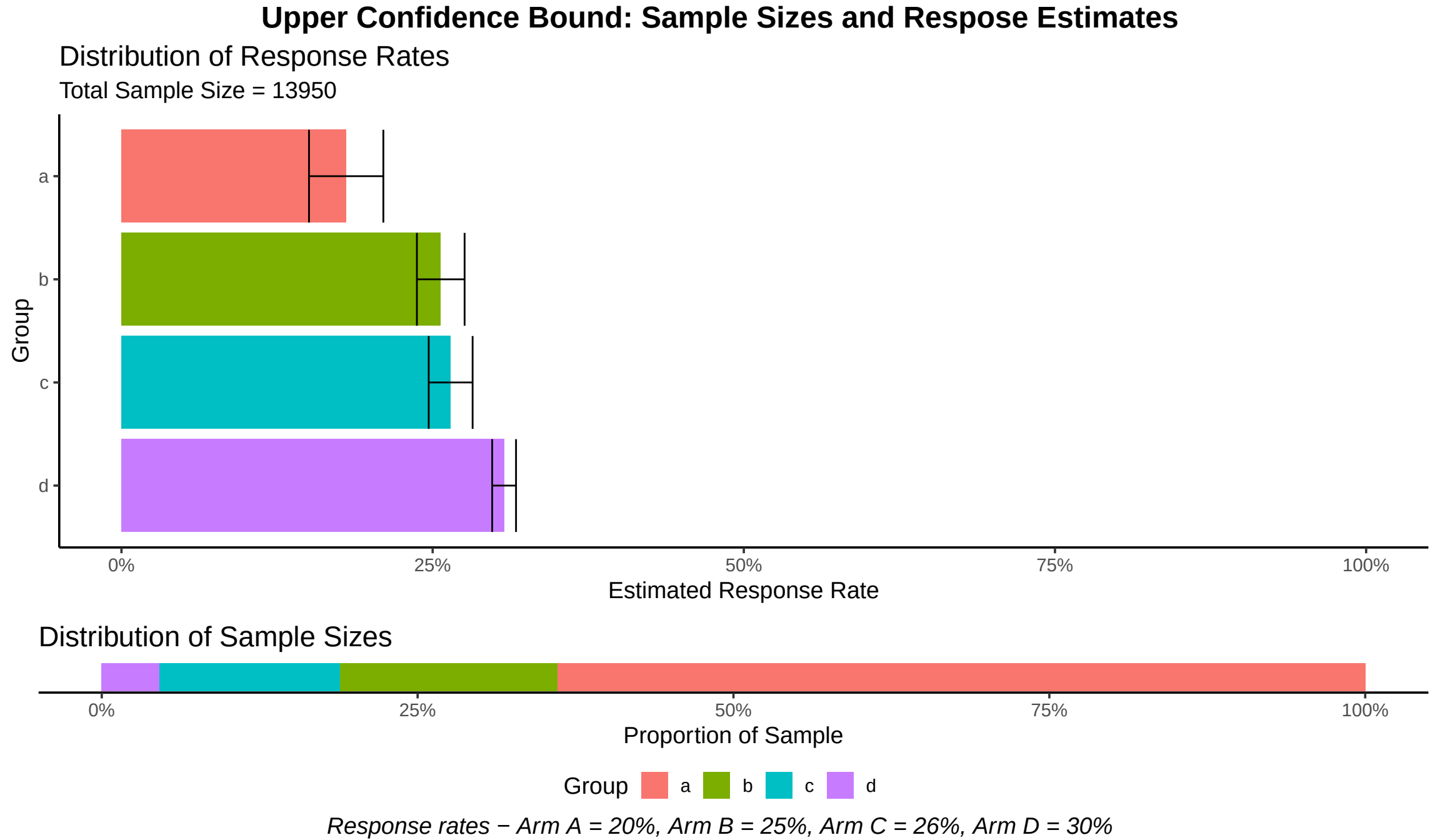
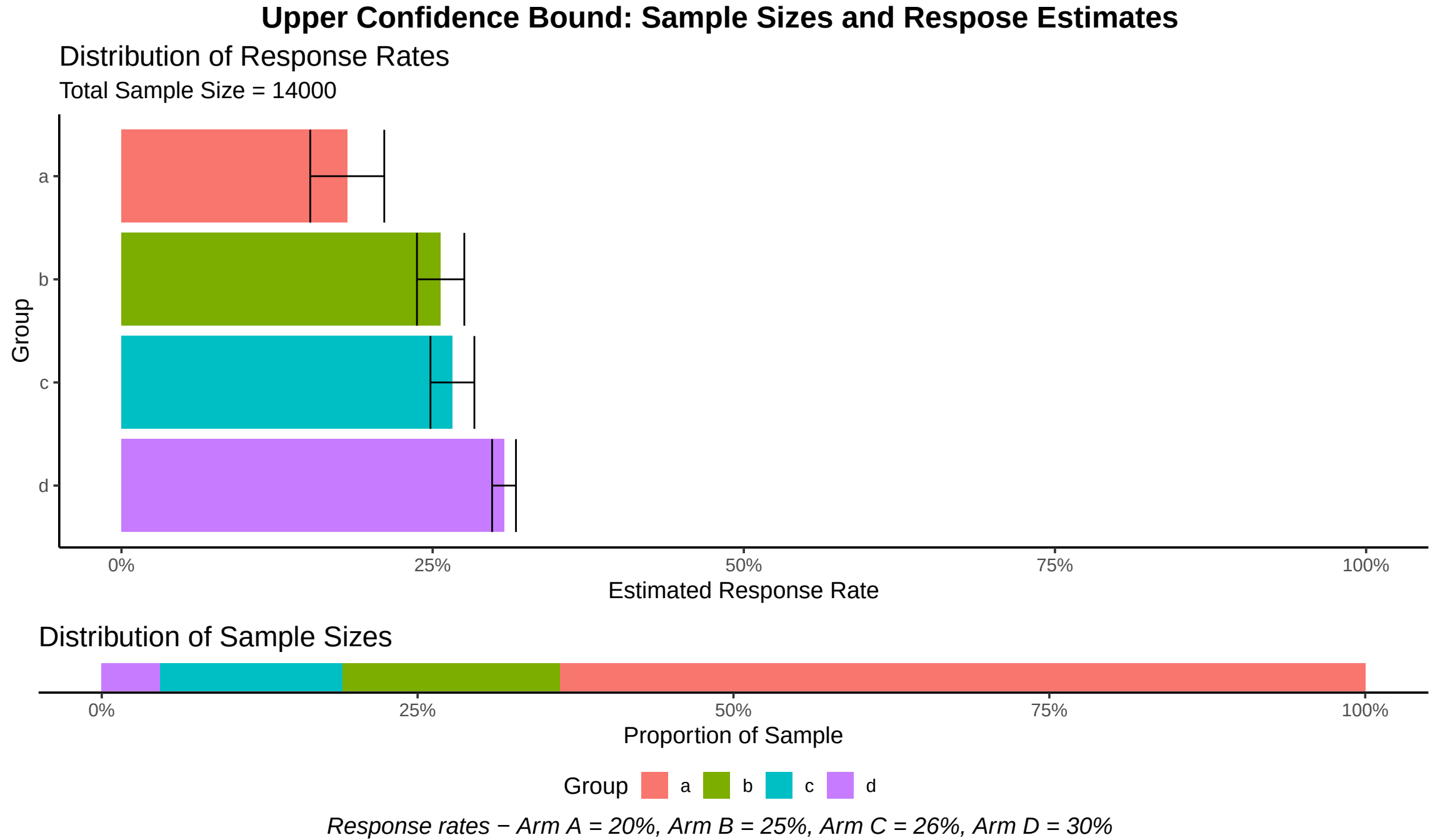
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

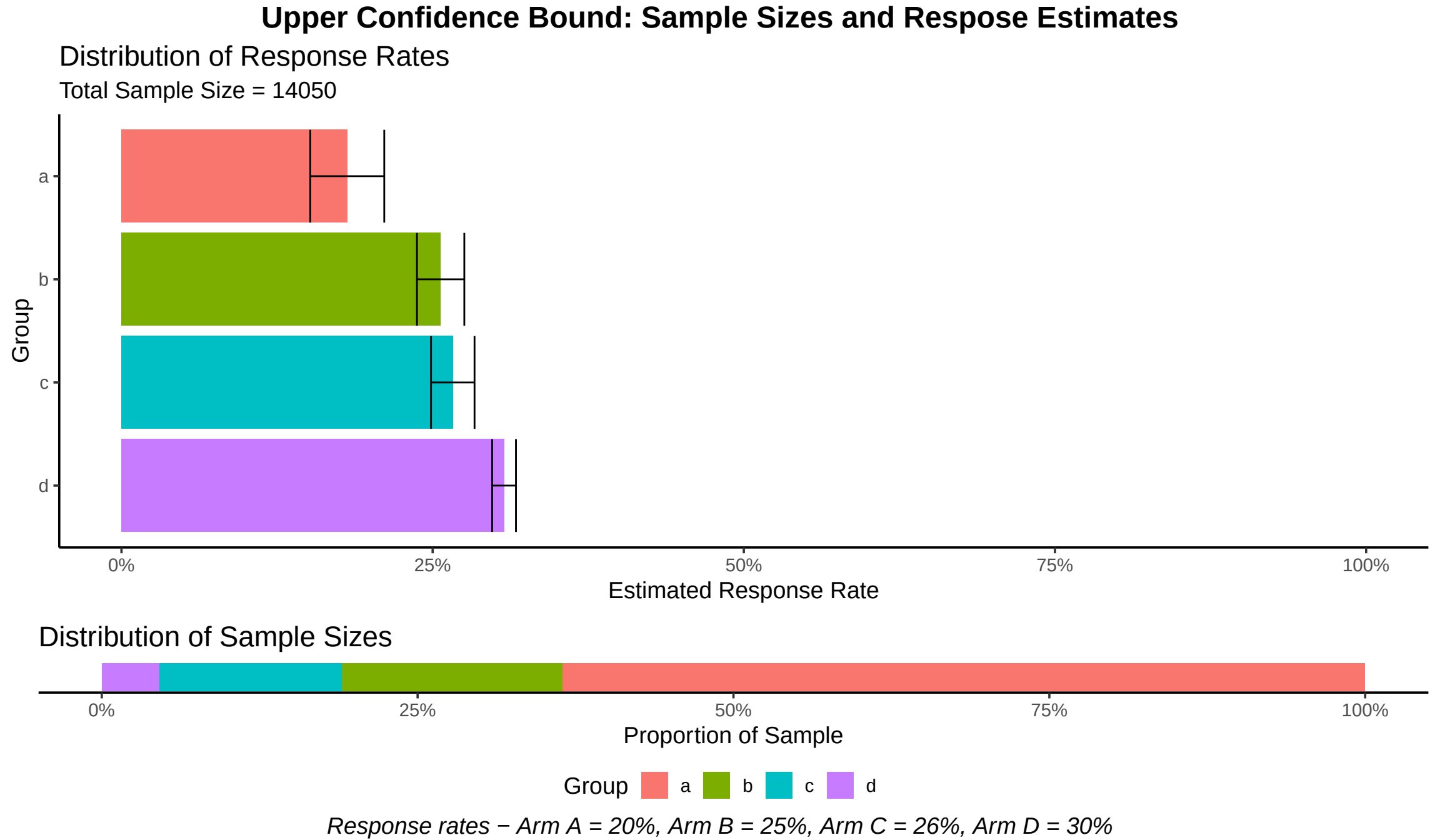

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

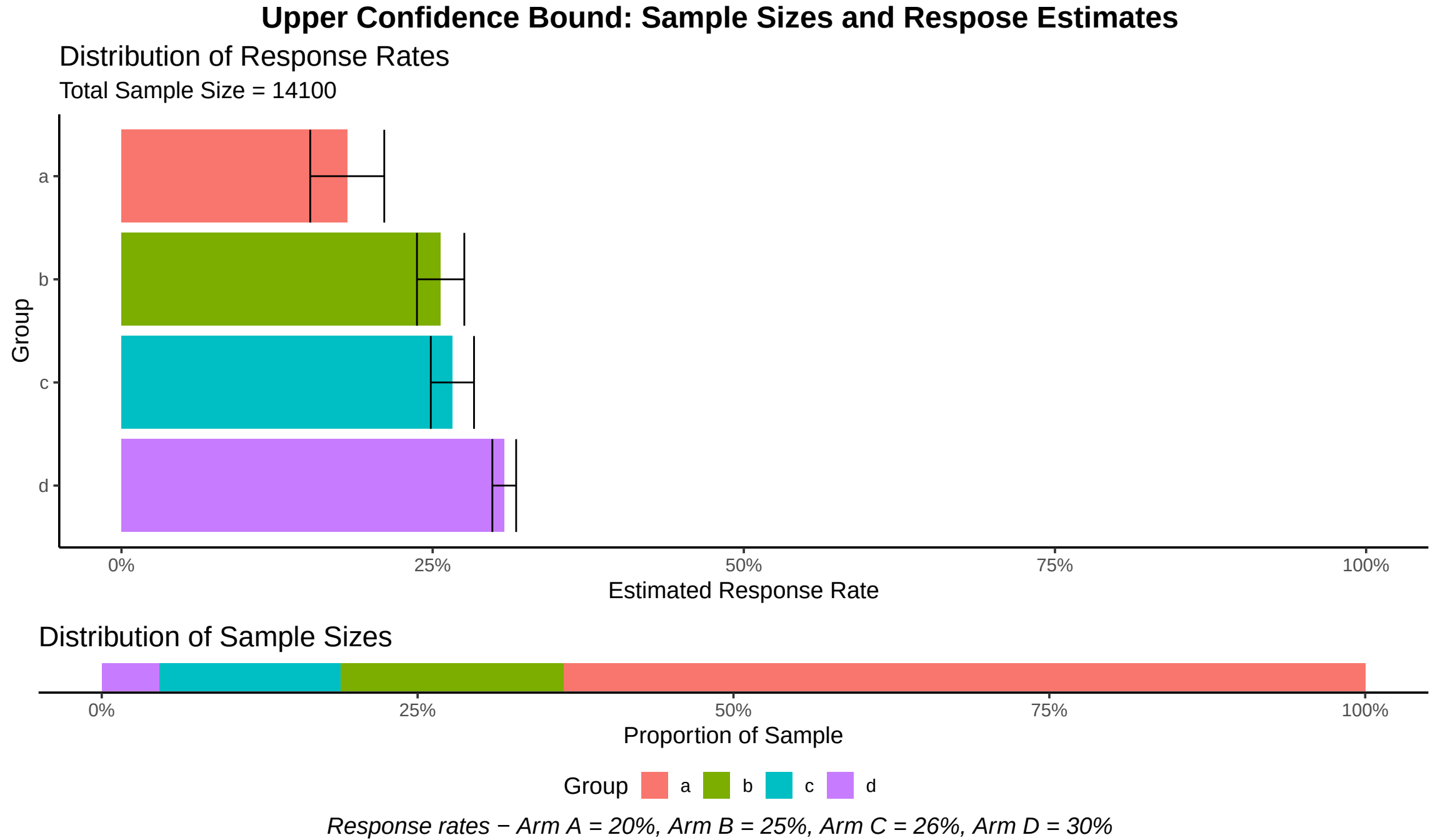

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

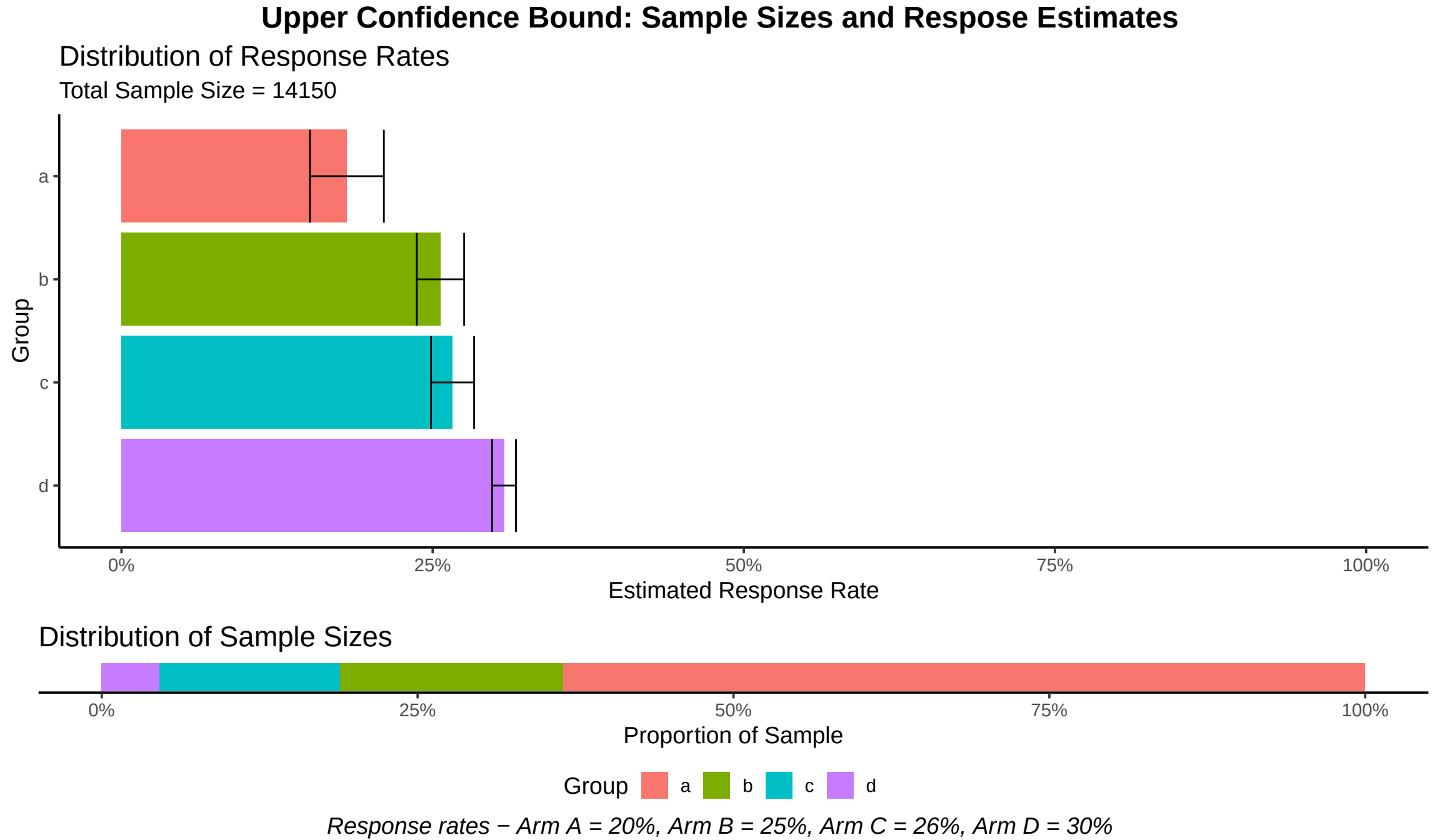

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

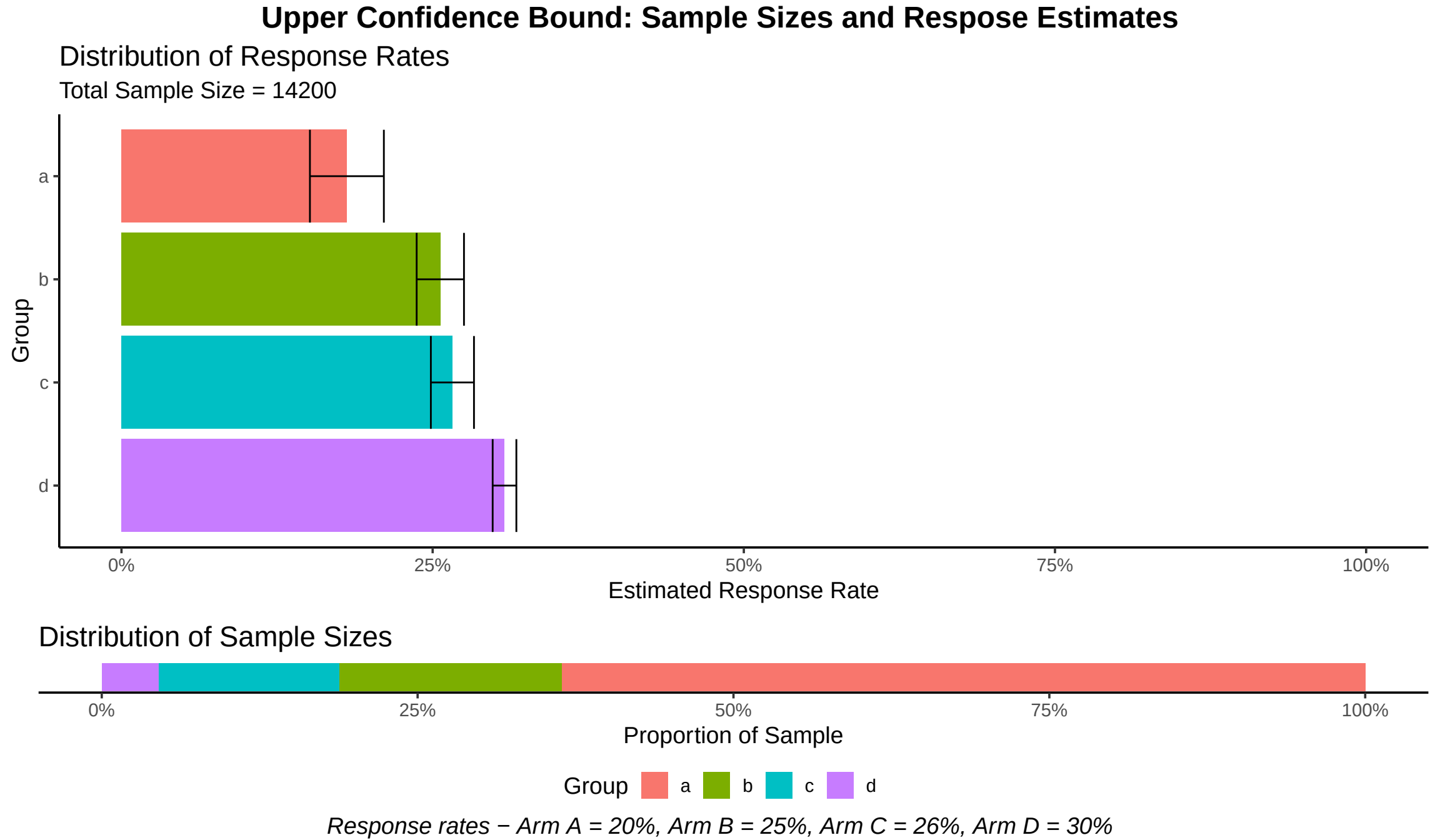

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 13950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

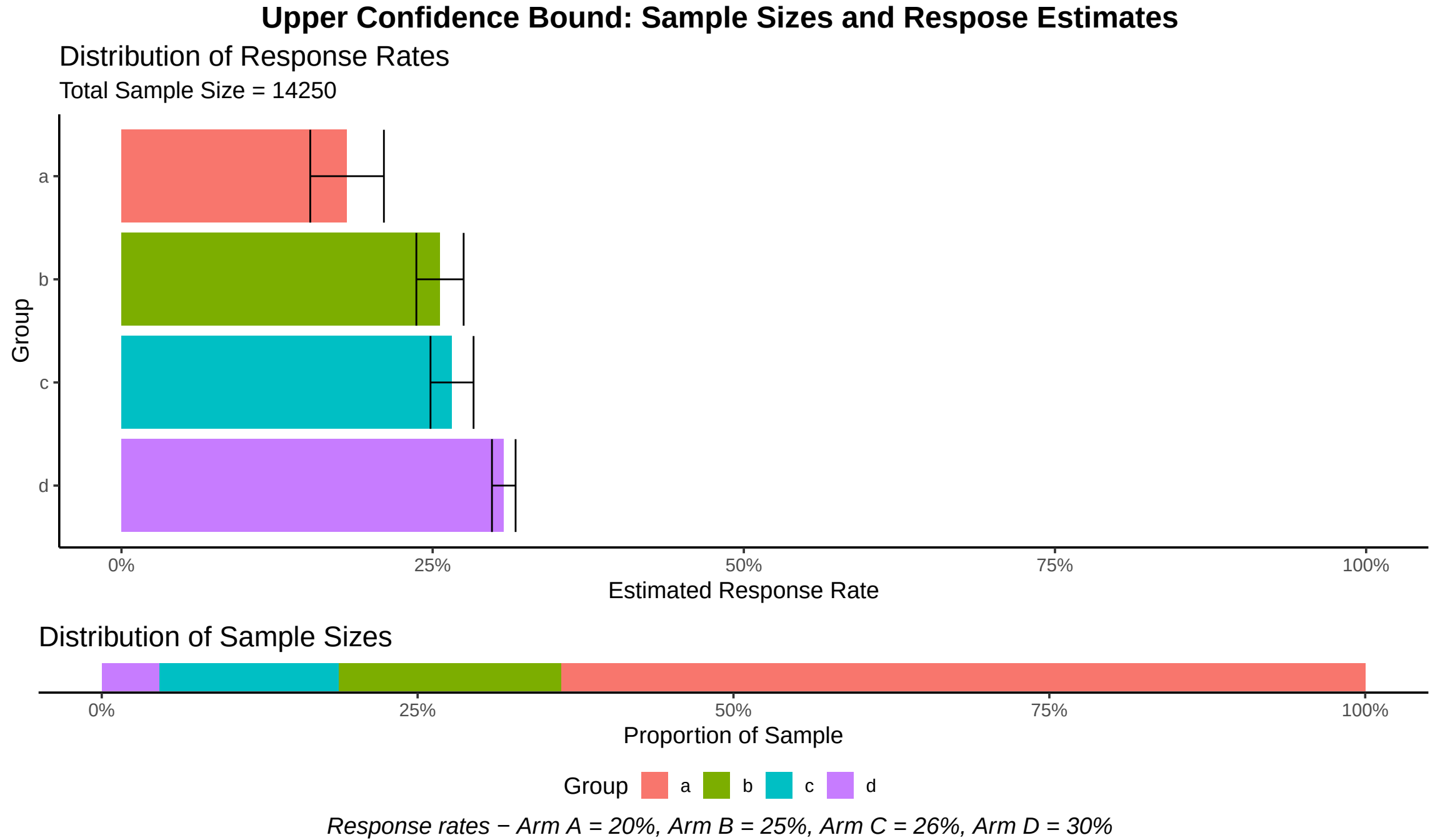

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

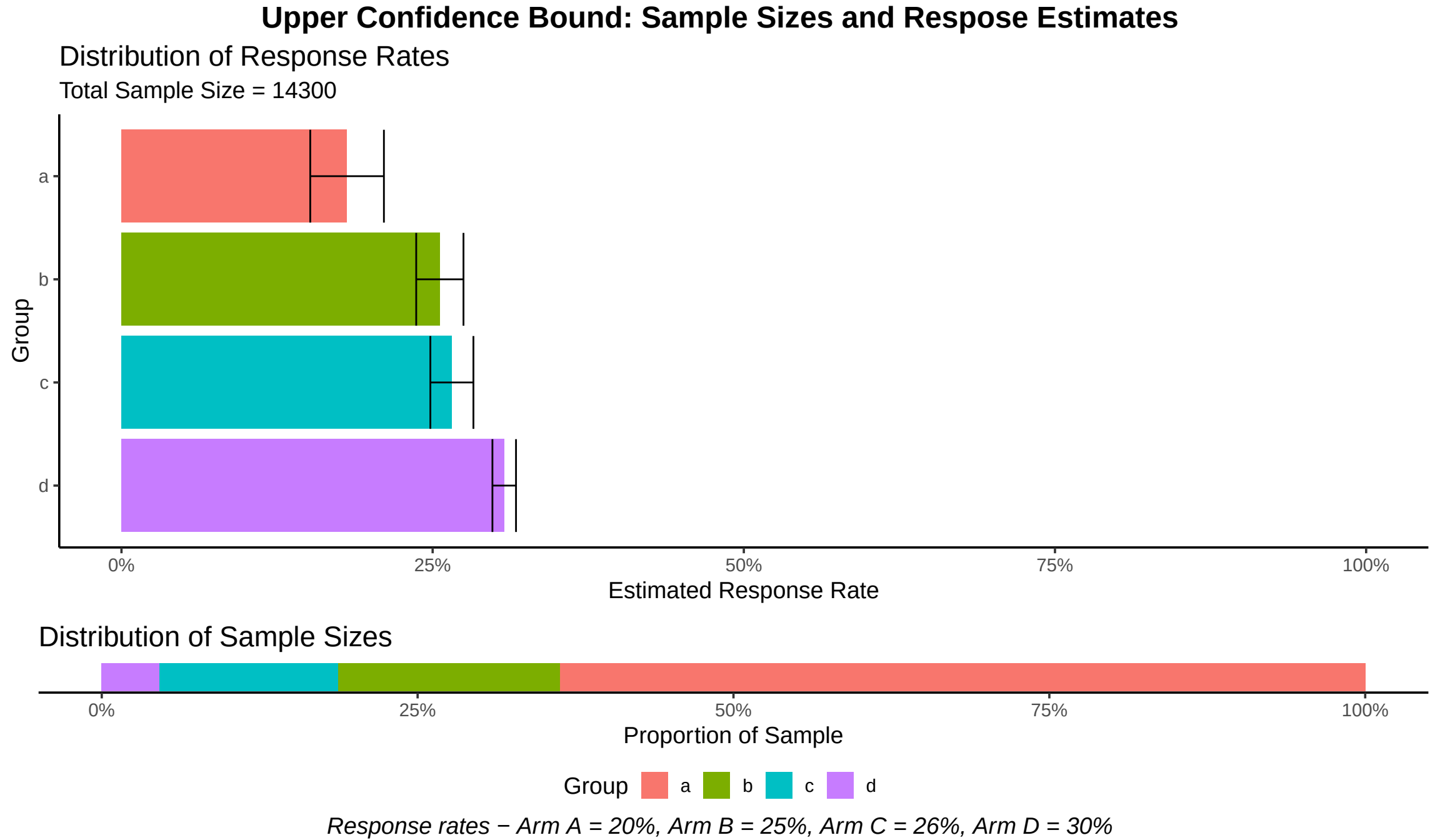

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

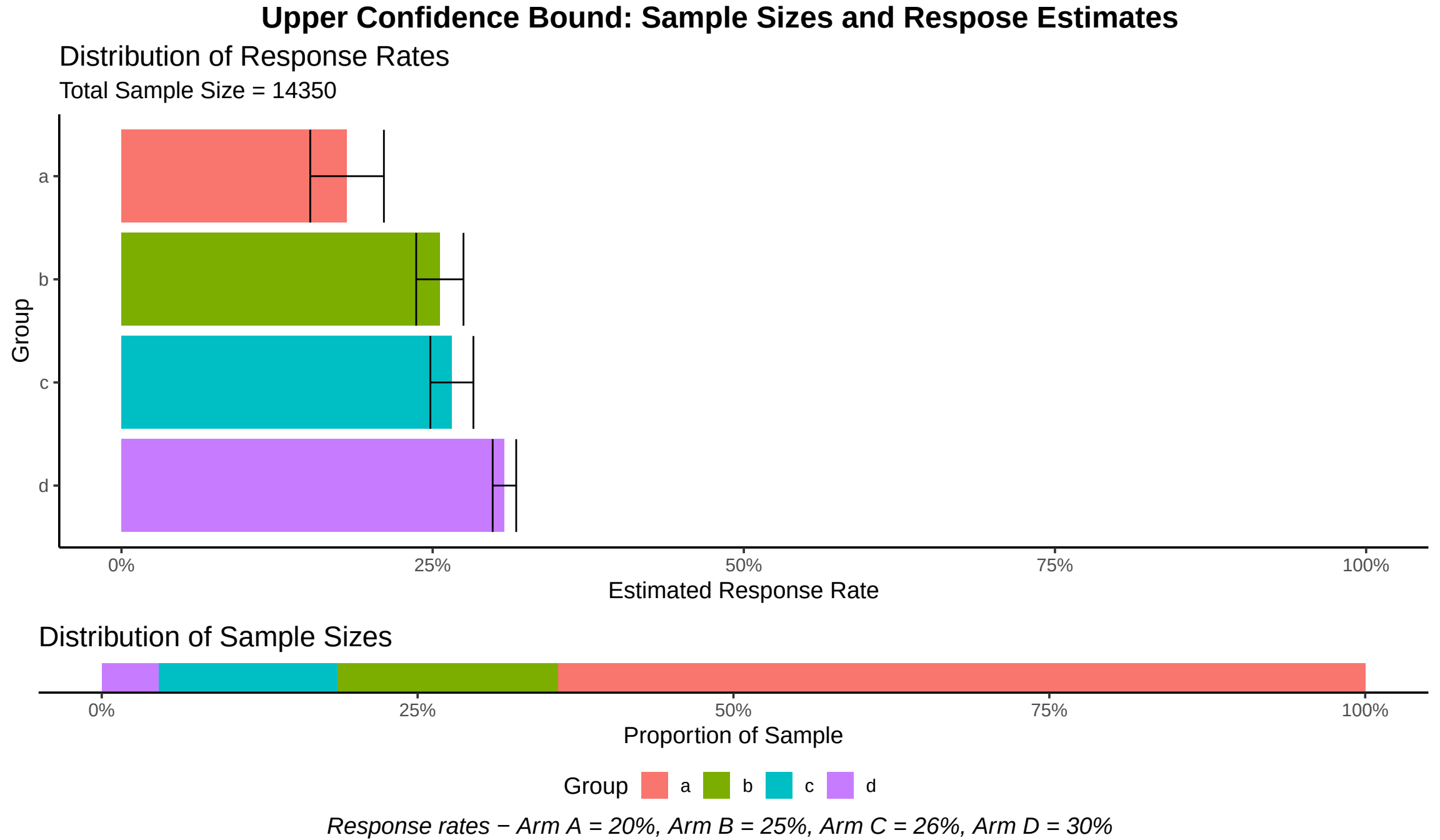

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

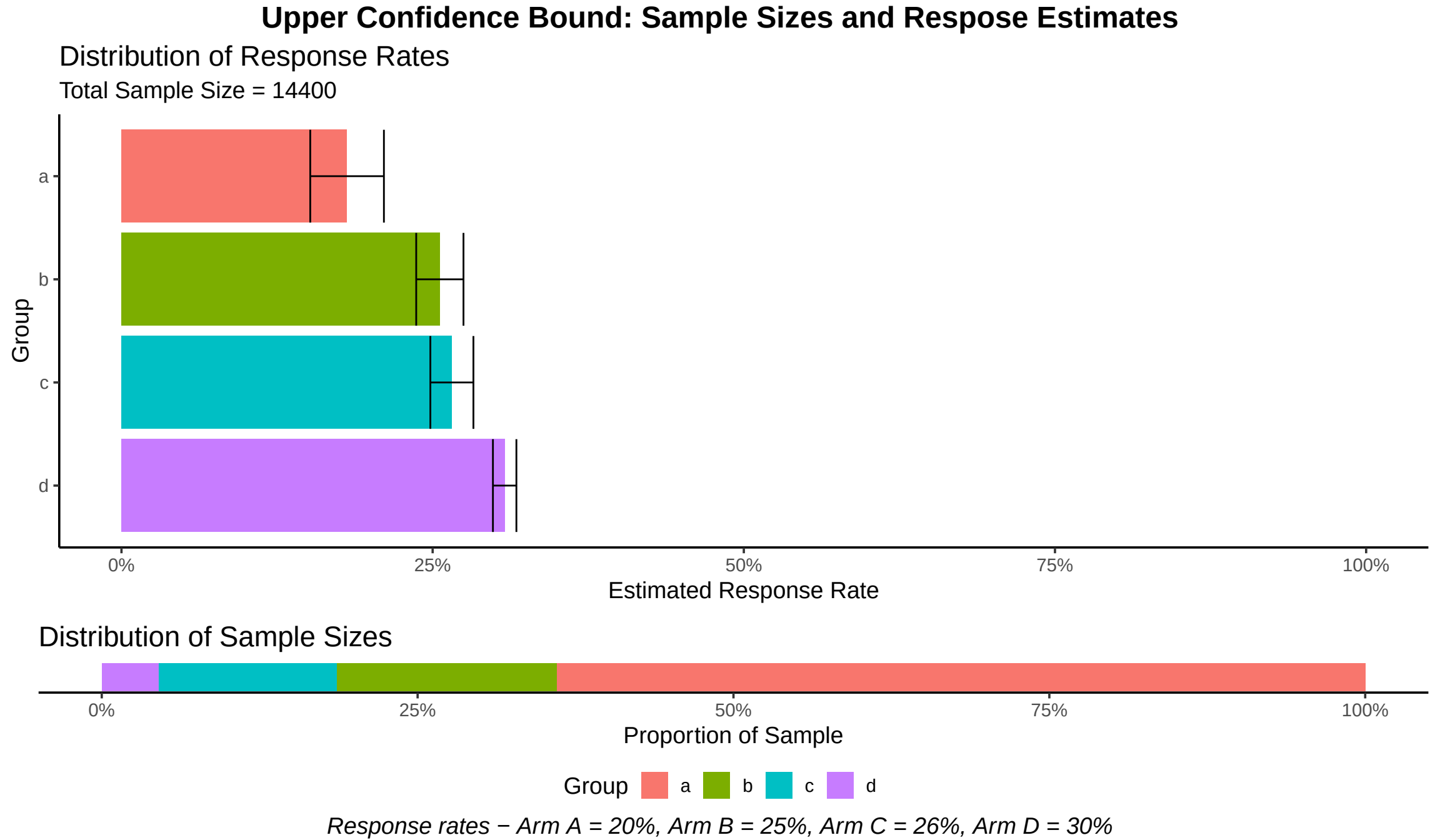

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

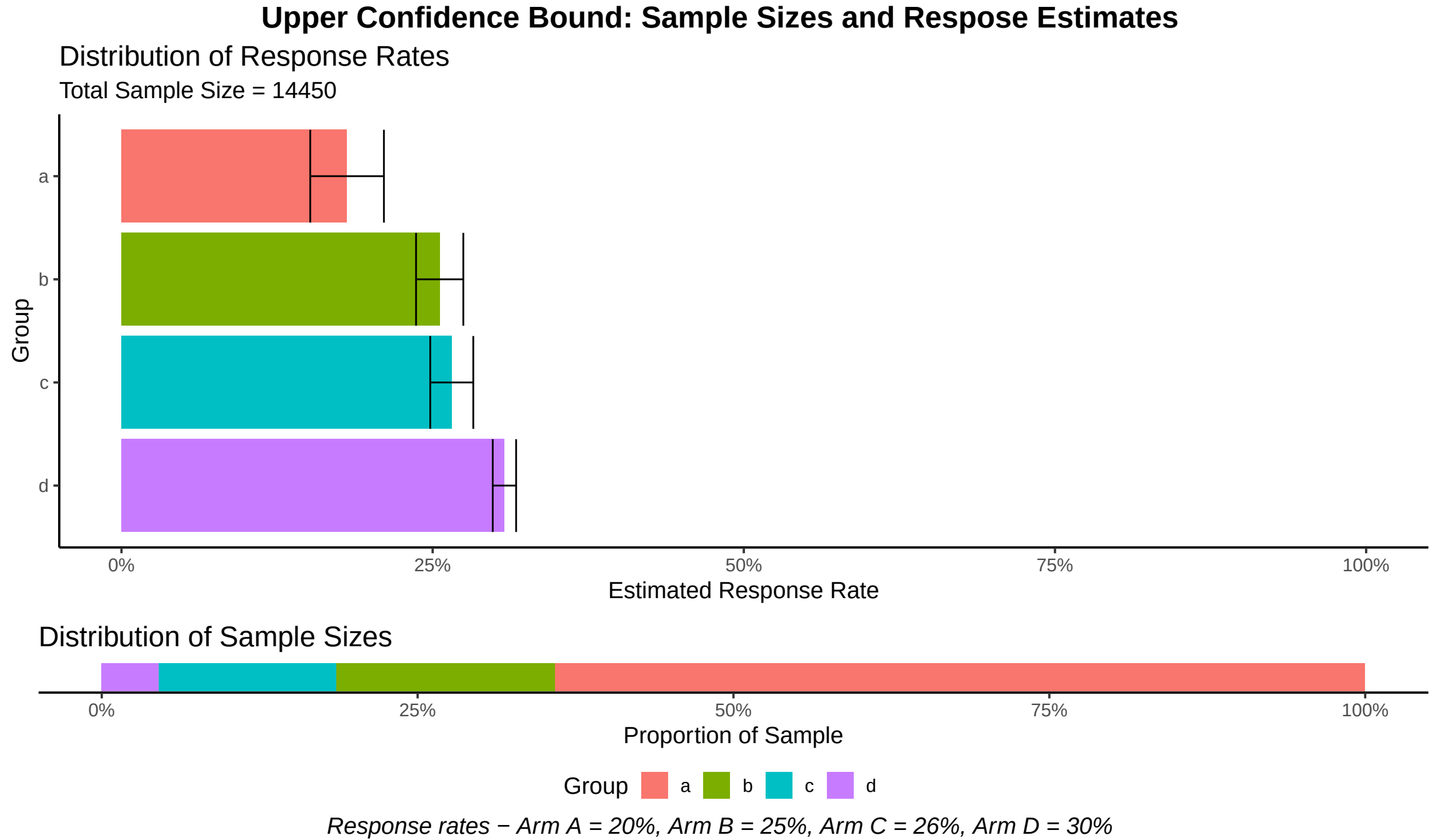

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

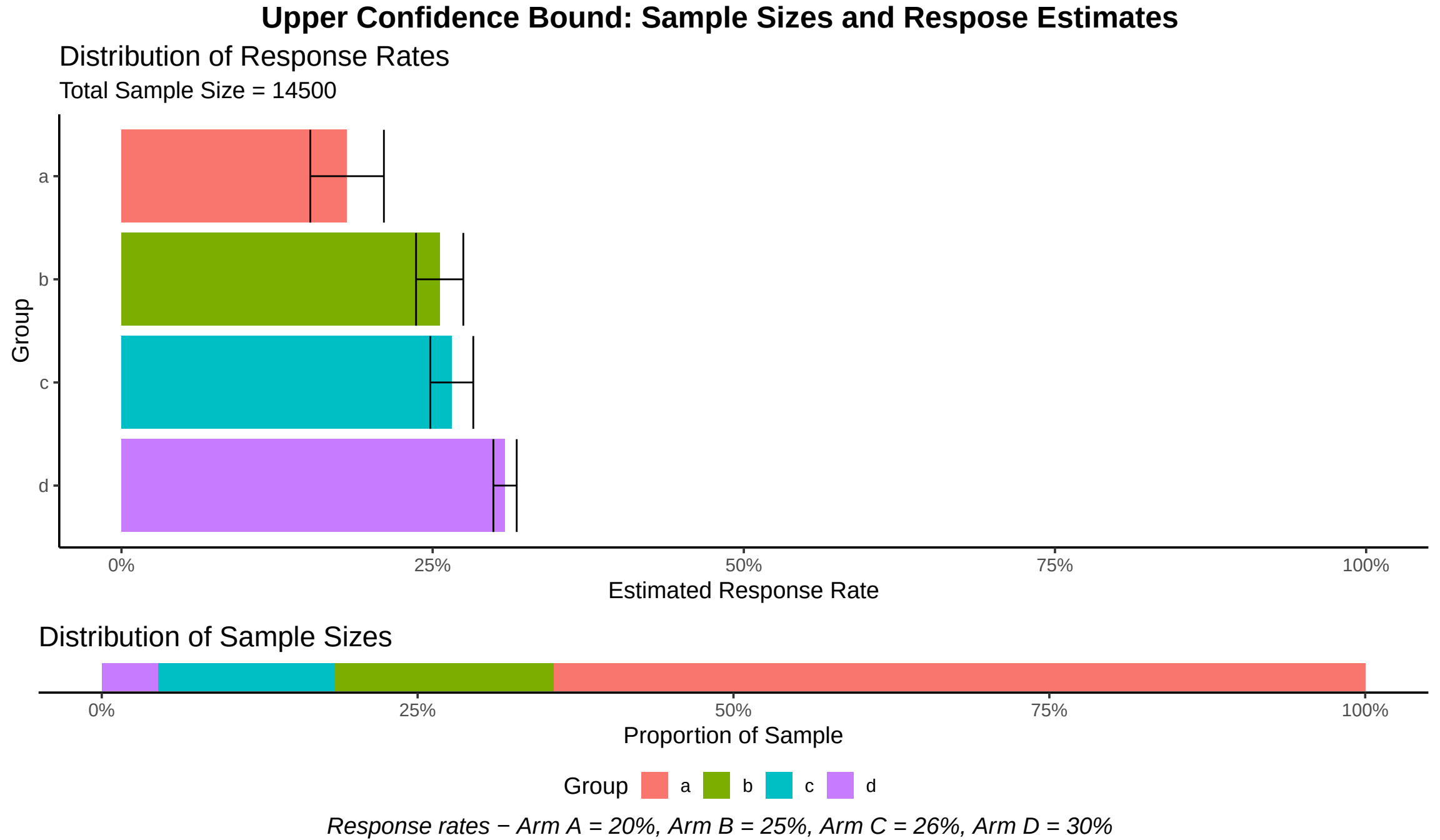

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

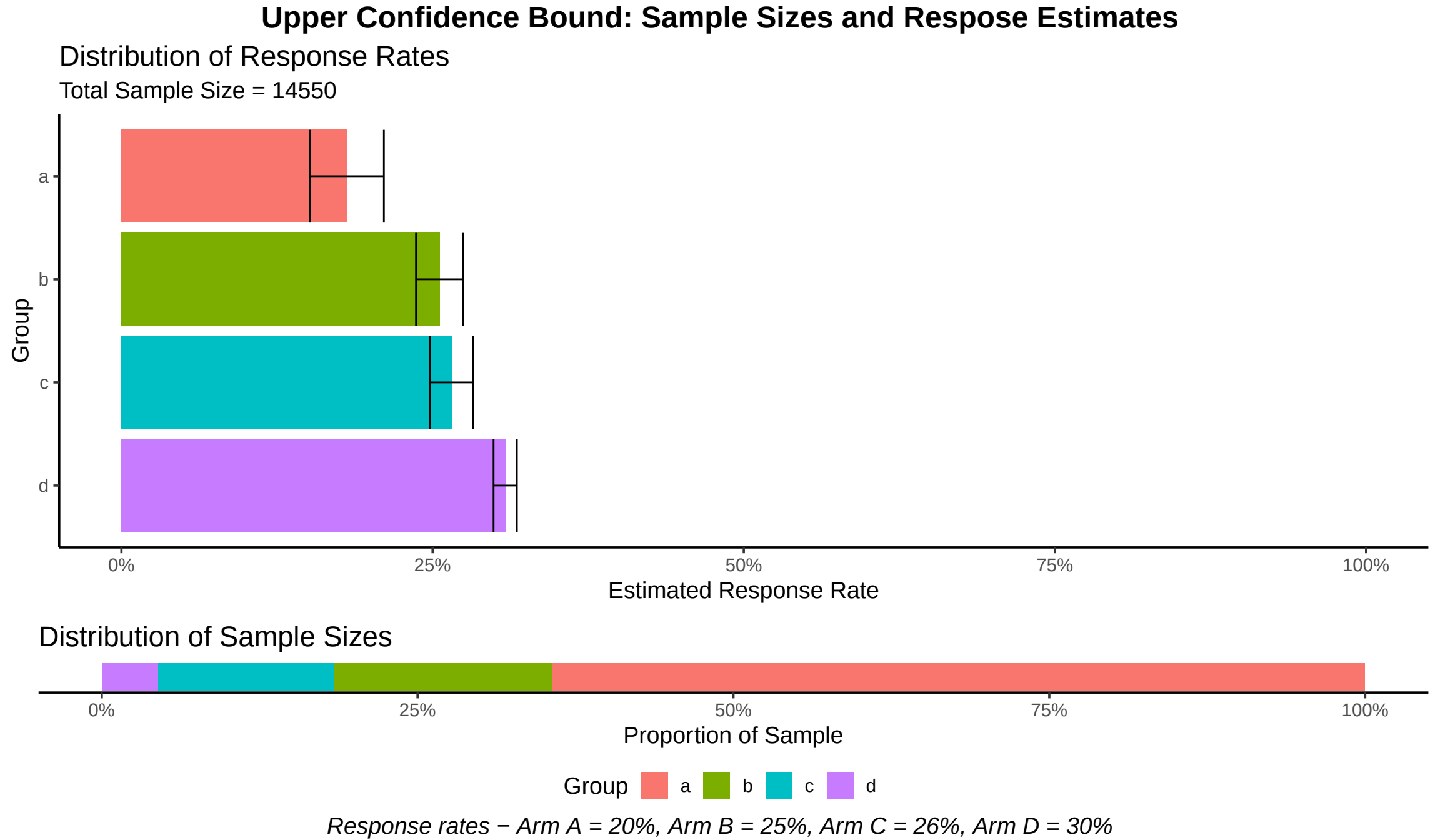

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

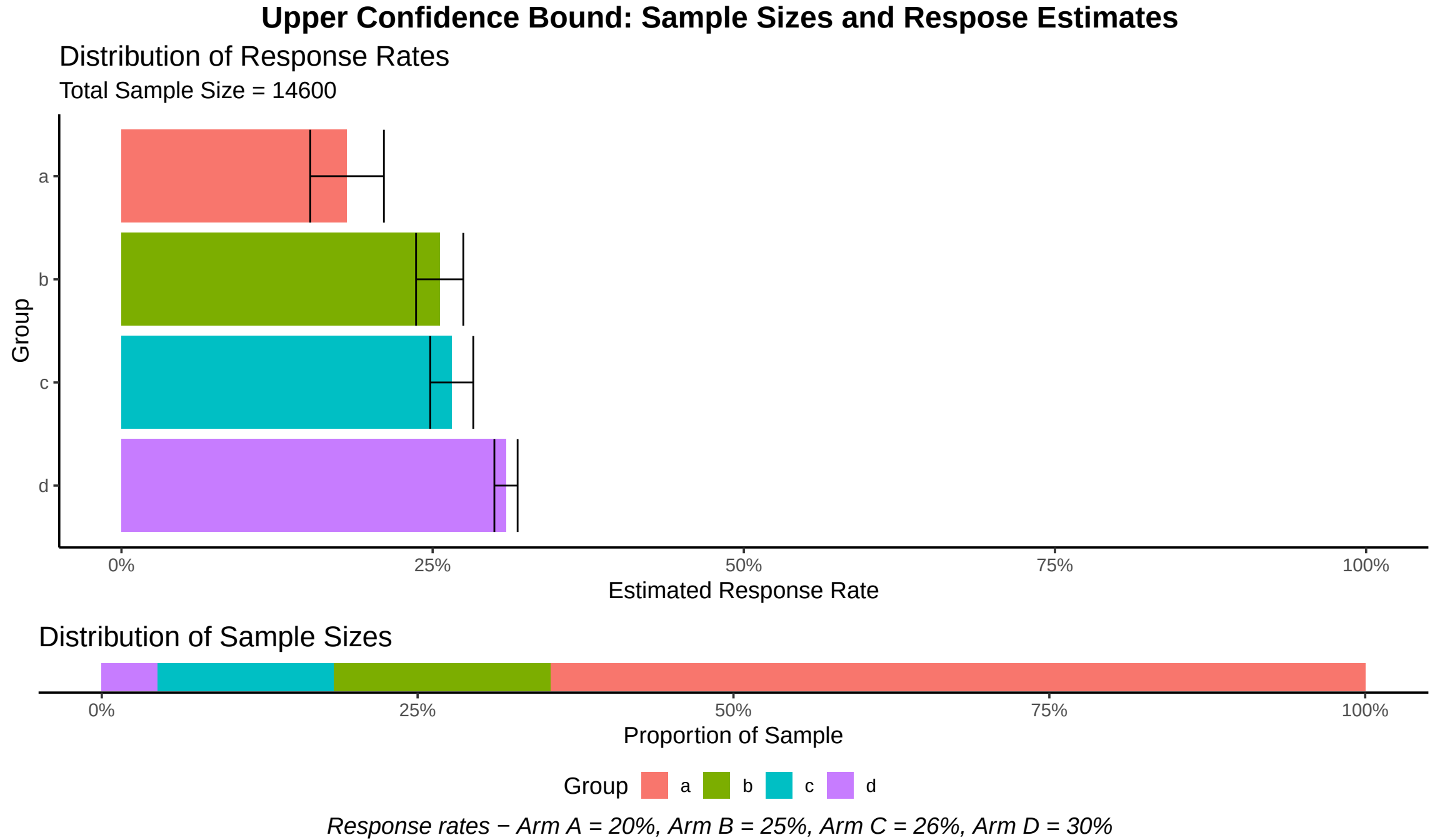

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

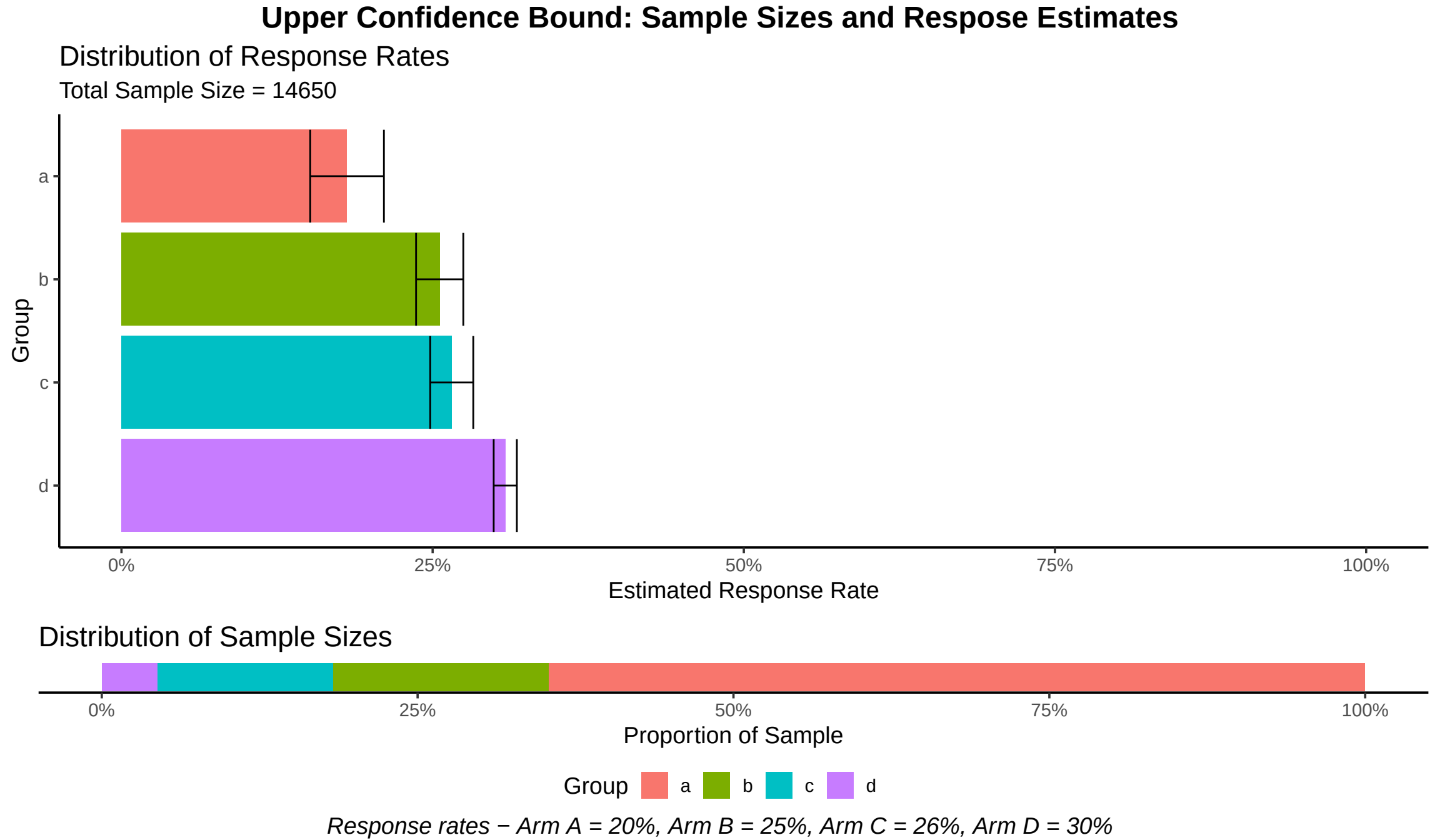

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

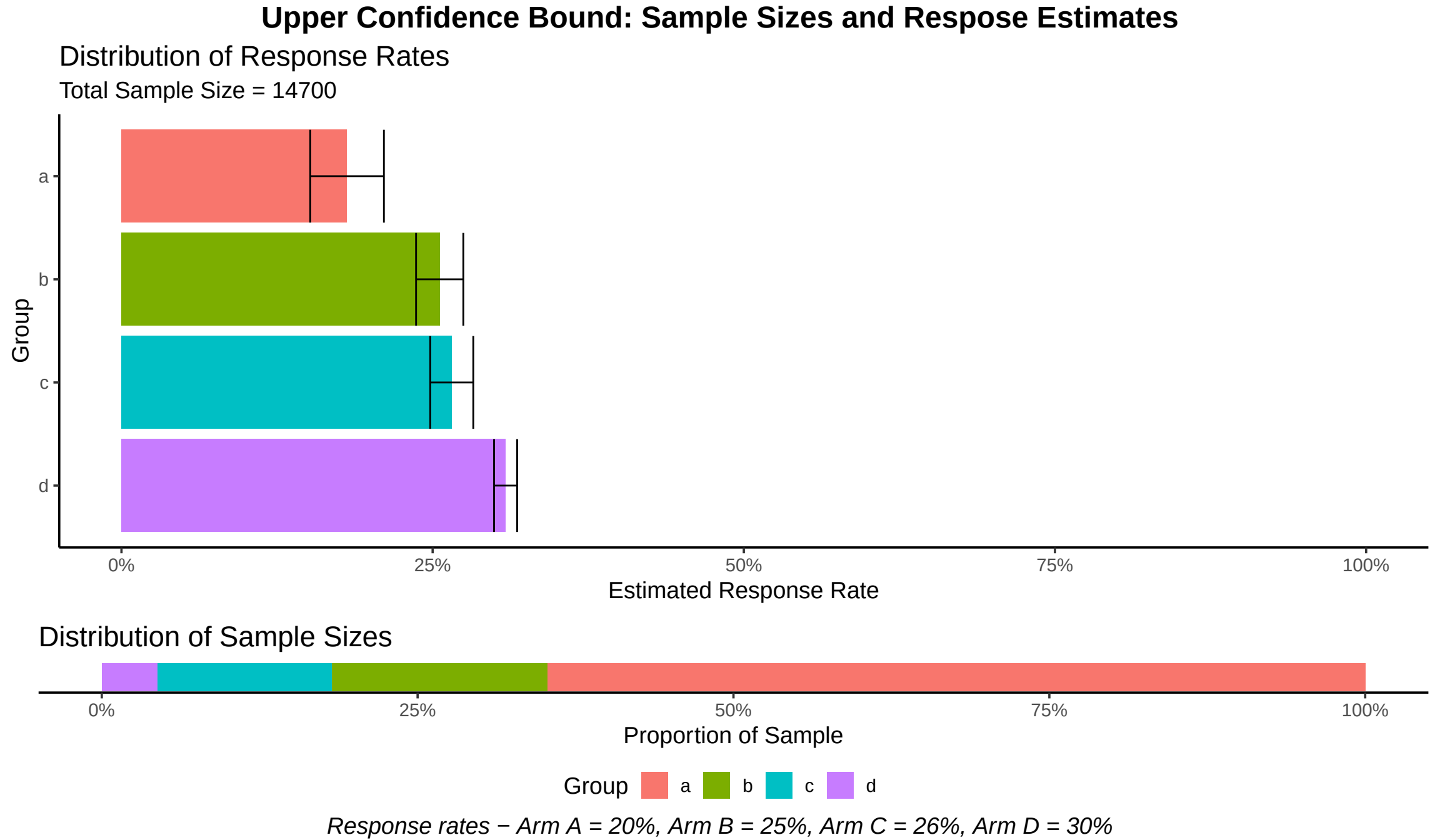

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

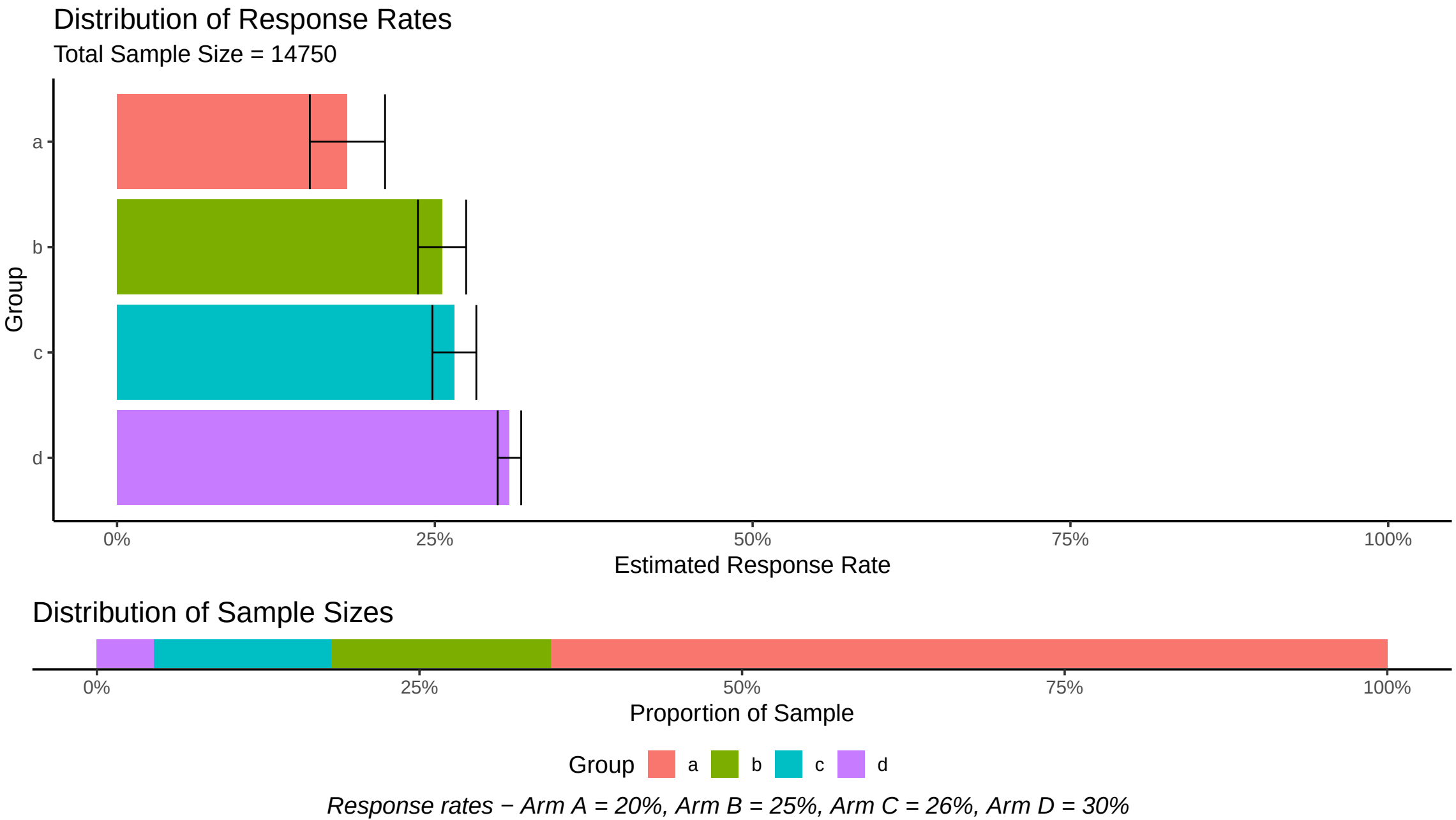

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

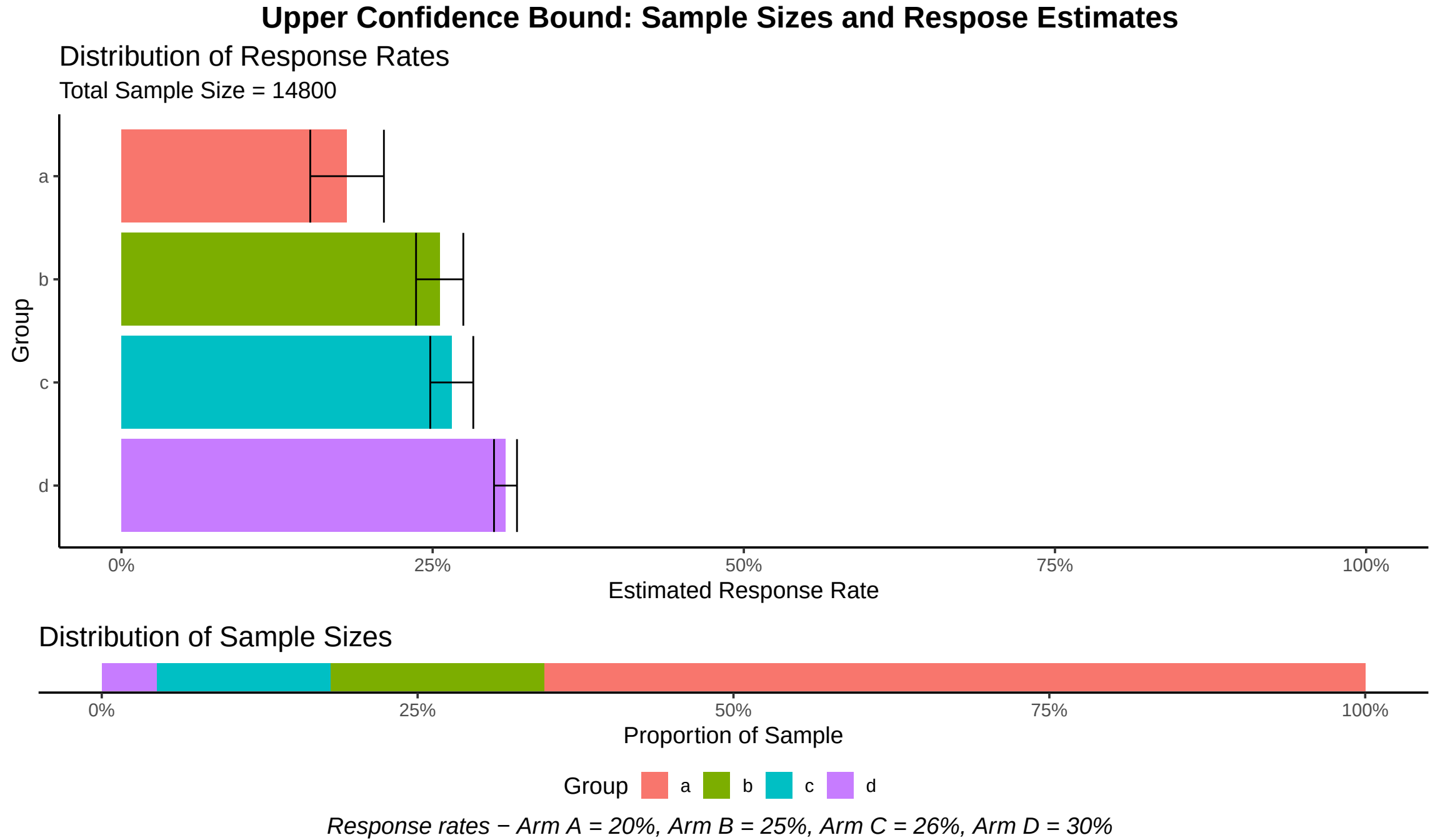

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

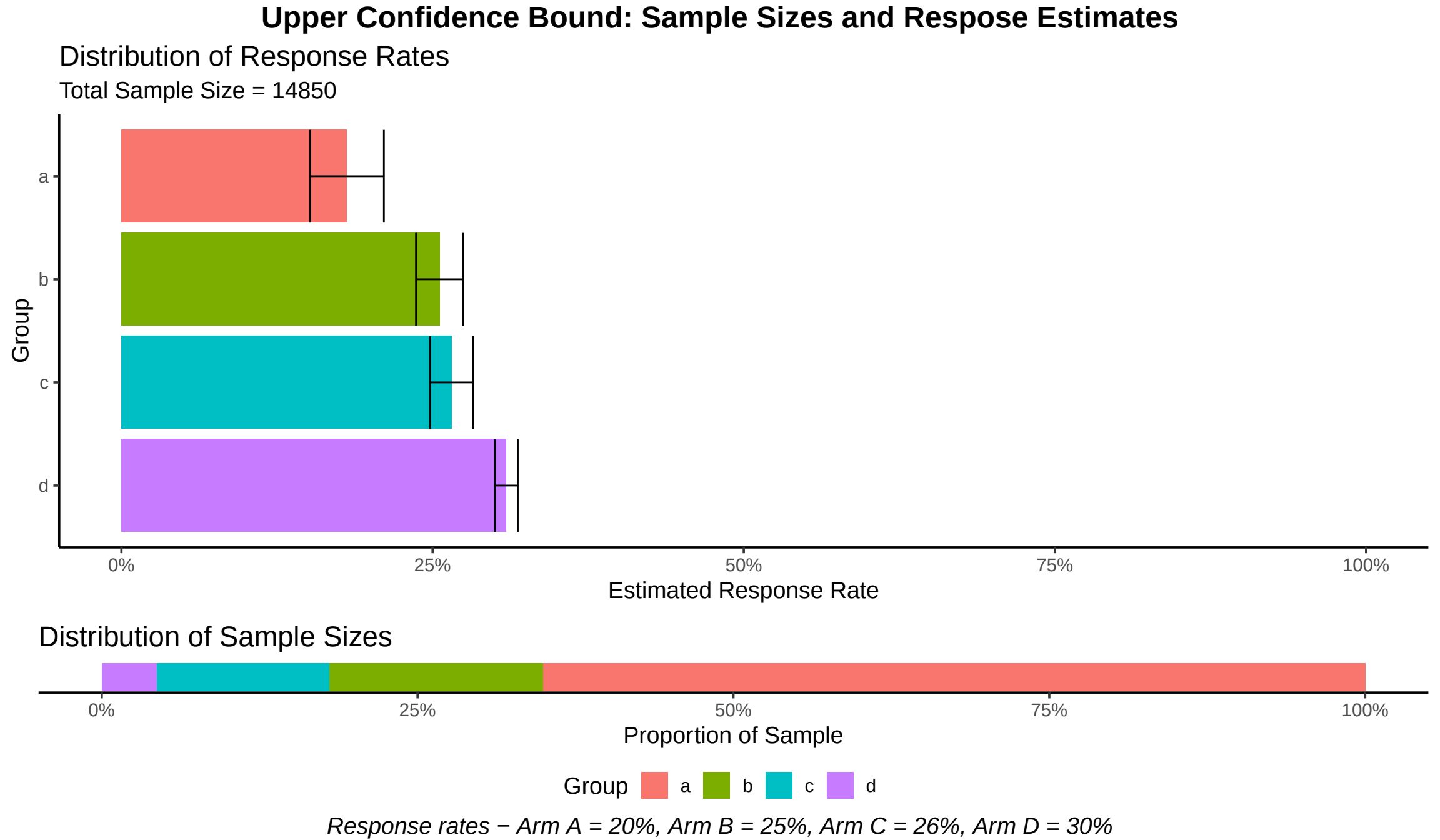

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

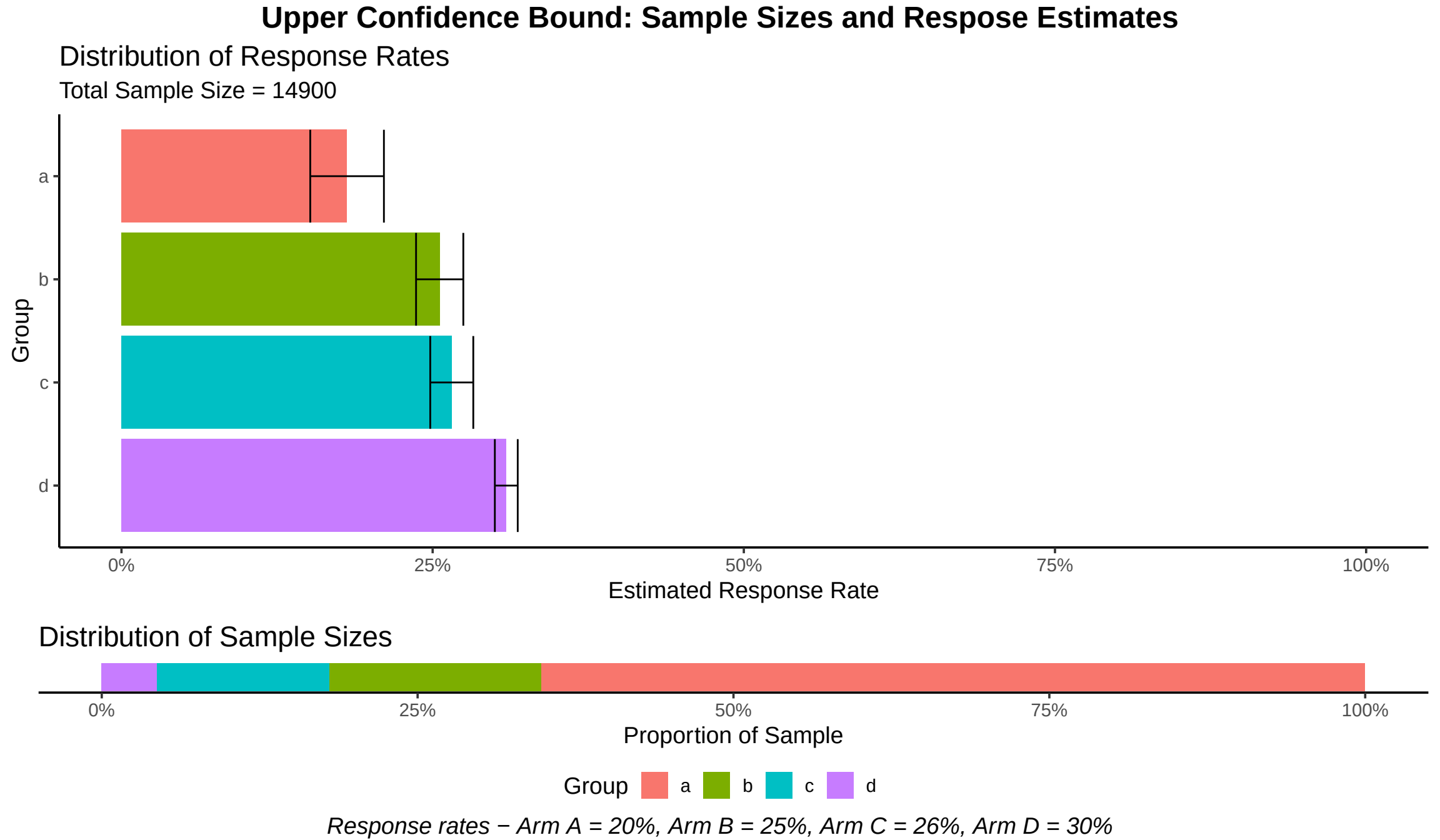
Upper Confidence Bound: Sample Sizes and Respose Estimates

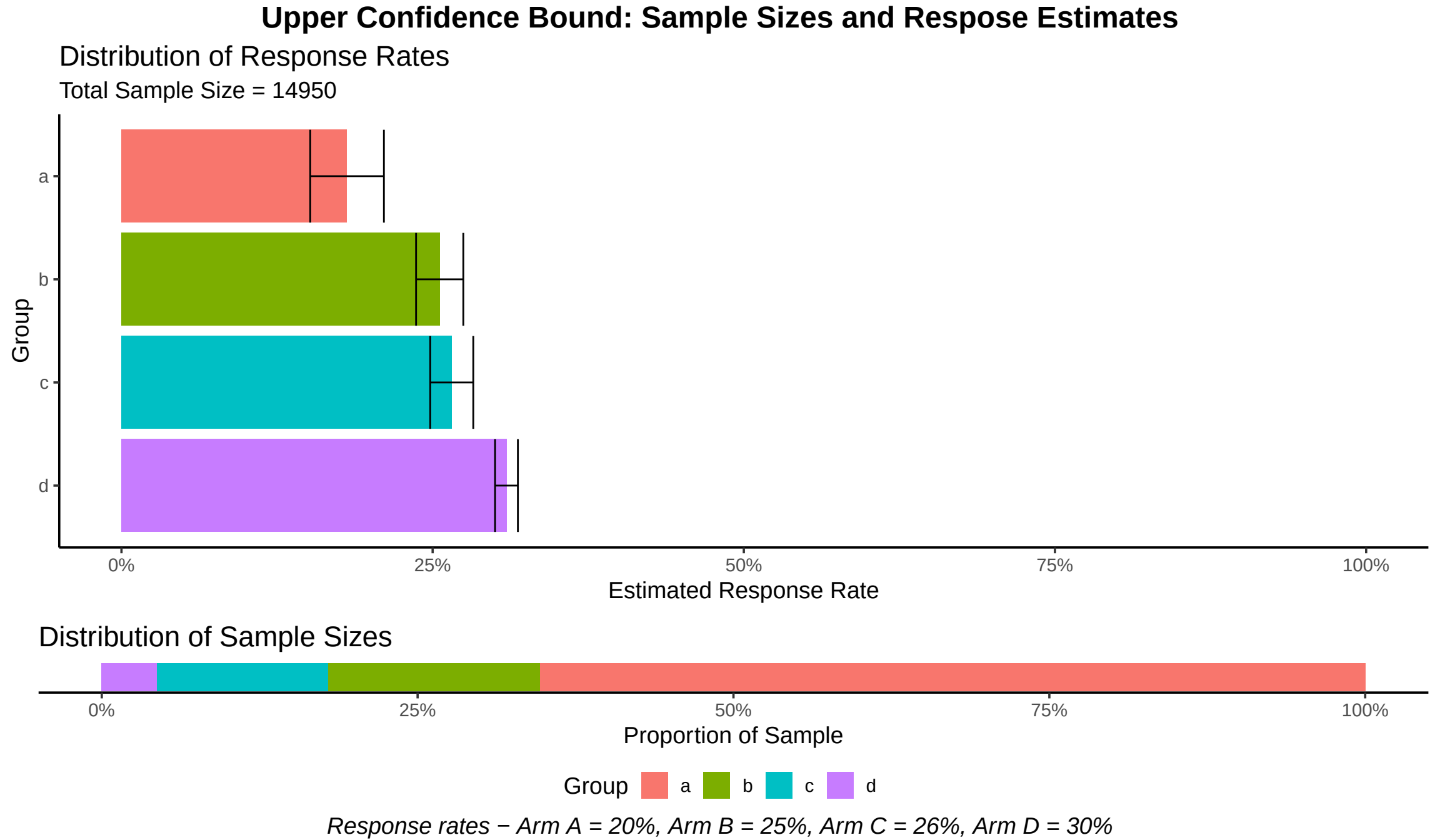


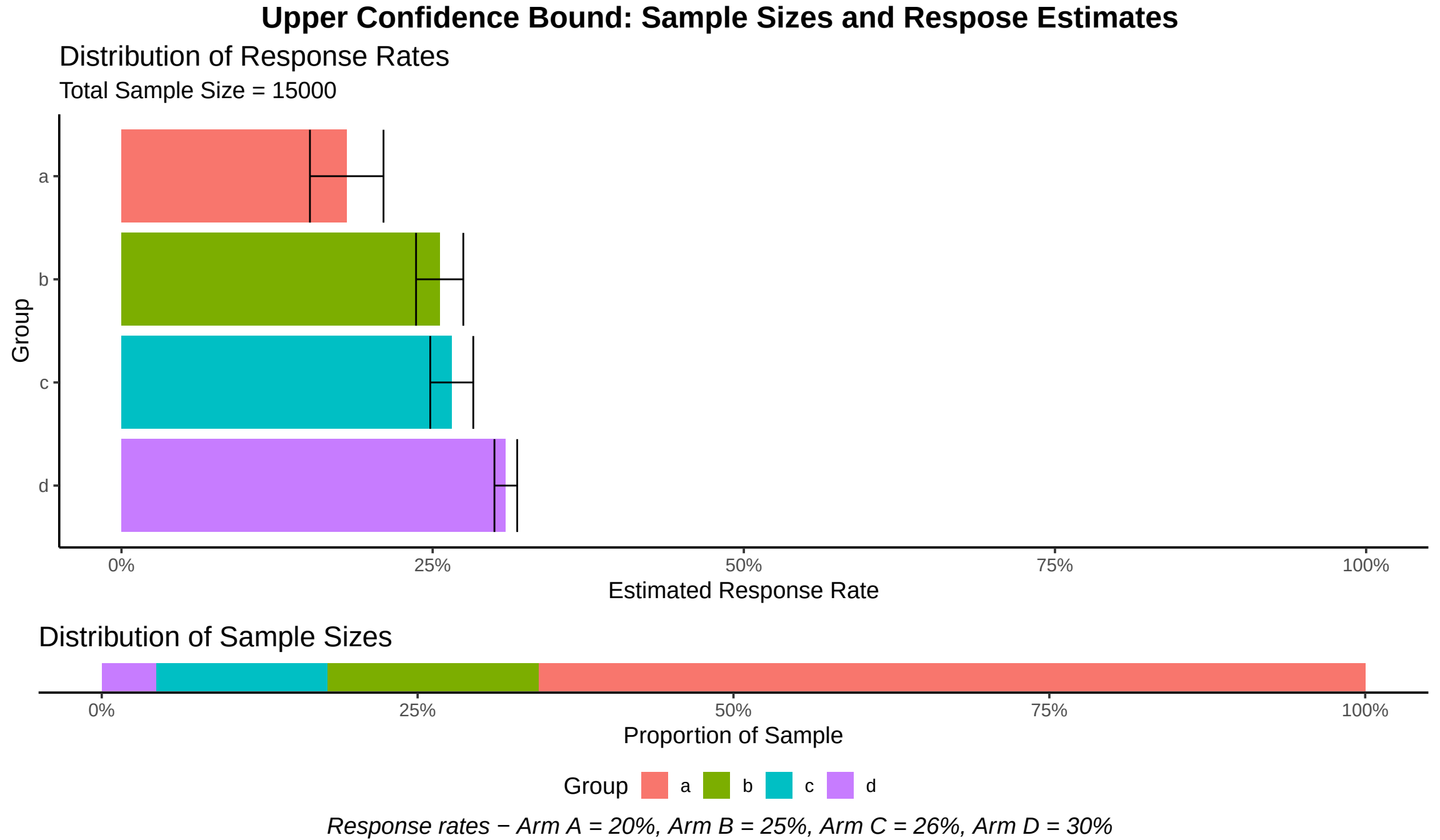
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

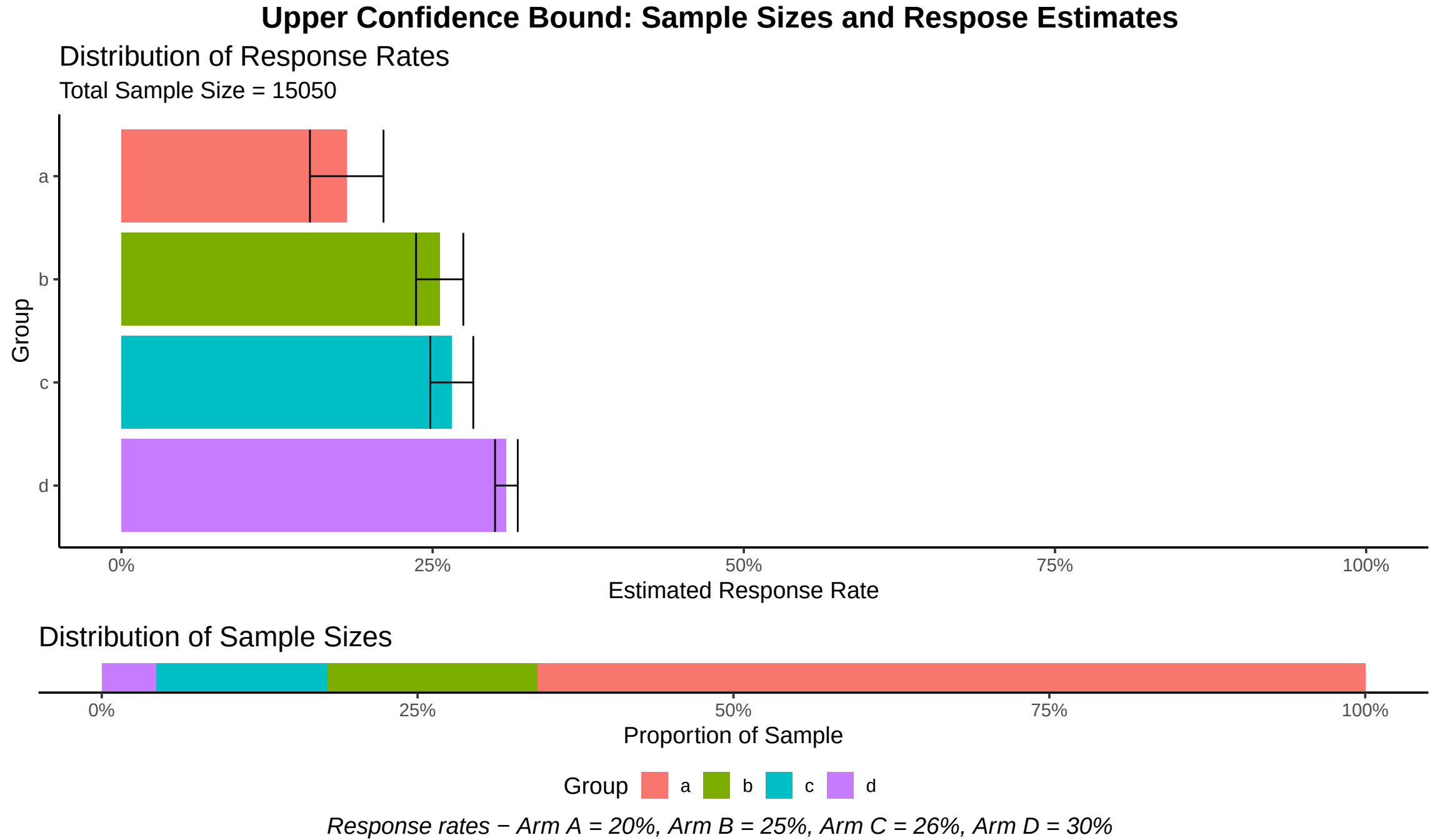

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

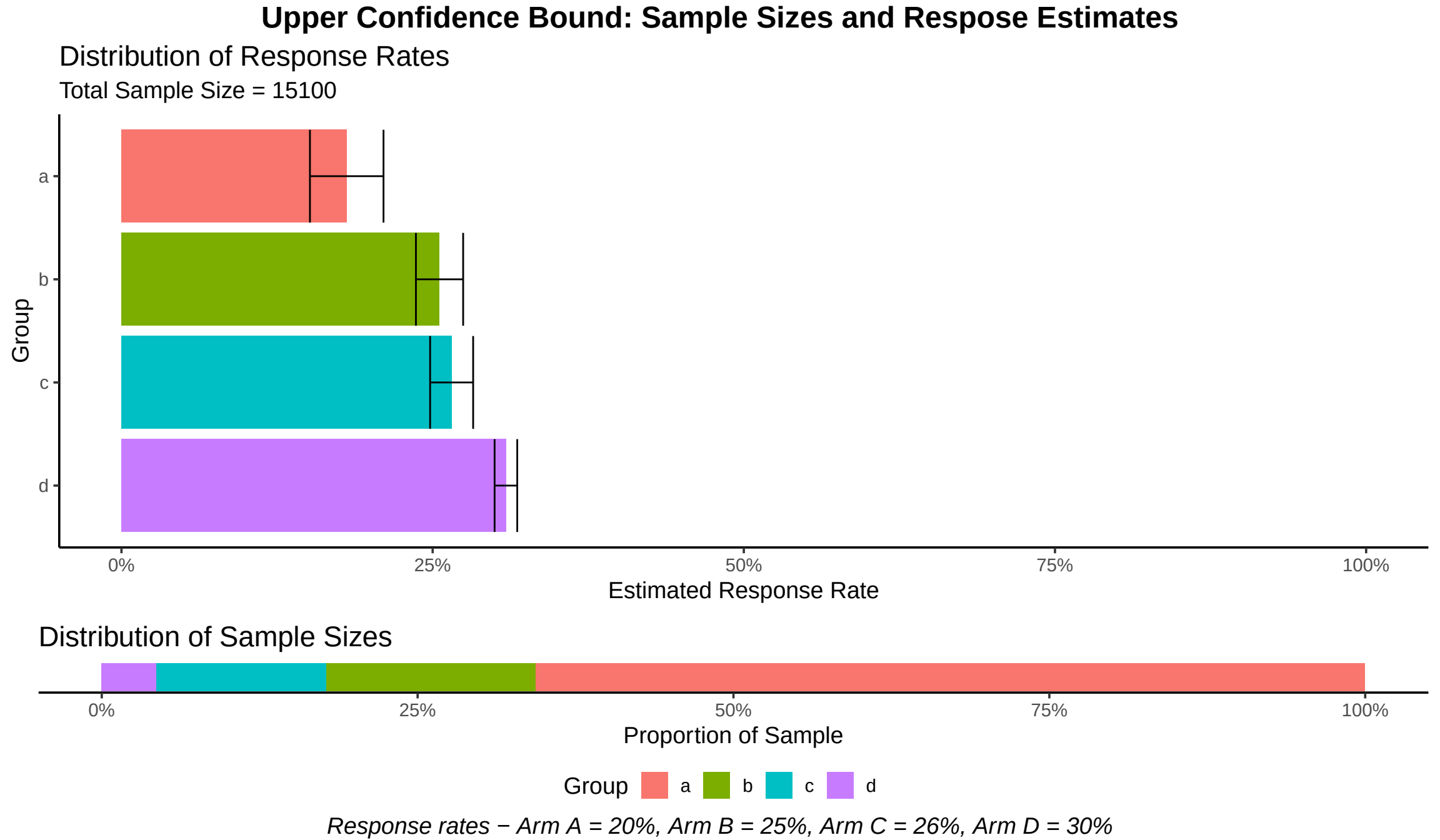

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

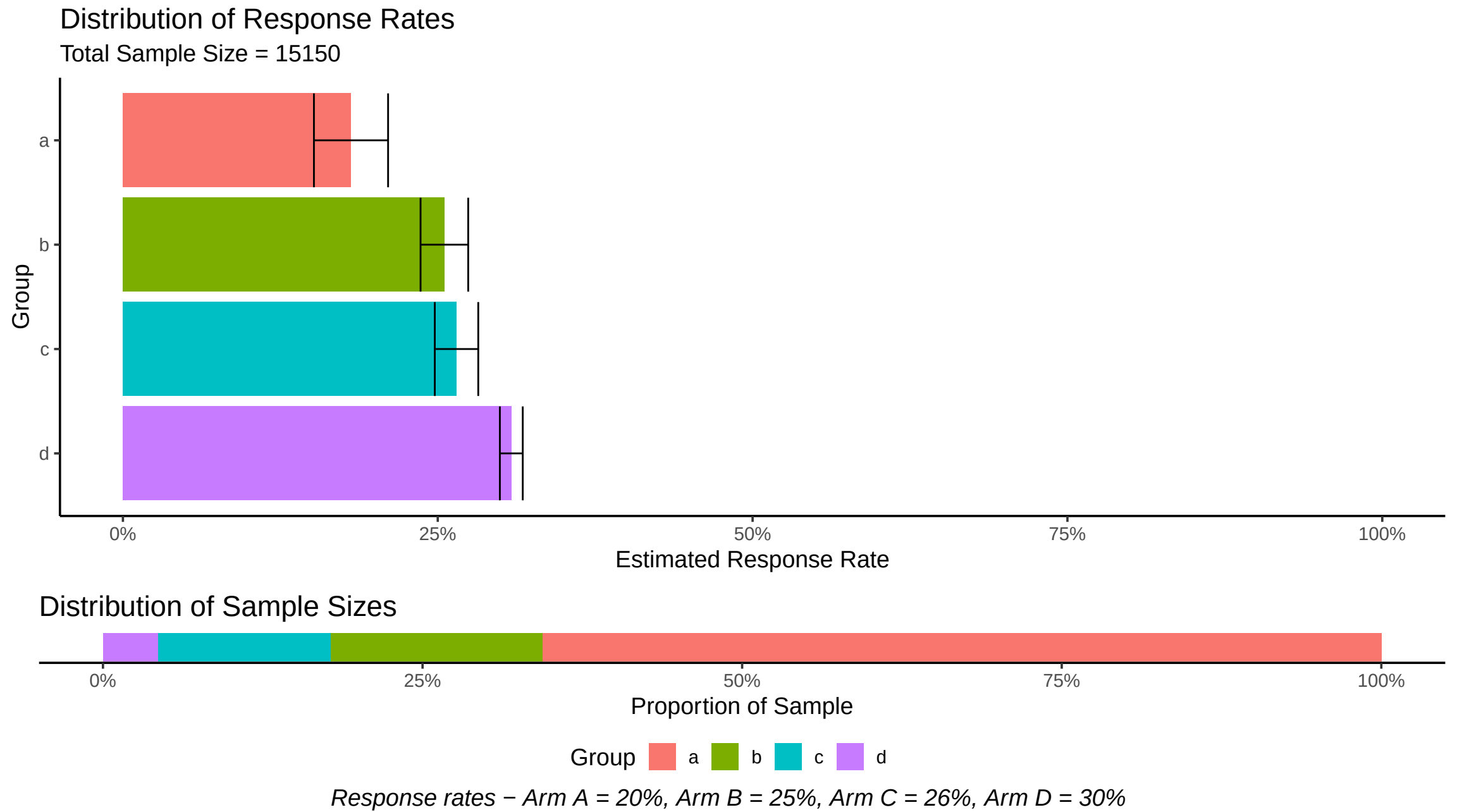

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 14950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

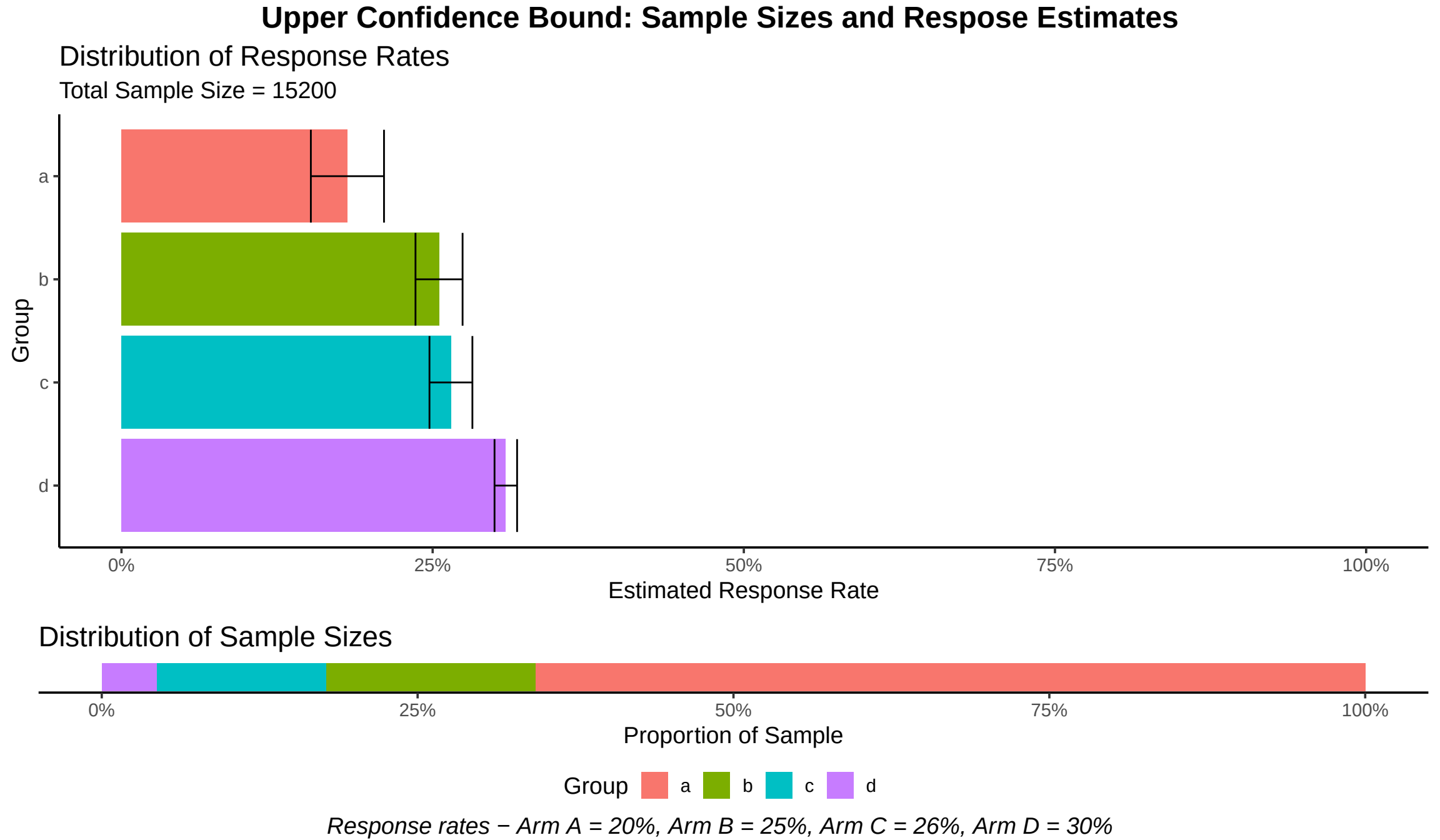

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

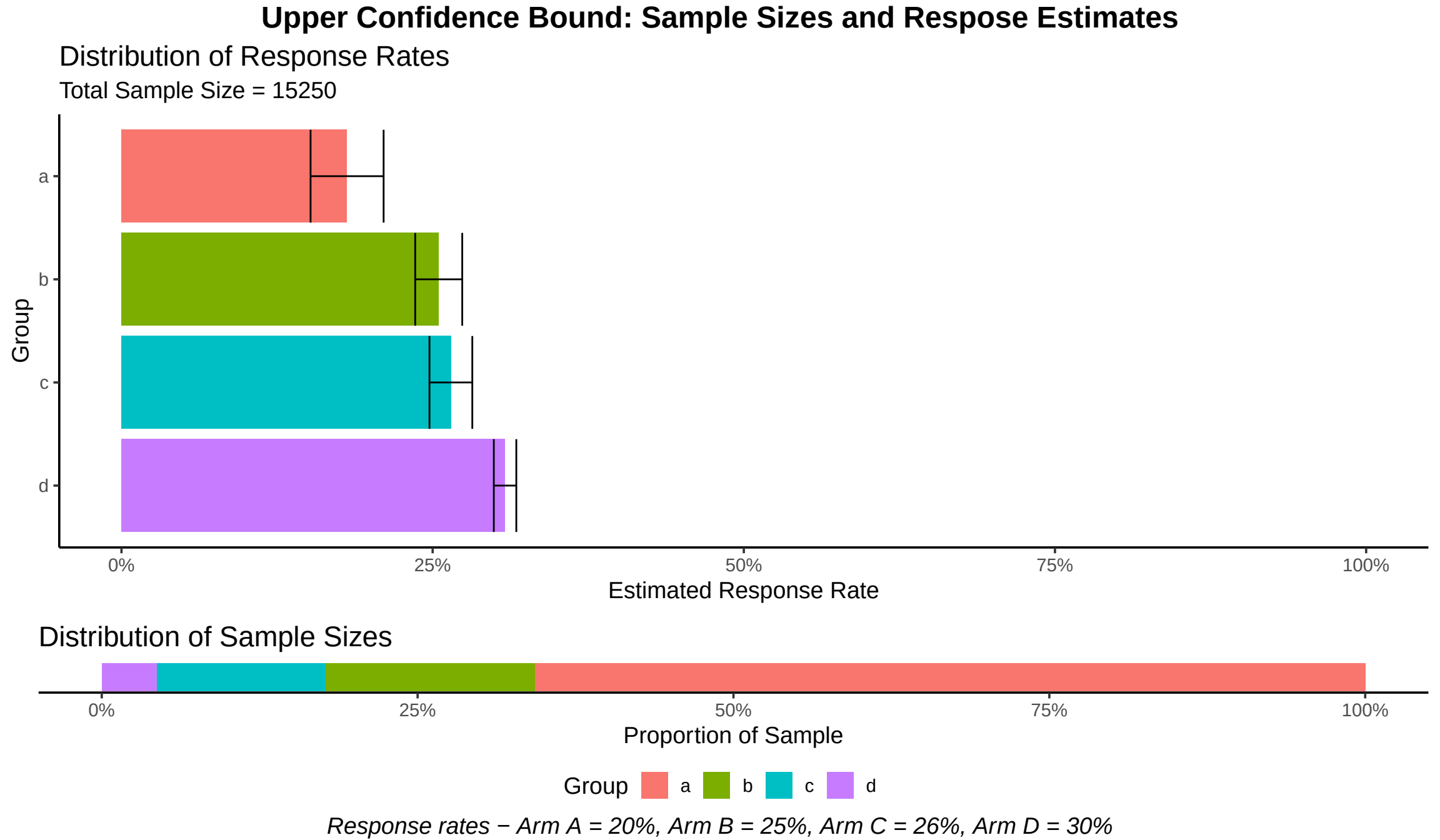

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

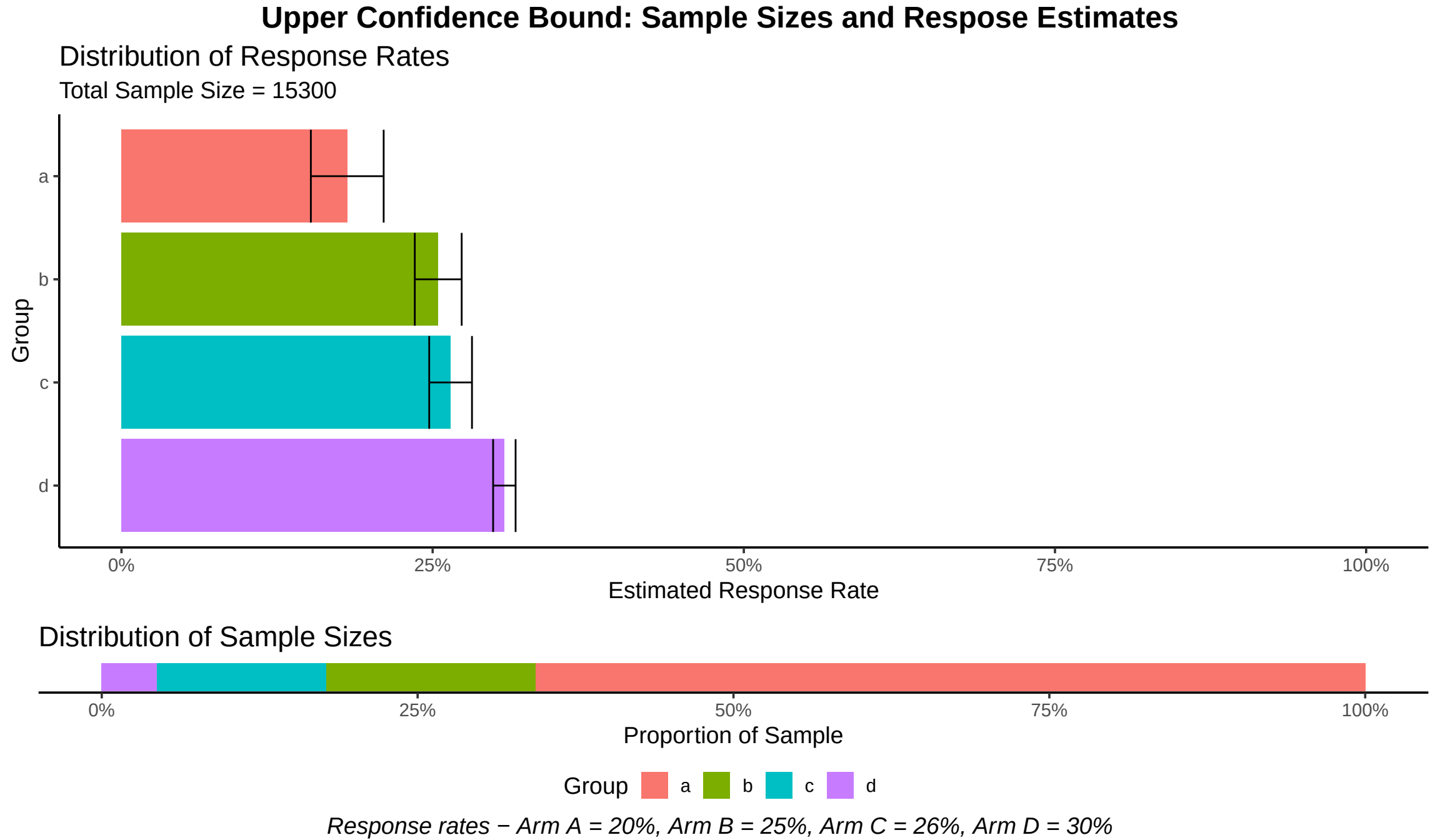
Upper Confidence Bound: Sample Sizes and Respose Estimates

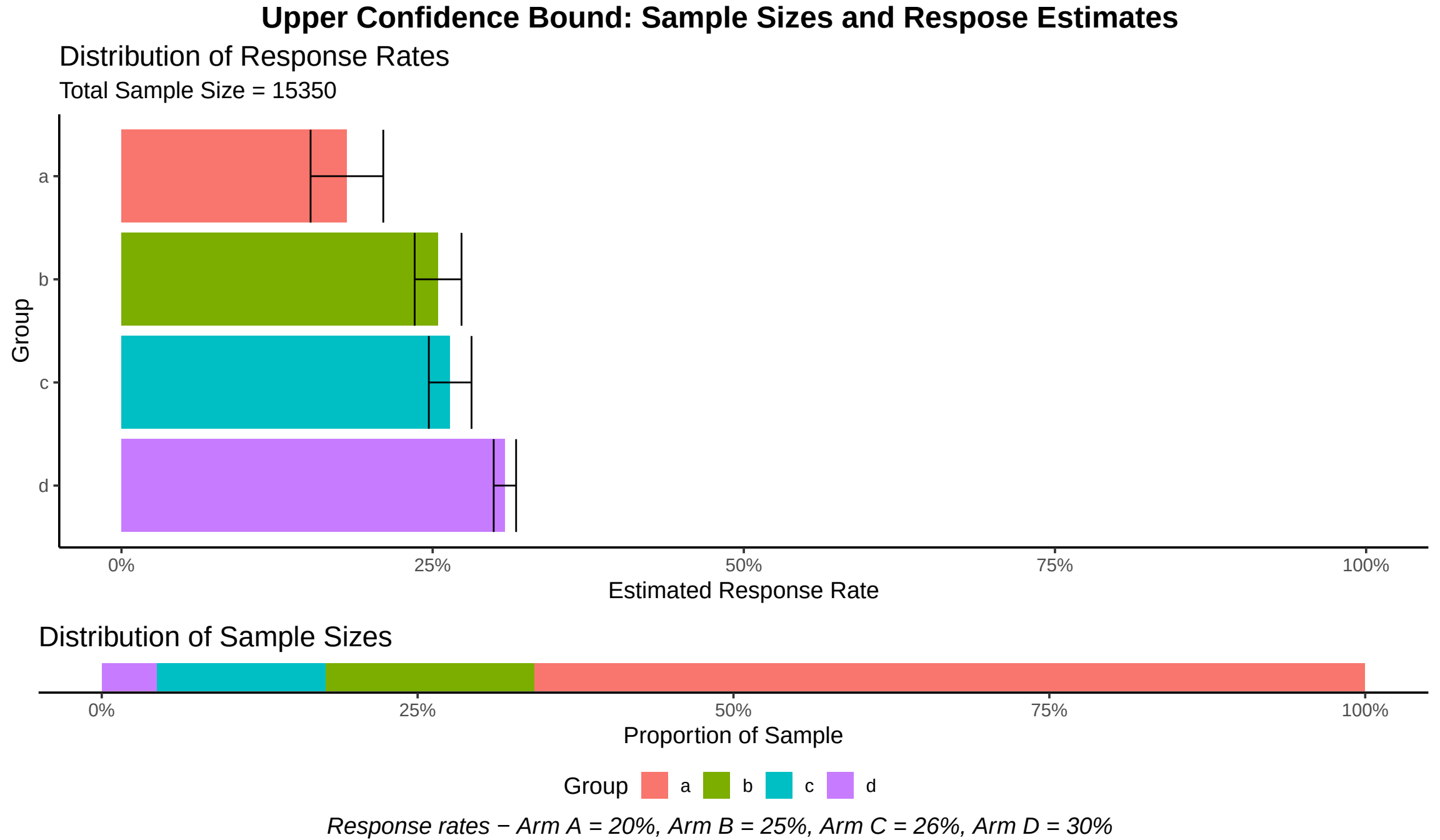


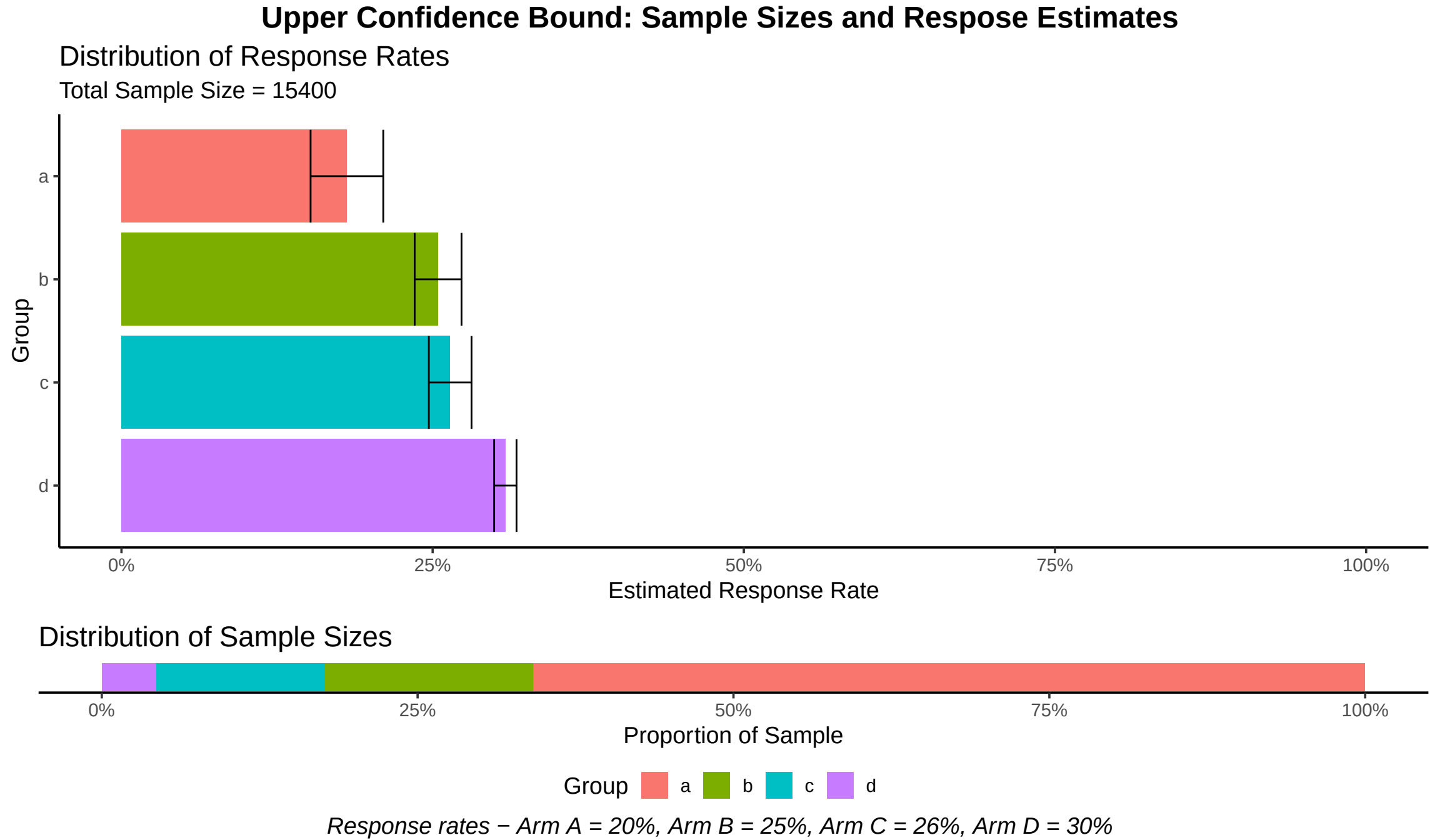
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

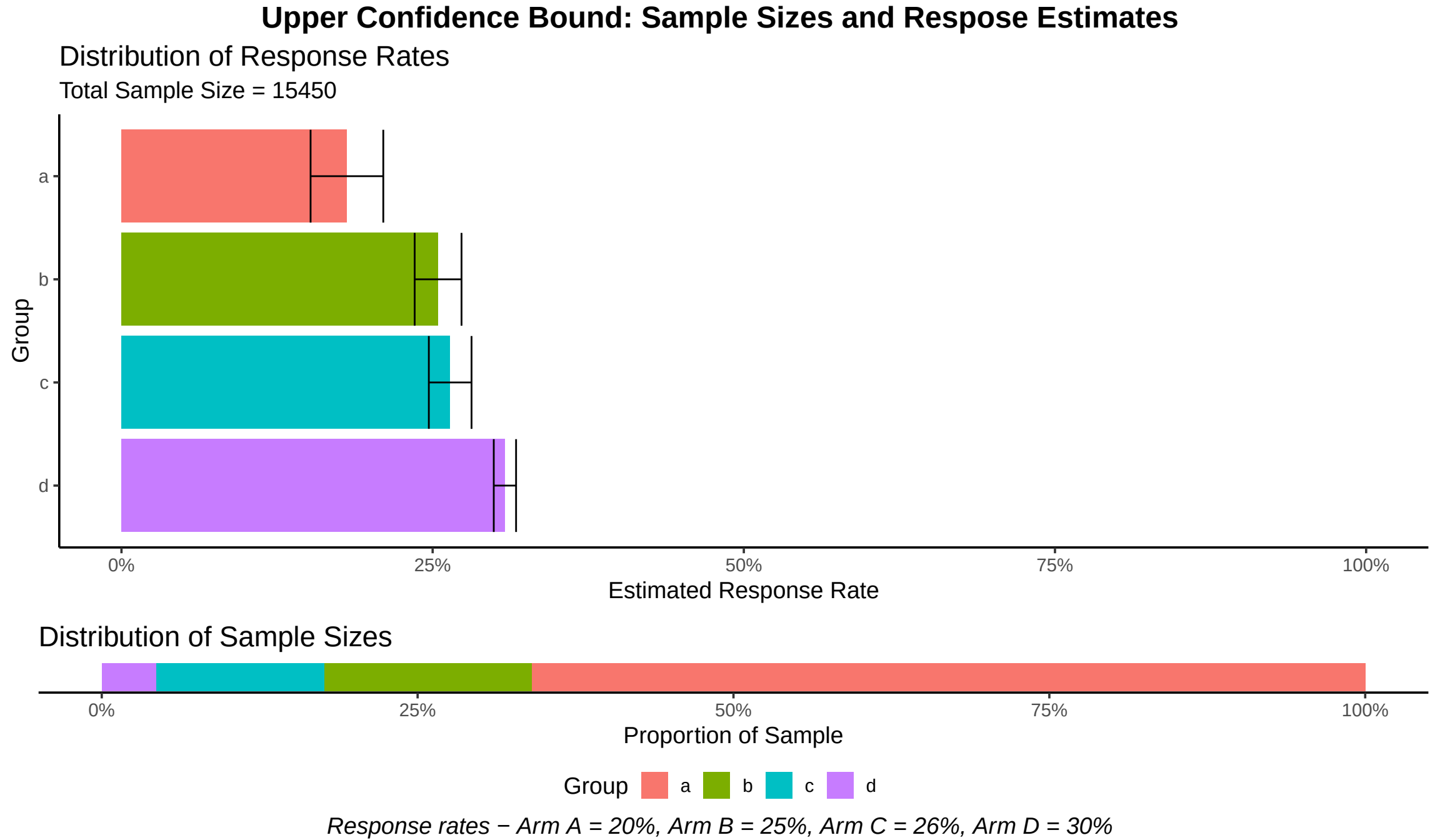

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

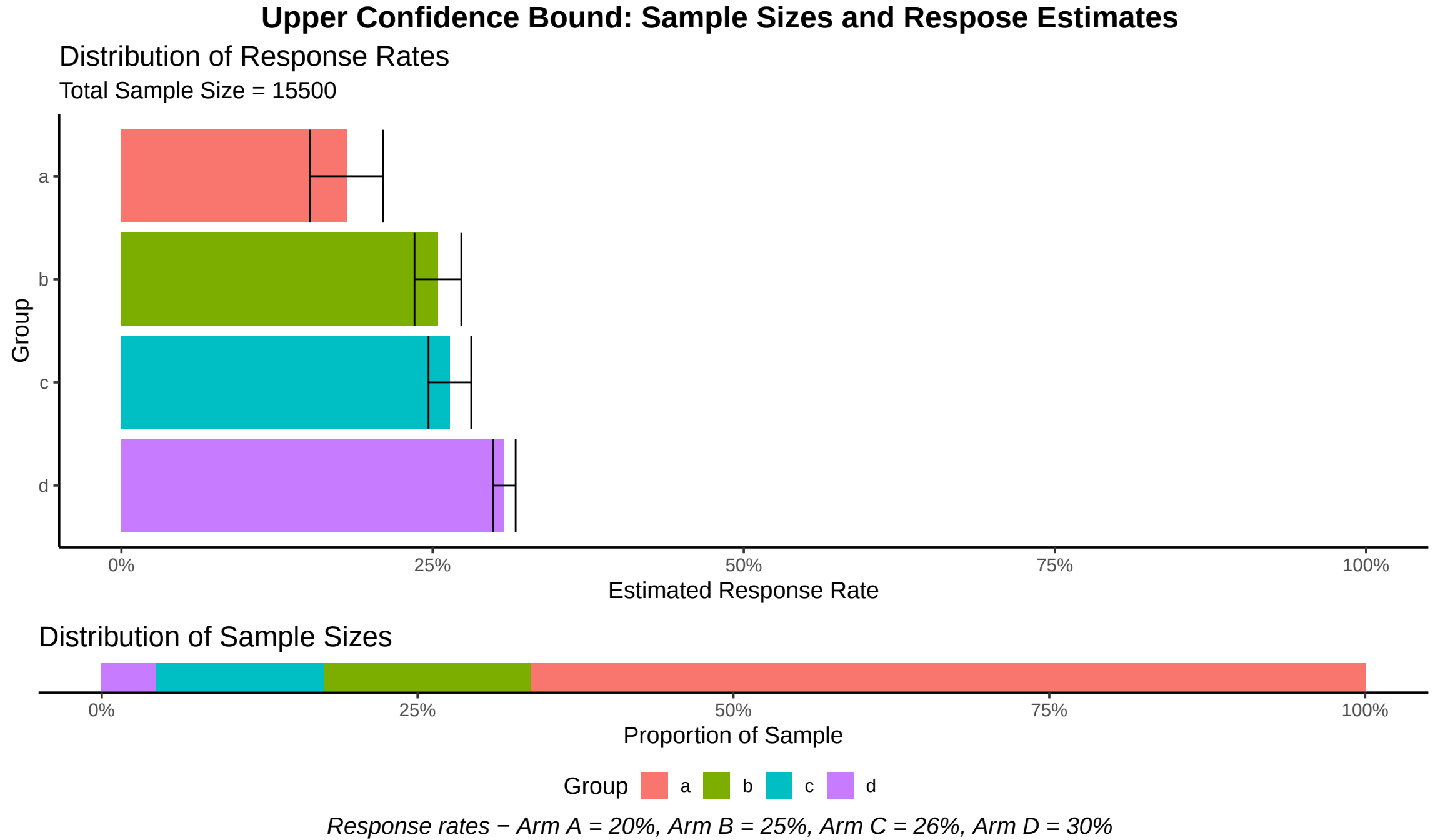

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

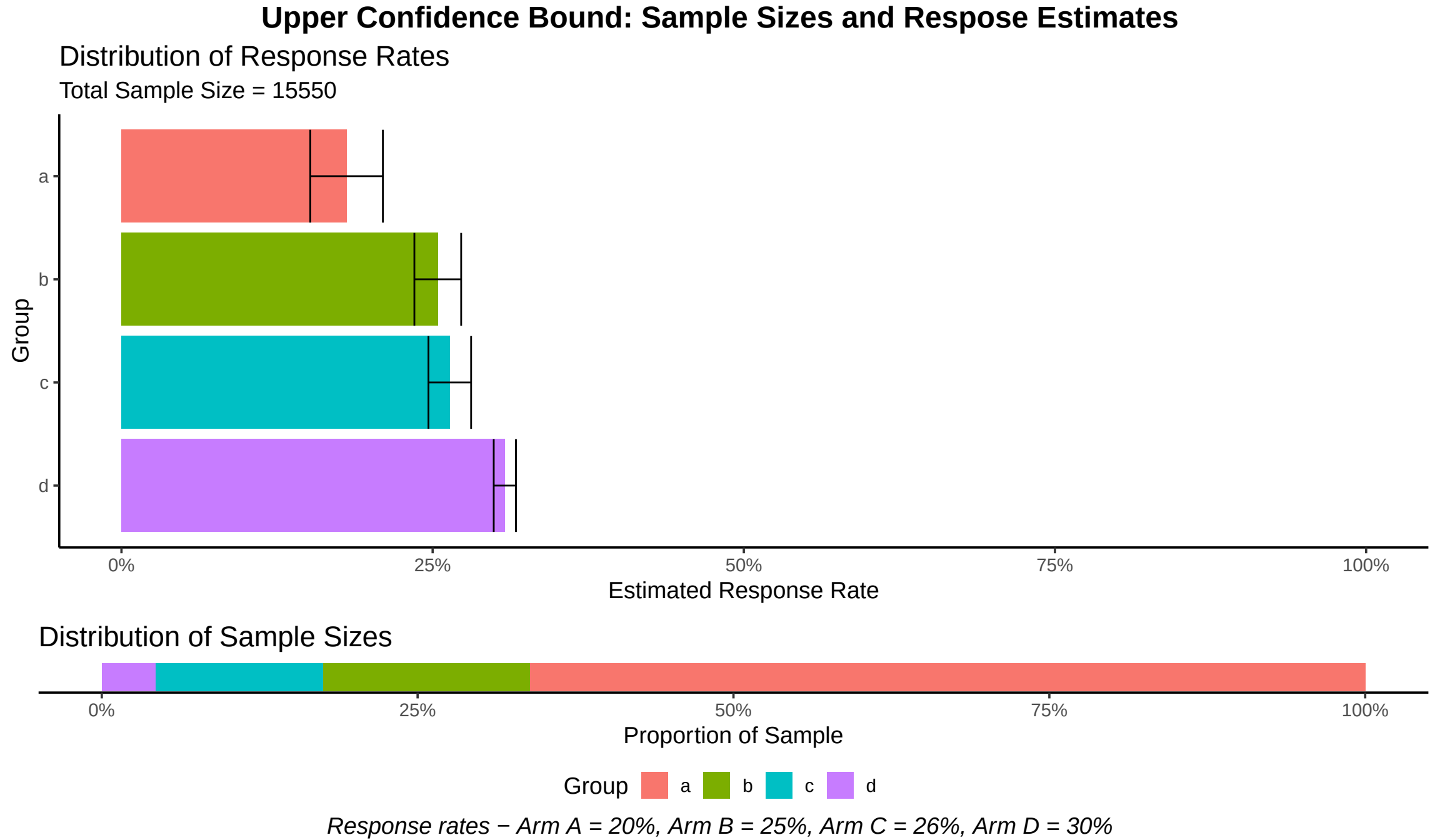

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

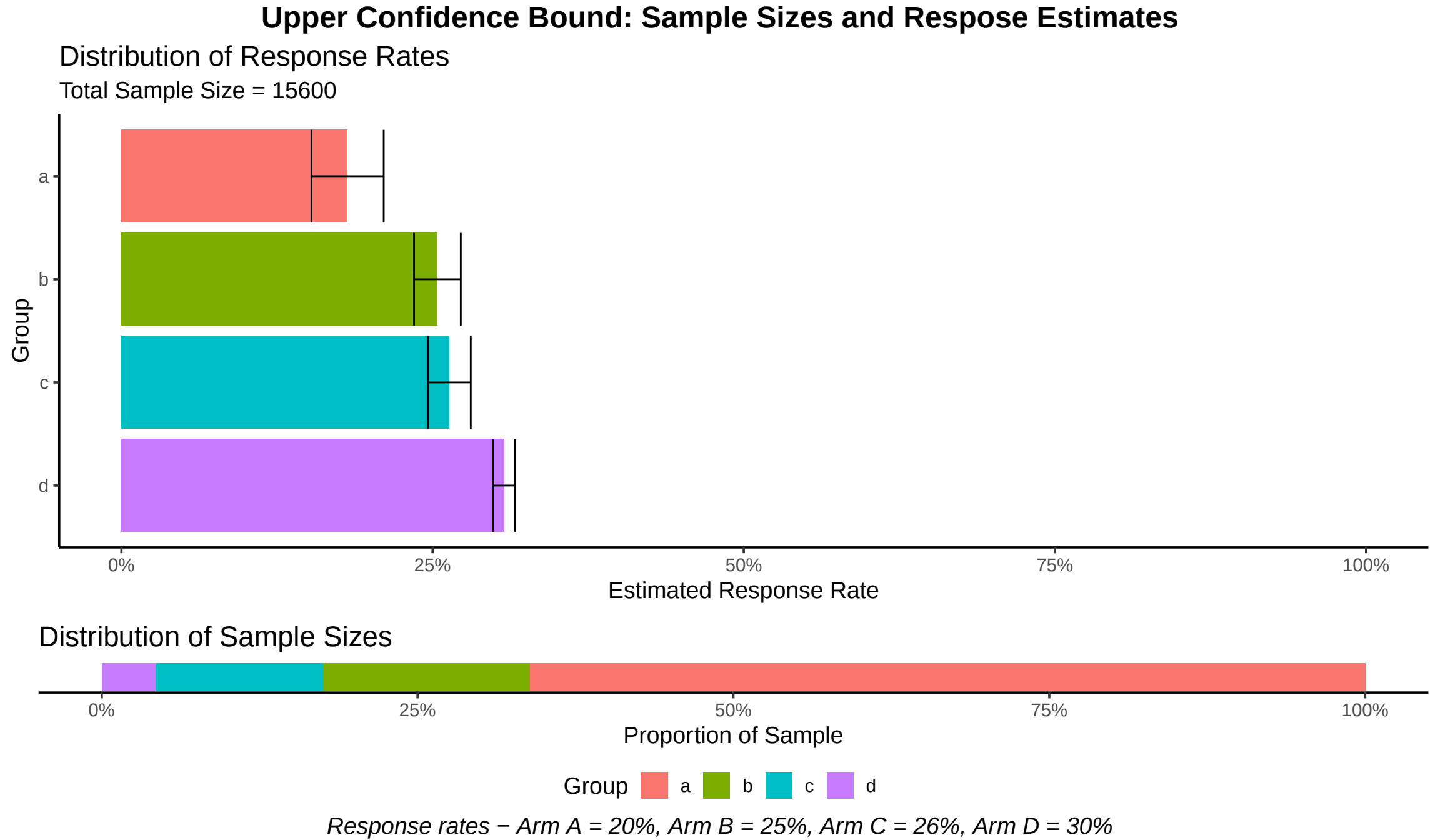

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

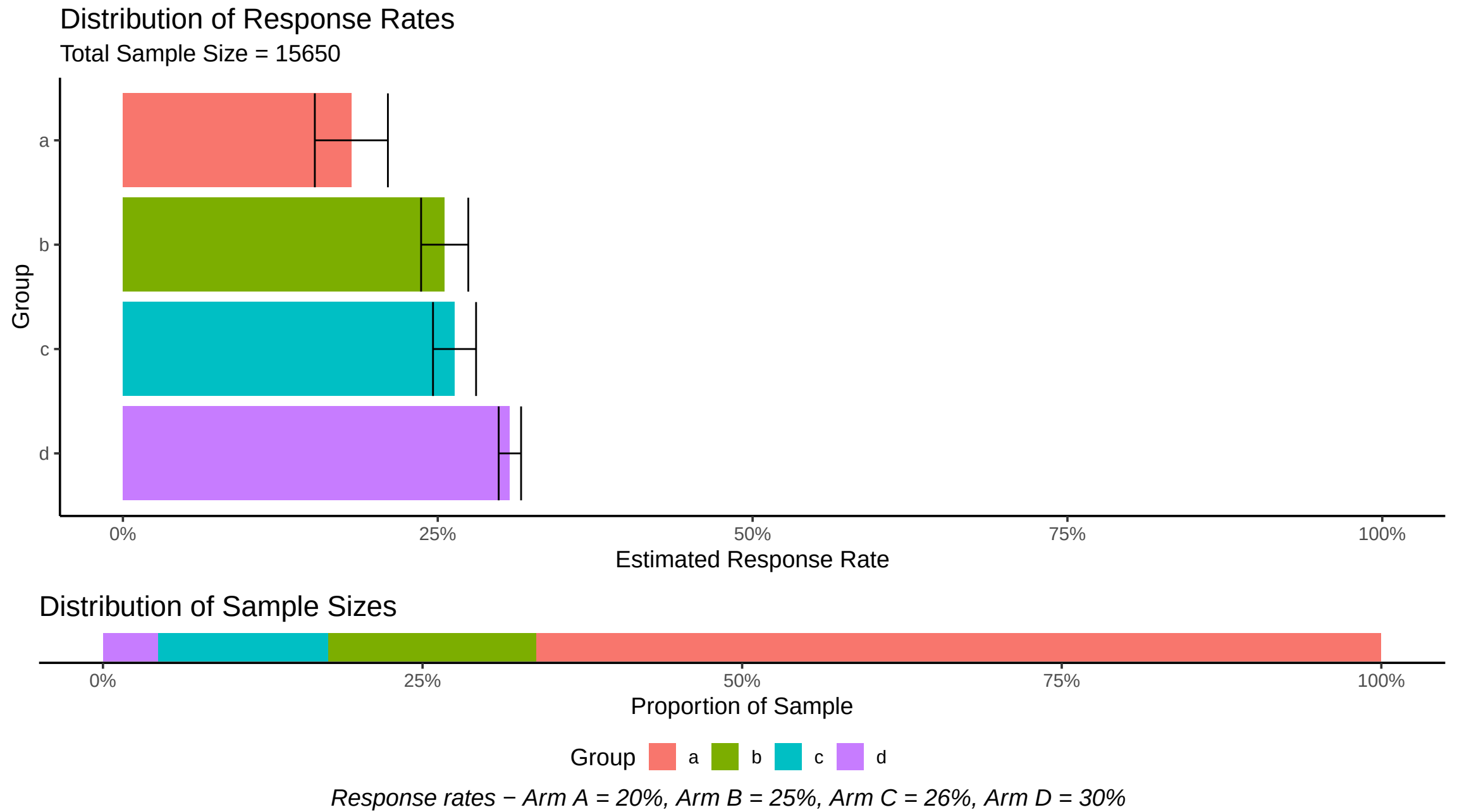

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

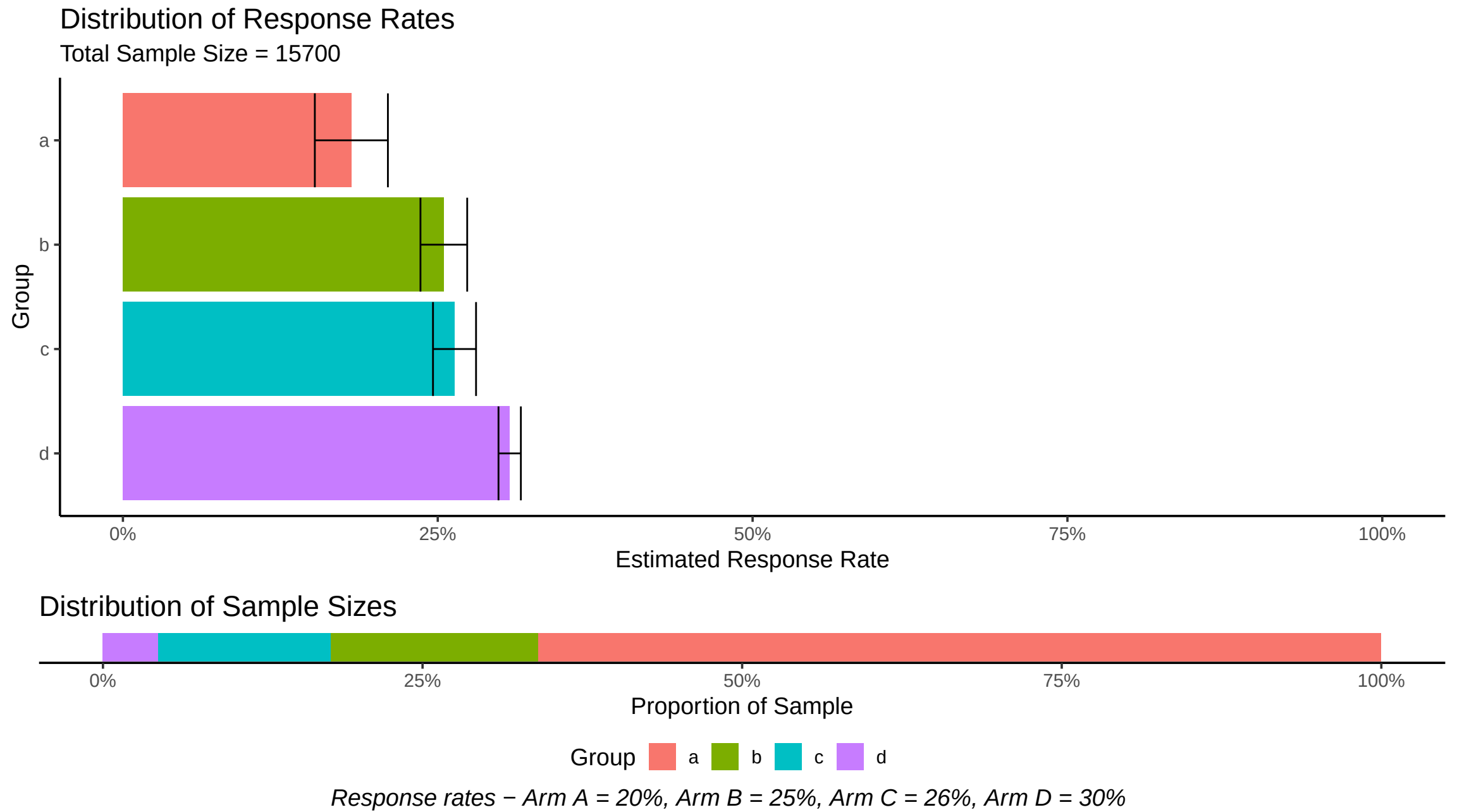

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates



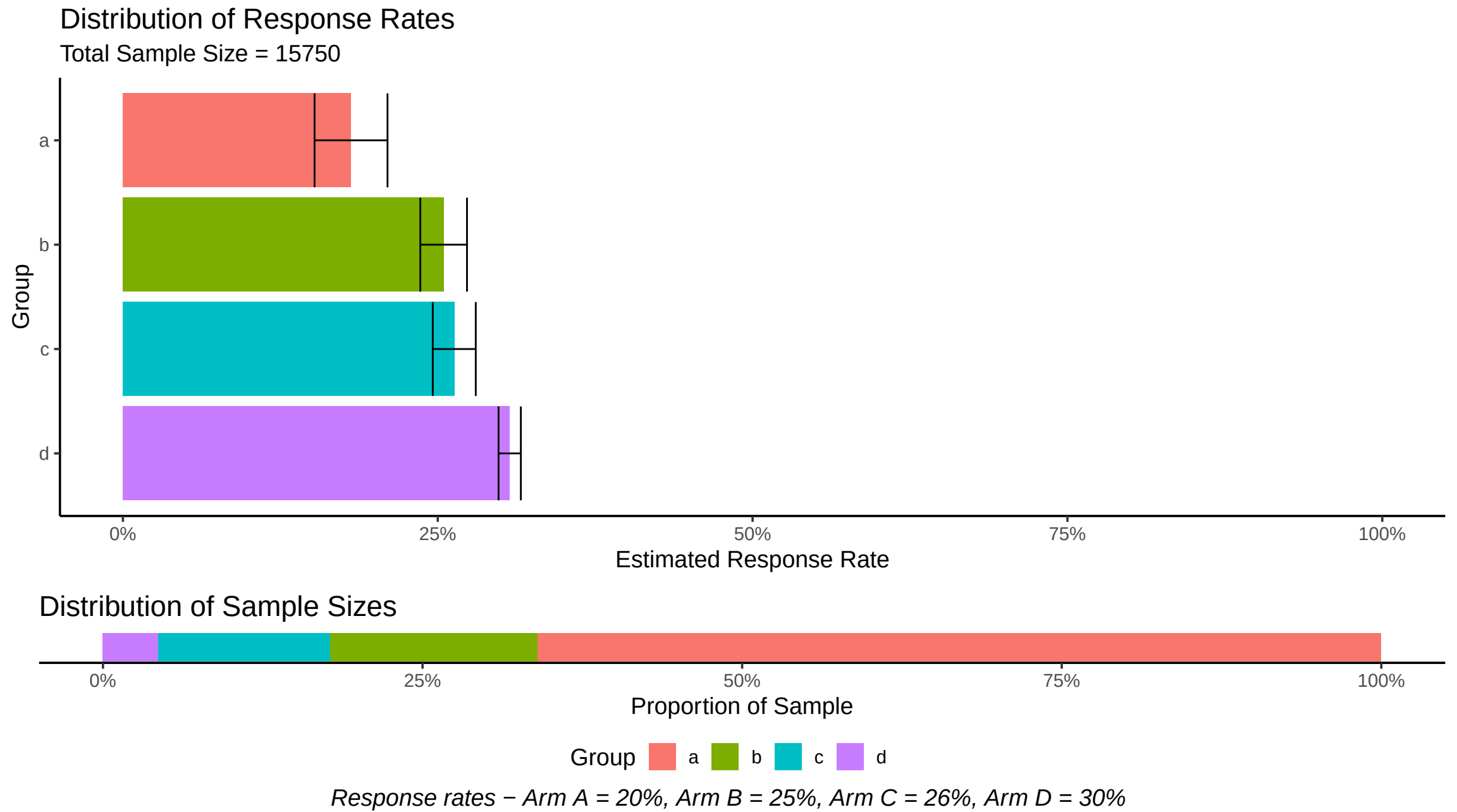
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

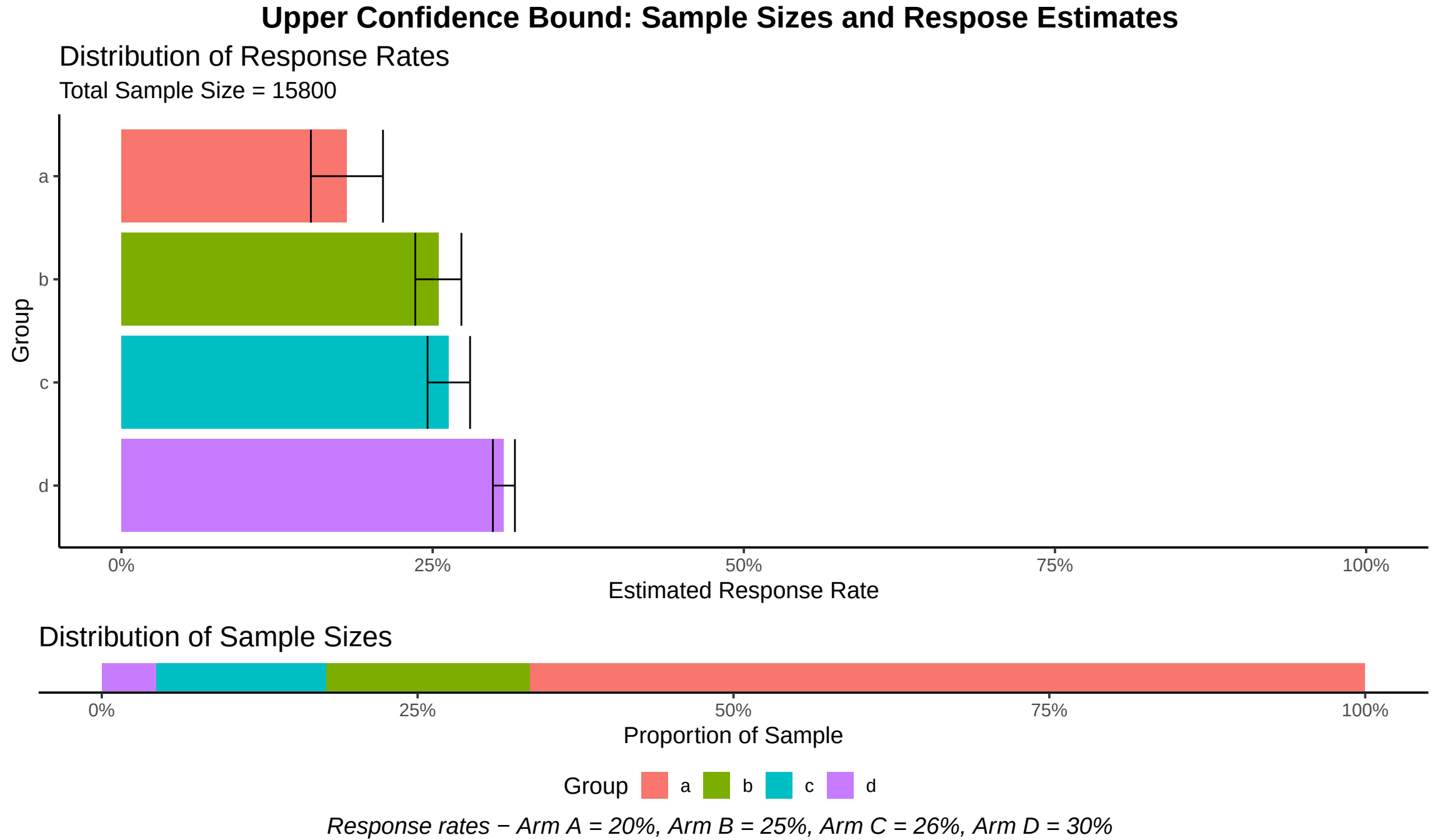
Upper Confidence Bound: Sample Sizes and Respose Estimates

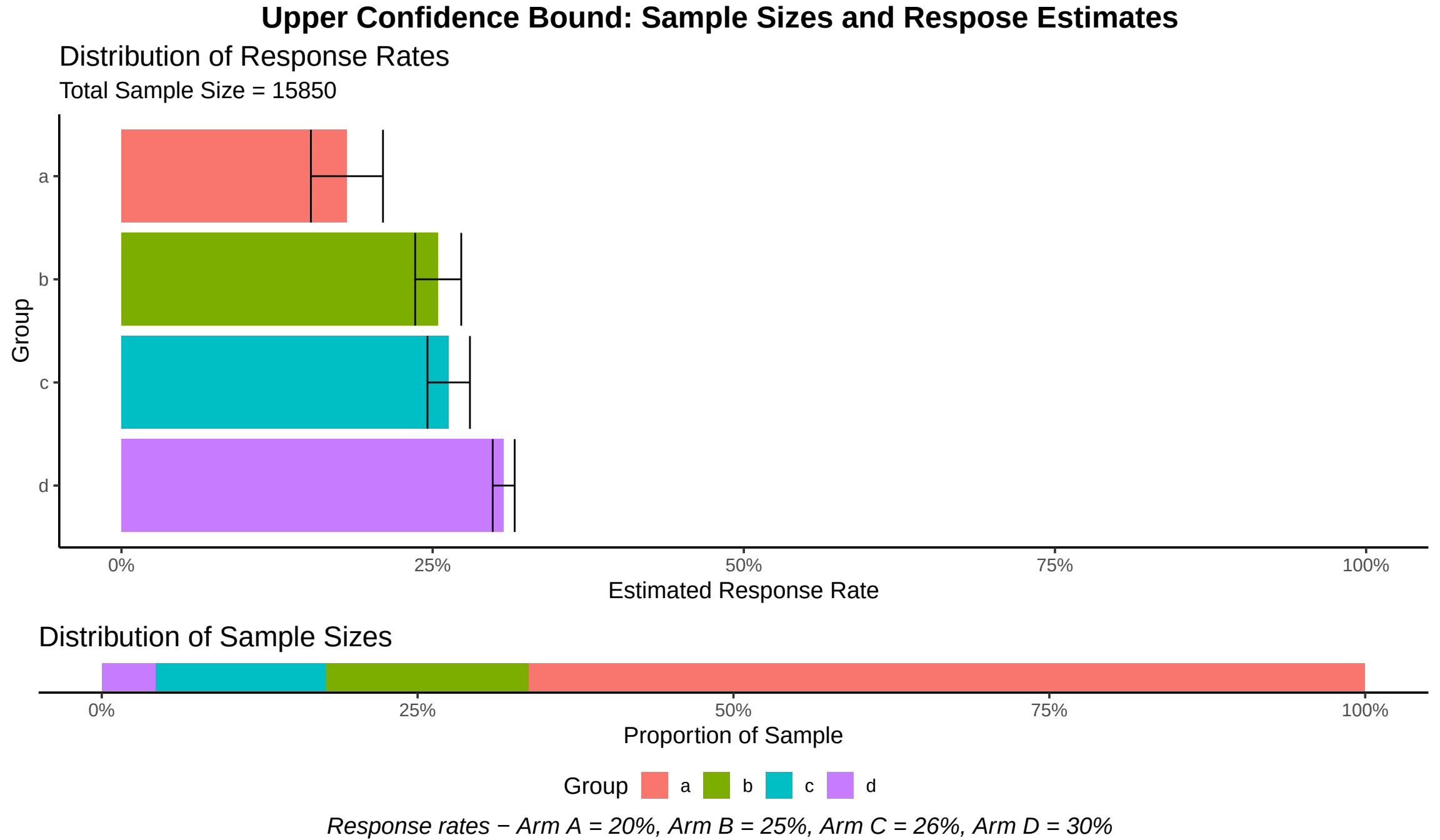


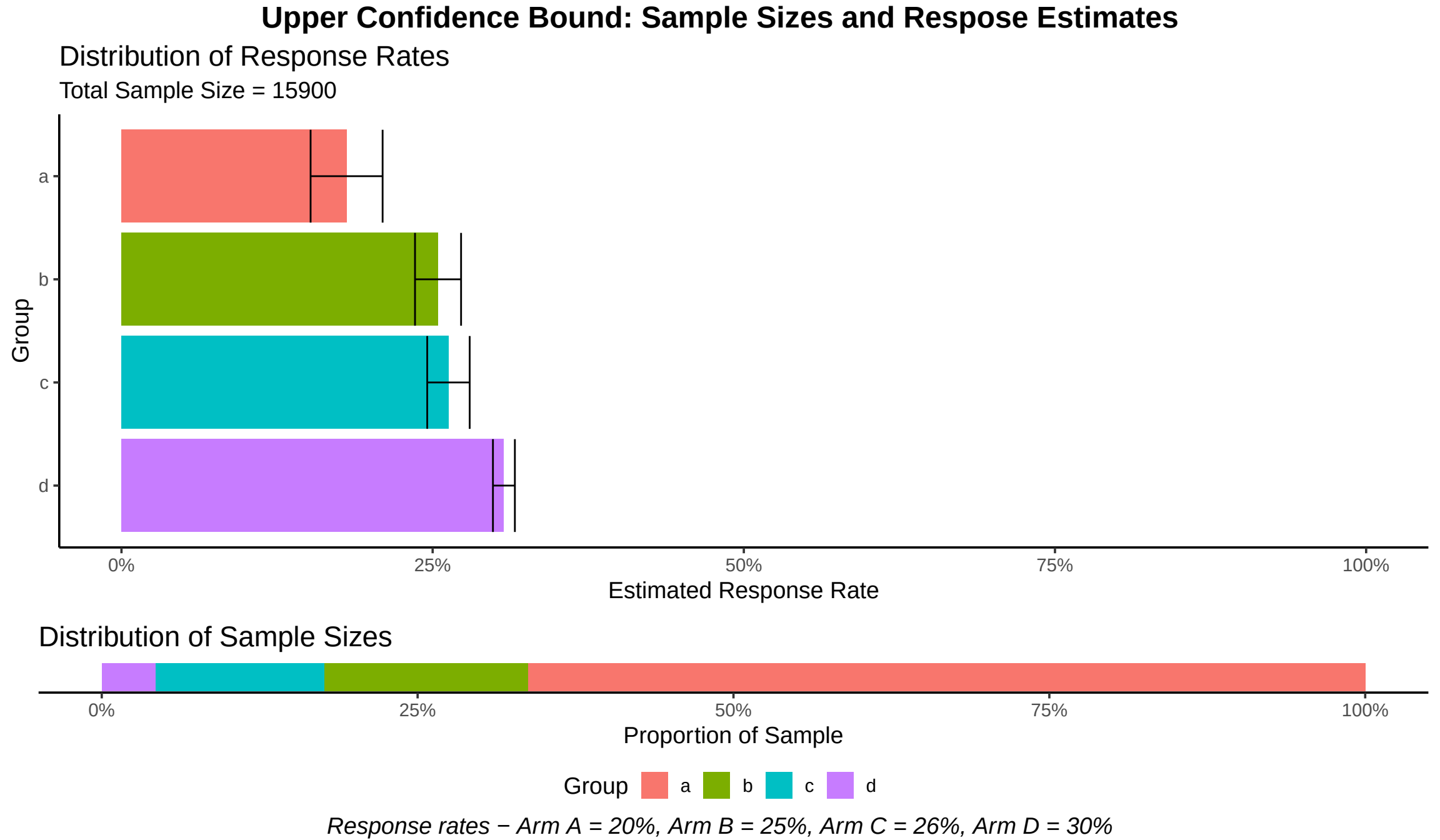
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

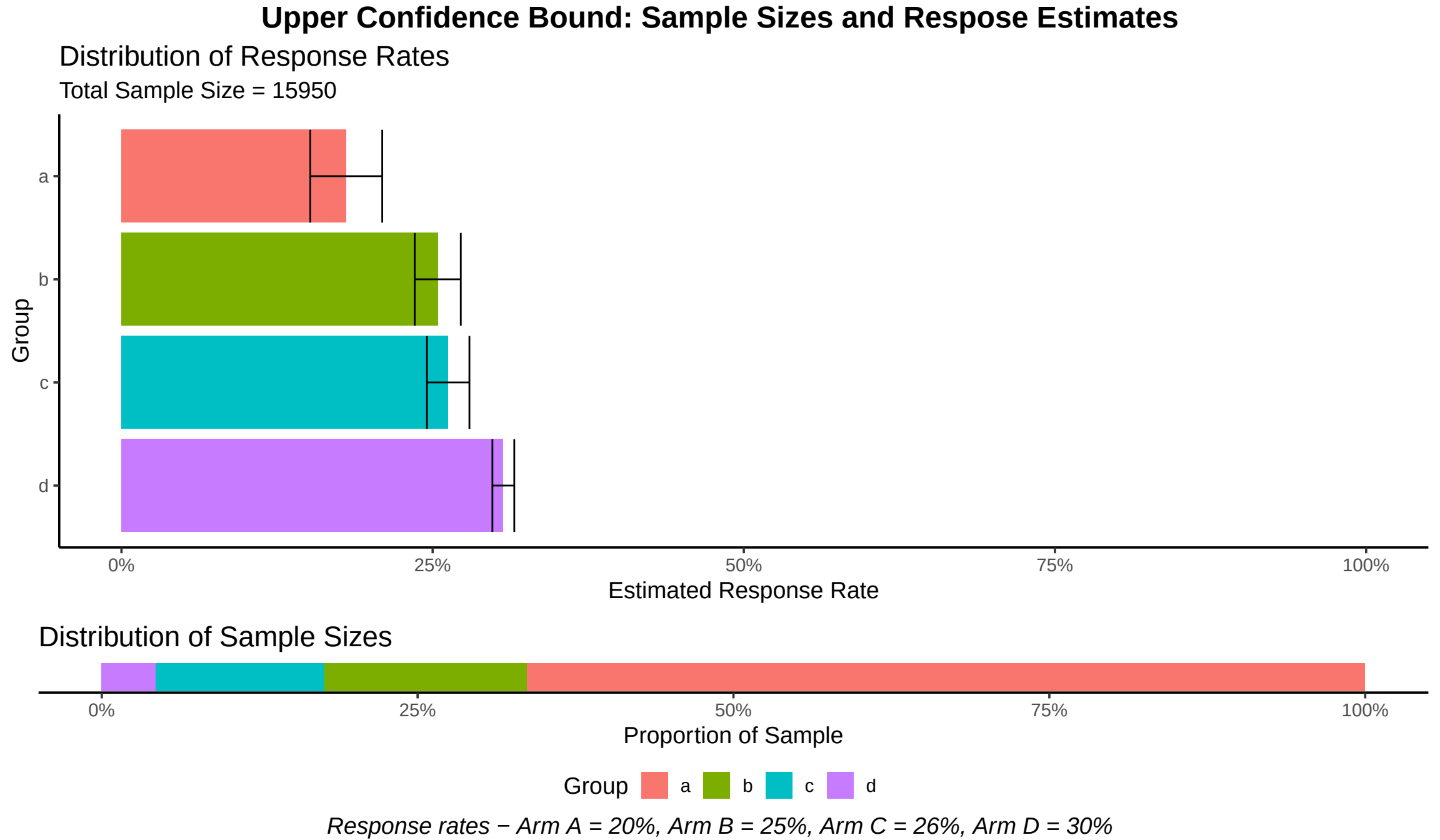
Upper Confidence Bound: Sample Sizes and Respose Estimates

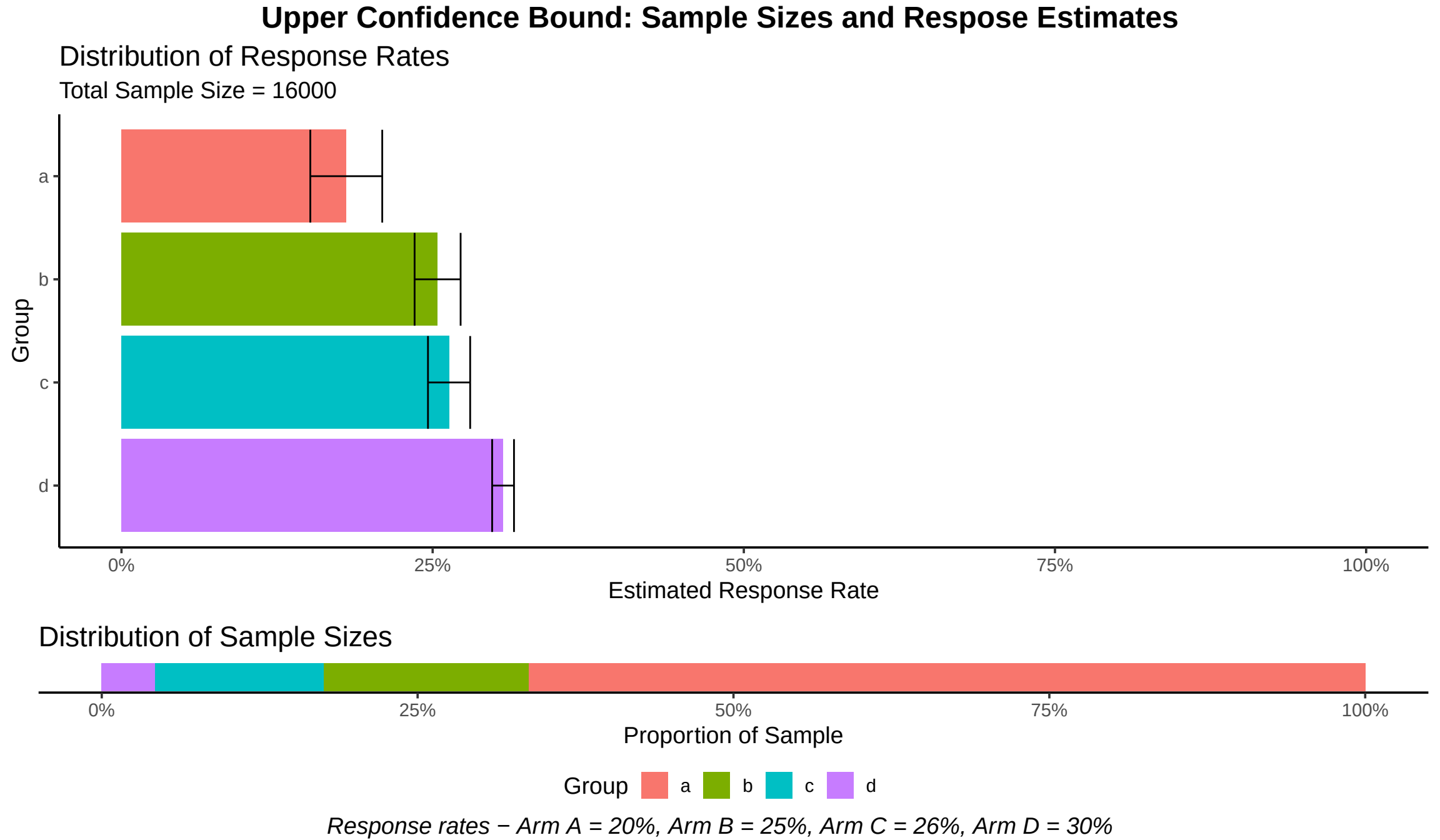


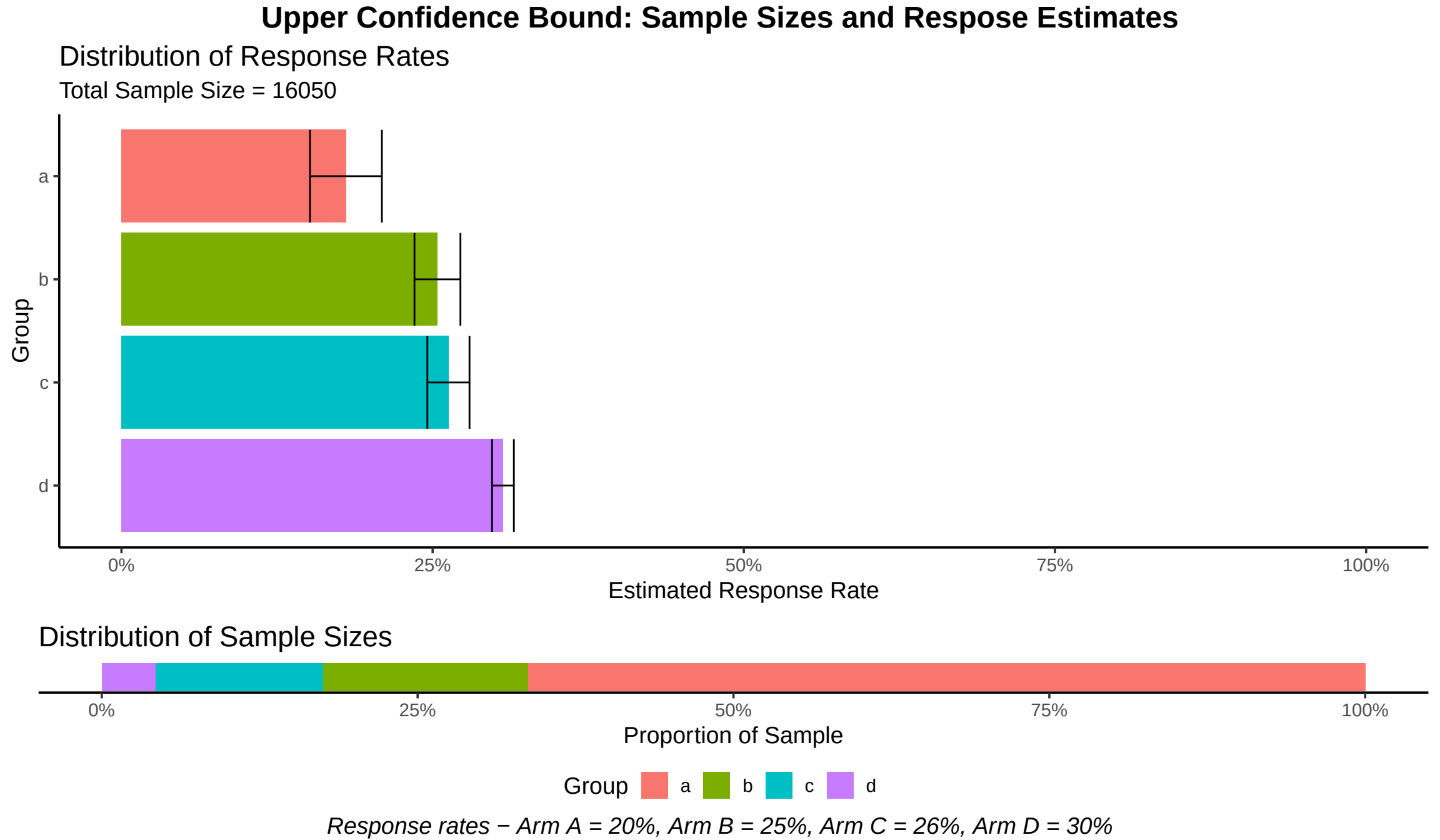

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

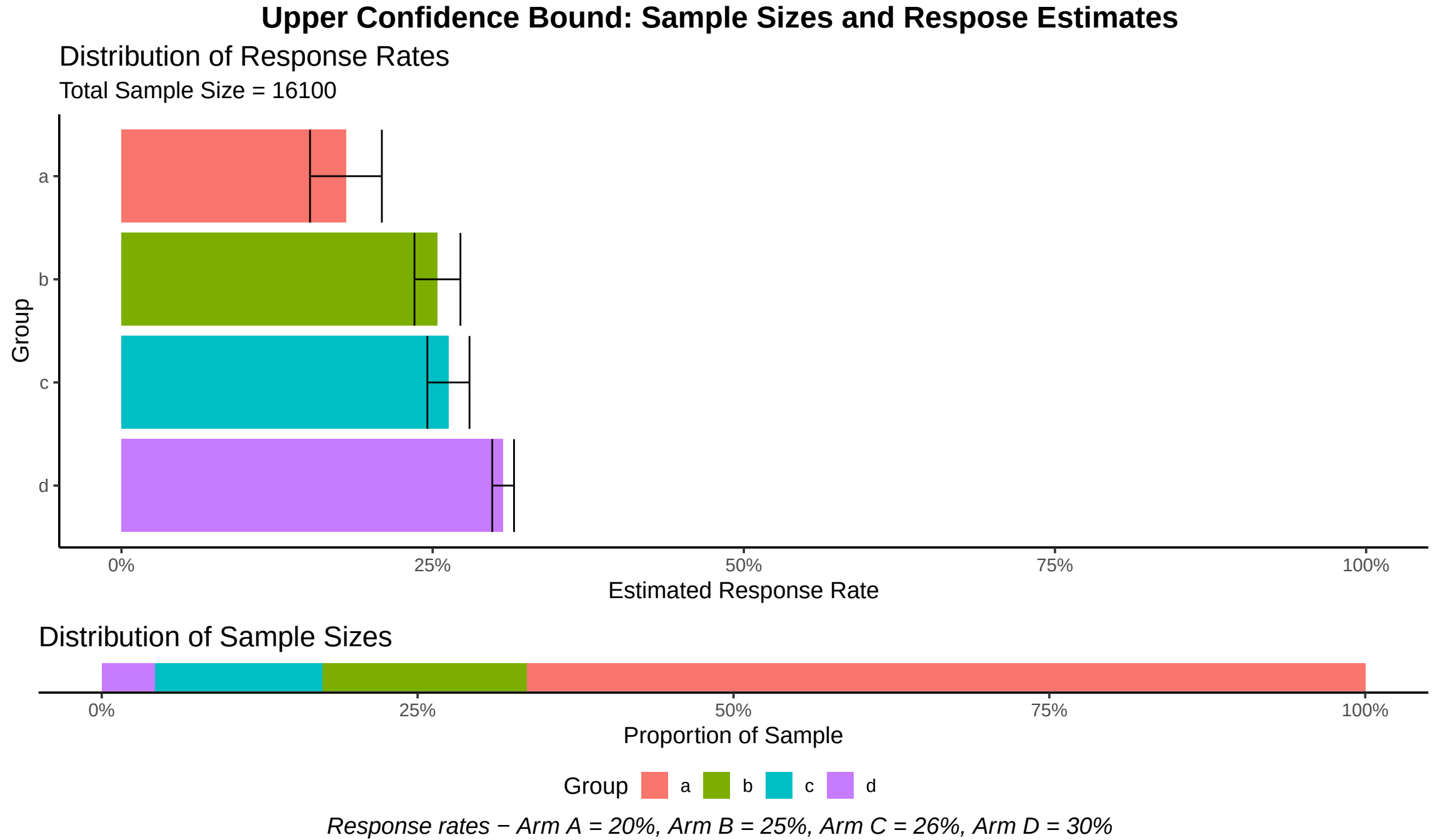

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

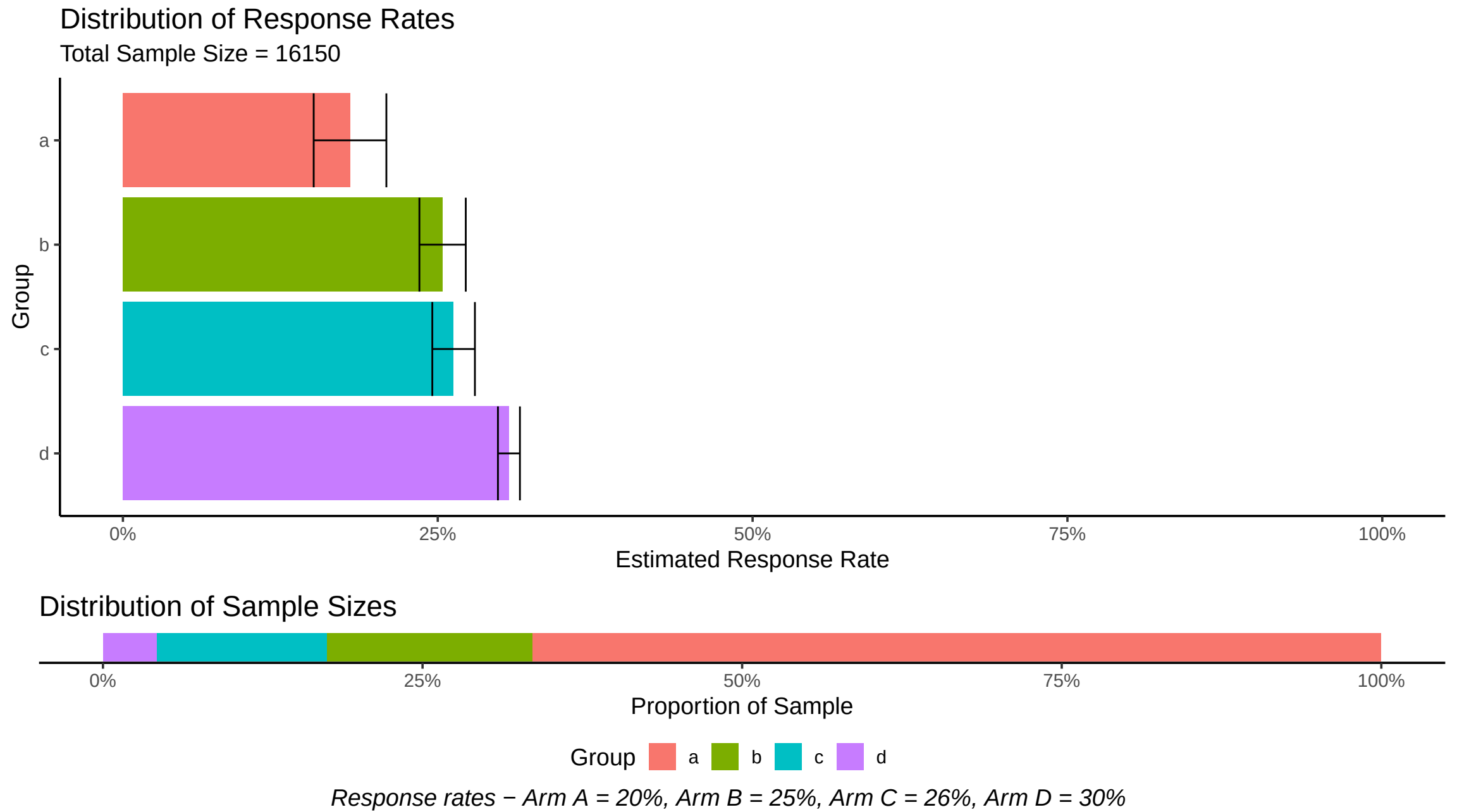

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 15950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

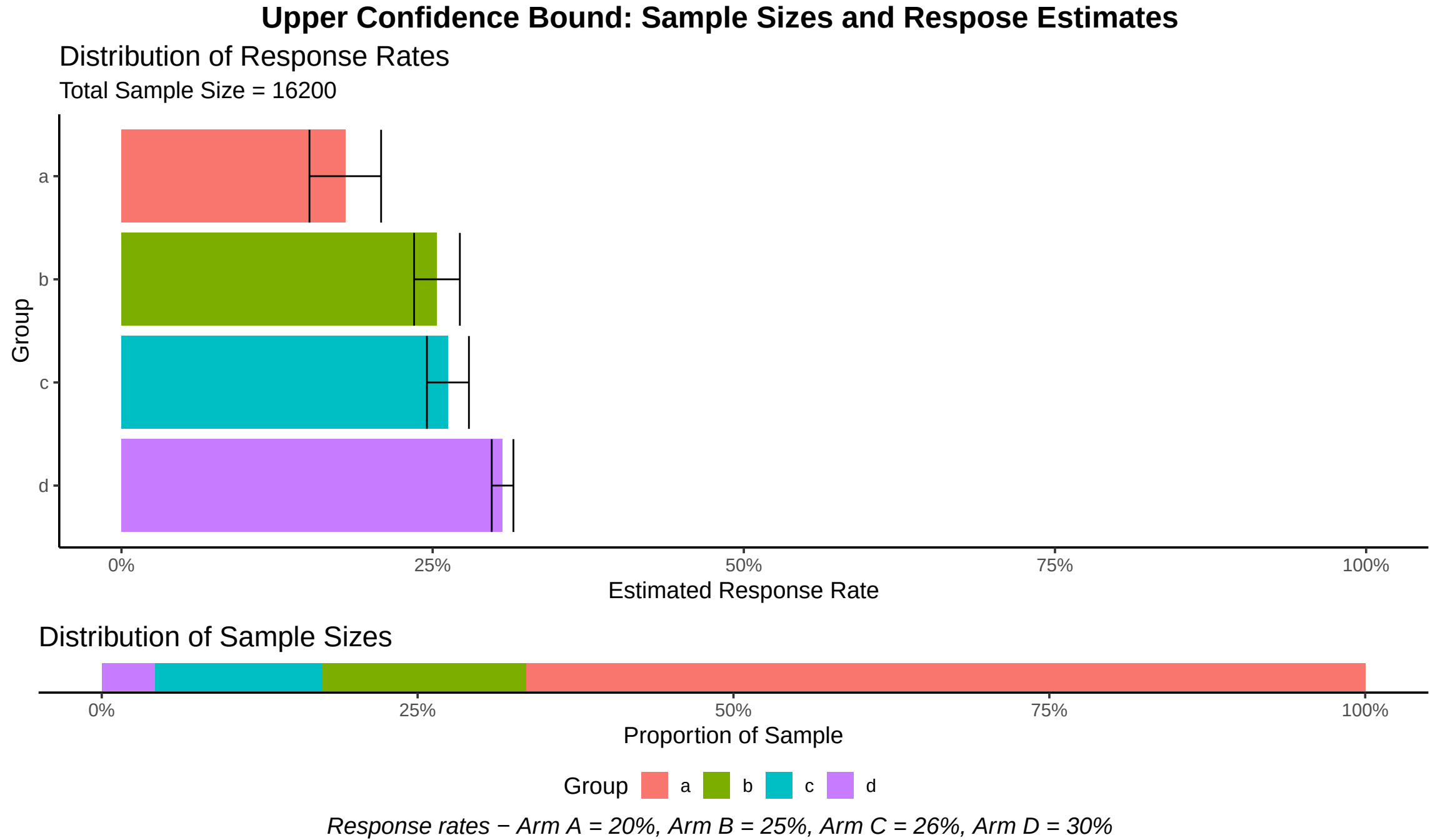

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

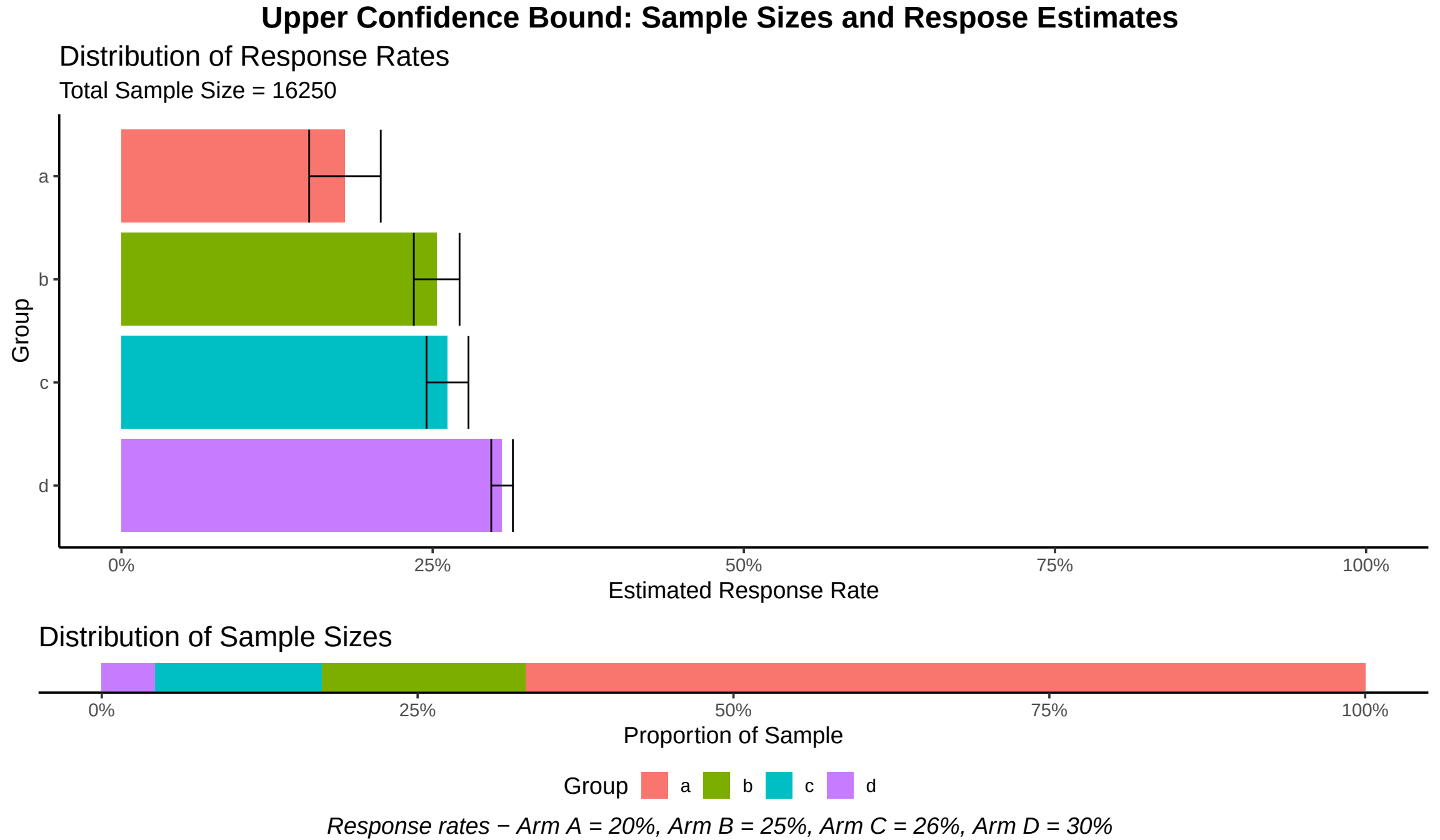

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

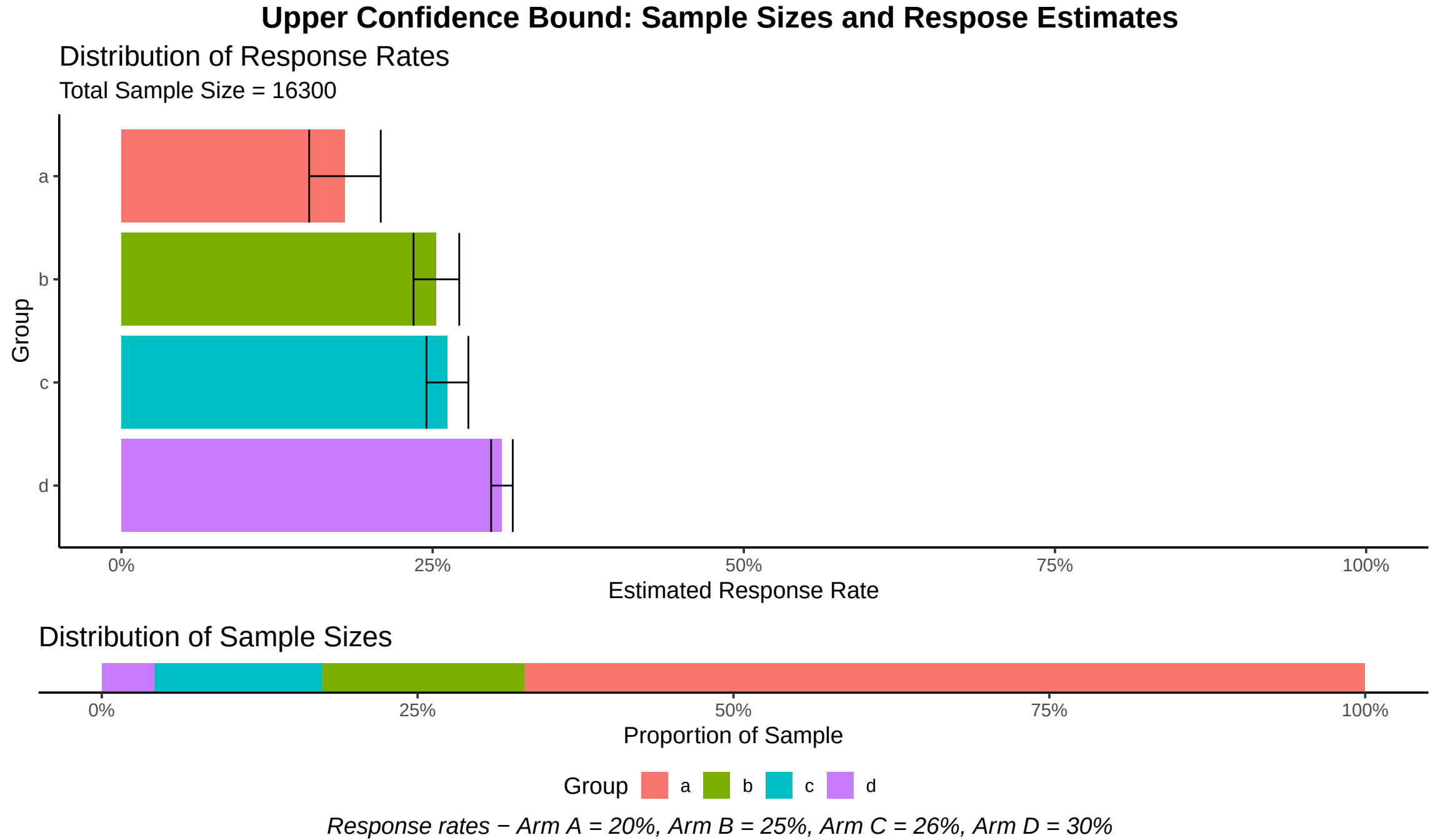
Upper Confidence Bound: Sample Sizes and Respose Estimates

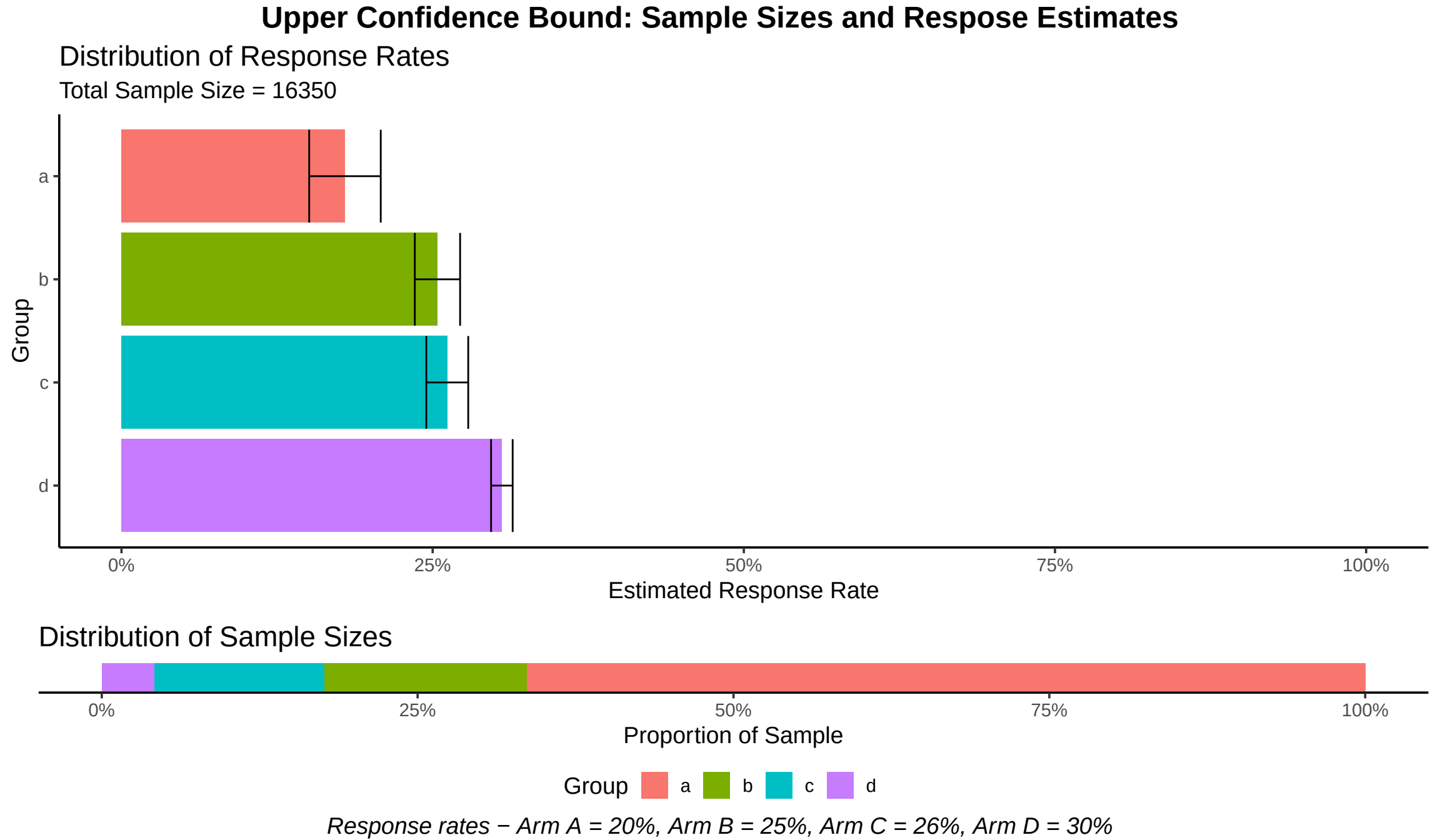


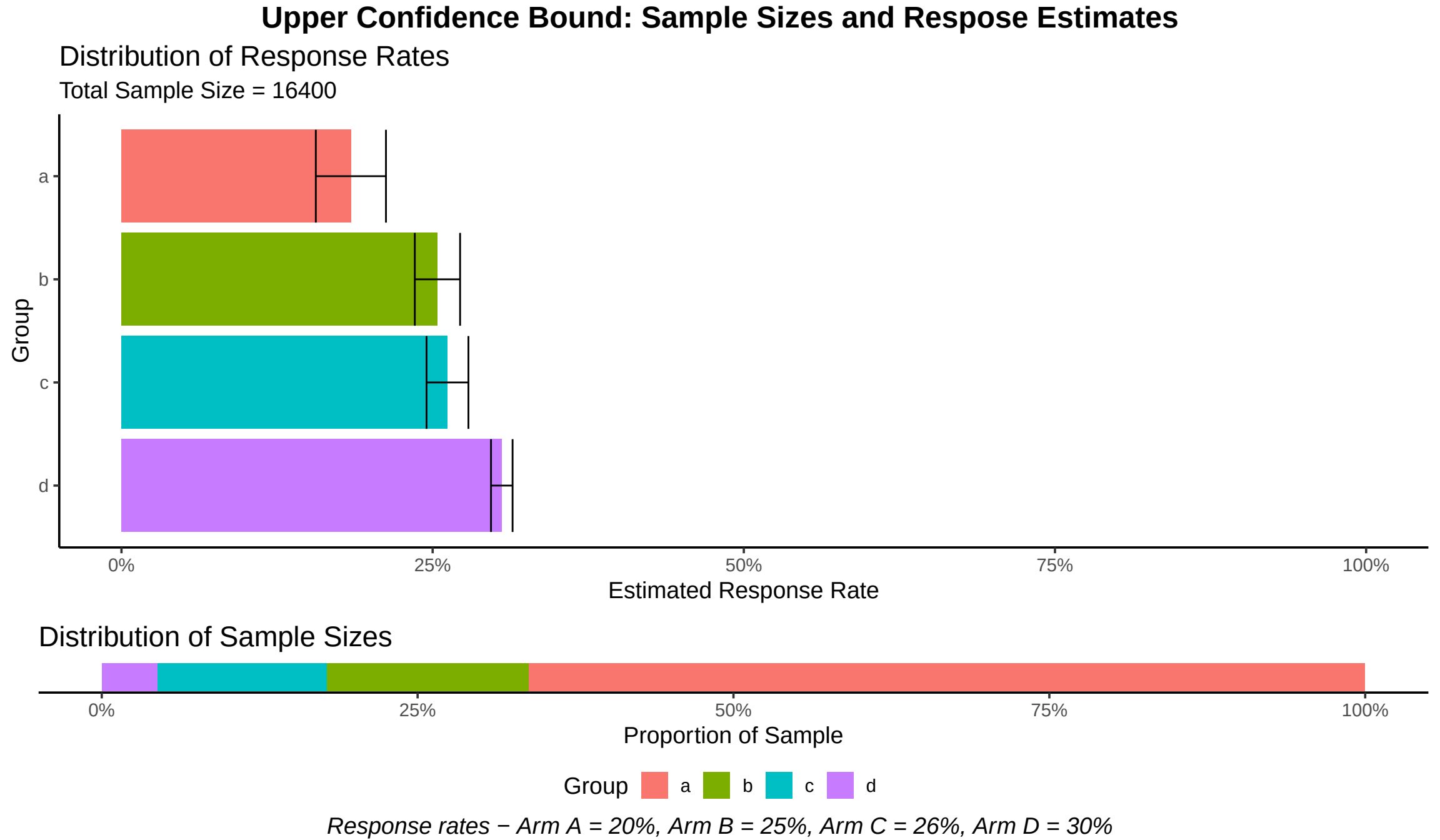
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

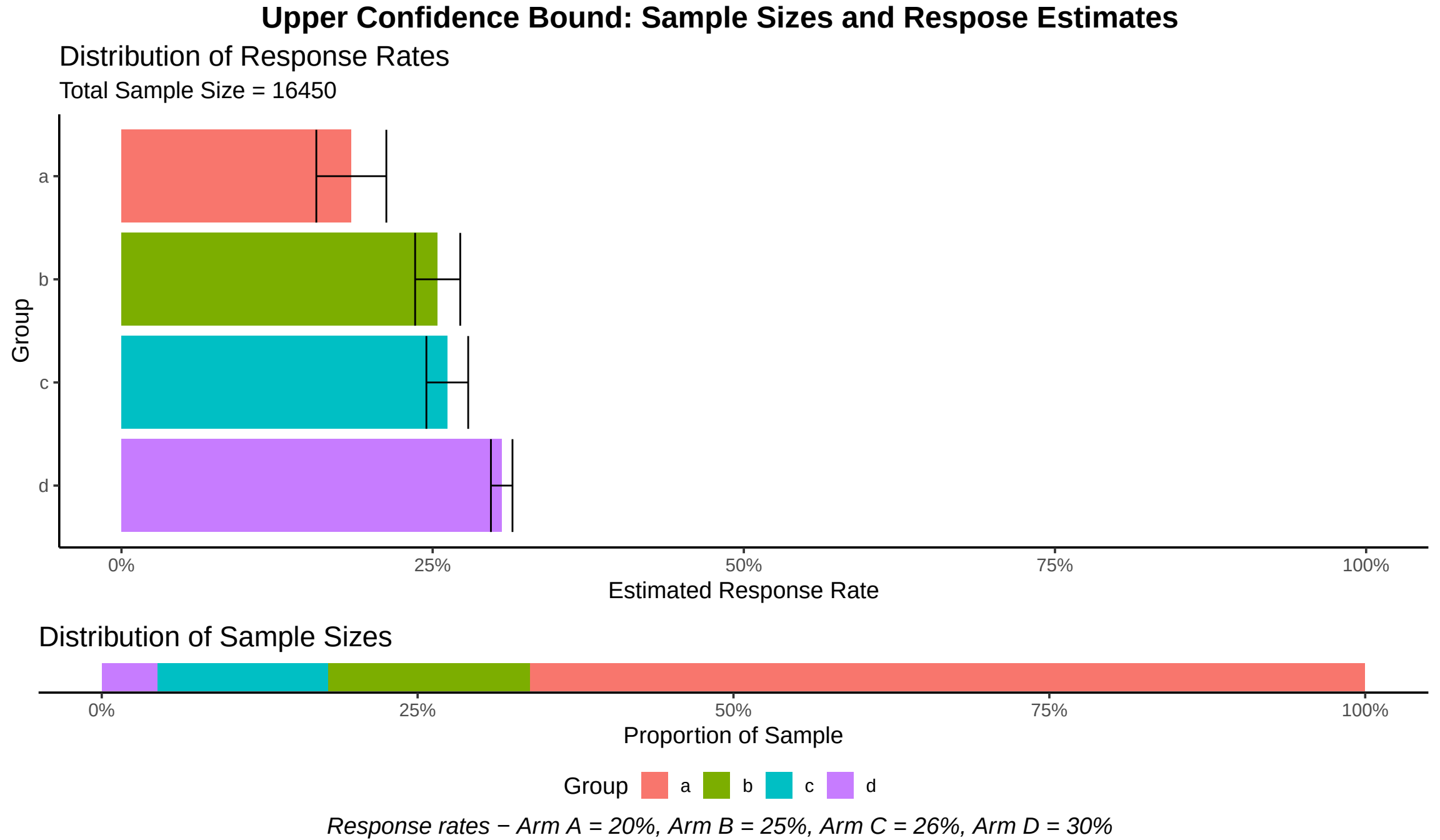

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

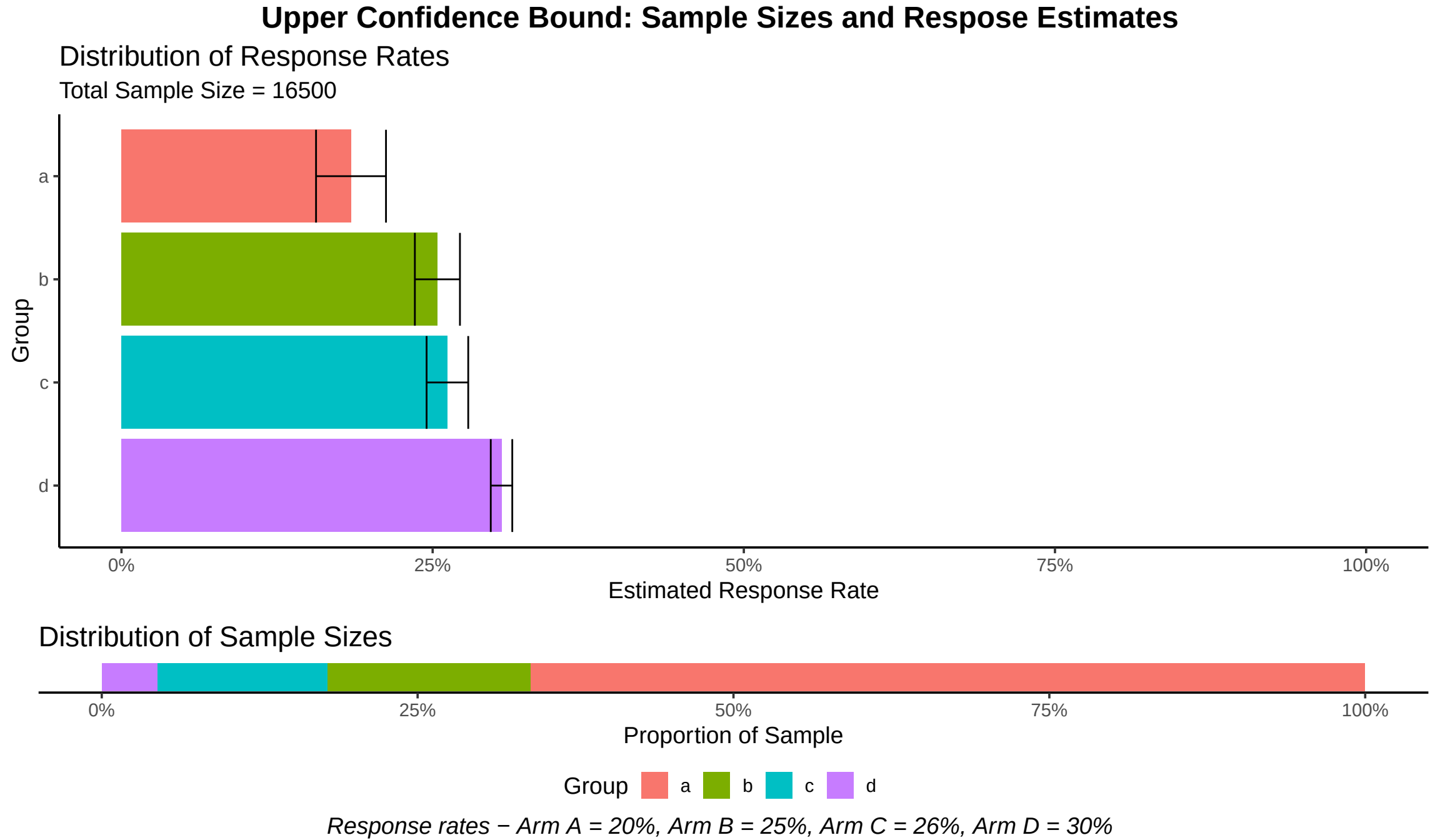

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

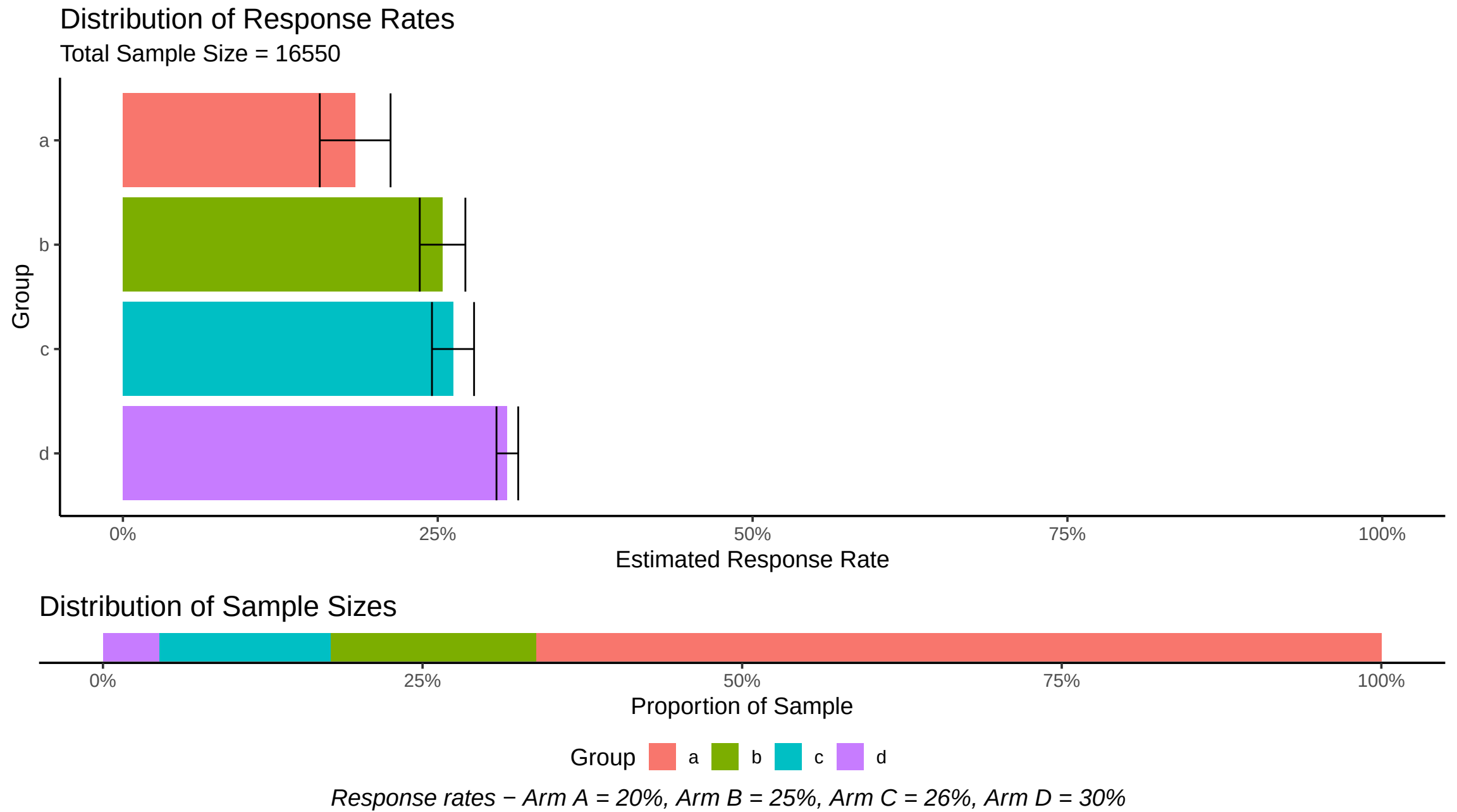

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

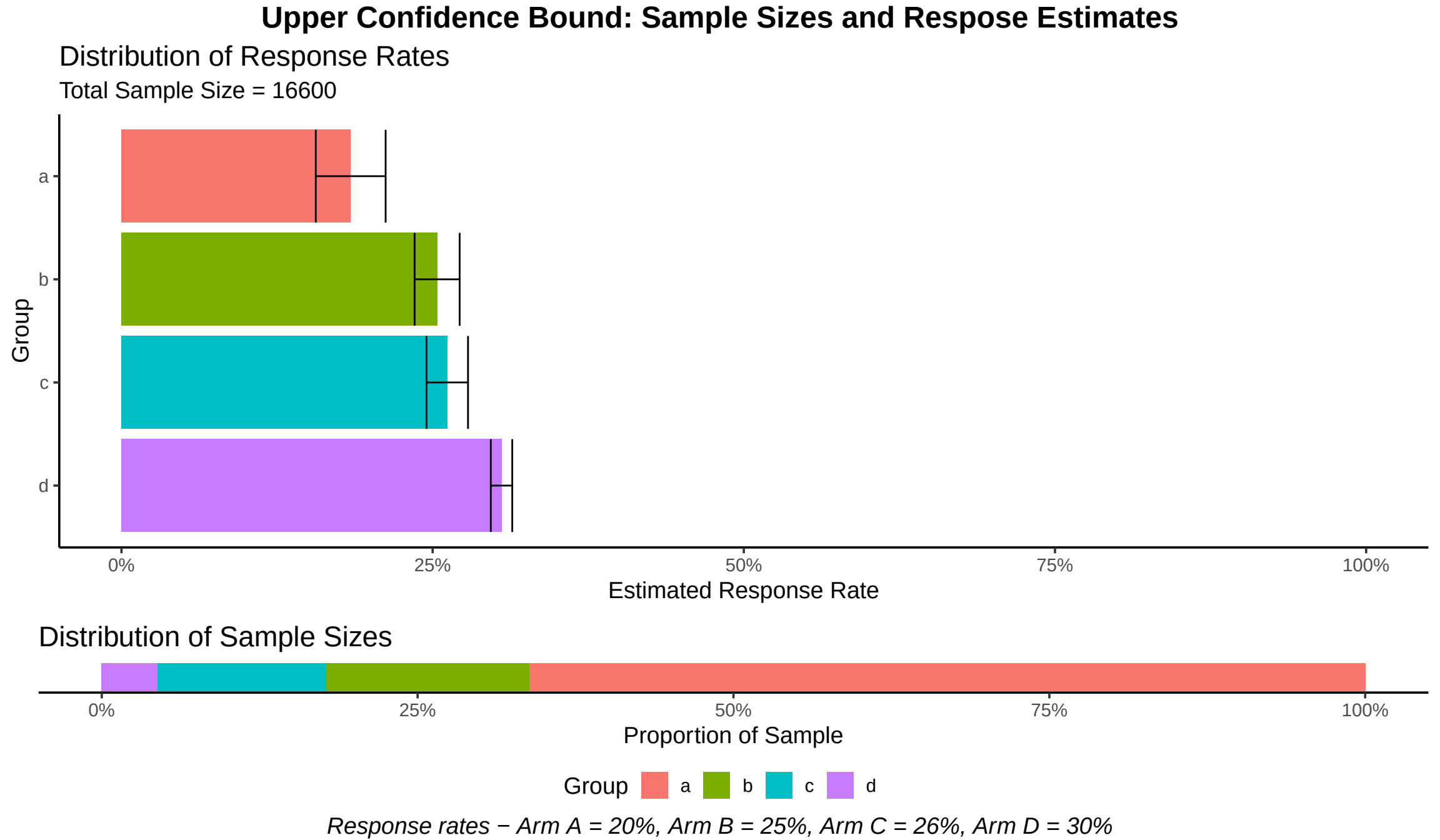

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

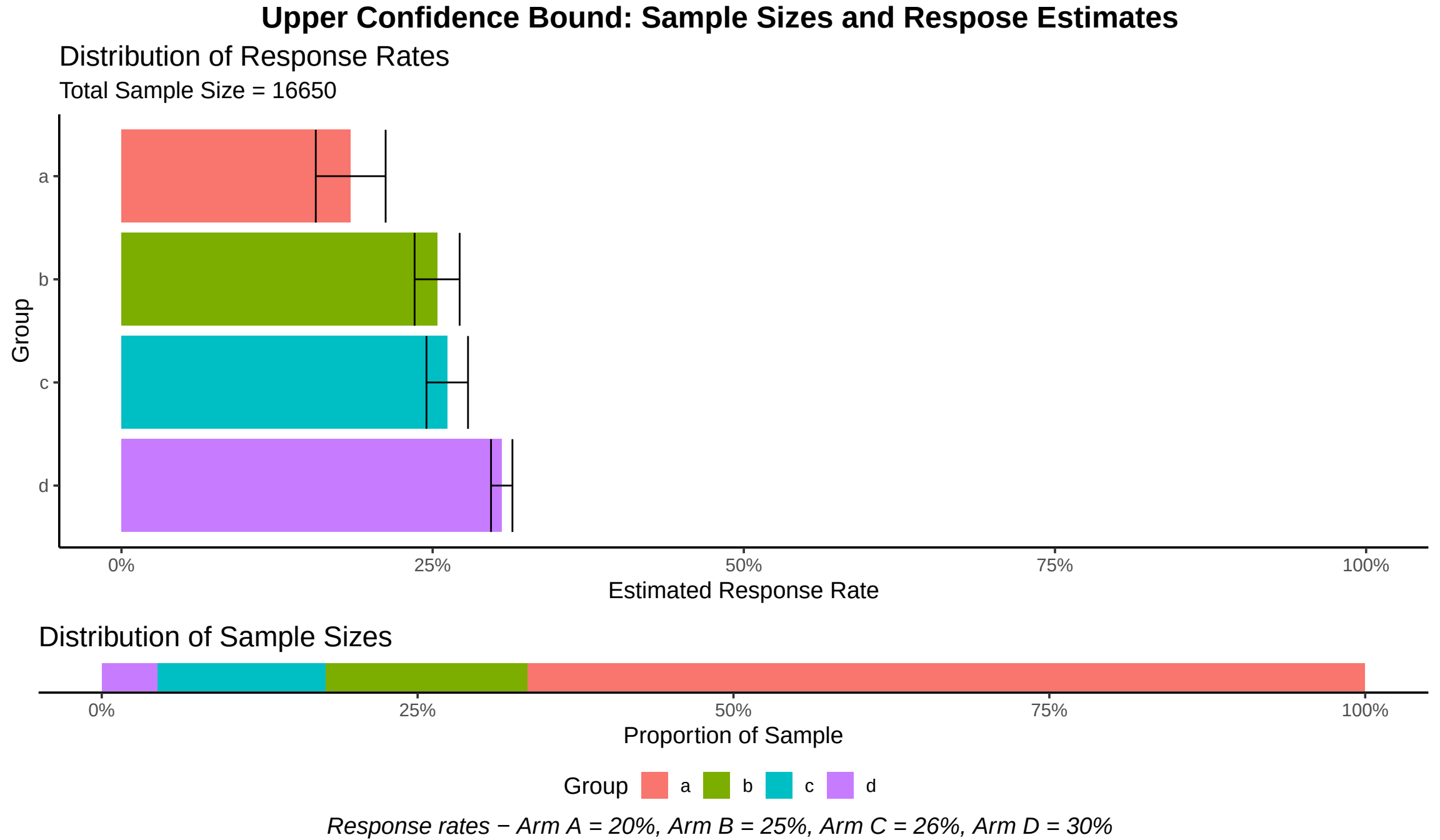

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

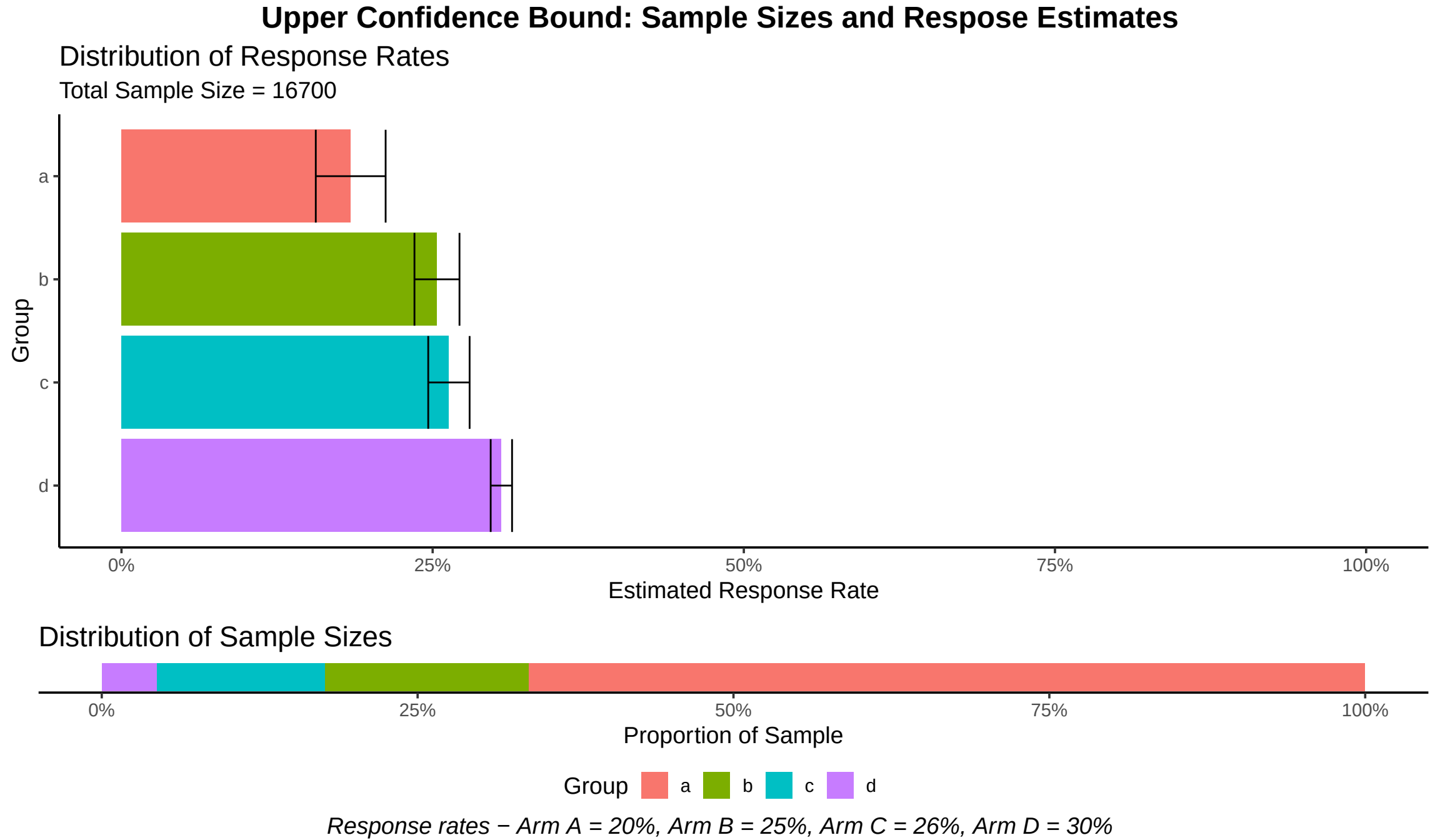
Upper Confidence Bound: Sample Sizes and Respose Estimates

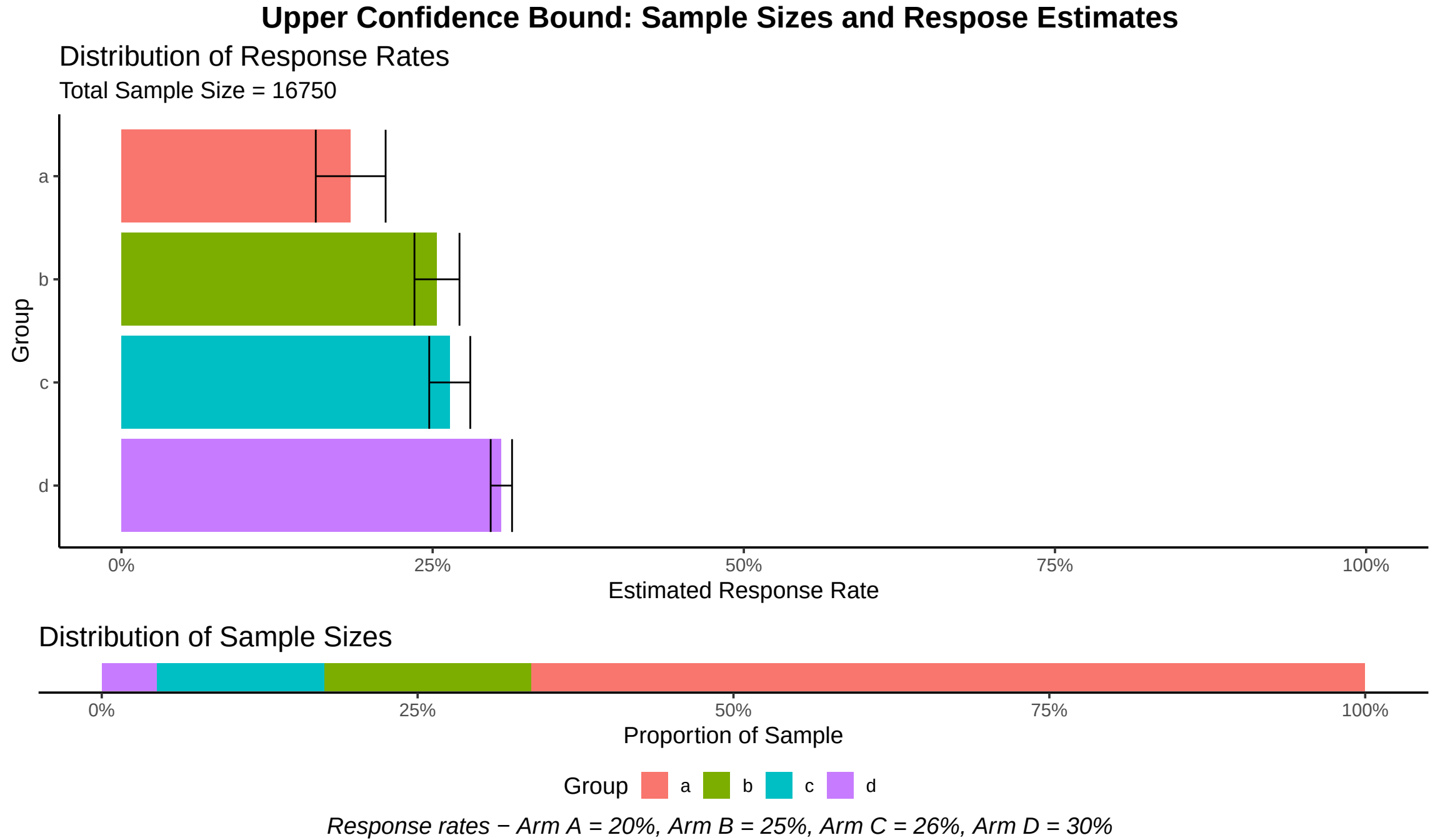


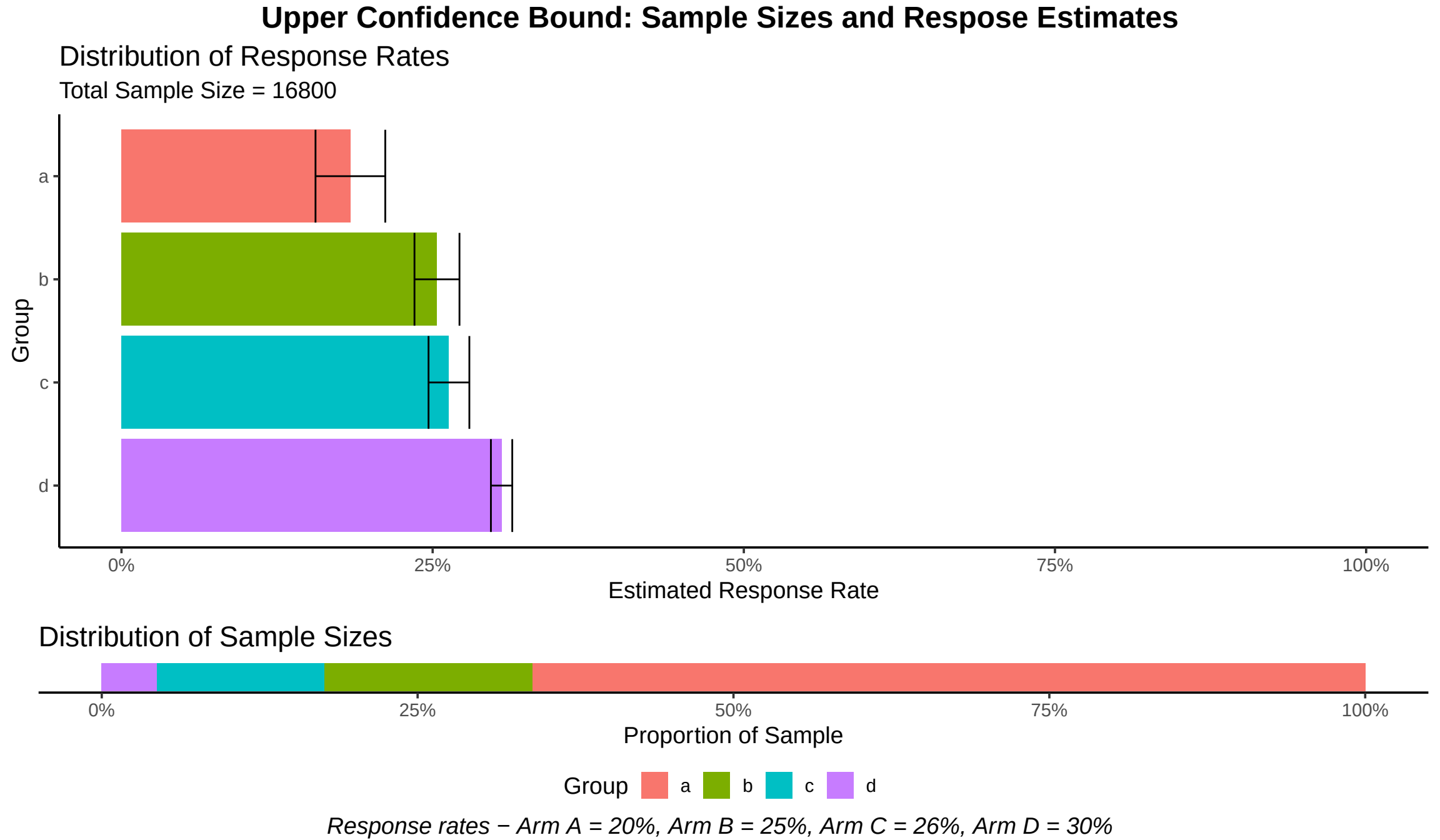
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

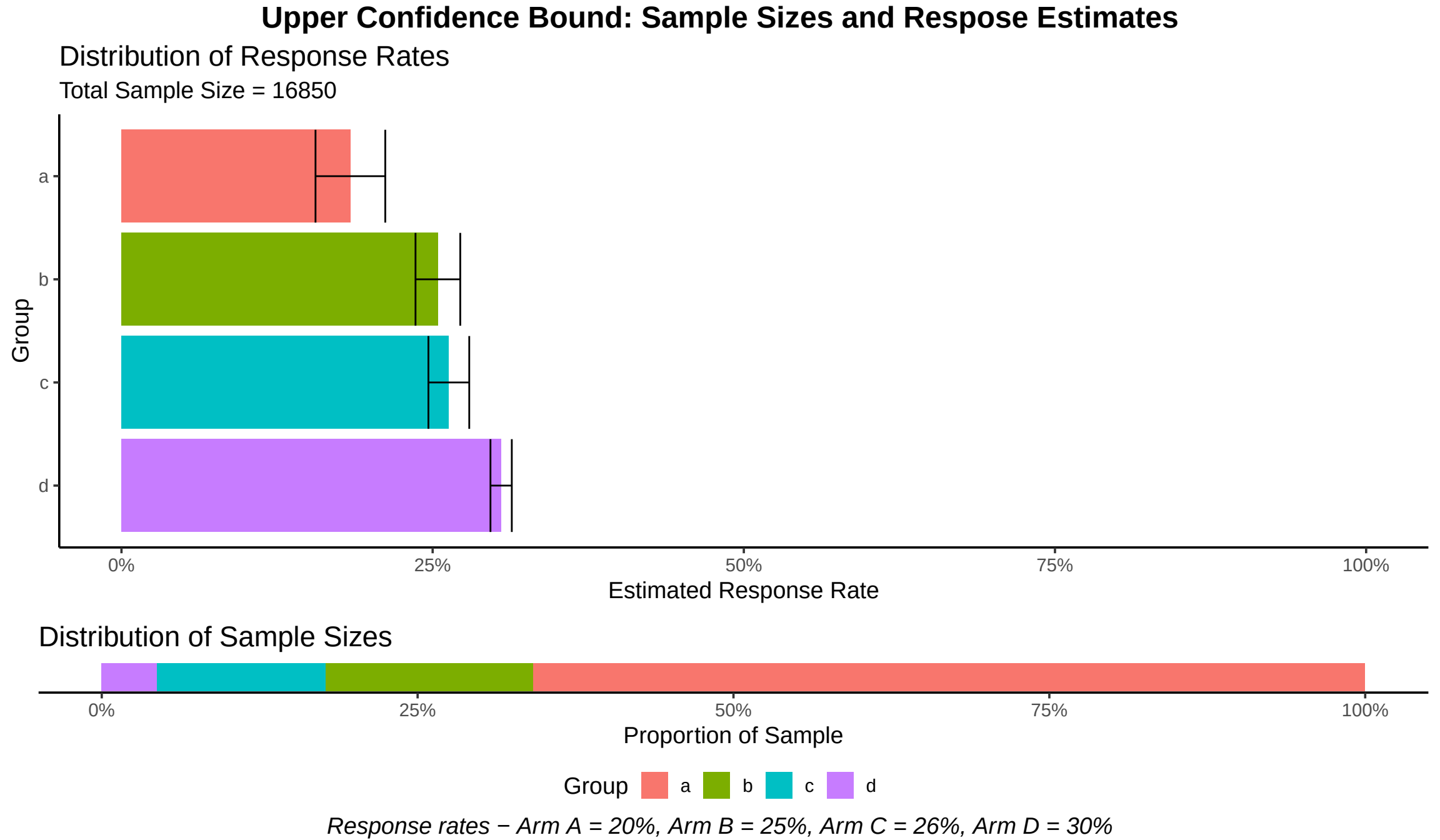

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

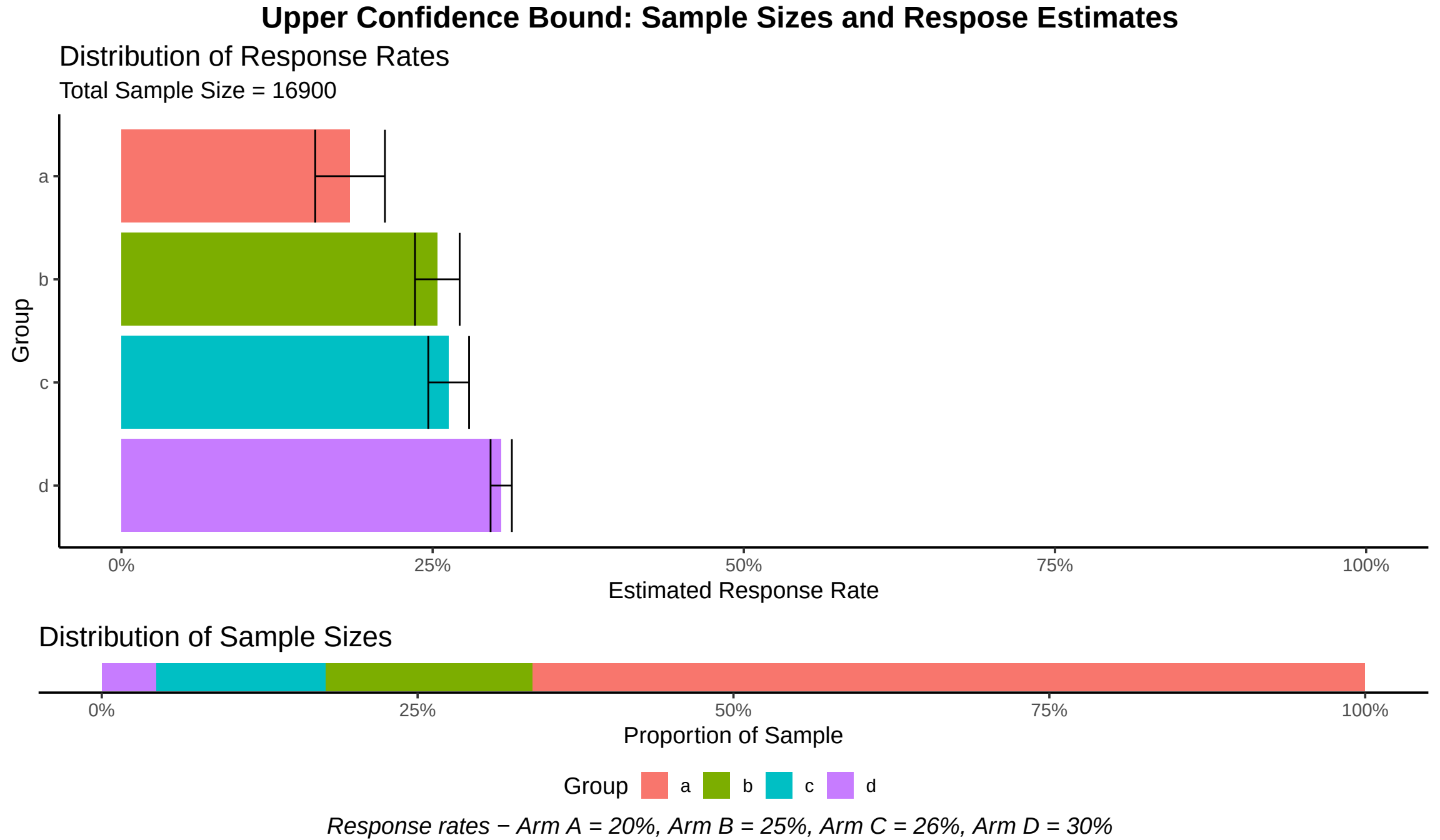

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

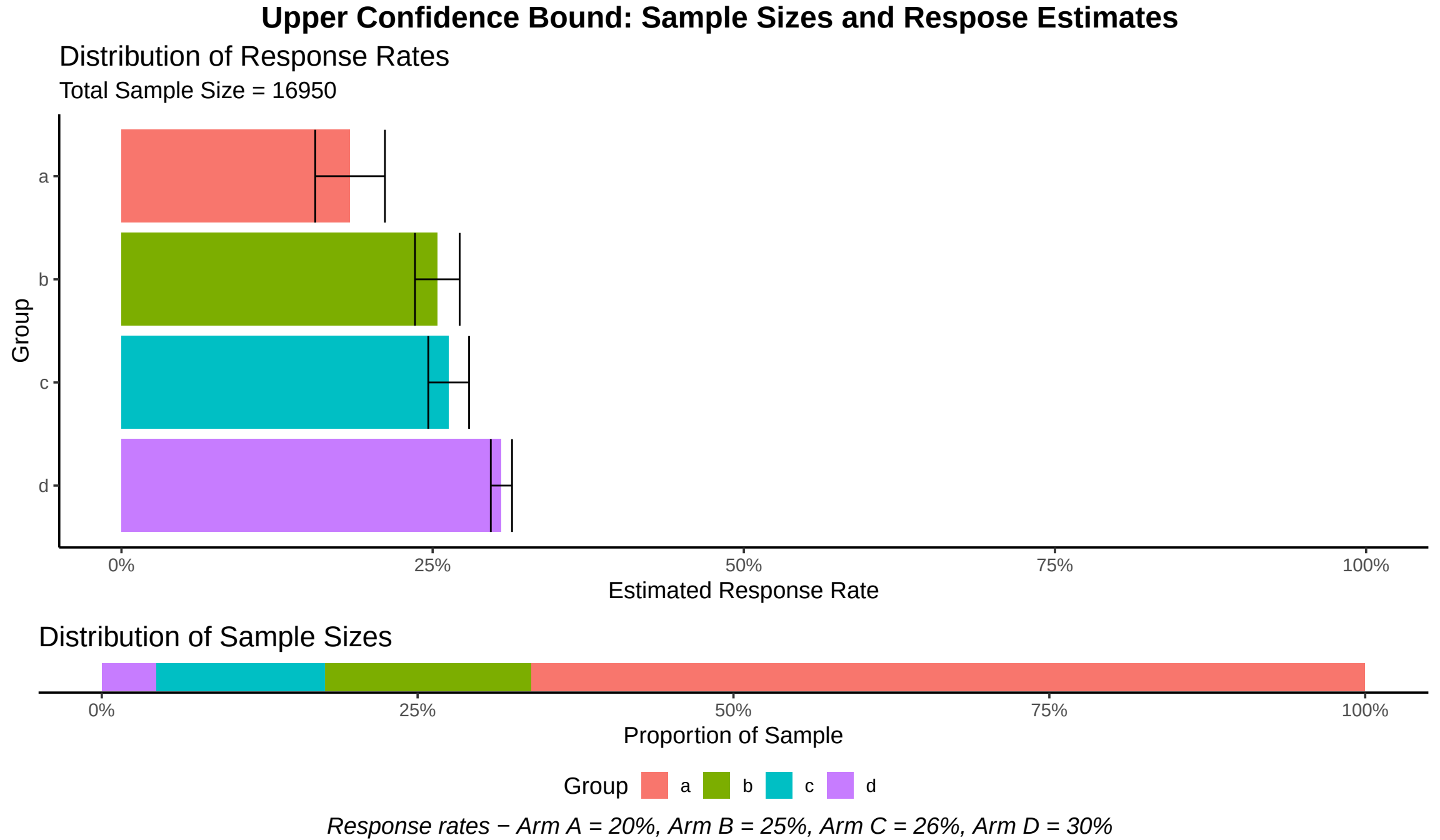

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

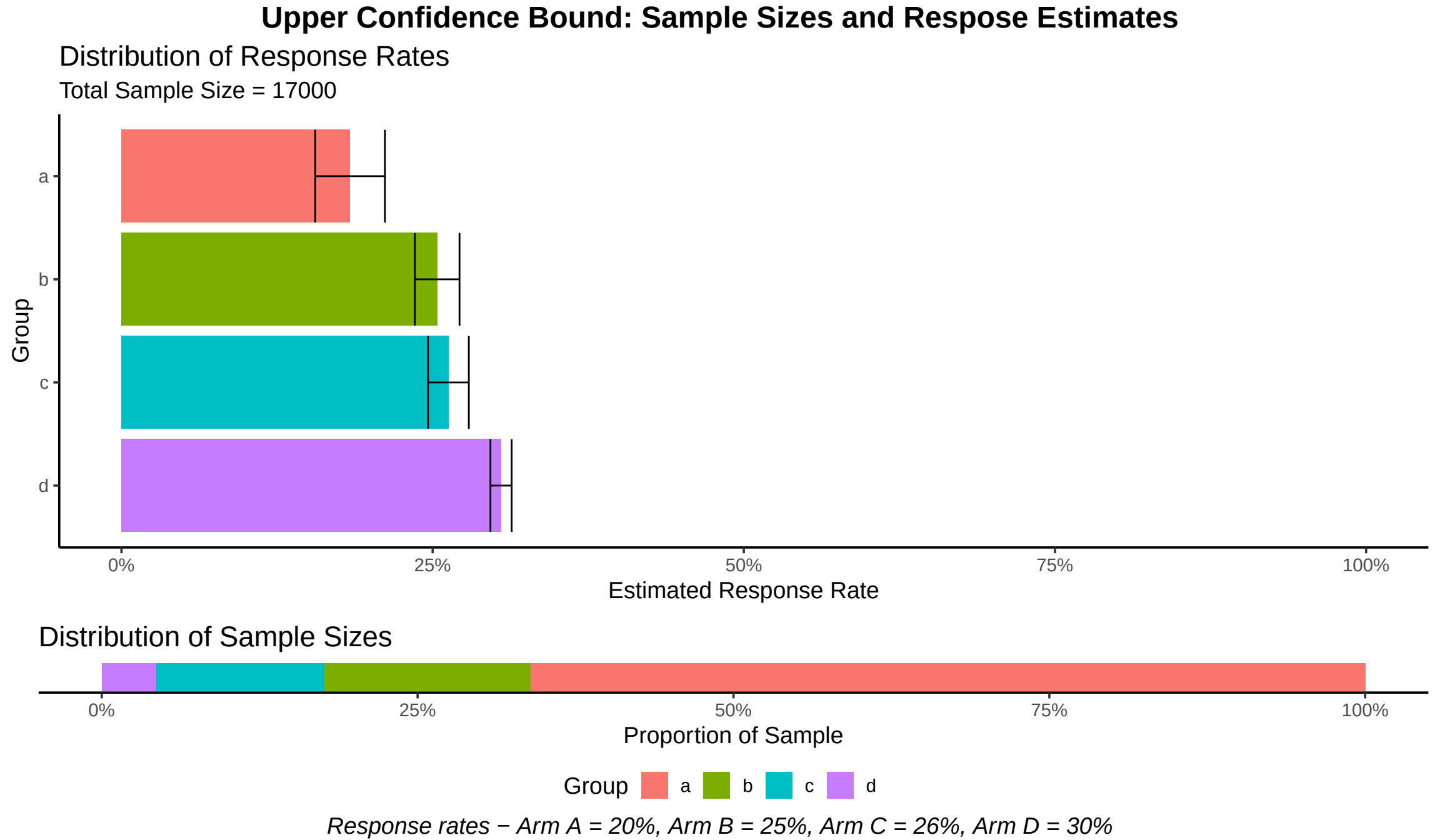

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

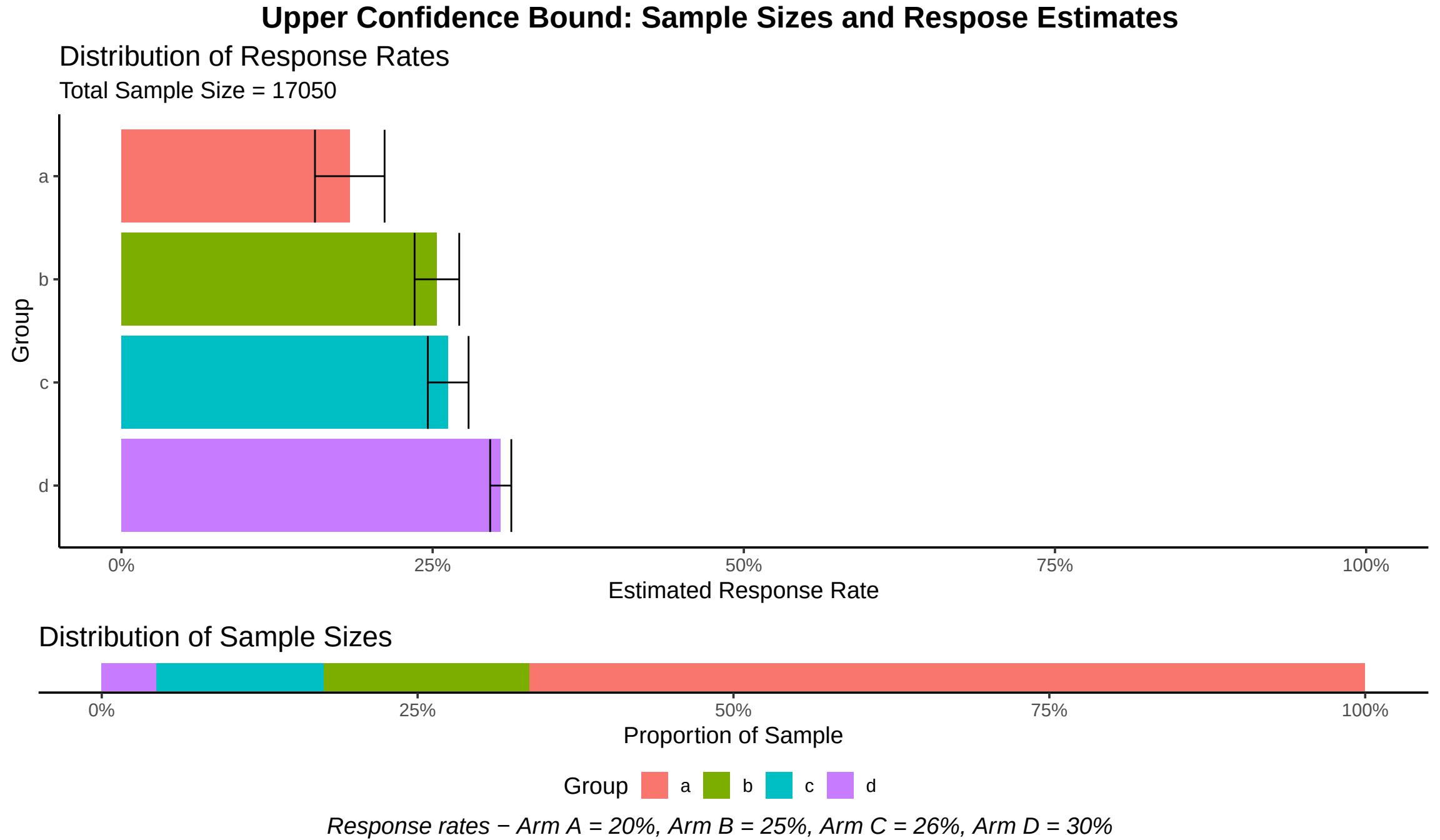

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

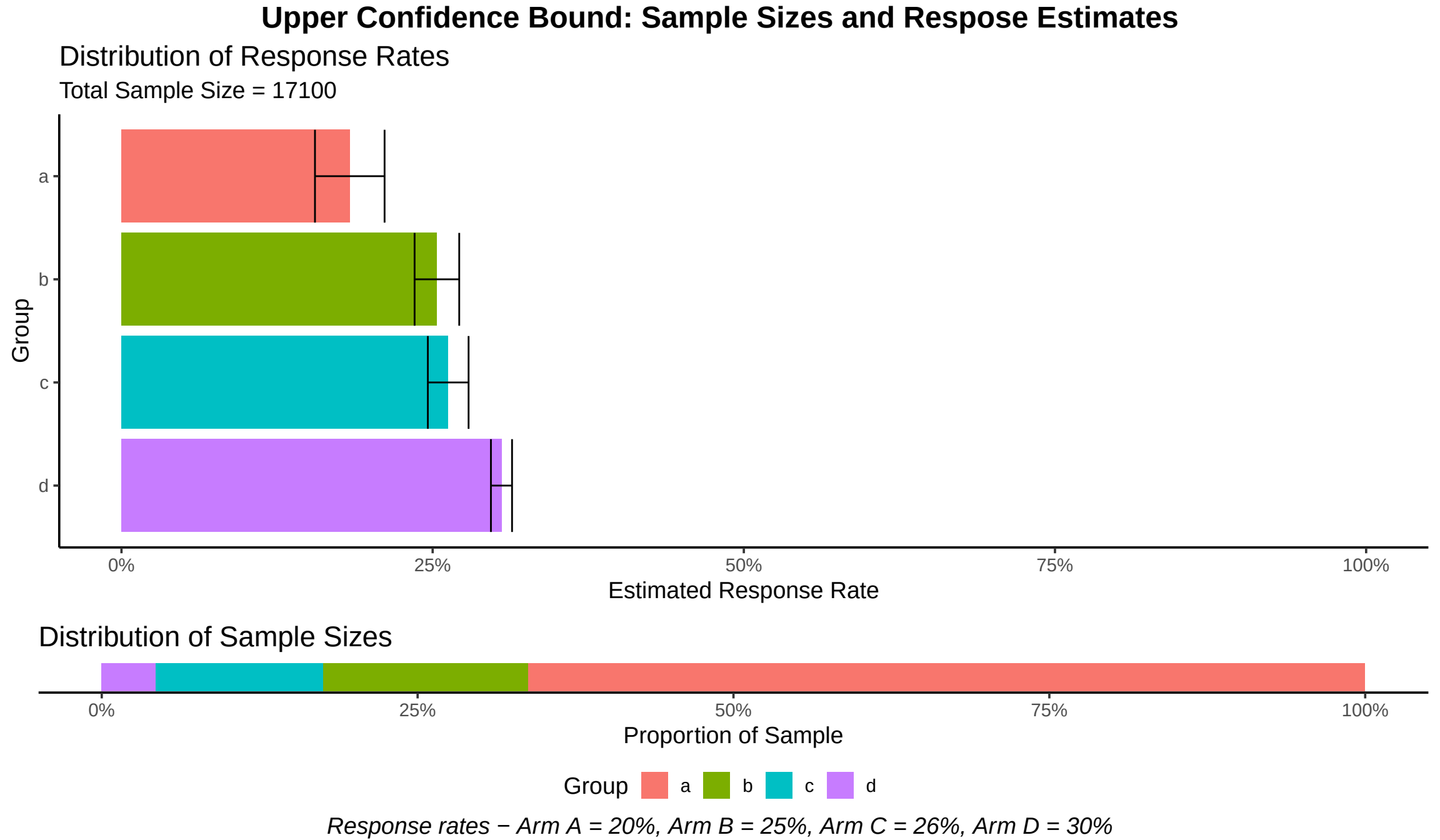

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

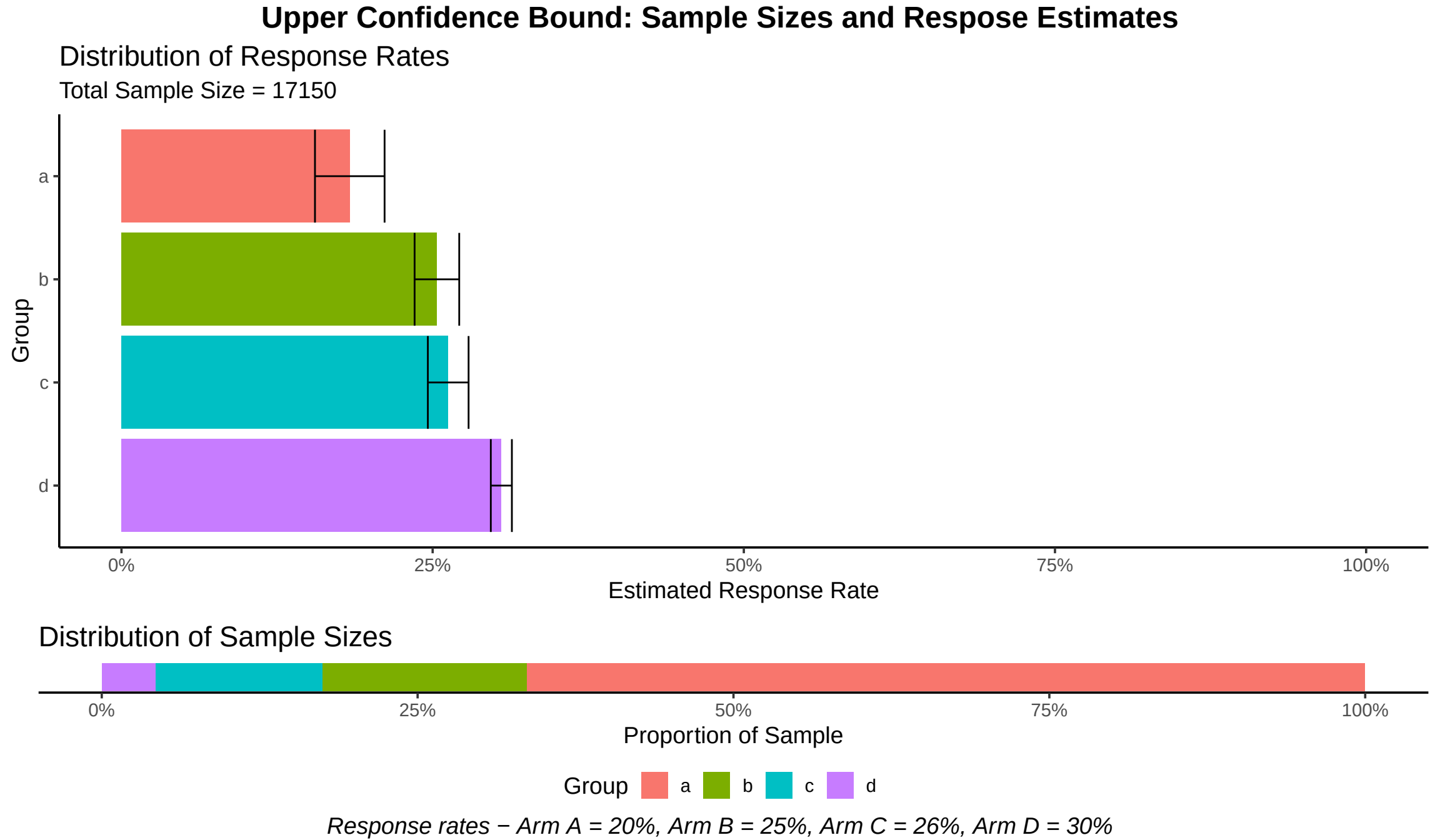

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

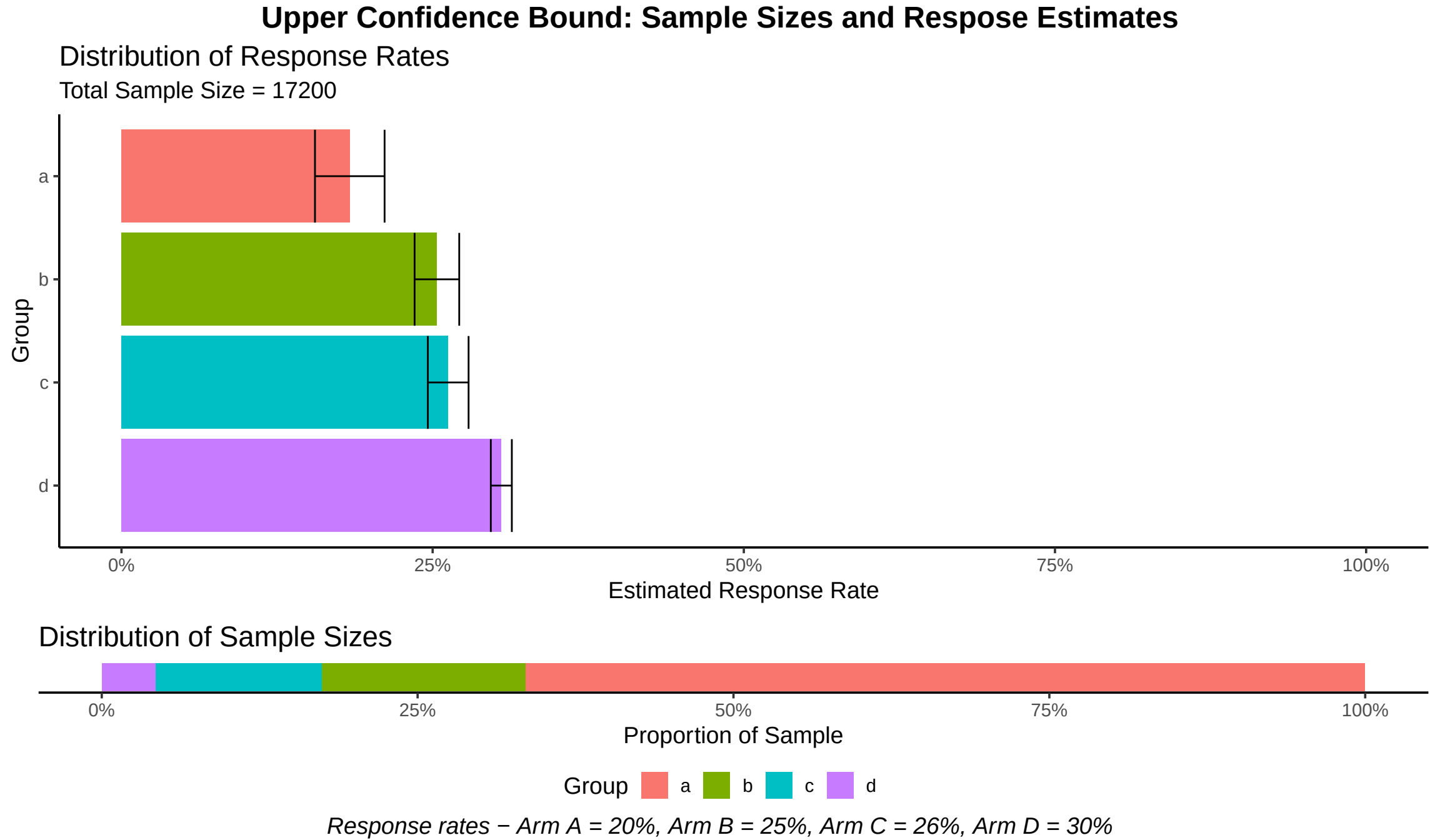

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 16950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

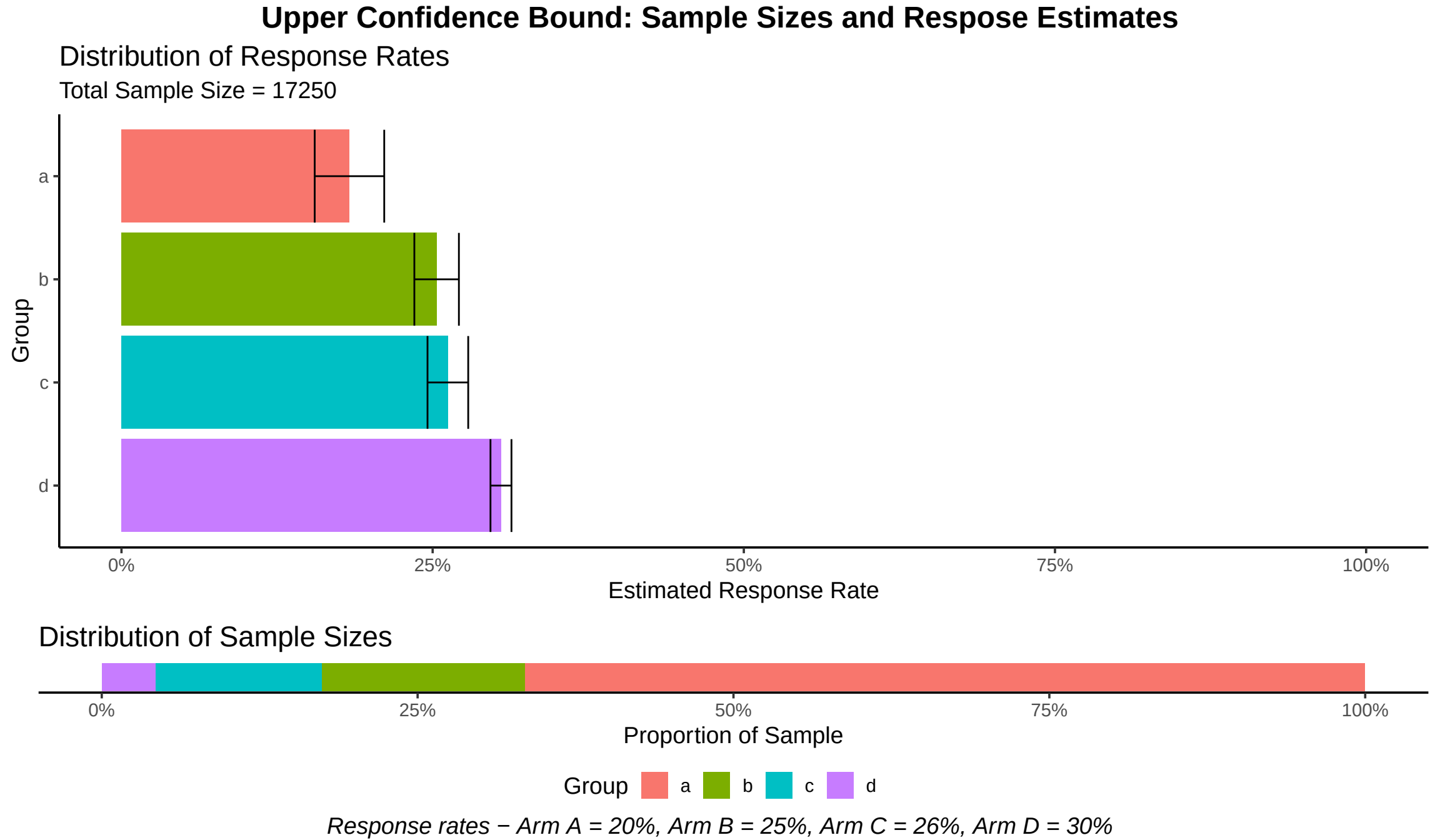

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

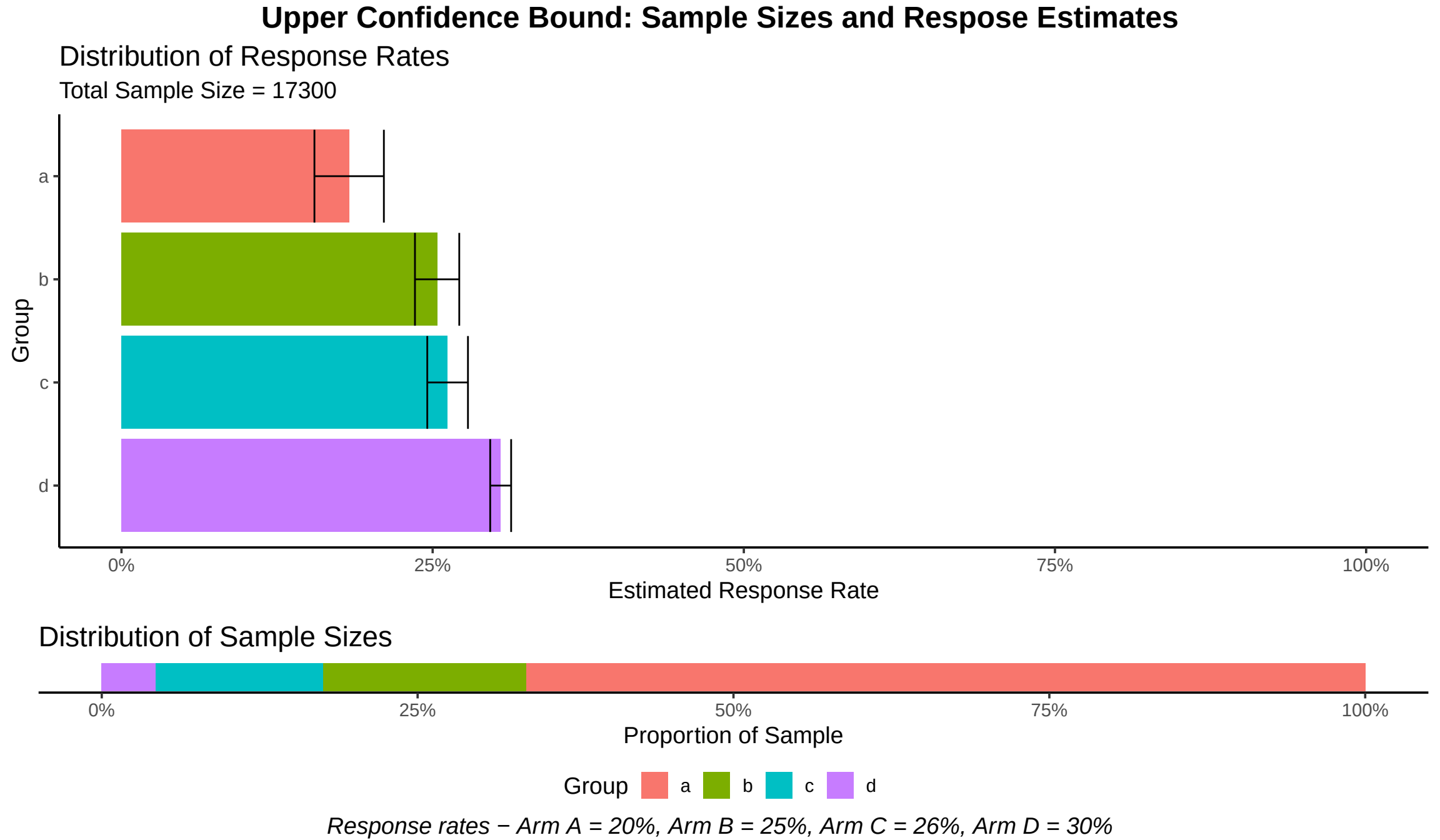

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

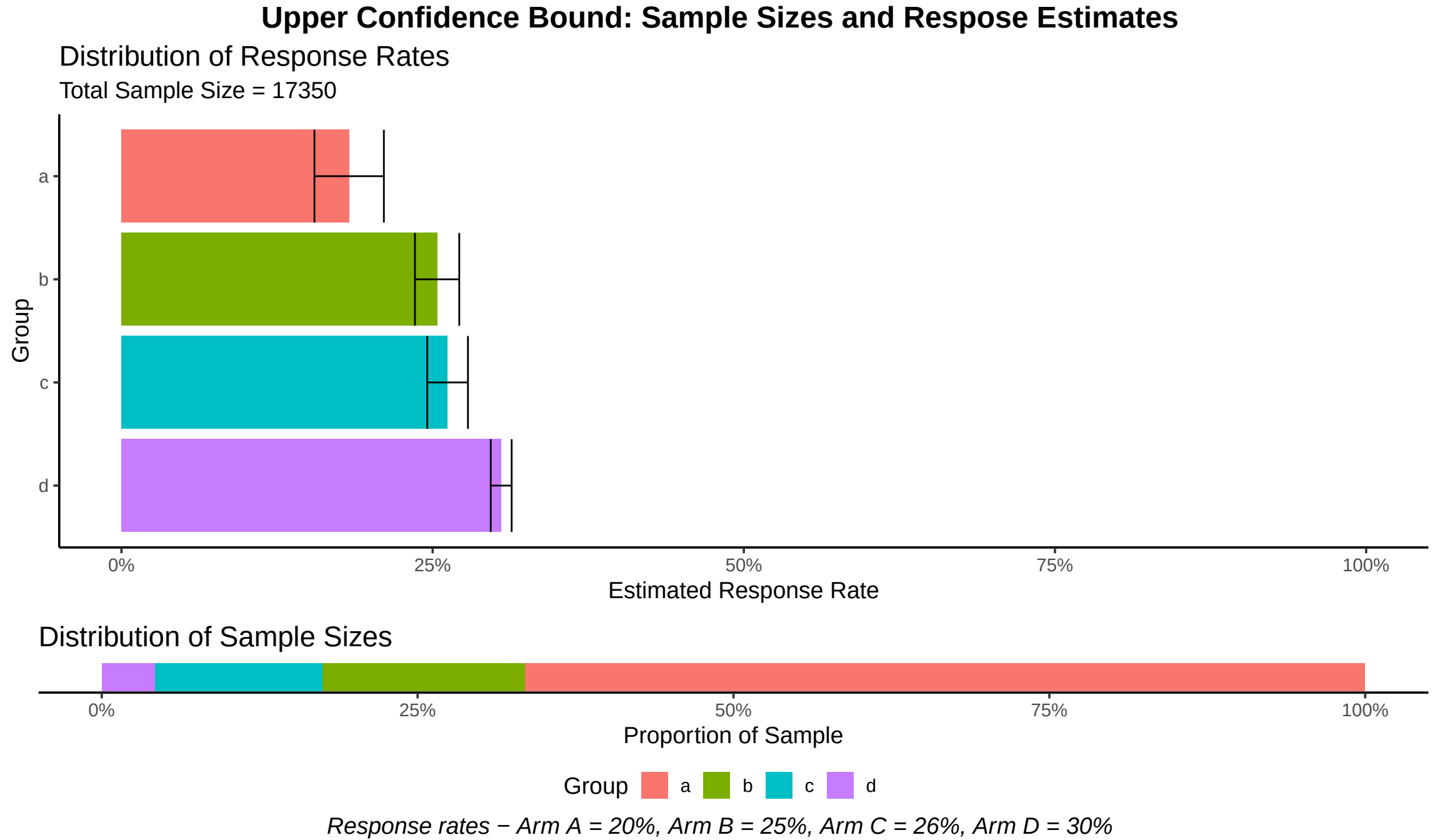

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

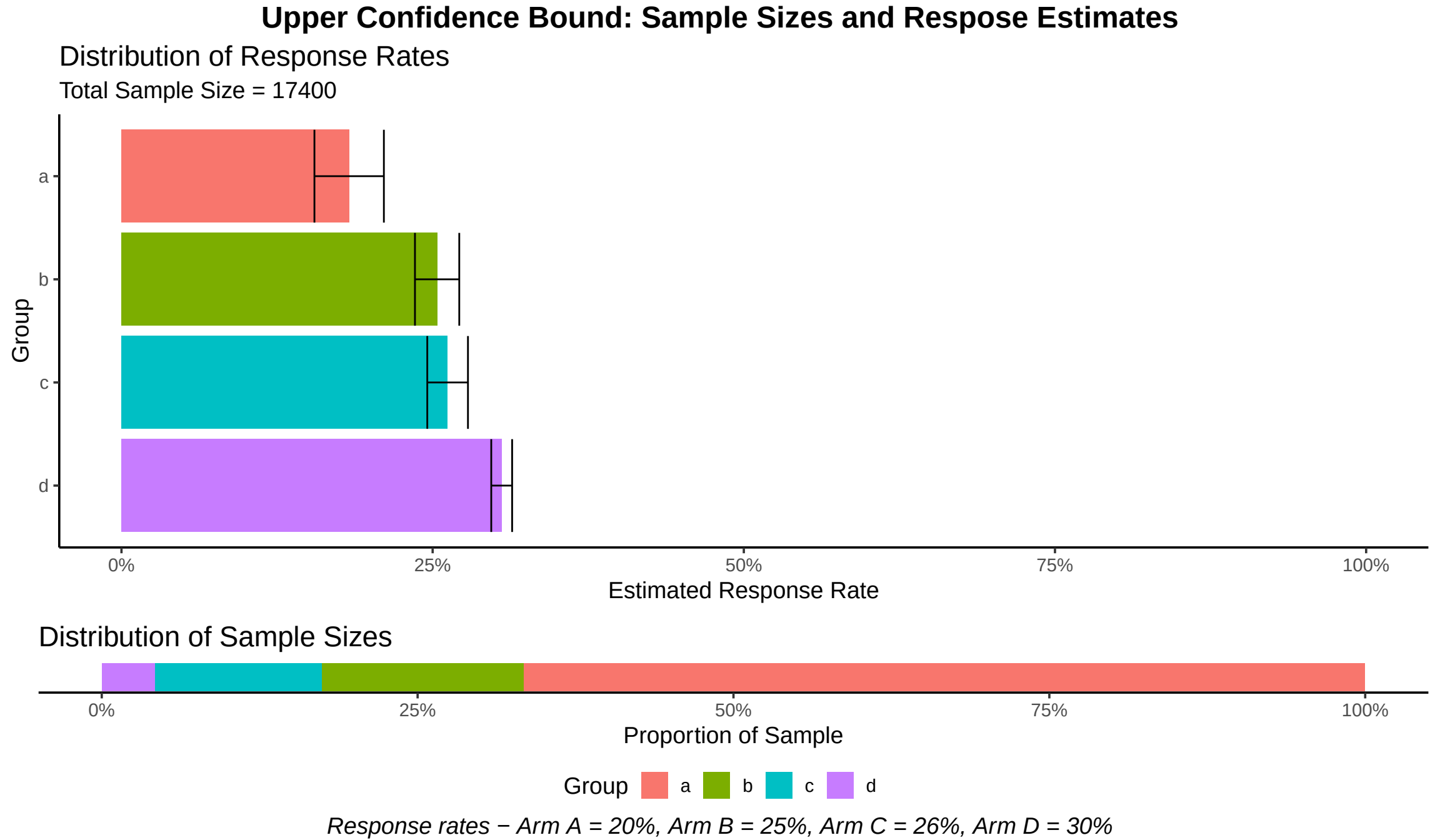

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

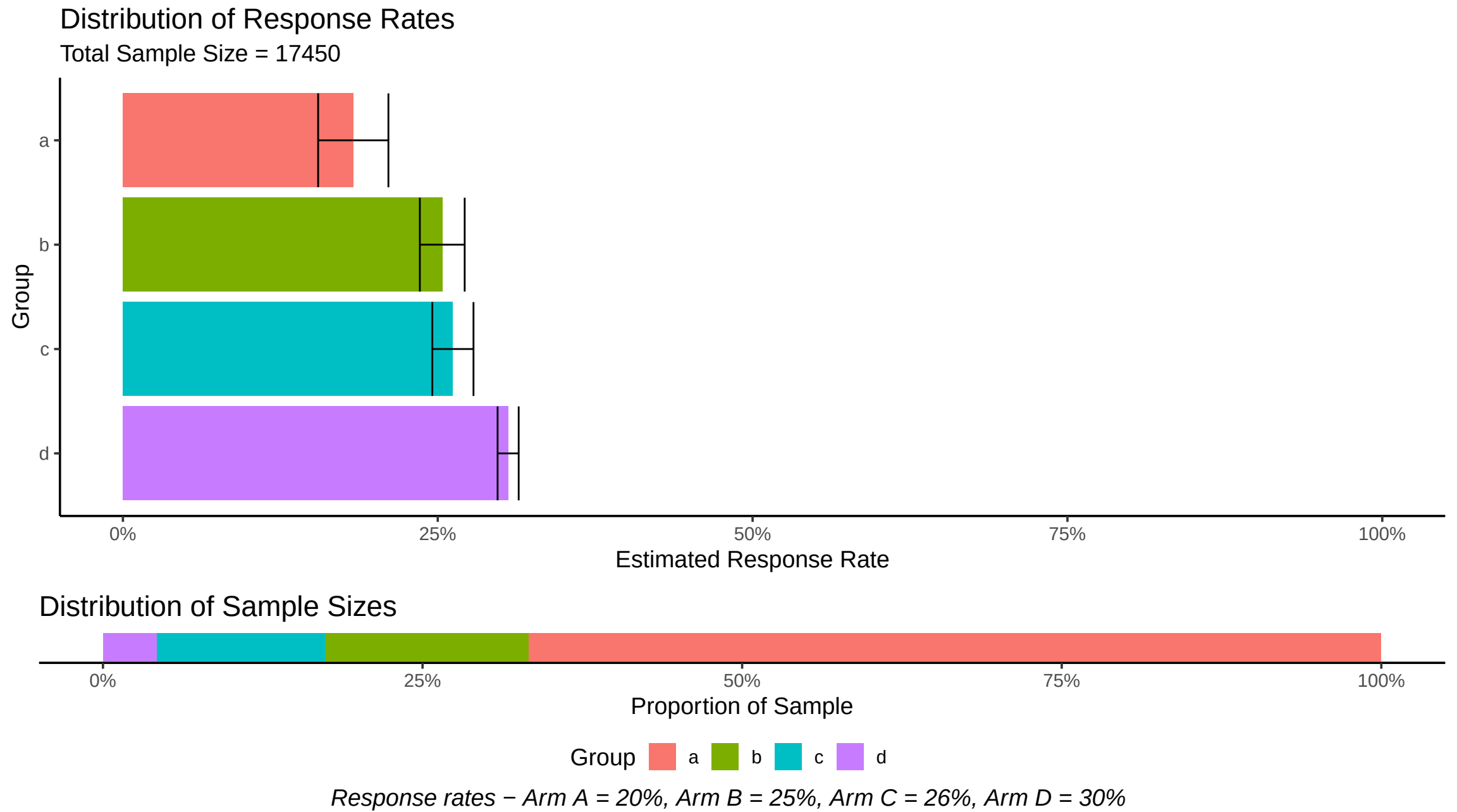

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

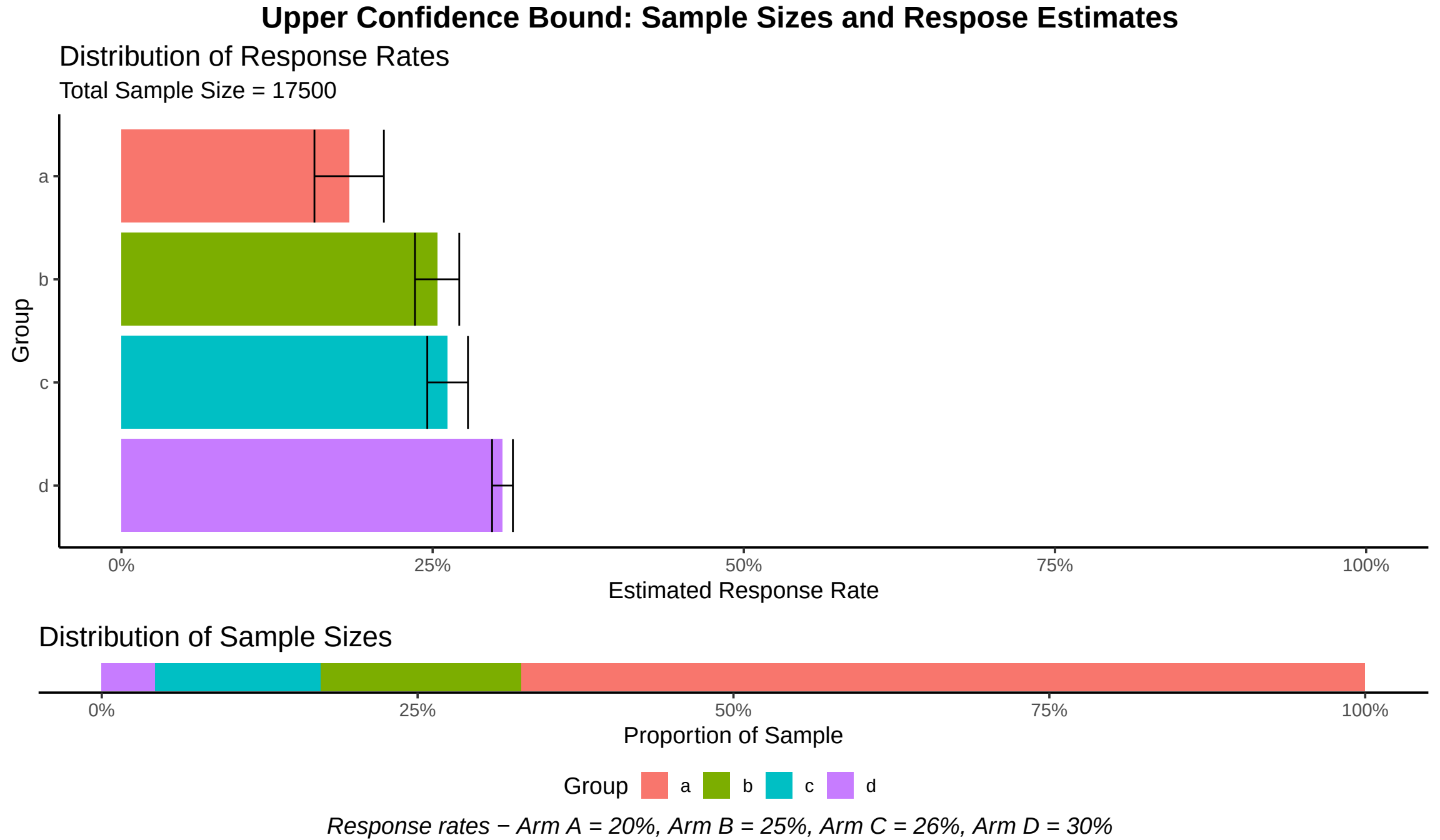

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

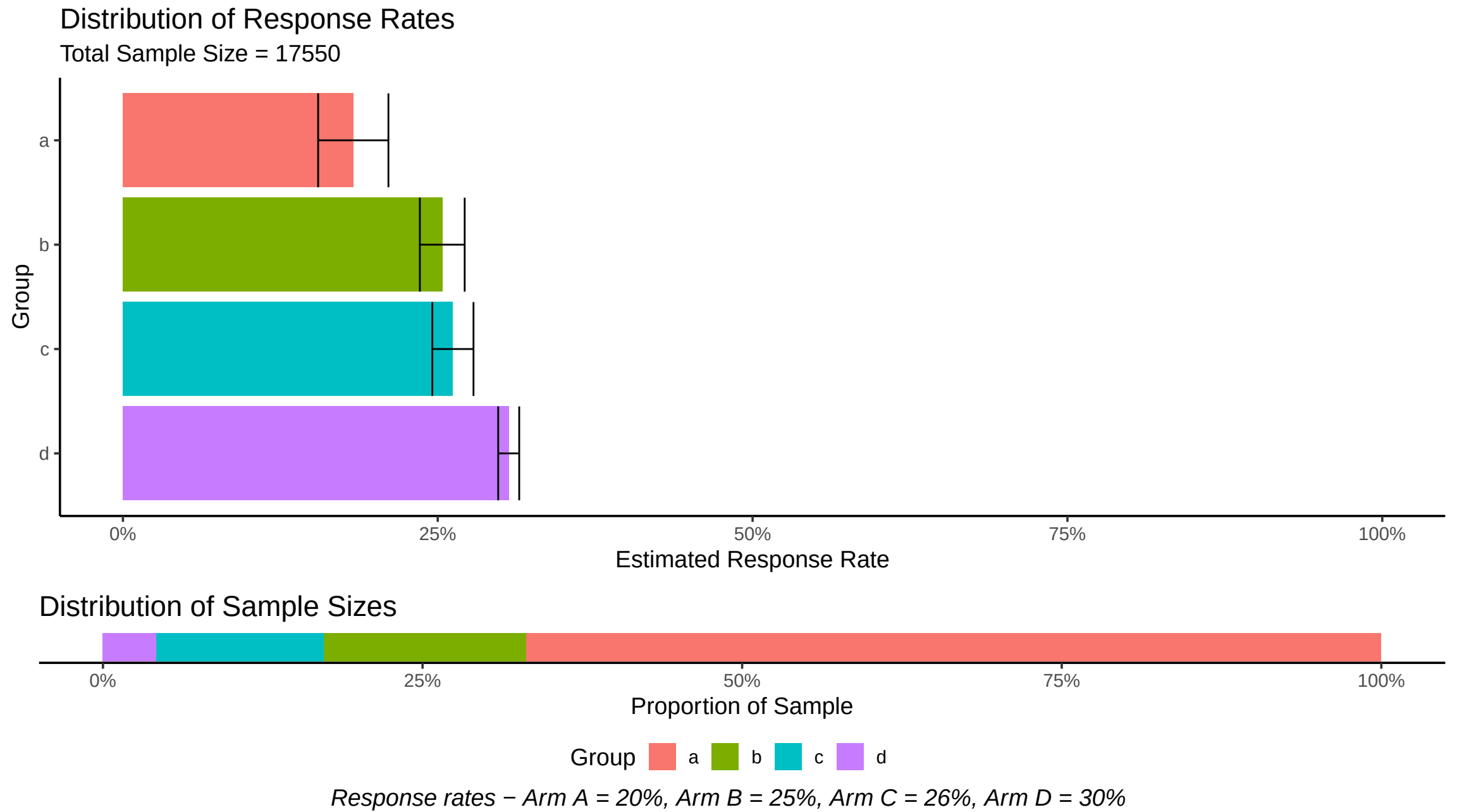
Upper Confidence Bound: Sample Sizes and Respose Estimates



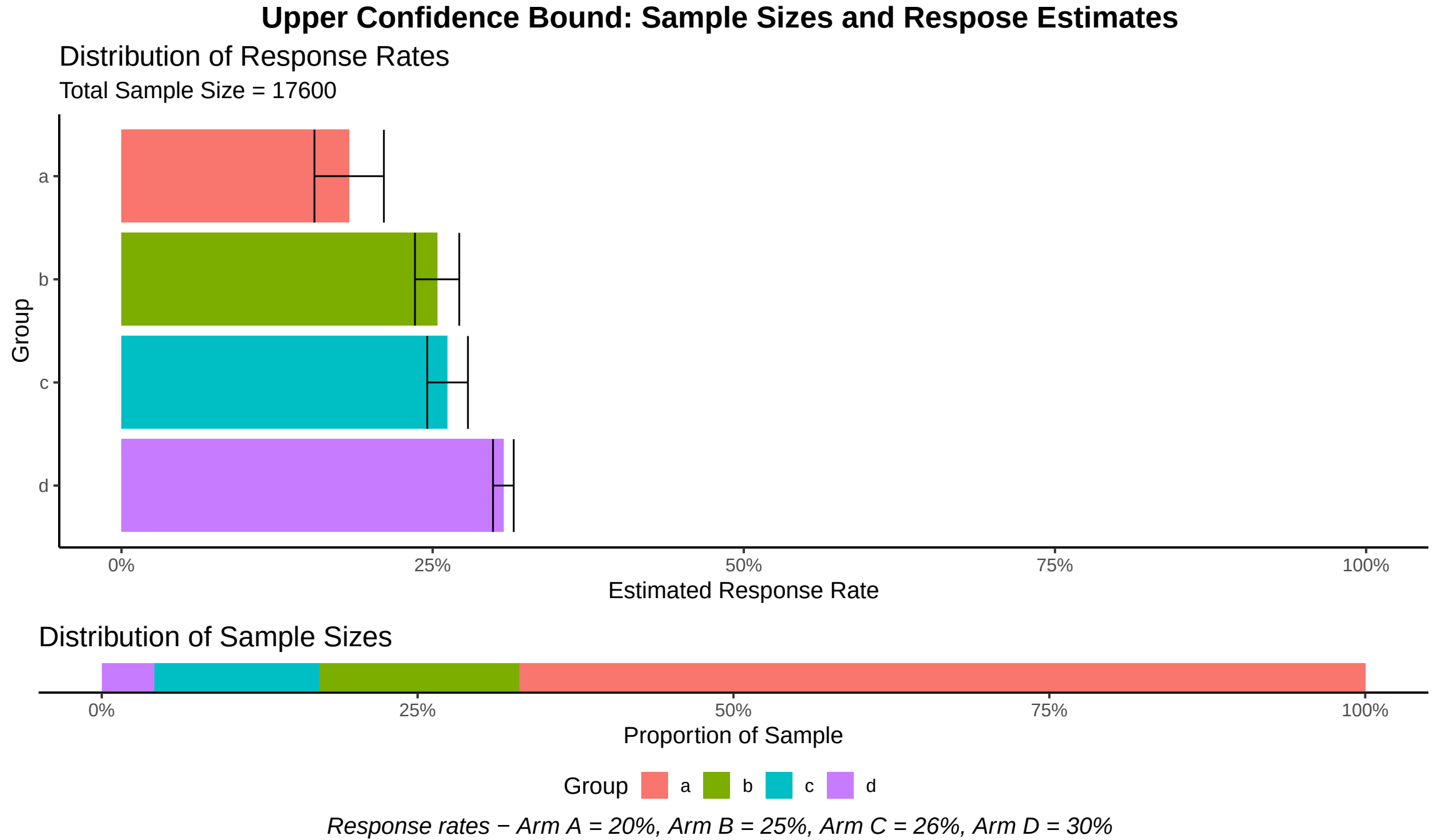
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

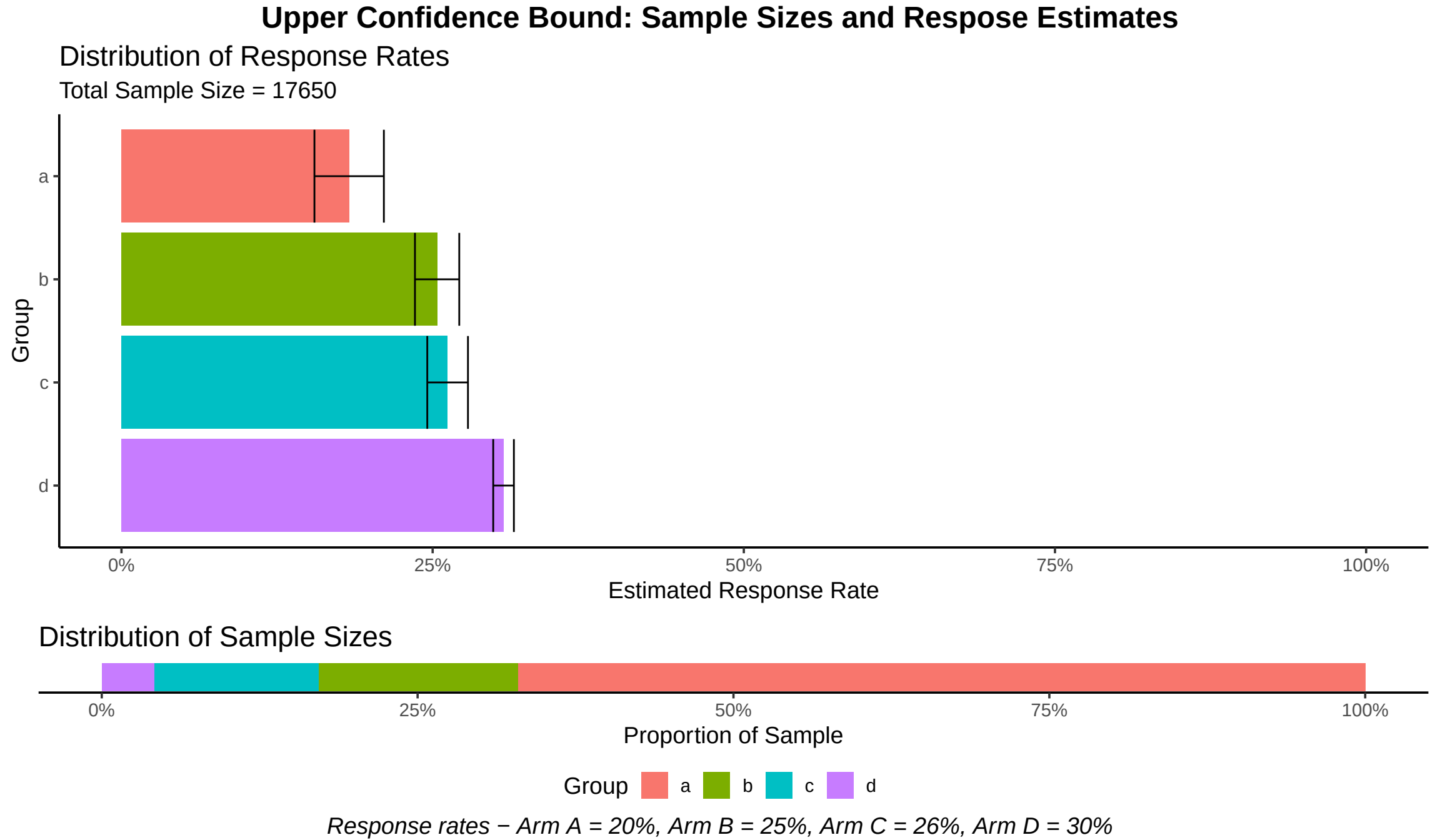

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

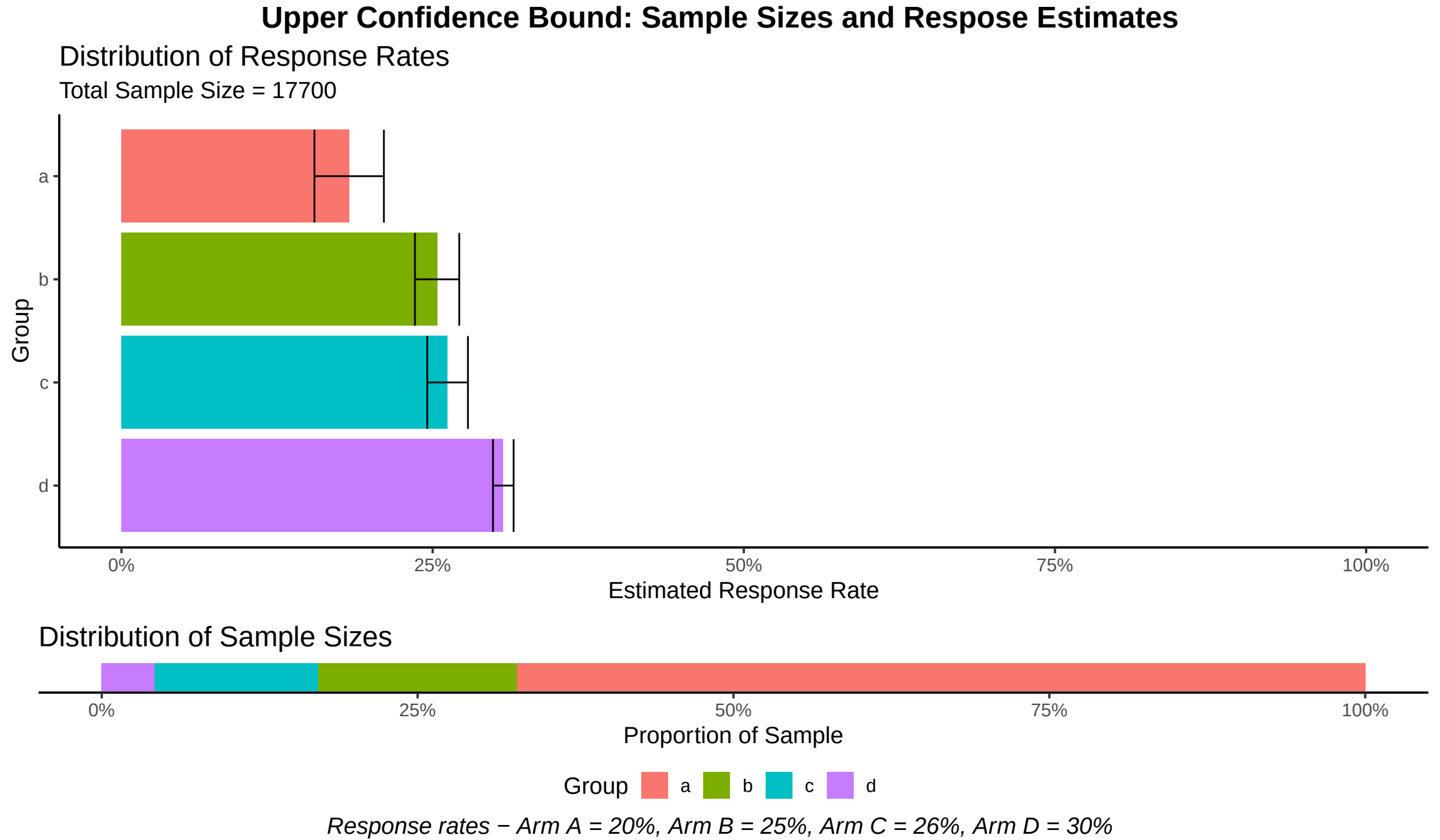
Upper Confidence Bound: Sample Sizes and Respose Estimates

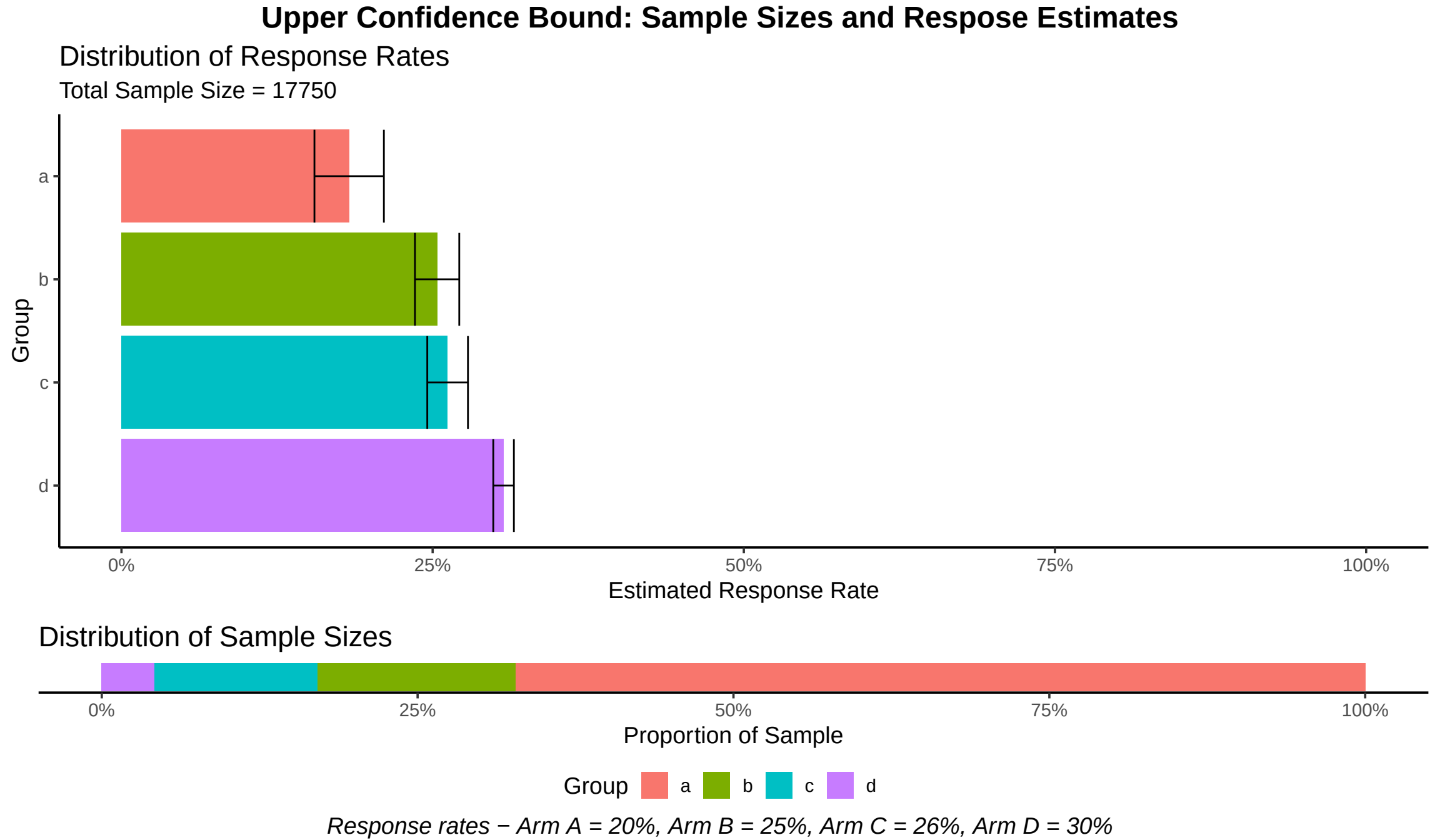


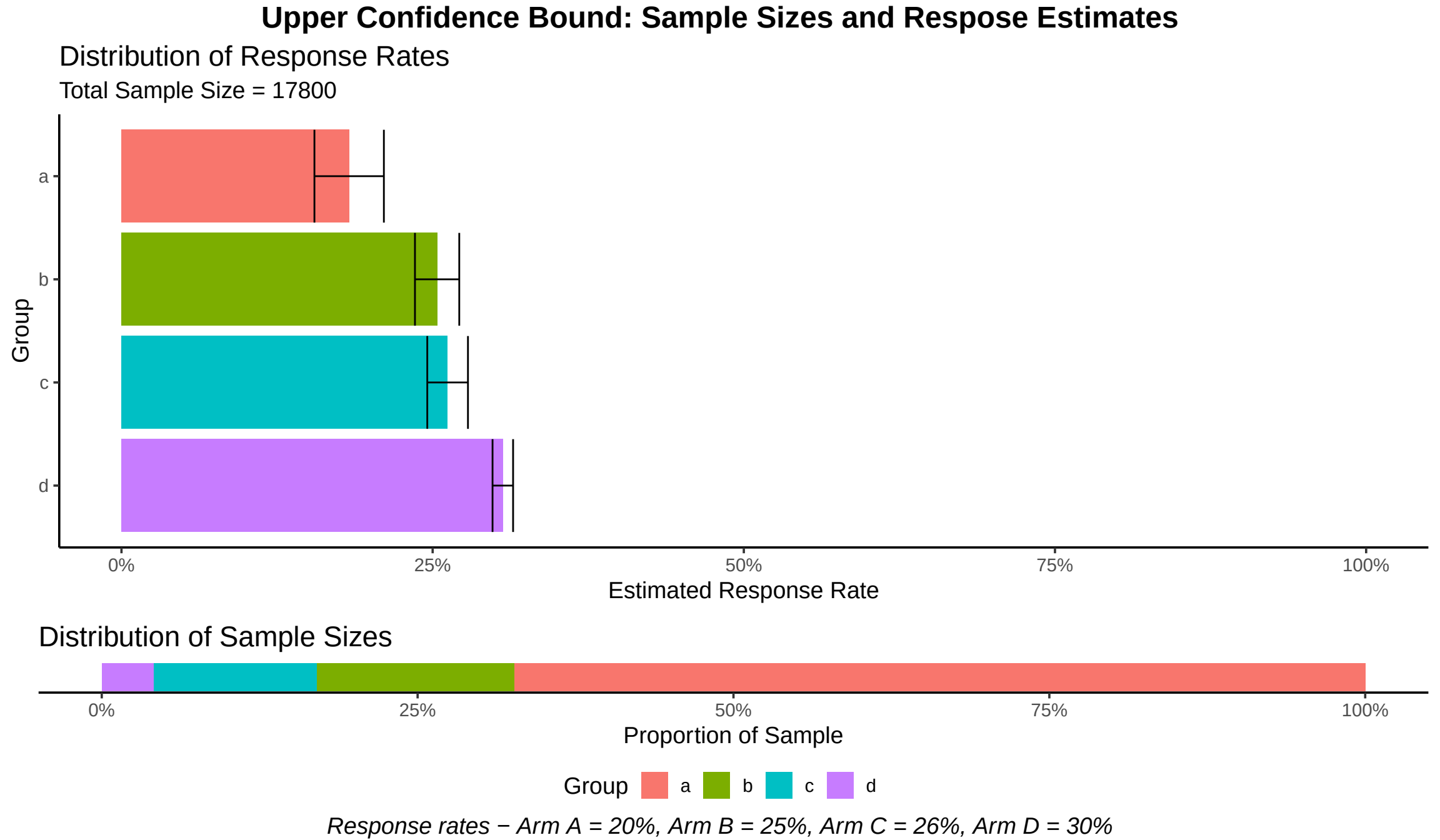
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

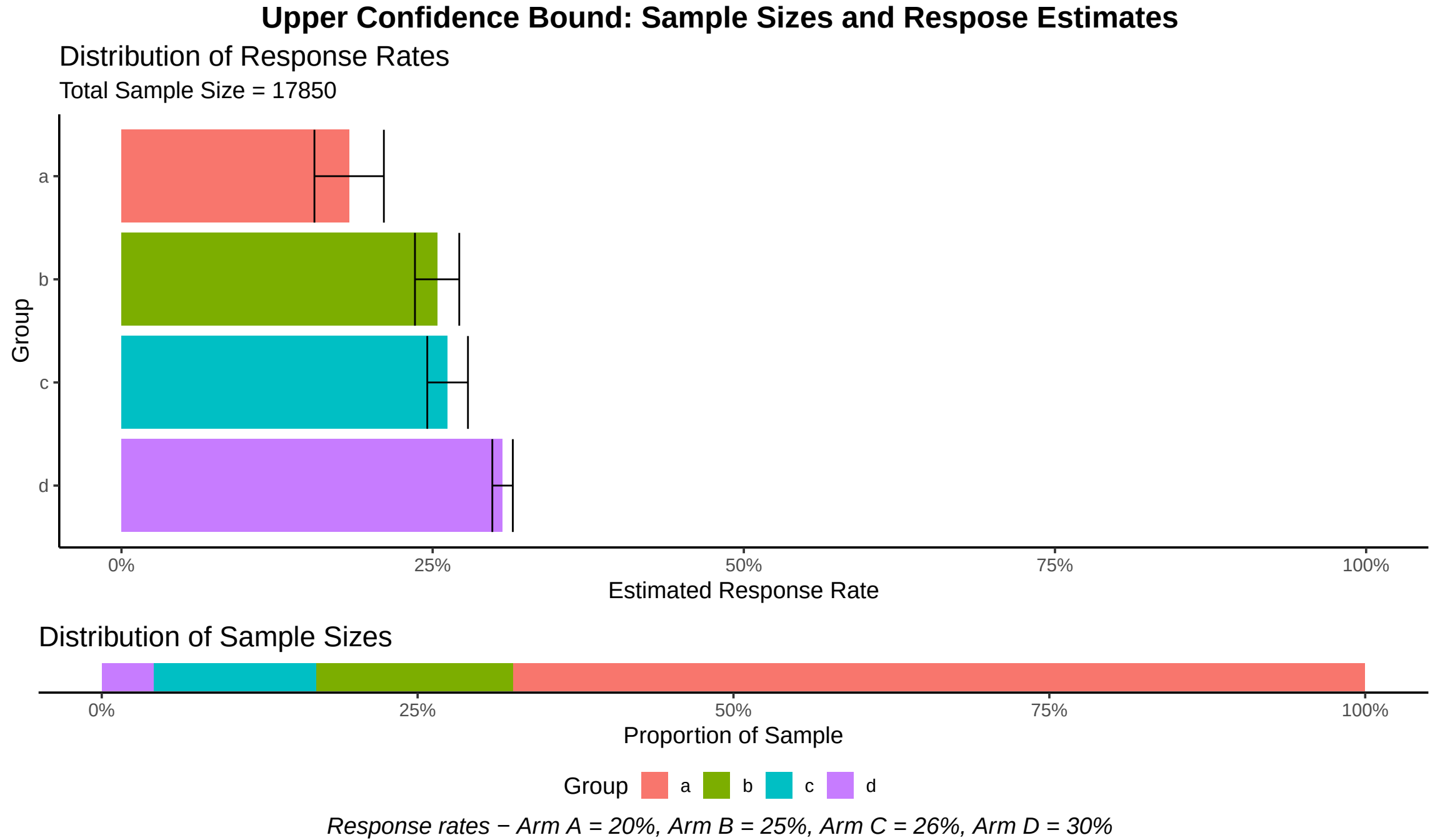

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

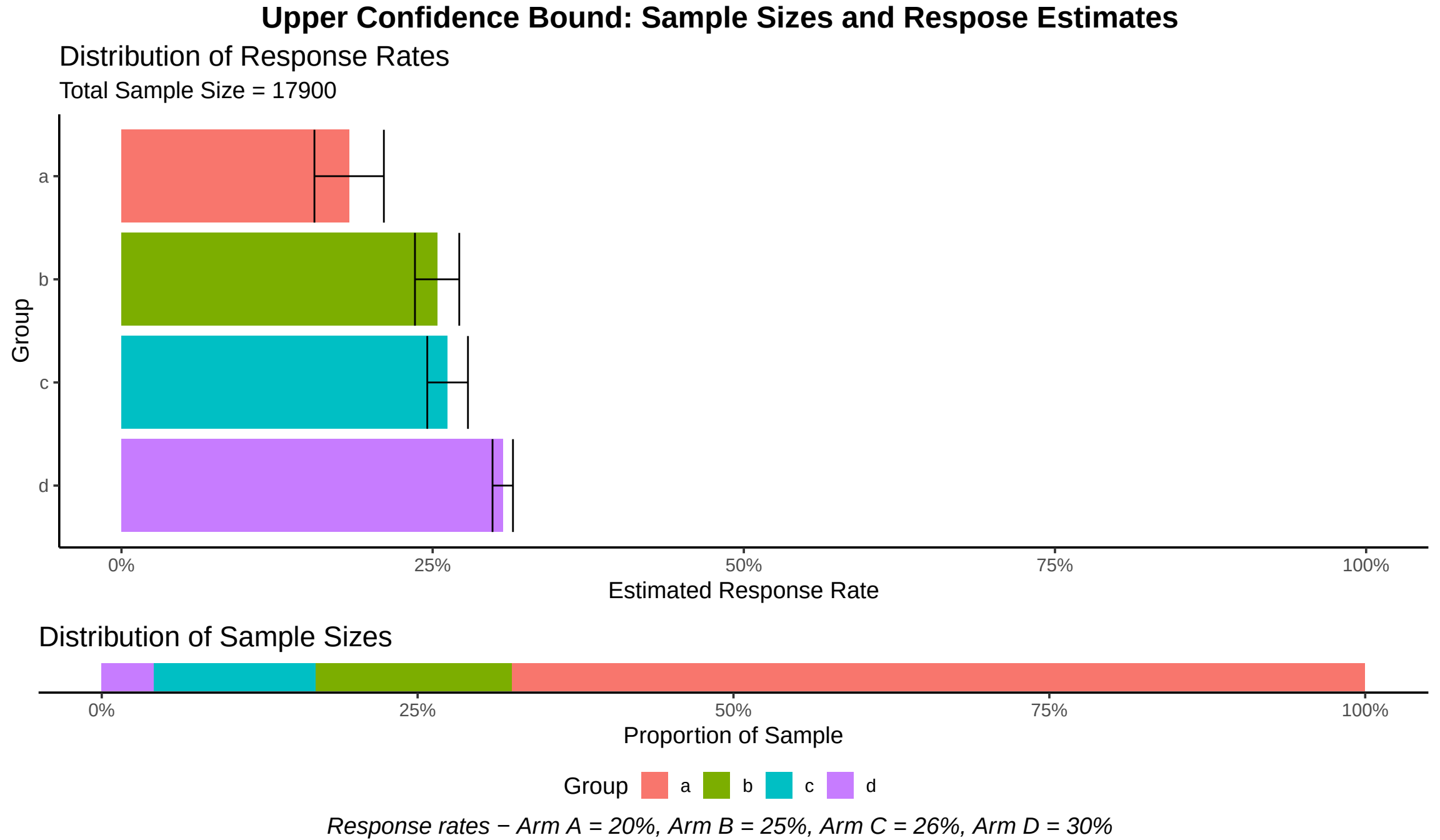

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

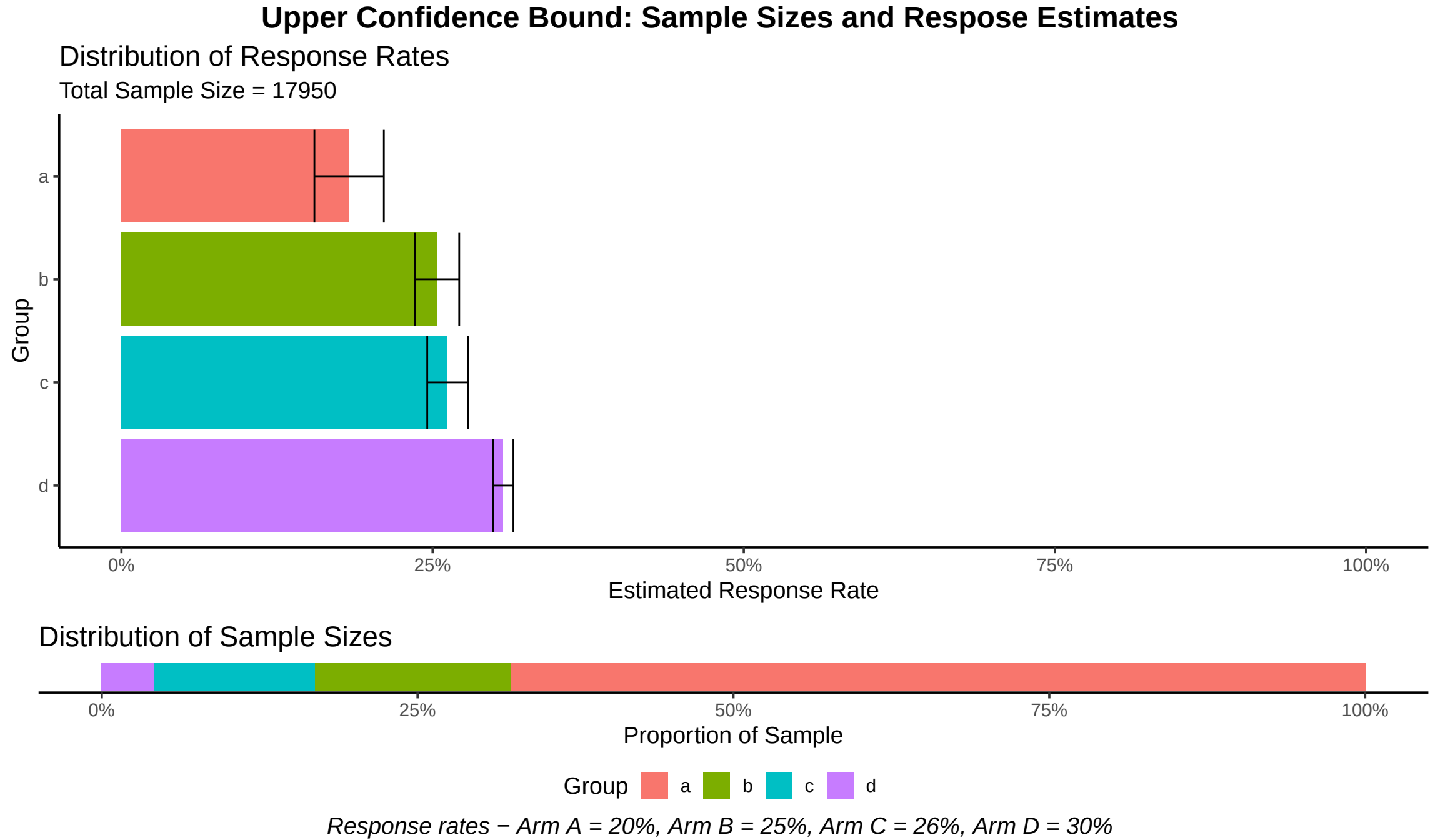

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

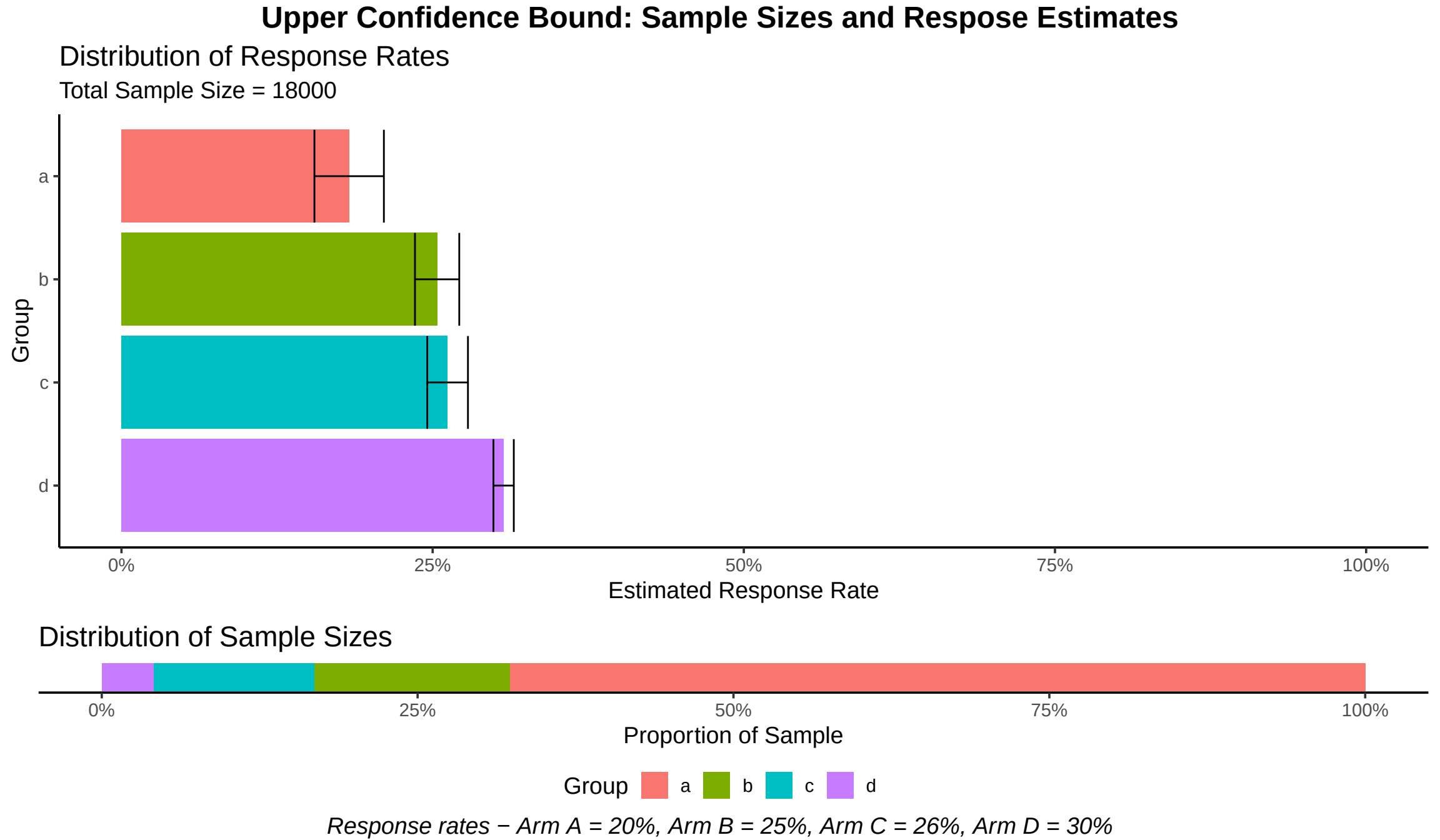

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

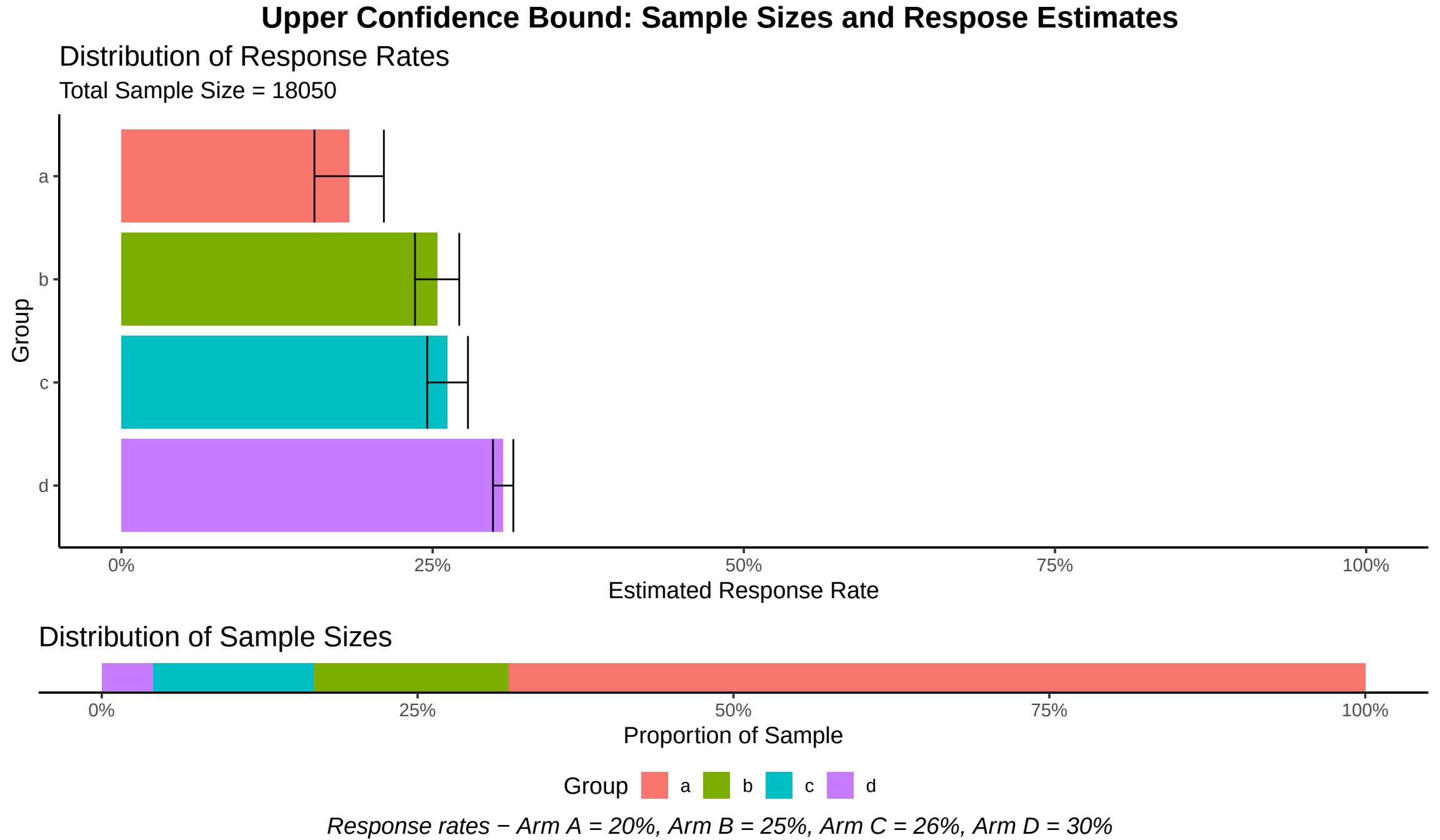

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

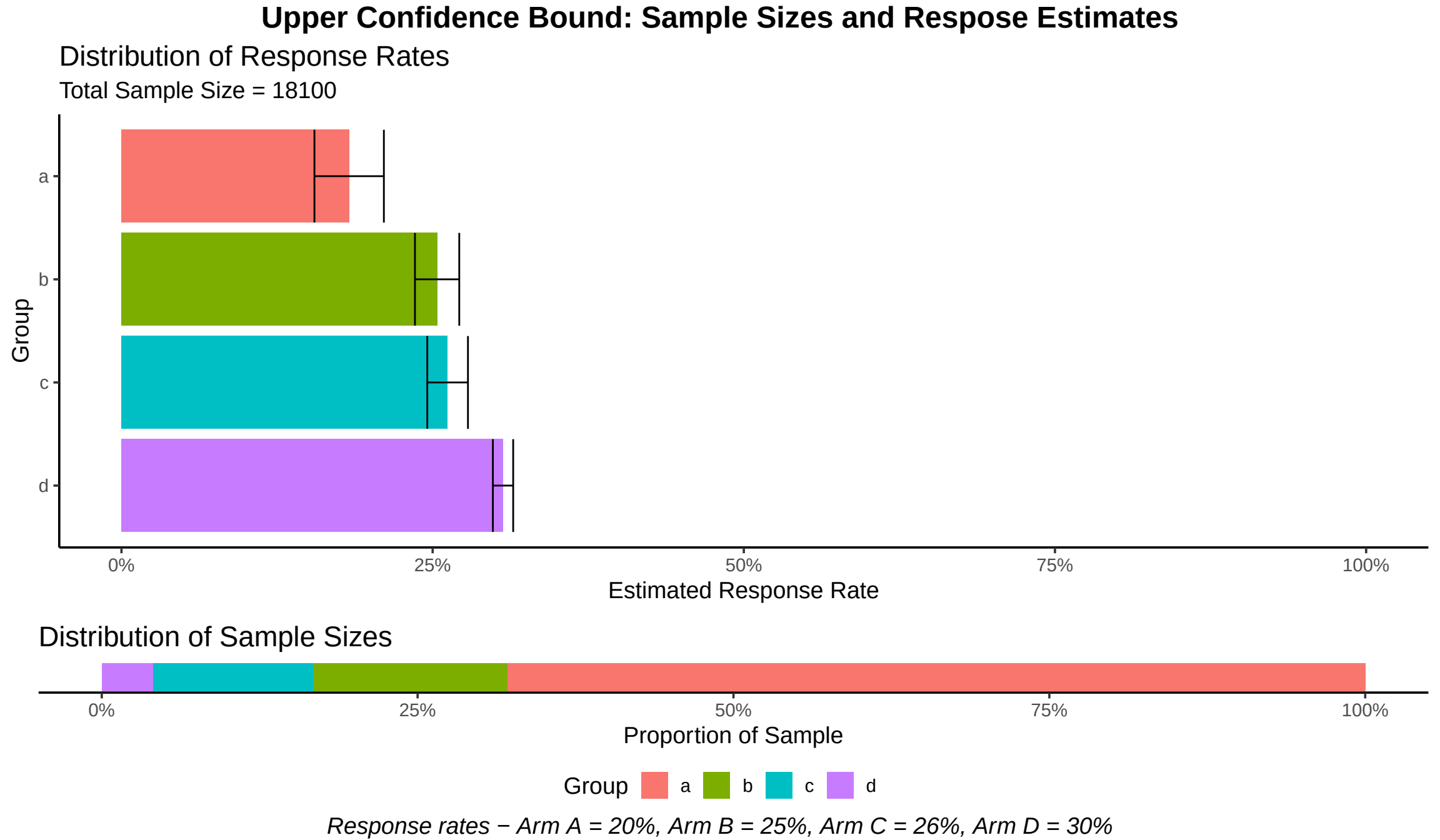

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

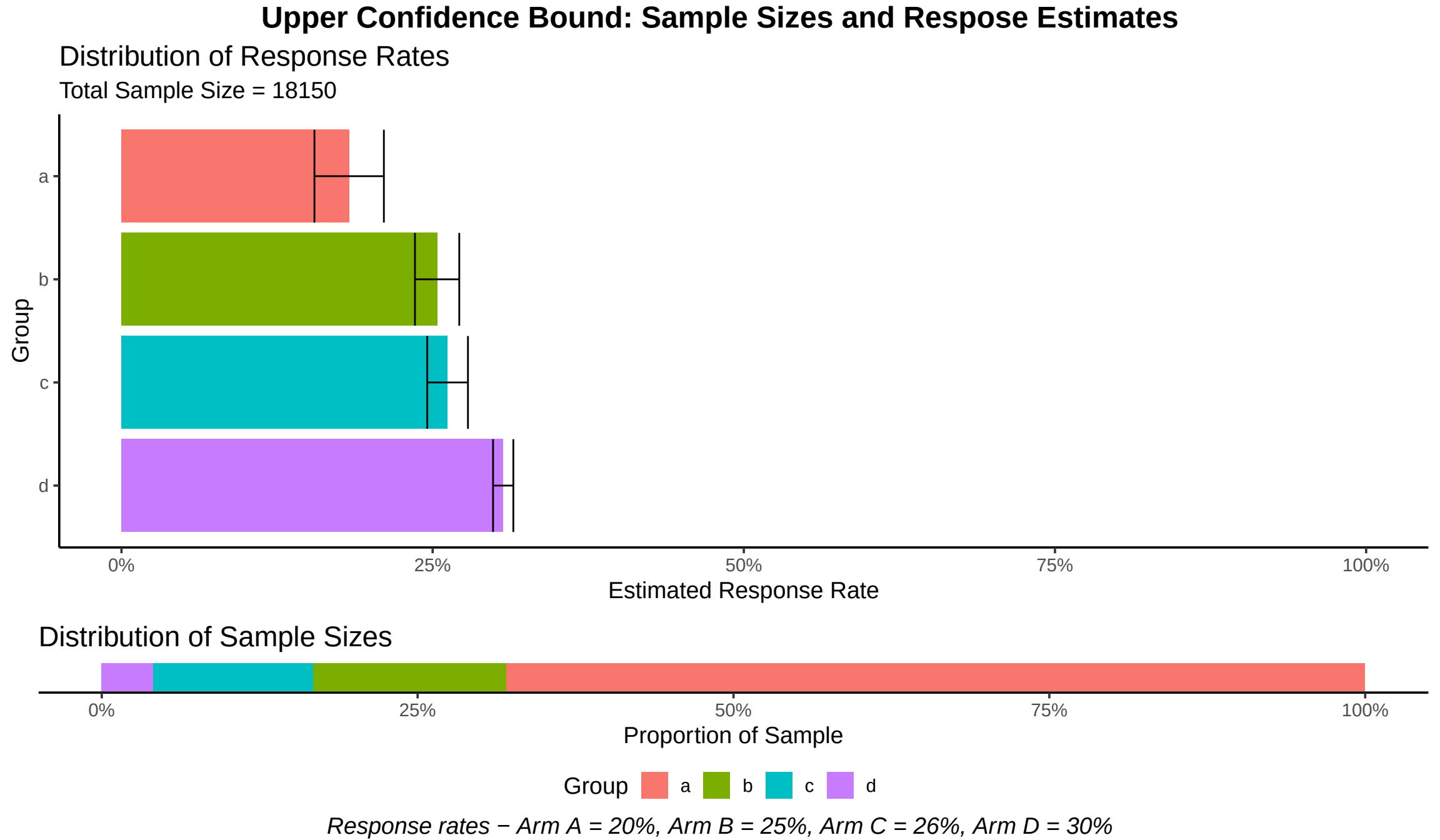

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 17950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

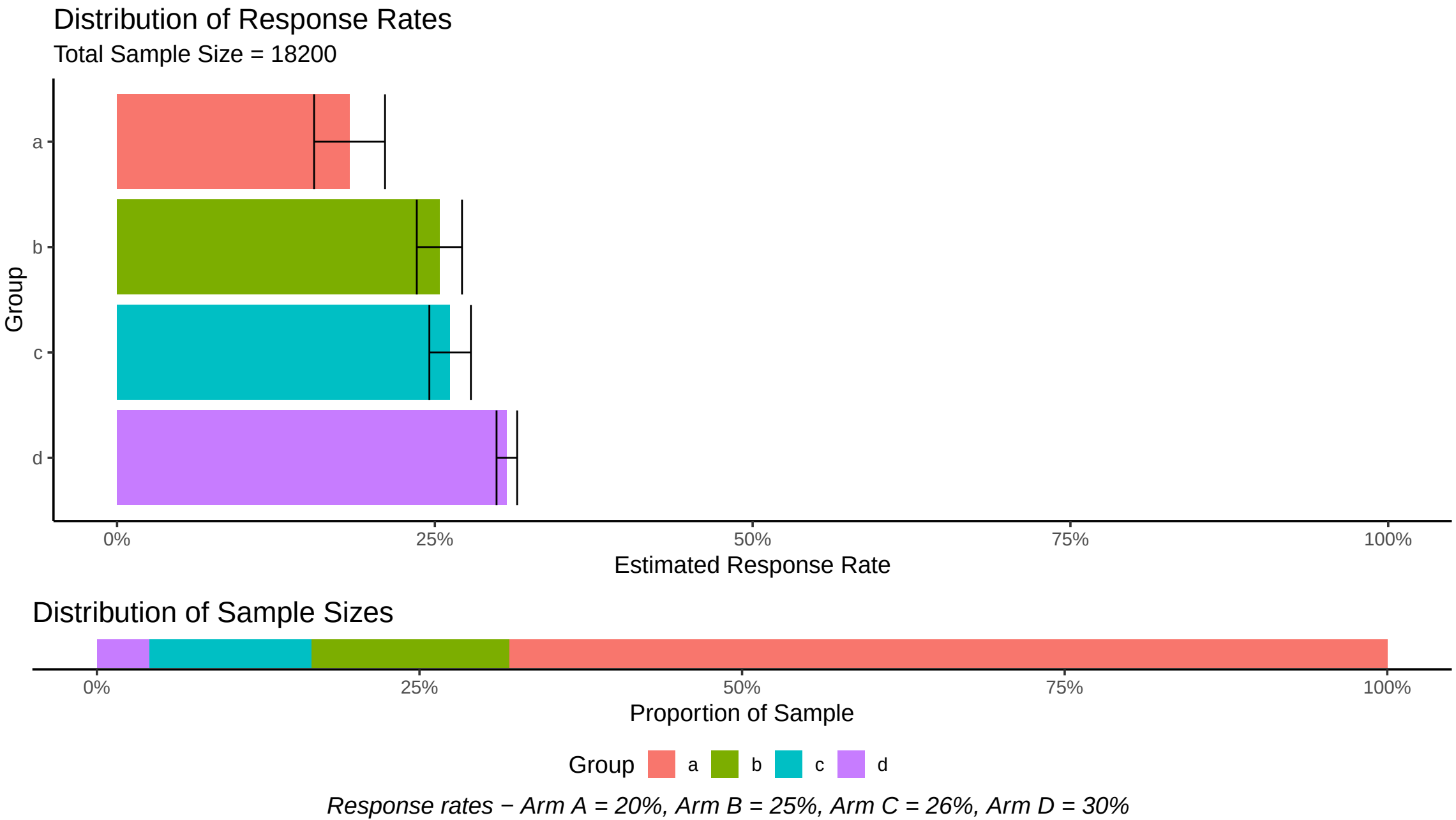

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

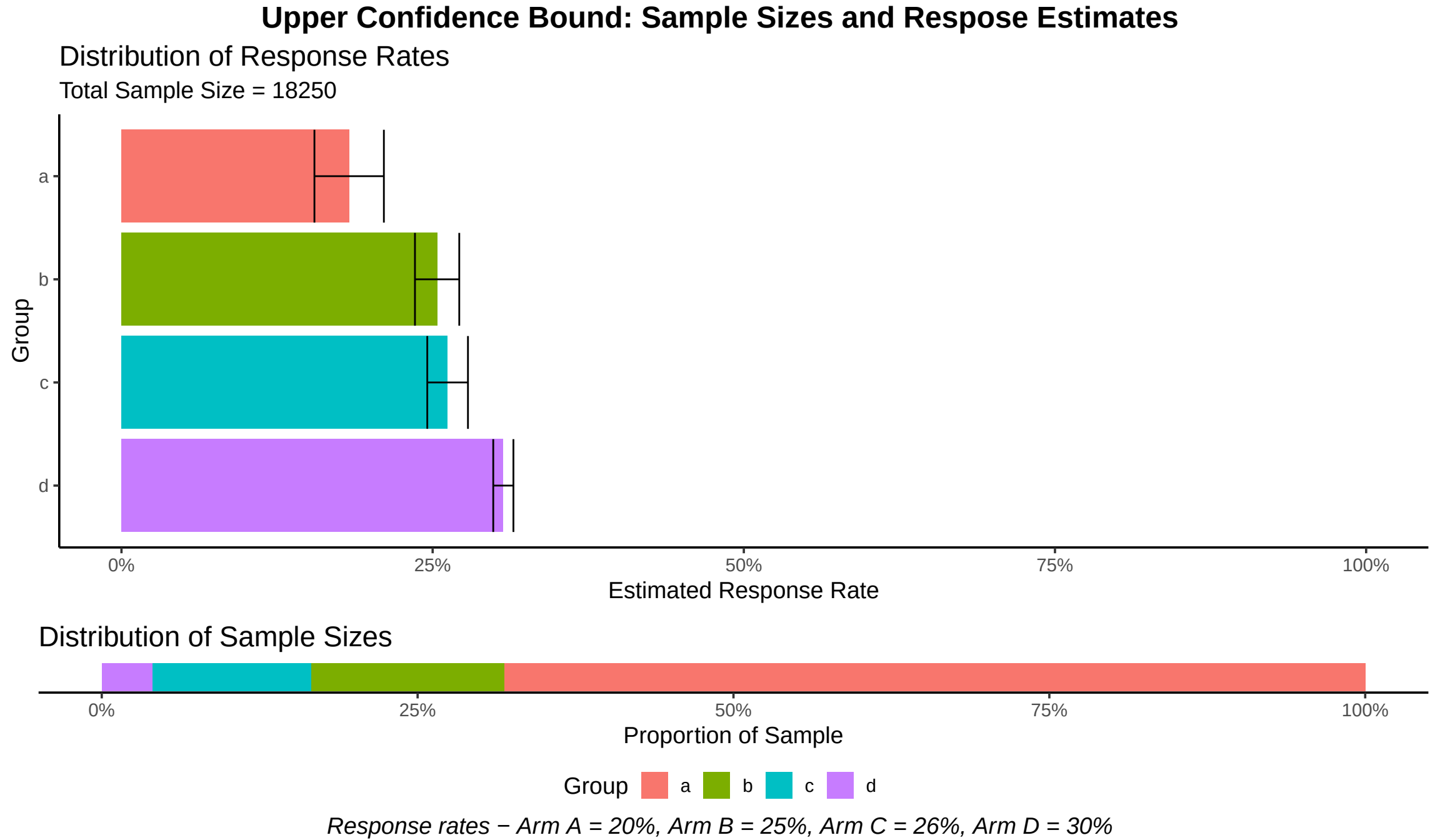

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

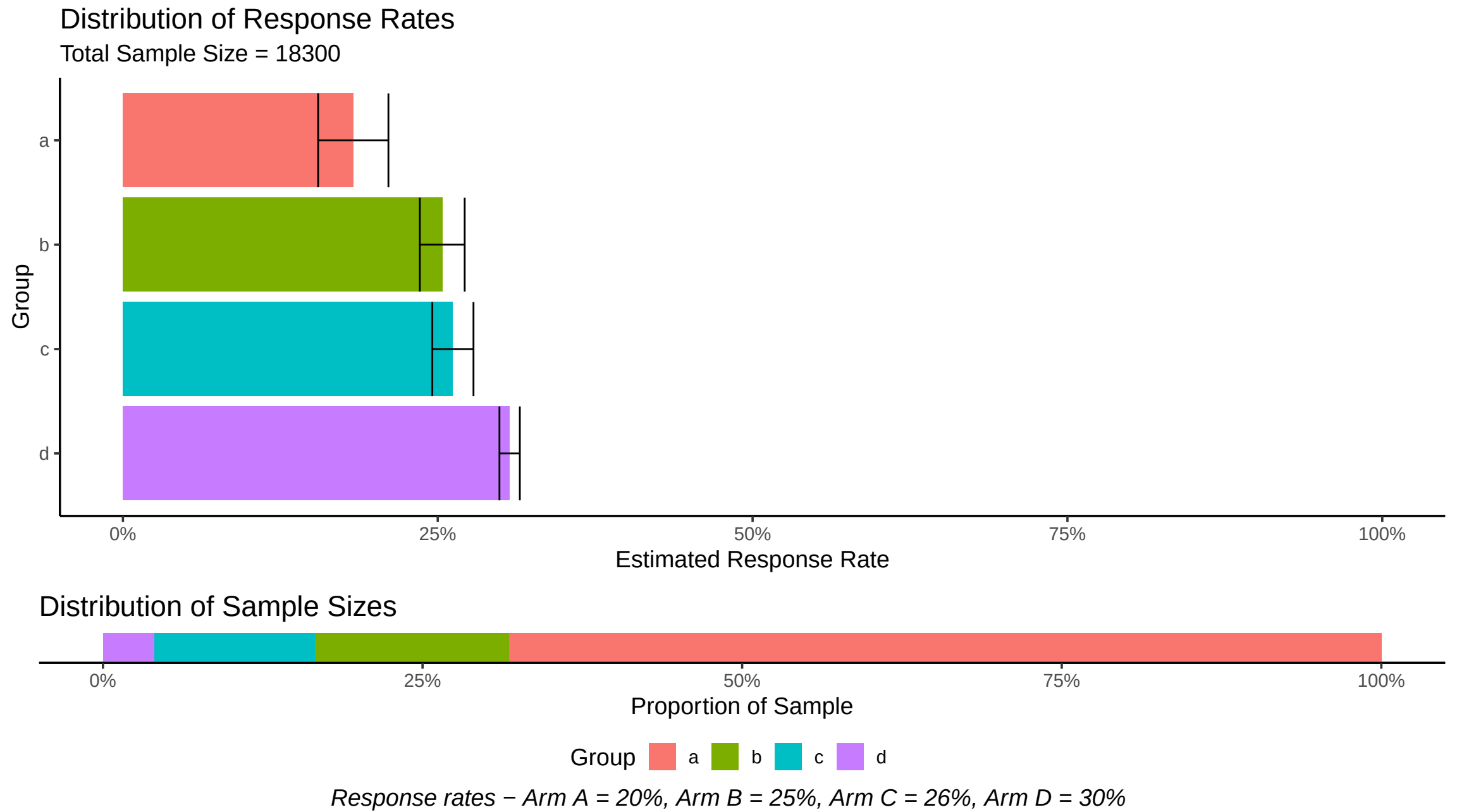
Upper Confidence Bound: Sample Sizes and Respose Estimates



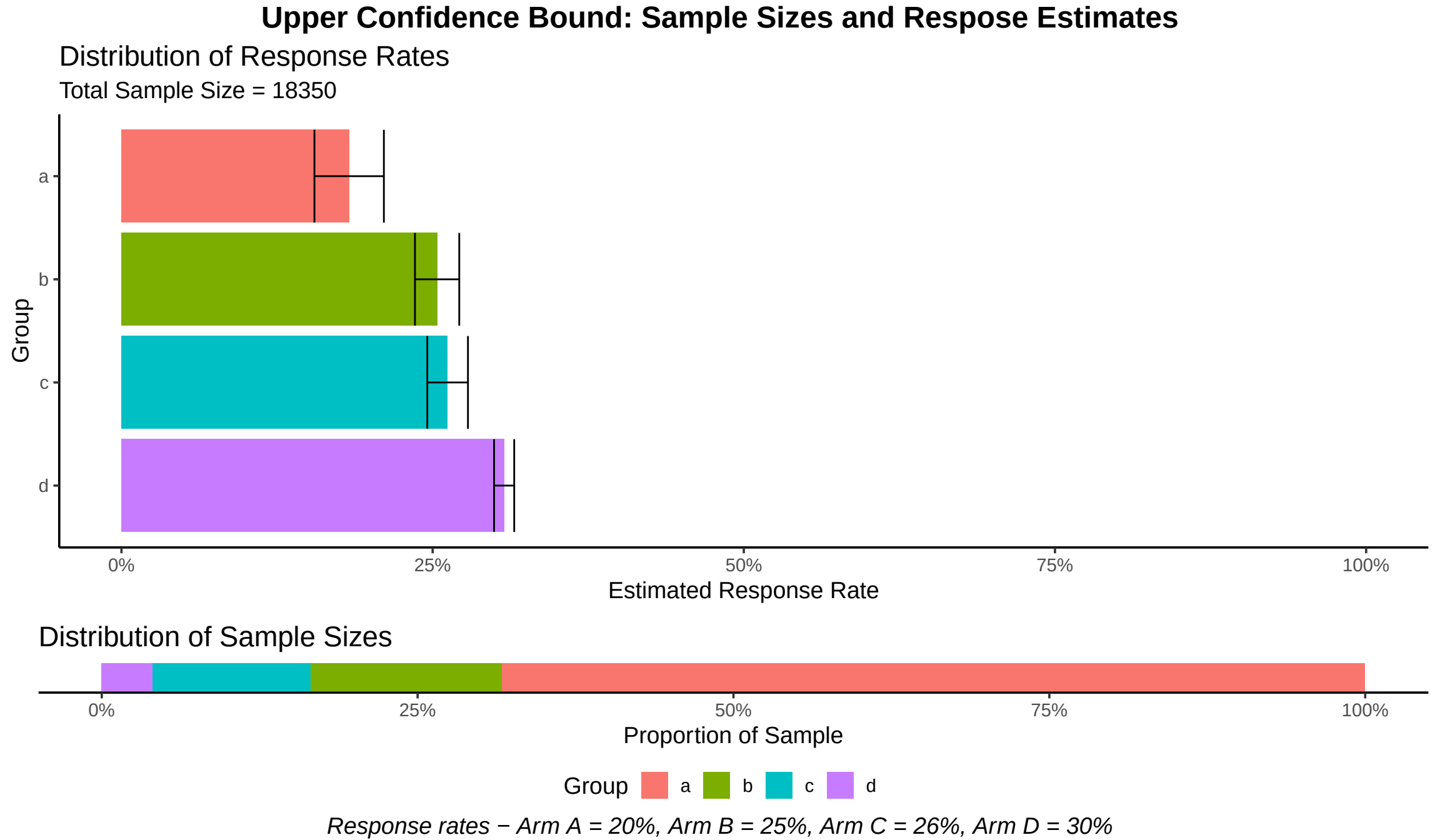
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

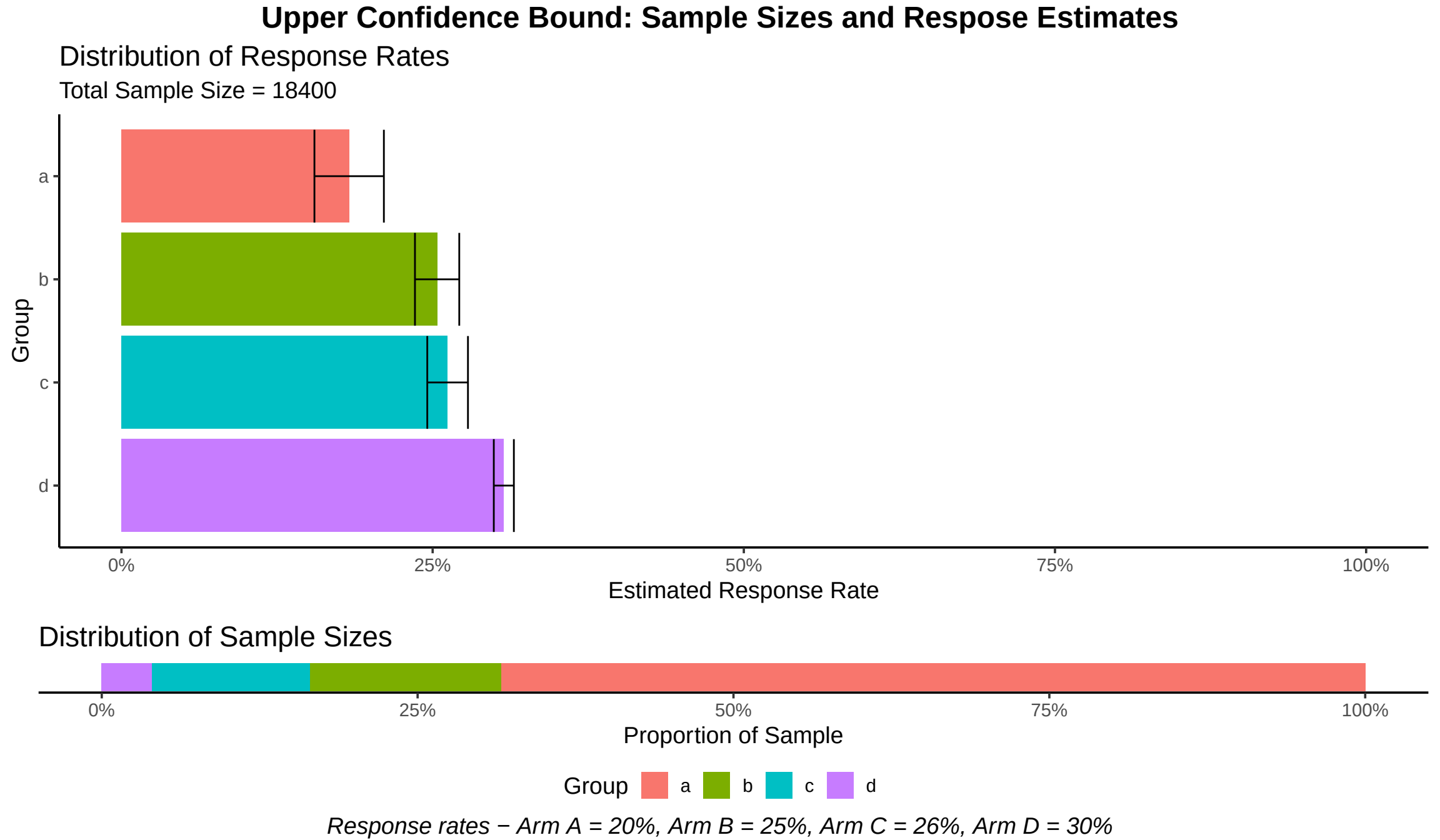

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

Upper Confidence Bound: Sample Sizes and Respose Estimates

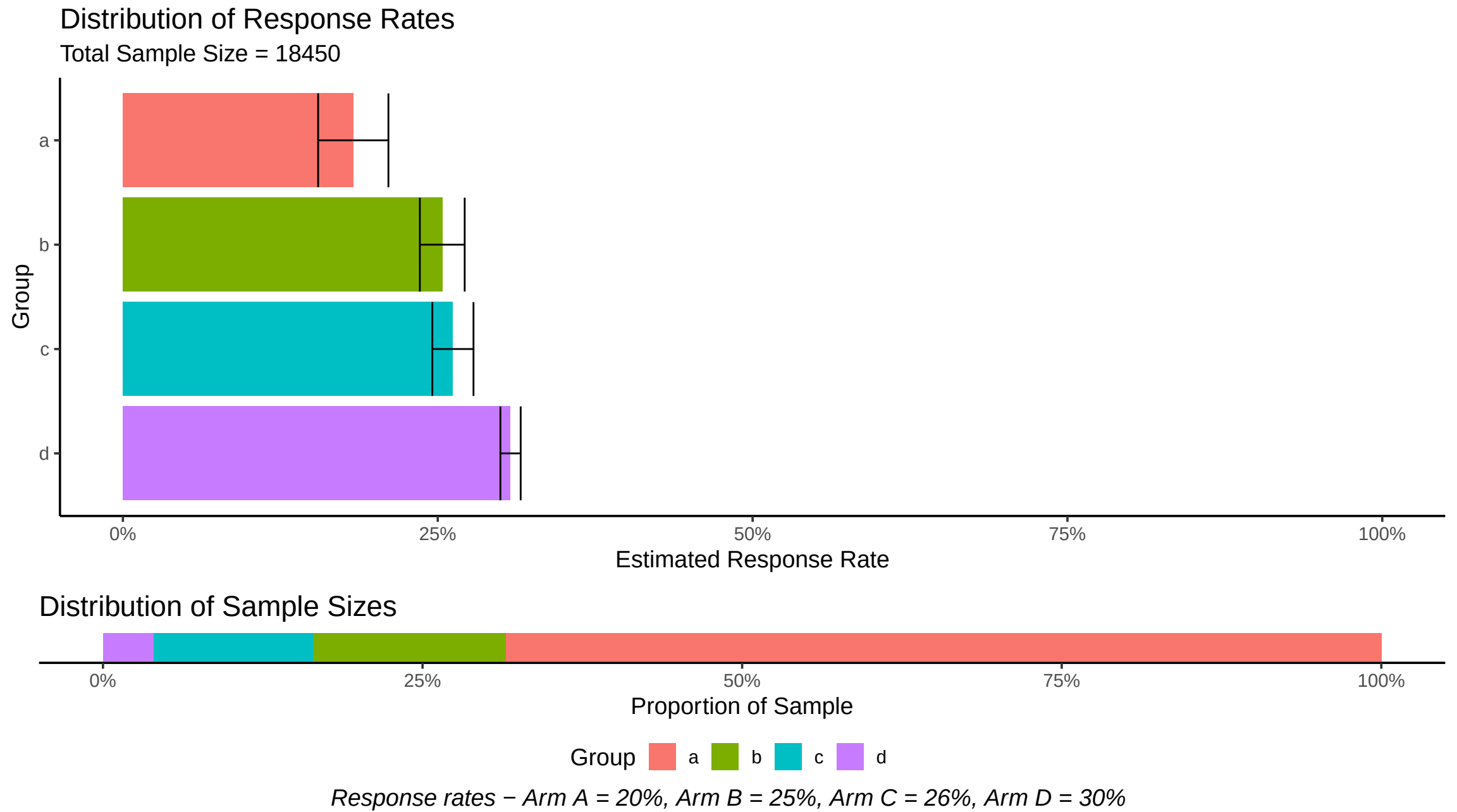


Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

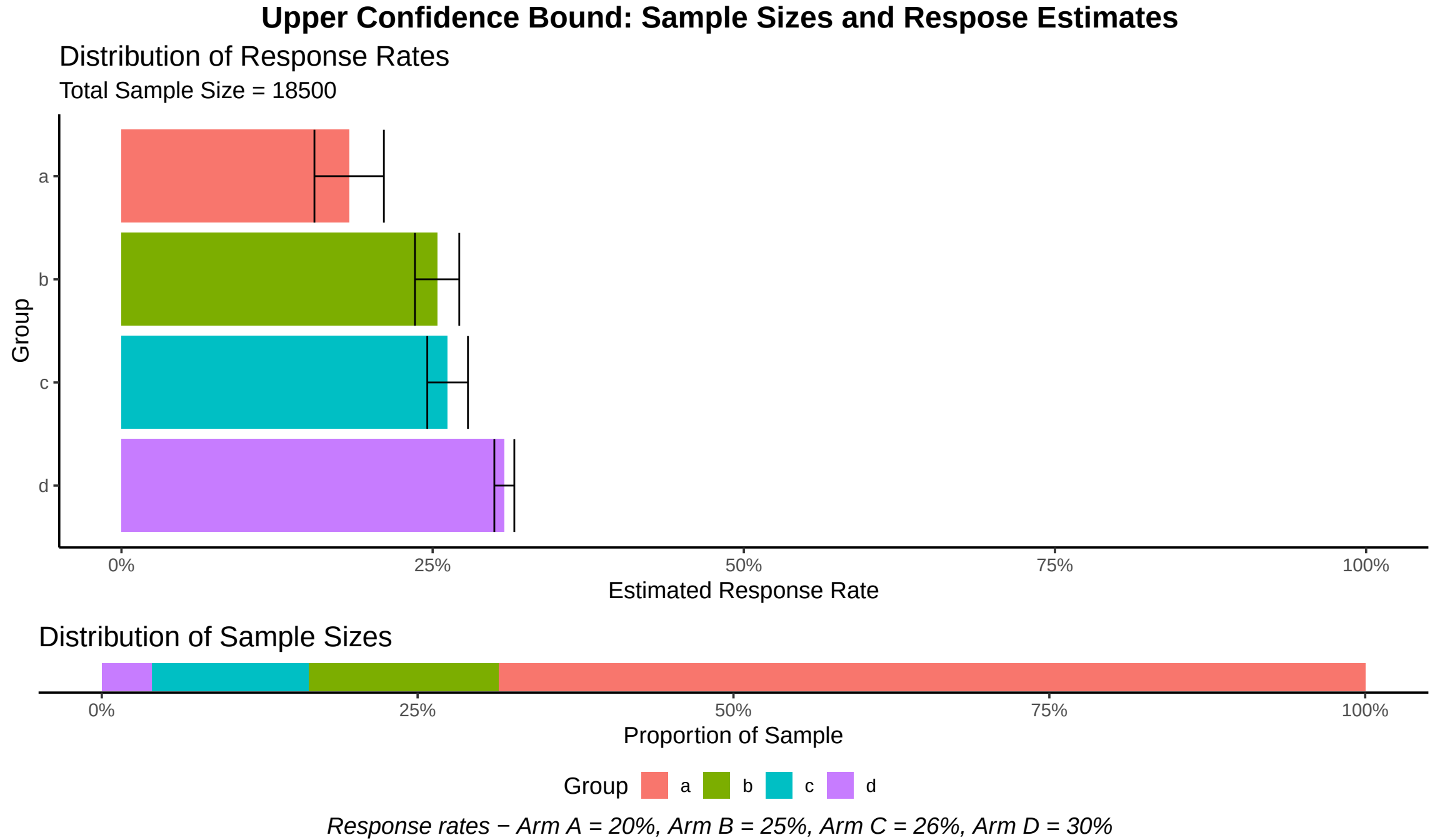

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

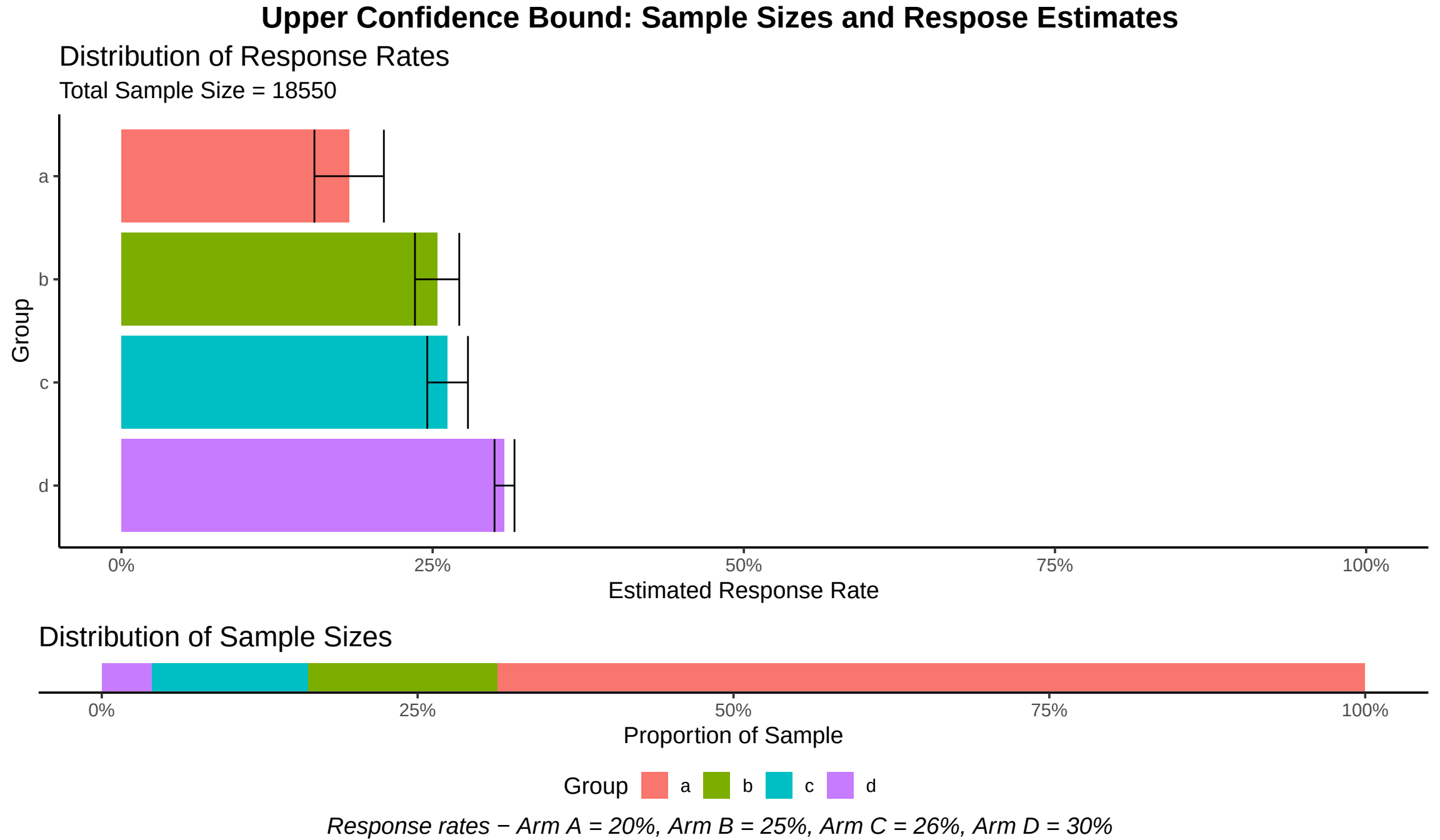

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

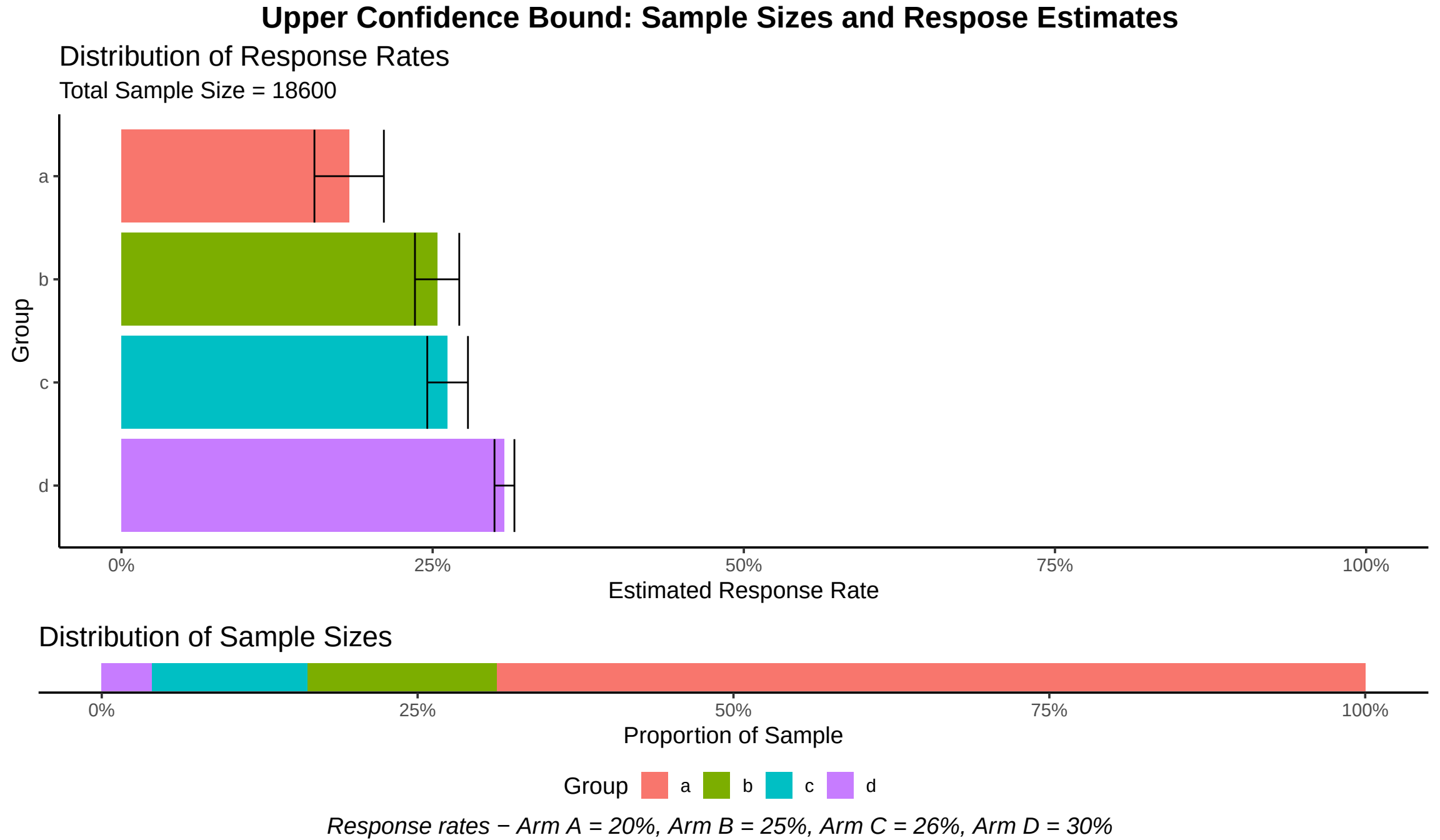
Upper Confidence Bound: Sample Sizes and Respose Estimates

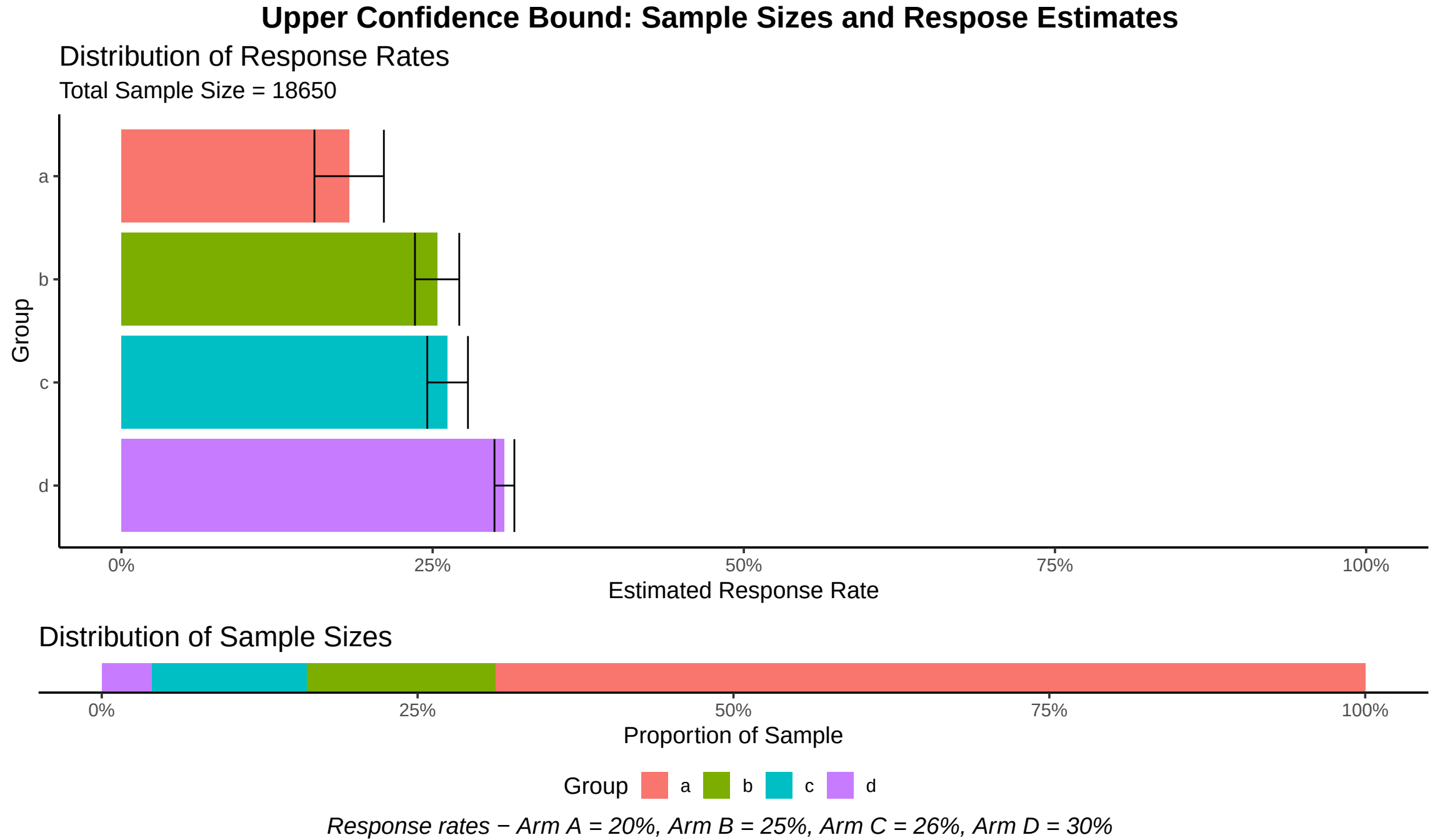


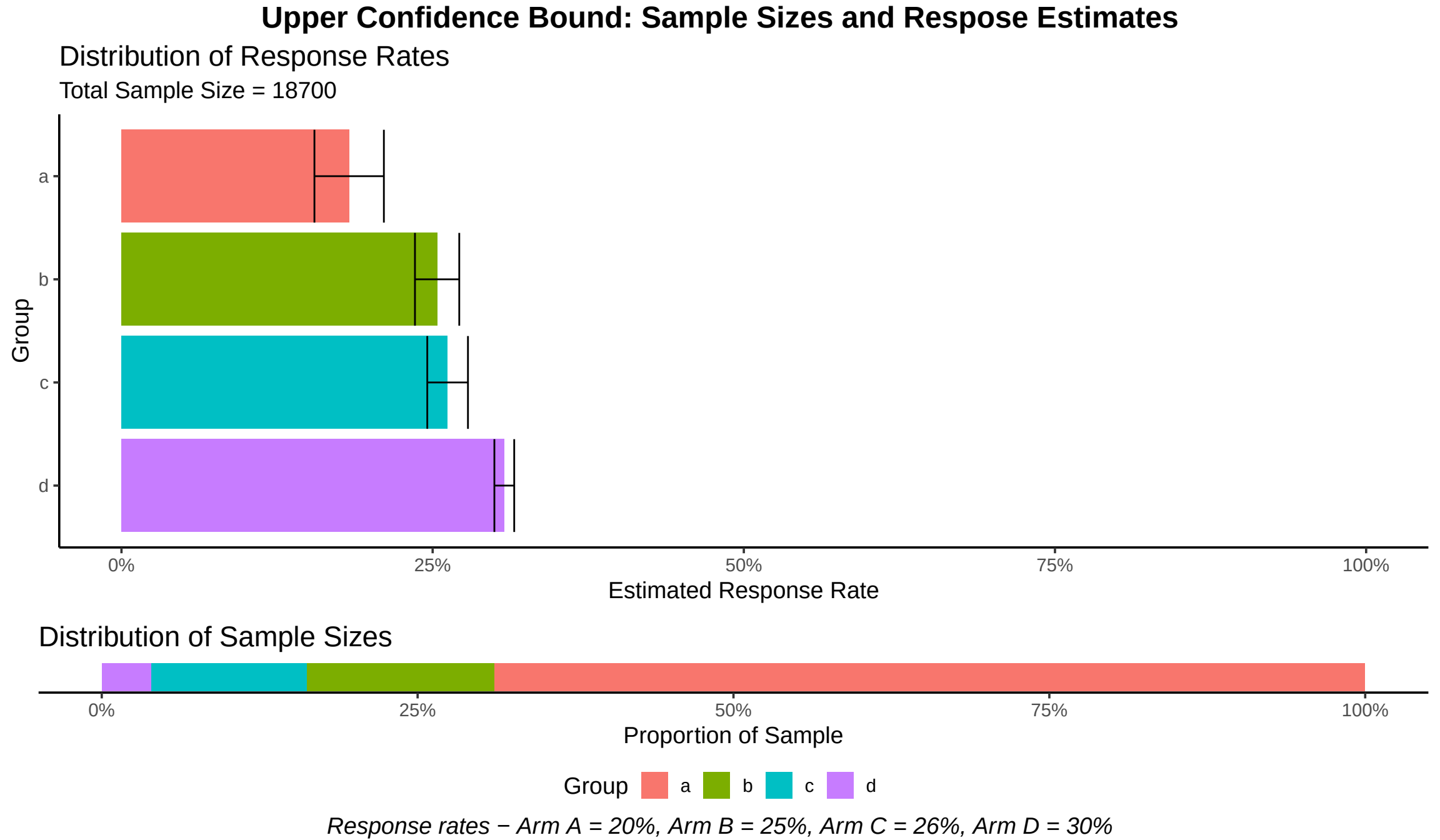
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

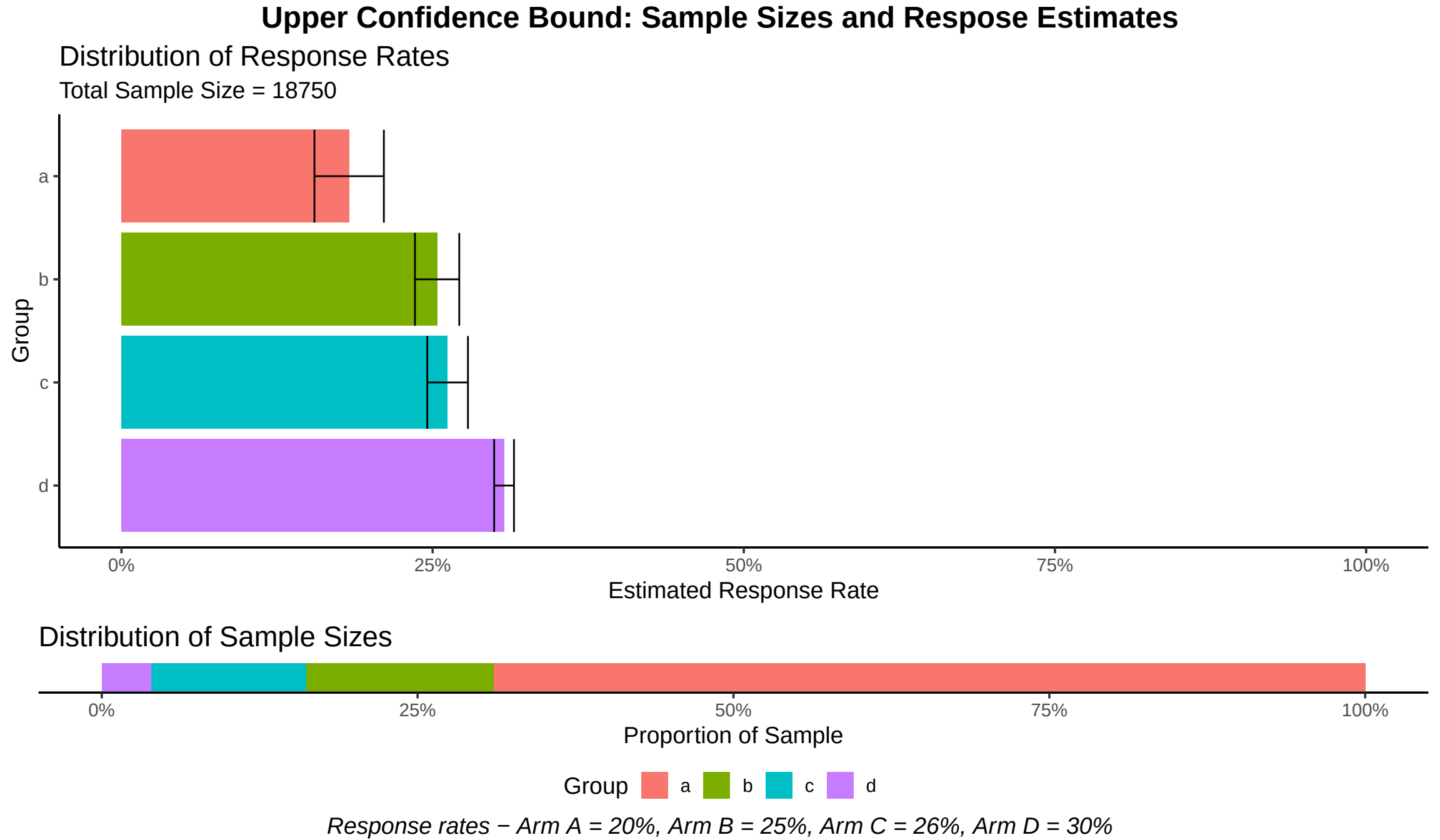

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

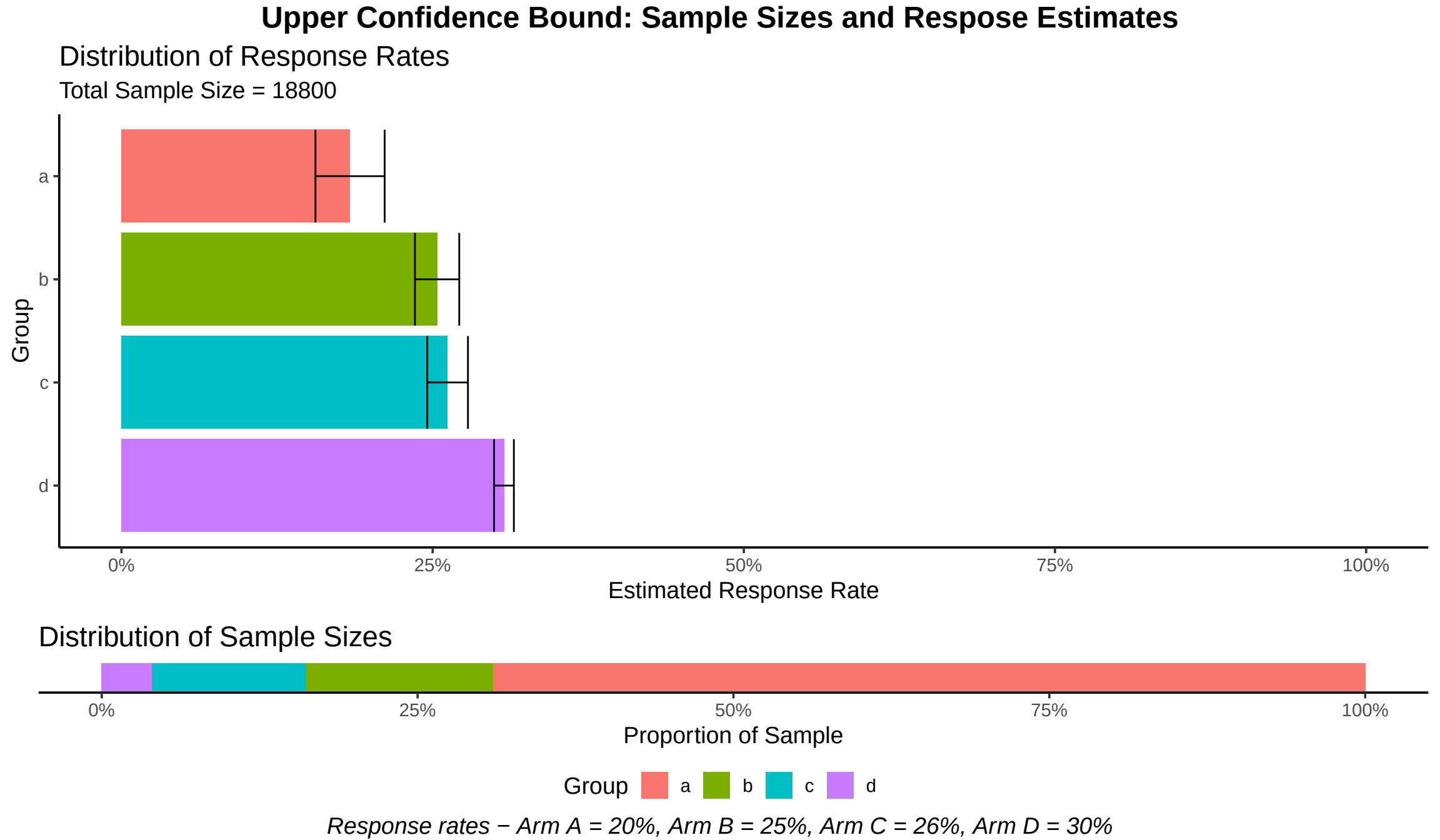

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

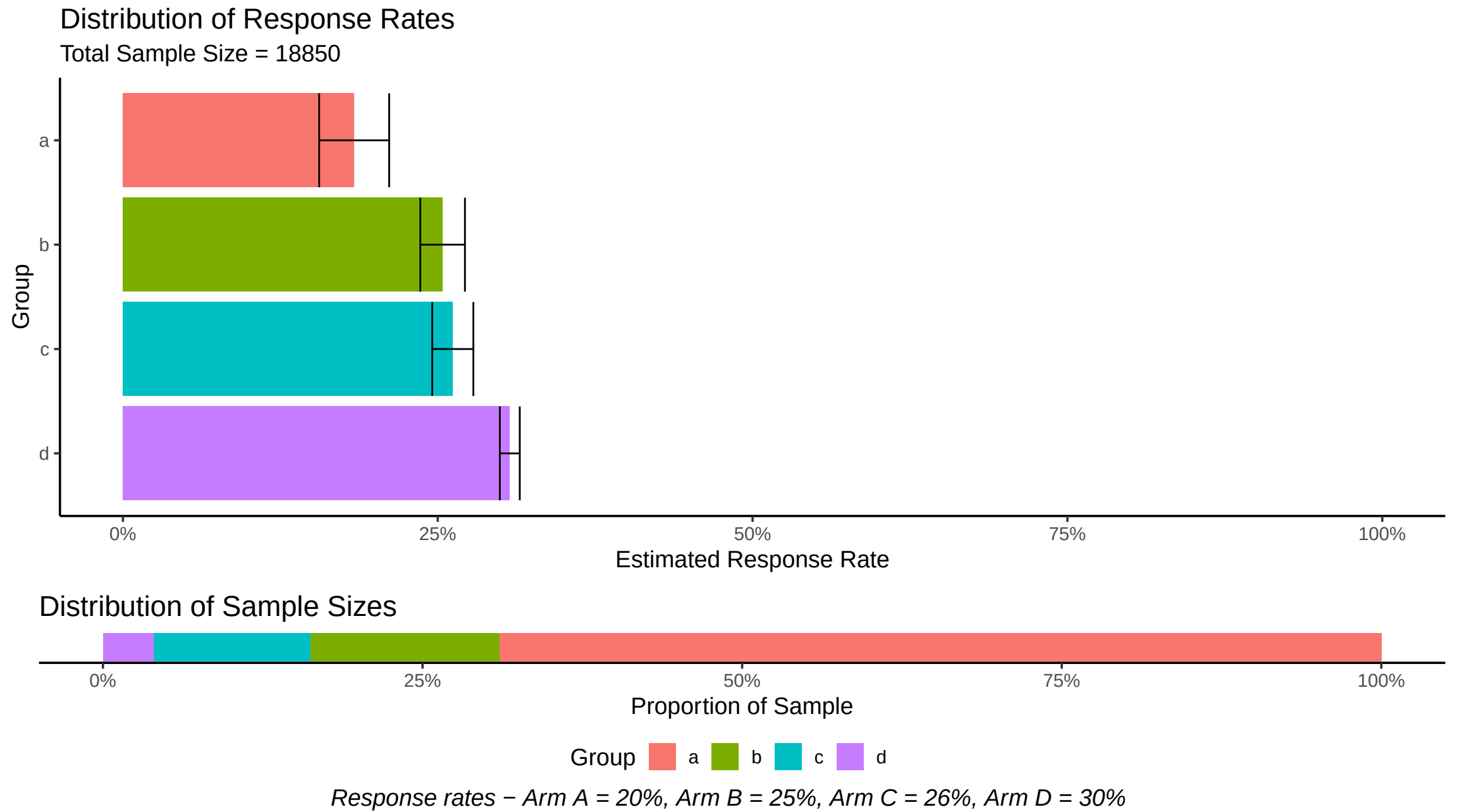

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

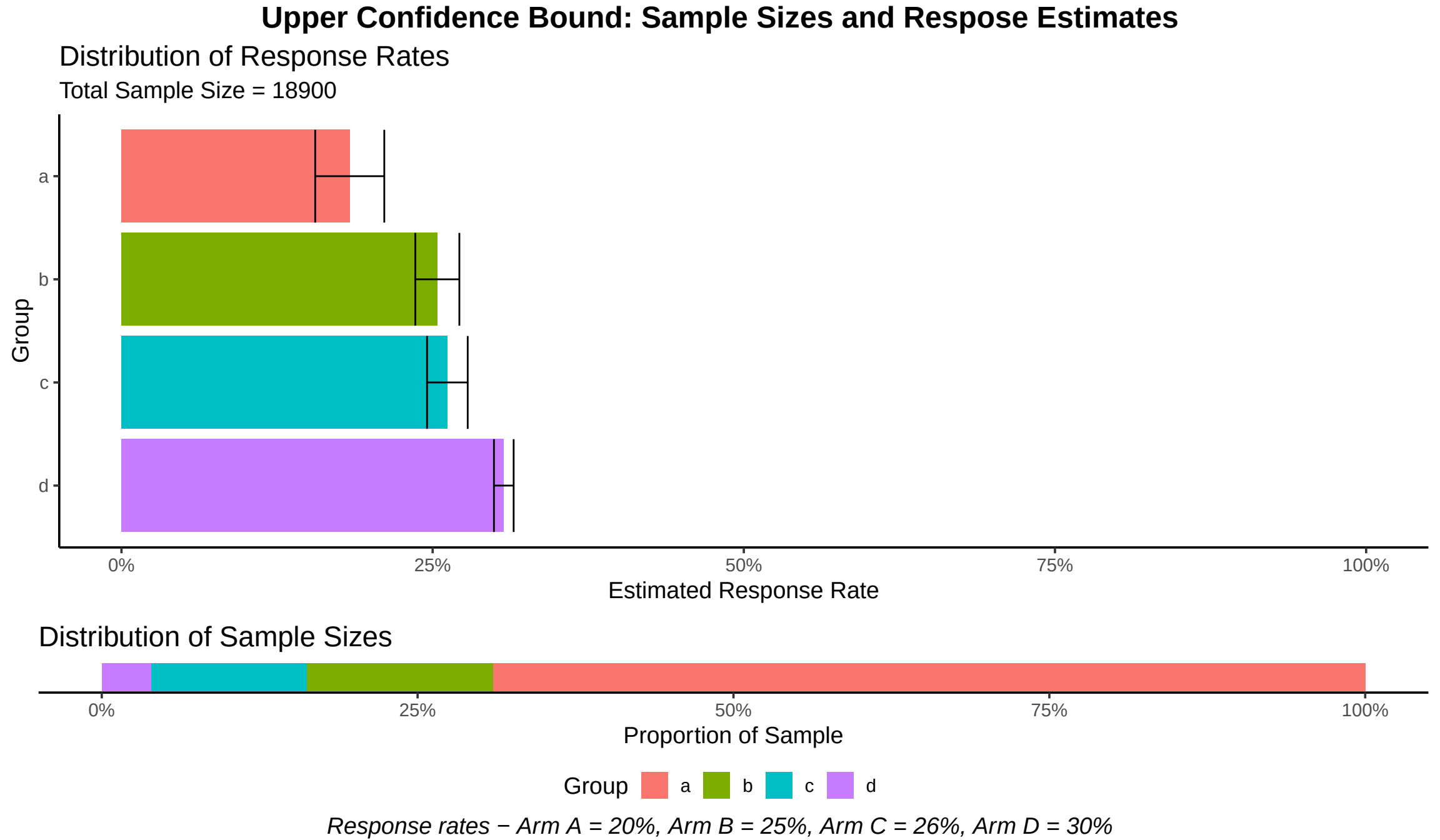

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

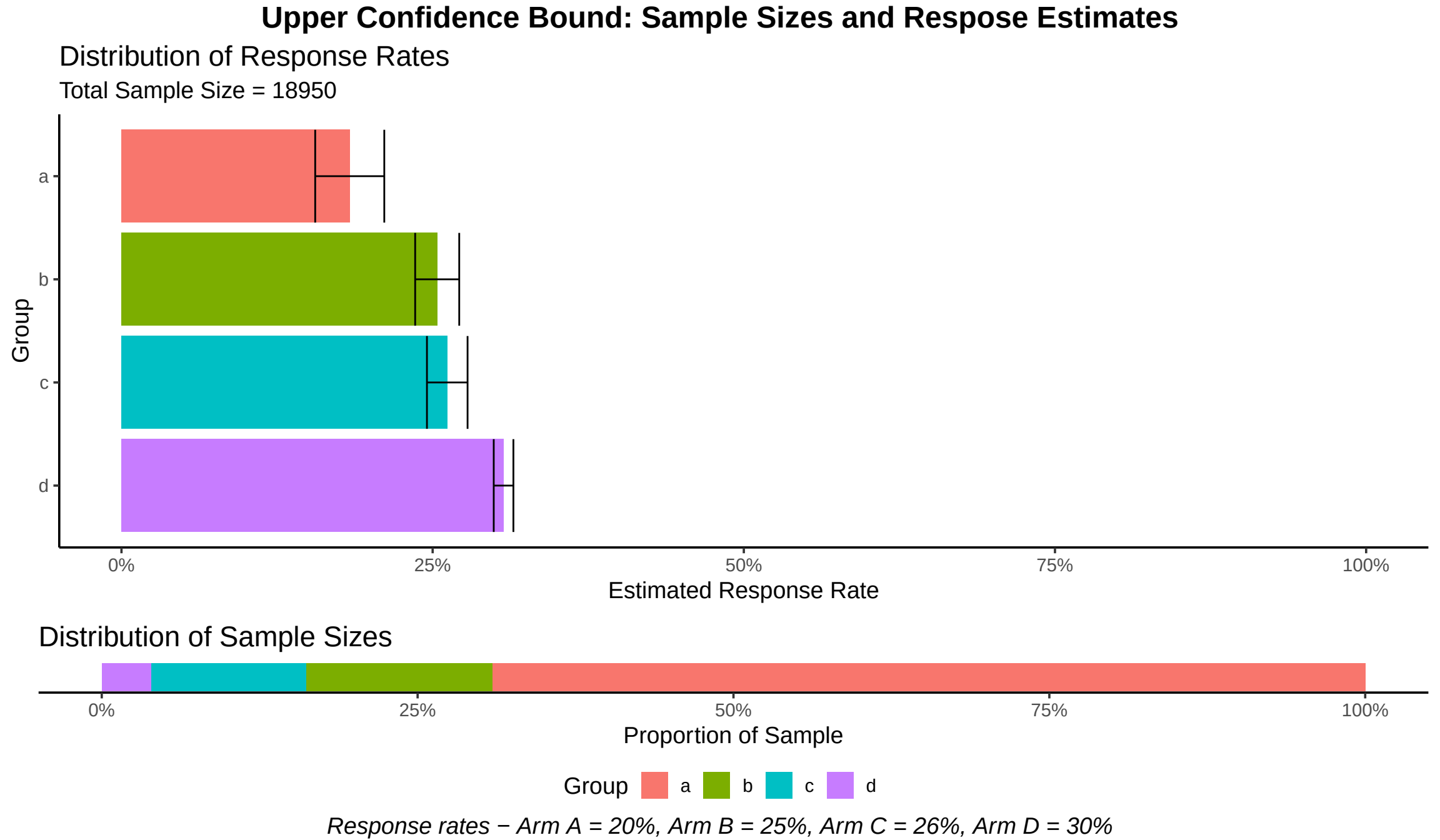

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

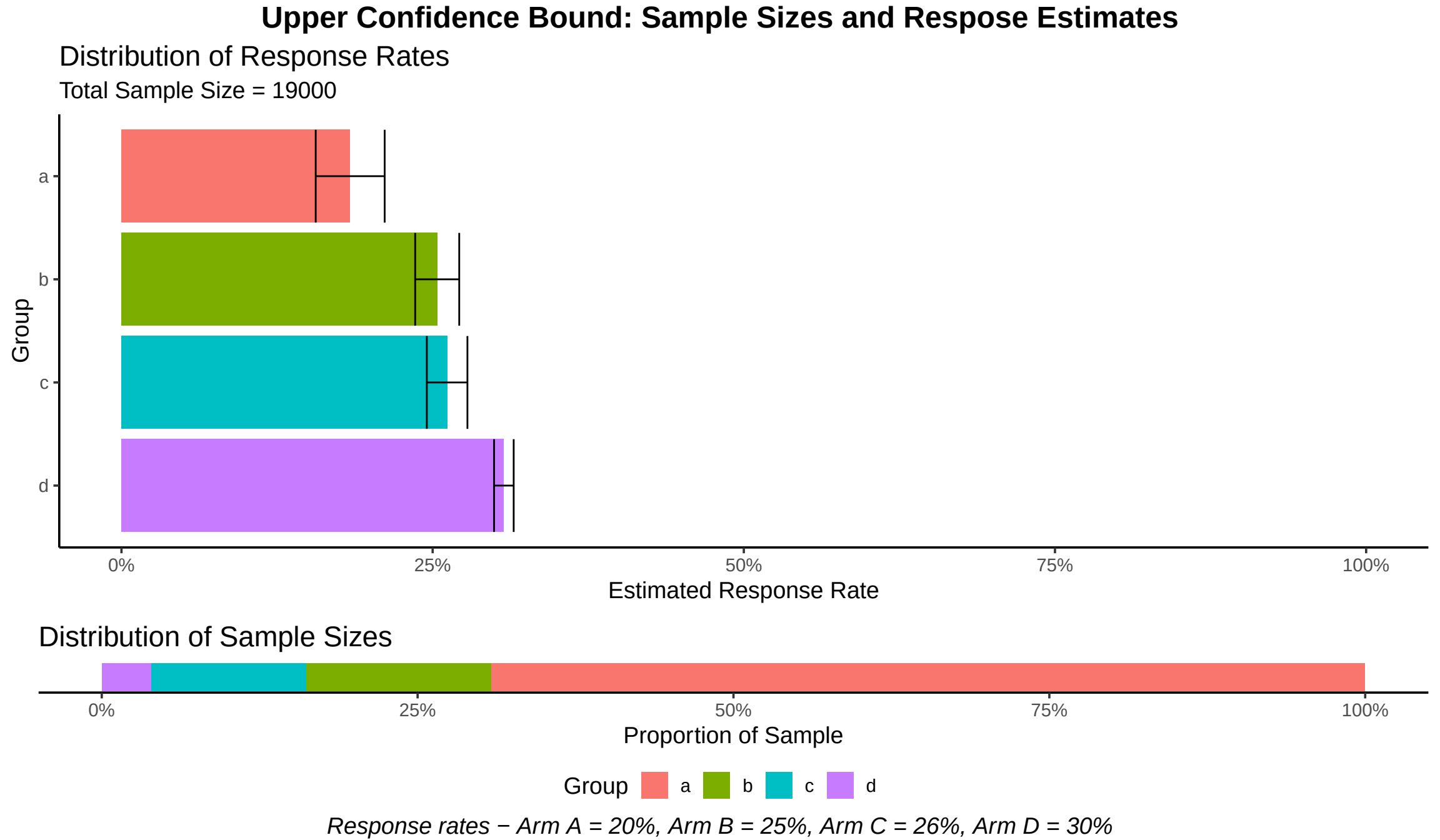
Upper Confidence Bound: Sample Sizes and Respose Estimates

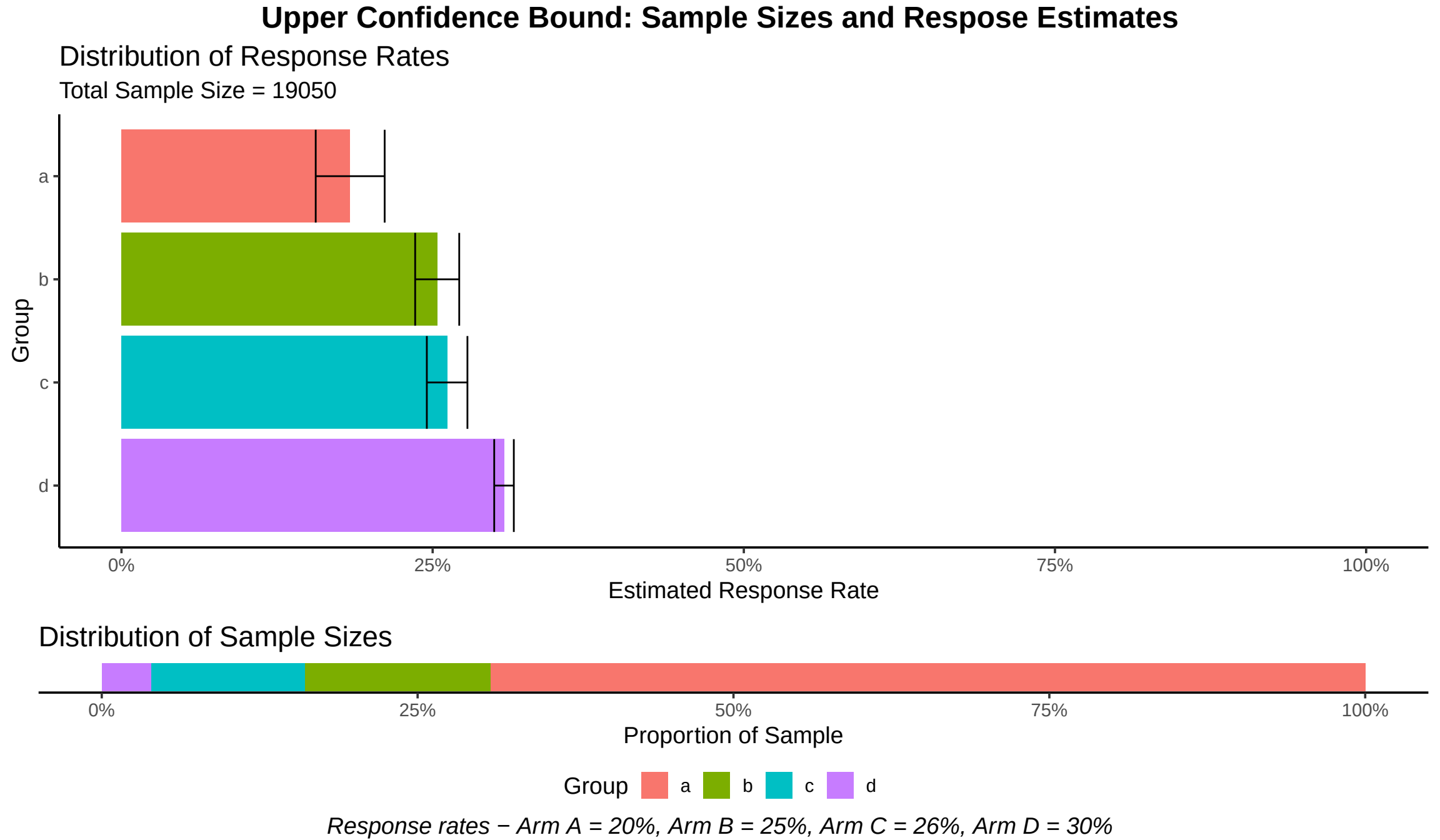


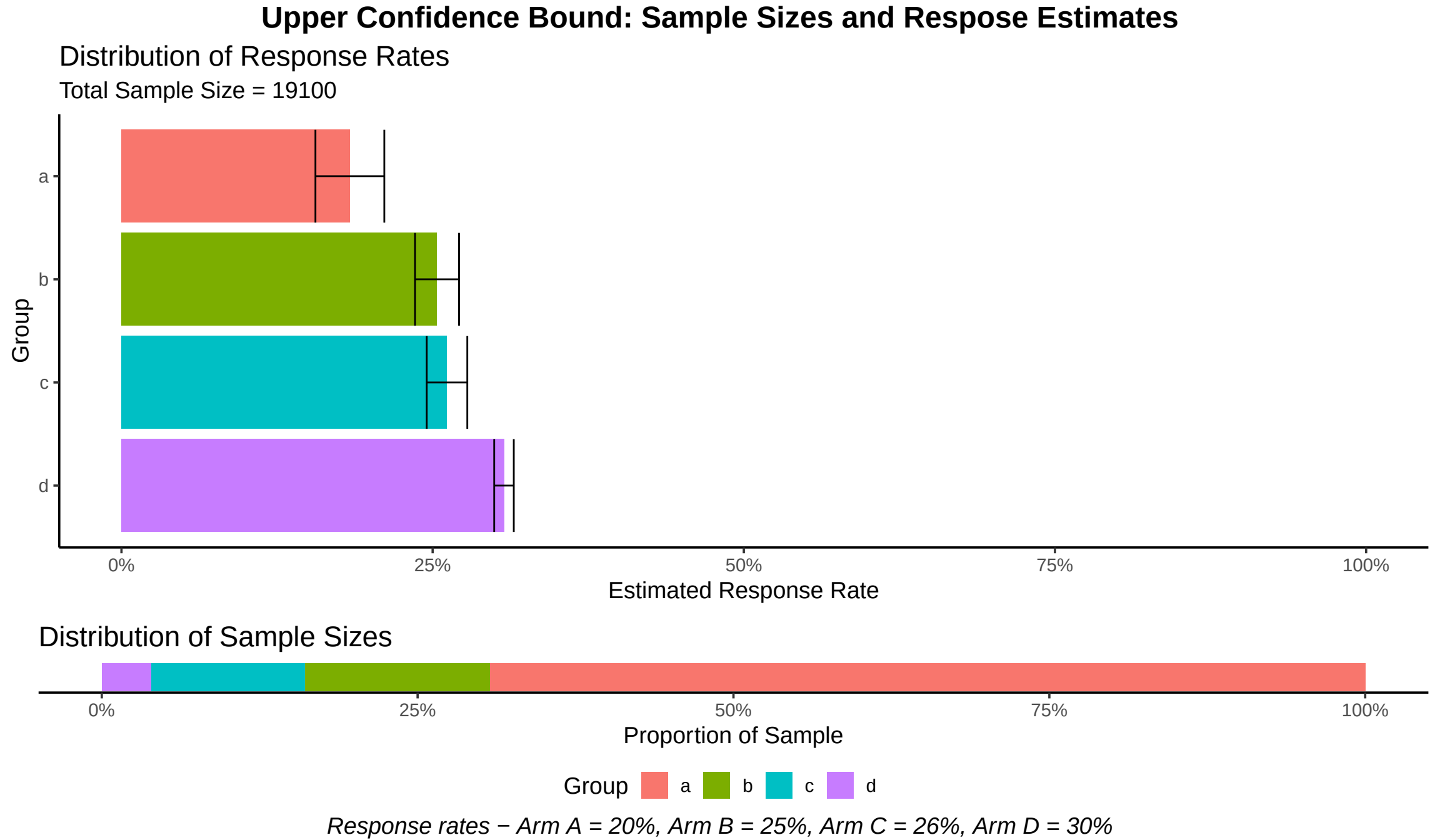
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

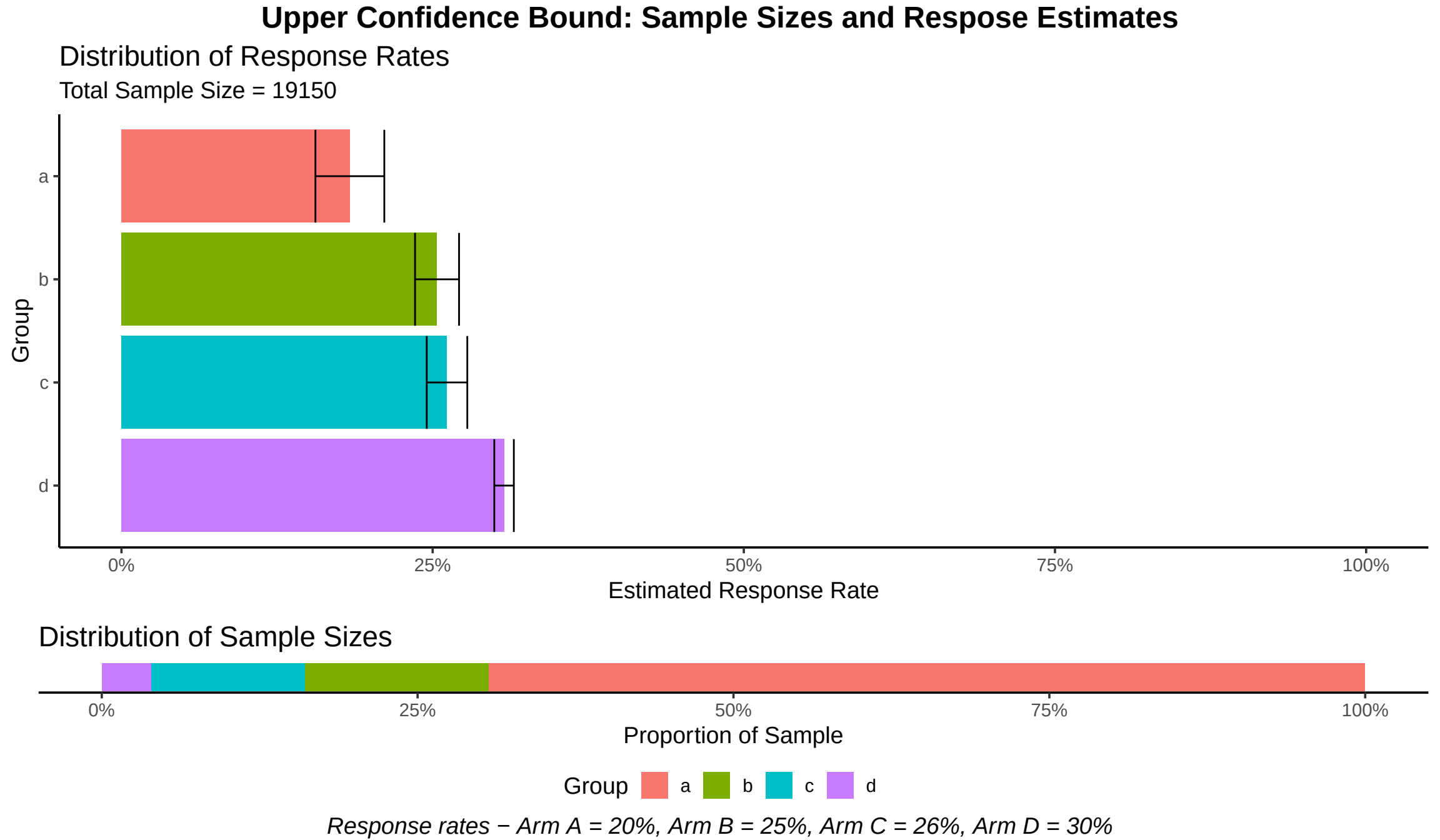

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

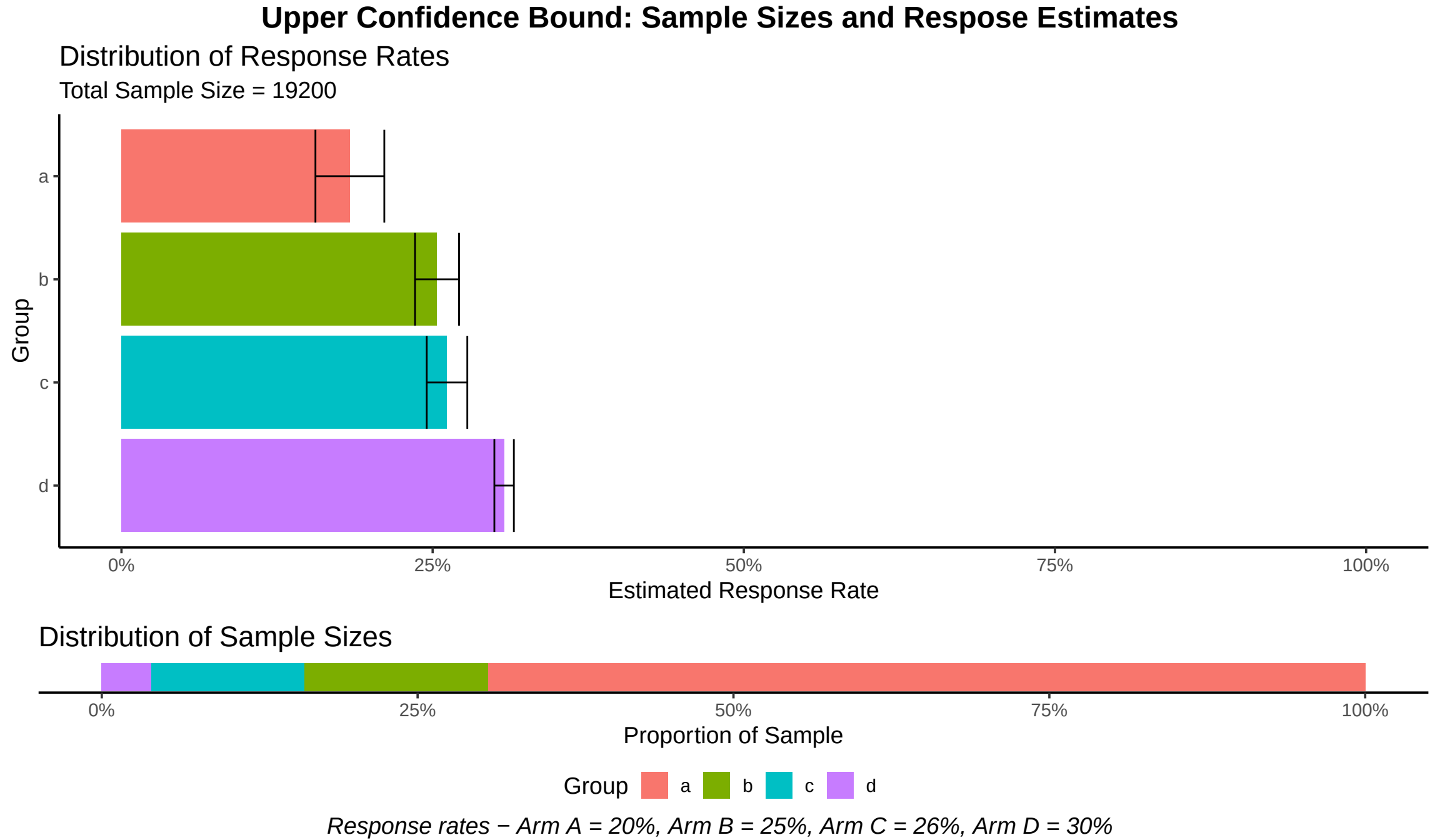

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 18950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

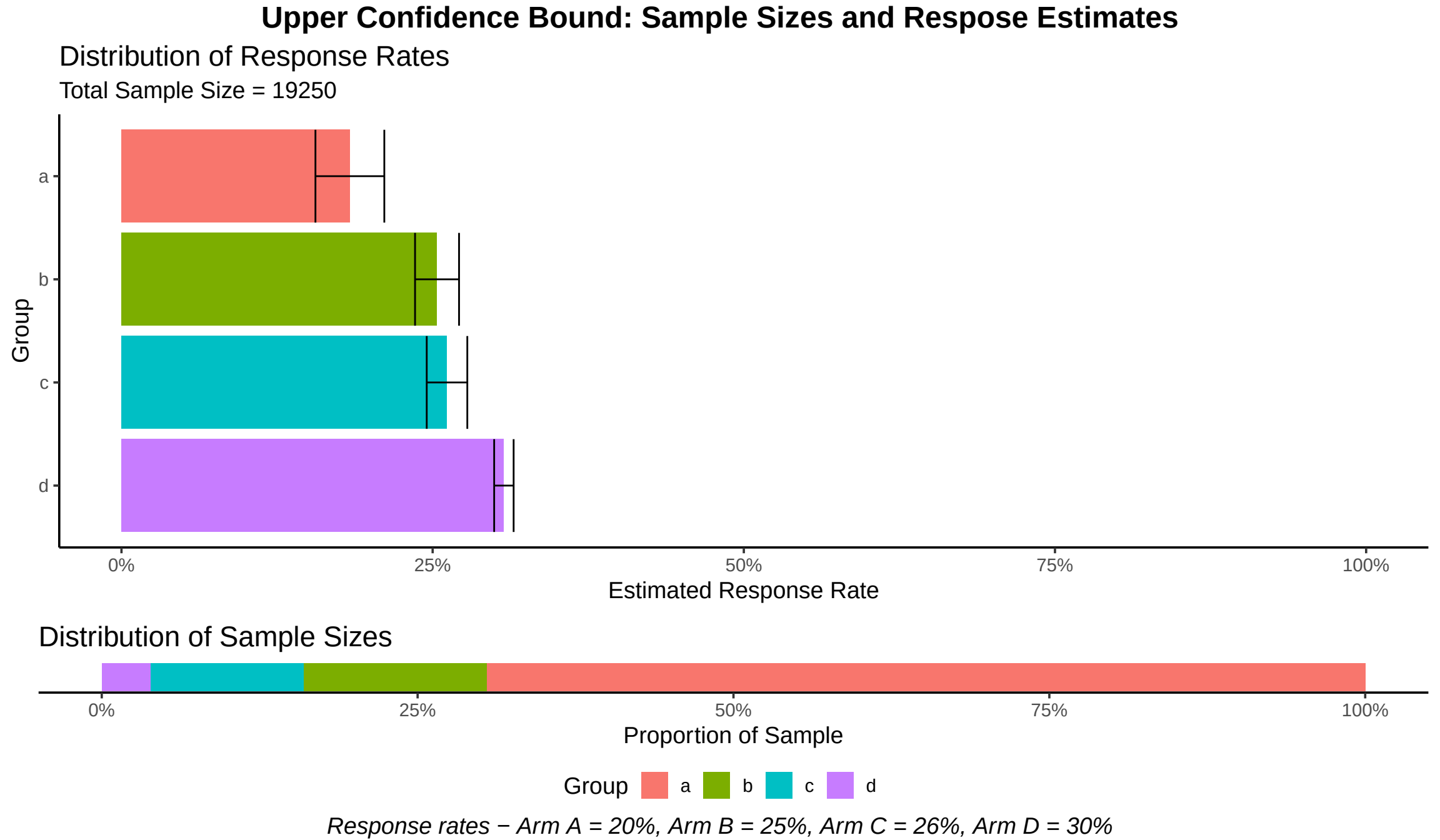

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

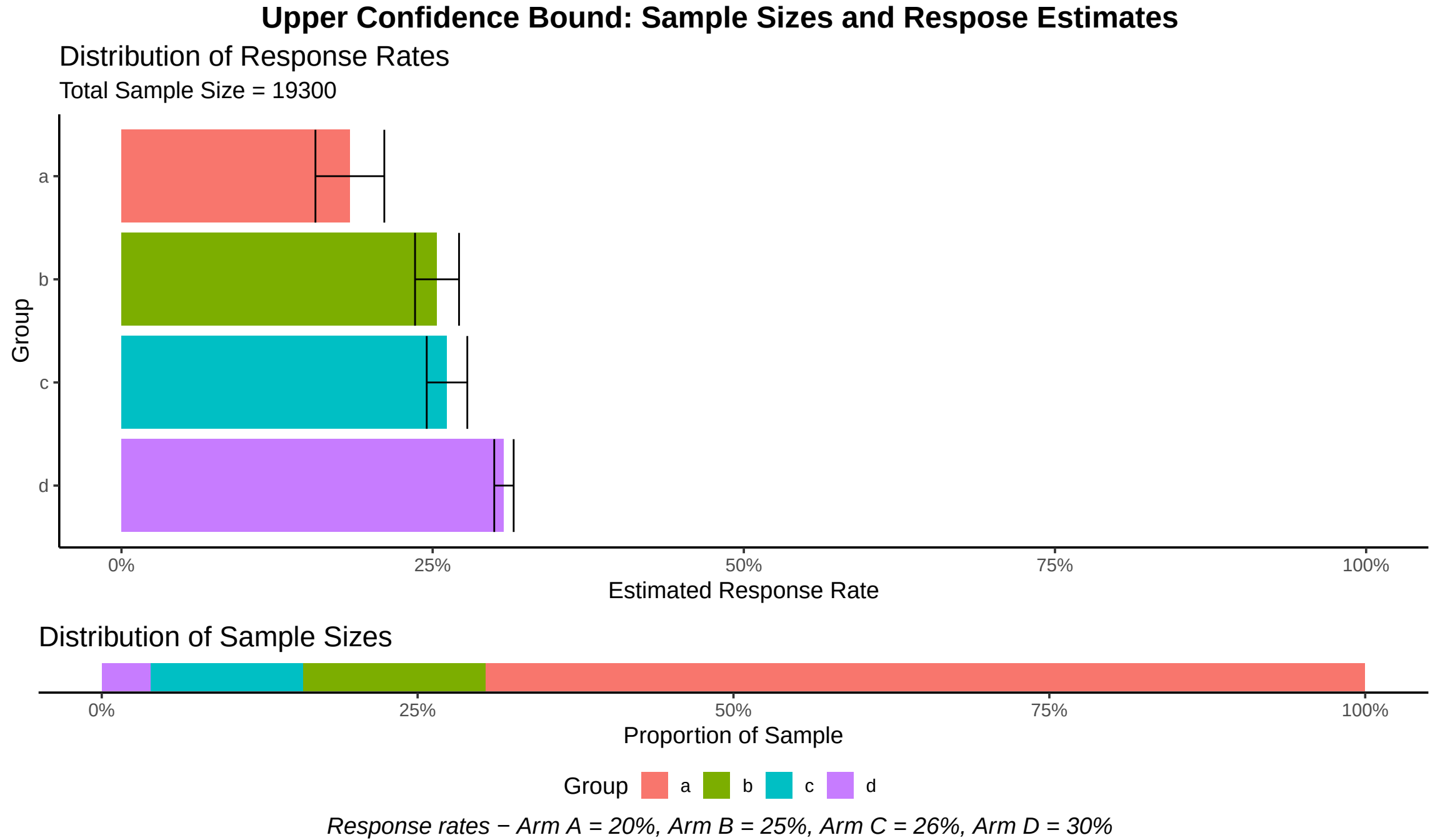

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19050
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

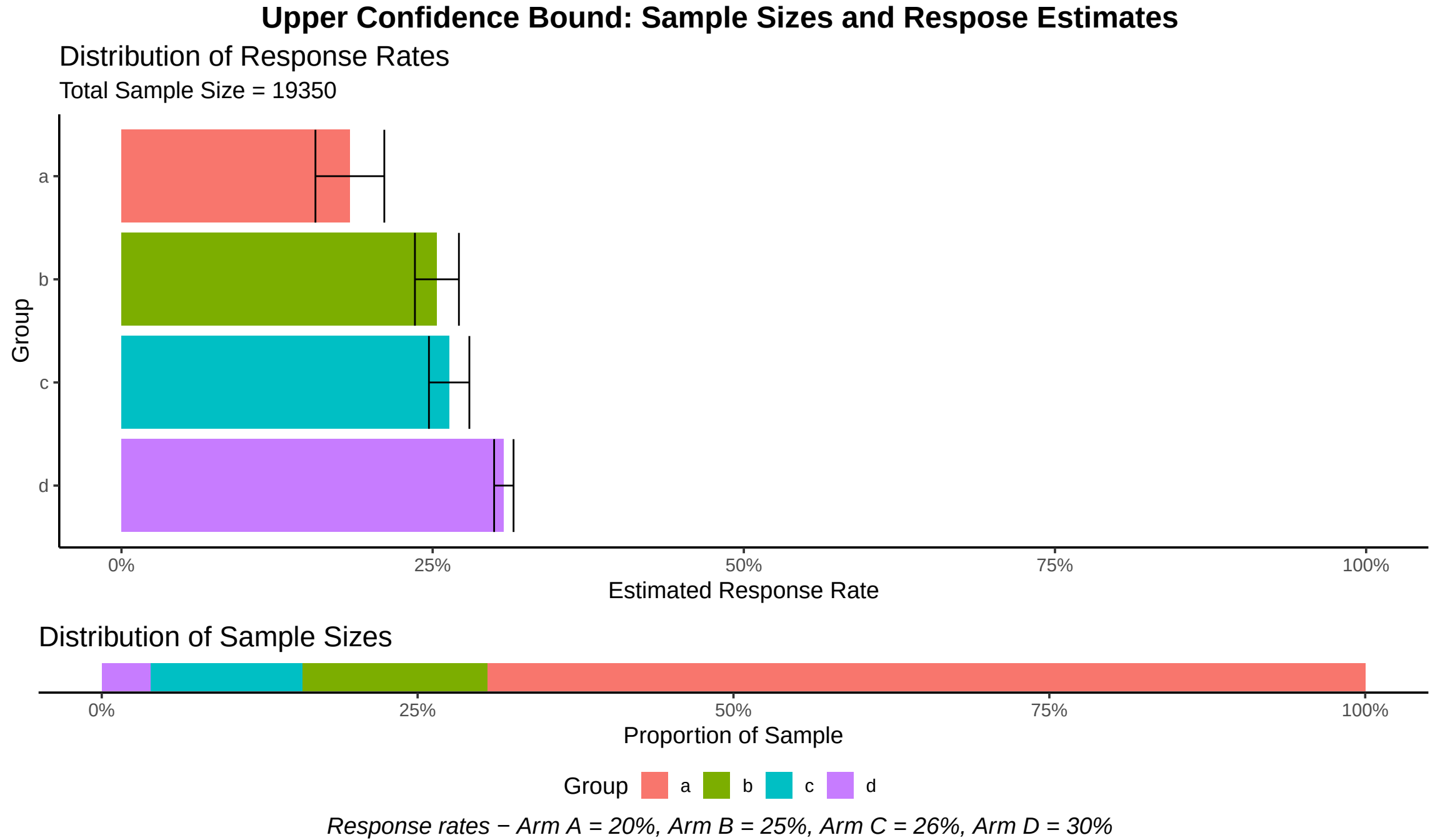

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19100
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

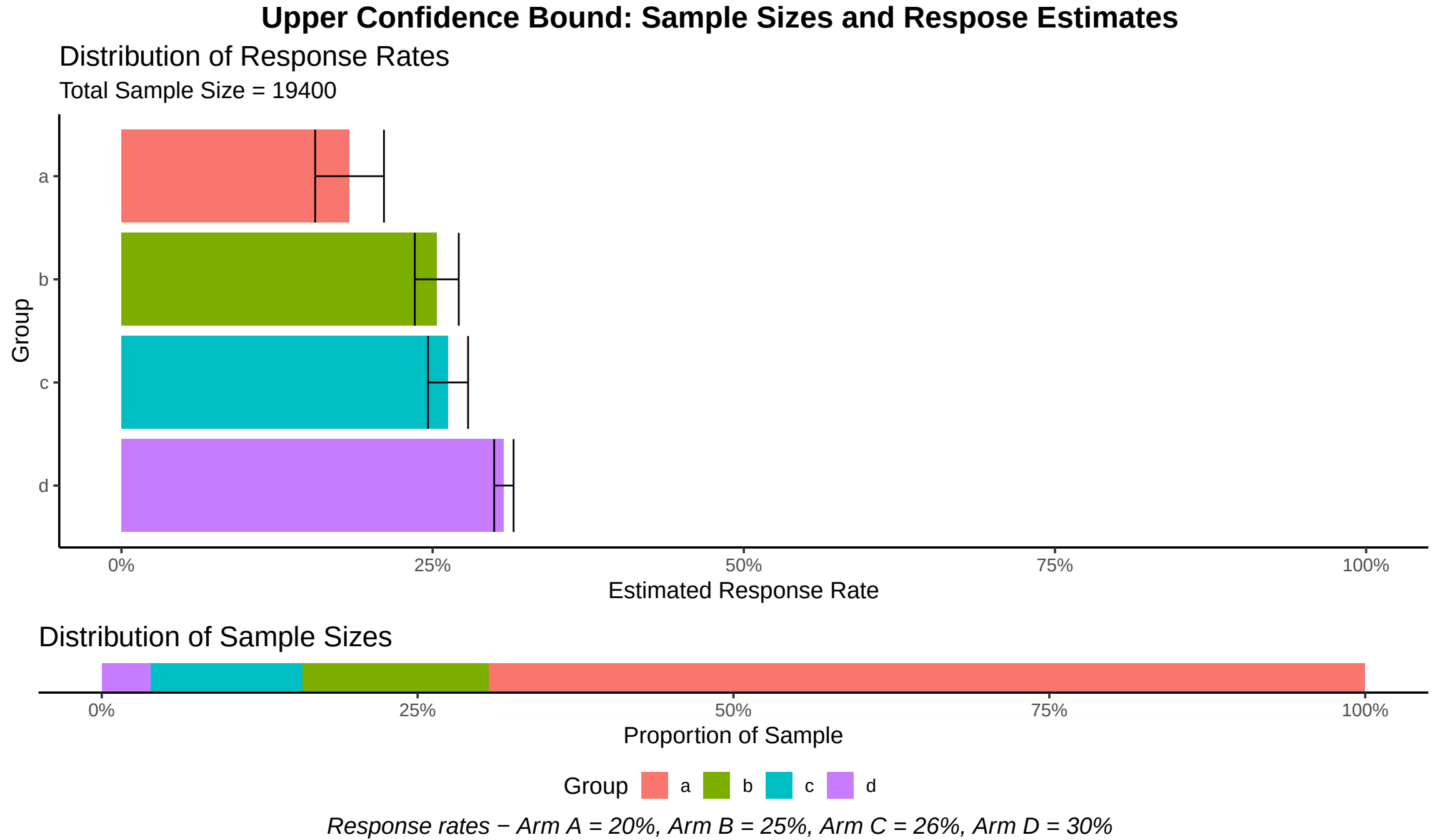

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19150
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

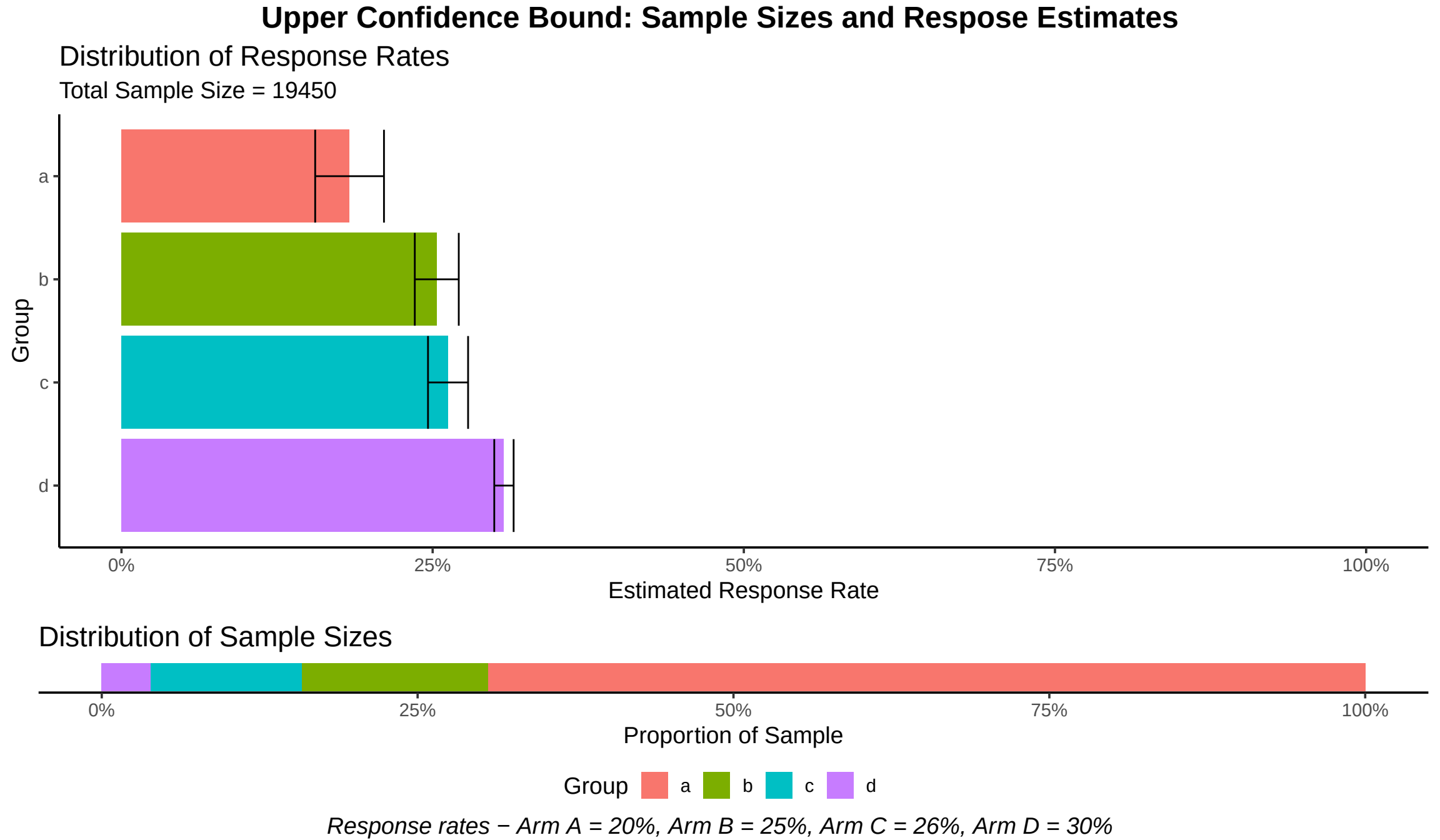

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19200
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

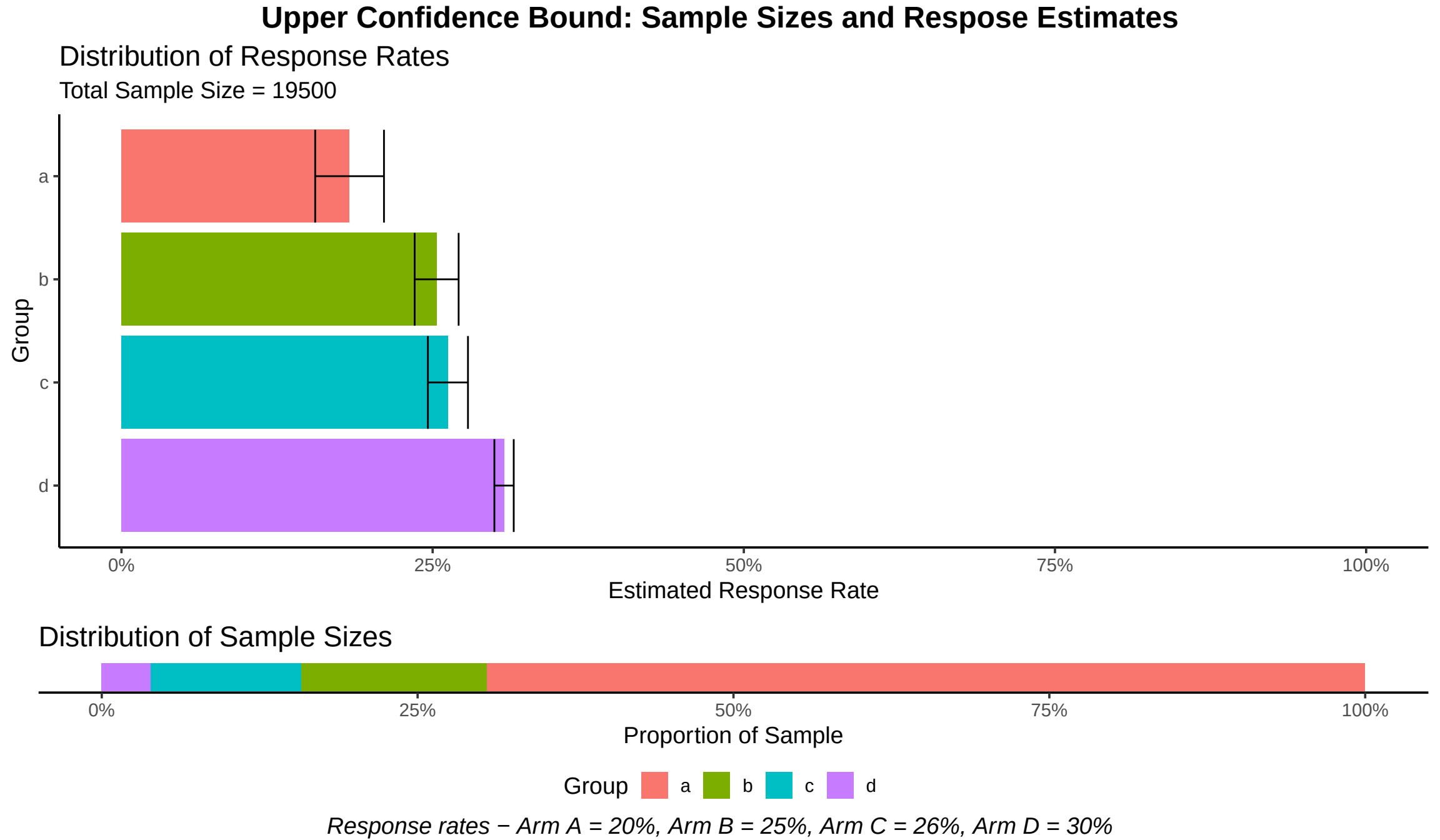

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19250
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

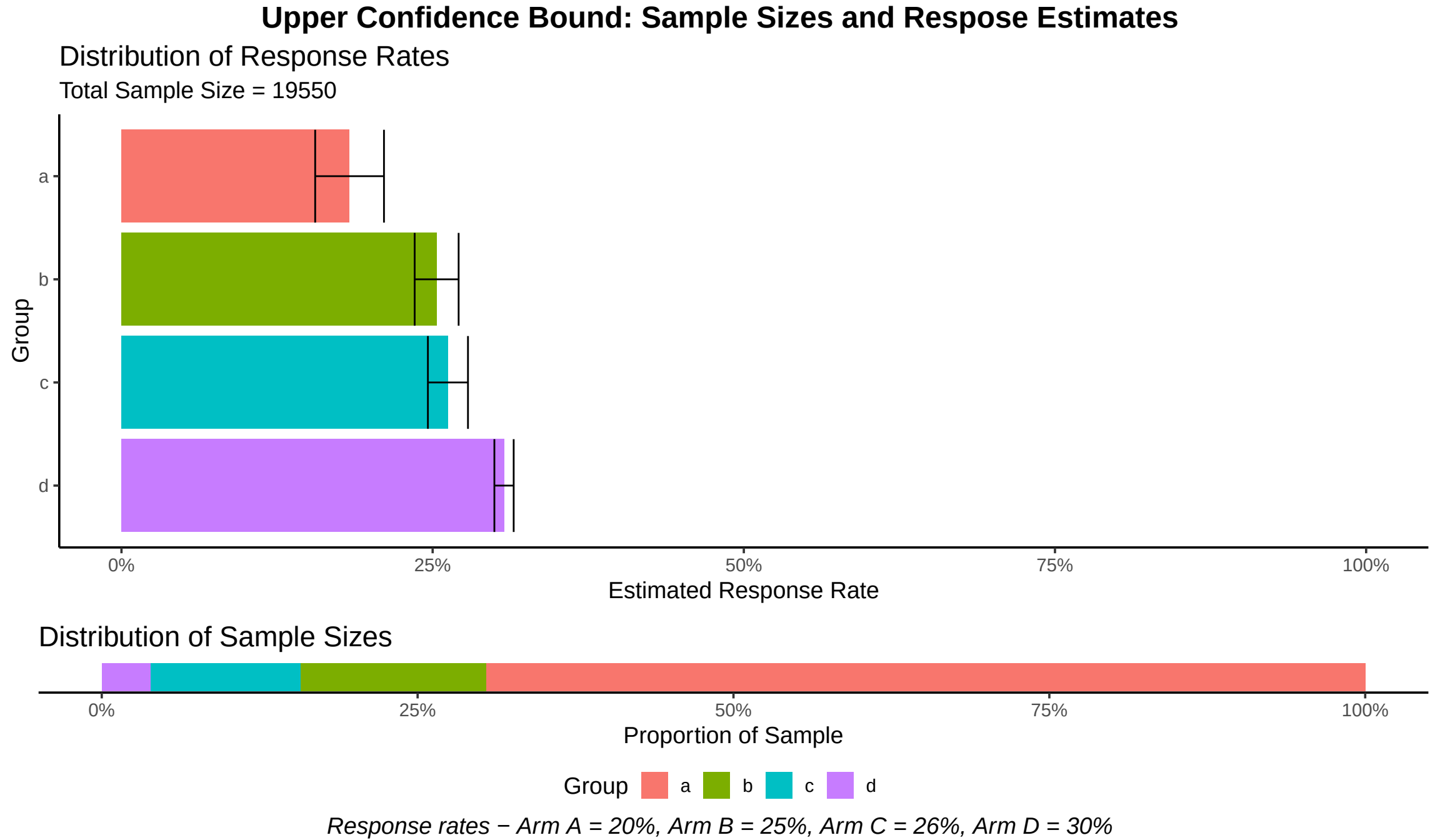

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19300
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

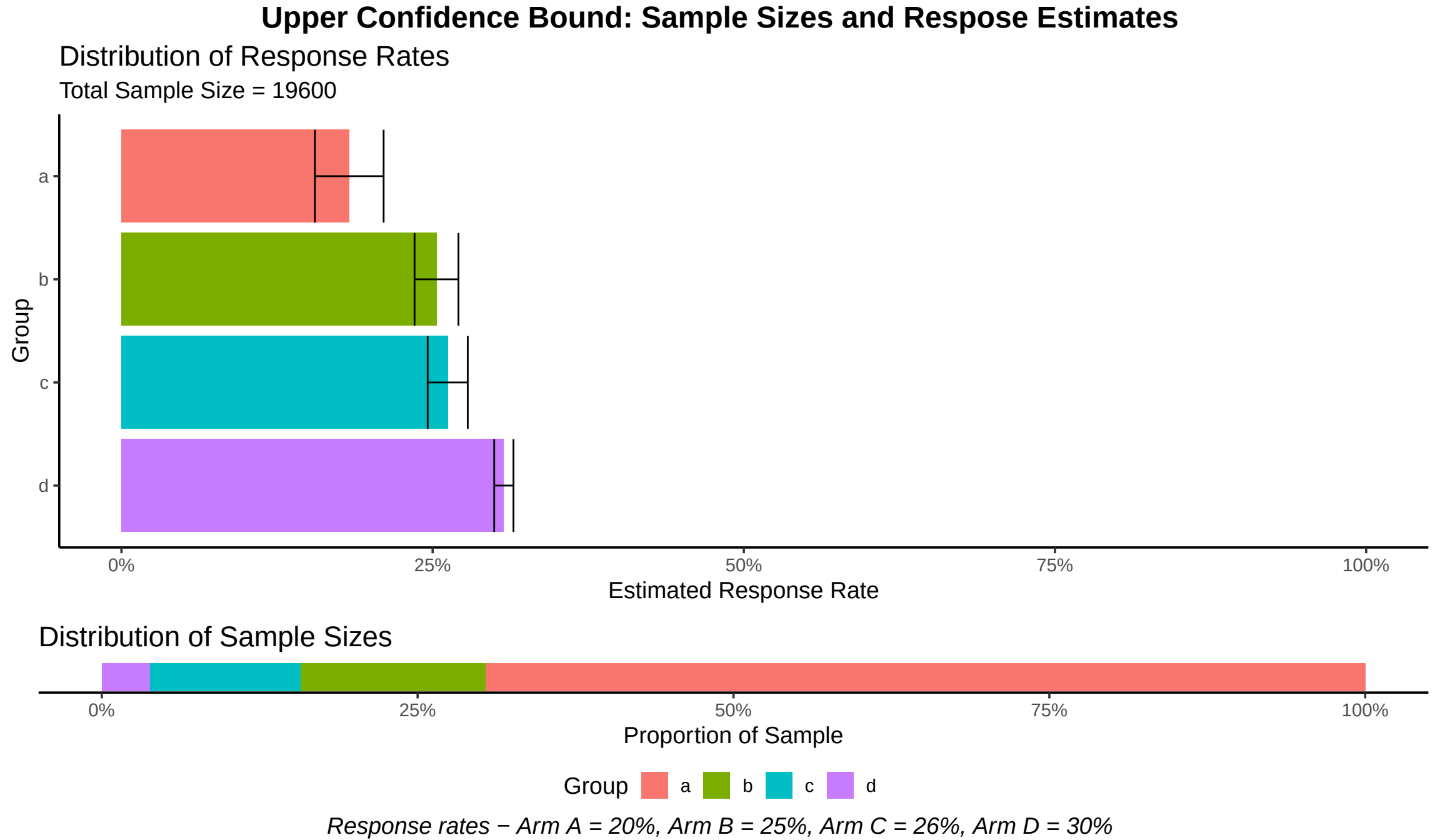

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19350
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

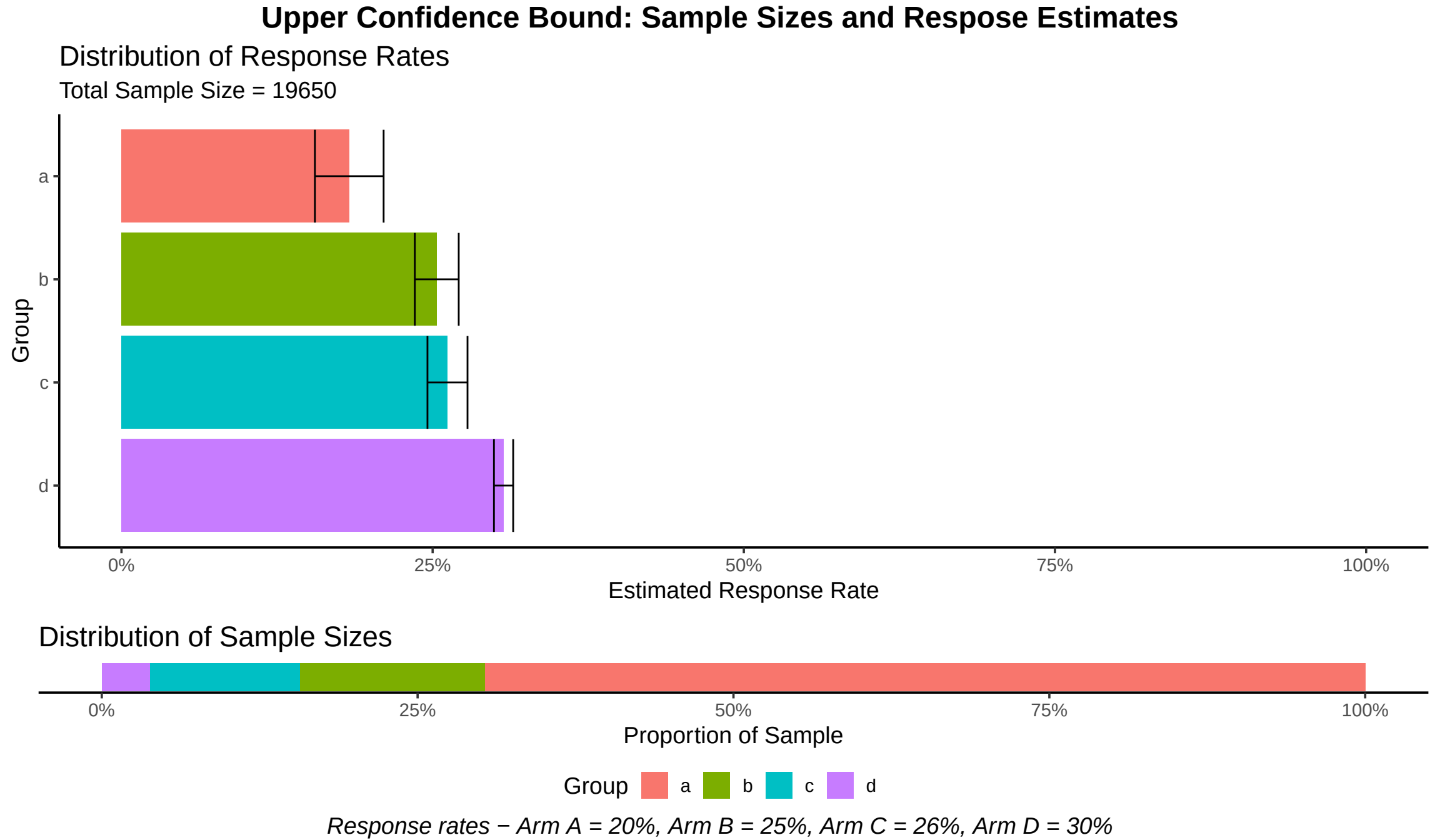

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19400
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

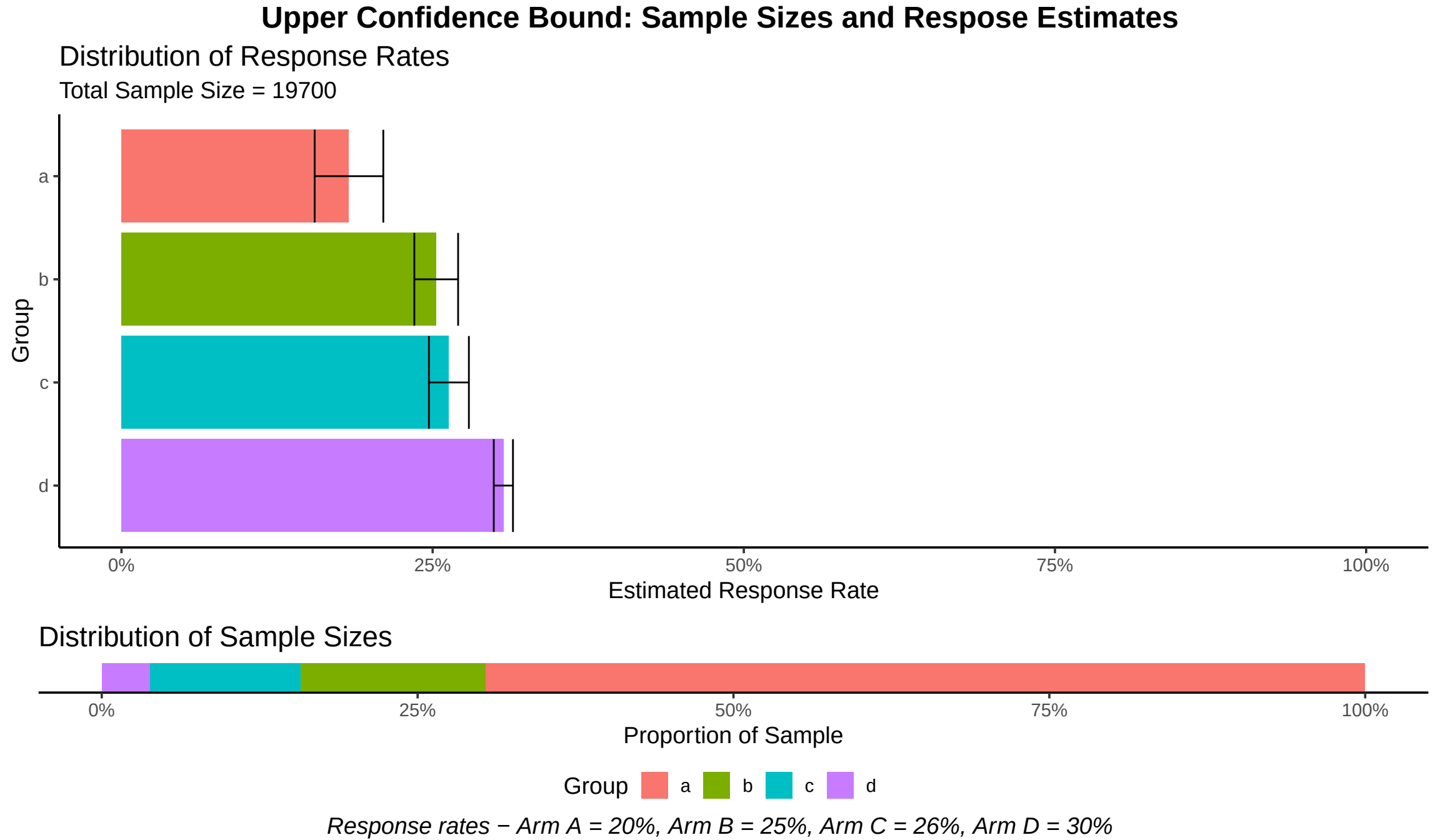

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19450
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

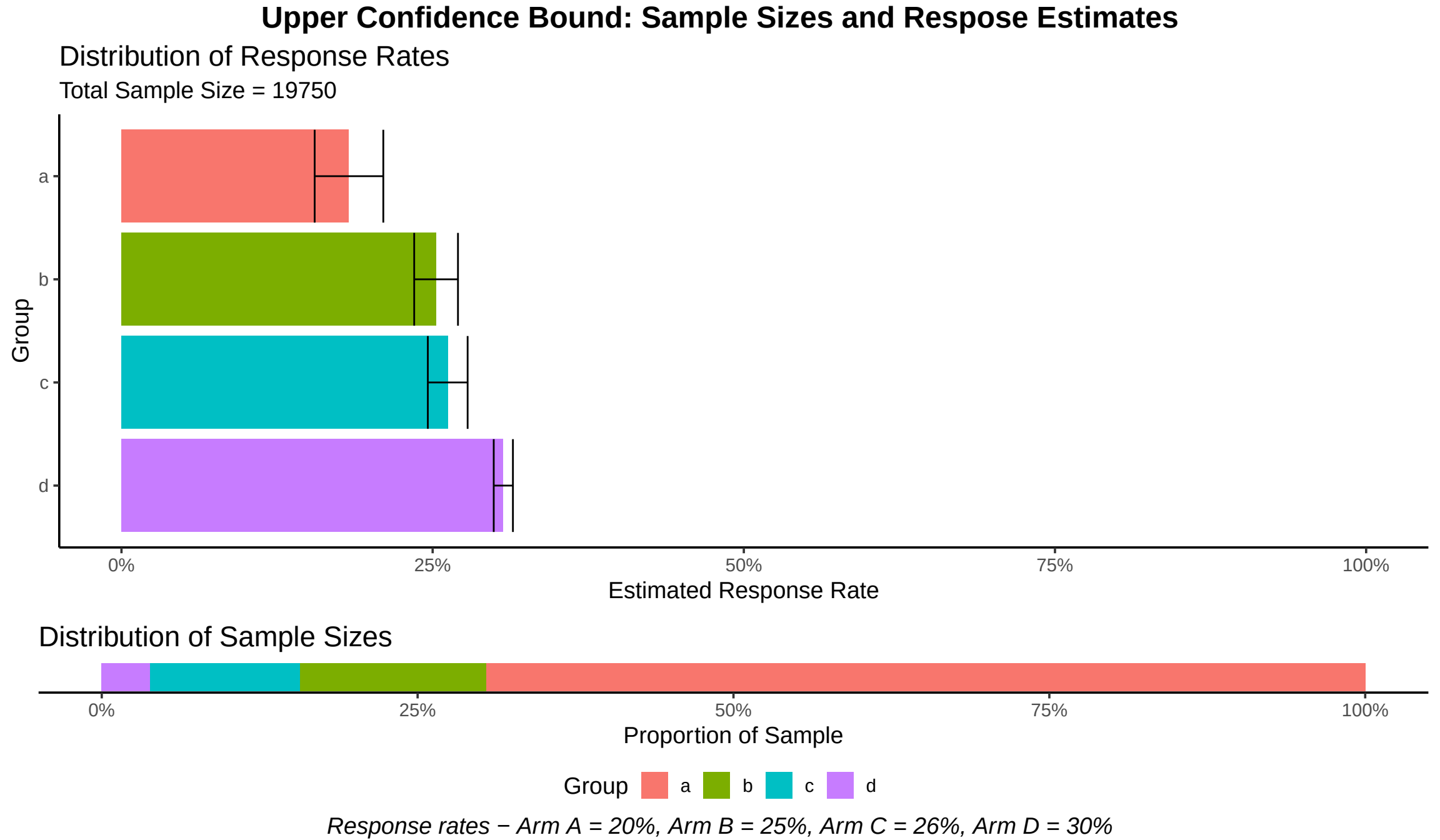

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19500
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

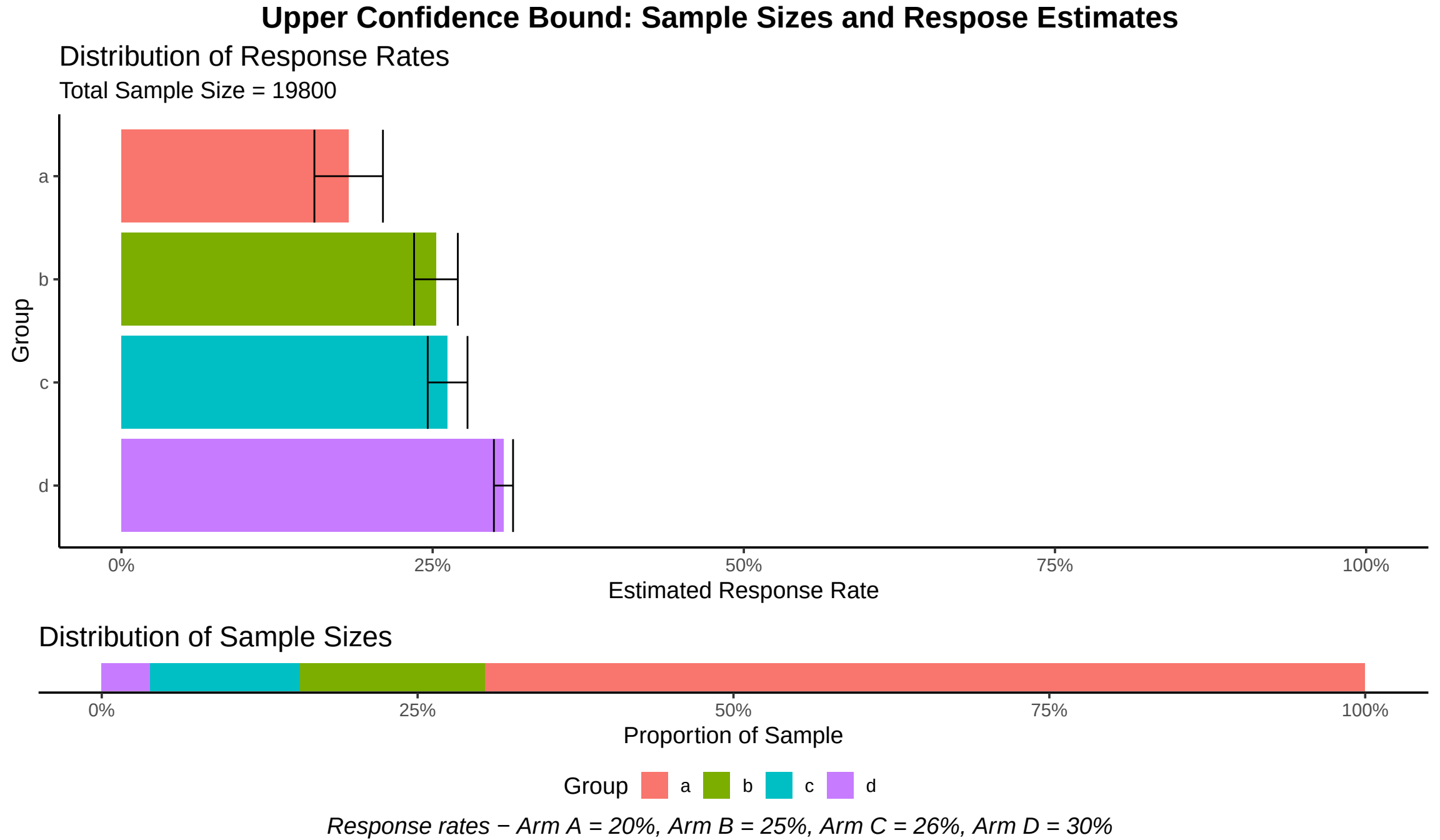

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19550
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

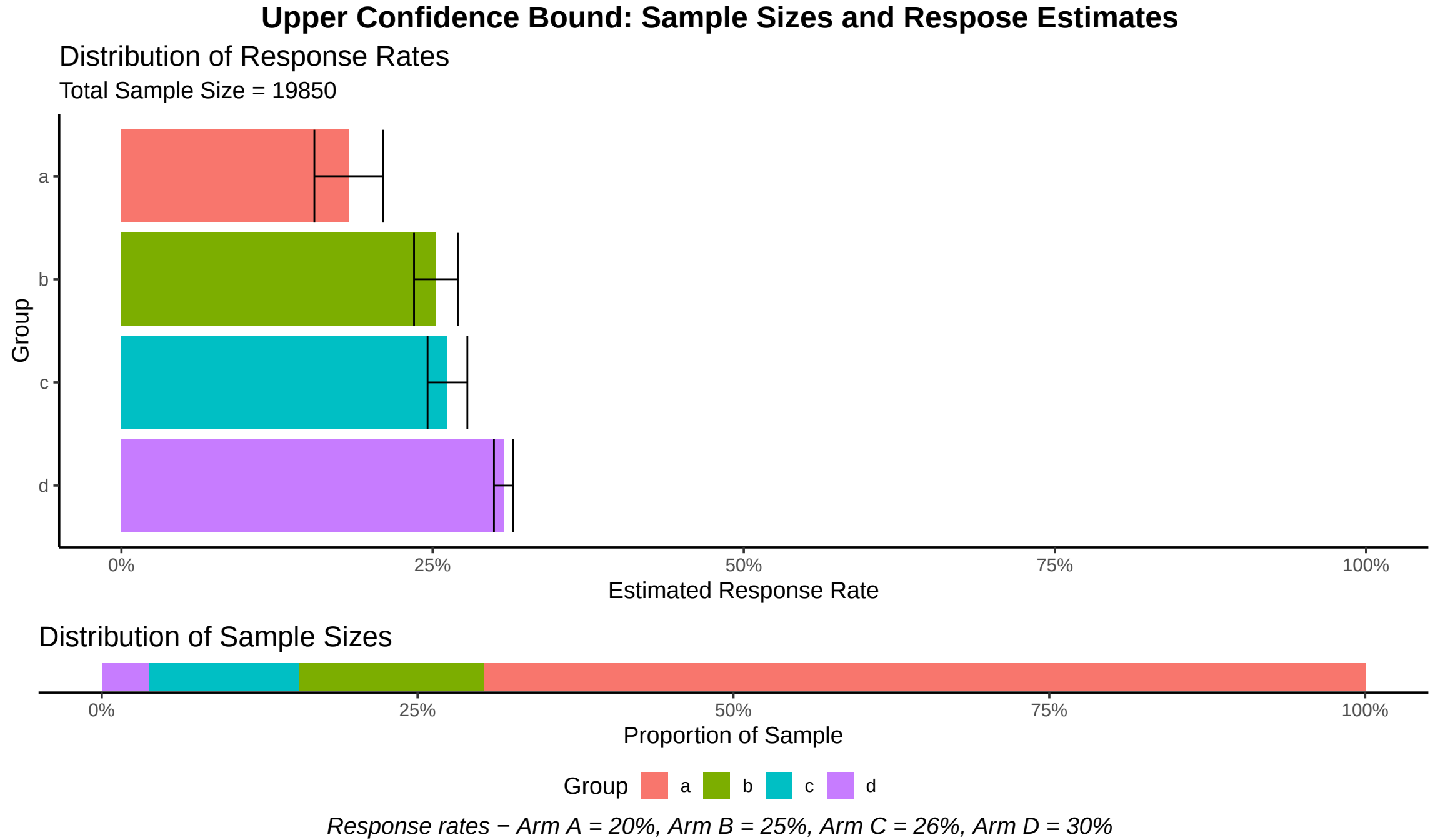

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19600
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

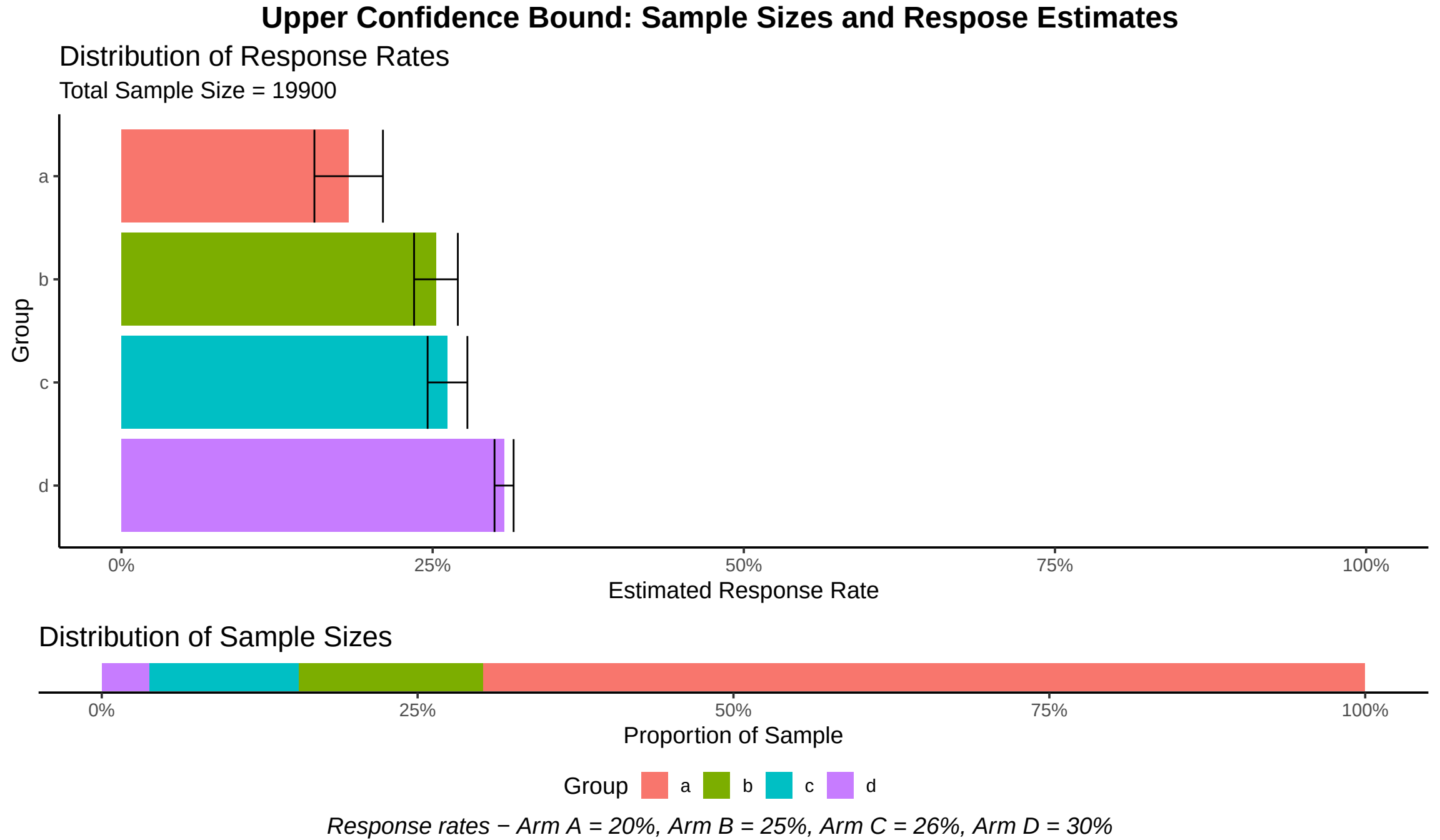

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19650
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

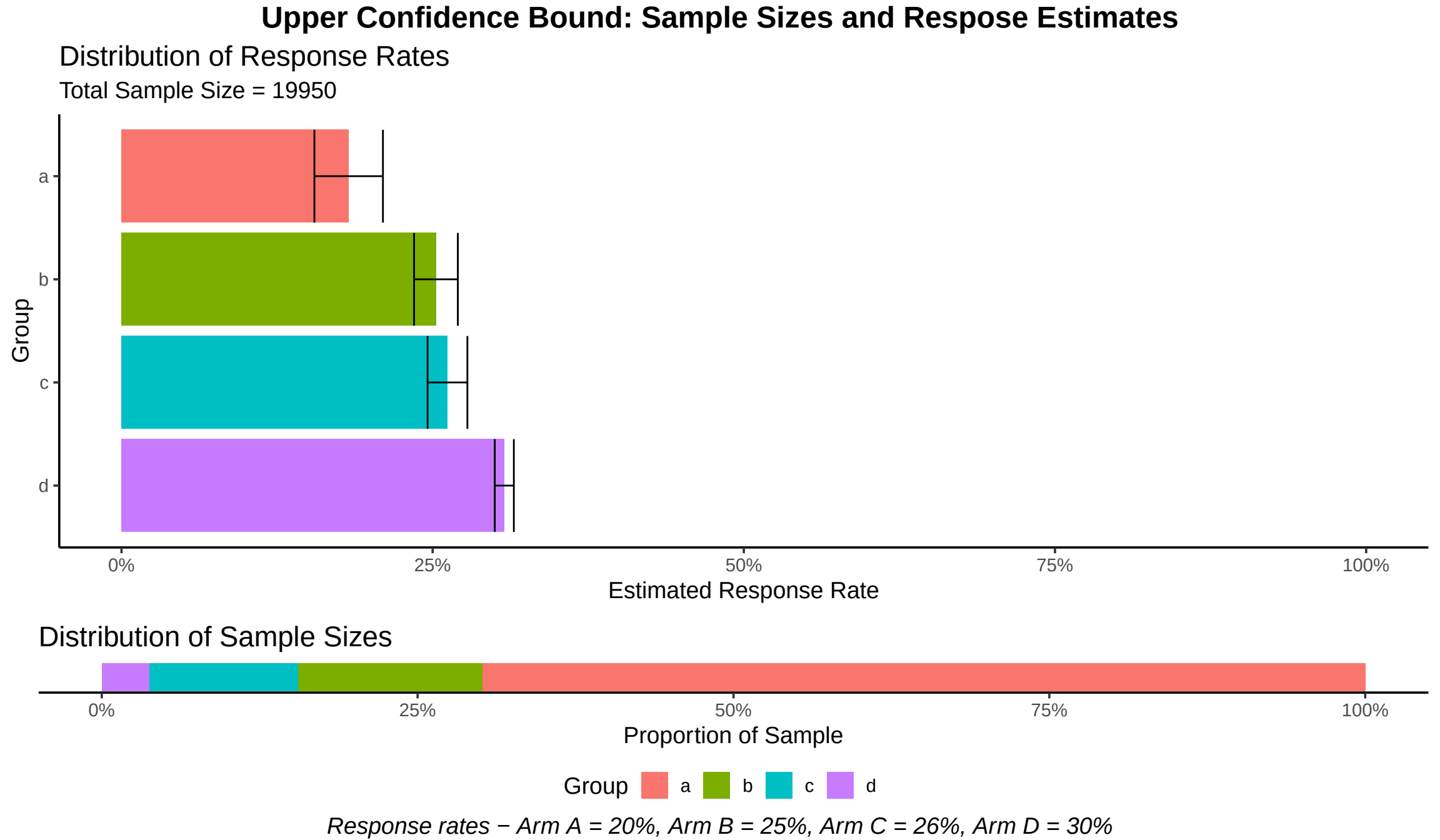

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19700
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%

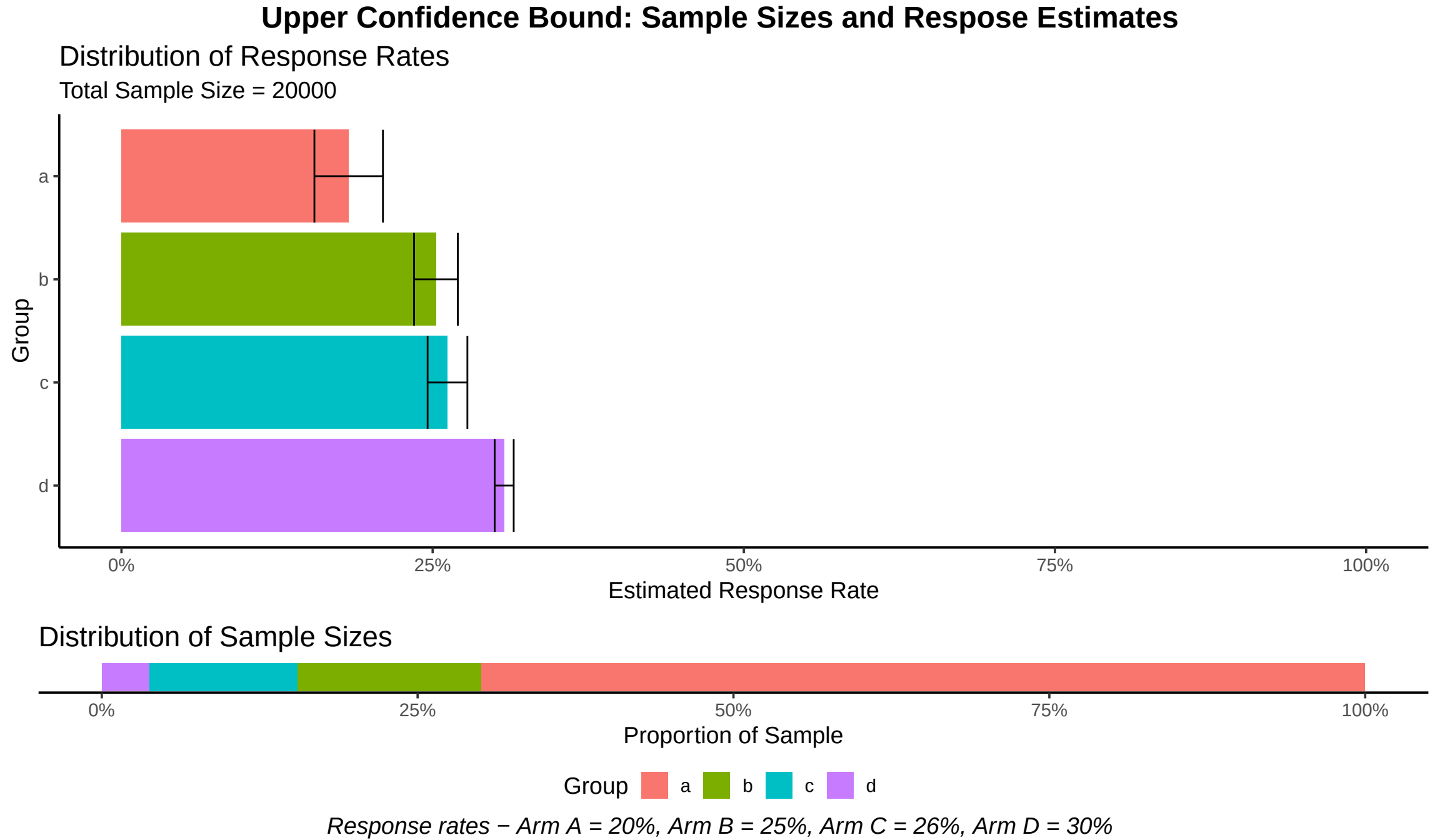

Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19750
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19800
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19850
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19900
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 19950
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%


Upper Confidence Bound: Sample Sizes and Respose Estimates
Distribution of Response Rates
Total Sample Size = 20000
Group
a
b
c
d
0%
25%
50%
75%
100%
Estimated Response Rate
Distribution of Sample Sizes
0%
25%
50%
75%
100%
Proportion of Sample
Group
a
b
c
d
Response rates − Arm A = 20%, Arm B = 25%, Arm C = 26%, Arm D = 30%