

Results from MD Anderson AR Software

Two Arm Trial Design

Primary endpoint	Binary
Number of arms	2
Minimum patient accrual	40
Maximum patient accrual	54
Number of patients to randomize fairly	10
Minimum randomization probability	0.1
Tuning parameter	0.5
Additional follow-up	0
Goal of study	Maximize θ

Prior Parameters

Arm Name	Description	Prior Parameters (a, b)
Pheno	Arm1 Description	(3, 3)
Pheno+A	Arm2 Description	(3, 3)

Stopping Rules

Suspend accrual to an arm if $\Pr(\theta_i > \theta_{j \neq i} | \text{Data}) < P_L$

Stop the trial and select an arm as superior if $\Pr(\theta_i > \theta_{j \neq i} | \text{Data}) > P_U$

At the final analysis select an arm as superior if $\Pr(\theta_i > \theta_{j \neq i} | \text{Data}) > P_U^*$

Arm Name	P_L	P_U	P_U^*
Pheno	0.025	0.975	0.975
Pheno+A	0.025	0.975	0.975

Scenario 1

Average Trial Length 13.4 months

Arm	True Prob(Success)	Pr(Selected)	Pr(Selected Early)	Pr(Stopped Early)	# Patients (2.5%,97.5%)
P heno	0.6	0.027	0.0265	0.031	26.7 (14, 40)
P heno +A	0.6	0.031	0.031	0.027	26.7 (14, 40)

Scenario 2

Average Trial Length 11.1 months

Arm	True Prob(Success)	Pr(Selected)	Pr(Selected Early)	Pr(Stopped Early)	# Patients (2.5%,97.5%)
P heno	0.6	0	0	0.774	10.3 (6, 19)
P heno	0.92	0.774	0.76	0	34.3 (25, 45)

+A

3 Arm Trial Design

Primary endpoint	Binary
Number of arms	3
Minimum patient accrual	72
Maximum patient accrual	99
Number of patients to randomize fairly	30
Minimum randomization probability	0.1
Tuning parameter	0.5
Additional follow-up	0
Goal of study	Maximize θ

Prior Parameters

Arm Name	Description	Prior Parameters (a, b)
Pheno	Arm1 Description	(3, 3)
Pheno+A	Arm2 Description	(3, 3)
Pheno+B	Arm3	(3, 3)

Stopping Rules

Suspend accrual to an arm if $\Pr(\theta_i > \max(\theta_{j \neq i}) | \text{Data}) < P_L$

Stop the trial and select an arm as superior if $\Pr(\theta_i > \max(\theta_{j \neq i}) | \text{Data}) > P_U$

At the final analysis select an arm as superior if $\Pr(\theta_i > \max(\theta_{j \neq i}) | \text{Data}) > P_U^*$

Suspend accrual to an arm if $\Pr(\theta_i > \theta_{\min}) | \text{Data}) < P_L^*$

Arm Name	P_L	P_U	P_U^*	θ_{\min}	P_L^*
Pheno	0.1	0.9	0.9	0.4	0.05
Pheno+A	0.1	0.9	0.9	0.4	0.05
Pheno+B	0.1	0.9	0.9	0.4	0.05

Scenario 1

Average Trial Length 23.7 months

Arm	True Prob(Success)	Pr(Selected)	Pr(Selected Early)	Pr(Stopped Early)	# Patients (2.5%,97.5%)
P heno	0.6	0.0155	0.0155	0.332	31.7 (15, 51)
P heno +A	0.6	0.02	0.02	0.339	31.4 (15, 50)
P heno +B	0.6	0.0165	0.0165	0.322	31.9 (15, 51)

Scenario 2

Average Trial Length 18.4 months

Arm	True Prob(Success)	Pr(Selected)	Pr(Selected Early)	Pr(Stopped Early)	# Patients (2.5%,97.5%)
P heno	0.6	0	0	0.995	15 (11, 22)
P heno +A	0.6	0	0	0.991	15.1 (11, 22)
P heno +B	0.92	0.926	0.926	0	43 (35, 54)

Scenario 3

Average Trial Length 19.4 months

Arm	True Prob(Success)	Pr(Selected)	Pr(Selected Early)	Pr(Stopped Early)	# Patients (2.5%,97.5%)
P heno	0.6	0	0	0.996	14.9 (11, 21)
P heno +A	0.76	0.0005	0.0005	0.875	19.2 (12, 35)
P heno +B	0.92	0.749	0.748	0.001	43.5 (30, 61)

web-page for presentation materials:

<http://www.stat.ubc.ca/~rollin/>