Bayesian Dose Finding in Oncology for Drug Combinations by Copula Regression

We demonstrate how to use our software below. The scenario is for a drug combination trial with 3 by 2 dose combinations.

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Bayesian Dose Finding for Drug Combination by Copula Regression
                by Guosheng Yin and Ying Yuan
////////////////////////////////////////////////////////////////////////////////////////////

please enter the number of dose for drug 1:  3
please enter the number of dose for drug 2:  2

Please enter the true toxicity probability for the combination (1, 1):  .05
Please enter the true toxicity probability for the combination (1, 2):  .1
Please enter the true toxicity probability for the combination (2, 1):  .15
Please enter the true toxicity probability for the combination (2, 2):  .3
Please enter the true toxicity probability for the combination (3, 1):  .45
Please enter the true toxicity probability for the combination (3, 2):  .5

 The true toxicity probability entered is :

Drug 2 2|     0.1       0.3       0.5
       1|     0.05      0.15      0.45
         -------------------------------
                1         2         3
                      Drug 1

Are they correct? (y/n):  y

Please enter the target toxicity : .3

Please enter the prior estimate of toxicity probability for drug 1 at the dose level 1:  .1
Please enter the prior estimate of toxicity probability for drug 1 at the dose level 2:  .2
Please enter the prior estimate of toxicity probability for drug 1 at the dose level 3:  .3

The prior estimate of toxicity for drug 1 is: 0.1, 0.2, 0.3
Are they correct? (y/n): y

Please enter the prior estimate of toxicity probability for drug 2 at the dose level 1:  .1
Please enter the prior estimate of toxicity probability for drug 2 at the dose level 2:  .2
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The prior estimate of toxicity for drug 2 is : 0.1, 0.2
Are they correct? (y/n): y

Enter the total number of cohorts: 10

Enter the cohort size: 3

Enter the number of simulated trials: 100
Are you sure to continue? (y/n): y

//
The simulation results can be found in the file results.txt
under the current directory when the simulation finishes.
//

Simulating trial 0.....
Simulating trial 1.....
.
.
.
Simulating trial 96.....
Simulating trial 97.....
Simulating trial 98.....
Simulating trial 99.....

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CPU time (hour)= 0.226991   # of trials = 100

The number of cohort = 10; cohort size = 3
Escalate if Pr(toxicity<0.3) > 0.8
De-escalate if Pr(toxicity<0.3) < 0.45

True toxicity probabilities:
 0.10 0.30 0.50
 0.05 0.15 0.45

Selection probabilities (%):
  3.0 35.0   8.0
  0.0 23.0 30.0

Number of patients treated at each dose:
  3.4   5.8   2.8
  7.3   5.8   4.7

Number of toxicity observed at each dose:

0.5	1.8	1.5
0.4	1.0	2.0

Total number of observed toxicity: 7.1

Percentage of inconclusive trials: 1.0%

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