

Supplementary Web Materials:
Variance prior specification for a basket trial design
using Bayesian hierarchical modeling

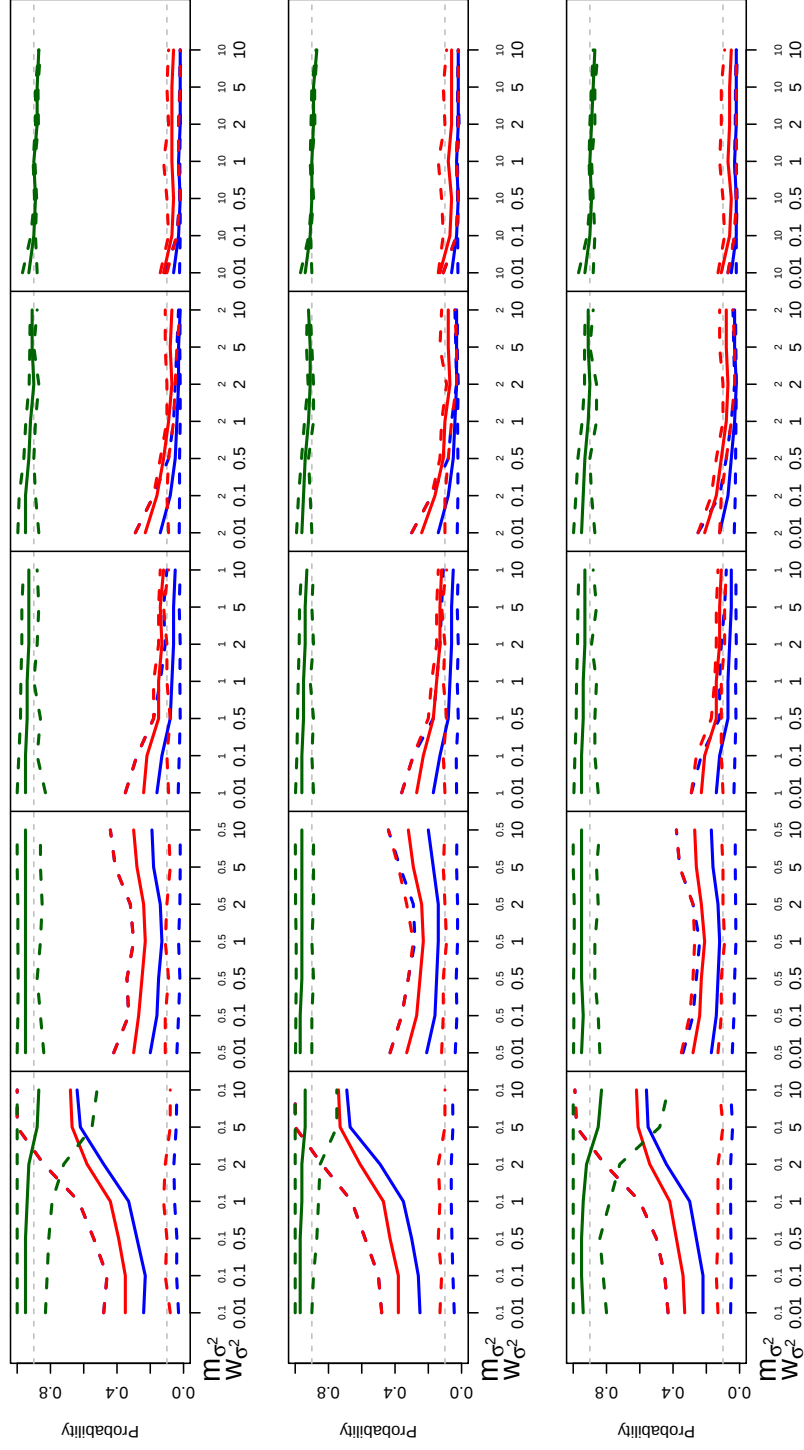
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Supplementary Material Table 1: Quantiles for the prior distribution of σ^2 for: 35 inverse gamma prior specifications assuming prior mean m_σ^2 and prior weight w_σ^2 ; 36 uniform prior specifications assuming lower bound a and upper bound b ; and 35 half-t prior specifications assuming scale parameter A and degrees of freedom df (uses index from Figures 1-3 in paper).

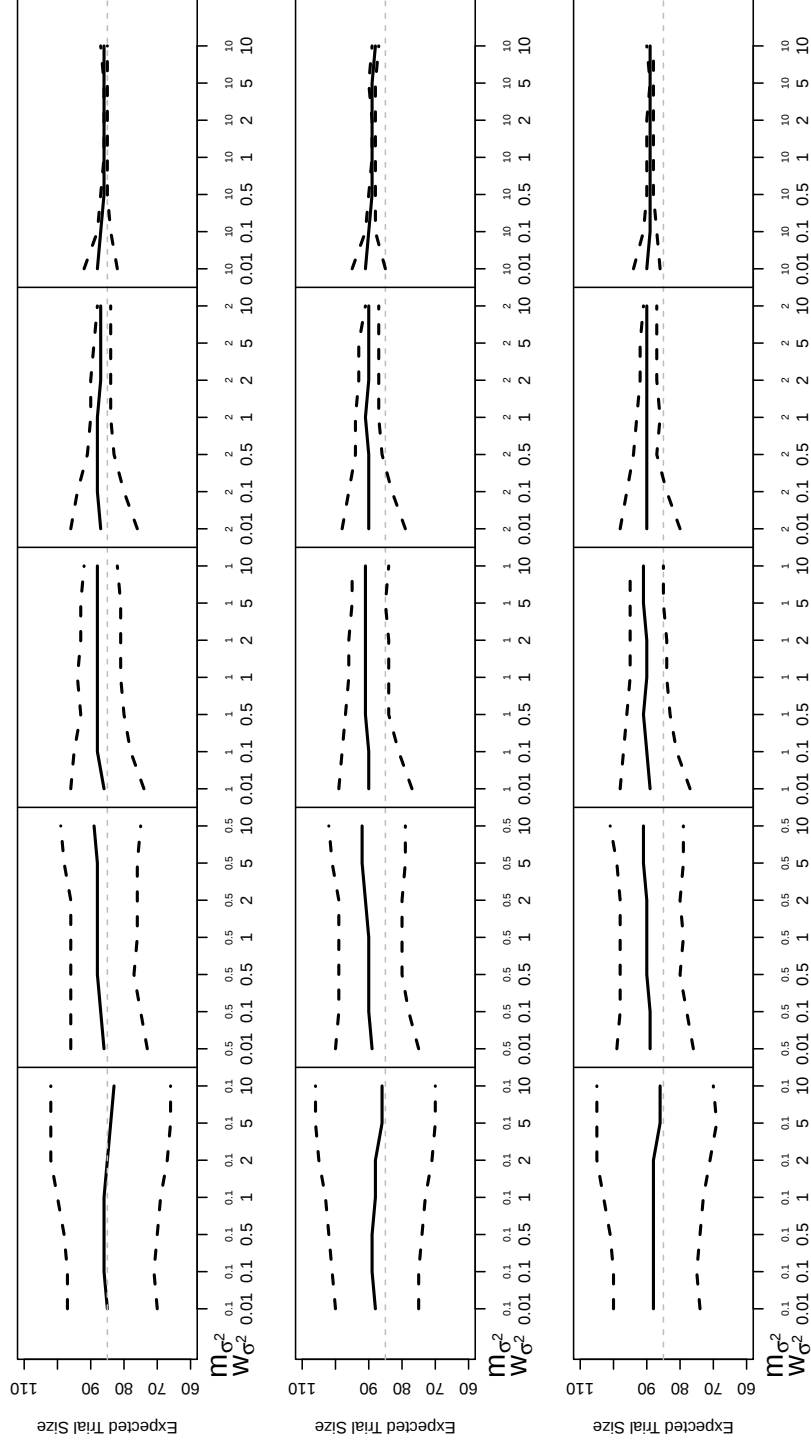
Inverse-gamma Quantiles for σ^2				Uniform Quantiles for σ^2				Half-t Quantiles for σ^2			
25%	50%	75%	99%	25%	50%	75%	99%	25%	50%	75%	99%
2e-126	8.8e-66	1.9e-30	3.9e-06	6.3e-02	2.5e-01	5.6e-01	9.8e-01	2.1e-01	5e-01	1.2e+00	3.2e+01
2.7e-16	2.8e-10	9.6e-07	5.5e-04	2.5e-01	1e+00	2.3e+00	3.9e+00	4.1e-01	1e+00	2.4e+00	6.5e+01
6.6e-06	1.1e-04	6.6e-04	6e-03	5.6e-01	2.2e+00	5.1e+00	8.8e+00	1e+00	2.5e+00	6e+00	1.6e+02
2.5e-04	1.1e-03	3.3e-03	1.7e-02	6.2e+00	2.5e+01	5.6e+01	9.8e+01	4.1e+00	1e+01	2.4e+01	6.2e+02
2.9e-03	6.9e-03	1.4e-02	4.6e-02	6.2e+02	2.5e+03	5.6e+03	9.8e+03	1e+01	2.5e+01	6e+01	1.6e+03
3.3e-02	5.4e-02	8.3e-02	1.9e-01	6.3e+06	2.5e+07	5.6e+07	9.8e+07	4.1e+01	1e+02	2.4e+02	6.5e+03
1.7e-01	2.3e-01	3.1e-01	5.8e-01	6.6e-02	2.5e-01	5.7e-01	9.8e-01	2.1e+02	5e+02	1.2e+03	3.3e+04
6e-124	4e-64	1e-28	9.8e-05	2.5e-01	1e+00	2.2e+00	3.9e+00	1.8e-01	4.1e-01	8e-01	5.1e+00
4.8e-15	6.3e-09	2.3e-05	1.4e-02	5.6e-01	2.2e+00	5.1e+00	8.8e+00	3.6e-01	8.2e-01	1.6e+00	9.9e+00
1.6e-04	2.7e-03	1.6e-02	1.5e-01	6.3e+00	2.5e+01	5.6e+01	9.8e+01	9.1e-01	2e+00	4e+00	2.5e+01
6.4e-03	2.9e-02	8.3e-02	4.2e-01	6.4e+02	2.5e+03	5.6e+03	9.8e+03	3.7e+00	8.2e+00	1.6e+01	9.8e+01
7.2e-02	1.7e-01	3.5e-01	1.2e+00	6.2e+06	2.5e+07	5.6e+07	9.8e+07	9.2e+00	2e+01	4e+01	2.4e+02
8.4e-01	1.4e+00	2.1e+00	4.7e+00	8.2e-02	2.7e-01	5.8e-01	9.8e-01	3.6e+01	8.2e+01	1.6e+02	9.8e+02
4.2e+00	5.8e+00	7.8e+00	1.4e+01	2.9e-01	1.1e+00	2.3e+00	3.9e+00	1.8e+02	4.1e+02	8e+02	4.9e+03
1.8e-124	7e-64	2.6e-28	4.4e-04	6.2e-01	2.3e+00	5.1e+00	8.8e+00	1.7e-01	3.6e-01	6.5e-01	2e+00
2.8e-14	2.7e-08	8.8e-05	5.4e-02	6.4e+00	2.5e+01	5.7e+01	9.8e+01	3.3e-01	7.2e-01	1.3e+00	4e+00
6.8e-04	1.1e-02	6.6e-02	6.1e-01	6.2e+02	2.5e+03	5.6e+03	9.8e+03	8.5e-01	1.8e+00	3.3e+00	1e+01
2.5e-02	1.1e-01	3.3e-01	1.7e+00	6.2e+06	2.5e+07	5.6e+07	9.8e+07	3.3e+00	7.3e+00	1.3e+01	4e+01
2.9e-01	6.9e-01	1.4e+00	4.6e+00	2.2e-01	4.2e-01	6.8e-01	9.9e-01	8.4e+00	1.8e+01	3.3e+01	1e+02
3.3e+00	5.4e+00	8.3e+00	1.9e+01	5.3e-01	1.3e+00	2.5e+00	3.9e+00	3.4e+01	7.3e+01	1.3e+02	4e+02
1.7e+01	2.3e+01	3.1e+01	5.8e+01	9.6e-01	2.7e+00	5.4e+00	8.8e+00	1.7e+02	3.6e+02	6.5e+02	2e+03
2.9e-123	7.8e-63	2.1e-27	1.4e-03	7.4e+00	2.7e+01	5.7e+01	9.8e+01	1.6e-01	3.5e-01	6.1e-01	1.6e+00
1.1e-13	1.2e-07	3.6e-04	2.1e-01	6.3e+02	2.5e+03	5.6e+03	9.8e+03	3.3e-01	7e-01	1.2e+00	3.2e+00
2.6e-03	4.4e-02	2.7e-01	2.5e+00	6.3e+06	2.5e+07	5.6e+07	9.8e+07	8.2e-01	1.8e+00	3.1e+00	7.9e+00
1e-01	4.5e-01	1.3e+00	6.6e+00	3.9e-01	5.6e-01	7.7e-01	9.9e-01	3.3e+00	7e+00	1.2e+01	3.2e+01
1.2e+00	2.8e+00	5.5e+00	1.8e+01	7.6e-01	1.6e+00	2.6e+00	3.9e+00	8.1e+00	1.7e+01	3e+01	7.9e+01
1.3e+01	2.2e+01	3.3e+01	7.5e+01	1.3e+00	3.1e+00	5.6e+00	8.8e+00	3.3e+01	7e+01	1.2e+02	3.2e+02
6.7e+01	9.3e+01	1.3e+02	2.3e+02	8.2e+00	2.7e+01	5.8e+01	9.8e+01	1.6e+02	3.5e+02	6.1e+02	1.6e+03
1.2e-121	1.6e-61	1.7e-26	4.2e-02	6.5e+02	2.5e+03	5.6e+03	9.8e+03	1.6e-01	3.4e-01	5.8e-01	1.3e+00
2.7e-12	2.8e-06	9.1e-03	5.3e+00	6.2e+06	2.5e+07	5.6e+07	9.8e+07	3.2e-01	6.7e-01	1.2e+00	2.6e+00
6.3e-02	1.1e+00	6.4e+00	6.1e+01	6.1e-01	7.3e-01	8.6e-01	9.9e-01	8.1e-01	1.7e+00	2.9e+00	6.6e+00
2.5e+00	1.1e+01	3.3e+01	1.7e+02	1.1e+00	1.8e+00	2.8e+00	3.9e+00	3.2e+00	6.7e+00	1.2e+01	2.6e+01
2.9e+01	6.9e+01	1.4e+02	4.7e+02	1.6e+00	3.4e+00	5.9e+00	8.9e+00	7.9e+00	1.7e+01	2.9e+01	6.6e+01
3.3e+02	5.4e+02	8.3e+02	1.9e+03	9.1e+00	2.9e+01	5.9e+01	9.8e+01	3.2e+01	6.8e+01	1.2e+02	2.6e+02
1.7e+03	2.3e+03	3.1e+03	5.8e+03	6.6e+02	2.5e+03	5.7e+03	9.8e+03	1.6e+02	3.4e+02	5.8e+02	1.3e+03
				6.2e+06	2.5e+07	5.6e+07	9.8e+07				

Vary Accrual Rates

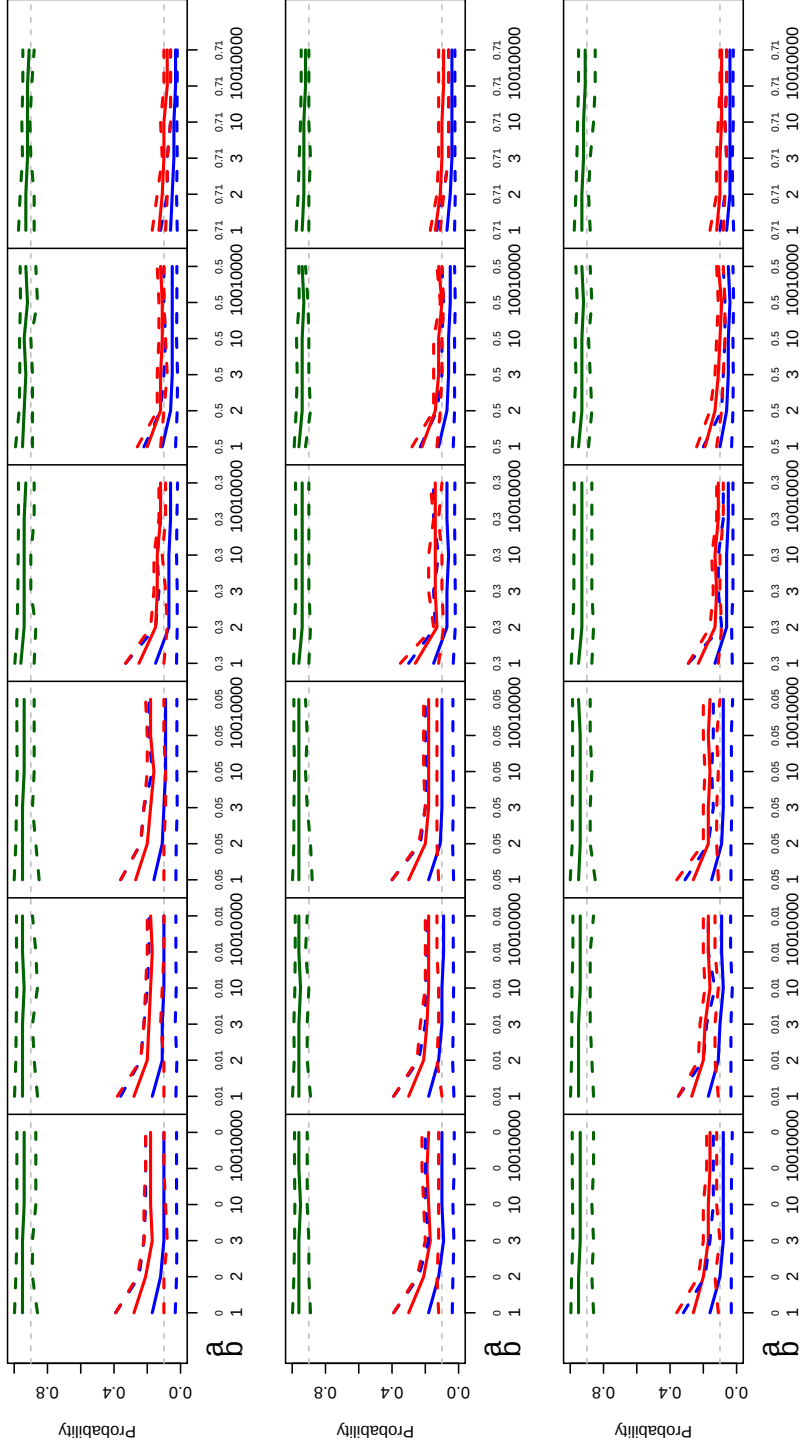
In the following figures, the top panel assumes for each basket, 2 patients enter every month; the middle panel assumes 3, 2, 2, 1, and 1 patient enter every month for Basket 1, 2, 3, 4, and 5, respectively; and the bottom panel assumes 1, 1, 2, 2, and 3 patient enter every month for Basket 1, 2, 3, 4, and 5, respectively.



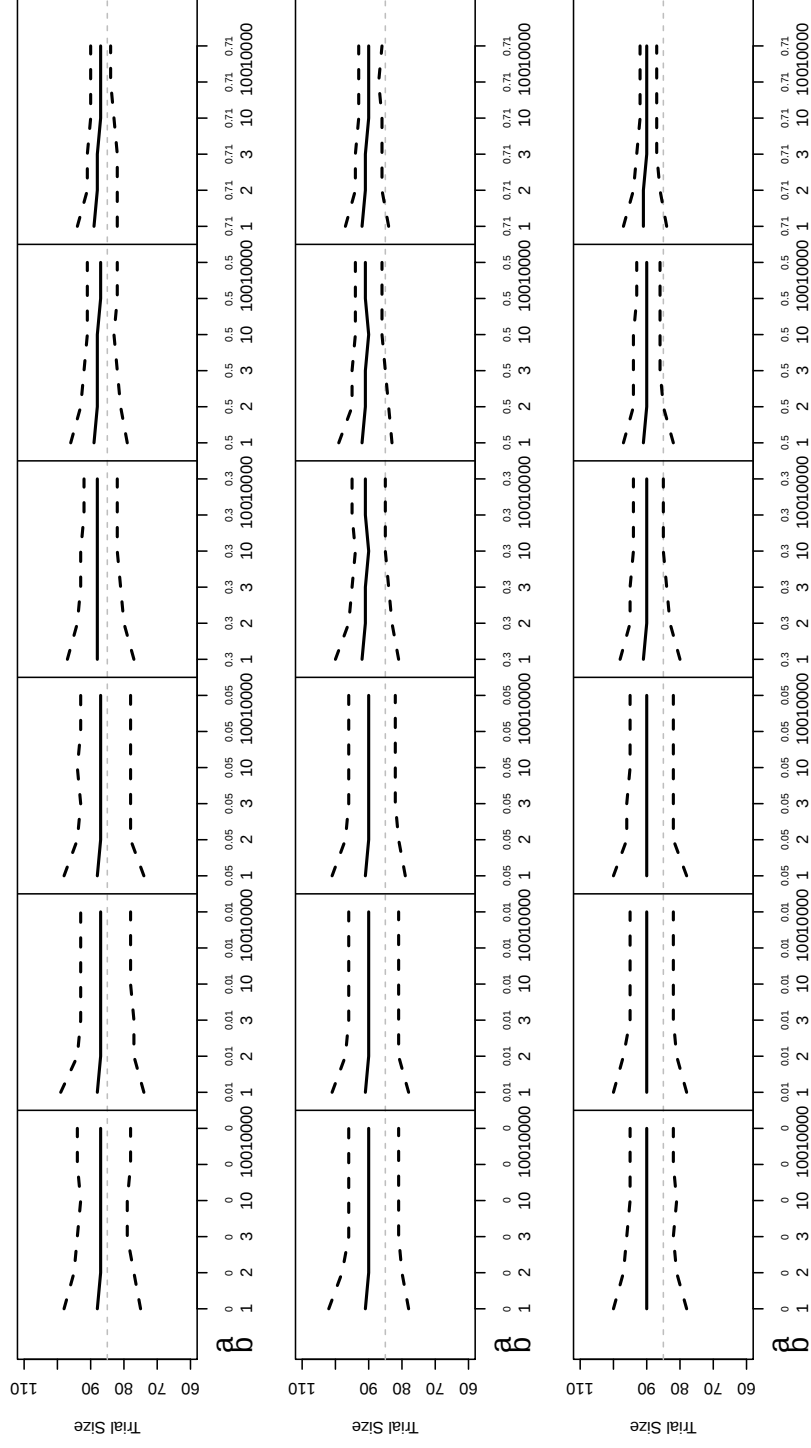
Supplementary Material Figure 1: The x-axis displays the assumed prior mean and weight hyperparameters for the Inverse Gamma prior distribution on σ^2 . Presented are the average (solid lines) and range (dashed lines) of the power (green), marginal false positive rate (blue), and family wise error rate (red) across all scenarios ($A = 0, 1, \dots, K = 5$ baskets active).



Supplementary Material Figure 2: The x-axis displays the assumed prior mean and weight hyperparameters for the Inverse Gamma prior distribution on σ^2 . Presented are the average (solid lines) and range (dashed lines) of the expected trial size across all scenarios.



Supplementary Material Figure 3: The x-axis displays the assumed lower and upper hyperparameters for the Uniform prior distribution on σ . Presented are the average (solid lines) and range (dashed lines) of the power (green), marginal false positive rate (blue), and family wise error rate (red) across all scenarios ($A = 0, 1, \dots, K = 5$ baskets active).



Supplementary Material Figure 4: The x-axis displays the assumed lower and upper hyperparameters for the Uniform prior distribution on σ . Presented are the average (solid lines) and range (dashed lines) of the expected trial size across all scenarios.