

Supporting Information for “Assessing Intervention Effects in a
Randomized Trial within a Social Network” by Shaina J.
Alexandria, Michael G. Hudgens, and Allison E. Aiello

p_0	T_1		T_2	
	RI	Naive	RI	Naive
0.3	0.05	0.13	0.04	0.08
0.4	0.05	0.19	0.05	0.16
0.5	0.03	0.19	0.05	0.24
0.6	0.05	0.21	0.05	0.26

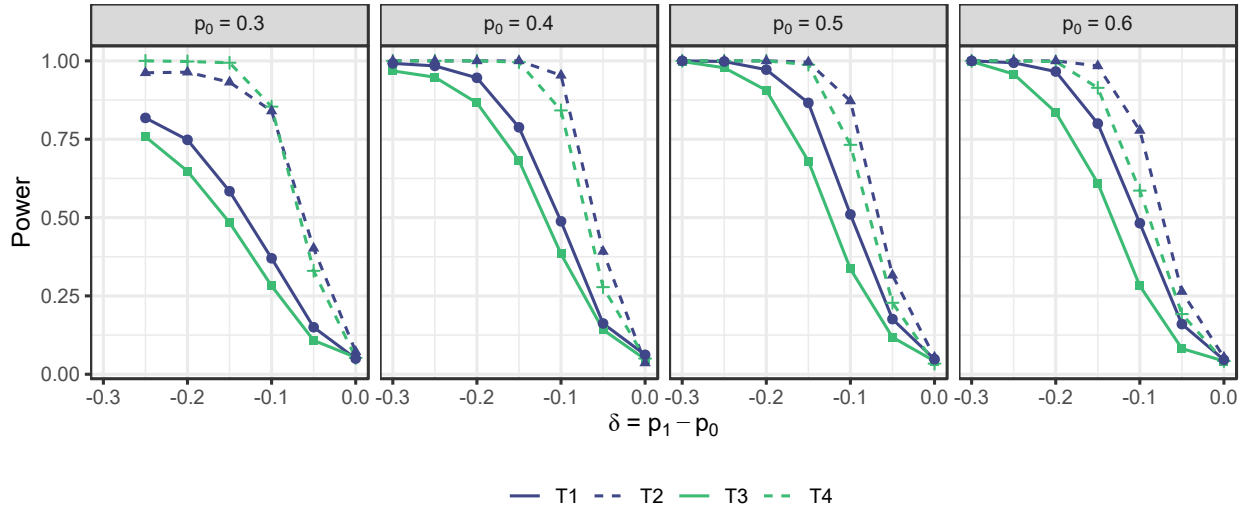
Web Table 1: Empirical type 1 error of test statistics T_1 and T_2 for networks simulated according to the scale-free model using randomization-based inference (RI) or naively assuming the test statistics follow a standard Normal distribution under the null hypothesis of no treatment effect.

p_0	T_1		T_2	
	RI	Naive	RI	Naive
0.3	0.05	0.11	0.07	0.06
0.4	0.06	0.15	0.04	0.11
0.5	0.05	0.12	0.05	0.11
0.6	0.05	0.15	0.05	0.14

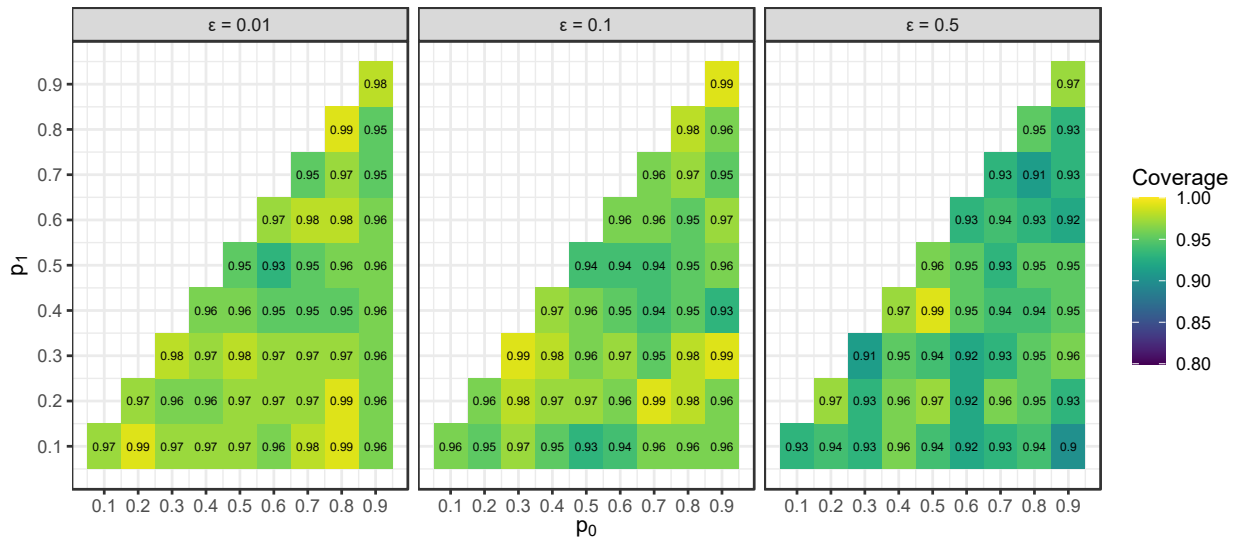
Web Table 2: Empirical type 1 error of test statistics T_1 and T_2 for networks simulated according to the ERGM using randomization-based inference (RI) or naively assuming the test statistics follow a standard Normal distribution under the null hypothesis of no treatment effect.

δ	p_0	p_1	ϵ	SF			ERGM		
				EC	Bias	Power	EC	Bias	Power
-0.30	0.40	0.10	0.01	0.99	-0.00	0.61	0.99	0.00	0.55
-0.20	0.40	0.20	0.01	0.98	-0.00	0.49	1.00	0.00	0.48
-0.20	0.30	0.10	0.01	0.99	0.00	0.58	1.00	0.00	0.45
-0.10	0.10	0.00	0.01	0.90	0.00	0.71	0.91	0.00	0.61
-0.10	0.30	0.20	0.01	0.99	-0.00	0.43	0.99	0.00	0.37
-0.05	0.05	0.00	0.01	0.94	0.00	0.37	0.94	0.00	0.34
-0.05	0.10	0.05	0.01	1.00	-0.00	0.12	0.99	0.00	0.07
0.00	0.10	0.10	0.01	1.00	0.00	0.00	0.99	-0.00	0.01
0.00	0.20	0.20	0.01	0.99	-0.00	0.01	1.00	-0.00	0.00
0.00	0.30	0.30	0.01	0.97	0.00	0.03	0.99	0.00	0.01
-0.30	0.40	0.10	0.10	1.00	0.00	0.09	1.00	0.00	0.13
-0.20	0.30	0.10	0.10	1.00	-0.00	0.10	1.00	-0.00	0.09
-0.10	0.30	0.20	0.10	1.00	0.00	0.00	1.00	-0.00	0.00
0.00	0.30	0.30	0.10	1.00	0.00	0.00	1.00	-0.00	0.00

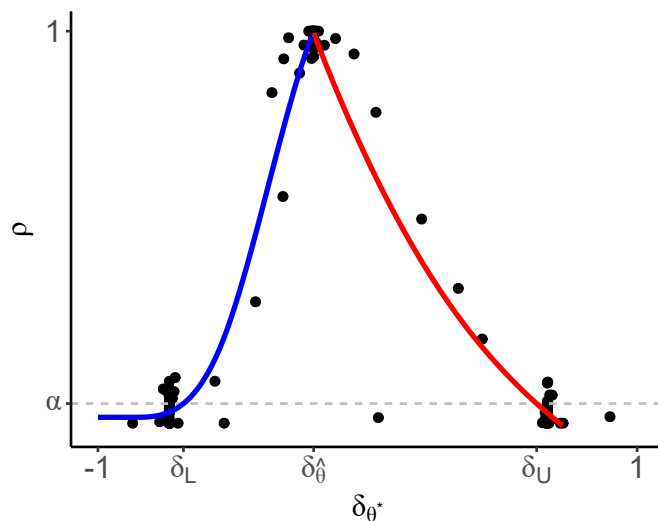
Web Table 3: Empirical coverage (EC) of 95% confidence intervals for δ for various values of (p_0, p_1, ϵ) where $n = 504$, $\tau = 9$, and number of participants with ILI at baseline is 25. Results are shown for the scale-free (SF) network model and the exponential random graph network model (ERGM). Bias of $\delta_{\hat{\theta}}$ and power of the RI test for statistic $T_{\frac{1}{2}}$ are also shown.



Web Figure 1: Empirical power for test statistics T_1, T_2, T_3 , and T_4 from 500 datasets simulated under the ERGM model with $n = 504$, $\tau = 9$, and 25 participants with ILI at baseline. Results are shown for $\epsilon = 0.01$ and various combinations of p_0 and p_1 . This figure appears in color in the electronic version of this article, and any mention of color refers to that version.



Web Figure 2: Coverage of 95% confidence regions for θ with the ERGM network model. Results are shown for various values of p_0 , p_1 , and ϵ , where $n = 504$, $\tau = 9$, and 25 participants had ILI at baseline. This figure appears in color in the electronic version of this article, and any mention of color refers to that version.



Web Figure 3: Illustration of the procedure for estimating CI endpoints for a single data set. P-values (ρ) and δ_{θ^*} values corresponding to values of θ^* chosen during the nloptr search are shown as black dots. The red line (right of $\delta_{\hat{\theta}}$) is the monotonic spline $f_U(\delta)$, and the blue line (left of $\delta_{\hat{\theta}}$) is the monotonic spline $f_L(\delta)$. The upper bound of the $1 - \alpha$ confidence interval δ_U is located at the intersection of $f_U(\delta)$ and the horizontal line at α . The lower bound δ_L is found analogously. This figure appears in color in the electronic version of this article, and any mention of color refers to that version.