Table S1 Summary of available features in SW-CRT sample size and power calculation software implemented in R[a]

Feature	Values	Package						
		SWSamp[b] (Baio)	**swCRTdesign (Hughes et al.)**	**clusterPower (Kleinman et al.)**	**CRTdistpower (Ouyang et al.)**	**swdpwr (Chen et al.)**	**SteppedPower (Mildenberger & Marini)**	**samplingDataCRT (Trutschel & Treutler)**
Type of outcomes	Continuous	Y	Y	Y	Y	Y	Y	Y
	Binary with identity link	Y	Y	Y	N	Y	Y	N
	Count with identity link	Y	N	Y	N	N	Y	N
	Binary with log/logit link	Simulation only	N	N	Y	Y	N	N
	Count with log link	Simulation only	N	N	Y	N	N	N
Type of design	Cross-sectional	Y	Y	Y	Y	Y	Y	Y
	Closed cohort	N	N	N	N	Y	Y	N
	Open cohort	N	N	N	N	N	Y	N
Correlation structure and different methods to specify correlation	Exchangeable	wp-ICC	wp-ICC, CAC=1	wp-ICC (count and binary); wp-ICC and CAC (continuous)	wp-ICC	wp-ICC, bp-ICC (same values), wi-ICC (cohort)	wp-ICC, bp-ICC (same values), wi-ICC (cohort)	SDs
	Nested exchangeable	N	wp-ICC, CAC	wp-ICC and CAC (continuous outcome ONLY)	N	wp-ICC, bp-ICC	wp-ICC, bp-ICC or SDs	SDs
	Exponential decay	N	N	N	N	N	N	N
	Block exchangeable	N	N	wp-ICC, CAC, IAC (continuous outcome ONLY)	N	wp-ICC, bp-ICC, wi-ICC	wp-ICC, bp-ICC, wi-ICC or SDs	N

Feature	Values	Package						
		SWSamp[b] (Baio)	**swCRTdesign (Hughes et al.)**	**clusterPower (Kleinman et al.)**	**CRTdistpower (Ouyang et al.)**	**swdpwr (Chen et al.)**	**SteppedPower (Mildenberger & Marini)**	**samplingDataCRT (Trutschel & Treutler)**
	Proportional decay	N	N	N	N	N	wp-ICC, bp-ICC, wi-ICC with decaying parameters	N
Varying cluster sizes		N	Y	Simulation only	Y	N	Y	N
Incomplete design		N	Y	N	N	N	Y	N
Unequal allocation		Y	Y	N	Y	Y	N	N
Hybrid design		Y	N	N	N	Y	N	N
User-defined design matrix		Y	N	N	N	Y	N	N
Delayed/time-on-treatment effect		N	Shiny app only	N	N	N	Y	N
Cluster treatment heterogeneity		Simulation only	Y	N	N	N	Y	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	Y	Y	Y	Y	Y	Y
	Marginal (i.e., GEE)	N	N	N	N	Y	N	N
Time effect	Categorical	Y	Y	Y	Y	Y	Y	Y
	Continuous	Simulation only	N	N	Y	N	Y	N
Magnitude of time effect		Simulation only	N	N	Y	N	N	N
Shinyapp version available?		N	Y	N	Y	Y	N	N

ICC = intracluster correlation coefficient; WP-ICC = within-period ICC; BP-ICC=between-period ICC; CAC = Cluster Autocorrelation Coefficient; IAC = Individual Autocorrelation Coefficient; WI-ICC = within-individual correlation; MLE = Maximum Likelihood Estimation; GEE = Generalized Estimating Equations; SD = Standard Deviation

[a] None of the calculators allows for survival outcomes and multilevel SW-CRT

[b] We only considered the standard features (i.e., built-in functions) that are available in SWSamp package. This package also allows users to enter data from any "virtual trial". However, users need to write their own code to simulate the data. Therefore, it is not considered as standard features.

Table S2 Summary of available features in SW-CRT sample size and power calculation software implemented in Shiny app only[a]

Variable	Values	Package		
		ShinyCRT (Hemming et al.)	**OpenCohort (Kasza et al.)**	**multilevelSWCRT (Davis-Plourde et al.)**
Type of outcomes	Continuous	Y	Y	Y
	Binary with identity link	Y	N	Y
	Count with identity link	Y	N	Y
	Binary with log/logit link	N	N	Y
	Count with log link	N	N	Y
Type of design	Cross-sectional	Y	Y[c]	Y
	Closed cohort	Y	Y	Y
	Open cohort	Y[c]	Y	Y[c]
Correlation structure and different methods to specify correlation	Exchangeable	wp-ICC, IAC (cohort)	wp-ICC, IAC	wp-ICC, wi-ICC (cohort)[b]
	Nested exchangeable	wp-ICC, CAC	N	wp-ICC, bp-ICC
	Exponential decay	wp-ICC, CAC	N	N
	Block exchangeable	wp-ICC, CAC, IAC	wp-ICC, CAC, IAC	wp-ICC, bp-ICC, wi-ICC
	Proportional decay	wp-ICC, CAC, constant IAC	wp-ICC, CAC, IAC	N
Varying cluster sizes		Y	N	Y
Incomplete design		Y	N	N
Unequal allocation to different sequences		Y	Y	N
Multi-level clustering		N	N	Y
Hybrid design		Y	Y	N
User-defined design matrix		Y	Y	N
Delayed/time-on-treatment effect		Y	N	N
Cluster treatment heterogeneity		User uploaded design matrix only	N	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	Y	Y
	Marginal (i.e., GEE)	N	N	N
Time effect	Categorical	Y	Y	Y
	Continuous	N	N	N
Magnitude of time effect		N	N	Simulation code only

ICC = intracluster correlation coefficient; wp-ICC = within-period ICC; bp-ICC=between-period ICC; CAC = Cluster Autocorrelation Coefficient; IAC = Individual Autocorrelation Coefficient; wi-ICC = within-individual correlation; GEE = Generalized Estimating Equations

[a] Shiny apps accompanying R functions are covered in Table S1

[b] The ICCs were defined for subclusters. Please the original article for more details

[c] By multiplying IAC/wi-ICC by 1 – churn rate, calculators support closed cohort design can also support open cohort designs. Similarly, calculators allow for open cohort design can also support closed cohort and cross-sectional design by setting the churn rate to 1 or 0. (only for continuous outcomes and constant IAC/wi-ICC)

Table S3 Summary of available features in SW-CRT sample size and power calculation software implemented in SAS

Variable	Values	Package		
		Multi-level SW sample size calculation (Teerenstra et al.)	**swdpwr (Chen et al.)**	**CRTFASTGEEPWR (Preisser & Zhang)**
Type of outcomes	Continuous	Y	Y	Y
	Binary with identity link	Y	Y	Y
	Count with identity link	Y	N	Y
	Binary with log/logit link	N	Y	Y
	Count with log link	N	N	Y
Type of design	Cross-sectional	Y	Y	Y
	Closed cohort	N	Y	Y
	Open cohort	N	Y[a]	Y[a]
Correlation structure and different methods to specify correlation	Exchangeable	wp-ICC	wp-ICC, bp-ICC (same value), wi-ICC (cohort)	wp-ICC, bp-ICC (same value), wi-ICC (cohort)
	Nested exchangeable	N	wp-ICC, bp-ICC	wp-ICC, bp-ICC
	Exponential decay	N	N	wp-ICC, decaying bp-ICC (e.g., CAC)
	Block exchangeable	N	wp-ICC, bp-ICC, wi-ICC	wp-ICC, bp-ICC, wi-ICC
	Proportional decay	N	N	wp-ICC, decaying wi-ICC
Varying cluster sizes		N	N	Y
Incomplete design		N	N	Y
Unequal allocation to different sequences		N	Y	Y
Multi-level clustering		Y	N	N
Hybrid design		N	Y	Y
User-defined design matrix		N	Y	Y
Delayed/time-on-treatment effect		N	N	Y
Cluster treatment heterogeneity		N	N	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	Y	N
	Marginal (i.e., GEE)	N	Y	Y
Time effect	Categorical	Y	Y	Y
	Continuous	N	N	Y
Magnitude of time effect		N	Y	Y

ICC = intracluster correlation coefficient; wp-ICC = within-period ICC; bp-ICC=between-period ICC; CAC = Cluster Autocorrelation Coefficient; wi-ICC = within-individual correlation; GEE = Generalized Estimating Equations; SD = Standard Deviation

[a] By multiplying IAC/wi-ICC by 1 – churn rate, calculators support closed cohort design can also support open cohort designs. Similarly, calculators allow for open cohort design can also support closed cohort and cross-sectional design by setting the churn rate to 1 or 0. (only for continuous outcomes and constant IAC/wi-ICC)

Table S4 Summary of available features in SW-CRT sample size and power calculation software implemented in STATA

Variable	Values	Package	
		steppedwedge (Hemming et al.)	**power swgee (Gallis et al.)**
Type of outcomes	Continuous	Y	Y
	Binary with identity link	Y	Y
	Count with identity link	Y	Y
	Binary with log/logit link	N	Y
	Count with log link	N	Y
Type of design	Cross-sectional	Y	Y
	Closed cohort	N	Y
	Open cohort	N	Y[a]
Correlation structure and different methods to specify correlation	Exchangeable	CV of outcome or wp-ICC	wp-ICC, bp-ICC (same value), wi-ICC (cohort)
	Nested exchangeable	N	wp-ICC, bp-ICC
	Exponential decay	N	wp-ICC, decaying bp-ICC (CAC)
	Block exchangeable	N	wp-ICC, bp-ICC, wi-ICC
	Proportional decay	N	wp-ICC, decaying bp-ICC (e.g, CAC), decaying wi-ICC (e.g., IAC)
Varying cluster sizes		N	N
Incomplete design		Y	N
Unequal allocation to different sequences		N	Y
Multi-level clustering		N	N
Hybrid design		N	Y
User-defined design matrix		N	Y
Delayed/time-on-treatment effect		N	N
Cluster treatment heterogeneity	Yes	N	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	N
	Marginal (i.e., GEE)	N	Y
Time effect	Categorical	Y	Y
	Continuous	N	N
Magnitude of time effect		N	Y

ICC = intracluster correlation coefficient; CV = Coefficient of Variation; wp-ICC = within-period ICC; bp-ICC=between-period ICC; CAC = Cluster Autocorrelation Coefficient; IAC = Individual Autocorrelation Coefficient; wi-ICC = within-individual correlation; GEE = Generalized Estimating Equations

[a] By multiplying IAC/wi-ICC by 1 – churn rate, calculators support closed cohort design can also support open cohort designs. Similarly, calculators allow for open cohort design can also support closed cohort and cross-sectional design by setting the churn rate to 1 or 0. (only for continuous outcomes and constant IAC/wi-ICC)

Table S5 Summary of available features in SW-CRT sample size and power calculation software implemented in Microsoft Excel

Variable	Values	Package	
		Hughes Excel calculator (Hughes)	**Multi-level SW sample size calculation (Teerenstra et al.)**
Type of outcomes	Continuous	Y	Y
	Binary with identity link	Y	Y
	Count with identity link	N	Y
	Binary with log/logit link	N	N
	Count with log link	N	N
Type of design	Cross-sectional	Y	Y
	Closed cohort	N	N
	Open cohort	N	N
Correlation structure and different methods to specify correlation	Exchangeable	CV of outcome	wp-ICC
	Block exchangeable	N	N
	Exponential decay	N	N
	Nested exchangeable	N	N
	Proportional decay	N	N
Varying cluster sizes		N	N
Incomplete design		Y	N
Unequal allocation to different sequences		Y	N
SW-CRT with subclusters		N	Y
Hybrid design		Y	N
User-defined design matrix		Y	N
Delayed/time-on-treatment effect		N	N
Cluster treatment heterogeneity	Yes	N	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	Y
	Marginal (i.e., GEE)	N	N
Time effect	Categorical	Y	Y
	Continuous	N	N
Magnitude of time effect		N	N

ICC = intracluster correlation coefficient; CV = Coefficient of variation; wp-ICC = within-period ICC; GEE = Generalized Estimating Equations

Table S6 Summary of available features in SW-CRT sample size and power calculation software implemented in other platform

Variable	Values	Package		
		NQuery	**PASS (NCSS, LLC. Kaysville, Utah, USA)**	**SWGRT Calculator**
Type of outcomes	Continuous	Y	Y	Y
	Binary with identity link	Y	Y	Y
	Count with identity link	Y	Y	N
	Binary with log/logit link	N	N	N
	Count with log link	N	N	N
Type of design	Cross-sectional	Y	Y	Y
	Closed cohort	N	N	Y
	Open cohort	N	N	Y
Correlation structure and different methods to specify correlation	Exchangeable	wp-ICC	wp-ICC or CV of outcome	Y
	Nested exchangeable	N	N	Y
	Exponential decay	N	N	Y
	Block exchangeable	N	N	Y
	Proportional decay	N	N	Y
Varying cluster sizes		Y	Y	N
Incomplete design		Y	Y	N
Unequal allocation to different sequences		Y	N	N
SW-CRT with subclusters		N	N	N
Hybrid design		Y	N	N
User-defined design matrix		Y	Y	N
Delayed/time-on-treatment effect		N	Y	N
Cluster treatment heterogeneity	Yes	N	N	N
Analytic model	Conditional (i.e., mixed-effect model)	Y	Y	Y
	Marginal (i.e., GEE)	N	N	N
Time effect	Categorical	Y	Y	Y
	Continuous	N	N	N
Magnitude of time effect		N	N	N

ICC = intracluster correlation coefficient; wp-ICC = within-period ICC; CV = Coefficient of variation; GEE = Generalized Estimating Equation