Multiarm

Multiarm is a package including a shiny app, that allows the user to summarize and visualize outcomes of a multi-arm clinical trial depending on chosen input parameters

# App

## Parameters to choose

* Number of experimental arms, K (control arm not included)
* Multiple Comparison Correction (MCC)
  + Dunnett, Bonferroni, Sidak or none (per hypotheses T1 Error)
* Type of power to control
  + Conjunctive, disjunctive of marginal
* Desired power
* “interesting” & “uninteresting” treatment effect
* Standard deviations (if normally distributed data)
  + Equal across all arms, equal across experimental arms, unequal across all arms
* Allocation ratio
  + Additionally if Bernoulli distributed data: response rates to assume when searching for optimal allocation ratio
* Binary whether to calculate integer sample size
* Binary whether plots should be produced

## Outputs calculated and returned

* Required sample size
  + Total & for each arm depending on allocation ratio
* Actual calculated power
  + Type depending on which power chosen to control
* MCC threshold critical value
  + Depending on mcc method chosen

# Sim-vis-shiny

### Structure of paper

In multiarm, theoretical explanations for the input parameters are given, since the results are calculated based on these inputs. In our app, not applicable, as datasets are are uploaded by the user and are input parameters therefore differ in every application.

Paper could consist of:

* Background theory (clinical trials, simulation studies)
* Descriptions of target groups/scenarios (who could use it for what, …)
* Description and usage of app and widgets
* Requirements to the data