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Sample Size Calculator

Determines the minimum number of subjects for adequate study power

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Study Group Design



 vs. 

Two independent
study groups

 vs. 

One study group
vs. population

Two study groups will each receive different treatments.

Primary Endpoint



Dichotomous
(yes/no)



Continuous
(means)

The primary endpoint is **binomial** - only two possible outcomes.
Eg, mortality (dead/not dead), pregnant (pregnant/not)

Statistical Parameters

Anticipated Incidence

Group 1 ?

90.11

%

Group 2 ?

77.25

%

Incidence

▼

Enrollment ratio ?

1

Type I/II Error Rate

Alpha ?

0.05

Power ?

80%

Reset

Calculate

RESULTS

Dichotomous Endpoint, Two Independent Sample Study

Sample Size	
Group 1	128
Group 2	128
Total	256

Study Parameters

Incidence, group 1	90.11%
Incidence, group 2	77.25%
Alpha	0.05
Beta	0.2
Power	0.8

 **View Power Calculations**

Which statistical test is most appropriate to analyze median weight loss (in kg) between semaglutide and tirzepatide?

- ☐ Independent t-test
- ☐ Chi-square test
- ☐ Mann-Whitney U test



[\(https://academy.clinicalcalc.com/biostatistics-rx-selecting-the-most-appropriate-statistical-test/\)](https://academy.clinicalcalc.com/biostatistics-rx-selecting-the-most-appropriate-statistical-test/)

i About This Calculator

This calculator uses a number of different equations to determine the minimum number of subjects that need to be enrolled in a study in order to have sufficient statistical power to detect a treatment effect.¹

Before a study is conducted, investigators need to determine how many subjects should be included. By enrolling too few subjects, a study may not have enough statistical power to detect a difference (type II error). Enrolling too many patients can be unnecessarily costly or time-consuming.

Generally speaking, statistical power is determined by the following variables:

- **Baseline Incidence:** If an outcome occurs infrequently, many more patients are needed in order to detect a difference.
- **Population Variance:** The higher the variance (standard deviation), the more patients are needed to demonstrate a difference.
- **Treatment Effect Size:** If the difference between two treatments is small, more patients will be required to detect a difference.

- **Alpha:** The probability of a type-I error -- finding a difference when a difference does not exist. Most medical literature uses an alpha cut-off of 5% (0.05) -- indicating a 5% chance that a significant difference is actually due to chance and is not a true difference.
- **Beta:** The probability of a type-II error -- not detecting a difference when one actually exists. Beta is directly related to study power ($\text{Power} = 1 - \beta$). Most medical literature uses a beta cut-off of 20% (0.2) - indicating a 20% chance that a significant difference is missed.

Post-Hoc Power Analysis

To calculate the post-hoc statistical power of an existing trial, please visit the [post-hoc power analysis calculator \(Power.aspx\)](#).

References and Additional Reading

1. Rosner B. *Fundamentals of Biostatistics*. 7th ed. Boston, MA: Brooks/Cole; 2011.

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Related Calculators

- [Post-hoc Power Calculator \(Power.aspx\)](#)

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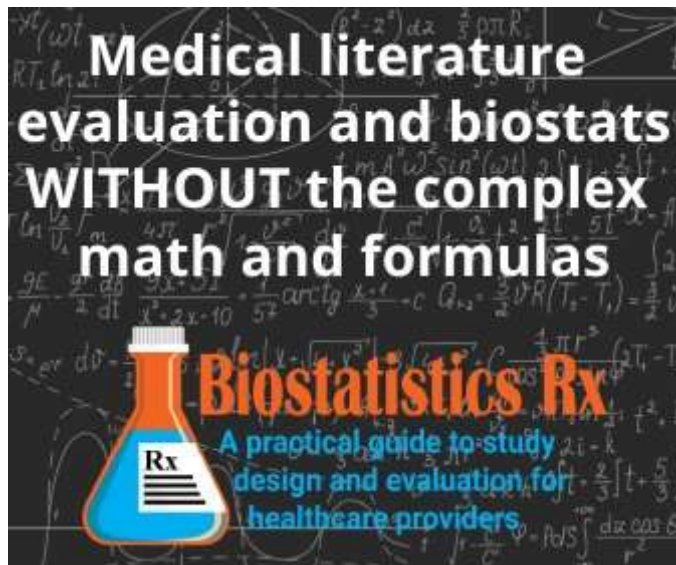
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- [Announcing Biostatistics Rx – A New Online Course \(/clinicalc.com/blog/2024/06/announcing-biostatistics-rx-a-new-online-course/\)](#)
- [DrugStats Database \(/DrugStats\)](#)

- ▶ [Introducing RxFlip: The Ultimate App for Learning the Top 250 Drugs](https://clincalc.com/blog/2025/02/introducing-rxflip-the-ultimate-app-for-learning-the-top-250-drugs/)
([//clincalc.com/blog/2025/02/introducing-rxflip-the-ultimate-app-for-learning-the-top-250-drugs/](https://clincalc.com/blog/2025/02/introducing-rxflip-the-ultimate-app-for-learning-the-top-250-drugs/))
- ▶ [ClinCalc DrugStats: Most Commonly Prescribed Medications in 2021](https://clincalc.com/blog/2024/01/clincalc-drugstats-most-commonly-prescribed-medications-in-2021/)
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- ▶ [ASCVD Risk Calculator](https://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx) ([/Cardiology/ASCVD/PooledCohort.aspx](https://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx))

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