

Basic Data Analysis using OpenEpi

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After this session, the learner will be able to perform the following using OpenEpi

- **A chi-square test**
- **A two-sample t -test**
- **A sample size calculation for a study that will compare two proportions (such as two risks)**

OpenEpi

- **Open source license**
- **Development was supported in part by a grant from the Bill and Melinda Gates Foundation to the Emory University Rollins School of Public Health**
- **www.openepi.com**

**Form of the dependent and
independent variables**



**Statistical test or
model that you will use**

Review of Hypothesis Testing

- **Null hypothesis (H_0) and alternative hypothesis (H_A)**
- H_0 is usually the *hypothesis of no difference*
- **The null hypothesis is the straw man**

$$H_0: RR = 1$$

$$H_A: RR \neq 1$$

Two-Tailed Test

$$H_0: RR = 1$$

$$H_A: RR \neq 1$$

One-Tailed Test

$$H_0: RR = 1$$

$$H_A: RR > 1$$

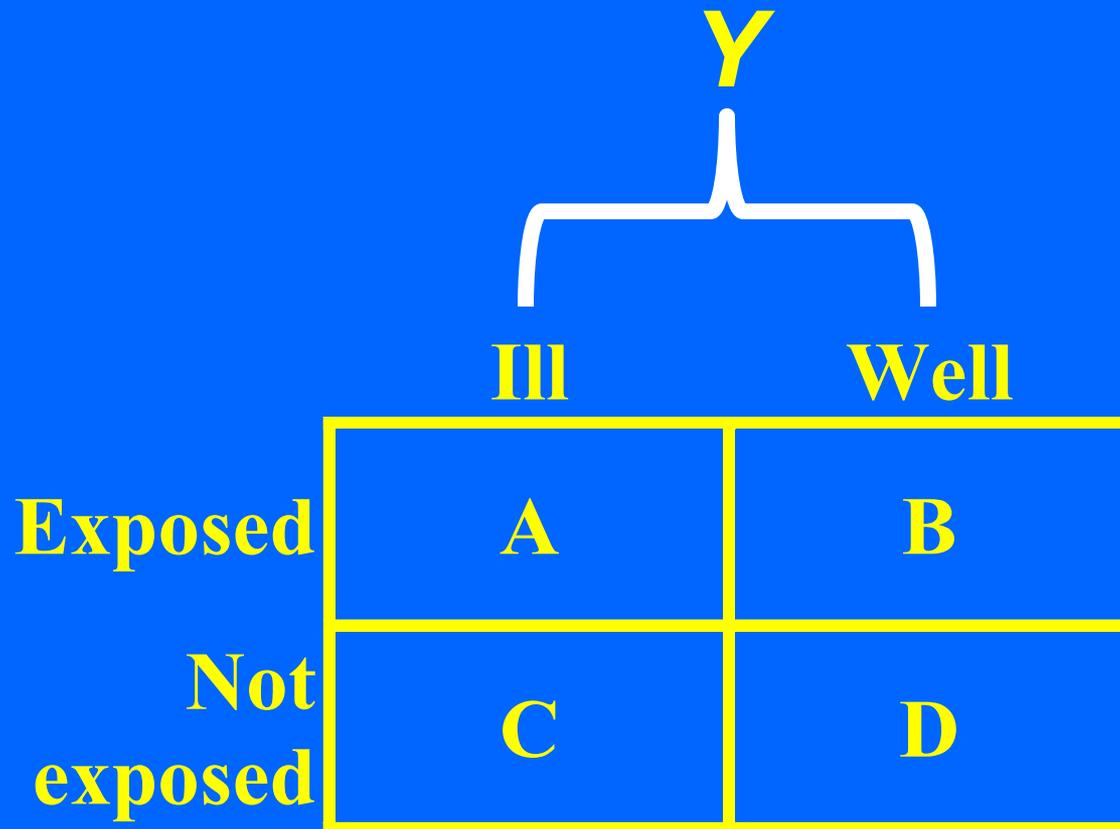
2 x 2 Table

	Ill	Well
Exposed	A	B
Not exposed	C	D

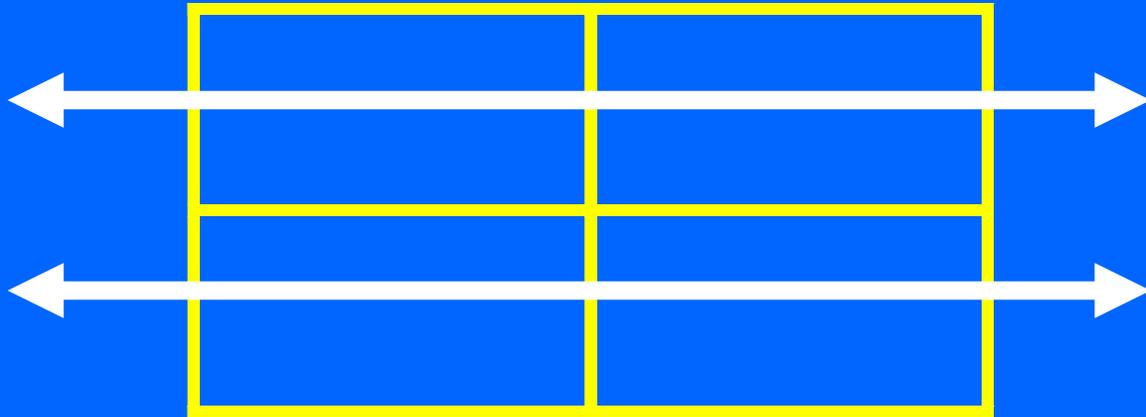
Typically the independent variable (X) is on the side

		Ill	Well
X	Exposed	A	B
	Not exposed	C	D

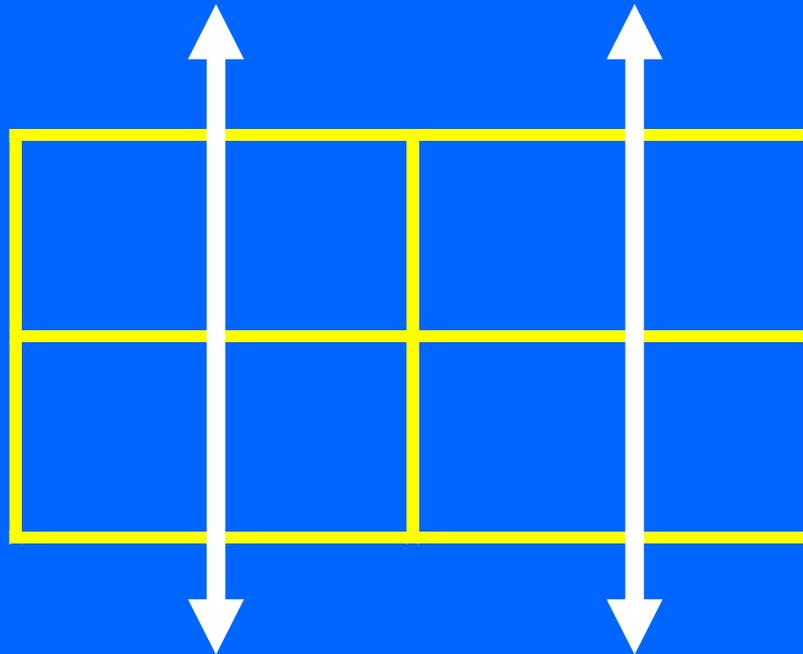
Typically the dependent variable (Y) is on top



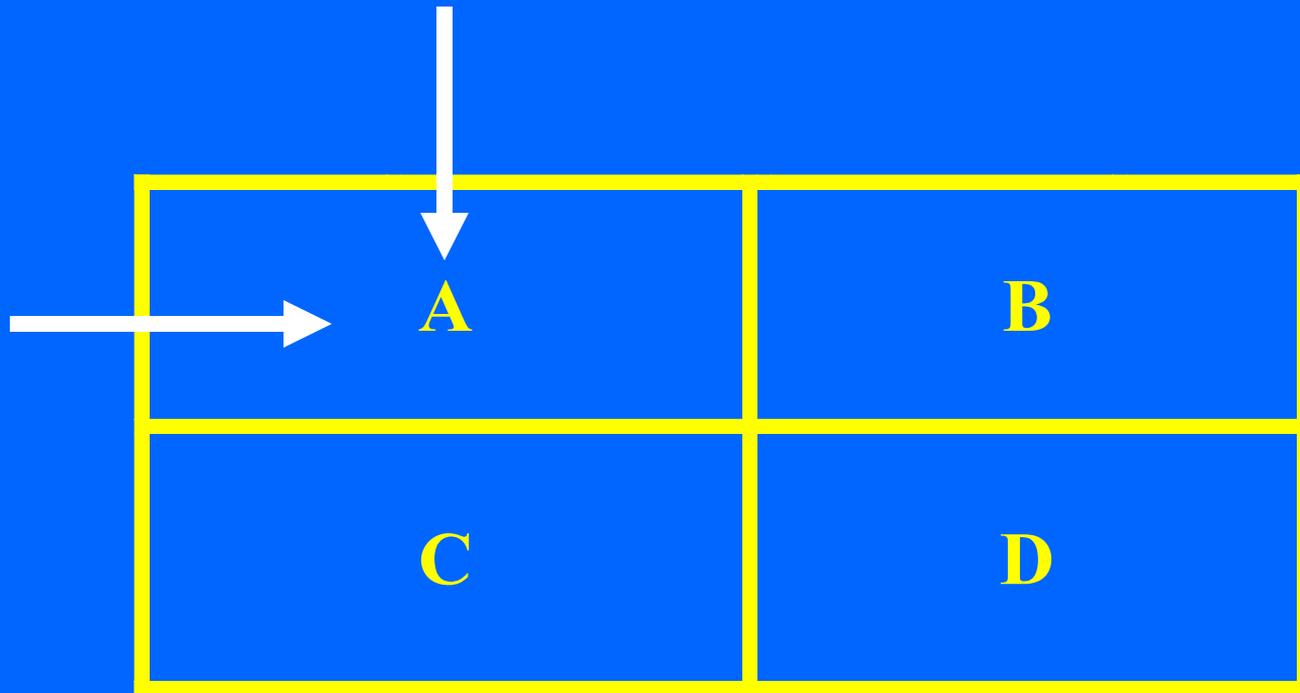
Rows are horizontal



Columns are vertical



What is a cell? It's the intersection of a row and column.



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Version 3.01 Updated 2013/04/06 *Try it in a Smartphone browser!*



OpenEpi provides statistics for counts and measurements in des with exact confidence limits, matched pair and person-time ana random numbers, sensitivity, specificity and other evaluation st dose-response, and links to other useful sites.

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Test results are provided for each module so that you can judge check important results with software from more than one sour provided.

The programs have an open source license and can be downloa components from other sources have licensing statements in the available in full text at OpenSource.org/licenses. OpenEpi deve the Bill and Melinda Gates Foundation, Em University, D

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OpenEpi: Question 1

- **Two-sample t -test**
- **What is the null hypothesis?**

OpenEpi: Question 1

- Use the “t test” module under “Continuous Variables”
- Click on the “Enter” tab and enter the required information
- Click “Calculate”

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OpenEpi: Question 2

- Use the “Two by Two Table” calculator/module under “Counts”
- Click on the “Enter” tab and enter the four cell values
- Click “Calculate”

**Is there a relationship between
tx and the subject's sex?**

	Female	Male	
Tx A	33	68	101
Tx B	34	65	99

Tx status and subject's sex

- **The null hypothesis for the chi-square test of homogeneity is that the two tx groups are homogenous with respect to the prevalence of female subjects.**
- **Let alpha be 0.05.**
- **If the chi-square test P -value is 0.05 or less, then we reject the null hypothesis.**

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OpenEpi: Questions 6 through 8

- **Click on “Sample Size”**
- **Click on “Cohort/RCT”**
- **Click on the “Enter” tab**
- **Enter information & click “Calculate”**