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## *Cross-Sectional Studies*

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# *Cross-Sectional Study*

- A **cross-sectional study** is an observational study in which exposure and disease are determined at the same point in time in a given population
- The temporal relationship between exposure and disease cannot be determined

# Design of a Cross-Sectional Study

Begin with:

Defined  
Population

Gather data on exposure and disease

Exposed;  
Have  
Disease

Exposed;  
Do Not  
Have  
Disease

Not  
Exposed;  
Have  
Disease

Not  
Exposed;  
Do Not  
Have  
Disease

Four  
Groups  
Are  
Possible

# Design and Analysis of a Cross-Sectional Study

	Disease	No Disease
Exposed	<b>a</b>	<b>b</b>
Not Exposed	<b>c</b>	<b>d</b>

	Disease	No Disease
Exposed	<b>a</b>	<b>b</b>
Not Exposed	<b>c</b>	<b>d</b>

	Disease	No Disease
Exposed	<b>a</b>	<b>b</b>
Not Exposed	<b>c</b>	<b>d</b>

# Design and Analysis of a Cross-Sectional Study

	Disease	No Disease
Exposed	a	b
Not Exposed	c	d

Prevalence of **exposure** in Disease and No Disease

$$\frac{a}{a+c} \text{ vs. } \frac{b}{b+d}$$

	Disease	No Disease
Exposed	a	b
Not Exposed	c	d

Prevalence of **disease** in Exposed compared to Not Exposed

$$\frac{a}{a+b} \text{ vs. } \frac{c}{c+d}$$

# Cross-Sectional Studies: Example

- National survey studies
  - Population-based survey studies are conducted by NCHS and other agencies
  - Collect information on health and other characteristics (such as nutrition) of U.S. household population
  - For example:
    - ▶ National Health Interview Survey
    - ▶ National Health and Nutrition Examination Survey
    - ▶ China's National Prevalence Survey
- Exposure- or disease-specific cross-sectional studies
  - National cross-sectional study of views on sexual violence and risk of HIV infection and AIDS among South African school pupils
  - VA Cooperative Study on prevalence of hepatitis C

<http://www.cdc.gov/nchs/about/major/nhanes/hlthprofess.htm>

Andersson et al. National cross sectional study of views on sexual violence and risk of HIV infection and AIDS among South African school pupils

Yang et al. Smoking in China. Findings of the 1996 National Prevalence Survey. JAMA 282: 1247-1253, 1999  
BMJ 2004;329:952 (23 October),

Elevated prevalence of hepatitis C infection in users of United States veterans medical centers. Dominitz JA, et al, Hepatology. 2005;41:88-96.

# *Cross-Sectional Study*

- It assesses the prevalence of exposures and/or of diseases in the population
- It provides clues for further research into the etiology of diseases