

Homework #9: Cohort Study & Measures of Association

Due: 11/15/02

Two hospitals, one in Billings and one in Salt Lake City, participated in a cohort study designed to measure the risk of coronary heart disease (CHD) for smokers and non-smokers. In all, 2000 smokers and 4000 non-smokers were observed during the 15 year course of the study. None of the subjects had experienced symptoms of CHD prior to commencement of the study. The results were:

	First episode of CHD within 15 years?		Total
	Yes	No	
Smokers	200	1800	2000
Non-smokers	400	3600	4000

1. Calculate estimates of:
 - a) Risks of CHD for smokers (ϕ_1) and for non-smokers (ϕ_2).
 - b) Relative Risk (ψ) for smokers to non-smokers.
 - c) Excess risk (δ) due to smoking.
 - d) Odds ratio (ψ'); odds for CHD and ratio of smokers to non-smokers.
2. Run SAS PROC FREQ to check your values and to get confidence intervals. Copy your computer output and put labels a, b, c, d at the places in the output that pertain to the parts of 1.
3. Is smoking related to CHD? Explain
4. When the data are separated by hospital, the results are:

Billings	First episode of CHD within 15 yr?		Total
	Yes	No	
Hospital			
Smokers	90	1410	1500
Non-smokers	20	980	1000

SLC	First episode of CHD within 15 yr?		Total
	Yes	No	
Hospital			
Smokers	110	390	500
Non-smokers	380	2620	3000

- a) For each hospital, calculate estimates of the excess risk (δ), relative risk (ψ) and odds ratio (ψ').
- b) Is hospital a confounding factor? Explain.
- c) Now do you think smoking is related to CHD? Explain.