KINE 3635
In class questions: Case control studies

Question 1)

In a case control study to assess the relationship between oral contraceptives and myocardial infarction the following results were obtained:

Table 1: (S*ource*: Shapiro et al.1979)

Age	OC use	MI	Controls
25-29	Yes	4	62
	No	2	224
30-34	Yes	9	33
	No	12	390
35-39	Yes	4	26
	No	33	330
40-44	Yes	6	9
	No	65	362
45-49	Yes	6	5
	No	93	301
Total		234	1742

a) Based on the values shown in table1, calculate the appropriate measure of association between Oral Contraceptive use and Myocardial infarction (grouping all age groups together). Interpret the results.
b) At each age interval, calculate the appropriate measure of association between Oral Contraceptives and Myocardial infarction, interpret the results.
c) For females with MI who are between 25-29 years of age, what is the odds of using Oral contraceptives?
d) For Oral contraceptives users of the age group 30-34, what are the odds of having the outcome?

Question 2)

In a study attempting to assess the association between Bladder Cancer and Yerbamate in Argentina in 2002, a total of 80 cases of Bladder Cancer were obtained from the Cancer Registry of a major hospital in Argentina. The researcher selected 80 control subjects from the trauma division of the Hospital. When assessing exposure, it was noted that 60 of the cases were regular Yerbamate drinkers compared to half of the controls.

Build a 2 x 2 table to be able to proceed with the following questions.

a) Calculate the odds of exposure to Yerbamate among Bladder Cancer cases.
b) Calculate the odds of exposure to Yerbamate among controls.
c) Calculate the Odds Ratio of exposure among cases to controls. Interpret your results.
d) Calculate the odds of Bladder Cancer among regular Yerbamate drinkers and the odds of Bladder Cancer among non-drinkers. Calculate the Odds Ratio.

e) Suppose that the investigators chose 400 controls instead of 80. Repeat questions (a) through (d) and comment on the results compared to what you got in the beginning (Please note that the percentage of exposure among controls remains unchanged). Why didn't the odds ratio change in this case (Hint: what is the formula of OR)

Question 3)

The following **two** abstracts summarize the results of epidemiologic studies. For each of the abstracts:

1) Indicate the study design.
2) Indicate the "exposure/ risk factor" and the "disease/ outcome"
3) Construct one 2x2 table summarizing the results of the study in the following manner:

Exposure	**Disease**		
	Yes	No	Total
Yes	a	b	a+b
No	c	d	c+d
Total	a+c	b+d	a+b+c+d

4) Based on the 2x2 table, calculate the appropriate measure of association between the independent variable and the dependent variable.

ABSTRACT 1

Human papillomavirus infection and oral cancer: [redacted] in Montreal, Canada.

Pintos J, Black MJ, Sadeghi N, Ghadirian P, Zeitouni AG, Viscidi RP, Herrero R, Coutlee F, Franco EL. Oral Oncol. 2007 Apr 26

The objective of the present study was to examine the association between human papillomavirus (HPV) infection and risk of developing oral cancer. The investigation followed a hospital-based [redacted] design. Cases consisted of newly diagnosed patients with squamous cell carcinoma of the oral cavity and oropharynx. Controls were frequency matched to cases on gender, age, and hospital. Subjects were interviewed to elicit information on putative risk factors. Oral exfoliated cells were tested for detection of HPV DNA by the PGMY09/11 polymerase chain reaction protocol. Serum antibodies against HPV 16, 18, and 31 viral capsids were detected using an immunoassay technique. Logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CI) of oral cancer according to HPV exposure variables. HPV DNA was detected in 19% of cases (14 out of 72), and 5% of controls (six out of 129). Among tonsil-related cancers (palatine tonsil and base of tongue) viral DNA was detected in 43% of cases (nine out of 21). The OR for tonsil-related cancers for high-risk HPV types was 19.32 (95%CI: 2.3-159.5), after adjustment for socio-demographic characteristics, tobacco, and alcohol consumption. The equivalent OR for HPV 16 seropositivity was 31.51 (95%CI: 4.5-219.7). The ORs of non-tonsillar oral cancers for high risk HPV DNA in oral cells and for

seropositivity were 2.14 (95%CI: 0.4-13.0) and 3.16 (95%CI: 0.8-13.0), respectively. These results provide evidence supporting a strong causal association between HPV infection and tonsil-related cancers. The evidence for an etiologic link is less clear for non-tonsillar oral cancers.

ABSTRACT 2

Hepatitis A in Hispanic children who live along the United States-Mexico border: the role of international travel and food-borne exposures.
Weinberg M. Hopkins J. Farrington L. Gresham L. Ginsberg M. Bell BP. Pediatrics. 114(1): 68-73, 2004 Jul.

OBJECTIVES: Hispanic children who live along the United States-Mexico border historically have had among the highest hepatitis A rates in the United States, but risk factors have not been well characterized. The objective of this study was to examine risk factors associated with acute hepatitis A virus (HAV) infection in Hispanic children who live along the United States-Mexico border in San Diego County, California. METHODS: In this [redacted] study, hepatitis A cases among Hispanic children who were younger than 18 years reported from June 1998 through August 2000 were matched by age group and exposure period to Hispanic children who were susceptible to HAV infection. Participants and their families were interviewed about demographic information and potential sources of HAV infection, including attending child care, food and waterborne exposures, cross-border and other international travel, and travel-related activities. RESULTS: Participants included 132 children with hepatitis A and 354 control subjects. The median age of study participants was 7 years (range: 1-17). Sixty-seven percent of [redacted]patients traveled outside the United States during the incubation period, compared with 25% of the children without hepatitis A (odds ratio [OR]: 6.3; 95% confidence interval [CI]: 4.0-9.7); all children, except 1, had traveled to Mexico. In multivariate analysis, hepatitis A was associated with having eaten food from a taco stand or street food vendor (adjusted OR: 17.0; 95% CI: 4.1-71.1) and having eaten salad/lettuce (adjusted OR: 5.2; 95% CI: 1.3-20.1) during travel. CONCLUSIONS: Hepatitis A among Hispanic children who live in an urban area of the United States-Mexico border is associated with cross-border travel to Mexico and food-borne exposures during travel. Travelers to areas where hepatitis A is endemic should receive hepatitis A vaccine before travel.