

CMED 305 (2018-2019)

Practical Exercise on: Incidence & Prevalence and measurement of risk
(Solutions)

Prevalence:

A: Calculate the prevalence of cataract in a 15000 population aged between 60 to 70 years in the time period of summer months from June to August in city X, where 300 people were diagnosed to have cataract.

$$\begin{aligned}\text{No. of people with cataract} &= 300 \\ \text{No. of population} &= 15000 \\ \text{Period prevalence} &= (300/15000)*100 = 2\%\end{aligned}$$

B: In a classroom study involving 100 subjects, 15 students reported to have been suffering from influenza on January 1st.

Calculate the point prevalence of 15 students suffering with influenza on a cold winter day on January 1st in a class of 100 students.

$$\begin{aligned}\text{No. of students with influenza} &= 15 \\ \text{Class strength} &= 100. \\ \text{Point prevalence on 1}^{\text{st}} \text{ January} &= (15/100)*100 = 15\%.\end{aligned}$$

Incidence rate:

A: In a follow up study of 2000 IGT women, 150 women were diagnosed to have type 2 diabetes at the end of the follow up period. Calculate the incidence rate.

No. of women developing diabetes = 150.

No. of women followed over a period = 2000

$$\text{Incidence rate of the disease} = (150/2000)*100 = 7.5\%$$

Attack rate:

A: The cholera investigation report found 22 persons to be positive for cholera among 200 persons who drank water from the same source. Calculate the attack rate.

No. of cholera cases = 22, No. of people at risk = 200

$$\text{Attack rate} = (22/200)*100 = 11\%$$

Attributable Risk

A: Users of tobacco were surveyed for development of leukoplakia. Incidence of leukoplakia is given among the exposure group and the control group. Calculate the attributable risk.

Incidence of leukoplakia among tobacco users = 19%

Incidence of leukoplakia among non-tobacco users = 5%.

Attributable risk = $19 - 5 = 14\%$ of the disease can be attributed to tobacco.

Relative risk:

A: A total of 160 children underwent measles vaccination at a camp, of which 20 children from vaccinated group developed measles. While 5 from the control group developed the disease. Calculate the relative risk for the following and interpret what it means.

	Measles +	Measles -	Total
Vaccination	20	140	160
No vaccination	5	7	12
Total	25	147	

$$\text{Relative Risk} = (A / (A+B)) / (C / (C+D)) =$$

$$= 20 / (20+140) / (5 / (7+5)) =$$

$$(20/160) / (5/12) =$$

$$0.125 / 0.41 = 0.3$$

The risk ratio is less than 1 which indicates the protective effect of vaccination.

B: About 300 workers were employed in an asbestos factory, of which 107 developed lung disease. Out of 250 controls from another factory, 24 developed the lung disease. Draw the contingent table and estimate the risk of exposure.

	Lung disease +	lung disease -	Total
Asbestos factory exposure	107	193	300
No exposure	24	226	250
Total	131	419	550

$$\text{RR} = 107 / (300) / 24 / (250)$$

$$= 0.36 / 0.09 = 4$$

So it indicates that workers from the asbestos factory are at 4 times higher risk of developing lung disease than the non exposed group.