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**Name: Aya Manassrah**

**ID: 1202109**

**Course: Epidemiology(NURS2231), Homework1**

**Course Instructor: Dr. Lina El-khairy**

**I. In a village of 10,000 population in 1/1/1998, 1000 people got infected with yellow fever. From the infected people, 800 died and the rest of the infected people remained infected carriers for their life. The age distribution of people, cases and deaths was as follows:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Age** | **Total population** | **Total infected** | **Total Deaths** |
| **Less than 1 yr** | **1500** | **750** | **700** |
| **1-4 years** | **2000** | **150** | **75** |
| **5+** | **6500** | **100** | **25** |
| **Total** | **10,000** | **1000** | **800** |

1. **Answer the following:**
   1. **Can you conclude from this data that there is a disease outbreak (epidemic) occurring in the village? Justify your answer.**

**Answer:**

**Yes, It’s epidemic disease, because the number of the total deaths is very high of the total infected people, for 1000 infected people, 800 die of them, and I have noticed that the number of deaths decrease gradually with increasing age( the most affected group for this infection those less than 1 yr).**

**To prove my explanation: the attack rate will be calculated**

**Attack rate= no. of patient infected with disease/ No. of total population**

**= 1000/10000**

**= 10\*100**

**=10% it’s maybe considered high for the total population, &it will increase with the increasing of population number.**

* 1. **What is the child (1-4 years old) mortality rate (risk of dying)?**

**Answer:**

**Mortality rate = No. of deaths/ No. of total children in the same period**

**=75/2000**

**=0.037\*100**

**= 3.7%**

* 1. **Which age group has the best prognosis (lowest case fatality)? Show in calculation.**

**Answer:**

**Case fatality rate= no. of deaths in a given period/ no. of cases of the disease in the same period \*100%**

1. **For those less than 1Year= 700/750 \*100= 93.3%**
2. **For those children from 1-4 years= 75/150 \*100=50%**
3. **For 5 years and more aged children= 25/100 \*100= 25%**

**-The best prognosis that has the lowest case fatality is the 5+ aged group which is equal 25%**

**II.10,000 employees were screened for diabetes mellitus. Diabetes was detected in 1000 of these employees during the initial screening. 45 new diagnosis were detected at a subsequent annual screen 1 year later.**

1. **Calculate the prevalence of diabetes at the beginning of screening.**

**Answer:**

**prevalence = No. of individuals having the disease at a specific time/ No. of individuals in the population at that point in time**

**P= 1000/10000**

**P=0.1\*100**

**P= 10%**

1. **Calculate the annual risk of diabetes among these employees.**

**Answer:**

**Annual risk for diabetes= no. of new cases of diabetes/ no. of total population at risk**

**= 45/9000\*100**

**= 0.5%**