

## التواريخ والأرقام المذكورة بمادة دكتوراة سيرين

### **Lec.1**

-(Winslow,1920): Definition of Puplic health

-(WHO,1948): definition of Health

-Epidemiology: The science of the mass phenomena of infectious diseases or the natural history of infectious diseases. (Frost,1927)

-Epidemiology: The science of infective diseases, their prime causes, propagation and prevention. (Stallbrass 1931.)

-Epidemiology:

“The study of the distribution and determinants of health-related states or events in specified populations, and the application of the study to the control of health problems”. (J.M. Last 1988)

\*Diseases (page:15)

-SARS in 2003

-MERS in 2012

-COVID-19 in 2019

### **Lec.2**

\*حسب كلام أحد الزملاء انه الدكتوراة قالت اهم شي تاريخ الكوليرا، والعلماء تاريخ تقريبي (مظللين بالاحمر ) Hill الى Hippocratos وترتيبهم من

-In 1982, an epidemiologist studied the number of farm tractor-associated deaths

-All tractor related incidents between 1971-1981, N=166 cases

\* Legionnaire’s disease outbreak

-July 21-24/ 1976: American Legion Convention, Philadelphia, Pennsylvania.

-July 26-Aug 1 / 1976: 18 deaths reported among conventioners

-Aug 2(Morning)/ 1976 : Health care provider at a veterans' hospital in Philadelphia calls CDC to report cases of severe respiratory illness among attendees of the American Legion Convention.

-Aug 2( Evening) /1976: 71 additional cases reported.

-In January 1977, the Legionella bacterium was finally identified and isolated and was found to be breeding in the cooling tower of the hotel's air-conditioning system.

#### \*London Smog Disaster, 1952

-When fog and soot from coal burning created a dense smog in Winter, 1952, in London, the smog was around for five days from December 5–10.

-The death rate in London in the previous week was around 2,062.

-In the week of the smog, 4,703 died.

# In April, 1955, Dr. Thomas Francis, announced that the two-year field trial of the Salk vaccine against polio was up to 90% effective.

#### # History of Epidemiology

1) Hippocrates (460BC)

2) John Graunt (1662)

3) James Lind (1747)

4) William Farr (1839)

5) John Snow (1854)

6) Alexander Louis (1872)

7)Bradford Hill (1937)

-Epidemiological thought emerged in 460 BC.

-Epidemiology flourished as a scientific discipline in 1940s.

-John snow(1813-1858): identify the cause of the epidemic of cholera in London in 1854.

*-Snow conducted his classical study in 1854 when an epidemic of cholera developed in the golden square of London.*

### ***Lec.3***

-Louis Pasteur introduced the germ theory in 1878.

### ***Lec 4.***

-It is now recognized that it may take 10 years or more for AIDS to develop after seroconversion.

-Mary Mallon, As a cook in New York City and New Jersey in the early 1900s, she unintentionally infected dozens of people until she was placed in isolation on an island in the East River, where she died 23 years later

-last human case was identified and isolated in Somalia in 1977.

-Herd immunity level differs for various diseases:

1)it's estimatedthat 94%ofthepopulationmustbeimmune before measles can be controlled.

2) For mumps, it is around 90%, and for polio is 80%.

### ***Lec.5***

\*Cumulative Incidence = No. of new cases of disease during a specific period/  
Pop. at risk at the baseline

\*Prevalence=all persons with disease/ Total pop.

\*Prevalence = Incidence X duration

## Lec.8

Screening is “application of a test to asymptomatic people to detect occult disease or a precursor state” (Alan Morrison, *Screening in Chronic Disease, 1985*)

Event forecast	Event observed		
	Yes	No	Marginal total
Yes	a	b	a + b
No	c	d	c + d
Marginal total	a + c	b + d	a + b + c + d = n

1. Chi-square in Cross-sectional studies:

$$X^2 = ( (n(ad-bc)-n/2)^2 ) / ( (a + b)(a + c)(c + d)(b + d) )$$

(usually calculated using software like SPSS or excel).

2. Relative risk (RR) or Risk Ratio (RR) In a cohort study:

$$RR = \frac{a / (a + b)}{c / (c + d)}$$

- Risk in exposed = 2X Risk in non-exposed
- In general strength of association can be considered as:
  - High association if  $RR > 3$
  - Moderate if RR is between 1.5 & 2.9
  - Weak association if RR is between 1.2 & 1.4
  - No association exists if RR is 1
  - Negative association (protective effect) if  $RR < 1$

3. Odds ratio (OR)

$$OR = (a/c) / (b/d) = ad / bc$$

4. Attributable Risk (AR)

AR= Risk (incidence) in exposed- Risk (incidence) in non-exposed

$$AR= [a/(a +b)] - [c/(c +d)]$$

\* Attributable risk is also called risk difference

$$AR\% = ( (Risk\ in\ exposed - Risk\ in\ non-exposed) \times 100\% ) / (Risk\ in\ exposed)$$

-Possible outcomes in studying the relationship between exposure & disease

1. No association

$$RR=1$$

$$AR=0$$

2. Positive association

$$RR>1$$

$$AR>0$$

3. Negative association

$$RR<1 \text{ (fraction)}$$

$$AR<0 \text{ (Negative)}$$

- A risk factor is any factor positively associated with a disease ( $RR>1$ ). It is associated with an increased occurrence of a disease.

-A preventive factor is any factor negatively associated with a disease ( $RR<1$ ). It is associated with a decreased occurrence of a disease.

\*Risk and preventive factors may (not) be amenable to change (e.g. Smoking, age).

1. Sensitivity of the test:

Probability (proportion) of correct classification of cases :

Cases found by the test  $as +$  / all cases

2. Specificity of the test:

Probability (proportion) of correct classification of non-cases:

Non-cases found by the test  $as -$  / all non-cases

GOOD LUCK

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