

Babylon University – College Of Medicine  
Department of Community Medicine

*Lectures in Community Medicine  
For 4<sup>th</sup> Stage Students  
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## Lecture 5 Control of Epidemics

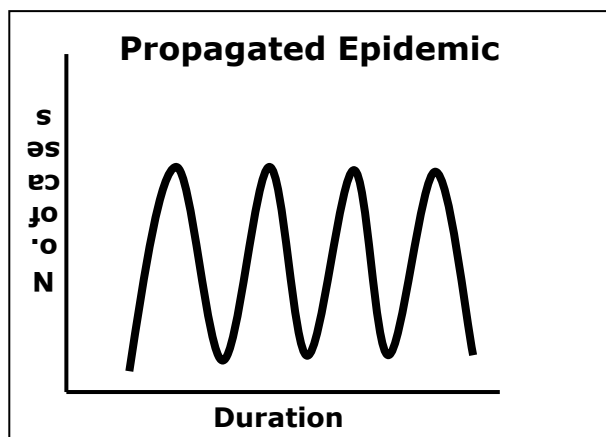
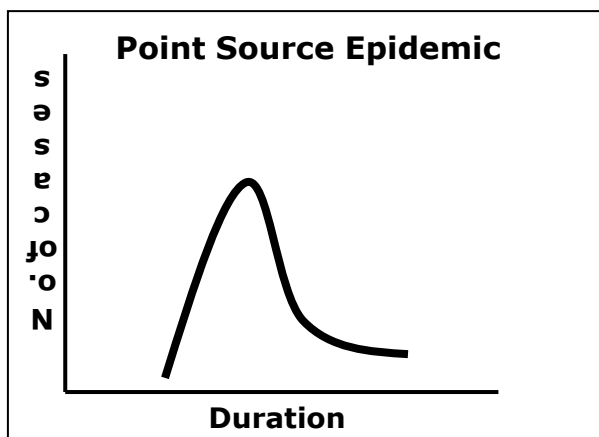
**Epidemic:** A clear excess in the number of cases of a given disease (over the expected level) i.e. in comparison with the expected level or what is expected in a given time period.

Expected level can be known by comparing with previous reports, if expected number was zero and we have two cases, it means an epidemic. Iraq is free from polio then the appearance of two cases of polio means an epidemic. We usually compare with average of the previous five years.

Every epidemic should be reported but not every one should be investigated, a case of HIV or cholera should be reported and investigated, while 30 cases of gastroenteritis do not need investigation.

### **Types of Epidemic:**

- 1- Common source epidemic (point source epidemic) or single exposure.
- 2- Propagated epidemic or person to person epidemic.
- 3- Mixed.



## **Common Source Epidemic:**

It results from exposure of large number of people at the same time to a common hazard (water, food, gas).

### **Characteristics:**

**A.** Rapid rise and slower decline of the number of cases.

**B.** Localization in place.

**C.** Localization in time.

If the source of exposure is stopped the number of cases decline so the shape of the curve decline, duration of onset of this epidemic occur within one incubation period, in Hepatitis A the incubation period is 30-45 days so all cases will occur within this time period.

**D.** The persons affected have certain characteristic such as school children.

## **Steps for investigations of an epidemic:**

### ▪ **First Step:**

Verify the diagnosis.

Compare the current rate with the previous rate of the disease.

### ▪ **Second Step:**

Put criteria for case definition; a statement about clinical observation, Lab test, X-ray with some restriction to time, person, place.

Classify cases according to degree of severity: (mild, moderate and severe).

### ▪ **Third Step:**

Calculate the attack rate:

Which is a special form of incidence rate where the duration is the period of the epidemic.

### ▪ **Step Four:**

Test hypothesis, is the difference between the risk association due to chance factor or not.

Asses the Attributable Risk (AR) among exposed and non-exposed persons and the Relative Risk (RR).

- **Step Five:**
  - 1- Taking sample from source (water, food, soil, blood, stool).
  - 2- Contact tracing which help in identifying additional cases by asking the diseased person, mothers of diseased children or relatives.
  
- **Step Six:**

Control measures to stop the epidemic.
  
- **Step Seven:**

Report what have been done (results and conclusion).
  
- **Step Eight:**

Recommendations to prevent and control further spread and to prevent recurrence.