ĐIỀU TRA DỊCH

PGS, TS LÊ HOÀNG NINH

MỤC TIÊU BÀI HỌC

- 1. Định nghĩa các từ :
- Dịch, ca lẻ tẻ, bệnh lưu hành địa phương, đại dịch
- 2. Liệt kê các bước tiến hành điều tra dịch
- 3. Với một số thông tin cho sẳn, thực hiện các bước điều tra, phát triển giả thuyết
- 4. Tính các số đo về sự liên quan trong tiến hành điều tra dịch

PHÁT HIỆN SỰ BÙNG PHÁT DỊCH

- 1. Qua dữ liệu/ số liệu thu thập routine
- 2. Phân tích theo thời gian, không gian phát hiện ra số ca tăng lên hay một cluster ca bệnh bất thường
- 3. Qua các trường hợp báo cáo ca bệnh hàng tuần hay qua các thông tin về tiếp xúc của các ca bệnh.
- 4. Nhân viên y tế.

LÝ DO PHẢI ĐIỀU TRA DỊCH

1. Kiểm soát/ phòng chống
2. Cơ hội nghiên cứu
3. Huấn luyện đào tạo
4. Vấn đề công cộng, chính trị, kinh tế xạ hội
5. Chương trình y tế

Bài tập

Trong năm 2005, tại một xã có 9 cư dân chết do ung thư vòm hầu, anh chị hãy liệt kê các lý do điều tra xác định dịch?

ĐIỀU TRA MỘT VỤ DỊCH: 10 BƯỚC

1. Prepare for field work
2. Establish the existence
3. Vierify the diagnosis
4. Define and identify cases
    - A) case definition
    - B) identify and count cases
5. Perform descriptive Epid.
6. Develop hypothesis

ĐIỀU TRA MỘT VỤ DỊCH: 10 BƯỚC (TT)

7. Evaluate hypothesis
8. If necessary, reconsider/ refine hypothesis and execute additional studies
    a) additional epid. Studies
    b) other types of studies- lab, environment
9. Implement control and prevention measures
10. Communicate findings

ĐIỀU TRA MỘT VỤ DỊCH: 10 BƯỚC

- Bài tập 2:
  - Trong 10 bước nầy, theo anh chị bước nào là quan trong nhất ?
  - Khi điều tra dịch có cần tuân thu theo thứ tự đủ 10 bước trên không?

BƯỚC 1: PREPARING FOR FIELD WORK

- 3 NHÓM CÔNG VIỆC:
  - INVESTIGATION:
    - » KNOWLEGDE: CÓ/ KHÔNG CÓ, BỘ CẠU HỎI MẪU
    - » SUPPLIES, EQUIMENT: LAB. MATERIALS, COMPUTER, CAMERA, OTHERS
  - ADMINISTRATION:
    - » ADMINISTRATION PROCEDURES
  - CONSULTATION
    - » YOUIR EXPECTED ROLE IN THE FIELD
    - » WHO, WHERE, WHEN YOU ARE MEET AND CONTACT

BƯỚC 1: PREPRARING FOR FIELD WORKS

BÀI TẬP:

Ngày 28 tháng 12 năm 2005, ttytdp Cửu long báo một vụ dịch 20 người mắc bệnh tiêu chảy cấp phải nhập viện. Anh chi hãy chuẩn bi cho chuyến di diêu tra, phong chong dịch tại đây.

Bước 2: the existence of an outbreak?

- Epidemic: more cases of disease than expected in a given area/ group people / period of time
  1. Sporadic
  2. Endemic
  3. Epidemic
  4. pandemic
- Cluster : aggregation of cases / given area/ particular period

BƯỚC 2: EXISTENCE OF OUTBREAK

BÀI TẬP 3:

Vào tháng 2 năm 2006, trung tâm y tế dự phòng tỉnh kiên giang báo cáo lên tuyến trên 24 ca bị hội chứng viêm não. Sau đó Viện pasteur thành phố xác định là do enterovirus 71. Theo anh chị đây có phải là vụ dịch? Và các bước chuẩn bị điều tra dịch của anh chị như thế nào, nếu anh chị được cử tham gia vào đội chống dịch của Viện

BƯỚC 3: VERYFYING THE DIASGNOSIS

- Goal:
  - a) ensure the problem has been properly diagnosed
  - b) rule out lab. Error
- Verifying:
  - Clinical review
  - Lab. Test
- Recommendations:
  - Summarize clinical findings (frequency distribution)
  - Visit several patients

BƯỚC 4a: CASE DEFINITION

- Case definition:
  - Standard set of criteria for deciding
  - Including: clinical criteria, restrictions by time, place, person
  - Exam: clinical criteria on simple and objective measures: fever > 101 F (degree), three or more loose movement per day, person onset within 2 weeks, resident of the nine county area, to person who no previous history of…. You must apply them them consistently and without bias to all person under investigation

BƯỚC 4a: CASE DEFINITION (tt)

- Case definition:
  - Include most if not all of actual cases
  - None or few of what are " false-positive cases"
  - Ofcourse, to be classified as confirmed, must have lab. Verification.
  - Investigators can define cases in the following 3 classes: EX: bloody diarr. And hemolytic- uremic syndrome caused by E. coli O 157: H7
    - Definite case:
    - Probable case: bloody diarrhea, same person, place, time restriction
    - Possible case: Abdominal cramp and diarrhea (at least 24 –hour period in school –age child with onset during the same period)

BƯỚC 4b: Identifying and counting cases

- Determine the geographic extent of problem and the pop. affected by it.
- To identify cases, use many sources you can:
  - Physician offices
  - Clinics
  - Hospitals
  - Health station
  - Ask patients
  - Survey

BƯỚC 4b: identifying and counting cases

- Types of information / every cases:
  - Identifying information
  - Demographic information
  - Clinical information
  - Risk factor information
  - Reporter information
- Report forms, questionnaires, data forms

BƯỚC 4b: identifying and counting cases

- Trong một vụ dịch tiên chảy cấp xảy ra vào tháng 12 năm 2005 tại xã x, y, z huyện mang thít tỉnh vĩnh long. Anh chi hay giúp nhân viên y tế tuyến dưới thiết kế các forms thu thập thông tin về các trường hợp bệnh.

Bước 5: Performing descriptive Epid.

- 1. Looking at data carefully to become familiar with them to learn what information is reliable and informative or not be as reliable
- 2. Comprehensive description:
  - Place
  - Time
  - who

→ what is known about the disease: usual source, mode of transmission, risk factors, pop. affected:

→ Develop hypothesis

Bước 5: performing Descriptive epidemic.(tt)

- Time:
  - an epidemic curve
    - Tell you where you are in the time course of an epid.
    - What the future course might be
    - Know a probable time period of exposure-→ focussing exposure at that time
    - Epidemic pattern
  - Draw epidemic curve:
    - Unit of time on x –axis, 1/8 to 1/3 as long as incubation period
    - Draw several epidemic curve to find the best

Bước 5: performing Descriptive epidemic.(tt)

- Interpreting epidemic curve:
  - Epidemic pattern
  - Incubation: max, average, min
  - A point source epidemic in which persons are exposed to the same source over relative brief period: suggest sudden expose to a common source *.If duration of exposure was prolonged, call a continuous common source epidemic*
  - If person to person spread- a propagated epidemic- should have a series of progressively taller peaks

Bước 5: performing Descriptive epidemic.(tt)

- To identify the likely period of exposure:
  - Look up the average and minimum incubation periods
  - Identify the peak of outbreak/ median case and count back on the x one average incubation period
    - *NOTE THE DATE*
  - Start at the earliest case of the epidemic and count back the minimum incubation period
    - *NOTE THIS DATE*

Bước 5: performing Descriptive epidemic.(tt)

- Bai tap:
- Dung so lieu tu vu dich do viem gan A. Tu duong cong dich ma ban ve duoc va nhung kien thuc cua ban ve thoi gian u benh trung binh va toi thieu, ban hay xac dinh thoi gian tiep xuc cua cac ca benh. (p 369)

Bước 5: performing Descriptive epidemic.(tt)

- Place:
- Spot map:
  - Geographic extent problem
  - Important etiologic clues
  - Where cases live, work, may have been exposed.

Bước 5: performing Descriptive epidemic.(tt)

- Person:
  - What populations are at risk
  - Host characteristics:
    - Age
    - Race
    - Sex
    - Medical status
    - Occupation
    - Leisure activities
    - Other behaviors: thuoc, an uong, sinh hoat…

Buoc 6: Developing Hypotheses

- Hypotheses should include;
  - Source of agent
  - Mode of transmission
  - Exposures
- Generate hypotheses: many ways:
  - What you know about disease
  - Agent's reservoir
  - How is it usually transmitted?
  - What vehicles are common implicated
  - What are the known risk factors
  - Round up the usual suspects
  - Talk to case-patient
  - Descriptive epidemiology
  - ….

Buoc 7 : Evaluating Hypotheses

- 2 ways to evaluate in the field investigation:
  - Comparing the hypotheses with the established fact:
    - » Clinical,
    - » Lab.,
    - » Environmental,
    - » Epidemic evidences are clear
  - Using analytic epidemiology:
    - » Comparison group
    - » Cases series of cases is insufficient for testing hypotheses
    - » 2 types of studies to test hypotheses: cohort and case-cotrol

Buoc 7 : Evaluating Hypotheses (* tt)

- Cohort studies:
  - The best for outbreak a small, well defined population. EX. Gastroenteritis among persons who attended a wedding.
  - Measure the relationship between risk factor and disease: Relative risk (RR)
    - RR = a / (a +b) / c / (c + d)
  - Testing of statistical significance: chi-square, p value

Buoc 7 : Evaluating Hypotheses (* tt)

- Testing of statistical significance: chi-square, p value:
- Two-by-two table:

- a + b + c + d = T
- a + b = H1 ; c + d = H2
- a + c = V 1 ; b +d = V2
- Chi-square =
- T [{ ad –bc} – T/2] 2
- ----------
- V1 V2 H1 H2
- If smaller studies, use Fisher exact test

a	b
c	d

Buoc 7 : Evaluating Hypotheses (* tt)

- Case – control studies:
  - the population is not well defined
  - Are more common than cohort studies
  - Association measure : Odds ratio (* OR)
    - » OR = a.d / b.c
  - Control group:
    - » A random sample from healthy population
    - » Other common groups : neighbors , friends, patients from the same physician practice or hospital
  - Test of statistical significance = Chi-squares

Buoc 7 : Evaluating Hypotheses (* tt)

- Bai tap:
- Ban duoc yeu cau giup dieu tra mot chum 17 benh nhan mac benh ung thu bach cau. Trong so hoï co mot so ngö8oi lam nghe sua chua dien tu, so con lai lam trong xuong lap rap radio. Loai hinh thiet ke nao duoc chon de tien hanh khao sat su lien quan giua lanh vuc dien tu va benh ung thu bach cau?

Buoc 7 : Evaluating Hypotheses (* tt)

- Mot nghien cvöùu ve tinh trang phat ban trong cong nhan xu8ong lam banh keo, nguoi ñ8ieu tra dung thiet ke cohort study de tien hanh dieu tra. Bang duoi day trinh bay so lieu ve tiep xuc voi chat celery. Theo anh chi so do nao la phu hop giup do luong su lien quan va tinh so do nay?. Tinh chi-square of test statistical significance ? Ban ly giai ket qua nay nhu the nao ?

Buoc 8 : refining hypotheses and executing additional studies

- Epidemiologic studies:
  - If you can not generate good hypotheses, then proceeding to analytic epidemiology, is likely to be a waste of time
  - When analytic epidemiology is unrevealing: reconsider hypotheses
  - When your analytic studies identifies an association: refine your hypotheses to obtain more specific exposure histories, more specific control group to test more specific hypotheses
  - To expand our knowledge – outbreak is, may provide an experiment of nature

Buoc 8 : refining hypotheses and executing additional studies

- Laboratory and environmental studies:
  - Laboratory evidence can clinch the finding
  - Environmental studies help in explaining why an outbreak occured

Buoc 9: Implementing control and prevention measures

- Primary goal is to control and prevent the outbreaks
- You should implement control measures as soon as possible
- You can implement control measures early if you know the source of an outbreak
- In general, you aim control measures at the weak link or links in the chain of infection: specific agent, source or reservoir
- You might direct control measures at interrupting transmission or exporure, at reducing the susceptibility of the host.

Buoc 10: Communicating the findings

- Communication : 2 forms
  - An oral briefing for local authorities
    - Present your finding in clear and convincing fashion with appropriate recommendations
    - Present your finding in scientifically objective fashion and should be able to defend your conclutions and recommendations
  - A written report
    - The usual scientific format
    - A blueprint for action
    - A document for potential legal issues