Epidemiology

Recent developments

Chief Causes of Death in the U.S. --

1900
1. Pneumonia/influenza
2. Tuberculosis
3. Heart disease
4. Stroke
5. Diarrhea/enteritis
6. Nephritis

Chief Causes of Death in the U.S. --

1998
1. Heart disease
2. Cancer
3. Stroke
4. Chronic lung disease
5. Injuries and accidents
6. Pneumonia and influenza

What are some reasons for the epidemiologic transition?

Aging of society – people living longer
Industrialization
Advent of antibiotics
Others?

Evolving field of epidemiology: the epidemiologic transition

History of Epidemiology:
Development of Analytic Study Methods to Study Chronic Diseases

1940s controlled clinical trial of streptomycin to treat Tuberculosis
1950 Doll and Hill: Used a case-control design to describe and test the association between smoking and lung cancer
1950 Francis et al: Field trial of the poliomyelitis vaccine in school children
1947 Dawber et al: Used a cohort design to study risk factors for cardiovascular disease in the Framingham Heart Study.

• Development of computers and associated software facilitate the management of large datasets including epidemiologic data

Evolving field of epidemiology

• In all developed countries, there has been a marked shift in the leading causes of mortality from “infectious” to “chronic” diseases.

• In the U.S. today, the fastest growing segment of the population is aged 85+

• The interface between infectious and chronic diseases becomes increasingly important

• Increasing emphasis on molecular and genetic epidemiology

Evolving field of epidemiology

Genetic epidemiology studies the genetic basis of diseases and identifies inherited factors that influence the risk of disease identify those at high or low risk of disease

Molecular epidemiology uses molecular markers to establish exposure-disease relationships

From Friis and Sellers, Epidemiology for Public Health Practice 3rd ed

Evolving field of epidemiology

• Re-emergence of infectious diseases
• Concern about biologic and chemical weapons and protection (health) of the public
• Globalization of diseases – infectious and chronic
• Increasing emphasis of lifestyle and behavior changes
**Bioterrorism**

Global air travel introduces infected travelers to others and other countries within a few hours or days – SARS first reported in Asia in Feb 2003.

Over next few months spread to many countries in North and South America, Europe and Asia.

WHO statistics indicate 8,098 became ill with SARS during 2003 outbreak and 774 died.

**Emerging Infectious Diseases**

First case in US - April 2009

Pandemic declared - June 2009

Vaccine campaign began October 2009 in US

Pandemic declared ended by WHO – August 2010

**History of Public Health in the US**

1946 – the Communicable Disease Center (CDC) opened as part of the US Public Health Service with a focus on malaria control

1949 – the epidemiologic section of the CDC established.

1951- creation of the Epidemiologic Intelligence Service (EIS)
Growth of CDC - Highlights

- Smallpox eradication program launched in 1966
- Last known case occurred in 1977
- Smallpox declared eradicated by WHO in 1980
- 1980 Communicable Disease Center renamed
- June 5, 1981 MMWR published report of first case of AIDS
- 1990’s CDC broadened its focus to include chronic diseases
- 1992 CDC’s name changed to Centers for Disease Control and Prevention

Growth of CDC

- 1993 - identifies a previously unknown type of hantavirus in New Mexico
- 1995 – investigates outbreak of Ebola in Zaire
- 1997 assists in investigation of new strain of flu in Hong Kong – H5N1

Public Health in Florida

State - Bureau of Epidemiology

- Vision: Healthier people through excellence in epidemiology.
- Mission: To apply quality epidemiologic practice to support the promotion and protection of the health of all people in Florida.

County – Public Health Units

Florida EIS Program
Public Health in Florida

- 1984 first school of public health in Florida, established by the Florida legislature, opened its doors in Tampa