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
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
Globalization of Disease: SARS

- 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
H1N1 Pandemic 2009

- 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

MMWR
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