

History of Public Health (Abridged)



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Public Health





"When health is absent, wisdom cannot reveal itself, art cannot become manifest, strength cannot fight, wealth becomes useless, and intelligence cannot be applied."

~ Herophilus of Chalcedon, 335–280 BC,
Physician to Alexander the Great ~

One Perspective

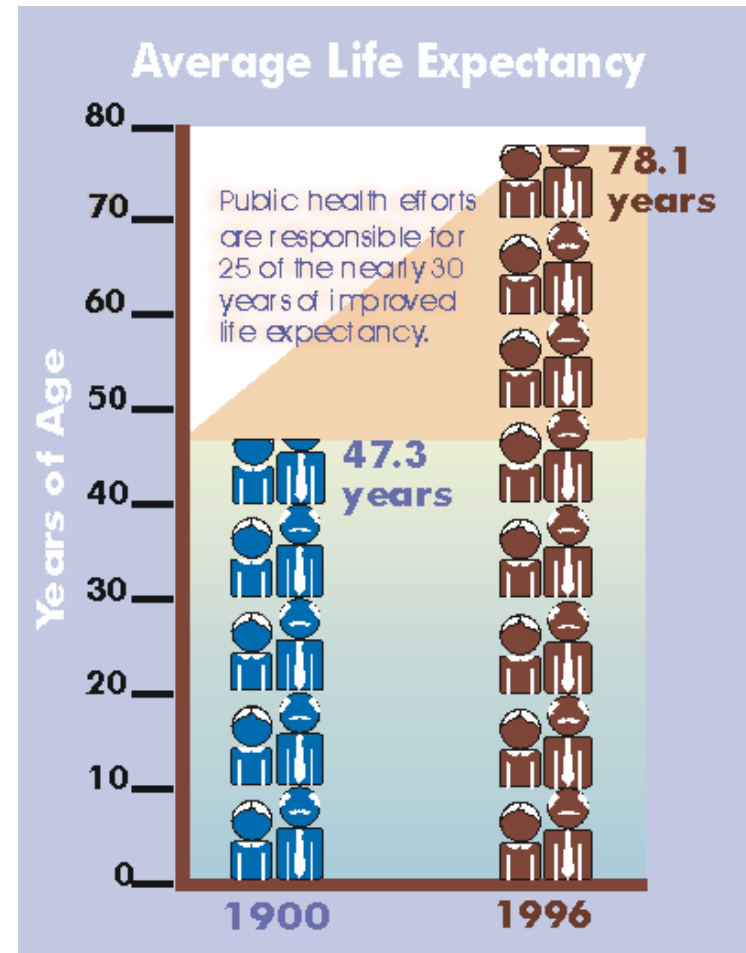


- **Antibiotics**
• The Automobile
- **Open Heart Surgery**
• The Airplanes
- **Transplants**
• The Television
- **Insulin**
• The Microwave
- **Botox**
• The Computer

Average Life Expectancy



**Public Health
for the extra 25
years of life**



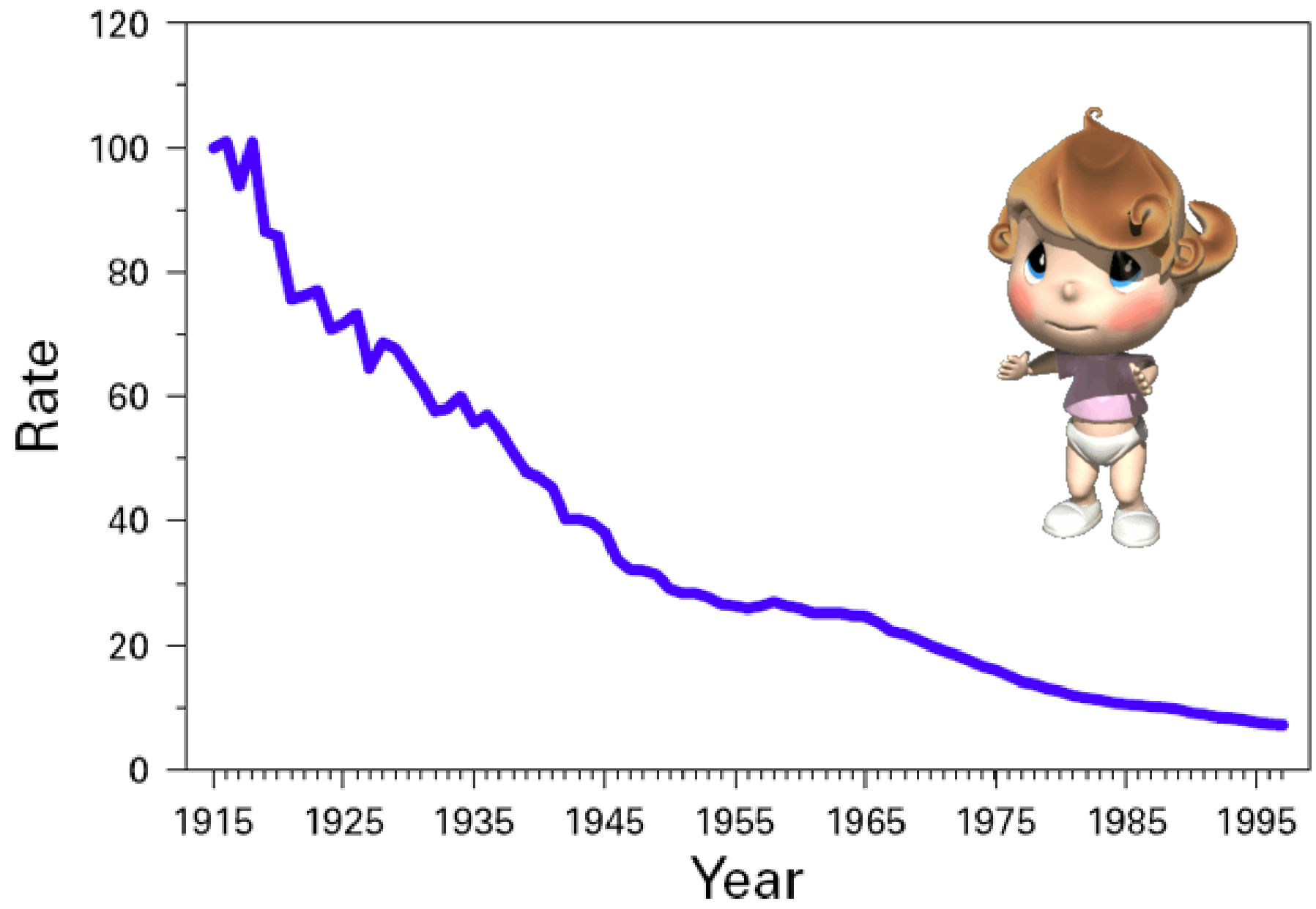
Golden Age



- End of the 19th Century
beginning of the 20th
Century
- Major Advances in
Sciences – Social,
Behavioral and Biological
- Better Data Collections
and use of Data for
Action

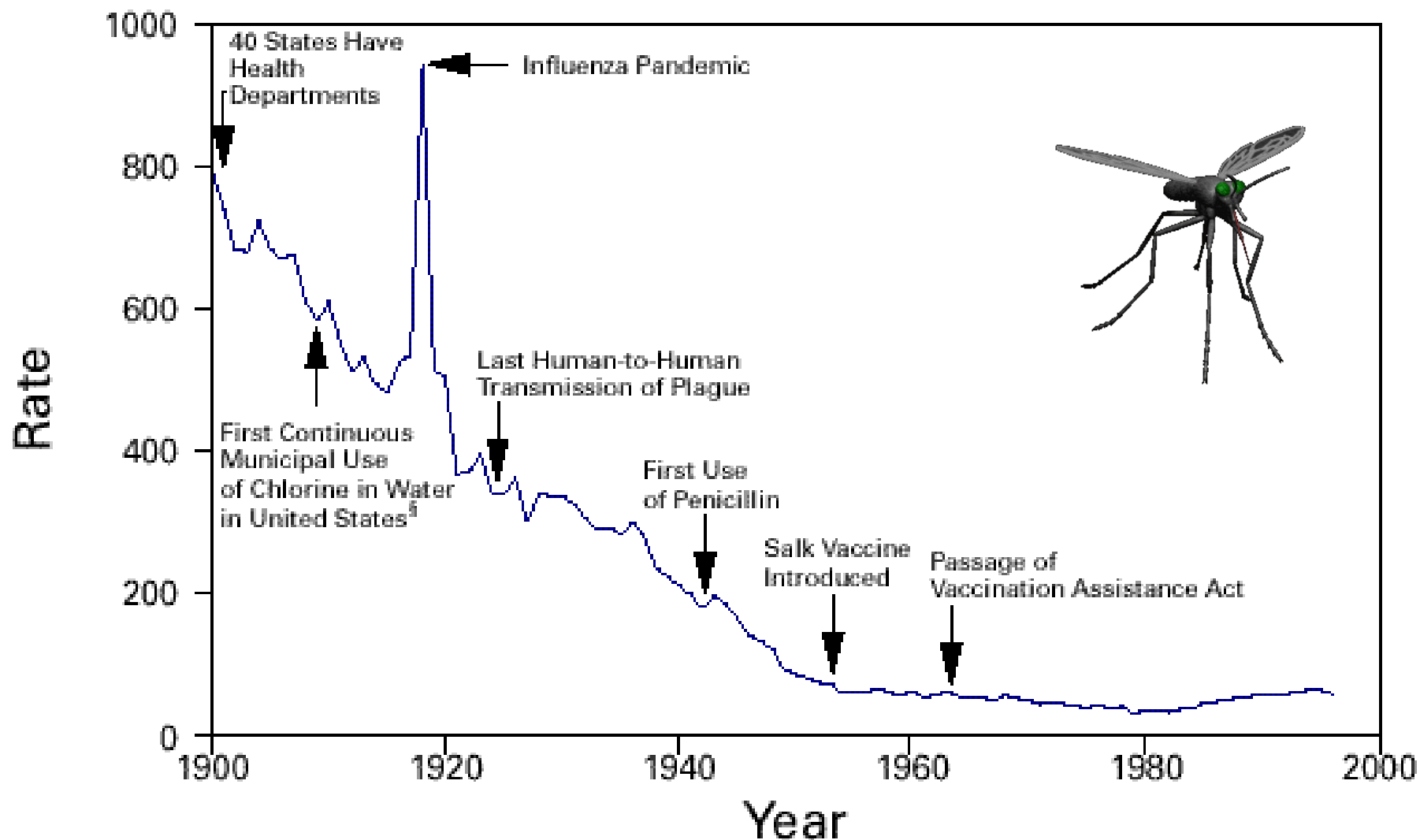


FIGURE 1. Infant mortality rate,* by year — United States, 1915–1997



*Per 1000 live births.

FIGURE 1. Crude death rate* for infectious diseases — United States, 1900–1996†



*Per 100,000 population per year.

†Adapted from Armstrong GL, Conn LA, Pinner RW. Trends in infectious disease mortality in the United States during the 20th century. *JAMA* 1999;281:61–6.

§American Water Works Association. Water chlorination principles and practices: AWWA manual M20. Denver, Colorado: American Water Works Association, 1973.



Before you scold me, Mom ...
maybe you'd better light up a

Marlboro



Yes, you need
never feel
over-smoked
... that's the
Miracle of
Marlboro!



Gee, Mommy
you sure enjoy your
Marlboro

Yes, you need
never feel
over-smoked
... that's the
Miracle of
Marlboro!



AVOID that future **SHADOW**



COMING EVENTS CAST
THEIR SHADOWS BEFORE"
(Thomas Campbell, 1774-1842)



When Tempted

**Reach
for a
LUCKY**

Doc

"It's toasted"

Lung Cancer: a new reality



- Lung cancer very rare early 20th century

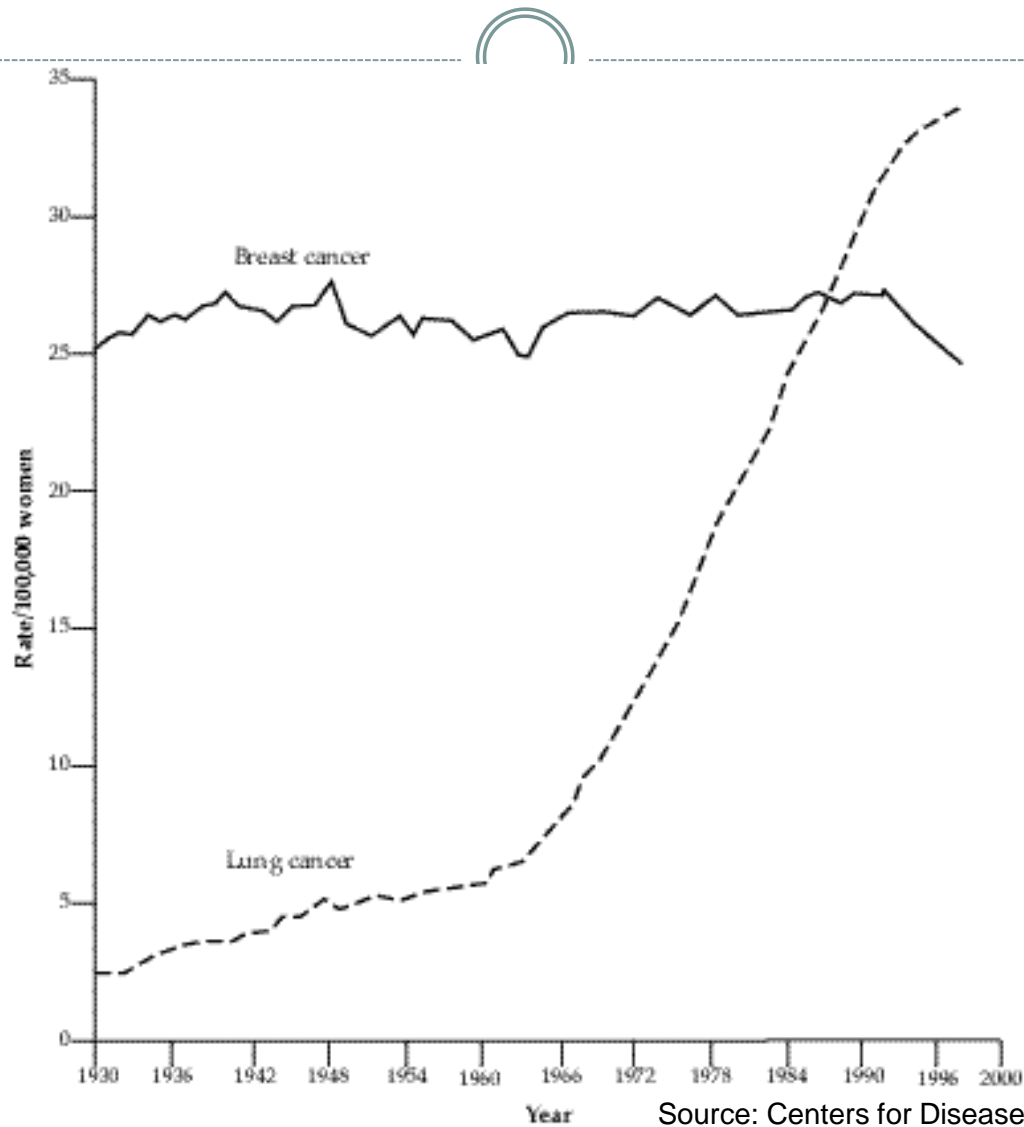
- 1914 – 0.6 per 100,000

- 1930 – 4.9 per 100,000

- 1990 – 75.6 per 100,000

Wayne “Marlboro Man” McLaren
Sept 12, 1940 -- July 22nd 1992

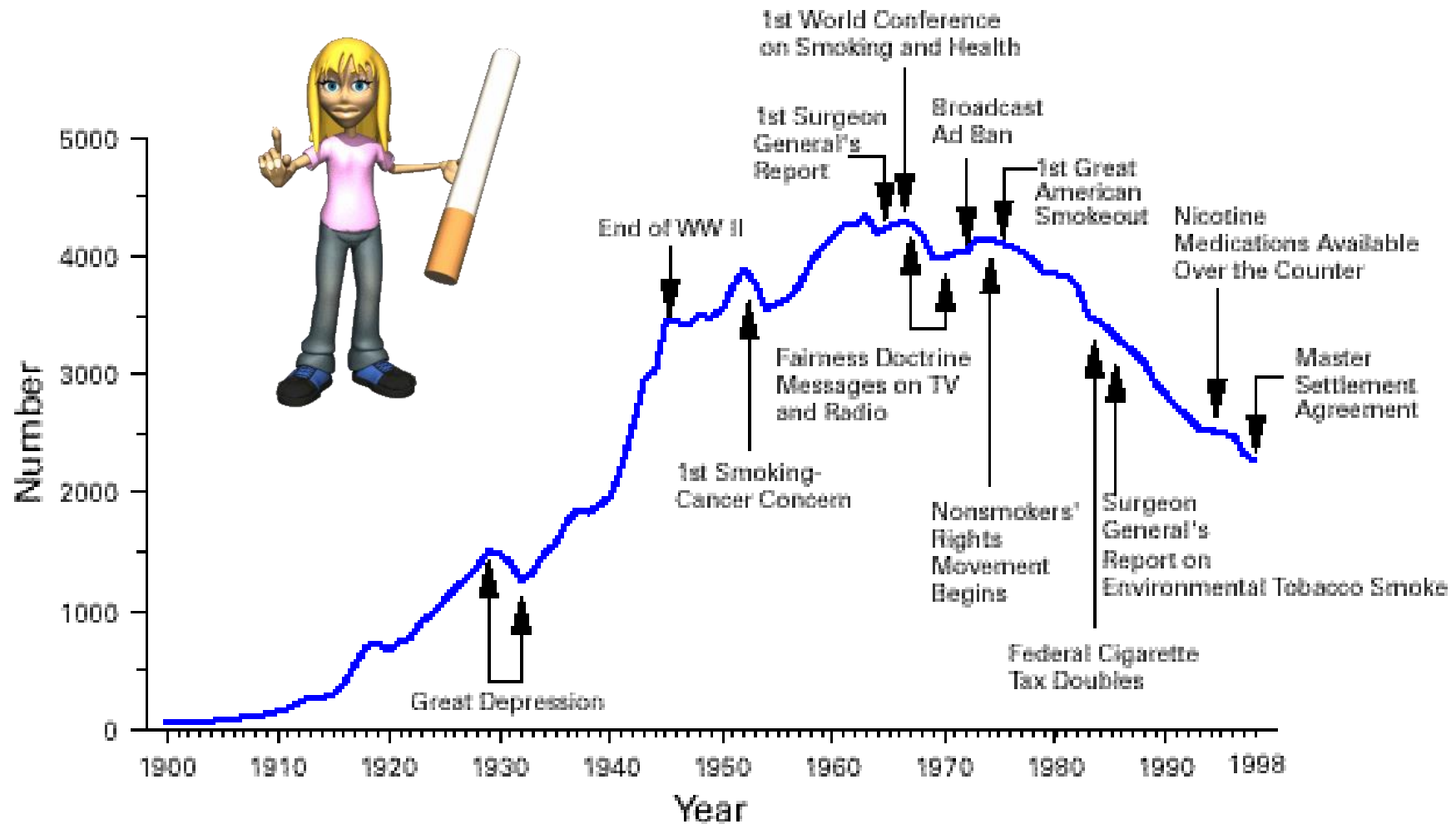
Age-adjusted death rate from breast and lung cancer, US, women, 1930-2000



Source: Centers for Disease Control and Prevention

Annual Adult per capita cigarette consumption and major smoking and health events – United States, 1900 - 1998

FIGURE 1. Annual adult per capita cigarette consumption and major smoking and health events — United States. 1900–1998



Sources: United States Department of Agriculture; 1986 Surgeon General's Report.

Ten Great Public Health Achievements, USA

1900 – 1999



- Vaccinations
- Safer workplace
- Safer and healthier food
- Motor-vehicle safety
- Control of infectious diseases
- **Decline in deaths from coronary heart disease and stroke**
- Family planning
- Recognition of tobacco use as a health hazard
- Healthier mothers and babies
- Fluoridation of drinking water

What is Public Health?





Nanny State



Dr. Ken Warner

(youtube UM public health lecture)



- **Restriction on Individual liberty**
 - ex: smoking, seat belts, spitting
- **Debate over individual responsibilities**
 - ex: how much are we responsible for our predicament. (Corollary: what is under my control; what should I expect from my neighbor?)
- **Economic Interest**
 - ex: tobacco companies, mining companies
- **People's Morality issues often come into play**
 - ex: family planning
- **Politics in Science**
 - ex: HIV

Definition of Public Health



- “The science and art of preventing disease, prolonging life and promoting health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and for the development of the social machinery to ensure everyone a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birthright of health and longevity.”

--C.E.A. Winslow (1920)



Health
of the
Women
Public

Definition of Health



- Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
--World Health Organization

Being Blissfully Unaware Of All Your Body Parts

-- Medical School Attending Physician



Public Health is Running Smoothly



“nothing happen”

Public Health



- Population Based Health
 - Using Epi, Biostats (social, biological and environmental science)
 - Understand Disease
 - ✦ Burden disease and magnitude
 - ✦ Risk factors
- Preventive injury and disease while promoting health behaviors
- Social justice

Public Professional try to do



We Look to Understand – surveillance and research

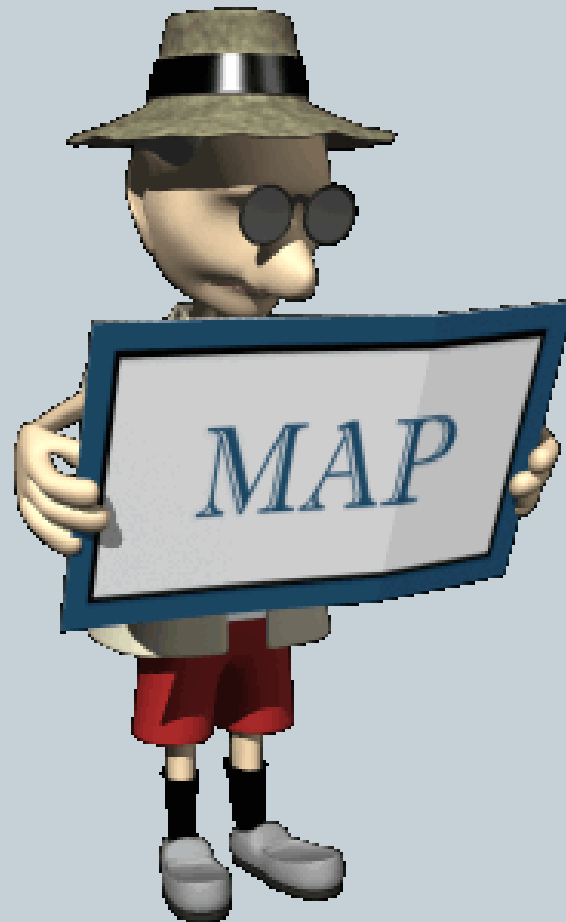
- Exposures -> risk factor, interventions
- Outcomes -> Disability and Disease

-- Distribution and Magnitude

To:

- relationship between exposure and outcomes
- plan interventions to improve health

How Did We Get Here



WayBackMachine



Disease -- mystical, spiritual, superstitions



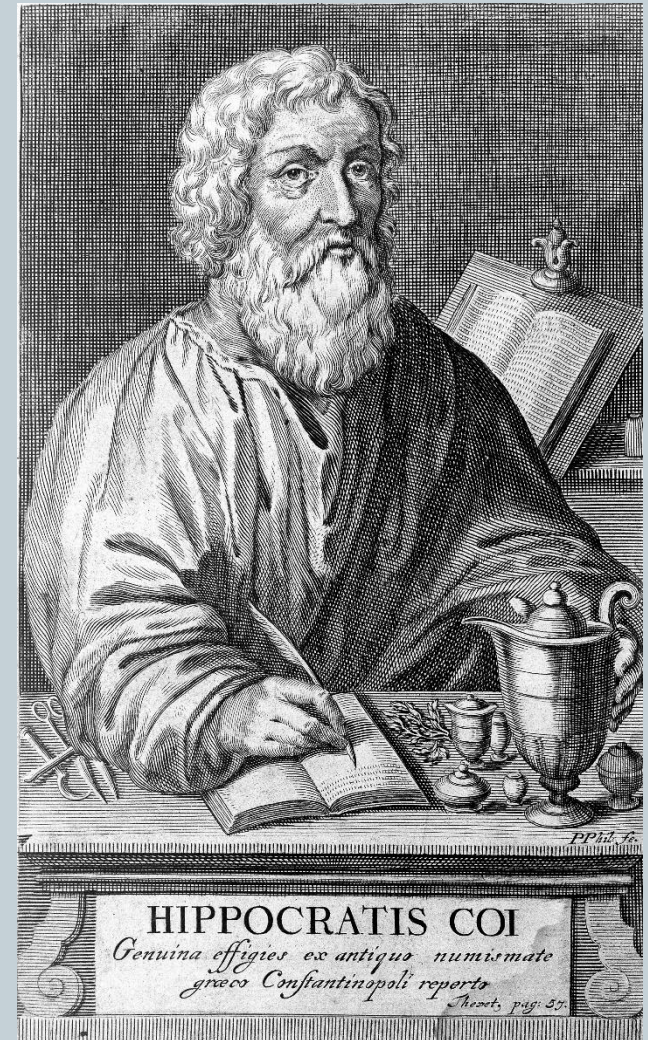
Epimetheus



Zeus

Greek Civilization

Hippocrates – pay attention to environmental, social and behavior context of one health



Theories around early healing



- Imbalance of Humours
 - Melancholy
 - Phlegm
 - Bile
 - Blood

Ancient Civilizations

Water and Waste



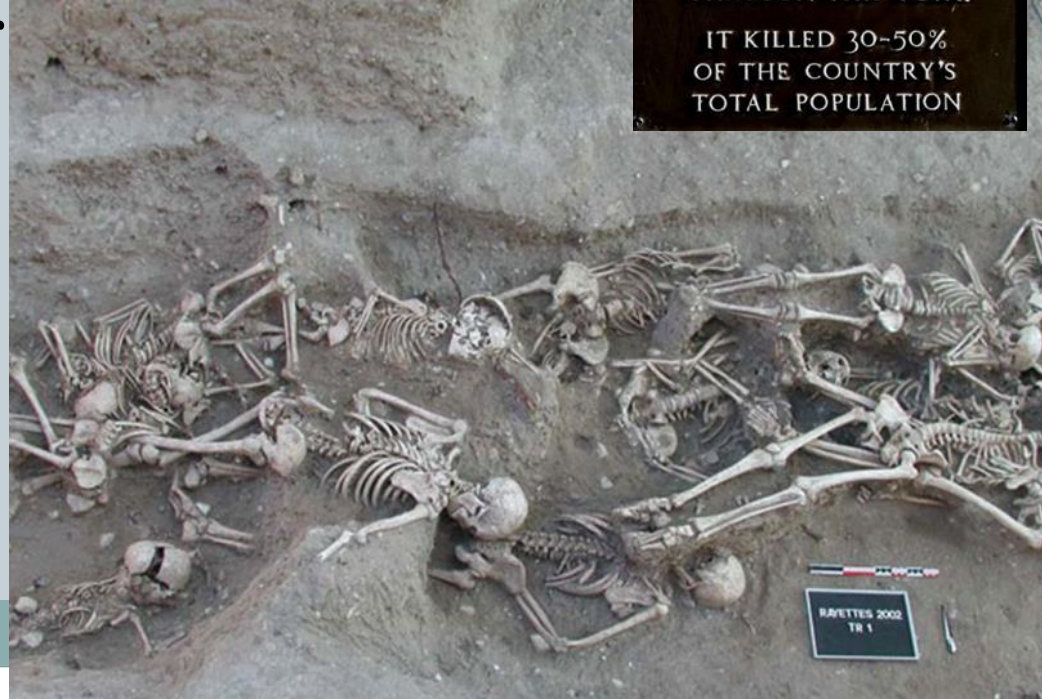
Middle Ages
Dark Ages
500 – 1500 AD

Bubonic plague

- 1346 – 1353
- 1/3 of the population died
- Transfer by the bite of infected fleas or person to person through the air
- Misunderstood – but intervention happened – organized and self-determined



THE 'BLACK DEATH'
ENTERED ENGLAND IN 1348
THROUGH THIS PORT.
IT KILLED 30-50%
OF THE COUNTRY'S
TOTAL POPULATION

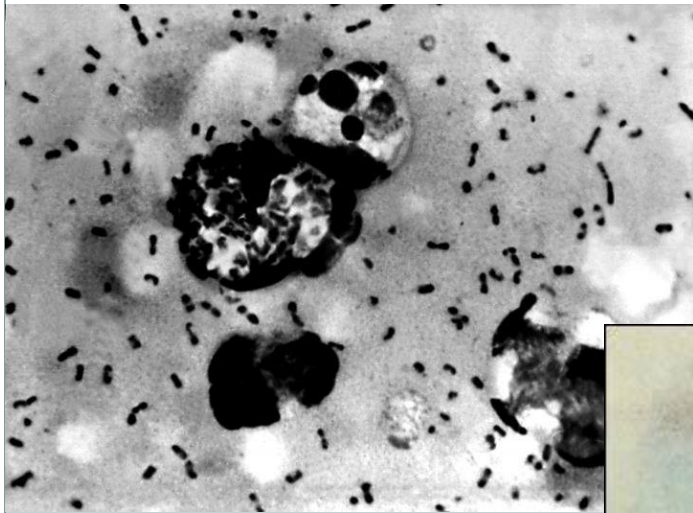


Plague Doctor



Dress worn at the Plague of Nimeguen 1636-37

What was the cause of the Plague



Rats, Fleas and Yersinia, oh my

Miasmas – possibly coming from swamps / cesspools



Changes in the Environment, Social customs or Behaviors



Renaissance and Public Health



- Revival of observation, hypothesis generating and experimentation
- Understanding different diseases and risk (later cause)
- Biological knowledge was primitive
- Cures were elusive, prevention was the best option



Dr. Semmelweis
Dr. Snow

Small Pox Vaccine – Coming to America



“Introduced into the United States in 1800 the technique of smallpox vaccination discovered in England by Dr. Edward Jenner. Smallpox was one of the most dreaded epidemic diseases in America during the 17th and 18th centuries.”



Dr. Benjamin Waterhouse
(1754-1846)

Society, Disease and History

- Urbanization, Imperialism and Industrialization – Cause and Effect?
- Public Health –
 - Sanitary engineering
 - Environmental hygiene
 - Quarantine
 - Nutrition



(Do Not Take the Ends of the Privy and N.C.H. Broom Down)

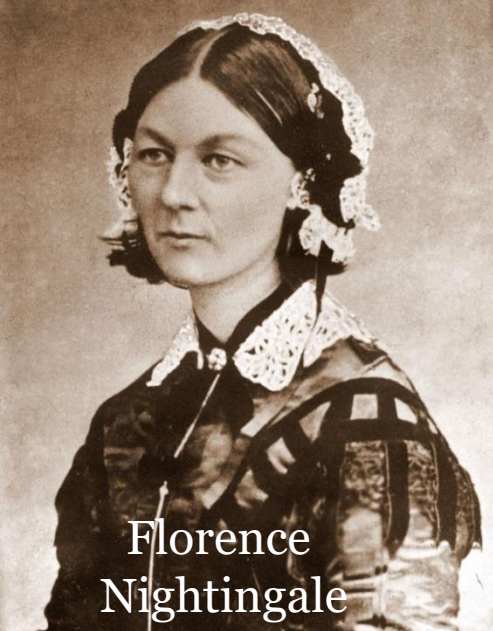
Sanitary Privies Are Cheaper Than Coffins



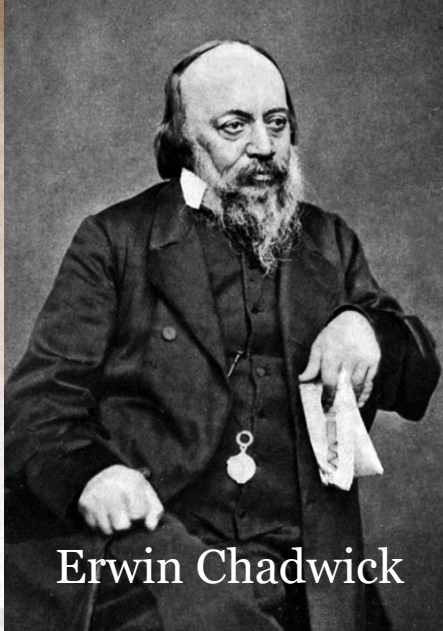
For Health's Sake Be Clean, Use Clean
CLEAN, Sanitary privies and no privies
at all, are now granted equal
status. Construction of latrines will
only be kept as long as the house
is kept as clean as the house, because
it spreads more disease.

*The User Must Keep
It Clean Inside, Wash
the Seat Occasionally*

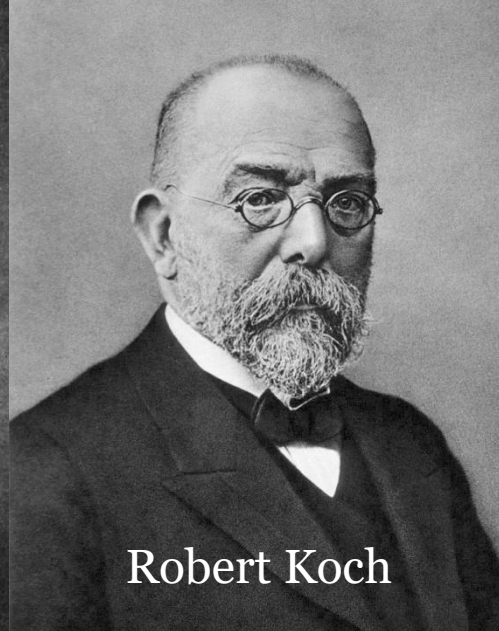
How to Keep a Safe Privy:



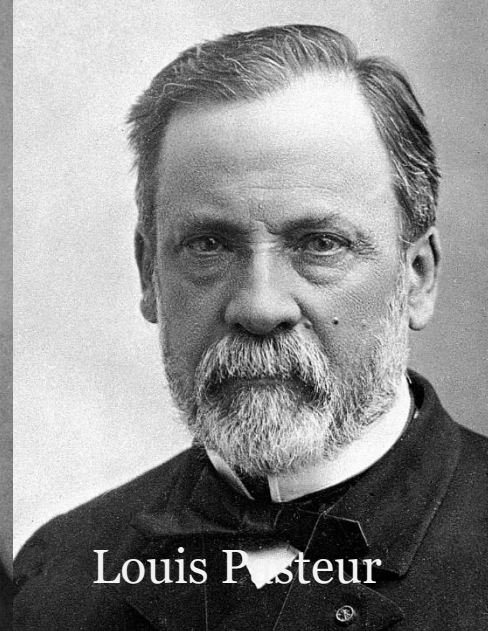
Florence
Nightingale



Erwin Chadwick



Robert Koch



Louis Pasteur

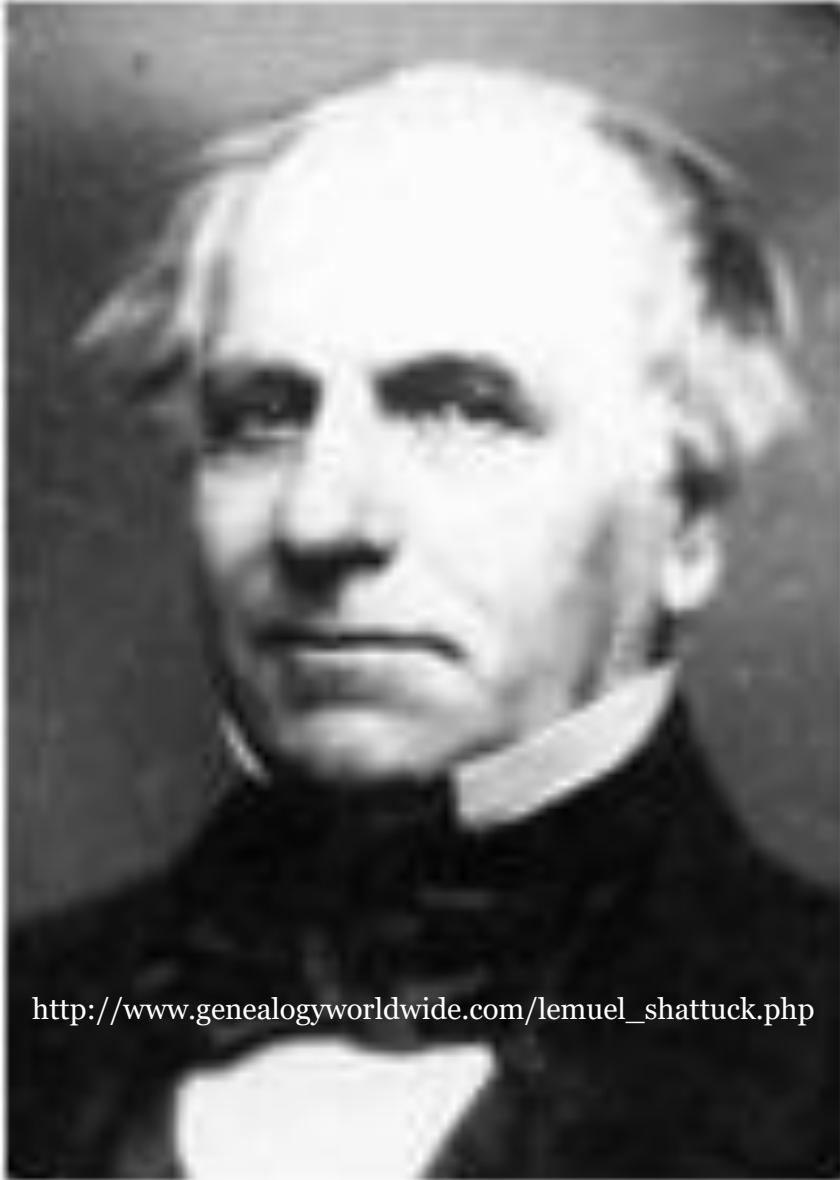
Sanitation Model:

Disease caused by rot and filth; clean it up, and disease will decline

Contagion Model:

Individuals who are sick must be isolated to avoid passing the disease to others (the quarantine)

Lemuel Shattuck – US Public Health



http://www.genealogyworldwide.com/lemuel_shattuck.php

- Report of the Sanitary Commission of Massachusetts
 - Report outline framework for public health
 - Lead to the Massachusetts State Board of Health (1869)
 - Helped Found the American Statistical Association
 - Advanced Vital Record keeping

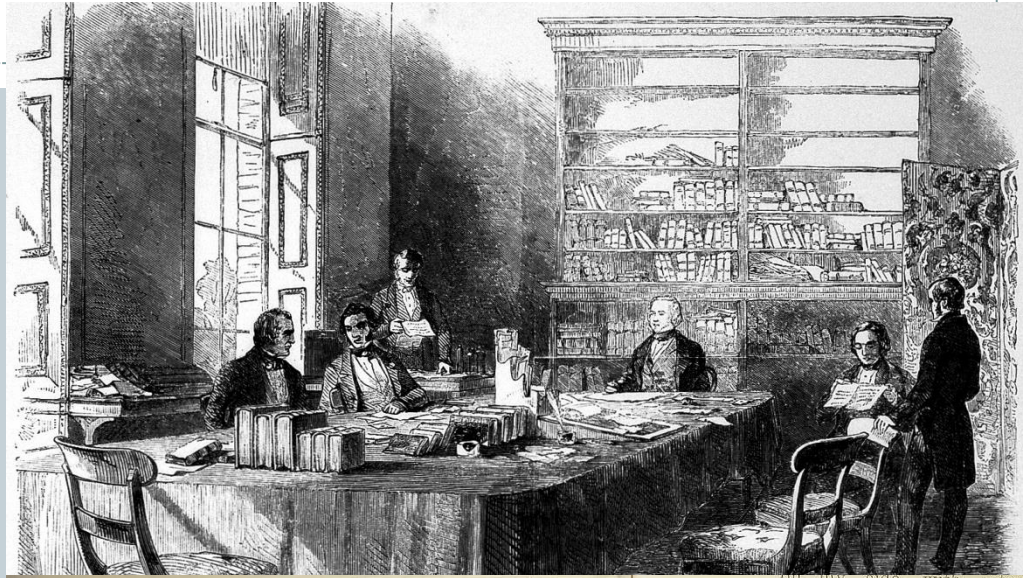
Lemuel Shattuck - Recommendations



- establishing boards of health,
- collecting/analyzing vital statistics,
- exchanging health information,
- implementing sanitation programs and conducting sanitary inspections,
- conducting research, including studying the health of school children, researching tuberculosis, and studying/observing the health of immigrants
- supervising mental disease
- controlling alcoholism, food adulteration, exposure to nostrums, and smoke nuisances,
- constructing model tenements, standard public bathing and wash houses
- preaching health from the pulpit
- teaching the science of sanitation in medical schools
- introducing prevention as a phase of all medical practice, and
- sponsoring routine health examinations.

Science and Infrastructure

- Boards of Health
 - Authority
 - Organization / Structure
 - Collective Response
- ~Started Locally
 - Reactive to Epidemics
 - “Sanitary Executive”
 - Proactive to prevent
 - Birth of the Health Officer
 - ✦ Able to keep out of politics?



on my side, with intere

OFFICE OF THE BOARD OF HEALTH,
HONOLULU, *May 21st 1859*

A. W. Meyer
Superintendent of the Leper Settlement, Molokai.

By Order of the Board of Health,
(MALE / FEMALE) Resident of *England*

the bearer *Arch. Louis Stevenson*
has permission to go to the Leper Settlement for _____ days for
the purpose of *Studying the Settlement*

_____ and while there
to be subject to the Rules and Regulations of the Board governing the Leper Settlement.

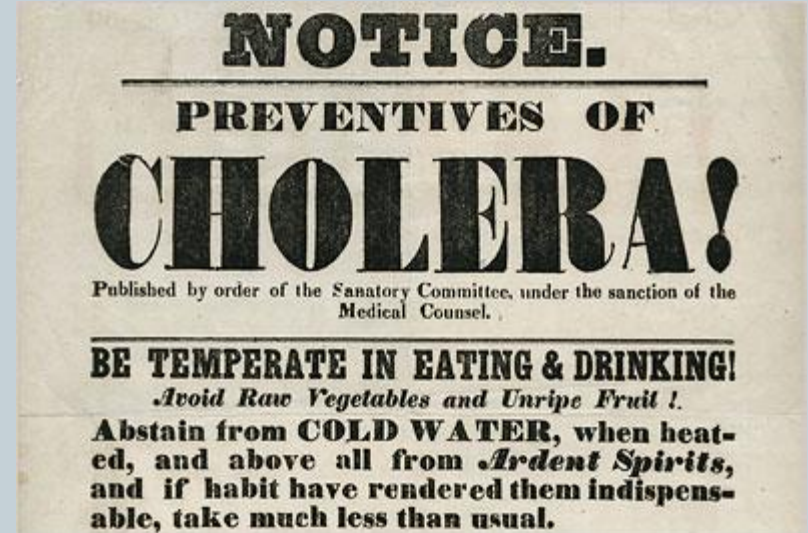
W. B. Emerson
President Secretary Board of Health.

No. *35*

Leading Causes of Death

1850¹:

- 1) Tuberculosis
- 2) Dysentery/diarrhea
- 3) Cholera
- 4) Malaria
- 5) Typhoid Fever
- 6) Pneumonia
- 7) Diphtheria
- 8) Scarlet Fever
- 9) Meningitis
- 10) Whooping Cough



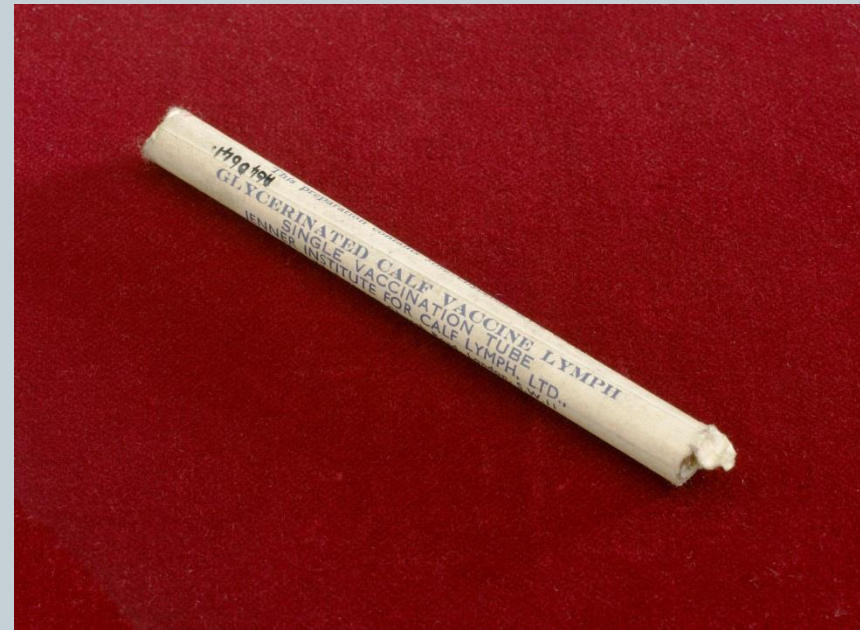
Hand bill - NYC 1832

By Sanatory Committee, under the sanction of the Medical Counsel, in New York City –
New York Historical Society Wilford, John Noble. "How Epidemics Helped Shape the Modern Metropolis." The New York Times. April 15, 2008. - And "Plague in Gotham! Cholera in 19th-Century New York." New York Historical Society. April 04, 2008 –
August 31, 2008., Public Domain,
<https://commons.wikimedia.org/w/index.php?curid=23608577>

Leading Causes of Death

1900²:

- 1) Pneumonia (all forms) and influenza
- 2) Tuberculosis (all forms)
- 3) Diarrhea, enteritis, and ulceration of the intestines
- 4) Diseases of the heart
- 5) Intracranial lesions of vascular origin
- 6) Nephritis (all forms)
- 7) All accidents
- 8) Cancer and other malignant tumors
- 9) Senility
- 10) Diphtheria



Calf lymph infected with small pox

http://wellcomeimages.org/indexplus/obf_images/41/ba/e3e506bb6c4127302258f26bc4ba.jpg

Leading Causes of Death



2012¹:

- 1) Heart disease: 611,105
- 2) Cancer: 584,881
- 3) Chronic lower respiratory diseases: 149,205
- 4) Accidents (unintentional injuries): 130,557
- 5) Stroke (cerebrovascular diseases): 128,978
- 6) Alzheimer's disease: 84,767
- 7) Diabetes: 75,578
- 8) Influenza and Pneumonia: 56,979
- 9) Nephritis, nephrotic syndrome, and nephrosis: 47,112
- 10) Intentional self-harm (suicide): 41,149

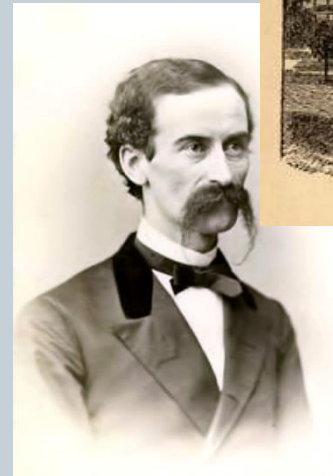
US Public Health – Federal

(Abridged)

- 1798 – “Act for the Relief of Sick and Disabled Seamen.”
- 1801 First Federal Marine Hospital (Washington Point, Virginia)
- Loose Federation of Hospitals (Mostly Port Cities)
- 1870 – Centralized with the Marine Hospital Service – lead by a supervising surgeon
- 1889 – Commission Corp recognized



John Adams



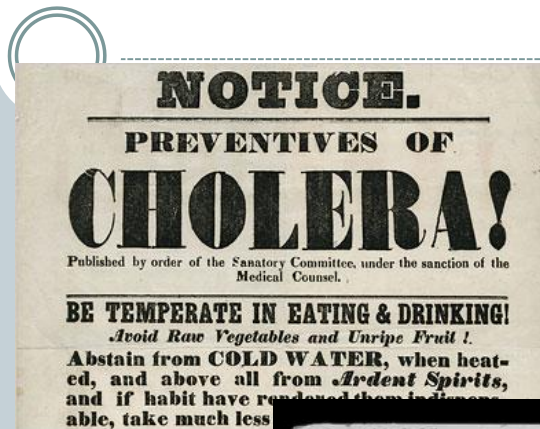
John Maynard
Woodworth



The United States Marine Hospital—New Orleans.

US Public Health – Federal (Abridged)

- Epidemics – spread disease, death and fear
- MHS – 1878 Quarantine Act
 - ship inspections and disinfection
 - Quarantine
 - Investigations of outbreak
 - Immunization
- PH&MHS - 1902
 - Health inspections of immigrants
 - Medical Research – Hygienic Laboratory (1887)
 - Legal Powers



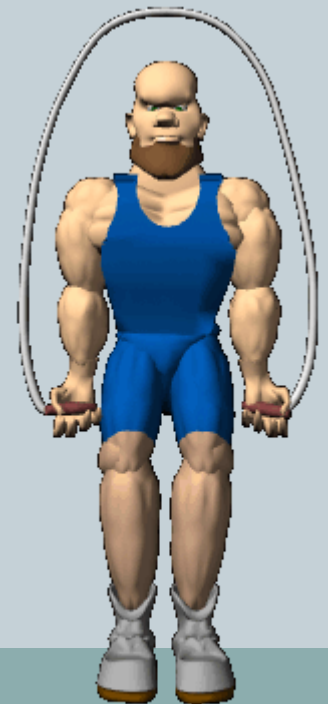
US Public Health – Federal

(Abridged)



- PHS – 1912
 - Broadened authority
 - ✦ Human Disease
 - ✦ Sanitation
 - ✦ Water Supplies
 - ✦ Sewage Disposal
- PHS moved to Federal Security Agency (FSA) to become Health Education and Welfare (HEW)
- Laws consolidated in the 1944 Public Health Services Act
- 1979 Educations moved out of HEW. Left was Health and Human Services (HHS)

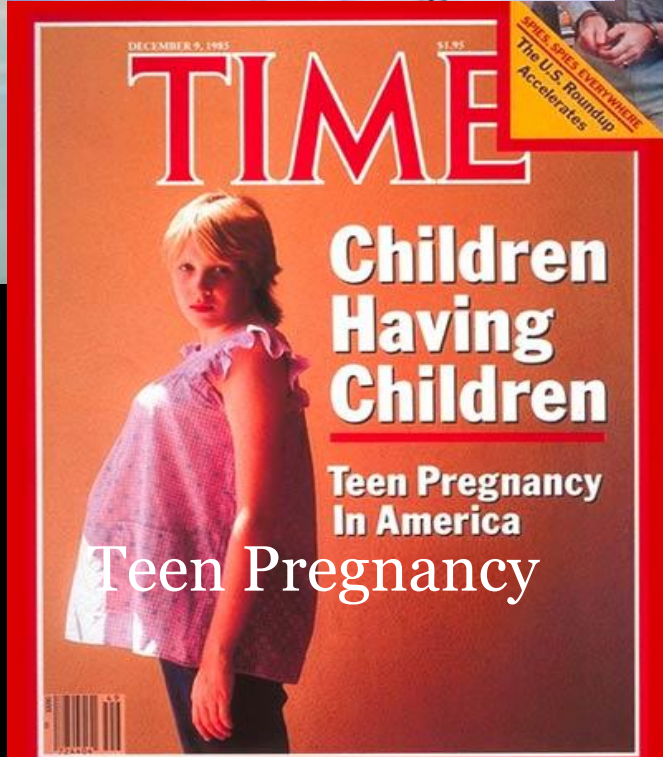
Peace, Love and Health



Is Public Health Obsolete?



America, we have a problem



America, we have a problem

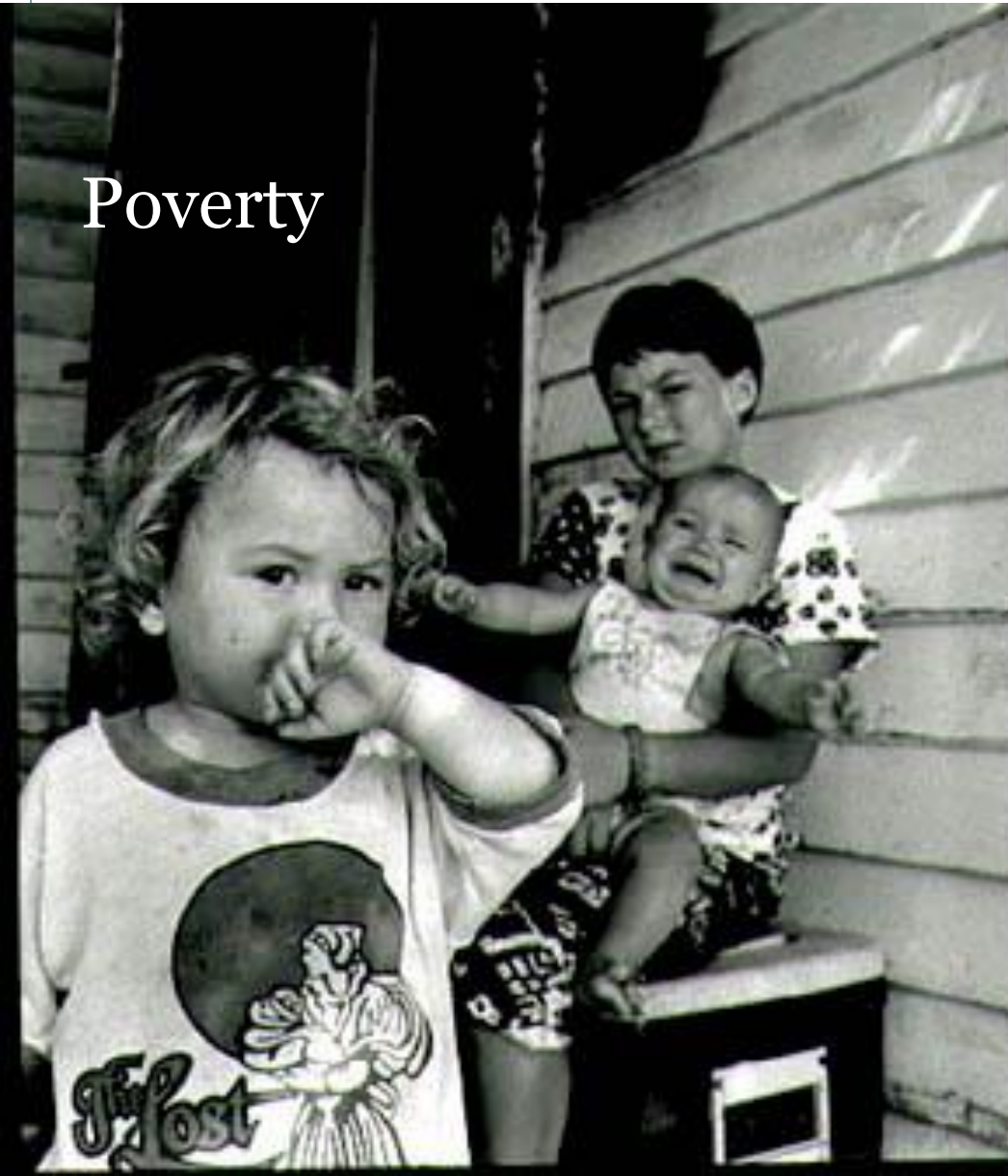


Zoonotic Diseases

Infectious Disease Control

America, we have a problem

Poverty

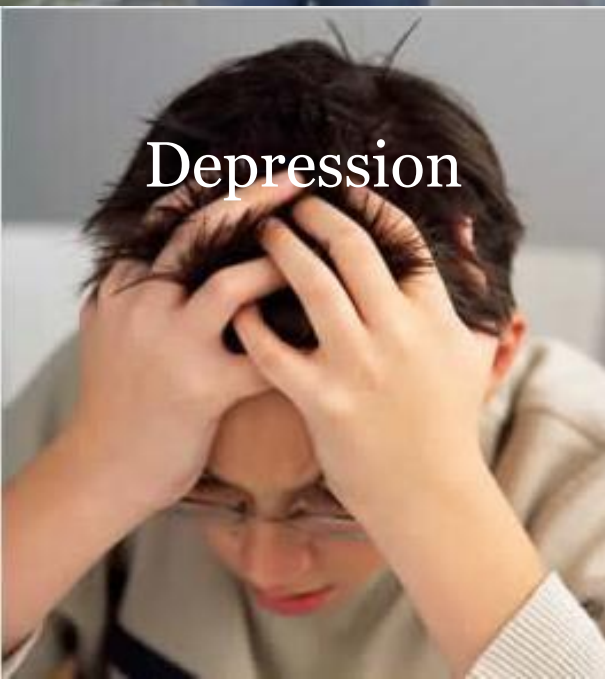


Malnutrition

America, we have a problem



Violence



America, we have a problem



Work place safety



Suicide

Not everyone who gets hit
by a drunk driver dies.



Drunk
Driving



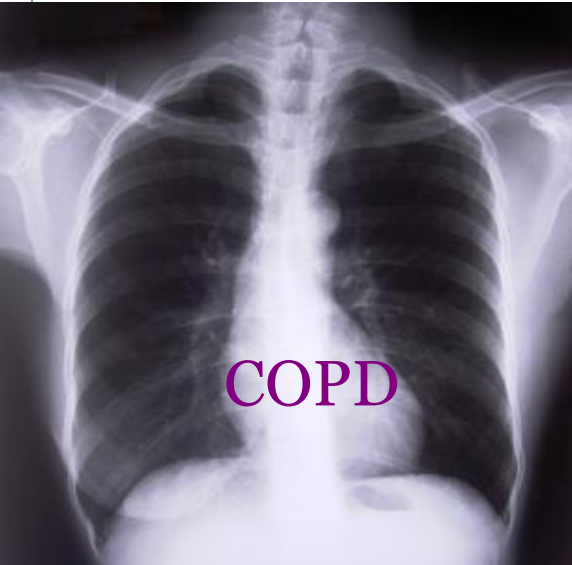
Jacqueline Saburido was 20 years old when the car she was riding in was hit by a drunk driver. Today, at 23, she is still working to put her life back together.
[Learn more at www.TexasDWI.org](http://www.TexasDWI.org)

DON'T DRINK & DRIVE

Save a Life
Texas Department of Transportation

Texas Department of Public Safety • Texas Alcoholic Beverage Commission • Texans Standing Tall • Partnership for a Drug-Free Texas • Texas Commission on Alcohol and Drug Abuse
© Texas Department of Transportation

America, we have a problem



COPD



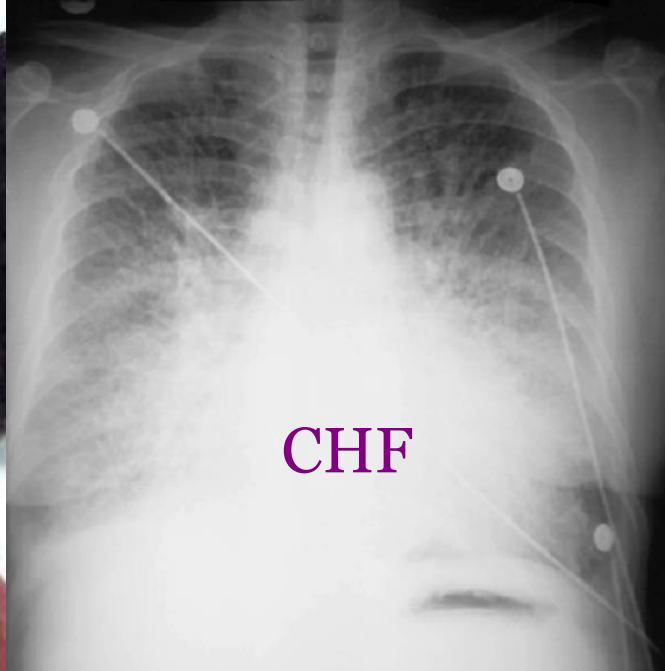
Drug Cost



Depression



Asthma



CHF



Diabetes

Geoffrey Vickers, Secretary,
Medical Research Council, Great
Britain, 1958



**THE LANDMARKS OF POLITICAL,
ECONOMIC AND SOCIAL HISTORY ARE
THE MOMENTS WHEN SOME
CONDITION PASSED FROM THE
CATEGORY OF THE GIVEN INTO THE
CATEGORY OF THE INTOLERABLE...THE
HISTORY OF PUBLIC HEALTH MIGHT
WELL BE WRITTEN AS A RECORD
SUCCESSIVE REDEFINING'S OF THE
UNACCEPTABLE**

Questions???



Edwin Chadwick and the Sanitary Movement



- Lawyer
- Interested in social reform
- Sanitation and Ventilation
- The Sanitary Conditions of the Labouring Population (1842)
- Public Health Act of 1848 (Not Compulsory)
- Administrative reforms – centralized and run by experts