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This document is part of a collection that serves two purposes. First, it is a digital archive for a sampling of unpublished documents, presentations, questionnaires and limited publications resulting from over forty years of research. Second, it is a public archive for data on college student drinking patterns on the national and international level collected for over 20 years. Research topics by Dr. Engs have included the exploration of hypotheses concerning the determinants of behaviors such as student drinking patterns; models that have examine the etiology of cycles of prohibition and temperance movements, origins of western European drinking cultures (attitudes and behaviors concerning alcohol) from antiquity, eugenics, Progressive Era, and other social reform movements with moral overtones-Clean Living Movements; biographies of health and social reformers including Upton Sinclair; and oral histories of elderly monks.

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# OUTLINE FOR LECTURES ON “THE HISTORY OF PUBLIC HEALTH”<sup>1</sup>

Dr. Ruth Clifford Engs, Professor Emerita,  
Department of Applied Health Science, School of Public Health,  
Bloomington, IN.

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## INTRODUCTION TO THE OUTLINE

**Objective:** the purpose of these lectures is to present an overview of the history, and to some extent the historiography, of public health, and its many entities over the centuries-- particularly from the mid-19th century-- so as to gain insight into the depth and breadth of our discipline.

**Background:** The foundation of modern public health in western society emerged out of the mid-19th and early 20th centuries. Various fields of interest and concern often intertwined and overlapped in this era. These different aspects of public health including hygiene, environmental concerns, physiology, physical and recreational activities and research diverged over the twentieth century into seemingly separate fields of study and practice. We have now come back together in the early twenty-first century under one public health umbrella.

The history of anything is based upon perceptions which may, or may not, be what actually occurred. An historian interprets the event based upon **primary sources** which include original documents, eyewitness reports, or artifacts. For example, field notes of the number of head injuries of high school football players with certain type of helmet in 1982 in Bloomington, IN or a diary or letters about the cholera epidemic and the weather summer 1832 in Boston.

Historians in different time periods, or even historians in the same time period, can present differing interpretations based upon the same data. This is because interpretations are influenced by current social, economic, religious, military, or political climate or even personal biases of the researcher. Historical interpretations can be conflicting, controversial and contentious.

These interpretations are then presented as peer reviewed papers, conference presentations, or scholarly books which are considered **secondary sources**. The study of changes in historical interpretations of these people, places, artifacts and events over time is **historiography**.

When historical interpretations change, based upon current attitudes or data, this is **revisionist history**. These new interpretations can be objective or colored by current perceptions. Scholarly historians, however, strive for objective interpretations and avoid subjective terms and labeling. There are several types of revisionist history.

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- 1) New data can lead to new interpretations. For example, Malaria was thought to be caused by “bad air” near swamps but in the late 19<sup>th</sup> century, the illness was found to be caused by parasites transmitted by mosquitoes.
- 2) Social attitudes and mores change which can lead to new interpretations of the past and the elimination of previous practices. For example, public health professionals supported—as a benefit to society—mandatory sterilization of criminals, rapists, and the mentally and physically disabled and ill in the early twentieth century. Today, this surgery is not considered acceptable by almost all health or social welfare professionals.
- 3) Changes in societal norms and attitudes can influence trends in bio statistics and interpretations of events. For example, through the 1970s, unmarried couples living together in the United States were considered immoral and often shunned by society. A child of an unmarried mother was considered a bastard or illegitimate and was often stigmatized along with its mother. In 2012, about 60 percent of middle-class couples cohabitated before marriage compared to almost zero in 1960. In 2012, around 40% of working-class or poor couples cohabit and have children without getting married. There is little stigma upon these couples or their children.

Public health has not been a straight line of improvement. Practices have risen and fallen over the centuries. Practices and inventions from the past have become forgotten or lost when social-political-religious systems change and are reinvented again. For example, flushing toilets with water into sewers was found in antiquity.

Big surges in public health reforms with *moral overtones* such as drinking, sexuality, tobacco that arise together are **Clean Living Movements**. They emerged out of religious awakenings in cycles of roughly 90 years in the United States. Simultaneously, health movements have also occurred in Europe to a lesser extent. Conquering epidemics and preventing infectious diseases, however, have occurred both independently and intertwined with the clean living movements.

Public health reform campaigns have predictable phases. These include *Moral Suasion* (education), *coercion* (public policies), *acceptance* or *backlash* if law considered unacceptable or unjust (think “big gulp” agitation in NYC or medical marijuana), and *complacency*

Public health initiatives over the past 150 years have resulted in increased longevity and lower maternal and infant mortality rates that many cultures now enjoy. This improved health was the result of better sanitation, clean water, sewage, waste disposal and personal hygiene which we now take for granted. Secondary to these are immunizations, antibiotics, and medical technology.

We need to keep in mind that up through the early twentieth-century, the leading causes of death in developed nations were from infectious diseases. At the beginning of the twenty-first century, the leading causes of death are from chronic diseases, in many cases the result of inactive lifestyles, unhealthy foods, along with genetic or epigenic influences.

In the lectures, we will briefly examine our field along with major diseases and epidemics from antiquity through the present. Important discoveries and leaders of public health from the late 18<sup>th</sup> through the late-20th century will be featured along with some governmental, and non-governmental, health agencies and organizations.

First we need to look at where we came from in terms of the distant past based upon documents and archeological evidence. **Keep in mind that “history” until recently written primarily by men who were rich, powerful, educated, rulers, military winners, or clerics.**

## ANTIQUITY TO EARLY MIDDLE AGES

**Antiquity** – origins of public health, sanitation, fitness, recreation

*China* yin-yang (168 bce) and 5 phases. Acupuncture (200 bce), *Yellow Emperor’s Canon* (475-221 bce), pit toilets, water wells, recreation, martial arts (kung fu)

*Egypt* (3300bce) diseases (TB, leprosy, malaria, schistosomiasis), personal hygiene, mosquito nets, bathing, toilets, sanitation, wells, drainage pipes, nutrition, recreation

*Mesopotamia*- Qanat water system (1000bce), drain pipes, privy, cesspools, baths

*Rural Semitic tribes* (1300 bce) cleanliness, bathing, recreation, quarantine, sanitation, dietary laws

*Indus valley and Indian sub-continent* 3600-1200bce) flush toilets into sewers, public baths water, exercise (yoga) health, *Caraka sa hitā* (300-500 bce) *Sushruta samhita* (100ce)

*Greece* Hippocrates (350bce), epidemiology, balance of the 4 humors, Aristotle (muscle actions), flush toilets, sewage system (2500bce) public water & latrines, exercise, Olympics (776bce) recreation, hunting, swimming, archery

*Roman Empire* (western 300 BCE to 476 CE) and eastern (286-1453 CE). nutrition, aqueducts, daily baths, hot and cold water, sewers, garbage collected  
Gladiators and sports – trainers, promoters, team physicians (Galen)

*Meso America* (c. 250-900 ce) underground aqueducts, nutrition, disease punishment, Sports

### **Plagues and diseases in antiquity and public health**

Bad air and odors caused disease

*Malaria* – “Marsh fever” thought caused by bad air. Goes back 30,000 yrs

*Polio* – associated with being in water

*Tuberculosis*- Egypt, Greece, and Rome

*Leprosy* – Semetic tribes, Egypt, India -unclean and sinful- quarantine

*Smallpox (variola major)*- China and India inoculations (1500bce)

*Cholera*- prevalent in the Ganges delta since ancient times

## LATE ANTIQUITY AND EARLY MIDDLE AGES (Dark Ages) 5<sup>th</sup> to 10<sup>th</sup> century

Disease, sparse population, religious wars, rough conditions, poor sanitation

*Justinian plague* (541-542) – cold weather, pneumonic plague, imported grains with rats and fleas

**High Middle-Ages (950-1300) Medieval warm period.**

East and western Christian church split in 1054. Western Christendom began to Regenerate. Population growth, cathedrals, universities founded, commerce and technology, agriculture (steady food supply), arts, philosophy, sanitation and bathing. tourists, trade, crusades, sports

**Late Middle-Ages (1300s-1500) climate change, plagues, disease, war, famine, poor sanitation**

*The Great Famine (1315–1317)* cold weather, universal European crop failure, cannibalism, massive starvation, pneumonia, bronchitis, and tuberculosis, weakened the population.

*Environmental/sanitation* - poor sanitation and personal hygiene, rich had pit toilets

*Black death (1347-1359)* - pneumonic bubonic plague, cold weather, 30% killed. Pest houses for isolation and quarantine of sick. Christian Church- sinners became sick due to God's punishment. Disease result of immorality woven into western culture

RENAISSANCE AND AGE OF ENLIGHTENMENT 16<sup>TH</sup> -TO EARLY 19<sup>TH</sup> CENTURY

**Medical and public health advances**

Ca. 1500 L. Da Vinci- human performance; W. Harvey blood circulation

**Interchange of infectious diseases between the New and Old World**

Clergy, settlers, African slaves and ship crews brought Yellow fever, malaria, hookworm to New World

*Great Pox* – syphilis imported from South America to Europe. First mentioned c.1494.

*Malaria*- found throughout Europe and imported to North America. Rx cinchona bark.

Environmental public health intervention. Decline in Europe after 1880 drainage of swamps, migration to cities, cheaper quinine, better housing construction

*Small Pox* -imported to new world- death of millions of Amerindians

*Yellow fever*- from Africa. First reported Mexico,1648, in NYC 1668; 1878 epidemics in Mississippi and Ohio valleys, swamps and glacial moraines. 1905 last New Orleans

*Childhood illnesses* imported to New World- measles, chickenpox, German measles, mumps, whooping cough, diphtheria, and rabies

**Public Health concerns and advances in the 18<sup>th</sup> Century – England and Europe**

*Anti-alcohol sentiments*, James Lind, scurvy cure experimental/control group 1753

*Sanitation in England*. 1583 public latrines, 1740 cesspit in houses, 1775 water closet

*Smallpox epidemics* of 18<sup>th</sup> century. Smallpox and its prevention by inoculation

1718, Lady Mary Montegue; 1796 Edwin Jenner, vaccination with cowpox

**North America 1600-1850**

*Smallpox epidemic* of 1775-1782 throughout North America. African slaves and English used inoculation from pustules. The Americans did not. Quarantine and inoculation Washington's winter in Valley Forge.

*Yellow fever* epidemics 1700s-1880s in Charleston and along coastal ports

Late 1700s. to keep in good health exercise promoted- carriage rides

*Public health laws* 1808 The City of Charleston establishes a Board of Health with 13 commissioners. 1813. U.S. Vaccine Agency established by U.S. Congress

*(Asiatic cholera 1917-1837 Europe, North and South America. 1839-56 North Africa)*

*Cholera epidemics North America* 1832-49, 1852-60, Irish immigrants, Gods punishment. Spread along waterways. Cholera became the first reportable disease in the USA

## MID 19<sup>TH</sup> CENTURY TO WWII

### Theories of Health and Disease

*Heredity*- J-B Lamarck theory of “acquired characteristics.”

*Miasma theory of disease*- disease spread through foul air local area and immorality

*Germ theory of disease.* Agostino Bassi 1810s first discovers disease carried by microorganism but is ignored by public health professionals.

*Stimulus for public health initiatives: Cholera* pandemics 19<sup>th</sup> cent. 1817;1826-1837; 1852-60,1884-1898. Found in Middle East, Asia, Europe by 1826, N. America 1832; Sub-Saharan Africa, 1863;

### Key Public health discoveries and campaigns 19<sup>th</sup> century Europe

The basis of modern public health theory and practice

Chadwick Report 1842 to British parliament on sanitary conditions. First report of its kind

*Ignaz Semelweise* 1847 -Transmission of disease could be prevented by hand washing

*John Snow* (Father of Epidemiology) 1854 and the Broad Street pump. Water and food can transmit disease. Sewage contaminating drinking water wells with cholera

*Charles Darwin* 1857- humans were a "modified descendant of some pre-existing form"

*Louis Pasteur* 1860s shows that air carries microorganisms. Rabies vaccine, heating of milk

*Gerhard A. Hansen* 1873. Leprosy found not to be inherited. Caused by specific “germ”

Cholera pandemic: not found in developed nations where clean water separated from sewers

*Robert Koch.* Koch’s Postulates germ theory of communicable disease 1870-80s

*Filippo Pacini*, discovered cholera bacillus 1854 but unknown to other European researchers

*Alfonse Laveran* discovered the malaria parasite in 1880.

*Waldemar Haffkine* develops first cholera (1893) and first plague vaccine (1897)

*Ronald Ross*, 1897, demonstrated that malaria parasite transmitted by mosquitos

*Edward Muybridge* 1882 first study on gait and kinesiology studies. Posture education

### The United States 1830s-1860s - First Clean Living Movement in the Jacksonian Reform Era

“A Clean Living Movement is a wave of public health crusades with moral overtones” It came out of the *Second Great Awakening* (religious revival). Human body temple of God. Alcohol, tobacco, caffeine, spices, red meat should be avoided as they could lead to sexual urges and disease. Physical fitness, vegetarian diets would quell these urges and lead to health. These beliefs lead to health campaigns against substances and diseases and promotion of physical fitness chastity, clean water, dietary changes

*Two religions of health promotion* (LDS, Seventh-day Adventists) emerged out of this era

*Temperance movement* 1826-1850s *Neil Dow* first state prohibition law 1851, 13 states total but all repealed during Civil War.

*Immigration and public health- cholera crusade*—cholera brought by Irish 1832, disease thought to be result of sin, “immoral people and drunkards” got it.

*Hereditarian concerns*- Diseases and conditions run in families that immigrants could Bring these conditions into the USA. Know Nothing Party 1850 forms to preserve protestant values and eliminate ardent spirits to prevent immigrants from drinking

*Cholera crusade* -disease thought to be caused by dirt, filth, sin and immorality as it was rare among middle class

*Dietary reform crusade - Sylveter Graham* ca. 1830. Alcoholic, spices caused sexual urges leading to masturbation among youth. Advocated daily bathing and teeth brushing.

*Physical culture and exercise*-Turners. School PE programs, sports. C. Beecher, Dio Lewis  
**Public health advances not directly connected with the clean living movement**

**Shattuck Report**- 1854 Lemeul Schattuck (**Father of American public health**)  
advised creation of local and state boards of health., used vital statistics, sanitation  
movement. His recommendations are now found around the United States and world.

*Other public health landmarks in the USA –*

1885 Louisiana: first permanent state board of health

1860s to present -Sewage and clean water in North American cities. 1885 APHA  
founded; 1885 AAHPERD founded; 1883 *Journal of Public Health* founded

**Public Health Service** (PHS) Marine hospital established in 1798 in Boston. In 1871 in  
Washington, DC., John Maynard Woodworth, Surgeon of Union Army reorganized it,  
using a military model, as Marine Hospital Service. Its mission was care and health of  
merchant sailors with a cadre of physicians and it was headed by a surgeon general. Later  
other personnel were added.

Its role was to protect commerce and health of the United States including control of  
infectious diseases including disinfection, quarantine and later immunization.

**National Quarantine Act of 1878** vested authority to it and the National Board of Health  
to prevent importation of smallpox, yellow fever and cholera. The short lived  
National board of Health (1879-1883) not reauthorized by Congress in 1883 due to  
political infighting.

1878 Librarian and physician John Shaw Billings assembled the Surgeon General's  
Library now National Library of Medicine 1897. Billings founded what became *Index  
Medicus*, now *Medlines*

*Immigration act of 1891* barred people with dangerous contagious diseases

U.S. Congress passes the **National Quarantine Act 1893** Fear of cholera being  
Imported. Ships held for 20 days quarantine; states still could have quarantine.

The *Federal Uniformed Service Corps* established 1898. In 1912 name changed to Public  
Health Service. The corps responds to public health emergencies.

1921 PHS took over operation of the National Leprosarium of the United States  
Carvill, La

1930s corps expanded to include other health professionals.

1944 the United States Public Health Service became the primary division of the  
Department of Health Education and Welfare (HEW) CDC, FDA, NIH, among many  
of HHS agencies today.

## LATE 19<sup>TH</sup> CENTURY TO WWII

### **The Progressive Era and the Second Clean Living Movement 1890-1920**

Social gospel, New Thought, and Fundamentalist movements precipitated health reform  
crusades with moral implications. *Elimination of the saloon and alcohol* was the initial  
focus of this clean living movement

*Immigrants*: Eastern and southern Europeans had different drinking patterns. Asian,  
Eastern and southern European diseases (typhus, cholera), crime, alcohol, drugs

*Saloons*: seen as centers of political corruption, prostitution, disease, drunkenness

*WCTU* founded 1874 to eliminate liquor traffic and prostitution. Driving force for many  
clean living causes. Printed educational material, closed saloons, first large scale mass

movement of women in USA. *Francis Willard* most prominent president  
*Anti-Saloon League* founded by Howard Russell 1893. League crusaded against saloons, pushed local option. Wayne Wheeler primary lobbyist for prohibition movement. Pushed 18<sup>th</sup> amendment to constitution and ratified 1919. League mandated strict punishment for lawbreakers. It was associated with KKK which was against alcohol, immigrants, gambling, dancing, and sexual immorality. Prohibition lowered per capita alcohol consumption but brought crime, abusive drinking patterns, social unrest. It was repealed 1933

*Anti-tobacco movement* Lucy Page Gaston founded Anti Cigarette League 1899.

Cigarette bans in 12 states between 1899-1909

*Eugenics Movement* “to improve the human race and increase health of the nation”

UK: Galton introduced idea 1869. K. Pearson developed statistics.

USA: M. Grant, H. Laughlin, C. Davenport, Eugenics Record Office

Positive eugenics: healthy marriages, well baby clinics, better baby contests, pre-marriage exams, marry healthy person

Negative Eugenics: sterilization, institutional segregation

*Immigration restriction movement*-limit immigrants due to disease and debility.

1924 Johnson Reed Immigration Restriction Act passed. Grant, Laughlin

*Social Purity Movement*. Eliminate of prostitution, double standard and STDs. 1905

Schumudinn & Hoffman isolated syphilis spirochete. 1906 Wasserman test for syphilis; Age of sexual consent, 1910 Mann act, 1911 Calif. first state to require VD reporting; 1930s premarital syphilis tests mandated by most states. By 1990 this was eliminated as few cases found

*Woman Suffrage Movement*. 1920 19<sup>th</sup> Amendment to allow women to vote

*Exercise and physical fitness movements* L.Gulick and YMCA concerned about spiritual, mental, physical health of youth. Founded school and community health and PE.

Expanded YMCA to give farm boys wholesome. J. Naismith invented basketball 1891. Vigorous exercise, team spirit, cold showers to quell sexual urges.

Dudley Sargent – School physical ed. Training. 1879-1919 Head of Hemingway

Gym, Harvard. Developed Body types (ecto-meso-endo-morph). “Exercise, diet, sleep air, bathing clean clothing foundations for health.”

Muscular Christianity, “the whole man” rose out of Social Gospel Movement. T.

Roosevelt “Strenuous life.” Linked with eugenics

Physical culture movement (1890-1930), non religious, vegetarian diet, fasting,

exercise, personal hygiene. Bernarr Macfadden primary leader. Body building, athletics exercise equipment

*School Hygiene (Health) Movement* (1890-1930s) concerns about degeneracy among children due to poor hygiene, nutrition, TB, lack of cleanliness. Made up of subject matters from several movements: WCTU (anti tobacco, alcohol, etc), PE(anatomy, physiology, exercise, nutrition), sanitary science (diseases, transmission, Prevention), NTA (hygiene, fresh air, posture, chastity), Eugenics (healthy marriage, family, sexuality, VD)

*Playground and Recreation Movement*- base upon Lamarckian theory, healthier children wouldn't pass on bad habits first sandlot opened 1886 Boston. Supervised play improve mental, moral, physical well-being

*Conservation Movement* - Interwoven with eugenics. **The Organic Act of 1916** created the **National Park Service**. Yellowstone 1872. Grant, Roosevelt

***Tuberculosis Movement*** (1895-1930s) L. Flick 1888 found disease communicable and not inherited. 1907 deemed infectious and reportable NYC. One of the most important public health reform movements of Progressive Era's Clean Living Movement. Links with all other movements in the era. Popular and had 4 phases.

1. Sanatorium (E. Trudeau 1907, nutrition, fresh air, rest, exercise).
2. Public health measures (1890s -1940s) environment more sanitary, open air schools, milk inspection 1902, Pasteurization 1912.
3. Voluntary efforts- NASPT (1904) National Tuberculosis Association (1918); Lung Association (1973). Xmas seal campaign 1907. **Became prototype for all other NGOs**.
4. Health Education 1915 "Modern Health Crusade." NTA in 1960s other lung diseases and anti-smoking campaigns

*Birth Control Movement* 1914-1930s. Middle-class women. Comstock laws considered contraceptive, STD, sexuality as pornography. Margaret Sanger leader

*Pure Foods And Drug Movements* 1880-1910s- H. Wiley, head of USDA agitated for stricter regulation of foods and drugs. 1906 pressure from WCTU, AMA, Upton Sinclair's **1906 Pure Food Act/ Meat Inspection Act**. Sinclair popularized many health crusades

### **Epidemics and public health discoveries from 1890s - WWII**

*Third bubonic plague* led to discoveries of its pathogen in 1894 by A. Yersin.  
1898 P. Simond found flea/rat/human connection

*Yellow fever* 1881: C. Finlay, first proposed disease transmitted by mosquitoes  
1900 Walter Reed verifies this. **Mosquito abatement program: fumigation, draining swamps**  
*Yellow fever virus isolated* in W. Africa 1927. M. Theiler developed vaccines 1930s.  
These discoveries led to the **4 F's of public health** for disease transmission, prevention and Education: Fingers, flies, feces, fomites, food fluids and aerosols

*Polio epidemics* 1910: middle class due to indoor plumbing. No exposure to virus as infants.  
9,000 cases in NYC 1916. 1938 National Foundation for Infantile Paralysis founded (March of Dimes) focused on research

*Spanish flu*" (H1N1) influenza pandemic 1918 -1919. 5 % world population killed youth

*Immunizations* – smallpox, diphtheria, tetanus, pertussis reduces mortality and morbidity

*Eradication of hookworm*- 1909 -1930s. J. D. Rockefeller sanitary commission

*Blood storage*. C. Drew 1930s devised large scale blood banks first used in WWII

*Antibiotics discovered*. A Fleming isolates penicillin from mold 1928

*Unethical research* by PHS: 1932-1972 "Tuskegee study of untreated syphilis in negro Male." The men were denied effective treatment to follow natural progression of disease. Led to informed consent and human subjects reviews

### POST WWII

#### **The Centers for Disease Control and Prevention (CDC)**

The CDC's mission is to protect public health and safety through the control and prevention of disease, injury and disability. Branch of the U.S. Public Health Service

1947 Communicable Disease Center, Atlanta, GA evolved out of wartime malaria control agency to prevent spread of malaria in the USA which sprayed mosquitoes with DDT.

1949 Malaria declared not a significant health problem in the USA.

1964, CDC moved to a large complex next to Emory University as the **Center for Disease**

**Control** (1970) (prevention added 1992).

*Joseph Mountain*, MD, first director, pushed to include other diseases whose labs were later transferred to the CDC from the PHS. 1947 plague lab; 1959 VD surveillance; 1960 tuberculosis control; 1963 immunization program; 1967 foreign quarantine service; 1986 office of smoking and health became part of CDC

In 1960 the National Office of Vital Statistics and National Health Survey merged to form **National Center for Health Statistics** (NCHS) and since 1987 has been housed within the CDC. It collects and disseminates national official vital statistics.

1962 CDC took over publication of *MMWR*

1964 -*Surgeons General Report on Tobacco* – “big tobacco” suits in late 20<sup>th</sup> century

1965 measles, tetanus, trichinosis and shigellosis added to surveillance program

1988 established National Center for Chronic Disease and Health Promotion which publishes *Health People* 2000, 2010, 2020. Also launched 2000 Safe Motherhood campaign

### **Research and Campaigns against infectious diseases in the Post WWII period**

*Polio campaign*– (poliomyelitis) at its peak in 1940s-50s polio killed over half million people worldwide every year. F.D. Roosevelt initiated March of Dimes NGO. this disease and “atomic bomb” greatly feared.

In 1955, CDC established surveillance program

Jonas Salk (1955) and Albert Sabin (1961) developed injectable and oral vaccines respectively against the disease. 1976 with polio all but eradicated March of Dime focuses on preventing birth defects. 2002 polio only found in 4 developing countries.

*Basic research on pathogens 1960s* *Arbovirus research (such as West Nile)*

*Research in exercise physiology, motor learning, sports medicine and psychology* advances beginning in the 1960s

1966 *Measles eradication* campaign announced by CDC at APH meeting

Measles (rubella) eliminated from the US 2009

*Smallpox*- 1972 mandatory smallpox, 1975: eliminated in USA. 1977 last naturally occurring case in Somalia. Repository for virus are at CDC and at Vector in Russia.

### **Status of Arbovirus infections and public health advances**

These disease have implications for international public health initiatives, travel and tourism

*Malaria*- Chinese researcher Youyou Tu 1969 developed anti-malaria drug.

*Malaria abatement* draining swamps and mosquito control. 1975 Europe malaria free. 2000 in equatorial belt but temperature conducive in north America, southern Europe. Malaria now increasing due to population pressure, climate change, deterioration of public health and vector control, resistance to insecticides and antimalarial drugs, war, civil strife.

*West Nile and Dengue fevers*- vector is Asian tiger

*Yellow fever*- endemic in tropical South America and Africa. Implications for travel, tourism

*Cholera epidemics* Rare in developed ones. Endemic in developing countries, South America and Caribbean 1991-2009. HAtie 2010 countries.

**Chronic Disease leading cause of morbidity** and mortality in developed countries and North America. Public health initiatives for these will be discussed by other faculty

### **Third Clean Living Movement – Millennial Movement (1970s-2015?)**

Evolved out of a surge of conservative religious fervor (Christian right movements of the 1970s). Single issue causes emerged at the same time although some were, and some were not, connected. Rapid increase of youth. Reformers organizations.

***Anti-Tobacco and smoke-free-environment: Movement was the most successful public health Public health campaign of the late-20<sup>th</sup> century.*** Smoking declined from 40% in 1965 to about 20% in 2011. Campaign based upon “evidence based research” as to the harm of tobacco products. An undercurrent that smoking is immoral was still found. Smokers and tobacco companies demonized. Began in 1960s and was linked with anti-alcohol and drug crusades with abstinence only philosophies. NGO and government agencies banned together.

*Anti-Alcohol-* 1980s Drunk driving, 21 year old purchase age mandatory by 1987 for states to receive federal highway funds. Decrease in all ages: per capita consumption, traffic accidents. Designator driver programs, safer cars, roads. MADD, Fetal alcohol syndrome

*Anti-Drug* 1980s. “War on drugs,” “Just say, No.” linked with anti-alcohol-tobacco movements as they were thought to be “gateway drugs” to “hard drugs. *White House Conference for drug free America* (1987) Destroy material that discussed responsible Choices. Unsuccessful public health campaign.

*HIV (AIDS) –* 1980s “immoral disease,” “Gay plague” “God’s punishment for immoral men.” Attitudes changed when transmission found to be from body fluids, hemophiliac got from blood transfusions (Ryan White), heterosexual sex. Public health initiatives: clean up of body fluids in sport, blood donors screened, more disposable medical items

*Nutrition and diet campaigns:* limitation or abstinence from “bad or evil foods” that are associated with heart disease, cancers, diabetes and obesity (gluttony – moral issue) Anti-salt 1990s; anti-red meat 2003; anti-fat 1990s; anti-sugar 2010s.

Metabolic syndrome. “obese people lazy, don’t exercise and eat junk foods and sodas so they get heart disease, diabetes and high blood pressure”-“moral” issue (gluttony and sloth). 2008- present. Anti-sugar campaign – “big gulp”

*Reproduction and sexuality.* 1970s – present. Pro-choice, pro-life, purity movement, abstinence vs comprehensive sex education in the schools; stem cell research

### **Public health activities and concerns not directly connected to the Millennial Clean Living Movement**

*Exercise and physical fitness campaigns* 1960s-present. Presidential challenge for physical fitness- late 1960s. 2014 health based assessment

*Environmental, recreation, increased population, tourism issues.* 1990s global warming climate change . Environmental concerns. Re-establish wet lands – stagnant water and mosquito borne disease. Balance between saving our wild areas and recreation and industry

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Note: this lecture outline and bibliography was originally developed for the graduate course: **SPHX505: Introduction to Public Health, School of Public Health, Indiana University, Bloomington, IN Fall 2013**