

**Exploring  
Environment and Health  
Connections**

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ENVH 111  
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<http://courses.washington.edu/envh111/>

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*Exploring Environment and Health Connections*  
**Course Topics**

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- Climate and health
- Food supply
- Health effects of chemicals
- Air Pollution
- Workplace hazards
- Water quality & waste management
- E-waste
- Nuclear Energy

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*Exploring Environment and Health Connections*  
**Course Requirements**

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- Read article and summarize - weekly
- Find article and summarize - weekly
- Discussion group in-class assignment - weekly
- Group facilitation – one week
- In-class exam
  - Middle of course
  - End of course

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**What is Health?**  
(World Health Organization definition)

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- Anatomic integrity
- Ability to perform personally valued family, work, and community roles
- Ability to deal with physical, biologic, and social stress
- A feeling of well-being
- Freedom from risk of disease and untimely death

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**Public Opinion Survey**

**What do the words “public health” mean to you?**

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**Public Opinion Survey**

**What do the words “public health” mean to you?**

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- **Less than 4% gave correct answer**
  - health care system
  - universal health care
  - welfare programs
  - health insurance
  - Medicaid and Medicare

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### What is Public Health?

**A set of efforts organized by society to protect, promote, and restore the people's health through collective or social action**

- scientific research
- population-based interventions
- public education
- regulations and enforcement powers

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### The Public Health Infrastructure



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### Key Public Health Services

- Ensure safe drinking water
- Ensure that foods are free of contamination
- Protect people from toxic exposures
- Prevent spread of communicable and vector-borne diseases
- Prepare for natural disasters
- Respond rapidly to disease outbreaks and natural disasters
- Provide community education to promote healthy lifestyles

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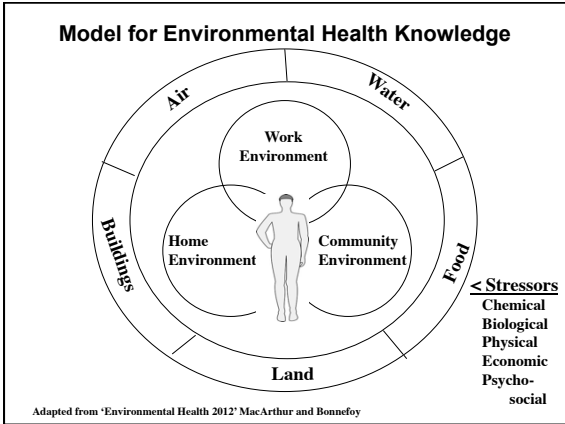
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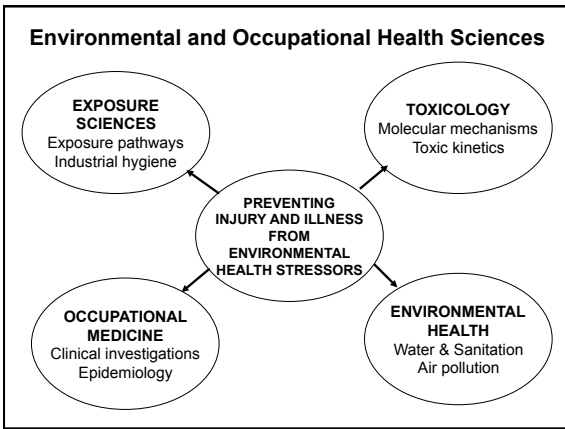
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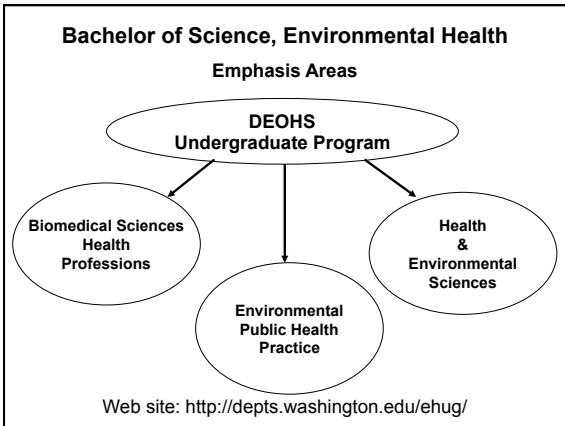
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*Health and the Environment*  
**Something in the Air**

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- **Miasma**
  - New Latin, from Greek: defilement; from *miainein*, to pollute
  - First known use: 1665
  - Miasmata is decomposing matter
- **Vitruvius, 1<sup>st</sup> century Rome**
  - ‘poisonous breath of creatures of the marshes’
  - Health and unhealthy places

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*Health and the Environment*  
**Something in the Workplace**

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- **Bernardino Ramazzini**
  - 17<sup>th</sup> century Italian physician
  - “Father” of occupational medicine
- **“Disease of Workers”**
  - Hazards of chemicals and dusts
  - Physician, ask your patient, “What is your occupation?”



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*Health and the Environment*  
**United States in the 19<sup>th</sup> Century**

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- **Dr. Benjamin Rush**
  - “Disease is the offspring of putrid vegetable and animal exhalation”
  - Miasma produced by “filth acted upon by the hot sun in a moist state”
- **Sources of miasma**
  - Marshes, spoiled vegetables, canvas from old tents, rotting books and paper
  - Unburied human bodies, beached whales, fish entrails, privy wastes



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*Health and the Environment*  
England in the 19<sup>th</sup> Century

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- **Miasma as a medical theory**
  - Causal agent of cholera
  - Putrid vapors associated with filth and decay
- **Public health responses**
  - Edwin Chadwick: report on sanitation reforms
  - Florence Nightingale: care for wounded and dying soldiers in Crimean War
  - Design of cities: green spaces; remove waste outside city boundaries

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*Health and the Environment*  
England in the 19<sup>th</sup> Century

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- **John Snow and cholera**
  - Linked cholera outbreaks to water sources
  - Stopped use of water contaminated with human waste
- **Rise of the germ theory**
  - Louis Pasteur demonstrates existence of pathogenic organisms
  - Robert Koch isolates the specific organism that causes cholera
  - Anopheles mosquito identified as vector for a protozoan (malaria agent)

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**Ten Great Achievements in  
Public Health**

1900-2000



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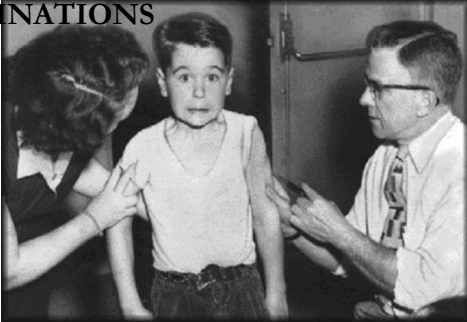
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## VACCINATIONS



A few moments of discomfort can prevent a lifetime of suffering from the ravages of disease or death. Over 20 diseases can be avoided because of vaccines.

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## Children's Vaccines

Disease	Baseline 20th Century	1998
	Morbidity	Morbidity
Smallpox	48,000	0
Diphtheria	176,000	1
Pertussis	147,000	6,000
Poliomyelitis	16,000	1*
Measles	503,000	89
Mumps	152,000	606
Rubella	48,000	345
Influenza b	20,000	54

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## MOTOR VEHICLE SAFETY



The invention of the automobile created both a wonderful new means of transportation and a deadly new public health threat.

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**HEART  
DISEASE  
&  
STROKE**



Studies in the 1960s found that reducing behavioral risk factors would reduce the incidence of CVD.

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**SAFER &  
HEALTHIER  
FOODS**



Populations with diets rich in fruits and vegetables have a significantly lower risk of many types of cancer and decreased risk of cardiovascular disease.

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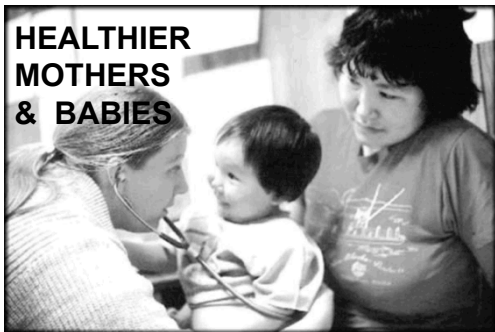
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**HEALTHIER  
MOTHERS  
& BABIES**



Improved care for women of childbearing age during preconception, pregnancy, delivery, and postpartum

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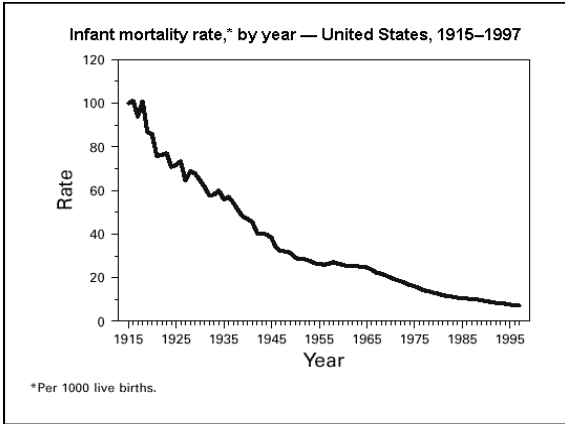
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**FAMILY PLANNING**

In the early 1900s, distribution of information regarding contraception was generally illegal.

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**FLUORIDATION OF DRINKING WATER**

Thanks to water fluoridation and other health advances, we are retaining most of our teeth throughout our lifetime.

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## Tooth Decay: how bad was it?

- Minimum standard for military service in World War I and World War II
  - Six opposing teeth
- Fluoridation reduced dental caries 50-70% in children in the 1940's

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## TOBACCO USE



Smoking has gone from being an accepted norm to being recognized as the #1 preventable cause of death and disability in the U.S.

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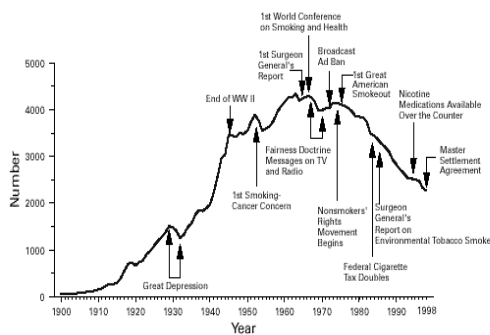
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Annual adult per capita cigarette consumption and major smoking and health events — United States, 1900–1998



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

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*Challenges for Environmental Public Health*  
**Loss of Public Support**

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- Many Americans view public health as a government handout for impoverished people
- Government public health budgets dropped 25% between 1981 and 1993
- Costs increasing, but mostly for provision of medical care to clients
- Current budget cuts at the state and local levels affect public health disproportionately

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*Public Health and Sustainability*

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- Blend of science, practice, and advocacy
- Common focus on prevention
- Alteration of basic values and community norms through risk communication
- Community-based actions to achieve broad social goals to protect and improve the health of citizens

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