

Environmental Health



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Environmental Health

- ✓ Across the world, the environment is a key determinant of health and well-being.
- ✓ Unimproved water and sanitation, ambient air pollution, indoor pollution from solid fuels, and lead exposure are among the leading contributors to global burden of disease.
- ✓ In addition, many current and emerging exposures in food, water, soil, air, and consumer products adversely affect human health.

Why Is Environmental Health Important?

Maintaining a clean healthy environment is central to increasing quality of life and years of healthy life.

Globally, nearly 25 percent of all deaths and the total disease burden can be attributed to environmental factors.

WHO Definition of Environmental Health

It refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations.

What is Environmental Health?

Environmental Health is the field of science that studies how the environment influences human health and disease.

“**Environment**” in this context, means things in the natural environment like air, water and soil, and also all the physical, chemical, biological and social features of our surroundings.

Definition: Environment

All that which is external to the individual host. [It] can be divided into physical, biological, social, and cultural factors, any or all of which can influence health status in populations.

–Last, J. M. (Ed.). (1995). A Dictionary of Epidemiology(3rd ed.). New York: Oxford University Press.

WORLD ENVIRONMENT DAY



5 JUNE

Forests: Nature at Your Service

In support of the UN International Year of Forests



WORLD ENVIRONMENT DAY



@RaeesYameen2018



I'm with Nature



**IF YOU CAN'T REUSE IT,
REFUSE IT**



#BEATPLASTICPOLLUTION



**WORLD
ENVIRONMENT
DAY**

Hazards

- ✓ Things in the environment that are harmful are called **hazards** and include things like chemicals, disease-causing bacteria, loud noises and even stress.
- ✓ These hazards can be natural or human-made.

Hazards in the Environment

Chemical: Air pollutants, toxic waste, pesticides, VOCs

Biologic: Disease organisms present in food and water

also Insect and animal allergens

Physical: Noise, ionizing and non-ionizing radiation

Socioeconomic: Access to safe and sufficient health care

Definition of SAFE

Definitions of Safe:

Free from harm or risk

Secure from threat of danger, harm, or loss

Zero risk

The opposite of hazardous.....

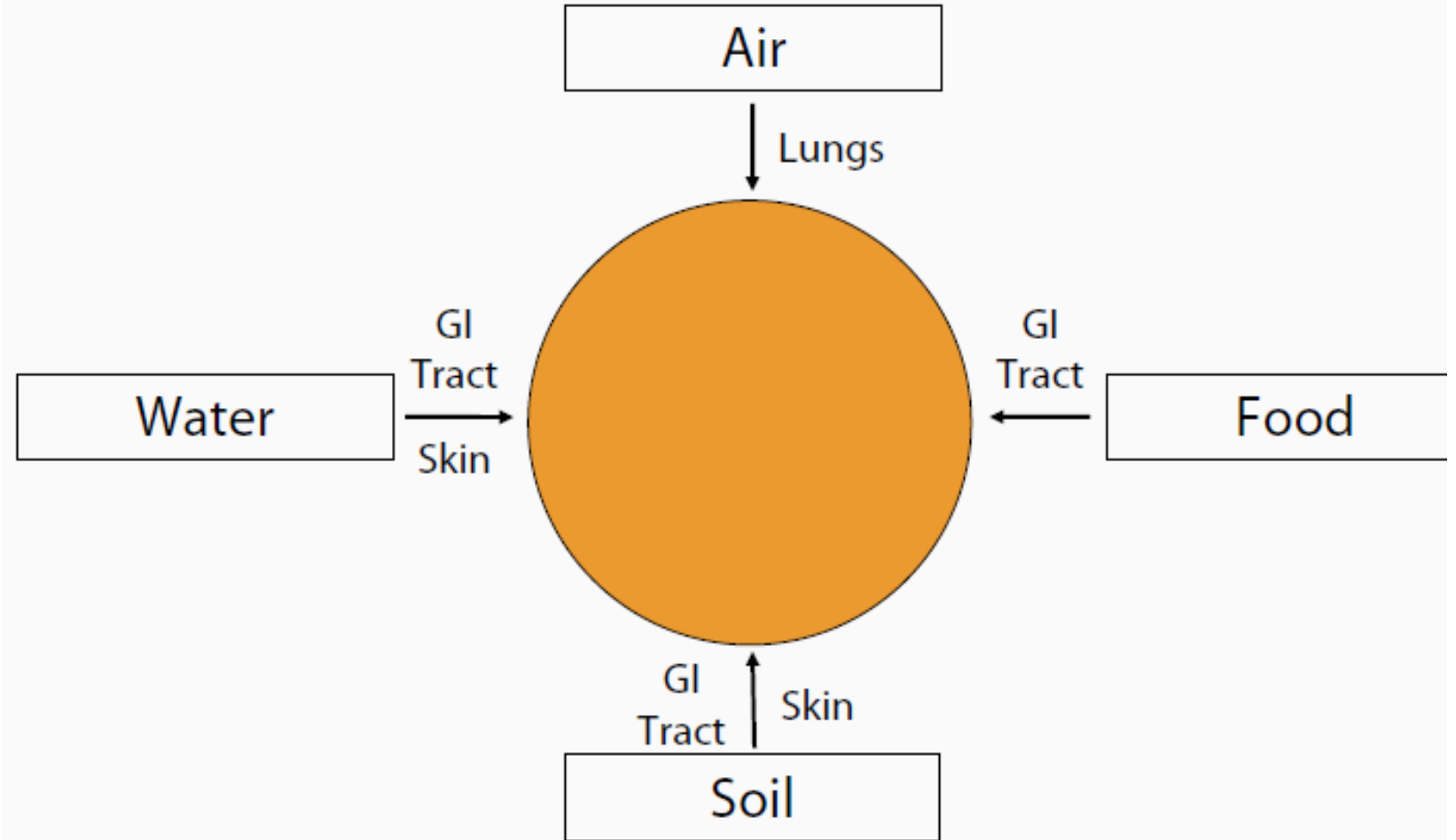
How do hazards reach our bodies?

Routs of exposure:

1. Inhalation
2. Ingestion
3. Dermal contact

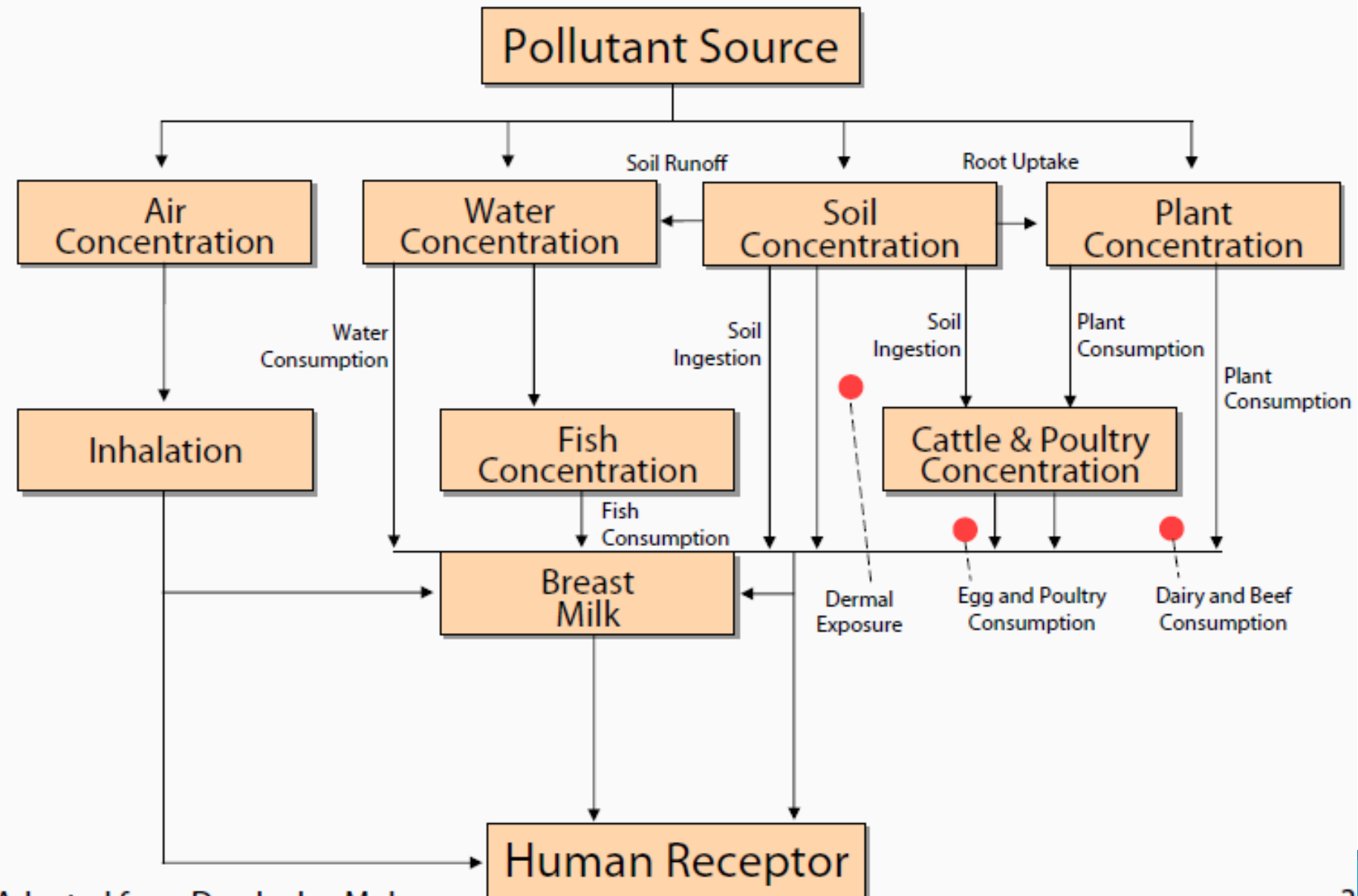
....Routes of exposure

- Routes of exposure through gaseous, liquid, and solid medi



Adapted from Moeller, D.W.

Pollutant Source Pathway



Agents and Vectors

Agents (the hazard):

Chemical, biological, and physical

Vectors (medium to carry the agent):

Water, air, soil, and food

Routes of entry:

Inhalation, ingestion, absorption

Environmental Pathways for Selected Toxic Agents

Agent	Disease	Source	Pathway
<i>L. pneumophila</i>	Legionnaire's disease	Soil, cooling towers	Air, building ventilation systems
<i>Salmonella</i>	Acute diarrhea	Human or animal feces	Water, meat, eggs
Dioxin	Chloracne, soft tissue tumors	Herbicides, paper mills, incinerators	Air, water, food
Pesticides	Nervous system tox.	Agriculture	Food, water
Asbestos	Asbestosis, lung cancer	Insulation, auto brakes	Air, water

Basic Requirements for a Healthy Environment

Clean air

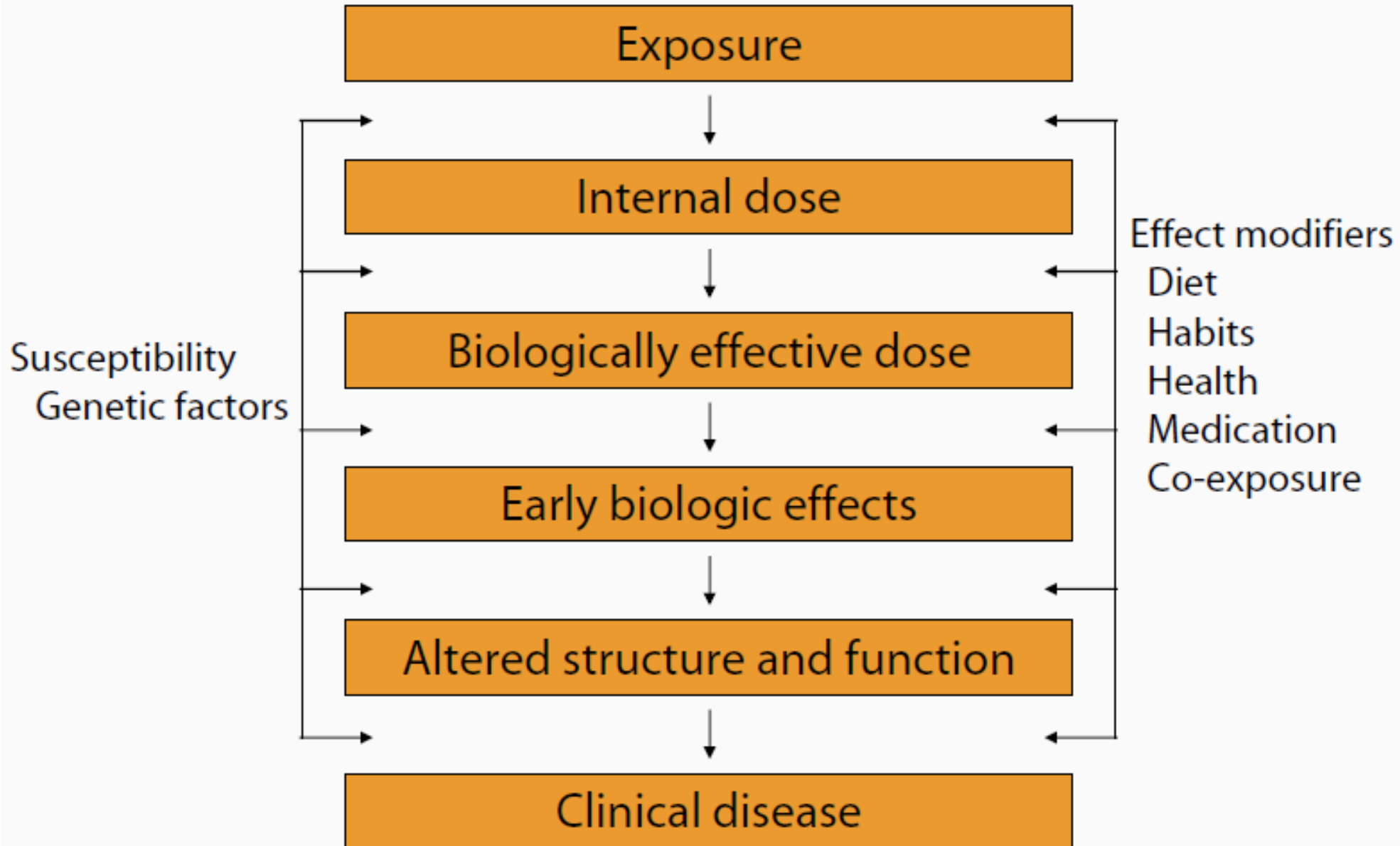
Safe and sufficient water

Safe and adequate food

Safe and peaceful settlements

Stable global environment

The Toxicological Paradigm



Health Effects

Adverse vs. beneficial

Acute vs. delayed onset

Clinical vs. subclinical manifestations

Transient (reversible) vs. chronic (irreversible)

Examples of Manifestations

Lung disease

Reproductive effects

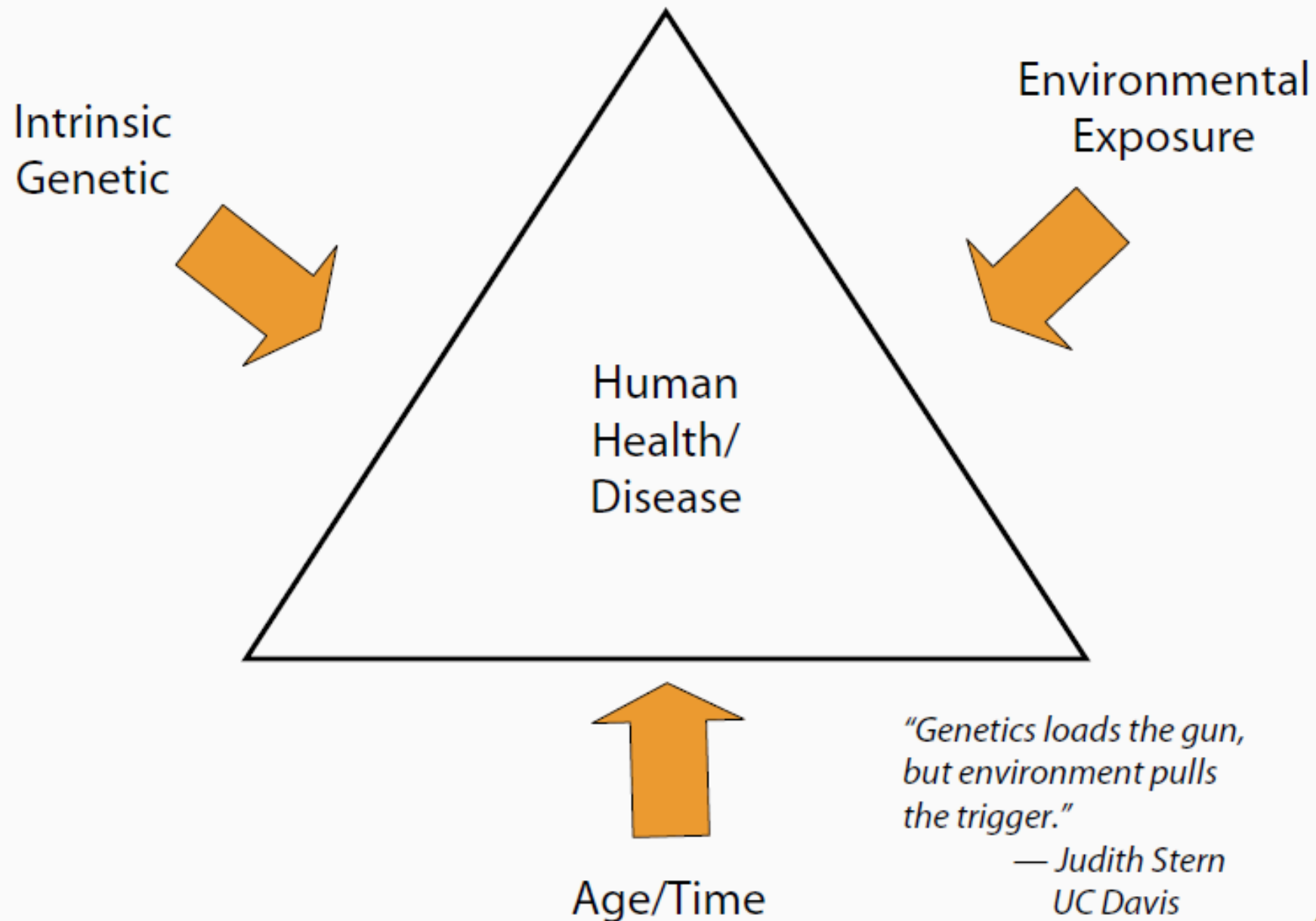
Teratogenic effects

Neurologic effects

Immunosuppression and hypersensitivity

Cancer

Environment Pulls the Trigger



Vulnerable Groups (susceptible)

Low socioeconomic status

Women

Children

Elderly

Ethnic minorities

Disabled

Indigenous peoples

- ☐ **All of whom are often more vulnerable because of Genetics or They are not empowered to change their environment**

Risk assessment

1. Hazard identification
 2. Exposure assessment
 3. Dose-response assessment
 4. Risk characterization
- Pure “science” activities

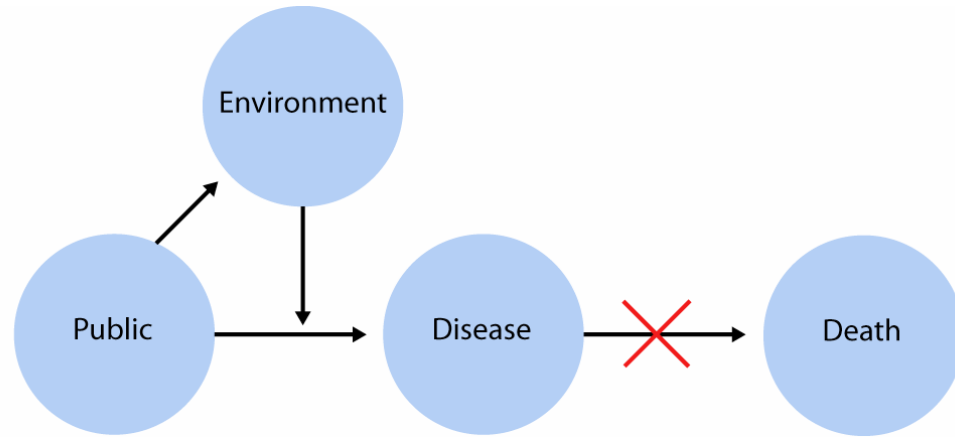
Risk assessment: The determination of the probability that an adverse effect will result from a defined exposure

Risk management: The process of weighing policy alternatives and selecting the most appropriate regulatory actions based on the results of risk assessment and social, economic, and political concerns

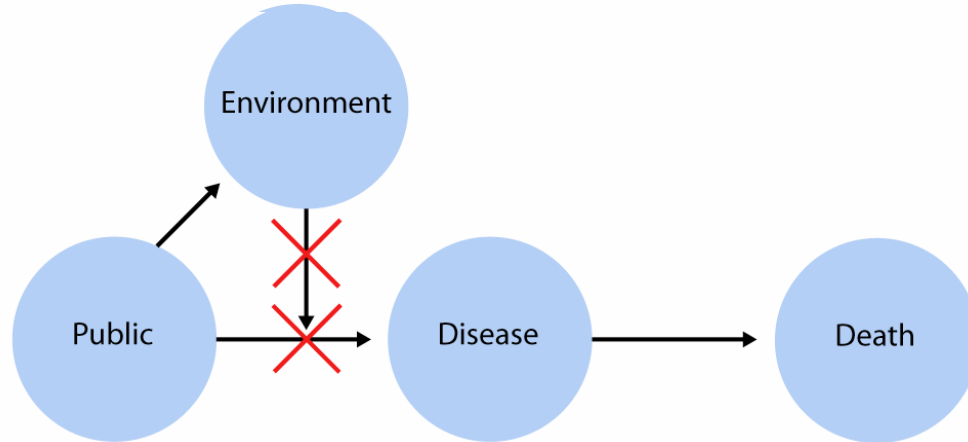
Prevention and Control Methods

- ✓ **First choice control method:** is usually the most effective and easiest to implement, and produces the largest benefit at the lowest cost.
- ✓ **Continued progress** requires using more and more expensive methods that remove smaller amounts of pollutant
- ✓ **At some point, costs outweigh benefits**

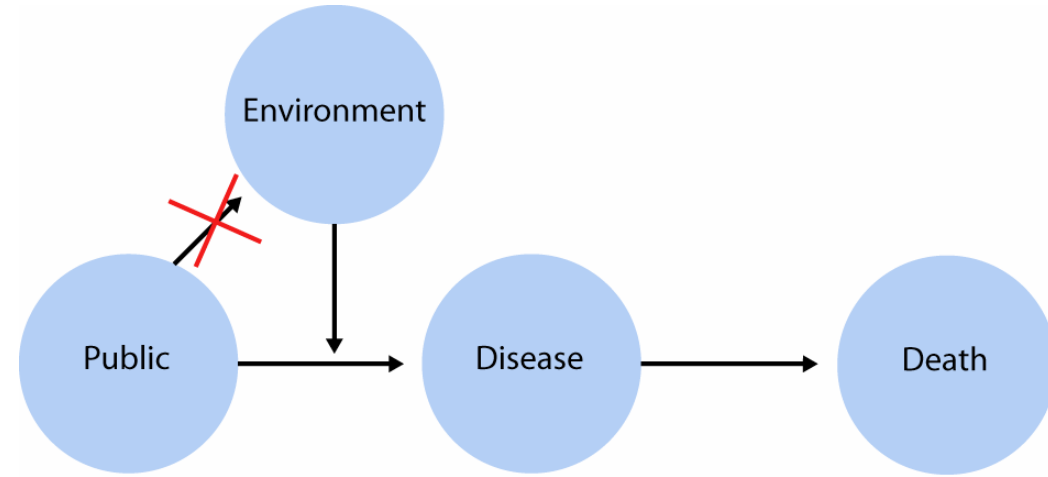
Improving Human Health and Environment: 3 Models



Clinical Intervention Model



Public Health Intervention Model



Environmental Stewardship Model

What is environmental justice?



Environmental Justice (EJ) means that everyone has a right to live in an environment that doesn't make them sick, regardless of their race, culture, or income.

Environmental Justice

Unfortunately, some neighborhoods or communities are exposed to more environmental hazards than others, and may suffer higher rates of health problems.

These communities often have less economic or political power in society when decisions are made. For example, toxic waste dumps, polluting factories, and busy highways are often built in lower-income neighborhoods or communities of color.

The 6 Themes of Environmental Health: Healthy People 2020

The Healthy People 2020 Environmental Health objectives focus on 6 themes, each of which highlights an element of environmental health:

- 1) Outdoor air quality
- 2) Surface and ground water quality
- 3) Toxic substances and hazardous wastes
- 4) Homes and communities
- 5) Infrastructure and surveillance
- 6) Global environmental health

