

EPIDEMIOLOGIC TRIAD

LEARNING OBJECTIVES

- Describe four theories postulated for the development of diseases
- Explain the concept of iceberg phenomenon of diseases

DEVELOPMENT OF DISEASES



DISEASE

REASON OF STUDYING CAUSAL MODEL

Studying how different factors can lead to ill health



Generate knowledge



Disease prevention and control

PRIMITIVE AND MIDDLE AGE THEORIES

“Supernatural cause”



Evil spirits

”Punishment”



Gods

“Contagion theory”
sick



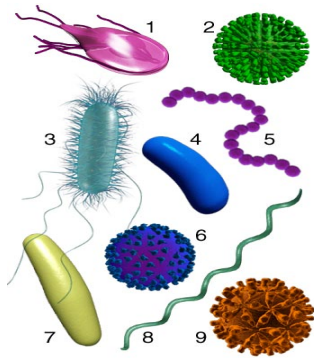
Contact with the

“Miasma”

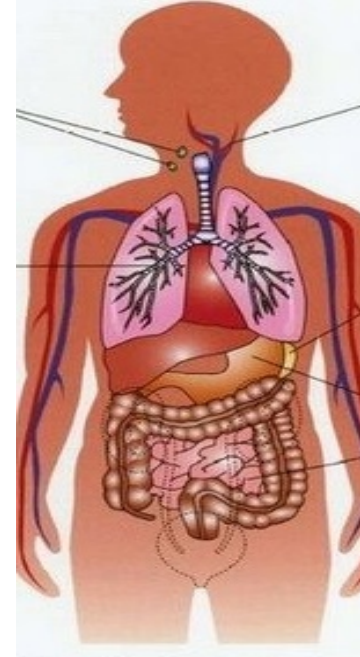


Bad air/poisonous

GERM THEORY

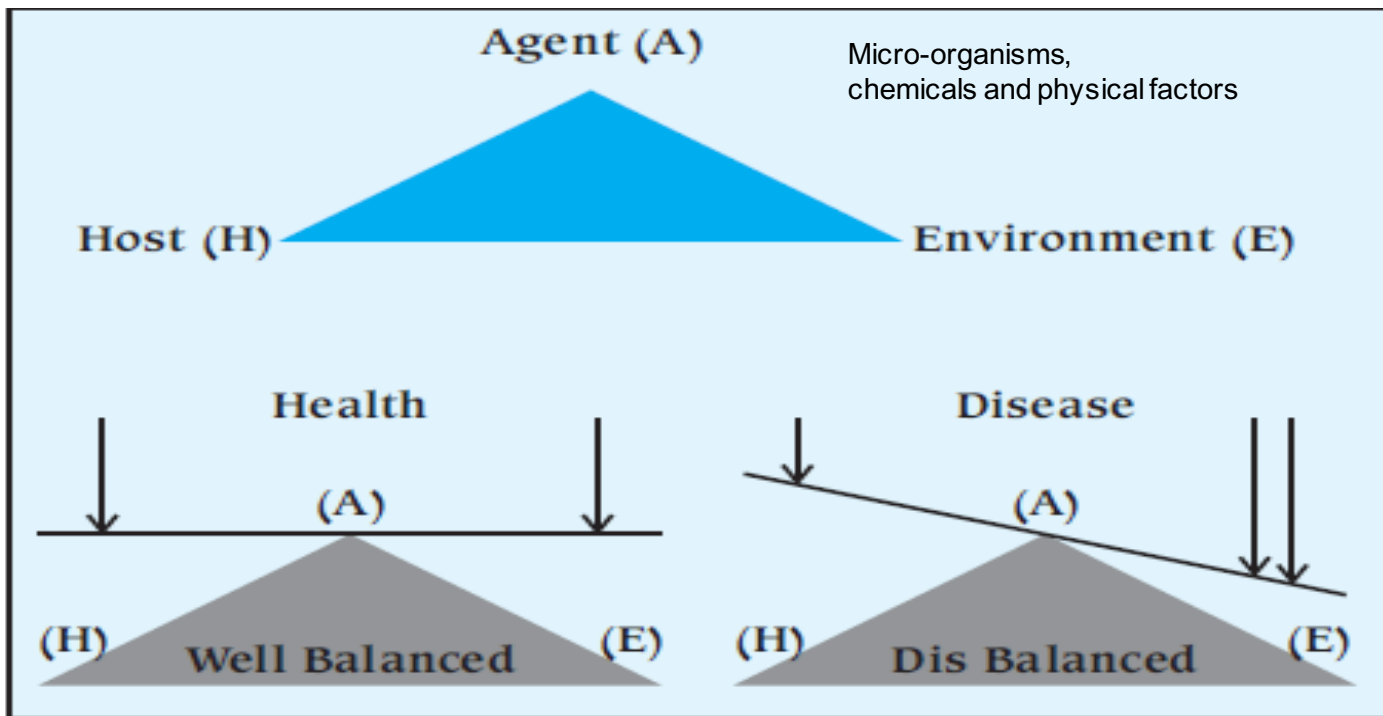


+

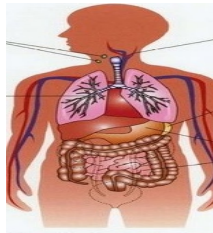


= DISEASE

EPIDEMIOLOGIC TRIAD



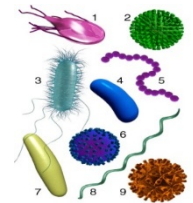
EPIDEMIOLOGIC TRIAD



Host



Environment



Agent

Intrinsic factors

- Age
- Sex
- Ethnicity
- SES
- Life style
- Nutrition status
- Hygiene



Extrinsic factors (physical/social environment)

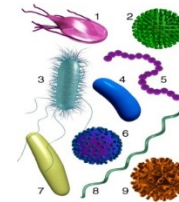
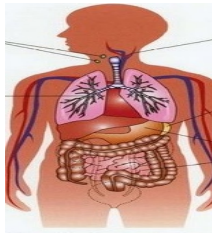
- Urbanization
- Climate/rainfall
- Altitude
- Overcrowding
- Bad ventilation
- Indoor air pollution
- Health services



Necessary/not enough

- Number
- Virulence
- Resistance

EXAMPLE: EPIDEMIOLOGIC TRIAD



Intrinsic factors

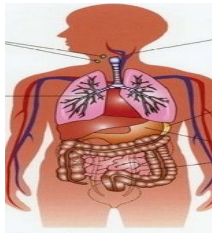
Extrinsic factors

Necessary/not enough



What are the factors that determine the occurrence of pulmonary tuberculosis?

EPIDEMIOLOGIC TRIAD: BROADENING THE CONCEPT OF AGENT



Host



Environment



Intrinsic factors

- Age
- Sex
- Ethnicity
- SES
- Life style
- Nutrition status
- Hygiene



Extrinsic factors (physical/social environment)

- Urbanization
- Climate/rainfall
- Altitude
- Overcrowding
- Bad ventilation
- Indoor air pollution
- Health services



Necessary/not enough

- Micro-organisms
- Chemical:
poisons, tobacco, drugs
- Physical:
Radiation, temperature
- Allergens:
Food and air

EPIDEMIOLOGIC TRIAD: BROADENING THE CONCEPT OF AGENT

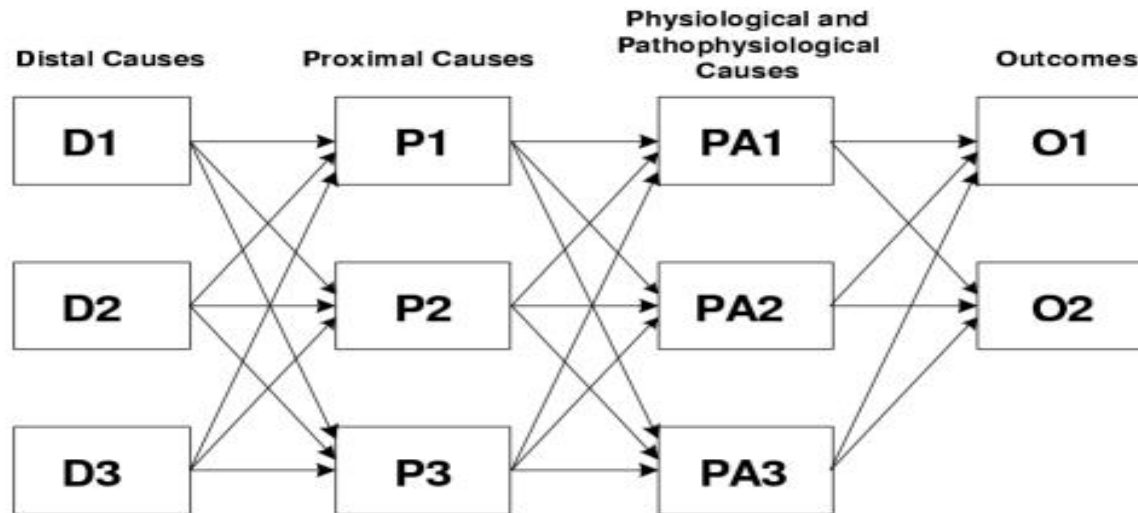


Chemical contaminants: l-tryptophan contaminant causing eosinophilia-myalgia syndrome

Physical forces: Repetitive mechanical forces associated with carpal tunnel syndrome

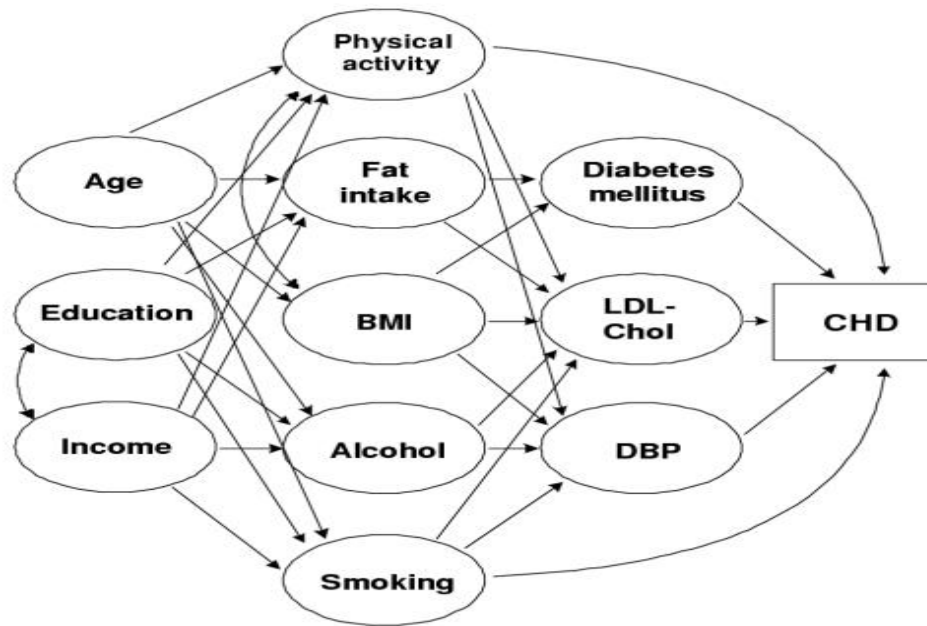
Model limitation: Does not work well for some noninfectious diseases as it is not always clear whether a particular factor should be classified as an agent or as an environmental factor

WEB CAUSATION



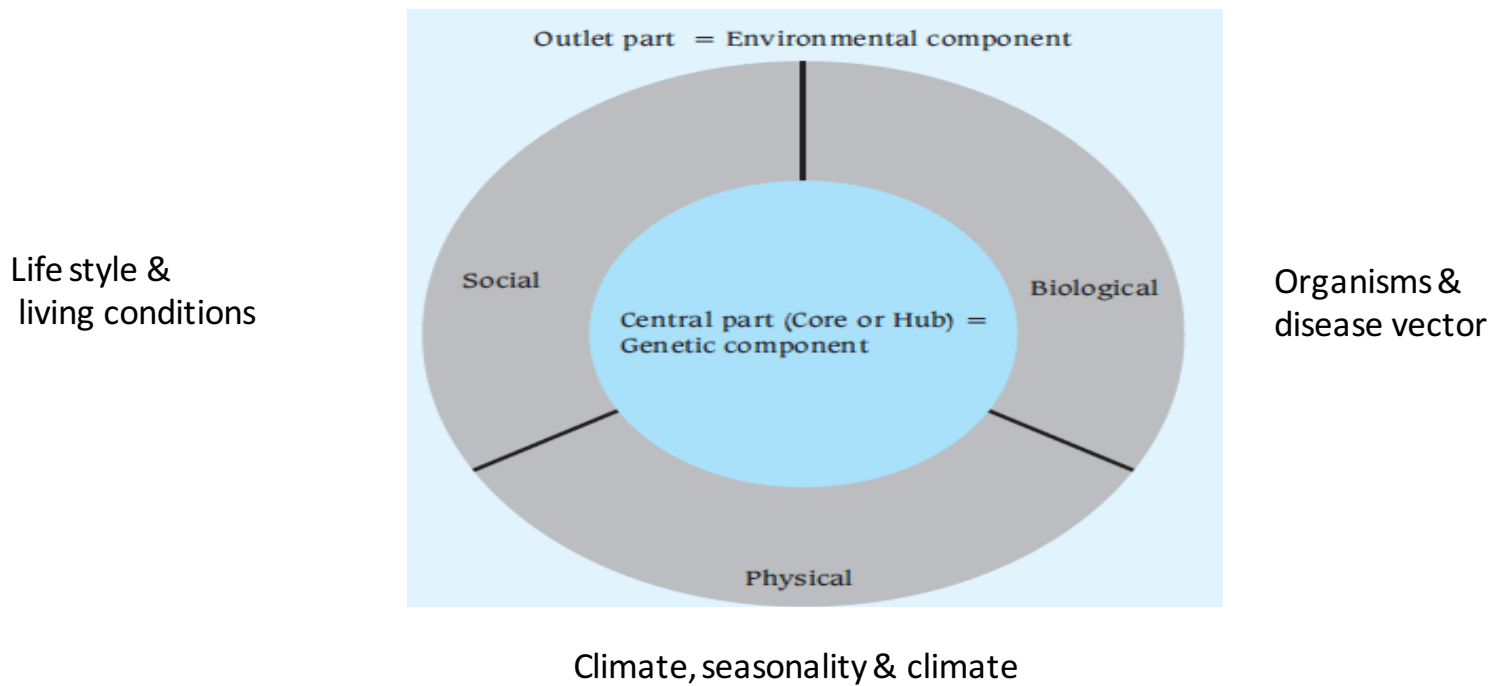
Web causation model de-emphasize the role of the agent

WEB CAUSATION: CORONARY HEART DISEASES

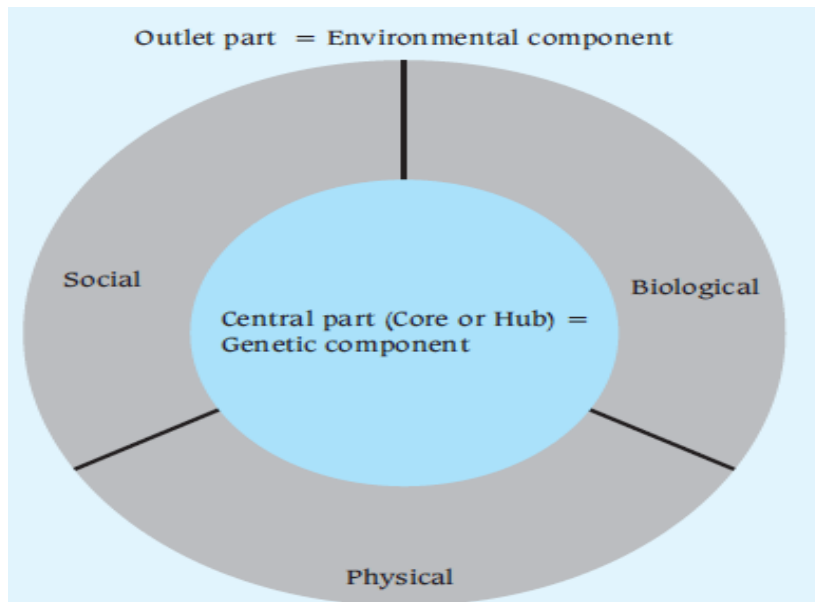


Web causation model de-emphasize the role of the agent

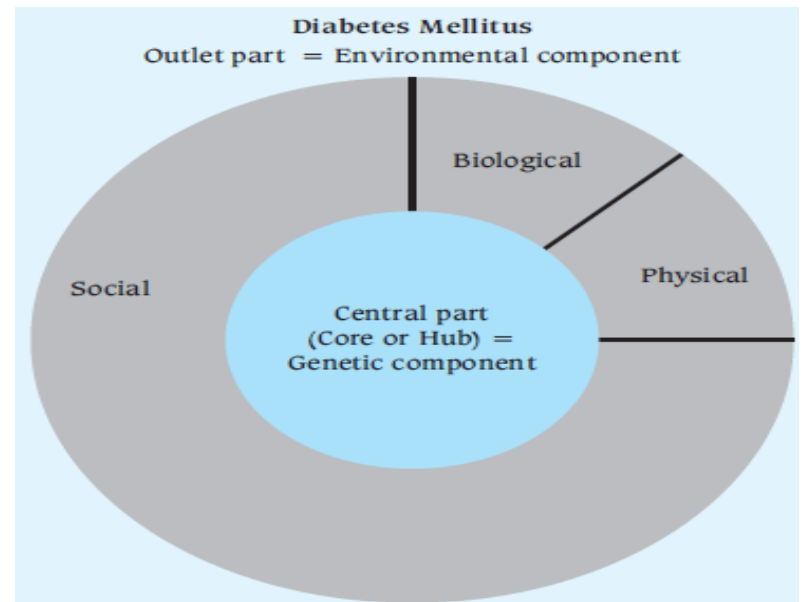
EPIDEMIOLOGIC WHEEL



EPIDEMIOLOGIC WHEEL

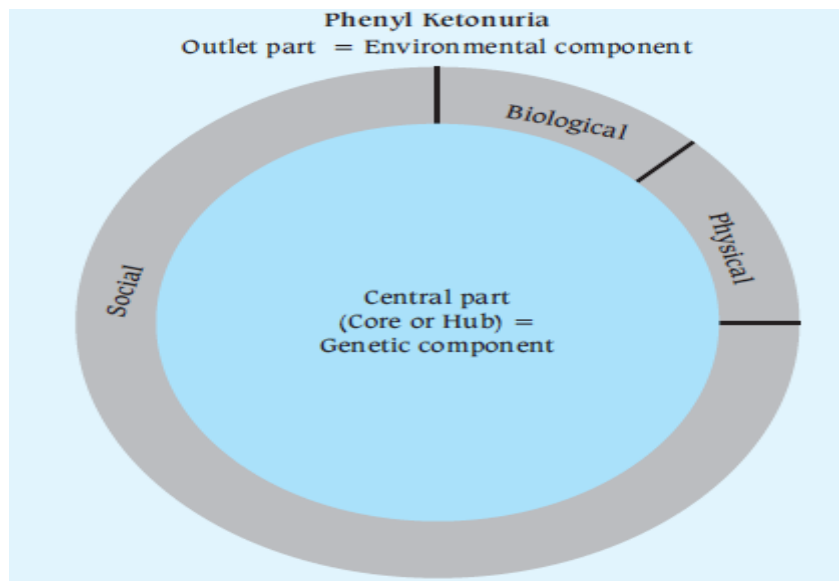


POSTULATED MODEL

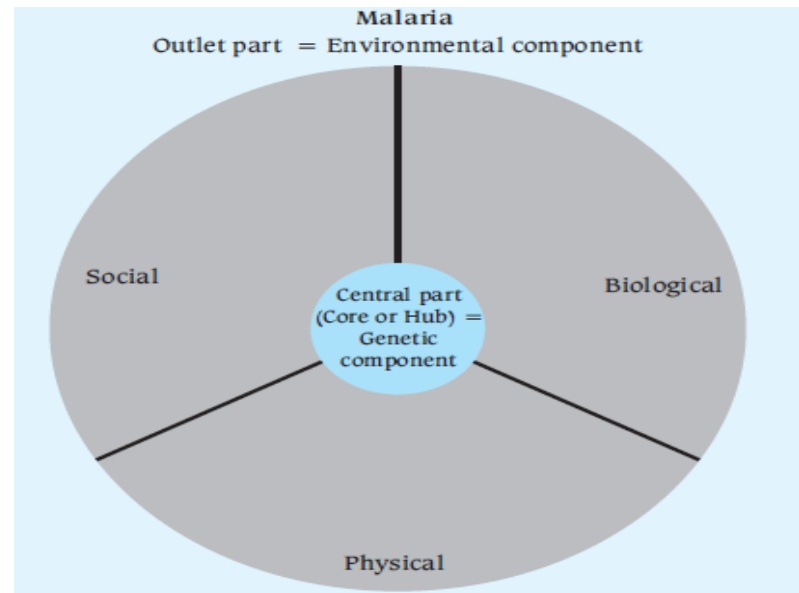


DIABETES MELLITUS

EPIDEMIOLOGIC WHEEL

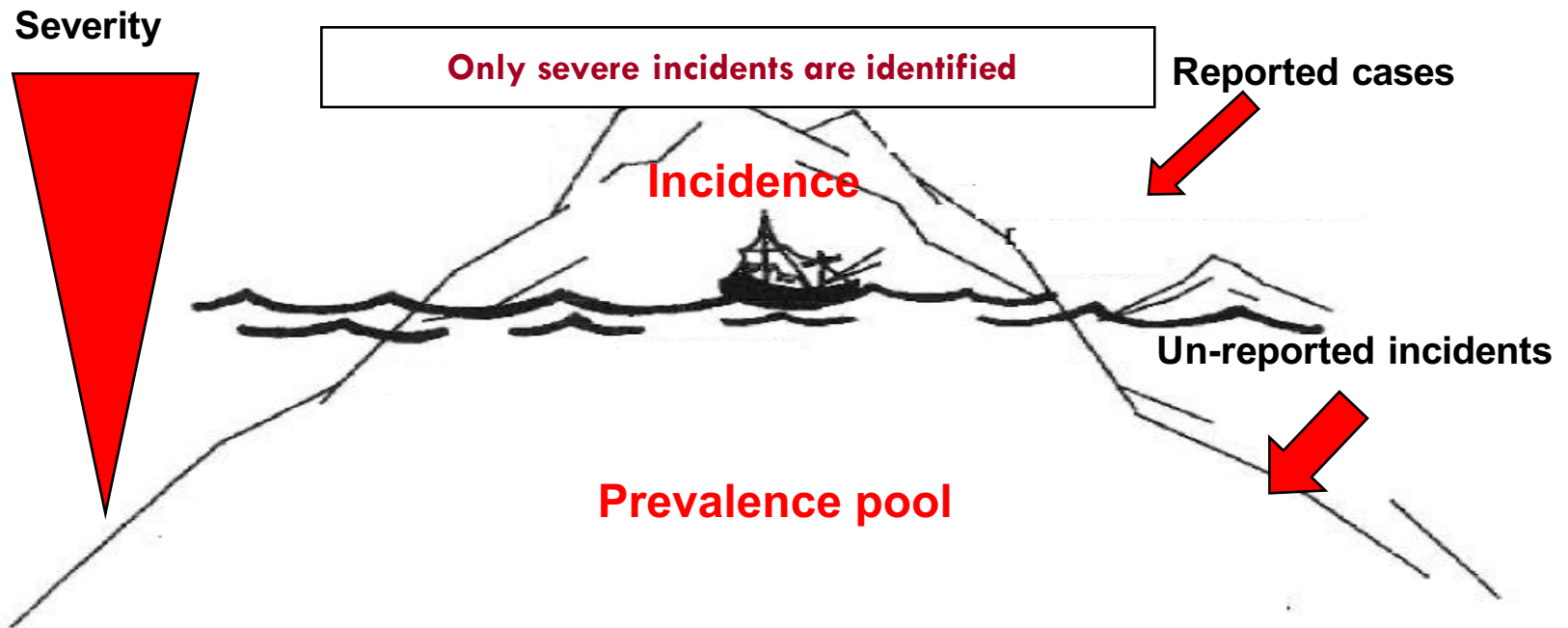


PHENYLKETONURIA



MALARIA

ICEBERG PHENOMENON



REFERENCES

- Principles of Epidemiology in Public Health Practice. *Third Edition*. An Introduction to Applied Epidemiology and Biostatistics. Centers for Disease Control and Prevention (CDC)
- Gordis L. Epidemiology. 2009