Introduction to Epidemiology

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Learning Objective

- Define the term epidemiology
- Discuss historical context and evolution of epidemiology
- Describe characteristics of epidemiologic approach
- List uses of epidemiology
- Discuss the application of epidemiology to different areas of health practices

What is Epidemiology? Objectives and Components:

Basic science of Public Health

Epidemiology defined…..

- *Epidemiology* originates from the Greek words, ***epi*** (upon) + ***demos*** (people) + ***logy*** (study of)

- The study of the **distribution** and **determinants** of **health related events** in specified-**populations** and application of this study to **control of health** problems

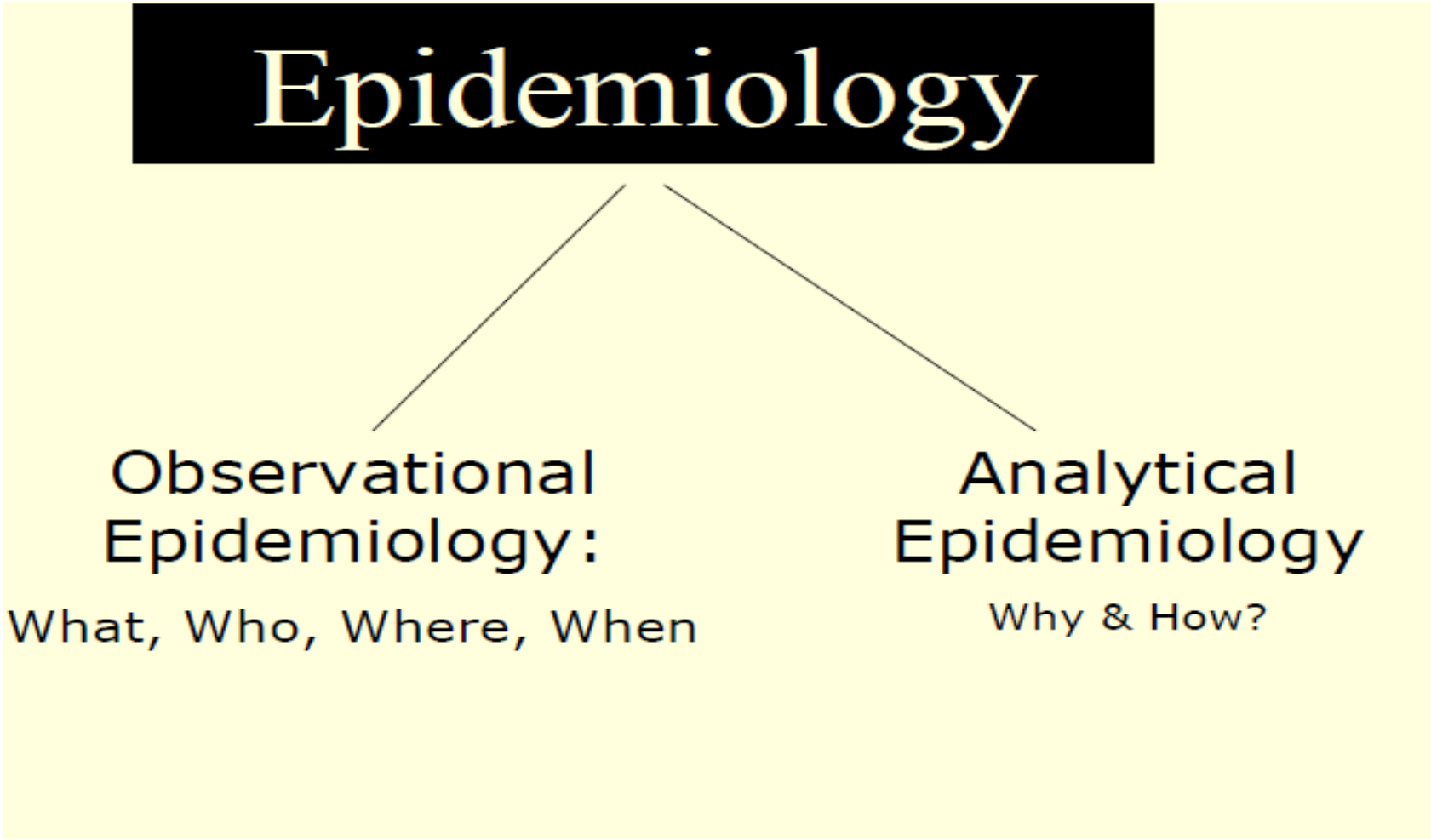
Key Aspects of Definition

- Distribution
- Determinants
- Population
- Health phenomena
- Prevention and Control

Epidemiology Defined: Key Aspects

- **Distribution**: Frequency (including rates & risks) & pattern of health events (person, place, time)
- **Determinants**: Factors or events that are capable of bringing about a change in health
- **Population**: Epid examines health events among population groups rather than individuals
- **Health-related events**: infections, chronic diseases & physiological events & various states of health such as disability, injury, mortality
- **Application**: Basis for directing interventions

Components of Epidemiology

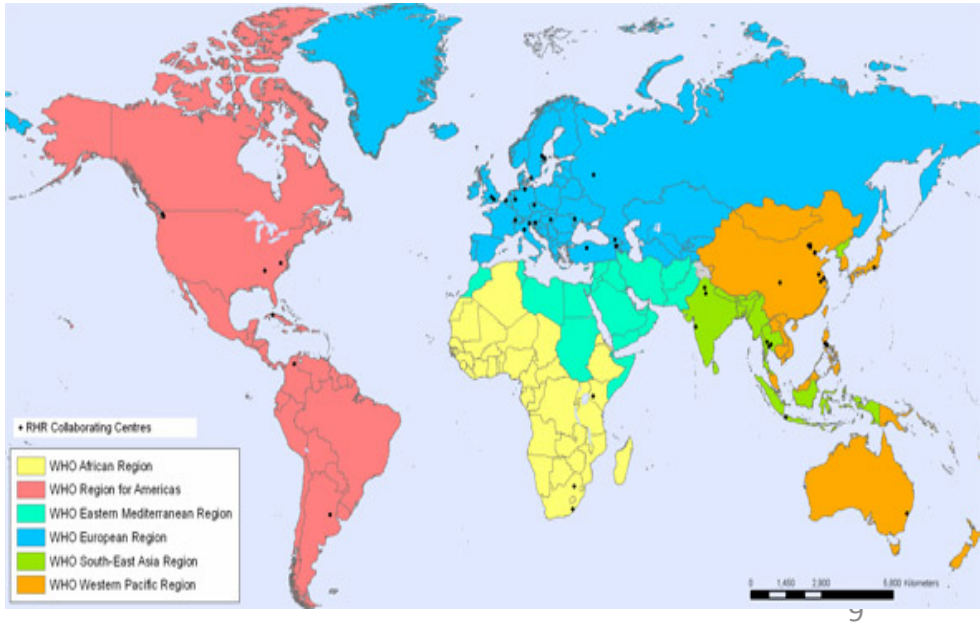


Descriptive Epidemiology

Describing the distribution of the cases in terms of place, person and Time

Place Distribution

- A International variations
- B. National variations: Goiter belt, Meningitis
- C. Rural-urban differences: Zonotic diseases
- D. Local distributions



Person Distribution (Who?)

Personal characteristics associated with diseases-

- AGE
- SEX
- OCCUPATION
- INCOME
- SOCIO-ECONOMIC STATUS
- ETHNICITY
- RELIGION
- LIFESTYLE- Use of alcohol, behavior, smoking e.t.c.

Time Distribution (When?)

- SHORT TERM TRENDS-
- SEASONAL OR CYCLIC TRENDS: Measles
- LONG TERM OR SECULAR TRENDS

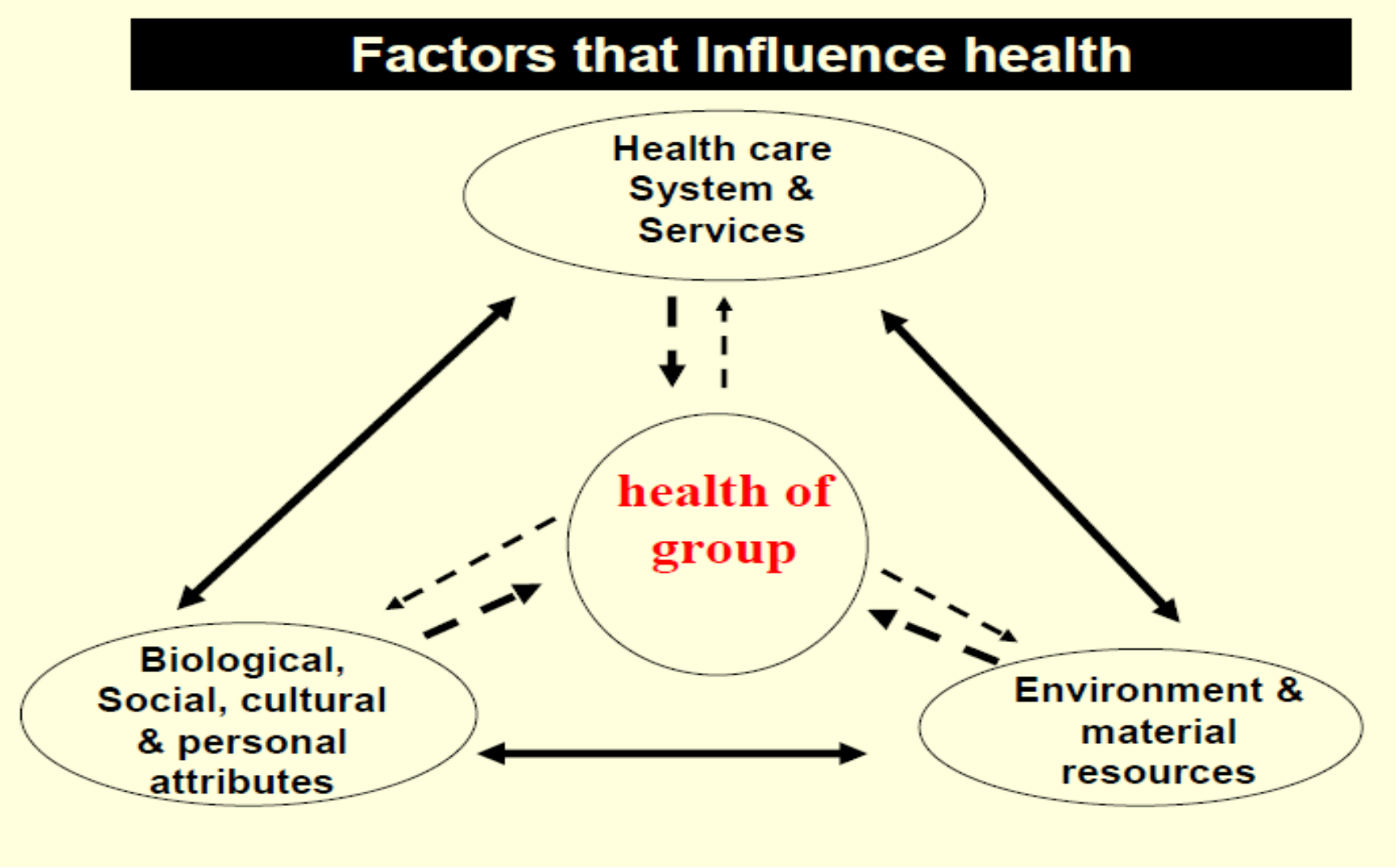
Characteristics frequently examined

Time	Place	Person	
Year, season	Climatic zones	Age	Birth order
Month, week	Country, region	Sex	Family size
Day, hour of onset	Urban/ rural Local community	Marital state	Height Weight
Duration	Towns Cities Institutions	Occupation Social status Education	Blood pressure Blood cholesterol Personal habits

Analytical Epidemiology

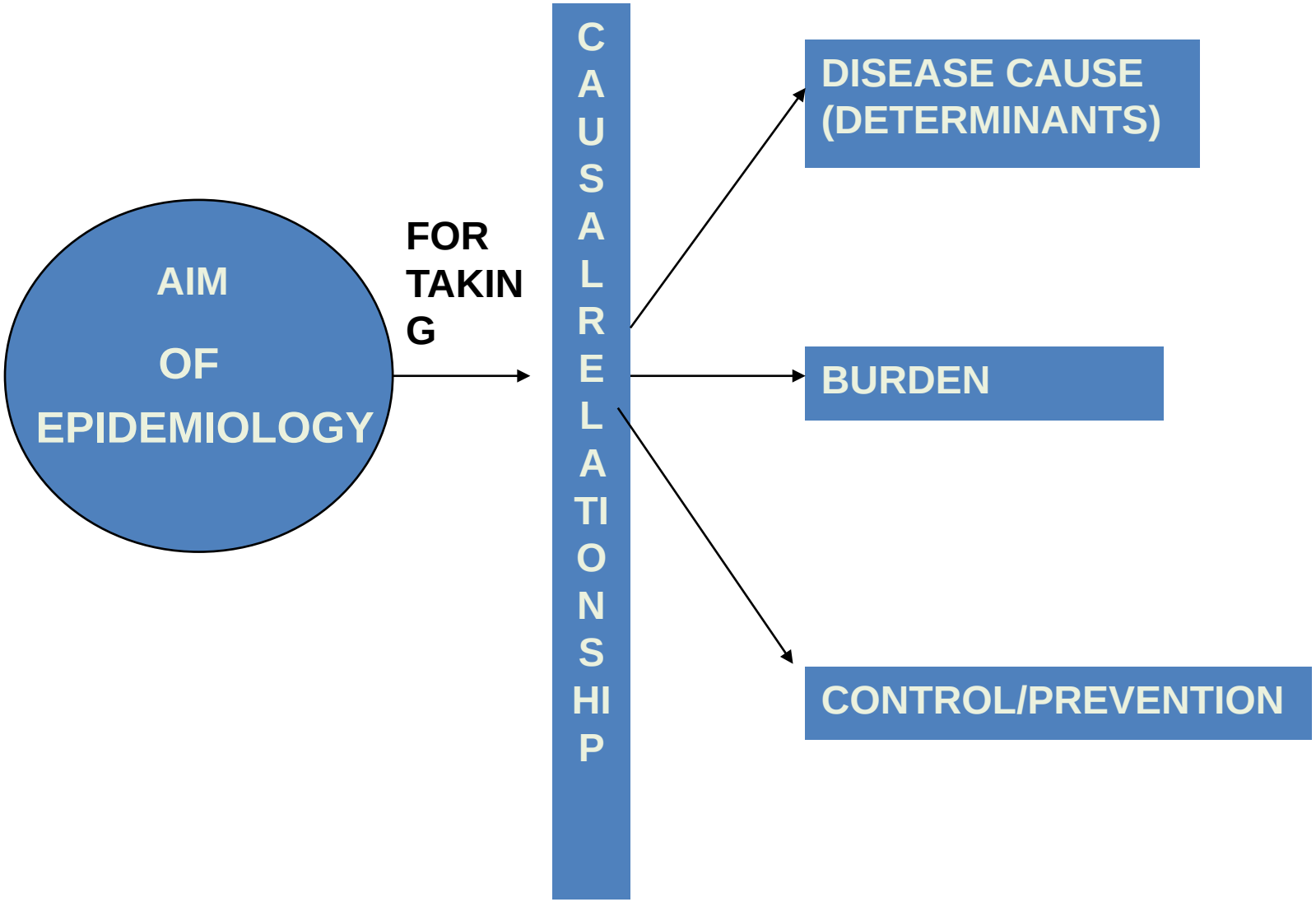
Focus on the determinant factors i.e why and how?

Determinants factors



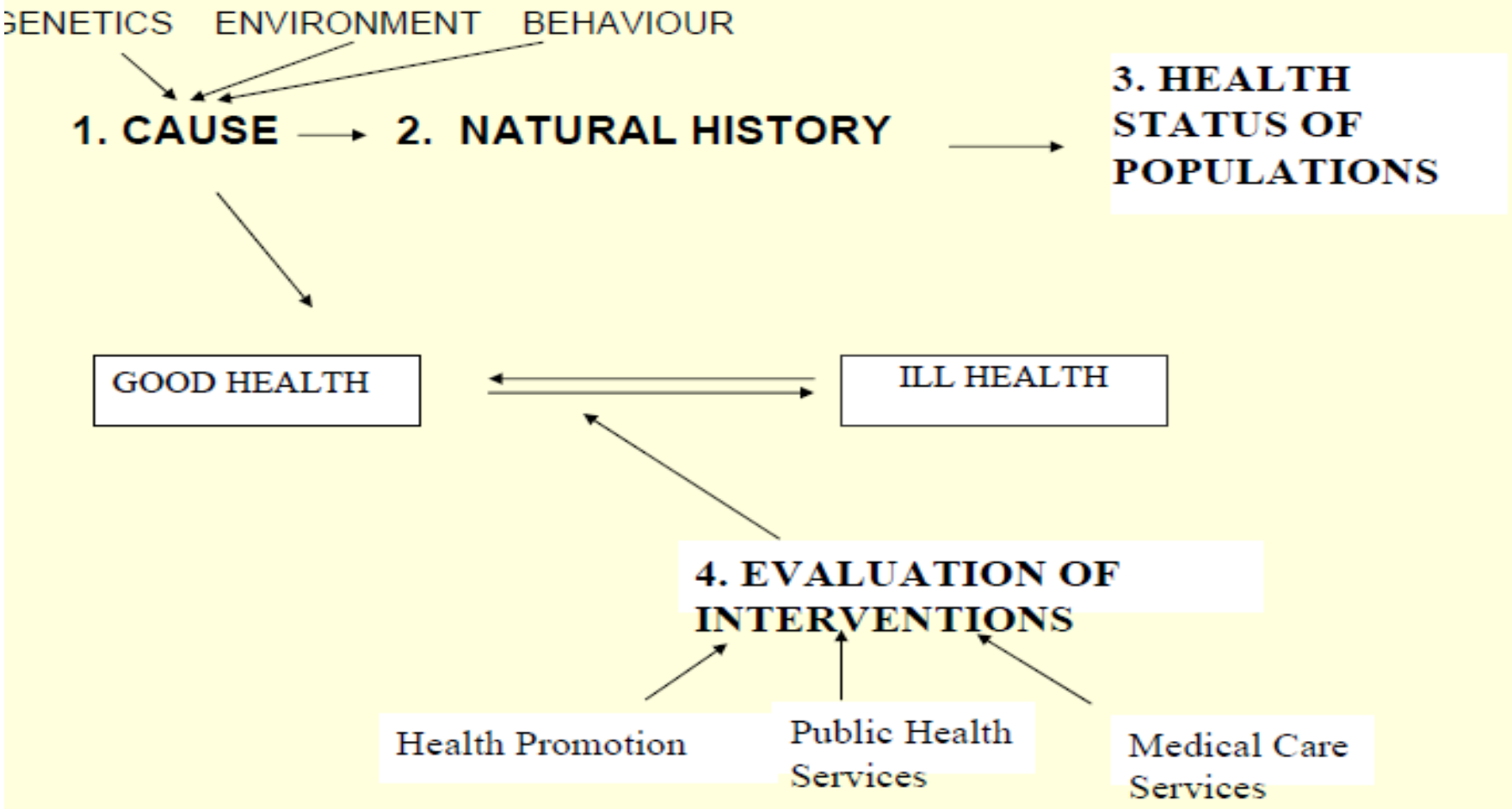
Objective of Epidemiology

OBJECTIVES OF EPIDEMIOLOGY



Uses of Epidemiology

Uses of Epidemiology



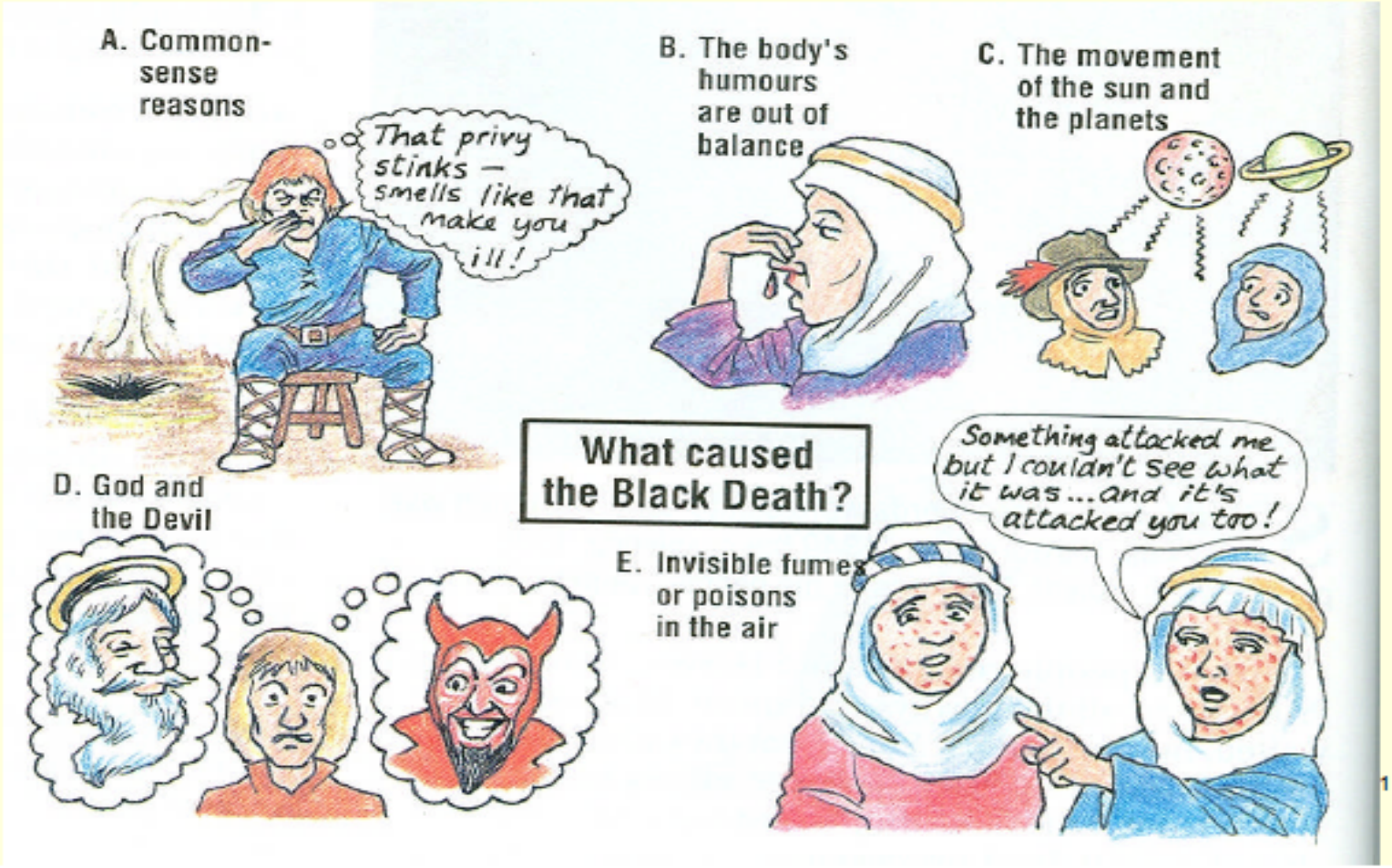
Questions

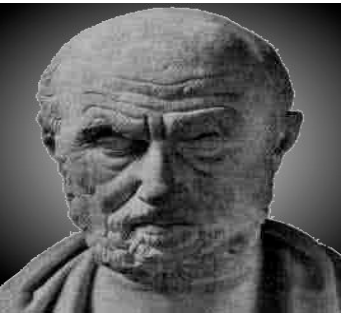
- What is Epidemiology and its component?
- What are the factors that influences health of group of people (Population)?
- Differentiate between person, place and Time distribution of diseases?
- Differentiate between observational and analytical epidemiology
- List 4 uses of Epidemiology

Historical Context and Evolution of Epidemiology

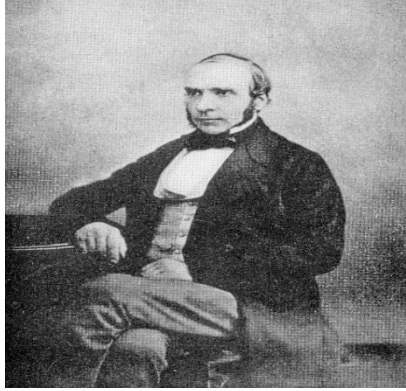
Pioneers in Field of Epidemiology

Disease Causation thro' the Eyes of History: The Black Death





Historical Antecedents



Environment and diseases:

- **Hippocrates**: movement from supernatural explanation but linked with physical environment.
- **John Snow (1813-1858) -** father of **modern epidemiology**, Linked **cholera** to where people lived and work in broad street, London. It shows contaminated water linked to cholera

Pioneers in Field of Epidemiology

- **Percival Pott (1714-1788) -** observe association between soot and scrotal cancer.
- **William Farr (1807-1883)-** classifies causes of death. Report shows relationship between contaminated water and cholera outbreak in 1849. further classifies cholera death.
- **Edwin Chadwick (1800-1890)-** Improved sanitation leads to improved health outcome.

Pioneers in Field of Epidemiology

- **Girolamo Fracastaro** (**1478 – 1553**) - Disease transmitted by direct contact with contaminated air

- **James Lind (1716-1794)-** interested in cause of Scurvy linked to Vit C deficiency among sailors

Question

- Mention 5 pioneers and their discoveries in relation to epidemiology.

Research areas where Epidemiology is applied

Integral part of every part of public health.

Applied Epidemiology

- Infectious diseases
- Environmental health
- Chronic diseases
- Lifestyle and health promotion
- Psychiatric and social epidemiology
- Molecular and genetic epidemiology
- Public health policy
- Health behaviour