Epidemiologic Transition Model

APHG

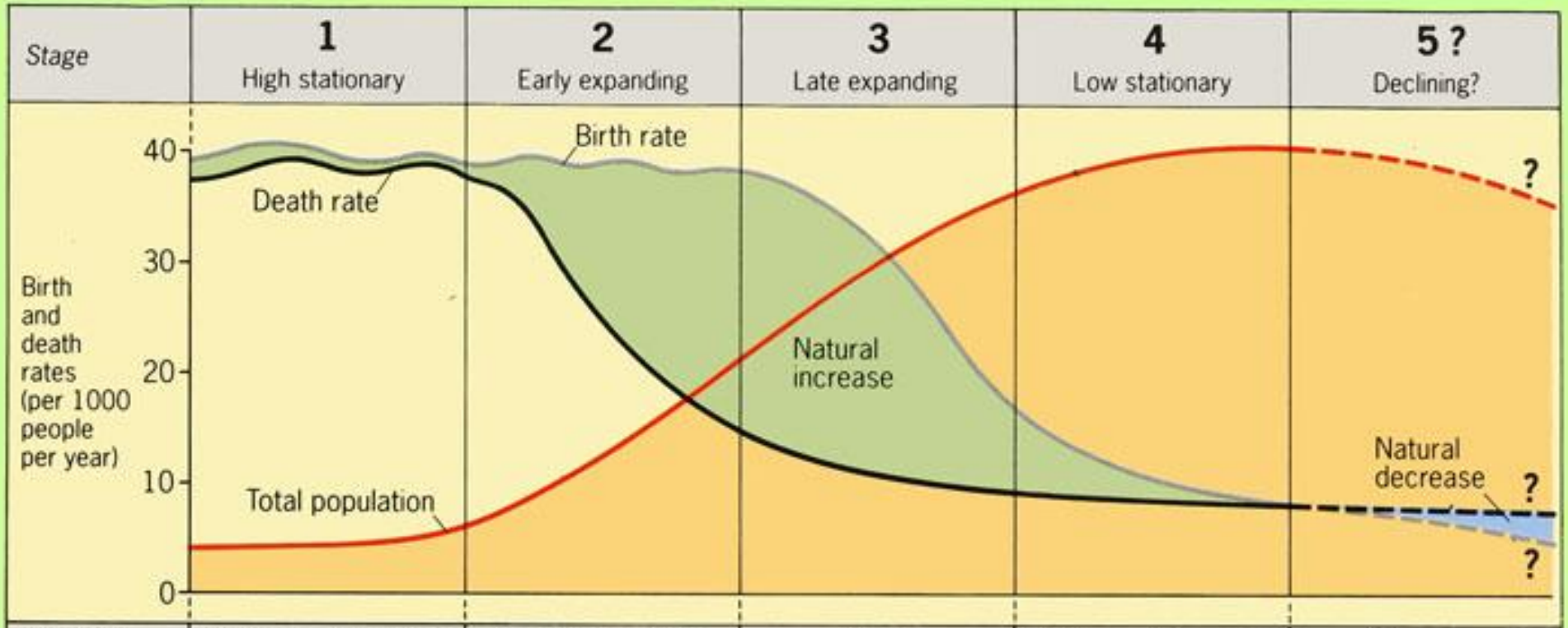
Unit 2

What is the epidemiologic transition?

- Distinctive cases of death in each stage of the demographic trans. model
- Comes from epidemiology (branch of medical science concerned with the incidence, distribution and control of diseases that affect large numbers of people)

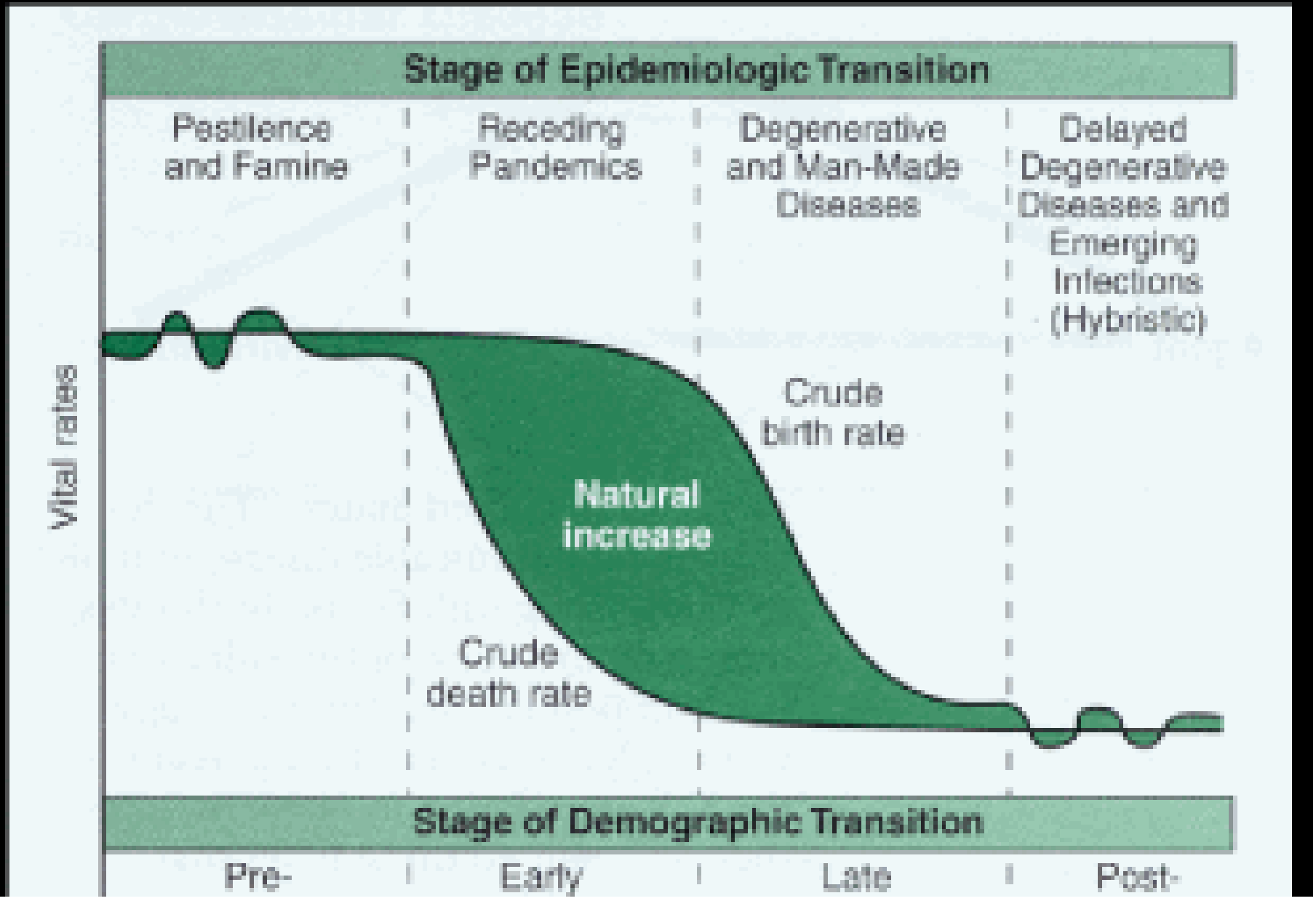
Continue…

- Epidemiologists rely heavily on geographic concepts like scale and connectivity because control of an epidemic comes from understanding distinctive distribution and method of diffusion



Stage	1 High stationary	2 Early expanding	3 Late expanding	4 Low stationary	5? Declining?
Examples	A few remote groups	Egypt, Kenya, India	Brazil	USA, Japan France, UK	Germany
Birth rate	High	High	Falling	Low	Very low
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down	Stable or slow increase	Slow decrease
Reasons for changes in birth rate	Many children needed for farming. Many children die at an early age. Religious/social encouragement. No family planning.		Improved medical care and diet. Fewer children needed.	Family planning. Good health. Improving status of women. Later marriages.	
Reasons for changes in death rate	Disease, famine. Poor medical knowledge so many children die.	Improvements in medical care, water supply and sanitation. Fewer children die.		Good health care. Reliable food supply.	

Figure 3 Demographic/ Epidemiologic Transition Framework



What is stage 1 of the ETM?

- Defined by Abel Omran in 1971
- Known as stage of pestilence and famine
- Infections, parasitic diseases, accidents, animal and human attacks were principal causes of human death
- T. Malthus called these “natural checks” on the growth of human population in stage 1 of the demographic transition model

Continue Stage 1…

- The Black Plague is stage 1
- Example of disease diffusion
- Said to have started in Kyrgyzstan and brought by a Tatar army when it attacked an Italian trade outpost in present day Ukraine
- Retreating Italians brought the infected rats on their ships to other European coastal cities

What is in Stage 2?

- Called stage of receding pandemics (disease that occurs over a wide geographic area and affects a very high proportion of the population)
- I.E. Outbreak of cholera in crowded poor sanitized cities of the Industrial Rev.
- 1832: NYC lost 500,000 to cholera
- John Snow is known for mapping out and linking cholera source during a Great Britain outbreak to contaminated drinking water and showed that the poor were not being punished for “their sins”

Continued…

- Cholera was eradicated in the late 19th century however it reappeared a century later in growing cities of less developed countries as they moved into stage 2 of the DTM

What is Stage 3 & 4?

- Stage of degenerative diseases and human created diseases
- Characterized by a decrease in deaths from infectious diseases and an increase in chronic disorders associated with aging
- Two most important in this stage are heart disease (cardiovascular) and cancer

Continued…

- Stage 4 is an extension of stage 3
- Delay of degenerative diseases because of operations, medicine, better/preventive diets, etc.

Is there a Stage 5?

- Some argue that infectious and parasitic diseases are reemerging ; others just see it as a setback
- Reasons for this emergence:

  1. Evolution- microbes are immune to antibiotics, etc.

  2. Poverty- disease like TB are largely controlled in countries like US but still causing many deaths in less-developed countries

  3. Travel-disease diffusion (ex. SARS from China)

Vocabulary:

- Chronic diseases:
- Infectious diseases:
- Genetic diseases: