Brief Key to Epidemiology Midterm, Oct. 22, 2003

- Coverage: Chaps 1, 2, 3, & 6.

CHAPTER 1

1. Epi primarily a *-ology* / "study of" (with application, of course). Public health a combination of many different disciplines (including epi) directed toward organized effort.
2. Epi's primary unit is the group. Medicine's primary unit is the individual. (Comment: Both *epidemiology* to *medicine* seek to prevent disease (and the progression of disease) and improve treatment of disease. How do they *differ*?
3. *Demographic transition*: (a) decr mortality (b) decr fertility. Also OK to reference increase longevity, change in age distribution, etc.
4. *Epidemiologic transition* shift from acute + infectious morbidity/mortality to chronic and noninfectious.
5. *Epidemiology* = "study of" / health and disease / in populations / ± application . . .
6. *Terms* in correct order: epidemic, endemic, morbidity, mortality
7. (c) 1850
8. (a) heart disease
9. (c) pneumonia/influenza
10. (d) spiritual well-being
11. (d) white female, af am female, white male, af am male
12. (b) false
13. Names in correct order: Louis, Graunt, Snow, Farr

CHAPTER 2

14. (a) True
15. (b) secondary
16. (a) primary
17. (a) primary
18. first symptoms
19. prevent new occurrences of problems
20. *Incubation* begins with exposure to causal action of ultimate agent and ends with symptoms; problem is latent or subclinical during this interval.
21. Terms in correct order: induction period, latent period
22. Terms in correct order spectrum, iceberg, subclinical
23. (a) true
24. (c) non-necessary contributing
25. F
26. Correct order environmental, host, agent
27. (b) Subclinical
28. *interdependent* = factors acting together in the same causal pathway / causal mechanism. The factors are part of the same sufficient cause pie.
29. causal web = direct (downstream) and indirect (upstream) causes forming complex inter-relations in hierarchal fashion.

CHAPTER 3

30. Correct order: virus, protozoan, helminth, bacteria,
31. Example of *innate chemical* barriers: gastric acidity, physiologic enzymes , vaginal acidity, skin lipids, other biologically active molecules (e.g., interferons)
32. A zoonotic disease
33. Terms in correct order: reservoir, infection, infectious disease, contamination
34. vector is living (e.g., an insect)
35. modified-live vaccines contain agent that can self-replicate
36. (b) modified-live
37. (b) herd immunity
38. (a) true

39. disease control, esp. of emerging and re-emerging infectious diseases *or* to learn basic epi principals
40. (c) common vehicle spread
41. *portal* = entry or exit site from body
42.
    (a) *reservoir* = birds
    (b) *vector* = mosquitoes
    (c) shape determines antigenicity, and hence body's response (immunity)
    (d) *host factor* include advanced age and compromised immunity
    (e) environmental methods of control directed toward various forms of mosquitoe control (e.g., draining standing water)
    (f) surveillance includes early identification of [human] cases, examination of dead and living birds, and checking mosquitoes for evidence of the virus

CHAPTER 6

43.
    (a) *prevalence* on *Jan 1* = 1 / 7
    (b) *prevalence* on *Dec 31* = 2/ 7
    (c) *incidence proportion* = 2 / 6

44.
    (a) *prevalence* at *start* of follow-up = 10 / 150
    (b) *prevalence* at *end* of follow-up = 26 / 150
    (c) *incidence proportion* = 16 / 140
    (d) *incidence rate* = 16 / (140 ×5) alternative (better answer): *incidence rate* = 16 / [(124 ×5) + 16 × 2.5)]

45.
    (a) Crude birth rate per 1,000 = (300 / 25000) × 1000 = 12
    (b) Crude death rate per 1,000 = (250 / 25000) × 1000 = 10
    (c) Infant mortality rate per 1000 = (3 / 300) × 1000 = 10
    (d) Age-specific death rate in those over 65 years of age per 1000 = (125 / 750) ×

46.
    (a) risk = 1 person / 3 persons = 1 / 3
    (b) rate = 1 person / 12 person-years = 1 / 12 years
    (c) (a) dimensionless (pure number)
    (d) (b) inverse-time ("person-time")

47. (a) currently have the disease
48. (a) true
49. (a) it increases
50. (c) closed population
51. (b) 22.2 per 1000 p-yrs
52. (d) all of the above
53. Terms in correct order: incidence rate, incidence proportion, prevalence count, incidence count
54. *stationary* = open population with constant size and age distribution
55. when the disease is "rare" (risk ≤ 5%)