

# EPIDEMIOLOGY 227 FINAL EXAMINATION

June 9, 2009

Select the best answer for the multiple choice questions. There are 95 questions and 14 pages on the examination. Notify the instructor if your examination does not have 14 pages. Clearly indicate on the scan form the one best answer to each question among the answers provided. Be sure that you have selected your choice correctly on the scan form. Be sure that you have entered your name and identification number on the scan form and filled out the columns for the letters of your name and numbers of your identification number correctly (see front and back). Use a #2 pencil and fill all circles completely.

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1. The first formal ethical code for conducting research was:
  - a. The Declaration of Helsinki
  - b. The Nuremberg Code**
  - c. The Belmont Report
  - d. The Council for International Organizations of Medical Science
  
2. Which of the following first promulgated the three principles of ethical research: respect for persons, beneficence and justice?
  - a. The Declaration of Helsinki
  - b. The Nuremberg Code
  - c. The Belmont Report**
  - d. The Council for International Organizations of Medical Science
  
3. The key factor in conducting ethical research is:
  - a. Informed consent**
  - b. Beneficence
  - c. Justice
  - d. Respect for persons
  
4. Vulnerable and mentally ill persons should not be included in research because they cannot not make informed decisions:
  - a. True
  - b. False**
  
5. Confidentiality means that:
  - a. The identity of the participant is not recorded
  - b. The principal investigator and staff have guaranteed that identifying information will not be revealed**
  - c. The principal investigator does not know the identity of the participants
  - d. The funding agency does not know the identity of the participants.

6. The informed consent must always be signed to assure that the participant has been informed of all aspects of the proposed study and has willingly agreed to participate:
- True
  - False**
7. In order to receive funding from the National Institutes of Health for funding of studies in developing countries, the principal investigator must receive approval from an ethics committee that:
- Includes epidemiologists
  - Includes clergy from the local religions
  - Has received a federal-wide assurance**
  - Has been approved by the Minister of Health of the country
  - All of the above
8. All investigators and key staff must receive a certificate of completion of an approved ethics course before they can initiate a research study:
- True**
  - False
9. The definition of informed consent requires the following:
- Consent given by a competent individual
  - Who has received the necessary information
  - Who has adequately understood the information
  - Who considers the information and has arrived at a decision
  - Has not been subjected to coercion, undue influence or inducement, or intimidation
- All are required**
  - i, ii, iii, and v are required
  - i, ii, iii, and iv are required
  - ii, iii, iv, and v are required
  - None are required
10. Placebos may be used in clinical trials when:
- The alternative treatment is very expensive
  - There is no reasonably available alternative treatment**
  - The standard treatment is associated with a risk of adverse side effects
  - All of the above
  - a. and c. above
11. Which of the following conditions is ethically required for a clinical or intervention trial in a developing country?
- Provide the treatment/intervention to the control group if successful
  - Evaluate only interventions that could potentially be used in the country
  - Provide treatment for any adverse outcomes resulting from participating in the trial
  - All of the above**
  - a. and b. above

12. Injection drug use is NOT a problem in which of the following?
- China
  - Southeast Asia
  - The Pacific Islands**
  - South America
  - The United States
13. Injecting drug users remain a part of their family and their community in which of the following?
- The United States
  - China
  - Southeast Asia
  - All of the above
  - b. and c. above**
14. Harm reduction refers to:
- Detoxification and rehabilitation
  - Reducing the risk of HIV, HCV and HBV infection**
  - Reducing sexual risk behaviors among injecting drug users
  - Training in safe injecting procedures
  - a. and d. above
15. The countries with the most injectors are:
- The U.S., Australia and Switzerland
  - Russia, Thailand and Vietnam
  - China, the U.S. and Russia**
  - Russia, Hungary and Myanmar
  - Australia, New Zealand and Fiji
16. The primary objective of needle exchange programs is to:
- Reduce the reservoir of infected needles and syringes in the drug network**
  - Persuade drug users to stop sharing needles and syringes
  - Reduce the risk to HIV-infected drug users
  - All of the above
  - b. and c. above
17. Which of the following countries in Southeast Asia does not have an injecting drug problem?
- Thailand
  - Myanmar
  - Vietnam
  - Indonesia
  - Laos**

18. The proportional (%) increase in HIV prevalence at the end of the 20<sup>th</sup> century was greatest in:
- North and South America
  - China, India, Indonesia and Russia**
  - Uganda, Haiti and Nigeria
  - Philippines, Australia and New Zealand
  - Italy, France and Germany
19. The estimated number of new AIDS cases in the United States declined sharply during:
- 1990-91
  - 1995-96**
  - 2000-01
  - 2006-07
  - 1985-86
20. For which of the following groups is the percent of all HIV/AIDS cases increasing most rapidly in the United States?
- Injection drug users
  - High-risk heterosexuals**
  - Men who have sex with men
  - Female sex workers
  - Pregnant women
21. In which ethnic group in the U.S. is HIV/AIDS increasing most rapidly?
- White, non-Hispanic
  - Hispanic
  - Black, non-Hispanic**
  - Asian
  - American Indian/Alaska native
22. Which of the following activities is associated with the highest risk of HIV infection?
- Receptive vaginal intercourse
  - Receptive anal intercourse**
  - Insertive anal intercourse
  - Insertive vaginal intercourse
  - Oral intercourse
23. Which of the following is/are a marker of a generalized HIV epidemic?
- Infected pregnant women**
  - Infected sex workers
  - Infected drug users
  - Plasma donors
  - All of the above
24. Early in an HIV epidemic, the number of HIV-infected individuals will:
- Exceed AIDS cases**
  - Equal AIDS cases
  - Be fewer than the number of AIDS cases

25. A “concentrated HIV/AIDS epidemic” is defined as a:
- Concentration of HIV infection among pregnant women
  - Concentration of HIV infection among behavioral risk groups**
  - Concentration of AIDS cases among children
  - Concentration of HIV/AIDS cases among defined ethnic groups
  - Concentration of HIV/AIDS cases in a specified geographic area
26. Syphilis and gonorrhea are considered surrogate markers of risky sexual behavior:
- True**
  - False
27. Injecting drug users in Los Angeles are less likely to be HIV-infected than drug users in New York because:
- They use “black tar”**
  - They use “China white”
  - They infect less frequently than drug users in New York
  - They wash their needles after every use
28. Drug users in opioid replacement programs have fewer sexual partners than drug users not in replacement programs:
- True**
  - False
29. Metamphetamine taken orally does not increase the risk of HIV infection:
- True
  - False**
30. “Contingency management” refers to:
- Providing drug treatment in emergency situations
  - Providing opioid replacement therapy when the drug users can’t get drugs
  - Paying drug users for urine that is free of drugs**
  - Paying drug users to stop using drugs when the county has funds available
31. “PrEP” refers to:
- Strategies to dissolve heroin before injecting
  - Taking antiretroviral drugs before engaging in high-risk activities**
  - Taking antiretroviral drugs immediately after engaging in high-risk activities
  - Drawing heroin solution into the syringe prior to injecting
32. The least cost-effective strategy for controlling spread of HIV is targeting:
- Persons with HIV infection
  - High-risk individuals
  - At-risk individuals
  - Low-risk individuals**

33. If the prevalence of HIV in a community is 10%, at what level will pooling of 10 specimens for testing become more expensive than individual testing?
- 1-2%
  - 5-6%
  - 9-10%**
  - 24-25%
  - Pooling is never less expensive
34. Structural factors facilitating HIV prevention are:
- Policies, legislation, availability of condoms**
  - Behavior, local customs
  - Prevalence of sex workers
  - Prevalence injecting drug users
  - Prevalence of drug providers
35. The average “effect size” (% change) resulting from behavioral interventions is:
- 5%
  - 10%
  - 30%**
  - 60%
  - 90%
36. “Framing” the intervention appropriately is key to success:
- True**
  - False
37. Using the media to convey intervention messages typically has an “effect size” of:
- 1-2%**
  - 10%
  - 30%
  - 60%
  - 90%
38. Behavioral interventions need to:
- Identify the specific actions that are required
  - Address structural barriers
  - Build cognitive, affective and behavioral self-management skills
  - All of the above**
  - a. and c. above
39. The advantage of biologic interventions such as circumcision, vaccination, etc. is that they do not depend on behavioral factors:
- True
  - False**
40. Evidence shows that abstinence-only programs delay sexual debut, rates of unprotected sex, teen pregnancy, and prevalence of STDs:
- True
  - False**

41. The highest priority of the 2009 financial year U.S Federal budget request for HIV/AIDS is:
- Prevention of HIV/AIDS
  - Global programs for HIV/AIDS
  - Housing for HIV patients
  - Research
  - Treatment of HIV/AIDS**
42. Qualitative research seeks to answer the question “why?”, whereas epidemiologic research often seeks to answer the question “how many?”
- True**
  - False
43. Which of the following is/are common strategies for collecting qualitative data?
- In-depth interviews of individuals
  - Focus group discussions
  - Participant observation
  - All of the above**
  - a. and b. above
44. The individual in-depth interview is a very useful tool for collecting information when which of the following are true?
- Topic is complex
  - Topic is sensitive
  - Geographically dispersed respondents
  - Peer pressure and social desirability can affect validity
  - All of the above**
45. African-Americans in the U.S. account for:
- 60% of infected women
  - 59% of children less than 13 years old
  - 59% of heterosexual persons at risk
  - All of the above**
  - a. and c. above
46. The highest rate of HIV infection among African-Americans is in:
- Alabama
  - Georgia
  - Washington, D.C.**
  - Mississippi
  - Florida
47. The differential rate of HIV infection between African-Americans and European-Americans is greatest for:
- Men
  - Women**
  - Children less than 13 years old
  - Residents of Idaho

48. What proportion of African-American men will be imprisoned during their lifetime?
- 6%
  - 17%
  - 33%**
  - 57%
  - 92%
49. Men on the “downlow” have sex:
- With men and women**
  - In low-class establishments
  - Only with men
  - Dress like women
  - With nobody
50. According to the young men’s survey what proportion of HIV-infected African-American men 15-24 years old are unaware that they are infected?
- 17%
  - 39%
  - 67%
  - 78%
  - 91%**
51. The rate of transmission of a sexually transmitted disease is related to:
- Efficiency of transmission of the agent
  - Mean rate of partner change
  - Duration of infectiousness
  - All of the above**
  - a. and b. above
52. According to Busch MP, Kleinman SH, Nemo GJ (*JAMA* 2003; 289:959-962), the current risk of receiving an HIV-infected unit of blood in the U.S. is:
- 1:676,000
  - 1:103,000
  - 1:1,800,000**
  - 1: 900,000
53. The first step for reducing transmission of HIV and other pathogens through blood in resource-poor countries is to:
- Reduce the unnecessary use of whole blood**
  - Screen blood donors
  - Screen blood donations
  - Accept blood donations only from nuns
  - Accept blood only from pre-adolescent girls

54. What proportion of new HIV infections occur in low- and middle-income countries?
- a. 10%
  - b. 25%
  - c. 67%
  - d. 75%
  - e. **>90%**
55. Serial monogamy confers a greater risk of HIV transmission than concurrency:
- a. True
  - b. **False**
56. Which of the following mixing patterns confers the greater risk of HIV transmission in the community?
- a. Assortive mixing
  - b. **Disassortive mixing**
  - c. Monogamy
57. The major determinant of the likelihood of transmission from an HIV-infected person is:
- a. Gender of the infected individual
  - b. Stage of HIV disease in the infected individual
  - c. **Viral load of the infected individual**
  - d. CD4+ level of the infected individual
  - e. CD4+ level of the uninfected partner
58. The replication of HIV takes place primarily in the:
- a. Peripheral blood vessels
  - b. **Lymphoid tissue**
  - c. Thymus
  - d. Pancreas
59. The long terminal repeat section of the viral genome is associated with initiating viral replication:
- a. **True**
  - b. False
60. Cells that carry both CD4 and CD8 receptors are most frequently found in:
- a. Memory cells
  - b. **Immature cells**
  - c. Senescent (old) cells
  - d. B cells
  - e. Antigen-presenting cells
61. The CD4+ cell provides help to:
- a. CD8+ cells
  - b. B-cells
  - c. CD3+ cells
  - d. All of the above
  - e. **a. and b. above**

62. "Core transmitters" are key to population-based control of sexually transmitted diseases:  
a. **True**  
b. False
63. The majority of HIV infection from mother to child in the absence of treatment occurs:  
a. In utero  
b. **During the birth process**  
c. During breast feeding  
d. Risk is equal in all the above stages
64. In countries with limited resources, the most effective regimen to give mothers prior to delivery to reduce HIV infection to their infants is:  
a. Nevirapine  
b. AZT  
c. **Nevirapine + AZT**  
d. Tetracycline  
e. Penicillin
65. In most very poor developing countries, the best strategy for avoiding HIV transmission from an infected mother to her uninfected baby in the first 6-8 months is:  
a. **Exclusive breast feeding, stopping at 6 months**  
b. Initiation of supplementary feeding at 3 months  
c. Exclusive breast feeding for three months and switching to formula  
d. Avoiding breast feeding
66. If untreated, the perinatal risk of transmission to an infant in Africa is:  
a. 5%  
b. 16%  
c. **40%**  
d. 68%  
e. 90%
67. Latino women in the United States expect their husband to have other sexual partners:  
a. **True**  
b. False
68. Which of the following factors contribute to Latina women's vulnerability to violence and STD infection?  
a. The "macho" culture  
b. Gender inequality  
c. Strong family ties  
d. All of the above  
e. **a. and b. above**
69. Almost half of Latinos infected with HIV were born in the United States:  
a. **True**  
b. False

70. What is the major risk factor for HIV infection among Latina women?
- Injection drug use
  - Multiple partners
  - Transfusions
  - Ear piercing
  - Their husbands/partners**
71. The proportion of HIV-infected persons diagnosed late in their disease course is lowest for which risk group?
- African-Americans**
  - European-Americans
  - Hispanic-American
72. Which of the following CDC categories of HIV infection constitute a diagnosis of AIDS?
- HV neurologic conditions
  - Opportunistic infectious diseases
  - Opportunistic cancers
  - All of the above**
  - b. and c. above
73. Early AIDS dementia is usually manifested by:
- Cognitive slowing
  - Motor slowing
  - Loss of memory
  - All of the above
  - a. and b. above**
74. In order to diagnose AIDS dementia, it is usually necessary to:
- Rule out depression
  - Observe a decline in cognitive functioning over time
  - Rule out schizophrenia
  - All of the above
  - a. and b. above**
75. Which strategy below focuses on identifying an individual in order to put her/him under treatment?
- Surveillance
  - Screening**
  - Sentinel surveillance
  - Monitoring
76. Elimination of smallpox from the world was due to:
- Development of a new vaccine
  - An infusion of money for childhood immunizations
  - Innovative use of surveillance to contain spread**

77. Which of the following is more important for surveillance?
- Precision
  - Timeliness**
78. The “window period” refers to:
- Time interval late in HIV infection, during which tests for HIV may be negative, although infection may still be transmitted
  - Time interval early in HIV infection, during which tests for HIV may be negative, but infection is not transmitted
  - Time interval early in HIV infection during which tests for HIV may be negative, but infection may still be transmitted**
  - Time interval early in HIV infection, during which tests for HIV may be positive, but infection will not be transmitted
79. Which of the following is the most functional epidemiologic design for implementing surveillance?
- Cohort
  - Cross-sectional
  - Serial cross-sectional**
  - Case reports
  - Case-control
80. The MACS is an example of which of the following types of studies?
- Unlinked anonymous
  - Voluntary anonymous
  - Voluntary confidential**
  - Mandatory
  - Compulsory
81. A major objective of many HIV surveillance programs is to stimulate political and social action:
- True**
  - False
82. Behavioral surveillance is useful for determining:
- The proportion of HIV-infected persons in a population
  - The level of risk of a population for an HIV epidemic
  - To predict future trends of an HIV epidemic
  - All of the above
  - b. and c. above**
83. The Morbidity and Mortality Weekly Report published by the U.S. Centers for Disease Control is an example of:
- Active surveillance
  - Passive surveillance**

84. The most important group for the success of the Multicenter AIDS Cohort is the:
- Brilliant principal investigator and co-investigators
  - Staff
  - Participants**
  - Funding agency
  - Public
85. Which of the following groups within the MACS is most likely to contribute to a biologic strategy for prevention of HIV infection?
- Long-term non-progressors
  - Long-term survivors with low levels of CD4+ cells
  - Rapid progressors
  - Men with many exposures to HIV who don't seroconvert**
  - Men who are receiving HAART therapy
86. The best predictor of rapid progression identified within the MACS is:
- Level of viral RNA**
  - Level of CD8+ cells
  - Level of CD4+ cells
  - Level of B cells
  - Level of antibodies to HIV
87. The major focus of the MACS for the next several years will be to identify:
- Risk factors for HIV seroconversion
  - The prevalence of HIV among MSM
  - Adverse outcomes associated with HAART**
  - Spread of HIV to women
88. Which of the following is **NOT** an emerging issue for the gay community in the United States?
- Metamphetamine abuse
  - Internet sex
  - Access to treatment**
  - Prevention fatigue
  - "Treatment fatigue"
89. Which of the following drugs is a particular risk factor for HIV among men who have sex with men in Los Angeles?
- Heroin
  - Marijuana
  - Metamphetamine**
  - Opium
  - Cocaine

90. Which of the following is **NOT** a determinant of HIV infection/transmission?
- a. Partner exchange rate
  - b. Viral RNA level
  - c. Prevalence of condom use
  - d. Stage of HIV disease
  - e. **All are determinants**
91. "Exceptionalism" in regard to HIV/AIDS is a necessary factor for reducing spread of the virus:
- a. True
  - b. **False**
93. The single most important factor for preventing further spread of HIV within a developing country is:
- a. The proportion of single men
  - b. The proportion of single women
  - c. Cultural factors
  - d. **The political commitment of the leadership**
  - e. The education level of its citizens
94. Pre-test counseling for HIV testing should primarily determine whether the individual is ready to be tested and learn their results:
- a. True
  - b. **False**
95. The key to successful community intervention is:
- a. Development of a strategy by competent international investigators
  - b. Acceptance that there is a problem by the community
  - c. Acceptance of the responsibility to take action by the community
  - d. All of the above
  - e. **b. and c. above**