

Public Health #1 – Basic Clinical Epidemiology


- 1) Which of the following is NOT a characteristic of public health?
 - a) Prevention of disease in the community and environment
 - b) Ensuring complete removal of all health care related errors
 - c) Creation of a healthy community and reducing environmental hazards
 - d) Linking people with proper health care providers
- 2) Public health science involves:
 - a) Monitoring the health status of different age groups within the population
 - b) Community involvement to identify and solve health related problems
 - c) Anticipation of disease outbreak
 - d) Monitoring new policies and plans regarding different disease outbreaks
 - e) All of the above
- 3) According to “Improving health; Measuring effect of medical care,” 1994 by J.P. bunker et al, life expectancy of an American over the last century has increased from 45-years to:
 - a) 65-years
 - b) 70-years
 - c) 75-years
 - d) 80-years
 - e) 85-years
- 4) Which of the following is NOT a major cause of the increase in American life expectancy?
 - a) Vaccination
 - b) Automotive safety
 - c) Ambulance care
 - d) Environmental health
 - e) Safer and healthier foods
- 5) Biomedical sciences and environmental health sciences falls under what category of public health?
 - a) Category A
 - b) Category B
 - c) Category C
- 6) Epidemiologists in the 1980s received a large number of physician reports to the Center for Disease Control (CDC) that included patients infected with an unknown disease. What disease was it?
 - a) Hepatitis B
 - b) Hepatitis C
 - c) HIV/AIDS
 - d) SARS
 - e) West Nile
- 7) A sudden widespread outbreak of measles, SARS, or Avian Flu is considered:
 - a) Epidemic
 - b) Endemic
 - c) Pandemic
- 8) The common cold (Rhinovirus) is considered:
 - a) Epidemic

- b) Endemic
 - c) Pandemic
- 9) The number of new cases of disease or injury in a population per unit of time is called:
- a) Positive predictive value
 - b) Sensitivity
 - c) Prevalence
 - d) Specificity
 - e) Incidence
- 10) The total number of cases of disease or injury in a population at a given time is called:
- a) Negative predictive value
 - b) Sensitivity
 - c) Prevalence
 - d) Specificity
 - e) Incidence
- 11) The proportion of people with a disease who are correctly classified by a screening test as positive is called:
- a) Positive predictive value
 - b) Sensitivity
 - c) Prevalence
 - d) Specificity
 - e) Incidence
- 12) The proportion of well people who are correctly classified by a screening test as negative is called:
- a) Negative predictive value
 - b) Sensitivity
 - c) Prevalence
 - d) Specificity
 - e) Incidence
- 13) Along with injury, what is the largest cause of human disease?
- a) Obesity
 - b) Natural disasters
 - c) Microorganisms
 - d) Medical errors
 - e) Genetic disorders
- 14) Which of the following would be considered primary prevention?
- a) Decreasing incidence
 - b) Risk reduction, such as smoking cessation
 - c) Screening programs, such as BP screening
 - d) Treatment programs, such as antibiotics
 - e) Reoccurrence prevention, such as physical therapy
- 15) Of the ten leading causes of death in 2008, how many are associated with dietary factors?
- a) 1
 - b) 3
 - c) 5

- d) 7
 - e) 9
- 16) Which of the following ethnic groups has the lowest risk for health problems, especially those involving preventable disease?
- a) Caucasians
 - b) Hispanics
 - c) Asian Americans
 - d) African Americans
 - e) American Indians

Public Health #2 – Conquest of Infectious Disease

- 1) Which of the following was the number one killer in England in the mid-nineteenth century (mid-1800s)?
- a) Bubonic plague
 - b) Small pox
 - c) Measles
 - d) Polio
 - e) Tuberculosis
 - f) Rabies
 - g) Cholera
 - h) Typhoid
- 2) Which of the following wiped out as much as three quarters of the population of Europe and Asia in the fourteenth century (1300s)?
- a) Bubonic plague
 - b) Small pox
 - c) Measles
 - d) Polio
 - e) Tuberculosis
 - f) Rabies
 - g) Cholera
 - h) Typhoid
- 3) Which of the following Koch's Postulates (rules), originally by Robert Koch in 1883, was added in 1905 by E.F. Smith?
- a) The organism must be present in every active case of the disease
 - b) The organism must be isolated from the newly infected animals and when the process is repeated, it must produce the same result
 - c) The organism must be isolated and grown in the laboratory culture
 - d) When injected with the organism from a culture, susceptible animals must develop the disease
- 4) Which of the following is NOT caused by a virus?
- a) Rheumatic fever
 - b) Polio
 - c) Smallpox
 - d) Common cold
 - e) Rabies

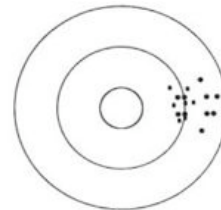
- 5) Which of the following is the diarrheal protozoan disease associated with the Milwaukee diarrhea epidemic of 1993?
- Giardia lamblia*
 - Entamoeba histolytica*
 - Plasmodium knowlesi*
 - Cryptosporidium parvum*
 - Balantidium coli*
- 6) A young man presents with GI complaints after a wilderness camping trip. He states the symptoms started after swimming in a river near a beaver dam. The patient complains of diarrhea and pale, fowl-smelling, greasy stools (steatorrhea). The patient also says sometimes he has sulphuric burps that taste so bad they cause him to vomit. Lab tests show lactase deficiency and slight vitamin B12 deficiency. Light microscopy shows a “clown face” (shown). Which of the following is most likely?
- 
- Giardia lamblia*
 - Entamoeba histolytica*
 - Plasmodium knowlesi*
 - Cryptosporidium parvum*
 - Balantidium coli*
- 7) Which of the following is NOT considered a nematode and has a subgroup called gladiatorum, which is specifically spread by skin-to-skin contact between wrestlers?
- Roundworm (*Ascaris* species)
 - Ringworm (*Tinea* species)
 - Hookworm (*Ancylostoma* and *Necator* species)
 - Whipworm (*Trichuris* species)
 - Pinworm (*Enterobius* species)
- 8) Nematodes, the most common sources of human infection in the world, primarily infect tissues and the:
- Blood
 - Lungs
 - Intestines
 - Liver
 - CNS and eyes
- 9) An early means of germ warfare was devised by European settlers, who gave blankets to Native American Indians after the blankets were used by settlers suffering from ____.
- Bubonic plague
 - Small pox
 - Measles
 - Polio
 - Tuberculosis
- 10) What is the reservoir for bubonic plague (*Yersinia pestis*)?
- Bats and dogs
 - Deer ticks
 - Rabbits and cats
 - Rats and fleas
 - Flying squirrels
- 11) What is the reservoir for rabies (*Rhabdoviridae lyssavirus*)?

- a) Bats and dogs
 - b) Deer ticks
 - c) Rabbits and cats
 - d) Rats and fleas
 - e) Flying squirrels
- 12) Which of the following links in the chain of infection would be the best target for reduction of disease such as HIV, syphilis, and gonorrhea?
- a) Link 1: Pathogen
 - b) Link 2: Reservoir
 - c) Link 3: Method of transmission
 - d) Link 4: Susceptible host
 - e) None of the above
- 13) Antibiotics affect which link in the chain of infection (the most widely used chain interruption in medicine)?
- a) Link 1: Pathogen
 - b) Link 2: Reservoir
 - c) Link 3: Method of transmission
 - d) Link 4: Susceptible host
 - e) None of the above
- 14) A visiting physician at a small rural village finds that the reason for a recent outbreak of disease is a contaminated water supply. Educating villagers to boil their water is a strategy that targets what link in the chain of infection?
- a) Link 1: Pathogen
 - b) Link 2: Reservoir
 - c) Link 3: Method of transmission
 - d) Link 4: Susceptible host
 - e) None of the above
- 15) Which link in the chain of infection was targeted in vaccination use (e.g. smallpox, measles, polio)?
- a) Link 1: Pathogen
 - b) Link 2: Reservoir
 - c) Link 3: Method of transmission
 - d) Link 4: Susceptible host
 - e) None of the above
- 16) 90% of the rabies deaths in the United States since 1990 have been caused by which of the following?
- a) Dogs
 - b) Rats
 - c) Squirrels
 - d) Cats
 - e) Bats
- 17) The concept of vaccination originated with smallpox, and was made safe after Dr. Edward Jenner proved inoculation with infected matter from what animal?
- a) Sheep
 - b) Cow

- c) Horse
 - d) Dog
 - e) Hamster
- 18) After the measles vaccine first became available, high school and college students who were vaccinated as babies started getting infected. It is now known that this immunity “wears off” and thus a booster shot is recommended at what age?
- a) 1 to 2-years-old
 - b) 4 to 6-years-old
 - c) 10 to 12-years-old
 - d) 16 to 18-years-old
 - e) 21-years-old
- 19) What is the reservoir for smallpox, measles, and polio?
- a) Bats and dogs
 - b) Deer ticks
 - c) Rabbits and cats
 - d) Rats and fleas
 - e) Human only

Public Health #3 – Biostatistics, Part 1

- 1) A large group of people is followed over 10-years. Every 2-years, it is determined who develops heart disease and who does not. What type of study is this?
- a) Case study
 - b) Cohort study
 - c) Case-control study
 - d) Randomized controlled trial (RCT)
- 2) A patient is randomly screened for HIV in the Emergency Room. Although the patient is well, the test categorizes them as having HIV. What type of error occurred?
- a) True positive
 - b) True negative
 - c) False positive
 - d) False negative
- 3) A test is externally valid when:
- a) Results are valid for the test sample
 - b) Results are valid for the general population
 - c) Results are always valid for anyone tested
 - d) Results are valid when the test is accurate
 - e) Results are valid when the test is repeated
- 4) A test is performed and results are shown here on the bull’s-eye graph. Which of the following describes these test results?
- a) Both reliable and valid
 - b) Neither valid nor reliable
 - c) Reliable but not valid
 - d) Valid but not reliable
- 5) Which of the following is true of diagnostic sensitivity?
- a) Gives the power to rule out disease
 - b) Gives the power to differentiate between other diseases



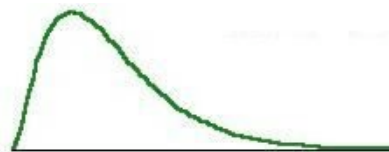
- c) The number of positive results without errors
d) The number of negative results without errors
- 6) Which of the following equations describes specificity, given that TP = True Positives, TN = True Negatives, FP = False Positives, and FN = False Negatives?
- a) $TP / (TP + FP)$
b) $TP / (TP + FN)$
c) $TN / (TN + FN)$
d) $TN / (TN + FP)$
- 7) Which of the following equations describes positive predictive value (PPV)?
- a) $TP / (TP + FP)$
b) $TP / (TP + FN)$
c) $TN / (TN + FN)$
d) $TN / (TN + FP)$
- 8) A screening test has a 2% false-negative rate. What is the sensitivity of this test?
- a) 98%
b) 96%
c) 50%
d) 4%
e) 2%
- 9) The prevalence of influenza in population A is 2-times the prevalence of influenza in population B. The incidence is the same in populations A and B. What can be assumed about the disease course in population A versus B?
- a) The disease is twice as deadly in A
b) The disease is twice as deadly in B
c) The disease duration is twice as long in A
d) The disease duration is twice as long in B
e) Nothing can be assumed
- 10) The American Diabetes Association convenes a panel of experts to review the criteria for assessing diabetes in the general population. After careful consideration, the panel decides that the current criterion score for blood glucose of 100mg/dL is too high, and recommends that the criterion score be lowered to 90mg/dL. This change is most likely to have which of the following impacts on subsequent screening tests?
- a) Decrease TP, Decrease FP, Increase TN, Increase FN
b) Decrease TP, Increase FP, Increase TN, Decrease FN
c) Increase TP, Decrease FP, Decrease TN, Increase FN
d) Increase TP, Decrease FP, Increase TN, Decrease FN
e) Increase TP, Increase FP, Decrease TN, Decrease FN
- 11) The prevalence of breast cancer in a population is 1%. Testing sensitivity is 90% and false-positive rate is 9%. What is the positive predictive value (PPV)?
- a) $TP / (TP + FP) = 1\% / (1\% + 9\%) = 1$ in 10
b) $TP / (TP + FP) = 9\% / (9\% + 1\%) = 9$ in 10
c) $TP / (TP + FN) = 1\% / (1\% + 1\%) = 5$ in 10
d) $TP / (TP + FN) = 9\% / (9\% + 9\%) = 5$ in 10
- 12) If the survival rate for prostate cancer is 82% in the United States and 41% in the United Kingdom, what can be said?
- a) You are twice as likely to die of prostate cancer in the US

- b) You are twice as likely to die of prostate cancer in the UK
 - c) Once diagnosed, you are twice as likely to die of prostate cancer in the US
 - d) Once diagnosed, you are twice as likely to die of prostate cancer in the UK
- 13) A certain diagnostic test with high sensitivity and specificity is performed at age 60. Prior to this test, patients were diagnosed with disease at age 67. Although all patients are dead by age 70, the 5-year survival rate has been dramatically increased by this test. Which of the following can be said of this test?
- a) This test is highly useful in screening for disease
 - b) This test would show a decrease in survival rate if performed at age 50
 - c) This test would prevent death by age 70 if performed at age 50
 - d) This test exhibits over-diagnosis bias and is therefore not useful
 - e) This test exhibits lead-time bias and is therefore not useful
- 14) A certain test for progressive cancer has a 44% 5-year survival rate. Screening is added to the test, which incorporates several non-progressive cancer cases and thus increases 5-year survival to 81%, although there is no change in the number of patients who are alive or die from progressive cancer. Which of the following can be said of this test with the new screening protocol?
- a) This test is highly useful in screening for disease
 - b) This test would show a decrease in survival rate if more cases of non-progressive cancer were incorporated
 - c) This test would prevent death in the progressive cancer group if more cases of non-progressive cancer were incorporated
 - d) This test exhibits over-diagnosis bias and is therefore not useful
 - e) This test exhibits lead-time bias and is therefore not useful
- 15) A certain test has an absolute risk statement that says “if you have this test every 2-years, it will reduce your chance of dying from this cancer from around 3 in 1,000 to 2 in 1,000 over the next 10-years.” Although absolute risk in this case may not be statistically significant, what relative risk reduction is seen in this test?
- a) 1%
 - b) 3%
 - c) 15%
 - d) 33%
 - e) 66%
- 16) The number needed to treat, as might be reported in a medical journal, is the inverse of which of the following?
- a) Specificity
 - b) Sensitivity
 - c) Relative risk reduction
 - d) Absolute risk reduction
 - e) Positive predictive value
- 17) If a journal posted benefits as relative risk reduction and harms as absolute risk increases, what misleading method is being used?
- a) Mismatched framing
 - b) Over-diagnosis bias
 - c) Lead-time bias
 - d) Withholding information

- 18) Which of the following is true?
- a) If absolute risk is given, relative risk can be determined
 - b) If relative risk is given, absolute risk can be determined
 - c) Both A & B
 - d) Neither A nor B

Public Health #4 – Biostatistics, Part 2

- 1) What type of data is used in a study differentiating between patients being treated with a drug and a placebo (no drug)?
- a) Nominal
 - b) Ordinal
 - c) Interval
 - d) Ratio
- 2) A patient rates their pain level on a scale from 1 to 10. What type of data is this?
- a) Nominal
 - b) Ordinal
 - c) Interval
 - d) Ratio
- 3) Which of the following errors occur in the democratic election of 1944 (Dewey v. Truman) where a non-representative group was selected for statistical analysis?
- a) Mismatched framing
 - b) Over-diagnosis bias
 - c) Lead-time bias
 - d) Withholding information
 - e) Sampling bias
- 4) What is the most common value in a sampling of data?
- a) Mean
 - b) Median
 - c) Mode
 - d) Standard deviation
 - e) p value
- 5) Two standard deviations would incorporate how much of the data on a normal curve (Gaussian distribution)?
- a) 50%
 - b) 68%
 - c) 90%
 - d) 95%
 - e) 99%
- 6) Which of the following is true of this normal distribution (shown), where mean > median > mode?
- a) Bimodal distribution
 - b) Positively skewed distribution
 - c) Negatively skewed distribution
 - d) Inverse distribution
 - e) Distribution not skewed



- 7) The two ways to infer the population from a sample statistic are a 95% confidence interval and:
- Hypothesis testing
 - Chi-squared data
 - P value cutoff
 - Data categorical data
 - Ignoring the data median
- 8) When interpreting a p-value, a null hypothesis (H_0) can be accepted if there is no statistically significant difference between the groups, meaning the difference found is likely due to the chance of random sampling variation. What is the alpha (α) cut-off value that is generally used?
- 1%
 - 5%
 - 90%
 - 95%
 - 99%
- 9) In general, which of the following is NOT true of a cohort study?
- Can calculate risks
 - Useful for patients with risk factors
 - Less costly overall
 - Can estimate incidences
- 10) A cohort study of women taking HRT (estrogen) showed that the absolute risk of coronary heart disease (CHD) was 28% for those exposed to HRT. The absolute risk of CHD was 18% for those not taking HRT. Which of the following can be said of the relative risk (RR)?
- The risk is the same for those taking and those not taking HRT
 - HRT is harmful; 60% higher chance of CHD
 - HRT is protective; 60% lower chance of CHD
 - Nothing can be said of the relative risk (risk ratio)
- 11) In the above study of women taking HRT, what is the absolute risk reduction?
- 8%
 - 10%
 - 18%
 - 28%
 - 46%
- 12) Which of the following is both cost and time efficient and works best for the study of rare diseases?
- Case study
 - Cohort study
 - Case-control study
 - Randomized controlled trial (RCT)
- 13) Which of the following is best suited for comparing the weight-loss strategy of a laparoscopic adjustable gastric band to a low-calorie diet with pharmacotherapy and lifestyle changes?
- Case study
 - Cohort study

- c) Case-control study
 - d) Randomized controlled trial (RCT)
- 14) A study using BMI (weight at a certain height) for results is using what form of data?
- a) Nominal (categorical)
 - b) Ordinal (categorical)
 - c) Interval (continuous)
 - d) Ratio (continuous)
- 15) Which of the following improves statistical power by decreasing dispersion (removing individual differences)?
- a) Independent (unpaired) t-test
 - b) Paired t-test
 - c) Analysis of Variance (ANOVA)
 - d) Wilcoxon Rank Sum Test
- 16) Which of the following is a non-parametric test?
- a) Independent (unpaired) t-test
 - b) Paired t-test
 - c) Analysis of Variance (ANOVA)
 - d) Wilcoxon Rank Sum Test
- 17) Which of the following is robust in comparing deviations from normality?
- a) Independent (unpaired) t-test
 - b) Paired t-test
 - c) Analysis of Variance (ANOVA)
 - d) Wilcoxon Rank Sum Test
- 18) Which of the following allows more than two groups to be tested?
- a) Independent (unpaired) t-test
 - b) Paired t-test
 - c) Analysis of Variance (ANOVA)
 - d) Wilcoxon Rank Sum Test

Public Health #5 – Biomedical Basis of Chronic Diseases

- 1) What is currently the leading cause of death among Americans aged 45 to 65?
- a) Cardiovascular disease
 - b) Diabetes
 - c) Arthritis
 - d) Alzheimer disease
 - e) Cancer
- 2) What level of cholesterol is considered ideal as it reduces the risk of heart attacks by one half?
- a) < 175mg/dL
 - b) < 200mg/dL
 - c) < 225mg/dL
 - d) < 250mg/dL
 - e) < 275mg/dL
- 3) Which of the following is NOT a common source of cholesterol in the American diet?
- a) Eggs
 - b) Fish oil

- c) Meat
 - d) Milk
- 4) Smoking causes which of the following (the opposite effect seen with vigorous exercise)?
- a) Increases LDL levels
 - b) Decreases LDL levels
 - c) Increases HDL levels
 - d) Decreases HDL levels
- 5) Which of the following proposed factors in essential hypertension is variable and probably determined by genetics?
- a) Obesity
 - b) Stress level
 - c) Salt sensitivity
 - d) Smoking
- 6) What component of cigarette smoke is a stimulant that raises blood pressure, increases pulse rate, and increases the irritability of heart blood vessels?
- a) Carbon monoxide and tars
 - b) Propylene glycol
 - c) Formaldehyde
 - d) Nicotine
 - e) Benzo[a]pyrene
- 7) Which of the following has been shown to protect against cancer when incorporated into the diet?
- a) Broccoli
 - b) Fats
 - c) Cholesterol
 - d) Fiber
 - e) Grapefruit
- 8) Which of the following forms of cancer has been shown to have a viral cause?
- a) Cervical
 - b) Testicular
 - c) Prostate
 - d) Cerebellar
 - e) Lung
- 9) Which of the following is a characteristic of Type I diabetes only?
- a) Closely correlated with obesity
 - b) Involves insulin production defects
 - c) Involves insulin resistance
 - d) Affected by genetics
 - e) Appears only during childhood

Public Health #6 – Diet & Activity Patterns

- 1) From a public health perspective, obesity is usually defined in terms of body mass index (BMI). What is considered the ideal BMI?
- a) 30
 - b) 28

- c) 25
 - d) 23
 - e) 21
- 2) The metric formula for BMI is calculated as weight (kg) / height² (m²). The English formula is weight (lb) / height² (inch²) times what factor?
- a) 307
 - b) 425
 - c) 524
 - d) 703
 - e) 907
- 3) Obesity is defined as BMI of what percentage or higher?
- a) 15%
 - b) 20%
 - c) 25%
 - d) 30%
 - e) 35%
- 4) Most studies show that weight-associated risks start after BMI is greater than:
- a) 26
 - b) 27
 - c) 28
 - d) 29
 - e) 30
 - f) 35
- 5) Approximately what percentage of men and women (separately) aged 20 or older in the United States are considered overweight according to the National Health and Nutrition Examination Survey (NHANES)?
- a) 10%
 - b) 15%
 - c) 20%
 - d) 25%
 - e) 33%
- 6) Which of the following groups is the least likely to be obese?
- a) Hispanics and Native Americans
 - b) Educated women
 - c) Uneducated men
 - d) Uneducated women
 - e) African American women
- 7) The California “5 A Day For Better Health” project was aimed at increasing consumption of which of the following?
- a) Whole grains
 - b) Lean meats
 - c) Low-fat dairy product
 - d) Fruits and vegetable
 - e) Steel oat products
- 8) Most studies on how to lose weight have found what approach is the most effective?
- a) Combination of dieting and physical activity

- b) Five days per week of 30-minute cardiovascular activity
 - c) Three days per week of heavy weight lifting to build lean muscle
 - d) Restriction diet plans such as Atkins or South Beach
 - e) Reduced variety diet plans such as grapefruit-centered diet
- 9) Physician recommendation has been found to significantly influence sedentary people to become more physically active.
- a) True
 - b) False

Public Health #7 – Travel Related Diseases

- 1) Which of the following disease is NOT associated with mud and water contact?
- a) Leptospirosis
 - b) Leishmaniasis
 - c) Strongyloidiasis
 - d) Guinea worms
 - e) Liver flukes
- 2) Influenza pandemics mostly originate in what area of the globe?
- a) Australia
 - b) North America
 - c) Eastern Asia
 - d) Africa
 - e) Europe
- 3) Local outbreaks of both Group A and C meningococci infections are seen in what area of the globe?
- a) South America
 - b) West and Central Africa
 - c) Europe and North America
 - d) Middle East
 - e) Eastern Asia
- 4) Group B meningococci, for which there is no current vaccine, remain the prevalent epidemic organism of which of the following locations?
- a) South America
 - b) West and Central Africa
 - c) Europe and North America
 - d) Middle East
 - e) Eastern Asia
- 5) A student presents with at least three episodes of abnormally loose stools in a day after a spring break trip to Mexico. They also complain of fever, vomiting, and abdominal cramps. Testing shows enterotoxigenic *Escherichia coli* (ETEC). What is the diagnosis?
- a) Viral gastroenteritis
 - b) Bacterial food poisoning
 - c) Bacillary dysentery
 - d) Traveler's diarrhea
 - e) Hepatitis A
- 6) Which of the following drugs for ETEC is recommended for elderly patients at the first sign of diarrhea?

- a) Ciprofloxacin
 - b) Amoxicillin
 - c) Trimethoprim
 - d) Trimoxazole
- 7) Which of the following should be avoided while traveling to help prevent ETEC infections?
- a) Untreated water including ice cubes
 - b) Sandwiches with mixed fillings
 - c) Raw or lightly cooked seafood
 - d) Chopped fresh fruit
 - e) All of the above
- 8) A traveler presents with history of fever that increases daily, headache, abdominal discomfort, and dry cough. Today, after 7-10 days, the fever has reached a peak and the patient now has rose spots on his flanks. Labs show Salmonella species bacteria. The clinician is concerned about the possibility of intestinal bleeding due to deeply ulcerated Peyer patches. Which of the following is most likely?
- a) Cholera
 - b) Diphtheria
 - c) Trypanosomiasis
 - d) Leishmaniasis
 - e) Typhoid
- 9) A traveler presents with abrupt onset of severe diarrhea. History reveals he drank well water and ate shellfish on his recent trip to Bangladesh and India. He states the diarrhea was originally brown, but then changed to a pale fluid with white mucous-like debris. The clinician recommends that the patient drink sports drinks to help replace fluid and electrolytes. If the diarrhea does not resolve, the clinician plans on using oxytetracycline. Which of the following is most likely?
- a) Cholera
 - b) Diphtheria
 - c) Trypanosomiasis
 - d) Leishmaniasis
 - e) Typhoid
- 10) A patient from India presents with antibiotic-resistant typhoid fever. Which drug in standard doses may be effective?
- a) Ciprofloxacin
 - b) Amoxicillin
 - c) Trimoxazole
 - d) Ceftriaxone
 - e) Chloramphenicol
- 11) An East African man is asked to leave his job after repeatedly falling asleep. He visits the doctor hoping to cure his somnolence as well as accompanying headache and dizziness. During the history, the patient explains that he had suffered recurring bouts of fever and enlarged lymph noted before the sleepiness started. The doctor decides to perform a lumbar puncture and, after finding a flagellated protozoan in the CSF, plans to start the patient on melarsoprol. What is the transmission vector involved (African trypanosomiasis)?

- a) Reduviid bug
 - b) *Aedes aegypti* mosquito
 - c) *Haemagogus* mosquito
 - d) Sand fly
 - e) Tsetse fly
- 12) A medical student presents with hematuria after a mission trip to Africa. History reveals the student swam in a small pond at the bottom of a waterfall. A urine sample is significant for eggs with a “spike” on the tail end, which are associated with *Bulinus* snails during their life-cycle. The student is started on praziquantel. Which of the following is most likely?
- a) *Ascaris lumbricoides*
 - b) *Taenia saginata*
 - c) *Echinococcus granulosus*
 - d) *Schistosoma haematobium*
 - e) *Strongyloides stercoralis*
- 13) A traveler presents with an open ulcer on his forearm. Blood labs show amastigotes (Leishman-Donovan bodies). Antimony treatment is started. How was this disease transmitted?
- a) Reduviid bug
 - b) *Aedes aegypti* mosquito
 - c) *Haemagogus* mosquito
 - d) Sand fly
 - e) Tsetse fly

Public Health #8 – Zoonoses

- 1) Plague, Rabies, and Tularemia are associated with:
- a) Consuming untreated dairy
 - b) Unpasteurized bonemeal
 - c) Skinning wild animals
 - d) Butchering farm animals
 - e) Eating undercooked meat
- 2) Salmonella, Brucellosis, and Haverhill fever are associated with:
- a) Consuming untreated dairy
 - b) Unpasteurized bonemeal
 - c) Skinning wild animals
 - d) Butchering farm animals
 - e) Eating undercooked meat
- 3) Trichinellosis, toxoplasmosis, and *Taenia solium* are associated with:
- a) Consuming untreated dairy
 - b) Unpasteurized bonemeal
 - c) Skinning wild animals
 - d) Butchering farm animals
 - e) Eating undercooked meat
- 4) Erysipelothrix, anthrax, and Crimean-Congo hemorrhagic fever are associated with:
- a) Consuming untreated dairy
 - b) Unpasteurized bonemeal

- c) Skinning wild animals
 - d) Butchering farm animals
 - e) Eating undercooked meat
- 5) A man from Hawaii comes to the ER with a 1-week history of flu-like symptoms with photophobia. His severe headache, cough, and myalgias suggest to the physician some kind of respiratory infection. However, more careful physical exam reveals conjunctival suffusion and macular rash (Weil syndrome). Lab findings include elevated serum bilirubin, alkaline phosphatase, aminotransferases, and creatine phosphokinase. With this clinical picture and lab results, the physician prescribes penicillin G immediately. The physician suspects the man got this disease while swimming in water contaminated with rat urine. His suspicions are confirmed later when a question mark shaped spirochete is isolated from the patient's blood. What was the diagnosis?
- a) *Streptobacillus moniliformis* or *Spirillum minus (minor)*
 - b) *Borrelia burgdorferi* or *Borrelia recurrentis*
 - c) *Leptospira interrogans*
 - d) *Treponema pallidum*
 - e) *Mycobacterium leprae*
- 6) A doctor is struggling to diagnose a woman's flulike illness. She complains of a fever that rises during the day and peaks after dinner, fatigue, spinal tenderness, and loss of appetite. The fever is associated with profuse sweating. Her lymph nodes are enlarged on physical exam. The doctor has trouble narrowing down the possible etiologies until he hears that the woman tasted goat cheese at a local French village a month before the onset of her symptoms. She is prescribed doxycycline and gentamicin for six weeks. Which of the following is most likely?
- a) *Brucella abortus*
 - b) *Brucella canis*
 - c) *Brucella melitensis*
 - d) *Brucella ovis*
 - e) *Brucella suis*
- 7) A traveler from New Mexico presents to the ER with fever, hemoptysis, dark black skin patches, and enlarged, painful lymph nodes in his groin. He maintains an awkward pose with extremities extended, which he says lessens his pain. Doctors begin treatment immediately with streptomycin and inquire about possible flea bites. They then call local authorities in New Mexico and ask about similar recent incidents. Which of the options is the most likely cause?
- a) *Salmonella typhi*
 - b) *Salmonella enteritidis*
 - c) *Shigella dysenteriae*
 - d) *Yersinia enterocolitica*
 - e) *Yersinia pestis*
- 8) A woman from Arkansas presents to the doctor with a small but persistent black ulcer on her arm. The area near the ulcer is erythematous and tender. Her axillary lymph nodes on the same side are enlarged. Palpation reveals slight splenomegaly. She believes the ulcer may be related to a tick bite that occurred on her arm while tending to her rabbit farm. A lab test shows growth on BCYE agar. Which of the following is most likely?
- a) *Pasteurella multocida*

- b) *Borrelia burgdorferi*
 - c) *Francisella tularensis*
 - d) *Bartonella quintana*
 - e) *Bartonella henselae*
- 9) A child who lives on a farm presents with photophobia and neck pain. Nuchal rigidity is found as well as a positive Brudzinski sign. CSF shows Gram-positive cocci. Culture shows beta-hemolytic streptococcus of Lancefield group R. Treatment with Benzylpenicillin is begun. What was the diagnosis?
- a) *Toxoplasma gondii*
 - b) *Borrelia burgdorferi*
 - c) *Streptococcus zooepidemicus*
 - d) *Francisella tularensis*
 - e) *Streptococcus suis*
- 10) What is the drug of choice against *Francisella tularensis*?
- a) Doxycyclin
 - b) Gentamycin
 - c) Streptomycin
 - d) Tetracycline
 - e) Ciprofloxacin
- 11) What is the definitive host for *Toxoplasma gondii*?
- a) Piglets
 - b) Ostriches
 - c) Rabbits
 - d) Horses
 - e) Cats
- 12) A 16-year-old female who lives on a farm presents with a bacteremic infection. Culture shows beta-hemolytic streptococcus of Lancefield group C. *Streptococcus zooepidemicus* is suspected. Treatment with benzylpenicillin and an aminoglycoside is begun. What animal did this patient most likely come in contact with?
- a) Piglets
 - b) Ostriches
 - c) Rabbits
 - d) Horses
 - e) Cats
- 13) A patient from Wisconsin presents with Bannworth syndrome involving peripheral neuritis and Bell palsy. An ECG reveals an AV conduction block. The patient also complains of joint pain and specific neck pain. Doxycycline therapy is begun. Which of the following is most likely?
- a) *Toxoplasma gondii*
 - b) *Borrelia burgdorferi*
 - c) *Streptococcus zooepidemicus*
 - d) *Francisella tularensis*
 - e) *Streptococcus suis*
- 14) What is the drug of choice for pregnant patients with *Toxoplasma gondii*?
- a) Pyrimethamine
 - b) Spiramycin

- c) Sulfadiazine
- d) Benzylpenicillin
- e) Doxycycline

Public Health #9 – Emerging Infectious Diseases (Article)

- 1) What is the leading cause of worldwide death in people under the age of 50?
 - a) Coronary heart disease
 - b) Infectious disease
 - c) Prematurity, low birth weight
 - d) Stroke
 - e) Cancer
- 2) Which of the following is considered a “deliberately emerging” infectious disease?
 - a) West Nile virus
 - b) Human monkeypox
 - c) Multidrug-resistant tuberculosis
 - d) Marburg hemorrhagic fever
 - e) Anthrax
- 3) In September 2008, the FDA and CDC lifted the ban on pouched (Gambian) rats as pets in the United States. It is believed that these animals are responsible for outbreaks in the United States of which of the following?
 - a) Monkeypox
 - b) West Nile virus
 - c) Vancomycin-resistant staphylococcus aureus (VRSA)
 - d) Rift Valley fever
 - e) Typhoid fever
 - f) Nipah
- 4) Approximately what percent of emerging pathogens are zoonotic?
 - a) 25%
 - b) 33%
 - c) 50%
 - d) 66%
 - e) 75%
- 5) Today, an unknown microbe can often be identified and sequenced in what time frame, due to advances in genomics and proteomics?
 - a) Minutes
 - b) Hours
 - c) Days
 - d) Weeks
 - e) Months
- 6) Approximately how many people in the world are currently (2005) infected with the HIV virus?
 - a) 10 million
 - b) 20 million
 - c) 30 million
 - d) 40 million
 - e) 50 million

7) Approximately what percent of new HIV infections (40,000 annually) occur in the United States each year in people aged 25 or younger?

- a) 10%
- b) 20%
- c) 30%
- d) 40%
- e) 50%

8) The graph shown here represents AIDS in the United States. Which of the following is likely represented by the diamond-line, which declines sharply around 1995?

- a) Persons living with AIDS
- b) Newly diagnosed AIDS cases
- c) AIDS deaths
- d) HIV prevalence
- e) Estimated HIV transmissions



9) Which of the following statements regarding the creation of vaccines is true?

- a) A significant portion of people infected with poliovirus experience serious complications, making the creation of a vaccine a major hurdle
- b) HIV vaccines are difficult to create as even patients on drug therapy for eight years with undetectable viral loads still reveal the virus in lymphocyte culture
- c) There are almost no cases of death due to smallpox virus
- d) Vaccines are not a formidable option for HIV and thus research has been focused solely on the creation of antiretroviral drugs
- e) Only about 5% of people infected with smallpox virus recovered spontaneously, making vaccination the only option against the virus

10) Which of the following kills over 35,000 people in the United States each year, with over 90% being 65 years or older?

- a) Malaria
- b) Tuberculosis
- c) West Nile virus
- d) Influenza
- e) SARS

11) Which of the following is related to Ebola and has had outbreaks in Angola recently?

- a) West Nile virus
- b) Human monkeypox
- c) Multidrug-resistant tuberculosis
- d) Marburg virus
- e) SARS

12) What strain of influenza is associated with Avian Flu, for which a vaccine and an antiviral (Tamiflu) are effective against?

- a) H1N5
- b) H2N2
- c) H3N2
- d) H5N1
- e) H7N3

Public Health #10 – Bioterrorism Agents (Article)

1) A traveler presents with fever, cough, chest pain, and hemoptysis with mucopurulent watery sputum at times. Serum reveals capsular antigen and Gram-negative bacilli shaped like safety pins. Which of the following is most likely?

- a) Anthrax (*Bacillus anthracis*)
- b) Botulism (*Clostridium botulinum*)
- c) Plague (*Yersinia pestis*)
- d) Smallpox (Variola virus)

2) A woman who works as an imported in the wool and hides industry presents with flu-like symptoms. She complains about a blackened necrotic lesion on her arm that developed over the past two weeks. Chest x-ray shows a widened mediastinum. Culture shows Gram-positive bacilli that are immotile. Which of the following is most likely?

- a) Anthrax (*Bacillus anthracis*)
- b) Botulism (*Clostridium botulinum*)
- c) Plague (*Yersinia pestis*)
- d) Smallpox (Variola virus)

3) Although this disease has been completely eradicated, it presents with acute onset of fever greater than 101°F (38.3°C) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development without other apparent cause. What disease is this?

- a) Anthrax (*Bacillus anthracis*)
- b) Botulism (*Clostridium botulinum*)
- c) Plague (*Yersinia pestis*)
- d) Smallpox (Variola virus)

4) A man straggles into the ER with marked paralysis of his upper body. He describes the paralysis as a weakness that began in his neck and spread to his arms. He complains of blurred double vision and requests water to soothe his dry throat. Though he has no fever, he appears quite dizzy and his eyelids are drooping. The day before, he returned from a camping trip with friends where he insists he maintained good hygiene, limiting his diet to canned foods and honey only. Which of the following is most likely?

- a) Anthrax (*Bacillus anthracis*)
- b) Botulism (*Clostridium botulinum*)
- c) Plague (*Yersinia pestis*)
- d) Smallpox (Variola virus)

5) What is the treatment of choice for *Bacillus anthracis*?

- a) Doxycycline
- b) Trivalent antitoxin
- c) Ciprofloxacin
- d) Vaccination and possibly cidofovir
- e) No treatment options exist

6) Although an immunization exists, what is the treatment of choice for *Clostridium botulinum*?

- a) Doxycycline
- b) Trivalent antitoxin
- c) Ciprofloxacin

- d) Vaccination and possibly cidofovir
 - e) No treatment options exist
- 7) What is the treatment of choice for *Yersinia pestis*?
- a) Doxycycline
 - b) Trivalent antitoxin
 - c) Ciprofloxacin
 - d) Vaccination and possibly cidofovir
 - e) No treatment options exist
- 8) What is the treatment of choice for Smallpox?
- a) Doxycycline
 - b) Trivalent antitoxin
 - c) Ciprofloxacin
 - d) Vaccination and possibly cidofovir
 - e) No treatment options exist

Public Health #11 – Chemical Emergencies (Article)

- 1) Which of the following is NOT considered a hazardous material (HazMat)?
- a) Dangerous gases
 - b) Biologic organisms
 - c) Dangerous liquids
 - d) Radioactive materials
 - e) Chemical materials
- 2) About 9,000 releases of hazardous substances occur annually, with 75% occurring at chemical facilities and 25% occurring during transportation. Post transportation-related incidents occurred during what type of transportation, with human error and equipment failure accounting for most releases?
- a) Fixed-wing airplane
 - b) Helicopter
 - c) Small boat
 - d) Large ship
 - e) Ground
- 3) A national reporting system for HAZMAT incidents was created in 1990, called the Hazardous Substances Emergency Events Surveillance (HSEES) system. Which organization developed this system?
- a) Department of Transportation (DOT)
 - b) Occupational Safety and Health Administration (OSHA)
 - c) Agency for Toxic Substances Disease Registry (ATSDR)
 - d) Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)
 - e) International Association of Fire Fighters (IAFF)
- 4) Along with respiratory injury, what is the most common HAZMAT injury?
- a) Soft tissue
 - b) Liver
 - c) Central nervous system
 - d) Eye
 - e) Mucous membranes

- 5) Which of the following organization requires employees to wear personal protective equipment (PPE) when working with a potential hazard?
- a) Department of Transportation (DOT)
 - b) Occupational Safety and Health Administration (OSHA)
 - c) Agency for Toxic Substances Disease Registry (ATSDR)
 - d) Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)
 - e) International Association of Fire Fighters (IAFF)
 - f) Environmental Protection Agency (EPA)
- 6) During a hazardous materials incident, which area should be used for decontaminating affected individuals?
- a) Hot Zone
 - b) Intermediate Zone
 - c) Command Zone
 - d) Ambulance
 - e) Hospital
- 7) Using the USDOT Hazardous Materials Transportation Placard coding, what color is used for flammable materials, such as gasoline (#1203) or propane (#1075)?
- a) Orange
 - b) Yellow
 - c) Red
 - d) Blue
 - e) White
- 8) What level of HAZMAT protection involves a self-contained breathing apparatus (SCBA) with an airtight seal around the face, hands, and feet?
- a) Level A
 - b) Level B
 - c) Level C
 - d) Level D
- 9) Which of the following is an ideal hand protection for use by HAZMAT workers?
- a) Latex gloves
 - b) Nitrile gloves
 - c) Viton gloves
 - d) A & B
 - e) B & C
- 10) Which of the following is an ideal hand protection for use by medical staff for a patient who has undergone chemical contamination?
- a) Latex gloves
 - b) Nitrile gloves
 - c) Viton gloves
 - d) A & B
 - e) B & C
 - f) A & C
- 11) Generally, a contaminated patient should not be allowed to enter the Emergency Department until they are decontaminated.
- a) True
 - b) False

12) Hospitals are required to participate in community disaster planning for HAZMAT incidents according to SARA Title III.

- a) True
- b) False

Public Health #12 – Medical Errors (Two Articles)

- 1) Which of the following is true of the disclosure of medical error?
 - a) Full disclosure has little effect on the likelihood that an injured patient will seek legal counsel
 - b) Successful disclosure of a medical error can improve a patient's confidence in the physician and lead to improved outcomes
 - c) Patients prefer disclosure about what happened, the consequences, and strategies for preventing future errors
 - d) Regardless of whether a full disclosure occurred, patients are more likely to seek legal advice if they perceive the error as having serious consequences
 - e) All of the above
- 2) According to the Australian Commission on Safety and Quality in Health Care (2003), which of the following is an appropriate action for a physician after a medical error occurs?
 - a) Contact their malpractice provider and report the case immediately
 - b) Avoid discussion of the error with the patient and work to prevent future errors
 - c) Apologize and explain what happened to the patient
 - d) Contact the hospital administration and legal team to prevent lawsuit
 - e) Have the patient sign paperwork to ensure they will not file a lawsuit
 - f) Ask the patient how much money it would take for "this problem to go away"
- 3) In 2000, The Institute of Medicine (IOM) released "To Err Is Human," stating that 98,000 people die annually of medical errors. Since this report, which of the following has NOT changed?
 - a) The number of errors related to potassium chloride injection
 - b) The number of errors involving warfarin complications
 - c) The number of serious infections in hospitals
 - d) The overall number of medical errors
- 4) The widely disseminated message from the IOM is that system failures cause most injuries. Most individuals believe that the majority of injuries are caused by:
 - a) System errors
 - b) Bad physicians
 - c) Poor hygiene
 - d) Tired hospital staff
 - e) Poorly trained nurses
- 5) Which of the following is NOT one of the major improvement areas that resulted from the 2000 IOM report?
 - a) Creating a zero-tolerance atmosphere for errors
 - b) Enlisting the support of stakeholders
 - c) Changing practices
 - d) Viewing the task of error prevention
- 6) Which of the following has resulted in the decrease in surgical site infections by 93%?

- a) Physician computer order entry
 - b) Protocol enforcement
 - c) Perioperative antibiotic protocol
 - d) Pharmacist rounding with team
 - e) Reconciling medication practices
- 7) Which of the following has resulted in an 81% reduction in medication errors?
- a) Physician computer order entry
 - b) Protocol enforcement
 - c) Perioperative antibiotic protocol
 - d) Pharmacist rounding with team
 - e) Reconciling medication practices
- 8) Which of the following has resulted in a significant reduction in preventable adverse drug events?
- a) Physician computer order entry
 - b) Protocol enforcement
 - c) Perioperative antibiotic protocol
 - d) Pharmacist rounding with team
- 9) Which of the following is currently recommended as an improvement area?
- a) Implementation of electronic health records
 - b) Wide diffusion of proven and safe practices
 - c) Spread of training on teamwork and safety
 - d) Full disclosure to patients following injury
 - e) All of the above

AnswerKey

Health #1

- 1) B
- 2) E
- 3) C
- 4) C
- 5) B
- 6) C
- 7) A
- 8) B
- 9) E
- 10) C
- 11) B
- 12) D
- 13) C
- 14) B
- 15) C
- 16) A

Health #2

- 1) E
- 2) A
- 3) B
- 4) A
- 5) D
- 6) A
- 7) B
- 8) C
- 9) B
- 10) D
- 11) A
- 12) C
- 13) A
- 14) C
- 15) D
- 16) E
- 17) B
- 18) B
- 19) E

Health #3

- 1) B
- 2) C
- 3) B
- 4) C
- 5) A

- 6) D
- 7) A
- 8) A
- 9) C
- 10) E
- 11) A
- 12) D
- 13) E
- 14) D
- 15) D
- 16) C
- 17) A
- 18) A

Health #4

- 1) A
- 2) B
- 3) E
- 4) C
- 5) D
- 6) B
- 7) A
- 8) B
- 9) C
- 10) B
- 11) B
- 12) C
- 13) D
- 14) C
- 15) B
- 16) D
- 17) A
- 18) C

Health #5

- 1) E
- 2) A
- 3) B
- 4) D
- 5) C
- 6) D
- 7) D
- 8) A
- 9) E

Health #6

- 1) E
- 2) D
- 3) D
- 4) B
- 5) E
- 6) B
- 7) D
- 8) A
- 9) A

Health #7

- 1) B
- 2) C
- 3) B
- 4) C
- 5) D
- 6) A
- 7) E
- 8) E
- 9) A
- 10) D
- 11) E
- 12) D
- 13) D

Health #8

- 1) C
- 2) A
- 3) E
- 4) D
- 5) C
- 6) C
- 7) E
- 8) C
- 9) E
- 10) B
- 11) E
- 12) D
- 13) B
- 14) B

Health #9

- 1) B
- 2) E
- 3) A

- 4) E
- 5) C
- 6) D
- 7) E
- 8) C
- 9) B
- 10) D
- 11) D
- 12) D

Health #10

- 1) C
- 2) A
- 3) D
- 4) B
- 5) C
- 6) B
- 7) A
- 8) D

Health #11

- 1) B
- 2) E
- 3) C
- 4) D
- 5) B
- 6) B
- 7) C
- 8) A
- 9) E
- 10) B
- 11) A
- 12) A

Health #12

- 1) E
- 2) C
- 3) D
- 4) B
- 5) A
- 6) C
- 7) A
- 8) D
- 9) E