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Digital Mammography, MRI and More: Improving Breast Cancer Diagnosis
Test Questions

Chapter 1

1. The breast cancer mortality has decreased steadily since_____ because of the combination of improved treatments and the benefits of mammography screening.
(A): 1970
(B): 1975
(C): 1978
(D): 1989

2. Which of the following is/are treatment/s of invasive breast cancer?
(A): lumpectomy
(B): chemotherapy and radiation
(C): mastectomy
(D): all of the above

3. The early detection is the most promising approach for reducing morbidity and mortality from breast cancer?
(A): True
(B): False

4. According to the article, many women who would benefit from mammography do not undergo regular screening and others who do undergo regular screening develop breast cancers that were not detected by their mammography exam.
(A): True
(B): False

5. According to table 1-1, which of the following imaging technology are approved by FDA for breast cancer screening?
(A): Film-screen and Full-field digital mammography
(B): ultrasound
(C): MRI
(D): all of the above

6. Novel ultrasound techniques offer which of the following?
(A): compound imaging (improved resolution)
(B): 3D imaging
(C): Doppler imaging
(D): all of the above

7. Magnetic resonance spectroscopy analyzes tissue's chemical makeup using which of the following?
(A): radio emissions
(B): chemotherapy
(C): ionizing radiation
(D): all of the above

8. According to the article, which of the following strategies could save women's lives?
(A): improving breast cancer screening and interpretation of mammograms
(B): strategy for early detection of breast cancer based on individual
(C): focusing on outcome from different technologies
(D): all of the above

Chapter 2
9. Which of the following are main uses of Mammography?
(A): treatment and cure
(B): screening
(C): diagnosis
(D): Both B and C

10. Which of the following is an ultimate purpose of mammography screening?
(A): detect breast cancer at an early stage
(B): to save lives
(C): routine physical
(D): all of the above

11. Diagnostic mammography is also known as _____.
(A): Digital 3D imaging
(B): Doppler imaging
(C): problem-solving mammography
(D): compound imaging (improved resolution)

12. The World Health Organization, WHO has outlined which of the following screening key points in breast cancer and mammography?
(A): The disease being screened is serious and prevalent
(B): The test is sensitive and specific, well tolerated and inexpensive
(C): The test changes therapy or outcome
(D): All of the above

13. _____refers to the proportion of true-positive results in mammography.
(A): Sensitivity
(B): Specificity
(C): Positive Predictive Value (PPV)
(D): none of the above

14. _____refers to the proportion of true-negative results in mammography.
(A): Sensitivity
(B): Specificity
(C): Positive Predictive Value (PPV)
(D): none of the above

15. _____refers to the probability that a patient with a positive test actually has the disease.
(A): Sensitivity
(B): Specificity
(C): Positive Predictive Value (PPV)
(D): none of the above

16. According to the article, the overall evidence in usefulness of mammography indicates that the availability of screening reduces mortality from breast cancer by _____ to _____%.
(A): 5 to 10
(B): 10 to 15
(C): 20 to 30
(D): 35 to 50

17. The breast cancer is difficult to detect in which of the following?
(A): women over 55
(B): radiographically dense breasts
(C): breast with silicone implants
(D): none of the above

18. _____ refers to the relative lightness of a mammogram and is determined by the number of x-ray photons that penetrate the breast.
(A): Mammographic density
(B): Specificity
(C): Positive Predictive Value (PPV)
(D): Sensitivity

19. Fat in breast tissue is radiographically translucent, so x-rays pass through it without absorption and making it appear _____on x-ray images.
(A): lighter
(B): darker
(C): grainy
(D): none of the above

20. Which of the following generally appear as whiter areas on mammograms because they tend to absorb more x-ray photons?
(A): Breast cancers
(B): microcalcifications
(C): fatty tissue
(D): A and B only

21. _____is considered as a risk factor for missed cancers.
(A): women over 70
(B): breast density
(C): use of x ray photons
(D): digital mammography

22. Which of the following technologies are less affected by breast density?
(A): Ultrasound
(B): MRI
(C): Mammography
(D): A and B only

23. Which of the following factors influence breast density?
(A): obesity, ethnicity and age
(B): stage of menstrual cycle
(C): number of live births
(D): All of the above

24. Mammography is painful for some women because it requires _____ of the breast during exam.
(A): compression
(B): x rays
(C): contrast
(D): none of the above

25. According to the article, The Mammography Quality Standards Act (MQSA) requires that women receive their mammogram results within_____ days of testing.
(A): 1
(B): 5
(C): 30
(D): 60

26. If the mammogram is positive, a woman must undergo a secondary assessment phase involving_____to establish a definitive diagnosis.
(A): needle and/or open surgical biopsy
(B): chemotherapy
(C): radiation therapy
(D): mastectomy

27. The image quality has improved in mammography significantly and radiation exposure has been greatly reduced, so that the average amount of radiation absorbed during a mammogram is now _____.
(A): high
(B): very low
(C): very high
(D): none of the above

28. There are no large-scale epidemiological studies that have been able to detect an increase in cancer rate due to the radiation exposure in mammography exams.
(A): True
(B): False

29. Due to mammography screening, the diagnosis of ductal carcinoma in situ (DCIS) has increased and it has raised concerns of possible _____.
(A): under treatment
(B): over treatment
(C): deaths
(D): none of the above

30. DCIS occurs when malignant _____proliferate within the breast ducts but remain confined by the basement membrane.
(A): erythrocytes
(B): lymphatic tissues
(C): leukocytes
(D): epithelial cells

31. Women with biopsy-proven DCIS are typically treated surgically with which of the following?
(A): mastectomy
(B): umpectomy

(C): chemotherapy
(D): A and B only

Chapter 3

32. In United states and Canada, the mammography screening program started in _____.
(A): 1970
(B): 1975
(C): 1988
(D): 1993

33. Most women who undergo biopsies will not have breast cancer.
(A): True
(B): False

34. Breast cancer screening programs can be compared according to the differences in which of the following measures?
(A): breast cancer survival rates
(B): rates of abnormal mammograms
(C): rates of false positives
(D): all of the above

35. According to a study _____ had probably contributed more to the reduction of mortality rates than had improvements in therapy.
(A): taking daily vitamins
(B): early detection through screening
(C): aerobic exercise
(D): none of the above

36. In 1988, _____ had the highest breast cancer mortality rate in Europe.
(A): Sweden
(B): Austria
(C): United Kingdom
(D): France

37. Which of the following has designed to improve the delivery of mammography services through quality assurance program in the United States?
(A): MQSA
(B): CDC
(C): ARRT
(D): ASRT

38. Callback rates in mammography screening can be reduced when mammograms are read by breast imaging specialists at a central location, as opposed to having them dispersed among the sites where the mammography is done.
(A): True
(B): False

39. What is the average cost of a diagnostic workup following a false-positive mammogram?
(A): $100 per case
(B): $500 per case
(C): $800 per case

(D): $900 per case

40. An access to mammography services needs to be available in United States regardless of which of the following situation/s?
(A): financial
(B): cultural
(C): educational
(D): all of the above

41. Which of the following factors are associated with lower rates of cancer screening, higher probability for later stage diagnosis and **lack** of breast health awareness?
(A): low income and higher rates of poverty
(B): lower levels of education
(C): lack of access to health care
(D): all of the above

42. The Centers for Disease Control and Prevention's (CDC's) National Breast and Cervical Cancer Detection Program was launched in _____ to provide screening services for uninsured women who were not eligible for Medicaid.
(A): 1940
(B): 1990
(C): 2000
(D): 2010

43. _____ is possibly the most heavily legislated medical procedure in history.
(A): Colonoscopy
(B): Angiography
(C): Mammography
(D): Ultrasound

44. Which of the following was enacted in 1992 to ensure that all women have access to quality mammography for the detection of breast cancer in its earliest stages?
(A): ARRT
(B): CDC
(C): MQSA
(D): ASRT

45. Which of the following is/are Certification Bodies to issue approval for providing mammography services?
(A): Food and Drug Administration (FDA)
(B): State of Illinois
(C): State of Iowa
(D): All of the above

46. The MQSA is responsible for the stringent set of regulations that govern which of the following?
(A): clinical image quality and personnel qualifications
(B): equipment and medical records
(C): consumer complaint mechanisms
(D): all of the above

47. The initial push for MQSA legislation was sparked by public concern about the inconsistent quality of mammography and was spearheaded in a national effort led by

women's health organizations and breast cancer advocates.
(A): True
(B): False

48. _____ requires every mammographic facility to keep track of all positive mammograms including follow-up correlation of pathology results with the interpreting physician's mammography report.
(A): MQSA
(B): CDC
(C): ARRT
(D): ASRT

49. Which of the following was introduced by the American College of Radiology (ACR) to provide a uniform system of assessing mammography results?
(A): HIS
(B): BI-RADS®
(C): RIS
(D): PACS

50. Mammograms consist of shadowy outlines of fat and soft tissue in varying shades of _____.
(A): gray
(B): white
(C): black
(D): none of the above

51. The accuracy of radiologists in interpreting mammograms depends on which of the following factors?
(A): case and practice variation
(B): training and experience
(C): type of screening program in which they practice
(D): all of the above

52. Which of the following factors affect the **quality** of Screening Mammography?
(A): Breast density and Breast cancer history
(B): Individual radiologists
(C): Health care system
(D): All of the above

53. _____systems offer better contrast and lower spatial resolution at a lower radiation dose than traditional screen film mammography.
(A): CT
(B): MRI
(C): Digital mammography
(D): Sonography

54. Digital units probably also improve workflow, allowing radiologists to view images in less than a minute, compared to the 8 to 10 minutes required from screen film systems.
(A): True
(B): False

55. How is digital mammography **different** than conventional mammography?
(A): it uses x ray films

(B): it digitizes radiographic data
(C): it does not use ionizing radiation
(D): none of the above

56. In 2001, which of the following launched the multi-center DMIST study to compare digital mammography with standard mammography for the detection of breast cancer?
(A): National Cancer Institute (NCI)
(B): American College of Radiology Imaging Network (ACRIN)
(C): CDC
(D): A and B only

57. The digital mammography devices are _____expensive than conventional devices.
(A): less
(B): more
(C): equally
(D): none of the above

58. What CAD stands for?
(A): Computer-Aided Detection
(B): Computer Access Device
(C): Computer Advance Device
(D): Computer Advantage Data

59. The CAD offers radiologists which of the following?
(A): diagnosis
(B): treatment option
(C): double read
(D): none of the above

60. The **basic** CAD systems consist of a workstation with display and _____.
(A): signal processing software
(B): x ray film processor
(C): kVp selector
(D): mAs selector

61. The CAD units highlights which of the following areas of concerns for radiologist's review?
(A): masses
(B): calcifications
(C): architectural distortions
(D): All of the above

62. Which of the following CAD devices approved by FDA?
(A): ImageChecker M1000®
(B): Second Look®
(C): MammoReader®
(D): All of the above

63. According to 2001 study, using both conventional mammography reading techniques as well as CAD technology, radiologists found nearly _____ more cancers with CAD than they did without.
(A): 5%
(B): 20%

(C): 40%
(D): 60%

64. Which of the following specialist are the **most** often the targets of litigation because of missed breast cancer diagnosis?
(A): Cardiologist
(B): Urologists
(C): Radiologists
(D): Ophthalmologists

65. In 1991, the FDA cleared _____ for use as a diagnostic tool to evaluate breast tissue abnormalities found in other exams but **not** as a screening tool.
(A): MRI
(B): mammography
(C): PET
(D): none of the above

66. MRI is useful in a number of clinical indications such as finding _____that are sometimes missed in mammograms.
(A): large breast lesions
(B): breast implants
(C): small breast lesions
(D): none of the above

67. MRI is better at which of the following?
(A): generating better images of dense augmented breast tissue
(B): revealing multifocality of breast cancer
(C): aiding in treatment staging and follow-up
(D): all of the above

68. Which of the following is the **primary** modality for detecting ductal carcinoma in situ (DCIS)?
(A): MRI
(B): mammography
(C): Ultrasound
(D): CT

69. _____might help detect otherwise occult foci (such as those that occur in DCIS), or in patients with small or dense breasts for whom mammography can be less reliable.
(A): CT
(B): Ultrasound
(C): contrast enhanced MRI
(D): digital mammography

70. Which of the following contrast is used to provide better soft tissue contrast and differentiate cancer from benign surrounding tissue in MRI?
(A): gadolinium
(B): barium
(C): gastrografin
(D): iodine

71. In figure 3-5, which image represent MRI mammogram?
(A): right

(B): left

72. In MRI, when compared to benign breast lesions, cancerous lesions tend to absorb the contrast agent _____and the gadolinium-based agents are washed out _____.
(A): slower, faster
(B): faster, slower
(C): slower, slower
(D): faster, faster

73. Since the techniques for performing and interpreting breast MRI are not standardized, breast MRI performance has been variable, and it has been challenging to determine its clinical efficacy.
(A): True
(B): False

74. How much breast MRI cost?
(A): less than conventional mammography
(B): about 10 times the cost of conventional mammography
(C): about 50 times the cost of conventional mammography
(D): about 80 times the cost of conventional mammography

75. Ultrasound gained FDA approval in _____ as a means to evaluate suspicious mammography findings.
(A): 1970
(B): 1972
(C): 1977
(D): 1980

76. Which of the following is the **main** reason for mammography facility closures?
(A): financial factors
(B): patients
(C): radiologists
(D): none of the above

77. The ACR and the American Society of Radiological Technologists (ASRT) have jointly defined a new physician extender with expertise in medical imaging called _____.
(A): PACS Administrator
(B): Radiation Therapist
(C): Radiological Associate or Radiologist Assistant (RA)
(D): Radiation Officer

78. Who surveys mammography equipment and oversees quality assurance practices?
(A): Medical Physicist
(B): Radiologic Technologist
(C): Interpreting Physician
(D): none of the above

79. According to the requirements set by the FDA in the Code of Federal Regulations for Mammography, Radiologic Technologist **must** perform _____mammograms every 2 years.
(A): 100
(B): 200
(C): 400

(D): 500

Chapter 4
80. Risk assessment is and will almost certainly remain an essential component of early detection of breast cancer.
(A): True
(B): False

81. An _____ is a measure of the probability of developing cancer over a specified time interval.
(A): Inherited risk
(B): A*bsolute risk*
(C): Unseen risk
(D): None of the above

82. A _____compares the risk of disease among people with a particular risk factor to the risk among people without that risk factor.
(A): genetic risk
(B): inherited risk
(C): absolute risk
(D): relative risk

83. The _____ % of women who develop breast cancer have no family history among their first-degree relatives (mother, daughter, or sister).
(A): 40
(B): 57
(C): 63
(D): 89

84. According to table 4-1 what is the probability of developing breast cancer for women on their 50s in the next 10 years?
(A): 0.40%
(B): 1.45%
(C): 2.78%
(D): 4.31%

85. Approximately what percentage of women who develop breast cancer have the type of cancer called hormone receptor positive?
(A): 15
(B): 20
(C): 50
(D): 70

86. Mammographic breast _____ may be the **most** undervalued and underused risk factor in studies investigating breast cancer.
(A): cysts
(B): size
(C): density
(D): none of the above

87. In order for a breast cell to become cancerous, it must accumulate a _____ of molecular changes that alter key genes or their functions.
(A): critical mass

(B): fluid cyst
(C): pus collection
(D): none of the above

88. The **majority** of breast cancer cases are due to an accumulation of _____ changes that occur during a patient's lifetime.
(A): nervous system
(B): cellular (somatic)
(C): dopamine
(D): cholesterol

89. Which of the following gene/s is/are responsible for breast cancer?
(A): BRCA1
(B): BRCA2
(C): BRCA3
(D): A and B only

90. Women with BRCA mutations who develop breast cancer usually have several other risk factors that are likely to be shared with their relatives.
(A): True
(B): False

91. Because more than _____ % of women will develop breast cancer in their lifetimes, BRCA tests clearly will be a small piece in the puzzle of identifying individual risk.
(A): 10
(B): 37
(C): 57
(D): 70

92. The subtle DNA changes, known as _____ determine breast cancer susceptibility.
(A): BRCA4
(B): polymorphisms
(C): BRCA3
(D): BRCA5

93. Researchers seeking to discover polymorphisms that boost breast cancer risk have tended to focus their search on which of the following biologically plausible genes?
(A): genes known to be involved in the metabolism of carcinogens
(B): genes involved in regulation of estrogen levels
(C): proto-oncogenes of genes known to cause cancer
(D): all of the above

94. Mammography screening guidelines already consider two of the most significant risk factors, gender and age.
(A): True
(B): False

95. According to the report, **most** screening guidelines recommend _____ mammograms for every woman over 50.
(A): every 6 months
(B): every two years
(C): annual
(D): every five years

96. For every, 1,000 women over age 50 screened, mammograms will reveal approximately _____ cases of invasive or in situ breast cancer (DCIS).
(A): 3-5
(B): 6-8
(C): 9-10
(D): 11-15

97. Male breast cancer can occur, but too rarely to screen with Mammography.
(A): True
(B): False

98. Each year about _____ men in the United States are diagnosed with new cases of invasive breast cancer, and about 400 will die of breast cancer.
(A): 300
(B): 1,300
(C): 3,300
(D): 13,000

99. The symptoms and types of breast cancers found in men are like those found in women, except for lobular cancers, which men do not develop.
(A): True
(B): False

100. In Gail model which of the following risk factors are used to obtain risks of cancer over fixed time periods?
(A): Current age
(B): Age at menarche and first live birth
(C): Number of prior breast biopsies and first-degree relatives with breast cancer
(D): all of the above

101. Individual screening strategies are essential for improving the early detection of breast cancer, and risk assessment is an essential step in the development of individualized screening strategies.
(A): True
(B): False

102. Mammography is less sensitive in women younger than _____, because they tend to have dense breasts.
(A): 40
(B): 55
(C): 68
(D): 75

103. More than three-quarters of women in one large survey recognized family history as a major determining factor for developing breast cancer, but only _____% correctly identified old age as a risk factor.
(A): 5
(B): 13
(C): 36
(D): 50

104. _____ are tools that assist in choosing between complex alternatives such as determining optimal breast cancer screening strategies or choosing breast cancer treatment options.
(A): Insurance coverages
(B): Personal medical experiences
(C): Decision aids
(D): None of the above

105. A large body of research has shown that good communication and strong patient-provider relationships are linked to which of the following?
(A): greater patient satisfaction
(B): positive health outcomes
(C): stressful diagnosis
(D): both A and B

Chapter 5
106. Which of the following areas are biologically based technologies that hold the promise of revolutionizing breast cancer detection and management?
(A): cancer biomarkers
(B): molecular profiles
(C): molecular imaging
(D): all of the above

107. Instead of competing with mammography, biologically based technologies for breast cancer detection are currently poised to serve as its adjuncts.
(A): True
(B): False

108. _____ has an acceptable sensitivity, and despite its modest specificity, it locates the tumor for definitive biopsy.
(A): Blood test
(B): Mammography
(C): Liver enzymes test
(D): None of the above

109. A _____ is an objectively measurable characteristic that can be evaluated as an indicator of normal biological processes, disease, or response to therapeutic intervention.
(A): symptoms
(B): biomarker
(C): polymorphism
(D): none of the above

110. Which of the following paths are used to search for cancer biomarkers?
(A): hypothesis-driven
(B): discovery-based
(C): family history based
(D): A and B only

111. Biomarker testing may complement _____ in breast cancer detection.
(A): CT
(B): Sonography
(C): mammography
(D): none of the above

112. Which of the following can elevate its level in breast cancer tissue and may be involved in metastasis?
(A): CA 15-3 protein
(B): BRCA3
(C): BRCA4
(D): BRCA5

113. In the United States, _____ is the current standard of care for virtually every suspicious lesion.
(A): chemotherapy
(B): biopsy
(C): radiation therapy
(D): none of the above

114. The biomarkers are likely to be useful as adjunct to other procedures, including which of the following?
(A): Differential diagnosis or prognosis
(B): Assistance in the choice of therapy and evaluation of its outcome
(C): Monitoring patients with ongoing disease before or after therapy
(D): all of the above

115. CA 15-3, approved in _____ by the Food and Drug Administration (FDA) for the detection of recurrent breast cancer, may also prove useful in monitoring response to therapy for metastatic breast cancer. (A): 1890
(B): 1990
(C): 1997
(D): 2002

116. A successful bioassay for breast cancer will need to overcome which of the following roadblocks?
(A): variability associated with cancers of different histologic types
(B): expression patterns within histologic types
(C): noncancerous patient conditions and intrinsic human biochemistry
(D): all of the above

117. Which of the following was founded in 2000 to facilitate biomarker discovery and validation through the collaboration among government, academia, and industry?
(A): MQSA
(B): Early Detection Research Network (EDRN)
(C): FDA
(D): ACR

118. EDRN consists of which of the following components?
(A): Clinical Epidemiological Centers
(B): Biomarker Validation Laboratories
(C): Biomarker Discovery Laboratories
(D): all of the above

119. The guiding Principle, Preclinical exploratory used in biomarker validation is part of which of the following phases?
(A): Phase 1
(B): Phase 2

(C): Phase 3
(D): Phase 4

120. Which of the following act protects patient confidentiality?
(A): MQSA
(B): Health Insurance Portability and Accountability Act (HIPAA)
(C): FDA
(D): Early Detection Research Network (EDRN)

121. Which of the following can serve as cancer biomarker/s among cancer candidates?
(A): Genomics
(B): Proteomics
(C): mammogram
(D): A and B only

122. Serum proteomic profiling, the analysis of disease-related changes in proteins circulating in the blood, reveals patterns that may ultimately be used to detect cancer, identify therapeutic targets, and monitor response to therapy.
(A): True
(B): False

123. Which of the following techniques can detect and map cancer-related changes in DNA copy number?
(A): CGH
(B): RNA
(C): PCR
(D): none of the above

124. In breast tumors, microarray CGH frequently reveals which of the following characteristic that may provide prognostic and/or diagnostic markers for breast cancer?
(A): loss of whole or partial chromosome arms
(B): gene amplification
(C): erosion of the ends of chromosomes
(D): all of the above

125. The genetic mutations can disrupt control of cellular functions by doing what?
(A): Alterations in gene copy number
(B): Post-translational processing
(C): Phosphorylation
(D): all of the above

126. The blood serum accumulates which of the following from body tissues?
(A): Proteins
(B): protein fragments
(C): metabolites
(D): all of the above

127. What does Molecular imaging do in breast cancer?
(A): In vivo measurement
(B): biological process characterization
(C): biological process quantification
(D): all of the above

128. Which of the following are considered molecular imaging modalities?
(A): PET and SPECT
(B): Optical imaging and fluorescence
(C): MRI, CT and Sonography
(D): all of the above

129. MRI is used to detect breast cancer because it offers what?
(A): higher spatial resolution
(B): simultaneous depiction of molecular information
(C): simultaneous depiction of anatomical information
(D): all of the above

130. MRI uses which of the following to scan objects?
(A): x-rays
(B): gamma rays
(C): radiowaves
(D): soundwaves

Chapter 6
131. Basic research lays the foundation for the discovery and invention of new medical technologies, but the path from discovery to adoption is long and often full of unexpected turns.
(A): True
(B): False

132. In United States, a research technology must pass _____ review for safety and effectiveness before it can be marketed.
(A): MQSA
(B): EDRN
(C): FDA
(D): ACR

133. What is the **last** step in pathways of medical technology development?
(A): widespread clinical use
(B): FDA approval
(C): investigation
(D): discovery

134. With the **possible exception** of AIDS,_____ research receives more funding than any other disease in the US.
(A): prostate cancer
(B): breast cancer
(C): colon cancer
(D): ovarian cancer

135. In _____, the National Cancer Institute (NCI) convened the Breast Cancer Research Progress Group, a panel of 30 prominent members of the scientific, medical, and advocacy communities to identify the most important research needs in breast cancer.
(A): 1890
(B): 1990
(C): 1998
(D): 2003

136. Which of the following state government is one of the **major** funders of breast cancer research?
(A): Washington DC
(B): Florida
(C): California
(D): Texas

137. Which of the following federal organization is responsible for tracking emerging technologies and patterns of care to determine applicability of existing national coverage policy and to assess the need for policy change?
(A): ECRI
(B): Hayes, Inc.
(C): Blue Cross Blue Shield
(D): Centers for Medicare & Medicaid Services (CMS)

138. Medical technology assessment in the United States has been described as "a battle that's been fought and lost many times before."
(A): True
(B): False

139. Office of Technology Assessment (OTA) was created in _____ as an analytical arm of Congress and conducted studies in nine areas, one of which was health.
(A): 1950
(B): 1972
(C): 1981
(D): 2001

140. _____ is the first large-scale collaborative clinical trials group devoted to the development of technologies for medical imaging.
(A): Office of Health Technology Assessment (OHTA)
(B): National Center for Health Care Technology (NCHCT)
(C): American College of Radiology Network (ACRIN)
(D): None of the above

141. _____ is rarely assessed in the initial phase of technology assessment done by health care payers and it is not a part of FDA's approval criteria.
(A): Treatment outcome
(B): Cost-effectiveness
(C): Diagnostic effectiveness
(D): Disease prognosis

142. Cost-effectiveness analysis has the potential to contribute to rational decision making by providing estimates of the magnitude of costs and health outcomes.
(A): True
(B): False

143. _____ are one of the first steps in assessing medical technologies.
(A): Insurance policies
(B): Patient surveys
(C): Clinical studies
(D): Marketing strategies

144. From a company's perspective, failure to obtain _____ spells disaster, and often

signals the end of the project.
(A): Insurance companies' approval
(B): FDA approval
(C): Patient satisfaction data
(D): None of the above

145. Which of the following are common causes of failures in clinical trial designs?
(A): Poorly Described Patient Populations and Techniques
(B): Bias and Too Narrow a Patient Population
(C): Inappropriate Statistical Analysis and Planning
(D): all of the above

146. According to AHRQ study _____ was the only risk factor that definitively showed clinical significance in poorly designed studies.
(A): family history
(B): socioeconomic status
(C): patient age
(D): none of the above

147. There are three major measures of cancer status in a population: incidence, survival, and mortality.
(A): True
(B): False

148. _____ is the term used for the time interval from diagnosis to death from cancer, in patients who contract the disease.
(A): Toxicity
(B): Prognosis
(C): *Survival*
(D): Treatment

149. _____ is the term used to describe the rate at which subjects die of the disease in the population targeted for the cancer prevention intervention.
(A): Imaging screening
(B): *Mortality*
(C): Diagnosis
(D): Treatment

150. _____ curves are used to illustrate the effects of different factors on breast cancer survival.
(A): H & D
(B): Kaplan-Meier
(C): Threshold
(D): Non-threshold

151. According to the Kaplan-Meier curve a woman diagnosed with a 12-mm breast cancer tumor has a _____ percent chance of surviving another 5 years.
(A): 50
(B): 67
(C): 79
(D): 97

152. The evaluation of any cancer screening test can be affected by which of the following

profound sampling biases?
(A): *length-biased sampling*
(B): *lead-time bias*
(C): environmental biases
(D): both A and B

153. Because the growth rates of tumors are generally heterogeneous, patients with slow-growing tumors will enjoy a longer period during which the cancer is potentially screen-detectable but not yet symptomatic than patients with fast-growing tumors.
(A): True
(B): False

154. The trials have validated that _____ can reduce breast cancer mortality.
(A): caffeine intake
(B): vitamins
(C): radiologic screening
(D): diet and exercise

155. Which of the following techniques complement conventional mammography in breast cancer screening?
(A): Digital mammography
(B): Magnetic Resonance Imaging (MRI)
(C): Computer-Assisted Detection (CAD)
(D): all of the above

156. Which of the following is a comparison of digital mammography with film mammography?
(A): Digital Mammography Imaging Screening Trial (DMIST)
(B): American College of Radiology Imaging Network (ACRIN)
(C): Early Detection Research Network (EDRN)
(D): None of the above

157. For breast cancer, the ideal reference standard is _____.
(A): chemotherapy
(B): biopsy
(C): radiation therapy
(D): antibiotics

158. A screening tool based on a blood test offers a potentially much expensive option than radiologic approaches.
(A): True
(B): False

159. The preliminary evaluation of a serum marker is simpler than for a _____ test, because the serum marker study can be applied retrospectively to stored blood samples.
(A): neurologic
(B): cardiac
(C): radiologic
(D): none of the above

160. In _____, Congress passed the Clinical Research Enhancement Act, which directed NIH to expand the resources for clinical research.
(A): 1900

(B): 1993
(C): 1998
(D): 2000

161. In clinical practice, physicians usually have several choices and must choose among different technologies or procedures.
(A): True
(B): False

162. Most clinical trials are designed to establish the efficacy and safety of a single treatment compared with an alternative, often a _____.
(A): home treatment
(B): placebo
(C): herbal remedy
(D): none of the above

163. Clinical trials done to meet _____ requirements for approval to market a drug are required to include a placebo comparison group except in rare circumstances.
(A): CDC
(B): MQSA
(C): FDA
(D): AMA

164. The ALLHAT data demonstrated that lowering _____ is the most important aspect of hypertension management.
(A): blood pressure
(B): sugar level
(C): cholesterol level
(D): iron level

165. Doxazosin is an alpha-blocker and used to treat hypertension.
(A): True
(B): False

166. Each year, about $____ billion is spent to treat the 50 to 60 million people in the United States with
hypertension.
(A): 2
(B): 6
(C): 9
(D): 15

167. Large-scale, well-designed clinical trials are the linchpins for converting the raw potential of new technologies into interventions that improve health and prolong lives.
(A): True
(B): False

168. It often takes _____ to enroll enough subjects for a scientifically meaningful and statistically valid clinical trial.
(A): 3 to 5 days
(B): 3 to 5 weeks
(C): 3 to 5 months
(D): 3 to 5 years

169. Cancer detection and screening trials generally require vast numbers of participants—as many as 20,000 to 50,000—because the endpoint (cancer incidence or death) is infrequent.
(A): True
(B): False

170. Which of the following cancer detection study trial that compares digital mammography with screen-film mammography?
(A): MQSA
(B): Breast Cancer Society
(C): DMIST
(D): FDA

171. _____ studies offer no direct benefit to volunteers, but instead involve the nuisance of filling out long questionnaires and the risks and discomfort of donating DNA samples.
(A): Pharmaceutical
(B): Hospital based
(C): Epidemiological
(D): None of the above

172. Many people decline to participate in genetic testing or research because they fear the results of tests could be used by health and life insurance companies and employers to discriminate against them.
(A): True
(B): False

173. _____ is the first biologic therapy ever approved for the treatment of breast cancer.
(A): Zestril®
(B): Herceptin®
(C): Prinivil®
(D): Lotrel®

174. _____ was created to streamline industry inefficiencies in data transfer, improve access to health insurance, better detect fraud and abuse, and ensure the privacy and confidentiality of health information.
(A): Mammography Quality Standards Act (MQSA)
(B): Health Insurance Portability and Accountability Act (HIPAA)
(C): Hospital Readmissions Reduction Program (HRRP)
(D): Affordable Care Act of 2010

175. The purpose of the HIPAA Privacy Rule, a component of HIPAA, is to establish minimum federal standards for safeguarding the privacy of individually identifiable health information.
(A): True
(B): False

176. Researchers in medical and health-related disciplines rely on access to which of the following sources of health information?
(A): medical records and epidemiological databases
(B): disease registries and hospital discharge records
(C): government documents reporting vital and health statistics

(D): all of the above

177. Digital imaging technology increases opportunities for which of the following?
(A): electronic sharing of images
(B): electronic sharing of data
(C): information among a wide network of clinicians and researchers
(D): all of the above

178. Which of the following can store digital images from MRI, Ultrasound and other digital modalities?
(A): pdf files
(B): film storage archive
(C): National Digital Mammography Archive
(D): none of the above

Chapter 7

179. Which of the following is a proper term for the likelihood that a particular intervention will benefit patients when used under optimal or ideal experimental conditions?
(A): Efficacy
(B): Effectiveness
(C): intervention
(D): results

180. Which of the following is/are phase/s of technology adoption?
(A): Technology assessment
(B): Technology deployment
(C): Technology monitoring
(D): all of the above

181. Which of the following creates a breast map with a small electrical current without compression?
(A): MRI
(B): T-Scan
(C): Optical imaging
(D): Digital mammography

182. Most insurance companies now cover BRCA testing for breast cancer, but ___ is not covered for screening.
(A): CAD
(B): Magnetic Resonance Imaging (MRI)
(C): Conventional mammography
(D): none of the above

183. Many of the important new technologies in breast cancer detection and diagnosis rely on improvements in information handling, and therefore have significant implications for organizational structure.
(A): True
(B): False

184. Which of the following project illustrated the value of attention to organization for patients benefits?
(A): The California Mammography Project
(B): The Florida Mammography Project

(C): The Colorado Mammography Project
(D): The Texas Mammography Project

185. According to the recommendation in the article, health care providers and payers should consider adopting elements of successful breast cancer screening programs from other countries.
(A): True   (B): False

186. Who should be enlisted to prescreen or double-read mammograms for abnormalities to expand the capacity of breast imaging specialists?
(A): primary care physicians
(B): radiologist
(C): trained non-physician personnel
(D): none of the above

187. Which of the following should be integrated to develop new screening strategies for breast cancer?
(A): biology
(B): technology
(C): risk models
(D): all of the above

188. Professional societies should work together with women's health organizations to identify barriers to participation in studies and ways in which those barriers might be overcome.
(A): True
(B): False

189. Which of the following modality provides mammograms that are taken at several angles to provide high resolution cross-sections and three-dimensional images?
(A): CAD
(B): Tomosynthesis
(C): Screen-Film mammography
(D): Diffraction Enhanced Imaging

190. Screen-Film Mammography is also known as Conventional X-Ray Mammography.
(A): True   (B): False

191. _____ be stored and retrieved electronically, making remote consultations with other mammography specialists possible/easier and lost mammogram films less likely.
(A): Digital mammography
(B): FFDM
(C): Conventional mammography
(D): Both A and B

192. Which of the following modality is used when abnormalities are unclear on a mammogram, to determine the extent of tumor growth after initial diagnosis and to evaluate the effectiveness of treatments?
(A): Digital mammography
(B): CT
(C): MRI
(D): none of the above