Health Promotion, Screening, & Early Detection
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2017 OCN Test Blueprint Content Areas

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Percentage of 2017 Test</th>
<th># of Scored Questions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Promotion, Screening &amp; Early Detection</td>
<td>6%</td>
<td>9</td>
</tr>
<tr>
<td>Scientific Basis for Practice</td>
<td>9%</td>
<td>13</td>
</tr>
<tr>
<td>Treatment Modalities</td>
<td>16%</td>
<td>23</td>
</tr>
<tr>
<td>Symptom Management</td>
<td>22%</td>
<td>32</td>
</tr>
<tr>
<td>Psychosocial Dimensions of Care</td>
<td>8%</td>
<td>12</td>
</tr>
<tr>
<td>Oncologic Emergencies</td>
<td>12%</td>
<td>17</td>
</tr>
<tr>
<td>Survivorship</td>
<td>8%</td>
<td>12</td>
</tr>
<tr>
<td>Palliative &amp; End of Life Care</td>
<td>11%</td>
<td>16</td>
</tr>
<tr>
<td>Professional Performance</td>
<td>8%</td>
<td>12</td>
</tr>
</tbody>
</table>

*To determine the number of scored items from each subject area, multiply the percentage by 145.


Health Promotion, Screening, & Early Detection
(6% of test, 9 questions)

- Health Promotion
- Epidemiology
  - e.g. at-risk population, occupations, age
- Prevention
  - e.g. high-risk behaviors, preventative health practices
- Screening & early detection

Cancer Epidemiology

- The study of:
  - How cancer is distributed in a population
  - Factors that influence cancer distribution over time
  - Tends in cancer over time
    - Impacts of treatment, screening, and preventive measures
Cancer Incidence

- The number of new cancers of a specific site/type occurring in a specified population during a year
- Usually expressed as the number of cancers per 100,000 population at risk.

\[
\text{Incidence Rate} = \left( \frac{\text{New Cancers}}{\text{Population}} \right) \times 100,000
\]

Cancer Prevalence

- The total number of people living with cancer at any point in time.
- Includes new (incidence) and preexisting cases
- It is a function of both past incidence and survival

Incidence vs Prevalence

- Incidence:
  - About 1,688,780 new cancer cases are expected to be diagnosed in 2017
  - This estimate does not include carcinoma in situ (noninvasive cancers)
- Prevalence
  - 14.5 Americans with a history of cancer were alive on January 1, 2014

Sources of Epidemiologic Information:
Cancer Facts & Figures

- Published each year by the American Cancer Society (ACS)
- Download online at [www.cancer.org](http://www.cancer.org)
- Estimated annual cancer incidence, prevalence, & mortality
- Survival statistics
- Information on cancer symptoms, risk factors, early detection, and treatment

American Cancer Society: Cancer Facts & Figures 2017
Cancer Statistics

- National Cancer Institute
  - Surveillance, Epidemiology, and End Results Program (SEER)
- Video Series: “Did You Know”
  - Multiple videos on cancer statistics
  - Cancer Health Disparities
  - Cancer Survivors
  - Specific tumor types (e.g. breast, lung, colorectal, etc)

Cancer Mortality

- The number of deaths attributed to cancer during a specified time period in a defined population
- In 2017:
  - About 600,920 Americans expected to die of cancer
  - This is almost 1,647 people per day
- Cancer is the second most common cause of death in US (accounts for nearly 1 of every 4 deaths)
  - Exceeded only by heart disease
Mortality Rates

- Cancers associated with the highest mortality:
  - Lung
  - Prostate/Breast
  - Colon
  - Pancreas
- These 4 cancers account for half the total cancer deaths
- Mortality rates provide insight into:
  - Strengths of early detection measures
  - Effectiveness of current standard therapy

Cancer Health Disparities

- Adverse differences in incidence, prevalence, mortality, survivorship, and burden of cancer or related health conditions
- Exist among specific population groups in the U.S.
  - Population groups may be characterized by age, disability, education, race/ethnicity, gender, income, poverty, lack of health insurance, geographic location & medically underserved
Statistics on Race/Ethnicity Incidence & Mortality in Cancer

<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>White women have highest incidence</td>
</tr>
<tr>
<td></td>
<td>African American women have highest mortality</td>
</tr>
<tr>
<td>Cervical</td>
<td>Hispanics/Latina women have highest incidence rates</td>
</tr>
<tr>
<td></td>
<td>African American women have highest mortality rates</td>
</tr>
<tr>
<td>Prostate</td>
<td>African American men have highest incidence and mortality</td>
</tr>
<tr>
<td></td>
<td>(twice as likely to die as white men)</td>
</tr>
<tr>
<td>Lung &amp; Colorectal</td>
<td>African American men have highest incidence &amp; mortality</td>
</tr>
<tr>
<td>Liver &amp; Stomach</td>
<td>Asians/Pacific Islanders have highest incidence &amp; mortality</td>
</tr>
<tr>
<td>Kidney</td>
<td>American Indians/Alaska Natives have highest incidence &amp; mortality</td>
</tr>
</tbody>
</table>

Cancer Rates by Population Variables

- **Age**
  - Risk of developing cancer increases with age
  - 78% of all cancers diagnosed in age ≥ 55 years
- **Gender**
  - Women: 1 in 3 lifetime risk of developing cancer
  - Men: 1 in 2 lifetime risk of developing cancer
Cancer Rates by Population Variables

• Geography
  – White women who live in Appalachia have significantly higher risk of developing cervical cancer than other white women in U.S.
  – More advanced disease on diagnosis for rural populations
  – Migratory data – when people move to a population area, they develop the cancer pattern of the area

• Socioeconomic status (SES)
  – Low SES associated with increased risk of lung, cervical, stomach, and head/neck cancer
  – Tobacco use has increased among poorer populations
  – High SES associated with increased risk of breast, prostate, and colon cancer

Levels of Prevention

• Primary
• Secondary
• Tertiary

Primary Prevention

• Measures to prevent disease
  – Avoid carcinogen exposure
  – Promote healthy lifestyle

• Reduces the risk of developing cancer; however some individuals will still develop malignancy

• Focus is to:
  – Prevent cancer from ever developing OR
  – Delay development of malignancy

Secondary Prevention

• Early detection
  – Subclinical, asymptomatic, or early disease in people without signs & symptoms

• Identifying people at risk for malignancy & implementing appropriate screening

• Examples of secondary prevention:
  – Pap smear to detect cervical cancer
  – Mammogram to detect a nonpalpable breast cancer
  – Colonoscopy to detect or remove a polyp or early colon cancer
Tertiary Cancer Prevention

• Monitoring for and preventing recurrence of the originally diagnosed cancer
• Cancer screenings for second primary cancer & long-term side effects of treatment in cancer survivors
• Examples of tertiary cancer prevention:
  – Monitoring tumor markers for early signs of recurrence
  – Detecting secondary malignancies early in long-term survivors

Impact of Primary Prevention

• One-third (1/3) of the cancer deaths are attributed to lifestyle factors, such as:
  – Poor nutrition, physical activity, overweight, and obesity
• A healthy lifestyle and broader use of screening tests could prevent and delay the development of many cancers.

Recommendations for Cancer Prevention

Refer to “Recommendations for Cancer Prevention” Handout

• Nutrition
• Exercise
• Tobacco cessation
• Skin cancer prevention
• Prevent HPV infection

Facts about Tobacco Use

• Smoking increases the risk of cancer of the mouth, nasal cavities, larynx, pharynx, esophagus, stomach, pancreas, kidney, bladder, and uterine cervix, as well as leukemia.
• Risk of lung cancer:
  – 23 times higher in male smokers
  – 13 times higher in female smokers
• Smoking cessation greatly reduces the risk of death from cancer and other causes.
• Risk of lung cancer also is increased by exposure to secondhand smoke.

American Cancer Society, 2015; American Society of Clinical Oncology, 2015; Centers for Disease Control and Prevention, 2015; U.S. Preventive Services Task Force, 2015.
Annual Cancer Deaths Attributed to Smoking, by site

Benefits of Tobacco Cessation

Short-Term Benefits

- Normalization of:
  - Elevated blood pressure, pulse, and body temperature due to nicotine
  - Blood carbon monoxide and oxygen levels.
- Taste and smell acuity improves.
- Shortness of breath decreases.
- Risk of infection decreases.
- Coughing and sinus congestion decrease.
- Energy level and ability to walk improve.

Long-Term Benefits

- Decreased risk of dying from lung cancer
- Decreased risk of throat, bladder, kidney, or pancreatic cancer
- Reduced risk of stroke or heart attack

Tobacco Cessation

- Cessation is most successful with a combination of behavioral counseling and pharmacotherapy.
- Tobacco users should be advised to quit at each clinical encounter.
- Behavioral counseling can be accomplished through group or individualized sessions.

START Method

- S = Set a quit date.
- T = Tell family, friends, and coworkers that you plan to quit.
- A = Anticipate and plan for the challenges you will face while quitting.
- R = Remove cigarettes and other tobacco products from your home, car, and work.
- T = Talk to a healthcare provider about getting help to quit.
Smoking Cessation Aids

- Nicotine gum and lozenges
- Nicotine patch
- Nicotine inhaler
- Bupropion
- Varenicline

Sample Question

A research study focuses on smoking cessation among a specific target population. This group’s research is focusing on what type of prevention?

a. Primary 
b. Secondary 
c. Tertiary 
d. Integrated

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Sample Question

Eric is a member of a research team that conducts an epidemiologic study. They determine in a given year approximately 1 out of every 12,000 American men has prostate cancer. That figure represents:

a. An incident rate 
b. A mortality rate 
c. A prevalence rate 
d. A survival rate
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d. A survival rate

Risk Factors & Risk Assessment

- **Risk Factors**
  - Trait or characteristic associated with a statistically significant increased likelihood of developing a disease
  - Do not predict who will certainly develop cancer but rather who has an increased chance of developing cancer

- **Risk Assessment**
  - Risk factor assessment guides recommendations for cancer prevention & early detection

Absolute Risk

- Occurrence of cancer, either incidence (new cases) or mortality (deaths), in the general population.
- Helpful to understand what the chances are for all people in a population of developing or dying of a particular disease.
- Expressed as:
  - Number of cases for a specified denominator
  - Cumulative risk up to a specified age
- (e.g. one in eight women will develop breast cancer if they live to age 85)
- Absolute risk assumptions
  - Describes the “average” risk
  - Will overestimate risk for some women with no risk factors
  - Will underestimate risk for some women with several risk factors

Relative Risk

- Comparison of the incidence or deaths among those with a particular risk factor compared to those without the risk factor
- Helpful to better understand personal chances of developing cancer as compared to individuals without such risk factors
- Evaluating Relative Risk
  - No known risk = 1.0
  - A number > 1.0 suggests increased risk
  - A number < 1.0 suggests a possible protective factor
**Selected Relative Risk Factors for Colorectal Cancer**

<table>
<thead>
<tr>
<th>Risk Factor for Colorectal Cancer</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>1.69</td>
</tr>
<tr>
<td>Obesity (body mass index 30+)</td>
<td>1.13</td>
</tr>
<tr>
<td>Physical activity (20+ hours/week)</td>
<td>-0.86*</td>
</tr>
<tr>
<td>High vegetable consumption (5+ servings/day)</td>
<td>-0.99</td>
</tr>
<tr>
<td>Red meat (2+ servings/week as main dish)</td>
<td>1.3</td>
</tr>
<tr>
<td>Multivitamin use</td>
<td>-0.54</td>
</tr>
<tr>
<td>Aspirin/nonsteroidal anti-inflammatory drug use (2+ tablets/week)</td>
<td>-0.39</td>
</tr>
<tr>
<td>Alcohol consumption (&gt; 1 drink per day)</td>
<td>1.1</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.3</td>
</tr>
<tr>
<td>One first-degree relative with colorectal cancer</td>
<td>2.2</td>
</tr>
<tr>
<td>More than one first-degree relative with colorectal cancer</td>
<td>4.0</td>
</tr>
<tr>
<td>Relative with colorectal cancer diagnosed before age 45</td>
<td>3.9</td>
</tr>
</tbody>
</table>

*A negative sign indicates a protective effect or risk reduction.

Note: Based on information from American Cancer Society, 2009.

**Goals of Cancer Risk Factor Assessment**

- Provide accurate information about the genetic, biologic, and environmental factors related to an individual’s risk of developing cancer
- Formulate appropriate recommendations for primary and secondary prevention
- Offer support to facilitate adjustment to the information regarding risk
- Promote adherence to recommendations for prevention & early detection

**Principles of Secondary Cancer Prevention**

- Cancer screening aimed at asymptomatic people with goal of finding disease when it is most treatable
- Seeks to decrease morbidity &mortality associated with cancer by finding it in early stage when treatment is most likely to be effective

**Variations in Cancer Screening Guidelines**

- Major source of confusion in cancer screening stems from variations in screening recommendations among the various professional agencies.
- Recommendations vary based on the goals of the organization
  - **American Cancer Society**: Screening standards goal is based on detecting malignancy
  - **U.S. Preventive Services Task Force** (USPSTF): Uses strict criteria for evidence of effectiveness. Cost-effectiveness is an important consideration for this group
  - **National Comprehensive Cancer Network** (NCCN)**
Example of Variations in Cancer Screening with Mammography Guidelines

<table>
<thead>
<tr>
<th>Agency</th>
<th>Mammography</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Cancer Society (ACS, 2015)</td>
<td>• Age 40–44 years: Women should have the choice to start annual mammograms if they wish to do so</td>
</tr>
<tr>
<td></td>
<td>• Age 45–54: Annual mammograms</td>
</tr>
<tr>
<td></td>
<td>• Age &gt; 55: Mammograms every 2 years (or can continue annual screening) if in good health and life expectancy &gt; 10 years</td>
</tr>
<tr>
<td>US Preventive Task Force (USPSTF, 2016)</td>
<td>• Age 40–49: Every two years based on individual risk assessment and shared-decision making</td>
</tr>
<tr>
<td></td>
<td>• Age 50–74: Every two years</td>
</tr>
<tr>
<td>National Comprehensive Cancer Network (NCCN, 2014)</td>
<td>Annually beginning age 40</td>
</tr>
</tbody>
</table>

Comparison of Cancer Screening Recommendations

- Online grid that compares cancer screening recommendations from:
  - American Cancer Society
  - National Cancer Institute
  - US Preventive Services Task Force

Cancer Screening & Early Detection Recommendations

Refer to American Cancer Society “Guidelines for Early Detection of Cancer”

- Breast Cancer
- Colon and rectal cancer
- Cervical cancer
- Endometrial (uterine) cancer
- Prostate Cancer
- Cancer-related check-ups

Sample Question

Routine screening can result in early detection of which type of cancer?

a. Liver
b. Bladder
c. Kidney
d. Rectum
Sample Question
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- Liver
- Bladder
- Kidney
- d. Rectum

Sample Question
Which of the following ethnic groups in the United States has the highest incidence and mortality for prostate cancer?
- Asian American
- African American
- Hispanic American
- d. Non-Hispanic American

Sample Question
Which of the following ethnic groups in the United States has the highest incidence and mortality for prostate cancer?
- Asian American
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Sample Question
A 20-year-old woman with family history of BRCA1 and BRCA2 breast cancer asks when she should have a mammogram. The nurse recommends:
- Talking with her doctor about the benefit and limitations of starting screening early
- Having a yearly mammogram beginning at age 35
- Having a breast ultrasound after the birth of her first child
- d. Screening to begin at the age of her family member’s diagnosis
Sample Question
A 20-year-old woman with family history of BRCA1 and BRCA2 breast cancer asks when she should have a mammogram. The nurse recommends:

a. **Talking with her doctor about the benefit and limitations of starting screening early**
b. Having a yearly mammogram beginning at age 35
c. Having a breast ultrasound after the birth of her first child
d. Screening to begin at the age of her family member’s diagnosis

Sample Question
In the United States, the incidence of cancer is highest among which of the following age groups?

a. Under 9 years
b. 25-39 years
c. 40-50 years
d. Over 55 years

d. **Over 55 years**