Practice Analysis: What is it and Why is it Crucial to the Test
Craig Gilliam and Lita Jo Henman, Certification Board for Infection Control
Teleclass Broadcast Sponsored by Sealed Air  www.sealedair.com

Practice Analysis
What is it and why is it critical to the test?
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Certification Board of Infection Control & Epidemiology, Inc.

Objectives
• Explain how to use the content outline as part of exam preparations
• Understand the role of the practice analysis in determining exam content and eligibility
• Describe the three types of exam questions and apply practical strategies for each category.

Use of content outline
• Current outline from 2010
• Questions are developed based upon weighted average of each of six areas
• Found on CBIC website under www.CBIC.org
Preparing for the Examination

Use of content outline
• Surveillance and Epidemiologic Investigation - 25% of questions
  – Design, collection and interpretation of data
• Preventing/Controlling the Transmission of Infectious Agents – 25% of questions
  – Policy and procedures – hand hygiene; cleaning, disinfection & sterilization; isolation

Eligibility for Initial Certification
1. Must have primary responsibility for the infection prevention and control program for their employing organization.
2. Must meet practice requirements for “current clinical practice of infection prevention and control”
3. Must meet educational requirements

Definition of Infection Prevention Practice
The clinical practice of infection control occurs in a variety of settings and includes both:
1. analysis and interpretation of collected infection prevention and control data; and
2. the investigation and surveillance of suspected outbreaks of infection.

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Definition of Infection Control Practice
Includes at least three of the following activities:
1. Planning, implementation and evaluation of infection prevention and control measures;
2. Education of individuals about infection risk, prevention and control;
3. Development and revision of infection control policies and procedures;
4. Management of infection prevention and control activities;

Eligibility for Certification (Education)
• A current license or registration as a medical technologist, physician, or registered nurse;
  OR
• A minimum of a baccalaureate degree

Test Development Cycle
Start
Job Analysis
and Test Specifications
Item Writing and Review
Item Analysis
Test Scoring
Ongoing Maintenance
Test Assembly
Test Administration
Standard Setting

Practice analysis (PA)
• Done every 4 to 5 years
• Surveys infection prevention professionals to determine:
  – Tasks that are part of current practice
  – Knowledge that is required to competently perform those tasks

Practice Analysis Purpose
• Identify and re-evaluate the role definition of the Infection Preventionist/Infection Control Practitioners (IP/ICP)
• Validate and update the list of tasks the knowledge statements related to work performed by (IP/ICP)
• Develop the test specification for the Certification in Infection Control (CIC) examination

PA Steps
• Create comprehensive list of tasks and knowledge used in current practice
• Create draft survey tool
• Pilot survey tool
• Revise tool based on feedback
• Send out survey tool to all IP/ICP
• Analyze results
• Revise Test Specification
Create comprehensive list of tasks and knowledge used in current practice

- Diverse group of IP/ICP from a wide variety of practice settings and geographic locations throughout the US and Canada
- Group came to consensus around a comprehensive list of tasks and knowledge required for competent IP/ICP practice

Create draft PA

- Worked with Prometric to turn list of items into survey using standardized scale.

<table>
<thead>
<tr>
<th>Importance</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Of no importance</td>
<td>0 = Never</td>
</tr>
<tr>
<td>1 = Of little importance</td>
<td>1 = Seldom</td>
</tr>
<tr>
<td>2 = Of moderate importance</td>
<td>2 = Occasionally</td>
</tr>
<tr>
<td>3 = Important</td>
<td>3 = Often</td>
</tr>
<tr>
<td>4 = Very important</td>
<td>4 = Very Often</td>
</tr>
</tbody>
</table>

Another important part of PA

- Collection of demographic and practice setting data
- Allows comparison during analysis to determine any differences between groups

Pilot Survey Tool

- Separate group of IP/ICP took survey and provided comments on each section
- Original team then reviewed each comment and revised survey tool to further clarify questions

Send out Survey

- Sent to a wide variety of avenues to reach as many IP/ICP as possible
  - IPAC Canada
  - CBIC
  - APIC
  - Purchased mailing lists

Analyze Results

- Analysis completed by Prometric using statistical and psychometric methods
- Subgroup analysis done based on answers to demographic and practice setting questions
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Analysis Methods
• Means, standard deviations and frequency (percentage) distributions for task statements and content coverage ratings
• Means, standard deviations and frequency (percentage) distributions for knowledge statements and content coverage ratings
• Medians and modes for task frequency ratings
• Means and standard deviations for test content recommendations
• Index of agreement values for designated subgroups

Review results and revise test specifications
• Second group of IP/ICP reviewed the results and determined which tasks and knowledge statements should be included in test
• Determined final weight of each of the domains and created new test specification template

From theory to reality
• Results of CBIC Practice Analysis done in 2014
  – Process started in Dec 2013.
  – Final review of PA and creation of new test specification completed July 2014
  – Integrated into test writing and review process in Oct 2014
  – New test specification will go into effect with tests given in July 2015

Results of Practice Analysis
• Almost 3,000 surveys were completed by IP/ICP from every US state and Canadian province. Also received results from several countries outside of North America
• Majority of respondents were between 40-59 years of age. Only 3% were under the age of 30

PA Results
• 65% worked in an acute care setting.
  – Significantly different from previous PA
• Half of those in an acute care setting worked in facility with less than 200 beds
• More than half were the only IP/ICP in their facility

How 2014 PA will change test in 2015
• Increase in task and knowledge statements to reflect increasing expectations of IP/ICP profession
• Two new domains in test specification:
  – Environment of Care
  – Cleaning, Sterilization, Disinfection and Asepsis

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Certification in Infection Control (CIC) Test Specifications 135 Questions Cognitive levels: 20% Recall, 60% Application, 20% Analysis

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Items (Questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of Infectious Disease Processes</td>
<td>22 items</td>
</tr>
<tr>
<td>Surveillance and Epidemiologic Investigation</td>
<td>24 items</td>
</tr>
<tr>
<td>Preventing/Controlling the Transmission of Infectious Agents</td>
<td>25 items</td>
</tr>
<tr>
<td>Employee/Occupational Health</td>
<td>11 items</td>
</tr>
<tr>
<td>Management and Coordination</td>
<td>11 items</td>
</tr>
<tr>
<td>Education and Research</td>
<td>14 items</td>
</tr>
<tr>
<td>Environment of Care</td>
<td>13 items</td>
</tr>
<tr>
<td>Cleaning, Sterilization, Disinfection, Asepsis</td>
<td>15 items</td>
</tr>
</tbody>
</table>

What kind of questions will be on the exam?

Cognitive Levels of Questions

- **Recall**
  - Requires only the recognition of specific factual information. Memory alone is what is required
- **Application**
  - Requires the comprehension, interpretation or manipulation of concepts or data in which the is situationally dependent. Examples include basic calculations, recognition of a pattern or finding relationships between concepts.

Cognitive Levels Cont.

- **Analysis/Evaluation**
  - Requires integration or synthesis of a variety of concepts or elements to solve a specific problem. Frequently requires several steps in logic to select the correct answer.

Recall

Serum that is positive for HBeAg indicates

A. An increased likelihood of infectivity
B. The presence of a delta agent
C. Immunity to Hepatitis B
D. Prior receipt of hepatitis B vaccine

Application

A 65 year-old patient presents with jaundice and elevated liver enzymes. Blood is drawn for a viral hepatitis screen with the following results:

- Hepatitis A  Anti-HAV, IgG negative; IgM positive
- Hepatitis B  HbsAg negative, anti-HBc negative, anti-HBs positive
- Hepatitis C  Anti-HCV negative

Which of the following is the MOST likely cause of the symptoms?

A. Hepatitis A
B. Hepatitis B
C. Hepatitis C
D. Delta Hepatitis

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Analysis
A previously healthy 70 year-old presents with dyspnea and a productive cough. Which of the following diagnostic test results would be consistent with a diagnosis of community-acquired pneumonia?

A. Sputum Gram Stain: moderate white blood cells seen; moderate growth of Pseudomonas aeruginosa
B. Sputum Gram Stain: few white blood cells seen; Light growth of Staphylococcus aureus and Acinetobacter baumannii
C. Total white blood cell count = 12,000; Streptococcus pneumoniae isolated from 2 sets of blood cultures
D. Chest radiograph: diffuse infiltrate in the left upper lobe; Sputum Gram Stain: no white blood cells seen; moderate growth of Klebsiella pneumoniae

Thank you!
For more information on the CIC® certification, please contact CBIC at 414.918.9796 or info@cbic.org.

www.cbic.org

Coming Soon
November 12 (Free WHO Teleclass - Europe)
GLOBAL APPLICATION OF BEHAVIOUR CHANGE MODELS AND INFECTION CONTROL STRATEGIES
Dr. Michael Borg, St. Luke’s Hospital, Malta

November 13 EMERGING RESPIRATORY VIRUSES: ARE HEALTHCARE WORKERS PROTECTED?
Dr. Virginia Roth, The Ottawa Hospital, Canada

November 17 AIRBORNE TRANSMISSION AND PRECAUTION - FACTS AND MYTHS
Prof. WH Seto, The University of Hong Kong, China

November 17 NOROVIRUS - 2 LECTURES
Dr Ben Lopman, Centers for Disease Control & Prevention, USA,
Professor Marion Koopmans, Erasmus Medical Centre, The Netherlands

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