



APPLIED MEASUREMENT PROFESSIONALS, INC.



Certification Board of Infection Control and Epidemiology, Inc.

A Practice Analysis of the Infection Preventionist EXECUTIVE SUMMARY

The purpose of this study was to identify the responsibilities of the Infection Prevention and Control Professional (ICP), now known as an Infection Preventionist (IP), as a first step in the development of a job-related certification examination. The Certification Board of Infection Control and Epidemiology, Inc. (CBIC) requested the services of Applied Measurement Professionals, Inc. (AMP) to design and conduct a study that would provide the support necessary to develop specifications upon which a content valid certification examination could be built. The CBIC identified the need to ensure that the examination specifications would be representative of the role of the Infection Preventionist (IP).

The CBIC Practice Analysis Task Force served as an Advisory Committee (AC) to conduct the activities necessary to identify infection preventionists' responsibilities and develop examination specifications. The diversity of this group was reflective of the population of infection preventionists, and all committee members (shown in Table 1) had demonstrated expertise in this field.

Table 1. *CBIC Practice Analysis Study Advisory Committee*

Practice Analysis Task Force Member	Location
Fran Feltovich, Chair	Houston, TX
Marie Kassai	West Paterson, NJ
Sharon Krystofiak, CBIC President	Pittsburgh, PA
Terrie Lee	Charleston, WV
Kathryn McGhie	London, Ontario
Kit Reed	Charleston, WV
Barbara Russell	Miramar, FL
Kathryn Suh, MD	Ottawa, Ontario
Rita Tjoelker	Portland, OR
Sister Bernadette Washy	Pittsburgh, PA
Sharon Williamson	Dallas, TX

The study involved development of a practice analysis survey, distribution of that survey to practitioners, and an analysis of the responses. Test specifications for the infection preventionist examination were developed on the basis of these data.

The CBIC AC met during January 2009 to initiate the following six tasks:

1. Develop a sampling plan
2. Identify tasks for the survey instrument
3. Identify classifications of core tasks
4. Determine the rating scales
5. Determine the relevant demographic variables of interest
6. Integrate demographics, rating scales, and tasks into a survey instrument

A total of 15,058 emails containing a link to the online practice analysis survey were sent out by the CBIC to infection preventionists. After adjusting for undeliverable addresses, and unusable responses, it was determined that approximately 27.50% of the sample provided usable response ($N = 3771$). The responses to the demographic questions indicated that there were sufficient numbers of respondents in relevant groups for subsequent analysis. Approximately 99% of survey respondents felt that the practice analysis survey at least adequately addressed the responsibilities of the infection preventionist. In addition, respondents used all rating scales with an acceptable level of reliability.

The AC concluded that the demographic results were generally as expected, and a description of the typical respondent may be of interest. This individual could generally be described as follows:

The typical respondent is a female non-Hispanic Caucasian around the age of 50 who practices in the United States. She holds a bachelors degree and is an RN. She is experienced in infection prevention and control, and has been working in health care for 25 years. She likely works in an acute care hospital, and works 30 or more hours per week as an infection preventionist. Her hospital has 100 to 500 beds and employs 2 to 3 full time infection preventionists.

The AC concluded that this information is consistent with their perceptions of infection preventionists, and that a sufficient number of responses in relevant subgroups were received to facilitate subsequent analysis.


During a meeting held on June 6th 2009, the AC adopted and used a total of 12 decision rules to determine which tasks were appropriate for assessment, and therefore for inclusion in the final Detailed Content Outline. Decision rules helped ensure that the remaining tasks were performed in practice and significant to practice, as judged by the overall respondent group. In addition, decision rules were adopted to ensure significance as judged by the following subgroups: years of experience as an IP, bed capacity of the facility, number of IPs in the facility, certification status, educational preparation, professional background, gender, and regions within United States, Canada, and other countries. Application of the decision rules resulted in retention of 71 tasks within seven domains of practice. It was determined that a total of 135 multiple-choice items would be sufficient to assess the tasks.

The AC determined that the 71 remaining tasks could be appropriately assessed by way of a 135 multiple-choice examination items to ensure appropriate content coverage. Item writers will be advised that all items on the exam should be directly related to a task listed in the detailed content outline, and all items should be categorized at an appropriate level of cognitive performance. The AC determined that all items would be classified as requiring recall, application, or analysis on the part of the candidate. For purposes of such classification, the AC adopted the definitions shown in Table 2, which also shows the approximate percentage of items specified for the examinations.

Table 2. *Cognitive Level Definitions*

Cognitive Level	Definition	Approximate Percentage
Recall	Requires recall or recognition of specific facts or concepts which generally does not vary relative to the situation	25
Application	Requires the comprehension, interpretation, or manipulation of concepts or information to a given situation.	60
Analysis	Requires integration or synthesis of a variety of concepts or information to problem solve, integrate or make judgments about a situation.	15

The CBIC Test Committee (TC) will use the resulting Test Specifications in building the infection preventionist certification (CIC[®]) examination for administrations beginning in July 2010, and all items appearing on the examination will be linked to the specifications based on the unanimous agreement of the committee. In addition, the Detailed Content Outline will be made available to candidates and education providers for use in preparing to attempt certification.

 CBIC <small>Certification Board of Infection Control and Epidemiology, Inc.</small>	Infection Control Professional Detailed Content Outline 2010	# of Items
1. Identification of Infectious Disease Processes		18
A. Differentiate among colonization, infection, and contamination		
B. Identify occurrences, reservoirs, incubation periods, periods of communicability, modes of transmission, signs and symptoms, and susceptibility associated with the disease process		
C. Interpret results of diagnostic/laboratory reports		
D. Recognize limitations and advantages of types of tests used to diagnose infectious processes		
E. Recognize epidemiologically significant organisms for immediate review and investigation		
F. Differentiate among prophylactic, empiric, and therapeutic uses of antimicrobials		
G. Identify indications for environmental microbiologic monitoring		
2. Surveillance and Epidemiologic Investigation		38
A. Design of Surveillance Systems		
1. Develop a surveillance plan based on the population served, services provided, and regulatory or other requirements		
2. Evaluate periodically the effectiveness of the surveillance plan and modify as necessary		



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3. Identify appropriate critical/significant lab results and implement a notification system	
4. Determine data needed to calculate specific rates	
5. Integrate surveillance activities within health care settings (e.g., ambulatory, home health, long term care, acute care)	
6. Establish mechanisms for identifying those with communicable diseases requiring follow-up and/or isolation	
B. Collection and Compilation of Surveillance Data	
1. Use standardized definitions for the identification of outcomes and processes	
2. Use a systematic approach to record surveillance data	
3. Determine numerators, denominators, and constants for calculations of rates for outcomes and processes	
4. Organize and manage data in preparation for analysis	
5. Determine the incidence or prevalence of infections	
6. Calculate specific infection rates (e.g., provider-specific, unit-specific, device-specific, procedure-specific)	
7. Calculate risk stratified rates	
8. Incorporate post-discharge surveillance findings into calculation of rates	
C. Interpretation of Surveillance Data	
1. Generate, analyze, and validate surveillance data	
2. Use basic statistical techniques to describe data (e.g., mean, standard deviation, rates, ratios, proportions)	
3. Recognize statistical significance of surveillance data	
4. Monitor and interpret antibiotic resistance patterns	
5. Recognize the need for an epidemiologic study to investigate a problem (e.g., case control, cohort studies)	
6. Compare surveillance results to published data or other benchmarks	
7. Prepare and report findings of surveillance or epidemiologic investigation to customers, using analyzed data, tables, graphs, or charts, as appropriate	
8. Develop and implement corrective action plans based on surveillance findings	



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D. Outbreak Investigation	
1. Verify existence of outbreak	
2. Collaborate with appropriate persons to establish the case definition, period of investigation, and case-finding methods	
3. Define the problem using time, place, person, and risk factors	
4. Formulate hypothesis on source and mode of transmission	
5. Implement and evaluate control measures, including ongoing surveillance	
6. Prepare and disseminate reports	
3. Preventing/Controlling the Transmission of Infectious Agents	39
A. Develop and review infection prevention and control policies and procedures	
B. Collaborate with public health agencies in planning community responses to biological agents (e.g., anthrax, influenza)	
C. Identify and implement infection prevention and control strategies related to:	
1. Hand hygiene	
2. Cleaning, disinfection, and sterilization	
3. Specific direct and indirect care settings (e.g., patient care units, operating room, ambulatory care center, respiratory therapy)	
4. Infection risks associated with therapeutic and diagnostic procedures and devices (e.g., dialysis, angiography, bronchoscopy, endoscopy, intravascular devices, urinary drainage catheter)	
5. Recall of potentially contaminated equipment and supplies	
6. Initiation and discontinuation of isolation/barrier precautions when indicated	
7. Patient placement, transfer, and discharge	
8. Environmental hazards	
9. Use of patient care products and medical equipment	
10. Immunization programs for patients	
11. Construction and renovation in patient care settings	
12. The influx of patients with communicable diseases (e.g., bioterrorism, emerging infectious diseases)	



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4. Employee/Occupational Health	10
A. Review and/or develop screening and immunization programs	
B. Provide counseling, follow up, work restriction recommendations related to communicable diseases or following exposures	
C. Assist with analysis and trending of occupational exposure incidents and information exchange between Occupational Health and Infection Prevention and Control departments	
D. Assess risk of occupational exposure to infectious diseases (e.g., TB, bloodborne pathogens)	
5. Management and Communication (Leadership)	16
A. Planning	
1. Conduct an infection risk assessment of the organization	
2. Develop, evaluate, and revise a mission and vision statement, goals, measurable objectives, and action plans for the Infection Prevention and Control Program	
3. Recommend specific equipment, personnel, and resources for the Infection Prevention and Control Program	
4. Participate in cost benefit assessments, efficacy studies, and product evaluations	
5. Recommend changes in practice based on clinical outcomes and financial implications	
B. Communication and Feedback	
1. Provide infection prevention and control findings, recommendations, annual reports, and policies and procedures to appropriate individuals, committees, departments, and units	
2. Communicate with internal and external customers (e.g., related to Infection Prevention and Control issues of continuity of care, reporting communicable diseases)	
3. Collaborate with Risk Management/Quality Management in the identification and review of adverse and sentinel events	
4. Evaluate accreditation/regulatory issues and facilitate compliance	



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C. Quality/Performance Improvement and Patient Safety	
1. Participate in quality/performance improvement and patient safety activities related to infection prevention and control	
2. Demonstrate quality/performance improvement projects through the use of graphic tools (e.g., “fishbone” diagram, Pareto charts, flow charts)	
6. Education and Research	14
A. Education	
1. Assess needs, develop goals and measurable objectives, and prepare lesson plans for educational offerings	
2. Apply principles of adult learning to educational strategies and delivery of educational sessions	
3. Prepare, present, or coordinate educational workshops, lectures, discussion, or one-on-one instruction on a variety of Infection Prevention and Control topics	
4. Evaluate the effectiveness of education and learner outcomes (e.g., behavior modification, compliance rate)	
5. Instruct patients, families, and other visitors about methods to prevent and control infections	
B. Research	
1. Apply critical reading skills to evaluate research findings	
2. Incorporate research findings into practice through education and consultation	
Totals	135

Respectfully Submitted:
Lawrence J. Fabrey, PhD, Senior Vice President, Psychometrics
Cameron M Clyne, MA, Research Associate
Applied Measurement Professionals, Inc.