Infection Prevention and Control (CIC®) Content Outline

1. Processes to Identify Infectious Diseases (22 items)

a. Interpretation of Clinical Information, Disease Presentation, and Diagnostic Stewardship

1. Differentiate between cellular structure and characteristics of pathogens (e.g., viruses, bacteria, protozoa, fungi) and how they relate clinically
2. Interpret the relevance of diagnostic, radiologic, procedural, and laboratory reports in conjunction with clinical findings (e.g., blood cultures, nucleic acid amplification tests, radiologic evidence of pneumonia, automated identification /antimicrobial susceptibility testing [AST])
3. Identify appropriate practices for specimen ordering, collection, transportation, handling, processing, and storage (e.g., timing of blood cultures, anaerobic culture handling, appropriate use and transport of biohazardous containers, use of personal protective equipment [PPE], aseptic non-touch techniques [ANTT])
4. Correlate clinical findings and test results to identify suspected or confirmed infectious diseases (e.g., device-associated, community onset and healthcare associated infections [HAI])
5. Differentiate between contamination, colonization, infection, and pseudo-infection (e.g., contamination of blood cultures, urine specimens or others)
6. Differentiate between prophylactic, empiric, and therapeutic uses of antimicrobials (e.g., perioperative prophylaxis, empiric sepsis therapy, targeted therapy based on culture)
7. Assess patient and population level risk factors for infectious diseases (e.g., travel, vaccination status, immunocompromising conditions, exposure history, healthcare exposures, mass gatherings, demographic conditions, host immune response)
8. Recognize epidemiologically significant organisms and special pathogens/high consequence infectious diseases requiring enhanced precautions and reporting (e.g., bacterial priority pathogen list [BPPL], fungal priority pathogen list [FPPL], viral hemorrhagic fevers)
9. Stay informed about current and emerging local and global health threats through national and international public health authorities (e.g., national public health institutes, World Health Organization [WHO], Centers for Disease Control and Prevention [CDC])

2. Surveillance and Epidemiologic Investigation (23 items)

a. Design of Surveillance Systems

1. Conduct an infection risk assessment based on population served, services provided, previous infection data, facility design, and regulatory/accreditation requirements (e.g., healthcare-associated infection [HAI] profile, device use patterns, procedure-related, immunization gaps)
2. Develop specific, measurable, attainable, relevant, and time-bound (SMART) goals for surveillance based on the risk assessment (e.g., community-acquired infection, healthcare-associated infection [HAI])
3. Develop and periodically review a documented surveillance plan (e.g., events under surveillance, case definitions, data sources, frequency of review, reporting mechanisms)

4. Establish standardized surveillance definitions appropriate to the care setting (e.g., National Healthcare Safety Network [NHSN] or national definitions for central line-associated bloodstream infection [CLABSI], catheter-associated urinary tract infections [CAUTI], surgical site infection [SSI], ventilator-associated event [VAE]; dialysis events [DE])
5. Create processes to identify and escalate epidemiologically significant findings (e.g., unusual clusters, high risk organisms, unexpected deaths, device-related events, notifiable/reportable diseases) to relevant parties (e.g., unit leadership, quality, public health, local authorities)
6. Coordinate surveillance activities across care settings (e.g., acute, long-term care, ambulatory, home health, behavioral health) to support continuity and data sharing
7. Establish processes for identifying persons with communicable diseases requiring transmission-based precautions and/or public health follow-up (e.g., suspected tuberculosis [TB], measles, novel respiratory viruses) and ensure appropriate reporting
8. Periodically evaluate surveillance plan performance and data usefulness (e.g., sensitivity, timeliness, resource impact)

b. Collection and Compilation of Surveillance Data

1. Collect surveillance data using standardized definitions and data sources (e.g., medical records, electronic health record [EHR], laboratory reports, admission/discharge/transfer data, device utilization logs)
2. Utilize electronic surveillance systems and electronic health record [EHR] tools for case finding, algorithmic detection, automated system alerts, and reporting (e.g., healthcare-associated infection [HAI] surveillance modules, reportable disease flags)
3. Interpret surveillance data for analysis (e.g., line lists, databases, spreadsheets, dashboards)
4. Calculate incidence and/or prevalence of infections
5. Calculate and interpret specific infection, rates and ratios (e.g., device utilization ratios, standardized utilization ratio [SUR], standardized infection ratio [SIR])

c. Interpretation and Communication of Surveillance Data

1. Validate surveillance data for accuracy and completeness (e.g., verify numerator and denominator data, confirm case classifications)
2. Use statistical techniques to describe and interpret data (e.g., counts, proportions, rates, averages, standard deviations, relative risks [RRs], standardized infection ratios [SIRs])
3. Compare surveillance results to internal and external benchmarks (e.g., historical data, national databases)
4. Interpret trends in surveillance data to identify emerging threats and guide interventions (e.g., antimicrobial susceptibility patterns, reportable diseases, antibiogram changes, multidrug-resistant organism [MDRO] patterns)
5. Present surveillance findings using templates and statistical tools tailored to stakeholders
6. Apply patient data confidentiality and data privacy laws when collecting, storing, and sharing surveillance data and outbreak reports
7. Apply principles of genomic epidemiology, in collaboration with public health laboratories, for outbreak detection and response

d. Actions Based on Surveillance Data and Quality Improvement

1. Develop and prioritize action plans based on surveillance findings (e.g., targeted device bundle interventions, environmental changes, workflow redesign)
2. Monitor effectiveness of action plans using predefined measures and revise plans as needed (e.g., reassessing healthcare-associated infection [HAI] rates, compliance metrics, audit findings)
3. Identify when to initiate an epidemiologic study or formal outbreak investigation to clarify a suspected problem (e.g., case-control or cohort studies, focused environmental studies)

e. Outbreak and Exposure Investigation

1. Verify the existence and scope of an outbreak or exposure (e.g., validate results, confirm clustering exceeds baseline, differentiate pseudo-outbreaks)
2. Notify appropriate stakeholders using reporting hierarchy structures (e.g., senior leadership, clinical and support services, risk management, public health authorities)
3. Collaborate with relevant personnel to establish a case definition, investigation period, and case-finding methods (e.g., retrospective and prospective surveillance, staff and patient interviews)
4. Define the outbreak/exposure using descriptive epidemiology (e.g., period, place, person, relevant risk factors, unit, procedure, device, staff cohort, community exposure)
5. Formulate hypotheses related to source and mode of transmission (e.g., contaminated devices, water, air handling, person-to-person, environmental source)
6. Collect additional data as needed (e.g., relevant environmental sampling, point-prevalence surveys, staff screening, patient record reviews)
7. Implement and prioritize control measures and coordinate with relevant departments
8. Evaluate control measures and adjust as necessary (e.g., follow-up case counts, compliance audits, environmental re-testing)
9. Prepare outbreak investigation reports and share with appropriate stakeholders

3. Preventing/Controlling the Transmission of Infectious Agents **(22 items)**

a. Policies, Procedures, and Risk Assessment

1. Develop, implement, and update infection prevention policies and procedures based on evidence-based practices, national and/or international standards, laws, and regulations
2. Utilize risk assessment when addressing conflicts or gaps between guidance documents (e.g., instructions for use [IFUs] vs. guidelines vs. facility capabilities)
3. Facilitate and consult on infection control risk assessment(s) (ICRA) (e.g., water management plan, construction/renovation, emergency management, introduction of new technologies or workflows)

b. Standard Precautions and Device/Procedure-Related Risks

1. Implement and evaluate hand hygiene practices across settings (e.g., direct observation, product availability, feedback, electronic monitoring)
2. Ensure appropriate availability, selection, use, and disposal of personal protective equipment [PPE], and evaluate compliance (e.g., gloves, gowns, respirators, eye protection)
3. Ensure safe patient placement, transfer, and discharge decisions to reduce infection transmission (e.g., single room vs. cohorting, transport precautions, coordination with receiving facility)

4. Promote respiratory hygiene/cough etiquette among patients, visitors, and staff (e.g., mask and tissue availability, signage, respiratory stations)
5. Ensure safe use of patient-care equipment to prevent cross-contamination (e.g., glucometers, blood pressure cuffs, portable imaging equipment)
6. Identify and reduce infection risks associated with procedures and devices (e.g., hemodialysis, endoscopy, intravascular catheters, urinary catheters, respiratory therapy equipment)
7. Promote and evaluate compliance with safe injection and medication preparation practices (e.g., single-use of needles/syringes, appropriate use of single- vs. multidose vials, aseptic technique)
8. Ensure appropriate infection prevention management of laundry services (e.g., on-site, off-site) as part of standard precautions for all healthcare settings
9. Assess, implement, and monitor engineering controls for airborne infection isolation rooms (AIIR) (e.g., improvements to ventilation and indoor air quality, portable high-efficiency particulate air [HEPA] filtration)
10. Implement and evaluate respiratory protection program (e.g., medical clearance, qualitative and quantitative respirator fit testing, powered air purifying respirators [PAPRs] where indicated)

c. Transmission-Based Precautions

1. Implement and evaluate transmission-based precautions (e.g., contact, droplet, airborne)
2. Adapt transmission-based precautions to the healthcare setting, facility design, and type of patient interaction (e.g., limited isolation rooms, shared rooms, ambulatory clinics, home care)
3. Determine initiation and discontinuation of transmission-based precautions based on clinical assessment /screening, laboratory findings and applicable guidance

d. Antimicrobial Stewardship

1. Collaborate with antimicrobial stewardship teams (e.g., infectious diseases, pharmacy, microbiology) to interpret susceptibility patterns and guide interventions appropriate antimicrobial use (e.g., antibiogram review, formulary discussions)
2. Use data to identify antimicrobial use patterns that contribute to resistance or adverse events (e.g., unnecessary treatment of asymptomatic bacteriuria, prolonged prophylaxis) and support targeted interventions

e. Immunization and Community/Facility Preparedness

1. Support and, where appropriate, co-lead patient immunization programs as part of infection prevention program (e.g., influenza, pneumococcal, COVID-19, outbreak-specific vaccines)
2. Serve as a standing member or coordinator to immunization campaign committees (e.g., annual influenza campaigns) and partner with Occupational Health and public health agencies
3. Collaborate with public health and community partners in responding to communicable disease threats (e.g., influenza seasons, COVID-19, measles, emerging pathogens, bioterrorism)
4. Contribute to development, implementation, and update of pandemic and surge plans addressing triage, cohorting, staffing, and supply chain

f. Emergency Preparedness and Management

1. Identify infection prevention's role across all phases of emergency/disaster management (e.g., mitigation, preparedness, response, recovery) for infectious threats and mass casualty incidents

2. Ensure representation of infection prevention in emergency/disaster management structures (e.g., incident command, emergency operations center)

4. Employee/Occupational Health (11 items)

a. Collaboration with Occupational Health and Exposure Management

1. Collaborate with Occupational Health on exposures and illnesses (e.g., counseling, follow-up, work restrictions, return-to-work decisions, conversions, blood-borne exposures, outbreaks)
2. Collaborate with Occupational Health to analyze occupational exposure incidents (e.g., needlesticks, sharps, splashes) to identify patterns and recommend prevention strategies
3. Collaborate on screening, immunization programs for healthcare personnel (e.g., pre-employment screening, tuberculosis [TB] testing per policy, hepatitis B, measles mumps rubella [MMR], varicella, influenza, COVID-19, mass immunization efforts)
4. Assess risks of occupational exposure to infectious diseases (e.g., bloodborne pathogens, respiratory pathogens, emerging pathogens) and ensure appropriate safety measures (e.g., engineering controls, personal protective equipment [PPE], work practice changes)
5. Consult on alternative options for staff with allergies, special needs, or contraindications (e.g., latex-free products, alternative vaccines, allergies to chlorhexidine gluconate (CHG)/medicated soaps, pregnant healthcare personnel)
6. Partner with Occupational Health to educate healthcare personnel on safe work practices to prevent occupational infections (e.g., correct personal protective equipment [PPE] use, respiratory protection, safe injections, sharps safety)
7. Collaborate with leadership, legal/HR, and Occupational Health to implement public health policies affecting healthcare personnel (e.g., immunization mandates, fit-testing requirements)

5. Management and Communication of the Infection Prevention Program (16 items)

a. Planning, Leadership, and Resources

1. Develop, evaluate, and update infection prevention program mission, vision, goals, and measurable objectives aligned with organizational strategy and risk assessments
2. Apply project management principles when planning and leading infection prevention initiatives.
3. Recommend specific equipment, infection prevention personnel, and other resources to support the infection prevention program based on regulations, standards, needs assessment(s), and evidence-based practices
4. Participate in cost-benefit and cost-effective analysis, evaluation of infection prevention practices, and product/process standardization, considering clinical outcomes and financial implications
5. Develop, update, and evaluate key performance indicators (KPIs) for infection prevention (e.g., healthcare-associated infection [HAI] rates, hand hygiene compliance, device utilization ratios, process adherence) and share with stakeholders
6. Collaborate with leadership and information technology personnel to integrate technology and data systems into infection prevention workflows to improve efficiency and outcomes

b. Communication and Stakeholder Engagement

1. Partner with cross-departmental leadership to drive safety through infection prevention initiatives by communicating critical infection prevention findings, actionable recommendations through the established organizational structure
2. Use structured communication approaches and audience-appropriate language when communicating complex or sensitive infection prevention issues to stakeholders
3. Facilitate and monitor implementation of infection prevention related policies, procedures, and recommendations (e.g., support change management, address resistance)
4. Evaluate compliance with accreditation and regulatory requirements related to infection prevention (e.g., accreditation bodies, occupational safety regulations)
5. Build and sustain community of practice with regional partnerships of similar organizations (e.g., neighboring hospitals, other healthcare facilities) to share data, coordinate outbreak responses, and align best practices where feasible
6. Ensure that facility guidance documents, protocols, and processes are actively maintained and easily accessible for healthcare personnel at the point of care and use

c. Quality/Performance Improvement and Patient Safety

1. Identify opportunities to participate in and/or lead quality/performance improvement and patient safety activities related to infection prevention (e.g., plan, do, study, act [PDSA] cycles, failure mode and effect analysis [FMEA], Lean Six Sigma projects, high-reliability initiatives)
2. Apply appropriate quality/performance improvement tools and statistical methods (e.g., run/control charts; fishbone diagrams; pareto charts; flowcharts; Strengths, Weaknesses, Opportunities, and Threats [SWOT]; gap analysis), recognizing that some existing tools may be complemented by dashboards and modern analytics
3. Integrate infection prevention activities with organizational risk management and patient safety programs (e.g., rapid reporting of adverse events, root cause and systems analyses)

6. Education and Research **(15 items)**

a. Education

1. Assess learning needs and develop goals and measurable objectives for educational offerings tailored to different audiences (e.g., healthcare personnel, support services, leadership, external contractors/vendors, patients, families)
2. Design and deliver education using adult learning principles (e.g., problem-centered, interactive methods, relevance to daily practice, varied modalities such as in-person, e-learning, simulations)
3. Provide just-in-time feedback, education, and/or training when a breach in infection prevention practices is observed (e.g., personal protective equipment [PPE] non-compliance, improper device cleaning, non-compliant hand hygiene)
4. Facilitate education of patients, families, and visitors regarding infection prevention measures using age and developmentally appropriate principles (e.g., hand hygiene, respiratory etiquette, isolation precautions)
5. Facilitate infection prevention content in orientation and role-specific onboarding for healthcare personnel, and support competency-based education (e.g., infection prevention staff, link nurses, sterile processing staff)
6. Evaluate and modify educational effectiveness and learner outcomes using appropriate methods (e.g., observation of practice, pre-/post-tests, process and outcome measures)

b. Research and Evidence Use

1. Conduct literature reviews using scientific databases and other evidence-based resources
2. Critically appraise literature by assessing research methodology (e.g., study design, validity, bias, sample size) by distinguishing between publications (e.g., peer-reviewed research, guidelines, narrative reviews)
3. Incorporate applicable research findings within the approved organizational structure (e.g., protocol updates, education, consultations with stakeholders)
4. Identify opportunities to participate in infection prevention-related research and quality/performance improvement projects (e.g., data collection for multicenter studies, product evaluations)

7. Environment of Care **(13 items)**

a. Environmental Safety and Operations

1. Recognize and collaborate on processes required for a safe care environment (e.g., environmental cleaning, disinfection, waste management, laundry, nutrition services, water and ventilation systems)
2. Collaborate in evaluating and monitoring environmental cleaning and disinfection practices (e.g., product selection for targeted organisms, cleaning quality metrics, use of fluorescent markers, adenosine triphosphate [ATP] or other audits)
3. Monitor and assist with coordination of responses to product and equipment recalls with infection prevention implications (e.g., contaminated product/equipment, medications, food items)
4. Monitor for and respond to environmental pathogens of concern (e.g., Legionella in water systems, Aspergillus with construction, carbapenemase-producing organism [CPO] in sink drains)
5. Collaborate with facilities and external contractors to assess and mitigate risks associated with ventilation and water quality (e.g., ventilation malfunction, water contamination events, utility and equipment failures, environmental situations)
6. Evaluate and recommend innovative environmental and operational technologies (e.g., automated waste systems, pneumatic tube systems, robotic transport of clean/soiled linen), aligned with applicable facility standards and risk assessments
7. Implement activities to monitor, evaluate, and ensure infection prevention standards are met by contracted service providers (e.g., wound care, temporary staff, laundry, environmental services [EVS], engineering, external infection prevention professionals)

b. Construction, Renovation, and Design

1. Collaborate on infection control risk assessment (ICRA) processes during planning, design, and implementation phases (e.g., selection and placement of sinks and hand rub dispensers, ventilation, traffic flow, surfaces, isolation room numbers)
2. Evaluate risk mitigation strategies during construction, renovation, and maintenance (e.g., barriers, negative/positive pressure, dust control, rerouting traffic, water management during shutdowns)
3. Evaluate design features and materials of new or renovated spaces (e.g., emergency preparedness planning, automation infrastructure, space design for personal protective equipment [PPE] and hand hygiene, decontamination areas)

8. Cleaning, Disinfection, Sterilization of Medical Devices and Equipment (13 items)

a. Reprocessing Practices and Oversight

1. Ensure appropriate cleaning, disinfection, and sterilization methods for medical devices and equipment based on intended use and risk (e.g., Spaulding classification, instructions for use [IFUs])
2. Collaborate with sterile processing and clinical services to determine whether products and devices are single-use, reusable, or require outsourced reprocessing, based on design, instructions for use (IFUs), and regulatory requirements
3. Monitor and audit reprocessing workflows and engineering controls to verify compliance (e.g., point-of-use pre-cleaning, leak testing, manual/mechanical cleaning, high-level disinfection [HLD], sterilization, drying, storage)
4. Ensure clear identification, segregation, and safe handling of contaminated, clean, and sterile items throughout reprocessing and clinical use areas
5. Audit reprocessing documentation for policy and regulatory compliance (e.g., sterilization logs, biological and chemical indicators, load records, maintenance logs, staff competency records)
6. Participate in investigation and management of suspected or confirmed reprocessing failures (e.g., tracing affected patients, assessing risk, determining need for notification, remediation plans, load and/or manufacturer recalls)

b. Device-Specific Considerations and Technology Evaluation

1. Ensure appropriate reprocessing of complex and high-risk, semi-critical, and critical devices (e.g., endoscopes, bronchoscopes, vaginal/transvaginal and transesophageal probes, ultrasound probes used on mucous membranes)
2. Collaborate on evaluating new or modified reprocessing technologies and products (e.g., high-level disinfection [HLD], sterilization modalities, automated washers, tracking systems)
3. Perform risk assessment to address discrepancies between instructions for use (IFUs), guidelines, and facility capabilities