

Queen's University Course Description

EPID 852- Foundations of Infection Prevention and Control

Instructor and General Information

<u>Instructor:</u>	Heather Candon, BSc, MSc, CIC, Adjunct Lecturer Department of Public Health Sciences, Queen's University Director, Infection Prevention and Control, KHSC
<u>Office Location:</u>	Kingston Health Sciences Centre, Occupational Health Office
<u>Office Hours:</u>	Mon / Wed 3:00pm – 4:30pm and by appointment
<u>Contact:</u>	Email: Heather.Candon@kingstonhsc.ca
<u>Co-Instructor:</u>	Kim Allain, BScN, RN, MHS, CIC Director of Education, IPAC-Canada
<u>Office Location:</u>	Carruthers Hall, 2 nd floor
<u>Office Hours:</u>	Fridays 11:00am – 1:00pm and by appointment
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Course Information

<u>Course Title and Number:</u>	EPID-852 Foundations of Infection Prevention and Control
<u>Classroom Location:</u>	Carruthers Hall 102

Course Description: This course provides foundational and applied information to support learners' development of infection prevention and control (IPAC) practices within various healthcare and public health settings. Students will gain an understanding of the core competencies for IPAC. Diverse principles and practices associated with routine practices, additional precautions, program evaluation, surveillance and outbreak management, occupational health, emergency management, disinfection methods, reprocessing, construction/renovation, and principles of adult learning will be explored as the foundational concepts of an IPAC program. Students will be able to apply these IPAC skills and concepts to a broad environment of care and its overall impact in public health. Three term hours. Offered Winter term annually.

Prerequisites: There are no specific prerequisites. This course is designed for students enrolled in the Infection Prevention and Control (IPAC) track of the Master of Public Health (MPH) program at Queen's University. If spaces are available and with consent of the instructor, the course may be of interest to students in other programs.

Learning Outcomes: Upon successful completion of the course, students will be able to:

1. Develop an understanding and conceptualize the key components of a IPAC program in various public health settings in Canada.
2. Describe and demonstrate critical thinking to apply the foundational practices to prevent and control the spread of infections in health care delivery.

3. Apply knowledge and concepts of surveillance activities within an IPAC program, evaluate metrics, and communicate results to implement evidence-based practice, policies, and standards.
4. Identify and describe the role of IPAC programs in assessing and facilitating a clean and safe environment of care (e.g., OH, disinfection, construction, environmental services)
5. Describe the leadership role of IPAC in health care system in preparing and responding to public health emergencies.

Rationale: To meet the demands of this evolving field, advance the profession, and equip infection control professionals (ICPs) to meet current and future challenges, there is an urgent need for standardized IPAC training and education to develop subject matter experts and leaders. Infection prevention and control in public health requires practitioners to be equipped with competencies to interpret data, do prepared for assessments, evaluations, surveillance, outbreak management and to communicate effectively to lead organizational change in keeping populations (patients/staff/visitors) safe.

Assessment: Students will be evaluated and graded on a variety of this includes quizzes (4), surveillance project (1), case study assignment with peer assessment, briefing note, and class participation.

Assignment	Description	Due date	Weight
1	Class quizzes (4)	Various	40%
2	Surveillance project	TBD	20%
3	Outbreak case study assignment and peer evaluation	TBD	20%
4	Briefing note with embedded teaching plan	TBD	15%
5	Class Participation		5%
			100%

After the end of the term when all grades have been submitted, students will be asked to evaluate the course via an online survey. Feedback will be sent to the MPH Program Director.

Course Materials

Textbooks:

Red Book, 2018. Committee on Infectious Diseases; American Academy of Pediatrics; David W. Kimberlin, MD, FAAP; Michael T. Brady, MD, FAAP; Mary Anne Jackson, MD, FAAP; Sarah S. Long, MD, FAAP

Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8

Course Schedule:

Week	Topic	Learning Objectives	Reading	Assessment
1	History of IPAC & the IPAC Program	<ol style="list-style-type: none"> 1. Identify IPAC core competencies and practice standards. 2. Identify key components of an IPAC program. 3. Describe the role and key responsibilities of the IPAC committee in the IPAC program. 4. Identify reporting structures in IPAC. 5. Identify policies and procedures relevant to IPAC. 6. Identify characteristics and importance of well-written policies and procedures relevant to IPAC 	<p>Infection Prevention and Control (IPAC) Standards, IPAC Canada, 2016 Section 2.9 https://ipac-canada.org/photos/custom/pdf/IPAC_PROGRAM_STANDARD_2016.pdf</p> <p>Advancing the profession: An updated future-oriented competency model for professional development in infection prevention and control. Billings et al., American Journal of Infection Control 47 (2019) 602–614.</p> <p>Read this article from: Medical Xpress (June 26, 2018). New studies illustrate need for rigorous review of infection preventionist staffing models across healthcare systems.</p> <p>Provincial Infectious Diseases Advisory Committee. Best Practices for Infection Prevention and Control Programs in All Health Care Settings, 3rd edition. Toronto, ON: Queen’s Printer for Ontario; May 2012. OAHPP.</p> <ul style="list-style-type: none"> ▪ Pages to be assigned 	<p>Competency Self-Assessment Activity for Novice or Becoming Proficient IPs CBIC Core Competencies – APIC Competency Model Future-Oriented Competency Domains</p> <p>IPAC Canada Competencies Assessment for ICPs</p>
2	Preventing and Controlling Infections: Routine Practices & Additional Precautions	<ol style="list-style-type: none"> 1. Describe the chain of transmission/infection model. 2. Define Routine Practices, identify the key elements of Routine Practices and point of care risk assessment 3. Apply Routine Practices to different situations in a healthcare setting. 4. Describe the categories of transmission: contact, droplet and airborne, including key precaution measures taken for each. 5. Identify factors that increase the risk of transmitting an infectious agent and 	<p>Mayhall’s Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned <p>Provincial Infectious Diseases Advisory Committee. Routine Practices and Additional Precautions in All Health Care Settings. 3rd edition. Toronto, ON: Queen’s Printer for Ontario; November 2012. OAHPP</p>	<p>Quiz #1</p>

		strategies to address these factors.		
3	Hand Hygiene & PPE	<ol style="list-style-type: none"> 1. Identify the Four Moments of Hand hygiene (settings). 2. Describe the importance and impact of hand hygiene education, motivation and behaviors 3. Describe the impact of monitoring and feedback of hand hygiene adherence 4. Identify the various types of PPE and implications for use. 5. Describe proper technique of putting on and removing PPE. 	<p>Public Health Agency of Canada (2012). Hand hygiene practices in health care settings. Part D: Recommendations for hand hygiene practices in healthcare settings. Pages 39-45.</p> <p>Resources available provincially, nationally, and internationally can be found on the IPAC Canada website.</p> <p>Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned 	

4	Environmental Cleaning	<ol style="list-style-type: none"> 1. List practice principles contributing to effective environmental cleaning 2. Identify benefits and risks associated with use of disinfectant products and QI 3. Evaluate new and emerging technology for environmental cleaning and disinfection 4. Describe infection prevention and control issues related to waste management 5. Develop a product evaluation tool, identifying the infection control requirements of a product for evaluation or purchase review 	<p>Provincial Infectious Diseases Advisory Committee. Best practices for environmental cleaning for prevention and control of infections in all health care settings. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2018. OAHPP</p> <p>Rutala WA, Weber DJ. Selection of the ideal disinfectant. <i>Infect Control Hosp Epidemiol.</i> 2014 Jul;35(7):855-65. 2014</p> <p>Otter JA, Yezli S, Barbut F, Perl TM. An overview of automated room disinfection systems: When to use them and how to choose them. <i>Decontamination in Hospitals and Healthcare.</i> 2020;323-369.</p>	Quiz #2
5	Surveillance	<ol style="list-style-type: none"> 1. Define, identify goals and objectives of surveillance. 2. Distinguish types of surveillance and difference between process surveillance and outcome surveillance. 3. Explain how priorities for surveillance can be determined. 4. Identify sources of data for surveillance. 5. Develop clearly defined objectives for a surveillance program, using appropriate outcomes or indicators. 6. Program evaluation and data sharing (communication) through dashboards and scorecards. 	<p>Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned <p>Provincial Infectious Diseases Advisory Committee. Best practices for surveillance of health care-associated infections in patient and resident populations. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2014.OHAPP</p>	Assignment: Surveillance Project
6	Outbreak Management	<ol style="list-style-type: none"> 1. Define outbreak. 2. Compare common-source, propagated and combined epidemics in terms of definition, 3. Identify main goals of outbreak investigation and management. 4. Describe the ten steps of outbreak investigation and management and explain and identify how to use these steps in an outbreak situation. 5. Identify challenges of outbreak investigation and management, and potential strategies 	<p>Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned 	

7	Occupational Health	<ol style="list-style-type: none"> 1. Give examples of potential associations between Occupational Health and Infection Prevention & Control (IPAC or IPAC). 2. Name the five classes of occupational hazards. 3. Name the components of the hierarchy of hazard control. 4. Identify the main functions of Occupational Health. 	<p>Workplace Safety and Insurance Board. Protecting healthcare workers from infectious diseases https://www.pshsa.ca/wp-content/uploads/2013/02/IIFTLAEN0912-PSHSA-Protecting-Healthcare-Workers-from-Infectious-Disease-Self-Assessment-Tool-05232013-SECURED.pdf</p>	Group Assignment: Outbreak Case Study with OHS components
8	Emergency Preparedness & IPAC in Disasters and Emergencies	<ol style="list-style-type: none"> 1. Define an emergency and emergency preparedness. 2. Explain the importance of personal Emergency Preparedness. 3. Understand Emergency Preparedness in healthcare settings. 4. Explain the basic principles of an Incident Management System (IMS) and how it can be used in large and small-scale emergencies. 5. Define the role of Infection Prevention & Control in Emergency Preparedness. 6. Understand the basics of Pandemic Planning 	<p>Zisook R.E., Monnot A., Parker J., Gaffney S., Dotson S., Unice K. Assessing and managing the risks of COVID-19 in the workplace: Applying industrial hygiene (IH)/occupational and environmental health and safety (OEHS) frameworks. <i>Toxicol. Ind. Health.</i> 2020;36:607–618.</p> <p>Rebmann, T., APIC State-of-the-art Report: The role of the infection preventionist in emergency management Am J Infect Control 2009;37:271-81.</p> <p>http://www.health.gov.on.ca/en/public/programs/emu/ebola/Ebola_Emergency_Management_-_Emergency_Management_Unit</p> <p>https://www.cdc.gov/flu/pandemic-resources/basics/index.html - Center for Disease Control Pandemic Planning</p>	Quiz #3
9	Cleaning, Disinfection & Sterilization	<ol style="list-style-type: none"> 1. Understand the Spaulding Risk Classification Scheme. 2. Describe the various levels of disinfection and sterilization. 3. Discuss the need to review, assess, and follow the manufacturer’s instructions for use (MIFUs) for each piece of equipment to be reprocessed. 4. Identify methods commonly used for sterilization. 5. Discuss the quality assurance indicators required for sterility assurance monitoring. 6. Describe the basic components and flow required for a reprocessing area. 	<p>Mayhall’s Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned 	

10	Healthcare facility design & Construction and Air Handling	<ol style="list-style-type: none"> 1. Describe the role of Infection Prevention and Control (IPAC) in construction, renovation and maintenance (CRM) of healthcare facilities. 2. Describe how the Infection Control Risk Assessment (ICRA) matrix can be used to identify and prevent potential risks for infections associated with CRM. 3. Describe the basic principles of heating ventilation and air conditioning systems (HVAC) in healthcare facilities, including both positive and negative pressure rooms and the concept of pressure differential. 4. Identify issues related to plumbing and water systems impacting infection prevention and control. 5. Describe how lessons learned in COVID-19 pandemic impacted future hospital design 	<p>Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8</p> <ul style="list-style-type: none"> ▪ Pages to be assigned 	Quiz #4
11	Teaching & learning	<ol style="list-style-type: none"> 1. Teaching and learning in the context of IPAC 2. Principles of adult education 3. 	<p>Mayhall's Hospital Epidemiology and Infection Prevention 5th edition (2020). David Weber, Tom Talbot. Lippincott Williams & Wilkins (LWW) ISBN: 978-1-97-512458-8 (Pages to be assigned)</p> <p>Meyers, G et al (2018). Understanding infection control professionals' educational practice: There is more to it than meets the eye. <i>Canadian Journal of Infection Control</i>. 33 (4), 198-203.</p>	Assignment: Briefing note and education plan
12	Emerging Technologies & Future Considerations in IPAC	<ol style="list-style-type: none"> 1. Diagnostic stewardship 2. Information management/informatics 3. Artificial intelligence 4. Antimicrobial stewardship in the context of IPAC and public health 	<p>Wiens J, Shenoy ES. Machine Learning for Healthcare: On the Verge of a Major Shift in Healthcare Epidemiology. <i>Clin Infect Dis</i>. 2018;66(1):149-153.</p> <p>Knobloch MJ, McKinley L, Keating J, Safdar N. Integrating antibiotic stewardship and infection prevention and control programs using a team science approach. <i>Am J Infect Control</i>. 2021;49(8):1072-1074.</p>	

ACADEMIC INTEGRITY

Queen's students, faculty, administrators and staff therefore all have responsibilities for supporting and upholding the fundamental values of academic integrity. Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see <http://www.academicintegrity.org>) and by the quality of courage. These values and qualities are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University.

Students are responsible for familiarizing themselves with and adhering to the regulations concerning academic integrity. General information on academic integrity is available at [Academic Integrity @ Queen's University](#), along with Faculty or School specific information. Departures from academic integrity include, but are not limited to, plagiarism, use of unauthorized materials, facilitation, forgery and falsification. Actions which contravene the regulation on academic integrity carry sanctions that can range from a warning, to loss of grades on an assignment, to failure of a course, to requirement to withdraw from the university.

ACCESSIBILITY AND ACCOMMODATION

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the **Queen's Student Accessibility Services (QSAS)** and register as early as possible. For more information, including important deadlines, please visit the QSAS website at: <http://www.queensu.ca/studentwellness/accessibility-services/>

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MISSED ASSIGNMENTS / LATE SUBMISSIONS: Please endeavor to turn your work in on time. Late submissions will receive a 10% reduction grade penalty per day.

Grading Method

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66

C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below