

# Infection Prevention and Control

## INTRODUCTION

The College of Licensed Practical Nurses of Alberta (CLPNA) has the authority under the *Health Professions Act* (HPA) to carry out its activities and govern the registrant\* in a manner that protects and serves the public interest.

Infection prevention and control (IPC) is an integral part of nursing practice to protect clients and registrants from spreading disease and infections. Registrants are responsible for adhering to the CLPNA IPC guidelines and their employer's IPC requirements.<sup>1</sup>

Terms found in the definition section are **bolded** where they appear for the first time in this document.

## PURPOSE

The purpose of this practice guideline is to provide registrants with knowledge and guidance for IPC in their practice. The goal is to prevent harm, help prevent the transmission of diseases and infections, and promote client and registrant safety in care environments.

## DISCUSSION OF EVIDENCE

### Infection Prevention and Control Interventions

IPC interventions are specific measures taken to prevent or minimize the spread of diseases in a practice environment. Healthcare associated (or acquired) infections may occur when a client is in a healthcare setting due to contact with another disease, injury, or illness.<sup>2</sup>

### Chain of Transmission

Communicable diseases spread through six unique chains of transmission.<sup>3</sup> To prevent the transmission of disease and infection, registrants must understand and follow IPC best practices. In order to break one or more links in the chain of disease transmission it is important to understand and apply IPC best practices at all times.

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\* In this document, “registrant(s)” has the same meaning as “regulated member(s)” in the *Health Professions Act*.

# CHAIN OF INFECTION

## Susceptible Host



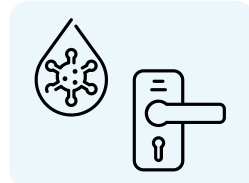
People who are immunocompromised, have comorbidities, malnutrition, diabetes, post-surgery, extensive burns or cardiopulmonary diseases.

## Infectious Agent



Virus, bacteria, parasite, fungi.  
Rapid and accurate identification can help interrupt its ability to cause an infection.

## Reservoir (Source)



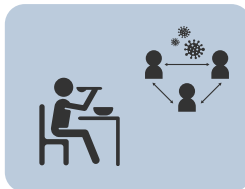
People, animals, food, water, soil, high-touch surfaces, equipment, and bodily fluids.

## Portal of Entry



Breathing infectious particles, touching contaminated surfaces, touching body fluids, incisions and wounds.

## Means of Transmission



Person to person through bodily fluid, droplet, bite, or sharps-related injury.  
Indirect contact through equipment, food, or water.

## Portal of Exit



Blood, respiratory tract, skin and mucous membranes, genitourinary tract, gastrointestinal tract, and the transplacental route.

## BREAKING THE CHAIN OF INFECTION



Limit contact with others



Hand hygiene



Wear appropriate PPE



Use aseptic techniques



Safe sharps disposal



Safe food handling



Increase defenses

### ***Chain of Transmission or Chain of Infection***

1. **Infectious Agent:** the microorganism or pathogen (e.g. bacteria, virus, parasite, or fungi) risk factors include **virulence**, **pathogenicity**, and ability to enter the host.
  - Rapid and accurate identification of the microorganism can identify steps to interrupt its ability to cause an infection.
2. **Reservoir (source):** a host that allows the microorganism to live and possibly grow and multiply (e.g. environmental surfaces/equipment, body fluids like blood or saliva, urine/fecal material, food/water, soil, skin, people, or animals).
  - Using single-use devices or cleaning, disinfecting, or sterilizing reusable medical devices and the care environment are ways to break this chain of transmission.
3. **Portal of Exit:** how the microorganism moves or escapes from the reservoir (e.g. blood, respiratory tract, skin and mucous membranes, genitourinary tract, gastrointestinal tract, and the transplacental route from mother to fetus).
  - Wearing personal protective equipment (PPE) and practicing hand hygiene, respiratory etiquette, and safe waste disposal are ways to break this chain of transmission.
4. **Means of Transmission:** how microorganisms move from one place to another. Some microorganisms cannot travel independently and require a vehicle to carry them to other people and places.
  - Transmissions can occur through direct and indirect contact.
    - Direct contact: direct physical contact with a body fluid (e.g. saliva, an infected wound, or blood), droplet, bite, or other sharps-related injuries.
    - Indirect contact: airborne, contaminated equipment, medication, **vectors**, food, or water.
  - In addition to cleaning, disinfecting, or sterilizing medical devices and the care environment, precautions such as having appropriate hand hygiene, safe food handling, and airflow control can help break this chain of transmission.
5. **Portal of Entry:** the path for the microorganism to enter a new host. This could include body openings (e.g. mouth, eyes, urinary tract, respiratory tract), incisions, or wounds.
  - Using aseptic techniques (e.g. when providing wound and catheter care) are some ways to break this chain of transmission.
6. **Susceptible Host:** a person (client or registrant) susceptible to a microorganism (e.g., age, being immunocompromised, co-morbidities, nutrition, medications, diabetes, being post-operative, extensive burns, or cardiopulmonary diseases).
  - Recognizing high-risk clients followed by:
    - prevention (e.g. hand washing and wearing appropriate PPE), and
    - treatment of underlying diseases.

## INFORMED PRACTICE

Registrants incorporate the following IPC expectations into their practice.

### Professional Responsibility and Accountability

Registrants must adhere to all legislation, regulations, standards of practice, and employer requirements for reporting infectious diseases and IPC protocol breaches. Registrants should complete any necessary reporting forms and contribute to IPC data collection as the law and their employer require. Please see the CLPNA's *Duty to Report* interpretive document for more information.

Critical thinking and following employer requirements are necessary when initiating, applying, or removing IPC precautions. All healthcare team members have a joint responsibility to maintain IPC best practices. Therefore, if IPC protocols are broken or disregarded, the appropriate authority should be informed to take corrective action.

Competent performance of IPC interventions is integral. This performance includes maintaining aseptic and sterile techniques when applicable. Additionally, medical devices should be reprocessed or disposed of according to standards, employer requirements, and manufacturers' instructions. Registrants should only use devices that have been appropriately reprocessed.

Below are some strategies registrants could use to maintain professional responsibility and accountability.

#### Strategies for Maintaining IPC Professional Responsibility and Accountability

- Read and understand the relevant legislation and regulation, (e.g. the *Public Health Act*, *Immunization Regulation*, and *Communicable Diseases Regulation*); standards of practice; policy documents; and employer requirements.
- Direct any questions about practice or reporting requirements for IPC to a registrant's employer or the CLPNA.
- Promptly report concerns about a breach of IPC protocols to a registrant's supervisor or employer.
- Provide real-time education to colleagues, families, visitors, students, or others who might be breaching IPC protocols.
- Identify clients experiencing new symptoms and assess the need to initiate IPC protocols.

### Evidence-Informed IPC Practice

Registrants should understand how diseases are transmitted and how the application of IPC principles can break the chain of transmission. The following is consistent with IPC standards.<sup>4</sup>

- Perform risk assessments for point-of-care nursing.
- Adhere to the four moments of hand hygiene, which include cleaning hands:<sup>5</sup>

- before the registrant interacts with the client or the client’s environment,
  - before the registrant puts on gloves and performs any procedure (e.g. changing a dressing),
  - after the registrant comes into contact with any body fluids (e.g. blood), and
  - after the registrant interacts with the clients or the client’s environment.
- Practice proper hand hygiene.<sup>6</sup>
  - Use PPE appropriately and as directed (e.g. gloves, gown, mask/shield, glasses/goggles);
  - Control the source of infection (triage, early diagnosis and treatment, initiating isolation protocols, etc.).
  - Reduce transmission of microorganisms by implementing environmental IPC strategies including, but not limited to, proper sharps disposal, adhering to cleaning protocols, and proper ventilation.
  - Follow employer requirements for IPC training and immunizations.
  - Follow standards, administrative controls, and manufacturers’ guidelines for safe use, cleaning, disinfection, and sterilization of medical devices.
  - Educate clients, families, and other visitors.
  - Follow standards, administrative controls, and manufacturers’ guidelines for the safe use and disposal of single-use devices.
  - Follow best practices and advice on the sensible use of antimicrobials to limit the development of antimicrobial-resistant organisms.

Registrants can help educate clients and families about IPC best practices. Care and education should be documented in the client’s record.

In addition to the strategies that registrants can apply, registrants should inquire about the client’s immunization status. For more information about managing immunizations and reporting requirements, please refer to the CLPNA’s document on *Immunization Regulation Duties*.

Below are some strategies a registrant can use to maintain evidence-informed practice.

#### **Strategies for Maintaining IPC Evidence-Informed Practice**

- Check with the [Infection Prevention and Control Canada website](#), employers, and other credible sources for best practices regarding IPC.
- Establish or follow routine practices consistent with IPC best practices in work settings.
- Evaluate information about IPC for credibility.

#### **Ethical Practice**

Registrants can provide safe, competent, and ethical care by following IPC best practices to reduce the risk of infection. Ethical practice includes providing care that maintains client dignity and a therapeutic registrant-client relationship. Maintaining respectful interactions is important when working with clients who may need extra IPC precautions due to their condition. Ethical practice also includes sharing only

evidence-informed information. Please see the *Standards of Practice for Licensed Practical Nurses in Canada* and the *Code of Ethics for Licensed Practical Nurses in Canada* on the CLPNA's website.

Registrants should obtain informed consent for IPC interventions. In certain circumstances, obtaining informed consent may not be possible if the IPC intervention is required by legislation or an emergency.

Clients still have the right to refuse care at any time, even after receiving education from healthcare providers. Ethical practice refrains from pressuring clients to make particular care decisions and maintains respectful communication.

Additionally, registrants must maintain the confidentiality of their client's diagnosis, infection, immunity status, and health records. For more information about confidentiality, please see the CLPNA's *Confidentiality* practice guideline.

Below are some strategies registrants could use to maintain ethical practice.

#### **Strategies for Maintaining Ethical Practice**

- Maintain a therapeutic registrant-client relationship when providing education about IPC and any reporting requirements.
- Establish or follow routine practices consistent with IPC best practices in work settings.
- Be aware that clients have a right to refuse treatment, even if the registrant disagrees with their choice.
- Read and understand the relevant legislation, regulation, standards of practice, policy documents, and employer requirements for maintaining client confidentiality.

#### **Collaborative Practice**

Registrants can help identify transmission risks to clients, colleagues, and the public. Additionally, registrants should collaborate with the client, the family, and the healthcare team in developing care plans and IPC-related quality improvement initiatives. Collaboration between registrants, clients, and the public can increase shared understanding and knowledge about microorganisms and IPC protocols to minimize the spread of infection and facilitate safer care.

Below are some strategies registrants could use to help engage in collaborative practice to support IPC.

#### **Strategies for Maintaining a Collaborative Practice Approach to IPC**

- Respect the expertise and follow directions or orders of IPC practitioners.
- Notify the healthcare team if the risk assessment for infection transmission changes.
- Apply communication strategies (e.g. simple language or diagrams) to help explain IPC protocols in the healthcare facility to clients and families.

## Reflective Practice

Registrants promote the implementation of IPC best practices and maintain IPC competence through ongoing education.

Evidence has shown that personal immunization can reduce the risks of transmitting infections.<sup>7</sup> Registrants are encouraged to follow the Alberta Health immunization schedule to protect their health. Registrants should know their immunization status and discuss any concerns with their employers. Employers may require additional IPC precautions depending on a registrant's current immunization status.

Below are some strategies registrants could employ in their practice.

### Strategies for Maintaining Reflective Practice

- If registrants notice that their employment setting is not using IPC best practices, they should talk with their employer about adopting evidence-informed IPC protocols.
- If registrants are not feeling well, they should take precautions to prevent the transmission of infection to others, including staying home if necessary, using PPE, or consulting with another healthcare professional.
- To maintain competence in IPC best practices, registrants should seek educational opportunities.

## CONCLUSION

Registrants must adhere to IPC legislation, regulation, and the CLPNA's standards of practice. Registrants should better understand their professional expectations when promoting the implementation of IPC best practices. IPC best practices are evidence-informed and are a collaborative effort of all healthcare providers, underpinned by their professional responsibility, accountability, and ethical obligations.

Documents are updated frequently. To access the most current version of the related documents and resources, please visit the Knowledge Hub on [clpna.com](https://clpna.com). If you have any questions, please contact the CLPNA's Professional Practice Team at [practice@clpna.com](mailto:practice@clpna.com) or on the website under the contact tab at [Ask CLPNA](#). You can reach out by phone at 780-484-8886 or 1-800-661-5877 (toll-free in Alberta).

## DEFINITIONS

**Pathogenicity:** the ability of a pathogen to cause disease.<sup>8</sup>

**Vectors:** an organism that acts as a carrier of a pathogen from one thing to another.<sup>9</sup>

**Virulence:** the ability of a microorganism to cause damage to its host.<sup>10</sup>

## REFERENCES

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<sup>1</sup> College of Registered Nurses of Alberta (CRNA), *Infection Prevention and Control Standards (2019)*, [10-infection-prevention-and-control-standards-2022.pdf \(nurses.ab.ca\)](#).

<sup>2</sup> Mainul Haque, Massimo Sartelli, Judy McKimm and Muhamad Abu Bakar, *Health care-associated infections - an overview*, *Infection and Drug Resistance* 11 (2018): 2321-2333, [Health care-associated infections – an overview - PMC \(nih.gov\)](#).

<sup>3</sup> Centers for Disease Control and Prevention, *Chain of Infection Components*, 2022, [Chain of Infection Components \(cdc.gov\)](#).

<sup>4</sup> Government of Canada, *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Setting*, 2017, [Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings - Canada.ca](#).

<sup>5</sup> Alberta Health, *Hand Hygiene: A guide to clean hands*, 2024, [Hand hygiene: A guide to clean hands \(alberta.ca\)](#).

<sup>6</sup> Infection Prevention and Control Canada, *Information about Hand Hygiene*, n.d., [Hand Hygiene Resources | IPAC Canada \(ipac-canada.org\)](#)

<sup>7</sup> 4 Doherty, Mark, Philippe Buchy, Baudouin Standaert, Carlo Giaquinto, and David Prado-Cohrs, *Vaccine impact: benefits for human health*, *Vaccine* 34, no. 52 (2016): 6707-6714.

<sup>8</sup> Tulane University, *Pathogenicity vs. Virulence*, n.d. [Pathogenicity vs Virulence \(tulane.edu\)](#).

<sup>9</sup> National Human Genome Research Institute, *Vector*, 2024, [Vector \(genome.gov\)](#).

<sup>10</sup> National Cancer Institute, *Virulence*, 2024, [Definition of virulence - NCI Dictionary of Cancer Terms - NCI](#).