Saskatchewan

INFECTION PREVENTION AND CONTROL

(IPAC) for Clinical Office Practice

NOTES:
This document is intended to provide best practices only. Health care settings are encouraged to work towards these best practices in an effort to improve quality of care.

Provincial Infectious Diseases Advisory Committee (PIDAC)
Public Health Ontario
www.publichealthontario.ca
Tel: 647-260-7100
Email:
pidac@oahpp.ca

ACKNOWLEDGEMENTS

This document has been adapted from a document produced by Public Health Ontario with the permission of Public Health Ontario.

Public Health Ontario is a Crown corporation dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, frontline health workers and researchers to the best scientific intelligence and knowledge from around the world.

Public Health Ontario provides expert scientific and technical support to government, local public health units and health care providers relating to the following:

- communicable and infectious diseases
- infection prevention and control
- environmental and occupational health
- emergency preparedness
- health promotion, chronic disease and injury prevention
- public health laboratory services

Public Health Ontario's work also includes surveillance, epidemiology, research, professional development and knowledge services. For more information, visit www.publichealthontario.ca

The **Provincial Infectious Diseases Advisory Committee on Infection Prevention and Control** (PIDAC-IPC) is a multidisciplinary committee of health care professionals with expertise and experience in Infection Prevention and Control. The committee advises Public Health Ontario on the prevention and control of health care-associated infections, considering the entire health care system for protection of both clients/patients/ residents and health care providers. PIDAC- IPC produces "best practice" knowledge products that are evidence-based, to the largest extent possible, to assist health care organizations in improving quality of care and client/patient/resident safety.

Disclaimer for Best Practice Documents

The document from which this is adapted was developed by the Provincial Infectious Diseases Advisory Committee on Infection Prevention and Control (PIDAC-IPC). PIDAC–IPC is a multidisciplinary scientific advisory body that provides evidence-based advice to Public Health Ontario (PHO) regarding multiple aspects of infectious disease identification, prevention and control. PIDAC–IPC's work is guided by the best available evidence and updated as required. Best Practice documents and tools produced by PIDAC-IPC reflect consensus positions on what the committee deems prudent practice and are made available as a resource to public health and health care providers.

PHO assumes no responsibility for the results of the use of this document by anyone.

Infection Prevention and Control for Clinical Office Practice

Public Health Ontario advised that the document from which this was adapted was current to June 2013 with the following listed revisions.

Summary of Major Revisions:

Page	Revision
45	Updated recommendations for the use of multidose vials
85	Updated list of reportable diseases in Saskatchewan (Appendix F)
91	Updated checklist for safe medication practices (Appendix H)

PIDAC-IPC would like to acknowledge the contribution and expertise of the following individuals who participated in the development of this document:

PIDAC - IPC Members:

Dr. Matthew Muller, Chair
Medical Director, IPC
St. Michael's Hospital Toronto

Dr. Irene Armstrong
Associate Medical Officer of Health
Toronto Public Health, Toronto

Anne Bialachowski
Manager, IPAC
St. Joseph's Health Centre, Hamilton

Sandra Callery
Director of IPAC
Sunnybrook Health Sciences Centre, Toronto

Dr. William Ciccotelli
Infectious Disease and Medical Microbiology
Grand River Hospital, Kitchener

Judy Dennis
Manager, IPAC
Children's Hospital of Eastern Ontario, Ottawa

Dr. Susy Hota
IPAC Medical Specialist, University Health Network
Toronto General Hospital, Toronto

Dr. Allison McGeer Director,
Infection Control Mount Sinai
Hospital, Toronto

Vydia Nankoosingh
Manager, IPAC
The Scarborough Hospital, Toronto

Catherine Richard
Manager, Occupational Health & Safety Program
Champlain Community Care Access Centre, Ottawa

Ex-officio Members:

Erika Bontovics
Manager, Infectious Diseases Policy and Programs
Ministry of Health and Long-Term Care, Toronto

Dr. Gary Garber
Chief, IPAC, Public Health Ontario, Ottawa

Dr. Leon Genesove
Chief Physician, Health Care Unit
Occupational Health and Safety Branch
Ministry of Labour, Toronto

Public Health Ontario Staff:

Dr. Maureen Cividino
IPAC Physician

Tim Cronsberry
Manager, Regional Infection Control Network

Cathy Egan
Director, IPAC

Dr. Jennie Johnstone
IPAC Physician

Dr. Kevin Katz
IPAC Physician

Mabel Lim
IPAC Specialist/Writer

Liz McCreight
Manager, IPAC Resources

Dr. Samir Patel
Clinical Microbiologist
Public Health Ontario Laboratory

Dr. Jennifer Robertson
Manager
Knowledge Synthesis and Evalulation

Dr. Mary Vearncombe
IPAC Physician

In addition, PIDAC-IPC is grateful to the following individuals who contributed to the development and production of the first edition of this document:

Contributors to the 2013 edition:

IPAC in Physicians' Offices Working Group:

Dr. Mary Vearncombe (Chair)
Medical Director of Infection Prevention and Control
Sunnybrook Health Sciences Centre,
Toronto

Dr. Wadid Abadir
Dermatologist
Odette Cancer Center
Lecturer University of Toronto, Peer Assessor, CPSO

Naideen Bailey
Manager, Regional Infection Control Network
Public Health Ontario, Toronto.

Anne Bialachowski
Manager, IPAC
St. Joseph's Healthcare, Hamilton

Dr. Maureen Cividino
Occupational Health Physician
Public Health Ontario, Toronto

Mandy Deeves
Network Coordinator, North Simcoe Muskoka
Infection Control Network, Orillia

Wade Hiller
Associate Director, Practice Assessment and Enhancement Department Quality Management Division, College of Physicians and Surgeons, Toronto

Dr. John Jordan
Family Physician
Department of Family Medicine, Western University, London, Ontario College of Family Physicians

Shirley McDonald
IPAC Specialist/Technical Writer
Public Health Ontario, Toronto

Dr. Toomas Sauks
Family Physician
Grey Bruce Regional Health, Owen Sound

Liz Van Horne
Manager, IPAC Resources (retired)
Public Health Ontario, Toronto

PIDAC-IPC Members:

Dr. Mary Vearncombe (Chair)
Medical Director of Infection Prevention and Control
Sunnybrook Health Sciences Centre,
Toronto

Dr. Irene Armstrong
Associate Medical Officer of Health
Toronto Public Health, Toronto

Donna Baker
Manager, IPAC
Bruyère Continuing Care, Ottawa

Anne Bialachowski
Manager, IPAC
St. Joseph's Health Centre, Hamilton

Dr. Kevin Katz
Infectious Diseases Specialist and Medical Microbiologist, Medical Director, IPAC
North York General Hospital, Toronto

Dr. Allison McGeer Director,
Infection Control Mount Sinai
Hospital, Toronto

Shirley McLaren
Director of Client Services
CanCare Health Services, Kingston

Dr. Kathryn Suh
Associate Director, IPAC
The Ottawa Hospital, Ottawa

Rena Burkholder
IPAC Professional
Guelph General Hospital, Guelph

Judy Dennis
Manager, IPAC
Children's Hospital of Eastern Ontario, Ottawa

Dr. Dick Zoutman
Professor, Divisions of Medical Microbiology and Infectious Diseases, Queen's University, Kingston
Chief of Staff, Quinte Health Care, Belleville

Ex-officio Members:

Erika Bontovics
Manager, Infectious Diseases Policy and Programs
Ministry of Health and Long-Term Care, Toronto

Dr. Leon Genesove
Chief Physician, Health Care Unit,
Occupational Health and Safety Branch
Ministry of Labour, Toronto

Liz Van Horne
Operational Lead, Manager, IPAC Resources, Public Health Ontario, Toronto.

Dr. Gary Garber
Chief, IPAC, Public Health Ontario, Ottawa

Public Health Ontario Staff:

Camille Achonu
Epidemiologist, Hospital Infections
Surveillance and Epidemiology, Toronto

Dr. Maureen Cividino
IPAC Physician
Public Health Ontario, Toronto

Shirley McDonald
IPAC Specialist/Technical Writer
Public Health Ontario, Toronto

Dr. Samir Patel
Clinical Microbiologist
Public Health Ontario Laboratory, Toronto

Pat Piaskowski
Network Coordinator (retired), Northwestern Ontario
Infection Control Network, Thunder Bay

The **College of Physicians and Surgeons of Saskatchewan** would like to acknowledge the contribution and expertise of the following individuals who participated in the adaptation of this document from the Ontario version:

Dr. Saqib Shahab
Chief Medical Health Officer
Ministry of Health, Population Health Branch, Government of Saskatchewan

Gwen Cerkowniak,
Provincial Infection Control Coordinator (Central)
Patient Safety Unit

George Koutsoulis
Senior Public Health Inspector
Primary Health Care, Regina
Qu'Appelle Health Region

Valerie Phillips
Director, Patient Safety, Ministry of Health, Government of Saskatchewan

Dr. Karen Shaw
Registrar, College of Physicians and Surgeons of Saskatchewan

Dr. Micheal Howard-Tripp
Deputy Registrar, College of Physicians and Surgeons of Saskatchewan

Mr. Bryan Salte
Associate Registrar, College of Physicians and Surgeons of Saskatchewan

Dr. Tania Diener
Medical Health Officer, Population and Public Health Services, Regina Qu'Appelle Health Region

Dr. Denise Werker
Deputy Chief Medical Health Officer, Ministry of Health, Population Health Branch, Government of Saskatchewan

Dr. Jessica Minion
Medical Microbiologist
Regina Qu'Appelle Health Region

Table of Contents

Published by the College of Physicians and Surgeons of Saskatchewan, June 2016 *cps.sk.ca*

Preamble

Preamble

The need for infection prevention and control measures in medical settings has probably never been more apparent to the general public and to the medical community at large than it is now. Experiences with Severe Acute Respiratory Syndrome (SARS) in 2003 and pandemic H1N1 virus in 2009, as well as events related to inadequate sterilization and disinfection of medical equipment, have underscored the notion that every person is vulnerable if proper safeguards are not in place to prevent the transmission and acquisition of infection.

The face of infection prevention and control is rapidly changing with new infections being described; more outpatient procedures being performed; new products and medical equipment being manufactured; and new standards, directives and guidelines being developed by provincial, national and international organizations.

It is incumbent on a physician to protect individuals within his or her clinical office practice. This responsibility is not restricted to patients, but rather, includes clinical office staff and other visitors as well. Both from a structural and functional point of view there are ample opportunities for infection to be transmitted in an office setting. Infectious agents are not only spread person-to-person, but can also be spread indirectly through inanimate objects known as fomites, and the waiting room of a clinical office practice may be a source for many communicable diseases. As such, protective mechanisms must be in place, not only in direct patient management but in handling of the clinical office environment as well.

These best practices will outline:

- **P**rinciples of infection prevention and control in a clinical office setting
- **L**egislation relating to clinical office practice and duties of physicians as employers and supervisors
- **I**ssues to consider when setting up a new clinical office
- **R**ationale and tools for screening and risk assessment for infection
- **R**ecommendations for providing a clean clinical office environment
- **G**uidance for reprocessing of reusable medical equipment
- **P**rotection and safety issues related to staff

About This Document

These infection prevention and control best practices for physicians are not intended to replace a physician's best clinical judgment, but will assist physicians with their clinical office-based practice. Some components have been derived from legislation and regulations, and will state in explicit terms what physicians should or should not do. Other sections are evidence-based best practices, intended to increase awareness about the day-to-day risks of infection acquisition and transmission in a physician's clinical office and to equip physicians with practical guidance and tools to minimize such risks.

By employing these best practices as part of routine care and knowing how to respond to the threat of infection in an expected fashion (e.g., implementing seasonal screening for acute respiratory infections), the risks associated with serious infectious disease outbreaks will be mitigated, the level of practice in clinical office settings will be elevated and the public will be protected by minimizing the risk of infection transmission.

There is an expectation by the public that the level of care and patient safety provided in a clinical office setting is equivalent to that provided in a hospital setting.

FOR RECOMMENDATIONS IN THIS DOCUMENT:

Shall indicates mandatory requirements based on legislated requirements or national standards (e.g., Canadian Standards Association – CSA).

Must indicates best practice, i.e., the standard of care based on current recommendations in the medical literature.

Should indicates a recommendation or that which is advised but not mandatory.

May indicates an advisory or optional statement.

Illustrations and Symbols

The following symbols are used throughout the document:

Recommendations are annotated with this symbol. These practices are recommended by PIDAC based on the best available evidence. All recommended best practices are summarized at the end of the document.

Notes highlight important points from the text.

Pearls of Wisdom expand on information presented in the document or offer insights into implementation.

Legislated Items are annotated with this symbol and are mandatory. All legislated items are summarized at the end of the document. Legislated items also include those in regulation, and those referenced by legislation or regulations, such as the CSA standards.

Evidence for Recommendations

The best practices in this document reflect the best evidence and expert opinion available at the time of writing. As new information becomes available, this document will be reviewed and updated.

Who Should Use This Document

The infection prevention and control practices set out in this document must be practiced in all physician offices including community health centres and clinics, and non-hospital treatment facilities subject to College of Physicians and Surgeons of Saskatchewan bylaw 26.1.

The Ontario document from which this document was derived was developed in conjunction with the College of Physicians and Surgeons of Ontario and was intended primarily for physicians. The College of Physicians and Surgeons of Saskatchewan expects that this document will be useful for physicians and other health care professionals who provide clinical services, including those working in dental offices, and offices of other regulated health professionals.

Appendices are included to offer additional information as well as practical tools that may be used for establishing and improving one's practice.

I. Best Practices for Infection Prevention and Control for Clinical Office Practice

TERMS USED IN THIS DOCUMENT (see glossary for details and examples)	
Health Care Provider:	Any person delivering care to a patient.
Staff:	Anyone conducting activities within a clinical office setting (includes health care providers).
Clinical Office Setting:	Any community location where health care is provided, including settings where emergency care is provided, outpatient clinics, community health centres and clinics, physician offices and out-of-hospital premises.

1. Legislation Relating to Infection Prevention and Control Practices in the Clinical Office

A. The *Saskatchewan Employment Act* and *The Occupational Health and Safety Regulations, 1996*

Providers of clinical office care have a responsibility to have systems in place to protect the health and safety of workers in their workplace. Preventing transmission of microorganisms to other patients is a patient safety issue, and preventing transmission to staff is an occupational health and safety issue. The consistent and appropriate use of Routine Practices (see *Glossary*) by all health care providers will lessen microbial transmission in the clinical office setting. Examples include having point-of-care alcohol-based hand rub (ABHR) and appropriate personal protective equipment (PPE) readily available and that the use of sharps is compliant with PART XXXI (sections 471 to 478) of The Occupational Health and Safety Regulations, 1996.
http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/O1-1R1.pdf

Depending on the setting in which they are working, a physician may have different roles and responsibilities under *The Saskatchewan Employment Act*. *http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/S15-1.pdf* He or she may be an employer, a supervisor or a worker under the Act (see box, below). In some instances, a physician may have more than one role at the same time:

A physician is an employer if he/she employs one or more workers or has one or more workers in the physician's service.
A physician is a supervisor if he/she oversees or directs the work of a worker.
A physician is a worker if he/she is engaged in the services of an employer.

SCENARIO

Dr. Brown is a joint owner of a family health clinic and works with two physicians and nine employees. She teaches family medicine residents in her office and they join her on hospital rounds and assist with procedures in the ambulatory clinic. Dr. Brown is also employed part-time by the university student health centre. Dr. Brown is thus an employer, a supervisor and an employee. She has differing responsibilities in each of these roles:

Employer: of employees in her health care team

Supervisor: of employees in her office and the family medicine residents in her office, and at the hospital

Worker: as an employee at the university.

DUTIES OF EMPLOYERS

Employers have the most care and control in the workplace, and therefore have the most responsibility for health and safety.

An employer is a person/business who operates a place of employment and employs the service of one or more workers.

An employer's health and safety duties include:

- understanding and following health and safety requirements in the OHS legislation;
- ensuring the health, safety and welfare of workers;
- making sure that managers and supervisors are trained, supported and held accountable for fulfilling their workplace health and safety responsibilities; ensuring workers have the information, training, certification, supervision and experience to do their jobs safely;
- providing medical/first aid facilities as needed; and
- ensuring workers are not exposed to harassment in the workplace.

DUTIES OF SUPERVISORS

Supervisors are the individuals who have the authority to oversee the work of others at a place of employment.

A supervisor's health and safety duties include:

- ensuring the health and safety of workers who work under the supervisor's direct supervision and direction;
- co-operating with anyone exercising a duty imposed by occupational health and safety legislation;
- understanding and following health and safety requirements in the occupational health and safety legislation; and
- ensuring that workers under their direct supervision are not harassed.

DUTIES OF WORKERS

While at work, workers have a responsibility to work and act safely.

A worker is an individual, or supervisor, who is engaged in the service of an employer.

A worker's health and safety duties include:

- understanding and following health and safety requirements outlined in the OHS legislation;
- using safety equipment, machine guards, safety devices and personal protective equipment;
- cooperating with anyone exercising a duty imposed by occupational health and safety legislation; and
- not causing or participating in the harassment of others in the workplace.

1. The employer, supervisor and the worker have duties under the *Saskatchewan Employment Act* and the *Occupational Health and Safety Regulations*

Additional requirements under *The Saskatchewan Employment Act* and *The Occupational Health and Safety Regulations, 1996* include:

- A joint health and safety committee shall be implemented in any workplace that has 10 or more workers of any one employer

Monthly Inspection Checklist for Clinical Office Safety

Visit all areas of the work place, looking for hazards that need correction, such as:

- are sharps containers overfilled?
- is PPE (gloves, masks, gowns) available and accessible?
- is PPE in good condition?
- are chemical disinfectants/sterilants labelled and stored properly?
- are food preparation areas clean and dedicated for that purpose?
- is there adequate ventilation if liquid disinfectants are used?
- is storage shelving in good condition?
- is there adequate liquid soap available at hand washing sinks?
- is there alcohol-based hand rub at point-of-care?
- is the protocol for disposal of hazardous waste being followed?
- is the waste collection area clean and tidy, with waste covered?
- are blood/body fluid spills cleaned by trained staff as they occur?

RESOURCES

Understanding Occupational Health and Safety in Saskatchewan - a guide to the requirements of the occupational health and safety requirements of *The Saskatchewan Employment Act* and *The Occupational Health and Safety Regulations, 1996* is available at http://www.saskatchewan.ca/business/safety-in-the-workplace.

The Occupational Health and Safety Regulations have requirements at sections 474.1 and 474.2 related to the use of hollow-bore needles that are safety-engineered. The regulation is available at http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/O1-1R1.pdf

B. The Workplace Hazardous Materials Information System (WHMIS)

The Workplace Hazardous Materials Information System (WHMIS) is a national hazard communication standard incorporated into PART XXII of *The Occupational Health and Safety Regulations, 1996*.

There are three key elements:

- cautionary labeling of containers of hazardous substances, called "controlled products", e.g., disinfectants
- provision of material safety data sheets (MSDS) for all hazardous substances, which shall be renewed every three years
- worker education programs.

2. Employers shall uphold WHMIS standards in their workplace. Every physician must therefore familiarize himself or herself with the legislation.

3. Employers shall ensure that the setting is a safe work environment that protects patients, staff and themselves and is in accordance with federal and provincial legislation.

For more information on WHMIS: https://www.saskatchewan.ca/business/safety-in-the-workplace/hazards-and-prevention/workplace-hazardous-materials-information-system

2. Staff Education and Training

Regular education (including orientation and continuing education) and support shall be provided in all clinical office settings to help staff consistently implement appropriate infection prevention and control (IPAC) practices. Effective education programs emphasize:

- the risks associated with infectious diseases, including acute respiratory infection and gastroenteritis
- the importance of appropriate immunization
- hand hygiene, including the use of alcohol-based hand rubs and hand washing
- principles and components of Routine Practices as well as additional transmission-based precautions
  - (Additional Precautions)
- assessment of the risk of infection transmission and the appropriate use of PPE, including safe application, removal and disposal
- reprocessing of reusable medical equipment
- appropriate cleaning and/or disinfection of surfaces or items in the health care environment.

4. Regular education (including orientation and continuing education) and support shall be provided in clinical office practices to help staff consistently implement appropriate infection prevention and control (IPAC) practices.

3. Transmission of Microorganisms in Clinical Office Settings

Understanding the mode of transmission of infection is necessary for practicing and designing IPAC strategies. There are five main routes by which microorganisms are spread (**Figure 1**):

- contact transmission (direct or indirect)
- droplet transmission
- airborne transmission
- vehicle transmission
- vector-borne transmission.

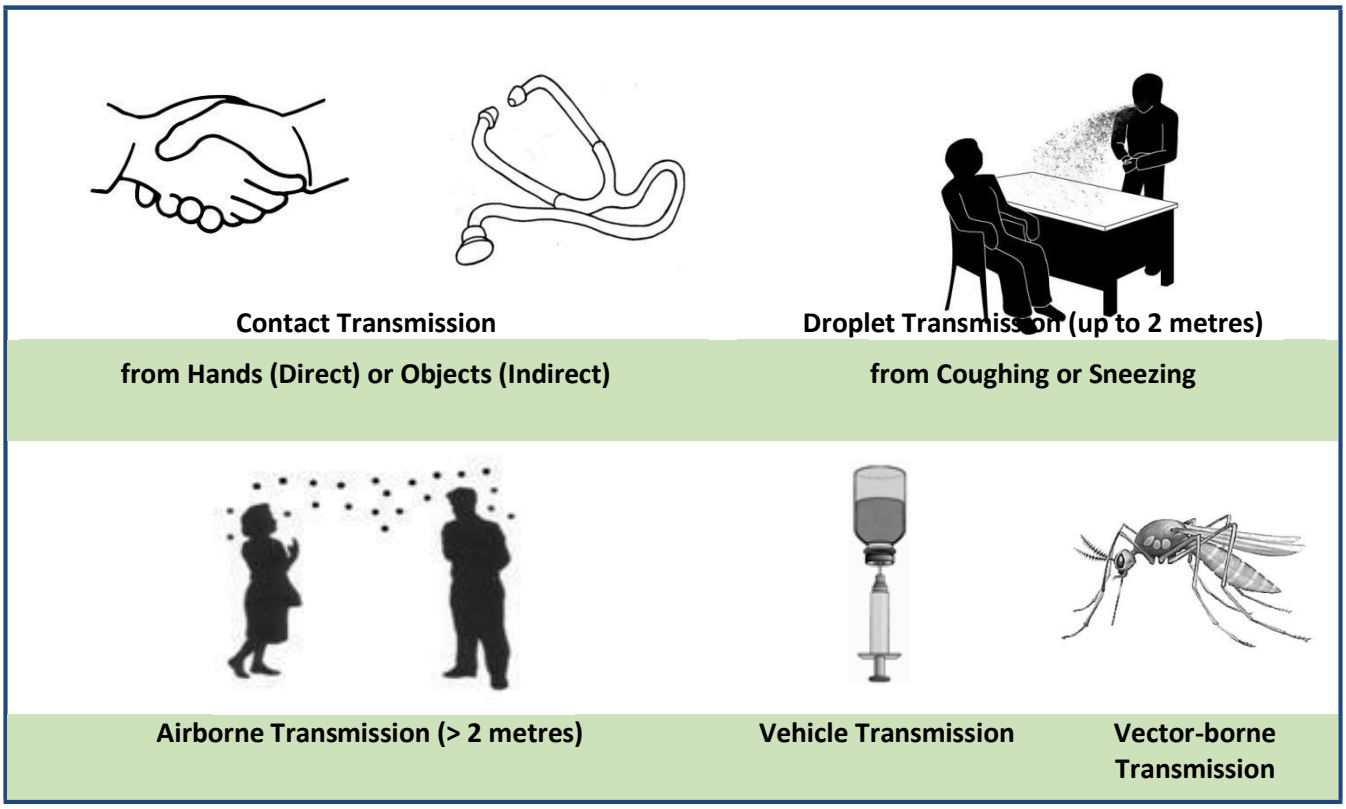


Figure 1: How microorganisms are spread

Although vector-borne spread is not likely to be of relevance in a clinical office setting, the other mechanisms are all important modes of transmission in a physician's office.

4. Routine Practices

Routine Practices are based on the premise that all patients are *potentially* infectious, even when asymptomatic, and that the same standards of practice must be used routinely with all patients to prevent exposure to blood, body fluids, secretions, excretions, mucous membranes, non-intact skin or soiled items and to prevent the spread of microorganisms.

Adherence to Routine Practices protects not only the health care provider but also staff and patients who may subsequently be in contact with that health care provider.

Elements of Routine Practices include:

- **Risk Assessment** of the patient and the health care provider's interaction with the patient
- **Hand Hygiene** according as described in the Canadian Patient Safety Institute's *Hand Hygiene Education Program*[1]
- **Control of the Environment**, including appropriate accommodation, equipment reprocessing, environmental cleaning, safe handling of sharps and issues relating to construction and renovation
- **Administrative Controls (i.e., management of staff health and practices)**, including encouraging staff immunization, respiratory etiquette and audits of practice
- **Personal Protective Equipment** (PPE) to protect staff.

For more information about Routine Practices, see the Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*[2] available at: http://www.phac-aspc.gc.ca/nois-sinp/guide/summary-sommaire/tihs-tims-eng.php.

Recommendation:

1. ***All health care providers must follow Routine Practices for all patients during all care in all clinical office settings.***

A. Risk Assessment and Screening

For each patient encounter, health care providers must screen the patient to determine whether the patient has a communicable disease and to assess the risk of exposure to blood, body fluids, secretions, excretions and non-intact skin and identify the strategies that will decrease exposure risk and prevent the transmission of microorganisms.

The first step in the effective use of Routine Practices is to perform a risk assessment (**Figure 2**).[2]

A point-of-care risk assessment is applied before every interaction with the patient and at all stages of the interaction with the patient, including:

- at the time of booking (if appropriate, e.g., same day or next day appointment)
- upon arrival in the waiting room
- in the examination room.
- For more information on patient screening, see Section 4.D, *Booking, Reception and Placement*.

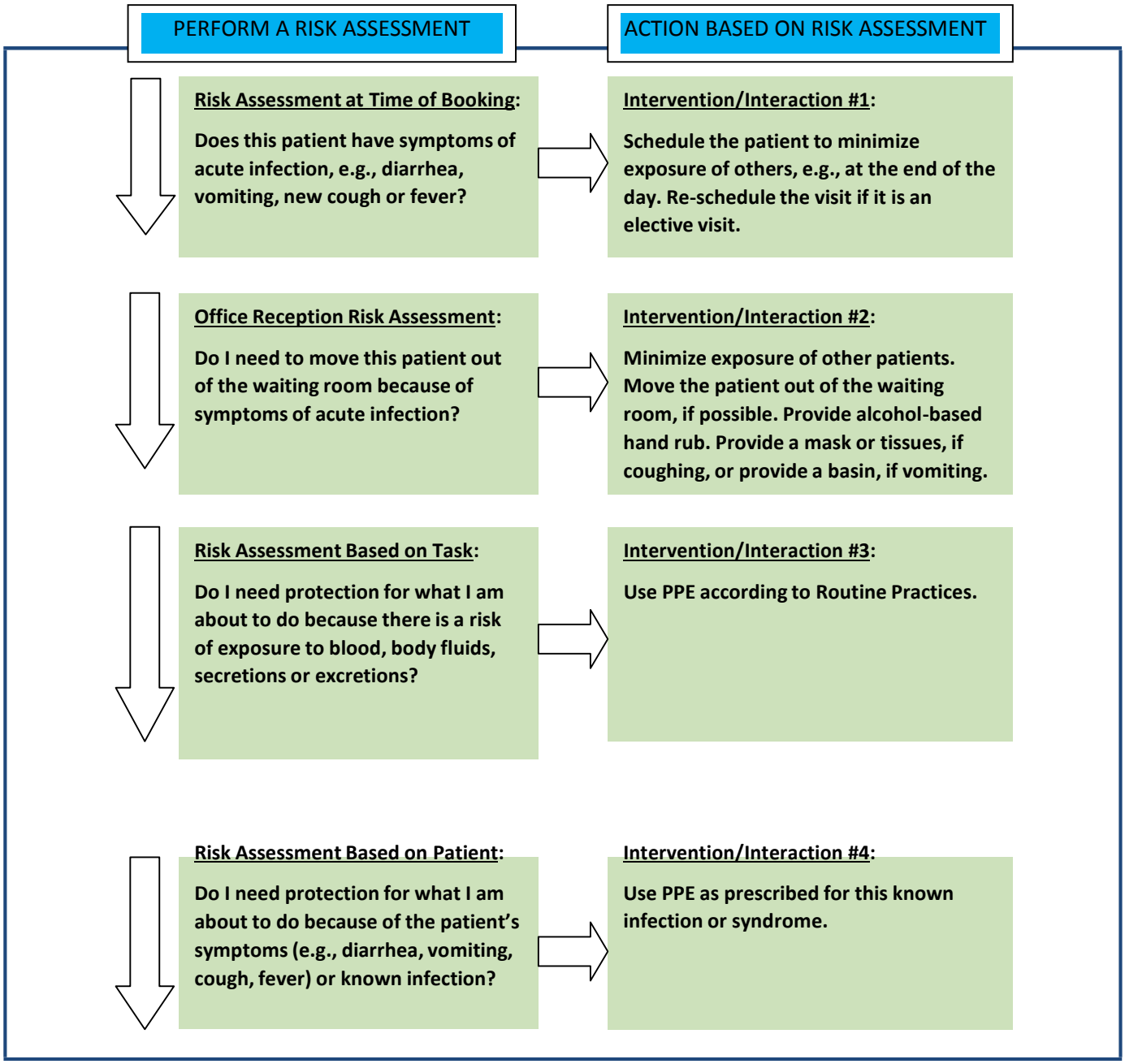


Figure 2: Screening and Risk Assessment Steps to be performed by a Health Care Provider to Determine an Individual's Risk of Transmission of Infectious Agents and the Rationale for Associated Protective Measures

Where there is a risk of transmission of infection based on the risk assessment, interventions and controls may be put into place to reduce one's risk of acquiring or transmitting infection (see Appendix A). While hand hygiene is always required, the risk assessment will indicate when PPE is to be worn. For example:

- exposure to blood, body fluids, secretions, excretions or non-intact skin:
    - hands exposed → WEAR GLOVES
    - clothing or forearms exposed → WEAR A GOWN
    - mucous membranes of the eyes, nose, mouth exposed → WEAR A MASK AND EYE PROTECTION
    - exposure to contaminated equipment or surfaces → WEAR GLOVES and possibly a GOWN.

- For more information about performing a point-of-care risk assessment, refer to the Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*, available at: *http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf*.

B. Hand Hygiene

Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands while maintaining good skin integrity.

Hand hygiene is considered the most important and effective IPAC measure to prevent the spread of health care-associated infections.

All clinical office settings must implement a hand hygiene program that incorporates the following elements:[3]

- To make it possible for health care providers to clean their hands at the right time, alcohol-based hand rub or a hand washing sink with soap and water must be provided at the point-of-care, i.e., within arm's-length of the patient.
- Education is provided to health care providers about when and how to clean their hands.
- Moisturizers compatible with the hand hygiene products used are made available to staff, to help maintain skin integrity.
- Patient hand hygiene is supported.

Alcohol-based hand rub (ABHR) is the preferred method to routinely decontaminate hands in clinical situations when hands are not visibly soiled.[3] ABHR provides for a rapid kill of most transient microorganisms, is less time-consuming than washing with soap and water and is easier on skin. While the action of hand rubbing for at least 15 seconds is equivalent to the time spent in hand washing, the busy health care provider can do other things while hand rubbing (e.g., converse with the patient). An additional benefit is that the patient sees the health care provider cleaning his/her hands, something that is often appreciated.

Impediments to effective hand hygiene include:

- nail polish - chipped nail polish can harbour microorganisms that are not removed by hand washing
- artificial nails/nail enhancements - have been associated with bacterial and fungal outbreaks and must not be worn
- rings, other hand jewellery and bracelets - hard to clean, hide bacteria and viruses from the action of the hand hygiene agent and increase the risk of tears in gloves
- watches and long sleeves should be pushed up above the wrist when hands are cleaned.

Personal hand hygiene for patients is also important and is often overlooked. Alcohol-based hand rub should be provided for patients and visitors in the waiting area to reduce the risks of environmental contamination with respiratory viruses, gastrointestinal viruses and antibiotic-resistant organisms (AROs) such as methicillin-resistant *Staphylococcus aureus* (MRSA) or vancomycin-resistant enterococci (VRE).

1. When is Hand Hygiene Necessary?

1	**BEFORE initial patient/patient environment contact**	**WHEN?**	Clean your hands when entering: ' before touching patient or ' before touching any object or furniture in the patient's environment
		WHY?	To protect the patient/patient environment from harmful germs carried on your hands
2	**BEFORE aseptic procedure**	**WHEN?**	Clean your hands immediately before any aseptic procedure
		WHY?	To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3	**AFTER body fluid exposure risk**	**WHEN?**	Clean your hands immediately after an exposure risk to body fluids (and after glove removal)
		WHY?	To protect yourself and the health care environment from harmful patient germs
4	**AFTER patient/patient environment contact**	**WHEN?**	Clean your hands when leaving: ' after touching patient or ' after touching any object or furniture in the patient's environment
		WHY?	To protect yourself and the health care environment from harmful patient germs

Figure 4: Ontario's *Just Clean Your Hands* program

Perform hand hygiene according to the *4 Moments for Hand Hygiene* as described in Ontario's *Just Clean Your Hands* program[3] (Figure 4 and Appendix B). Additionally, hand hygiene is performed following personal hygiene activities (e.g., use of toilet, blowing nose).

Information posters and tools on hand hygiene may be obtained free of charge from Ontario's *Just Clean Your Hands* website, at: *www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/JustCleanYourHands/Pages/Just-Clean-Your-Hands.aspx.*

2. Hand Hygiene Products

ALCOHOL-BASED HAND RUB (ABHR)

ABHR available for clinical office settings ranges in concentration from 60 to 90 per cent alcohol. Norovirus is inactivated by alcohol concentrations ranging from 70 to 90 per cent.[4] For this reason, a minimum concentration of 70 per cent alcohol should be chosen.

ABHR products being considered for purchase must have a Drug Identification Number (DIN) or Natural Product Number (NPN) from Health Canada.

Figure 5: Use 70% ABHR for routine hand hygiene

HAND WASHING SOAPS

Plain soaps act on hands by emulsifying dirt and organic substances (e.g., blood, mucus), which are then flushed away with rinsing. Plain liquid soap is sufficient for general clinical office practice.

Alcohol-based hand rub and liquid soap must be dispensed in disposable containers and must not be "topped up".

Plain liquid soap in disposable pump bottles is sufficient for general clinical office settings.

Bar soaps must not be used.

OTHER HAND ANTISEPTIC AGENTS

At the present time, there is no evidence for the efficacy of waterless antiseptic hand hygiene agents that do not contain 70 to 90 per cent alcohol in the health care environment and their use is not recommended. These agents are also more irritating to the hands.

What to use to clean your hands?

1. Alcohol-based hand rub when hands are not visibly soiled.
2. Plain liquid soap when hands are visibly soiled.
3. Antimicrobial hand rub or scrub for surgical/invasive procedures.

3. Hand Hygiene Technique

- When using an ABHR, apply sufficient product such that it will remain in contact with the hands for a minimum of 15 seconds before the product becomes dry (usually one to two full pumps).
- When using soap and water, a minimum of 15 seconds of mechanical lathering is required before rinsing.

- Clean hands with <u>either</u> soap and water <u>or</u> ABHR but not both at the same time, as it is irritating to the skin.

See Figures 6 and 7 and *Appendix C* for correct hand hygiene techniques. For hand hygiene prior to surgery, see Section 9.A., *Surgical Hand Preparation for Surgical Settings*.

Figure 6 and Appendix B: How to handrub
[Source: Just Clean Your Hands]

Figure 7 and Appendix B: How to handwash
[Source: Just Clean Your Hands]

4. Alcohol-based Hand Rub (ABHR) Dispensers

Installing ABHR dispensers at the point-of-care improves adherence to hand hygiene. Point-of-care products should be accessible without leaving the patient.

- Locate ABHR dispensers at point-of-care, i.e., within arm's length of the patient.
- Do not place ABHR at, or adjacent to, hand washing sinks.
- Place ABHR dispensers at the entrance to the health care area (e.g., waiting room) with visual instructions for patients.
- Use non-refillable bottles for ABHR to prevent contamination.
- Do not install ABHR dispensers over or directly adjacent to an ignition source, such as an electrical outlet or switch, or over carpeted areas[5]

In clinic settings,[6] ABHR should also be provided at an accessible point in the waiting room for patients and visitors, to reduce the risks of environmental contamination with respiratory viruses, gastrointestinal viruses and antibiotic-resistant organisms (AROs).[3]

Local fire safety regulations or guidelines shall be followed for placement and storage of ABHR. For more information, see *www.mcscs.jus.gov.on.ca/english/firemarshal/legislation/technicalguidelinesandreports/TG-2011-02.html*.

5. Hand Washing Sinks

Improper sink placement, design and use can add to the environmental reservoir of contaminants. Sinks need to be convenient and accessible. When space is renovated or new space designed, see below for criteria to be used when purchasing and placing hand washing sinks.

CRITERIA FOR CHOOSING AND INSTALLING NEW HAND WASHING SINKS

When renovating or choosing new office space:

- Locate hand washing sink in:
  - any space where treatment is provided or procedures or physical exams are performed
  - specimen collection area
  - equipment decontamination area
  - any area where food, medication or patient care items (e.g., trays) are prepared.
- In areas where multiple patients are seen at one time, provide one sink for every three patients.
- Hand washing sinks should be free-standing (Figure 8), i.e., not inserted into/adjacent to a counter, no storage beneath sink (Figure 9).
- Provide a backsplash that extends a minimum 0.6 metres/two feet above sink level and a minimum of 25 cm/10 inches below sink level. Backsplashes should be seam-free and include the area under the paper towel dispenser and soap dispenser.
- Provide non-refillable soap dispensers, single-use towels and foot pedal-operated waste bins at every sink.
- Do not use a hand washing sink for any other purpose than hand washing, i.e., equipment cleaning or discarding fluids/waste.
- Controls (faucets) should be hands-free (e.g., electric eye,
- foot- or elbow-operated) and designed to minimize splashing.
- Provide a scrub sink with hands-free controls in any area where surgical procedures are performed.

- **Figure 8: PREFERRED - Free-standing sink**

- **Figure 9: NOT RECOMMENDED - Sink built into cabinet**

Do not store medical supplies or equipment underneath a sink or on a counter adjacent to a sink, as there is a risk of the items becoming damp and susceptible to mould.

- For more information about Hand Hygiene, see the Public Health Agency of Canada's Hand *Hygiene Practices Healthcare Settings* available at: http://www.ipac-canada.org/pdf/2013_PHAC_Hand%20Hygiene-EN.pdf

- More information about the Canadian Patient Safety Institute's *Hand Hygiene Education Program* is available at: *http://www.handhygiene.ca*

For requirements for hand washing sinks in health care, see the CSA's *Z8000-11 Canadian health care facilities*,[7] available for purchase at: *http://shop.csa.ca/en/canada/health-care-facility-engineering/z8000-11/invt/27033042011/.*

Recommendations:

2. ***Hand hygiene should be practiced as described in the CPSI 'Hand Hygiene Education Program'.***
3. ***Alcohol-based hand rub should be used as the preferred agent for cleaning when hands are not visibly soiled.***
4. ***Soap and water must be used for cleaning when hands are visibly soiled. If running water is not available, moistened towelettes should be used to remove visible soil, followed by alcohol-based hand rub.***
5. ***Hand washing sinks should be dedicated to that purpose and not used for any other purpose, such as equipment cleaning or disposal of waste fluids.***
6. ***Rings should not be worn. If worn, the ring must be a smooth band with no projections.***
7. ***Health care providers must not wear artificial nails, nail enhancements, hand or arm jewellery.***
8. ***Alcohol-free, waterless antiseptic agents should not be used as hand hygiene agents in any health care setting.***

C. Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is worn as part of Routine Practices to prevent transmission of microorganisms from patient-to-staff and from staff-to-patient. The selection of PPE is based on the nature of the interaction between the health care provider and the patient and/or the likely mode(s) of transmission of infectious agents, according to the risk assessment. PPE includes gloves, gown and facial protection.

The sequence for removal of PPE is very important to prevent contamination of one's self during removal.

- See *Appendix D, Putting On and Taking Off Personal Protective Equipment (PPE),* for more information about the sequence for PPE removal.
- For more information about PPE, refer to Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*, available at: *http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf*.

1. Gloves

TYPES OF GLOVES

It is preferable to provide more than one type of glove to health care providers, because it allows the individual to select the type that best suits their care activities:[8]

Use non-sterile examination gloves of good quality and adequate size for routine use.

Use synthetic gloves (e.g., nitrile, neoprene) for procedures that require tactile sensation.

Use sterile procedure gloves for aseptic procedures.

The use of latex gloves is not recommended. Allergic reactions have been reported with the use of latex gloves, and consideration must be given to this when purchasing gloves. If the health care provider or the patient has a latex allergy, latex-free gloves must be used.

GLOVE USE

Wearing gloves is not a substitute for hand hygiene.

APPROPRIATE USE OF GLOVES

Wear gloves for contact with mucous membranes, non-intact skin including undiagnosed rashes, blood, body fluids, secretions, excretions or equipment and environmental surfaces contaminated with any of these.

Perform hand hygiene before putting on gloves.

Remove gloves and discard immediately after the activity for which they were used. Do not re-use or wash gloves.

Change gloves between care for each patient.

Perform hand hygiene after gloves are removed due to possible contamination of hands during glove removal.

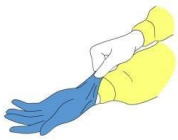


Figure 10: Putting on gloves

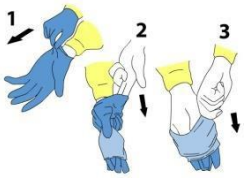


Figure 11: Taking off gloves

2. Gowns

APPROPRIATE USE OF GOWNS

Wear a gown or plastic apron when providing care that may contaminate skin or clothing with blood, body fluids, secretions or excretions.

Put gown on immediately before the activity for which it is indicated.

Wear gown properly, i.e., appropriately tied at neck and waist.

Remove gown immediately after the activity for which it is used.

Do not re-use gown.

Perform hand hygiene after removing gown due to possible contamination of the hands during gown removal.

Figure 12: Putting on gown

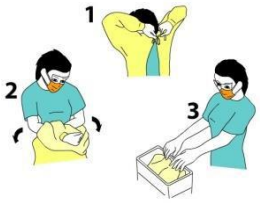


Figure 13: Taking off gown

3. Facial Protection

A mask and eye protection are worn to protect the health care provider from splashes of blood, body fluids, secretions or excretions to the mucous membranes of the face. Masks and eye protection also form the basis of protection for diseases spread by the droplet route, e.g., influenza (see *Additional Precautions*).

MASKS

A surgical mask is required when performing an aseptic or invasive procedure.

APPROPRIATE USE OF MASKS

Put on mask immediately before the activity for which it is indicated.
Secure mask over the nose and mouth.
Remove mask immediately after the activity for which it is used.
Change mask if it becomes wet.
Do not touch mask while being worn.
Do not allow mask to hang around the neck.
Do not fold mask or store in a pocket.
Do not re-use mask.
Perform hand hygiene after removing mask

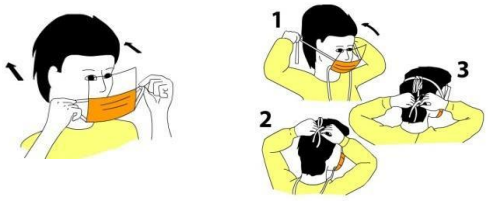


Figure 14: Putting on mask

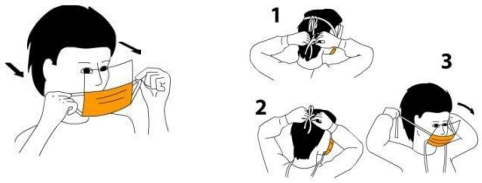


Figure 15: Taking off mask

N95 RESPIRATORS

An N95 respirator is used to prevent inhalation of small particles that may contain airborne infectious agents (e.g., *Mycobacterium tuberculosis* (TB)). N95 respirators must also be worn for aerosol-generating procedures that have been shown to expose staff to undiagnosed pulmonary tuberculosis, including:

- sputum induction
- diagnostic bronchoscopy.

A risk assessment of the demographics of the clinical practice must be done to determine the need for an N95 respirator. If it is anticipated that patients with pulmonary TB will be seen or that diagnostic tests for pulmonary TB will be done (e.g., bronchoscopy), there shall be a respiratory protection program in place that includes fit-testing and user training on seal-checking. If the risk assessment indicates that there is a need for a N95 respirator, the employer should obtain expert advice (e.g., local hospital Occupational Health Service, Saskatchewan Association of Safe Work Places in Health.)

WorkSafe Saskatchewan works with employers and workers, offering consulting, training and resources to reduce workplace risks and prevent occupational injuries and illnesses. More information is available at: www.worksafesask.ca

4. Clinical office settings that use respirators shall have a respiratory protection program in place. The program shall include a health assessment, N95 respirator fit-testing and staff training in the proper way to perform a seal-check.

Because facial structures differ, individual health care workers shall be fit-tested to ensure they wear an N95 respirator that provides them with the proper seal between the respirator's sealing surface and their face. Physicians, as employers, have a duty to ensure that nurses and staff are fit-tested for N95 respirators if such respirators will be used in their practice.

APPROPRIATE USE OF RESPIRATORS

- Put on respirator immediately before the activity for which it is indicated.
- Remove respirator as soon as it is safe to do so.
- Use only a fit-tested respirator.
- Perform a seal-check each time a respirator is applied.
- Change respirator if it becomes wet or soiled.
- Remove respirator correctly and discard immediately after use.
- Perform hand hygiene after removing the respirator.

Figure 16: Putting on respirator

Figure 17: Taking off respirator

- For more information about the requirements of a respiratory protection program, fit-testing and seal-checking, see the Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*, available at: *http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf* and the Canadian Tuberculosis Standards 7th Edition (Chapter 15 - Prevention and Control of Tuberculosis Transmission in Health Care and Other Settings) available at: *http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tb-canada-7/index-eng.php*.

EYE PROTECTION

Eye protection may be disposable or, if reusable, must be cleaned and disinfected after each use. Prescription eye glasses are not acceptable by themselves as eye protection, but they may be worn underneath face shields and some types of eye protection.

Prescription eye glasses are not acceptable as eye protection as they do not provide sufficient protection from splashes around the top and sides of the glasses.

Eye protection includes:

- safety glasses
- safety goggles
- face shields
- visors attached to masks.

APPROPRIATE USE OF EYE PROTECTION

- Ensure eye protection is comfortable, fits securely and does not interfere with vision.
- Put on eye protection immediately before the activity for which it is indicated.
- Remove eye protection immediately after the activity for which it is used.
- Remove eye protection by grasping the side arms and pulling eye protection forward, without touching the front of the eyewear.
- Discard eye protection after use or place into an appropriate receptacle for cleaning and disinfection.

Figure 18: Putting on eye protection

Figure 19: Taking off eye protection

Recommendations:

9. ***Gloves should be worn if it is anticipated that hands will be in contact with blood, body fluids, secretions or excretions.***
10. ***A gown should be worn if it is anticipated that arms and/or clothing will be in contact with blood, body fluids, secretions or excretions.***
11. ***Facial protection should be worn if it is anticipated that the mucous membranes of the eyes, nose and/or mouth will be in contact with blood, body fluids, secretions or excretions.***

D. Booking, Reception and Placement

1. Screening of Patients during Booking

Staff in all clinical offices should collect simple triaging information on the phone at the time of booking, if appropriate (e.g., same day or next day booking). Information collected should be based on symptoms of communicable disease or acute respiratory infection (ARI), such as cough, fever, vomiting or diarrhea. Additional screening, in keeping with the patient population, (e.g., chickenpox in pediatric populations, conjunctivitis in

ophthalmology populations) may be added. Triage may also be augmented by specific conditions that may be prevalent in the community.

See Figure 20 for a sample screening algorithm for acute respiratory infection.

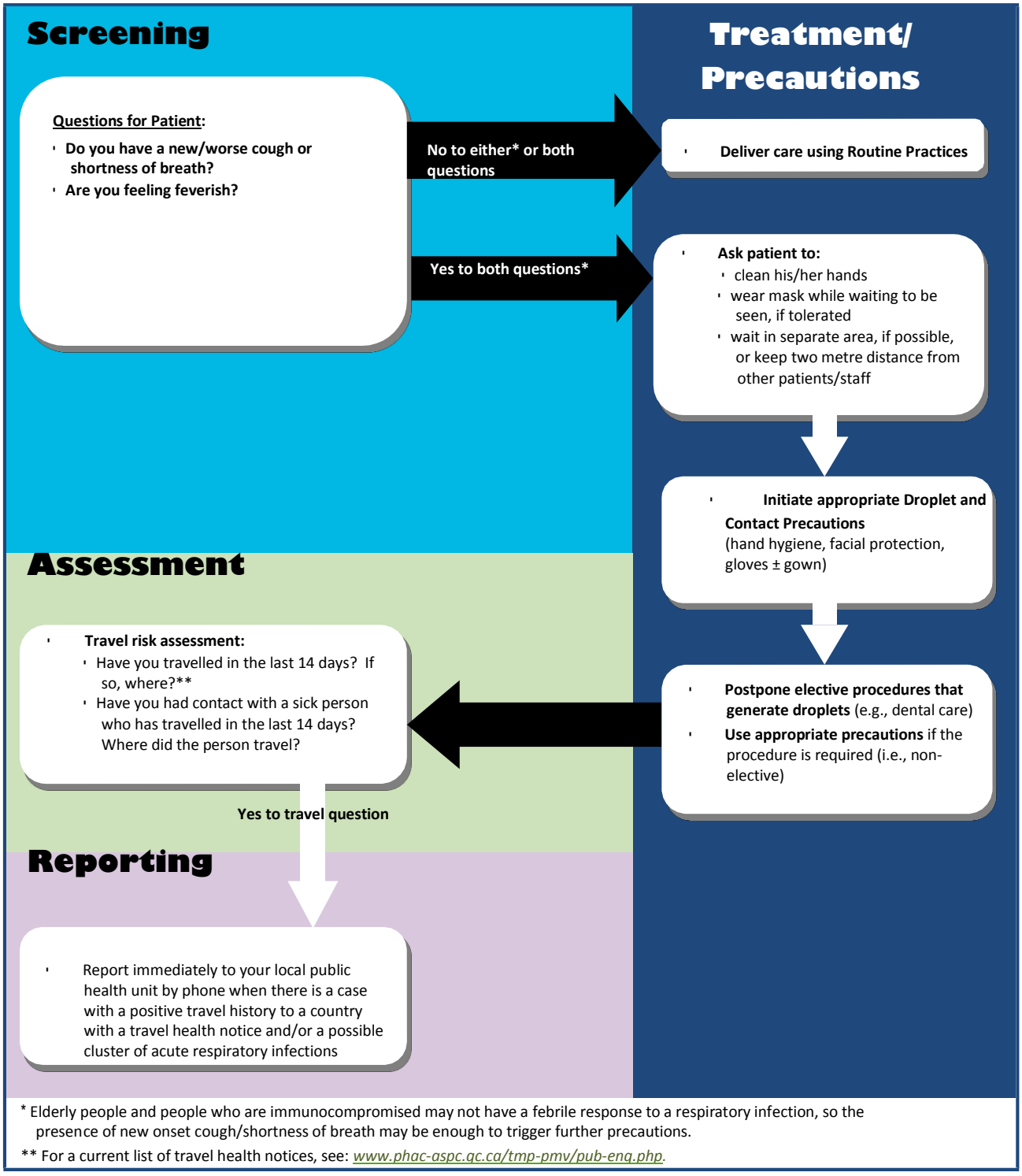


Figure 20: Sample screening algorithm for acute respiratory infection

2. Respiratory Etiquette

Health care providers should reinforce with staff and patients the personal practices that help prevent the spread of microorganisms that cause respiratory infections. These personal practices include:

- avoidance measures that minimize contact with droplets when coughing or sneezing, such as:
  - turning the head away from others
  - maintaining a two-metre separation from others
  - covering the nose and mouth with tissue
  - providing a plexiglass barrier at reception to protect staff
- immediate disposal of tissues into waste after use
- immediate hand hygiene after disposal of tissues.

If tissues are not available, other avoidance measures (e.g., sneeze into sleeve) may be used. See Appendix E for a sample sign for reception areas, *Cover Your Cough*.

ELEMENTS OF RESPIRATORY ETIQUETTE

- Provide self-screening signage (see Appendix E for sample sign)
- Provide face masks for patients as close to the entry of the clinical office as possible, with instructions on proper use and disposal.
- Provide tissues and waste containers.
- Provide instruction to cover the nose and mouth when coughing or sneezing.
- Provide readily accessible ABHR.

3. Reception Areas

A prominent sign (Figure 21 and Appendix E) should be posted at the entrance requesting that patients presenting with symptoms of infection identify themselves to the receptionist.

If feasible, the waiting room should be arranged so that there is a separation of at least two metres between patients who have symptoms of respiratory infection when they cannot be immediately moved to an examination room. Alternatively, seating may be arranged so that coughing patients are facing away from other patients (e.g., seating is back-to-back).

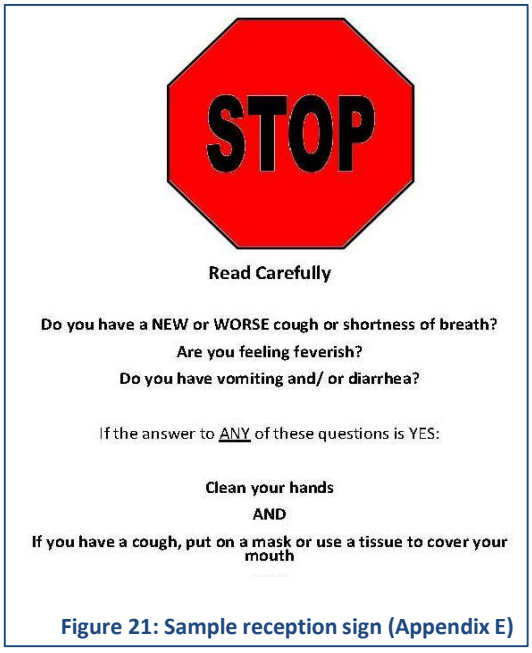


Figure 21: Sample reception sign (Appendix E)

4. Placement

For patients who have symptoms of an acute infection or who are soiling the environment (e.g., vomiting, incontinence):

- Move out of waiting area to a separate area or examination room as soon as possible.
- If a separate room is unavailable, maintain a spatial

separation of at least two metres[8] between the coughing patient and others in the room, or arrange seating so that coughing patients are facing away from other patients.

- A mask and instruction in hand hygiene and respiratory etiquette should be provided to the coughing patient.
- Patients with symptoms of acute infection should be assessed as soon as possible.

Additional Precautions should be instituted whenever a patient is identified with symptoms of a communicable disease.

5. Additional Precautions

Additional Precautions refer to IPAC interventions (e.g., barrier equipment, accommodation, additional environmental controls) to be used in addition to Routine Practices to protect staff and patients and interrupt transmission of certain infectious agents that are suspected or identified in a patient.

Additional Precautions are based on the mode of transmission (e.g., direct or indirect contact, airborne or droplet). There are three categories of Additional Precautions: Contact Precautions, Droplet Precautions and Airborne Precautions. Example of Additional Precautions to be used based on the mode of transmission of some infectious diseases are listed in Figure 22.

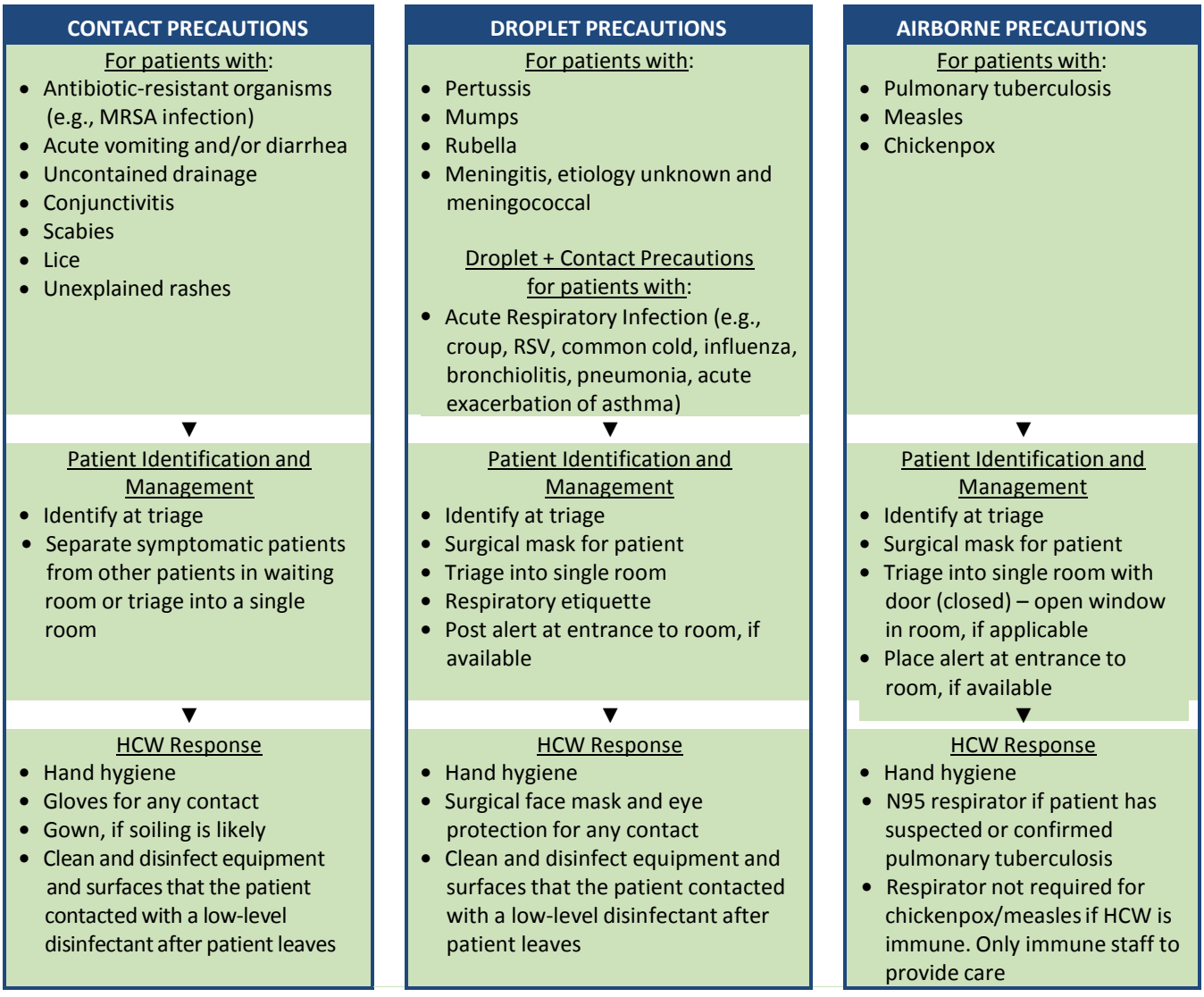


Figure 22: Examples of Additional Precautions (based on mode of transmission)

Adherence to Routine Practices and Additional Precautions will limit the spread of microorganisms.

Routine Practices is the term used to describe the standards you must use in the care of all patients all of the time.

Additional Precautions are added to Routine Practices to provide extra protection for certain infections once the means of transmission has been identified. These have also been known as "transmission-based precautions".

Many infections for which Additional Precautions are indicated are reportable under *The Public Health Act, 1994* http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/P37-1.pdf. These infections shall be reported to public health to enable appropriate investigation and case finding. See *Appendix F* for a list of reportable diseases in Saskatchewan.

If you suspect an outbreak of a reportable disease after seeing a cluster of patients with a given infection or symptom complex, report this to your local public health unit. Frontline health care providers are key to timely and effective disease prevention in their local communities.

- For more information about Additional Precautions, refer to the Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*,[2] available at: http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf

Locate public health units: https://www.saskatchewan.ca/residents/health/understanding-the-health-care-system/saskatchewan-health-regions/regional-public-health-offices.

For urgent issues the on call Medical Health Officer can be contacted by calling the hospital switchboard.

A. Contact Transmission and Precautions

Contact Precautions are used in addition to Routine Practices for microorganisms where contamination of the environment or intact skin is a particular consideration. Contact transmission is the most common route of transmission of infectious agents. There are two types of contact transmission:

- *Direct contact* occurs through touching.
- *Indirect contact* occurs when microorganisms are transferred via contaminated objects.

Microorganisms transmitted by contact transmission include antibiotic-resistant organisms (AROs) such as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), extended-spectrum beta-lactamase (ESBL)–producing bacteria, carbapenemase-producing Enterobacteriaceae (CPE); scabies; and some agents of infectious diarrheas, such as *Clostridium difficile* and norovirus.

For patients with infections spread by contact, consider the following:

- See the patient at the end of the day, if clinical status allows.
- Quickly triage symptomatic patients out of the common waiting areas and move the patient to an examining room. If this is not possible, segregate the patient away from others.
- Wear gloves for any patient contact and for contact with items touched by the patient. Wear a gown for direct contact or if soiling of clothing is likely.

- At the end of the office visit, disinfect all horizontal surfaces in the examination room that have been in contact with the patient, as well as equipment used to examine the patient (blood pressure cuff, stethoscope, etc.), with a low-level disinfectant, or a wipe impregnated with a low-level disinfectant.
- It is recommended that the charts of patients with antibiotic-resistant organisms be flagged to facilitate recognition on subsequent visits. In an outpatient setting, patients known to be colonized with antibiotic-resistant organisms should undergo a risk assessment as described on page X. If they are colonized but asymptomatic and have no evidence of an active infection, careful adherence to routine precautions is recommended.

B. Droplet Transmission and Precautions

Droplet Precautions are used in addition to Routine Practices for patients known or suspected of having an infection that can be transmitted by large respiratory droplets. Droplet transmission occurs when droplets carrying an infectious agent (e.g., pertussis) exit the respiratory tract of a person. Droplets can be generated when he or she talks, coughs or sneezes and through some procedures performed on the respiratory tract (e.g., suctioning, bronchoscopy or nebulized therapies). These droplets are propelled a short distance (less than two metres) and may enter the host's eyes, nose or mouth or fall onto surfaces. Studies suggest that droplets forcibly expelled from a cough or sneeze travel for up to two metres.[9]

For patients with infections spread by droplets, consider the following:

- Make every effort to see the patient at the end of the day, if clinical status allows.
- Quickly triage the patient out of the common waiting areas and move the patient to an examining room.
    - If this is not possible, segregate the patient at least two metres away from others.
- Provide a surgical face mask for the patient to wear at all times while in all areas of the clinical office. For practices with a large pediatric component, pediatric masks are now available.
- Keep masks, eye protection and a hand hygiene agent on hand for the receptionist to use as soon as he/she encounters a patient requiring Droplet Precautions.
- Encourage patients to practice respiratory etiquette and appropriate hand hygiene.
- Place alert signage at the entrance of the examination room.
- Wear a surgical mask and eye protection when in direct contact with the patient.
- Add Contact Precautions when caring for patients with acute respiratory infection, as contamination of the environment is likely.

C. Airborne Transmission and Precautions

Airborne Precautions are used in addition to Routine Practices for patients known or suspected of having an illness transmitted by the airborne route.[10]

Airborne transmission occurs when airborne particles remain suspended in the air, travel on air currents and are then inhaled by others who are nearby or who may be some distance away from the source patient, in a different room (depending on air currents) or in the same room that a patient has left, if there have been insufficient air exchanges.[10] Control of airborne transmission requires control of air flow through special ventilation systems and the use of N95 respirators.[10] Microorganisms transmitted by the airborne route are *Mycobacterium tuberculosis* (TB), varicella virus (chickenpox) and measles virus.

5. Clinical office settings that use respirators shall have a respiratory protection program in place. The program shall include a health assessment, N95 respirator fit-testing and staff training in the proper way to perform a seal-check.

Consideration should be given to making special arrangements for patients with suspected or confirmed pulmonary tuberculosis, chickenpox (active or in the incubation period) and measles:

- Make every effort to see the patient at the end of the day, if clinical status allows.
- Quickly triage the patient out of the common waiting areas and move the patient to an examining room.
  - If possible, the patient should enter and exit through a separate entrance and go directly in and out of the examination room.
- Provide a surgical face mask for the patient to wear at all times while in all areas of the clinical office. For practices with a large pediatric component, pediatric masks are now available for purchase.
- Keep the door to the treatment/exam room closed. Visitors and staff should not enter the room unless they are immune to the disease (where immunity is an option). Open a window in the room, if this is possible.
- Place alert signage for staff on the closed door.
- The health care provider entering the patient's room must wear a fit-tested N95 respirator for care of patients with active pulmonary tuberculosis. An N95 respirator is not necessary if the health care provider has documented immunity to the suspected airborne infection, i.e., chickenpox or measles. Only immune staff should provide care to patients with chickenpox or measles.
- Allow sufficient time for the air to change in the room and be free of droplet nuclei before using the room for another patient (for tuberculosis) or for a non-immune patient (for measles and chickenpox).
- Routine cleaning for the room or equipment is sufficient after examining a patient under Airborne Precautions.

OFFICES FREQUENTLY VISITED BY PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS

- Consideration should be given to purchasing a stand-alone device that provides high efficiency particulate filtration of air and avoids recirculating potentially infectious air by venting outside.
- Clinical office staff should be skin-tested annually.
- Notify your local public health unit if there has been an unprotected exposure to pulmonary tuberculosis in your clinical office.
- Patients with suspected pulmonary tuberculosis should not go to community laboratories or radiology service providers for testing without first checking with the laboratory or clinic.

The average clinical office ventilation system provides three to six air changes per hour. It would take one (for six air changes) to two (for three air changes) hours to replace 99 per cent of the air in a clinical office. Therefore, the average physician's office is not suitable for seeing patients with active pulmonary tuberculosis.

- For more information about the time required to clear *M. tuberculosis* from a room, see the Canadian TB Standards (Chapter 15, *Table 3 - Time needed (by number of air changes per hour) to remove airborne microorganisms after generation of infectious droplet nuclei has ceased*), available at: http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tb-canada-7/index-eng.php

D. Combinations of Additional Precautions

Where more than one mode of transmission exists for a particular microorganism, the precautions used must take into consideration both modes. For example, respiratory viruses may remain viable for some time in droplets that have settled on objects in the immediate environment of a patient and may be picked up on the

hands of other patients or staff. Because these viruses may be transmitted by contact as well as by droplet transmission, both Contact and Droplet Precautions are required.

Droplet and Contact Precautions should be used for patients with colds, croup, influenza, pneumonia of unknown aetiology, pediatric pharyngitis, respiratory syncytial virus (RSV) and acute respiratory infections of unknown aetiology. If both pulmonary tuberculosis and a respiratory virus are suspected in a single individual, a combination of Airborne, Droplet and Contact Precautions must be used.

At the end of the office visit, disinfect all horizontal surfaces in the examining room that have been in contact with the patient, as well as equipment used to examine the patient (blood pressure cuff, stethoscope, etc.), with a low-level disinfectant, or a wipe impregnated with a low-level disinfectant.

E. Antibiotic-resistant Organisms (ARO)

Colonization and infection with strains of bacteria that are resistant to commonly-used antibiotics (e.g., MRSA, VRE, ESBL, CPE) are becoming more prevalent in health care, including community, acute and long-term care settings. These patients/residents may require follow-up or routine care in a physician's clinical office. It is therefore important to recognize how AROs can be transmitted and precautions that can be taken to minimize their spread.

1. Antimicrobial Stewardship

Many AROs are associated with the use of antibiotics. For example, the risk of MRSA has been related to the duration and frequency of prior antibiotic use.[11,12] In addition, excessive use of antibiotics is thought to promote the spread of MRSA by reducing resistance to colonization in patients and by giving resistant strains a survival advantage.

Effective antibiotic management includes:

- avoidance of inappropriate or excessive antibiotic therapy and prophylaxis
- ensuring that antibiotics are given at the correct dosage and for an appropriate duration
- reducing the use of broad-spectrum antibiotics, particularly third-generation cephalosporins and fluoroquinolones, to what is clinically appropriate.

- For information about practical ways to inform and interact with your patients, prescribing guidelines, and resources for you and your clients, visit: *http://nccid.ca/antibiotics-and-health-care-providers/*

The single most important mode of transmission of antibiotic-resistant microorganisms in a clinical office setting is via transiently colonized hands of health care workers, who acquire it from contact with colonized or infected patients, or after handling contaminated material or equipment.

2. Communication

Good communication with other health care settings regarding the status of a patient who has had, or who will have, contact with them is important:

- If a patient is identified with an ARO following discharge home, the patient or family physician must be notified of the results.

- If an individual is identified as being a contact of a patient with an ARO following transfer to another facility or after being discharged home, the receiving health care facility, family physician or physician most responsible for care must be notified of the exposure in order to make decisions regarding additional follow-up.
- If a family physician identifies a patient with a new ARO following recent hospitalization/prior to hospitalization or entry into a long-term care home, he/she must notify the receiving facility of the results.

Sharing a patient's condition with other health care providers shall be done within the parameters of The Health Information Protection Act. The Act can be accessed at http://www.qp.gov.sk.ca/documents/english/Statutes/Statutes/H0-021.pdf.

Patient consent to share their information is not required in order to provide personal health information to another health care provider to assist that person to provide care to the patient (section 27(2) of *The Health Information Protection Act*). The disclosure must be consistent with the physician's ethical responsibilities. The College of Physicians and Surgeons has published a document, Guideline – Confidentiality of Patient Information, which is available at http://www.cps.sk.ca/CPSS/Legislation__ByLaws__Policies_and_Guidelines/Legislation_Content/Policies_and_Guidelines_Content/Confidentiality_of_Patient_Information.aspx.

3. Specimen Collection

If a patient has a history of an ARO or is an ARO contact and requires follow-up screening, appropriate specimens should be taken.

MRSA: Specimens include:

- a swab from the anterior nares;

  AND
- a swab from the perianal, perineal or groin area (perianal preferred);

  AND
- a swab(s) from skin lesions, wounds, incisions, ulcers and exit sites of indwelling devices, if present, using aseptic technique where indicated.

VRE, ESBL, CPE: Take a rectal swab or stool specimen for detection. If the patient has a colostomy, the specimen may be taken from the colostomy output. Urine specimens and swabs from open wounds may also be indicated.

4. Community-associated MRSA (CA-MRSA)

If community-associated MRSA (CA-MRSA) is suspected, cultures of recurrent furuncles, abscesses or other skin lesions should be considered in addition to nares and perianal/perineal/groin cultures. For children and youth, throat swabs may have greater sensitivity than nasal swabs alone for detecting MRSA.

For an algorithm for identifying patients with CA-MRSA, see Appendix G, Public Health Ontario's fact sheet on *Methicillin-Resistant Staphylococcus aureus in the Community (CA-MRSA)*.

For more information about AROs, refer to PIDAC's *Annex A: Screening, Testing and Surveillance for Antibiotic-Resistant Organisms (AROs) in All Health Care Settings*, available at: www.publichealthontario.ca/en/eRepository/PIDAC-IPC_Annex_A_Screening_Testing_Surveillance_AROs_2013.pdf

Recommendations:

12. Additional Precautions should be applied in addition to Routine Practices for patients with suspected or identified infectious aetiologies.

6. Medications, Vaccines and Skin Antisepsis

A. General Principles

General principles related to use and storage of medications include:

- Medications should only be stored in areas where access is secured and not be accessible to non-authorized persons.
- Provide facilities for hand hygiene in the area where medications are prepared
- Provide a puncture-resistant sharps container that is accessible at point-of-use.
- Store and prepare medications and supplies in a clean area on a clean surface.
- Date opened containers of sterile solutions and discard every 24 hours and/or according to manufacturer's instructions.
- Discard outdated medications. There should be a process in place to check expiry dates before use.

See Appendix H for a checklist for safe medication and injection practices.

B. Safe Administration of Injectables

The transmission of blood-borne viruses and other microbial pathogens to patients during routine health care procedures continues to occur due to unsafe and improper injection, infusion and medication vial practices being used by health care professionals within various clinical offices.[13-17]

The following practices should be adhered to when preparing and administering injectable medications:

1. Aseptic Technique

- Perform hand hygiene prior to accessing supplies, handling vials and IV solutions, and preparing or administering medications.
- Use aseptic technique in all aspects of parenteral medication administration, medication vial use, injections and glucose monitoring procedures. Limit access to select trained individuals, if possible.
- Never administer medication from the same syringe to more than one patient, even if the needle is changed between patients.
- Never store needles and syringes unwrapped as sterility cannot be assured.

- Do not set up administration sets ahead of time. Once set up, an administration set should be covered.
- Do not use intravenous solution bags as a common source of supply for multiple patients.

2. Single Dose Vials

Single dose vials, intended for single patient use, typically lack preservatives. The use of these vials for multiple patients carries substantial risk for bacterial contamination and infection.

- Do not reuse single dose vials. Enter the vial once and then immediately discard it.
- Always use a sterile syringe and needle/cannula when entering a vial. Never enter a vial with a syringe or needle/cannula that has been used on a patient.
- Never combine or pool the leftover contents of single dose vials.

3. Multidose Vials

Outbreaks associated with the use of multidose vials in both the outpatient and inpatient settings are frequent and continue to occur. Any error in following protocols for the correct use of multidose vials can result in the transmission of both bacterial and blood-borne viral pathogens. Transmission of hepatitis C,[14,18-20] hepatitis B,[21] and HIV[22] have been associated with the use of multidose vials.[14, 18-26]

The use of multidose vials for injectable medications and vaccines increases the risk of transmission of blood-borne pathogens and bacterial contamination of the vial and **should be avoided**. Patient safety should be prioritized over cost when choosing between multidose and single-use medication vials.

If multidose vials are selected for use, the following recommendations must be followed each time the multidose vial is used:

- All needles are SINGLE PATIENT USE ONLY.
- All syringes are SINGLE PATIENT USE ONLY.
- NEVER re-enter a vial with a used needle OR used syringe.
- Once medication is drawn up, the needle should be IMMEDIATELY withdrawn from the vial. A needle should NEVER be left in a vial to be attached to a new syringe.
- Use a multidose vial for a single patient whenever possible and mark the vial with the patient's name.
- Mark the multidose vial with the date it was first used and ensure that it is discarded at the appropriate time.
- Adhere to aseptic technique when accessing multidose vials. Multidose vials should be accessed on a surface that is clean and where no dirty, used or potentially contaminated equipment is placed or stored. Scrub the access diaphragm of vials using friction and 70% alcohol. Allow to dry before inserting a new needle and new syringe into the vial.
- Discard the multidose vial immediately if sterility is questioned or compromised or if the vial is not
- marked with the patient's name and original entry date.
- Review the product leaflet for recommended duration of use after entry of the multidose vial.
- Discard opened multidose vials according to the manufacturer's instructions or within 28 days,[27] whichever is shorter*.

  * Exceptions can be considered for multidose vials used for a single patient (e.g., allergy shots) if the manufacturer's instructions state that the vial can be used for longer than 28 days. All of the above steps must be followed and the vial must only be used for a single patient.

The use of multidose vials increases the risk of transmission of blood-borne pathogens and bacterial contamination. Single-dose vials are ALWAYS preferred.

C. Refrigerators

In the clinical office, at least three refrigerators might be required, with each one clearly designated as follows:

- Use one refrigerator for specimens.
- Use one refrigerator for vaccines and medications.
- Use one refrigerator for food (e.g., staff lunches, beverages).

Food should be maintained at a temperature at, or below, +4'C. Thermometers, if used, should be placed near the centre of the refrigerator (not in the door).

Ideally, vaccine refrigerators are equipped with alarm systems and battery backup. The following requirements for vaccine refrigerators must be met:

- If the physician practice is new, arrange a refrigerator inspection by the local public health unit prior to ordering and receiving publicly funded vaccines.
- Equip refrigerators used to store vaccines with a temperature monitoring device (e.g., maximum-minimum thermometer, data logger) to ensure that the vaccines have not been exposed to a temperature that is outside the allowable range. Place the temperature monitoring device on the middle shelf and if applicable inside an empty vaccine box to protect from exposure to sudden breezes of air.
- Record maximum, minimum and current temperatures twice a day in a vaccine Temperature Log Book.
- Keep refrigerators at a temperature between +2'C to +8'C. If refrigerator temperatures are found to be out of range, report to your local public health unit to assess for vaccine potency.
- Defrost refrigerators according to a fixed schedule or when there is ice build-up of one centimetre or more.
- Move vaccines to an alternate refrigerator or insulated container during defrosting.
- Clean vaccine refrigerator(s) according to a fixed schedule and disinfect with a hospital-grade disinfectant.
- Keep freezers at a temperature of less than -15'C.

For more information, refer to the Saskatchewan Immunization Manual Chapter 9 - Management of Biological Products, April 2012 *http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter9.pdf.*

D. Vaccines

In clinical offices where vaccines are routinely administered, staff should be adequately trained and competent in the handling, administration and storage of the vaccines that are being used. For more information about vaccine storage and handling, refer to the Saskatchewan Immunization Manual Chapter 9 - Management of Biological Products, April 2012 *http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter9.pdf.*

In order to ensure that the vaccines given to patients are fully effective, the following requirements must be met[28,29]:

- Develop policies and procedures for handling and storage of vaccines.
- Follow the vaccine manufacturer's instructions for storage and handling.
- Stock no more than a one-month supply of vaccine.
- Place short expiry vaccines in front of long expiry vaccines.
- Store vaccines within the temperature range recommended by the vaccine manufacturer.
- Store vaccines on the middle shelf of the refrigerator, not in the door.
- Do not leave vaccines out of the refrigerator, except when preparing the syringe.
- Protect vaccines from light.
- Do not prepare vaccine doses ahead of time by pre-filling syringes or leaving syringes ready on the counter.
- Check vaccine expiry dates regularly. Check the expiry date before use.
- Return unused or outdated/expired vaccines to your local public health unit or to the vaccine ordering source.

- If there is reason to suspect that the vaccine may be exposed to temperatures outside the required storage range, notify the vaccine supplier (i.e., local public health unit, vaccine manufacturer) to determine vaccine potency.

E. Sterile Irrigation Solutions

- Check expiration date of solutions before each use.
- Discard open bottles at the end of each day.
- Use small bottles, if possible, and store according to manufacturer's recommendations.

F. Ophthalmology Ointments and Drops

- Single-use (Minims®) are preferred.
- Discard multi-use eye drops and ointments according to the manufacturer's instructions.
- Replace tops of ointments and drops immediately after use.
- Discard ophthalmic medications immediately if there is any possibility that they have been contaminated.
- The tip of the ophthalmic tube/dispenser must not touch the patients' conjunctiva or come into contact with tears. If this happens, consider the item to be contaminated and discard.

G. Antiseptic Agents for Skin Antisepsis

An "antiseptic" is an antimicrobial substance that can be used on human skin or tissue. Antiseptics are also used to prepare the patient's skin before invasive procedures (skin prep). To be effective, an antiseptic must be allowed to dry after application. The choice of antiseptic will depend on its use, e.g., phlebotomy or prevention of surgical site infection.

The following antiseptics are used as skin preps:

- 2 per cent chlorhexidine gluconate (CHG) in 70 per cent isopropyl alcohol
- 70 per cent isopropyl alcohol
- 2 per cent CHG with 4 per cent alcohol preservative
- 10 per cent povidone iodine followed by 70 per cent isopropyl alcohol
- 4 per cent CHG (pre-op preparation)

H. Medical Gels

For information on the proper use and care of medical gels, refer to CHICA-Canada's position statement, *Medical Gels*,[30] available at: *www.chica.org/pdf/medgels.pdf*.

I. Point-of-Care Testing

Point-of-care testing relates to test procedures conducted outside a medical laboratory in which test kits and/or hand-held devices are used to read blood, saliva or urine specimens. Outbreaks have been described relating to the reuse of fingerstick devices (e.g., glucometers) between patients.[31-34]

- Fingerstick devices, also called lancing devices, must never be shared, even with close family and friends. This guidance includes both the lancet (i.e., the sharp instrument that actually punctures the skin), lancet hubs and the pen-like device that houses the lancet.
- Whenever possible, blood monitoring devices such as glucose meters should not be shared. If they have to be shared, the device should be cleaned and disinfected after every use, according to the manufacturer's instructions. If the manufacturer does not specify how the device should be cleaned and disinfected between patients, or if the device is labelled for single patient use, then it must not be shared.

Recommendations:

13. ***A medication vial must never be re-entered nor medication removed from a vial with a syringe or needle that has been used for a patient.***
14. ***Syringes must not be reused.***
15. ***Single dose vials must not be reused and leftover contents of single dose vials must not be pooled.***
16. ***Syringes must not be pre-filled for later use.***
17. ***Opened multidose medication vials should be discarded according to the manufacturer's instructions or 28 days after opening, whichever is shorter.***
18. ***The vaccine manufacturer and the Ministry of Health instructions available at http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter9.pdf for vaccine storage and handling must be followed.***

7. Control of the Environment

A. Cleaning the Environment

Maintaining a clean and safe health care environment is an essential component of IPAC and is integral to the safety of patients and staff. Environmental cleaning and disinfection should be performed on a routine and consistent basis to provide for a safe and sanitary environment. Responsibility for cleaning needs to be clearly defined and understood.

1. General Principles of Environmental Cleaning

The key to effective cleaning and disinfection of environmental surfaces is the use of friction ('*elbow grease*') to remove microorganisms and debris. Surfaces must be cleaned of visible soil before being disinfected, as organic material may inactivate a disinfectant.

General practices to be followed in all clinical office settings for all cleaning may be found in PIDAC's *Best Practices for Environmental Cleaning for Prevention and Control of Infections*,[35] available at: *www.publichealthontario.ca/en/eRepository/Best_Practices_Environmental_Cleaning_2012.pdf*.

Practices to be followed in dental settings for environmental cleaning may be found in the Royal College of Dental Surgeons of Ontario's *Infection Prevention and Control in the Dental Office*,[36] available at: *www.rcdso.org/save.aspx?id=ab90c89d-dcf4-4a2c-9a8a-bb91a316b6a0.*

See the Regional Infection Control Networks' *Environmental Cleaning Best Practices Educational Toolkit* for training programs, cleaning regimens and tools for environmental cleaning in clinical office settings, available at: *www.publichealthontario.ca/en/ServicesAndTools/Tools/Pages/Environmental_Cleaning_Toolkit.aspx.*

Clinical office settings may be categorized into three components for the purposes of environmental cleaning[35]:

- ***Public component*** is the public areas of the clinical office that are not involved in patient care. This includes waiting rooms, offices, corridors and service areas. Areas designated in the public component are cleaned with a detergent.
- ***Clinical component*** is the area involved in patient care. This comprises the clinical areas of the office, including examination rooms, procedure rooms, bathrooms and diagnostic and treatment areas. Areas designated in the clinical component are cleaned with a detergent and then disinfected with a hospital-grade disinfectant. 'High-touch' surfaces may require more frequent cleaning.

  For more information about frequency of cleaning and high-touch surfaces in health care, see Appendix I in PIDAC's *Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings*, available at: *www.publichealthontario.ca/en/eRepository/Best_Practices_Environmental_Cleaning_2012.pdf.*

- ***Surgical component*** is the area involved in surgery and invasive procedures. Areas designated in the surgical component are cleaned and disinfected according to standards set by the Operating Room Nurses Association of Canada (ORNAC).[37]

Environmental cleaning of these three component areas must be categorized and resourced differently in terms of cleaning priority, intensity, frequency and manpower.

High-touch (i.e., frequently touched) surfaces in the immediate vicinity of a patient may be a reservoir for pathogens and these pathogens are transmitted directly or indirectly by the hands of health care workers. Cleaning and disinfection is usually done at least daily and more frequently if the risk of environmental contamination is higher (e.g., endoscopy suites).

When hiring a company to clean clinical offices, be sure that they will be able to meet the standards required for health care.

2. Surfaces and Finishes

The ease of cleaning is an important consideration in the choice of materials for clinical office settings. This applies to medical equipment and all finishes and surfaces including materials for floors, ceilings, walls, and furnishings. IPAC considerations when choosing furniture and equipment include:

- Choose finishes, furnishings and equipment that are cleanable with a disinfectant.
- Avoid furnishings that have seams, pores (e.g., fabric), hinges or are made of wood.
- Ensure compatibility of cleaning and disinfecting agents with the items and surfaces to be cleaned.
- Identify items that can no longer be cleaned due to damage. Replace worn, stained or torn items as soon as possible.

3. Principles of Cleaning and Disinfection

Cleaning is the removal of foreign material (e.g., dust, soil, organic material such as blood, secretions, excretions and microorganisms) from a surface or object. Cleaning physically removes rather than kills microorganisms, reducing the organism load on a surface using water, detergents and mechanical action. Thorough cleaning is required for any equipment/device to be disinfected, as organic material may inactivate a disinfectant.

Disinfection is a process used on inanimate objects and surfaces to kill microorganisms. Disinfection will kill most disease-causing microorganisms but may not kill all bacterial spores.

Clinical office cleaning regimens include daily cleaning and disinfecting surfaces and objects with an approved surface cleaner and a hospital-grade, low-level disinfectant. Examination rooms should be kept free of clutter to facilitate cleaning. Surfaces in the clinical office and waiting rooms need to be cleaned and disinfected immediately when they are visibly soiled with blood or other body fluids, excretions or secretions (e.g., examination tables, floors, toilets).

Cleaning and disinfecting agents may be combined into a single product, thus saving a step in the process. Skin antiseptics (e.g., ABHR, chlorhexidine gluconate) must never be used as environmental disinfectants.

HOSPITAL-GRADE (LOW-LEVEL) DISINFECTANTS

Hospital-grade disinfectants for use in the clinical office include:

- Alcohols (70-95% ethyl or isopropyl alcohol)
- Chlorine
  - 5.25% Sodium hypochlorite (52,000 ppm), diluted to 1000 ppm (1:50 dilution); for more information on using bleach as a disinfectant, see PHO's Chlorine Dilution Calculator, available at: *www.publichealthontario.ca/en/ServicesAndTools/Tools/Pages/Dilution-Calculator.aspx*
  - Calcium hypochlorite
- Phenolics (must not be used for toys or equipment that comes into contact with infants)
- Quaternary Ammonium Compounds (QUATs)
- Hydrogen Peroxide Enhanced Action Formulation

4. Choosing and Using Cleaning and Disinfecting Products

Detergents remove organic material and suspend grease or oil. Equipment and surfaces in the clinical office setting must be cleaned with approved hospital-grade cleaners and disinfectants. Equipment cleaning/ disinfection should be done as soon as possible after items have been used.

A variety of products from a number of suppliers can be used to achieve effective cleaning. It is important to follow the manufacturer's instructions when using cleaning and disinfecting agents.

Hospital-grade cleaning and disinfecting products:

- must have a drug identification number (DIN) from Health Canada *(www.hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php)* if it contains a disinfectant
- must be used according to the manufacturers' recommendations for dilution, temperature, water hardness and contact time
- shall be used according to the product's Material Safety Data Sheet (MSDS).

Noncritical (touches only intact skin) equipment (Table 1) should be disinfected with a cloth and a low-level disinfectant, allowing adequate contact time with the disinfectant according to the manufacturer's instructions. Following disinfection, the item should be rinsed or wiped with water, to remove residual disinfectant, and then dried before use.

Disinfectant wipes may be used for items that cannot be soaked, but it may be difficult to attain adequate disinfectant contact time. Disinfectant wipes may also be used by the primary care giver for cleaning small noncritical items between patients (e.g., stethoscope, blood pressure cuff).

5. Cleaning Between Patients

Medical equipment that only comes into contact with the patient's intact skin and is used between patients requires cleaning and low-level disinfection after each use. See Table 1 for items that must be cleaned between patients.

Other items that come in contact with the patient should be replaced or discarded between patients (e.g., examination table paper coverings, stirrup covers).

6. End of Day Cleaning

Clinical offices should be fully cleaned at the end of every day. Garbage should be collected (see *Waste*), floors cleaned and carpets vacuumed. Supplies should be replaced as required (e.g., soap, ABHR, paper towel, toilet paper, PPE) and sharps containers should be sealed, removed and replaced if full. Items that are high-touch (e.g., doorknobs, telephones) should be cleaned and disinfected, and items that are not high-touch need only be cleaned. See Table 1 for items that require cleaning at the end of the day.

7. Scheduled Cleaning

Items that are not touched frequently and are not likely to become contaminated with blood or body fluids do not require daily cleaning, but should receive periodic, scheduled cleaning and disinfection. See Table 1 for items that require scheduled cleaning.

Table 1: Frequency of cleaning items in the clinical practice setting

Clean between patients	Clean at end of the day and when visibly soiled	Clean according to a fixed schedule and when visibly soiled
• Armrests on chairs • Beds (e.g., examination table) • Blood pressure cuff • Electronic monitoring devices, if shared (e.g., glucometer) • Imaging equipment (e.g., ultrasound transducers, mammography paddles, film cassettes) • Ophthalmoscope • Orthopaedic equipment (e.g., crutches) • Otoscope • Reflex hammer • Scales (infant) • Stethoscope • Toys • Transport equipment (e.g., wheelchairs)	• Bathrooms • Carpets (vacuumed) • Chairs, couches • Doorknobs • Floors • Light switches • Mirrors • Overbed lamps and lights • Scales (standing) • Tables • Telephones • Wall-mounted items (e.g., soap and ABHR dispensers, paper towel holders, glove box holders)	• Appliances (refrigerators, microwaves, coffee makers) • Baseboards • Carpets (steam cleaning) • Ceilings and air vents • Exterior surfaces of machines and equipment • Furnishings in office spaces (e.g., desks, cabinets, bookcases) • Ice Machines • I.V. poles • Lockers • Privacy curtains • Radiator • Sterilizers • Televisions • Toy boxes and cupboards • Walls • Window air conditioners • Windows, window sills, window coverings

8. Cleaning up Body Fluid Spills

Spills of blood and other body substances, such as urine, faeces and emesis, must be contained, cleaned and the area disinfected immediately. If spills occur on carpets, a disinfectant other than bleach should be used. In certain cases, cleaning carpets may not be sufficient, and replacement and disposal of carpeting may be required.

The following procedure should be used for cleaning up a spill of blood or other body fluids.

CLEANING UP A BODY FLUID SPILL

- Restrict the activity around the spill until the area has been cleaned and disinfected and is completely dry.
- Put on gloves; if there is a possibility of splashing, wear a gown and facial protection (mask and eye protection or face shield).
- Confine and contain the spill; wipe up any blood or body fluid spills immediately using either disposable towels or a product designed for this purpose. Dispose of materials by placing them into regular waste receptacle, unless the soiled materials are so wet that blood can be squeezed out of them, in which case they shall be segregated into the biomedical waste container (i.e., yellow bag).
- Disinfect the entire spill area with a hospital-grade disinfectant and allow it to stand for the amount of time recommended by the manufacturer.
- Wipe up the area again using disposable towels and discard into regular waste.
- Care should be taken to avoid splashing or generating aerosols during the cleanup.
- Remove gloves and perform hand hygiene.

9. Electronic Equipment

Electronic equipment in the clinical practice setting includes infusion pumps, telemetry receivers and transmitters, infusion fluid warmers, monitoring equipment, handheld devices and keyboards. Inappropriate use of liquids on electronic medical equipment may result in fires and other damage, equipment malfunctions and health care provider burns. Equipment malfunctions could result in life-threatening events to patients such as over-infusion of medications.

When selecting electronic equipment, it is important that it be compatible with the cleaning and disinfecting agents used in the clinical office setting and that manufacturer's recommendations for cleaning are followed. All staff who will be cleaning the item must be trained.

Protecting electronic equipment from contamination is the preferred option. This may be done by:

- positioning equipment to avoid contact with anticipated spatter
- avoiding placement of contaminated items on unprotected equipment surfaces
- using barriers on equipment surfaces that you expect to touch with contaminated hands or when contact with spatter cannot be avoided (e.g., keyboard skins or covers).

Recommendations for cleaning electronic equipment include[38]:

- Clean and disinfect all touch surfaces used at, or near, point-of-care with a hospital-grade disinfectant (per manufacturer's instructions) if used or touched during the encounter with the patient.
- Clean the surface of telephone components, pagers and computer mice in a manner that prevents damage to internal systems from excessive fluid.
- Clean LCD screens in non-clinical areas with approved screen cleaning products.

- Use solid, fluid-resistant keyboards that can be cleaned and disinfected.

- For more information related to cleaning electronic equipment, refer to CHICA-Canada's *Practice Recommendations for Infection Prevention and Control Related to Electronic (IT) Devices in Healthcare Settings*,[38] available at: *www.chica.org/pdf/Electronic_Devices_Practice_Recommendations-2012.pdf*.

10. Magazines/Books

If magazines are provided in the waiting area of the office, ABHR should be available for patients and visitors to use before and after reading. Visibly soiled magazines should be discarded.

11. Toys

Toys can be a reservoir for potentially pathogenic microorganisms that can be present in saliva, respiratory secretions, faeces or other body substances. Playrooms or play areas that are used by more than one child should have an area for segregation of used toys (e.g., a bin into which children/parents/staff can place used toys). Clean toys should be stored in a manner that prevents contamination (e.g., dust and water splatter) and should be clearly marked as clean. Toy storage boxes/cupboards should be emptied and cleaned weekly or when visibly soiled.

Toys should be smooth, nonporous and able to withstand rigorous mechanical cleaning (e.g., no plush toys). Parents should be encouraged to bring their own toys. All toys should be cleaned and disinfected between uses. Toys should be removed from general waiting rooms if an adequate process cannot be established to ensure their daily inspection, cleaning and disinfection. Responsibility for cleaning toys should be assigned.

For more information related to toys, refer to CHICA-Canada's *Toys Practice Recommendations*,[39] available at: *www.ipac-canada.org/pdf/Toys%20Practice%20Recommendations%202011%20-%20R2014.pdf*.

12. Waste

Waste from any clinical office setting is divided into two categories: biomedical and general. Management of contaminated infectious waste shall follow provincial regulations and local bylaws and address issues such as the collection, storage, transport, handling and disposal of contaminated waste, including sharps and biomedical waste.[40]

When handling waste:

- Segregate waste at the point where it was generated into either a plastic bag or a rigid container with a lid.
- Do not double-bag waste unless the first bag becomes stretched or damaged, or when waste has spilled on the exterior.
- Close waste bags when three-quarters full and tie in a manner that prevents contents from escaping.
- Remove waste to central holding areas at frequent intervals.

Waste shall be placed in appropriate containers at the point-of-care/use and stored in a designated enclosed room with access limited to authorized staff.

6. **There shall be a waste management program that is compliant with current legislation and national standards.**
7. **Biomedical waste storage areas shall be locked, except where authorized staff are on hand.**[41]

Waste Streams and Disposal Requirements

General Waste (green or black bag)

- Dressings, sponges, diapers, PPE, catheters, empty specimen containers, perineal pads
- Clinical office waste
- Waste from washrooms, kitchens and public areas

Biomedical Waste

Anatomic Waste (red bag)

- Tissues, body parts

Medical Waste (yellow bag)

- Blood, blood products, bloody body fluids
- Drainage collection units (if possible, pour liquid into toilet)
- Empty vaccine vials
- Diagnostic specimens (liquid may be poured into toilet, e.g., urine containers)

Sharps (sharps container)

- Needles, syringes, lancets, blades, clinical glass (e.g., ampoules)
- Used vaccine vials

Unused Vaccines

- Return to government pharmacy, local health unit or manufacturer. Saskatchewan Biomedical Waste Management Guidelines are available at *http://www.environment.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=217,216,104,81,1,Documents&MediaID=1099&Filename=Biomedical+Waste+Management.pdf*

8. **All external transportation of infectious waste shall comply with Transport Canada's *Transportation of Dangerous Goods Act and Regulation*.**[42]
9. **Waste shall be transported by a certified waste hauler who provides a certificate of approval. Trained, non-licensed personnel may transport small amounts of waste to a hospital or laboratory for disposal.**

Consult your district Ministry of the Environment office and/or Works Department for transport regulations in your jurisdiction.

13. Sharps

Sharps are devices that are capable of causing a cut or puncture wound and include needles, sutures, lancets, blades and clinical glass**.**

10. **In Saskatchewan, all health care settings shall use safety-engineered needles according to** *The Occupational Health and Safety Regulations* sections 474.1 and 474.2. The regulation is available at http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/O1-1R1.pdf

11. **Sharps shall be managed according to current legislation and national standards.**

Prevention of sharps-related injuries in health care staff may be achieved by:

- using safety-engineered needles and medical devices
- never recapping, bending, or breaking needles
- never reaching into waste or sharps containers
- providing rigid, puncture-resistant sharps containers at or near the point-of-use for disposal of sharps
- replacing sharps containers when full
- educating staff regarding the risks associated with unsafe procedures such as recapping.

14. Sharps Containers

Sharps shall be discarded into a puncture-resistant, tamper-resistant, leak-proof container that has a clearly identifiable biological hazard label and is designed so that used sharps can be dropped in with one hand. A sharps container must be easily accessible in every "point of use" area (e.g., individual examining room) and mounted above the reach of children. It must not be filled with disinfectant, or overfilled with sharps. Sharps containers must be sealed and replaced when the contents reach the fill line marked on the container or when three-quarters full. Used sharps are considered biomedical waste.

B. Clinical Office Design/Renovations

When renovating or moving to new clinical offices, there shall be compliance with current local municipal regulations for premises as well as standards from the Canadian Standards Association (CSA). IPAC recommendations when leasing or renovating clinical office space for health care are summarized in the box below.

12. When developing new clinical space, requirements from the Canadian Standards Association (CSA) shall be met.

IPAC RECOMMENDATIONS WHEN RENOVATING OR MOVING TO NEW CLINICAL OFFICE SPACE FOR HEALTH CARE

General

- The environment/furniture is easy to clean.
- All surfaces should be smooth and non-porous; carpets and fabric upholstery are not recommended.
- There is appropriate space for waste receptacles.
- There are sufficient freestanding hand washing sinks and point-of-care ABHR dispensers (e.g., in each examination room, washroom, laboratory area, medication preparation area, soiled and clean utility rooms).

Waiting Room Space

- The waiting room is big enough so that potentially infectious patients can be segregated at least two metres from other patients.

Examination or Procedure Room(s)

- Space must be appropriate to the type of procedures to be performed in the room.
- Facilities must be available for a free-standing hand washing sink in the room.
- PPE must be readily available without leaving the room.
- There is sufficient wall space next to the exam table to mount a sharps container and ABHR.

IPAC RECOMMENDATIONS WHEN RENOVATING OR MOVING TO NEW CLINICAL OFFICE SPACE FOR HEALTH CARE

- There is space for soiled linen hamper and soiled garbage container.
- There is a washroom adjacent to the examination/procedure room(s).

Storage/Utility Area(s)

- There are separate clean and soiled utility/storage rooms.
- Sterile supplies must be stored above the floor in a clean, dry area away from traffic.
- There are sufficient closed cupboards to store medical equipment.
- There is at least one dedicated housekeeping closet.

Reprocessing Area(s)

- There are separate clean and soiled areas in the reprocessing/sterilization room.

Medications

- There shall be a drug distribution station if medications are dispensed, that is separate from other areas.
- The drug distribution station shall include a work counter, sink, refrigerator, and locked storage for biologicals and drugs.

- For information on developing space for surgery, see Section 9.C., *Surgical Space*.
- For a checklist on office infection prevention and control see Appendix J, *Checklist for Office Infection Prevention and Control*.
- For more information on facility design in clinical office practice, refer to:
  - Canadian Standards Association: *CAN/CSA-Z8000-11 Canadian health care facilities*,[7] available at: *http://shop.csa.ca/en/canada/health-care-facility-engineering/z8000-11/invt/27033042011/*.
  - Canadian Standards Association: *CAN/CSA Z317.2-10 Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities,*[43] available at: *http://shop.csa.ca/en/canada/health-care-and-medical-devices/health-care-facility-engineering/icat/healthcarefacilityeng&view=&bklist=icat,5,shop,publications,healthcare,healthcarefacilityeng*.
  - College of Physicians and Surgeons of Alberta Facility Accreditation Information available at *http://www.cpsa.ca/accreditation/*
  - College of Physicians and Surgeons of Ontario: Out-of-Hospitals Premises (OHP) Standards,[44] available at: *www.cpso.on.ca/uploadedFiles/policies/guidelines/office/ohp_standards.pdf*.
  - American Association for Accreditation of Ambulatory Surgery Facilities, Inc. (AAAASF) Standards, available at: *www.aaaasf.org/*.

Recommendation:

19. The clinical office setting should have cleaning practices in place appropriate to the clinical setting.

8. Reprocessing Medical Equipment

Reusable medical equipment must be cleanable and be able to be disinfected or sterilized as appropriate for the equipment. This may not be cost-effective or timely for small establishments, and other options should be considered. The amount and frequency of equipment use should guide whether reprocessing is feasible or whether disposable equipment is more cost-effective.

Figure 23 ranks the spectrum of microbial life in terms of resistance to destruction by heat or chemicals. When combined with Spaulding's Criteria (see Table 2 on page 60), the minimum level of reprocessing required for medical equipment may be determined.

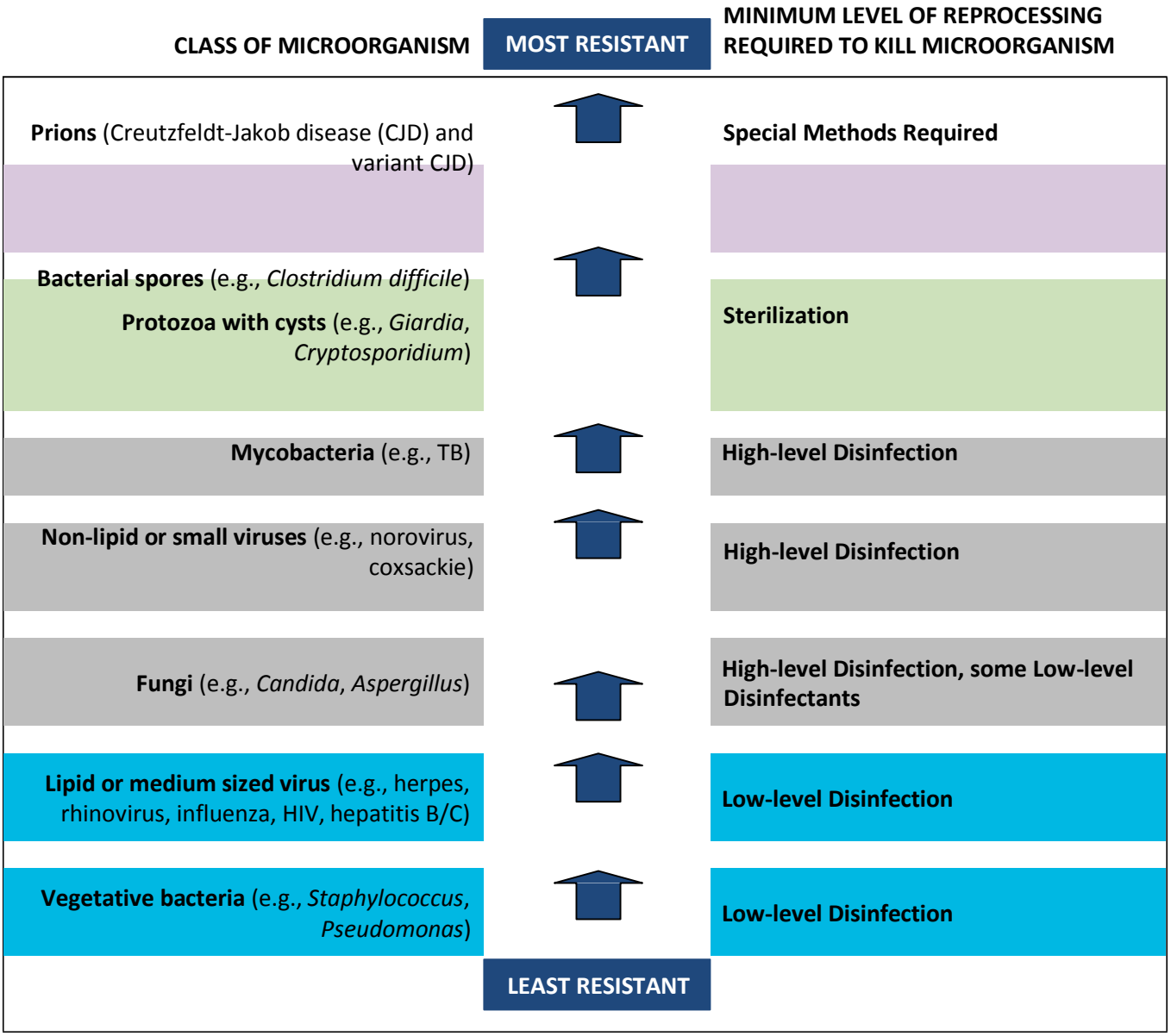


Figure 23: Microbes in Order of Increasing Resistance to Destruction and Corresponding Minimum Level of Reprocessing Required

A. General Principles for Reprocessing (Cleaning, Disinfection and Sterilization)

Patient expectations of safety are the same, regardless of where the procedure is performed (i.e., clinical office or hospital).

Medical equipment and devices must be in good working order and receive documented preventive maintenance as required. Any product used in the provision of care to patients must be capable of being cleaned, disinfected and/or sterilized according to the most current standards and guidelines from the Canadian Standards Association (CSA), the Public Health Agency of Canada (PHAC)/Health Canada as well as provincial best practices.[45]

- The manufacturer's information for all medical equipment/devices and decontamination equipment must be received and maintained in a format that allows for easy access by staff carrying out the reprocessing activities.[46]
- Equipment that is used to clean, disinfect or sterilize (e.g., ultrasonic washers, pasteurizers, washer-disinfectors, automated endoscope reprocessors/AERs, sterilizers) shall also meet standards established by Health Canada/ PHAC, the CSA[46]and provincial best practices.[45]
- Designated staff must be assigned to equipment reprocessing and shall be trained to a level required for the volume and complexity of the equipment to be reprocessed.
- There must be a process to deal with staff exposures that occur during reprocessing (e.g., chemical exposures, sharps exposures).

See Appendix I, *Recommended Minimum Cleaning and Disinfection Level and Frequency for Medical Equipment*, for reprocessing requirements for specific items of medical equipment.

For more information about equipment reprocessing, see PIDAC's Best Practices for Cleaning, Disinfection and Sterilization in All Health Care Settings,[45] available at:
www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf.

- Practices to be followed in dental settings for reprocessing equipment may be found in the Royal College of Dental Surgeons of Ontario's Infection Prevention and Control in the Dental Office, available at: *www.rcdso.org/save.aspx?id=ab90c89d-dcf4-4a2c-9a8a-bb91a316b6a0.*
  A training course in Medical Device Reprocessing in Community Health Care Settings is available at no cost from Public Health Ontario at:
  http://www.publichealthontario.ca/en/LearningAndDevelopment/OnlineLearning/InfectiousDiseases/Reprocessing/Pages/default.aspx

B. Reprocessing Methods

There must be written procedures for cleaning and disinfection/sterilization of equipment/devices that are kept near the reprocessing area. Procedures must be reviewed and revised regularly.

13. The reprocessing method, level and products required for medical equipment/devices shall reflect the intended use of the equipment/device and the potential risk of infection involved in the use of the equipment/device.[46]

The reprocessing method and products required for medical equipment/devices will depend on the intended use of the equipment/device and the potential risk of infection involved in the use of the equipment/device. The process and products used for cleaning, disinfection and/or sterilization of medical equipment/devices must be compatible with the equipment/devices.[45] See *Appendix K, Reprocessing Options for Clinical Offices/Clinics*, for methods of reprocessing that are available based on the minimum level of reprocessing required.

The classification system developed by Spaulding[47] (Table 2) divides medical equipment/devices into three categories, based on the potential risk of infection involved in their use.

The level of reprocessing required for medical equipment/devices is determined by Spaulding's criteria (Table 2).

Table 2: Spaulding's classification of medical equipment and required level of processing

Class	Use	Minimum Level of Reprocessing	Examples
Critical	Enters sterile body site, including the vascular system	Cleaning followed by sterilization	• Surgical instruments • Biopsy instruments • Foot care/podiatry equipment
Semicritical	Comes in contact with non-intact skin or mucous membranes but does not penetrate them	Cleaning followed by high-level disinfection Sterilization is preferred	• Vaginal specula • Endoscopes • Anaesthesia equipment • Tonometer
Noncritical	Touches only intact skin and not mucous membranes, or does not directly touch the patient	Cleaning followed by low-level disinfection (in some cases, cleaning alone is acceptable)	• ECG machines • Oximeters • Stethoscopes

C. Single-Use Medical Devices

Critical and semicritical medical equipment/devices labeled as single-use must not be reprocessed and re-used unless the reprocessing is done by a licensed reprocessor.[45] Examples of critical and semicritical single-use items are syringes, plastic vaginal specula and mouthpieces for pulmonary function testing. Currently there are no licensed reprocessors in Canada. There are reprocessors in the USA licensed by the United States Food and Drug Administration (USFDA).

Clinical office settings that wish to have their single-use medical equipment/devices reprocessed by a licensed reprocessor must ensure that the reprocessor's facilities and procedures have been certified by a regulatory authority or an accredited quality system auditor to ensure the cleanliness, sterility, safety and functionality of the reprocessed equipment/devices.

Single-use medical equipment/devices are usually labelled by the manufacturer with this symbol:

D. Requirements for Staff Training

In settings where surgical procedures are done (including non-hospital treatment facilities and where reprocessing is performed on site, there must be a designated individual(s) responsible for reprocessing, with:

- training to the level that is required for the volume and complexity of the equipment to be reprocessed
- documentation of training, including a training manual that is reviewed annually and updated as required
- ongoing continuing education.

E. Requirements for Reprocessing Space

Equipment reprocessing must be performed in a segregated area away from patients and clean areas. There must be a clearly designated individual who is responsible for reprocessing.[45]

At a minimum[45]:

- There must be a designated, segregated area for reprocessing medical equipment/devices.
- The reprocessing work area shall be physically separated from clean areas by cleanable walls or partitions.[46]
- Surfaces in the reprocessing area must be easily cleaned and disinfected.
- Wherever chemical disinfection/sterilization is performed, air quality must be monitored when using products that produce toxic vapours and mists.
- An eyewash station must be located in the reprocessing area.[48]
- A dedicated hand washing sink must be located in the reprocessing area.
- There shall be appropriate PPE for staff involved in reprocessing.

F. Transport of Contaminated Equipment within Premises

Transport of used medical equipment from the procedure area to the reprocessing area must be done in such a way as to avoid contamination of the environment. Closed carts or covered containers designed to prevent the spill of liquids must be used for handling and transporting soiled medical equipment/devices. Containers or carts used to transport soiled equipment must be cleaned after each use.

G. Instrument Cleaning

"*Cleaning is always essential prior to disinfection or sterilization. An item that has not been cleaned cannot be assuredly disinfected or sterilized*."

Public Health Agency of Canada/Health Canada

Reusable medical equipment/devices must be thoroughly cleaned before disinfection or sterilization.[49] The process of cleaning physically removes contaminants from the equipment/device, rather than killing microorganisms. If an item is not cleaned, soil (e.g., blood, body fluids, dirt) can protect the microorganisms from the action of the disinfection or sterilization process making it ineffective, as well as inactivate the disinfectant or sterilant so that it does not work.

Recommendations for cleaning medical equipment/devices[45]:

- Follow the instrument manufacturer's guidelines for cleaning.
- Staff who handle and clean contaminated equipment/devices must wear facial protection, gloves, and gown.[46]
- Clean instrument as soon as possible after use so that organic material will not dry on it. If there will be a delay in reprocessing, soak the instrument in an approved instrument soaking solution.
- Clean instrument with an instrument detergent/enzymatic diluted according to the detergent manufacturer's directions or, alternatively, in an ultrasonic washer.
- Clean instruments that have lumens with a brush, according to the manufacturer's instructions. The brush must also be cleaned and disinfected.
- Rinse the instrument with water after cleaning to remove residue that might interfere with the disinfectant/sterilant.
- Dry the instrument according to the manufacturer's instructions. Drying prevents dilution of chemical disinfectants.
- Visually inspect the instrument after cleaning and prior to disinfection/sterilization to ensure cleanliness and integrity of the instrument.

- For information about endoscope reprocessing, see Appendix L, *Reprocessing Endoscopy Equipment*.

CHECKLIST FOR INSTRUMENT CLEANING TO ENSURE EFFECTIVE STERILIZATION AND DISINFECTION

- Disassemble pieces of equipment according to manufacturer's instructions.
- Ensure that reprocessing method used on the equipment/device meets Spaulding's criteria (Table 2).
- Where the level of reprocessing recommended by the manufacturer is not in agreement with
- Spaulding's criteria, the higher level must be used.
- Remove organic material, such as mucus, blood, pus, faeces, saliva, etc., prior to cleaning.
- When cleaning equipment/devices, pay special attention to rough or porous surfaces (e.g., ridges, ribbing, grooves); long, narrow lumens and channels; and hinges, cracks, coils, valves, joints, clamps or crevices that may trap microorganisms.
- Items made of rubber or plastic may require special treatment as they may be degraded by heat and/or some chemical products.
- Mix and/or dilute chemical products according to the manufacturer's instructions. Be aware of the product manufacturer's recommendations regarding water hardness, temperature and pH, which might interfere with the action of some chemical products.
- Check the product expiry date before use and discard expired products.
- Use chemical test strips for all high-level liquid disinfectants to assess their efficacy.
- Ensure adequate exposure (contact) time between equipment/device and the sterilant/disinfectant.
- Dry equipment/devices after cleaning, before disinfection or sterilization with liquid products, to prevent dilution of the disinfectant/sterilant.

H. Packaging Instruments

Equipment/devices that are to be sterilized require wrapping prior to sterilization. Materials used for wrapping shall be prepared in a manner that will allow adequate air removal, steam penetration and evacuation to all surfaces.

The most useful wrapping materials for the clinical office are plastic/peel pouches. They are easy to use, often with features such as self-sealing closures and chemical indicator strips, and come in a variety of sizes that can accept single or small groups of instruments. The date of sterilization should be marked on the product wrapping.

I. Sterilization

Sterilization is the elimination of all disease-producing microorganisms, including spores. Sterilization is used on critical medical equipment/devices and, whenever possible, semicritical medical equipment/devices.

See *Appendix I*, *Recommended Minimum Cleaning and Disinfection Level and Frequency for Medical Equipment*, for reprocessing requirements for specific items of medical equipment.

Considerations when sterilizing medical equipment/devices:[45]

- Develop written policies and procedures for sterilization of medical equipment/devices used in the clinical office setting that include cleaning, drying, inspection, disassembly, wrapping, sealing and labelling.
- Ensure that the manufacturer's instructions for installation, operation, cleaning and preventive maintenance of the sterilizing equipment are followed.
- Staff must be trained to operate sterilizers.
- Test all sterilizers for performance using physical, chemical and biological monitors and indicators.

1. Types of Sterilizers

The preferred method for decontamination of heat-resistant equipment/devices is steam sterilization. Pre-vacuum table top sterilizers are recommended for clinic and clinical office settings. Regular preventive maintenance and cleaning is required to assure the effectiveness of the sterilizer. Records should be kept of any preventive maintenance and repairs performed. Assure distilled water is filled to the correct level and drained according to manufacturer's recommendations. Check the gasket for defects and deterioration. Assure proper placement of packs, and do not overload the chamber.

Dry heat should be used only for the materials that cannot be sterilized by steam. The principle advantage of dry heat sterilization is its penetrating power. The disadvantages are that heating is slow, and long exposure times and high temperatures are required, which could damage materials.

The manufacturer's instructions for maintenance and use of sterilizers shall be followed.[46]

Unacceptable methods of disinfection/sterilization include:

- dishwasher (including those with sanitizing cycles)
- boiling
- ultraviolet irradiation
- glass bead sterilizers
- chemiclave sterilizers
- microwave ovens

2. Monitoring the Sterilization Process

The sterilization process shall be monitored to ensure the integrity of the process. A logbook must be kept for each sterilizer load. Performance monitoring includes physical, biological and chemical indicators (see *Glossary*) and all three processes shall be used:

- Physical indicators (e.g., mechanical printouts from the sterilizer) must be checked and signed for each sterilizer cycle by the person sterilizing the instrument.
- A biological indicator (BI) shall be used to test the sterilizer once each day the sterilizer is used.
- An internal chemical indicator shall be placed inside each package, container or bundle that is undergoing sterilization.
- If a dynamic air removal-type sterilizer is used, an air removal test with a Class II chemical indicator shall be performed every day the sterilizer is used.

- For more information about sterilizer monitoring, see PIDAC'S *Best Practices for Cleaning, Disinfection and Sterilization in all Health Care Settings*, available at: www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf.

14. The sterilization process shall be tested, monitored with results recorded and audited.

15. All sterilizers shall be tested for performance using physical, chemical and biological monitors and indicators.

3. Sterilization Failures

Improper sterilization includes, but is not limited to, the following situations:

- instruments not cleaned properly prior to sterilization
- the load contains a positive biological indicator
- an incorrect reprocessing method was used on the equipment/device
- print-outs on reprocessing equipment indicate failure to reach correct parameters (e.g., temperature, pressure, exposure time)
- chemical indicator and/or monitoring tape has not changed colour.

16. A procedure shall be established for the recall of improperly reprocessed medical equipment/devices.

PROCEDURE FOR STERILIZATION FAILURE

- Record all equipment/devices in each processed load to enable tracking in the event of a recall.
- Repeat the test. If practical, do not release any items that were processed since the last negative test. If this repeat test is negative, and there is no indication of a system malfunction, continue as normal.
- If the repeated process indicates a failure:
  - Document the time, date, load description and results of physical, chemical and biological indicator (BI) monitoring.
  - Contact the sterilizer manufacturer. After repair and maintenance, re-challenge the sterilizer with the BI.
  - Re-sterilize the recalled items once the results of the sterilizer indicators are acceptable.
  - Assess the risk to patients.
- Establish a procedure for notification of physicians, patients, other facilities and/ or regulatory bodies, if indicated.

4. Storage of Sterile Equipment/Devices

Steam-sterilized packs must be subject to a drying cycle prior to handling and storage. Wrapped packs must be carefully stored in a clean, dry, dust-free area (closed shelves), not at floor level, away from debris, drains, moisture, sinks and vermin to prevent contamination and maintain sterility until the time of use. All stored equipment and instruments must be left undisturbed as much as possible since handling may draw contaminants in through a wicking effect.

Upon opening the sterile equipment/device, check that the integrity of the packaging has not been compromised:[45]

- Visually inspect for discolouration, dampness, dust, soil, tears; if present, send for reprocessing.
- Validate results of chemical tape and internal monitors, if present; if no change in colour, send for reprocessing.
- Check for defects in the instrument.

5. Shelf Life of Sterile Items

For items reprocessed in the clinical office, if the integrity of the package has been maintained, the item remains sterile. A plastic dust jacket may greatly extend the shelf life of the package and should be used on muslin or crepe wrapped packs. If a sterile tray/package has been purchased and has an expiry date/label, follow manufacturer's recommendations and discard when outdated.

J. High-Level Disinfection (HLD)

Sterilization is always the preferred method of reprocessing semi-critical medical equipment. However, for items that cannot tolerate sterilization, HLD must be used. Disinfection does not destroy bacterial spores or prions.

See *Appendix I*, *Recommended Minimum Cleaning and Disinfection Level and Frequency for Medical Equipment*, for reprocessing requirements for specific items of medical equipment.

Instruments that contact mucous membranes are considered to be semi-critical items. HLD kills vegetative bacteria, fungi, enveloped viruses, and mycobacteria but does not sterilize, i.e., does not kill bacterial spores or prions. High-level disinfectants include:

- 2 per cent glutaraldehyde
- 6 per cent hydrogen peroxide
- 0.2 per cent peracetic acid
- 7 per cent hydrogen peroxide enhanced action formulation
- 0.55 per cent ortho-phthalaldehyde (OPA).

Recommendations for high-level disinfection of medical equipment/devices:[45]

- Use high-level disinfectants according to manufacturer's recommendations.
- Use chemical test strips to determine whether an effective concentration of active ingredients is present.
- Complete and retain a permanent record of processing.
- Do not top up prepared solutions with fresh solution.[46]
- If manual disinfection is performed, cover the container used for disinfection during use.[46] Ideally, manual disinfection should be performed in an area that is vented appropriately to protect against toxic vapours.
- Rinse instrument thoroughly following chemical disinfection, according to the chemical manufacturer's instructions; the quality of the rinse water (i.e., sterile, filtered or tap water) will depend on the intended use of the device.

17. The clinical office setting shall have ventilation systems appropriate to the process/product being used, to protect staff from toxic vapours.

Many chemical disinfectants have occupational exposure limits that are regulated under *The Occupational Health and Safety Regulations* (table 21). The regulation is available at http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/O1-1R1.pdf
If control measures are not available during reprocessing involving a chemical agent, air sampling may be required to ensure that the regulated limit has not been exceeded for the chemical being used.

18. When reprocessing medical equipment, requirements from the Canadian Standards Association (CSA) shall be met.

19. Use of chemical disinfectants shall comply with regulations under the Occupational Health and Safety Act.

K. Low-Level Disinfection (LLD)

Noncritical equipment that does not touch mucous membranes and only touches intact skin (e.g., stethoscopes, blood pressure cuffs, baby scales) requires cleaning and LLD between each patient. See Section 7, *Control of the Environment*, for information regarding the use of low-level disinfectants.

See *Appendix M* for a checklist for reprocessing medical devices.

Recommendations:

20. Critical and semi-critical medical equipment/devices labelled as single-use must not be reprocessed and re-used unless the reprocessing is done by a licensed reprocessor.

9. Surgical/Invasive Procedures

A. Surgical Hand Preparation for Surgical Settings

Due to multiplication of bacteria under surgical gloves and the high percentage of glove punctures found after surgery, a hand hygiene product with a prolonged antiseptic effect on the skin is desirable. In a surgical setting, a surgical hand rub (using ABHR) or a surgical hand scrub (using an antimicrobial soap) with persistent antimicrobial activity should be used.

Alcohols are effective for preoperative cleaning of the hands of surgical staff. Several ABHRs have been licensed for use as a surgical hand rub; these formulations also contain long-acting compounds such as chlorhexidine gluconate.

For surgical and invasive procedures, studies have shown that antimicrobial soap is more effective than plain soap and water for surgical/invasive procedures. Antimicrobial soap has residual antimicrobial activity and is not affected by the presence of organic material.

The antimicrobial activity of ABHRs is superior to that of all other currently available methods of preoperative surgical hand preparation.

Procedure for hand hygiene before office surgical procedures:

- Remove all jewellery.
- Clean hands up to a minimum of two inches above wrists thoroughly for the length of time recommended by the product manufacturer (usually two to five minutes).
- Clean under nails. A disposable manicure stick can be used; nailbrushes are NOT recommended as they can become contaminated and damage the skin around the nails.
- Nails should be short enough to allow thorough cleaning underneath and not cause glove tears.
- If soap is used, rinse off and dry hands well.

Recommendation:

21. In surgical settings, hand hygiene preparations that are formulated for surgery must be used.

B. Cleaning after Invasive/Surgical Procedures

The surgical suite can become heavily contaminated with microbes, becoming a risk for patients, unless it is properly cleaned and disinfected. The ultimate responsibility for ensuring a clean surgical environment rests with the employer.

Environmental cleaning shall be performed by trained staff according to the protocol of the clinical office setting, which reflects ORNAC standards (now under the auspices of the Canadian Standards Association).[37] A regular cleaning schedule shall be established, posted and documented. Responsibility for cleaning anaesthetic machines and carts should be clearly defined.

Operating rooms are cleaned between cases[37]:

- Any surface and equipment that comes in direct or indirect contact with the patient or body fluids is considered contaminated and shall be cleaned with a hospital-grade disinfectant.
- Cleanup for surfaces and equipment shall proceed from the least contaminated to the most contaminated area.
- After removal of trash, linen and instruments, the floor area to within a 1 to 1.5 metre (3 to 4 feet) perimeter around the operative area should be cleaned if visibly soiled. The area cleaned shall be extended as required to encompass visibly soiled areas**.**
- Mop heads shall be changed after each use. If a bucket of hospital grade disinfectant solution is prepared for multiple uses, used mops shall not be reintroduced into the bucket.
- Suction containers/liners should be disposable and wherever possible solidifiers should be used.
- Containers shall be disposed of as per facility waste management policies.
- Reusable suction containers should not be used. Suction tubing shall be disposable.

End of day (terminal) cleaning of each theatre, scrub area, corridor, furnishings and equipment includes[37]:

- lights and ceiling-mounted tracks
- door handles and push plates
- light switches and controls
- telephones and computer keyboards
- spot-checking walls for cleanliness
- the exterior surfaces of all machines and equipment (allow adequate drying time –according to manufacturer's instructions –before storage)
- all furniture, including wheels/casters
- all horizontal surfaces
- scrub sinks and surrounding walls
- floors should be mopped with a sufficient amount of disinfectant/ detergent to ensure that the floor remains wet for 5 minutes. Each floor shall be thoroughly cleaned using fresh solution and a fresh mop/mop head.
- floors should be power scrubbed at regular intervals according to established protocols.

Sterile processing areas that store sterile supplies are cleaned at least daily (including counters, shelves and floors).

- Refer to the Operating Room Nurses Association of Canada (ORNAC) standards for more information about environmental cleaning in surgical areas, available at*:* *http://flex5114.weebly.com/uploads/1/4/5/1/14518934/ornac_standards.pdf*. Note: ORNAC standards are now under the auspices of the Canadian Standards Association.

- Refer to the American Association for Accreditation of Ambulatory Surgery Facilities, Inc. (AAAASF) standards at: *www.aaaasf.org/*.

C. Surgical Space

When developing space for surgery, the following requirements of the Canadian Standards Association shall be met[7]:

- Operating room perimeter walls, ceiling, and floors, including penetrations, shall be sealed. Materials and finishes shall be seamless, with integral surfaces on the ceilings, walls and flooring. There shall be no floor drains.
- Operating rooms have minimum 20 air changes/hour, with at least 6 outdoor air changes/hour. Positive pressure is maintained relative to the corridor. For minor surgical procedures and endoscopy, there should be a minimum 15 air changes/hour and at least 5 outdoor air changes/hour.
- Temperature in operating rooms is maintained between 18°C and 23°C.
- Surfaces shall be smooth and durable enough to withstand cleaning and disinfection.
- The design shall ensure separate traffic flows for sterile and soiled materials and separate storage areas for supplies and equipment.
- Soiled and clean workrooms or holding rooms shall be separated.
- All reprocessing shall be done in a dedicated medical device reprocessing area.
- Provision shall be made for adequate equipment storage.
- Two scrub sinks shall be provided near the entrance to each operating room.
- Hygiene sinks and supplies shall be immediately outside of an operating room or procedure room.

Requirements for Endoscopy space:

- Endoscopy services shall be designed so that the endoscopy suite is adjacent to a medical device reprocessing area[7] [Section 9.1.2.6].
- In bronchoscopy suites, there shall be negative pressure relative to the corridor.

10. Administrative Controls

Administrative controls are measures that are put in place to reduce the risk of infection to staff or to patients. These include IPAC policies/procedures, education/training, healthy workplace policies, immunization and exposure management.

A. Healthy Workplace Policies

All clinical office settings should establish a clear expectation that staff do not come into work when ill with symptoms of infection.[50] This includes not working when acutely ill with signs and symptoms likely due to a transmissible infection, such as fever, cough, influenza-like symptoms, runny nose, sore throat, vomiting, diarrhea, rash or conjunctivitis.

Health care providers who are ill must use their best judgement about working, weighing the risks and benefits of working against not providing patient care. If the decision is made that the health care provider must work,

scrupulous hand hygiene and appropriate PPE (e.g., wear a mask if you have a cold) is essential to minimize the possibility of transmission of infection.

B. Staff Immunization

To protect the health of patients and themselves, it is particularly important that staff be immune to measles, mumps, rubella, pertussis, varicella, hepatitis B and receive influenza vaccine annually. Staff should know their immunization status and have their immunizations up to date. Immunizations appropriate for health care providers include:

- annual influenza vaccine
- measles, mumps, rubella (MMR) vaccine (two doses) or serologic documentation of immunity
- varicella vaccine (two doses) or serologic documentation of immunity
- hepatitis B vaccine (complete series) and serologic confirmation of immunity for staff who may be exposed to blood, body fluids or contaminated sharps in their work
- tetanus vaccine (every 10 years)
- acellular pertussis vaccine (one dose Tdap).

See *Appendix N* for Canada's immunization schedule for staff.

C. Tuberculin Skin Test (TST)

A TST using the two-step skin test is recommended at the beginning of employment for all persons who work in the clinical office. The TST may be done by the employer or by the employee's personal physician. A single-step TST is sufficient if:

- there is documentation of a prior two-step test, OR
- there is documentation of a negative TST within the last 12 months, OR
- there are two or more documented negative TST results at any time but the most recent was >12 months ago.

Persons who have had a positive TST, or who test positive with the two-step method, should have medical follow-up to rule out active disease.

- Refer to the Canadian TB Standards, available at: *http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tb-canada-7/index-eng.php* for instructions for performing the two-step tuberculin skin test. Available at: *http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tb-canada-7/tb-standards-tb-normes-ch4-eng.php#a5_0*.

D. Infections in Health Care Providers

- Information regarding staff infections, available at:
  - Saskatoon Health Region's *Policies and Procedures: Infection Prevention and Control* *https://www.saskatoonhealthregion.ca/about/Pages/Policies-IPC.aspx*
  - eHealth Saskatchewan's *Communicable Disease Control Manual* *http://www.ehealthsask.ca/services/manuals/Pages/CDCManual.aspx*
  - Saskatoon Health Region's *TB Prevention and Control Saskatchewan: Policies and Procedures* https://www.saskatoonhealthregion.ca/locations_services/Services/TB-Prevention/Pages/PnP.aspx.

Infections in Health Care Providers

Blood-borne Pathogens

- Health care providers who have been exposed to blood or body fluids through a specific incident, such as a needle prick or splash, must seek appropriate expert advice regarding the frequency of testing that is required to determine if they have been infected with one or more blood-borne pathogens.

Enteric Infections

Health care providers with vomiting and diarrhea should remain at home.

Herpes Simplex

- **Cold sore**: If possible, keep the lesion covered during patient visits, especially when seeing immunocompromised patients. Avoid touching your face and wash your hands frequently.
- **Herpetic whitlow** (herpetic finger infection): All persons with herpetic whitlow must be excluded from direct patient contact until the lesion is resolved, as gloves will not guarantee adequate protection for the patient.
- **Shingles**: Health care providers may work, in most cases, if the lesions can be covered and good hand washing technique is used. Health care providers with shingles must not work with high risk patients (e.g., newborns, immunocompromised patients) until lesions are crusted.

Influenza or other acute respiratory viral infection

Influenza is spread through droplets and contaminated hands. Fever and systemic symptoms (headache, malaise, myalgia) favour a diagnosis of influenza over the common cold. If you have influenza or an influenza-like illness, refrain from working until well. If you must work, wear a surgical mask, clean hands frequently, and take particular care with high risk patients (e.g., immunocompromised, chronic cardiac or pulmonary disease, pregnant women, infants). Annual influenza vaccination is the best form of prevention.

Conjunctivitis ("pink eye")

- **Acute bacterial conjunctivitis**: Usually presents with muco-purulent or purulent discharge and crusting. Health care providers with bacterial conjunctivitis should not provide care until symptoms have resolved.
- **Viral conjunctivitis**: Usually presents with pain in the eye, clear discharge, periorbital swelling and pre-auricular adenopathy. Adenovirus is the usual cause of outbreaks of conjunctivitis in health care. Health care providers with viral conjunctivitis should not provide patient care from the time of onset of conjunctivitis until 14 days after onset. Infected health care providers may continue to provide non-patient care duties, provided good hand hygiene is practiced and contact with the eyes is avoided. Adenovirus may survive on surfaces for prolonged periods.

E. Employee Exposure Protocol

A prompt and organized approach is required when staff are accidentally exposed to blood or body fluids through percutaneous (needle stick) or mucous membrane (splash) accidents. In particular, a decision will have to be made about the need to initiate post-exposure prophylaxis. Refer to Saskatoon Health Region's document *Guidelines for the Management of Exposure to Blood and Body Fluids Prophylaxis*
http://www.ehealthsask.ca/services/manuals/Documents/hiv-provider-guidelines.pdf

A *significant exposure* is one in which there is an exposure to blood or a body fluid capable of transmitting HBV, HCV and/or HIV through percutaneous injury from a contaminated needle or other sharp object, a splash onto a mucous membrane or non-intact skin, or a human bite that breaks the skin.[51] See the following box for steps to follow after a significant exposure to blood or body fluids.

PROTOCOL FOLLOWING A SIGNIFICANT EXPOSURE TO BLOOD OR BODY FLUID

1. Provide Immediate First Aid

After a sharps injury, encourage bleeding, then wash the area thoroughly but gently with soap and warm water. Do not scrub. If blood or body fluid is splashed in the eyes, flush out the eyes well with cold water. If splashed in the mouth, flush mouth well with cold water.

2. Obtain Patient Consent for Testing

Obtain source patient consent for patient testing for blood-borne pathogens. Document the consent process in the chart.

3. Baseline and Follow-up Serology

The individual who has had a significant exposure to blood or body fluids will require baseline and follow-up serology to HBV, HCV, and HIV. This should be arranged in conjunction with an Infectious Diseases specialist or upon the advice of public health.

4. Document the Incident

If the clinical office is registered with the Workplace Safety and Insurance Board, then the report form shall be completed within three working days. Record the date and time of the incident, what the worker was doing, what protective measures were being employed at the time, and what action was taken after exposure.

5. Provide HIV Prophylaxis as Indicated

The risk of transmission following percutaneous exposure to a known HIV-infected patient is approximately 0.3 per cent. Post-exposure prophylaxis for HIV infection should be administered as soon as possible to those with significant exposures, preferably within one to two hours of exposure. Refer the exposed individual for assessment and management to an Infectious Diseases/HIV specialist, to the nearest emergency room.

PROTOCOL FOLLOWING A SIGNIFICANT EXPOSURE TO BLOOD OR BODY FLUID

6. Provide Hepatitis B Prophylaxis as Indicated

The risk of acquiring hepatitis B infection after percutaneous exposure can be as high as 25%, depending on the infectious status of the source case. Ideally, all health care workers will have been immunized and proven immune, post-immunization. However, for situations where such is not the case, hepatitis B prophylaxis should be initiated as soon as possible after the incident, and depends on the following variables: serological status of the staff member (e.g., anti-HBs level) and HBsAg status of the source.

- Refer to the Saskatchewan *Guidelines for the Management of Exposure to Blood and Body Fluids Prophylaxis*[52] for more information and algorithms for determining post-exposure prophylaxis: *http://www.ehealthsask.ca/services/manuals/Documents/hiv-provider-guidelines.pdf*

7. Hepatitis C

The risk of transmission following percutaneous exposure is about 2%. Exposed health care workers should be monitored for acquisition of hepatitis C. If infection is acquired, an Infectious Diseases specialist or hepatologist should be consulted regarding treatment. There is no post-exposure prophylaxis; immunoglobulin is of no proven efficacy.

***Recommendation*:**

22. There should be mechanisms in place in clinical office settings for ensuring a healthy workplace, appropriate staff immunizations and protocols for exposure to infectious diseases, including a blood-borne pathogen exposure protocol.

Abbreviations

ABHR	Alcohol-Based Hand Rub
AP	Additional Precautions
ARO	Antibiotic-Resistant Organisms
BI	Biological Indicator
CA-MRSA	Community-Acquired Methicillin-Resistant *Staphylococcus aureus*
CPE	Carbapenemase-Producing *Enterobacteriaceae*
CSA	Canadian Standards Association
ESBL	Extended-Spectrum Beta-Lactamase
HLD	High-Level Disinfection
IPAC	Infection Prevention and Control
LLD	Low-Level Disinfection
MRSA	Methicillin-Resistant *Staphylococcus aureus*
MSDS	Material Safety Data Sheet
OAHPP	Ontario Agency for Health Protection and Promotion
OGPMSS	Ontario Government Pharmaceutical and Medical Supply Service
OHP	Out-of-Hospital Premises
PIDAC	Provincial Infectious Diseases Advisory Committee
PHO	Public Health Ontario
PPE	Personal Protective Equipment
RICN	Regional Infection Control Networks
RP	Routine Practices
VRE	Vancomycin-Resistant Enterococci
WHMIS	Workplace Hazardous Materials Information System

Glossary of Terms

Acute Respiratory Infection (ARI): Any new onset acute respiratory infection that could potentially be spread by the droplet route (either upper or lower respiratory tract), which presents with symptoms of a fever greater than 38°C and a new or worsening cough or shortness of breath (also known as febrile respiratory illness, or FRI). It should be noted that elderly people and people who are immunocompromised may not have a febrile response to a respiratory infection.

Additional Precautions (AP): Precautions (i.e., Contact Precautions, Droplet Precautions, Airborne Precautions) that are necessary in addition to Routine Practices for certain pathogens or clinical presentations. These precautions are based on the method of transmission (e.g., contact, droplet, airborne).

Administrative Controls: Measures put in place to reduce the risk of infection to staff or to patients (e.g., infection prevention and control policies/procedures, education/training).

Airborne Precautions: Used in addition to Routine Practices for patients known or suspected of having an illness transmitted by the airborne route (i.e., by small droplet nuclei that remain suspended in the air and may be inhaled by others).

Alcohol-based Hand Rub (ABHR): A liquid, gel or foam formulation of alcohol (e.g., ethanol, isopropanol) which is used to reduce the number of microorganisms on hands in clinical situations when the hands are not visibly soiled. ABHRs contain emollients to reduce skin irritation and are less time-consuming to use than washing with soap and water.

Antibiotic-Resistant Organism (ARO): A microorganism that has developed resistance to the action of several antimicrobial agents and that is of special clinical or epidemiological significance.

Antiseptic: An agent that can kill microorganisms and is applied to living tissue and skin.

Audit: A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements, are implemented effectively and are suitable to achieve objectives.

Barriers: Equipment or objects used to prevent exposure of skin, mucous membranes or clothing of staff to splashes or sprays of potentially infectious materials.

Biological Indicator (BI): A test system containing viable microorganisms (e.g., spore-laden strips or vials) providing a defined resistance to a specified sterilization process. The sterilizer manufacturer will determine which BI is appropriate for the specific sterilizer. BIs shall be used according to the manufacturer's instructions and records kept of the test results. A BI shall be used to test the sterilizer each day that it is used. If BI indicates that sterilization has not been achieved, sterility of the instrument(s) cannot be assured. A process shall be in place in the event of a BI failure.

Biomedical Waste: Contaminated, infectious waste from a clinical office setting that requires treatment prior to disposal in landfill sites or sanitary sewer systems. Biomedical waste includes human anatomical waste; human and animal cultures or specimens (excluding urine and faeces); human liquid blood and blood products; items contaminated with blood or blood products that would release liquid or semi-liquid blood if compressed; body fluids visibly contaminated with blood; body fluids removed in the course of surgery, treatment or for diagnosis (excluding urine and faeces); sharps; and broken glass which has come into contact with blood or body fluid.[40,49]

Chemical Indicator: A system that responds to a change in one or more predefined process variables during the sterilization process with a chemical or physical change. Chemical indicators do not necessarily indicate that a device is sterile but do indicate that the package has been processed through a sterilization cycle. External chemical indicators are useful for distinguishing between processed and unprocessed items (e.g., tape that changes colour) and shall be applied to each package to be sterilized. An internal chemical indicator shall be placed inside each package that is undergoing sterilization.

Cleaning: The physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms). Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action.

Contact Precautions: Used in addition to Routine Practices to reduce the risk of transmitting infectious agents via contact with an infectious person.

Contamination: The presence of an infectious agent on hands or on a surface such as clothes, gowns, gloves, bedding, toys, surgical instruments, patient care equipment, dressings or other inanimate objects.

Continuum of Care: Across all health care sectors, including settings where emergency (including pre-hospital) care is provided, hospitals, complex continuing care, rehabilitation hospitals, long-term care homes, outpatient clinics, community health centres and clinics, physician offices, dental offices, non-hospital treatment facilities, offices of other health professionals, public health and home health care.

Detergent: A synthetic cleansing agent that can emulsify oil and suspend soil. A detergent contains surfactants that do not precipitate in hard water and may also contain protease enzymes (see *Enzymatic Cleaner*) and whitening agents.

Direct Care: Providing hands-on care (e.g., bathing, washing, turning patient, changing clothes, continence care, dressing changes, care of open wounds/lesions, toileting).

Disinfectant: A product that is used on surfaces or medical equipment/devices which results in disinfection of the surface or equipment/device. Disinfectants are applied only to inanimate objects. Some products combine a cleaner with a disinfectant.

Disinfection: The inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Medical equipment/devices must be cleaned thoroughly before effective disinfection can take place. See also, *Disinfectant*.

Droplet Precautions: Used in addition to Routine Practices for patients known or suspected of having an infection that can be transmitted by large infectious droplets.

Drug Identification Number (DIN): In Canada, disinfectants are regulated as drugs under the *Food and Drugs Act* and Regulations. Disinfectant manufacturers must obtain a drug identification number (DIN) from Health Canada prior to marketing, which ensures that labelling and supporting data have been provided and that it has undergone and passed a review of its formulation, labelling and instructions for use.

Engineering Controls: Physical or mechanical measures put in place to reduce the risk of infection to staff or patients (e.g., heating, ventilation and air conditioning systems, room design, placement of hand washing sinks).

Environment of the Patient: The immediate space around a patient that may be touched by the patient and may also be touched by the health care provider when providing care. The patient environment includes equipment, medical devices, furniture (e.g., bed, chair), telephone, and the bathroom that the patient uses.

Enzymatic Cleaner: A pre-cleaning agent that contains protease enzymes that break down proteins such as blood, body fluids, secretions and excretions from surfaces and equipment. Most enzymatic cleaners also contain a detergent. Enzymatic cleaners are used to loosen and dissolve organic substances prior to cleaning.

Eye Protection: A device that covers the eyes and is used by health care providers to protect the eyes when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of blood, body fluids, secretions or excretions, or within two metres of a coughing patient. Eye protection includes safety glasses, safety goggles, face shields and visors.

Facial Protection: Personal protective equipment that protect the mucous membranes of the eyes, nose and mouth from splashes or sprays of blood, body fluids, secretions or excretions. Facial protection may include a mask or respirator in conjunction with eye protection, or a face shield that covers eyes, nose and mouth.

FDA-Approved 3rd Party Reprocessor: An establishment (outside of a health care facility) that reprocesses single-use medical devices according to guidelines established by the U.S. Food and Drug Administration. There are currently no approved 3rd party reprocessors in Canada.

Fit-Check: See *Seal-Check*

Fit-Test: A qualitative or quantitative method to evaluate the fit of a specific make, model and size of respirator on an individual. Fit-testing shall be done periodically, at least every two years and whenever there is a change in respirator face piece or the user's physical condition which could affect the respirator fit.

Hand Hygiene: A general term referring to any action of hand cleaning. Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene may be accomplished using soap and running water or an alcohol-based hand rub (ABHR). Hand hygiene includes surgical hand antisepsis.

Hand Washing: The physical removal of microorganisms from the hands using soap (plain or antimicrobial) and running water.

Health Care-Associated Infection (HAI): A term relating to an infection that is acquired during the delivery of health care (also known as *nosocomial infection*).

Health Care Environment: People and items which make up the care environment (e.g., objects, medical equipment, staff, patients) of a hospital, clinic or ambulatory setting, outside the immediate environment of the patient. See also, *Environment of the Patient*.

Health Care Provider: Any person delivering care to a patient. This includes, but is not limited to, the following: physicians, dentists, nurses, respiratory therapists and other health professionals, clinical instructors and students. See also, *Staff*.

Health Care Setting: Any location where health care is provided, including settings where emergency care is provided, hospitals, complex continuing care, rehabilitation hospitals, long-term care homes, mental health facilities, outpatient clinics, community health centres and clinics, physician offices, dental offices, non-hospital treatment facilities, offices of other health professionals and home health care.

Hospital-Grade Disinfectant: A low-level disinfectant that has a drug identification number (DIN) from Health Canada indicating its approval for use in Canadian hospitals.

Hydrogen Peroxide Enhanced Action Formulation (HP-EAF): A formulation of hydrogen peroxide ranging from 0.175 to 1 per cent that contains surfactants, wetting agents and chelating agents. The resulting synergy makes it a powerful oxidizer that can rapidly achieve broad-spectrum disinfection for environmental surfaces and non-critical devices. A second concentration (2 to 7 per cent) has a sporicidal claim.

Infection: The entry and multiplication of an infectious agent in the tissues of the host. Asymptomatic or sub-clinical infection is an infectious process running a course similar to that of clinical disease but below the threshold of clinical symptoms. Symptomatic or clinical infection is one resulting in clinical signs and symptoms (disease).

Infection Prevention and Control (IPAC): Evidence-based practices and procedures that, when applied consistently in clinical office settings, can prevent or reduce the risk of infection in patients, health care providers and visitors.

Low-Level Disinfectant: A chemical agent that achieves low-level disinfection when applied to surfaces or items in the environment.

Low-Level Disinfection (LLD): Level of disinfection required when processing non-invasive medical equipment (i.e., non-critical equipment) and some environmental surfaces. Equipment and surfaces must be thoroughly cleaned prior to low-level disinfection.

Manufacturer: Any person, partnership or incorporated association that manufactures and sells medical equipment/devices under its own name or under a trade mark, design, trade name or other name or mark owned or controlled by it.

Mask: A device that covers the nose and mouth, is secured in the back and is used by health care providers to protect the mucous membranes of the nose and mouth.

Material Safety Data Sheet (MSDS): A document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with a chemical product. It also contains information on the use, storage, handling and emergency procedures all related to the hazards of the material. MSDSs are prepared by the supplier or manufacturer of the material.

Medical Equipment/Device: Any instrument, apparatus, appliance, material, or other article, whether used alone or in combination, intended by the manufacturer to be used for human beings for the purpose of diagnosis, prevention, monitoring, treatment or alleviation of disease, injury or handicap; investigation, replacement, or modification of the anatomy or of a physiological process; or control of conception.

Methicillin-Resistant *Staphylococcus aureus* (MRSA): MRSA is a strain of *Staphylococcus aureus* that has a minimal inhibitory concentration (MIC) to oxacillin of ≥ 4 mcg/ml and contains the *mecA* gene coding for penicillin-binding protein 2a (PBP 2a). MRSA is resistant to all of the beta-lactam classes of antibiotics, such as penicillins, penicillinase-resistant penicillins (e.g. cloxacillin) and cephalosporins. MRSA has been associated with health care-associated infections and outbreaks.

N95 Respirator: A personal protective device that is worn on the face and covers the nose and mouth to reduce the wearer's risk of inhaling airborne particles. A NIOSH-certified N95 respirator filters particles one micron in size, has 95 per cent filter efficiency and provides a tight facial seal with less than 10 per cent leak.

Noncritical Medical Equipment/Device: Equipment/device that either touches only intact skin (but not mucous membranes) or does not directly touch the patient. Reprocessing of noncritical equipment/devices involves cleaning and may also require low-level disinfection (e.g., blood pressure cuffs, stethoscopes).

Non-Hospital Treatment Facilities: Premises where procedures are performed which required approval from the College of Physicians and Surgeons of Saskatchewan and which are subject to College regulatory bylaw 26.1. In general, College approval is required for a facility where a facility utilizes general anaesthesia, sedation requiring the monitoring of vital signs, injections to produce a major nerve block, or spinal, epidural, or intravenous regional block, surgical or diagnostic procedures with risk of bleeding from major vessels, gas embolism, perforation of internal organs and other life-threatening complications or requiring sterile precautions to prevent blood-borne, deep, closed cavity or implant-related infections, or a facility where assisted reproductive technology procedures are performed. The bylaw is available at *http://www.cps.sk.ca/CPSS/Legislation__ByLaws__Policies_and_Guidelines/Legislation_and_Bylaws.aspx?Legislation_BylawsCCO=2*

Ontario Agency for Health Protection and Promotion (OAHPP): An arm's-length government agency dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. OAHPP was created by legislation in 2007 and began operations in July 2008 with a mandate to provide scientific and technical advice to those working to protect and promote the health of Ontarians. Its vision is to be an internationally recognized centre of expertise dedicated to protecting and promoting the health of all Ontarians through the application and advancement of science and knowledge. OAHPP's operating name is Public Health Ontario (PHO).

Organization: The owner, operator and other persons responsible for the management of a health care facility or setting.

Personal Protective Equipment (PPE): Clothing or equipment worn by staff for protection against hazards.

Physical Indicator: A mechanical method of monitoring time, temperature and pressure of a sterilizer that is generally built into the sterilizer.

Point-of-Care: The place where three elements occur together: the patient, the health care provider and care or treatment involving patient contact.

Provincial Infectious Diseases Advisory Committee (PIDAC): A multidisciplinary scientific advisory body that provides to the Chief Medical Officer of Health evidence-based advice regarding multiple aspects of infectious disease identification, prevention and control. More information is available at: *www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/PIDAC/Pages/PIDAC.aspx*

Public Health Agency of Canada (PHAC): A national agency which promotes improvement in the health status of Canadians through public health action and the development of national guidelines. The PHAC website is located at: *www.phac-aspc.gc.ca/index-eng.php*.

Public Health Ontario (PHO): Public Health Ontario is the operating name for OAHPP. The PHO website is located at: *www.publichealthontario.ca*.

Reprocessing: The steps performed to prepare reusable medical equipment for use (e.g., cleaning, disinfection, sterilization).

Respirator: See *N95 respirator*

Respiratory Etiquette: Personal practices that help prevent the spread of bacteria and viruses that cause acute respiratory infections (e.g., covering the mouth when coughing, care when disposing of tissues).

Risk Assessment: An evaluation of the interaction of the health care provider, the patient and the patient environment to assess and analyze the potential for exposure to infectious disease.

Routine Practices (RP): The system of IPAC practices to be used with all patients during all care to prevent and control transmission of microorganisms in all clinical office settings. For a full description of Routine Practices, refer to PIDAC's *Routine Practices and Additional Precautions for all Health Care Settings*.[2]

Safety-engineered Medical Device: A non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces exposure incident risk. Safety-engineered devices shall be licensed by Health Canada.

Saskatchewan Prevention and Control Program: The program established by the Government of Saskatchewan to provide information to Infection Control Practitioners, Medical Health Officers, other healthcare professionals, and the public. More information is available at *https://www.saskatchewan.ca/government/health-care-administration-and-provider-resources/treatment-procedures-and-guidelines/infection-prevention-and-control-program*

Seal-Check: A procedure that the health care provider must perform each time an N95 respirator is worn to ensure it fits the wearer's face correctly to provide adequate respiratory protection. The health care provider shall receive training on how to perform a seal-check correctly.

Sharps: Objects capable of causing punctures or cuts (e.g., needles, lancets, sutures, blades, clinical glass).

Staff: Anyone conducting activities in settings where health care is provided, including but not limited to, health care providers. See also, *Health Care Providers*.

Surgical Hand Antisepsis: The preparation of hands for surgery, using either antimicrobial soap and water or an alcohol-based hand rub, preferably with sustained antimicrobial activity.

Surgical Hand Rub: Surgical hand preparation with an alcohol-based hand rub that has sustained antimicrobial activity.

Surgical Hand Scrub: Surgical hand preparation with antimicrobial soap that has sustained antimicrobial activity and water.

Vancomycin-Resistant Enterococci (VRE): Strains of *Enterococcus faecium* or *Enterococcus faecalis* that have a minimal inhibitory concentration (MIC) to vancomycin of ≥ 32 mcg/ml. and/or contain the resistance genes *vanA* or *vanB*.

Workplace Hazardous Materials Information System (WHMIS): Canada's national hazard communication standard. The key elements of the system are cautionary labelling of containers of WHMIS 'controlled products', the provision of Material Safety Data Sheets (MSDSs) and staff education and training programs.

II. Summary of Mandatory Practices and Best Practice Recommendations for Clinical Office Practice

These summary tables are intended to assist with self-assessment internal to the clinical office setting for quality improvement purposes. See complete text for rationale.

Summary of Legislated Mandatory Practices

Mandatory Practice		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
1.	The employer, supervisor and the worker have duties under the *Occupational Health and Safety Act.*					
2.	Employers shall uphold WHMIS standards in their workplace. Every physician should therefore familiarize himself or herself with the legislation.					
3.	Employers shall ensure that the setting is a safe work environment that protects patients, staff and themselves and is in accordance with federal and provincial legislation.					

Mandatory Practice		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
4.	Regular education (including orientation and continuing education) and support shall be provided in clinical office practices to help staff consistently implement appropriate infection prevention and control (IPAC) practices.					
5.	Clinical office settings that use respirators shall have a respiratory protection program in place. The program shall include a health assessment, N95 respirator fit-testing and staff training in the proper way to perform a seal-check.					
6.	There shall be a waste management program that is compliant with current legislation and national standards.					
7.	Biomedical waste storage areas shall be locked, except where authorized staff are on hand.					
8.	All external transportation of infectious waste shall comply with Transport Canada's *Transportation of Dangerous Goods Act and Regulation*.					
9.	Waste shall be transported by a certified waste hauler who provides a certificate of approval. Trained, non-licensed personnel may transport small amounts of waste to a hospital or laboratory for disposal.					
10.	In Saskatchewan, all health care settings shall use safety-engineered needles, according to *The Occupational Health and Safety Regulations* available at http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations					
11.	Sharps shall be managed according to current legislation and national standards.					

Mandatory Practice		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
12.	When developing new clinical space, requirements from the Canadian Standards Association (CSA) shall be met.					
13.	The reprocessing method, level and products required for medical equipment/devices shall reflect the intended use of the equipment/device and the potential risk of infection involved in the use of the equipment/device.					
14.	The sterilization process shall be tested, monitored with results recorded and audited.					
15.	All sterilizers shall be tested for performance using physical, chemical and biological monitors and indicators.					
16.	A procedure shall be established for the recall of improperly reprocessed medical equipment/devices.					
17.	The clinical office setting shall have ventilation systems appropriate to the process/product being used, to protect staff from toxic vapours.					
18.	When reprocessing medical equipment, requirements from the Canadian Standards Association (CSA) shall be met.					
19.	Use of chemical disinfectants shall comply with *The Occupational Health and Safety Regulations*. Occupational Health and Safety Act.					

Summary of Best Practice Recommendations

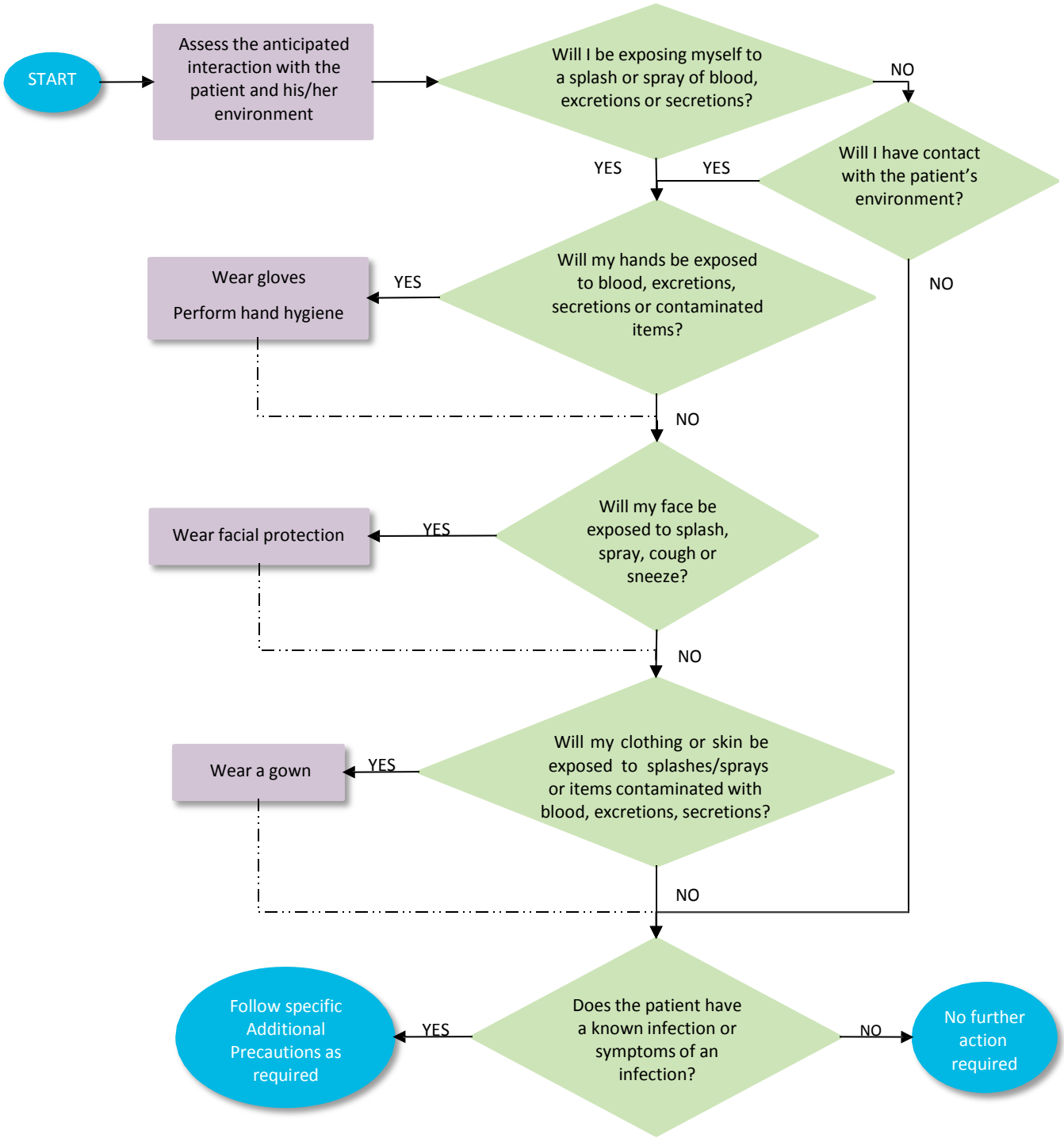
Recommendation - **Must** indicates best practice, i.e., the standard of care based on current recommendations in the medical literature - **Should** indicates a recommendation or that which is advised but not mandatory		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
1.	All health care providers should follow Routine Practices for all patients during all care in all clinical office settings.					
2.	Hand hygiene should be practiced according to the *4 Moments for Hand Hygiene*, as described in the CPSI *Hand Hygiene Education Program.*					
3.	Alcohol-based hand rub should be used as the preferred agent for cleaning when hands are not visibly soiled.					
4.	Soap and water must be used for cleaning when hands are visibly soiled. If running water is not available, moistened towelettes should be used to remove visible soil, followed by alcohol-based hand rub.					
5.	Hand washing sinks should be dedicated to that purpose and not used for any other purpose, such as equipment cleaning or disposal of waste fluids.					
6.	Rings should not be worn. If worn, the ring must be a smooth band with no projections.					
7.	Health care providers must not wear artificial nails, nail enhancements, hand or arm jewellery.					
8.	Alcohol-free, waterless antiseptic agents should NOT be used as hand hygiene agents in any health care setting.					

Recommendation ' **Must** indicates best practice, i.e., the standard of care based on current recommendations in the medical literature ' **Should** indicates a recommendation or that which is advised but not mandatory		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
9.	Gloves should be worn if it is anticipated that hands will be in contact with blood, body fluids, secretions or excretions.					
10.	A gown should be worn if it is anticipated that arms and/or clothing will be in contact with blood, body fluids, secretions or excretions.					
11.	Facial protection should be worn if it is anticipated that the mucous membranes of the eyes, nose and/or mouth will be in contact with blood, body fluids, secretions or excretions.					
12.	Additional Precautions should be applied in addition to Routine Practices for patients with suspected or identified infectious aetiologies.					
13.	A medication vial must never be re-entered nor medication removed from a vial with a syringe or needle that has been used for a patient.					
14.	Syringes must not be reused.					
15.	Single dose vials must not be reused and leftover contents of single dose vials must not be pooled.					
16.	Syringes must not be pre-filled for later use.					
17.	Opened multidose medication vials should be discarded according to the manufacturer's instructions or 28 days after opening, whichever is shorter.					
18.	The vaccine manufacturer and the Ministry of Health instructions for vaccine storage and handling must be followed. Those are available in Chapter 9 – Management of Biological Products http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter9.pdf.					

Recommendation ▪ **Must** indicates best practice, i.e., the standard of care based on current recommendations in the medical literature ▪ **Should** indicates a recommendation or that which is advised but not mandatory		Compliant	Partial Compliance	Non-compliant	Action Plan	Accountability
19.	The clinical office setting should have cleaning practices in place appropriate to the clinical setting.					
20.	Critical and semi-critical medical equipment/devices labelled as single-use must not be reprocessed and re-used unless the reprocessing is done by a licensed reprocessor.					
21.	In surgical settings, hand hygiene preparations that are formulated for surgery must be used.					
22.	There should be mechanisms in place in clinical office settings for ensuring a healthy workplace, appropriate staff immunizations and protocols for exposure to infectious diseases, including a blood-borne pathogen exposure protocol.					

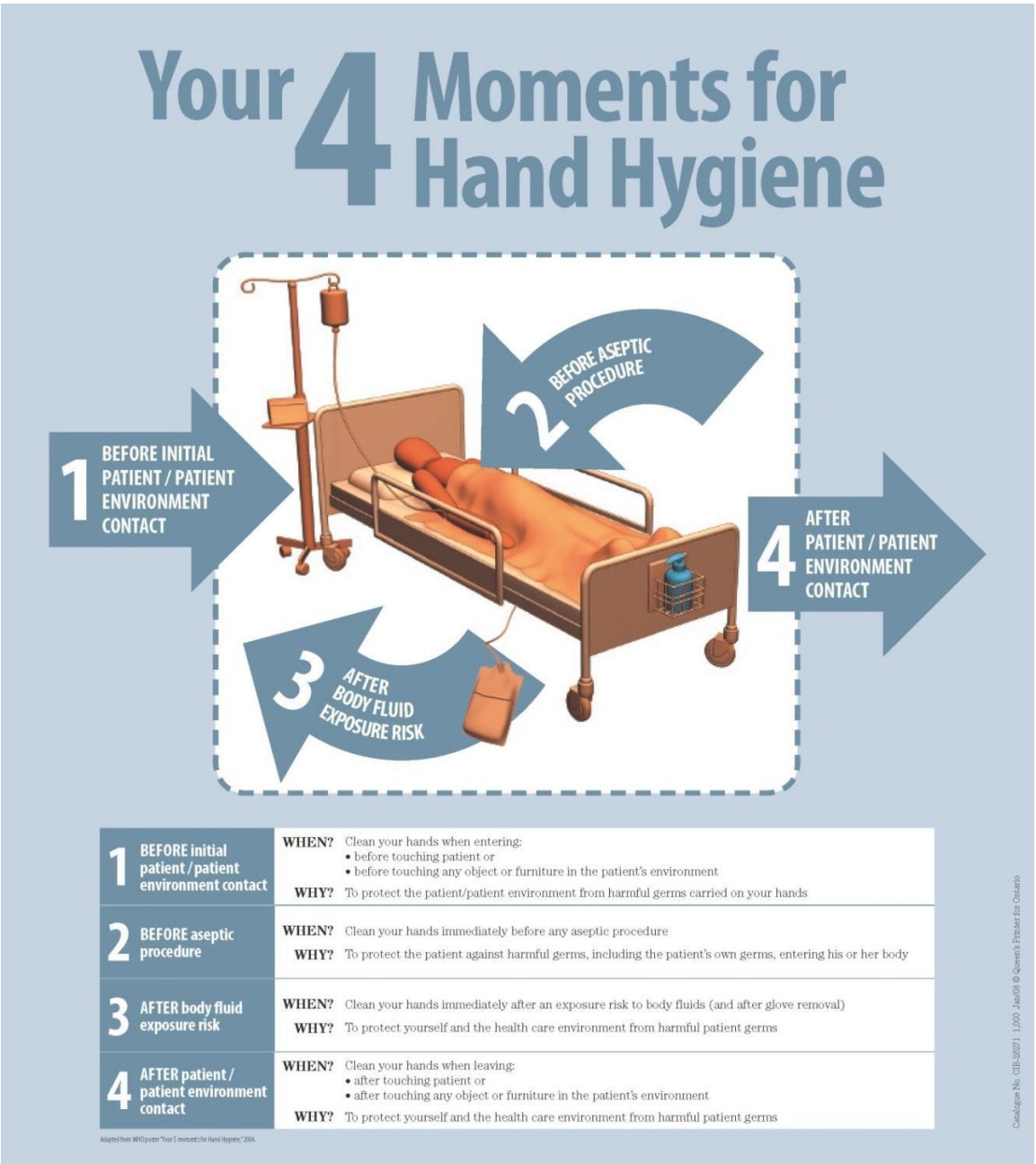
III. Appendixes

Appendix A: Risk Algorithm to Guide PPE Use



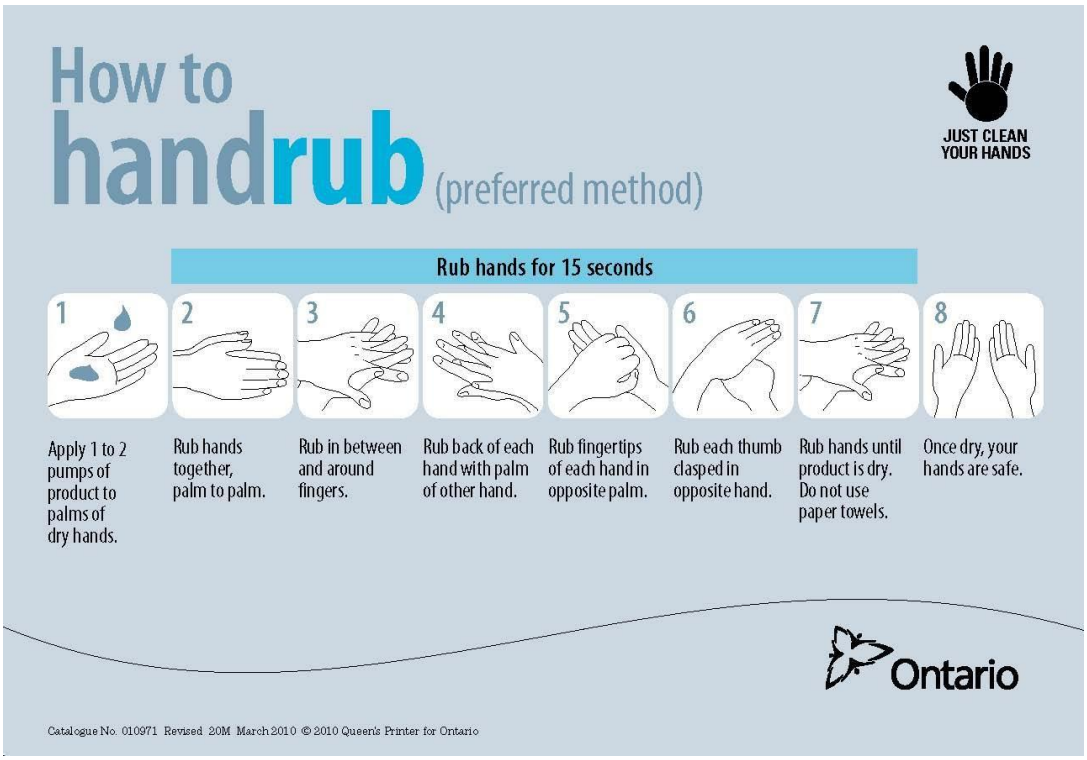
Appendix B: Canadian Patient Safety Institute's *Hand Hygiene Education Program*

Reproduced with permission from *Just Clean Your Hands*, Ontario's evidence-based hand hygiene program. Available at: *www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/JustCleanYourHands/Pages/Just-Clean-Your-Hands.aspx*.



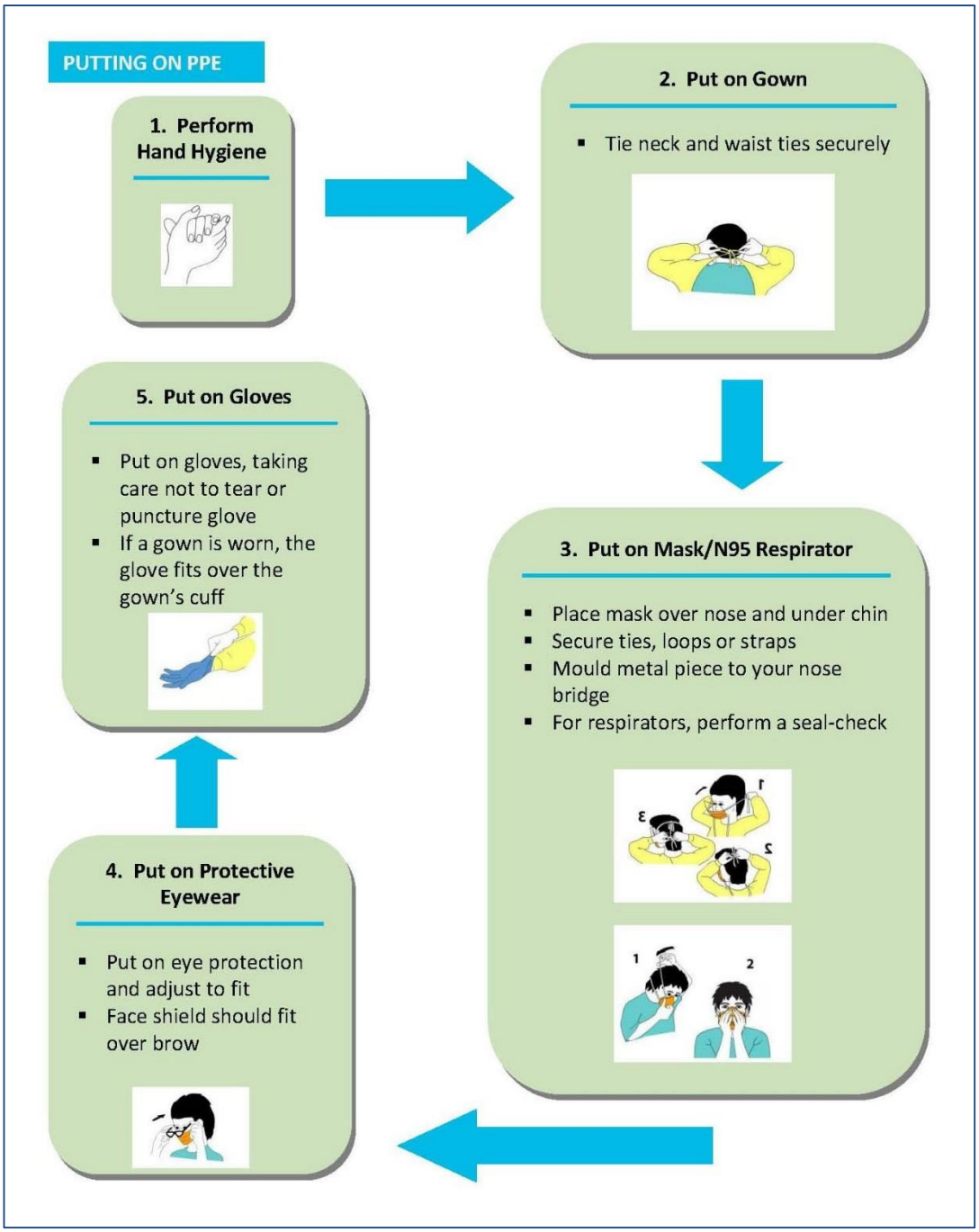
Appendix C: Hand Hygiene Methods

Reproduced with permission from *Just Clean Your Hands*, Ontario's evidence-based hand hygiene program. Available at: *www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/JustCleanYourHands/Pages/Just-Clean-Your-Hands.aspx.*



Appendix D: Putting On and Taking Off Personal Protective Equipment (PPE)

Source: PIDAC's *Routine Practices and Additional Precautions for All Health Care Settings*, available at: *www.publichealthontario.ca/en/eRepository/RPAP_All_HealthCare_Settings_Eng2012.pdf*



TAKING OFF PPE

1. Remove Gloves

- Remove gloves using a glove-to-glove/skin-to-skin technique
- Grasp outside edge near the wrist and peel away, rolling the glove inside-out
- Reach under the second glove and peel away
- Discard immediately into waste receptacle

2. Remove Gown

- Remove gown in a manner that prevents contamination of clothing or skin
- Starting at the neck ties, the outer, 'contaminated', side of the gown is pulled forward and turned inward, rolled off the arms into a bundle, then discarded immediately in a manner that minimizes air disturbance

3. Perform Hand Hygiene

4. Remove Eye Protection

- Arms of goggles and headband of face shields are considered to be 'clean' and may be touched with the hands
- The front of goggles/face shield is considered to be contaminated
- Remove eye protection by handling ear loops, sides or back only
- Discard into waste receptacle or into appropriate container to be sent for reprocessing
- Personally-owned eyewear may be cleaned by the individual after each use

5. Remove Mask/N95 Respirator

- Ties/ear loops/straps are considered 'clean' and may be touched with hands
- The front of the mask/respirator is considered to be contaminated
- Untie bottom tie then top tie, or grasp straps or ear loops
- Pull forward off the head, bending forward to allow mask/respirator to fall away from the face
- Discard immediately into waste receptacle

6. Perform Hand Hygiene

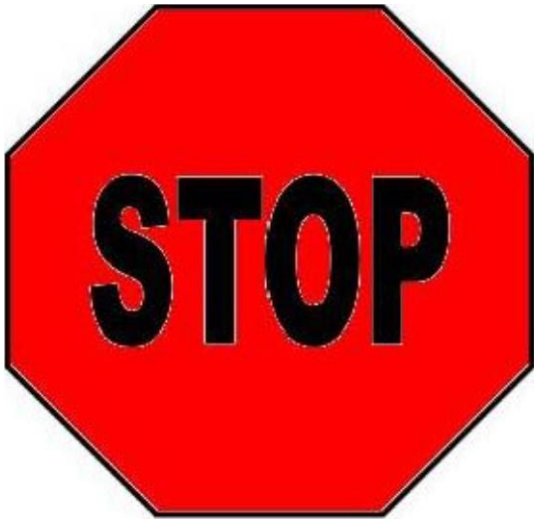
Appendix E: Sample Signage for Reception Areas

1. Cover Your Cough

Source: Public Health Ontario **Alternate option:** *http://www.cdc.gov/flu/protect/covercough.htm*

2. Self-Screening Sign

Source: PIDAC'S *Annex 8: Best Practices for Prevention of Transmission of Acute Respiratory Infection in All Health Care Settings,* available at:
www.publichealthontario.ca/en/eRepository/P/DAC- IPC Annex 8 Prevention Transmission ARt 2013.pdf



Read Carefully

Do you have a NEW or WORSE cough or shortness of breath?

Are you feeling feverish?

Do you have vomiting and/ or diarrhea?

If the answer to ANY of these questions is YES:

Clean your hands

AND

If you have a cough, put on a mask or use a tissue to cover your mouth

AND

Tell the receptionist or nurse right away

Appendix F: Reportable Diseases in Saskatchewan

Available at: *http://www.qp.gov.sk.ca/documents/english/Regulations/Regulations/p37-1r11.pdf*.

Report diagnosed or suspect cases. Diseases in Category 1 are to be reported as soon as is practicable, and in any event not later than 48 hours after the opinion is formed that the person is infected with or is a carrier of the disease.

Diseases in Category II are to be reported as soon as is practicable, and in any event not later than 48 hours after the opinion is formed that the person is infected with or is a carrier of the disease. There are additional obligations, including an obligation to counsel the patient.

If a person is requested to handle the body of a deceased person infected with a Specified Communicable Disease, that person is required to report to a medical health officer and take precautions specified in the regulations.

Category I Communicable Diseases

1. acute flaccid paralysis
2. amoebiasis
3. anthrax
4. botulism
5. brucellosis
6. campylobacteriosis
7. chickenpox
8. cholera
9. Clostridium difficile infection
10. congenital rubella syndrome
11. coronavirus infections associated with severe acute respiratory syndrome
12. Creutzfeldt-Jakob disease, all forms and other transmissible spongiform encephalopathies (TSE)
13. cryptosporidiosis
14. cyclosporiasis
15. diphtheria
16. encephalitis - vector borne
17. food poisoning of animal, bacterial, viral or chemical origin, not including diseases otherwise listed
18. giardiasis
19. Haemophilus influenzae invasive disease - all typeable and non-typeable strains
20. haemorrhagic fevers – viral
21. hantavirus infections
22. hepatitis A
23. Human parvovirus infection
24. infections associated with antimicrobial resistant organisms
25. influenza - lab confirmed
26. legionellosis

27. leprosy

28. leptospirosis
29. listeriosis
30. Lyme disease
31. malaria
32. measles
33. meningococcal invasive disease
34. mumps
35. paratyphoid fever
36. pertussis
37. plague
38. pneumococcal invasive disease
39. poliomyelitis
40. psittacosis
41. rabies
42. rickettsial diseases
43. rubella
44. salmonellosis, excluding typhoid and paratyphoid fevers
45. severe acute respiratory illness
46. shigellosis
47. smallpox
48. streptococcal A - invasive disease
49. streptococcal B - neonatal disease
50. tetanus
51. toxoplasmosis
52. trichinosis
53. tularemia
54. typhoid fever
55. verotoxigenic Escherichia coli infections
56. West Nile virus infections
57. yellow fever
58. Yersiniosis.

TABLE 2 [Subsection 3(2)] Category II Communicable Diseases

1. acquired immune deficiency syndrome
2. chancroid
3. Chlamydia trachomatis infections excluding lymphogranuloma venereum
4. gonococcal infections
5. granuloma inguinale
6. hepatitis B

7. hepatitis C
8. hepatitis D
9. hepatitis - other viral
10. human immunodeficiency virus infection
11. human T lymphotropic virus, Types I and II
12. lymphogranuloma venereum
13. neonatal/congenital herpes
14. syphilis
15. tuberculosis

TABLE 3 [Section 4]

Specified Communicable Diseases

anthrax
Creutzfeldt-Jakob disease,
classical or new variant haemorrhagic fevers – viral
plague
smallpox

Appendix G: Methicillin-Resistant *Staphylococcus aureus* in the Community (CA-MRSA)

Source: Ministry of Health and Long-term Care. Provincial Infectious Diseases Advisory Committee (PIDAC), Queen's Printer for Ontario, January 2011.

Definition

- *Staphylococcus aureus* resistant to all of the beta- lactam classes of antibiotics (such as penicillins, penicillinase-resistant penicillins (e.g., cloxacillin) and cephalosporins.
- Community-associated or CA-MRSA refers to strains linked to colonization and transmission in the community.

Epidemiology

- CA-MRSA detection is growing globally.
- Higher risk populations vary geographically and include: young adults, children <2 years, athletes in contact sports, those with chronic dermatological conditions, those living in
- congregate or overcrowded conditions or of lower
- socioeconomic status, injection drug users, patients with recent or recurrent antibiotic use, aboriginals, men who have sex with men, military personnel, and residents of correctional facilities.
- CA-MRSA may still occur in persons with no apparent risk factors.
- In some areas of the United States, the majority of skin and soft tissue *S. aureus* infections are CA-MRSA.
- The epidemiology and management of MRSA in the community may evolve quickly. This was the case in parts of the United States. Close monitoring of the local epidemiology, if available, is important.

Transmission and Virulence

- Transmission occurs through direct contact between persons or through contact with contaminated objects or surfaces.
- Some CA-MRSA strains produce toxins associated with more severe systemic and local disease, however the aetiology of MRSA's increased virulence in the community remains an ongoing debate.

Diagnosis and Treatment

(*See Algorithm*)

Mild and Moderate Disease Presentation

- Minor skin and soft tissue infections (SSTIs) do not need to be routinely cultured for MRSA.
- Cultures may be indicated if MRSA is suspected based on patient characteristics (see algorithm).
- Cornerstones of CA-MRSA management are incision and drainage of purulent lesions and proper follow-up wound care.
- Systemic antibiotic treatment IS NOT recommended for minor SSTIs or small abscesses without cellulitis except in young infants and the immuno-compromised.
- Systemic antibiotic treatment is recommended for small abscesses with cellulitis and for larger abscesses (see algorithm for choice of antibiotics).

Severe or Unusual Disease Presentation

- Extensive cellulitis or multiple abscesses with associated systemic features.
- Necrotizing pneumonia, often with an influenza- like prodrome leading to shock or respiratory failure.
- Endocarditis
- Other presentations of MRSA may include osteomyelitis, pyomyositis, necrotizing fasciitis, septic thrombophlebitis, and sepsis syndrome.

Prevention of MRSA Transmission

- Requires consistent application and reinforcement of good hygienic practices and judicious use of antibiotics.
- If skin lesions are present instruct the patient to:
  - Cover lesions to contain drainage or exudates;
  - Not share personal products that are in contact with the skin; for example: deodorant, razors, toothbrushes, towels, nail files, combs and brushes
  - Not share unwashed towels;
  - Discard contaminated waste, including used dressings, in a safe and timely manner (e.g., into a garbage pail lined with a plastic bag, so the bag can be removed and tied without re- contaminating hands);
  - Wash hands with soap and water or use alcohol-based hand rub after touching any skin lesions and potentially infected materials, such as soiled dressings.

- After the patient leaves the examining room, immediately wipe all surfaces and patient care equipment (blood pressure cuff, stethoscope, etc.) that have been in contact with the patient, with a chlorine bleach solution of 1:100 concentration, or an approved hospital grade disinfectant such as a quaternary ammonium or hydrogen peroxide solution.

- Hospital grade disinfectant wipes with approved hospital grade disinfectants in easy dispense containers are also available (for more information, contact your local public health unit or Regional Infection Control Professional).

Screening and Decolonization

- Routine screening for colonization of nares or other sites is NOT recommended.
- Decolonization should be considered only in exceptional circumstances, such as recurrent infections and transmission within a family. This should be done in consultation with an infectious disease specialist.

Algorithm for Outpatient Management of Skin and Soft Tissue Infections (SSTIs) in Healthy Adults[1]

Does One or More of the Following Apply to Your Patient?

- Belongs to a "population at higher risk" (*see below*)
- Recurrent abscesses/household clusters of abscesses
- Poor response to beta-lactam classes of antibiotics (e.g., penicillins, cloxacillin, cephalosporins)
- History of recent antibiotic treatment
- Previous MRSA infection

Populations at Higher Risk

- Children, especially under 2 years
- Classroom contacts of an MRSA case
- Athletes, particularly in contact sports
- Persons with chronic skin disorders
- Men who have sex with men
- Injection drug users
- Persons of lower socioeconomic status
- Persons living in congretate or crowded settings
- Persons exposed to colonized pets, including veterinary workers
- Aboriginals
- Persons with MRSA carriage

If YES, suspect MRSA

Culture IF:

- CA-MRSA suspected based on above criteria, or
- Recurrent infection, two or more in <6 months, or
- Known spread to others, or
- Severe infection, including hospitalization, or
- Not responding to usual treatment.

Mild disease (including confirmed MRSA)
(Folliculitis, furuncles, or small abscesses without cellulitis):

- DO NOT give systemic antibiotics for minor SSTIs or small abscesses
- DO treat with one or more of the following:
  - Local therapy using hot soaks
  - Incision and drainage without antimicrobial therapy
  - Topical mupirocin or bacitracin

Moderate disease (suspected or confirmed MRSA[2])
(cellulitis or moderate abscesses without systemic features):

- TMP-SMX DS, one tablet po q12h

OR

- Doxycycline 100 mg po q12h[3]

OR

- Clindamycin 150-450 mg po q6h (only if susceptibility is confirmed)
- Modify treatment as per antimicrobial susceptibility testing
- Close follow-up of clinical outcomes is imperative

Severe disease (suspected or confirmed MRSA)
(extensive cellulitis, large or multiple abscesses, associated systemic features):

Treat in consultation with an infectious disease specialist

If NO, suspect methicillin-sensitive *S.aureus* (MSSA)

Do not culture IF:
Minor SSTI or no history of MRSA

Mild, moderate or severe MSSA:
Empiric antibiotic therapy based on clinical severity and local susceptibilities

NOTES:

1. See PIDAC fact sheet – Methicillin Resistant *Staphylococcus aureus* in the Community (CA-MRSA)

2. All doses listed are for adults

3. Do not treat pregnant women or children less than 8 years of age with doxycycline

Note: treatment should be modified as per antimicrobial susceptibility testing.

Appendix H: Checklist for Safe Medication Practices

Medication Room/Area

- There are facilities for hand hygiene in the medication room/area.
- A puncture-resistant sharps container is accessible at point-of-use.
- There is a dedicated medication/vaccine refrigerator. Food/specimens are not stored in the medication refrigerator.
- Temperatures of refrigerators and freezers used to store vaccines are checked twice daily and recorded.
- There is an alarm on the medication/vaccine refrigerator to warn when the temperature falls outside the recommended range.

Medications and Vials

- Single dose vials are not reused. Leftover contents are not combined or pooled.
- A sterile syringe and needle/cannula is used when entering a vial.
- All needles and syringes are single patient use only.
- Multidose vials are not used wherever possible.

When the use of multidose vials cannot be avoided, the following requirements are followed each time these vials are used:

- Each vial is used for a single patient whenever possible and is marked with the patient's name and date of entry, and is discarded at the appropriate time. Vials not marked with the patient's name and original entry date are discarded immediately.
- The vials are accessed aseptically on a clean surface and away from dirty, used or potentially contaminated equipment.
- The diaphragms of the vials are scrubbed using friction and 70% alcohol, and are allowed to dry before inserting a new needle and a new syringe.
- A needle is not left in a vial to be attached to a new syringe.
- The vials are discarded immediately when sterility is questioned or compromised.
- Opened vials are discarded according to the manufacturer's instructions or within 28 days, whichever is shorter, unless the vials are used for a single patient (e.g., allergy shots), the manufacturer's instructions state that the vials can be used for longer than 28 days, AND all of the above requirements are followed.

Vaccines

- There are policies and procedures for handling and storage of vaccines.
- There is a thermometer in the refrigerator.
- Temperatures of refrigerators used to store vaccines are checked twice daily and recorded.
- Vaccines are:
    - kept refrigerated at a temperature between 2°C and 8°C
    - kept frozen at a temperature of -15°C
    - protected from light if required
    - not stored in refrigerator doors
- If refrigerator temperatures are less than 2°C or greater than 8°C, report immediately to the public health unit for assessment of vaccine potency.

Appendix I: Recommended Minimum Cleaning and Disinfection Level and Frequency for Medical Equipment

Source: PIDAC's *Best Practices for Cleaning, Disinfection and Sterilization in all Health Care Facilities*, available at: *www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf*.

The table below outlines suggested decontamination procedures for selected clinical office equipment and instruments. The availability and utilization of institutional central sterilization departments by some physicians may influence the choice of reprocessing for some critical and semi-critical items. **Remember, all items must be cleaned prior to disinfection or sterilization.**

*** NOTE: It is important to follow the manufacturer's instructions regarding cleaning and disinfection of medical equipment.**

Item	Minimum Cleaning and Disinfection Level: HLD = Clean + High-level Disinfection LLD = Clean + Low- level Disinfection ST - Clean +	Minimum Frequency	Remarks
Acupuncture Needle	Disposable or ST	▪ between patients	▪ disposable preferred
Alligator Forceps	ST	▪ between patients	
Biopsy Equipment	ST	▪ between patients	▪ includes biopsy equipment associated with endoscopy
Blood Pressure Cuff	LLD	▪ between patients	
Colposcopy Equipment	ST	▪ when soiled ▪ between patients	
Computer Keyboard	LLD	▪ daily	▪ wipe with a disinfectant wipe or cloth dampened with disinfectant (do not use sprays) ▪ ideally, cover keyboards with a cleanable skin or plastic cover
Contact Lenses	**See Eye Equipment**		

Item	Minimum Cleaning and Disinfection Level: HLD = Clean + High-level Disinfection LLD = Clean + Low- level Disinfection ST - Clean + Sterilization	Minimum Frequency	Remarks
Diagnostic Imaging	LLD	▪ when soiled	
Portable - Machine			
Portable - portable grid/ film cassette	LLD	▪ between patients if not covered	▪ ideally should be covered (e.g., pillowcase)
Mammography - paddles	LLD	▪ between patients	
ECG			
Machine and Cables	LLD	▪ between patients	
Electrocautery Tips	ST	▪ between patients	
Endocervical Curettes	ST	▪ between patients	
Endoscopes, flexible	HLD	▪ between patients	▪ endoscopes that enter sterile cavities or tissues require sterilization
Examination Table	LLD	▪ between patients and when soiled	
Eye Equipment	ST	▪ between patients	▪ includes soft contact lenses
Fish Hook Cutters	ST	▪ between patients	
Foot Care/Podiatry Equipment	ST	▪ between patients	
Glucometer	LLD	▪ between patients	
Intravenous (IV)		▪ between patients	
Pumps, Poles, Warmers	LLD	▪ when soiled	
Keyboard	**See Computer Keyboard**		
Kimura Spatula	Disposable or ST	▪ between patients	▪ disposable preferred
Laryngoscope			
Handle	LLD	▪ between patients	
Blade	HLD	▪ between patients	

Item	Minimum Cleaning and Disinfection Level: HLD = Clean + High-level Disinfection LLD = Clean + Low- level Disinfection ST - Clean + Sterilization	Minimum Frequency	Remarks
Laryngeal Mirror	HLD or ST	▪ between patients	
Neurologic Test Pin	Disposable or ST	▪ between patients	disposable preferred
Ophthalmoscope	LLD	▪ between patients	
Orthopedic Equipment Crutches, traction etc.	LLD	▪ between patients	
Otoscope			
Handle	LLD	▪ between patients	
Ear speculum	Disposable or HLD	▪ between patients	
Otoacoustic Emission (OAE) screening tips	Disposable or HLD	▪ between patients	
Oximeter Probes	LLD	▪ daily and between patients	▪ if single-use, discard after use ▪ refer to manufacturer's instructions for cleaning
Peak Flow Meters	HLD	▪ between patients	▪ use disposable mouthpiece and disposable filters
Pessary and Diaphragm Fitting Rings	HLD	▪ between patients	
Podiatry Equipment – see Foot Care			
Reflex Hammer	LLD	▪ between patients	
Respiratory Therapy equipment	HLD	▪ between patients or disposable	
Scales	LLD	▪ daily and when soiled	
Scissors (bandage)	LLD	▪ between patients	
Specula	Disposable or HLD	▪ between patients or disposable	▪ disposable preferred

Item	Minimum Cleaning and Disinfection Level: HLD = Clean + High-level Disinfection LLD = Clean + Low- level Disinfection ST - Clean + Sterilization	Minimum Frequency	Remarks
Stethoscope	LLD	▪ between patients	▪ ideally use own stethoscope ▪ if shared, disinfect ear pieces
Stitch Cutter	Disposable or ST	▪ between patients	▪ disposable preferred
Suture Removal Equipment	Disposable or ST	▪ between patients	▪ disposable preferred
Thermometer	LLD	▪ between patients	▪ if using disposable tips, discard after use
Tonometer Foot Plate	HLD	▪ between patients	
Tourniquet	Disposable or LLD	▪ between patients or disposable	▪ preferably dedicate to patient ▪ discard when soiled/ cracked
Toys	LLD	▪ daily and when soiled	▪ do not use phenolics disinfectants
Transport Equipment		▪ between patients	
Walker	LLD		
Wheelchair			
Ultrasound Transducers		▪ between patients	▪ use high-level disinfection for transducer probes if they touch mucous membranes or non-intact skin
Handle and Cable	LLD		
External	LLD		
Probes	HLD		
Vaginal Tenaculum	ST	▪ between patients	
Walker	**See Transport Equipment**		
Wheelchair	**See Transport Equipment**		

Appendix J: Checklist for Office Infection Prevention and Control

Staff

- There are written Infection Prevention and Control (IPAC) policies and procedures
- Staff are aware of the location of IPAC policies and procedures
- Staff follow IPAC policies and procedures
- Staff are immunized appropriately
- If patients with active pulmonary tuberculosis are routinely seen, N95 respirators are available and used appropriately and staff receive annual TB skin testing
- Staff who wear N95 respirators are fit-tested

Facility

- There are waste receptacles available in each room
- There is a waiting area for patients that need to be segregated for acute infection
- Gloves are available and used appropriately
- Masks are available and used appropriately
- There is a functional separation of clean storage and dirty utility areas

Reception Area

- Reception staff are protected from patients by a barrier
- There is infection control signage at the entrance of the office/clinic
- A telephone screening tool has been provided and is being used appropriately
- There is infection control signage at the reception desk
- There are alcohol-based hand rub and masks available at reception, with signage for appropriate use
- There are tissue boxes available
- Toys are properly cleaned

Examination Rooms

- There are hand washing sinks with liquid soap available in each clinic area
- Alcohol-based hand rub is available in each examination room
- Puncture-resistant sharps containers are provided in each exam room or clinic area
- Sharps are discarded directly into sharps containers
- Sharps containers are not overfilled past the fill line
- PPE is available and is worn when necessary and appropriately
- Supplies (other than cleaning supplies) are not stored under, or on counters adjacent to, hand washing sinks
- If patients with active pulmonary tuberculosis are routinely seen, an appropriately ventilated examination room is available

Environmental Cleaning

- There are procedures for cleaning the office setting. If cleaning is contracted out, the cleaning contractor has procedures for cleaning the office setting
- Approved and appropriate disinfectant products are available for patient surfaces, equipment and instruments
- Approved hospital-grade cleaning and disinfecting agents are used for environmental cleaning
- Clinic/examination areas and high touch surfaces are cleaned and disinfected daily. Areas in direct contact with the patient are cleaned between patients.
- Other office areas are cleaned at least weekly
- Medical equipment used on multiple patients is cleaned between patients
- There is a procedure for cleaning up spills of body fluids
- Waste is segregated and managed according to provincial regulations and local bylaws

Appendix K: Reprocessing Options for Clinical Offices/Clinics

Source: PIDAC's *Best Practices for Cleaning, Disinfection and Sterilization in All Health Care Facilities*, available at: *www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf*.

Chemical Agent	Action*	Application	Exposure Time	Comments
Sterilization				
Steam Sterilization Small table top sterilizers Gravity displacement sterilizers High-speed vacuum sterilizers	ST	First choice for critical equipment/ devices ▪ Heat tolerant instruments and accessories ▪ Linen ▪ Liquids ▪ Foot care/podiatry equipment	Time varies with temperature, type of material and whether the instrument is wrapped or not.	▪ Cannot use for heat or moisture sensitive equipment/devices ▪ Unsuitable for anhydrous oils, powders, lensed instruments, heat and moisture sensitive materials ▪ Some tabletop sterilizers lack a drying cycle
Hydrogen Peroxide Enhanced Action Formulation (2%)	ST	▪ Heat sensitive equipment/devices	Sterilization is achieved after 6 hours at 20°C.	▪ Contraindicated for use on copper, brass, carbon-tipped devices and anodised aluminium ▪ Cannot monitor for sterility
Hydrogen Peroxide Enhanced Action Formulation (7%)	ST	▪ Heat sensitive equipment/devices	Sterilization is achieved after 20 minutes at 20°C.	▪ Contraindicated for use on copper, brass, carbon-tipped devices and anodised aluminium ▪ Cannot monitor for sterility
High-Level Disinfection				
Glutaraldehyde (2%)	HLD	▪ Heat sensitive equipment/devices ▪ Lensed instruments that do not require sterilization ▪ Endoscopes ▪ Respiratory therapy equipment ▪ Anaesthesia equipment ▪ Fingernail care equipment used on multiple patients	>20 minutes	▪ Extremely irritating to skin and mucous membranes ▪ Need proper ventilation and closed containers- ceiling limit 0.05 ppm ▪ Shelf life shortens when diluted (effective for 14-30 days depending on formulation) ▪ During reuse, concentration may drop as dilution of the product occurs
Hydrogen Peroxide (6%)	HLD	▪ Semicritical equipment used for home health care ▪ Disinfection of soft contact lenses	>30 minutes	▪ Acts as a fixative ▪ Must be stored in cool place, protect from light ▪ Contraindicated for use on copper, brass, carbon-tipped devices and aluminum

*** HLD = High-level Disinfection** **LLD = Low-level Disinfection** **ST = Sterilization**

Chemical Agent	Action*	Application	Exposure Time	Comments
Hydrogen Peroxide Enhanced Action Formulation (2%)	HLD	▪ Heat sensitive equipment/devices ▪ Delicate equipment/devices	Newer formulations achieve high-level disinfection in 8 minutes at 20 C. Refer to product label for time and temperature.	▪ Contraindicated for use on copper, brass, carbon-tipped devices and anodised aluminum
Ortho-phtha-laldehyde/OPA (0.55%)	HLD	▪ Endoscopy equipment/devices (contraindicated for cystoscopes) ▪ Heat sensitive equipment/devices	>10 minutes	▪ Stains protein, including hands, requiring gloves and gown for use ▪ Expensive
Pasteurization	HLD	▪ Respiratory therapy equipment ▪ Anaesthesia equipment	>30 minutes	▪ Dry well and store carefully to prevent contamination ▪ Difficult to monitor efficacy of the process ▪ Preventive maintenance required ▪ Dishwashers are not acceptable for pasteurization
Low-Level Disinfection				
Alcohols (60-90%)	LLD	▪ External surfaces of some equipment (e.g. stethoscopes) ▪ Noncritical equipment used for home health care ▪ Used as a skin antiseptic	>10 minutes	▪ Evaporates quickly - not a good surface disinfectant ▪ Evaporation may diminish concentration ▪ Flammable - store in a cool, well-ventilated area; refer to Fire Code restrictions for storage of large volumes of alcohol ▪ Coagulates protein; a poor cleaner ▪ May dissolve lens mountings ▪ Hardens and swells plastic tubing ▪ Harmful to silicone; causes brittleness ▪ May harden rubber or cause deterioration of glues ▪ Inactivated by organic material
Hydrogen Peroxide Enhanced Action Formulation (0.5%) (7% solution diluted 1:16)	LLD	▪ Clinic and procedure room surfaces	5 minutes	▪ Contraindicated for use on copper, brass, carbon-tipped devices and anodised aluminium ▪ Available in a wipe

*** HLD = High-level Disinfection** **LLD = Low-level Disinfection** **ST = Sterilization**

Chemical Agent	Action*	Application	Exposure Time	Comments
Chlorines (e.g., bleach)	LLD	▪ Hydrotherapy tanks, exterior surfaces of dialysis equipment, cardiopulmonary training manikins, environmental surfaces ▪ Noncritical equipment used for home health care ▪ Blood spills **Dilution of Household Bleach** Undiluted: 5.25% sodium hypochlorite, 50,000 ppm available chlorine Blood spill – major: dilute 1:10 with tap water to achieve 0.5% or 5,000 ppm chlorine Blood spill – minor: dilute 1:100 with tap water to achieve 0.05% or 500 ppm chlorine Surface cleaning, soaking of items: dilute 1:50 with tap water to achieve 0.1% or 1,000 ppm chlorine An **online chlorine dilution calculator** is available from Public Health Ontario at: *www.publichealthontario.ca/en/ServicesAndTools/Tools/Pages/Dilution-Calculator.aspx*	>10 minutes	▪ Corrosive to metals ▪ Inactivated by organic material; for blood spills, blood must be removed prior to ▪ Irritant to skin and mucous membranes ▪ Should be used immediately once diluted ▪ Use in well-ventilated areas ▪ Must be stored in closed containers away from ultraviolet light and heat to prevent deterioration ▪ Stains clothing and carpets
Quaternary Ammonium Compounds (QUATs)	LLD	▪ Floors, walls and furnishings ▪ Blood spills prior to disinfection **DO NOT use QUATs to disinfect instruments**	10 minutes	▪ NOT to be used to disinfect instruments ▪ Limited use as a disinfectant because of narrow microbicidal spectrum ▪ Diluted solutions may support the growth of microorganisms

*** HLD = High-level Disinfection** **LLD = Low-level Disinfection** **ST = Sterilization**

Appendix L: Reprocessing Endoscopy Equipment

Source: PIDAC's *Best Practices for Cleaning, Disinfection and Sterilization in all Health Care Facilities*, available at: *www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf*

Reprocessing Stage	Procedure
Immediately following completion of endoscopy procedure	a) Flush and wipe the endoscope at point-of-use. b) Use a freshly prepared enzymatic cleaning solution. c) Place the endoscope and accessories in a covered, leak proof container and transport to the designated decontamination area.
Cleaning procedure	a) Follow the manufacturer's recommendations for cleaning and cleaning products. b) Perform leak testing after each use, prior to cleaning: i) Verify the patency and integrity of the endoscope sheath through leak testing, performed prior to, and during, immersion of the endoscope. ii) Perform the leak test according to the manufacturer's instructions. iii) An endoscope that fails the dry leak test should not undergo the immersion leak test. c) Soak and manually clean all immiscible endoscope components with water and a recommended cleaning agent prior to automated or further manual disinfection or sterilization. d) Disconnect and disassemble endoscope components (e.g., air/water and suction valves) as far as possible and completely immerse the endoscope and components in enzymatic cleaner. e) Flush and brush all channels and lumens of the endoscope while submerged to remove debris and minimize aerosols. f) Ensure that brushes used for cleaning lumens are of an appropriate size, inspected before and after use, and discarded or cleaned, high-level disinfected and dried following use. g) Consider irrigation adaptors or manifolds that may be recommended by the manufacturer to facilitate cleaning. h) Thoroughly rinse endoscope and all components with clean, fresh tap water prior to disinfection/sterilization and remove excess rinse water. i) Identify damaged endoscopes and immediately remove from service. j) Discard enzymatic cleaner after each use. k) Discard disposable cleaning items or thoroughly clean and high-level disinfect/sterilize nondisposable items between uses.

Reprocessing Stage	Procedure
Disinfection/sterilization	a) Choose a disinfectant that is compatible with the endoscope. b) Monitor the efficacy of the disinfectant before each use with test strips available from the product manufacturer. c) Maintain a written log of monitoring test results. d) Do not use disinfectants past their expiry date. e) Carefully follow the manufacturer's directions regarding the ambient temperature and duration of contact for the disinfectant (e.g., 2% glutaraldehyde = 20 minutes at 20°c). f) Completely immerse the endoscope and endoscope components in the high-level disinfectant/sterilant and ensure all channels are perfused. g) Following disinfection, rinse the endoscope and flush the channels with bacteria-free or sterile water.
Accessories (e.g., biopsy forceps, brushes) that break the mucosal barrier	a) Because of the difficulty cleaning biopsy forceps/brushes, **it is strongly recommended that disposable items be used**. b) If reusable biopsy forceps/brushes are used, they must be meticulously cleaned prior to sterilization using ultrasonic cleaning. c) Sterilize reusable forceps/brushes after cleaning.
Automated Endoscope Reprocessors (AER)	a) Follow the manufacturer's instructions for use of the AER. b) Ensure that the endoscope and endoscope components to be reprocessed are compatible with the AER used. c) Ensure that channel connectors and caps for both the AER and the endoscope are compatible. d) Place brushes and instruments used to clean the endoscope in the AER for disinfection. e) Do not open or stop the AER once started; if an AER cycle is interrupted, high-level disinfection cannot be assured. f) Routinely review Health Canada/OHA alerts and advisories and the scientific literature for reports of AER deficiencies that may lead to infection (reprocessing and infection prevention and control staff). g) Implement and document preventive maintenance program(s) for the AER(s).
Endoscope Drying	a) Initially flush all channels with medical or filtered air. b) Flush all channels with 70% isopropyl alcohol to aid in the drying process. c) Flush the channels with medical or filtered air.
Endoscope Storage	Storage procedures must include: a) Remove caps, valves and other detachable components during storage and reassemble just before use; store close to the endoscope in a manner that minimizes contamination.

Reprocessing Stage	Procedure
	b) Store semicritical endoscopes by hanging vertically in a well-ventilated area in a manner that minimizes contamination or damage. c) Store endoscopes that have been sterilized in their sterilization containers. d) Do not allow endoscopes to coil, touch the floor or bottom of the cabinet while handing, or be stored in their cases. e) Ensure that endoscope storage cabinets are constructed of non-porous material that can be cleaned. f) Clean and disinfect endoscope storage cabinets at least weekly.

Appendix M: Checklist for Reprocessing

Policies and procedures

- There are written policies and procedures for all aspects of reprocessing that are based on current recognized standards and these are reviewed at least annually.
- There is a policy that requires scheduled preventive maintenance of cleaning and sterilization equipment, with written documentation that this has occurred.
- There is a policy and procedure for quality monitoring and documentation of the reprocessing process
    - (e.g., biological indicators, chemical indicators).
- Single-use medical instruments are not reprocessed.
- There is a process for removing faulty instruments until repaired or replaced.

Staff education and training

- Staff assigned to reprocess medical instruments have completed a recognized course in reprocessing.

Physical space

- Instruments are cleaned in a designated area that is physically separate from direct care areas and from where clean, disinfected or sterile items are handled or stored.
- There is a one-way work flow from dirty to clean to prevent cross-contamination.
- There is a dedicated hand washing sink in the reprocessing area and/or ABHR is available for hand hygiene.
- PPE supplies are available and accessible.
- PPE (gloves, mask, eye protection) is worn for procedures that are likely to result in sprays or splashes of blood or other body fluids, such as instrument cleaning.
- There is a puncture-resistant sharps container accessible at point-of-use.
- There is a sink of sufficient size and depth for cleaning medical instruments in the reprocessing area.

Chemical products used for disinfection and sterilization

- If chemical disinfection or sterilization is performed, appropriate ventilation controls are in place according to CSA Standards and Occupational Health and Safety regulations.
- Chemical products used for disinfection/sterilization:
    - have a drug identification number (DIN) from Health Canada;
    - are prepared and used according to the manufacturer's instructions for dilution, temperature, water hardness, use, shelf life and storage conditions;
    - are labelled with the expiry date;
    - are stored in a manner that reduces the risk of contamination;
    - are compatible with both the reprocessing equipment and the instruments being reprocessed, according to manufacturer's instructions.

Instrument Cleaning

- Contaminated instruments are kept separate from clean instruments.
- Gross soil is removed from instruments at point-of-use, prior to cleaning.
- Immediately after use, instrument is immersed in an appropriately diluted cleaning solution (e.g., enzymatic cleaner) to avoid drying of secretions or body fluids; or treated with an agent that prevents hardening of bioburden.
- Instrument is cleaned manually with an enzymatic solution, in an ultrasonic washer, or in an automated washer-disinfector.
- Instrument is rinsed with clean, fresh tap water, or distilled water if water hardness is a factor.
- Cleaning equipment (e.g., sponges, brushes) is disposable or thoroughly cleaned and disinfected with a high-level disinfectant or sterilized between uses.
- Ultrasonic washers:
    - are tested for efficacy at least weekly or according to manufacturer's recommendations;
    - receive documented preventive maintenance and performance monitoring.
- Instrument is thoroughly rinsed after ultrasonic cleaning.
- Instrument is dry prior to HLD or sterilization (e.g., dried with a lint-free cloth).
- Detergent or enzymatic cleaning solution is discarded after each use.

High-level disinfection (HLD)

- Semi-critical medical instruments receive HLD.
- Instruments receive HLD according to the instrument and disinfectant manufacturer's instructions for temperature, time and concentration.
- The minimum effective concentration of disinfectant is monitored daily before first use with test strips available from the disinfectant product manufacturer and a log is kept of the results.
- Disinfectant test strip bottles are dated when opened and discarded when expired.
- A log is kept of instruments that receive HLD, including date and time of HLD, length of contact time with disinfectant, and person performing HLD.
- Instrument is totally submerged in the disinfectant for the time specified by the disinfectant manufacturer.
- Instrument is thoroughly rinsed with sterile, filtered or tap water, depending on the intended use of the instrument.
- Instrument is dried following disinfection.
- The disinfectant container is washed, rinsed and dried when the solution is changed.

Sterilization

- Critical instruments are sterilized by an approved sterilization process or are disposable.
- Instrument is packaged according to the instrument manufacturer's instructions.
- Chemical indicators (CI) are placed appropriately in and/ or on each package, if not part of the pouch/pack wrap.
- Instrument is placed in the sterilizer according to sterilizer manufacturer's instructions.

- Sterilizer mechanical printout is checked and signed each cycle by the person sterilizing the instrument.
- Sterilizer is tested with a biological indicator (BI) each day the sterilizer is used.
- If a dynamic air removal-type sterilizer is used, an air-detection PCD (Bowie-Dick test pack) is used.
- Records are kept to document that **all** sterilization parameters have been met (e.g., BIs, CIs, time/
    - temperature/pressure readings).
- A medical instrument is not used until the CI(s) and the BI are checked.

Storage

- Sterile items are stored in their sterile packaging until time of use.
- Sterile items are handled in a manner that prevents contamination of the item.
- Packaged, sterilized instruments are stored securely in a manner that keeps them clean, dry and prevents contamination.

Appendix N: Immunization Schedule for Clinical Office Staff

Source: *Canadian Immunization Guide* http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-eng.php.

Vaccine or Toxoid	Indication	Schedule
Hepatitis B	Staff* who may be exposed to blood or body fluids, or who may be at increased risk of sharps injury, bites or penetrating injuries	3 doses at 0, 1 and 6 months Test to assess vaccine response within 1 to 6 months of completion of the vaccine series
Influenza	All staff	Every autumn using current recommended vaccine formulation
Pertussis	All staff	Single dose of acellular pertussis (given as Tdap)
Measles/Mumps/Rubella	All susceptible staff	Two doses or seropositive
Varicella (chickenpox)	All susceptible staff	Two doses or seropositive
Staff* Anyone working in a clinical office setting		

References

1. Canadian Patient Safety Institute. Hand Hygiene Education Program. Available at: *http://www.handhygiene.ca*

2. Public Health Agency of Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of infection in Healthcare Settings*, available at: *http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf*

3. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best practices for hand hygiene in all health care settings [Internet]. Toronto, ON: Queen's Printer for Ontario; 2010 Available at: *http://www.publichealthontario.ca/en/eRepository/2010-12%20BP%20Hand%20Hygiene.pdf*

4. Gehrke C, Steinmann J, Goroncy-Bermes P. Inactivation of feline calicivirus, a surrogate of norovirus (formerly Norwalk-like viruses), by different types of alcohol in vitro and in vivo. J Hosp Infect. 2004;56(1):49-55.

5. OFM Guideline: Safe Practices for the Use of Alcohol-Based Hand Rub in Care and Treatment Occupancies [Internet].: Queen's Printer for Ontario; 2009 Available at: *http://www.mcscs.jus.gov.on.ca/english/firemarshal/legislation/technicalguidelinesandreports/TG-2011-02.html*

6. Grabsch EA, Burrell LJ, Padiglione A, O'Keeffe JM, Ballard S, Grayson ML. Risk of environmental and healthcare worker contamination with vancomycin-resistant enterococci during outpatient procedures and hemodialysis. Infect Control Hosp Epidemiol. 2006;27(3):287-93.

7. Canadian Standards Association. Z8000-11 Canadian health care facilities [Internet]. Mississauga, Ontario: Canadian Standards Association; 2011

8. Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings [Internet]. Atlanta, GA: Centers for Disease Control and Prevention; 2007 Available at: *http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf*

9. Xie X, Li Y, Chwang AT, Ho PL, Seto WH. How far droplets can move in indoor environments--revisiting the Wells evaporation-falling curve. Indoor Air. 2007;17(3):211-25.

10. Health Canada, Laboratory Centre for Disease Control,Division of Nosocomial and Occupational Infections. Routine practices and additional precautions for preventing the transmission of infection in health care. Can Commun Dis Rep. 1999;25 Suppl 4:1-142.

11. Muto CA, Jernigan JA, Ostrowsky BE, Richet HM, Jarvis WR, Boyce JM, et al. SHEA guideline for preventing nosocomial transmission of multidrug-resistant strains of Staphylococcus aureus and enterococcus. Infect Control Hosp Epidemiol. 2003;24(5):362-86.

12. Monnet DL. Methicillin-resistant Staphylococcus aureus and its relationship to antimicrobial use: possible implications for control. Infect Control Hosp Epidemiol. 1998;19(8):552-9.

13. Comstock RD, Mallonee S, Fox JL, Moolenaar RL, Vogt TM, Perz JF, et al. A large nosocomial outbreak of hepatitis C and hepatitis B among patients receiving pain remediation treatments. Infect Control Hosp Epidemiol. 2004;25(7):576-83.

14. Krause G, Trepka MJ, Whisenhunt RS, Katz D, Nainan O, Wiersma ST, et al. Nosocomial transmission of hepatitis C virus associated with the use of multidose saline vials. Infect Control Hosp Epidemiol. 2003;24(2):122-7.

15. Centers for Disease Control and Prevention (CDC). Transmission of hepatitis B and C viruses in outpatient settings--New York, Oklahoma, and Nebraska, 2000-2002. MMWR Morb Mortal Wkly Rep. 2003;52(38):901-6.

16. Centers for Disease Control and Prevention (CDC). Acute hepatitis C virus infections attributed to unsafe injection practices at an endoscopy clinic--Nevada, 2007. MMWR Morb Mortal Wkly Rep. 2008;57(19):513-7.

17. Centers for Disease Control and Prevention (CDC). CDC grand rounds: preventing unsafe injection practices in the U.S. health-care system. MMWR Morb Mortal Wkly Rep. 2013;62(21):423-5.

18. Branch-Elliman W, Weiss D, Balter S, Bornschlegel K, Phillips M. Hepatitis C transmission due to contamination of multidose medication vials: summary of an outbreak and a call to action. Am J Infect Control. 2013;41(1):92-4.

19. Lanini S, Abbate I, Puro V, Soscia F, Albertoni F, Battisti W, et al. Molecular epidemiology of a hepatitis C virus epidemic in a haemodialysis unit: outbreak investigation and infection outcome. BMC Infect Dis. 2010;10:257,2334-10-257.

20. Smedley EJ, Stelzer-Braid S, Ressler KA, Melling P, Bowden S, McCaw R, et al. Transmission of hepatitis C virus to recipients of parenteral vitamin therapy in a primary care facility. J Clin Virol. 2011;51(2):105-9.

21. Samandari T, Malakmadze N, Balter S, Perz JF, Khristova M, Swetnam L, et al. A large outbreak of hepatitis B virus infections associated with frequent injections at a physician's office. Infect Control Hosp Epidemiol. 2005;26(9):745-50.

22. Katzenstein TL, Jorgensen LB, Permin H, Hansen J, Nielsen C, Machuca R, et al. Nosocomial HIV-transmission in an outpatient clinic detected by epidemiological and phylogenetic analyses. AIDS. 1999;13(13):1737-44.

23. Guh AY, Thompson ND, Schaefer MK, Patel PR, Perz JF. Patient notification for bloodborne pathogen testing due to unsafe injection practices in the US health care settings, 2001-2011. Med Care. 2012;50(9):785-91.

24. Manchikanti L, Falco FJ, Benyamin RM, Caraway DL, Helm Ii S, Wargo BW, et al. Assessment of infection control practices for interventional techniques: a best evidence synthesis of safe injection practices and use of single-dose medication vials. Pain Physician. 2012;15(5):E573-614.

25. Pan A, Dolcetti L, Barosi C, Catenazzi P, Ceruti T, Ferrari L, et al. An outbreak of Serratia marcescens bloodstream infections associated with misuse of drug vials in a surgical ward. Infect Control Hosp Epidemiol. 2006;27(1):79-82.

26. Harbarth S, Sudre P, Dharan S, Cadenas M, Pittet D. Outbreak of *Enterobacter cloacae* related to understaffing, overcrowding, and poor hygiene practices. Infect Control Hosp Epidemiol. 1999;20(9):598-603.

27. Dolan SA, Felizardo G, Barnes S, Cox TR, Patrick M, Ward KS, et al. APIC position paper: safe injection, infusion, and medication vial practices in health care. Am J Infect Control. 2010;38(3):167-72.

28. Ontario. Vaccine Storage and Handling Guidelines [Internet]. Toronto, ON: Queen's Printer for Ontario; 2012 Available at: http://health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/guide_vaccine_storage.pdf.

29. Public Health Agency of Canada. National Vaccine Storage and Handling Guidelines for Immunization Providers [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2015 Available at: http://healthycanadians.gc.ca/publications/healthy-living-vie-saine/vaccine-storage-entreposage-vaccins/index-eng.php.

30. Community and Hospital Infection Control Association - Canada. Position Statement: Medical Gels [Internet]CHICA-Canada; 2005 Available at: http://www.ipac-canada.org/pdf/medgels.pdf

31. Thompson ND, Perz JF. Eliminating the blood: ongoing outbreaks of hepatitis B virus infection and the need for innovative glucose monitoring technologies. J Diabetes Sci Technol. 2009;3(2):283-8.

32. Centers for Disease Control and Prevention (CDC). Notes from the field: deaths from acute hepatitis B virus infection associated with assisted blood glucose monitoring in an assisted-living facility--North Carolina, August-October 2010. MMWR Morb Mortal Wkly Rep. 2011;60(6):182.

33. Centers for Disease Control and Prevention (CDC). Transmission of hepatitis B virus among persons undergoing blood glucose monitoring in long-term-care facilities--Mississippi, North Carolina, and Los Angeles County, California, 2003-2004. MMWR Morb Mortal Wkly Rep. 2005;54(9):220-3.

34. Polish LB, Shapiro CN, Bauer F, Klotz P, Ginier P, Roberto RR, et al. Nosocomial transmission of hepatitis B virus associated with the use of a spring-loaded finger-stick device. N Engl J Med. 1992;326(11):721-5.

35. Ontario Agency for Health Protection and Promotion (Public Health Ontario),Provincial Infectious Diseases Advisory Committee. Best practices for environmental cleaning for prevention and control of infections in all health care settings [Internet]. 2nd ed. Toronto, ON: Queen's Printer for Ontario; 2012 Available at: http://www.publichealthontario.ca/en/eRepository/Best_Practices_Environmental_Cleaning_2012.pdf

36. Royal College of Dental Surgeons of Ontario. Infection Prevention and Control in the Dental Office [Internet]. Toronto, ON: Royal College of Dental Surgeons of Ontario; 2010 Available at: http://www.rcdso.org/save.aspx?id=ab90c89d-dcf4-4a2c-9a8a-bb91a316b6a0

37. Operating Room Nurses Association of Canada (ORNAC). Standards, Guidelines and Position Statements for Perioperative Registered Nursing Practice. Section 2: Infection Prevention and Control [Internet]. 10th edORNAC; 2011 Available at: http://flex5114.weebly.com/uploads/1/4/5/1/14518934/ornac_standards.pdf

38. Community and Hospital Infection Control Association - Canada. Practice Recommendations: Infection Prevention and Control Related to Electronic (IT) Devices in Healthcare Settings [Internet]Community and Hospital Infection Control Association - Canada; 2012 Available at: http://www.ipac-canada.org/pdf/Electronic_Devices_Practice_Recommendations-2012.pdf

39. Community and Hospital Infection Control Association - Canada. Practice Recommendations: Toys [Internet]Community and Hospital Infection Control Association - Canada; 2011 Available at: http://www.ipac-canada.org/pdf/Toys%20Practice%20Recommendations%202011.pdf

40. Saskatchewan, Ministry of Health, Saskatchewan Biomedical Waste Management Guidelines. Available at: http://www.environment.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=217,216,104,81,1,Documents&MediaID=1099&Filename=Biomedical+Waste+Management.pdf.

41. Canadian Standards Association. Z317.10-09 (R2014) - Handling of waste materials in health care facilities and veterinary health care facilities [Internet]. Mississauga, ON: Canadian Standards Association; 2014

42. *Transportation of Dangerous Goods Act, 1992*, S.C. 1992, c 34th. Available at: http://laws-lois.justice.gc.ca/eng/acts/T-19.01/

43. Canadian Standards Association. Z317.2-10 Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities [Internet]. Mississauga, ON: Canadian Standards Association; 2010

44. The College of Physicians and Surgeons of Ontario. Out-of-Hospital Premises (OHP) Standards [Internet]. Toronto, ON: The College of Physicians and Surgeons of Ontario; 2010 Available at: http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/ohp_standards.pdf

45. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best practices for cleaning, disinfection and sterilization of medical equipment/devices in all health care settings [Internet]. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2013 Available at: http://www.publichealthontario.ca/en/eRepository/PIDAC_Cleaning_Disinfection_and_Sterilization_2013.pdf

46. Canadian Standards Association. Z314.8-08 Decontamination of Reusable Medical Devices [Internet]. Mississauga, ON: Canadian Standards Association; 2008

47. Spaulding E. The role of chemical disinfection in the prevention of nosocomial infections [conference abstract]. International Conference on Nosocomial Infections; 1970-1971; Chicago, IL.

48. American National Standards Institute. Emergency Eyewash and Shower Equipment. ANSI/ISEA Z385.1-2009 [Internet]; 2009

49. Health Canada. Laboratory Centre for Disease Control, Bureau of Infectious Diseases. Hand washing, cleaning, disinfection and sterilization in health care. Can Commun Dis Rep. 1998;24 Suppl 8:i,xi, 1-55, i-xi, 1-57.

50. Smith PW, Rusnak PG. Infection prevention and control in the long-term-care facility. SHEA Long-Term-Care Committee and APIC Guidelines Committee. Am J Infect Control. 1997;25(6):488-512.

51. Ontario Hospital Association and the Ontario Medical Association Joint Committee on Communicable Disease Protocols Committee in collaboration with the Ministry of Health and Long-Term Care. Blood-borne Diseases Surveillance Protocol for Ontario Hospitals [Internet]. Toronto, ON: Ontario Hospital Association; 2012
Available at:
http://www.oha.com/Services/HealthSafety/Pages/CommunicableDiseasesSurveillanceProtocols.aspx.

52. Public Health Agency of Canada. Canadian Immunization Guide [Internet] Public Health Agency of Canada available from: http://www.phac-aspc.gc.ca/publicat/cig-gci/