Provincial Infectious
Diseases Advisory
Committee
(PIDAC)

Preventing Febrile Respiratory Illnesses

Protecting Patients and Staff

Best Practices in Surveillance and Infection Prevention and Control for Febrile Respiratory Illness (FRI), excluding Tuberculosis, for All Ontario Health Care Settings

(Revised Edition)

NOTE: This document REPLACES:

Preventing Respiratory Illnesses; Protecting Patient and Staff. Infection Control and Surveillance Standards for Febrile Respiratory Illness (FRI) in Non-Outbreak Conditions in Acute Care Hospitals, December 2003.

Preventing Respiratory Illnesses; Protecting Patients and Staff in non-Acute Care Institutions. Infection Control and Surveillance Standards for Febrile Respiratory Illness (FRI) in non-Outbreak Conditions. March 2004.

Preventing Respiratory Illnesses in Community Settings. Guidelines for Infection Control and Surveillance for Febrile Respiratory Illness (FRI) in Community Settings in Non-Outbreak Conditions. March 2004.

Standards for all Ontario Health Care Facilities/Settings for High-Risk Respiratory Procedures under Non-Outbreak Conditions. April 2004.

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PIDAC is a multidisciplinary scientific advisory body who provide to the Chief Medical Officer of Health evidence based advice regarding multiple aspects of Infectious Disease identification, prevention and control. PIDACs work is guided by the best available evidence and updated as required. Best Practice documents and tools produced by PIDAC reflect consensus positions on what the committee deems prudent practice and are made available as a resource to the public health and healthcare providers.

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Preamble

About This Document

This document deals with the control of droplet spread respiratory illness ONLY.

Droplet spread illnesses are spread when people cough or sneeze, and droplets of their respiratory secretions come into direct contact with the mucous membranes of the mouth, nose or eyes of another person. Because microorganisms in droplets can survive on other surfaces, droplet spread illnesses can also be spread indirectly when people touch contaminated hands, surfaces and objects.

In cases of suspected or known airborne spread respiratory illnesses, such as tuberculosis, see: the Canadian Tuberculosis Standards 5th ed. (Canadian Lung Association; 2000) and Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care, 1999 (Can Commun Dis Rep. 1999; 25 Suppl 4:1-142).

Preventing Febrile Respiratory Illness: Protecting Patients and Staff sets out the infection prevention and control practices required to:

- prevent transmission of droplet-spread febrile respiratory illness (FRI) to other patients and to health care providers
- help the health care system quickly detect and contain clusters and outbreaks of common respiratory infections
- help the health care system detect and contain any new or virulent microorganism causing respiratory infections.

The document reflects the best expert opinion on the prevention and control of droplet spread febrile respiratory illness available at this time. The recommendations in this document will be reviewed and updated from time to time.

Information in this document is consistent with Public Health Agency of Canada recommendations. It is also consistent with the Communicable Disease Protocols developed jointly by the Ontario Hospital Association (OHA) and the Ontario Medical Association (OMA). Physicians should also see the College of Physicians and Surgeons of Ontario publication: *Infection Control in the Physician's* Office, 2004.

How and When to Use This Document

The best practices for febrile respiratory illness set out in this document should be part of ROUTINE practice for ALL patient care in all settings where health care is provided. They should be integrated with existing infection prevention and control programs for other illnesses, and be part of a comprehensive organization-wide effort to maintain acceptable standards for infection prevention and control.

This document has been written to address the continuum of care, INCLUDING acute care, long-term care, complex continuing care and rehabilitation, physicians' offices, clinics, home health care and public health. Application of these guidelines may vary depending on the care setting.

In the event of an outbreak of febrile respiratory illness, health care settings should contact their local public health unit (see section #4: Reporting), and follow appropriate outbreak management procedures (see MOHLTC directives for respiratory outbreaks).

Assumptions and General Principles for Infection Prevention and Control

The best practices set out in this document are based on the assumption that health care settings in Ontario already have basic infection prevention and control systems or programs in place. If this is not the case, health care settings will find it challenging to implement the practices recommended for febrile respiratory illness. These settings must work with organizations that have infection prevention and control expertise, such as regional academic health science centres, regional networks, public health units that have infection prevention and control expertise, and local infection prevention and control associations (e.g., Community and Hospital Infection Control Association – Canada chapters), to develop evidence-based programs. (Note: requirements for a comprehensive infection prevention and control program are currently being developed; see also the chapter on infection control in *A Plan of Action. Final Report of the Ontario Expert Panel on SARS and Infectious Disease Control. April 2004*. For a list of infection prevention and control resources, see Appendix 5.)

In addition to the general assumption (above) about basic infection prevention and control, these best practices are based on the following assumptions and principles:

1. Health care settings routinely implement best practices to prevent and control the spread of infectious diseases, including Health Canada's *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care* (*Can Commun Dis Rep*. 1999; 25 Suppl 4:1-142).
2. Health care settings devote adequate resources to infection prevention and control.
3. Health care settings provide regular education (including orientation and continuing education) and support to help staff consistently implement appropriate infection prevention and control practices. Effective education programs emphasize:
   - the risks associated with infectious diseases (including FRI) and the benefits of case finding/surveillance
   - the importance of immunization against infectious diseases
   - hand hygiene (including the use of alcohol based rubs or hand washing)
   - principles and components of Routine Practices as well as additional transmission-based precautions
   - assessment of the risk of infection transmission and the appropriate use of personal protective equipment, including safe application, removal and disposal
   - appropriate cleaning and/or disinfection of care equipment, supplies and surfaces or items in the care environment (for example, beds, bed tables, call bells, toilets, privacy curtains)
   - procedures that routinely require droplet precautions and why
   - individual staff responsibility to keep residents/patients/themselves and fellow staff members safe
   - collaboration between occupational health and safety and infection prevention and control.

   NOTE: Education programs should be flexible enough to meet the diverse needs of the range of health care providers and other staff who work in the health care setting. The local public health unit may be a resource and can provide assistance in developing and providing education program for community settings.

4. All health care settings promote collaboration between occupational health and safety and infection prevention and control in implementing and maintaining appropriate infection prevention and control standards that protect workers.
5. The facility is to be in compliance with the *Occupational Health and Safety Act*, R.S.O. 1990, c.0.1. and associated Regulations including *the Health Care and Residential Facilities – O. Reg. 67/93*.
6. All health care settings have established communication with their local public health unit and have access to ongoing infection prevention and control advice and guidance to support staff and resolve any uncertainty about the level of precautions required in a given situation.
7. Health care settings have established procedures for receiving and responding appropriately to all international, regional and local health advisories (e.g., countries or regions with significant respiratory illnesses. For example, see the Public Health Agency of Canada Travel Medicine Program Webpage at http://www.phac-aspc.gc.ca/tmp-pmv/index.html

   They also communicate health advisories promptly to all staff responsible for case finding/surveillance and provide regular updates (e.g., rates of the febrile respiratory illness subject to the health advisory; morbidity and mortality associated with the febrile respiratory illness subject to the health advisory).
8. Health care settings report back to staff on the impact of their surveillance efforts (e.g., benefits of case finding/surveillance and preventive practices in the workplace in terms of patient safety, patient and staff illness; outbreaks).
9. Health care settings have effective working relationships with their local public health unit. They maintain clear lines of communication, contact public health for information and advice as required, and fulfill their obligations (under the *Health Protection and Promotion Act,* R.S.O. 1990, c.H.7) to report reportable and communicable diseases. Public health provides regular aggregate reports of outbreaks of any infectious diseases, including FRI, in facilities and/or in the community to all health care settings.
10. All health care settings regularly assess the effectiveness of their infection prevention and control education programs and their impact on practices, and use that information to refine their programs.
11. All health care settings have a process for evaluating personal protective equipment (PPE) to ensure it meets quality standards where applicable.

Glossary of Terms

Aerosolization: The process of creating very small droplets of moisture that may carry microorganisms. The aerosolized droplets may be light enough to remain suspended in the air for short periods of time, allowing inhalation of the microorganisms.

Case Finding: A standard procedure in control of certain contagious diseases whereby diligent efforts are made to identify people who are or may be infected.

Cluster: A grouping of cases of a disease within a specific time frame and geographic location suggesting a possible association between the cases with respect to transmission.

Droplet Precautions: Precautions to prevent and control the spread of droplet spread illnesses, including:

- a surgical/procedure mask covering the worker's nose and mouth within one meter of the patient
- protective eye wear when providing direct care within one meter of the patient
- hand hygiene as per Routine Practices (i.e., using alcohol-based hand rub or washing hands: before seeing the patient; after seeing the patient and before touching the face; and after removing and disposing of personal protective equipment -- see page 12: Recommended Process for Removing Personal Protective Equipment)
- examination procedures that minimize contact with droplets (e.g., sitting next to rather than in front of a coughing patient when taking a history or conducting an examination)
- appropriate gloves when the worker is likely to have contact with body fluids or to touch contaminated surfaces
- gowns during procedures and patient care activities where clothing might be contaminated
- any communal or shared equipment must be cleaned and disinfected after use.

Droplet Spread Illness: Illness spread when droplets of respiratory secretions come into direct contact with the mucous membranes of the mouth, nose and possibly eyes of another person. Droplet spread illness can also be transmitted *indirectly* when people touch or have contact with hands, surfaces and objects contaminated with droplets of respiratory secretions, and then touch or have contact with their own or someone else's mucous membranes or eyes.

Droplet Transmission: Transmission occurs from large droplets that are equal to or over 5 microns in diameter. Examples of organisms transmitted by droplet transmission include: influenza virus, rubella virus, *Bordetella pertussis*, and respiratory tract viruses (e.g., adenovirus, parainfluenza, rhinovirus, respiratory syncytial virus).

Exposure: In this document exposure is defined as the lack of PPE being worn within one meter of the patient.

Febrile Respiratory Illness (FRI): FRI is a term used to describe a wide range of droplet-spread respiratory infections, such as colds, influenza, influenza-like illness (ILI) and pneumonia, which usually present with symptoms of a fever of greater than 38°C **and** new or worsening cough or shortness of breath. Note: elderly people and people who are immunocompromised may not have a febrile response to a respiratory infection.

Hand Hygiene: A process for the removal of soil and transient microorganisms from the hands. Hand hygiene may be accomplished using soap and running water or the use of alcohol-based hand rubs that contain between 60-90% alcohol.

Health Care Setting. Any location where care is provided, including settings where emergency care is provided, hospitals, long-term care homes, outpatient clinics, community health centres and clinics, physician offices, dental offices, offices of allied health professions and home health care.

Infection Prevention and Control: Evidence-based practices and procedures that, when applied consistently in health care settings, can prevent or reduce the risk of transmission of microorganisms to health care workers, other clients/patients and visitors.

Nosocomial infection: An infection acquired in a health care setting.

Outbreak: An increase in the number of infections above the number normally occurring in that setting over a defined period of time.

Primary Care Provider: For purposes of this document, primary care provider is defined as a health care professional who has the skills, training and scope of practice to diagnose a condition such as FRI (e.g., physician, nurse practitioner).

Routine Practices: The Health Canada/Public Health Agency of Canada term to describe the system of infection prevention and control practices recommended in Canada to prevent and control transmission of microorganisms in health care settings. **These practices describe prevention and control strategies to be used with all patients during all patient care, and include:**

- Hand hygiene with an alcohol-based hand rub or with soap and water before and after any direct contact with a patient.
- The use of additional barrier precautions to prevent health care worker contact with a patient's blood, body fluids, secretions, excretions, non intact skin or mucous membranes:
  - Gloves are to be worn when there is a risk of hand contact with a patient's blood, body fluids, secretions, excretions, non intact skin or mucous membranes; gloves should be used as an additional measure, not as a substitute for hand hygiene.
  - Gowns are to be worn if contamination of uniform or clothing is anticipated.
  - **The wearing of masks and eye protection or face shields where appropriate to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions.**

The full description of Routine Practices to prevent and control transmission of nosocomial pathogens can be found on the Public Health Agency of Canada website **(http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s4/index.html).**

Sputum Induction: Sputum induction is used to obtain respiratory secretions from patients with symptoms of active tuberculosis infection (TB). Because of the risk of exposure to TB during this procedure, health care settings must use appropriate *airborne* precautions. See the Canadian Tuberculosis Standards – 5th ed. (Canadian Lung Association; 2000) and "Guidelines for Preventing the Transmission of Tuberculosis in Canadian Health Care Facilities and Other Institutional Settings" (*Can Commun Dis Rep*. 1996; 22 Suppl 1: i-iv, 1-55).

Staff: Anyone conducting activities within a health care setting that will bring him/her into contact with patients including: all health care providers (e.g., emergency service workers, physicians, nurses, allied health professionals, students); support services (e.g., housekeeping); and volunteers.

Surveillance: The systematic ongoing collection, collation, and analysis of data and the timely dissemination of information to those who need to know so that action can be taken.

Summary of Best Practices

(see complete text for rationale)

1. Influenza Immunization

1.1 Annual influenza immunization is strongly recommended for all staff, particularly those who have contact with individuals in high-risk groups. Such staff include: physicians, nurses and others in both hospital and outpatient settings; emergency response workers; employees of chronic care facilities who have contact with residents; and providers of home care, visiting nurses or volunteers. [1]

1.2 Influenza immunization should be available in the workplace.

1.3 Staff involved in direct patient/resident/client care should consider it their responsibility to provide the highest standard of care, which includes receiving an annual influenza immunization. In the absence of contraindications to the vaccine, refusal to be immunized against influenza is a failure in staff's duty of care to patients. [2]

1.4 All health care settings should have staff immunization policies in place consistent with the Ontario Hospital Association/Ontario Medical Association joint Influenza Surveillance Protocol for Ontario Hospitals. These policies should establish annual influenza immunization as a standard of care and set out the steps to protect patients and staff (e.g., reminding staff about the importance of annual immunization, documenting each person's immunization status, excluding unimmunized staff from work during outbreaks).

1.5 In Ontario, annual influenza immunization is recommended and available to everyone unless medically contraindicated. It is particularly important for those at high risk of influenza-related complications, as defined by the National Advisory Committee on Immunization (NACI), and those capable of transmitting influenza to them, including health care providers.

2. Case Finding/Surveillance

2.1 All health care settings should ensure they have the ability to identify cases of FRI, and to detect clusters or outbreaks of FRI.

2.2 All patients/residents/clients that present at a health care setting should be assessed for symptoms of FRI using the Case Finding/Surveillance Protocol for Febrile Respiratory Illness (see page 7).

2.3 Case finding/surveillance can be done using an active, a passive or a combined approach.

2.4 Patients/clients receiving care in their homes should be assessed for symptoms of FRI using the Case Finding/Surveillance Protocol for Febrile Respiratory Illness.

2.5 The health care setting will ensure that all staff who have contact with a patient with FRI symptoms are aware of the need to initiate and maintain preventive practices. (See section 3 below.)

2.6 Once the need for preventive practices has been established, any receiving unit or diagnostic service must be informed.

3. Preventive Practices

3.1 Health care settings and staff should reinforce with staff/patients/residents/clients and visitors the personal practices that help prevent the spread of FRI.

3.2 All health care settings must have accessible hand hygiene stations in appropriate locations, and signage instructing all patients, residents, visitors and volunteers when to practice hand hygiene.

3.3 All health care settings should establish a clear expectation that staff do not come into work when ill with FRI, and support this expectation with appropriate attendance management policies.

3.4 Patients presenting for care in a health care setting who have symptoms of FRI (i.e., fever, cough) should be asked to perform hand hygiene and wear a surgical or procedure mask and either wait in a separate area or keep one meter away from other patients and staff.

3.5 Patients who have symptoms of FRI AND a travel history to an area with a health alert should be moved immediately out of the waiting room and put in a separate room.

3.6 Whenever possible, patients who have symptoms of FRI who are admitted to a hospital should be accommodated in a single room. Residents of long term care who are not in single room accommodation should be managed using droplet precautions with privacy curtains drawn.

3.7 Health care providers within one meter of patients with FRI symptoms should consistently use droplet precautions:

wear a good quality surgical/procedure mask covering the nose and mouth when providing direct care within one meter of the patient

use protective eye wear when providing direct care within one meter of the patient

perform hand hygiene (i.e., using alcohol-based hand rub or washing hands: before seeing the patient; after seeing the patient and before touching the face; and after removing and disposing of personal protective equipment)

use examination procedures that minimize contact with droplets (e.g., sitting next to rather than in front of a coughing patient when taking a history or conducting an examination)

wear appropriate gloves as per Routine Practices when the worker is likely to have contact with body fluids or to touch contaminated surfaces

wear gowns as per Routine Practices during procedures and patient care activities where clothing might be contaminated

any communal or shared equipment must be cleaned and disinfected after use.

PPE should be removed after the health care provider has completed patient care and is > 1 meter from the patient.

3.8 Routine Practices requires that staff use personal protective equipment when procedures generating droplets/aerosols are performed on any patient with or without symptoms of FRI (see Appendix 1).

3.9 Procedures that generate droplets/aerosols on patients with FRI should be done by experienced staff.

3.10 If possible, staff should avoid initiation of non-invasive ventilation (e.g. CPAP, BiPAP) for patients with FRI because their secretions may contaminate respiratory equipment and be expelled into the environment. Secretions may be propelled beyond a one meter distance. If initiating non-invasive ventilation in a patient with FRI, carefully consider the benefit of this procedure for the patient vs. the potential occupational risk.

3.11 Individuals with chronic tracheotomies or chronic non-invasive ventilation do not require droplet precautions. If symptoms of FRI develop then droplet precautions are required.

3.12. Usual oxygen therapy, whether or not it is humidified, does not increase the risk of droplet spread. However, patients on oxygen concentrations of 50% or higher are often patients who are coughing and who require high-intensity care very close to their airways. Thus, exposure to droplets from the airways of such patients during care is common, and droplet precautions are routinely recommended for care.

3.13 Personnel caring for patients with FRI on mechanical ventilators operating in a closed system may use Routine Practices. If the integrity of the system is breached (e.g., open suctioning, filter changes), staff in the room must use droplet precautions.

3.14 Health care settings must ensure that staff have quick easy access to the personal protective equipment required.

3.15 In all settings where care is delivered, staff should follow procedures for managing and disposing of equipment that are consistent with the Public Health Agency of Canada guidelines (see http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf).

3.16 All health care settings should maintain routine cleaning practices including: keeping the working environment clean, disinfecting areas that may have been contaminated after each patient visit, and disinfecting areas that may have been contaminated by respiratory droplets during procedures routinely requiring droplet precautions.

3.17 Droplet precautions may be discontinued when a patient meets any of the following criteria:

an etiologic diagnosis that does not require droplet precautions

clinical improvement on empiric therapy

an alternate diagnosis (i.e., non-infective).

4. Reporting

4.1 Health care institutions should have established procedures for notifying Infection Prevention and Control of:

any patients/residents either admitted with or who develop FRI, so they can monitor the situation

any clusters of FRI in either staff or patients. (To protect employees' right to confidentiality, Occupational Health Services will report staff clusters non-nominally to Infection Prevention and Control.)

4.2 Health care workers who develop FRI symptoms should call in and report their condition to Occupational Health Services or delegate.

4.3 Infection Prevention and Control will alert Occupational Health Services (OHS) about any FRI clusters in patients so OHS can monitor staff. OHS will alert (non nominally) Infection Prevention and Control of any clusters of FRI among staff.

4.4 Employers are required to report to the Joint Occupational Health and Safety Committee or delegate any occupationally acquired infection.

4.5 Health care setting administrators, laboratories and community/attending physicians should report to the local medical officer of health when:

a patient has a new cough, fever AND a travel history to a country with a health alert OR contact with someone with a travel history to a country with a health alert (i.e., yes to all questions[*] on the case finding/surveillance protocol) Note: It is not necessary to have a laboratory confirmation before reporting.

They are legally required to report to the local medical officer of health when:

the etiology of a febrile respiratory illness is a reportable disease

there is an outbreak or cluster of FRI in any health care facility.

[*]NOTE: Elderly people and people who are immunocompromised may not have a febrile response to a respiratory illness so the presence of cough/shortness of breath and a travel history to a country with a health alert in these patients should trigger a report to public health.

4.6 If a health care provider develops an occupationally acquired infection, his or her employer must report the illness to the Ministry of Labour in accordance with occupational health and safety legislation.

4.7 If a health care provider develops an occupationally acquired infection, his or her employer must report the illness to the Workplace Safety and Insurance Board (WSIB) within 72 hours.

4.8 All external reporting procedures must comply with the relevant legislation, including the Health Protection and Promotion Act, the Personal Health Information Protection Act, 2004, the Occupational Health and Safety Act, and the Workplace Safety and Insurance Act, 1997.

5. Evaluation

5.1 Compliance with influenza immunization, case finding/surveillance, preventive practices and reporting requirements should be evaluated regularly through a measurable audit process, as part of a continuous quality improvement program.

I. The Case for a Comprehensive Infection Prevention and Control Strategy for Febrile Respiratory Illness

The Risk of Transmission of Febrile Respiratory Illness in Health Care Settings

In all health care settings, there is significant risk of transmission of febrile respiratory illness to patients and staff. This is due to:

- the large number of people (i.e., patients, family members, volunteers, visitors, workers) who come and go in these settings
- the ease with which droplet-spread febrile respiratory illnesses can pass from one person to another[3]
- the fact that many patients have other illnesses that weaken their immune systems, making them more likely to experience complications from respiratory infections
- the large number of people who seek care for or develop febrile respiratory illnesses in these settings.

The Risk to Patients/Residents/Clients and Staff

The risk to patients/residents/clients is higher in institutional settings, particularly in:

- long-term care homes, which are closed communities where many older, frail residents with chronic illnesses live for prolonged periods of time
- acute care hospital units where there are many high risk patients.

The risk to staff is highest in settings where:

- people first present with symptoms (e.g., physicians' offices, community health centres/clinics, emergency departments)
- staff are performing procedures that create sprays and splashes (e.g., nebulized therapies, open suctioning).

The risk of staff acquiring febrile respiratory illness in the workplace should not be underestimated.

For purposes of this document, "staff" refers to anyone conducting activities within a health care setting that will bring him/her into contact with patients including: all health care providers (e.g., emergency service workers, physicians, nurses, allied health professionals, students), support services (e.g., housekeeping), and volunteers.

The Impact of Febrile Respiratory Illness

Infectious respiratory diseases, such as colds, influenza and pneumonia, are a major cause of illness, absenteeism, lost productivity and death. In Canada, influenza and community-acquired pneumonia account for 60,000 hospitalizations and 8,000 deaths annually, and are the leading cause of death from infectious disease.[4]

Health, Social and Organizational Costs

Febrile respiratory illnesses are not only costly in terms of health and lives: they have a significant economic and social impact. Respiratory illness (infectious and non-infectious) accounts for nearly $4 billion per year (1993 dollars) in direct health care costs, such as hospitalizations, physician visits and drugs.[5] Ontario experienced firsthand the broad economic impact of an emerging febrile respiratory illness, SARS, which had a devastating effect on travel, tourism, business and health care delivery.

Febrile respiratory illnesses are also costly for health agencies and organizations. Outbreaks can close hospital wards or long-term care homes and threaten patient safety. They draw resources away from other services, and have a negative impact on public confidence. Febrile respiratory illnesses also account for a significant proportion of staff sick time, increasing operating costs.

When febrile respiratory illnesses are not identified promptly and managed effectively, they create risk management issues. Health care settings have a responsibility to ensure patient safety and to protect patients, staff and visitors from exposure to illness. Failure to do so (i.e., an outbreak that occurs as a result of lack of effective infection prevention and control) could expose them to risk.

The recent emergence of virulent respiratory illnesses, such as avian influenza and SARS, and expert predictions of another influenza pandemic[6], have reinforced the health, social and economic risks associated with these illnesses as well as the need for a stronger, more consistent approach to surveillance and infection prevention and control throughout the health care system.

Responsibility for Surveillance and Infection Prevention and Control

Adherence to routine infection prevention and control practice is critical in protecting patients, staff and the public from acquiring respiratory infections in health care settings. Preliminary findings from a systematic review of the literature confirm the benefits of surveillance and droplet precautions in containing and preventing the spread of febrile respiratory illnesses. For example, two studies, one in Hong Kong and one in Ontario, found that the implementation of stringent and aggressive infection prevention and control precautions contributed to the lack of nosocomial spread of SARS in a pediatric hospital[7] and to preventing further infections in health care workers[8].

In 2004, the Ministry of Health and Long-Term Care (MOHLTC) issued standards for infection control and surveillance for febrile respiratory illness in acute care institutions, non-acute care institutions and the community. In 2005, the MOHLTC updated regulation 569 of the *Health Protection and Promotion Act*, which sets out clearly the type of information that hospitals and other health care institutions are required to report in relation to respiratory infection outbreaks. All health care facilities and staff should adopt and maintain appropriate surveillance and infection prevention and control practices to protect against both common and emerging respiratory infections. These practices should be as routine as other health and safety measures in the workplace.

II. Best Practices in Surveillance and Infection Prevention and Control for Febrile Respiratory Illness in All Health Care Settings

Strategy

Best practices in surveillance and infection prevention and control for febrile respiratory illness consist of the following:

1. Influenza Immunization
2. Case Finding/Surveillance
3. Preventive Practices
4. Reporting
5. Evaluation

1. Influenza Immunization

Immunization against vaccine-preventable diseases is an integral part of an occupational health and safety program. Immunization helps protect the health of staff, and also protects patients/residents/clients. Influenza immunization of health care workers has been shown to reduce the mortality and morbidity of patients under their care and to reduce worker absenteeism during the influenza season.[9]

Immunization is the first line of defense against influenza. Influenza vaccine is free in Ontario and, when used by a significant proportion of the population, can significantly reduce influenza incidence and prevalence.[10] Influenza immunization has been shown to:

- prevent laboratory-confirmed influenza illness in approximately 70% or more of healthy individuals
- be at least 70% effective in preventing hospitalization for pneumonia and influenza among elderly persons living in the community
- be 50 to 60% effective in preventing hospitalization and 85% effective in preventing death in elderly persons living in long-term care homes. [11]

Immunization of health care workers has been shown to reduce total patient mortality, influenza-like illness and serologically confirmed influenza.[12] According to two studies, large-scale immunization of health care workers is associated with a reduction in nosocomial infections, including a decrease in mortality rates in residents of long-term care homes.[13,14]

1.1 Annual influenza immunization is strongly recommended for all staff[15], particularly those who have contact with individuals in high-risk groups. Such staff include: physicians, nurses and others in both hospital and outpatient settings; emergency response workers; employees of chronic care facilities who have contact with residents; and providers of home care, visiting nurses or volunteers.[16]

Influenza immunization for staff involved in direct patient/resident/client care is a standard of care. In 2003/04, staff immunization rates in Ontario health care settings varied considerably: an average of 88% of staff in long-term care homes[17]; 46% of emergency service workers[18]; and 36% of staff in acute care facilities were immunized against influenza. Health care settings, occupational health services and the professions should work together to improve staff immunization rates.

1.2 Influenza immunization should be available in the workplace.

To make it as easy as possible for staff to comply with influenza immunization policies, health care settings should provide workplace immunization clinics.[19]

1.3 Staff involved in direct patient/resident/client care should consider it their responsibility to provide the highest standard of care, which includes receiving an annual influenza immunization. In the absence of contraindications to the vaccine, refusal to be immunized against influenza is a failure in staff's duty of care to patients.[20]

Contraindications to influenza vaccine include an anaphylactic reaction to a previous dose or any component of the vaccine, or known anaphylactic hypersensitivity to eggs, which is manifested by hives, swelling of the mouth and throat, difficulty breathing, hypotension and shock. Pregnancy and breast feeding are not considered contraindications to influenza vaccine.

1.4 All health care settings should have staff immunization policies in place consistent with the Ontario Hospital Association/Ontario Medical Association joint Influenza Surveillance Protocol for Ontario Hospitals.[21] ***These policies should establish annual influenza immunization as a standard of care and set out the steps to protect patients and staff (e.g., reminding staff about the importance of annual immunization, documenting each person's immunization status, excluding unimmunized staff from work during outbreaks).***

During an influenza outbreak, clinical infection rates range from 10% to 20% in the general community to >50% in closed populations, such as patients/residents in hospitals and long-term care homes. To protect vulnerable patients during an outbreak, staff who have confirmed or presumed influenza or who have not been immunized and are not taking antiviral prophylaxis should be excluded from providing direct patient care.[22] Antiviral prophylaxis should not replace annual influenza immunization. Immunization is the primary tool in preventing the spread of influenza.

1.5 In Ontario, annual influenza immunization is recommended and available to everyone unless medically contraindicated. It is particularly important for those at high risk of influenza-related complications, as defined by the National Advisory Committee on Immunization (NACI), and those capable of transmitting influenza to them, including health care providers.

Many people at high risk of influenza-related complications (e.g., adults and children with chronic conditions, people over age 65 and residents of long-term care homes) receive care in Ontario health care settings, which means that health care providers are capable of transmitting influenza to them. For this reason, it is particularly important for health care providers to be immunized.

2. Case Finding/Surveillance

Case finding/surveillance is designed to help health care settings identify individuals with FRI who may pose a risk to patients/residents/clients and/or staff.

2.1 All health care settings should ensure they have the ability to identify cases of FRI, and to detect clusters or outbreaks of FRI.

2.2 All patients/residents/clients who present at a health care setting should be assessed for symptoms of FRI using the Case Finding/Surveillance Protocol for Febrile Respiratory Illness ***(see page 7)***

2.3 Case finding/surveillance can be done using an active, a passive or a combined approach.

In ***active case finding/surveillance***, a receptionist or health care provider will ask patients/ residents/clients about possible symptoms. During active case finding/surveillance, the receptionist or health care provider asking the initial questions should maintain at least one meter distance from the patient/resident/client or be protected by a glass or Plexiglas barrier.

In passive case finding/surveillance, signage asks patients/residents/clients to self-assess and self-identify. (See Appendix 3 for sample signage.)

Health care settings are encouraged to take an active approach to case finding/surveillance.

Some settings use both active and passive approaches: signage that directs patients who have symptoms to take certain precautions with follow-up questions by a receptionist or health provider that confirm that patients have read and understood the sign. This is particularly important where age, language or disability may be a barrier to patients reading a sign and following instructions.

A health care setting's decision to conduct active or passive case finding/surveillance will depend on the physical set up of the office or clinic, the type of care provided, and the risk of transmission (e.g., a setting where staff have little direct face-to-face contact with patients may choose to use passive case finding/surveillance). Some health care settings may choose to use a passive approach when there are no worldwide alerts or community influenza activity, and shift to a more active approach during times when there is more FRI activity.

2.4 Patients/clients receiving care in their homes should be assessed for symptoms of FRI using the Case Finding/Surveillance Protocol for Febrile Respiratory Illness

Case finding/surveillance for people receiving home care should be ongoing. This case finding/ surveillance can be done using a number of approaches. For example:

- when patients requiring additional infection prevention and control precautions are discharged from hospital, the hospital should ensure that information is communicated to the agency providing home care and ask the patient or a family member to inform the home care provider.
- the agency responsible for managing the care should call a new client within 24 hours of the first scheduled visit, ask the symptom questions over the phone and ask the client to inform home care staff if he or she develops respiratory symptoms. If, for some reason, the agency is not able to reach the client by phone, the worker should ask the questions before providing services.
- for subsequent visits, the client (or a family member) can be asked to self-assess for symptoms of fever or cough, and notify home care staff when they arrive at the home, or staff can start each encounter by asking about any symptoms of cough or fever.

The type of approach an agency uses will depend on whether the client is a new or long-term client, and on the client's (family's) capacity to self-assess. When home care clients have symptoms of a febrile respiratory illness, staff should be equipped with and use suitable preventive practices, including droplet precautions (see section 3. Preventive Practices).

Documenting and Communicating Case Finding/Surveillance Activities

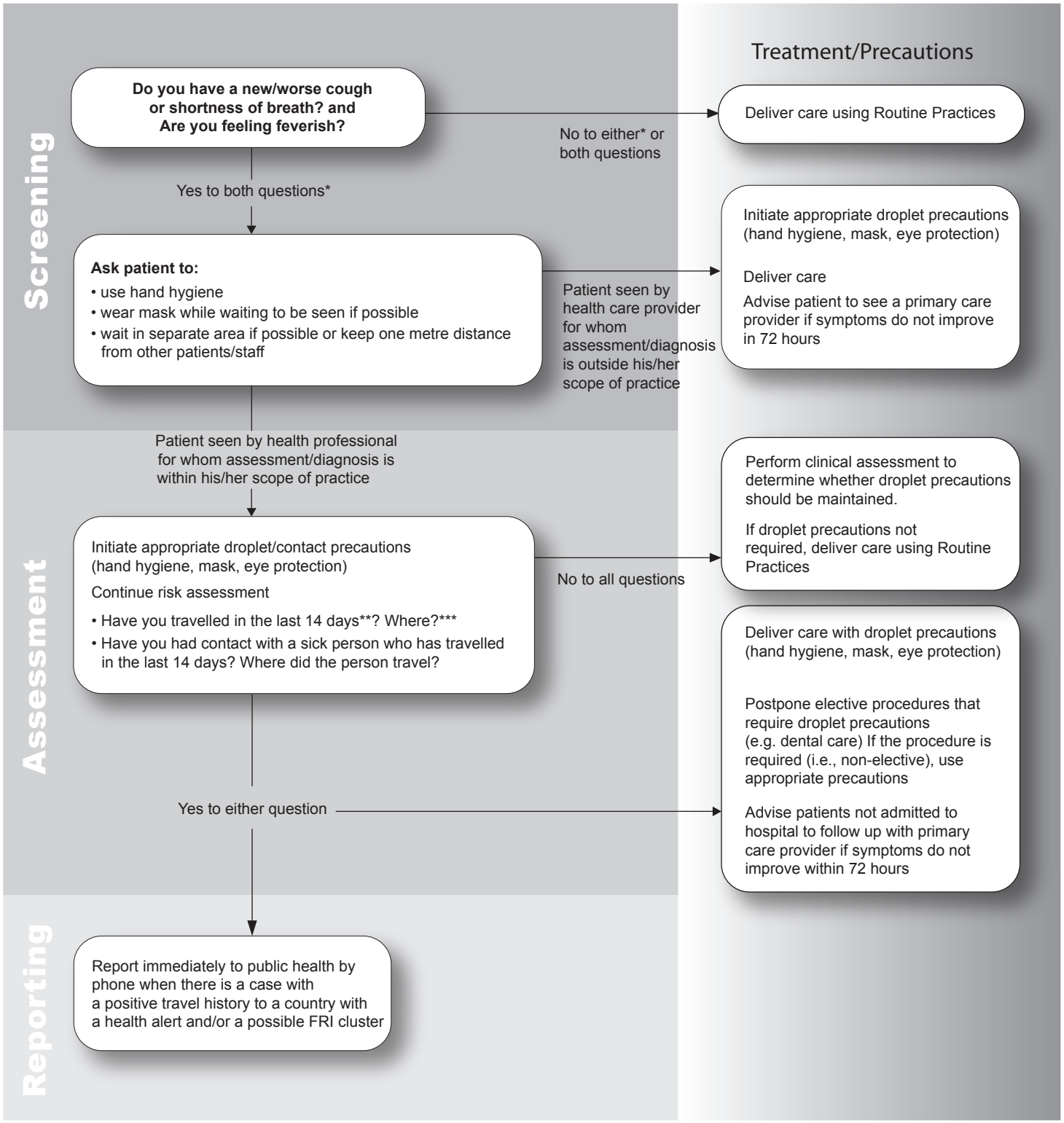
2.5 The health care setting will ensure that all staff who have contact with a patient with FRI symptoms are aware of the need to initiate and maintain preventive practices (see Section 3 below).

It is necessary to assess each patient/resident/client for FRI symptoms and to document that the assessment has been completed. It is not necessary to maintain a separate paper document. Some settings (e.g., emergency departments) prefer to use a written tool (see Appendix 2) to document their case finding/surveillance activities. Others establish a practice of making a note on the patient's chart when a respiratory illness of possible infectious etiology has been identified and preventive practices have been initiated. Some facilities have developed surveillance/monitoring form to make it easier to identify and follow inpatients with FRI (see Appendix 4).

2.6 Once the need for preventive practices has been established, any receiving unit or diagnostic service must be informed.

Regardless of the process used, the health care setting must ensure that staff have the information they need to protect themselves and other patients. The need to initiate and maintain preventive practices must be captured and communicated clearly to all staff who have direct patient contact. There must also be a consistent process to inform staff when, based on a subsequent reassessment, preventive practices are no longer necessary.

Case Finding/Surveillance Protocol for Respiratory Illness of Probable Infectious Etiology



* NOTE: *Elderly people and people who are immunocompromised may not have a febrile response to a respiratory infection so the presence of new onset cough/shortness of breath may be enough to trigger further precautions.*

** The time frame for travel risk has been changed to 14 days (two weeks), which is consistant with recommendations from the Public Health Agency of Canada. (see: http://www.phac-aspc.gc.ca/sars-sras/pdf/sars-icg-nonoutbreak_e.pdf).

*** For a current list of countries with health alerts, see: http://www.phac-aspc.gc.ca/tmp-pmv/index.html

3. Preventive Practices

Infection prevention and control practices are designed to protect patients, health care workers and the public from exposure to infectious diseases, and reduce the risk of transmission in health care settings. In environments where people with infectious diseases are treated, there is no such thing as "total protection" or "zero risk" for patients, visitors or health care workers, but there are steps that health care settings can take to significantly reduce the risk.

In the case of droplet-spread respiratory illness, the appropriate response is droplet precautions (see glossary). For more information on droplet precautions, see the Public Health Agency of Canada publication: *Infection Control Precautions for Respiratory Infections Transmitted by Large Droplet/Contact: Infection Control Guidance in a Non-Outbreak Setting, When an Individual Presents With a Respiratory Infection*. (See: http://www.phac-aspc.gc.ca/sars-sras/pdf/sars-icg-nonoutbreak_e.pdf).

In Ontario, preventive practices for droplet-spread FRI include the following:

Personal Practices to Prevent Spread of FRI

- having the annual influenza immunization
- practising frequent hand hygiene
- staying home from work or school when ill
- not visiting people in hospital or a long-term care home when ill
- covering the mouth when coughing
- care when disposing of tissues
- hand hygiene after using tissues.

Anyone Entering the Health Care Setting

3.1 Health care settings and staff should reinforce with staff/patients/residents/clients and visitors the personal practices that help prevent the spread of FRI (see box).

3.2 All health care settings must have accessible hand hygiene stations in appropriate locations, and signage instructing all patients, residents, visitors and volunteers on when to practice hand hygiene.

Hand hygiene has been shown to be effective in preventing and controlling infections in both institutions and community settings. In one hospital-wide program to improve compliance with hand hygiene, there was a reduction in nosocomial infections and transmission of *methicillin-resistant Staphylococcus aureus* (MRSA).[23] Hand hygiene has also been effective in preventing illness-related absenteeism in elementary school children and in reducing the spread of diarrhea in the community.[24,25]

Signage and hand hygiene stations help raise awareness about the risk of disease transmission in health care settings, and reinforce personal/individual responsibility for hand hygiene.

3.3 All health care settings should establish a clear expectation that staff do not come into work when ill with FRI, and support this expectation with appropriate attendance management policies.

"**Health care workers have a responsibility to their patients and colleagues regarding not working when ill with symptoms that are likely attributable to an infectious disease. This includes staff with influenza-like illness, febrile respiratory illness, gastroenteritis and conjunctivitis**".[26]

Attendance management policies must reinforce, rather than act as a disincentive to, staff fulfilling this responsibility. For example, all health care settings should ensure that they: provide sick leave benefits for all staff (either in the form of paid sick days for full-time staff or in compensatory wage rates in lieu of benefits to part-time staff); avoid reward programs for staff who have no sick days; and actively exclude staff who are ill (i.e., send staff home who arrive at work ill).

Symptomatic Patients

3.4 Patients presenting for care in a health care setting who have symptoms of FRI (i.e., fever, cough) should be asked to perform hand hygiene and wear a surgical or procedure mask and either wait in a separate area or keep one meter away from other patients and staff.

Patients should be asked to perform hand hygiene (i.e., apply an alcohol based hand rub to their hands).

The purpose of asking symptomatic patients to wear masks is to protect other patients/staff in common waiting areas. While masking is preferable, not all patients will be able to tolerate masks (e.g., children, people with chronic breathing problems, people with dementia). In these cases, the setting should, if possible, have the patient wait in a separate area or keep at least a one meter distance from other patients. Each health care setting's capacity to separate patients with FRI symptoms will depend on space. In crowded waiting areas, precautions like hand hygiene and masks become even more important. If masks are not available, patients should be encouraged to use another method to cover their mouth and nose when coughing or sneezing (e.g., tissue).

Accommodation

3.5 Patients who have symptoms of FRI AND a travel history to an area with a health alert should be moved immediately out of the waiting room and put in a separate room.

3.6 Whenever possible, patients who have symptoms of FRI who are admitted to a hospital should be accommodated in a single room. Residents of long term care who are not in single room accommodation should be managed using droplet precautions with privacy curtains drawn.

Precautions

3.7 Health care providers within one meter of patients with FRI symptoms should consistently use droplet precautions:

wear a good quality surgical/procedure mask covering the nose and mouth when providing direct care within one meter of the patient

use protective eye wear when providing direct care within one meter of the patient

perform hand hygiene (i.e., using alcohol-based hand rub or washing hands: before seeing the patient; after seeing the patient and before touching the face; and after removing and disposing of personal protective equipment)

use examination procedures that minimize contact with droplets (e.g., sitting next to rather than in front of a coughing patient when taking a history or conducting an examination)

wear appropriate gloves as per Routine Practices when the worker is likely to have contact with body fluids or to touch contaminated surfaces

wear gowns as per Routine Practices during procedures and patient care where clothing might be contaminated

any communal or shared equipment must be cleaned and disinfected after use.

PPE should be removed after the health care provider has completed patient care and is > 1 meter from the patient.

Criteria for Selecting Masks

- Securely covers the nose and mouth
- Substantial enough to prevent droplet penetration
- Should be able to perform for a minimum of 45 minutes

Criteria for Selecting Eye Protection

- Eye protection must provide a barrier to splashes from the side
- May be safety glasses or face shields
- May be single use disposable or washable before reuse
- Prescription eye glasses are not acceptable as eye protection

Criteria for Selecting Alcohol-based Hand Rub

- 60% to 90% alcohol (isopropanol or ethanol)

Recommended Process for Removing Personal Protective Equipment (PPE)

After the health care provider has completed patient care and is >1 metre distance from the patient:

- Remove gloves and discard using a glove-to-glove/skin-to-skin technique.
- Remove gown (discard in linen hamper in a manner that minimizes air disturbance).
- Perform hand hygiene.
- Remove eye protection and discard or place in clear plastic bag and send for decontamination as appropriate.
- Remove mask and discard.
- Perform hand hygiene.

This is a minimum procedure. If health care providers believe their hands have become contaminated during any stage of PPE removal, they should perform hand hygiene before proceeding further.

Note: Sinks that patients use may be heavily contaminated and should not be used by health care providers for hand hygiene unless no other alternative is available.

Respiratory Procedures Generating Droplets /Aerosols

Certain respiratory procedures (see box) may generate droplets/ aerosols that may expose staff to respiratory pathogens and therefore are considered to be a potential risk for staff and others in the area.

3.8 Routine Practices requires that staff use personal protective equipment when procedures generating droplets/aerosols are performed on any patient with or without symptoms of FRI *(see Appendix 1).*

For patients with FRI the following apply, in addition to Routine Practices.

3.9 Procedures that generate droplets/aerosols on patients with FRI should be done by experienced staff.

3.10 If possible, staff should avoid initiation of non-invasive ventilation (e.g. CPAP, BiPAP) for patients with FRI because their secretions may contaminate respiratory equipment and be expelled into the environment. Secretions may be propelled beyond a one meter distance. If initiating non-invasive ventilation in a patient with FRI, carefully consider the benefit of this procedure for the patient vs. the potential occupational risk.

If non-invasive ventilation is initiated for a patient with FRI, the patient should be in a private room and staff should wear appropriate personal protective equipment and ensure appropriate cleaning and disinfection of other equipment and the patient's environment.

Examples of Respiratory Procedures Generating Droplets/Aerosols

- nebulized therapies
- use of bag-valve mask to ventilate a patient
- endotracheal intubation, including during cardio-pulmonary resuscitation
- open airway suctioning
- tube or needle thoracostomy
- bronchoscopy or other upper airway endoscopy
- tracheostomy

3.11 Individuals with chronic tracheotomies or chronic non-invasive ventilation do not require droplet precautions. If symptoms of FRI develop then droplet precautions are required.

3.12. Usual oxygen therapy, whether or not it is humidified, does not increase the risk of droplet spread. However, patients on oxygen concentrations of 50% or higher are often patients who are coughing and who require high-intensity care very close to their airways. Thus, exposure to droplets from the airways of such patients during care is common, and droplet precautions are routinely recommended for care.

Mechanical Ventilation

3.13 Personnel caring for patients with FRI on mechanical ventilators operating in a closed system may use Routine Practices. If the integrity of the system is breached (e.g., open suctioning, filter changes), staff in the room must use droplet precautions.

Ventilators with built in hydrophobic submicron filters in the expiratory circuit should be used. If this is not possible, a disposable filter must be placed in the expiratory circuit of the ventilator. Filters must be changed when fluid build-up impedes ventilation.

Disposable filters and disposable ventilator circuits must be bagged and sealed for disposal.

Heated wire circuits should be used on both the inspiratory and expiratory limbs of the ventilator circuit. In some cases, the use of heated dual wire circuits will not reduce the amount of condensation within the circuit (therefore necessitating more circuit disconnects). In this situation the use of a Heat Moisture Exchanger (HME) or HME filter may be preferable.

A water trap/filter combination should be placed at the end of the expiratory circuit in an effort to decrease the frequency of filter changes.

When using manual resuscitation bags:

- a hydrophobic submicron filter must be placed between the endotracheal tube and the bag or on the expiratory exhaust component of the bag
- reusable equipment must be fully cleaned or bagged, sealed, and then placed in an impervious bag to send for cleaning
- disposable equipment should be placed in a bag for disposal.

Disposal of filters and cleaning/disposal of bags and filters are potential high-risk exposures and staff must protect themselves using droplet precautions.

Equipment and the Environment

3.14 Health care settings must ensure that staff have quick easy access to the personal protective equipment required.

All units and crash carts should be equipped with:

- surgical/procedure masks, eye protection, gloves, gowns
- a manual resuscitation bag with hydrophobic submicron filter
- in-line suction catheters*
- non-rebreather mask that allows filtration of exhaled gases (ideally a low flow high oxygen concentration mask)**

3.15 In all settings where care is delivered, staff should follow procedures for managing and disposing of equipment that are consistent with the Public Health Agency of Canada guidelines (see http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf).

Providers should only take the equipment they need into the area where care will be provided. All reusable equipment must be cleaned and disinfected. (See also the College of Physicians and Surgeons of Ontario document: *Infection Control in the Physician's Office, 2004*.)

Whenever possible, providers should use disposable equipment which can be safely discarded with regular garbage and should be disposed of immediately upon exiting the room where care is delivered. Providers should also have an adequate supply of alcohol-based hand rub to ensure appropriate hand hygiene.

3.16 All health care settings should maintain routine cleaning practices including: keeping the working environment clean, disinfecting areas that may have been contaminated after each patient visit, and disinfecting areas that may have been contaminated by respiratory droplets during procedures routinely requiring droplet precautions.

* If patient is a small child, suctioning may be performed in the normal fashion.

** A special mask which concentrates oxygen using low flows (e.g., Hi-Ox)

Maintaining a clean environment involves wiping down any areas touched by a patient with a febrile respiratory illness during the visit (e.g., arms of the chair in the waiting room, the examination table, the edge of the desk, the stethoscope, anything within arm's reach of where the patient was sitting).

Surfaces should be cleaned and disinfected, and equipment disinfected or discarded, by staff performing the procedure requiring droplet precautions *before* leaving the room and *before* removing personal protective equipment.

The use of commercial, pre-packaged disinfectant wipes that are easily accessible to all staff allows efficient cleaning of equipment and surfaces between patients. All settings should follow the Public Health Agency of Canada *Infection Control Guidelines on Hand Washing, Cleaning, Disinfection and Sterilization in Health Care* (see http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf). The guidelines include the appropriate cleaning agents to use and contact time.

3.17 Droplet precautions may be discontinued when a patient meets any of the following criteria:

an etiologic diagnosis that does not require droplet precautions

clinical improvement on empiric therapy

an alternate diagnosis (i.e., non-infective).

4. Reporting

Reporting is designed to ensure that health care settings and staff and public health authorities have the information they need to prevent and control the spread of both common and emerging febrile respiratory illnesses.

Internal Reporting

To Infection Control

4.1 Health care institutions should have established procedures for notifying Infection Prevention and Control of:

any patients/residents either admitted with or who develop FRI, so they can monitor the situation

any clusters of FRI in either staff or patients. (To protect employees' right to confidentiality, Occupational Health Services will report staff clusters non-nominally to Infection Prevention and Control.)

The purpose of reporting to Infection Prevention and Control is to ensure that appropriate precautions are taken to protect patients and staff, and to monitor/manage any possible outbreaks. (See Appendix 4 for a sample form to keep infection control informed about current inpatient status.)

To Occupational Health Services

4.2 Health care workers who develop FRI symptoms should call in and report their condition to Occupational Health Services or delegate.

4.3 Infection Prevention and Control will alert Occupational Health Services (OHS) about any FRI clusters in patients so OHS can monitor staff. OHS will alert (non nominally) Infection Prevention and Control of any clusters of FRI among staff.

4.4 Employers are required to report to the Joint Occupational Health and Safety Committee or delegate any occupationally acquired infection.

The purpose of reporting staff with FRI symptoms to Occupational Health Services is to identify any possible clusters of infection among staff and ensure that appropriate precautions are being taken in the workplace to protect workers and patients. Staff, Infection Prevention and Control and employers will use the same reporting procedures that they use for other infectious illnesses that can be acquired occupationally (e.g., nausea/vomiting/diarrhea, conjunctivitis).

External Reporting

To Public Health

4.5 Health care setting administrators, laboratories and community/attending physicians should report to the local medical officer of health when:

a patient has a new cough, fever AND a travel history to a country with a health alert OR contact with someone with a travel history to a country with a health alert (i.e., yes to all questions[*] on the case finding/surveillance protocol) Note: It is not necessary to have a laboratory confirmation before reporting.

They are legally required to report to the local medical officer of health when:

the etiology of a febrile respiratory illness is a reportable disease

there is an outbreak or cluster of FRI in any health care facility.

The purpose of reporting to public health is to identify any outbreak or emerging illness early, so public health measures can be implemented to prevent and manage transmission.

Under the *Health Protection and Promotion Act*, physicians, other practitioners[**], and administrators and superintendents of institutions[***] and laboratories are required to report to the local medical officer of health a person who "has or may have a reportable disease" or "is or may be infected with an agent of a communicable disease". For the information to be reported, see the *Health Protection and Promotion Act*, regulation 569.

It is good practice for health care settings to notify public health early and seek advice when they have any unusual FRI clusters, single FRI cases with travel to a country with a health alert, or single FRI cases who have had contact with a person who has traveled to a country with a health alert. Effective communication with public health can assist in early identification of any outbreak or emerging illness.

To the Ministry of Labour

4.6 If a health care provider develops an occupationally acquired infection, his or her employer must report the illness to the Ministry of Labour in accordance with occupational health and safety legislation.

The purpose of reporting to the Ministry of Labour is to provide the information required to begin an investigation of the incident, which may lead to changes designed to safeguard workers' health.

To the Workplace Safety and Insurance Board

4.7 If a health care provider develops an occupationally acquired infection, his or her employer must report the illness to the Workplace Safety and Insurance Board (WSIB) within 72 hours.

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[*] NOTE: Elderly people and people who are immunocompromised may not have a febrile response to a respiratory illness so the presence of cough/shortness of breath and a travel history to a country with a health alert in these patients should trigger a report to public health.

[**] Other practitioners include: nurses, dentists, chiropractors, naturopaths, pharmacists, and optometrists.

[***] Institutions include: long term care facilities, supportive housing, childrens' residences, day nurseries, correction and detention facilities, hospitals, mental health facilities, and any other places of a similar nature.

The purpose of reporting to WSIB is to ensure that the insurance board has the information required to process any claims.

4.8 All external reporting procedures must comply with the relevant legislation, including the Health Protection and Promotion Act, the Personal Health Information Protection Act, 2004, the Occupational Health and Safety Act,, and the Workplace Safety and Insurance Act, 1997.

5. Evaluation

Evaluation is an integral part of infection prevention and control.

5.1 Compliance with influenza immunization, case finding/surveillance, preventive practices and reporting requirements should be evaluated regularly through a measurable audit process, as part of a continuous quality improvement program.

Appendix 1: Routine Practices for Respiratory Procedures Generating Droplets/Aerosols

Proper administrative controls, environmental controls and use of personal protective equipment must be employed when performing any droplet/aerosol generating respiratory procedure. In order to ensure that the appropriate controls are utilized, a risk assessment must be performed (as per Routine Practices, see http://www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr-rmtc/99vol25/25s4/index.html) prior to initiating any such procedure. Uncontrolled intubation can be avoided in most cases if administrative controls are established and reviewed regularly.

The administrative controls include the following practices.

Respiratory Procedures Routinely Requiring Droplet Precautions

- nebulized therapies
- use of bag-valve mask to ventilate a patient
- endotracheal intubation, including during cardio-pulmonary resuscitation
- open airway suctioning
- tube or needle thoracostomy
- bronchoscopy or other upper airway endoscopy
- tracheostomy

1. ***Procedures generating droplets/aerosols should be performed in a single room with the door closed whenever possible.***

   If procedures generating droplets/aerosols must be performed in an area where the patient cannot be placed in a separate room (e.g., resuscitation area), then curtains should be drawn and all non-essential persons kept at least one metre away from the patient. As usual, all contaminated personal protective equipment and other equipment should then be carefully disposed of or cleaned.

2. ***The number of people present in the room during a procedure that generates droplets/aerosols should be kept to a minimum.***

3. ***Everyone present in the room during a procedure that generates droplets/aerosols (including family members there on compassionate grounds) must wear appropriate personal protective equipment and be instructed in its use.***

   For all patients, the procedures listed in the box must be performed using, a surgical/procedure mask, eye protection, gloves and hand hygiene. In addition, gowns should be worn if there is risk of uniform or clothing being contaminated.

4. ***When performing procedures that generate droplets/aerosols use equipment and techniques that minimize exposure to respiratory pathogens.***

   If the patient requires high concentrations of oxygen, a non-rebreather mask that allows filtration of exhaled gases (e.g. low flow high oxygen concentration mask with a hydrophobic submicron filter) should be worn by the patient.

   Intubation should be done in a manner that minimizes production of droplets or aerosols. If the patient's medical condition permits, consider sedation with or without paralysis.

The ventilator and in-line suction device should be in the patient room in advance of intubation, if possible, to reduce the time needed for bag ventilation and to disconnect the bag from the endotracheal tube suctioning.

6. Sputum induction – which is used to obtain respiratory secretions from patients with symptoms of tuberculosis – requires airborne precautions because of the risk of exposure to TB, and must be done in a negative pressure room.

The risk of exposure to tuberculosis during sputum induction requires the use of airborne precautions, including the use of a negative pressure room to protect patients and staff outside the room. See glossary and the *Canadian Tuberculosis Standards*, 5th Edition 2000, Public Health Agency of Canada.

Appendix 2: Sample Case Finding/Surveillance Form

Case Finding/Surveillance Protocol for
Febrile Respiratory Illness
(Questionnaire)

(i) Do you have new/ worse cough or shortness of breath?
if 'no', stop here (no further questions)
if 'yes', continue with next question

(ii) Are you feeling feverish*, or have you had shakes or chills in the last 24 hours?
if 'no', take temperature; if >38 C, continue with next questions, otherwise stop (no further questions)
if yes, take temperature and continue with next questions.

*NOTE: Some people, such as the elderly and people, who are immunocompromised, may not develop a fever.

If the answer to both questions (i) and (ii) is "yes", or if the answer to question (i) is "yes" and the recorded temperature is >38 C,
initiate droplet precautions, and notify Infection Prevention and Control

(iii) Is any of the following true?
Have you traveled within the last 14 days? Where**? or
Have you had contact in the last 14 days with a sick person who has traveled? Where**?

For a current list of countries with health alerts, see:
http://www.phac-aspc.gc.ca/tmp-pmv/index.html

Infection Prevention and Control should notify public health by phone when:
case has a positive travel history and/or there is a possible cluster/outbreak

Appendix 3: Sample of FRI Signage for Passive Case Finding

NOTE: All signs posted in a health care setting should be translated into all languages that are predominant/common within the community.

Read Carefully

1. Do you have a NEW or WORSE cough or shortness of breath?
2. Are you feeling feverish?

If the answer to BOTH of these questions is YES:

Wash your hands

AND

Put on a mask or use a tissue to cover your mouth

AND

Tell the receptionist or nurse right away.

Appendix 4: Daily FRI Surveillance/Reporting Tool

Date: _____ Patient Unit: _____ Page ____ of _____

Each shift is to update this form.
Any new onset of symptoms of fever* AND cough or shortness of breath, and/or new clinical/radiologic diagnosis of pneumonia in patients must be reported to the attending physician immediately and a message left for Infection Prevention & Control.

Name/ Hospital File Number/ Room	Admission Date	Date of new onset symptoms/ diagnosis	Fever >38°C	Cough	SOB	Hypoxia (O^2_{Sat} <92%)	Droplet precautions (Yes or No)	Action(s)	Initials

* NOTE: Some people, such as the elderly and people, who are immunocompromised, may not develop a fever.

Appendix 5: Infection Prevention and Control Resources

Ontario Hospital Association

Ontario Hospital Association. Communicable Diseases Surveillance Protocols. Available online at: http://www.oha.com/client/OHA/OHA_LP4W_LND_WebStation.nsf/page/Communicable+Diseases+Surveillance+Protocols

Ontario Ministry of Health and Long-Term Care

Ontario Ministry of Health and Long-Term Care. Provincial Infectious Diseases Advisory Committee (PIDAC). Available online at: http://www.health.gov.on.ca/english/providers/program/infectious/pidac/pidac_mn.html

Public Health Agency of Canada

Public Health Agency of Canada. Guidelines – Infectious Diseases. Infection Control Guidelines – Hand Washing, Cleaning, Disinfection and Sterilization in Health Care. Canada Communicable Disease Report. 1998; 27(Suppl 8): i-xi, 1-55. Available online at: http://www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf

Public Health Agency of Canada. Guidelines – Infectious Diseases. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care – Revisions of Isolation and Precaution Techniques, 1999. Canada Communicable Disease Report 1999; 25(Suppl 4): 1-142 Available online at: http://www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr-rmtc/99vol25/25s4/index.html

Public Health Agency of Canada. Vaccines. Preventable Disease. Influenza. Available online at: http://www.hc-sc.gc.ca/hpb/lcdc/dird-dimr/vpd-mev/influenza_e.html

Centers for Disease Control and Prevention

Centers for Disease Control and Prevention. Issues in Health Care Settings. Infection Control Guidelines. Available online at: http://www.cdc.gov/ncidod/hip/default.htm

Centers for Disease Control and Prevention. Infection Control Guidelines. Guideline for Isolation Precautions in Hospitals. Available online at: http://www.cdc.gov/ncidod/hip/ISOLAT/Isolat.htm

Centers for Disease Control and Prevention. Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Settings, 2005. MMWR Recommendations and Reports. 2005; 54 (RR-17) Available online at: http://www.cdc.gov/mmwr/PDF/rr/rr5417.pdf

Professional Associations

APIC- Association for Professionals on Infection Control and Epidemiology

Association for Professionals in Infection Control and Epidemiology (APIC). APIC Text of Infection Control and Epidemiology, 2005 Edition. Available for purchase from APIC online store at: http://www.apic.org/AM/Template.cfm?Section=Store

CHICA –Canada. Community and Hospital Infection Control Association Canada

http://www.chica.org

The College of Physicians and Surgeons of Ontario

The College of Physicians and Surgeons of Ontario. Infection Control in Physician's Office, 2004. Available online at: http://www.cpso.on.ca/Publications/infectioncontrolv2.pdf

SHEA - Society for Healthcare Epidemiology of America

http://www.shea-online.org/

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