Respiratory and Direct Contact

Introduction and General Considerations

This section provides a general overview of the communicable diseases transmitted through respiratory and direct contact. The information in this introduction provides both general considerations and key concepts. Specific procedures and information are included within each disease chapter.

Objectives

1. Individuals infected with organisms that are transmitted through respiratory (droplet or aerosolization) and direct contact will be identified, investigated and managed in a timely manner.
2. The complications secondary to infection will be minimized in individuals through the timely identification, investigation and implementation of control measures.
3. Outbreaks will be contained through the timely identification of the source and contacts and through the implementation of prevention and control measures.
4. Health authorities will work to deliver immunization programs according to the provincially funded recommended immunization schedule. Immunization coverage rates are a useful indicator to evaluate programs and plan service delivery to provide the best protection to the population.
5. Information will be managed in a confidential manner and will be shared in accordance with Appendix B - Interjurisdictional Communication, *The Public Health Act, 1994* and *The Health Information Protection Act* and their respective regulations.
6. Information that is required for notification purposes will be extracted from the electronic case management system.

Background

As a group, acute respiratory diseases are one of the leading causes of death from any infectious disease (Heymann, 2008). It has been demonstrated that Canada's ability to fight an outbreak, such as Severe Acute Respiratory Syndrome (SARS), is more closely tied to specific strengths of the public health system than to the health system that provides individual health services. Key aspects of the public health system include the capacity to detect, prevent, understand, and manage outbreaks of significant infectious diseases.

An effective response to an outbreak of severe respiratory illness requires cooperation and collaboration among all jurisdictions – regional, First Nations, provincial, national, and international partners to ensure the timely mitigation of risk and prevention of further illness.

Reporting Requirements

See Reporting Requirements in General Information - Section 1 of the manual for guidelines. Refer to Appendix A – Reporting and Follow-up Timelines.

Methods of Control

Primary Prevention
Many of the organisms that cause respiratory diseases are spread via respiratory droplets generated by coughing and sneezing. These organisms are also spread from person to person when they are in close contact with one another or through touching something with organisms on it and then touching their mouth or nose. "In shelters and other homeless service programs large numbers of people may live together and regularly move in and out. People often share sleeping and bathroom facilities. This means people may have contact with others who have an infection" (Toronto Public Health, 2006).

Coughing and sneezing can also generate small airborne particles that can be inhaled causing infection in the recipient. In general, the following measures are the best way to avoid contact with respiratory droplets or secretions.

Hand Hygiene
"Proper handwashing with soap and water is an important barrier to many infectious diseases and promotes better health and well-being" and "handwashing is one of the most practical and effective ways of preventing the spread of disease" (World Health Organization as quoted by College of Registered Nurses of Manitoba, 2010).

This is especially important after touching surfaces or objects that might be contaminated with respiratory droplets, or after touching persons who are ill with respiratory symptoms. Alcohol hand gels are an adequate substitute when soap and clean water are not readily available and your hands are not visibly soiled. Alcohol gels are not effective if hands are soiled with protein material. Refer to Attachment – Handwashing.

Personal Protective Measures

Avoiding crowds and practicing respiratory hygiene and cough etiquette can help reduce the spread of respiratory illnesses:

- cover the nose and mouth when coughing or sneezing;
- tissues should be used to contain secretions and should be properly disposed of at the earliest opportunity;
- practice hand hygiene after handling items that may be contaminated with respiratory secretions.

Avoiding sharing of personal items (eating/drinking utensils, towels, toothbrushes, etc.) may reduce the risk of transmission of bacteria and viruses. Bacteria and viruses that cause respiratory illness may survive on hard non-porous surfaces and be transmitted to others, via hand contamination and self-inoculation. These surfaces should be cleaned and sanitized on a regular basis, especially when people are sick.

Immunization

A number of communicable diseases transmitted by respiratory contact and direct contact are preventable through vaccination. "Vaccination programs are considered to be the most cost-beneficial health intervention and one of the few that systematically demonstrate far more benefits than costs" (Health Canada, 2002, p. 2). Immunization history should be obtained from and reviewed with clients. Every effort should be made to update a client's immunizations as per the recommendations in the Saskatchewan Immunization Manual.[1]

[1] http://www.ehealthsask.ca/services/manuals/Pages/SIM.aspx.

Secondary Prevention
Asymptomatic carriage can serve as a source of infection to others. When a case occurs in a setting with susceptible individuals (i.e., long term care facilities), active screening of individuals may be an appropriate action so prevention and control measures can be implemented to interrupt the chain of infection.

The specific level of intervention and contact tracing varies according to the disease and should be individualized based on the guidelines in the specific agent.

General Guidelines for Investigation of Diseases Transmitted through Respiratory and Direct Contact

These guidelines aim to assist in the collection of information and define control measures for organisms that are transmitted through respiratory and direct contact. Refer to the General Information - Roles of Stakeholders section of the manual. Appendix C - Major Legislation identifies the significant Acts and Regulations that are applicable to Communicable Disease Control in Saskatchewan. The following questions/guidelines[2] can assist you to determine the approach you will need to follow to prevent and control the disease.

1. What is the source of the disease? Can it be identified? Communication with the case is important to determine the **risk factors**, **exposures** and **potential exposures of others** to the disease.
2. Who else may have been exposed to the disease? When determining the possible source and possible contacts exposed, the **incubation period, mode of transmission** and **period of communicability** are important considerations. Key considerations include:
    - Recent exposure to someone else who is sick with similar symptoms.
    - Travel history.
    - Attendance in childcare, school, daycare, healthcare settings.
3. Is an outbreak present?

[2] These questions were adapted from
http://www.health.gov.nl.ca/health/publications/diseasecontrol/dcresp.pdf

4. What is the potential impact of the disease for the individual? Their household/family? Their community?
5. Are there people who are more likely to develop symptoms or serious manifestations of the infection?
6. Is there a population who are more likely to be susceptible to the infection?
7. What interventions are available to prevent the transmission of the infection? Refer to disease specific measures and implement necessary activities.
8. Is there a high risk for transmission to others (e.g., highly communicable agent, common vehicle for transmission such as food or water, etc.)? Determine if this individual is in a situation where there is a high risk of transmission of the organism (childcare, health care worker, environmental conditions conducive to transmission, etc.). Who else may have been exposed to the disease? Conduct contact tracing to:
    - Determine if the contact is in a high-risk group.
    - Inform contacts of any prophylaxis and/or exclusion measures:
        - information that should be gathered from the contacts relates to their **level of risk**, **the need for testing**, the potential **benefit of prophylaxis** (as detailed in the disease sections specifically) and **immunization history**.
        - interventions such as **exclusion/isolation/quarantine** may be appropriate depending on the nature of the disease and the status of the contacts that have been identified.
9. Educate case and contacts regarding:
    - The nature of the disease including the incubation period, period of communicability, mode of transmission, etc.
    - Self-care measures.
    - Personal protective measures, which should always include hand washing, not sharing personal items (eating and drinking implements, towels, lip balms, etc.).
    - Disease control measures they must follow (treatment, exclusion, etc.).
    - Publicly funded treatment and chemoprophylaxis is indicated for certain diseases such as meningococcal disease, tuberculosis and *Haemophilus influenzae* type b invasive disease. Publicly funded control measures may be used in long-term care facilities in the event of an influenza outbreak.

10. Obtain an immunization history from case and appropriate contacts.
    - Immunizations should be offered to cases and contacts that are not up-to-date or who are eligible for vaccines as per the Saskatchewan Immunization Manual[3] – Chapter 5: Immunization Schedules and Chapter 7: Immunization of Special Populations.
    - Depending on the organism and other circumstances, it may be prudent to offer immunization for the disease for both the case and the contact(s). Refer to disease section for details.
11. Document case management and follow-up information on the electronic case management and surveillance system.
12. Communication with other stakeholders (physicians, acute and long term care, schools, daycares, etc.) is vital for a coordinated and efficient response to a single case or an outbreak of communicable disease. Maintaining **confidentiality** according to the corresponding legislation is important.

Special Considerations

Certain individuals and certain environments may be considered higher-risk. The following sections outline some circumstances that may need to be considered when doing your investigation.

Immunocompromised/Immunosuppression

The status of an individual's immune system may have an impact on the individual's response to the disease. When there are circumstances that have an impact on an individual's immune system, additional interventions may be required.

Elderly and Infants

Elderly people and infants may be more susceptible to some communicable diseases. Some organisms are also more virulent in these individuals.

[3] http://www.ehealthsask.ca/services/manuals/Pages/SIM.aspx.

Immigrants/Refugees

Depending on the diseases required to be screened for under immigration regulations and adherence with treatment regimes prior to emigrating, the immigrant or refugee may carry with them diseases specific to their country of origin. Additionally, these individuals may be more susceptible to certain diseases as immunization programs in their country of origin may be different from Saskatchewan or Canadian standards.

Individuals with Suboptimal Personal Hygiene Practices

Individuals with poor practices of personal hygiene (i.e., mentally or physically handicapped) may serve as a vehicle of transmission due to the lack of self-care measures that are useful in interrupting the chain of infection.

Child Care Centres

Young children have limited ability to implement the individual measures to reduce the risk of spread of diseases. This provides an increased opportunity for transmission. This also necessitates early identification and diligent infection control practices. Refer to the Saskatchewan Ministry of Health Infection Control Manual for Child Care Facilities.[4] This serves as an excellent resource for daycare settings to assist in minimizing the risk and spread of communicable diseases.

Health Care Facilities and Institutional Settings

Health care facilities present as a high-risk environment for two reasons:

1. Typically, the clients/patients within the facility are there because either they have a medical condition that puts them at greater risk for contracting an infection or they are already infected and experiencing complications of a communicable disease.
2. Health Care Workers serve as a vehicle for transmission of a communicable disease to a high-risk individual.

To avoid this, familiarity with and adherence to Infection Control Guidelines and Practices is of paramount importance.

Travel

[4] http://www.saskatchewan.ca/live/births-deaths-marriages-and-divorces/starting-a-family/early-learning-and-child-care/child-care .

Travel to destinations where one can be exposed to communicable diseases that are not common or endemic in Saskatchewan or Canada.

Environments Where Individuals are in Close Proximity to Others

This may be related to crowded living conditions such as multi-family homes and homeless shelters. It may also be related to environments where people are in close proximity to groups of people such as in schools, airport/bus terminals, public transportation vehicles, etc.

Public Health Agency of Canada (2007) states "Statistics Canada uses the measure of persons per room (PPR) to assess crowding in houses. PPR is calculated by dividing the number of persons living in a dwelling by the number of rooms." Rooms refers to all rooms within a dwelling excluding bathrooms, halls, vestibules and rooms used solely for business purposes. This statistic is not sensitive to the size of the house or the rooms, or to the composition of the household (age of occupants, etc.). For diseases transmitted through the respiratory route it is found that the higher the number of persons per room, the greater the risk for transmission within the household. Greater than one person per room puts the occupants at greater risk for these illnesses.

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