



**GUIDELINES FOR MANAGEMENT OF INVASIVE MENINGOCOCCAL DISEASE
ACROSS THE
CONTINUUM OF CARE**

**Department of Health & Community Services
Disease Control Division**

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DEFINITIONS

Notifiable Cases

Confirmed Case*	Invasive disease with laboratory confirmation of infection: <ul style="list-style-type: none"> • Isolation of <i>Neisseria(N) meningitidis</i> from a normally sterile site (blood, cerebrospinal fluid (CSF), joint, pleural or pericardial fluid; OR • Demonstration of <i>N meningitidis</i> DNA by appropriately validated nucleic acid test (NAT) from a normally sterile site.
Probable Case*	Invasive disease with purpura fulminans or petechiae and no other apparent cause: <ul style="list-style-type: none"> • With demonstration of <i>N meningitidis</i> antigen in the CSF or • In the absence of isolation of <i>N meningitidis</i> or demonstration of DNA by appropriately validated NAT from a normally sterile site

***All confirmed and probable cases are notifiable at the provincial and at the national level.**

Description of Cases

Sporadic Case	A single case occurring in a community where there is no evidence of an epidemiologic link (by person, place or time) to another case.
Index Case	The first case occurring in a community
Subsequent Case	A case with onset of illness subsequent to another case with whom an epidemiologic link can be established. This category includes co-primary cases (a person who develops illness within 24 hours of onset of illness in the index case, as well as secondary cases (a person developing illness >24 hours after onset of illness in the index case).
Epidemiologic Link	A person has one or both of the following in common with a confirmed case: <ul style="list-style-type: none"> • Contact with a common, specific individual • Presence in the same location (egg., work, school) at or around the same time
Conjunctivitis	Isolation of <i>N meningitidis</i> from the eye or the conjunctival sac in association with purulent conjunctivitis.
Pneumonia	A case is one with a gram stain showing Gram-negative diplococcus and a polymorphonuclear cell response from sputum or respiratory aspirate, isolation with heavy growth of <i>N meningitidis</i> and clinical or radiological evidence of pneumonia.
Conjunctivitis & Pneumonia	The management of close contacts of cases is the same as for close contacts of other invasive disease. The cases must be reported provincially.

Close Contacts

Disease Risk	Type of Contact	Chemo-prophylaxis
High Risk	Household contacts of the case, especially young children	Yes
	Children and staff in child care and nursery school facilities	Yes
	Persons who share sleeping arrangements with the case	Yes
	Direct exposure to index case's nose or mouth with oral or nasal secretions through kissing or through sharing toothbrushes, cigarettes, or eating utensils; markers of close social contact	Yes
	Health care workers (HCW) who have had intensive unprotected contact (without wearing a mask) with infected patients (eg., intubating, resuscitating or closely examining the oropharynx)	Yes
	Airline passengers sitting immediately on either side of the case but not across the aisle) when the total time spent aboard the aircraft was at least 8 hours	Yes
Low Risk	Casual Contact: No history of direct exposure to the index case's oral secretions (eg., school or work)	No
	Indirect contact: Only contact is with a high-risk contact, no direct contact with the index case	No
	Health care worker without direct exposure to the index case's oral/respiratory secretions	No

Outbreak

An outbreak is an increase in transmission of *N meningitidis* in a population, manifested by an increase in cases of the same serogroup.

Types of Outbreaks

Organization-based	Increased transmission of <i>N meningitidis</i> in an organization or institution with two or more cases of the same serogroup occurring within a 4-week interval. This includes restricted populations, such as schools, day care, sports groups or social groups, as well as nursing homes or long-term care facilities.
Community-base	Increased transmission of <i>N meningitidis</i> in a community, with three or more confirmed cases of the same serogroup occurring within a 3-month interval AND an age-specific incidence OR specific community population incidence of approximately 10/100,000, where there is an absence of an epidemiologic link between cases. This is not an absolute threshold and should be considered in the context of other factors.
Persistently elevated rates	There is ongoing occurrence of cases of meningococcal disease of the same serogroup at rates above the expected level of disease in a given population. These cases can be sporadic or outbreak-related and continue to occur despite control measures.

PURPOSE

This guideline has been developed to assist in the investigation and management of invasive meningococcal disease in the Province of Newfoundland Labrador. It will include strategies for management of sporadic cases and for outbreaks.

BACKGROUND

Invasive meningococcal disease is a rare but serious infectious disease responsible for high case fatality and morbidity rates. It can result in meningococemia, meningitis or both. Onset is often abrupt and the progression of the disease is rapid with fever, chills, malaise, prostration, and a rash that initially can be macular, maculopapular, or petechial. In severe cases purpura, disseminated intravascular coagulation, shock, coma, and death can occur despite appropriate treatment. Prompt diagnosis and treatment is critical and aggressive contact tracing is essential to the prevention of secondary cases.

In Canada, recent statistics show the number of invasive meningococcal disease ranges from 153-367 cases per year, an incidence rate of 1/100,000 population. The serogroups responsible for disease worldwide include: Group A: most prevalent in Africa & China; Group B & C: major cause of endemic disease in Canada; Group Y: increased in USA & Canada from 1990's; and Group W-135 is uncommon. In 2003 the serogroup distribution in Canada was: Group B – 43%; Group C – 25%; Group Y – 22%; and other 10%.

SURVEILLANCE

Invasive meningococcal disease is reportable to the regional Medical Officer of Health (MOH), to the Provincial Department of Health and Community Services and to the Public Health Agency of Canada (PHAC). When a clinical case is suspected or a case is laboratory confirmed the attending physician must report the case immediately, by phone, to the MOH. The MOH will involve the Communicable Disease Control Nurse (CDCN) and the Infection Control Practitioner (ICP). Information required for the case report is included in Appendix 1. The CDCN is responsible for ensuring the data is entered into the database and the Provincial Public Health – Disease Control division is responsible for submitting the data to PHAC. The Public Health Laboratory provides a weekly report of any identified cases to the provincial office.

MANAGEMENT OF INVASIVE MENINGOCOCCAL DISEASE

Case Management

Emergency care

- Invasive meningococcal disease is a medical emergency and requires prompt assessment and treatment. The treatment is not within the scope of this guideline.
- The case should receive antibiotics that eradicate nasopharyngeal carriage before discharge from hospital as therapy alone may not eliminate carriage of the organism.

Infection Control

- Cases presenting with symptoms of meningococcal disease should be managed on Droplet Precautions until 24 hours after initiation of effective antimicrobial therapy or an alternate diagnosis has been made.
- Droplet transmission occurs when droplets containing microorganisms generated from an infected person are spread to another person during coughing, sneezing, and during the performance of intubation and bronchoscopy. The droplets are expelled up to one meter (3 feet) through the air and are deposited on the nasal or oral mucosa of the new host.
- Droplet Precautions include:
 - Accommodation – a private room with handwashing and toilet facilities
 - A procedure/surgical mask and eye protection – this should be worn when providing care within <1 meter (3 feet) of the patient
 - Patient and family teaching regarding the disease and the precautions
 - Visitor information regarding the disease

Additional information on Droplet Precautions is available in the guideline on Routine Practices and Additional Precautions for preventing transmission of infection in health care (Health Canada, 1999).

- Information on IMD for Health Care Workers is included in Appendix 2.

Contact Management

Contact tracing is a Public Health role and will be coordinated by the MOH. The Communicable Disease Control Nurse will collaborate with the Infection Control Practitioner and the Community Health Nurse to generate a close contact list (Appendix 3 & 4). The aim of contact tracing is to eradicate nasopharyngeal carriage of *Neisseria meningitidis* in close contacts. Close contacts are at increase risk of IMD with the attack rate for household contact 500 to 800 times the rate for the general population.

Close Contacts

Close contacts must have had contact with the index case **7 days** before the onset of symptoms to 24 hours after the start of effective treatment regardless of their immunization status

- Close contacts must be identified as soon as possible
 - given information on the signs and symptoms of IMD (Appendix 5)
 - advised to seek medical attention immediately if they should develop any symptoms
- Chemoprophylaxis of close contacts should be administered as soon as possible and preferably within 24 hours of case identification but is still recommended for up to 10 days (the incubation period) after the last contact with an infectious case
 - It should be considered for close contacts of **strongly** suspicious cases of IMD even when laboratory evidence is not available

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- Health care workers
 - Contacts are those who have had intensive, unprotected contact, with the infectious respiratory droplets/secretions of the infected patient (e.g. intubation, resuscitating or closely examining the oropharynx)
 - Health care workers without direct exposure to a patient's infectious respiratory droplets/secretions, such as those providing general medical or nursing care, do not require prophylaxis
 - Exposure of the eyes to respiratory droplets is not considered an indication for prophylaxis
 - Health care workers should wear masks when carrying out procedures which may result in exposure to infectious respiratory droplets

 - Travelers
 - An attempt should be made to trace, contact and offer chemoprophylaxis and vaccination (if vaccine preventable) to the following:
 - Persons traveling with the index case who have had prolonged close contact (e.g. room-mates)
 - Passengers who were sitting immediately on either side of the index case
 - Passengers who have direct contact with the respiratory secretions of the index case
 - Contact tracing should be initiated for cases aboard aircrafts if:
 - The case traveled during the infectious period (7 days before onset of symptoms to 24 hours after the onset of effective treatment)
 - Passengers who were sitting immediately on either side of the index case (but not across the aisle)
 - The total time spent aboard the aircraft was at least 8 hours including ground time on the tarmac

Chemoprophylaxis

The choice of prophylactic agent will be at the advice of the MOH or an Infectious Disease Specialist (Appendix 6). Rifampin, ceftriaxone, and ciprofloxacin are appropriate drugs for chemoprophylaxis in adults; rifampin is the drug of choice for most children (Appendix 7 & 8).

Immunoprophylaxis

Since secondary cases can occur several weeks or more after onset of disease in the index case meningococcal vaccine is an adjunct to chemoprophylaxis when the case is caused by a vaccine preventable serogroup. The meningococcal vaccination status of the case and close contact should be established; including the type of vaccine, the number of doses, and the age at the time of administration.

Immunoprophylaxis is recommended for the following:

- Household contact of a case
- Persons who share sleeping arrangements with the case

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- Children and staff in child care and nursery school facilities
 - Person who have direct contamination of their nose or mouth with the oral/nasal secretions of a case (e.g. kissing on the mouth, shared cigarettes, shared drinking bottles)

The decision to vaccinate is made by the Medical Officer of Health.

- Serogroup identification should be obtained before immunoprophylaxis, if possible
- Vaccine information is included in Appendix 9
- There is no vaccine available for serogroup B
- Conjugate vaccines are preferred to polysaccharide vaccines, when available, because of longer duration of protection and induction of immunologic memory
- Revaccination of persons fully immunized with meningococcal C conjugate vaccine is not thought to be necessary at this time
- Persons vaccinated in the past with meningococcal polysaccharide vaccine may require revaccination

OUTBREAK MANAGEMENT

Regardless of the type of outbreak, contact tracing, identification of close contact and provision of chemoprophylaxis to close contacts are key strategies that must receive immediate attention. When an outbreak of IMD is suspected, an outbreak management team (OMT) should be assembled to determine and coordinate the course of action necessary (Appendix 10). The management of an outbreak is a regional responsibility unless more than one region is involved or the scope of outbreak requires additional resources from the provincial or other health authorities. The functions of the OMT include:

- Reviewing the cases and confirming the diagnosis
- Developing a communication strategy
- Discussing the need for a vaccination program

The decision to implement a mass vaccination campaign to prevent meningococcal disease depends on whether the occurrence of more than one case represents an outbreak or an unusual clustering of endemic disease.

Factors to be considered when planning a vaccination campaign include:

- The population at risk of the disease and the attack rate
- The risk of disease must be high
- The most appropriate vaccine available
- Mechanisms for sufficient vaccine acquisition and delivery must be in place
- Vaccine program planning should aim to achieve high coverage rates in the target groups

Communication Strategy

It is important to have a communication strategy prepared in advance in order to address issues that arise among those concerned with control measures. There should be one spokesperson responsible for communicating with the media within each organization.

Sporadic Cases

There is usually no need to inform the general public of a sporadic case even if there is a fatality. However, the following documents may assist with providing consistent information to the staff and public about the disease:

- Meningococcal Disease – Health Care Professionals Fact Sheet – Appendix 2
- Meningococcal Disease – Client Fact Sheet – Appendix 5
- Rifampin Instruction Sheet – Appendix 7
- Ciprofloxacin Instruction Sheet – Appendix 8
- Letter to Parents about Meningococcal Vaccine – Appendix 11
- Letter to Parents of Close Contacts – Appendix 12
- Letter to Parents of Children Not Close Contacts – Appendix 13
- Letter to Parents of School Age Children - Appendix 14

Outbreak

The communication of clear and prompt policy decisions to the affected community, the wider public and to partner agencies is a key component of outbreak management. The information should be cascaded as widely as possible by various routes including the local news media and through a hot line. The establishment of a hotline can serve as an important means of providing consistent advice and reassurance to the public and reduce the burden of calls to hospitals and public health units.

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Enhanced IMD Surveillance Form (for entry into CDC database)

Date of report: _____/_____/_____ Provincial ID: _____ NML ID# _____ Province _____
 * YYYYY MM DD (*all dates must be in this format)

Patient Name: _____MCP_____

Parent's Name (if child): _____ DOB: _____

Age at diagnosis: _____ Sex: M F unknown School: _____
 Address: _____ Phone #: _____

Episode Type (check first available date hierarchically) Date: _____; Onset date
 Clinical

Diagnosis Date Specimen Collection Date Laboratory test result date Report date

Regional Health Unit: _____ Travel Associated Yes No Unknown

Travel Details: _____

Case Type: Confirmed Case Probable Case

Clinical Diagnosis (Check all that apply) <input type="checkbox"/> Meningitis <input type="checkbox"/> Meningococemia <input type="checkbox"/> Other IMD _____	Outcome: <input type="checkbox"/> Recovered <input type="checkbox"/> Died <input type="checkbox"/> Unknown If died, date of death: _____/_____/_____ YYYYY MM DD
Meningococcal Immunization Status only: <input type="checkbox"/> Complete course <input type="checkbox"/> Course Incomplete <input type="checkbox"/> No Immunization <input type="checkbox"/> Unknown Vaccine type: _____ # of doses: _____	Date of last meningococcal immunization: _____/_____/_____ YYYYY MM DD
Laboratory Information	
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 25%;"><input type="checkbox"/> Bacterial culture positive</div> <div style="border: 1px solid black; padding: 5px; width: 25%;"><input type="checkbox"/> PCR Positive</div> <div style="border: 1px solid black; padding: 5px; width: 25%;"><input type="checkbox"/> Antigen detection positive</div> </div>	
<input type="checkbox"/> All laboratory tests negative <input type="checkbox"/> Laboratory testing not done <input type="checkbox"/> Other _____ <input type="checkbox"/> Unknown	
Specimen: <input type="checkbox"/> Blood <input type="checkbox"/> CSF <input type="checkbox"/> Pleural Fluid <input type="checkbox"/> Eye discharge <input type="checkbox"/> Other _____	
Serogroup: <input type="checkbox"/> Group A <input type="checkbox"/> Group B <input type="checkbox"/> Group C <input type="checkbox"/> Group W-135 <input type="checkbox"/> Group Y <input type="checkbox"/> Group Z <input type="checkbox"/> Non -Groupable <input type="checkbox"/> Other _____ <input type="checkbox"/> Unknown	
Serotype: _____ <input type="checkbox"/> Unknown Serosubtype: _____ <input type="checkbox"/> Unknown: ET Profile: _____ <input type="checkbox"/> Unknown	

MENINGOCOCCAL DISEASE - HEALTH CARE PROFESSIONALS' FACT SHEET

CLINICAL MANIFESTATIONS:

Meningococcal disease usually presents as a sudden-onset, febrile illness with features of meningitis or meningococemia (bloodstream infection) or both.

- The most common symptoms of meningitis are stiff neck, high fever, sensitivity to light, headaches, vomiting and a characteristic rash
- Meningococemia is less common but often more severe form of disease which is characterized by the rash and a rapid circulatory collapse

INFECTIOUS AGENT:

Neisseria meningitidis, a gram-negative diplococcus is the causative organism.

- This bacteria inhabits the mucosal membrane of the nose and throat, where it usually causes no harm
- Up to 5 – 10 % of a population may be asymptomatic carriers

EPIDEMIOLOGY IN CANADA

Invasive meningococcal disease is endemic in Canada.

- The overall incidence of disease has remained at or below 2/100,000 per year
- The incidence rate has been highest among children ≤ 1 year of age with another peak in the 15 -19 year age group
- Serogroups B & C cause the majority of disease

MODE OF TRANSMISSION

Transmission occurs from person to person through droplets from the respiratory tract.

- Close and prolonged contact (e.g. kissing, sneezing and coughing on someone, living in close quarters or dormitories, sharing unclean eating or drinking utensils) facilitate the spread of the disease.
- Infection usually causes only a sub clinical mucosal infection; invasion sufficient to cause systemic disease is rare
- The **incubation** period is 1 – 10 days, usually less than 4 days
- The **infectious period** is 7 days before the onset of the symptoms in the case to 24 hours after start of effective treatment.

DIAGNOSIS & TREATMENT

Invasive meningococcal disease is a true medical emergency requiring care in a hospital.

- Cultures of the blood and cerebrospinal fluid are indicated
- Antibiotics are required

METHODS OF CONTROL

- Droplet isolation of the hospitalized patient until 24 hours after the initiation of effective treatment
- Identification and chemoprophylaxis of close contacts
- Counseling and public education

INVASIVE MENINGOCOCCAL DISEASE CONTACT LIST

Index Case: _____ Diagnosis: _____ Date: _____ Provincial ID#

NameofContacts	AddressofContact	Phone#	Age	Relationship to Index Case	Weight/Kgs	Chemoprophylaxis		Dose Required	Given/ Refused	Vaccine
						Yes	No			

Send completed form to CDCN/MOH: MOH: _____ Date: _____

Appendix 4

INVESTIGATION & REPORTING SPORADIC CASES OF IMD

The attending physician notifies the MOH of the case by phone

MOH/Designate

- Liaises with CDCN re contact tracing initiatives
- Recommends chemoprophylaxis, if indicated
- Writes prescriptions
- Determines /initiates communication strategy
- Reviews the serogroup
- Recommends vaccination program, if indicated
- Reviews local/provincial epidemiology
- Facilitates debriefing

CDCN

- Obtains details of case
- Initiates list of close contacts
- Notifies Manager /Provincial PH
- Assigns Community Health Nurse (CHN) for contact tracing
- Liaise with MOH re chemoprophylaxis/immunoprophylaxis
- Provides CHN with resource materials
- Arranges chemoprophylaxis
 - Informs pharmacy
 - Sends contact list
 - Gets prescriptions
 - Faxes prescriptions to pharmacy
- Arranges immunoprophylaxis
- Enters case in database
- Arranges debriefing with MOH

ICP

- Collaborates with CDCN re case details and identification of close contacts
- Initiates/discontinues Isolation Precautions
- Provides support/information to patient/family members/visitors
- Provides information to staff
- Liases with Occupational Health re staff contacts (if indicated)
- Attends debriefing session

CHN

- Identifies close contacts
 - Interviews family/index case
 - Completes and confirms Contact List
 - Reviews list with CDCN
 - Provides chemoprophylaxis/immunoprophylaxis (if indicated)
 - Obtains consent
 - Provides oral/written information on medications
- Advises medical attention if symptomatic
- Records data on contact list/return to CDCN
 - Attends debriefing sessions
 - Provides follow-up to case and contacts (as feasible)

Provides counseling and support
Provides Client Fact Sheet
Gets weights of children

MENINGOCOCCAL DISEASE – CLIENT FACT SHEET

WHAT IS MENINGOCOCCAL DISEASE?

Meningococcal disease is caused by a germ (a kind of bacteria) called meningococcus.

- It can cause meningitis (an infection of the lining of the brain) and meningococemia (a bloodstream infection)
- These are two serious infections that require immediate medical treatment

WHAT ARE THE SYMPTOMS OF MENINGOCOCCAL DISEASE?

Symptoms of meningococcal disease usually start suddenly and include:

- Severe headache
- Vomiting
- High fever
- Irritability and drowsiness
- Purplish, bruise-like skin rash
- Stiff neck

HOW IS IT SPREAD?

- The bacteria can be carried by 10% of the community at any given time and not cause any problems
- These people can be the source of infection for the few people who become ill
- It is not easy to get the disease. It is spread through direct contact with the oral or nasal secretions of the nose or mouth such as through kissing, coughing or sneezing
- The time from contact to illness can range from 1 – 10 days but is usually four days.

HOW IS IT TREATED?

All cases must be treated in hospital with an antibiotic.

- The Community Health Nurse will identify close contacts.
- Close contacts of the patient are given an antibiotic medicine
- This antibiotic lowers the risk of getting the disease and of spreading it to others
- Any person who has been in close contact with meningococcal disease and who gets sick must be seen by a health professional immediately

WHO ARE CLOSE CONTACTS?

- Household members
- Persons who share sleeping arrangements with the case
- Children and staff in child care and nursery school facilities
- Persons having direct contact with the secretions of the mouth or nose of the case

HOW IS IT PREVENTED?

- Good hygiene practice such as handwashing and routine cleaning
- Cover coughs and sneezes
- Wash hands after coughing or sneezing
- Meningococcal vaccines are available for certain types of meningococcal disease
- The Community Health Nurse will advise if vaccination is necessary

IMD CHEMOPROPHYLAXIS

The following table gives **suggested** treatment regimes to eradicate carriage of *Neisseria meningitidis*. The Medical Officer of Health will give guidance on the antibiotic of choice. The Compendium of Pharmaceuticals and Specialties (CPS) must be reviewed for detailed product information.

Drug	Dosage	Comments
Rifampin	<ul style="list-style-type: none"> • Adults <ul style="list-style-type: none"> • 600 mg orally • every 12 h X 4 doses • Children \geq 1 month of age <ul style="list-style-type: none"> • 10 mg/kg (maximum 600 mg) per dose • orally every 12 h x 4 doses • Infants < 1 month of age <ul style="list-style-type: none"> • 5 mg/kg per dose orally • every 12 h X 4 doses 	<ul style="list-style-type: none"> • Contraindicated in pregnancy • Urine and tears may be stained red • Advise against wear of soft contact lenses as they can be stained • Can reduce the effectiveness of oral contraceptives, seizure medication and anticoagulant medication • Advise use of alternative contraceptive measures
Ciprofloxacin	<ul style="list-style-type: none"> • Adults \geq 18 years of age <ul style="list-style-type: none"> • 500 mg orally • a single dose 	<ul style="list-style-type: none"> • Contraindicated during pregnancy and lactation • Not recommended for people < 18 years of age
Ceftriaxone	Adults: 250 mg IM a single dose Children < 12 years: 125 mg IM a single dose	<ul style="list-style-type: none"> • Recommended drug for pregnant women • Alternative for persons who cannot tolerate oral medication

RIFAMPIN INSTRUCTION SHEET

This antibiotic is given to close contacts of patient with meningococcal disease. Although the medication gets rid of the bacteria it does not provide 100% protection. Therefore if you have any signs of infection you should seek medical attention.

- **Take all the** medication for you
 - Take twice a day, 12 hours apart for 2 days
 - Take on an empty stomach one hour before a meal
 - Do not give your medication to anyone else
 - Do not take with antacids, dairy products, or iron preparations
- **Side effects** of the medication can include:
 - Loss of appetite, vomiting, gas
 - Headache, fatigue, fever
 - Skin rashes
 - Changes in menstrual period, such as spotting
- Tears, urine, feces and any body fluid may take on a reddish orange appearance due to the medication. This is normal
- Do not wear contact lenses for 3-4 days as the tears may stain them red
- If you are taking the following medications, Rifampin may make them less effective:
 - Medication to thin blood or treat blood clots
 - Medication for convulsions or epilepsy
 - Medication for diabetes
 - Hormone pills or birth control pills
 - Advise the Community Health Nurse if you are taking the above medication/s
- **Pregnant women** should **not** take Rifampin
- If you are taking birth control pills, use another birth control method, such as condoms in addition to your birth control pills
- Contact your Community Health Nurse or your Family Doctor if any problems arise

CIPROFLOXACIN INSTRUCTION SHEET

This antibiotic is given to close contacts of patient with meningococcal disease. Although the medication gets rid of the bacteria it does not provide 100% protection. Therefore if you have any signs of infection you should seek medical attention.

- **Take all the** medication for you
 - Maybe taken with or without food
 - Absorption is faster on an empty stomach
 - Take this medication 2 hours before or 6 hours after taking any medications or antacids containing magnesium, aluminum such as antacids, dairy products (milk or yogurt) vitamins, and or minerals
 - Drink more fluids
- **Side effects** of the medication can include:
 - Nausea and diarrhea
- **Contraindications**
 - **Pregnant women** and nursing mothers should **not** take Ciprofloxacin
 - **Safety** has not been established in pediatric patients and adolescents under 18 years of age
 - Do not take if allergic to quinolones such as gatifloxacin, levofloxacin or moxifloxacin
 - Do not take if you are on tizanidine
- **Use with caution in the following people with:**
 - Central Nervous System disorders
 - Pseudomembraneous colitis (*Clostridium difficile*)
 - Impaired renal function
- Contact your Community Health Nurse or your Family Doctor if any problems arise

MENINGOCOCCAL VACCINES

Overview

There are two different types of meningococcal vaccine available: polysaccharide vaccines and conjugate vaccines.

Polysaccharide vaccines include:

Vaccine	Serogroup	Manufacturer	License date	Dose/ Administration	Age
Bivalent MenAC-Ps	A & C				
Quadravalent MenACYW-135Ps Menomune	A, C Y W-135	Sanofi pasteur	1978	0.5 ml Subcutaneous	>2 years

Conjugate vaccines include:

Vaccine	Serogroup	Manufacturer	License date	Dose/Administration	Age
Meningitec	C	Wyeth Canada	1999	0.5 ml IM	2m – 65 y
Menjugate	C	Merck Frosst	2001	0.5 ml IM	2m - adults
NeisVac-C	C	GlaxoSmithKline	2001	0.5 ml IM	
Menactra	A, C, Y, W-135	Sanofi pasteur	2006	0.5 ml IM	2y-55 years

In Newfoundland Labrador meningococcal conjugate C vaccine is recommended for the routine immunization of children and is provided through the Childhood Immunization Program. The schedule is as follows:

Age	Number of doses	Year started
12 months	1	January 2005
Grade 4 (catch-up)	1	January 2005
Grade 9 (catch-up)	1	January 2005

Vaccination post IMD

The Medical Officer of Health will make recommendations for meningococcal vaccination following a case of invasive meningococcal disease. The decision to vaccinate will be determined by the serogroup of the case and whether it is a sporadic case or an outbreak. Conjugate vaccines differ from the purified polysaccharide vaccines in that they can be given to children <2 years of age and provide a longer duration of protection. At present this is no vaccine protection against serogroup B. Additional information is provided in the Canadian Immunization Guide (2006).

Appendix 10

OUTBREAK MANAGEMENT STRATEGIES

Outbreak Management Team (OMT) members are determined in the region and may include:

- MOH
- CDCN/ICP
- Administrative manager
- CHN
- Communications specialist
- Vaccine supply manager
- Others affected by outbreak; i.e., school principal

Functions

- Review the cases, confirm the diagnosis
- Identify the population at risk
- Determine if a vaccine program is necessary
- Develop a communication strategy
- Establish evaluation criteria
- Assign responsibilities for tasks

The Communication strategy should address:

- Information for public; fact sheets, posters
- Hot line for public
- Media spokesperson/contact numbers should be provide to media
- If vaccine program necessary
 - Information on vaccine
 - Clinic information

Vaccine Program should address:

- Staffing for clinics including: nursing staff, clerical support and volunteers
- Type of vaccine, priority for vaccines, availability of adequate amounts, transportation and cold chain
- Place for vaccination clinics, & supplies
- Registration, screening, consent and after immunization forms

Features of Vaccination Clinic

- Space adequate to accommodate large group
- Flow through traffic with separate entrance/exit
- Areas for:
 - Registration, Screening, & Waiting
 - Immunization
 - Vaccine preparation area, Immunization, & Recovery
 - Staff

Program evaluation

- Report on the overall success and challenges of the outbreak
- Compiled by the CDCN
- Review by the OMT



Appendix 11

LETTER TO PARENT REGARDING MENINGOCOCCAL VACCINE

Date:

Dear Parent,

Your child has been immunized with meningococcal vaccine. Adverse reactions to this vaccine are uncommon and not severe. Occasionally, there may be a little swelling or redness around the area where the needle was given. Some people could also develop fever with mild headache. These reactions may last for 1 to 2 days.

If your child develops a more serious reaction, please contact your family doctor or public health nurse.

Public Health Nurse:

_____ Phone Number: _____

Date: _____



Appendix 12

LETTER TO PARENTS OF CLOSE CONTACTS

Daycare:

Date:

Dear Parent,

A child in your child's daycare group has been clinically diagnosed with meningitis. People who have been in very close contact with the child are at increased risk of becoming sick. Very close contacts are family members staying in the same household, those who have shared food or drinks with the child or who have spent several hours a day in close contact with the child for any of the 7 days before the child became ill on _____.

Your child has been identified as a close contact and will be offered a special antibiotic, Rifampin, which will reduce the risk of becoming ill. The drug does not provide 100% protection, so please read the attached fact sheet and if your child should develop any of these signs take him or her to your doctor immediately.

Should you have further questions please contact your public health nurse at

_____.

Sincerely,

Medical Officer of Health



Appendix 13

LETTER TO PARENTS OF CHILDREN- NOT CLOSE CONTACTS

Daycare:

Date:

Dear Parent,

A child in your child's daycare group has been clinically diagnosed with meningitis. People who have been in very close contact with the child are at increased risk of becoming sick. Very close contacts are family members staying in the same household, those who have shared food or drinks with the child or who have spent several hours a day in close contact with the child for any of the 7 days before the child became ill on _____.

Children who may have attended the same daycare, but not at the same time as the sick child, are not at increased risk. Children who were not in contact with the sick child but were in contact with a child who was a contact of the sick child are not at increased risk.

Close contacts will be offered a special antibiotic, Rifampin, which will reduce the risk of contacts becoming ill. **Your child is not considered to be a close contact.** However, please read the attached fact sheet and if your child should develop any of these signs take him or her to your doctor immediately.

Should you have further questions please contact your public health nurse at _____.

Sincerely,

Medical Officer of Health



Appendix 14

LETTER FOR PARENTS OF SCHOOL CHILDREN

School:

Date:

Dear Parent,

There has been a confirmed case of meningococcal disease at your child's school. Staff from the Department of Health & Community Services, _____ Region have identified close contacts and have been in direct consultation with these individuals.

Parents are asked to be alert to the signs and symptoms of this disease. We have attached a fact sheet and pamphlet for your information.

If you have any further questions concerning this matter, please contact our Community Health Nurse through the school or through our Health and Community Services office at _____.

Thank you,
