Communicable Diseases Communiqué

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Meningococcal disease

At present there is no meningococcal disease outbreak in either Gauteng or KwaZulu-Natal Provinces. Sporadic cases are occurring, but there has been no increase in the expected number of laboratory-confirmed cases of meningococcal disease to date this year as compared to the same period in previous years. We routinely expect 10 to 20 laboratory-confirmed cases in Gauteng Province per month during the summer months, and this increases to 30 to 50 cases per month in the winter months. An outbreak would be considered when the number of cases significantly exceeds the number expected for the same geographic area and time period from previous years. Fluctuations of meningococcal disease do occur and routine careful epidemiological assessment of all cases is required to assess the public health intervention when cases increase.

Cumulative data for laboratory-confirmed cases at week 10 as reported to the Respiratory and Meningeal Pathogens Reference Unit (RMPRU) at the NICD are tabled below (Table 1). Of the 17 laboratory-confirmed cases from Gauteng Province reported to the NICD to date, 15 had viable bacterial strains for serogrouping, and a variety of serogroups have been identified: serogroup W135 (n=9), serogroup B (n=4), serogroup C (n=1) and serogroup Y (n=1). This diversity in serogroups is in keeping with sporadic endemic disease in this province.

A number of the suspected cases reported in the media have been excluded or have had an alternative diagnosis confirmed on further clinical and laboratory evaluation.

There is always a need for a high index of suspicion for meningococcal disease because of the non-specific early signs and symptoms, typical rapid progression and a need to manage patients as a medical emergency in order to reduce morbidity and mortality.

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Table 1: Number of laboratory-confirmed meningococcal disease cases reported by week 10, 2008 and 2009, respectively, by province

	2008, up to week 10	2009, to date*
Eastern Cape	3	2
Free State	2	1
Gauteng	31	17
KwaZulu-Natal	2	4
Limpopo	-	-
Mpumalanga	5	2
Northern Cape	2	-
North West	-	2
Western Cape	5	12
South Africa	50	40

*numbers may differ with notifications due to inherent delay in laboratory confirmation and reporting
-, no cases reported

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Etiological agent: *Neisseria meningitidis*, or meningococcus, is a bacterium, and appears as a Gram-negative diplococcus on microscopy of clinical specimens.

Incidence: In 2008, a total number of 456 meningococcal disease cases were reported from all provinces in South Africa. The majority of these cases were reported from Gauteng Province (224 of 456, 49%). In Gauteng Province, the predominant serogroup was serogroup W135 (103 [64%] of 162 cases with viable bacterial isolates available for serogrouping). In this province, serogroups B (n=28) and C (n=21) were the other prevalent serogroups.

Transmission: *N. meningitidis* colonizes mucosal surfaces of the nasopharynx and is transmitted through direct contact with large droplet respiratory secretions from patients or asymptomatic carriers. About 10% of the population may be asymptomatic carriers. The average incubation period for disease is 4 days, ranging between 2 and 10 days. Humans are the only host. Casual contact does not pose a risk of transmission.

Risk Groups: Young children under 5 years of age and young adults are at highest risk of acquiring meningococcal disease. Military and police recruits, refugees, and young people who live in dormitories such as first-year university and college students may be considered at increased risk.

Clinical Features: Typically there is rapid progression of disease with features of meningitis and/or sepsis. Early signs and symptoms may include a petechial rash or ecchymoses which may appear first on the buttocks and/or conjunctiva, fever, intense headache, vomiting, joint and muscle pain, photophobia and neck stiffness. Lethargy or drowsiness is frequently reported. If coma is present, the prognosis is poor. In young children, fever, vomiting and irritability are common presenting features.

Treatment: Meningococcal disease is potentially fatal and should always be viewed as a medical emergency. Admission to a hospital or health centre is necessary. Rapid empiric treatment with ceftriaxone should be given to all suspected cases. Ideally clinical specimens should be obtained prior to antibiotic therapy. However, lifesaving treatment should never be delayed in order to obtain specimens. Penicillin or ceftriaxone remain effective for treating patients with confirmed disease due to *N. meningitidis.*

All cases of suspected meningococcal disease should be notified immediately by telephone to the Local/ District Department of Health so that follow-up of close contacts is undertaken quickly and to facilitate chemoprophylaxis. Clinical suspicion of meningococcal disease is sufficient for notification.

Post-exposure prophylaxis (PEP): Post-exposure prophylaxis with ciprofloxacin (500mg stat for adults and 10mg/kg stat for children; ceftriaxone is an alternative option in pregnancy) should be provided to household and close contacts of meningococcal disease cases as soon as possible but may be effective up to 10 days after exposure.

Close contacts are defined as household contacts, people living in the same house and/or sharing eating utensils with the index case, and persons exposed to nasopharyngeal secretions of the patient. Close contacts in an educational setting will usually include close friends who may share eating utensils or meet the other criteria for a close contact. Usually this does not mean the whole class, but only selected individuals within the class. It may be more difficult to define a close contact amongst younger children in preschools/crèches, but where possible post-exposure prophylaxis should be limited to those who meet these criteria. Healthcare workers are generally not considered close contacts unless they have been directly exposed to the patient's nasopharyngeal secretions.

Mass chemoprophylaxis is not recommended for control of meningococcal disease outbreaks. Vaccination should only be considered in outbreak settings where appropriate and feasible.

Vaccines:

Meningococcal vaccine: Polysaccharide vaccines are available for active immunisation against invasive disease caused by A, C, Y, or W135 serogroups (no effective vaccine exists to protect individuals from meningococcal meningitis caused by serogroup B). The polysaccharide vaccines are not effective in children under 2 years of age.

The vaccines available in South Africa are:

1. Imovax Meningo A+C®, Aventis Pasteur (will

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only protect against 2 serogroups, serogroup A and C)
2. Mencevax ACW135Y®, GlaxoSmithKline (will only protect against 4 serogroups, serogroups A, C, W135, and Y)
3. Menomune®, Aventis Pasteur (will only protect against 4 serogroups, serogroups A, C, W135, and Y)

Vaccination is recommended for:
1. pilgrims to Saudi Arabia, especially for Hajj and Umrah (quadrivalent vaccine is mandatory)
2. travellers to hyperendemic areas such as the meningitis belt in north Africa (Ethiopia in the east to Senegal in the west)
3. children and adults with functional or actual asplenia
4. individuals with inherited terminal complement component deficiency
5. individuals with ongoing laboratory or industrial exposure to *N. meningitidis*
6. within a confirmed outbreak setting

Pneumococcal vaccine: Some confusion exists with regards to the pneumococcal vaccine. This vaccine will only prevent meningitis due to another bacterium, Streptococcus pneumoniae or pneumococcus.

A new conjugated heptavalent vaccine contains capsular polysaccharide antigens of 7 S. *pneumoniae* serotypes.
1. It is safe and highly effective in preventing pneumococcal meningitis and bacteraemic pneumonia in young children under 2 years of age (including HIV-infected children); it is less effective in preventing otitis media.
2. Immunisation of infants with this vaccine has become routine in many countries, and is being introduced in the South African EPI (Expanded Programme on Immunization) on April 1, 2009.
3. It is registered for use in children aged 6 weeks to 9 years; it is not recommended for use in older children or adults.

Pneumococcal vaccines available in South Africa include:

Polysaccharide-protein conjugated vaccine (effective in children <2 years of age):
Prevenar®, Wyeth, for serotypes 4, 9V, 14, 18C, 19F, 23F, 6B

Purified polysaccharide antigen only (only effective in children >2 years)
Imovax Pneumo 23®, Aventis Pasteur (protects against 23 serotypes)
Pneumovax® 23, MSD

Source: Respiratory and Meningeal Pathogens Reference Unit and Epidemiology Division, National Institute for Communicable Diseases (NICD), South Africa