Fact Sheet

Meningococcal Testing

ACT Pathology offers a range of tests to aid doctors in the diagnosis of Meningococcal disease.

Clinical Meningococcal Disease

Meningococcal disease, caused by the bacterium *Neisseria meningitidis*, has varied presentations, ranging from "classical" life-threatening meningococcaemia with petechial/purpuric rash, to bacterial meningitis alone (no rash or other systemic features), to a combination of both. Less commonly it can also cause "chronic" meningococcaemia (rash without systemic features), conjunctivitis, pneumonia, septic arthritis, urethritis and cervicitis. Up to 30% of people in the community at any one time may have asymptomatic pharyngeal carriage of meningococcus. Those most at risk of invasive disease are children under the age of 2 years and adolescents between 15-25 years.

It should be emphasised that if meningococcal disease is suspected, parenteral antibiotic therapy should be commenced without delay (i.e. do NOT wait for pathology results).

The epidemiology of invasive meningococcal disease has changed with the introduction of routine immunisation, with atypical presentations in older age groups being reported. The main serogroups of *N. meningitidis* are A, B, C, W and Y. Routine immunisation in children includes A, C, W and Y. Serogroup B immunisation is available but not currently included in the national immunisation program. The most common serogroups responsible for invasive disease are B and W.

Culture methods for Meningococcal isolation (blood and CSF)

N. meningitidis is most commonly cultured from the blood and CSF. Two sets of blood cultures are recommended. Although prior antibiotics significantly reduces the sensitivity of culture, if the patient is unstable, it is recommended that antibiotics are commenced *prior* to lumbar puncture. *N. meningitidis* generally grows within 24-48 hours from positive blood or CSF cultures. Gram stains demonstrating Gram negative diplococci in CSF or from positive blood cultures provide a provisional diagnosis until confirmed by culture or molecular techniques. Confirmatory identification including serogrouping (valuable when assessing need for vaccination) and antibiotic sensitivity profile may take a further 24 hours.

Phone 02 5124 2932 Fax 02 5124 2815
actpathology@act.gov.au
www.health.act.gov.au/services/act-pathology
Gilmore Crescent Garran ACT 2605 PO Box 11 Woden ACT 2606

ACT PATHOLOGY

Fact Sheet

Skin scrapings for Gram Stain

If a marked purpuric rash is present, a Gram stain of skin scrapings from a purpuric lesion may sometimes demonstrate Gram negative diplococci in significant numbers, to aid in a rapid diagnosis. The sensitivity of this test however is at best 50%, so a NEGATIVE test does NOT exclude disease.

Throat-swabs for meningococcal culture

In contrast to blood cultures, *N. meningitidis* may be cultured from the throat even after antibiotics have been commenced. A throat swab for *N. meningitidis* culture may therefore be indicated in cases were antibiotics were commenced prior to blood cultures. This enables the laboratory to perform serogrouping and antibiotic susceptibility testing. Due to the high community asymptomatic carriage of meningococcus, this specimen type is *only* processed from those with suspected/proven invasive meningococcal disease.

Molecular Diagnosis of Meningococcal disease

ACT Pathology also offers a real time PCR assay for meningococcus, which is suitable for both blood and CSF specimens. PCR testing is only routinely performed during business hours, and requires the requesting doctor to contact the Microbiology Registrar or Clinical Microbiologist on-call to authorise the test. PCR assays are most useful if blood/CSF cultures remain negative after 24-48 hours (such as when prior antibiotics have been given). Serogrouping may also be performed by PCR methods, but require transfer to a reference laboratory. Whenever possible, culture is preferred as antibiotic sensitivity profiles are not available by PCR methods in Australia.
If PCR testing is being considered, a **dedicated 5 or 10ml EDTA tube of blood and/or 0.5ml of CSF are required.**

24 Hours/7 Days a Week Advice

ACT Pathology and Canberra Hospital Services has Clinical Microbiologists and Infectious Diseases Physicians and Microbiologists on-call, who are happy to liaise with doctors about Meningococcal queries.

For further information please contact the on-call Clinical Microbiologist/Registrar via the Canberra Hospital switchboard on 5124 0000.

Phone 02 5124 2932 Fax 02 5124 2815
actpathology@act.gov.au
www.health.act.gov.au/services/act-pathology
Gilmore Crescent Garran ACT 2605 PO Box 11 Woden ACT 2606

ACT PATHOLOGY