Category 3: Written or electronic notification within 7days of diagnosing by private and public health laboratories

CEFTRIAXONE –RESISTANT NEISSERIA GONORRHOEA

Disease epidemiology	Who must notify	Confirmed case definition
Gonorrhoea is a sexually transmitted infection caused by the bacterium *Neisseria gonorrhoeae*. The organism can infect the urogenital tract causing urethritis in men, and cervicitis or abnormal vaginal discharge in women. In South Africa, *N. gonorrhoeae* is the commonest cause of Male Urethritis Syndrome (in approximately 80% of cases). A significant proportion of infections, particularly in women, may be asymptomatic. A small proportion of infected persons will develop disseminated gonococcal infection by haematogenous spread, manifesting as an arthritis-dermatitis syndrome. *Neisseria gonorrhoeae* has the capacity to evolve and rapidly develop resistance to all first-line antimicrobials used in treatment. For this reason, it has been designated a high-priority pathogen by the WHO. The currently recommended treatment for urogenital gonorrhoea is dual ceftriaxone 250mg stat IM + azithromycin 1g stat PO. Ceftriaxone, which is an extended-spectrum cephalosporin, is the mainstay of therapy for *N. gonorrhoeae* and it is essential to monitor for resistance to this agent, particularly in cases of suspected treatment failure (i.e. non-resolving/ persistent urogenital infection). *N. gonorrhoeae* may be cultured from persons who are symptomatic or asymptomatic for gonorrhoea. Specimens for culture include dacron or nylon flocked swabs of urogenital tract/ pharynx/ rectum/ ocular discharge; and sterile sites specimens (blood, synovial fluid).	Ceftriaxone-resistant gonorrhoea will be notified by public or private health laboratories following culture isolation of *N. gonorrhoeae* and antimicrobial susceptibility testing. Isolate should be referred to STI Reference laboratory at NICD for confirmation of ceftriaxone resistance and further testing. Confirmation of ceftriaxone resistance will be done by STI reference laboratory at NICD.	*Neisseria gonorrhoeae* culture isolate with Ceftriaxone E-test MIC ≥ 0.25 µg/ml

ZIKA VIRUS (NON-ENDEMIC ARBOVIRUS)

Disease epidemiology	Who must notify	Confirmed case definition
Zika virus (ZIKV) was recognized as a human pathogen for the first time in 1964 following an occupationally acquired infection. The virus was isolated for the first time from a sentinel monkey in Uganda in 1947 and from *Aedes africanus* mosquitoes the following year. It is spread by daytime-active *Aedes* mosquitoes, such as *A. aegypti* and *A. albopictus*. For decades the virus remained relatively obscure, unreported and confined to the equatorial belt of Africa and Asia, until 2007 when it caused an outbreak on Yap Island in the Pacific Ocean. This was followed by a rapid expansion of the virus' geographical range throughout other islands in the Pacific Ocean until it reached South and Central America in 2014. In 2015-2016, an outbreak occurred in Brazil, rest of Latin America and Caribbean and North America. ZIKV infection during pregnancy can result in microcephaly and other congenital abnormalities, as well as preterm birth and miscarriage. ZIKV has been linked to Guillain-Barré syndrome, neuropathy, and myelitis in both adults and children. From February-November 2016, WHO classified ZIKV-related microcephaly a Public Health Emergency of International Concern (PHEIC). Since 2017, ZIKV disease have seemingly reduced internationally, however ZIKV transmission remains low in numerous nations in the Americas and other endemic locations. To date, 89 nations and territories have reported cases of mosquito-borne ZIKV infection; nevertheless, worldwide surveillance remains insufficient. In 2019, local mosquito-transmitted ZIKVs were reported, and in 2021 in India. Although ZIKV is primarily transmitted by *Aedes* mosquitoes,	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	A confirmed case is a person with laboratory evidence as follows: • Detection of RNA or Zika virus antigen in any specimen (serum, urine, saliva, tissue or whole blood); **OR** • Positive Zika IgM antibodies AND Plaque reduction neutralization (PRNT90) for Zika virus titers ≥ 20 and at least four-fold greater than the titers for other flaviviruses; AND exclusion of other flavivirus; **OR** • A four-fold rise in antibody titre in paired sera collected 2-3 weeks apart AND the absence of antibodies to other flaviviruses endemic to the area of exposure; **OR** • In autopsy specimens, detection of the viral genome (in fresh or paraffin tissue) by molecular techniques, or detection by immuno-histochemistry. Note: Testing of paired (i.e. collected 2-3 weeks apart) specimens are recommended. Interpretation of serology may be complicated given

human-to-human transmission through sexual transmission, or in-utero transmission are reported. ZIKV may be asymptomatic in many. Symptoms may appear 3-14 days after exposure and may include rash, fever, conjunctivitis, muscle and joint pain, malaise, and headache for 2-7 days. Most cases resolve without intervention and fatalities are rare (apart from congenital ZIKV disease). <u>Case definition for suspected cases of ZIKV disease:</u> Patient with rash* with **two or more** of the following signs or symptoms: • fever, usually >38.5 ° C • conjunctivitis (non-purulent/hyperendemic) • arthralgia • myalgia • peri-articular oedema *usually pruritic and maculopapular **AND** who • in the 2 **weeks prior to onset, travelled to, or resided in, a geographic area where there is (a) known local transmission of the ZIKV or (b) and area with known vector presence; OR** • **had unprotected sex, in** the 2 weeks prior to onset, with a person who travelled, in the previous 8 weeks**, to a geographic area with (a) known local transmission of the ZIKV or (b) and area with known vector presence. **In accordance with WHO guidance, men and women returning from areas with ZIKV active transmission areas should adopt safer sex practices or consider abstinence for at least 3 months upon return and apply insect repellent for at least 3 weeks upon return to reduce the risk of onward transmission. Men		substantial cross-reactivity with other flaviviruses (such as dengue and yellow fever). It is recommended to consider other arboviral infections for differential diagnosis, in particular dengue and chikungunya given the overlapping geographical distribution and similar clinical presentation.

and women should not get pregnant for at least 3 months upon return from areas with ZIKV active transmission areas. Pregnant women and partners living in areas of active transmission must take preventive measures to avoid mosquito bites.		

DENGUE VIRUS (NON-ENDEMIC ARBOVIRUS)

Disease epidemiology	Who must notify	Confirmed case definition
Dengue is the most-widespread mosquito-transmitted viral disease, which is found in travellers that returned from urban areas in Africa, Caribbean, Latin America, Middle East, India, southeastern Asia and the Pacific islands, especially during the rainy seasons. Dengue fever is caused by one of four serotypes: Dengue virus 1, 2, 3, and 4. For this reason, a person can be infected with a dengue virus as many as four times in his or her lifetime. Dengue fever may occur in various forms. Leukopenia and thrombocytopenia are common. The majority of cases with dengue fever have characterised by high fever, severe headache, pain behind the eyes, body aches/ joint pains, nausea/vomiting and a characteristic rash (looks like sunburn). In some instances, Dengue fever can lead to Dengue haemorrhagic fever (DHF) or Dengue shock syndrome (DSS), which manifests similarly to dengue fever plus in DHF: severe and continuous pain in the abdomen, bleeding from the nose, mouth, gums or skin bruising, frequent vomiting with or without blood, black stools, excessive thirst (dry mouth), pale, cold skin, restlessness, or sleepiness or with DSS: weak rapid pulse, narrow pulse pressure, cold, clammy skin and restless. 5% of severe Dengue cases (DHF and DSS) result in death.	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	A confirmed case is a person with laboratory evidence of virus detection by • PCR positive and virus isolation from the patient's first (single) specimen; OR • PCR positive and IgM positive result on patient's first (single) specimen; OR • PCR positive on two separate specimens from the same patient collected at least one day apart; OR • PCR positive but IgM/IgG negative result in patient's first specimen and PCR negative but IgM/IgG positive result in patient's second specimen collected at least one day apart; OR Four-fold increase in IgM/IgG titres between acute and convalescent specimens.

Category 3: Written or electronic notification within 7days of diagnosing by private and public health laboratories

WEST NILE VIRUS, SINDBIS VIRUS, CHIKUNGUNYA VIRUS

Disease epidemiology	Who must notify	Confirmed case definition
West Nile, Sindbis and Chikungunya fever are viral diseases that are transmitted to people by mosquitoes of *Culex* species (West Nile virus and Sindbis virus) which mainly bite at night and *Aedes* species (Chikungunya virus), which bite during the day. In a very small number of cases, West Nile virus has also been spread through blood transfusions, organ transplants, breastfeeding and in pregnancy from mother to baby. Both West Nile and Sindbis viruses are maintained in bird-mosquito cycle, whereas the chikungunya virus in non-human primates. West Nile virus occurs worldwide, except for a few countries such as Australia. West Nile fever is often asymptomatic or symptoms include headache, low-grade fever, rash, joint and body pains. Encephalitis and meningitis are rare complications of West Nile virus infection, except for the USA. Horses also get incidentally infected and can develop encephalitis. Sindbis virus is widely distributed, being found in Africa, Europe, Asia and Australia. Sindbis fever can cause mild fever with joint pain, nausea, general malaise, headache, muscle pain and a unique maculopapular rash circled with pale? halos, often accompanied with an itchy exanthema over the trunk and the limbs. Chikungunya virus is endemic in northeastern South Africa and occurs in travellers that returned from urban outbreak areas in sub-Saharan Africa, Latin-America, southern USA, Italy and France, Saudi Arabia, Yemen, India, south and south-East Asia. Chikungunya fever is characterised by fever and severe debilitating joint pains, often in the hands and feet and may include headache, muscle pain, joint swelling or rash. No vaccines and therapeutics are currently available for prevention and treatment.	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	A confirmed case is a person with laboratory evidence of virus detection by • PCR positive and virus isolation from the patient's first (single) specimen; OR • PCR positive and IgM positive result on patient's first (single) specimen; OR • PCR positive on two separate specimens from the same patient collected at least one day apart; OR • PCR positive but IgM/IgG negative result in patient's first specimen and PCR negative but IgM/IgG positive result in patient's second specimen collected at least one day apart; OR • Four-fold increase in IgM/IgG titres between acute and convalescent specimens.

SAMONELLA spp. OTHER THAN S. TYPHI AND S. PARATYPHI

Disease epidemiology	Who must notify	Confirmed case definition
Salmonella is one of the most frequently isolated foodborne pathogens and is a major global public health concern. All *Salmonella* spp. other than *S*. Typhi, *S*. Paratyphi A, *S*. Paratyphi B and *S*. Paratyphi C are collectively known as nontyphoidal *Salmonella*. Nontyphoidal *Salmonella* are widely distributed in domestic and wild animals. Nontyphoidal salmonellosis in humans is generally contracted through the consumption of contaminated food of animal origin (mainly eggs, meat, poultry, and milk), although other foods have been implicated in its transmission. Person-to-person transmission can also occur through the faecal-oral route, and contact with infected animals, including pets, can result in human cases.	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	Isolation of *Salmonella* (other than *S*. Typhi or *S*. Paratyphi A, B or C) in a clinical specimen OR Detection of *Salmonella* (other than *S*.Typhi or *S*. Paratyphi A, B or C) in a clinical specimen using a culture-independent diagnostic testing (CIDT), for example PCR

SHIGA TOXIN-PRODUCING ESCHERICHIA COLI

Disease epidemiology	Who must notify	Confirmed case definition
Shiga toxin-producing *E. coli* (STEC) can cause severe foodborne disease. STEC is transmitted to humans primarily through the consumption of contaminated foods, such as raw or undercooked ground meat products, raw milk, and contaminated raw vegetables and sprouts. In the majority of cases, the illness is self-limiting, but it may lead to a life-threatening disease including haemolytic uraemic syndrome (HUS), especially in young children and the elderly. *E. coli* O157:H7 is the most important STEC serotype in relation to public health; however, other serotypes have frequently been involved in sporadic cases and outbreaks.	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	Isolation of *E.coli* O157:H7 from a clinical specimen OR Detection of *E.coli* O157 in a clinical specimen using a culture-independent diagnostic test (CIDT) for example PCR OR Detection of Shiga toxin or Shiga toxin genes in a clinical specimen using PCR

SHIGELLA spp.

Disease epidemiology	Who must notify	Confirmed case definition
Shigellosis is endemic worldwide; in low- and middle-income countries it occurs predominantly in children aged 1-4 years, but other risk groups for shigellosis include travellers to endemic areas, children in daycare with subsequent household transmission and men having sex with men. Humans are the only natural host for *Shigella* spp. Person-to-person spread is the commonest mode of transmission, but infection can also be caused by contaminated food or water.	✓ Laboratory detecting the virus **NB: Only confirmed cases should be notified.**	Isolation of *Shigella* spp. from a clinical specimen OR Detection of *Shigella* spp. or *Shigella*/enteroinvasive *E.coli* (EIEC) in a clinical specimen using a culture-independent diagnostic testing (CIDT), for example, PCR