Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

No	Notifiable Medical Conditions
1	Acute flaccid paralysis
2	Acute rheumatic fever
3	Agricultural or stock remedy poisoning
4	Anthrax
5	Botulism
6	Cholera
7	Congenital Rubella Syndrome
8	Diphtheria
9	Enteric fever (typhoid or paratyphoid)
10	Food-borne disease outbreak*
11	Haemolytic uraemic syndrome (HUS)
12	Listeriosis
13	Malaria
14	Measles
15	Mercury Poisoning
16	Meningococcal disease
17	Mpox
18	Pertussis
19	Plague
20	Poliomyelitis
21	Rabies (human)
22	Respiratory disease caused by novel pathogens**
23	Rift Valley fever (human)
24	Rubella
25	Smallpox
26	Viral haemorrhagic fever diseases***
27	Yellow fever
	*Food-borne disease outbreak is the occurrence of two or more cases of similar foodborne disease resulting from the ingestion of a common food. **Examples of novel respiratory pathogens include novel influenza A virus, MERS coronavirus. ***Viral hemorrhagic fever diseases includes Ebola or Marburg viruses, Lassa virus, Lujo virus, new world arena viruses, Crimean-Congo hemorrhagic fever or Hemorrhagic Fever with Renal Syndrome and other newly identified viruses causing hemorrhagic fever

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

1. ACUTE FLACCID PARALYSIS

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Poliomyelitis presents with acute flaccid paralysis (AFP). However, there are other causes of AFP including Guillain Barre Syndrome, transverse myelitis, coxsackie virus, traumatic neuritis and echovirus. Therefore, all cases of AFP should be investigated to ensure that they are not caused by polio. Surveillance for (AFP) is the means by which polio eradication will be achieved.	The health care practitioner making the clinical diagnosis should notify the case as soon as the diagnosis is suspected.	Any child under 15 years of age with acute flaccid paralysis, or sudden onset of weakness or paralysis not caused by injury OR Any person of any age who presents with paralytic illness if polio is suspected Acute: rapid progression of paralysis Flaccid: loss of muscle tone or 'floppy', (as opposed to spastic or rigid) Paralysis: weakness, loss of ability to move	[1]None	None

Additional notes

All cases of AFP should be properly investigated for polio. Therefore, the notifying clinician should also complete an AFP case investigation form (CIF) and submit two stool specimens 24-48 hours apart on ice, with a completed laboratory specimen request form. The stool specimens should arrive in the laboratory within 72 hours after collection.

Additional resources

Acute flaccid paralysis case investigation form (CIF) and stool specimen collection guide http://www.nicd.ac.za/assets/files/AFP_CIF_and_Specimen_Collection_Guide.pdf
EPI manual https://www.nicd.ac.za/diseases-a-z-index/acute-flaccid-paralysis-afp/
NICD Frequently Asked Questions document https://www.nicd.ac.za/diseases-a-z-index/acute-flaccid-paralysis-afp/

[1] AFP is a clinical syndrome with many causes. Each case must be investigated to be sure that the cause is not polio

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2. ACUTE RHEUMATIC FEVER

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Acute rheumatic fever (ARF) is an important cause of heart valve damage, and leads to morbidity and mortality due to heart failure and other complications, especially among economically disadvantaged populations all over the world. The exact burden of ARF in South Africa is unknown. Monitoring of the disease burden is essential to plan prevention and care services.	The diagnosis of ARF is usually made by paediatricians or cardiologists <u>following clinical examination and investigations</u> including echocardiography, ECG, and blood tests including anti-streptococcal antibody tests, C-reactive protein and erythrocyte sedimentation rate. There are no laboratory tests to confirm the diagnosis. A case of ARF should be notified as soon as the clinician is satisfied that the case meets the case definition.	Refer to probable case definition	Any person in whom a clinician suspects acute rheumatic fever.	A primary episode of acute rheumatic fever is made with evidence of **two major, or 1 major+2 minor** manifestations **plus** evidence of a preceding group A streptococcal infection. <u>Major manifestations:</u> Carditis (clinical or subclinical), arthritis (monoarthritis or polyarthritis), polyarthralgia, chorea, erythema marginatum, subcutaneous nodules. <u>Minor manifestations</u>: Clinical signs (fever [≥38°C], monoarthralgia), laboratory signs (ESR ≥30 mm/h [peak values] and/or CRP ≥3.0 mg/dL [> upper limit of normal for laboratory]), prolonged PR interval (after accounting for age variability and unless carditis is a major criterion). <u>Supporting evidence of streptococcal infection,</u> A positive throat culture, a rapid antigen test for group A strep, recent scarlet fever, an elevated or rising antistreptolysin-O or other antistreptococcal antibody or prolonged PP-R interval on ECG.
Additional notes				
Additional resources A case investigation form is available at : https://www.nicd.ac.za/diseases-a-z-index/acute-rheumatic-fever/				

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

3. AGRICULTURAL OR STOCK REMEDY POISONING

Disease epidemiology	Who must notify	case definition		
		Clinical (Suspected case)	Probable case	Confirmed case
A pesticide (e.g. an agricultural or stock remedy) is any chemical substance, or mixture of substances, intended to kill, repel, or control forms of plant or animal life considered to be pests, or to regulate plant growth. Pesticides include herbicides, insecticides, fungicides, rodenticides, repellents. Pesticides are potentially toxic to humans and the environment, and can have both acute and chronic health effects, depending on the quantity and ways in which a person is exposed. Some pesticides can remain in soil and water for years. The toxicity of a pesticide depends on its function, formulation and the route of exposure (i.e. ingestion, inhalation, or direct contact through the skin or eyes). Pesticide poisoning can be classified as occupational, if exposure occurs while at work, or non-occupational, which includes exposure at home as well as all cases involving suicide or self-harming behaviour.	The health care provider making the clinical diagnosis for a suspected, probable or confirmed case. Clinicians should not wait for laboratory confirmation before notifying.	Must satisfy ONE criterion in EACH category listed below: 1. Pesticide exposure a. Report of acute pesticide exposure, from a patient or witness 2. Health effects a. Health care provider documenting ≥ 2 new post-exposure symptoms 3. Cause-effect relationship The health effects must: a. Not be associated with any other likely explanation AND Occur within a reasonable time period after exposure	Must satisfy ONE criterion in EACH category listed below: 1. Pesticide exposure a. If criterion as for a Suspected case, must have Health effects criterion as for Confirmed case OR b. If criterion as for a Confirmed case, may have Health effects criterion as for Suspected case 2. Health effects a. If criterion as for a Suspected case, must have Pesticide exposure criterion as for Confirmed case OR b. If criterion as for a Confirmed case, may have Pesticide exposure criterion as for Suspected case 3. Cause-effect relationship The health effects must: a. be characteristic of the pesticide AND b. occur within a reasonable time period after exposure	Must satisfy ONE criterion in EACH category listed below: 1. Pesticide exposure a. Observation of residue/odour by health care provider OR b. Clinical response to treatment or antidote (e.g. atropine) OR clinical description by a health care provider of ≥ 2 post-exposure health effects (at least 1 of which is a sign) characteristic for the pesticide OR c. Laboratory test demonstrating physiologic response to pesticide (e.g. prolonged clotting or pseudocholinesterase level below normal laboratory range) 2. Health effects a. Health care provider documenting ≥ 2 characteristic signs OR b. Health care provider documenting ≥ 3 new post-exposure characteristic symptoms OR c. Autopsy evidence of pesticide poisoning 3. Cause-effect relationship The health effects must: a. be characteristic of the pesticide

				AND occur within a reasonable time period after exposure

Additional resources

- Thundiyil, Josef G, Stober, Judy, Besbelli, Nida & Pronczuk, Jenny. (2008). Acute pesticide poisoning: a proposed classification tool. Bulletin of the World Health Organization, 86 (3), 205 - 209. World Health Organization. http://dx.doi.org/10.2471/BLT.08.041814

- https://ndc.services.cdc.gov/case-definitions/pesticide-related-illness-and-injury-acute-2010/

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4. ANTHRAX

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Anthrax is a serious infection usually transmitted from animals, or following ingestion of or wound contamination with anthrax spores. The condition is preventable through antibiotic prophylaxis and eradication of the source. The condition is fatal unless treated intensively and early by means of antibiotics. Anthrax is found throughout South Africa but more frequently in the Northern Cape and northern Kruger National Park (Limpopo). The condition is notifiable because prompt action can prevent additional cases. The organism also has potential for use as a bioweapon.	The clinician who suspects a case should notify the case based on the clinical case definition, as soon as the disease is suspected.	A person with an appropriate epidemiological exposure (e.g. occupational contact with ruminants that have died recently, or animal products such as skins, or contact with anthrax spore- contaminated soil, or ingestion of undercooked, contaminated or raw meat), or history of injection drug abuse, and any of the following • A mild or extensive skin lesion evolving over 1-6 days from a papular/vesicular appearance to a depressed black eschar, usually accompanied by oedema, fever, malaise and lymphadenopathy OR • Nausea, vomiting and anorexia followed by fever, vomiting of blood, bloody diarrhoea OR • Rapid onset of hypoxia, shortness of breath and high temperature, with radiological evidence of mediastinal widening or pleural effusion OR • Acute onset of high fever, convulsions, loss of consciousness and meningeal signs and symptoms	A suspected case with Gram-positive bacilli, square ended, in pairs or short chains cultured from clinical specimens	A clinically compatible case that is laboratory confirmed by: ☐ Isolation of *Bacillus anthracis* from clinical specimen; **OR** ☐ Other laboratory evidence of *Bacillus anthracis* infection based on at least two supportive laboratory tests.

Additional notes

Clinicians who suspect anthrax should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with specimen collection and diagnosis. When a case of anthrax is suspected, a case investigation form should be completed. When bioterrorism is suspected, the South African Police Service should be notified.

Additional resources

A Frequently Asked questions document on anthrax is available at https://www.nicd.ac.za/diseases-a-z-index/anthrax/

The Healthcare workers handbook on bioterrorism (2011) is available at https://www.nicd.ac.za/diseases-a-z-index/anthrax/

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5. BOTULISM

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Botulism is a rare but serious paralytic illness caused by a nerve toxin that is produced by the bacterium *Clostridium botulinum*. Botulism may be foodborne (18 to 36 hours after eating contaminated food, or associated with contaminated wounds. Injection-drug users and infants are groups more at risk for botulism. Surveillance and rapid notification will allow for early identification of contaminated foodstuffs and prevention of other cases in the case of foodborne disease.	The health care worker who suspects botulism should notify the case as soon as possible	A person who presents with rapidly progressive (usually descending) symmetric muscle weakness, with any of double vision, blurred vision, bulbar paralysis or weakness, ptosis, slurred speech **AND** having relevant epidemiological exposure (ingestion of foods contaminated with botulinum toxin or *Clostridium botulinum* contaminated wound with in situ toxin production).	A person with clinically compatible illness with an epidemiologic link to other suspected/confirmed cases or food	A confirmed case is a person with laboratory evidence of *Clostridium botulinum* infection by □ Culture isolation of *Clostridium botulinum* from clinical specimens, wound or suspected food; **OR** Detection of *Clostridium botulinum* toxin in clinical specimens or suspected food.

Additional notes

Clinicians who suspect botulism should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with specimen collection and diagnosis. When a case of botulism is suspected, a case investigation form should be completed. This will provide public health officials with additional data to support case investigation and identification of possible sources of infection.

Additional resources

A Frequently Asked questions document on anthrax is available at http://www.nicd.ac.za/diseases-a-z-index/botulism/
A case investigation form is available at https://www.nicd.ac.za/diseases-a-z-index/botulism/

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6. CHOLERA

Why is surveillance necessary?	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Cholera is a bacterial disease caused by infection with toxin-producing *Vibio cholerae* O1/O139. The organism is transmitted through contaminated water or food. Cholera spreads rapidly, especially in communities which lack safe water, sanitation and hygiene services. Cholera may be imported by travellers to areas endemic for cholera or experiencing cholera outbreaks. Early notification of suspected cases will ensure that the diagnosis is confirmed early, and that measures are implemented to prevent additional cases.	The healthcare worker who identifies a suspected case should notify health authorities immediately. Healthcare workers should NOT wait for laboratory confirmation before notifying cases.	[2]In an area where the disease is not known to be present, a suspected case is defined as a patient, irrespective of age, with severe dehydration or death from acute watery diarrhoea [3]In an area where there is a cholera outbreak, a suspected case is defined as a patient who develops acute watery diarrhoea, with or without vomiting.	A suspected case with an epidemiologic link to a confirmed cholera case.	A case of cholera is confirmed when toxigenic *Vibrio cholerae* O1 or O139 is isolated from any patient with diarrhoea.

Additional notes

Clinicians who suspect cholera should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with specimen collection and diagnosis. It is essential to: 1) collect stool specimens from suspected cases using the correct procedures, and 2) to complete a case investigation to provide authorities with information to identify the source of cholera. See resources below.

Additional resources

A case-investigation form (CIF), frequently asked questions document (FAQ), National Department of Health Cholera guideilines 2014, and specimen collection guidelines are available at http://www.nicd.ac.za/diseases-a-z-index/cholera/

[2] NDoH Cholera guidelines 2014

[3] NDoH Cholera guidelines 201

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7. CONGENITAL RUBELLA SYNDROME

Disease epidemiology	Who must notify	Case definition		
		Clinical case	Clinically confirmed case	Laboratory confirmed case
Congenital rubella syndrome (CRS) may occur in the foetus/neonate when a pregnant women who is not immune to rubella (i.e. has not had natural infection, nor vaccination) contracts rubella infection. CRS is a symptom complex. Diagnosis requires clinical evaluation and laboratory tests. Rubella preventable by vaccination. South Africa has not yet included rubella vaccine in our EPI programme, however, most countries in the world include it with the measles vaccine. Rubella is targeted for elimination by the WHO. Acute rubella in an infant, child or adult is a Category 3 notifiable condition	✓ Health care practitioner *(nurse or doctor receiving the laboratory result)* ✓ Laboratory making the diagnosis	Any infant less than one year of age presents with heart disease and/or suspicion of deafness and/or one or more of the following eye signs: - white pupil (cataract), -diminished vision, -pendular movement of the eyes (nystagmus), -squint, -smaller eye ball (microphthalmus), or larger eye ball (congenital glaucoma). A health worker should also suspect CRS when an infantís mother has a history of suspected or confirmed rubella during pregnancy, even when the infant shows no signs of CRS	An infant in whom a qualified physician detects 1. at least two of the complications listed in A OR 2. One complication in A and one in B A: Cataract(s), congenital glaucoma, congenital heart disease, loss of hearing, pigmentary retinopathy B: Purpura, splenomegaly, microcephaly, mental retardation, meningocephalitis, radiolucent bone disease, jaundice that begins within 24 hours after birth	An infant with clinically confirmed CRS who has a positive blood test for rubella specific IgM and/or is PCR positive for rubella virus from any clinical specimen (e.g. blood, tissue lens, urine or CSF). confirmation of CRS An infant who has a positive rubella IgM test but does not have clinically confirmed CRS is classified as having congenital rubella infection (CRI). These cases should also be notified.
Additional notes All infants with CRS are positive for rubella-specific IgM at the age of 0-5 months; 60% are positive at 6-11 months. Amongst infants and children with CRS, 60% shed rubella virus in the throat or urine until the age of 1-4 months, 30% at 5-8 months: 10% at 9-11 months.				
Additional resources The WHO standard for congenital rubella surveillance may be found at https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/rubella_standards/en/				

8. DIPHTHERIA

Disease epidemiology	Who must notify and when?	Case Definitions			
		Suspected	Probable	Confirmed	Asymptomatic carrier
Diphtheria is caused by infection with toxin-producing strains of *Corynebacterium diphtheriae* or *C. ulcerans* or (rarely) *C. pseudotuberculosis.* Diphtheria is spread via respiratory droplets or direct contact with infected skin lesions from an infected person. Diphtheria has a high mortality rate. Notification is essential because additional cases can be prevented amongst contacts by early administration of antibiotics.	The clinician who suspects diphtheria should notify the case immediately. Healthcare workers should NOT wait for laboratory confirmation before notifying cases or initiating treatment.	A person meeting the **clinical criteria** for classic **respiratory diphtheria**	Any person meeting the **clinical criteria** for **classic respiratory diphtheria** AND with an **epidemiological link** to a confirmed case but no diphtheria testing was performed OR Any person meeting the **clinical criteria** for **classic respiratory diphtheria** AND **laboratory confirmation of the organism but toxin production has not been confirmed.**	Any person meeting the clinical criteria for at least **one of the clinical forms of diphtheria** AND **laboratory confirmation of the organism and toxin production**	A person **with no symptoms** AND **laboratory confirmation of the organism and toxin production**

Clinical criteria

Any person with at least one of the following clinical forms:
Classic respiratory diphtheria: An upper-respiratory tract illness characterised by sore throat, low-grade fever AND a typical adherent membrane of the nose, pharynx, tonsils, or larynx
Mild respiratory diphtheria: An upper respiratory tract illness with laryngitis or nasopharyngitis or tonsillitis WITHOUT an adherent membrane/pseudomembrane.
Cutaneous diphtheria: Skin lesion consistent with diphtheria
Diphtheria of other sites: Lesion of conjunctiva or mucous membranes consistent with diphtheria

Laboratory criteria
Laboratory confirmation of the organism: *C. diphtheriae* or *C. ulcerans* or *C. pseudotuberculosis* isolated from a clinical specimen or detected by polymerase chain reaction (PCR)
Laboratory confirmation of toxin production: Laboratory confirmation of diphtheria (as above) and also confirmed to be *tox* gene positive by PCR, and toxin producing by Elek testing (if an isolate is available).

Additional notes

Clinicians who suspect diphtheria should contact the NICD 24-hour hotline (0800-212-552) for assistance with specimen collection and diagnosis. It is essential to: 1) collect a throat swab from suspected cases using the correct procedures, and 2) to complete a case investigation form to provide authorities with information to identify contacts and implement prevention measures. See resources below.

Additional resources

A case-investigation form (CIF), frequently asked questions document (FAQ), Guidelines for the management and public health response to diphtheria (2018), and specimen collection guidelines are available at https://www.nicd.ac.za/diseases-a-z-index/diphtheria/

9. ENTERIC FEVER (TYPHOID OR PARATYPHOID FEVERS)

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Enteric fever is a disease caused by a bacterial infection with *Salmonella enterica* serotype Typhi (the cause of 'typhoid fever') or *S. enterica* ser. Paratyphi A, B or C (which cause 'paratyphoid fever', a disease clinically indistinguishable from typhoid fever). The disease is transmitted by faeco-oral contact or by the ingestion of contaminated food or water. Notification of enteric fever cases assists public health officials to prevent disease in contacts of cases, and to identify and control the source of infection.	Healthcare workers should notify cases on clinical suspicion or on confirmation of the diagnosis by the laboratory.	A person presenting with a fever for at least three out of seven consecutive days and suggestive symptoms, including Gastrointestinal symptoms (abdominal pain, nausea and vomiting, diarrhoea (more common in young children) or constipation (more common in older children and adults)), • Headache • Malaise **AND** • travel within the last month to an area known to be endemic for enteric fever, or where an outbreak of enteric fever is ongoing OR • the absence of an alternate diagnosis in persons with no travel history	A clinically compatible case that is epidemiologically linked to a confirmed case	The isolation of *Salmonella enterica* ser. Typhi, or S. *enterica* ser. Paratyphi A, B or C from a clinical specimen in the presence of symptoms compatible with enteric fever. **Note: serological tests including the Widal test have poor sensitivity and specificity and should <u>not</u> be used to make the diagnosis of enteric fever.**

Additional notes

- Following confirmation of the diagnosis and completion of antimicrobial treatment, the patient must be followed up and serial stool cultures performed to ensure that they have cleared the infection and are not carriers.
- Public health officials should identify household contacts of confirmed cases and obtain stool specimens or rectal swabs to identify and treat contacts who are carriers.

Additional resources

The following resources are available on the NICD website: a frequently asked questions (FAQ) document, a case investigation form (CIF), diagnosis and treatment guidelines http://www.nicd.ac.za/diseases-a-z-index/typhoid-fever/.

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10. FOODBORNE DISEASE OUTBREAK

Disease epidemiology	Who must notify and when?	Case definition	
		Suspected case	Confirmed case
Early identification of foodborne illness outbreaks will allow authorities to investigate the outbreak timeously, collect appropriate specimens, identify the outbreak source/s and implement interventions to prevent additional cases.	The healthcare worker who makes the diagnosis should • notify the outbreak by completing a NMC notification form **for the index case only** • submit a complete linelist of affected persons to the responsible communicable disease control coordinator AND to the responsible environmental health practitioner AND to the NICD.	An incident in which two or more persons experience a similar illness (gastrointestinal) and are epidemiologically linked	[4]None

Additional notes

- It is not necessary to complete an NMC notification form for every single person affected by the foodborne illness outbreak. However, a line list (see resources below) should be submitted with names and demographic details of all affected persons.
- Stool and/or vomitus specimens, and food/environmental specimens should be submitted to NHLS public health laboratories. See contact details for these labs in resources below.
- A complete investigation of a foodborne illness outbreak requires additional data and results –including results of laboratory testing of clinical and food specimens, symptoms and clinical features of affected persons, the menu and list of foods offered at the implicated meal/s, complete food consumption history from affected AND non-affected persons, and investigation of food handlers. The Centre for Enteric Diseases at NICD provides assistance with outbreak investigations.

Additional resources

The NICD-NHLS quick reference guide for the investigation of food borne disease outbreaks (2012), line list (2012), case investigation form (CIF), and specimen submission forms for NHLS public health laboratories in Durban and Johannesburg are available at http://www.nicd.ac.za/diseases-a-z-index/foodborne-illness-and-gastroenteritis-outbreaks/

[4] The identification of a foodborne illness outbreak is a clinical and epidemiological diagnosis. No laboratory confirmation is required

11. HAEMOLYTIC URAEMIC SYNDROME (HUS)

Disease epidemiology	Who must notify and when?	Case definition	
		Suspected case	Confirmed case
Haemolytic uraemic syndrome (HUS) is characterised by the acute onset of microangiopathic haemolytic anemia, renal injury, and low platelet count. Most cases of HUS occur after acute gastrointestinal illness (usually characterised by diarrhoea).	The diagnosis of HUS is usually made by clinicians following clinical examination and laboratory investigations including full blood count and smear microscopy, urine examination, and renal function tests. There is no single laboratory test to confirm the diagnosis. A case of HUS should be notified as soon as the clinician is satisfied that the case definition is met.	None	The presence of: • Haemolytic mechanical anaemia (acute onset) with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear, • Thrombocytopenia **AND** • Renal injury (acute onset) evidenced by either haematuria, proteinuria, or elevated creatinine level

Additional notes

Most diarrhea-associated HUS is caused by Shiga toxin-producing *Escherichia coli* (STEC), most commonly *E. coli* O157. HUS usually occurs within three weeks after diarrhoeal illness. Persons with HUS may give a history of bloody diarrhoea. Stool culture and PCR for STEC (performed at CED, NICD) should be done for all cases of suspected HUS.

Additional resources

Contact the Centre for Enteric Diseases at the NICD for additional support regarding haemolytic uraemic syndrome (ced@nicd.ac.za)

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12. LISTERIOSIS

Disease epidemiology	Who must notify and when?	Case definition	
		Suspected case	Confirmed case
Listeriosis is a foodborne illness which has been linked to a range of contaminated foods, including ready-to-eat meats, dairy products and fresh produce. Listeriosis may result in bacteraemia, meningitis, and foetal loss (miscarriage) in pregnant women. Immunocompromised persons, pregnant women, and the elderly are more at risk of developing disease. Cases of listeriosis must be notified and investigated so that potential outbreaks and possible source/s are identified timeously.	The clinician responsible for treating a patient should notify authorities as soon as the diagnosis is confirmed by the laboratory. Laboratorians should also notify authorities when the diagnosis is made. There is no clinical case definition.	[5]None	The isolation by culture or detection by PCR of *Listeria monocytogenes* in any clinical specimen

Additional notes

Laboratories should submit all isolates of *Listeria monocytogenes* to the NICD Centre for Enteric Diseases for molecular typing. A detailed food history should be obtained using the listeriosis case investigation form (see below) from all persons with listeriosis, or their next of kin, or the mother, if fetal loss occurs.

Additional resources

The following resources are available at http://www.nicd.ac.za/diseases-a-z-index/listeriosis/
A Frequently asked questions (FAQ) document, a guide to the laboratory diagnosis of listeria, a case investigation form (CIF), a CIF instruction sheet, and a food/environmental specimen request form.
Contact the Centre for Enteric Diseases at the NICD for additional support regarding listeriosis (junot@nicd.ac.za)

[5] Listeriosis may present with a wide range of symptoms and nonspecific clinical syndromes.. Therefore there is no clinical case definition

13. MALARIA

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
Systemic febrile infection caused by five species of mosquito-transmitted protozoal parasites, generally acquired in known risk areas, but occasionally associated with blood transfusions, needle injuries, and imported mosquitoes in non-endemic areas. Notification of cases is essential to track disease burden and aid elimination efforts in endemic provinces, and to investigate the reasons for cases in non-endemic areas.	Healthcare practitioner who makes the diagnosis should notify the case immediately following confirmation with: • A positive rapid (bedside) test for malaria • A positive test from a blood specimen submitted to a laboratory.	In an endemic area, an acute febrile flu-like illness (AFFI) in a person with a history of exposure; OR In a non-endemic area, an AFFI with a history of blood transfusion or injections, or AFFI with no other cause for illness and compatible non-specific laboratory findings, especially thrombocytopenia. NB: Only notify cases after confirmation.	Clinically suspected case in a recognized malaria outbreak or endemic area. NB: Only notify cases after confirmation.	Positive malaria test (rapid antigen, blood smear, PCR) for any of the species: *P. falciparum,* *P. vivax, P. ovale,* *P. malariae,* *P. knowlesi.*

Additional notes

In endemic areas, confirmed malaria cases must be notified by completion of the case notification form on the NMC app, and submitted to the provincial malaria control programme officials. Malaria control programme officials will then investigate each case according to current case investigation procedures.
In non-endemic areas, confirmed malaria cases must be notified on the NMC app. Where cases do not report recent travel history to a malaria-endemic area, an entomological assessment of the house and the surrounding residential area should be conducted by environmental health officials to find potential mosquito breeding sites.

Additional resources

The following resources are available at https://www.nicd.ac.za/diseases-a-z-index/malaria/ : A Frequently Asked Questions (FAQ) document (2024), a malaria risk map (December 2025), South African guidelines for treatment and prevention of malaria (2019), surveillance guidelines for malaria elimination and prevention of re-introduction for South Africa (2012), malaria elimination strategic plan for South Africa 2019-2023.

14. MEASLES

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Measles is a highly infectious viral disease transmitted by the respiratory route. Measles presents with fever, rash and any of cough, conjunctivitis and runny nose. Measles infectivity is greatest in the 4 days before until 4 days after the rash onset. WHO defines a measles outbreak as two or more laboratory-confirmed cases that are temporally related (with dates of rash onset occurring 7–23 days apart) and epidemiologically- or virologically linked, or both. Early notification of measles is essential to allow authorities to conduct ring vaccination to prevent spread of cases.	Any clinician who suspects a measles case should notify the case immediately.	Any person in whom a clinician suspects measles infection **OR** any person with fever and maculopapular rash (i.e. nonvesicular) and one of cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes).	Suspected measles case with epi link to a known measles case	A laboratory-confirmed measles case is any person with clinically compatible measles and a measles-specific IgM result in any specimen **or** a positive measles PCR test on a throat swab. . A clinically compatible case according to the WHO is a case that meets the clinical case definition with no blood specimen submitted, or without an epidemiological link to a confirmed case.

Additional notes

- All suspected measles cases (SMC) should have a case investigation form (CIF) completed (see resources below), and a blood specimen submitted for measles-specific IgM testing within 28 days of symptom onset. A throat specimen for measles-specific PCR should be submitted if the patient presents within one week of symptom onset.
- All SMCs are reviewed by the NICD and NDoH where a final classification is determined. Cases may be classified as confirmed, probable or clinically compatible, or may be discarded (IgM -ve or vaccine-associated) according to WHO criteria*

Additional resources

The following resources are available at http://www.nicd.ac.za/diseases-a-z-index/measles/
A Frequently asked questions (FAQ) document, a measles vaccine FAQ, a measles case investigation form (CIF), a measles campaign FAQ for public and private sector, and guidelines for measles management from the Expanded Programme of Immunisation Manual (2015).

*https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/measles_standards/en/#:~:text=Clinical%20case%20definition,or%20conjunctivitis%20(i.e.%20red%20eyes)

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

15. MERCURY POISONING

Disease epidemiology	Who must notify	Case definition		
		Clinical (Suspected case)	Probable case	Confirmed case
Mercury is an element that occurs widely in the environment, from both natural and human sources (mining waste, especially informal gold mining, municipal incinerators, power plants, hazardous waste sites, dentistry, medical equipment and manufacturers of products containing mercury). Mercury occurs in three forms: organic, inorganic, and elemental (metallic). All forms of mercury, and especially the organic form, are toxic. The clinical presentation varies depending upon the form of mercury, as well as the route of exposure (inhalation, ingestion, topical or injection), patient age and dose and duration. All organ systems can be affected, and effects may be acute or chronic. • Organic mercury (e.g. methylmercury contamination in fish): Ingestion most common route, followed by inhalation and dermal exposures. Toxicity - can be delayed for weeks and usually involves the central nervous system (e.g. paraesthesia, headaches, ataxia, dysarthria, visual field constriction, blindness, and hearing impairment). • Inorganic mercury: Ingestion most common route of toxicity. Acute toxicity - gastrointestinal symptoms, shock, renal failure, death. Chronic toxicity - neurologic, dermatologic, and renal manifestations, including neuropsychiatric disturbances (e.g., memory loss, irritability), gingivostomatitis, discoloration or desquamation of the	✓ The health care provider making the clinical diagnosis for a suspected, probable or confirmed case. Clinicians should not wait for laboratory confirmation before notifying. OR	A potentially mercury-exposed case being evaluated by health care workers or public health officials for mercury poisoning.	A clinically compatible case with a high index of suspicion for mercury exposure due to case's history regarding location, source and time of exposure. OR A clinically compatible case with an epidemiologic link to a case with laboratory evidence.	A clinically compatible illness in a person with history of exposure and laboratory evidence*, i.e. • Organic mercury ➢ ≥10 µg/L in whole blood • Inorganic mercury ➢ ≥10 µg/L in 24hour urine ➢ ≥10 µg/L in whole blood • Elemental mercury ➢ ≥10 µg/L in 24hour urine ➢ ≥10 µg/L in whole blood (first few days after exposure only)

hands and feet, and hypertension. • Elemental mercury: Inhalational most typical route of toxicity. Acute toxicity – fever, fatigue, as well as gastrointestinal, respiratory and central nervous system effects. Chronic toxicity–similar to inorganic toxicity	✓ Laboratory making the diagnosis, including forensic services.			
Additional resources https://emergency.cdc.gov/agent/mercury/mercorgcasedef.asp				

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

16. MENINGOCOCCAL DISEASE

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Meningococcal disease is caused by *Neisseria meningitidis*. It can present as meningitis, septicaemia, respiratory or focal infections. It is spread through droplets or intimate contact with nasopharyngeal secretions. The incubation period of meningococcal disease is 3 to 5 days Meningococcal disease should be notified, as additional cases can be prevented by giving chemoprophylaxis (antibiotics) to persons who have been in contact with cases.	Any clinician who suspects a case of meningococcal disease should notify the case immediately before laboratory results are available. Health authorities should identify contacts and administer prophylactic antibiotics as soon as possible before laboratory confirmation is available.	A clinical diagnosis of meningitis, septicaemia or other invasive disease (e.g. orbital cellulitis, septic arthritis) where the physician considers that meningococcal disease is the most likely diagnosis. Cases may present with fever, petechial rash and may progress rapidly to purpura fulminans, shock, and death.	A suspected case is regarded as a probable case.	The isolation of *N. meningitidis* from a normally sterile site specimen (e.g., blood; cerebrospinal, pericardial or synovial fluid), or a positive Gram's stain and latex result, or a positive PCR result. Although not meeting the case definition, meningococcal conjunctivitis is considered an indication for public health action because of the high immediate risk of invasive disease.

Additional notes

The NICD Centre for Respiratory Disease and Meningitis (CRDM) is able to conduct PCR for meningococcal disease and other pathogens in cases of unexplained death where meningococcal disease or other infectious agent is suspected. Post-mortem specimens may be submitted to the CRDM. For further information or assistance please contact annev@nicd.ac.za

Additional resources

The following resources are available at https://www.nicd.ac.za/diseases-a-z-index/meningoccocal-disease/
A Frequently asked questions (FAQ) document, an update for healthcare workers (april 2019), a specimen submission form.

17. MPOX

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Mpox is an acute contagious disease caused by the mpox virus, a member of the genus *Orthopoxvirus* in the family *Poxviridae*. Human Mpox infections had historically been rare in West and Central Africa, however there has been an upsurge in incidence from this region since 2017. Between July 2022 and May 2023, a multi-country outbreak was declared a PHEIC by WHO. The outbreak is ongoing at low level transmission. The WHO has urged countries to improve surveillance and public health measures. In order to facilitate better surveillance, SA classified mpox as an NMC in February 2023.	The healthcare practitioner who makes the diagnosis should notify the case	Suspected mpox patient is defined as a) contact with a probable or confirmed case in the 21 days prior to the onset of any of the following symptoms: fever (>38.5°C), headache, myalgia, back pain, profound weakness, fatigue, **OR** b) patient with unexplained acute skin rash, mucosal lesions, or lymphadenopathy. The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or ano-rectal lesions. Ano- rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding. **AND** No other common causes of acute rash or skin lesions*	A person meeting the case definition for a suspected case **AND** One or more of the following: • has an epidemiological link (face-to-face exposure, including health workers without eye and respiratory protection); direct physical contact with skin or skin lesions, including sexual contact; or contact with contaminated materials such as clothing, bedding or utensils to a probable or confirmed case of mpox in the 21 days before symptom onset • has had multiple and/or casual sexual partners (regardless of sex/gender) in the 21 days before symptom onset • has a positive result of an *orthopoxvirus* serological assay, in the absence of recent smallpox/monkepox vaccination or other known exposure to orthopoxviruses	A confirmed case is a person with laboratory evidence of mpox virus by detection of unique sequences of viral DNA either by real-time polymerase chain reaction (PCR) and/or sequencing.

Additional notes

*Mpox is sometimes confused with chickenpox, caused by varicella zoster virus. Chickenpox can be distinguished from mpox by its much more superficial lesions, their presence more on the trunk than on the face and extremities, and by the development of successive crops of lesions in the same area.
Other differential diagnoses of rash are from infections caused by herpes zoster, measles, Zika, dengue, chikungunya, herpes simplex, bacterial skin infections, disseminated *gonococcus* infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

Additional resources

Mpox has low occurrence in South Africa, but should clinicians be concerned, they should contact the NICD 24-hour hotline (**0800-212-552**) for assistance with the diagnosis.

18. PERTUSSIS

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Pertussis or 'whooping cough' is a highly contagious bacterial respiratory tract disease, caused by *Bordetella pertussis.* It occurs mainly in infants and young children and is transmitted through respiratory secretions. Pertussis is notifiable because it is transmissible and carries a high mortality in children under the age of 1 year, especially children too young to be vaccinated or who have not yet completed their primary vaccination series. Pertussis may be prevented in contacts by giving chemoprophylaxis.	Clinicians should notify cases of pertussis on the basis of clinical suspicion. Clinicians should not wait for laboratory confirmation before notifying.	Any person with an acute cough illness lasting ≥14 days (or cough illness of any duration for children <1 year), without a more likely diagnosis AND one or more of the following signs or symptoms: • paroxysms of coughing, • or inspiratory "whoop", • or post-tussive vomiting • or apnoea in children <1 year; OR Any person in whom a clinician suspects pertussis.	Any person meeting the clinical case definition **AND** An epidemiologic linkage to a laboratory-confirmed case of pertussis in the 21 days before symptom onset.	Any person meeting the clinical case definition **AND** Isolation *of B. pertussis* from a clinical respiratory specimen OR polymerase chain reaction positive for pertussis OR specific antibody response (antipertussis toxin IgG response in older children and adults, and ≥1 year after last vaccine dose. Interpret with caution in younger children).

Additional notes

Health authorities should identify contacts of pertussis cases and provide post exposure prophylaxis and if necessary, booster vaccination. Health care workers should receive booster vaccination to prevent transmission of cases in hospital settings.

Additional resources

Additional resources for pertussis including pertussis preparedness for clinicians (2018), FAQ, guidelines for post-exposure prophylaxis following a single case (2011) and specimen submission form to NICD Centre for Respiratory Disease and Meningitis (CRDM), may be found at http://www.nicd.ac.za/diseases-a-z-index/pertussis/

19. PLAGUE

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Plague is caused by the bacterium *Yersinia pestis*. Humans usually get plague after exposure to saliva or feces of fleas that are carrying the plague bacterium or by handling an animal infected with plague. The last human cases of plague in South Africa were in 1982. Plague is notifiable because it is rapidly fatal (with a 90-95% case fatality rate) and has potential for person-to-person spread through respiratory droplets. Bubonic plague presents with swollen painful lymph nodes in the groin or neck and has a lower mortality but may spread locally to become septicaemic or pneumonic.	The clinician who suspects the diagnosis should notify authorities and the NICD immediately on clinical suspicion. Post-exposure prophylaxis with antibiotics may be administered to contacts of persons with confirmed plague	A person with exposure in a compatible epidemiological scenario, with fever, chills, headache, malaise, prostration, a raised white cell count and any of • regional lymphadenitis in the groin, armpit or neck • septicemia without an evident bubo □ pneumonia. **OR** clinical compatible case with clinical specimens that contain Gram-negative coccobacilli that exhibit bipolarstaining with Wayson or Wright's Giemsa stains	A person with clinically compatible illness with • a positive result with immunofluorescence or other validated assay; **OR** • a single serum specimen positive for anti- F1 antibody by ELISA; **OR** • an epidemiological link to a confirmed case.	A clinically compatible case that is laboratory-confirmed by: • Culture Isolation of *Yersinia pestis* from clinical specimens; **OR** • IgG seroconversion in a serum specimen from a clinically compatible case; **OR** A ≥4-fold rise in titre of anti-F1 antibody level over 2 weeks in a serum specimen from a clinically compatible case

Additional notes

Clinicians who suspect plague should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with specimen collection and diagnosis.

Additional resources

A frequently-asked questions document is available at https://www.nicd.ac.za/plague-frequently-asked-questions-2/.

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20. POLIOMYELITIS

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Poliomyelitis is a potentially deadly infectious disease caused by the poliovirus. The virus spreads from person to person and invades an infected person's brain and spinal cord, causing paralysis. Poliovirus is notifiable because it is targeted for eradication. Surveillance for acute flaccid paralysis is the means by which countries detect the presence of polio. To date, poliovirus remains endemic only in Afganistan, Nigeria and Pakistan.	All clinicians who identify cases of acute flaccid paralysis should notify these, and submit a completed AFP case investigation form, and two stool specimens to the NICD.	Any child under 15 years of age with acute flaccid paralysis, or sudden onset of weakness or paralysis not caused by injury OR Any person of any age who presents with paralytic illness if polio is suspected Acute: rapid progression of paralysis Flaccid: loss of muscle tone or 'floppy', (as opposed to spastic or rigid) Paralysis: weakens, loss of ability to move	N/A	Laboratory confirmation of any of the following from a stool or cerebrospinal fluid sample: • wildtype poliovirus OR • vaccine derived polio virus (VDPV) OR • Sabin polio virus

Additional notes

Clinicians who suspect polio should follow the procedure for notification and identification of acute flaccid paralysis (see notes on AFP in this document). The clinician should notify the cases and complete an AFP case investigation form (CIF) and submit two stool specimens on ice, with a completed laboratory specimen request form. The stool specimens should arrive in the laboratory within 48 hours after collection.

Additional resources

A frequently-asked questions document, and the national polio outbreak preparedness and response plan is available at http://www.nicd.ac.za/diseases-a-z-index/poliomyelitis/.
Resources for acute flaccid paralysis are found at http://www.nicd.ac.za/diseases-a-z-index/acute-flaccid-paralysis-afp/

21. RABIES (HUMAN)

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Rabies virus is transmitted through the saliva of infected mammals including dogs, mongoose, cats, jackal, cattle and goats. After a variable incubation period (2 weeks to years), the rabies virus causes dysfunction of the nervous system resulting in encephalitis, coma and death. There is no treatment but rabies post-exposure prophylaxis may prevent cases in persons who have been exposed. Cases of rabies should be notified, as canine rabies is endemic in South Africa, and human exposures are frequent. Following notification of a case, investigations should ensure to determine why post exposure prophylaxis was not correctly administered, and identify additional persons at risk. Veterinary control measures should also be implemented.	The clinician who suspects the diagnosis should notify the case as soon as it meets the clinical case definition. Laboratory confirmation is not required before notification of the case.	A person presenting with an acute neurological syndrome (encephalitis) dominated by forms of hyperactivity (furious rabies) or paralytic syndromes (dumb rabies) progressing towards coma and death, usually by respiratory failure, within 7-10 days after the first symptom if no intensive care is instituted.	A probable case is a suspected case WITH a likely exposure to a suspected rabid animal.	A confirmed case is a person with laboratory evidence of rabies infection by detection of a. Rabies virus nucleic acid by RT-PCR on saliva, skin biopsy or cerebrospinal fluid (CSF) **OR** b. Anti-rabies antibodies in CSF (ante-mortem); **OR** c. Rabies virus antigen in brain tissue by fluorescent antibody testing or rabies virus nucleic acid in skin biopsy (post mortem).

Additional notes

Negative saliva tests for rabies do not rule out the diagnosis. If the diagnosis is not confirmed through laboratory tests done ante-mortem, a post-mortem brain biopsy should be done. Instructions for specimen collection are found on the NICD website (see below). Human rabies statistics are based on year of exposure and infection and may differ from year of case notification.

Additional resources

Additional resources for rabies including instructions for specimen collection, rabies prevention guidelines, a rabies FAQ, may be found at https://www.nicd.ac.za/diseases-a-z-index/rabies/

22. RESPIRATORY DISEASE CAUSED BY A NOVEL RESPIRATORY PATHOGEN

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Previously unrecognised/ undetected pathogens may be responsible for outbreaks of disease in humans. Novel respiratory pathogens emerge occasionally, and cause outbreaks. Examples of this are the SARS outbreak that occurred in 2003 in South East Asia, and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) outbreak currently ongoing in the Middle East and SARS-CoV-2 first identified in China in 2019. A more recent outbreak occurred, caused by rodent aerosol-borne hantavirus, more specifically the Andes virus with limited human-to-human transmission, on a cruise ship voyage from Argentina to Cabo Verde in 2026. Nipah virus is a bat or pig-borne virus that causes outbreaks with respiratory illness or encephalitis in South and Southeast Asia, with 40%-75% case-fatality ratio and limited human-to-human transmission. These pathogens may first be identified as a cluster of people with severe respiratory illness. This category of disease is notifiable in the unusual event of an outbreak of a previously unrecognised/undetected pathogen, or the importation of a pathogen not	The healthcare practitioner responsible for the patient or who has noted a cluster of cases of respiratory illness should notify authorities. Notification should be made immediately on identification of the cluster, or on receipt of a laboratory diagnosis of the novel respiratory pathogen.	A person meeting the case definition for a suspected case of a specific emerging respiratory pathogen e.g., MERS-CoV, Hantavirus Pulmonary Syndrome, Nipah virus disease (see NICD website for specific updated case definitions for emerging pathogens) **OR** A cluster (e.g., 3 or more cases in 72 hours, or 5 or more cases in a 5-day period) of people with severe respiratory illness (hospitalised or warranting hospitalisation or ICU admission or death) with evidence of common exposure or epidemiologic link. Attention should be given to recent travel or exposure to animals implicated in zoonotic transmission of respiratory pathogens, or exposure to laboratory-confirmed human case/s of an emerging/novel virus **OR** **Suspected zoonotic influenza in humans** In the absence of a more likely alternative diagnosis or cause, an acute illness characterised by either: Fever or history of fever AND/OR	A person meeting the case definition for a probable case of a specific emerging respiratory pathogen e.g., MERS-CoV, Hantavirus Pulmonary Syndrome, Nipah virus disease (see NICD website for specific updated case definitions for emerging pathogens); OR Person/s (single or from a cluster) satisfying the suspected case definition, with absent or inconclusive laboratory result for a novel or emerging pathogen; AND A close contact of a laboratory-confirmed case **OR** **Probable case of zoonotic influenza A infection** A person meeting the case definition for a suspected case AND laboratory confirmation of influenza A infection, but insufficient laboratory evidence to determine subtype	A person with laboratory confirmation of recent infection with a novel (new), emerging pathogen (not previously detected in South Africa) e.g., MERS-CoV or zoonotic influenza A subtypes (e.g. H5, H7, H9) or novel coronavirus or Hantavirus Pulmonary syndrome (HPS) or Nipah disease.

currently included in the NMC regulations.		respiratory symptoms (cough, sore throat, coryza (runny nose) or shortness of breath or difficulty breathing OR conjunctivitis OR sudden severe unexplained illness or death **AND** one or more of the following **exposures** in the 14 days prior to symptom onset: • Exposure to animals (including birds) or their remains or to environments contaminated by their excreta (faeces, blood, respiratory tract secretions, etc.) in an area where zoonotic influenza A infections in animals or humans have been suspected or confirmed in the past month; • Close contact with a confirmed influenza A infected animal (including sick or dead animals); • Close contact (within 1 metre) with a suspected, probable or confirmed zoonotic influenza A human case; • Consumption of raw or undercooked animal products in an area where zoonotic influenza A infections in animals or humans have been suspected or confirmed in the past month; • Handling samples suspected of containing zoonotic influenza A virus in a laboratory or other setting.		

Additional notes

In the event of an outbreak of a novel respiratory pathogen, the NICD will make and confirm the initial diagnosis, and will issue case definitions and laboratory criteria for diagnosis. Influenza H1N1pdm09 (known in the public media as 'swine flu') is NOT a novel respiratory pathogen, and is NOT notifiable.

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***Additional resources**

Additional resources for MERS-CoV, or Hantavirus Pulmonary Syndrome, or Nipah virus disease, including a FAQ, specimen collection instructions and guidelines may be found at https://www.nicd.ac.za/

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

23. RIFT VALLEY FEVER (HUMAN)

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Rift Valley fever (RVF) is a viral disease affecting domesticated ruminant animals and humans. It is transmitted by *Culex* and *Aedes* spp. mosquitoes or by direct contact with animal blood and/or body fluids. There is no antiviral treatment for RVF. Clinical presentation ranges from mild to fatal. RVF is notifiable as disease in humans often following or accompanies epizootics (outbreaks in animals). Notification will allow authorities to implement appropriate health promotion and prevention interventions including vaccination of animals.	The healthcare practitioner who suspects the diagnosis or who receives a diagnosis following laboratory tests on the case should notify the case.	A person with acute onset of fever > 38°C with at least one of the following symptoms: headache, loss of appetite, vomiting, diarrhoea, abdominal pain; and any of the following: • ALT, AST or γ-GT level elevation (3 times above normal), clinical jaundice, hepatitis; OR • features of encephalitis, such as confusion, disorientation, drowsiness, coma, neck stiffness, hemiparesis, paraparesis, or convulsions; OR • bleeding into skin (ecchymosis, purpura, petechiae), vomiting of blood, blood in stool, or bleeding from rectum, nose, puncture sites or vagina, decreased platelets count; OR • retinitis, unexplained acute vision loss or blind spots (scotomas); OR • unexplicable sudden death with a history of fever, lethargy, diarrhoea, abdominal pain, nausea, vomiting, or headache in the preceding 2 weeks **AND** Any of the following epidemiological exposures: • a recent close contact with hoofed livestock and game animals in or from RVF-affected areas*, including slaughtering and butchering (traditional or commercial), disposal of carcasses and foetuses, assisting with birthing or other animal husbandry activities that resulted in exposure to animal blood and body fluids, or veterinary procedures and necropsies; OR • History of recent mosquito bites and residing in RVF affected areas*; OR • consuming unpasteurized milk from RVF-affected areas*.	A probable case is a suspected case with laboratory IgM antibodies against RVF virus.	A confirmed case is a person with laboratory evidence of RVF virus infection 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 • Increase in IgM/IgG titres between acute and convalescent specimens.

Additional notes

Clinicians who suspect plague should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with specimen collection and diagnosis.

Additional resources

Additional resources for RVF including a healthcare workers handbook and case investigation form

*map of historical outbreak areas in South Africa may be found at https://www.nicd.ac.za/diseases-a-z-index/rift-valley-fever/

Category 1: Immediate reporting telephonically followed by written or electronic notification within 24hrs of diagnosing a case

24. RUBELLA VIRUS

Disease epidemiology	Who must notify	Case definition
		Confirmed case
Rubella is a mild clinical illness that presents fever and a maculo-papular rash. Rubella in a pregnant woman can lead to congenital rubella infection in her infant. Congenital rubella is a symptom complex and is also notifiable in South Africa as a category 2 condition. Rubella is preventable by vaccination. Rubella is targeted for elimination by the WHO. South Africa has not yet included rubella vaccine in our EPI programme, however, most countries in the world include it with the measles vaccine.	Any clinician who suspects a rubella case should notify the case immediately.	A laboratory-confirmed case is a suspected case with a positive blood test for rubella-specific IgM. The blood specimen should be obtained within 28 days after the onset of rash.

Additional notes

- The WHO also defines a suspected rubella case as any patient of any age in whom a health worker suspects rubella. A health worker should suspect rubella when a patient presents with fever, maculopapular rash; and cervical, suboccipital or postauricular adenopathy or arthralgia/arthritis.
- Rubella is not distinguishable from measles on the basis of clinical symptoms alone. It may be advisable to request measles serology in addition to rubella serology on everyone who presents with symptoms of rubella, especially if there is no history of measles vaccination. See case definition for measles (Category 1). When blood for rubella testing is submitted to the NICD, it is routinely also tested for measles antibodies

Additional resources

- The WHO standard for rubella surveillance may be found at https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/rubella_standards/en/

25. SMALLPOX

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Smallpox is an acute contagious disease caused by the variola virus, a member of the orthopoxvirus family. It was declared eradicated in 1980 following a global immunization campaign led by the World Health Organization.	The healthcare practitioner who makes the diagnosis should notify the case	A person with acute onset of fever ≥38.3°C and malaise, and severe prostration with headache and backache occurring 2 to 4 days before rash onset AND subsequent development of a maculopapular rash starting on the face and forearms, then spreading to the trunk and legs, and evolving within 48 hours to deep-seated, firm/hard and round well-circumscribed vesicles and later pustules, which may become umbilicated or confluent AND lesions that appear in the same stage of development (i.e. all are vesicles or all are pustules) on any given part of the body (e.g. the face or arm) AND no alternative diagnosis explaining the illness.	A probable case is a suspected case with either laboratory evidence by • Detection of a poxvirus resembling variola virus by electron microscopy; OR • Isolation of variola virus pending confirmation; OR • Detection of variola virus by nucleic acid testing pending confirmation); ORF • epidemiological linked to confirmed case).	A confirmed case is a person with laboratory evidence of smallpox virus infection by • Isolation of variola virus and PCR confirmation of cultured isolate; OR • Detection of variola virus by PCR).
Additional notes In the past, smallpox was sometimes confused with chickenpox, caused by varicella zoster virus. Chickenpox can be distinguished from smallpox by its much more superficial lesions, their presence more on the trunk than on the face and extremities, and by the development of successive crops of lesions in the same area.				
Additional resources Smallpox is not likely every to occur in South Africa, but should clinicians be concerned, they should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis.				

26.1. VIRAL HAEMORRHAGIC FEVER DISEASES: EBOLA

Disease epidemiology	Who must notify?	Case definition		
		Suspected case	Probable case	Confirmed case
"Ebola is a hemorrhagic fever (EVD) is a severe febrile illness characterized by sudden onset of fever, and nonspecific symptoms with rapid progression to bleading and death. EVD is caused by a filovirus. Large EVD outbreaks in Central and West Africa have occurred in the last 10 years. A single imported case of EVD was documented in 1996 in a Gabonese doctor, who transmitted the disease to the South African nurse who was caring for him. EVD is notifiable because it is easily transmissible from person to person and has outbreak potential. After notification of a case, public health officials will request all contacts of the case to monitor themselves for fever and compatible symptoms for a 21-day period following exposure.	The health care practitioner who suspects EVD and requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms: • headaches, lethargy, myalgia, or • abdominal pain, vomiting, anorexia, loss of appetite, diarrhoea, difficulty in swallowing, hiccups, bloody diarrhoea, or • bleeding from gums, bleeding into skin (purpura), bleeding into eyes and urine, or any sudden inexplicable death. **AND** a likely epidemiological exposure including any of • contact with a suspected, probable or confirmed Ebola case, or • residence in—or travel to—an outbreak area (as reported on www.nicd.ac.za) within 21 days of illness onset, or • contact with dead or sick animal (bats, rodents, or primates) or • laboratory exposure, or • exposure to semen from a confirmed acute or convalescent case of EVD within the 10 weeks of that person's onset of symptoms).	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	Laboratory evidence of Ebola virus infection as evidenced by any of the following • PCR positive and virus isolation from the patient's first (single) specimen • 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 • Increase in IgM/IgG titres between acute and convalescent specimens, or • is a suspected case with laboratory suggestive evidence of Ebola virus infection by (IgM positive result on patient's first specimen).

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Additional notes

Clinicians suspecting Ebola virus disease should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for EVD testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

Additional resources

The following resources are available at https://www.nicd.ac.za/diseases-a-z-index/ebola-virus-disease/: a frequently-asked questions (FAQ) document, Guidelines for the laboratory investigation of EVD, and the National Guidelines for Recognition and Management of EVD. Clinicians who submit specimens for EVD testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

26.2. VIRAL HAEMORRHAGIC FEVER DISEASES: MARBURG

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Marburg is a haemorrhagic fever (MHF) caused by a filovirus. Though caused by different viruses, Ebola virus disease (EVD) and MHF are clinically similar. Transmission of MHF is via direct contact with blood and body fluids from infected persons, contact with Rousettus bat colonies, or via infected semen from recovered persons up to seven weeks after recovery. Outbreaks and sporadic cases have been reported from Germany (from laboratory work with monkeys from Uganda), Serbia, Angola, Democratic Republic of the Congo, Kenya, South Africa (in a person with recent travel history to Zimbabwe) and Uganda. MHF is notifiable because it is easily transmissible from person to person and has outbreak potential. After notification of a case, public health officials will request all contacts of the case to monitor themselves for fever and compatible symptoms for a 9-day period following exposure.	The health care practitioner who suspects Marburg and requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms: • headaches, lethargy, myalgia, or • abdominal pain, vomiting, anorexia, loss of appetite, diarrhoea, difficulty in swallowing, hiccups, bloody diarrhoea, or bleeding from gums, bleeding into skin (purpura), bleeding into eyes and urine, or • any sudden inexplicable death. **AND** a likely epidemiological exposure including any of • contact with a suspected, probable or confirmed MHF case, or • residence in—or travel to—an endemic area within 9 days of illness onset, or • contact with dead or sick animal (bats, rodents, or primates) or • laboratory exposure, or exposure to semen from a confirmed acute or convalescent case of Marburg within the 10 weeks of that person's onset of symptoms).	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	A confirmed case is a person with laboratory evidence of Marburg virus infection as evidenced 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 • Increase in IgM/IgG titres between acute and convalescent specimens, or • is a suspected case with IgM positive result on patient's first specimen.

Additional notes

Clinicians suspecting Marburg haemorrhagic fever should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for MHF testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

Additional resources

Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

26.3. VIRAL HAEMORRHAGIC FEVER DISEASES: LASSA FEVER

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Lassa fever (LASF) is a viral hemorraghic fever endemic exclusively to West Africa, caused by a rodent-borne arenavirus. Transmission of LAS virus is believed to occur via exposure to rodent excreta, either from direct inoculation to the mucous membranes or from inhalation of aerosols produced when rodents urinate. Secondary human-to-human transmission via contact with infected blood or bodily fluids, from oral or mucosal exposure may occur. The observed case-fatality rate among patients hospitalized with severe cases of Lassa fever is 15% LASF is notifiable because it is transmissible from person to person and has outbreak potential. After notification of a case, public health officials will request all contacts of the case to monitor themselves for fever and compatible symptoms for a 9-day period following exposure.	The health care practitioner who suspects Lassa feverand requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms: • headaches, lethargy, myalgia, or • abdominal pain, vomiting, anorexia, loss of appetite, diarrhoea, difficulty in swallowing, hiccups, bloody diarrhoea, or • bleeding from gums, bleeding into skin (purpura), bleeding into eyes and urine, or any sudden inexplicable death. **AND** a likely epidemiological exposure including any of • contact with a suspected, probable or confirmed LASF case, or • residence in—or travel to—an endemic area within 9 days of illness onset, or • contact with rodents or rodent urine in endemic areas or • laboratory exposure, or • exposure to semen from a confirmed acute or convalescent case of LASF within the 10 weeks of that person's onset of symptoms).	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	A confirmed case is a person with laboratory evidence of Marburg virus infection as evidenced 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 • Increase in IgM/IgG titres between acute and convalescent specimens), or • is a suspected case with IgM positive result on patient's first specimen.

Additional notes
Clinicians suspecting Lassa fever should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for Lassa fever testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

Additional resources
Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

26.4. VIRAL HAEMORRHAGIC FEVER DISEASES: LUJO

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Lujo (LHF) is a hemorraghic fever caused by an arenavirus. LHF is contracted by humans through contact with virus-contaminated rodent excreta, via inhalation of dust or aerosolized materials or vomitus soiled with rodent feces and urine, or nosocomially via direct contact with infected blood, urine or pharyngeal secretions from an infected person or via ingestion of contaminated food. To date only five cases of LHF have been recognized and laboratory confirmed following a nosocomial outbreak in South Africa in 2008. The index case sought medical care in South Africa following onset of illness in Zambia and subsequently infected four health care workers. LHF is notifiable because it is transmissible from person to person and has outbreak potential. After notification of a case, public health officials will request all contacts of the case to monitor themselves for fever and compatible symptoms for a 21-day period following exposure.	The health care practitioner who suspects Lassa feverand requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with acute onset of fever >38.5°C, and at least three of the following signs and symptoms: • severe headache, myalgia, • diarrhea, • pharyngitis, abdominal pain, retrosternal chest pain, respiratory distress, • moderate thrombocytopenia, • increased AST and • leukocytosis, • proteinuria, • neurological signs or • sudden inexplicable death AND a likely epidemiological exposure including any of • contact with a suspected, probable or confirmed Lujo case, or • contact with a dead or sick animal especially rodents within the past 21 days.	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	A confirmed case is a person with laboratory evidence of Lujo virus infection as evidenced 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 • Increase in IgM/IgG titres between acute and convalescent specimens, or • is a suspected case with IgM positive result on patient's first specimen.

Additional notes

Clinicians suspecting Lujo haemorrhagic fever should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for LHF testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

Additional resources

Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

26.5. VIRAL HAEMORRHAGIC FEVER DISEASES: CRIMEAN-CONGO

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Congo fever is a viral hemorrhagic fever (CCHF) caused by a nairovirus and is transmitted to humans through the bites or crushing of ticks, by contact with a patient with CCHF during the acute phase of infection or by contact with blood or tissues from viremic livestock. CCHF has a global distribution (Africa, Asia and Eastern Europe) and is the only endemic viral hemorrhagic fever to South Africa, primarily in the inland central plateau and the drier regions of South Africa. The casefatality rate of CCHF ranges from 3-30%. Persons with occupational or recreational exposure to ticks or animals are at risk of disease. CCHF is notifiable because it is transmissible from person to person and has outbreak potential. After notification of a case, public health officials will request all contacts of the case to monitor themselves for fever and compatible symptoms for a 14-day period following exposure.	The health care practitioner who suspects CCHF and requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with acute onset of fever > 38°C, and with at least three of the following signs and symptoms: • severe headache, myalgia, prostration, flushing, • nausea, vomiting, pharyngitis, conjunctival injection, • petechial rashes, bleeding into skin (ecchymoses), from nose, vomiting of blood, blood in urine or stool, decreased platelets count, • hypotension and shock, leukopenia or leukocytosis, elevated AST or ALT (> 100 U/L), oedema or neurologic signs. AND a likely epidemiological exposure including any of • a history of being bitten by tick/s or crushed tick with bare hands, or • direct contact with fresh blood or other tissues of hoofed livestock or game or ostriches, or • direct contact with blood, secretion or excretions of confirmed or suspected CCHF patient (including needle pricks) OR • resides in or visited a rural environment where contact with livestock or ticks was possible in the past 15 days.	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	A confirmed case is a person with laboratory evidence of CCHF infection as evidenced 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 • Increase in IgM/IgG titres between acute and convalescent specimens), or • is a suspected case with IgM positive result on patient's first specimen.

Additional notes

Clinicians suspecting CCHF haemorrhagic fever should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for CCHF testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/

Additional resources

Additional resources including a frequently asked question (FAQ) document and a case investigation form are available at https://www.nicd.ac.za/diseases-a-z-index/crimean-congohaemorrhagic-fever-cchf/

27. YELLOW FEVER

Disease epidemiology	Who must notify and when?	Case definition		
		Suspected case	Probable case	Confirmed case
Yellow fever is an acute viral haemorrhagic disease transmitted by infected mosquitoes (*Aedes aegypti*). Humans can be fully potected if administered vaccination at least a month prior to travel to an endemic area in parts of Africa and South America. Vaccination at least ten days prior to travel provides 80-100% protection. Yellow fever is not known to occur in South Africa, and no imported cases have been documented. Notification of cases is essential as it will allow public health officials to investigate cases and conduct entomological investigations to prevent further cases.	The health care practitioner who suspects YF and requests laboratory testing should notify the case. The laboratory that diagnoses the condition should also notify the case	A person with sudden onset of fever >38.5°C and with • chills, headache, back and muscle pain, nausea and vomiting, followed by a 24-hour remission and a recurrence of signs and symptoms with subsequent jaundice, hepatitis, albuminuria, renal failure within two weeks, or • haemorrhagic signs, shock or death within three weeks of onset of illness AND a travel to a yellow fever endemic area in the week preceding the onset of illness, in the absence of vaccination against yellow fever (https://www.who.int/emergencies/yellowfever/maps/en/).	Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.	A confirmed case is a yellow fever unvaccinated person with laboratory evidence of yellow fever virus infection 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 • An increase in IgM/IgG titres between acute and convalescent specimens.
Additional notes Clinicians suspecting yellow fever should contact the NICD 24-hour hotline **(0800-212-552)** for assistance with the diagnosis. Clinicians who submit specimens for yellow fever testing should also complete the case investigation form that is found at https://www.nicd.ac.za/diseases-a-z-index/yellow-fever/				
Additional resources A frequently asked question (FAQ) document and a case investigation form are available at https://www.nicd.ac.za/diseases-a-z-index/yellow-fever/				