

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

ACUTE FLACCID PARALYSIS

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p>	<p>The health care practitioner making the <u>clinical diagnosis</u> should notify the case as soon as the diagnosis is suspected.</p>	<p>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</p> <p><u>Acute</u>: rapid progression of paralysis <u>Flaccid</u>: loss of muscle tone or 'floppy', (as opposed to spastic or rigid) <u>Paralysis</u>: weakness, loss of ability to move</p>	<p>¹None</p>	<p>None</p>
<p>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.</p>				
<p>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 http://www.nicd.ac.za/diseases-a-z-index/acute-flaccid-paralysis-afp/ NICD Frequently Asked Questions document http://www.nicd.ac.za/diseases-a-z-index/acute-flaccid-paralysis-afp/</p>				

¹AFP 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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ACUTE RHEUMATIC FEVER

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>The exact burden of ARF in South Africa is unknown. Monitoring of the disease burden is essential to plan prevention and care services.</p>	<p>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.</p> <p>There are no laboratory tests to confirm the diagnosis.</p> <p>A case of ARF should be notified as soon as the clinician is satisfied that the case meets the case definition.</p>	<p>Refer to probable case definition</p>	<p>Any person in whom a clinician suspects acute rheumatic fever.</p>	<p>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.</p> <p><u>Major manifestations:</u> Carditis (clinical or subclinical), arthritis (monoarthritis or polyarthritis), polyarthralgia, chorea, erythema marginatum, subcutaneous nodules.</p> <p><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).</p> <p><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.</p>
Additional notes				
Additional resources				
A case investigation form is available at : http://www.nicd.ac.za/diseases-a-z-index/acute-rheumatic-fever/				

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ANTHRAX

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p>	<p>The clinician who suspects a case should notify the case based on the clinical case definition, as soon as the disease is suspected.</p>	<p>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</p> <ul style="list-style-type: none"> • 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 <p>OR</p> <ul style="list-style-type: none"> • Nausea, vomiting and anorexia followed by fever, vomiting of blood, bloody diarrhoea <p>OR</p> <ul style="list-style-type: none"> • Rapid onset of hypoxia, shortness of breath and high temperature, with radiological evidence of mediastinal widening or pleural effusion <p>OR</p> <ul style="list-style-type: none"> • Acute onset of high fever, convulsions, loss of consciousness and meningeal signs and symptoms 	<p>A suspected case with Gram-positive bacilli, square-ended, in pairs or short chains cultured from clinical specimens</p>	<p>A clinically compatible case that is laboratory-confirmed by:</p> <ul style="list-style-type: none"> • Isolation of <i>Bacillus anthracis</i> from clinical specimen; OR • Other laboratory evidence of <i>Bacillus anthracis</i> infection based on at least two supportive laboratory tests.
<p>Additional notes Clinicians who suspect anthrax should contact the NICD 24-hour hotline (082-883-9920) 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.</p>				
<p>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/</p>				

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BOTULISM

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Botulism is a rare but serious paralytic illness caused by a nerve toxin that is produced by the bacterium <i>Clostridium botulinum</i>. Botulism may be foodborne (18 to 36 hours after eating a contaminated food, or associated with contaminated wounds. Injection-drug users and infants are groups more at risk for botulism.</p> <p>Surveillance and rapid notification will allow for early identification of contaminated foodstuffs and prevention of other cases in the case of foodborne disease.</p>	<p>The health care worker who suspects botulism should notify the case as soon as possible</p>	<p>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 <i>Clostridium botulinum</i> contaminated wound with in situ toxin production).</p>	<p>A person with clinically compatible illness with an epidemiologic link to other suspected/confirmed cases or food</p>	<p>A confirmed case is a person with laboratory evidence of <i>Clostridium botulinum</i> infection by</p> <ul style="list-style-type: none"> Culture isolation of <i>Clostridium botulinum</i> from clinical specimens, wound or suspected food; <p>OR</p> <p>Detection of <i>Clostridium botulinum</i> toxin in clinical specimens or suspected food.</p>
<p>Additional notes</p> <p>Clinicians who suspect botulism should contact the NICD 24-hour hotline (082-883-9920) 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.</p>				
<p>Additional resources</p> <p>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 http://www.nicd.ac.za/diseases-a-z-index/botulism/</p>				

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CHOLERA

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Cholera is a bacterial disease caused by infection with toxin-producing <i>Vibrio cholerae</i> 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.</p> <p>Early notification of suspected cases will ensure that the diagnosis is confirmed early, and that measures are implemented to prevent additional cases.</p>	<p>The healthcare worker who identifies a suspected case should notify health authorities immediately.</p> <p>Healthcare workers should NOT wait for laboratory confirmation before notifying cases.</p>	<p>²In an area where the disease is <u>not</u> known to be present, a suspected case is defined as a patient, irrespective of age, with severe dehydration or death from acute watery diarrhoea</p> <p>³In an area where <u>there is a cholera</u> outbreak, a suspected case is defined as a patient who develops acute watery diarrhoea, with or without vomiting.</p>	<p>A suspected case with an epidemiologic link to a confirmed cholera case.</p>	<p>A case of cholera is confirmed when toxigenic <i>Vibrio cholerae</i> O1 or O139 is isolated from any patient with diarrhoea.</p>
<p>Additional notes</p> <p>Clinicians who suspect cholera should contact the NICD 24-hour hotline (082-883-9920) 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.</p>				
<p>Additional resources</p> <p>A case-investigation form (CIF), frequently asked questions document (FAQ), National Department of Health Cholera guidelines 2014, and specimen collection guidelines are available at http://www.nicd.ac.za/diseases-a-z-index/cholera/</p>				

²NDoH Cholera guidelines 2014

³NDoH Cholera guidelines 2014

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CORONAVIRUS DISEASE-2019 (COVID-19)

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative virus of coronavirus disease 2019 (COVID-19). WHO has declared a global pandemic.</p> <p>Limited data suggest clinical manifestations of COVID-19 are generally milder in children than adults. However, reports from Europe and North America describe clusters of children and adolescents requiring admission to intensive care with a multisystem inflammatory syndrome (MIS-C). It is essential to report and characterize this syndrome including clinical presentation, risk factors, severity, and outcomes.</p>	<p>The healthcare worker responsible for the patient should notify authorities immediately of a probable or confirmed case. Outcome of patient should be updated if status changes following notification.</p>	<p>Not notifiable</p> <p>Any person presenting with an acute (≤ 10 days) respiratory tract infection or other clinical illness compatible with COVID-19</p> <p>Symptoms include ANY of the following respiratory symptoms: cough, sore throat, shortness of breath, anosmia (loss of sense of smell) or dysgeusia (alteration of the sense of taste), with or without other symptoms (which may include fever, weakness, myalgia, or diarrhoea)</p>	<p>A person of any age positive for SARS-CoV-2 using an antigen based test¹ AND that is asymptomatic AND not a close contact² of a confirmed case</p> <p>OR</p> <p>A person of any age that has COVID-19 related symptoms (suspected case) AND that is a close contact² of a confirmed case</p> <p>OR</p> <p>A person aged 0-19 years meeting the case definition of multisystem inflammatory syndrome in children (MIS-C)³ AND with positive SARS-CoV-2 antibody or antigen based¹ test or close contact² of a confirmed case²; but SARS-CoV-2 PCR negative or PCR not done</p>	<p>A person of any age with laboratory confirmation of SARS-CoV-2 infection (using a PCR-based test), irrespective of clinical signs and symptoms (includes MIS-C³ with SARS-CoV-2 PCR positive)</p> <p>OR</p> <p>A person of any age positive for SARS-CoV-2 using an antigen based test¹ AND that has COVID-19 related symptoms (suspected case) OR is a close contact² of a confirmed case</p>

*Additional notes

¹ Rapid antigen test should be performed within 5 days of symptom onset or within 7 days from time of exposure.

² Close contact: A person having had face-to-face contact (≤ 1 metre) or been in a closed space with a confirmed case for at least 15 minutes. This includes, amongst others, all persons living in the same household as a case, and people working closely in the same environment as a case. Healthcare workers or other people providing direct care for a case, while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, N95 respirator, eye protection). A contact in an aircraft sitting within two seats (in any direction) of the case, travel companions or persons providing care, and crew members serving in the section of the aircraft where the case was seated.

³ MIS-C case definition available at: <https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/>

Additional resources

Additional resources for COVID-19 including case definitions, FAQs, specimen collection instructions and guidelines may be found at: <https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/>

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DIPHThERIA

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Diphtheria is caused by infection with toxin-producing strains of <i>Corynebacterium diphtheriae</i> or <i>C. ulcerans</i> or <i>C. pseudotuberculosis</i>. Diphtheria is spread via respiratory droplets or direct contact with infected skin lesions from an infected person.</p> <p>Diphtheria has a high mortality rate. Notification is essential because additional cases can be prevented amongst contacts by early administration of antibiotics. Persons who are fully vaccinated are not at risk of diphtheria.</p>	<p>The clinician who suspects diphtheria should notify the case immediately.</p> <p>Healthcare workers should NOT wait for laboratory confirmation before notifying cases.</p>	<p>A person who presents with an upper-respiratory tract illness characterised by sore throat, low-grade fever AND an adherent membrane of the nose, pharynx, tonsils, or larynx.</p>	<p>A person who presents with an upper-respiratory tract illness characterised by sore throat, low-grade fever AND an adherent membrane of the nose, pharynx, tonsils, or larynx; OR a person who has an epidemiological link to a confirmed case, who has respiratory tract symptoms but no membrane; OR a person with a skin lesion AND <i>C. diphtheriae</i> or <i>C. ulcerans</i> or <i>C. pseudotuberculosis</i> has been isolated from relevant specimens but toxigenicity status has not been confirmed.</p>	<p>Any person with signs and symptoms consistent with diphtheria (respiratory and/or cutaneous) AND a positive culture for or PCR detection of <i>C. diphtheriae</i> or <i>C. ulcerans</i> or <i>C. pseudotuberculosis</i> from a clinical specimen which is confirmed to be <i>tox</i> gene positive by PCR or toxin-producing by ELEK testing.</p>
<p>Additional notes</p> <p>Clinicians who suspect diphtheria should contact the NICD 24-hour hotline (082-883-9920) 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 to provide authorities with information to identify contacts and implement prevention measures. See resources below.</p>				
<p>Additional resources</p> <p>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 http://www.nicd.ac.za/diseases-a-z-index/diphtheria/</p>				

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ENTERIC FEVER (TYPHOID OR PARATYPHOID FEVERS)

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Enteric fever is a disease caused by a bacterial infection with <i>Salmonella enterica</i> serotype Typhi (the cause of 'typhoid fever') or <i>S. enterica</i> 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.</p> <p>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.</p>	<p>Healthcare workers should notify cases on clinical suspicion or on confirmation of the diagnosis by the laboratory.</p>	<p>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)),</p> <ul style="list-style-type: none"> • Headache • Malaise <p>AND</p> <ul style="list-style-type: none"> • travel within the last month to an area known to be endemic for enteric fever, or where an outbreak of enteric fever is ongoing <p>OR</p> <ul style="list-style-type: none"> • the absence of an alternate diagnosis in persons with no travel history 	<p>A clinically compatible case that is epidemiologically linked to a confirmed case</p>	<p>The isolation of <i>Salmonella enterica</i> ser. Typhi, or <i>S. enterica</i> ser. Paratyphi A, B or C from a clinical specimen in the presence of symptoms compatible with enteric fever.</p> <p>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.</p>
<p>Additional notes</p> <ul style="list-style-type: none"> • 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. 				
<p>Additional resources</p> <p>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/.</p>				

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FOODBORNE ILLNESS OUTBREAK

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Confirmed case definition
<p>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.</p>	<p>The healthcare worker who makes the diagnosis should</p> <ul style="list-style-type: none"> • <u>notify the outbreak by completing a NMC notification form for the index case only</u> • <u>submit a complete linelist of affected persons</u> <p>to the responsible communicable disease control co-ordinator AND to the responsible environmental health practitioner AND to the NICD.</p>	<p>An incident in which two or more persons experience a similar illness (gastrointestinal) and are epidemiologically linked</p>	<p>⁴None</p>
<p>Additional notes</p> <ul style="list-style-type: none"> • It is not necessary to complete a 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 foodhandlers. The Centre for Enteric Diseases at NICD provides assistance with outbreak investigations. 			
<p>Additional resources</p> <p>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/</p>			

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

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HAEMOLYTIC URAEMIC SYNDROME (HUS)

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Confirmed case definition
<p>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 an acute gastrointestinal illness (usually characterised by diarrhoea).</p>	<p>The diagnosis of HUS is usually made by clinicians <u>following clinical examination and laboratory investigations</u> including full blood count and smear microscopy, urine examination, and renal function tests.</p> <p>There is no single laboratory test to confirm the diagnosis.</p> <p>A case of HUS should be notified as soon as the clinician is satisfied that the case definition is met.</p>	<p>None</p>	<p>The presence of:</p> <ul style="list-style-type: none"> • Haemolytic mechanical anaemia (acute onset) with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear, • Thrombocytopenia <p>AND</p> <ul style="list-style-type: none"> • Renal injury (acute onset) evidenced by either haematuria, proteinuria, or elevated creatinine level
<p>Additional notes</p> <p>Most diarrhea-associated HUS is caused by Shiga toxin-producing <i>Escherichia coli</i> (STEC), most commonly <i>E. coli</i> 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.</p>			
<p>Additional resources</p> <p>Contact the Centre for Enteric Diseases at the NICD for additional support regarding haemolytic uraemic syndrome (junot@nicd.ac.za)</p>			

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LISTERIOSIS

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Confirmed case definition
<p>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.</p> <p>Cases of listeriosis must be notified and investigated so that potential outbreaks and possible source/s are identified timeously.</p>	<p>The clinician responsible for treating a patient should notify authorities as soon as the diagnosis is confirmed by the laboratory.</p> <p>Laboratorians should also notify authorities when the diagnosis is made.</p> <p>There is no clinical case definition.</p>	<p>⁵None</p>	<p>The isolation by culture or detection by PCR of <i>Listeria monocytogenes</i> in any clinical specimen</p>
<p>Additional notes</p> <p>Laboratories should submit all isolates of <i>Listeria monocytogenes</i> 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.</p>			
<p>Additional resources</p> <p>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)</p>			

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

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MALARIA

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>Notification of cases is essential to track disease burden in endemic provinces, and to investigate the reason for imported cases in non-endemic areas.</p>	<p>Healthcare practitioner who makes the diagnosis should notify the case immediately following</p> <ul style="list-style-type: none"> • A positive rapid (bedside) test for malaria • A positive test from a blood specimen submitted to a laboratory. 	<p>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.</p>	<p>Clinically suspected case in a recognized malaria outbreak or endemic area.</p>	<p>Positive malaria test (blood smear, rapid antigen, PCR) for any of the species: <i>P. falciparum</i>, <i>P. vivax</i>, <i>P. ovale</i>, <i>P. malariae</i>, <i>P. knowlesi</i>.</p>
<p>Additional notes</p> <p>In endemic areas, malaria cases should be notified by completion of the NMC paper form, and submitted to the provincial malaria control programme officials. Malaria control programme officials will then investigate each case according to current procedures.</p> <p>In non-endemic areas, malaria cases should be notified on the NMC app, or on paper by completion of the NMC form. Where cases do not report a travel history, an entomological assessment of the house and geographical location of residence should be conducted by environmental health officials so as to find mosquito breeding sites and kill possible <i>Plasmodium</i> species larvae</p>				
<p>Additional resources</p> <p>The following resources are available at https://www.nicd.ac.za/diseases-a-z-index/malaria/ A Frequently asked questions (FAQ) document, a malaria risk map (December 2018), South African guidelines for treatment and prevention of malaria, surveillance guidelines for malaria elimination and prevention of re-introduction for south Africa (2012).</p>				

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MEASLES

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>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.</p>	<p>Any clinician who suspects a measles case should notify the case immediately.</p>	<p>Any person in whom a clinician suspects measles infection OR any person with fever and maculopapular rash (i.e. non-vesicular) and one of cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes).</p>	<p>Suspected measles case with epi link to a known measles case</p>	<p>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. .</p> <p>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.</p>
<p>Additional notes</p> <ul style="list-style-type: none"> 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* 				
<p>Additional resources</p> <ul style="list-style-type: none"> 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\(i.e.%20red%20eyes\)](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))

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

MENINGOCOCCAL DISEASE

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Meningococcal disease is caused by <i>Neisseria meningitidis</i>. 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</p> <p>Meningococcal disease should be notified, as additional cases can be prevented by giving chemoprophylaxis (antibiotics) to persons who have been in contact with cases.</p>	<p>Any clinician who suspects a case of meningococcal disease should notify the case immediately before laboratory results are available.</p> <p>Health authorities should identify contacts and administer prophylactic antibiotics as soon as possible before laboratory confirmation is available.</p>	<p>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.</p>	<p>A suspected case is regarded as a probable case.</p>	<p>The isolation of <i>N. meningitidis</i> 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.</p> <p>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.</p>
<p>Additional notes</p> <p>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</p>				
<p>Additional resources</p> <p>The following resources are available at http://www.nicd.ac.za/diseases-a-z-index/meningococcal-disease/ A Frequently asked questions (FAQ) document, an update for healthcare workers (april 2019), a specimen submission form.</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

MULTISYSTEM INFLAMMATORY SYNDROME (MIS-C)

Why is surveillance necessary?	Who must notify and	Suspected case	Probable case definition	Confirmed case definition
<p>On the 31st December 2019, the World Health Organization (WHO) China country office reported a cluster of pneumonia cases in Wuhan City, Hubei Province of China now known to be caused by a novel virus.</p> <p>Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been confirmed as the causative virus of coronavirus disease 2019. WHO has declared a global pandemic.</p> <p>Limited data suggest clinical manifestations of COVID-19 are generally milder in children than adults. However, reports from Europe and North America describe clusters of children and adolescents requiring admission to intensive care with a multisystem inflammatory syndrome (MIS-C).</p> <p>It is essential to report and characterize this syndrome including clinical presentation, risk factors, severity, and outcomes.</p>	<p>The healthcare worker responsible for the patient should notify authorities immediately of a probable or confirmed case. Outcome of patient should be updated if status changes following notification.</p>	<p>Not notifiable</p>	<p>A person aged 0-19 years meeting the World Health Organization (WHO) case definition of multisystem inflammatory syndrome in children (MIS-C)*</p> <p>WITH</p> <p>No confirmed contact with COVID-19 patient, negative SARS-CoV2 PCR or no available SARS-CoV2 antibody test result AND likely community exposure.</p>	<p>A person aged 0-19 years meeting the World Health Organization (WHO) case definition of multisystem inflammatory syndrome in children (MIS-C)*</p>
<p>*Additional notes</p> <p>WHO case definition of multisystem inflammatory syndrome in children (MIS-C) All 6 criteria must be met:</p> <ol style="list-style-type: none"> Age 0 to 19 years Fever for ≥ 3 days Clinical signs of multisystem involvement (at least 2 of the following): <ul style="list-style-type: none"> Rash, bilateral nonpurulent conjunctivitis, or mucocutaneous inflammation signs (oral, hands, or feet), Hypotension or shock, Cardiac dysfunction, pericarditis, valvulitis, or coronary abnormalities (including echocardiographic findings or elevated troponin/BNP), Evidence of coagulopathy (prolonged PT or PTT; elevated D-dimer), Acute gastrointestinal symptoms (diarrhea, vomiting, or abdominal pain) Elevated markers of inflammation (eg, ESR, CRP, or procalcitonin) No other obvious microbial cause of inflammation, including bacterial sepsis and staphylococcal/streptococcal toxic shock syndromes Evidence of SARS-CoV-2 infection (any of the following): <ul style="list-style-type: none"> Positive SARS-CoV-2 RT-PCR (reverse transcription real-time PCR); Positive antibody test; Positive antigen test; Likely contact with an individual with COVID-19 <p>Additional resources</p> <p>Additional resources for COVID-19 including case definitions, FAQs, specimen collection instructions and guidelines may be found at: http://www.nicd.ac.za/diseases-a-z-index/covid-19/</p>				

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

PERTUSSIS

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Pertussis or 'whooping cough' is a highly contagious bacterial respiratory tract disease, caused by <i>Bordetella pertussis</i>. It occurs mainly in infants and young children and is transmitted through respiratory secretions.</p> <p>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.</p> <p>Pertussis may be prevented in contacts by giving chemoprophylaxis.</p>	<p>Clinicians should notify cases of pertussis on the basis of clinical suspicion.</p> <p>Clinicians should not wait for laboratory confirmation before notifying.</p>	<p>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:</p> <ul style="list-style-type: none"> • paroxysms of coughing, • or inspiratory "whoop", • or post-tussive vomiting • or apnoea in children < 1 year; <p>OR</p> <p>Any person in whom a clinician suspects pertussis.</p>	<p>Any person meeting the clinical case definition</p> <p>AND</p> <p>An epidemiologic linkage to a laboratory-confirmed case of pertussis in the 21 days before symptom onset.</p>	<p>Any person meeting the clinical case definition</p> <p>AND</p> <p>Isolation of <i>B. pertussis</i> from a clinical respiratory specimen OR polymerase chain reaction positive for pertussis OR specific antibody response (anti-pertussis toxin IgG response in older children and adults, and ≥ 1 year after last vaccine dose. Interpret with caution in younger children).</p>

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/>

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

PLAGUE

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Plague is caused by the bacterium <i>Yersinia pestis</i>. 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.</p> <p>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 septicemic or pneumonic.</p>	<p>The clinician who suspects the diagnosis should notify authorities and the NICD immediately on clinical suspicion.</p> <p>Post-exposure prophylaxis with antibiotics may be administered to contacts of persons with confirmed plague</p>	<p>A person with exposure in a compatible epidemiological scenario, with fever, chills, headache, malaise, prostration, a raised white cell count and any of</p> <ul style="list-style-type: none"> regional lymphadenitis in the groin, armpit or neck septicemia without an evident bubo pneumonia. <p>OR clinical compatible case with clinical specimens that contain Gram-negative coccobacilli that exhibit bipolar-staining with Wayson or Wright's Giemsa stains</p>	<p>A person with clinically compatible illness with</p> <ul style="list-style-type: none"> 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. 	<p>A clinically compatible case that is laboratory-confirmed by:</p> <ul style="list-style-type: none"> Culture Isolation of <i>Yersinia pestis</i> from clinical specimens; OR IgG seroconversion in a serum specimen from a clinically compatible case; OR <p>A ≥4-fold rise in titre of anti-F1 antibody level over 2 weeks in a serum specimen from a clinically compatible case</p>
<p>Additional notes Clinicians who suspect plague should contact the NICD 24-hour hotline (082-883-9920) for assistance with specimen collection and diagnosis.</p>				
<p>Additional resources A frequently-asked questions document is available at https://www.nicd.ac.za/plague-frequently-asked-questions-2/.</p>				

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POLIOMYELITIS

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>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 Afghanistan, Nigeria and Pakistan.</p>	<p>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.</p>	<p>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</p> <p><u>Acute</u>: rapid progression of paralysis <u>Flaccid</u>: loss of muscle tone or 'floppy', (as opposed to spastic or rigid) <u>Paralysis</u>: weakness, loss of ability to move</p>	<p>N/A</p>	<p>Laboratory confirmation of any of the following from a stool or cerebrospinal fluid sample:</p> <ul style="list-style-type: none"> • wildtype poliovirus OR • vaccine derived polio virus (VDPV) OR • Sabin polio virus
<p>Additional notes</p> <p>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.</p>				
<p>Additional resources</p> <p>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/</p>				

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

RABIES (HUMAN)

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>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.</p>	<p>The clinician who suspects the diagnosis should notify the case as soon as it meets the clinical case definition.</p> <p>Laboratory confirmation is not required before notification of the case.</p>	<p>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.</p>	<p>A probable case is a suspected case WITH a likely exposure to a suspected rabid animal.</p>	<p>A confirmed case is a person with laboratory evidence of rabies infection by detection of</p> <ol style="list-style-type: none"> Rabies virus nucleic acid by RT-PCR on saliva, skin biopsy or cerebrospinal fluid (CSF) <p>OR</p> <ol style="list-style-type: none"> Anti-rabies antibodies in CSF (ante-mortem); <p>OR</p> <ol style="list-style-type: none"> Rabies virus antigen in brain tissue by fluorescent antibody testing or rabies virus nucleic acid in skin biopsy (post mortem).
<p>Additional notes</p> <p>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.</p>				
<p>Additional resources</p> <p>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/</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

RESPIRATORY DISEASE CAUSED BY A NOVEL RESPIRATORY PATHOGEN

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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. These pathogens may first be identified as a cluster of people with severe respiratory illness.</p> <p>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 currently included in the NMC regulations.</p>	<p>The healthcare practitioner responsible for the patient or who has noted a cluster of cases of respiratory illness should notify authorities.</p> <p>Notification should be made immediately on identification of the cluster, or on receipt of a laboratory diagnosis of the novel respiratory pathogen.</p>	<p>A person meeting the case definition for a suspected case of a specific emerging respiratory pathogen e.g., MERS-CoV (see NICD website for specific updated case definitions for emerging pathogens)*</p> <p>OR</p> <p>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.</p>	<p>A person meeting the case definition for a probable case of a specific emerging respiratory pathogen e.g. MERS-CoV (see NICD website for specific updated case definitions for emerging pathogens);</p> <p>OR</p> <p>Person/s (single or from a cluster) satisfying the suspected case definition, with absent or inconclusive laboratory result for a novel or emerging pathogen;</p> <p>AND</p> <p>A close contact of a laboratory-confirmed case.</p>	<p>A person with laboratory confirmation of a novel (new), emerging pathogen (not previously detected in South Africa) e.g., MERS-CoV or avian influenza A subtypes (e.g. H5N1, H7N9).</p>
<p>Additional notes</p> <p>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</p>				
<p>*Additional resources</p> <p>Additional resources for MERS-CoV, including a FAQ, specimen collection instructions and guidelines may be found at http://www.nicd.ac.za/diseases-a-z-index/middle-east-respiratory-syndrome-coronavirus/</p>				

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RIFT VALLEY FEVER (HUMAN)

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Rift Valley fever (RVF) is a viral disease affecting domesticated ruminant animals and humans. It is transmitted by <i>Culex</i> and <i>Aedes</i> 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.</p> <p>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.</p>	<p>The healthcare practitioner who suspects the diagnosis or who receives a diagnosis following laboratory tests on the case should notify the case.</p>	<p>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:</p> <ul style="list-style-type: none"> 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 <p>AND</p> <p>Any of the following epidemiological exposures:</p> <ul style="list-style-type: none"> a recent close contact with hooved 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*. 	<p>A probable case is a suspected case with laboratory IgM antibodies against RVF virus.</p>	<p>A confirmed case is a person with laboratory evidence of RVF virus infection by</p> <ul style="list-style-type: none"> 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.
<p>Additional notes Clinicians who suspect plague should contact the NICD 24-hour hotline (082-883-9920) for assistance with specimen collection and diagnosis.</p>				
<p>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/</p>				

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

SMALLPOX

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p>	<p>The healthcare practitioner who makes the diagnosis should notify the case</p>	<p>A person with acute onset of fever $\geq 38.3^{\circ}\text{C}$ 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.</p>	<p>A probable case is a suspected case with either laboratory evidence by</p> <ul style="list-style-type: none"> • 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). 	<p>A confirmed case is a person with laboratory evidence of smallpox virus infection by</p> <ul style="list-style-type: none"> • Isolation of variola virus and PCR confirmation of cultured isolate; OR • Detection of variola virus by PCR).
<p>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.</p>				
<p>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 (082-883-9920) for assistance with the diagnosis.</p>				

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VIRAL HAEMORRHAGIC FEVER DISEASES : EBOLA

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>"Ebola is a hemorrhagic fever (EVD) is a severe febrile illness characterized by sudden onset of fever, and non-specific symptoms with rapid progression to bleeding 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.</p> <p>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.</p>	<p>The health care practitioner who suspects EVD and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms:</p> <ul style="list-style-type: none"> • 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. <p>AND a likely epidemiological exposure including any of</p> <ul style="list-style-type: none"> • 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). 	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>Laboratory evidence of Ebola virus infection as evidenced by any of the following</p> <ul style="list-style-type: none"> • 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).
<p>Additional notes Clinicians suspecting Ebola virus disease should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>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/</p>				

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VIRAL HAEMORRHAGIC FEVER DISEASES : MARBURG

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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.</p> <p>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.</p> <p>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.</p>	<p>The health care practitioner who suspects Marburg and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms:</p> <ul style="list-style-type: none"> 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. <p>AND a likely epidemiological exposure including any of</p> <ul style="list-style-type: none"> 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). 	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>A confirmed case is a person with laboratory evidence of Marburg virus infection as evidenced by</p> <ul style="list-style-type: none"> 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.
<p>Additional notes</p> <p>Clinicians suspecting Marburg haemorrhagic fever should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>Additional resources</p> <p>Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

VIRAL HAEMORRHAGIC FEVER DISEASES : LASSA FEVER

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Lassa fever (LASF) is a viral hemorrhagic 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%.</p> <p>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.</p>	<p>The health care practitioner who suspects Lassa fever and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with sudden onset of fever > 38.5°C with at least three of the following signs and symptoms:</p> <ul style="list-style-type: none"> 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. <p>AND a likely epidemiological exposure including any of</p> <ul style="list-style-type: none"> 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). 	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>A confirmed case is a person with laboratory evidence of Marburg virus infection as evidenced by</p> <ul style="list-style-type: none"> 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.
<p>Additional notes</p> <p>Clinicians suspecting Lassa fever should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>Additional resources</p> <p>Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

VIRAL HAEMORRHAGIC FEVER DISEASES : LUJO

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Lujo (LHF) is a hemorrhagic 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.</p> <p>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.</p> <p>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.</p>	<p>The health care practitioner who suspects Lassa fever and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with acute onset of fever >38.5°C, and at least three of the following signs and symptoms:</p> <ul style="list-style-type: none"> • 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 <p>AND a likely epidemiological exposure including any of</p> <ul style="list-style-type: none"> • contact with a suspected, probable or confirmed Lujo case, or • contact with a dead or sick animal especially rodents within the past 21 days. 	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>A confirmed case is a person with laboratory evidence of Lujo virus infection as evidenced by</p> <ul style="list-style-type: none"> • 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.
<p>Additional notes Clinicians suspecting Lujo haemorrhagic fever should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>Additional resources Additional resources are available at https://www.nicd.ac.za/diseases-a-z-index/viral-haemorrhagic-fever-vhf/</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

VIRAL HAEMORRHAGIC FEVER DISEASES : CRIMEAN-CONGO

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>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 case-fatality rate of CCHF ranges from 3-30%. Persons with occupational or recreational exposure to ticks or animals are at risk of disease.</p> <p>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.</p>	<p>The health care practitioner who suspects CCHF and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with acute onset of fever > 38°C, and with at least three of the following signs and symptoms:</p> <ul style="list-style-type: none"> • 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. <p>AND a likely epidemiological exposure including any of</p> <ul style="list-style-type: none"> • a history of being bitten by tick/s or crushed tick with bare hands, or • direct contact with fresh blood or other tissues of hooved 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. 	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>A confirmed case is a person with laboratory evidence of CCHF infection as evidenced by</p> <ul style="list-style-type: none"> • 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.
<p>Additional notes Clinicians suspecting CCHF haemorrhagic fever should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>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-congo-haemorrhagic-fever-cchf/</p>				

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

WATERBORNE ILLNESS OUTBREAK

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Confirmed case definition
Early identification of waterborne 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 suspects the diagnosis should <ul style="list-style-type: none"> • <u>notify the outbreak by completing a NMC notification form for the index case only</u> • <u>submit a complete linelist of affected persons</u> to the responsible communicable disease control co-ordinator 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	⁶ None
Additional notes <ul style="list-style-type: none"> • It is not necessary to complete a NMC notification form for every single person affected by the 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 water specimens should be submitted to NHLS public health laboratories. See contact details for these labs in resources below. • A complete investigation of a outbreak requires additional data and results –including results of laboratory testing of clinical and water specimens, symptoms and clinical features of affected persons, complete water exposure history from affected AND non-affected persons, and investigation of water sources. 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 (which may also be used for the investigation of water borne 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/			

⁶ The identification of a waterborne illness outbreak is a clinical and epidemiological diagnosis. No laboratory confirmation is required.

NOTIFIABLE MEDICAL CONDITIONS (NMC) CASE DEFINITIONS FLIPCHART

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

YELLOW FEVER

Why is surveillance necessary?	Who must notify and when?	Suspected case definition	Probable case definition	Confirmed case definition
<p>Yellow fever is an acute viral haemorrhagic disease transmitted by infected mosquitoes (<i>Aedes aegypti</i>). Humans can be fully protected 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.</p> <p>Yellow fever is not known to occur in South Africa, and no imported cases have been documented.</p> <p>Notification of cases is essential as it will allow public health officials to investigate cases and conduct entomological investigations to prevent further cases.</p>	<p>The health care practitioner who suspects CCHF and requests laboratory testing should notify the case.</p> <p>The laboratory that diagnoses the condition should also notify the case</p>	<p>A person with sudden onset of fever >38.5°C and with</p> <ul style="list-style-type: none"> 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 <p>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/yellow-fever/maps/en/).</p>	<p>Any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link.</p>	<p>A confirmed case is a yellow fever unvaccinated person with laboratory evidence of yellow fever virus infection by</p> <ul style="list-style-type: none"> 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.
<p>Additional notes Clinicians suspecting yellow fever should contact the NICD 24-hour hotline (082-883-9920) 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/</p>				
<p>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/</p>				