NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

NMCSS Data Interpretation

The extent to which data in the NMCSS Epidemiology Report reflects the true burden of disease in South Africa at the time of report compilation

NMC	DOES DATA REFLECT TRUE BURDEN OF DISEASE?	NICD CENTRE'S COMMENTS
ACUTE FLACCID PARALYSIS/ POLIOMYELITIS	Adequate estimate	Data represent the number of notified AFP cases. All notified cases should have a case investigation form completed and two stool specimens taken 48 hours apart and submitted to the NICD for enterovirus culture. Final case classification regarding aetiology of the paralysis is conducted by the polio expert committee following evaluation of the results of stool culture and data contained in the case investigation form.
ACUTE RHEUMATIC FEVER	Gross underestimate	Data represents the best available data however many cases may not be diagnosed or reported.
AGRICULTURAL OR STOCK REMEDY POISONING	Inaccurate	Case definitions are unclear and systems for reporting are not widely known amongst clinicians who deal with intentional harm or accidental poisoning. However, case definition harmonisation is underway in collaboration with environmental health professionals and the National Department of Health.
ANTHRAX	Best possible estimate	Good uptake of lab and clinical reporting across the public and private sector, but data will always be a minimal estimate of true burden because of undiagnosed cases.
BILHARZIA (SCHISTOSOMIASIS)	Gross underestimate	Gross underestimate of true burden because of syndromic management of children in prevalent provinces and under-reporting of re-infection or chronic infections, and poor health-seeking behaviour amongst mildly symptomatic or asymptomatic persons.
BOTULISM	Best possible estimate	Good uptake of lab and clinical reporting across the public and private sector due to presentation as a paralytic syndrome.
BRUCELLOSIS	Underestimate	Lack of seeking health care in mild cases. Underdiagnosed in cases with unspecified symptoms and signs. Low level of clinical suspicion. Syndromic management with broad-spectrum antibiotics.
CEFTRIAXONE-RESISTANT NEISSERIA GONORRHOEA	Best possible estimate	A rare condition was reported on laboratory confirmation. No cases have been identified in South Africa to date.
CHOLERA	Best possible estimate	Well-defined condition and well reported across the public and private sector.
CONGENITAL RUBELLA SYNDROME	Underestimate	Minimal estimate of true burden due to limitations with diagnosis and reporting.

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CONGENITAL SYPHILIS	Gross underestimate	Laboratory testing is not routinely performed and uptake of reporting by clinicians is minimal.
DENGUE FEVER VIRUS. OTHER IMPORTED ARBOVIRUSES OF MEDICAL IMPORTANCE	Underestimate	Good uptake of the lab and clinical reporting across the public and private sector, but data will always be an underestimate of the true burden of disease because of lack of seeking health care in mild cases, underdiagnoses in cases with unspecified symptoms and signs and self-limiting nature of disease.
DIPHTHERIA	Best possible estimate	Data will always be a minimal estimate of true burden because of limitations in diagnosis and reporting. Diagnosis is often not suspected, throat swab samples are not taken, some laboratories do not test for diphtheria on throat swabs.
ENTERIC FEVER (TYPHOID OR PARATYPHOID FEVER)	Best possible estimate	Reporting of cases diagnosed at public sector facilities is excellent, but reporting from the private laboratory may be incomplete while data systems are being developed.
FOOD BORNE DISEASE OUTBREAK	Underestimate	Many outbreaks may not be reported because of limited public awareness regarding reporting channels.
HAEMOLYTIC URAEMIC SYNDROME (HUS)	Underestimate	Cases may not be reported through lack of clinician awareness.
HAEMOPHILUS INFLUENZAE TYPE B	Best possible estimate	Laboratory reporting systems are adequate. However, some cases, especially those with presenting with pneumonia, may not have samples collected and sent to the laboratory.
HEPATITIS A	Underestimate	Lab confirmation not routinely done. Estimates have limitations with diagnosis and reporting.
HEPATITIS B	Overestimate	Repeated testing of persons with chronic disease may lead to duplicate notifications over the course of disease. Efforts are underway to develop a chronic disease 'register' to facilitate identification and reporting of acute vs chronic disease.
HEPATITIS C	Underestimate	Lab confirmation not routinely done. Estimates have limitations with diagnosis and reporting.
HEPATITIS E	Underestimate	Lab confirmation not routinely done. Estimates have limitations with diagnosis and reporting.

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LEAD POISONING	Inaccurate	Clinical diagnosis and case definitions are unclear.
LEGIONELLOSIS	Underestimate	Minimal estimates due to failure of clinicians to recognise diagnose and report. Testing is only available at selected laboratories, in many facilities the diagnosis is not considered, and testing is not done or easily available. Given that, this is a laboratory-confirmed condition this leads to underestimation.
LEPROSY	Best possible estimate	A rare and prolonged medical condition, confirmed by laboratory tests, however, there are no data verification systems in place such as case definitions.
LISTERIOSIS	Best possible estimate	Data presents the best possible at the time of reporting. A rigorous data verification system in place.
MALARIA	Gross underestimate	Parallel systems exist for reporting; or laboratory testing is not routinely performed and uptake of reporting by clinicians is minimal.
MATERNAL DEATH (PREGNANCY. CHILDBIRTH AND PUERPERIUM)	Gross underestimate	N/A
MEASLES	Best possible estimate	The figures in Table 1 represent the number of suspected measles cases which are reported to NMC. Each suspected case should have blood submitted to the NICD for serological confirmation, and a case investigation form submitted to the NICD. Final case classification is assigned by the Measles Expert Committee. Efforts are underway to allow the NMC system to report the final case classification.
MENINGOCOCCAL DISEASE	Best possible estimate	Minimal estimate of true burden because of limitations with diagnosis and reporting.
MERCURY POISONING	Inaccurate	Clinical diagnosis and case definitions are unclear. Case definition harmonisation is underway in collaboration with environmental health professionals and the National Department of Health.
PERTUSSIS	Underestimate	Minimal estimates due to failure of clinicians to recognise diagnose and report. Many pertussis cases present as clinical lower respiratory tract infection and may not have signs of classic pertussis. Pertussis testing is not routinely done. There is also likely a large burden of atypical outpatient pertussis, which is not suspected or diagnosed.

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PLAGUE	Best possible estimate	Good uptake of lab and clinical reporting across public and private sector.
RABIES (HUMAN)	Underestimate	Despite good uptake of lab and clinical reporting across public and private sector, some deaths are undiagnosed or misdiagnosed, for example as meningitis or poisoning.
RIFT VALLEY FEVER (HUMAN)	Best possible estimate	Good uptake of lab and clinical reporting across public and private sector, but data will always be an underestimate of true burden because of lack of seeking health-care in mild cases, underdiagnoses in cases with unspecified symptoms and signs, and self-limiting nature of disease.
RUBELLA VIRUS	Underestimate	There is currently no surveillance programme for rubella. All blood submitted to the NICD for measles testing amongst cases with suspected measles (fever, rash and one of conjunctivitis, cough or coryza) is also tested for acute rubella infection.
SALMONELLA SPP. OTHER THAN *S. TYPHI* AND *S. PARATYPHI*	Underestimate	Persons with diarrhoea are often treated empirically, and stool culture is not often done.
SHIGA TOXIN-PRODUCING ESCHERICHIA COLI	Underestimate	Persons with diarrhoea are often treated empirically, and stool culture is not often done.
SHIGELLA SPP.	Underestimate	Persons with diarrhoea are often treated empirically, and stool culture is not often done.
SMALLPOX	Best possible estimate	This was declared eradicated in 1980. Cases are not expected, however, laboratory confirmation would be necessary for best possible estimates.
SOIL TRANSMITTED HELMINTHS *(ASCARIS LUMBRICOIDES. TRICHURIS TRICHIURIA. ANCYLOSTOMA DUODENALE. NECATOR AMERICANUS)*	Gross underestimate	Laboratory testing is not routinely performed and uptake of reporting by clinicians is minimal. Management of patients based on clinical signs and symptoms. Empiric treatment is usually prescribed. Clinicians are not aware of the need to notify.

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TETANUS	Underestimate	There is no laboratory test and clinicians are required to notify cases based on clinical signs and symptoms. Clinicians are requested to submit copies of clinical case notes to the NICD following notification of cases.
TUBERCULOSIS: EXTENSIVELY DRUG-RESISTANT (XDR-TB)	Gross underestimate	Notification to the NMC by clinicians is required. Cases are already notified to and followed on EDR.web after drug-susceptibility testing confirms that a case is caused by XDR-TB.
TUBERCULOSIS: EXTRA-PULMONARY	Gross underestimate	Notification to the NMC by clinicians is required. Cases are already notified to and followed on ETR.net after a clinician determines that a patient has extra-pulmonary TB.
TUBERCULOSIS: MULTIDRUG-RESISTANT (MDR-TB)	Gross underestimate	Notification to the NMC by clinicians is required. Cases are already notified to and followed on EDR.web after drug-susceptibility testing confirms that a case is caused by MDR-TB.
TUBERCULOSIS: PULMONARY	Gross underestimate	Notification to the NMC by clinicians is required. Cases are already notified to and followed on ETR.net after a clinician determines that a patient has TB.
VIRAL HAEMORRHAGIC FEVER DISEASES	Best possible estimate	Good uptake of laboratory and clinical reporting as the NICD is the only laboratory in South Africa capable of confirming the diagnosis of viral haemorrhagic fever.
WEST NILE VIRUS. SINDBIS VIRUS. CHIKUNGUNYA VIRUS	Underestimate	Good uptake of lab and clinical reporting across public and private sector, but data will always be an underestimate of true burden because of lack of seeking health-care in mild cases, underdiagnoses in cases with unspecified symptoms and signs, and self-limiting nature of disease.
YELLOW FEVER	Best possible estimate	Good uptake of laboratory and clinical reporting as the NICD is the only laboratory in South Africa capable of confirming the diagnosis of viral haemorrhagic fever.