



## South African Health Review 2018 Series

### Chapter 10: Communicable diseases surveillance and outbreak investigation in South Africa

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- Surveillance for communicable diseases is the first and most important step in addressing public health challenges. Surveillance initiates awareness of the magnitude of public health problems, provides evidence for advocacy and action, facilitates accurate planning for service delivery, and allows for monitoring of the impact of interventions.
- The National Institute for Communicable Diseases (NICD) took on a public health and surveillance focus including the ongoing collection, analysis and interpretation of communicable disease data; monitoring for the emergence of infectious diseases, outbreak investigation and management; and conducting research to address regionally relevant communicable disease challenges. The NICD is uniquely positioned to document the impact of health interventions on communicable disease, and will therefore document progress towards the goals of the National Development Plan 2030.
- Each NICD Centre manages data independently. Where surveillance activities require patient interview or medical record review, data are collected by surveillance officers using paper or electronic case investigation forms. Electronic real-time on-site data entry is supported by external service providers. NICD Centres maintain independent MS Access databases, and assume responsibility for data cleaning. Analysis of surveillance data is highly specific to each disease or condition under surveillance.
- The major health problems in South Africa remain the HIV and TB epidemics, which directly and indirectly contribute significantly to premature death and morbidity. This dual outbreak of communicable disease further increases vulnerability to other prevalent communicable diseases.
- The NICD Centre for Tuberculosis (CTB) conducts surveillance and microbiology reference tests to monitor and inform the epidemiological landscape of TB and drug-resistant TB in South Africa.
- An analysis of National Health Laboratory Service TB diagnostic data demonstrates a continued annual reduction in the national year-on-year microbiologically confirmed pulmonary tuberculosis incidence for 2013, 2014 and 2015.
- In 2012-2014, the NICD together with the National Department of Health (NDoH) conducted the largest-ever drug-resistant TB survey globally. Surveillance findings confirmed that the prevalence of multi-drug resistant TB (MDR-TB) was stable (2.8%, 95% CI 1.5-2.7) compared with the previous survey conducted in 2001-2002 (2.9%, 95% CI 2.4-3.5%), and lower relative to that reported globally (7.7%).
- The survey identified a doubling of resistance rates to rifampicin, the main drug for TB treatment (from 1.8% to 3.4%) in patients without any previous history of TB treatment. This indicates primary transmission of drug-resistant TB and supports the use of Xpert MTB/Rif as the first line diagnostic assay for detection of TB and rifampicin resistance.

- The Centre for HIV and Sexually Transmitted Infections (CHIV & STI) co-ordinates and conducts HIV surveillance among infants and children, pregnant women, and surveillance for HIV drug resistance among persons initiating antiretroviral therapy (ART). These surveillance programmes are important data sources for programme development, determining ART regimens, target-setting, monitoring of service delivery and statistical modelling of the HIV epidemic. A seroprevalence survey conducted by the NICD since 1990, indicates that HIV prevalence has remained relatively stable over the last 10 years.
- An overview of the major surveillance activities conducted by the NICD over the last decade, including surveillance for communicable disease, diseases preventable through the Expanded Programme of Immunisation, epidemic-prone diseases, food-borne illness including listeriosis, and antimicrobial resistance and hospital-acquired infections, demonstrates the effectiveness of major health interventions including the provision of new and improved vaccines (against *Haemophilus influenzae* type B, *Streptococcus pneumoniae*) and antiretroviral therapy.
- Further, these surveillance activities have contributed immeasurably to strengthening of health systems through provision of data for action, monitoring progress towards targets, planning for service delivery and appropriate redirecting of resources.
- The burden of non-communicable disease in South Africa is increasing, including morbidity and mortality due to environmental and occupational harms, as well as injury and violence. Surveillance for these conditions is essential if South Africa is to meet targets of the National Development Plan 2030 (NDP) – specifically an increase in life expectancy to 70 years at birth.
- In support of this, and also in line with international trends, the Parliamentary Portfolio on Health tabled the National Public Health Institute of South Africa (NAPHISA) Bill in 2017. The Bill will broaden the activities of the NICD through the inclusion of public health monitoring activities that focus on non-communicable diseases and conditions. This will ensure that these growing public health threats and interventions to ameliorate their impact, are monitored.
- At a policy and political level, sustained support for the NICD over the last 18 years has ensured that the human and financial resources necessary to achieve its mission and aims have been provided. The achievements in surveillance activities underscore the integral role of the NICD in providing surveillance data to monitor health interventions.

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