



NATIONAL COVID-19 GUIDELINE FOR TARGETED TESTING AND ACTIVE SURVEILLANCE OF CASES AND CONTACTS

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Foreword

The World Health Organization (WHO) declared COVID-19 a global pandemic on 11th March 2020. The first case was diagnosed in South Africa on 5th March 2020. South Africa faces a particular challenge given the large vulnerable immunocompromised population living in overcrowded conditions.

As the epidemic evolves, the corresponding increase in the numbers of positive cases mean that it is not possible for mass screening, testing and contact tracing interventions to be practically implemented, as the resources to undertake these interventions at scale is not available and may not necessarily bring about the desired outcomes. In these circumstances, the WHO recommends that existing delivery approaches will need to be adapted as the risk–benefit analysis for any given activity should be assessed in accordance with the evolving pandemic. South Africa’s screening, testing and contact tracing interventions should therefore focus on hotspots and vulnerable individuals, instead of mass screening and testing. The heterogeneity of the South African health landscape and distribution of COVID-19 cases means the country will be at different phases of the COVID-19 epidemic, warranting a differentiated approach.

This COVID-19 guideline provides guidance regarding the targeted screening, testing and contact tracing within the phase epidemic. It builds upon WHO considerations in the investigation of cases and clusters of COVID-19.

This guideline is subject to change as knowledge regarding strategies to address COVID-19 develop globally and in South Africa. It will be reviewed regularly based on emerging evidence and WHO recommendations.

I hereby laud the efforts of the team that worked tirelessly to draft these guidelines and moreover those that will implement them. This National Covid-19 Guideline for Targeted Testing and Active Surveillance of Cases and Contacts will be implemented with as at 18 May 2020.

Dr T Pillay
Acting Director-General: Health
Date:

Abbreviations	Full Names
CHW	Community Health Worker
COVID-19:	Coronavirus disease 2019
COVID-19 RT-PCR:	Real-time reverse transcription polymerase chain reaction
IMT:	Incident Management Team
IPC	Infection, Prevention and Control
NHLS	National Health Laboratory Services
NICD	National Institute for Communicable Diseases
NIDS	National Indicator Data Set
PHC	Primary Health Care
PPE	Personal Protective Equipment
PMP	Project Management Office
PUI	Persons Under Investigation
SMS	Short Message Service
NATJOINTS	National Joint Operations
NCCC	National COVID Command Centre
NPP	National Priority Programme
WHO	World Health Organisation

1 Background

In South Africa, the first COVID-19 case was reported on 5th March 2020 from a group of travellers returning from Italy. Since then, local transmission has been established in all nine provinces of the country. On 15th March 2020, the President of South Africa declared the COVID-19 outbreak a national disaster in terms of Section 23 of the Disaster Management Act 57 of 2002, announcing extraordinary interventions including travel restrictions, social distancing and ramping up tracing and testing. On 20th March 2020, the intervention was elevated with an early national lockdown. Given the increase in the number of new cases in the community, on 30th March 2020, the President proclaimed the need for intensive Community Screening and Testing to curb the spread of the virus.

A national effort to scale up and expand local, district and provincial case investigation and management was necessary to ensure containment and mitigation strategies to reduce the spread of COVID-19. The Community Screening and Testing Programme initiated on 7th April 2020 and was originally intended to screen 10 million people (about 20% of the population) in 6 weeks. The Community Screening and Testing Programme has reached the set target of 10 million people screened on 12 May 2020.

The National Health Laboratory Service (NHLS) has rapidly scaled-up its testing capacity; to date testing is being conducted in 18 virology laboratories, equipped with more than four types of PCR testing platforms. The initial testing capacity projections were never met due to local and global supply demand challenges, which was beyond the control of the NHLS.

As COVID-19 spreads more rapidly and testing systems and supply chains become overwhelmed, there is a need for more targeted interventions. The heterogeneity of the South African health landscape and uneven distribution of COVID-19 cases, means that not all districts will be at the same phase of the COVID-19 epidemic. Mass screening, testing and intensive contact tracing is useful in earlier containment stage but at a certain point, it is recommended to move to targeted testing for higher risk individuals and active surveillance of cases and contacts. This document provides guidance to enable South Africa to ensure a more integrated approach to identify the most appropriate intervention within the epidemic framework.

2 Situational Analysis

Diagnostic testing services in the country are provided by private sector laboratories, which primarily serve the insured population and the NHLS. The NHLS is the sole provider of diagnostic pathology services in the public sector and serves 80% of the population through a network of over 230 laboratories across all the provinces of South Africa.

Testing for SARS-CoV-2 in South Africa through the NHLS currently has a mix of traditional molecular tests and high-throughput platforms. Please refer to Annexure A for details of the tests available in South Africa and across the globe. However, due to supply-demand constraints, the NHLS has experienced challenges in the procurement of extraction and test kits for both traditional and high-throughput platforms.

Based on actual tests performed by the NHLS in April 2020 past month, the baseline testing output is 9800 tests per day. Projections based on the e growth in the number of tests

conducted per day of 1600 indicate that by the end of May 2020, NHLS will be conducting an average of 15 000 tests per day.

Table 1: Projected NHLS testing capacity for May 2020

Week	Average tests per day
1	9 800
2	11 400
3	13 000
4	14 600

Source: NHLS

The private laboratories in South Africa have contributed almost half of the total tests performed to date and have increased their average daily tests significantly recently. Furthermore, a total of 30 small private and research laboratories are being assisted by the NHLS to be part of the surge plan to assist in increasing testing capacity in South Africa. With the support from the private sector, the projections for the total testing capacity in South Africa is expected to be between 20 000 and 25 000 tests per day by the end of May 2020.

To address the current challenges there is a need to focus on the following interventions:

- Procurement of automated high throughput extraction platforms and extraction kits/consumables to assist testing sites with semi-automated and manual extraction platforms. Innovative ways of performing extractions are being investigated and will be put into action once verified – these include but not limited to heat extraction, lysis and pooling of patient samples.
- Introduction of multiple diverse testing platforms to enable switching of testing depending on availability of test kits.
- Continuous engagement of suppliers to negotiate increased test kits production and allocation to South Africa.
- Activation of surge plan to include academic and research labs as referrals for NHLS tests. The NHLS is offering technical assistance to the small private labs to enable them to become proficient and contribute in increasing testing capacity.
- Referrals of tests to large private pathology labs to reduce backlogs whenever they have spare capacity.
- Priority clearance of COVID-19 goods at ports of entry – customs & port health.
- Review of testing protocol and prioritizing of samples to be tested, with hospitalised patients and symptomatic patients under investigation (PUI) being fast tracked

With these interventions, the turnaround time for testing inpatients and PUI is anticipated to be kept at less than 48 hours. Over and above this, improvements in workflow and increased capacity at receiving offices of testing sites, it is anticipated that testing backlogs will be reduced.

To date, there are 20 NHLS COVID 19 testing sites with samples received by referral from almost all the NHLS laboratories.

3 Purpose of the document

The purpose of the document is to guide the targeted testing and contact tracing in identified COVID-19 hotspot areas across the country. This document provides an outline on the processes and mechanisms to be put in place to strengthen community prevention, targeted

screening and testing, contact tracing, response, isolation and quarantine in identified hotspots.

4 Goal of the Guideline

To reduce the chain of transmission across the country at identified hotspots, thus reducing the impact of morbidity and mortality due to COVID-19.

5 Objectives

The objectives of the revised targeted approach comprise of the following to:

- **Prevent** the spread of COVID-19
- **Identify** hotspot areas for targeted interventions based on COVID-19 burden
- **Screen** the population in identified hotspot areas¹ for COVID-19.
- **Test** those individuals who screen positive as per the person under investigation criteria, prioritising vulnerable groups.
- **Trace** all confirmed COVID-19 cases and their contacts. Isolate or quarantine positive cases either at home or in identified isolation facilities, when home circumstances do not allow for self-isolation/quarantine.
- **Strengthen** effective information and surveillance systems in COVID-19 high burden areas.
- **Communication** of risk to reduce the spread and its impact.

6 Targeted testing and Active Surveillance of Cases and Contacts

South Africa's nine provinces and districts are heterogeneous² in terms of their baseline system capacities, burden of disease, and the COVID-19 transmission rates. This plan will introduce an integrated approach to targeted testing and active surveillance of cases and contacts in line with phase of epidemic in specific areas. Outbreak investigation with surveillance and spatial monitoring of new cases allows us to identify hotspots and prioritise interventions where appropriate. Mass screening, testing and intensive contact tracing is useful in earlier containment stage but at a certain point it is recommended to move to targeted testing for higher risk individuals and active surveillance of cases and contacts.

7 Guideline

The overview of the National Covid-19 Guideline for Targeted Testing and Active Surveillance of Cases and Contacts is presented in Annexure B.

7.1 Prevention interventions

There should be a distribution of educational materials in conjunction with the intensification of Risk Communication and Community Engagement (RCCE) through audio, social and visual media. Communication and materials should include the health risks of COVID-19 and be in accordance with approved Infection Prevention Control guidelines in the following areas:

¹ Hotspots are identified as areas with rapid progression of COVID-19 infection, high vulnerability of communities and higher number of new cases per 100k population,

² Heterogenous in regards of the WHO Building Blocks for Health Systems Strengthening and the Social Determinants of Health.

- Wearing of masks
- Physical distancing
- Hand washing/using a sanitizer

7.2 Identify hotspot areas

The identification of areas of elevated risk in incidence or prevalence levels, high transmission efficiency, and areas of high probability of disease emergence will be done in relation to COVID-19.

7.3 Targeted screening

Informed by identified hotspots and positive case data from NICD, the outbreak response teams will screen all identified suspects and their contacts including high risk individuals in the identified hotspots.

7.4 Targeted testing

7.4.1 Targeted testing will be prioritised according to the following categories:

- Prioritise testing for those with a medical need and for clinical diagnosis
 - Suspected COVID-19 case³
 - Clinical diagnosis for patients with respiratory disease at health care services.
- Testing for High Risk individuals
 - Health care workers exposed to positive COVID-19 patients
 - Contacts of confirmed positive COVID-19 persons and exhibiting symptoms
 - Asymptomatic direct and high-risk contacts of a confirmed COVID-19 case
 - In patients, referrals from OPD and primary healthcare facilities
 - Vulnerable groups in communities/clusters including schools, workplace, nursing homes, old age homes etc)
- Testing of critical frontline workers⁴
 - Screening for symptoms according to case definition for COVID-19.
 - Testing suspected COVID-19 cases only.
- Surveillance
 - Antibody testing to establish prevalence
- Workforce screening, asymptomatic random screening in hotspots

7.4.2 Cases exhibiting symptoms but not eligible for testing should be handled as follows:

Those who have been screened and confirmed to have symptoms as per the case definition but are not eligible for testing should be managed as follows:

- To stay at home and practice self-isolation for 5 to 7 days. Where self-isolation is not practical, they must be referred to appropriate isolation facilities.
- If symptoms develop e.g. develop shortness of breath when at rest or when undertaking simple daily activities, they should present to the nearest health facility immediately or call the COVID-19 hotline. IPC measures (wearing of masks, physical distancing, and hand washing) to be observed when presenting to health facility.

³ A suspected COVID-19 case includes any person presenting with an acute (≤ 14 days) respiratory tract infection or other clinical illness compatible with COVI as per the Clinical Management of suspected or confirmed COVID-19 disease Guidelines (Version 4).

⁴ Critical frontline workers in nursing homes, health facilities, prisons, schools and workplaces, health care workers and their families.

7.5 Active surveillance of cases and contacts

- Extensive contact tracing and active search for cases in the identified hotspots
- Isolation of suspected and/confirmed cases and providing medical care
- Quarantining contacts according to different options
- Implementing and reinforcing social distancing measures
- Intensive risk communication
- Operational surge capacity to be in place

7.6 Strengthen effective information and surveillance systems

- Put in place an appropriate health information system to provide real time information on COVID-19 cases, surveillance, disease burden and trends
- Ensure that standardized data is collated, analysed and synthesized for action on a regular basis
- Enhance surveillance systems and capacity
- Precise mapping of the outbreak shall be carried out in each identified hotspot

8 Communicating Test Results

Once an NHLS laboratory has tested the specimen and the results are available, the results will be sent to the nearest PHC facility (as will be indicated on the NHLS N1 PHC Request Form).

If the test result is negative, it can be relayed to the individual through a telehealth follow-up method such as telephone or SMS technology. In the event of a positive result, the contact tracing team in the district should be informed to trace the confirmed case and their contacts as per the contact tracing guidelines. Direction should be given as outlined in the guidelines for quarantine and isolation in relation to COVID-19 exposure and infection.

9 Monitoring and Evaluation

Through a consultative process, the Department of Health developed a National Monitoring and Evaluation Framework for all COVID-19 interventions through the COVID-19 National Indicator Data Set (NIDS). The NIDS include the data elements and indicators (with a numerator and denominator) for targeted testing and contact tracing. This will facilitate and present a standardized cascade across provinces, foster stronger collaborative work, that will facilitate near to real-time cost-effective interventions and gaps mitigation across the provincial implementation teams.

9.1 Data Collection

In addition to the COVID-19 NIDS indicators (attached as Annexure C), two key alert indicators have been identified:

- Test coverage – this includes rate of change in the testing coverage
- Health system capacity (focusing on changes week by week at district level)
 - Total available beds
 - Total available ICU beds
 - Specific interventions in each district and activities in adjacent districts

The Department of Health will be using a hybrid of technology and paper-based tools. A mobile application will be used for data collection on targeted screening, testing and active surveillance of contacts.

9.2 Data security

In terms of Regulation Gazette No. 11078 of the Disaster Management Act (57/2002): Amendment of Regulations issued in terms of Section 27 (2) dated 2 April 2020, all contact tracing data will be kept in the national database developed and maintained by the National Department of Health.

9.3 Reporting

Data will be presented through both static (tables) and dynamic dashboards and reports that will include:

- Data to be presented by location from national, province, district to ward level
- Data to be presented to include demographics e.g. where applicable reporting based on sex, age etc.
- Data will include dynamic time function (can be viewed and presented by day, by week, by month, cumulative)

In addition to reports that will be available online to District, Provincial and National users, specific indicators need to be presented at specific forums (this includes PMO/IMT, Minister of Health, NATJOINTS – NCCC) as indicated in the COVID-19 NIDS.

10 Financing of the Guideline

The Provincial Departments of Health need to make the necessary resources available for the implementation of this plan.

11 Annexure A: Matrix of testing platforms currently available in the South Africa and globally

		BioRad CFX96 (96/plate)	Roche LightCycler 480 II (96/plate)	Quant Studio 12k-Flex (384/plate)	Quant Studio 5 (96/plate)	ABI 7500 (96/plate)	BDMMax	FlouroCycler 96	Abbott RT	Roche Cobas 6800/8800	GeneXpert	GeneChecker	Extraction Throughput per run (including controls)
MagNA Pure 96	TaqMan v1/v2	ABL	TaqMan v1/v2	TaqMan v1/v2								96	
	AllPlex, BGI												
	SanSure												
	YouSeq												
	TibMolBio												
	Logix												
NucliSENS EasyMa												24	
	TaqMan v1/v2	ABL	TaqMan v1/v2	TaqMan v1/v2	TaqMan v1/v2								
	ABL, Logix	TaqMan v1/v2, GeneSig		ABL, Logix	ABL, Logix								
	BGI, YouSeq		BGI, YouSeq	BGI, YouSeq									
	TibMolBio		TibMolBio	TibMolBio									
Hamilton												96	
	TaqMan v1/v2	TaqMan v1/v2	TaqMan v1/v2	TaqMan v1/v2	TaqMan v1/v2								
	ABL, Logix	ABL, Logix	ABL, Logix	ABL, Logix	ABL, Logix								
	BGI, YouSeq	BGI, YouSeq	BGI, YouSeq	BGI, YouSeq	BGI, YouSeq								
	TibMolBio	TibMolBio	TibMolBio	TibMolBio	TibMolBio								
BDMMax					TaqMan v1/v2							24	
GenoExtract 96						Genesig						96	
Abbott SP							RealTime					96	
Roche Cobas 6800/8800								Cobas				96	
GeneXpert									Xpress			1	
Bosphore Spin Column											SmartCheck	1	
SmartCheck Lysis (manual)											SmartCheck	1	
Tested in SA Available	Untested in SA Potentially Feasible												

Source: NPP Unit (Prof W Stevens)

12 Annexure B: Overview of Guideline

NATIONAL COVID-19 GUIDELINE FOR TARGETED TESTING AND ACTIVE SURVEILLANCE OF CASES AND CONTACTS

Epidemic Phases

Phase	Surveillance	Laboratory testing
Vigilance (<5 “active” cases per 100,000 persons)	<p>Maintain and report from all available surveillance systems.</p> <p>Including notifiable medical conditions surveillance system for lab-confirmed cases, COVID hospital admissions, COVID deaths, syndromic surveillance for ILI and SARI, inpatient and outpatient consultations, etc.</p> <p>In this phase, focus on monitoring new lab-confirmed cases which are imported, contacts of</p>	<p>Acute COVID-like symptoms with recent travel to a district in phases 3-5; high-risk groups (e.g. HCW) with COVID-like symptoms; severe pneumonia in hospital; clusters and vulnerable groups with COVID-like symptoms; test a subset of samples from SARI/ILI surveillance</p> <p>All close contacts of new cases</p> <p>All close contacts of new cases within clusters/ outbreaks</p>
Active (≥5 “active” cases per 100,000 persons)	<p>In this phase, focus on monitoring new cases linked to clusters, new cases detected through syndromic surveillance systems and deaths/hospital admissions among new lab-confirmed cases.</p>	<p>Only high risk individuals for clinical management/ prevention of spread in closed settings. Including HCWs, critical workers, suspected COVID case in hospital, outbreaks among vulnerable pops (prisons, chronic care facilities, etc.)</p> <p>For other closed setting outbreaks with fewer vulnerable pops, consider testing index case only</p>

13 Annexure C: COVID-19 NIDS

Number	Patient Journey	Indicator	Numerator	Denominator
1	Screening	Field workers reporting rate	Number of field workers reporting screening data	Number of field workers deployed for Covid-19
2	Screening	Field worker Covid-19 Screening coverage	Number of persons screened for COVID-19 by field workers	Target population for Covid-19 screening
3	Screening	Field worker referral rate for Covid-19 test	Number of persons referred for COVID-19 test and quarantined (<i>meets the PUI definition</i>)	Number of persons screened for COVID-19 by field workers
4	Testing	Field Worker specimen collection rate	Number of persons with specimens collected in the field	Number of persons referred for COVID-19 test and and quarantined (<i>meets the PUI definition</i>)
5	Testing	Turnaround time of Covid-19 tests	Number of Covid-19 tests with results < 48 hours	Number of Covid-19 tests conducted
5	Testing	Covid-19 Testing coverage	Number of Covid-19 tests conducted - Total	Number of persons referred for COVID-19 test and quarantined (<i>meets the PUI definition</i>) + Number of contacts referred for COVID-19 test (<i>meets the PUI definition</i>)
6	Testing	Covid-19 Testing coverage	Number of Covid-19 tests conducted - Total	Total Population / 100 000
7	Testing	Covid-19 Positivity Rate	Number of confirmed covid-19 cases - Total	Number of Covid-19 tests conducted
8	Outcome	Covid-19 Incidence Rate	Number of new confirmed covid-19 cases	Total Population / 100 000
9	Contact Tracing	Covid-19 index case tracking rate	Number of confirmed covid-19 cases tracked to obtain a list of their contacts	Number of confirmed covid-19 cases
10	Contact Tracing	Covid-19 Contact tracing rate	Number of contacts traced	[number of contacts identified for tracing] - [Number of contacts transferred out to another district] - [Number of untraceable contacts] + [Number of contacts transferred in from another district]
11	Contact Tracing	Covid-19 Contact Monitoring rate	Number of contacts monitored	[Number of contacts traced] - [Number of contacts completing their 14-day monitoring]
12	Contact Tracing	Covid-19 Contact referral rate	Number of contacts referred for COVID-19 test (<i>meets the PUI definition</i>)	Number of contacts monitored
13	Contact Tracing	Covid-19 testing coverage among contacts of confirmed cases	Number of contacts tested for Covid-19	Number of contacts referred for COVID-19 test (<i>meets the PUI definition</i>)
14	Contact Tracing	Covid-19 positivity among contacts traced	Number of contacts tested positive for Covid-19	Number of contacts tested for Covid-19