



health

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National Guidelines on Contact Tracing for Covid-19

Version 1 – June 2020

FOREWORD

The scale, duration, and complexity of Covid-19 all over the world have underscored the need for prompt and effective preparation for and implementation of public health control measures. A person with Covid-19 can spread the disease to others as soon as he or she begins to have symptoms. Therefore, it is crucially important to identify and isolate symptomatic persons immediately to stop the disease from spreading. Contact tracing is the process of identifying, assessing, and managing people who have been exposed to a disease to prevent onward transmission. When systematically applied, contact tracing will break the chain of transmission of an infectious disease and is thus an essential public health tool for controlling infectious disease outbreaks.

Contact tracing for Covid-19 requires identifying persons who may have been exposed to Covid-19 and following up on them daily for 14 days from the last point of exposure. Contact tracing is one of the critical tools available to effectively break chains of transmission and control Covid-19 outbreaks. Experience from Covid-19 outbreaks in another countries and previous coronavirus outbreaks (SARS and MERS) has demonstrated contact tracing's efficacy in stopping ongoing Covid-19 transmission.

This guideline has been prepared to guide the implementation and management of contact tracing in South Africa for managing Covid-19 outbreaks. The guideline also provides direction regarding the monitoring and evaluation of the contact tracing process. The guideline has been prepared based on best practices from extensive field experiences from previous Covid-19 outbreaks in another countries as well as the most recent evidence.

Therefore, this guideline will assist healthcare workers in coordinating, facilitating and implementing Covid-19 contact tracing activities. Furthermore, national and sub-national emergency management committees, epidemiologists, surveillance officers and volunteer organisations involved in Covid-19 preparedness and response activities may use this guideline to plan, implement and manage contact tracing efforts. However, the guideline should be adapted to the local context in its application.



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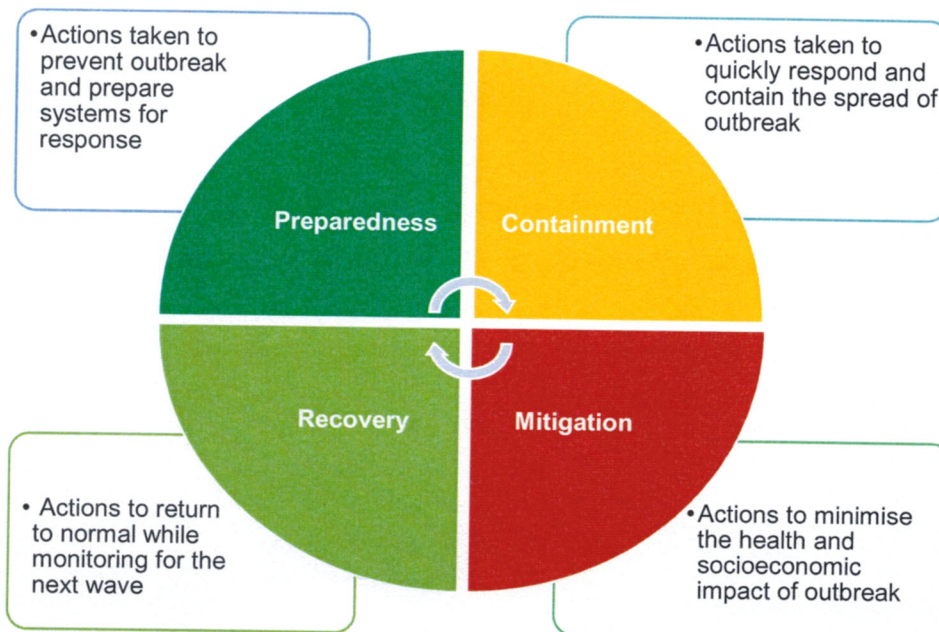
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INTRODUCTION

This document summarises interim recommendations for contact management for COVID-19. It is based on the current knowledge regarding COVID-19 and experiences with SARS-CoV and MERSCoV. This guidance focuses on the globally recognised four phases of epidemic response namely; preparedness, containment, mitigation and recovery.



This approach is building on the lessons from response to previous severe outbreaks such as Ebola Virus Disease and guidance from the World Health Organization and Africa Centres for Disease Control and Prevention.

These guidelines are aligned with the principles of Article 3 of the International Health Regulations (IHR 2005)

Areas of emphasis:

- **Phases of epidemic and strategic approach**
- **Community engagement**
- **Targeted case and contact tracing and monitoring**

1. BACKGROUND

Coronavirus disease 2019 (Covid-19) is caused by the SARS-CoV-2 virus, and spreads from person-to-person through droplet and contact transmission. To control the spread of Covid-19, interventions need to break the chains of human-to-human transmission, ensuring that the number of new cases generated by each confirmed case is maintained below one (effective reproduction number <1). As part of a comprehensive strategy, case identification through screening and testing, isolation, treatment and care of confirmed cases, contact tracing and quarantine are critical activities to reduce transmission and control the epidemic. These guidelines focus on contact tracing.

In South Africa, the first Covid-19 case was reported on the 5th of March, 2020 as an imported case from Italy. Covid-19 was detected as an outbreak of pneumonia of unknown cause in Wuhan, China. The outbreak was first reported to the WHO Country Office in China on 31 December 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) being the cause. This outbreak was declared a Public Health Emergency of International Concern on 30 January 2020. On 11 February 2020, WHO announced a new name for the new coronavirus disease: Covid-19. On 11 March 2020, the WHO declared the outbreak a pandemic due to the rapid increase in the number of cases outside China.

In response to this pandemic, a national task force was immediately activated and multi-sectoral/multidisciplinary team of rapid responders was established to coordinate the response and develop preparedness plans in South Africa. Contact tracing was one of the key technical areas identified to effectively identify new cases and prevent the spread of infection.

2. PURPOSE

This document provides guidance to national, provincial and local authorities as well as decision makers on how to adapt contact tracing strategies for changing phases of the Covid-19 pandemic. The main purpose is:

- Identify and manage close contacts in a timely manner to prevent further spread of disease
- Develop a clearer understanding of risk of infection and risk factors during various types of human contact.

3. ADAPTING CONTACT TRACING RESPONSE FOR CHANGING COVID-19 PANDEMIC PHASES

For Covid-19, it is recommended that all close contacts of confirmed cases be traced and monitored in the early days as soon as possible. However, given the wide spread of transmission of Covid-19, the number of contacts requiring follow-up can be expected to increase exponentially if sustained community transmission occurs. Contact tracing is resource intensive and at a certain point may require specific and targeted approaches to be effective in the epidemic control. Attempting to maintain follow-up of all contacts can jeopardise the quality of contact follow-up and divert resources away from other critical interventions.

There is no clear evidence-based threshold for when contact tracing should be reduced or halted. However, national, provincial and local authorities will utilise local data to guide decision making.

Strategy options for contact tracing

The following **table 1** outlines the strategies and recommendations alongside other interventions, depending on the stage of the epidemic. The most appropriate strategy depends on the phase of the

epidemic, namely: no reported cases, imported cases with limited local transmission, increased imported and local transmission but still linked to known chains of infection, and widespread sustained community transmission (**Table 1**). Provinces/districts/sub-districts may move rapidly from one phase to another as the situation evolves, particularly if there is widespread local transmission in neighbouring provinces/countries, or if there is improved testing capacity or review of case definition.

Table 1: Recommended contact tracing activity by epidemic phase

Phase	Characteristics of the phase	Contact tracing level
Phase 0 (preparedness): No Covid-19 case	<ul style="list-style-type: none"> No reported cases in province/district/sub-district. 	<p>Aim: Preparedness Sensitise the population to the idea of outbreak control measures including contact tracing, quarantine, individual and community social distancing.</p>
Phase 1 (containment): Early stage outbreak	<ul style="list-style-type: none"> One or more imported cases. Limited local transmission related to imported cases. 	<p>Aim: Prevent sustained transmission Conduct contact tracing (contact identification for all confirmed cases, contact listing and classification, choose contact follow-up approach and do daily contact follow-up). All contacts of confirmed and probable cases should be identified, quarantined and traced through phone calls and/or home visits.</p>
Phase 2 (containment): Expanding outbreak	<ul style="list-style-type: none"> Increasing number of imported cases. Increased local spread but all cases linked to known transmission chains. Outbreak clusters with a known common exposure. 	<p>Aim: Contain and slow transmission Intensify contact tracing and adherence to quarantine as much as possible. If resources reach limit, prioritise contacts follow-up with the highest risk exposures, particularly health workers and vulnerable populations.</p> <p>All contacts of confirmed and probable cases should be identified, quarantined and monitored through self-reporting, phone calls and/or home visits in case of failure to self-report.</p>
Phase 3 (containment and mitigation): Advancing outbreak	<ul style="list-style-type: none"> Localised outbreaks start to merge. One or more cases or deaths occur outside known transmission chains. Sustained person to person transmission – multiple generations in transmission chains. Cases are detected among severe acute respiratory illness (SARI) case with no known exposure. 	<p>Aim: Slow transmission to delay and reduce outbreak peak and burden on health services</p> <p>Halt contact tracing in all outbreak areas and implement targeted screening and testing.</p> <p>Trace contacts only in districts/sub-districts reporting first cases where containment might still be possible or among high-risk vulnerable contacts.</p> <p>All contacts of confirmed and probable cases should be identified, quarantined and monitored through self-reporting, phone calls and/or home visits in case of failure to self-report.</p>
Phase 4 (mitigation): Large outbreak with nationwide transmission	<ul style="list-style-type: none"> Widespread sustained community transmission. Multiple generation transmission chains can be identified but most cases occurring outside of chains. Community-wide transmission throughout all or nearly all of the districts. 	<p>Aim: Reduce mortality among severe cases All contacts of confirmed and probable cases should be identified, quarantined and monitored through self-reporting, phone calls and/or home visits in case of failure to self-report.</p> <p>Halt contact tracing activities with few exceptions, determined by the need and value for doing so, such as outbreaks in hospitals.</p> <p>The national authorities could decide to continue tracing contacts only in newly infected areas and intensify active case finding in health facilities and communities.</p>

When provinces have passed the peak of transmission and case numbers are decreasing, particularly when stringent public health and social measures are being adjusted, rapid identification of cases and contact tracing are critical to maintain low levels of transmission and rapidly identify and break new transmission chains.

4. DEFINING AND MANAGING INDEX CASES AND CONTACTS

Index cases

Persons that meet the minimum definitions during the screening process are subject to a lab test for Covid-19. The test sample is sent for processing and the period between the lab test processing and subsequent result the case is neither confirmed Covid-19 positive nor negative and is known as a "person under investigation" (PUI). The PUI case should self-isolate until their results are confirmed. In the event of a positive results returned to the PUI, the PUI will now be considered a confirmed Covid-19 index case. A key driver of the response to suppressing the epidemiological curve is the rapid return and confirmation of lab tests in order to confirm the index case, and secondly the timeous notification of contacts of the index case of their exposure risk.

Infectious period for a confirmed case

- In a symptomatic person, the infectious period commences 48 hours prior to symptom onset and lasts until 10 days after symptom onset.
- In an asymptomatic case
 - Where the source of infection is unknown, the infectious period may be regarded as commencing 48 hours before the sample which led to confirmation was taken, to 14 days after the sample was taken.
 - Where the source of infection is known, the infectious period can be estimated based on a minimum incubation period of 2 days following exposure.

Figure 1 below illustrates the incubation period, the period of infectiousness, the serial interval, viral shedding and antibody production during Covid-19 infection. These periods are essential to support outbreak investigation and contact tracing, as they will assist with initial categorisation of a point source or propagated outbreak, and define the periods when the risk of transmission to contacts (other patients or healthcare worker) is high. Currently persons with Covid-19 are thought to be infectious starting two days before the onset of symptoms, and up to 8 days after the onset of symptoms.

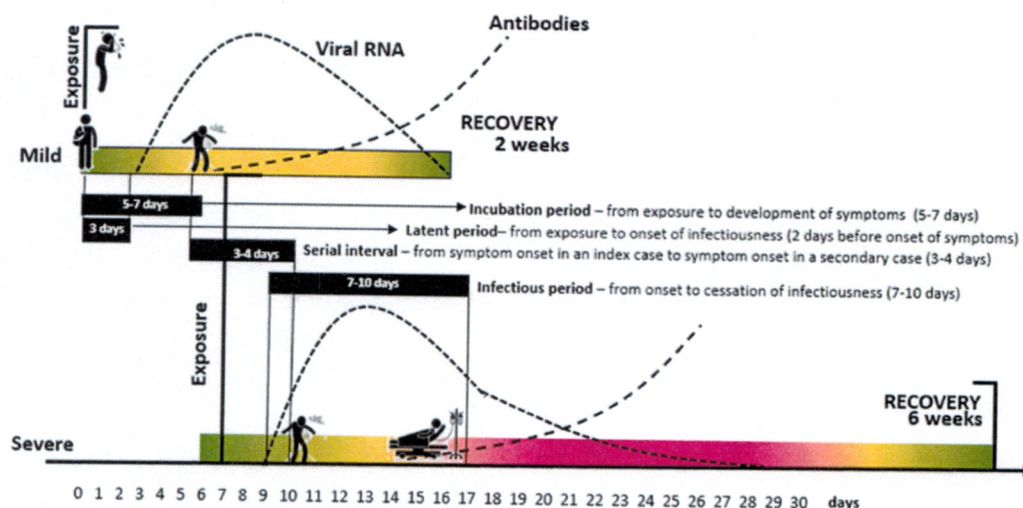


Figure 1: The natural history of Covid-19. Approximate latent, incubation, infectious periods and serial interval for mild (above) and severe (below) cases (coloured bar represents clinical severity are shown. Green=asymptomatic, yellow=mild-moderate symptoms, severe illness=pink). References for these intervals are given in the text.

Notification of Covid-19 cases

In line with the International Health Regulations (IHR 2005) and the National Health Act, 61 of 2003 in South Africa, Covid-19 is a category 1 Notifiable Medical Condition (NMC). Therefore, ANY healthcare provider who makes a diagnosis of Covid-19 must immediately notify the case to the relevant health authority.

District level: The District Communicable Disease Control (CDC) coordinator report all cases that test positive for Covid-19 to the District Outbreak Response Team, to facilitate implementation of public health responses (including contact tracing). The District CDC also ensures upward reporting of cases to the Provincial CDC.

Provincial level: The Provincial CDC coordinator provide public health guidance and support as required, ensure reporting of cases to the Provincial Outbreak Response Team, as well as upward reporting of the cases to National level.

To enhance contact tracing and monitoring, the healthcare worker should immediately notify all probable and confirmed cases of Covid-19 using the NMC electronic Application (web or mobile) or the enhanced Covid-19 NMC case notification form (**Annex 1**).

Monitoring index cases

Monitoring of index case is important in preventing progression to severe morbidity and mortality related to Covid-19. Patients that are able to self-isolate will be required to monitor symptoms and seek medical care timeously if their health status deteriorates

Index cases are supported and monitored through home visits by contact tracing teams, telephonic consultations, daily text messages or through self-reporting where possible. This process is enhanced by providing index cases with a digital tool platform that encourages daily self-monitoring. The daily monitoring of the index case involves:

- daily information on the self-reported syndromic management
- reminders for index patients to conduct a daily check-in on their health status
- assess changes in the conditions of the index case since last test (e.g., well, getting better, sick and getting sicker)
- assess pre-existing medical conditions, any signs and symptoms especially fever (measured or feeling feverish or having chills) or at least one of the following: sore throat, cough, runny nose or nasal congestion, shortness of breath or difficulty breathing, muscle pain, loss of smell or taste, or diarrhoea
- identify index cases defaulting from electronic monitoring that can trigger manual follow-up by the contact tracer teams
- targeted public health response for patients not feeling well
- assess and determine the need for either home isolation or transfer to a dedicated isolation facility

A sample of daily monitoring tool for a case which is self-isolated at home or in a dedicated isolation facility is attached as **Annexure 2**.

Observation period – The medical observation period for patients with confirmed Covid-19 should be reduced from 14 to 10. The index case must be self-isolated at home or in isolation facility. This recommendation is based on evidence that most patients with a mild Covid-19 infection continue to shed the virus from their upper airways for approximately 7 – 12 days. See the Media Statement dated 17 July 2020 attached as **Addendum**.

Management of symptoms – During medical observation, if an index case feels better and or well and no shortness of breath, they must still be monitored for a period of 10 days. However, if an index case feels same or worse and or not feeling well and has shortness of breath, they must immediately be reported to the local health department and transported to the designated medical institution for further diagnosis and treatment.

Management of Covid-19 cases - All probable and laboratory-confirmed cases should be isolated and cared for in a healthcare facility. In situations in which isolation in a healthcare facility is not possible, prioritisation of those with the highest probability of poor outcomes should be cared for in a healthcare

outcome (age older than 60 years, underlying medical conditions). Emergency treatment should be started based on disease severity. Those presenting with mild illness may need to be isolated in non-traditional facilities, such as re-purposed hotels, bed-and-breakfast establishments and community facilities such as halls, where they can remain until their symptoms resolve. Alternatively, asymptomatic cases and patients with mild diseases and no risk factors can be managed at home, with strict adherence to Infection Prevention Control (IPC) measures and precautions regarding when to seek care.

Release from isolation facility – When the required medical observation period ends, if the index case has had no abnormal findings or symptoms, he or she should be released from the isolation system.

Use of technological solution – Where possible, technological solutions can also facilitate the early identification and notification of reported index cases. As far as practicable, index cases should use contact tracing solutions such as Covid-19 – Track and Trace to self-monitor and record their symptoms on a daily basis. The Covid-19 Track and Trace offers laboratory results to those tested for Covid-19 (in both public and private sector laboratories) using their cell number (once they validate themselves using date of birth), notifies them and offers support (targeted messaging), monitors index cases during isolation period, and obtain a list of contacts begin contact tracing.

Contacts

“Contact” include anyone who may have had contact with a case through a range of circumstances or activities including being family members, relatives, friends, colleagues, classmates, healthcare workers and service employees. Contacts can be classified as close contacts or casual contacts based on the level of contact.

Close contacts

Close contacts are individuals who have had a contact, without effective protection, with one or more suspected or confirmed Covid-19 cases, any time starting two days before onset of the suspected or confirmed cases' symptoms or two days before sampling for laboratory of as asymptomatic infected persons. **Close contacts should only be tested for Covid-19 if symptomatic and assessed by a health care provider.**

All close contacts should be immediately quarantined and monitored for symptoms (see Annexure 4) to prevent onward transmission of Covid-19 in a household, community and facility. Contacts should be counselled regarding the meaning of quarantine. It should be ascertained if they are able to self-quarantine. If not, institutional and local health care authorities should consider using a quarantine facility, or a providing alternative accommodation. Guidance for persons who undergo quarantine at home may be found at <https://sacoronavirus.co.za/2020/03/15/covid-19-self-quarantine-guidelines/>.

Specific types of close contacts are:

- being within one metre of a Covid-19 case for more than 15 minutes
- direct physical contact with a Covid-19 case
- providing direct care for patients with Covid-19 disease without using proper personal protective equipment (PPE)
- family members living together
- direct caregivers or providers of medical treatment and care services
- healthcare workers who perform diagnostic and treatment activities that emit aerosol
- persons who have had close contact in an office, factory, workshop, elevator, canteen or cafeteria, classroom, or similar locations
- persons sharing meals, entertaining, and providing catering and entertainment services in a closed environment
- healthcare workers and family members visiting someone with Covid-19 or other people in close contact with Covid-19 cases

- persons riding in a vehicle and within one metre of a Covid-19 case or an asymptomatic infected person including care-taking and nursing employees, companions (e.g. family members, colleagues and friends), and other passengers and vehicles crew who might have contact through investigation and assessment
- other persons assessed by onsite investigators meeting criteria for close contact

Casual /low risk contacts

Casual low risk contacts include anyone who has had contact with suspected cases, confirmed cases, and asymptomatic infected persons, but who do not meet the criteria for being a close contact while taking the same transportation vehicle (airplane, train, ship), or living, studying, or working together, or having less than close contact during diagnostic and treatment procedures.

Monitoring of contacts

Daily monitoring

Daily monitoring refers to the regular communication between the contact tracing team and the contacts for any sign of illness on daily basis. The options for daily monitoring include:

(a) Home visits - Home visits are only made for contacts not complying with self-reporting and who are not reachable by phone. During each visit, the contact tracing team will evaluate the health status of the contact through direct observation and questioning to elicit information about the development of symptoms. During the visit to each contact, the contact tracer team should comply with protective measures: wear a surgical mask, clean hands with hand sanitiser before entering the contact residence, maintain a one-metre distance at all times during the visit and apply the no touch policy. Contact tracers should wash hands with soap and water or use hand sanitiser between each contact visit. Contact tracing teams who receive Covid-19 test results for the persons under investigation should visit the index cases, complete a contact line list, and enter the cases and contacts into a district health information system.

(b) Follow-up by phone – Any contact who may not provide information on his/her condition through the self-reporting mechanism should be called by the contact tracer to actively follow-up his/her condition. If a contact does not self-report over two consecutive days, a home visit should be automatically made the next day, even if phone contact has been made. The information collected by phone is the same as that collected through self-reporting.

(c) Self-reporting by the contact - cases and contacts self-monitor and report any signs and symptoms to the contact tracing platforms, such as Covid-19 – Track and Trace. Self-reporting should be daily, even if no signs or symptoms are present (so-called zero reporting). For contacts complying with self-reporting, an unscheduled visit once a week may be helpful to confirm that the contact is doing well.

Health monitoring – monitor potential signs and symptoms by phone or visiting contacts to monitor the temperature daily, ask about the health status and provide the necessary support and guidance. A sample of contact tracing flow diagram is attached as **Annexure 5**.

Observation period – The medical observation period should last until 14 days after the last contact without effective protection with a confirmed case or an asymptomatic infested person. If the close contact tested negative for Covid-19, they must be quarantined until the end of 14 days' observation period. If symptoms compatible with Covid-19 develop, they should undergo repeat testing.

Management of symptoms – During medical observation, if a contact develops symptoms, the individual should self-isolate and must be immediately reported to the local health department and transported to the designated medical institution for further diagnosis, treatment, and specimen collection for laboratory testing and investigation. The investigation team should assess the contact to determine if the case definition for Covid-19 is met and conduct a laboratory test as soon as possible.

If the test is negative, follow up should be continued for the period of 14 days after exposure. All contacts who test positive for SARS-CoV-2 should be isolated for a period of 14 days post the onset of symptoms. If the test is positive, the contact should be considered as a case and contact tracing for contacts should be initiated.

Testing contacts - Contacts who meet the WHO case definition ('close' contacts) should be tested for Covid-19 as soon as possible after exposure to the case/s is identified. This includes contacts who are symptomatic when interviewed. When a decision has been made to test contacts, or when symptomatic contacts are identified and tested, swabs should be collected according to usual procedures. When swabs are collected, the specimen reference numbers should be recorded. A negative result in an asymptomatic contact taken within 8 days of last exposure to an index case does not change the need for quarantine. Contacts will be in quarantine for at least 8-14 days and will be monitored for symptoms. If they develop symptoms they should be tested. If more than 14 days has elapsed after last exposure to the index case, and the contact is asymptomatic, neither testing nor quarantine are necessary. Any contacts who meet the case definition become 'cases'. Their data should be entered into the case line list, the timeline and the epidemiological curve (see Section 8 below). The contacts of the new case should then be investigated.

Management of contacts - For contacts of a suspected Covid-19 case, at a minimum, health authorities need to encourage respiratory and hand hygiene and may encourage, depending on the epidemiological context and resources available, self-monitoring for symptoms, social distancing, or quarantine. For contacts of a probable or laboratory-confirmed Covid-19 case, it is recommended that such persons be quarantined for 14 days from the last time they were exposed to the case, and be closely monitored for symptoms and signs of infection for 14 days following last exposure. These contacts should be advised to observe social distancing, wearing a mask, and clean hands with hand sanitiser. All contacts should be counselled regarding the significance of their exposure. It should be ascertained if they are able to self-isolate as part of quarantine. If not, institutional and local health care authorities should consider using a quarantine facility, or a providing alternative accommodation for the 14-day duration, e.g. a bed and breakfast establishment.

Release from quarantine facility – When the required medical observation period ends, if the close contact has had no abnormal findings or symptoms, he or she should be released from quarantine system OR If more than 14 days has elapsed after last exposure to the index case, and the contact is asymptomatic, neither testing nor quarantine are necessary.

Use of technological solution – where possible, technological solutions can also facilitate the early identification and notification of reported contacts. As far as practicable, contacts should use contact tracing solutions such as smartphone app to self-monitor and record their symptoms on daily basis.

Unreachable contacts - the contact tracing team should ask relatives and friends or explore other means to find them. If contacts relocate to known locations in the same catchment area, the contact tracing team should visit them. If contacts move to another catchment area, the contact tracing team responsible for that catchment areas should be informed and follow up.

Secondary cases: Any contacts who test positive for Covid-19 become 'second-generation cases'. An identical process of identification of contacts of the second-generation case/s, including quarantine, management and testing of contacts should be followed. If the index case was identified and contact tracing initiated early, it is likely that second-generation cases may already be in quarantine when they test positive. In this case, there will be no contacts of the second-generation case at home or at quarantine facility. Transmission of Covid-19 in the quarantine facility will have been stopped. However larger clusters with secondary waves of transmission may occur:

- a. when the initial source case(s) are missed,
- b. case investigations and isolation procedures are delayed due to long test turnaround time,
- c. when contacts not identified in the initial contact tracing become positive.

5. STEPS INVOLVED IN CONTACT TRACING

In line with best practices of contact tracing in previous Ebola Virus Disease (EVD) outbreaks as detailed in the WHO/CDC Emergency Guideline on the implementation and management of contact tracing for Ebola Virus Disease, contact tracing is broken down into three basic elements, namely: contact identification, contact listing and contact follow-up. The three elements of contact tracing are described next.

Contact identification

If the suspected case is classified as probable or confirmed Covid-19, the investigation team should finalise the list of contacts and proceed with their physical identification, together with the team in charge of contact tracing. The team should meet each contact at his/her residence provide to the identified contacts detailed information about appropriate control measures, daily monitoring of symptoms and other precautionary measures including self-quarantine, as well as the procedure of contact follow-up. It is recommended that the contact is given a leaflet with information on what to do and what not to do during the quarantine period, and where possible be given the cell/telephone number to send an SMS to or to call for self-reporting. During the physical visit to the Contact, Contact tracers should observe basic infection prevention and control (IPC) measures to prevent contamination by wearing appropriate personal protective equipment (PPE), and ensuring social and physical distancing at all times. Wash hands with soap and water or use hand sanitiser between each contact visit. **Table 2** provides examples of ways contact tracing teams can identify contacts in various settings.

Table 2: Examples of identifying contacts in different settings

Setting	Specific contact by setting	Ways to identify contacts
Known/identifiable contacts		
Household and community/social contacts	<ul style="list-style-type: none"> • Face-to-face contact with a case within one metre and for more than 15 minutes • Direct physical contact with a Covid-19 patient • Providing direct care for a Covid-19 patient in the home without proper PPE • Anyone living in the household 	Direct interview with the Covid-19 patient and/or their caregiver(s). This could be done in person or by telephone
Closed settings, such as long-term living facilities, and other high-risk congregational/closed settings (prisons, shelters, hostels)	<ul style="list-style-type: none"> • Face-to-face contact with a case within one metre and for more than 15 minutes • Direct physical contact with a Covid-19 patient • Providing direct care for a Covid-19 patient in the home without proper PPE • Sharing a room, meal, or other space with a confirmed patient 	<ul style="list-style-type: none"> • Direct interview with the COVID-19 patient and/or their caregiver • List of residents, visitors, and all employee members working during the relevant timeframe • Interview with coordinator or manager of facility where contact resides • If contact events are difficult to assess, a wider definition may be used. This means all residents, especially high-risk residents, and employees will be monitored and screened
Known context, but contacts unknown		

<p>Healthcare settings</p>	<ul style="list-style-type: none"> Healthcare workers: any employees in direct contact with a Covid-19 patient, where strict adherence to PPE has failed Contacts exposed during hospitalisation: any patient hospitalised in the same room or sharing the same bathroom as a Covid-19 patient, visitors to the patient, or other patient in the same room; other situations as dictated by risk assessment Contacts exposed during outpatient visits: anyone in the waiting room or equivalent closed environment at the same time as a Covid-19 should be listed as a contact Anyone within one metre of the Covid-19 patient in any part of the hospital for more than 15 minutes 	<ul style="list-style-type: none"> Identify all employees who have been in direct contact with the Covid-19 patient or who may have been within one metre of the Covid-19 patient without PPE for more than 15 minutes without direct contact (e.g. chaplain) Review the list of patients hospitalised in the same room or sharing same bathroom List of visitors who visited the patient or another patient in the same room during the relevant timeframe Undertake a local risk assessment to determine whether any additional exposures may be relevant, such as in common dining facilities
<p>Public or shared transport</p>	<ul style="list-style-type: none"> Anyone within one metre of the Covid-19 patient for more than 15 minutes Direct physical contact with a Covid-19 patient Anyone sitting within two rows of a Covid-19 patient for more than 15 minutes and any employees (e.g. train or airline crew) in direct contact with the case 	<ul style="list-style-type: none"> Contact identification is generally possible only where there is allocated seating Airlines/transport authorities should be contacted to obtain details of passengers and flight manifests For public or shared transport where passenger lists or allocated seating is not available, a media release may be required to request passengers to self-identify Media release may specify the date, time, pick-up location and arrival/destination, and stops along the way, requesting people self-identify as a potential contact
<p>Other well-defined settings and gatherings (places of worship, workplaces, schools, restaurants, salons, gyms, taverns, cinemas, private social events etc.)</p>	<ul style="list-style-type: none"> Anyone within one metre of the Covid-19 patient for more than 15 minutes Direct physical contact with a Covid-19 patient When events are difficult to assess, the local risk assessment may consider anyone staying in the same close and confined environment as a Covid-19 patient as a contact 	<ul style="list-style-type: none"> Undertake a local risk assessment and collaborate with organisers/leadership to notify potential contacts either actively or passively (for example, through 'warn and inform' messages to an audience of potential attendees) Communication with institutional leadership or point of contact of the other events about potential transmission of Covid-19 to raise awareness ('warn and inform') For private social events, work from guest registration and booking lists When necessary, consider media release specifying the event day and time, with request for people to self-identify as a potential contact

Contact listing

Contact listing involves registering and informing all persons considered to have had contact with a confirmed case and explaining what actions will follow. Contacts should be informed of the importance of reporting any symptoms early so that early care can be given and provided with information about how to reduce the risk of spreading of the disease.

Informing contacts

All listed contacts should be contacted by phone or in person to determine whether they meet the contact definition and thus require monitoring. Each individual confirmed as a contact should be provided with information on:

- the **process and rationale** for contact tracing and information on the mandatory 14 days' quarantine
- the **institution responsible for their observation**, including the name and contact information of an institution official
- where they will be quarantined** and how they will be cared for. For detailed information, refer to the national quarantine and isolation guidelines

- what **symptoms to look out** for during the monitoring period. These include any symptoms, especially fever (measured or feeling feverish or having chills) or at least one of the following: sore throat, cough, runny nose or nasal congestion, shortness of breath or difficulty breathing, muscle pain, loss of smell or taste, or diarrhoea
- **what to do if they become unwell**, including 1) whom to inform, 2) how to self-isolate and what precautions to take (respiratory and hand hygiene) and 3) what referral mechanisms are in place for testing and treatment
- **data protection**, including how their personal information will be used, processed and stored
- **ensuring physical and social distancing** by staying away from other persons in the household as much as possible, ideally in an adequately ventilated, separate room with dedicated sanitary facilities
- **limiting access to visitors** to only essential persons
- ensuring the **practice of rigorous hand hygiene** using soap and water or an alcohol-based hand gel and proper respiratory etiquette by covering mouth and nose with a disposable tissue or into the elbow or upper sleeve when the contact sneezes or coughs
- **upholding minimum infection, prevention and control measures** by cleaning high-touch surfaces with a disinfectant-containing wipe. These surfaces include doorknobs, tabletops, toilets, and phones. Also, thoroughly clean surfaces that have been contaminated with bodily fluids
- **Any other specific query** or concern raised by the contact.

Contact follow-up

- Each contact identified and listed should be assigned to a contact tracer for follow up during a 14-day period following the last contact with the case.
- A unique ID should be given to each contact.
- Information to be collected during contact follow-up is aimed at assessing their health status, including pre-existing medical conditions and any signs and symptoms especially fever (measured or feeling feverish or having chills) or at least one of the following: sore throat, cough, runny nose or nasal congestion, shortness of breath or difficulty breathing, muscle pain, loss of smell or taste, or diarrhoea.
- A contact follow-up form should be used to collect this information daily. A sample of the daily contact tracing form is included in **Annexure 4**.
- Contacts should be monitored for a period of 14 days from the last date of exposure with a confirmed case.
- Close contacts that are symptomatic and tests negative for Covid-19, they must continue monitoring, be quarantined until the end of 14 days' observation period. If symptoms compatible with Covid-19 recur, contacts should be assessed to determine the need for testing. A sample of contact tracing flow diagram is attached as **Annexure 5**.

Case and Contact monitoring during wide spread community transmission

Targeted case and contact monitoring should start with tracking of all index cases and identification of their close contacts, and providing health education. Covid-19 – Track and Trace will reduce the burden of daily monitoring of cases and contacts. Cases and contacts should be categorised into high and low risk.

High risk cases that are to be prioritised for 10 days monitoring include those with shortness of breath / comorbidities. High risk close contacts include:

- Those that are over 55 years and have co-morbidities such as Covid-19 with diabetes or hypertension etc.
- Those under 55 years and with underlying conditions
- Health care workers
- All hospitalised contacts
- Those living in old age / care homes

NB: Management of patients/contacts visiting a health care facility for reasons other than Covid-19

- ALL should only be screened
- Those found to meet the PUI definition should be assessed by a clinician to determine a need for testing

In the context of contact tracing, technological solutions can increase productivity, limit exposure of the workforce, and lower costs. Technology solutions can also increase the speed of response, and critical to the overall success of contact tracing. Transmissions may occur from asymptomatic or pre-symptomatic individuals, and that the longer the delay between symptom onset and isolation, the lesser likelihood there is for contact tracing to control an outbreak. Instantaneous contact alerts allow potentially exposed individuals to take appropriate action—such as self-isolating, contacting the right public health officials, or seeking testing—while allowing district or province’s precious public health resources to be focused on confirmed cases.

South Africa has launched the Covid-19-Track and Trace (TnT) service as part of voluntary digital contact-tracing process, for identifying and notifying contacts, providing follow-up monitoring and support, and even alerting contacts when the status has changed. The TnT provide the following services (see the **Annexure 6**):

- **Offers laboratory results** to those tested for Covid-19 (in both public and private sector laboratories) using their cell number (once they validate themselves using date of birth)
- **Covid-19 Index cases:** notifies them and offers support (targeted messaging), monitors index cases for 14 days (during isolation period) and obtain a list of contacts begin contact tracing
- **Covid-19 Contacts to Index Cases:** anonymously notifies contacts that they have coming into contact with someone who has Covid-19, monitors symptoms of contacts for 14-days (during quarantine period)

It should be emphasized that rapid digital contact tracing is not a substitute for traditional manual contact tracing practiced by public health departments, which will also require significant investment and enhanced capacity. Rather, digital contact tracing should be considered an additional method through which the general public can participate to assist the efforts to contain the virus.

Table 3 summarises the minimum information that should be captured on the contact tracing form.

Table 3: Key information on the contact tracing form

Type of information	Minimum data required
Index case and contact identification (entered once)	<ul style="list-style-type: none"> • Index case (unique) ID • Contact (unique) ID • Linked source (Covid-19 Case ID) • Full name • Address (and geolocation, where possible) • Phone number and/or other contact details • Alternative contact details (important in settings with variable telecommunications reception)
Demographic information (entered once)	<ul style="list-style-type: none"> • Date of birth (or age, when not known) • Sex • Occupation • Relationship with the source case • Language (in settings with diverse populations)
Type of index case and contact (entered once)	<ul style="list-style-type: none"> • Type of index case and contact (household, workplace, community, health facility, other) • Date of last contact with the Covid-19 patient • Exposure frequency and duration (this may be used to classify contacts into high and low exposure in case resources are too limited to allow for tracing of all contacts) • Factors influencing contact vulnerability – (e.g. age, co-morbidity, area of residence)
Daily follow-up of signs and symptoms of index case (daily entry fields)	<ul style="list-style-type: none"> • Check for underlying medical conditions (such as diabetes, breathing, etc.) • Fever (perceived or measured, and reported or observed) • Other signs and symptoms: sore throat, cough, runny nose or nasal congestion, shortness of breath or difficulty breathing, muscle pain, loss of smell or taste, or diarrhoea

Daily follow-up of signs and symptoms of contacts (daily entry fields)	<ul style="list-style-type: none"> • Check for underlying medical conditions (such as diabetes, breathing, etc.) • Fever (perceived or measured, and reported or observed) • Other signs and symptoms: sore throat, cough, runny nose or nasal congestion, shortness of breath or difficulty breathing, muscle pain, loss of smell or taste, or diarrhoea
Absence or loss to follow-up	<ul style="list-style-type: none"> • Reasons for non-reporting of daily signs and symptoms (contacts are unavailable, relocated, lost to follow-up) • New address (if known)
Actions taken if symptomatic (entered once)	<ul style="list-style-type: none"> • Date of symptom onset • Referral criteria (based on clinical severity and presence of vulnerability factors) • Contact's location (self-isolation at home, other self-isolation facility, hospital) • Whether a sample has been taken, date of collection

Contact discharge

Contact discharge involves removing contacts from the follow-up list when one of the following criteria is met:

- a contact finishes his/her 14 days of follow-up period
- a contact becomes a confirmed case and moved to a case list
- subsequent investigation leads to the person being re-classified as a non-contact
- subsequent investigation leads to the linked case (probable case) being reclassified as a non-case
- contact transferred to another province for continued monitoring

No contact can be discharged from follow-up without having been seen and evaluated on the 14th day or later. Contacts may also be discharged if during the follow-up process it is discovered and verified (by the field epidemiologist) that the individual did not have any Covid-19 exposure and was erroneously listed as a contact.

6. RESOURCES FOR ISOLATED CASES AND QUARANTINED CONTACTS

There is a need to provide incentives to manage isolation and quarantine facilities with strong wraparound services (consults the national guidelines on isolation and quarantine). These include where possible:

- *care packages* could include a mask, thermometers, food, laundry, pharmaceutical services, health education materials, hand sanitisers and alcohol-based cleansers
- *core resources* such as daily check-in phone calls; a hotline for counselling, information, social services and medical support; garbage removal; instructions on how to keep space clean for those sharing space
- *psychosocial support* to those not working and who need to take care of children or elderly dependents

7. CONTACT TRACING IN SPECIAL POPULATION GROUPS

Healthcare workers

For potentially exposed healthcare workers caring for Covid-19 patients, a detailed exposure risk assessment should be undertaken to assess the type of exposure and PPE use at the time of exposure as follows:

- any exposed employee not wearing appropriate PPE at the time of exposure (as per contact definition) should stop working, undergo quarantine, and self-monitor for 14 days following last exposure
- employees who were exposed to a Covid-19 patient but are assessed as having worn appropriate PPE at the time of exposure may continue to work
- employees should report on a daily basis to a Covid-19 focal point in their workplace for any illness
- healthcare employees exposed to a Covid-19 case outside of the healthcare setting will follow the same rules and monitoring principles as community contacts

NB: Consult the Guidelines for symptom monitoring and management of essential workers for COVID-19 related infection.

Other groups

Contact tracing may be further adapted for jurisdictions with limited human resources and technological capacity, including very low-income settings or humanitarian contexts: this may entail focusing only on high-risk contacts and on areas not experiencing community-wide transmission.

8. DATA FLOW, INDICATORS AND ANALYSIS

Case investigation, contact tracing, and contact follow-up and monitoring will need to be linked with timely testing, clinical services, and agile data management systems to facilitate real-time electronic transmission of laboratory and case data for public health action. Data on contact tracing investigations should be collated and analysed at the local and/or national level in order to learn from investigations and inform response. Examples include gaining an understanding of transmission and attack rates, identifying and documenting settings where transmission takes place, and understanding the effectiveness of different mitigation measures such as physical distancing.

Contact Tracing Data flow

There are set data collection tools specific for contact tracing, as outlined in sections above, such as Covid-19 NMC form, Case line list and Contacts line list. The information that the contact tracing teams gather on each contact should be entered into a database, including the link to the Covid-19 case and information on the monitoring status. The database should be updated with the daily monitoring details collected by contact tracers, or with self-reports sent directly by contacts. Descriptive analyses, including performance indicators crafted for contact tracing, needs regular daily updates, and be reported to the District, Provincial and National Contact Tracing Team Lead. If a contact becomes a case, the change in status should be linked, through a common identifier to a case database (i.e. a line list). The systematic use of common identifiers linking contact tracing, case line lists, and individual laboratory results is very essential. The Covid-19 contact tracing database should be customised and reflect the standard data collection tools, and have the ability to be imported into the District Health Information System – such as the DHIS contact tracing module (DHIS2).

Other technology solutions such as Covid-19 Track and Trace that would automate monitoring of index cases and contacts may be used, provided they give account of own embedded data security features (see interface between Covid-19 Track and Trace with contact tracing workflow in **Annexure 5**). Furthermore, innovations such as geographic information systems (GIS) and methods to provide online real- or near-real-time mapping of disease cases, and tracing and mapping super-spreader trajectories and contacts across space and time, should be explored to provide indispensable for our timely understanding of the new disease source, dynamics and epidemiology, and in shaping our effective response to it.

Performance indicators

The key performance indicators below should be compiled daily by contact tracers and communicated to district/sub-district contact tracer supervisors who then reports to the Provincial and National Contact Tracing Team Leader. **Table 4** summarises the minimum monitoring indicators that should be captured on the contact tracing database at district/sub-district, provincial and national database. Additional indicators may be included depending on the local need and as more evidence becomes available.

Table 4: Key monitoring indicators*

Indicator	Definition	Use
1. Proportion of contacts monitored	# contacts monitored / # contacts to follow (stratified by geographic region, type of contact, contact tracer)	<ul style="list-style-type: none"> Monitor coverage Identify areas with low coverage Identify poor contact tracing performance

	NB: Contacts to follow up = [number of contacts identified for monitoring] – [number of contacts transferred out to another district/province] - [number of untraceable contacts] + [number of contacts transferred in from another district]	
2. Proportion of contacts completed 14 days or until status turns to positive case	# contacts monitored / # contacts completed 14 days of monitoring + contacts tested positive	<ul style="list-style-type: none"> Determines contact monitoring rate
3. Proportion of contact referred for testing	# contacts referred for Covid-19 test (meets the PUI definition) / # contacts monitored and meets PUI	<ul style="list-style-type: none"> Monitors contact referral and testing coverage (for contacts meeting PUI)
4. Proportion of contacts lost to follow up (arbitrarily defined as not monitored for more than two days)	# contacts not seen for more than two consecutive days / # contacts to follow (stratified by geographic region, type of contact)	<ul style="list-style-type: none"> Identify areas with persistently low coverage and higher risk of spread Identify individual contacts to be located (where resources allow)
5. Proportion of contacts who become suspect cases (PUI)	# new suspect cases (PUI) / # contacts to follow up	<ul style="list-style-type: none"> Monitor contact tracing quality (having no suspect cases among contacts may suggest that contact identification and monitoring is not rigorous enough)
6. Proportion of PUI who become confirmed cases	# PUI that tested Covid-19 positive / # PUI	<ul style="list-style-type: none"> Determines positivity rate
7. Proportion of Covid-19 cases whose contacts are identified	# confirmed covid-19 cases tracked to obtain a list of their contacts / # confirmed Covid-19 cases	<ul style="list-style-type: none"> Monitors index case tracking rate
8. Proportion of contacts who become confirmed cases	# new confirmed cases / # of contacts to follow up	<ul style="list-style-type: none"> Track outbreak dynamics
9. Proportion of new cases who are known contacts	# newly confirmed cases among contacts / # newly confirmed cases	<ul style="list-style-type: none"> Track the quality and completeness of contact identification
10. Time from symptom onset to case confirmation	# hours/days between symptom onset in contact and case isolation/confirmation	<ul style="list-style-type: none"> Track the performance of contact tracing to rapidly identify cases
11. Time from case confirmation to identification of contacts	#hours/days between case confirmation and contacts identification	<ul style="list-style-type: none"> Track the performance of case confirmation to rapidly identify and trace contacts

**approved minimum set of National Indicator Data Sets (NIDS) indicators to be used but provinces can monitor more*

Epidemiological analysis of data

Epidemiological analysis is useful to support outbreak investigation. Persons who are trained in epidemiology are helpful members of outbreak investigation teams. Physicians who are trained in infectious diseases, persons who have completed field epidemiology training programmes, or infection prevention and control nurses who have been trained in outbreak investigation may conduct epidemiological analyses.

Furthermore, the National, Provincial or District Outbreak Response Team, in partnership with the WHO and the NICD, may be contacted to support epidemiological investigations. In addition, provincial epidemiologist may be assigned to assist.

As the data from the investigations of Covid-19 outbreak become available, findings should be put together using line list, epidemiological curves and timelines.

A line list of cases should be used to collate data on each Covid-19 patient. The line list can be kept in MS Excel or other spreadsheet programme, or in an application designed to record patient-level data. such as WHO Go.data. The spreadsheet should contain the data elements that are found on the Case Investigation form (**Appendix 2**) at a minimum. The spreadsheet can also include additional data on follow-up of patients, including outcome, subsequent specimens and test results.

A line list of contacts should be maintained, with the data fields found in the Contact Line list (**Appendix 3**). Fields should be added to reflect the outcome of cases after 14 days, and test results if specimens were taken.

An epidemiological curve should be constructed from the data in the line list, to display the number of cases identified on the date of symptom onset or specimen collection.

A timeline of cases and contacts locations in various settings, along with dates of positive tests and infectious periods should be created.

Finally, a transmission diagram may be generated, to indicate the pathways through which Covid-19 travelled through the various settings (see **Table 2**).

The display of data in the above ways can allow a visual sense of a clear understanding of risk infection and risk factors during various types of human-to-human contact. Each of these displays can be interpreted.

Interpretation of data

Once data has been collated and displayed visually, these data should be interpreted.

Epidemiological curves can give insight into the possible sources of cases. The shape of the epidemiological curve can be interpreted by realising that each case must have been exposed to an infected case 5-7 days prior to their symptom onset. This can give a clue as to the source of the transmission.

Timelines can show when cases and contacts shared the same house, isolation and quarantine facility or in different settings, and how they moved during their infectious periods. This can support the creation of transmission diagrams.

Transmission diagrams can identify the routes and places of transmission, and focus attention on specific places and practices which may have facilitated transmission.

IPC observation/findings in different settings (**Table 2**) can give insight into possible practices, omissions or unsafe practices that could have allowed propagation of infection.

The interpretations generated from these analyses can support formulation of hypotheses, which in turn allow for meaningful implementation of interventions to prevent future cases.

Understanding reasons for spread of transmission

Understanding reasons regarding the source and spread of Covid-19 is a process that begins from the first moment following detection of a case, and continues as more information becomes available. This understanding is based on the evidence available at the time. As more evidence becomes available from investigations, and responses, certain hypothesis are ruled out and additional hypotheses are made. As hypotheses are made, more questions arise. Information can then be gathered to support or rule out the hypotheses. Sometimes hypotheses cannot be ruled out. However, hypotheses that cannot be ruled out may give insight into gaps in IPC procedures.

In generating hypotheses, the National/Provincial/District Outbreak Investigation Team should consider all the possible sources and places of exposure in the 7-14 days prior to the index case's Covid-19 symptom onset or positive test. These may include possible exposures in the different settings such as household, isolation and quarantine facilities, health care facility itself, or other community settings such as:

- the index case's immediate family members and household,
- healthcare settings such as the health care facility,
- public or shared transport,
- other community exposures (e.g., shops, public amenities),
- workplace/s (the workstation area and communal, recreation areas at the workplace),
- Close settings (e.g., the prisons, hostels, shelters, and
- Other well-defined settings or gatherings, such as restaurants, worship, private social events).

In these settings, exposures may occur from human-to-human for example. Areas where aerosol-generating procedures are frequently performed, especially if poorly ventilated, infrequently cleaned and when people fail to perform thorough hand hygiene, no physical distancing, poor ventilation and exposure to multiple people (not wearing face covers) for extended periods of time (>15 minutes), pose a higher risk for viral transmission. Both duration and dose of viral exposure are important in considering the likely place of infection. Bear in mind that the person that infected the index case may have been asymptomatic, pre-symptomatic, mildly asymptomatic or may have had typical symptoms, and thus the index case is often unlikely to know how/where their infection was acquired. Also, the index case may have self-inoculated by touching their own nose/mouth/conjunctival mucous membranes after touching virus-contaminated surface. Shared transport to and from work may also be an opportunity for transmission.

Generation of a transmission diagrams may assist the case investigation team to develop hypotheses of the transmission source which lead to the observed transmission pathways. Review Covid-19 containment measures at different settings (**Table 2**) and each possible place where transmission could have occurred. Conduct interviews of cases and contacts and observations of IPC practice and interactions in various settings.

9. WORKFORCE FOR CONTACT TRACING

Estimating workforce requirements

Estimating workforce requirements for contact tracing depends on several factors, including the estimated number of contacts to be traced, the physical and technological logistics of reaching affected communities and contacts, cultural context, socio-political context, security concerns, and contact tracing modalities such as self-report versus in-person daily visits. The Provinces and Districts, including Sub-Districts, should review their local requirements and plan for an adequately sized workforce of contact tracers. It is important to recruit, prepare, place a sufficiently large contact tracing workforce during the early stages of the outbreak.

Profile of contact tracers

Within the surveillance pillar, it is critical to designate an epidemiologist in charge of contact tracing in each province. The role of an epidemiologist will be to coordinate contact tracing activities, including recruiting supervisors and contact tracing, setting up a mechanism of reviewing and validating lists of contacts, allocating contact tracers to supervisors and contacts to contact tracers, organising the documentation of contact tracing as well as search of contacts lost to follow-up. Ideally, if resources are available, **enrol one contact tracer for 10 contacts and one supervisor for five contact tracers.** The contact tracing supervisors are responsible for ensuring that all contacts on the line list in their designated districts are closely monitored and appropriately assessed on a daily basis. They provide linkage between the contact tracers and the surveillance focal point. Supervisors should be assigned to all contact tracing teams to allow for technical and logistics support, problem solving, and quality monitoring. The contact tracers are responsible for monitoring the contacts on a daily basis from the time of being identified as a contact until 14 days after their contact with a confirmed case. Contact tracers assess the general health status of individuals and ensure that those with symptoms are identified early to be tested

Ideally, contact tracers should be recruited from their own community and have an appropriate level of literacy, strong communication skills, local language proficiency, and an understanding of context and culture. They should be familiar with and trained on the basics of Covid-19 transmission, prevention and control measures, how to monitor signs and symptoms, as well as the ethics of public health surveillance and quarantine. The contact tracer workforce can be drawn from many settings, including local government, civil society, and non-governmental organisations, university students, community volunteers, etc. All contact tracers need to maintain a safe distance (more than one metre) when interacting with contacts or suspect Covid-19 patients, and conduct interviews preferably in well-ventilated areas or outside, as recommended elsewhere.

10. RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

To achieve an effective contact tracing programme, it is extremely necessary to engage communities about the disease, how to prevent and protect themselves, in order to suppress transmission. The Covid-19 pandemic is a rapidly evolving situation and takes on different patterns within the country and amongst communities. It is therefore imperative that risk communication and community engagement (RCCE) plans are adapted to the local context, reviewed frequently, and updated as needed.

Risk communication

For public health emergencies such as the Covid-19 pandemic, risk communication includes the range of communication actions required through the preparedness, response and recovery phases, in order to encourage informed decision making, positive behaviour change, and the maintenance of trust. The following are the key messages and information needed by different groups:

- a) *Prevention*: frequent and proper handwashing, maintaining social/physical distancing, practice respiratory hygiene, avoid touching eyes, nose and mouth and disinfecting surfaces and objects.
- b) *Early detection and diagnosis*: monitoring symptoms of Covid-19 infection such as fever, cough, difficulty breathing; including following local guidance on availability and procedures for Covid-19 testing and staying at home if feeling unwell.

Communication messages and channels must be tailored to the target population, even when the message content is essentially the same. Communication channels must be trusted by the target population. Channels can include broadcast media (TV, radio), social media (Facebook, Twitter, Instagram, blogs); websites (from trusted organisations/sources); community health boards; mobile phones; and influencers and community leaders to ensure penetration of health messages in the target community. Communication tools can include: videos, audio messages, social media cards with messages, videos, infographics, manuals, posters, folders, flyers, text messages and talks and presentations, video and audio messages.

Community engagement

Contact tracing requires individuals to agree disclosing their engagement with a known case and once they fulfil the criteria to be contact, to further agree for a daily monitoring. The main purpose for engagement with communities and their leaders include understanding risk perception and behaviours; understanding local understandings of information provided; understanding and responding to specific needs and knowledge gaps; and tailoring information to the circumstances of specific groups. The Covid-19 pandemic has resulted in a state of constant uncertainty as people face the unknown and try to find ways to cope.

Although isolation and quarantine is generally only for a relatively short period of time it still can have significant impact on a person's mental wellbeing. While in quarantine individuals may experience almost all of the mental and emotional symptoms listed when waiting for the test results. They may also experience loneliness due to isolation from others and boredom.

Recommendations for community engagement initiatives include, but are not limited to:

- *Testing, contact tracing, quarantine and isolation*: Specific models may vary, but this approach centres on coordinated efforts to identify, test and/or monitor the symptoms of anyone who may have been exposed, then conduct follow-up to monitor isolation of those who are confirmed or suspected of having the virus.
- *Physical or "social" distancing*: These measures seek to manage the risk of a likely or ongoing outbreak, and are intended to change behaviours and social practices among the general public to reduce opportunities for transmission.
- *Shielding - home or community isolation and quarantine of vulnerable groups*: These measures may be introduced in settings where contact tracing and/or widespread physical distancing are untenable. Authorities may direct isolation and/or quarantine of individuals likely at risk of more severe effects, such as the elderly, either within their homes, or in a designated area of a community.

- *Hygiene*: This encompasses behavioural changes, such as increased, proper handwashing, use of hand sanitiser, and cleaning/sanitising of surfaces in shared spaces and homes. All these measures serve as direct control measures.
- *Other social and behavioural changes*: Additional measures can be undertaken such as on wearing masks and gloves, using temperature checks to monitor potential exposure and changing burial practices.
- *Risk communication and education*: These interventions that aim to promote participation in multiple social or behavioural changes, provide general education about disease risks, and policy content, or counter misinformation, or establish trustworthy channels/communication mechanisms.
- *Community-building for social cohesion and mitigating risk of violence*: These efforts aim primarily at strengthening social ties within a community, with the aims of either promoting the social cohesion necessary to create an enabling environment for other disease control measures, or mitigating the risk of destructive secondary effects, such as intra-household or community violence.
- *Psychosocial support*: Despite being in quarantine/isolation, these usual strategies will still be effective. Helpful coping mechanisms to assist cases and contact to deal with stigma and discrimination, may include, but not limited to, interacting socially via telephone and video calls, messages, social media; keeping busy with activities that are stimulating and consuming such as games, puzzles, reading, TV, crafts; talking to someone who can provide support, or to the staff caring for the person, or to a professional and meditating or using breathing and / or relaxation techniques.

Contact tracing and associated steps, such as quarantine of contacts and isolation of cases, should not be used punitively or associated with security measures, immigration issues, or other concerns outside the realm of public health. By actively participating in contact tracing, communities will contribute to controlling local spread of Covid-19.

11. EQUIPMENT AND LOGISTICS

Contact tracing teams may require administrative material and other logistics support such as means of official identification, transport, electronic or paper materials to record information, mobile telephone, and telephone credit. Contact tracers should also be supplied with appropriate PPEs such as masks, hand sanitiser and gloves.

12. DATA PROTECTION

The ethics of public health information, data protection, and data privacy must be considered at all levels of contact tracing activities, in all training activities for contact tracing, and when implementing contact tracing tools. In particular:

- Safeguards must be in place to guarantee privacy and data protection in accordance with the prescripts of the Protection of Personal Information Act (POPIA), 2013 (Act 4 of 2013) and comply with regulations relating to the surveillance and the control of notifiable medical conditions as outlined in the National Health Act, 2003 (Act 61 of 2003).
- Everyone involved in contact tracing must adhere to the ethical principles of handling personal information, to ensure responsible data management and respect for privacy throughout the process, in terms of the regulations relating to the surveillance and the control of notifiable medical conditions.
- How data will be handled, stored, and used needs to be communicated to those concerned in a clear and transparent manner. This is important for buy-in and engagement as well as to avoid misperceptions that could jeopardise the effectiveness of a contact tracing programme.
- Digital tools used for contact tracing should be assessed before use to ensure safeguarding data protection according to national regulations.

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ANNEXURE 1: Enhanced COVID-19 Notifiable Medical Conditions (NMC) Notification Form

{Section 90 (1) (j), (k) and (w) of National Health Act, 2003 (Act no. 61 of 2003)}

This form must be completed immediately by the health care provider who diagnosed the condition. Please mark applicable areas with an X

Health facility name (with provincial prefix)		Health facility contact number		Health district	
Patient file/folder number	Patient HPRS-PRN	Date of notification		Patient residential address	
Patient demographics					
First name	Street/dwelling unit/building/ERF number		Street name, building, location description		
Surname	Sub-place, suburb, village, postal area		Town/city		
RSA ID/Passport number	Town/city		Post code:		
Citizenship	Employer/educational institution address				
Ethnic group	Black African	Coloured	Indian/Asian	White	Other
Date of birth	y	y	y	-	m
Age	Months (if less than 1 year)	Days (if less than 1 month)	Institution name		
Gender	Male	Female	Self-defined	Street name, building, location description	
Contact number	Alternative contact number		Sub-place, suburb, village, postal area		
Next of kin					
Name	Contact number	Town/city		Post code:	
Surname	Occupation				
Relationship to the patient	Unemployed	Student	Healthcare worker		
Contact number	Health laboratory worker	Other (specify)			
Medical condition details					
Medical condition	Admission status				
Was the patient previously tested for COVID-19?	Clinically required hospitalisation				
	Yes (if repeat test)	No (if first test)	Unknown		Level of care
Date of symptom onset	y	y	y	-	m
Symptoms	Fever	Sore	Cough	Shortness of breath	
	Myalgia/body aches	Diarrhea	Other	Severe ³	
Case severity	Asymptomatic	Mild ¹	Moderate ²	Date entered High Care /ICU	
Date of diagnosis	y	y	y	-	m
Method of diagnosis	Clinical signs and symptoms ONLY		Laboratory confirmed		
Source of PUI ⁴	Rapid test	X-Ray	Other	Date exited High Care/ ICU	
Name of source of PUI	Field testing	Health facility	Healthcare professional	Oxygen requirements during hospitalisation	
Patient received systemic antimicrobial treatment during hospital admission for a probable or confirmed healthcare-associated infection	Start date		Room air		
	y	y	y	-	m
	End	y	y	-	m
	Yes	No	Mechanical ventilation		
	Yes	No	Start date		
	End	y	y	-	m
	Yes	No	ECMO ⁵		
	End	y	y	-	m
	Yes	No	Start date		
	End	y	y	-	m
	Yes	No	ECMO ⁵		
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	End	y	y	-	m
	Yes	No	ECMO ⁵		
	End	y	y	-	m
	Yes	No			

Underlying factors/comorbid conditions										Hospital outcome			
		Yes	No	Unknown	Discharged		In hospital		Transferred		Died		
HIV		Yes	No	Unknown									
TB		Yes	No	Unknown									
COPD ⁶		Yes	No	Unknown									
Hypertension		Yes	No	Unknown									
Diabetes		Yes	No	Unknown									
Asthma		Yes	No	Unknown									
Obesity		Yes	No	Unknown									
Pregnancy		Yes	No	Unknown									
Cancer		Yes	No	Unknown									
Other		Yes	No	Unknown									
If other,													
If TB, is patient on TB treatment		Yes	No	Unknown									
If yes, TB treatment start date		y	y	m	-	d							
If living with HIV, is patient on ART?		Yes	No	Unknown									
If yes, is there viral suppression?		Yes	No	Unknown									
History of close physical contact with confirmed COVID-19 case in past 14 days													
Close physical contact with a known COVID-19 case		Yes	No	Unknown									
If yes, please indicate the contact setting													
Quarantine Centre	Healthcare setting				Family setting						Workplace		
Other, specify													
Notifying health care provider's details													
First name													
Surname													
Notifier's signature													
Mobile number													
Email address													
SANC/HPCSA number													

Send to MMCSurveillanceReport@nicd.ac.za or fax to 086 639 1638 or NMC hotline 072 621 3805 and to the sub-district/district office

⁶ COPD - Chronic obstructive pulmonary disease

ANNEXURE 2:

DAILY CASE MONITORING FORM (at home or in government isolation facility)



COVID-19 DAILY MONITORING TOOL FOR CONFIRMED CASE

Complete for Confirmed Case of Coronavirus disease 2019 (COVID-19) case – Version 1, 1 July 2020

Details of confirmed case (details of case to be completed just before instructions) Date completing form DD/MM/YYYY

NICD Identifier _____ Date confirmed DD/MM/YYYY

Surname _____ Name _____

Date of birth DD/MM/YYYY Age (Y) _____ Sex M F

Healthcare worker N If yes, facility name _____

Contact number(s) _____ Email _____

Physical address _____ Street _____ Province _____

House number _____ Suburb _____

District _____ Patient traced Y N Town _____

Next of Kin details

Next of Kin name and surname _____ Next of Kin contact number _____

Details of health official completing this form

Name _____ Date completing form DD/MM/YYYY

Facility name _____

Telephone number _____

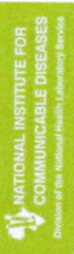
Instructions for completion: Instructions for completion: Mark "Y" if symptom present and "N" if not.

Monitoring Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Date (DD/MM/YYYY)														
Daily Measured body temperature	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
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Cough	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
Sore throat	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
Shortness of breath	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
Myalgia/body pains	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
Diarrhoea ^a	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
List of comorbidities														
Health Check (Mark "Y" for Yes and "N" for No):														
1. I am Well	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
2. I am sick, but getting better	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
3. I am getting sicker	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N

IF YES in #3, explain for doctor

ANNEXURE 3:

CONTACT LISTING FORM



COVID-19 CONTACT LINE LIST

Complete a contact line list for every person under investigation and every confirmed COVID-19 case



Details of person under investigation/confirmed COVID-19 case
 Date-symptom DD/MM/YYYY

NICD Identifier _____

Surname _____ **Onset** _____

Contact number _____ **Name** _____

Alternative number _____

Travel (provide details of all: 7 days before onset) **Bus** **Plane**

Air/bus line _____ **Flight/bus #** _____ **Seat #** _____

Details of health official completing this form **Today's date** DD/MM/YYYY

Surname _____ **Name** _____

Role _____ **Facility name** _____

Email address _____ **Telephone number(s)** _____

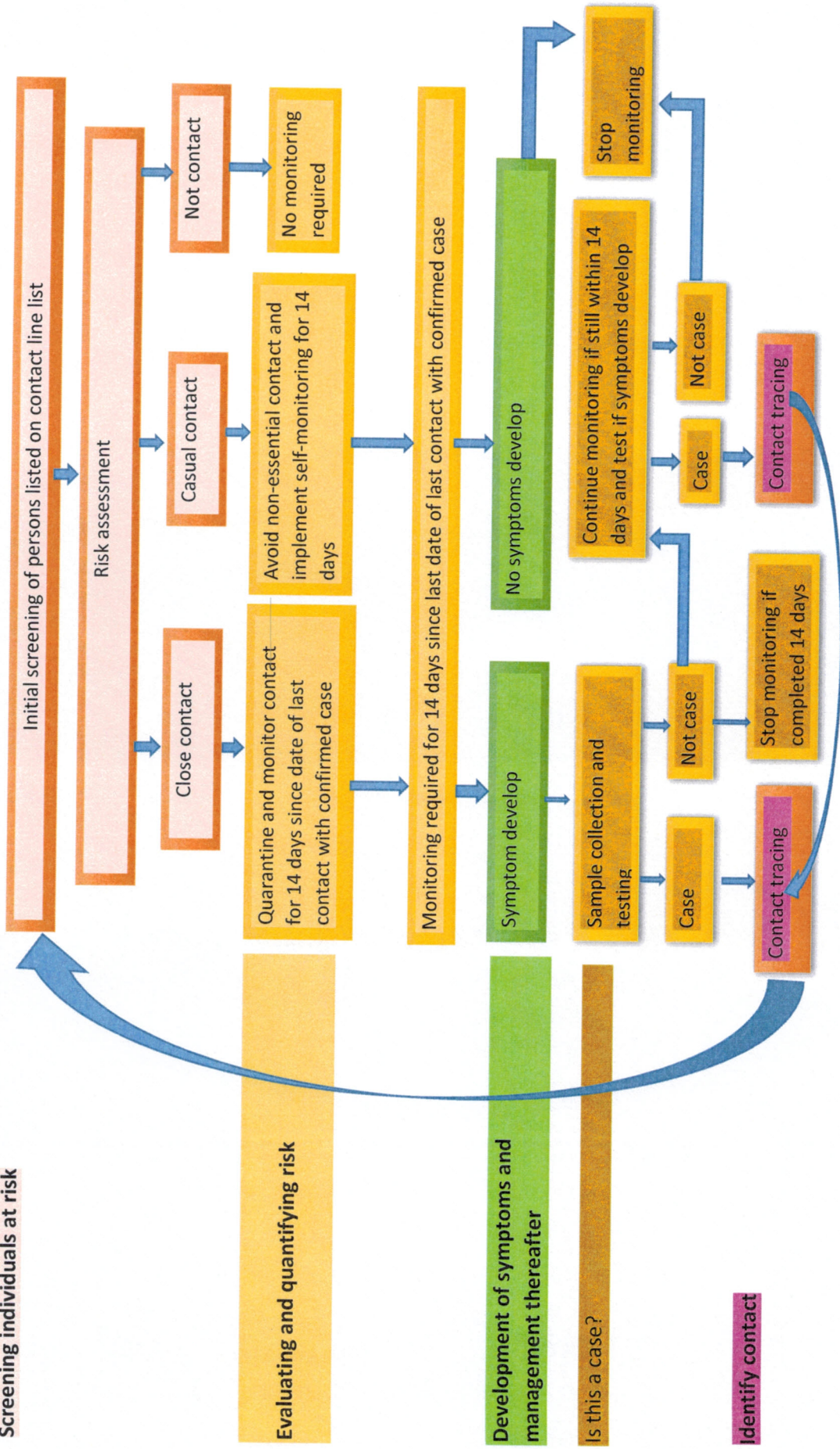
Details of contacts (With close contact¹ from the date of symptom onset, or during symptomatic illness.)

Surname	First name(s)	Sex (M/F)	Age (Y)	Relation to case ²	Date of last contact with case	Place of last contact with case (Provide name and address)	Residential address (for next month)	Phone number(s), separate by semicolon	HCW? ³ (Y/N) If Yes, facility name
1					DD/MM/YYYY				
2					DD/MM/YYYY				
3					DD/MM/YYYY				
4					DD/MM/YYYY				
5					DD/MM/YYYY				
6					DD/MM/YYYY				
7					DD/MM/YYYY				
8					DD/MM/YYYY				

Myalgia/body pains	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
Diarrhoea ³	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
List of underlying diseases such as hypertension, diabetes, cerebrovascular disease, corona heart disease, asthma, corona heart disease, asthma, chronic bronchitis, lung cancer, chronic liver disease, liver cancer, chronic kidney disease, immunodeficiency, etc	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
If symptomatic, date specimen collected	Covid-19 Lab Results: <input type="checkbox"/> Positive <input type="checkbox"/> Negative														

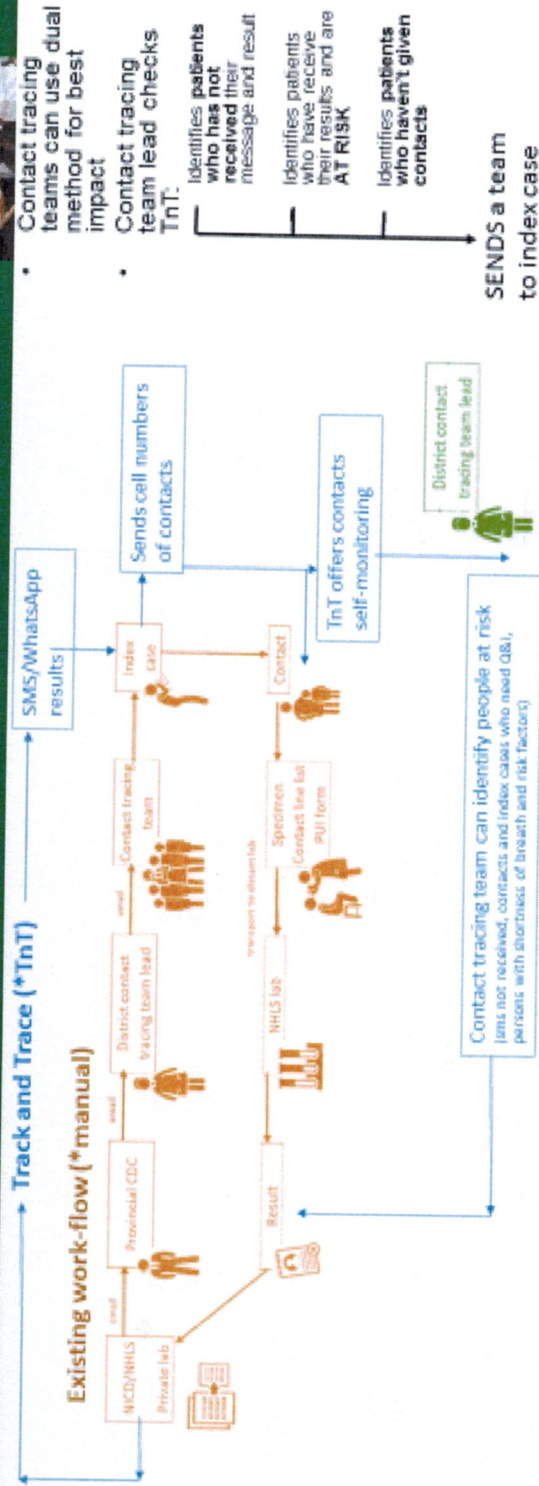
Note: This table is intended for use by the healthcare workers performing contact monitoring on the close contacts of Covid-19 cases and asymptomatic infected person.

ANNEX 5: CONTACT TRACING FLOW DIAGRAM
Screening individuals at risk




ANNEXURE 6: INTERFACE BETWEEN COVID-19 TRACK AND TRACE WITH CONTACT TRACING WORKFLOW

Where does it interface in contact tracing workflows?



- Contact tracing teams can use dual method for best impact
 - Contact tracing team lead checks TnT:
 - Identifies patients who has not received their message and result
 - Identifies patients who have receive their results and are AT RISK
 - Identifies patients who haven't given contacts
- SENDS a team to index case



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TnT supports the districts to take "short cuts" in the contact tracing process