

INFECTION PREVENTION AND CONTROL

**RECOMMENDATIONS DURING
HEALTH CARE PROVISION FOR SUSPECTED
AND CONFIRMED CASES OF COVID-19**

NCDC INTERIM GUIDANCE (Version 2)

This guidance is intended for all healthcare workers (HCWs), facility management team and Infection Prevention and Control (IPC) teams at all levels of healthcare in Nigeria

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INTRODUCTION

BACKGROUND OF CORONAVIRUS DISEASE (COVID-19)

This is the second edition of the guideline on infection prevention and control (IPC) during provision of health care for COVID-19 cases. Coronavirus disease (COVID-19) is caused by an emerging strain of the Severe Acute Respiratory syndrome corona virus 2 (SARS-Cov-2) that has not been previously identified in humans.¹

Person-to-person transmission has been established between people who are in close contact with one another (within about 1.5 meters/6 feet), primarily via respiratory droplets. Droplet transmission occurs when respiratory droplets generated via coughing, sneezing or talking get in contact with susceptible mucosal surfaces, such as the eyes, nose or mouth. Transmission may also occur indirectly via contact with contaminated fomites by the hands and then transferred to mucosal surfaces. Respiratory droplets are generally large and are not able to remain suspended in the air thus they gravitationally settle quickly over short distances.¹ In this document, the term droplet refers to droplets $>5 \mu\text{m}$ in diameter that fall rapidly to the ground under gravity, and therefore are transmitted only over a limited distance (e.g. $\leq 1 \text{ m}$).

This document has been developed as a guide to improve Infection prevention and control during health care for cases of COVID-19.

Key IPC strategies to limit or prevent transmission of COVID-19 in healthcare settings

The response to the COVID-19 outbreak must be optimal using certain strategies and practices which are outlined in this document, a facility level IPC programme with a dedicated and trained team or at least an IPC focal point should be in place.⁴

The five IPC strategies required to prevent or limit transmission of COVID-19 in health care facilities include the following⁶

1. Early recognition and source control of COVID19.
2. Apply standard precautions for all patients at all times
3. Implement empiric additional precautions

4. Implement administrative controls.
5. Use of environmental and engineering controls including ventilation.

1. Early recognition and source control

The Screen, Isolate and Notify (S-I-N) approach

One of the most critical actions for the prevention and control of COVID-19 is to identify cases early and separate such patients from others who are not infected.

Every patient coming to a health facility during this COVID-19 outbreak period must be **screened** for the disease using the case definition, and patients suspected of having COVID-19 should be isolated from other patients and the appropriate authorities **notified**.⁵

How to SCREEN Individuals for COVID-19

This should be done using the case definition for COVID-19

Case Definition for COVID-19.

Suspected Case

Any patient with acute respiratory illness (acute respiratory illness in an area of moderate or high COVID-19 prevalence with no other explanation) within the last 10 days (fever and either cough, difficulty breathing or shortness of breath); AND in absence of an alternative diagnosis that explains the clinical presentation AND residing or working in the last 14 days in an area identified by NCDC as a moderate or high prevalence region.

This is the case definition as at September 2020, however this could be updated as the need arises. Updated versions of the case definitions of COVID-19 can be found via the link: https://covid19.ncdc.gov.ng/media/resources/Case_Definition_RQ8qzer.pdf

How to Screen

- Set up a triage station at points of entry of the healthcare facility (Accident and emergency, outpatient clinics, antenatal clinics, etc.).
- Ask questions based on case definition to obtain relevant history
- Take temperature reading
- Maintain a screening register
- Maintain a distance of at least 1.5m from patients and between patients at all times
- Waiting room chairs for patients should be 1.5m apart
- Maintain a one-way flow for patients

- Provide clear signage for symptoms and directions
- Family members and visitors should wait outside the triage area to prevent overcrowding and should be oriented on preventive measures during the waiting period.
- Observe for cough:
 - If patient is coughing or sneezing; fast track patient for consultation, educate on coughing or sneezing into disposable tissue or into inner crook of his bent elbow.
 - If tissue is used this should be discarded immediately and hand hygiene performed.
 - Give a medical mask to patient for use and educate them on how to use it properly.
 - Ensure patient performs hand hygiene after sneezing or coughing and disposal of used tissue.
 - Educate patient on NOT coughing or sneezing into the hands.

Materials needed for triage: The following materials should be provided in the triage area

1. Screening questionnaire according to the case definition of suspected cases of COVID-19
2. The triage algorithm
3. PPE (gloves, Medical/Surgical mask, gown)
4. Disposable tissue (For patients)
5. Hand hygiene equipment (alcohol-based hand rubs, soap and running water) and hand hygiene posters
6. Infrared thermometer
7. Waste bins
8. Materials for cleaning and disinfection

If patient does not meet the case definition for suspected case of COVID-19, then he/she should continue to access routine care in the healthcare facility with standard precautions applied at all times.

ISOLATE suspected cases (S-Isolate-N)

IF the patient meets the case definition, s/he is a suspect case and should be immediately isolated.

- Once identified at screening as a suspected case, the patient should be moved immediately to a holding area for further evaluation and arrangements made to collect sample for laboratory confirmatory test.
- Isolate the patient in a well-ventilated room, windows open to the outside with doors closed.⁹
- Arrange for commencement of further care if need be and for transportation to a designated COVID-19 treatment center.
- Ensure there is a register outside the door. ALL healthcare workers (HCW) that enter the room must fill the register, providing the following details: name, address, phone number, time of entry, time of exit as well as reason for entry.

Infection Prevention and Control recommendations during Health Care when COVID-19 infection is suspected

- Limit the number of people accessing the room and assign a dedicated HCW to the room.
- The room must have the appropriate signage (Contact and Droplet precautions) and have facilities for respiratory hygiene, hand hygiene and safe waste disposal.

Materials needed for holding/isolation area

1. PPE (gloves, Medical/Surgical mask, gown) – before entry into room
 2. Hand hygiene equipment and posters
 3. Dedicated medical equipment for care of patient in isolation (e.g. infra-red thermometers, sphygmomanometers, oto/auriscope etc.)
 4. Waste bins with liners
 5. Materials for cleaning and disinfection
 6. If samples for laboratory testing are to be collected here, then N-95 masks should also be available before entry into the room
- A trained clinician wearing appropriate PPE based on risk assessment (Medical mask, gloves and gown) should evaluate patient for more information about potential exposures, symptoms and possible alternative diagnosis and verify if the patient meets the definition for a suspected case of COVID-19. The clinician must always adhere to the five moments of hand hygiene and must avoid touching his/her face or adjusting PPE.
 - After assessing the patient, the clinician must follow the steps for safely doffing and disposing the PPE.
 - Use dedicated medical equipment for care of patient in isolation (thermometers, cutlery, sphygmomanometers etc.) All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected appropriately
 - Clean stethoscopes with alcohol in-between use for patients
 - Ensure that appropriate environmental cleaning and disinfection procedures are followed consistently and correctly.

While in Isolation, do the following for the patient:

- Explain the reasons for the isolation/holding and ensure patient understands by repeating the reasons
- Explain the procedures you are following with respect to controlling transmission to the family, healthcare workers and the community
- Educate the patient on respiratory hygiene and cough etiquette
- Give the patient a medical mask and make sure he/she understands how to use it.

Notification (S-I-Notify)

- Notify appropriate authority (Local Government Area Disease Surveillance and Notification Officer (DSNO), State DSNO or State Epidemiologist) about any suspected case
- DO NOT wait for laboratory confirmation before notification. Call NCDC Toll free number: **0800-97-0000-10**
- Make every effort to reduce the waiting time between first contact with the patient and notification/transfer; ideally it should be immediate.

2. Always apply standard precautions for all patients

Standard Precautions

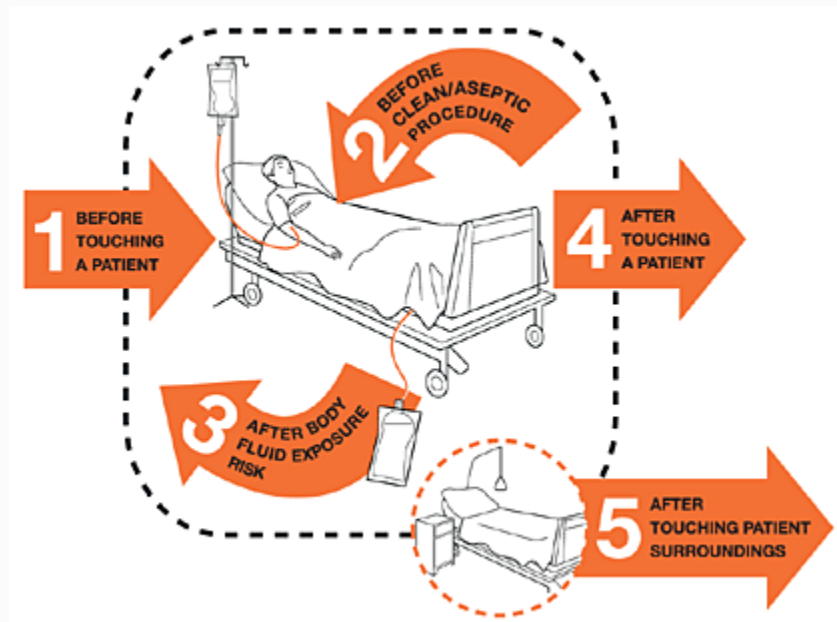
The goal of standard precautions is to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection. They should be adhered to at all times and should become second nature as part of healthcare practice. When correctly implemented, the spread of COVID-19 can be prevented or at least decreased.⁷

Elements of Standard Precautions which are important in the care of patients with respiratory infections, including those caused by COVID-19, are:

Hand hygiene

Hand hygiene is one of the most effective measures to prevent the spread of COVID-19 and other pathogens. For optimal hand hygiene performance, health workers should apply the following principles:^{11,12}

- Perform hand hygiene according to the WHO's "My 5 Moments for Hand Hygiene":²
 1. Before touching a patient
 2. Before any clean or aseptic procedure is performed on patient
 3. After exposure to body fluid
 4. After touching a patient
 5. After contact with patient's surroundings



- hand hygiene includes either cleansing hands with an alcohol-based hand rub (ABHR) containing at least 70% alcohol, or with soap, under running water and drying with disposable towels;
- alcohol-based hand rub products are preferred if hands are not visibly soiled;
- wash hands with soap and water when they are visibly soiled;
- use the appropriate technique and duration for performing hand washing or hand rubbing.

Respiratory hygiene

Ensure that the following respiratory hygiene measures are used:

- display graphic information on the need to cover nose and mouth with a tissue or bent elbow when coughing or sneezing;
- perform hand hygiene after contact with respiratory secretions or objects that may be potentially contaminated with respiratory secretions;
- give patients with suspected COVID-19 a medical mask to wear.

Use of PPE

Please refer to the NCDC guideline on PPE recommendation during provision of care of a suspected or confirmed case of COVID-19 on the NCDC website (www.ncdc.gov.ng)

Environmental cleaning

Cleaning and disinfection procedures should be done consistently and correctly. All surfaces in health-care facilities especially high-touch surfaces, should be routinely cleaned and disinfected, and whenever visibly soiled or if contaminated by body fluids.¹⁶

In settings where suspected or confirmed COVID-19 patients are admitted, frequency depends on number of patients, type of patient areas and surfaces. Detailed guidance on environmental cleaning and disinfection in the context of COVID-19 is available from WHO.¹⁷

In summary, to clean environmental, non-porous surfaces effectively:

- 1) clean surfaces thoroughly with water and detergent;
- 2) apply a disinfectant solution. For COVID-19, use either 0.1% sodium hypochlorite or 70-90% ethanol. However, if there are large spills of blood or body fluids, a concentration of 0.5% sodium hypochlorite should be used¹⁷
- 3) contact time of a minimum of 1 minute is recommended for ethanol, chlorine-based products and hydrogen peroxide $\geq 0.5\%$ ¹⁸
- 4) after appropriate contact time, disinfectant residue may be rinsed off with clean water if required.¹⁶

Waste management

Health-care waste produced during the care of patients with suspected or confirmed COVID-19 is considered to be infectious and should be collected safely in clearly marked lined containers and sharp safe boxes.¹⁹

To safely manage health-care waste, facilities should:

- assign responsibility and adequate human and material resources to segregate and dispose of waste;
- treat waste preferably on-site, and then safely dispose of it. If waste is moved off-site, it is critical to understand where and how it will be treated and disposed.
- use appropriate PPE (boots, long-sleeved gown, heavy-duty gloves, mask, and goggles or a face shield) while managing infectious waste and perform hand hygiene after taking off the PPE;⁶
- prepare for increases in the volume of infectious waste during the COVID 19 outbreak, especially through the use of PPE.

3. Implement empiric additional precautions

Contact and droplet precautions for all patients with suspected or confirmed COVID-19.

Additional precautions are implemented “in addition” to standard precautions. These are contact, droplet and airborne precautions.

Every case of COVID-19 should in addition to other treatment measures be hospitalized and isolated under **droplet and contact precautions**.⁸

Staff attending to COVID-19 patients should wear appropriate PPE based on risk assessment.

More information is provided via this link:

<https://covid19.ncdc.gov.ng/media/files/UseOfPPEnew.pdf>

Other precautions to be taken include:

Avoid touching eyes, nose or mouth with contaminated gloved or ungloved hands.

Suspected COVID-19 patients should be placed in a single, well ventilated room, when possible. If single rooms are not available, separate patients from others by at least 2m and use hospital blinds to separate patients⁹; HCWs are strongly advised to ensure strict adherence to transmission-based precautions

Ensure patient remains within the confines of the isolation environment with limited external movement. If transport/movement is required, ensure that the patient uses a medical mask and convey patient through predetermined transport routes which minimizes exposure to staff, other patients and visitors.

Ensure there are materials for hand hygiene according to the “5 Moments” as itemized on page 6.¹²

Appropriate equipment for cleaning, disinfection, and sterilization should be provided.

Avoid contaminating surfaces not involved with direct patient care (e.g. door handles, light switches, mobile phones), these are frequently touched areas - attention should be paid to these surfaces. Cleaning staff should wear appropriate PPE used for routine cleaning.

Environmental cleaning should be done at least twice daily using detergent and water followed by disinfection with 0.05% chlorine solution.

Airborne precautions in COVID-19 are recommended **ONLY** for aerosol generating procedures **such as:** tracheal intubation, airway suctioning, bronchoscopy, cardiopulmonary resuscitation – pressure on the chest during cardiopulmonary resuscitation may induce production of aerosols.

Place patient in single room with adequate ventilation: natural ventilation with wide open windows that open to the outside, away from other wards with doors closed and preferably with an anteroom. Rooms should provide air flow of at least 160 L/s per patient and 12 air exchanges per hour. The direction of air flow should be controlled, and the air should flow away from the healthcare worker towards the patient and not from the patient towards the healthcare worker.⁹

The Health care worker should put on N-95 respirator, gown, gloves, goggles, or face shield.

N95 must not be removed until the healthcare worker is outside the patient’s room with the door closed.

All other precautions that apply in contact and droplet precautions should also be maintained.

4. Implementing administrative controls

All healthcare facilities in Nigeria must ensure that they have an IPC programme, with their healthcare workers adequately trained on basic IPC procedures and able to implement standard precautions as well as droplet and contact precautions. All facilities must provide the supplies, equipment, information leaflets and posters needed to assist healthcare workers and visitors adhere to IPC requirements.

The Health facility management team must:

- Ensure facility has identified triage areas
 - Provide adequate quantities as well as appropriate supplies for prevention of disease transmission e.g. Medical masks, certified N95 masks, gloves, hand hygiene equipment, respiratory hygiene and waste disposal materials etc.
 - Provide appropriate signage as needed
- Provide appropriate isolation/holding rooms
 - Restrict healthcare workers from entering the rooms of COVID-19 patients if they are not involved in direct care.
 - Consider bundling activities to minimize the number of times a room is entered (e.g., check vital signs during medication administration or have food delivered by healthcare workers while they are performing other care) and plan which activities will be performed at the bedside.
 - Visitors will not be allowed but if this is not possible, restrict number of visitors and time spent by allowed visitors in areas where COVID-19 patients are being isolated. Provide clear instructions to all visitors about how to put on and remove PPE and perform hand hygiene to ensure they avoid self-contamination⁹
- Train and Educate Healthcare Workers
 - i. Provide HCWs with job- or task-specific education and training on preventing transmission of COVID-19.
 - ii. Ensure that HCW are educated, trained, and practice the appropriate use of PPE prior to caring for a patient. They should also ensure prevention of contamination of clothing, skin and environment during the process of healthcare delivery.

- Monitor and ensure Management of ill and exposed Healthcare Personnel and inform the NCDC of all healthcare worker infections
- Report all suspected and confirmed cases in healthcare facilities to the State Epidemiologist or DSNO and NCDC.

5. Use of Engineering and Environmental controls including ventilation

Control strategies such as adequate spatial separation of patients, adequate ventilation and appropriate cleaning of the environment should be implemented. Recent studies suggest that COVID -19 could be airborne, therefore, the control and prevention of COVID 19 transmission requires the control of air flow with use of specially designed ventilation systems in addition to standard precautions.

The following engineering controls should be put in place

- Provide isolation rooms that are well ventilated (wide open windows that open to the outside, away from other wards with doors closed and preferably with an anteroom. Rooms should provide air flow of at least 160 L/s per patient with at least 12 air exchanges per hour and controlled direction of air flow (air flow should be away from the healthcare worker towards the patient to the outside through the open window. Air should not flow from the patient's room into the hallway or other rooms/wards.⁹
- Provide physical barriers or partitions to guide patients through triage areas,
- Provide closed suctioning systems for airway suctioning for intubated patients.

Environmental Infection Control

- Dedicated medical equipment should be used for patient care.
- All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected appropriately in between patients.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.
- There should be no sweeping of either holding areas or isolation units, wet cleaning is the rule of thumb.
- Routine cleaning with detergent and water and disinfection procedures (use of cleaning agent and water to clean surfaces prior to use of 0.05% Chlorine solution to clean frequently touched surfaces and floors) are appropriate for COVID-19 in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.
- Ensure that chlorine solution is appropriately diluted and unused diluted solution must be discarded after 24hours.

IPC during sample collection from suspected or confirmed COVID-19 patients

All specimens collected for laboratory investigations should be regarded as potentially infectious. Health workers who collect, handle or transport any clinical specimens should adhere to the following measures and biosafety practices to minimize the possibility of exposure to pathogens.²⁰

- ensure that health workers who collect specimens, including nasopharyngeal and oropharyngeal swabs, use appropriate PPE (i.e. eye protection, a medical mask, a long-sleeved gown and gloves).
- document clearly patient's full name, date of birth and clinical diagnosis of the suspected case of COVID-19 on the laboratory request form. Notify the relevant laboratory as soon as possible that the specimen is being transported.
- ensure that all personnel who transport specimens are trained in safe handling practices and spill decontamination procedures;^{16,17} specimens should be delivered by hand whenever possible. Do not use pneumatic-tube systems to transport specimens.
- specimens should be triple packaged, and a clearly written laboratory request form attached
- ensure that laboratories in health-care facilities adhere to appropriate biosafety practices and transport requirements

Considerations for surgical procedures

Decision on whether to operate on a patient should not be based on the patient's COVID-19 status but on need (e.g. trauma or emergency), the risks and benefits of surgery (e.g. life-threatening outcomes or patient harm if surgery is delayed), and patient clinical conditions. Recent data point to a high proportion of post-operative pulmonary complications associated with increased mortality in patients with COVID-19. In the context of the COVID-19 pandemic, every surgical procedure may entail risk for both health workers and patients.²¹

The following should be considered before performing a surgical procedure:

General considerations

- consider whether non-surgical interventions or treatments could be an alternative;
- postpone elective surgery in areas with community transmission to minimize the risk to the patient and medical staff, and also to increase capacity in terms of patient beds, beds in intensive care units, and ventilators during the outbreak; if the surgical procedure cannot be postponed, a careful risk assessment should be done to screen patients for COVID-19 symptoms, signs and exposure history;
- patients with sign and symptoms of COVID-19 should be tested for the virus. However, emergency surgery should not be delayed if this test is not available and IPC precautions should be informed by a careful COVID-19 risk assessment,²¹

- depending on the local testing capacity and intensity of transmission in the area, some healthcare facilities may consider testing of surgical patients for COVID-19 before the surgical procedure, regardless of risk assessment for COVID-19. However, there are several limitations with this practice:
 - delays in the results may impact time-critical surgical procedure and increase morbidity and mortality.
 - negative results during the incubation period, and patients may become infectious later.
 - false-negative test results depending on the test method used.
 - false reassurance if test is negative leading to less stringent adherence to IPC measures
 - a positive molecular assay test, which may remain positive for 6–8 weeks due to viral shedding even if no viable viral particle present can lead to delays in necessary surgeries.
- if the urgency of the surgical procedure does not allow sufficient time for testing or if testing is unavailable, patients with signs of COVID-19 should undergo chest-X-ray, chest computerized tomography (CT) or chest ultrasound, if available, as an early diagnostic tool and as a baseline to monitor patient.

Surgical procedures in suspected or confirmed COVID-19 patients

- When surgical procedures in COVID-19 patients cannot be postponed, surgical staff in the operating room should use contact and droplet precautions that include sterile medical mask, eye protection (i.e. face shield or goggles), gloves and gown (apron may be required if gowns are not fluid resistant and surgical staff will perform a procedure that is expected to generate high volume of fluid).
- A particulate respirator (i.e. N95, FFP2 or equivalent) should be used instead of a medical mask if an aerosol generating procedure (AGP) is to be carried out or if the procedure involves anatomic regions where viral loads of the virus may be higher (e.g. nose, oropharynx, respiratory tract).²²
- COVID-19 patients should wear a medical mask while being transported to the operating room, if tolerated.
- transport staff should use contact and droplet precautions when transporting suspected or confirmed COVID-19 patients to the operating room.
- ideally, a negative pressure room should be used for anesthesia and intubation, if available, and health workers should wear a particulate respirator in addition to eye protection, gown and gloves. However, if a negative pressure room is not available, intubation should occur in the operating room where the surgical procedure will be performed, and a particulate respirator should be worn by health workers in the room.²²
- one or more operating rooms for surgical procedures of COVID-19 patients could be identified. These rooms should ideally be in the far corner of the surgery floor to avoid areas with a high flux of staff, and can also be used for surgical procedures of other patients, if it cannot be dedicated to COVID-19 patients, after terminal cleaning;²¹
- surgical staff in the room should be limited to essential personnel.

- operating rooms that were built to applicable design code should already have a high ventilation rate and their doors should always remain closed during procedures;
- terminal cleaning should be performed after each surgical procedure, in accordance with cleaning and disinfection recommendations for COVID-19;
- all surgical instruments should undergo standard transport, cleaning and sterilization procedures. Medical masks, eye protection, gloves and gowns should be worn by personnel responsible for cleaning these instruments prior to sterilization.

Surgical procedures in patients whose COVID-19 status is unknown

- In areas with community transmission, transport staff should wear a medical mask when transporting patients to the operating room. Health-care facilities in areas of community transmission may also consider the use of medical masks by patients who are not intubated and can tolerate their use while being transported to the operating room.²³
- contact and droplet precaution should be applied by surgical staff.

Recommendation for outpatient care

IPC and standard precautions should be applied in all health-care facilities, including outpatient settings and primary care.¹⁴ Also, considerations should be made to provide alternatives to face-to-face outpatient visits using telemedicine (e.g. telephone consultations) to provide clinical support without direct contact with the patient.¹⁵ Where this is not possible, patients should present themselves at the health facility and all recommendations in this document be adhered to.

Safe management of the dead

Health workers are expected to do a basic evaluation and risk assessment before undertaking any activity related to the management of suspected or confirmed COVID-19 fatality and follow WHO's IPC guidance for safe management of dead bodies in the context of COVID-19.¹⁶ Health workers should:

- perform hand hygiene before and after handling the body
- use appropriate PPE based on the level of interaction with the body and risk assessment (e.g. use of eye protection and medical masks in addition to gloves and fluid-resistant gown or apron, if there is a risk of body fluids splashes while handling the body)
- ensure that any body fluids leaking from orifices are contained and cover/wrap body in cloth before transfer to mortuary or burial area
- do not engage in any other activity during body handling or preparation
- disinfect any non-disposable equipment used during handling of the body as per WHO guidance on cleaning and disinfection in the context of COVID-19
- correctly remove and dispose of PPE

Detailed information on safe management of the dead can be found on the website: https://covid19.ncdc.gov.ng/media/files/MgtOfDeadBodies_eIVlwls.pdf

Monitoring and evaluation of IPC practices

A set of process, output and outcome key performance indicators (KPIs) are recommended in the Strategic Preparedness and Response Plan Monitoring and Evaluation Framework.²⁴

Correct implementation of IPC measures will minimize the spread of the COVID-19 virus in health-care facilities.

Several tools have been developed for health-care facilities and public health stakeholders to assess the extent to which health-care facilities are ready to identify and safely manage patients with COVID-19, also to monitor and evaluate implementation of IPC measures. Health-care facilities should consider using these tools to identify IPC gaps and to monitor progress in addressing them. They include:

1. COVID-19 IPC score card
2. Check list to audit the S-I-N approach for COVID-19 at health facilities
3. 2019 Novel Coronavirus Infection, Prevention and Control (IPC) Preparedness Checklist
4. COVID-19 infections in healthcare worker investigation form
5. COVID-19 isolation and treatment facility IPC assessment survey tool
6. IPC assessment checklist for level 1 and 2 isolation facilities
7. Check list for facility assessment on IPC provisions for housing high risk contacts, suspected/ mild confirmed COVID-19 cases (hotels, holding facilities, camps e.t.c)
8. COVID-19 infection surveillance tool amongst Healthcare workers
9. Screening register for COVID-19 infection in healthcare and community settings

These tools can be accessed via the link: www.ncdc.gov.ng

In summary we wish to state that the disease is still evolving and we are daily following and learning from global trends and scientific evidence coming out to refine our recommendations.

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