

# **NIGERIA SOCIETY OF PHYSIOTHERAPY**



## **RECOMMENDATIONS ON MANAGEMENT OF CORONAVIRUS DISEASE – DEVELOPED BY CARDIOPULMONARY SPECIALTY GROUP (NSP CSG)**

## **Background**

The Nigeria Society of Physiotherapy (NSP) fully recognizes the current global burden associated with the coronavirus disease 2019 (COVID-19) outbreak and advises its members to remain resilient and contribute their part in primary and secondary prevention of the pandemic. Coronaviruses are a family of viruses that includes the common cold, SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome). The most recent COVID-19 outbreak involves a new strain that previously had not been identified in humans.

The first report of a human coronavirus was in 1965 when Tyrrell and Bynoe (1965) isolated a virus from the nasal washings of a male child and was named corona virus denoting a crown-like appearance of the surface projections. In 2002-2003 a new severe acute respiratory syndrome developed. The current COVID-19 virus was first discovered in December 2019 in Wuhan China (Singhal, 2020) where it was declared as an epidemic and later recognized as a pandemic.

Coronavirus disease 2019 recently termed COVID-19 by the World Health Organization is a disease that mainly affects the respiratory system causing severe acute respiratory distress. The disease can be transmitted from an infected person via respiratory droplets or sneezing. The virus can also persist on surfaces for varying lengths of time. Some of its symptoms include dry cough, sore throat, sneezing, fatigue, body pains, fever and respiratory distress in more severe cases. One of the most important ways to curb the spread of the virus is to practice frequent hand washing, cleaning the hand with an alcohol based sanitizer and social distancing. Maintaining adequate preventive measures against COVID-19 is paramount in curtailing the spread of the pandemic while at the same time ensuring that those without the virus and those with mild and severe cases have adequate holistic intervention.

Physiotherapists must familiarize themselves with the virus as the prevention of its transmission is a duty that they owe not only to themselves, their families and patients but also the public at large. The public is becoming increasingly aware of the vital role physiotherapy plays in the management of a number of diseased conditions. The physiotherapists' physical closeness (frequent direct contact) with their patients places them in a position to notice easily the presence of infectious diseases. The downside is that they are at an extreme risk of the transmission of such diseases. It is the responsibility of the NSP to support its members (Physiotherapists), clients, patients, and members of the public by educating them on ways to protect themselves in

an effective and responsible manner. Physiotherapists as clinical decision makers must, also, apply their professional judgment and skills to be part of the management of persons afflicted by the COVID-19.

## **Prevention**

The NSP has recommended that emphasis be placed on the following practices for clinical staff to prevent or minimize the transmission of COVID-19:

- Adopt hand hygiene
  - Provide alcohol-based hand sanitizers and/or hand washing stations are within the department.
  - Wash the hands upon entry into the department/ICU/ward as well as before and after contact (assessment/treatment) with each patient. The patients should be told to do the same thing.
  - Wash the hands on leaving the department/ICU/ward and on arrival back at home. The patients should be told to do the same thing.
  - Use an alcohol-based hand sanitizer if hands are not visibly dirty or with soap and running water (for at least 20 seconds) if hands are dirty. Allow the hands to air dry.
  - Clean and disinfect frequently touched objects and surfaces (e.g. buttons, handles and knobs).
- Promote respiratory hygiene
  - Cough or sneeze into tissue and then immediately dispose of the tissue.
  - Avoid exposure to respiratory secretions. If you experience respiratory symptoms, wear a medical mask and perform hand hygiene after disposing of the mask.
  - If you have a fever, cough and have difficulty breathing seek medical care.
  - Provide adequate drinking water. Adhere to the recommended daily intake of water.
- Provide information/education
  - Maintain (a minimum of 1 meter) and according to the CDC at least 2 meters from individuals with respiratory symptoms.
  - Avoid touching your eyes, nose and mouth with unwashed hands. Remind your patients about the importance of adhering to this.

- Schedule appointments and undertake physical assessments only where necessary and with caution. Control the number of patients in the department on any day by adequately spacing appointments. Focus more on home programme to reduce the number of treatment sessions/contact frequency in the department. Come up with a modified duty roster to reduce the number of physiotherapists in the department on any day.
- Arrange for all physiotherapists to receive training from physiotherapist intensivists to contain any eventuality that will warrant the need for more front line clinicians.
- Adhere strictly to the infection prevention and control protocols in your practice setting and communicate these protocols to all staff. These protocols must be appropriately written and displayed conspicuously in the department at strategic locations such as receptions and patient waiting areas.
- Place additional signage in and around the department/clinic to encourage regular hand washing, respiratory hygiene and other basic protective measures. The NSP recommends that this signage be translated into the local language spoken by the majority of the people.
- Ensure regular cleaning and disinfection of the clinic and equipment, especially after attendance by a confirmed or suspected COVID-19 patient.
- Share educational messages with patients on prevention of transmission of the virus. This should be done at any opportunity to interact with a patient.
- Stay up to date with the latest information on the COVID-19 outbreak through WHO updates or your local and national public health authority.
- Liaise with local public health specialists to keep up to date with local guidelines.
- Hold regular team meetings with staff to review this information and provide any updates.
- Provide health maintenance strategies for patients isolated in quarantine as the promotion of health at these times is vastly beneficial. Offer advice on how to perform appropriate physical exercise, maintain good sleep hygiene and good nutrition which are essential for boosting immunity.
- Initiate early identification strategies
  - Physiotherapists should undertake active screening (asking questions) and passive screening (signage) of patients for COVID-19. Patients should be asked if they

have such symptoms as cough, fever, shortness of breath, frequent sneezing, nasal discharge and so forth.

## Management

### Acute Care

Some patients with COVID-19 infection may experience more severe symptoms and will need to be hospitalized, most often with lower respiratory tract disorder (particularly pneumonia). In some instances, the disorder may progress to severe pneumonia, acute respiratory distress syndrome, sepsis and septic shock (Kluge, Janssens, Welte, Weber-Carstens, Marx & Karagiannidis, 2020). In these cases, the physiotherapist may find themselves involved in the respiratory care of the patient. Table 1 displays the screening guidelines for physiotherapists involved with management of the infection while Tables 2a and 2b provide the principles of physiotherapy management.

Table 1: Screening guidelines for physiotherapy involvement with COVID-19

<b>COVID-19 patient presentation (confirmed or suspected)</b>	<b>Physiotherapy referral?</b>
Mild symptoms without significant respiratory compromise e.g. fevers, dry cough, no chest x-ray changes.	Physiotherapy interventions are not indicated for airway clearance or sputum samples (Queensland Health, 2020) No physiotherapy contact with patient.
Pneumonia presenting with features: • a low-level oxygen requirement (e.g. oxygen flow $\leq 5L/min$ for $SpO_2 \geq 90\%$ ). • non-productive cough • or patient coughing and able to clear secretions independently.	Physiotherapy interventions are not indicated for airway clearance or sputum samples. No physiotherapy contact with patient.
Mild symptoms and/or pneumonia AND co-existing respiratory or neuromuscular comorbidity e.g. Cystic Fibrosis, neuromuscular disease, spinal cord injury, bronchiectasis, COPD) AND current or anticipated difficulties with secretion clearance	Physiotherapy referral for airway clearance. Staff use airborne precautions. Where possible, patients should wear a surgical mask during any physiotherapy.
Mild symptoms and/or pneumonia AND evidence of exudative consolidation with difficulty clearing or inability to clear secretions independently e.g. weak, ineffective and moist sounding cough, tactile fremitus on	Physiotherapy referral for airway clearance. Staff use airborne precautions. Where possible, patients should wear a surgical mask during any physiotherapy.

chest wall, moist/wet sounding voice, audible transmitted sounds.	
Severe symptoms suggestive of pneumonia/lower respiratory tract infection e.g. increasing oxygen requirements, fever, difficulty breathing, frequent, severe or productive coughing episodes, chest x-ray/CT/lung ultrasound changes consistent with consolidation.	Consider physiotherapy referral for airway clearance. Physiotherapy may be indicated, particularly if weak cough, productive and/or evidence of pneumonia on imaging and/or secretion retention. Staff use airborne precautions. Where possible, patients should wear a surgical mask during any physiotherapy. Early optimisation of care and involvement of ICU is recommended
Any patient at significant risk of developing or with evidence of significant functional limitations • e.g. patients who are frail or have multiple comorbidities impacting on their independence • e.g. mobilisation, exercise and rehabilitation in ICU patients with significant functional decline and/or (at risk for) ICU-acquired weakness	Physiotherapy referral. Use droplet precautions Use airborne precautions if close contact required or possible aerosol-generating procedures. If not ventilated, patients should wear a surgical mask during any physiotherapy whenever possible.

Note. Adapted from “Physiotherapy management for COVID-19 in the acute hospital setting. Recommendations to guide clinical practice. Version 1.0” by P Thomas, C Baldwin, B Bissett, I Boden, R Gosselink, CL Granger, CL Hodgson, AYM Jones, ME Kho, R Moses, G Ntoumenopoulos, SM Parry, S Patman & L van der Lee. Journal of Physiotherapy (2020).

#### Specific advice for ICU managers

1. Ensure that there are enough supplies and access to appropriate Personal Protective Equipment (PPE) for front line staff.
2. Ensure that members of staff have an opportunity to take adequate breaks during and between shifts.
3. Ensure access to appropriate support services for the psychological health of staff.
4. Care must be taken to protect yourself (the ICU manager) and those in the immediate environment by following strict protocols and ensuring the use of PPE as well as taking the following steps:
  - Where possible treat the patient in a single room with the door closed.
  - Limit the number of staff present.
  - Minimize entry and exit from the room during treatment.

Table 2a: Physiotherapy management principles

<b>Respiratory care</b>
Physiotherapy led respiratory interventions (or chest physiotherapy) include:

- Airway clearance techniques. For example, positioning, active cycle of breathing, manual and/or ventilator hyperinflation, percussion and vibrations, positive expiratory pressure therapy (PEP), mechanical insufflation-exsufflation (MI-E).
- Non-invasive ventilation (NIV) and inspiratory positive pressure breathing (IPPB). For example, IPPB for patients with rib fractures, NIV application as part of airway clearance strategies, or in the management of respiratory failure, or during exercise.
- Techniques to facilitate secretion clearance. For example, assisted or stimulated cough manoeuvres, and airway suctioning.
- Exercise prescription and mobilisation.

Note: Physiotherapists also play an integral role in the management of patients with a tracheostomy. COVID-19 poses significant considerations for respiratory physiotherapy interventions due to their aerosol-generating procedures.

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### **More Information on Respiratory Interventions**

It must be borne in mind that the secretion load of people with COVID-19 is low so they do not usually require invasive or intensive airway clearance techniques. Physiotherapy support is more focused on non-invasive ventilation support measures and then the rehabilitation phase.

- In the mild and moderate stages of disease, normal oxygen supportive measures (facemask oxygen) may be advantageous.
- Patients with severe pneumonia often need oxygenation support. High flow nasal oxygen\*\* is recommended at this stage, in conjunction with negative pressure room (if available) (Australian and New Zealand Intensive Care Society [ANZICS], 2020). Nebulization is not recommended (ANZICS, 2020).
- Some patients may go on to develop ARDS. Noninvasive ventilation (NIV) is not routinely recommended (ANZICS, 2020) and these patients usually warrant intubation with mechanical ventilation. Prone positioning may assist ventilation and closed suctioning is recommended (ANZICS, 2020). Extracorporeal membrane oxygenation may be indicated in patients with refractory hypoxia.

During the acute phase of COVID-19, Lazzeri et al. (2020) suggest any interventions that could potentially increase the risk of breathing are contraindicated and should be avoided. Once stable and no longer in the, if indicated the main goal in respiratory physiotherapy is to mobilize secretions and ease the work of breathing. Interventions may include techniques such as positioning, autogenic drainage, deep breathing exercises, breath stacking, active cycle of breathing mobilization and manual techniques (e.g. percussion, vibrations, assisted cough) to aid sputum expectoration\*\* (Pryor, 1999; Chatwin, Ross, Hart, Nickol, Polkey & Simonds, 2003). These interventions can be performed at any stage of the disease where appropriate and safe to perform.

\*\*Particular attention should be given during those interventions that place the health staff at greater risk of contamination for aerial dispersion of droplets, such as sputum induction, open suctioning, nebulizers, high flow oxygen, NIV, as these are a potential route for transmission for the virus (Lazzeri et al., 2020). Airborne PPE must be used.

Table 2b: Physiotherapy management principles

<b>Mobilisation, exercise and rehabilitation interventions</b>
<p>Physiotherapists are responsible for the provision of musculoskeletal /neurological /cardiopulmonary rehabilitation tasks including:</p> <ul style="list-style-type: none"> <li>• Passive, active assisted, active, or resisted joint range of motion exercises to maintain or improve joint integrity and range of motion and muscle strength</li> <li>• Mobilisation and rehabilitation (e.g. bed mobility, sitting out of bed, sitting balance, sit to stand, walking, tilt table, standing hoists, upper limb or lower limb ergometry, exercise programs).</li> </ul>

Note. Adapted from “Physiotherapy management for COVID-19 in the acute hospital setting. Recommendations to guide clinical practice. Version 1.0” by P Thomas, C Baldwin, B Bissett, I Boden, R Gosselink, CL Granger, CL Hodgson, AYM Jones, ME Kho, R Moses, G Ntoumenopoulos, SM Parry, S Patman & L van der Lee. Journal of Physiotherapy (2020).



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