Interim Guidance for the Health related Rehabilitation and Physiotherapy of Person with COVID-19in Acute Care Settings (Approved date: 2077/03/30)

Background:

In some patients, COVID-19 is known to leave lasting consequences from the severe respiratory illness and secondary disabilities that result from prolong ICU treatments such as Critical Illness Polyneuropathy (CIP) and Critical Illness Myopathy (CIM). Apart from physical rehabilitation needs, it is compelling that we identify cognitive and behavioral deficits early on and plan specific cognitive and behavioral interventions along the continuum of care. Therefore, it is imperative to prepare for rehabilitation services in response and recovery of COVID 19 in Nepal.

The primary purpose of rehabilitation is to optimize the health and functioning of an infected person who is compromised by the consequences of ventilator support and prolonged immobilization. **The improved functional outcomes through rehabilitation also supports the early discharge of COVID-19 infected patients,** hence sparing more beds in ICU and wards to manage the surge of more infected patients.

Rehabilitation is indicated for people with different severity of COVID-19. The table 1 outlines the continuum of health related rehabilitation for COVID-19 patients.

Scope and purpose of this document

This guidance briefs the broader aspect of rehabilitation for COVID-19 across the continuum of care, and specific clinical recommendation for rehabilitative management of COVID-19 patients in acute phase, aligned to the context of COVID-19 designated hospitals of Nepal. It should be taken as the standard for rehabilitation services to be provided for the patients with COVID-19 in critical care and wards. This is a complementary guideline of health related COVID-19 interim guidelines of Ministry of Health and Population.

Intended audiences

Rehabilitation of COVID-19 should be done by Multi-disciplinary team (MDT). The rehabilitation continuum of care is decided by MDT based through Rehabilitation Prescription (RP). This guideline is intended for MDTs that is comprised of rehabilitation professionals such as Physiotherapist, Occupational Therapist, Prosthetist & Orthotist, Psychologist, Speech and Language pathologist, medical doctors, nurses and other health care workers.

Table.1 Overview of Rehabilitation Service across COVID-19 Care Continuum

(Adapted from the WHO, Rehabilitation Consideration during the COVID-19 outbreak and Rehabilitation in the wake of Covid-19 - A phoenix from the ashes)

Status	Phases of Care	Essential/specific Rehabilitation interventions	Service delivery settings	Key actions
Covid -19 Positive	Acute **(**severe COVID-19 are receiving ventilator support)	• Respiratory Rehabilitation Interventions(RRI) • Early mobilization, appropriate positioning and mobility interventions • Communication board use and expression of wants/needs • Cognitive strategies to improve and maintain the mental status • Psychological interventions to alleviate mood and behavioral distress	ICU/HDU	• Assessment of rehabilitation needs • Deliver respiratory rehabilitation, including post intubation care (Swallow assessment due to high risk of post intubation dysphagia) ,training and providing communication board for intubation period, NPO if FiO2 needs >40% O2 and not on ventilator) • Mobilizations and mobility intervention • Monitor mental status and psychological distress using simple assessment tools • Provide optimal cognitive environment with basic cognitive stimulation exercises • Basic Psychological First Aid (PFA)
	Sub-acute	• Restoration of Activities of daily living (ADLs) • Cognitive rehabilitation – remediation and compensatory strategies • Behavioral interventions • Psychosocial supports • Assistive technology & products(AT) for early mobility	Isolation wards	• Comprehensive **Rehabilitation Prescription**(RP) • Pool other rehabilitation expert based on the RP • Re-evaluate the further rehabilitation need -through RP • If long-term rehabilitation required, plan referral to the available rehabilitation facility • Deliver the prescribed rehabilitation

Status	Phases of Care	Essential/specific Rehabilitation interventions	Service delivery settings	Key actions
		• Discharge preparation and planning		services in accordance to the MoHP *interim guidelines for the disability inclusive health and rehabilitation services*
COVID-19 Negative/Non-COVID cases	Long term	• Graded exercise, energy conservation techniques and behavior modification, • ADLs and home modification • AT, as well as rehabilitation for any specific individual impairments • Interventions for communication and swallowing	Rehabilitation Hospital/ Centres/ Departments/ communities	
The Disability Right Act 2017 has identified 10 types of permanent disabilities in Nepal. Consider ensuring the ***reasonable accommodation*** *while delivering the service to COVID-19 infected people with disabilities*.				

Rehabilitation in acute phase of COVID-19:

Table 2: Rehabilitation workforce planning and preparation

1	To mitigate the scarce availability of rehabilitation professionals, health care professionals posted in ICU and isolation wards should be trained on how to manage frequently required rehabilitation interventions for COVID-19 infected cases such positioning, bed mobilizations and ambulation
2	Consider organizing the workforce into teams that will manage patient with COVID-19 versus non-infectious patients. Minimize or prevent movement of staff between teams within same day shift. Refer to interim guideline for disability inclusive health and essential rehabilitation for managing non-infectious patients
3	Rehabilitation staff should be involved in determining the rehabilitation interventions for patients with suspected and/or confirmed COVID-19 in consultation with senior medical staff.If rehabilitation or medical specialist is not available face to face, manage the consultation via virtual mode.
4	Disinfect the equipment in order to minimize the risk of cross infection (i.e. to prevent movement of equipment between isolated and non-isolated areas)

Table.3 Indications and recommended rehabilitation interventions

COVID-19 patient presentation (confirmed or suspected)	**Rehabilitation Techniques**
Pneumonia presenting with features: • a low-level oxygen requirement (e.g. oxygen flow ≤5L/min for SpO2 ≥ 90%). • non-productive cough • or patient coughing and able to clear secretions independently.	Not required
Mild symptoms and/or pneumonia **AND** Co-existing respiratory or neuromuscular comorbidity e.g. COPD, Bronchiectasis, Spinal cord injury, neuromuscular disease **AND** Current or anticipated difficulties with secretion clearance **AND** Evidence of exudative consolidation with difficulty	• Airway clearance techniques • Sputum induction • Bed mobilization, positioning & pressure sore prevention, and personal mobility

clearing or inability to clear secretions independently e.g. weak, ineffective and moist sounding cough, tactile fremitus on chest wall, moist/wet sounding voice, and 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, and chest x-ray / CT / lung ultrasound changes consistent with consolidation.	• Airway clearance techniques • Sputum induction • Bed mobilization & pressure sore prevention • DVT prophylaxis • Personal mobility • Communication board use, basic swallow evaluation post extubation/with high FiO2 needs, • Simple cognitive and behavioral strategies. • Prone positioning • Rehabilitation Prescription • Plan for long-term rehabilitation
Any patient at significant risk of developing or with evidence of significant functional limitations • e.g. patients who are frail or have multiple co-morbidities impacting on their independence • e.g. mobilization, exercise and rehabilitation in ICU patients with significant functional decline and/or (at risk for) ICU-acquired weakness	• Bed mobilization, exercises and personal mobility

ICU Rehabilitation resource plan

Use the available therapeutic equipment, mobility aids and specific items to augment the rehabilitation. Additional resources may be required with the increased number of COVID-19 patients.

Medical management of COVID-19

Rehabilitation professionals should be aware of the medical management for patients with COVID-19.Aerosol generating procedures (AGPs) create an airborne risk of transmission of COVID-19. It includes – Intubation, Extubation, Bronchoscopy, High flow nasal oxygen use, Non-invasive ventilation, Tracheostomy and CPR prior to intubation. Rehabilitation professionals providing the service to COVID-19 infected patient should be particularly aware of AGPs related to techniques such as: High flow nasal oxygen (HFNO), Non-invasive ventilation (NIV), Oxygen therapy, Nebulization, Suctioning, Sputum Sampling, and prone positioning.

Table 4: Guidance for Respiratory Rehabilitation

1.	Bubble PEP is not recommended for patients with COVID-19 because of uncertainty around the potential for aerosolization, similar to the caution the WHO places on bubble CPAP.
2.	There is no evidence or benefits of incentive spirometry in patients with COVID-19.
3.	Where respiratory equipment is used, whenever possible use single patient use, disposable options e.g. single patient use Positive Expiratory Pressure (PEP) devices. Re-usable respiratory equipment should be avoided if possible. If it has to be re-used ensure the machine has been decontaminated before use.
4.	Sputum inductions should be performed only for sampling with full airborne PPE. The handling of sputum samples should adhere to national guideline on Infection Prevention and Control.
5.	Manual Hyperinflation: As this process involves disconnecting/opening the ventilator circuit, avoid manual hyperinflation and use ventilator hyperinflation if indicated and necessary.
6.	Advising in the positioning requirements for patients for Gravity assisted drainage/Postural Drainage.
7.	Prone Positioning: Prone ventilation for 12-16 hours/day is recommended in adult patients with COVID-19 and severe ARDS.
8.	Suctioning: Prefer closed- in line suction for secretion removal in ventilated cases. Open suction and saline instillation during suctioning is not recommended.
9.	Tracheostomy management: The presence of a tracheostomy and related procedures are potentially aerosol generating. • Closed, in line suction is recommended • The use of inspiratory muscle training should not be attempted until patients are over acute infection and the risk of transmission is reduced. • Airborne precautions are recommended in infectious patients with COVID-19 with a tracheostomy.

Table 5: Guidance for mobilization, exercise and other rehabilitation interventions

1.	Droplet precautions should be appropriate for the provision of mobilization, exercise and rehabilitation in most circumstances. However, health professionals are likely to be in close contact with the patient e.g. for mobilization, exercise or rehabilitation interventions that require assistance. Mobilization and exercise may also result in the patient coughing or expectorating mucous. In these cases, consider use of MoHP guideline for use of PPE-COIVD-19. Mobilize patients within the isolated area, and ensure the patient is wearing a surgical mask.
2.	Direct rehabilitation interventions should be considered only when there is a significant functional limitation (e.g. (risk for) ICU-acquired weakness, dysphagia, frailty, multiple comorbidities and advanced age)
3.	Early Mobilization must be encouraged.

	Mobilization and Exercise prescription should be consideration for clinically stable patient. Actively mobilize the patient early in the course of illness when safe to do so.
4.	Patient should be encouraged to maintain function as able to do within their room • sit to stand, • perform simple exercise and activities of daily living
5.	Mobility and exercise equipment: The use of equipment should be carefully considered before using with patients with COVID-19 to ensure it can later be properly decontaminated. Prioritize using equipment that are single patient use.
6.	Larger equipment (e.g. mobility aids, pedal, chairs, and tilt tables) must be thoroughly decontaminated according to national IPC guideline. Avoid use of advanced equipment unless necessary for basic functional tasks.
7.	While mobilizing or performing exercise with ventilated patients or patients with a tracheostomy, ensure preventing inadvertent disconnection of ventilator connections/tubing.
8.	*Psychological Interventions:* Listen to the patient's lived experience, normalizing their experience and supporting a feeling of safety • Enabling connection with family and friends – using digital tools, photographs and letters • Rest and relaxation – provide access to appropriate mindfulness and wellbeing tools, with the support of technology when available • Encourage use of sleep hygiene strategies • Consider use of patient diaries to promote recovery following discharge. • Management strategies for anxiety symptoms, including referral to appropriate psychological services in liaison with MDT. Consider anxiety component to breathlessness and dysfunctional breathing • Consideration of low mood and strategies to improve mood, including timetabling and engagement in enjoyable activities. Referral to appropriate psychological/ psychiatric services in liaison with the MDT. These to be graded (basic PFA in the acute phase to more specific Psychotherapies in the sub-acute and long term care phases) up as the person moves along the phases of care. *Cognitive Rehabilitation Strategies:* To focus on sensory stimulation strategies, Orientation strategies, Attention building activities, memory and learning strategies and executive functions re-training. These strategies will again be gradually graded up as the person's cognitive status improves.

PPE & Infection Prevention & Control (IPC) Considerations:

Refer national guideline for PPE use & IPC.