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Title of the Paper : Dipeptidyl peptidase IV ..... experimental Diabetes: insilico, invitro, invivo analyses

Authored by: Ipseeta Ray Mohantya

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MAHARASHTRA STATE COUNCIL FOR OCCUPATIONAL THERAPY AND PHYSIOTHERAPY, MUMBAI

"Guidelines for Chest Physiotherapy management of COVID 19 in Indian Setup".

Maharashtra Mission Begin Again …

MAHARASHTRA STATE COUCNIL FOR OCCUPATIONAL THERAPY AND PHYSIOTHERAPY, MUMBAI

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Email ID-otptcouncil@gmail.com

No.OTPT /office/Notice/2043/2020 Date: 11/06/2020

To,

Physiotherapists

Subject: Guidelines for Chest Physiotherapy for management of COVID 19 in Indian Set up.

The country is suffering from COVID 19 pandemic. Corona virus primarily targets the respiratory system. Desaturation, ARDS, pneumonia are amongst common complications of the COVID 19.**Maharashtra Act II of 2004, section 2(i)** defines Chest Physiotherapy as lifesaving treatment modality in ICU. Dedicated COVID centers, Jumbo COVID centers have deployed Physiotherapists in acute care of COVID 19 patients

The COVID 19 cases in our country are increasing day by day. Maharashtra is having highest number of COVID patients in country. The international organization have issued various guidelines. The challenges faced by Physiotherapists in Indian COVID centers are different. Bearing this mind, the experts of this section had made one **Guideline for Chest Physiotherapy for COVID patients in Indian setup.** The drafting committee of council has approved it on 10/06/2020 & by President on 11/06/2020 for publication.

All concerned hereby informed to follow these guidelines in practices to prevent transmission of COVID 19 & manage patients in ICU. We appreciate your services to human kind in this crisis. I wish you bright health.

President
Dr.Sudeep Kale
Maharashtra State Council for Occupational therapy & Physiotherapy, Mumbai.

“Guidelines for Chest Physiotherapy management of COVID 19 in Indian Setup”.

Draft Guideline received on 06/06/2020

Guideline Approved by Drafting Committee (Physiotherapy) on 10/06/2020:

1. **Dr. Ashok Patil** Head, Drafting Committee (Physiotherapy)
2. **Dr.Sudeep Kale,** Member
3. **Dr. Sandeep Bhagwat,** Member
4. **Dr. Vishal Patle,** Member
5. **Dr. Shyam Ganvir, Ph.D,** Member
6. **Dr. Aparna Sadhale,** Member

Approved by Hon’ble President on 11/06/2020

Approved for publication by Hon’ble President on 11/06/2020

Published on website www.msotptcouncil.org on 11/06/2020

“Guidelines for Chest Physiotherapy management in COVID 19 in Indian Setup”.

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Expert consensus and recommendation for Physiotherapy management in COVID 19 in Indian setup.

This consensus and recommendations are formed based on guidelines by WHO, WCPT Literature review and expert guidance and experience of physiotherapist working in COVID hospitals of India. These guidelines are subject to update as more information is obtained based on the therapist treating patients affected with COVID 19

Preamble:

In the wake of COVID 19 affecting India, the worst affected were state of Maharashtra accounting for one third of all cases in the country. Entire buildings, open grounds are converted to jumbo medical centres COVID hospitals to meet the rising needs. Since March 2020 a number of rapid changes have been incorporated in the management of Covid 19 with emerging evidences. Physiotherapists have been involved in treatment of COVID patients in intensive care and acute settings. However due to lack of consensus and guidelines there have been different protocols.

Purpose:
Consensus building exercise has been undertaken to develop and provide recommendation by putting together current experiences and available evidence to physiotherapists working in the acute care setting for treatment of confirmed or and suspected COVID 19 patients in India.

Introduction:
Physiotherapists have a vital role in management of patients admitted in the ICU. Cardiorespiratory physiotherapy has a pivotal role in the management of acute and chronic respiratory conditions that helps in improving the quality of life following acute illness and also decreasing the ICU stay thus reducing the rate of morbidity and mortality.

Physiotherapy has been demonstrated as a need in physical rehabilitation of patients post COVID-19. These patients present with variable symptoms including either with dry or productive cough. Those with dry cough may not benefit with physiotherapeutic interventions but the patients presenting with productive cough and with underlying respiratory conditions or other comorbidities, associated with hypersecretion and ineffective cough (e.g. neuromuscular disease, respiratory disease, obesity etc) may benefit from the same. Many COVID 19 patients have also presented as stroke increasing their morbidity. There is sufficient evidence to suggest the development of ICU acquired weakness in patients admitted in the ICU for prolonged period.

Early mobilisation is a part of bundle of care for the ICU that helps reduce the morbididty and mortality, however there is lack of evidence in relation to COVID 19. As physiotherapy manouvers are aerosol generating and requires contact most of the time it raises therapist's safety concerns . The recommendations given below are to benefit the patient towards improved care and reduce morbidity as well as keeping therapist safety and prevention of cross-infection in mind.

Method:

Experts in the field from cardiorespiratory physiotherapy and those providing therapy for patients with COVID 19 from various hospitals were identified. Existing guidelines, consensus and recommendations from various countries, world health organization and world confederation of physiotherapy were appraised. Experiences of physiotherapist treating patients with COVID 19 from various hospitals were noted. A guideline for physiotherapy workforce planning and preparation, physiotherapeutic intervention and safety considerations was prepared. A level of agreement was reached on 5 point likert scale from strongly disagree to strongly agree. The components disagreed were further discussed to reach a consensus.

SCOPE:

This document provides recommendation on the acute hospital setting for

1**.** Workforce planning and preparation including screening to determine indications for physiotherapy.

2**.** Delivery of physiotherapy interventions including both respiratory and mobilisation

3. Post COVID Rehabilitation

4. Safety precautions

UNDERSTANDING COVID 19:

Coronavirus disease 2019 (COVID-19) is caused by SARS-CoV-2, is a newly emergent coronavirus, that was first recognized in Wuhan, China, in December 2019. The genetic sequencing of the virus is in closely related to the SARC virus. A symptomatic COVID-19 case is a person who has developed signs and symptoms suggestive of COVID-19 while an asymptomatic case is a person infected with SARS-CoV-2 who does not develop symptoms

Various studies suggest that transmission mainly occurs from symptomatic people to others by close contact through respiratory droplets, by direct contact with infected persons, or by contact with contaminated objects and surfaces.

The study of SARS-CoV shows that virus infected lung epithelial cells produced IL-8 in addition to IL-6. IL-8 is a well-known chemoattractant for neutrophils and T cells. Infiltration of a large number of inflammatory cells is also observed in the lungs. Among the innate immune cells, neutrophils were found to be in more number. Neutrophils can act as double-edged sword as neutrophils can induce lung injury. The majority of the observed infiltrating adaptive immune cells were likely T cells, CD8+ T cells are primary cytotoxic T cells. Cytotoxic T cells derived from CD4+ T cells were found in severe patients. These cytotoxic T cells can kill virus but also contribute to lung injury. These inflammatory CD14+CD16+ monocytes with high expression of IL-6, accelerates the progression of systemic inflammatory response.

It appears to have a systemic inflammatory response with multiple organ involvement. COVID-19, similarly to other CoVs, is also found to have associated with cardiac complications, like arrhythmias and myocardial injury. Clinical presentations have been in the

form of ARDS,myocarditis, stroke, kidney failure and multiple organ failure. Lung being primarily involved with presentation of ARDS and subsequent fibrosis. Lung CT scan findings suggest multiple mottling and ground glass opacity even in asymptomatic patients.

The patients present clinically from asymptomatic to symptomatic with COVID positive and suspected COVID with acute respiratory infection.

The severity is variable and further classified as per symptoms:

1. Asymptomatic	COVID nucleic acid test positive. Without any clinical symptoms and signs and the chest imaging is normal. Does not desaturate on activity
	COVID nucleic acid test positive. Without any clinical symptoms and signs and the chest imaging is normal, however desaturate on activity.
2. Symptomatic	
Mild	Symptoms of acute upper respiratory tract infection (fever, fatigue, myalgia, cough, sore throat, runny nose, sneezing) or digestive symptoms (nausea, vomiting, abdominal pain, diarrhoea)
Moderate	Pneumonia (frequent fever, cough) with no obvious hypoxemia, chest CT with lesions
Severe	Pneumonia with hypoxemia (SpO2 < 92%)
Critical	Acute respiratory distress syndrome (ARDS), may have shock, encephalopathy, myocardial injury, heart failure, coagulation dysfunction and acute kidney injury

In the present context COVID 19 patients referred for physiotherapy may be on mechanical ventilator, Non- invasive ventilation or ECMO in severe to critical involvement. Patients with moderate to mild severity may be on high flow nasal oxygen or rebreathing bag .It is important to assess, plan, monitor and implement therapy with safety considerations for both patient and therapist.

Based on the above information the following recommendations are made

1. RECOMMENDATIONS FOR PHYSIOTHERAPY WORKFORCE PLANNING AND PREPARATION

Though many hospitals in India are declared as dedicated COVID Hospitals major hospitals manage both COVID and non COVID patients. We cannot emphasise less the need for rehabilitation of patients in the non COVID area. Hence staff delegation and rotation with a dedicated team of experts to work in COVID ICU is required. Staff with limitation in giving services to COVID 19 patients can be deployed in non-covid clinical work and administrative duties.

1.1 **Recommendations for deployment of physiotherapist in COVID area:**

With variable presentation from asymptomatic to symptomatic with increasing severity the covid care area are designated from quarantine centres to COVID ICU. Physiotherapist designated to these areas should be as per their expertise and training. All steps should be taken to ensure necessary training for safety of patient and therapist.

- All physiotherapist should undergo training for COVID care .
- Physiotherapists with specialised knowledge, skills and decision making ability in ICU can be consulted for advice and training.
- Senior physiotherapists with adequate experience in intensive care should be involved in determining the appropriateness of physiotherapy interventions for patients with suspected and/or proven COVID-19 in consultation with senior medical staff and according to a referral guideline in ICU.They should identify additional physical resources that may be required for physiotherapy interventions and how the risk of cross-infection can be minimised (e.g. respiratory equipment; mobilisation, exercise and rehabilitation equipment, equipment storage).
- Junior staff or trainee should be provided with training and appropriate supervision and support, particularly with decision making for complex patients with COVID-19. Hospitals should identify appropriate physiotherapy clinical leaders to implement this recommendation.
- Physiotherapists who do not have recent cardiorespiratory physiotherapy experience should be identified by hospitals and be trained for covid physiotherapy care centre with mild to moderate involvement

- Physiotherapist without acute hospital or ICU training may facilitate rehabilitation, discharge pathways or hospital avoidance for patients without COVID-19.
- Educational institutes can deploy postgraduate trainees to work in COVID and non COVID facility after training.
- Deployment of staff to treat patients in various places from quarantine centres to COVID wards and COVID ICUs should be based on the expertise and skill required.

1.2 Recommendations for Plan for an increase in the required physiotherapy workforce.

- Rotations for staff should be allowed.
- A pool of contract staff can be recruited to work in case of additional need.
- Research staff who are currently working in non-clinical roles can be recruited after training.
- Retired staff with knowledge and skills can be consulted for covid and non covid roles
- Staff who are currently working in non-clinical roles can be recruited after training to work in acute COVID setup.
- Workforce should be organized into teams that will manage COVID-19 versus non-COVID patients. Minimise or prevent movement of staff between teams. Liaise with local infection control services for recommendations for staff safety.
- Staff working in COVID area should be provided with a period of quarantine or isolation as advised by local or state policy.
- Number of staff to be deployed as per beds in the COVID ICU and care set up should be proportional to avoid undue increased workload and increased exposure within COVID ward or ICU.

1.3 Recommendations to provide learning resource and psychological support.

In order to increase the workforce strength it is important to provide resource and training.

- Learning resources and training to staff in the form of eLearning package exclusively for COVID 19 should be provided.
- Local physiotherapy staff ICU orientation and training should be provided.
- Graduate physiotherapist should be exclusively trained to treat COVID 19 with online training or course.

- Training in Personal protective equipment (PPE) ,Disinfection and disposal of biomedical waste and Hand washing should be provided.
- Relevant international, national, state and/or hospital guidelines for infection control in health care facilities should be provided.
- Promote debriefing and psychological support to boost up morale that may be adversely affected due to the increased workload.
- Alleviate anxiety over personal safety and the health of family members.
- Physiotherapists who are judged to be at high risk should not enter the COVID-19 isolation area. This includes those who are older than 55yrs of age, pregnant, immunocompromised, with associated comorbidities of diabetes, cardiac disease, renal involvement ,malignancy, respiratory disease, anaemic.

2. RECOMMENDATIONS FOR PHYSIOTHERAPY REFERRAL:

Though the presentation of COVID 19 is respiratory in nature all patients may not benefit from chest or respiratory physiotherapy. Respiratory Physiotherapy would be contraindicated in a particular subset of patients. Autopsy study has shown thrombotic foci causing a shunt effect, in such a case hypoxemia would not be corrected with physiotherapeutic intervention. Associated myocarditis, severe respiratory failure, adult respiratory distress syndrome, multisystem failure does not warrant physiotherapy. So also Patients with dry cough and non-exudative pneumonia may not benefit with chest physiotherapy.

2.1 Patients likely to benefit from Respiratory physiotherapy:

- Productive cough and presence of airway secretions.
- Patients with associated respiratory morbidity or metabolic or any other associated neuro musculoskeletal impairment
- Patients with secretions with ineffective cough.
- Patients with improved saturation response to positioning, reduced fatigue and breathlessness post therapy.
- Patients being weaned from ventilator support.
- Patients on prolonged bedrest and immobile

2.2 Patient with nil active Respiratory physiotherapy:

- Patients with a diagnosis of COVID 19 with a dry unproductive cough.
- Patients on ventilator with ARDS with increased PEEP > 15, intubated and already proning for 12 hrs and sedated.
- Patients with a diagnosis of COVID 19 with severe hypoxemia and increased distress requiring intubation.
- Patients who need only suctioning.

2.3 Contraindication to Physiotherapy

- Myocarditis, unstable haemodynamics, elevated or altered enzymes, signs of arrhythmia.
- Presence of fever.
- Hypotension or hypertension (BP <90/60 or BP > 150/100).
- Uncooperative Patient.
- Unstable Intracranial Pressure.
- Uncontrolled Bronchospasm.
- Pulmonary thromboembolism.
- Patient on mechanical ventilator with increased levels of PEEP and in multisystem failure
- Patients in sign of increased respiratory distress
- Patients not maintaining saturation inspite of high flow nasal oxygen therapy or NIV

2.4. Categorization of Patients for physiotherapy:

A. Sedated patients on Mechanical Ventilator- Goal is to minimize complications of immobility and respiratory care as per need.

B. Minimally sedated patients on mechanical ventilator or NIV- Goal is respiratory care as per need and facilitate early mobilization and weaning of ventilator .

C. Patients on High flow oxygen therapy- Goal is respiratory care as per need and progressive mobilization

D.Patients on low flow oxygen and off oxygen therapy- Goal is respiratory care as per need and functional independence.

E. Discharged: Follow up and telerehabilitation to maintain endurance capacity.

3. RECOMMENDATION FOR ASSESSMENT AND SCREENING.

The leading team physician would screen and refer patients which are haemodynamically stable for physiotherapy. Physiotherapist would further assess and screen as under using contactless method as far as possible :

- Haemodynamic stability: Cardiac sequelae should be considered in all patients post-COVID-19, regardless of severity, and all patients should be screened for their cardiac symptoms, Heart rate and Blood pressure recovery.

- Respiratory distress and desaturation: Throughout therapy patient should be monitored for signs of respiratory distress and oxygen desaturation. In event of increased desaturation, high PEEP requirement, increased respiratory rate and haemodynamic instability physiotherapy should be discontinued. Saturation to be measurement at start of treatment and through the exercise program.

- Impairments of mobility, strength, endurance and balance arising due to atrophy , sarcopenia and immobility are screened using chair sit and rise for 30 sec . Grip strength as a quick measure of gross strength and one leg stance can be used for screening in asymptomatic and symptomatic patients with mild to moderate severity one leg stance and functional mobility.

- Functional Capacity evaluation: Lower six minute walk test and decreased functional capacity has been reported following SARS outbreak , 2weeks following hospital

discharge. TUG , L test or Six minute walk test is recommended to perform to asess functional capacity .

- Fatigue: Many patients have reported excessive fatigue and hence it is recommended that perceived level of fatigue and exertion should be monitored before and after therapy on a visual analog scale or Borgs Scale.

- Prolonged ICU stay causes ICU psychosis and cognitive impairment. In patients weaned off and extubated consider screening for cognition in patients

4. RECOMMENDATIONS FOR PHYSIOTHERAPEUTIC INTERVENTIONS:

Physiotherapeutic manoeuvres include body positioning to improve ventilation perfusion ratio and oxygenation, airway clearance to clear secretions in the airway and alveoli and early mobilization to combat ill effects of deconditioning and prevent critical care illness and myopathy and improve function and quality of life.

In asymptomatic patients and those with mild symptoms therapy can be provided with the help of charts and audio-visual aids. Early mobilization should be encouraged to combat effects of deconditioning with monitoring

Contactless mode of therapy should be encouraged where feasible. Physiotherapists preferably use posterior approach and maintain a distance >2m and away from the “blast zone” or line of cough .It is essential that cough etiquettes are taught to all the patients. Patient should be wearing a mask during all physiotherapeutic manouvers. All safety precautions should be followed.

4.1 Positioning:

- It is recommended to encourage awake active prone positioning in mild to moderate severity as it can help in improving oxygen saturation, delay or reduce the need for intubation and intensive care in pneumonia due to COVID 19.

- Dyspnoea relieving positions for patients with mild to moderate symptoms in sitting with fixation of upper extremity to facilitate breathing may be of help in patients with increased respiratory rate and distress.

- An extended semi- sitting or sitting position is favourable when proning not possible due to patient discomfort or obesity .

- When possible and in close collaboration with the team, a 24 hour position rotation chart can be provided which favours alternations of the lateral decubitus, to semi prone to prone position. For maximum benefit each position is to be maintained at least for 30 minutes to an hour. It is recommended to use cushions/aids during prone positioning that support the body and avoid excessive active muscles work cause undue fatigue.

- In severe and critical patients that are sedated Proning is a mode of therapy for 12 hrs. Application of prone position during ventilation may require sufficient human resources and expertise to be performed safely. The ventilator tubing should be prevented from getting disconnected accidentally and causing aerosol liberation. In such a scenario the physiotherapist plays a role in recommending a continuous rotational positional change. Chest physiotherapy may not be indicated in patients who are critically ill and on mechanical ventilation with high PEEP.

4.2 Breathing exercises and Bronchial Hygiene:

- In patients with mild to moderate symptoms, breathing control and deep breathing exercises with diaphragm activation are recommended. Periodic deep breathing exercises to minimize atelectatic area can be helpful.
- Purse lip breathing can help alleviate dyspnoea and prevent bronchospasm.
- Active cycle of breathing technique is recommended as a method of airway clearance for patients with secretion. Since airway clearance causes massive droplet dispersion, airway clearance procedures should be administered only when considered strictly needed for the clinical improvement of the patient .
- Postural Drainage position may not be advisable and difficult to achieve.In sedated patients who are on mechanical ventilator and haemodynamically stable modified postural drainage can be attempted with monitoring if absolute necessary for secretion clearance. The benefit of the said therapy should be weighed before initiating. Percussions and vibrations should be avoided.

4.3 Nebulization:

Inhaled therapy using a pneumatic jet nebulizer is NOT recommended. A preferred option is to use dry inhalers or ultrasonic nebulizers connected to the mechanical ventilator in a closed circuit, without removing the antimicrobial filter on the expiratory branch of the circuit. The patient may be on non- heated humidifier in inspiratory line of breathing circuit to add moisture to the oxygen delivered.

4.4 Early Mobilisation:

- It is recommended to begin with an early active mobilization program based on haemodynamic monitoring and desaturation as soon as patient' sedation is reduced to maintain function. As COVID 19 induces inflammatory response due care and caution has to be exercised while planning any exercises. It is recommended not to increase intensity of exercise but maintain protocol as per haemodynamic stability, oxygenation status and approach to reduce deconditioning effect and morbidity.

- Low intensity exercise (≤3 METs or equivalent) should be considered initially particularly for patients who required oxygen therapy. Light activity can be encouraged while concurrently monitoring vital signs (heart rate, pulse oximetry and blood pressure). Gradual increase in exercise should be based on their symptoms and permissible levels of oxygen therapy.Rest periods should be increased if symptoms deteriorate
- Exercises to progress from assisted to active mobilization at the edge of bed and out of bed in a series of settings including inpatient, outpatient, in- home telehealth according to patient needs at home or quarantine centre or in the hospital.
- The goal in in-hospital patients would be to achieve function of basic activities of daily living. As COVID 19 causes a systemic inflammatory response, it is advised to allow adequate rest during exercises till discharge and stabilization. Prolonged exhaustive or high intensity training should be avoided.
- Asymptomatic patients may be encouraged to achieve at least 10 minutes of continuous light physical activity or structured exercise without fatigue or desaturation below 90%.
- Exercises may progress to 20 minutes applying FITT Principles of exercise training after three weeks of acute episode and once patient is asymptomatic to allow adequate recovery.

- All physiotherapeutic manouvers including mobilization are aerosol generating and hence should be used with complete precautions. Use of charts and audio-visual records to facilitate contactless therapy is recommended. Strict COVID protocol for prevention and safety should be followed. Any devices used should be discarded using recommendation of disposal as per biomedical waste hazard. Discontinuation of Physiotherapy should be discussed with referring physician/Intensivist depending on patient status.

4.5 Recommendation for the use of Devices:

Various devices for facilitation in inspiratory and expiratory exercises are available in market. However their use in COVID 19 is not known. There is no evidence so far on the use of below mentioned devices in treating patients with COVID 19. All devices are single patient use and strict protocol of biomedical hazardous waste disposal should be maintained. These devices cannot be shared between patients. Cost factor and patient preference should be considered before prescribing.

- Incentive spirometer facilitates inspiration can be used for contactless therapy as tolerated. If it stimulates or precipitates cough it is to be discontinued.

- In patients with secretions oscillatory PEP device to mobilize secretions eg flutter/acapella can be used as contactless mode of therapy 3-4 times in a day. Cost effective blow bottle PEP may be used alternatively with safety precautions.

- In Patients on ventilator with copious secretions High frequency chest wall compression or mechanical vibrator can be applied as contactless mode after ensuring haemodynamic stability.

- Inspiratory muscle trainer may be used after ensuring haemodynamic stability and monitoring for improving respiratory muscle strength for contactless training in difficult to wean patients .

4.6 Recommendation for relaxation:

A general body relaxation may help patients to improve parasympathetic balance and reduce anxiety. Audio recordings and soothing music can be used for the same. Focus on breathing can be encouraged.

4.7 Recommendation for rehabilitation following recovery:

Although COVID-19 predominantly affects the respiratory system, evidence indicates a multisystem inflammatory disease which is frequently severe and often results in death. Though long-term sequelae of COVID-19 are unknown, evidence from previous CoV outbreaks demonstrates impaired pulmonary and physical function, reduced quality of life and emotional distress. COVID-19 survivors who required critical care may develop psychological, physical and cognitive impairments.

There is an expected morbidity with COVID 19 exists for a period of 3–6months and more .Follow-up and telerehab should be encouraged. The National Institute for Health and Care Excellence (NICE) recommends progressive rehabilitation programmes that can be best initiated within the first 30 days (post-acute phase) to have greatest impact on recovery . Residual impairments need to be evaluated in order to determine appropriate rehabilitation.

Patients in the severe category should be identified with exercise progression guideline following an approach similar to pulmonary rehabilitation.

5. RECOMMENDATION FOR PSYCHOLOGICAL SUPPORT AND CARE FOR PHYSIOTHERAPISTS

- **Regular assessment :** Regular assessment is required for assessing the psychological state of the therapist.
- Provide counseling sessions. Consider and/or promote debriefing and psychological support; staff morale may be adversely affected due to the increased workload, anxiety over personal safety and the health of family members.
- There has to be access to employee assistance programs, counselling, facilitated debriefing sessions. In case of need assistance can be provided by psychologist.
- **Safety Recommendations:**
    - A priority should be to protect healthcare workers from exposure. ICU doctors should participate in early identification and lead the management of critical patients. If negative pressure ICU isolation rooms are not available, an alternative approach is to use HEPA Carbon Photocatalysis air purification systems for source control.

- Healthcare workers performing aerosol-generating procedures on patients with COVID-19 should wear fitted respirator masks, such as N-95 or equivalent – instead of surgical masks in addition to other personal protective equipment, such as gloves, gown and eye protection.
- Aerosol-generating procedures should be performed on ICU patients only if absolutely necessary with COVID-19 in a negative pressure room, if available. Negative pressure rooms are engineered to prevent the spread of contagious pathogens from room to room.
- Therapist should not stand facing the blast and maintain safe distance at all times with posterior approach.
- **PPE Recommendations for physiotherapists**
- All Staff will be trained in correct donning and doffing of PPE, including N95 "fit-checking". A registry of staff that has completed PPE education and fit checking should be maintained .
- Recommended PPE for therapist caring for COVID-19 infected patients includes added precautions for patients with significant respiratory illness, when aerosol generating procedures are likely and/or prolonged or very close contact with the patient is likely.

  In these cases, **airborne precautions** are followed including:
- An N95/P2 mask
- Fluid resistant long-sleeved gown
- Goggles/face shield
- Gloves
- Hair cover
- Shoes that are impermeable to liquids and can be wiped down

  PPE must remain in place and be worn correctly for the duration of exposure to potentially contaminated areas. Do not adjust the PPE mask in workplace. All personal items should be removed before entering clinical areas and donning PPE. This includes earrings, watches, lanyards, mobile phones, pagers, pens etc. Stethoscope use should be minimised. If required, use dedicated stethoscopes within isolation areas. Hair should be tied back out of the face and eyes. If reusable PPE items are used, e.g. goggles – these must be cleaned and disinfected prior to re-use

Use of Scrubs and/or staff may be encouraged to get changed out of their uniform before leaving work and to transport worn uniforms home in a plastic bag for washing at home.

Self Care, Hygiene,proper nutrition, exercise and sleep are important to maintain health. Medications and supplements as advised by ICMR guidelines for prophylactic use should be followed.

Patients category	Goals	Interventions	Parameters	Intervention not to be done or with caution	Delivery of therapy
Asymptomatic positive patients with stable cardio pulmonary parameters and ambulatory					
COVID 19 patients who are able to maintain Oxygen saturation above 94% at home or in hospital	1. To maintain optimum ventilation of the lung 2. To maintain functioning and mobility	Positioning : Awake /active Prone position to improve oxygenation & frequent change of positions (30^0 propped up, side lying) General mobility and endurance	Monitor haemodynamics, saturation and fatigue or breathlessness	Physiotherapy interventions are not indicated for airway clearance or sputum samples	Preferably Non - contact & audiovisual aids telerehab

	3. Prevent deconditioning	activity for 10-15 mins with rest if needed Functional mobility eg walking in ward			
Asymptomatic patients with stable cardio pulmonary parameters and ambulatory but desaturating with mobility or exercise					
COVID 19 patients who are able to maintain Oxygen saturation above 94% at rest but desaturate on mobility or exercise	Maintain ventilation Maintain oxygenation Prevent deconditioning	Awake /active Prone position to improve oxygenation for atleast 30 mins at a time 3-4 times a day e.g rotational position change as Prone 30 mins- side lying 30 mins – half lying (propped up 30 mins- side lying 30 min again prone lying 30 min and continue) Saturation check: drop more than 3% exercises with supplemental oxygen in consultation with physician. Maintain safe haemodynamics	Discontinue Physiotherapy if increased desaturation, increased breathlessness and altered haemodynamics	Physiotherapy interventions are not indicated for airway clearance or sputum samples	Use of pulse oximeter /cardioscope while monitoring. Use of chart and audiovisuals for teaching

		General mobility and continue activity of daily living exercises with supplemental oxygen therapy Functional mobility such as walking , chair rise with monitoring			
Symptomatic patients with airway secretions on oxygen therapy via HFNO					
Pneumonia presenting with features: low-level oxygen requirement (eg, oxygen flow ≤5 l/min for SpO2 ≥90%) non-productive cough or patient coughing and able to clear secretions independently	Maintain oxygenation Maintain ventilation Airway clearance Reduce work of breathing Prevent complications related to bedrest	Positioning to improve saturation Awake /active Prone position to improve oxygenation for atleast 30 mins at a time 3-4 times a day e.g rotational position change as Prone 30 mins- side lying 30 mins – half lying (propped up 30 mins- side lying 30 min again prone lying 30 min and continue) Deep Breathing	Continuous monitoring of haemodynamics and saturation Observe for respiratory distress	Positioning / gravity assisted drainage techniques and manual techniques to be used with excessive caution No evidence in use of Incentive Spirometer. Discontinue if precipitates cough No evidence to the use of Oscillating PEP	• Use of assistive device is recommended with safety precautions and disposal as per biomedical hazard The below mention devices are not recommended Bubble CPAP Bubble PEP Nebulization Open suction. • Sputum inductions . use is not advised

		Active cycle of breathing exercise. mobilization within safe haemodynamic limits Ankle toe movements bedside or edge of bed and out of bed mobilisation Active limb exercises		devices . To be discontinued if causes distress	There is a risk of creating an airborne transmission of COVID-19 during treatments. Physiotherapists should weigh up the risk versus benefit to completing these interventions and use airborne precautions.
Symptomatic patients with severe oxygen deficient on NIV or HFNO					
Pneumonia AND co-existing respiratory or neuromuscular co-morbidity and current or anticipated difficulties with secretion clearance RR >30 SpO2<94	1. Maintain oxygenation and clear airways. 2. prevent effects o f deconditioning and complications of bed rest such as DVT 3. Improve functioning within safe haemodynamic limits	Rotational positioning to maintain saturation Awake/active Prone for 30 min 3-4 times a day Lateral decubitis and propped up if unable to go prone Advocate dyspnoea relieving position Deep nasal Breathing exercise ACBT only if secretions present	Same as above	Same as above	Minimal contact wherever possible Maintain >2m distance from the patient while delivering treatment in patients. Therapist may stand laterally or posterior to the patient to avoid direct exposure to aerosolization

		Ankle toe movements Bed mobilization within safe cardiorespiratory paramaters Edge of bed and out of bed mobilisation			
Symptomatic patients with severe oxygen deficient, ARDS, multi organ failure and on ventilator					
Symptoms suggestive of pneumonia/lower respiratory tract infection (eg, increasing oxygen requirements; fever; difficulty breathing; frequent, severe or productive coughing episodes; chest x-ray, CT or lung ultrasound changes consistent with consolidation)	1.Maintain oxygenation 2. Clear airways. 2. To prevent effects of deconditioning and complications of bed rest such as DVT	CONTINUOUS ROTATIONAL POSITIONING Suctioning through closed suction system . Passive limb mobilistaion. As patient haemodynamic stabilizes encourage in bed and out of bed activity Oxygen level should be increased prior to starting exercises	Early mobilization in patients who are conscious should be encouraged Monitor haemodynamics and saturation Care should be taken of the ET tube and the ventilator tubings.	If patient is sedated , has no secretions and proning is a part of treatment regime no active physiotherapy required.	Suctioning to be done with Closed suction with complete In absence of exudative pneumonia and unstable haemodynamics physiotherapy is not recommended

Recommendations for treating Non-COVID Patients

- A consequence of the pandemic has been the under-utilization of important medical services for patients with non-COVID-19-related urgent and emergent health needs.
- Healthcare systems must balance the need to provide necessary services while minimizing risk to patients and healthcare personnel (HCP).
- Prioritize urgent visits and delay elective care

Key considerations

- Be prepared to rapidly detect and respond to an increase of COVID-19 cases in the community.
    - Stay informed. Consult regularly with your state or local health department for region-specific information and recommendations.
    - Monitor trends in local case counts and deaths, especially for populations at higher risk for severe illness.
    - Thermal scanning of every individual visiting OPD to be done
- Provide care in the safest way possible.
    - Optimize telehealth services to minimize the need for in-person services.
    - Follow recommended infection control practices to prevent transmission of infectious agents, including screening all patients for COVID-19 signs and symptoms, universal source control, and infection control practices specific to COVID-19.
    - Be familiar with COVID-19 healthcare infection prevention and control recommendations specific to your setting.
- Consider that services may need to expand gradually.
    - Make decisions for expanding necessary care based on the local epidemiology and in concert with recommendations from state and local officials.
    - Prioritize at-risk populations who would benefit most from those services (for example, those with serious underlying health conditions, those most at-risk for complications from delayed care, or those without access to telehealth).

There are 2 tiers of recommended precautions to prevent the spread of infections in healthcare settings: Standard Precautions and Transmission-Based Precautions.

Standard Precautions

Standard Precautions are used for all patient care. They're based on a risk assessment and make use of common sense practices and personal protective equipment that protect healthcare providers from infection and prevent the spread of infection from patient to patient.

- Perform Hand Hygiene
- Use Personal Protective Equipment (PPE) whenever there is an expectation of possible exposure to infectious material
- Follow Respiratory Hygiene / Cough Etiquettes Principles
- Properly handle and properly clean and disinfect patient care equipment and instrument/devices.

Transmission-Based Precautions

Transmission-Based Precautions are the second tier of basic infection control and are to be used in addition to Standard Precautions for patients who may be infected or colonized with

certain infectious agents for which additional precautions are needed to prevent infection transmission.

- Contact Precautions
- Droplet Precautions
- Airborne Precautions

Contact Precaution: Ensure appropriate patient placement, Use personal protective equipment (PPE) appropriately, Limit transport and movement of patients, Use disposable or dedicated patient-care equipment, Cleaning and disinfection of patient treatment areas and equipments after each use.

Droplet Precaution: Source control: put a mask on the patient, Ensure appropriate patient placement, Use personal protective equipment (PPE) appropriately, Limit transport and movement of patients.

Airborne Precautions: Source control: put a mask on the patient, Restrict susceptible healthcare personnel from entering the room, Use personal protective equipment (PPE) appropriately, Limit transport and movement of patients.

Summary: The current pandemic being a challenge in itself and a variable picture it is necessary that utmost precautions are taken. The intention of these recommendations is to deliver safe and best care to the patient with wholistic approach to prevent morbidity as well as protect the physiotherapist by adhering safety guidelines. The therapist needs to weigh the benefit achieved vs Harm to optimize treatment with wholistic approach. The recommendations are subject to update with more available literature.

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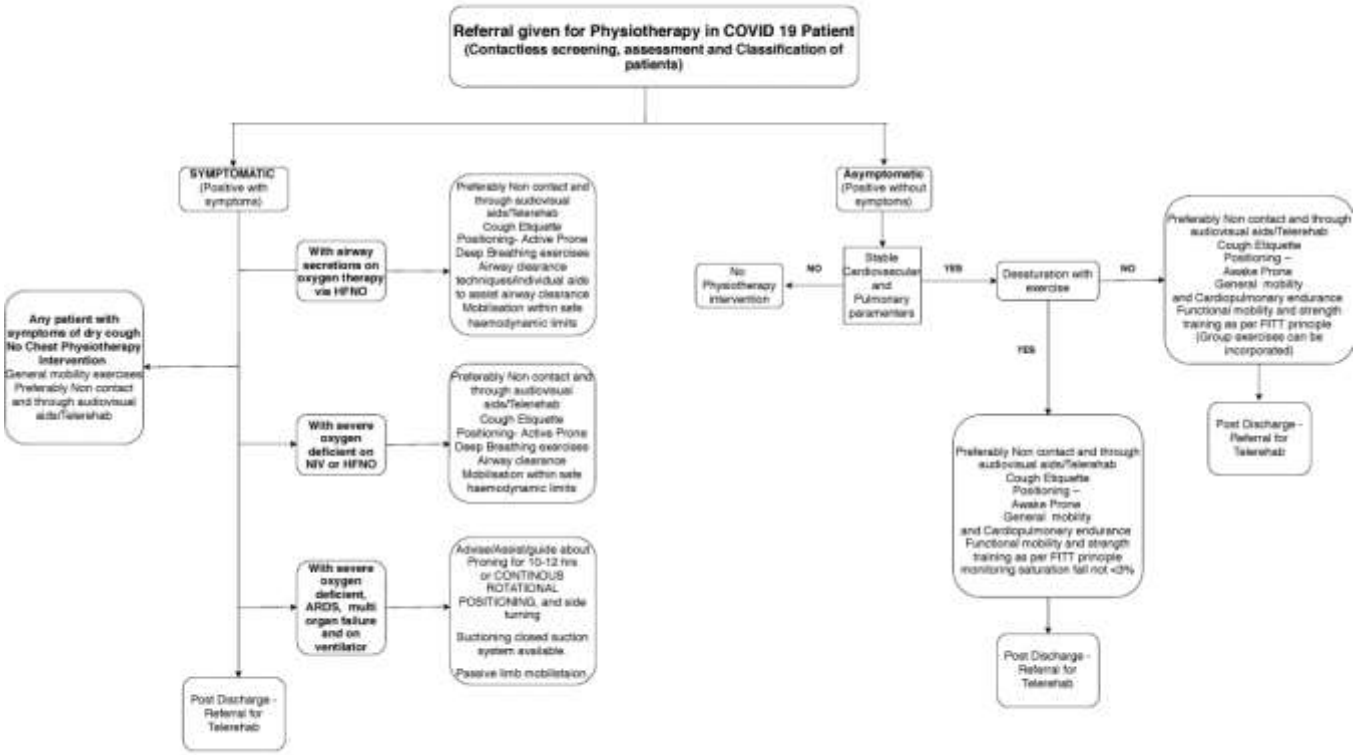
Algorithm for Physiotherapy Management in COVID 19 Patients




GLOBAL ECONOMIC PROGRESS & RESEARCH ASSOCIATION (GEPRA)
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Package of Interventions for Rehabilitation

Low Back Pain

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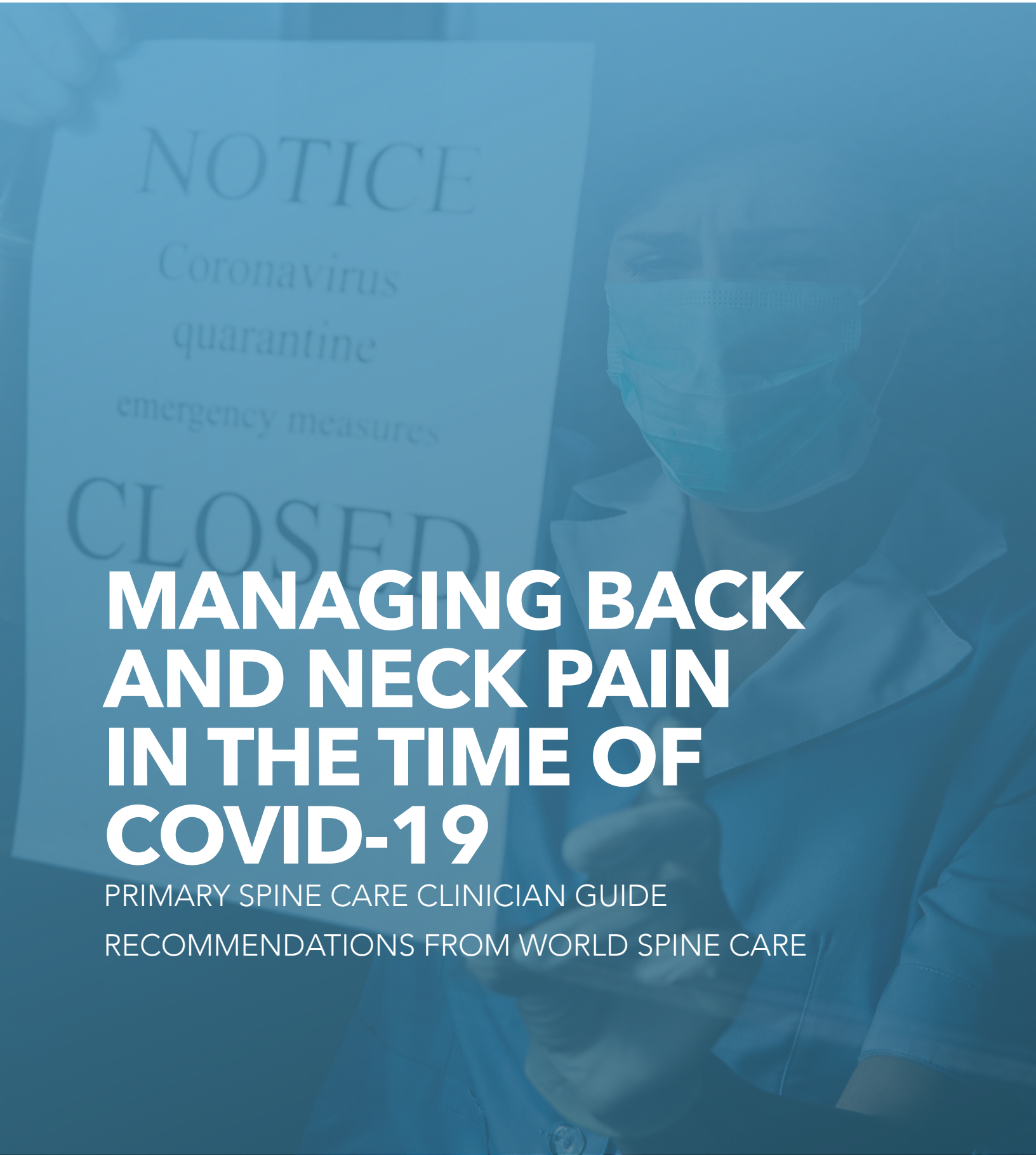

MANAGING BACK AND NECK PAIN IN THE TIME OF COVID-19

PRIMARY SPINE CARE CLINICIAN GUIDE

RECOMMENDATIONS FROM WORLD SPINE CARE

ADAPTED FROM THE GLOBAL SPINE CARE INITIATIVE

Recommendations from World Spine Care

As a result of the current COVID-19 pandemic, most healthcare providers who commonly treat or advise patients who are experiencing spinal pain (low back, middle back and neck pain) are unable to see patients. These Primary Spine Care Clinicians include chiropractors, physical therapists, osteopaths, and family/general physicians.

In most jurisdictions, secondary and tertiary medical specialists and surgeons including orthopedic surgeons, neurosurgeons, rheumatologists, pain management physicians, and neurologists have been forced to limit their practices to emergency or critical patients.

However, spinal pain and other spinal disorders have not gone away. People are still experiencing back and neck pain and are having to cope with the discomfort, disability and disruption of life that these conditions can cause.

Patients can become very anxious when they experience back or neck pain and feel neglected when they are unsure how to deal with these symptoms and unable to see their chiropractor, physical therapist, acupuncturist, osteopath, family/general physician, or specialist for advice on what to do.

World Spine Care (WSC), in conjunction with the Global Spine Care Initiative (GSCI), has developed an evidence-based model of care that can be modified so that patients can still help themselves or be helped by their licensed clinicians while at the same time avoiding or markedly restricting the degree of direct contact.

World Spine Care

DISCLAIMER

This Guide should only be considered in situations where social isolation is required or where clinicians or patients have elected to reduce contact, due to COVID-19, to those who require urgent or emergency care. It is expected that patients and providers will continue regular care as soon as any restrictions are lifted.

This Guide is provided as a public education service. WSC assumes no responsibility for any legal issues that may arise. Note that the GSCI Classification and Care Pathway has not yet been scientifically validated.

This Guide was developed by a multidisciplinary panel of 28 spine care authorities and clinicians from 10 countries on 4 continents.

References

Haldeman, S., Nordin, M., Chou, R., Côté, P., Hurwitz, E. L., Johnson, C. D., et al. (2018). The Global Spine Care Initiative: World Spine Care executive summary on reducing spine-related disability in low- and middle-income communities. European Spine Journal, 24(6), 1–10.

Haldeman, S., Johnson, C. D., Chou, R., Nordin, M., Côté, P., Hurwitz, E. L., et al. (2018). The Global Spine Care Initiative: classification system for spine-related concerns. European Spine Journal, 20(8 Suppl), 1–12.

Haldeman, S., Johnson, C. D., Chou, R., Nordin, M., Côté, P., Hurwitz, E. L., et al. (2018). The Global Spine Care Initiative: care pathway for people with spine-related concerns. European Spine Journal, 299(6), 1–14.

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CLINICIAN GUIDE

MANAGING BACK AND NECK PAIN IN THE TIME OF COVID-19

CLINICIAN GUIDE

STEP 1

PATIENT DEMOGRAPHICS AND PSYCHOSOCIAL SITUATION

First contact by a patient

A patient has contacted me for spine pain and asks what they can do and whether they need to see someone. What can I do to help my patient without placing them at risk of COVID-19 infection?

This Guide can be used to review the symptoms experienced by a patient that may impact recommendations for patient management. The form below can be found in Appendix 1 and printed separately or incorporated into an EMR.

PATIENT DEMOGRAPHICS AND PSYCHOSOCIAL SITUATION

Patient Name: Date:

Age: Sex:

Normal Occupation:

Current work situation:

- Working:
- Unemployed:
- Laid off due to COVID-19:
- Worker's compensation:

Location of primary complaint:

- Low back:
- Mid back:
- Neck:

Co-morbidities:

Level of anxiety and concern about their condition:

Psychiatric history:

Other:

World Spine Care

CLINICIAN GUIDE

STEP 2

COMPLAINT SEVERITY AND TRIAGE

Questions 1-5 are included in the WSC Patient COVID-19 Guide. These questions can be completed by the patient before seeking care or advice. If completed they should be reviewed with the patient.

1. **What are the patient's problems/ symptoms? (VAS scale: 0-10)**
   a. minimal discomfort (pain 0-1/10)
   b. mild (pain 2-4/10)
   c. moderate (pain 5-7/10)
   d. severe (pain 8-10/10)
   e. Numbness or tingling
   f. Muscle weakness
   g. Loss of balance
   h. Onset of bladder or bowel problems like loss of control

   Recent onset:

   Pre-existing and not changing:

2. **Does the pain radiate beyond the spine?**
   a. No
   b. Down both legs
   c. Down one leg
   d. Down both arms
   e. Down one arm
   f. New or different headaches
   g. Chest pain

3. **Are the symptoms stopping the patient from doing normal activities?** (NIH CIC scale: 0-50)
   a. No. The patient can do everything (NIH PCIC Score: 8–27)
   b. Yes, a little. The patient can do most activities (NIH PCIC Score: 27-35)
   c. Yes, a lot. The patient has difficulty doing anything (NIH PCIC score: >=35)

4. **Has the patient experienced a recent fall or accident?**
   a. No
   b. Yes

5. **Is there any history consistent with red flags for spinal pathology?**
   a. No
   b. Cancer
   c. Infection such as Tuberculosis or HIV
   d. Osteoporosis, steroid use, age over 60
   e. Inflammation of my joints or rheumatoid disease
   f. Serious neurological disease

Note: The VAS scores and NIH Pain Consortium Impact Classification Score (NIH PCIC) are not in the patient guide. Any valid disability scale can be used instead of the NIH PCIC score.

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CLINICIAN GUIDE

STEP 3

GLOBAL SPINE CARE INITIATIVE (GSCI) CLASSIFICATION

What Class of back or neck pain best represents the patient symptoms?

CLASS 0 – MINIMAL OR NO DISCOMFORT BUT NO OTHER SYMPTOMS

Yes, on 1a and No on all other questions.

CLASS I – MILD SPINE PAIN

Yes, on 1b and No to all other questions.

CLASS II – MODERATE SPINE PAIN

Yes, on 1c and 3b.

CLASS II – SEVERE SPINE PAIN

Yes, on 1d and 3c and No on all other questions.

CLASS III – SYMPTOMS CONSISTENT WITH NERVE PROBLEM

Pain, numbness or tingling in arms or legs, new onset marked muscle weakness, new onset of bowel or bladder problems (Yes to 1d and/or 1e, and/or 1f and/or 1g and/or 1H).

Severe new onset of headaches or chest pain (yes to questions 2b and/or 2c and/or 2d and/or 2e).

Consider additional questions on gait difficulty, loss of balance, loss of hand function including clumsiness, dexterity that may represent symptoms of myelopathy.

CLASS IV – POSSIBLE SPINE/BONE FRACTURE

Severe fall or accident with severe spine pain (Yes on 1c and 4b).

CLASS V – POSSIBLE COMPLICATION OF A SERIOUS PROBLEM THAT IS AFFECTING THE SPINE

Yes, on any of the conditions noted in questions 5.

CLINICIAN GUIDE

STEP 4

DETERMINATION OF GSCI SPINAL DISORDER SUBCLASSIFICATION

Questions to ask to determine subclassification

1. Duration of symptoms?
2. Are symptoms progressive or stable?
3. What risk factors for spine pain and co-morbidities are present?

CLASS 0 – NO OR MINIMAL SYMPTOMS

SUBCLASS CONSIDERATIONS

- Class 0a = no history of risk factors
- Class 0b = history of risk factors

It is not necessary to see a clinician in his or her office. Telehealth may be considered.

CLASS 1 – MILD SPINE PAIN

SUBCLASS CONSIDERATIONS

- Class Ia = *acute* (duration < 3 months)
- Class Ib = *chronic* (duration > 3 months)

Office-based treatment by a clinician is not usually necessary. Telehealth may be necessary. Advice and reassurance may be helpful.

CLASS II – MODERATE AND SEVERE SPINE PAIN

SUBCLASS CONSIDERATIONS

- Class IIa = *acute* (duration < 3 months) *moderate* pain and disability
- Class IIb = *chronic* (duration > 3 months) *moderate* pain and disability
- Class IIc = *acute*, *severe* pain
- Class IId = *chronic*, *severe* pain and disability

IIa & IIb: Office-based treatment by a clinician is not always necessary. Telehealth is important. Advise and reassure. Regular Telehealth follow-up may be necessary.

IIc: Office-based treatment by a clinician may be necessary. In many cases acute symptoms can be managed through Telehealth in the absence of red flags.

IId: Office-based treatment by a clinician may not be necessary unless there is a flareup of incapacitating symptoms. Consider Telehealth consultation first.

CLINICIAN GUIDE

STEP 4
(CONTINUED)

CLASS III – NEUROLOGICAL SYMPTOMS OR DEFICITS

SUBCLASS CONSIDERATIONS

- Class IIIa = *minor or non-progressive*
- Class IIIb = *acute, major or progressive*
- Class IIIc = *chronic and stable*

Office or emergency room treatment by appropriate clinician is necessary if the symptoms are acute or progressive.

CLASS IV – SEVERE STRUCTURAL SPINE PATHOLOGY -POSSIBLE FRACTURE

SUBCLASS CONSIDERATIONS

- Class IVa = *stable* spine structural pathology with no serious symptoms or red flags
- Class IVb = *acute* (e.g. fracture) or *chronic* (e.g. instability) spine *structural pathology* which correlates with symptoms

IVa: Office based treatment is not necessary. Telehealth may be considered for advice and reassurance.

IVb: Emergency treatment is necessary.

CLASS V – SPINE RELATED SYMPTOMS DUE TO SERIOUS SYSTEMIC PATHOLOGY

SUBCLASS CONSIDERATIONS

- Class Va = *severe acute spine pathology*. **Requires immediate attention (emergency).**
- Class Vb = *slowly progressive spinal pathology*. **Requires intervention (non-emergency).**
- Class Vc = *symptoms originating from non-spinal pathology*. **Requires immediate attention (emergency).**

Referral to patient's medical family/general physician or specialist to determine whether serious disease is causing the patient's spine-related symptoms. Advise patient if emergency attention is required.

CLINICIAN GUIDE

STEP 5

TREATMENT CONSIDERATIONS

On completion of the questionnaire and determining the Class and Subclass of spinal disorder, consider the following:

1. Follow WHO, CDC, NHS, and other national government agency guidelines for the current status and recommendations regarding the prevention and management of COVID-19.

2. Consult national evidence-based treatment guidelines for evidence-based treatment options for each subclass of spinal disorder. Consider the Global Spine Care Initiative flashcards for a review of these guidelines and interventions recommended for each class and subclass of spinal disorder.

   Other Resources

   - NHS - Back Pain
   - American College of Physicians Clinical Practice Guideline
   - Chiropractic clinical practice guideline
   - American Physical Therapy Association Clinical Practice Guidelines
   - Task Force on Neck Pain Executive Summary

3. Advise patients over the phone, provide video consultations (in some/regions partially or fully reimbursed by the health insurance), use social media including Facebook to educate patients. Considerations:
   - Research existing on-line educational media that satisfies the requirements for each individual patient.
   - Consider leading online educational classes with patients.
   - Consider leading or referring to on-line yoga, including the World Spine Care Yoga Project, Tai-Chi, Pilates, or rehabilitative exercise group classes with patients.

4. For Class 0, Class I, and moderate Class II, reinforce that the current research suggests that self-care is usually enough to control symptoms. Provide advice and reassurance that may relieve the pain and aid recovery.

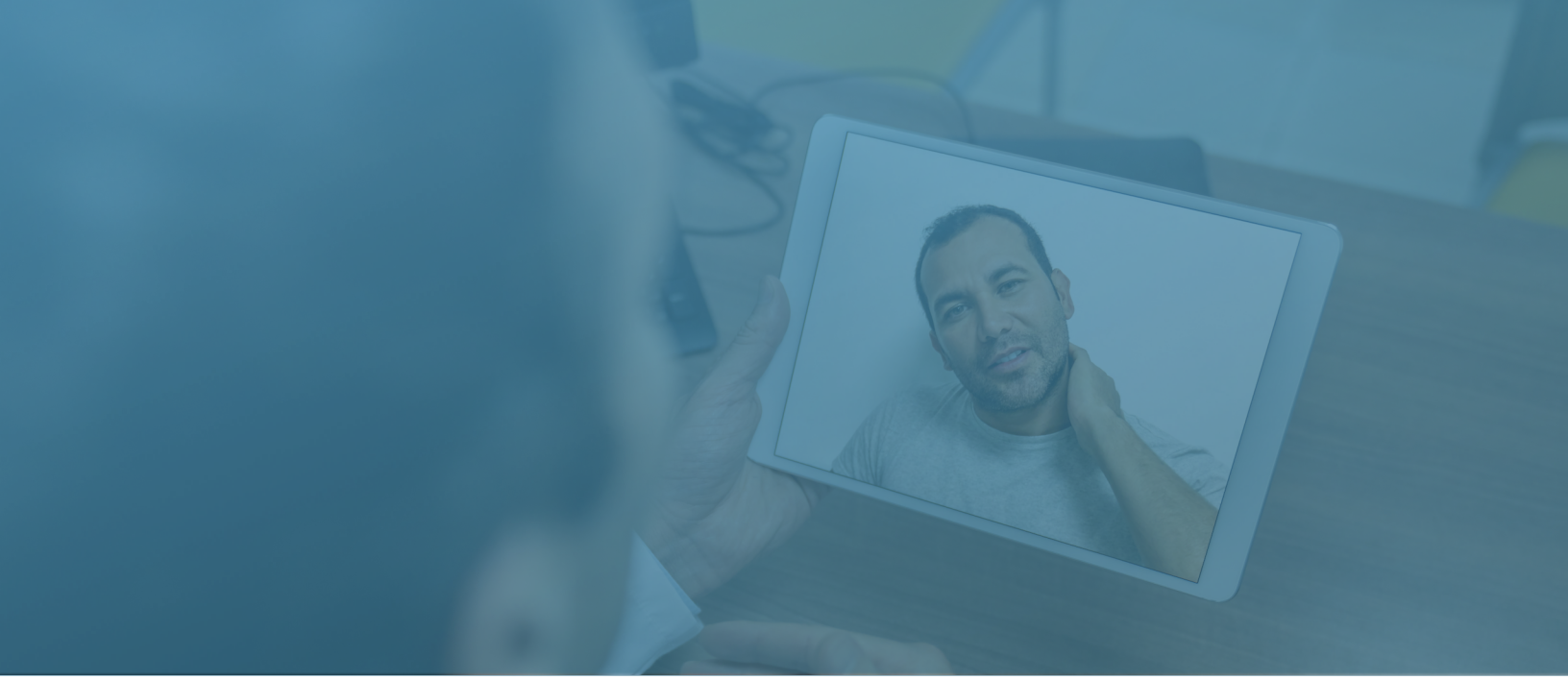
5. The taking of over the counter medication including paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs), including Ibuprofen and Naproxen is recommended for short term relief of back and neck pain by most evidence-based guidelines. Patients should be aware of the potential adverse events including

CLINICIAN GUIDE

STEP 5
(CONTINUED)

gastrointestinal bleeding and ulcers, cardiovascular and renal disorders. The possibility that NSAIDs may negatively impact COVID-19 pulmonary symptoms has been raised but not confirmed at the time of publication. (*Non-steroidal anti-inflammatory drugs and covid-19. BMJ 2020; 368:m1185.*) Clinicians should be able to advise patients or refer patients to a reliable source of information when asked by patients about taking these medications. Click here for additional details.

6. Reinforce that testing such as X-ray and MRI rarely help in the decision on which treatment to consider. Referral to a surgeon is not necessary unless the patient is incapacitated, has had a significant injury, or has red flags that result in Class III, IV or V assessment.
7. Be available for regular follow up contact with the patient (virtually).
8. Recognize that patient symptoms on rare occasions can get worse, so that they could eventually fall into a different Class or Subclass and require different or more immediate care than originally recommended.
9. Patients should be empowered to embrace self-management but still feel they are being cared for.



CLINICIAN GUIDE

TELEHEALTH CONSIDERATIONS

WORLD SPINE CARE SUPPORTS MAKING TELEHEALTH FOR SPINE CARE MORE AVAILABLE AS WELL AS REIMBURSABLE.

1. Find out if Telehealth communication is allowed in your jurisdiction.
2. In many countries and regional jurisdictions, including the United States, be careful about providing Telehealth sessions to patients who live outside of your jurisdiction. You may be sanctioned for practicing without a license. Follow all the legal recommendations for Telehealth.
3. Check with your malpractice carrier to make sure there are no restrictions for coverage while conducting Telehealth sessions.
4. Also make sure to obtain a verbal consent from the patient in which they acknowledge there are limitations to a Telehealth session, which is not the same as a physical examination (not possible to do a detailed neurological examination on the phone, etc.).
5. Be careful not to violate any patient privacy rules. Use a video program or platform that provides an appropriate level of patient confidentiality to satisfy regional or national laws.
6. Find out if compensation is allowed, including billing requirements that may necessitate mandatory documentation regarding Telehealth sessions with your patients.
7. Keep records of your consultation.
8. Make sure to get the address of the physical location of the patient. This may be necessary in case of an emergency arises during the Telehealth session.

CLINICIAN GUIDE

OUTPATIENT CONSIDERATIONS

AFTER TELEHEALTH ASSESSMENT, THE PATIENT MUST BE SEEN AND EXAMINED IN MY OFFICE OR AT ANOTHER CLINICAL FACILITY.

During this period of social and physical distancing what precautions must I consider when seeing a patient while protecting both the patient, me, and my staff from infection?

1. Follow World Health Organization (WHO), Centre for Disease Control (CDC), the National Health Service (NHS), and other government agency guidelines based on your geographical area of practice. Note that these guidelines are fluid, so be sure to keep yourself informed of best practices and requirements.
2. Be sure that all office equipment is sanitized after every patient contact.
3. Always wear a clean mask and gloves and wash hands before and after every patient contact.
4. Patients with severe incapacitating pain or radiculopathy, especially if acute, should be seen in an outpatient office. The goal is to determine if they need referral. If referral is not necessary, provide reassurance and relief. Try, as much as possible, to keep them away from emergency departments where they are at higher risk of infection of COVID-19.
5. Create a list of the surgeons, medical specialists and emergency facilities in your community who will accept patients who require specialist level or immediate care.
6. Prioritize front line workers (doctors, nurses, ambulance, police, military and law enforcement personnel and others) who are treating and supporting COVID-19 patients and

CLINICIAN GUIDE

OUTPATIENT CONSIDERATIONS
(CONTINUED)

services, to help them stay at work despite non-serious spine pain.

7. Check with your jurisdiction rules about their definition of "essential services". In certain jurisdictions, primary care clinicians are legally permitted to see patients in an out-patient setting, if they are providing "essential services". This has usually been interpreted to mean patients in acute pain or distress, who would otherwise go to an emergency department. It does not mean maintenance or preventive services.

8. For those primary care clinicians who work within integrative settings, the rules about outpatient services vary greatly. In certain jurisdictions seeing a patient in an out-patient setting with sciatic radiculopathy is considered a "non-essential" service. In other jurisdictions this would be considered an "essential" service.

9. One of the emerging findings in patients with severe COVID-19 is blood clotting disorders. Research into this phenomena is being conducted in various places around the world but little has been published to date, therefore, chiropractors and other manual therapists should ensure they follow the latest research on this topic because of the possible impact on the treatment of patients who have had COVID-19.

CLINICIAN GUIDE

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World Spine Care

THANK YOU.

On behalf of World Spine Care and the Global Spine Care Initiative, we wish to thank the multidisciplinary panel of 28 spine care authorities and clinicians from 10 countries on 4 continents who provided their time and expertise into the development of this Guide.

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Learn more about World Spine Care: www.worldspinecare.org

APPENDIX A

PATIENT DEMOGRAPHICS AND PSYCHOSOCIAL SITUATION

Patient Name: _____ Date: _____

Age: _____ Sex: _____

Normal Occupation: _____

Current work situation: _____

Working: _____

Unemployed: _____

Laid off due to COVID-19: _____

Worker's compensation: _____

Location of primary complaint: _____

Low back: _____

Mid back: _____

Neck: _____

Co-morbidities: _____

Level of anxiety and concern about their condition: _____

Psychiatric history: _____

Other: _____

_____

_____

_____

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Chairperson

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Organizing Secretary

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Faculty/Subject	:	Physiotherapy
Tile of Thesis	:	**"EFFICACY OF G D MAITLAND'S MOBILIZATION TECHNIQUE IN ADHESIVE CAPSULITIES-A RANDOMIZED CONTROLLED STUDY"**
Name of Supervisor	:	Dr. Suraj Kumar
Date of Ph.D. Viva-Voce	:	07.01.2020

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HEALTH EMERGENCIES programme

Record of Achievement

Standard precautions: Waste management

Anamika Chalwadi

May 18, 2020

Date: 17th June 2020

To Whomsoever it may concern

This is to confirm that ANAMIKA MAHESH CHALWADI (Email id: anamikamchalwadi@yahoo.co.in) had enrolled to the NPTEL course **Basic course in Biomedical Research** on the SWAYAM platform (swayam.gov.in), during the Jan-Apr 2020 semester.

The scores obtained by the learner in the unproctored online assignments are as follows and maybe used as deemed appropriate. (Every assignment score shown below is out of 100 marks.)

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13
90	80	90	60	70	90	90	90	80	70	80	70	70

A14	A15	A16	A17	A18	A19	A20	A21	A22	A23
90	90	70	90	100	80	70	60	100	90

*NA- Not Attempted

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

World Health Organization

HEALTH EMERGENCIES programme

Record of Achievement

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Anamika Chalwadi

March 20, 2020

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Vidula Patil

has completed 7 hours of online course on

NEURO OPTOMETRY

from 21 April 2020 to 14 May 2020.

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M.OPT, MIOA
PRESIDENT - IOA

CATHY STERN, OD
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COURSE INSTRUCTOR

RAJEEV PRASAD
M.OPT, MCSO, MIOA
SECRETARY - IOA

CERTIFICATE OF COMPLETION

ESSENTIAL UPSKILLING FOR NURSES ON COVID-19 PANDEMIC MANAGEMENT

This is to certify that **Jyoti Milind Chaudhari** on 09.07.2020
has completed the online course of duration 4 hours

Prof (Dr) Roy K George
National President

Evelyn P Kannan
Secretary General

Certified by

THE TRAINED NURSES ASSOCIATION OF INDIA (TNAI)

COALITION FOR RESPONSE TO COVID-19

Coalition coordinator and Online Learning Designer: Generation

Medical Content Provider: COLUMBIA ASIA

Industry Partner: HOSMAC PERFECTING HEALTHCARE

Media Partner: ABP न्यूज़

Implementation Partner: LEARNET SKILLS FOR LIFE

Strategic Partner: New Delhi Office

Researcher Academy researcheracademy.com

Certificate of Completion

ELSEVIER

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has successfully completed the following module

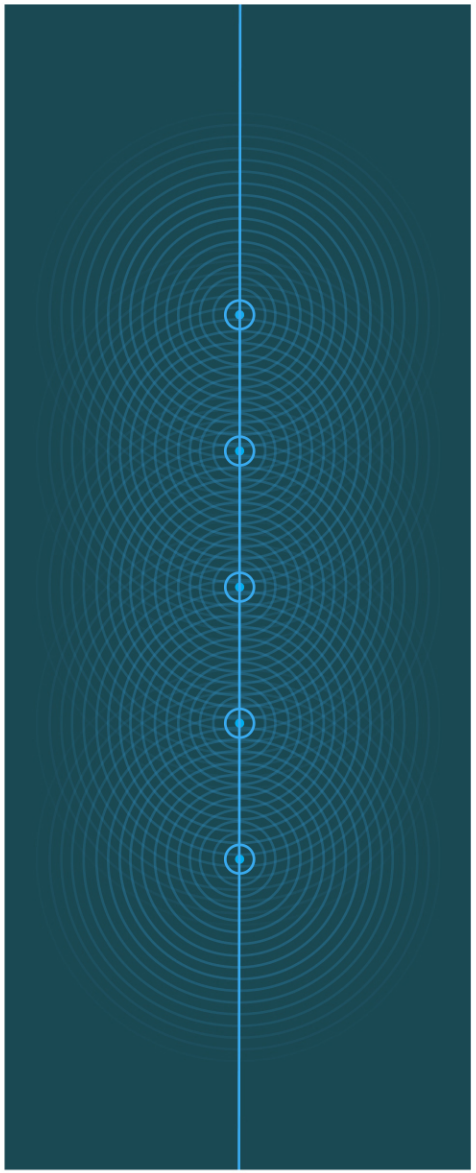
The origins of scientific publishing

on Friday 24 April, 2020

Presented by Jan Willem Wijnen

Suzanne BeDell
Managing Director, Education
Reference & Continuity Books

Philippe Terheggen
Managing Director, Science,
Technology & Medical Journals



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Using proper manuscript language

on Friday 24 April, 2020

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The journal publishing cycle

on Friday 24 April, 2020

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Managing Director, Education
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Making sense of science stories

on Friday 24 April, 2020

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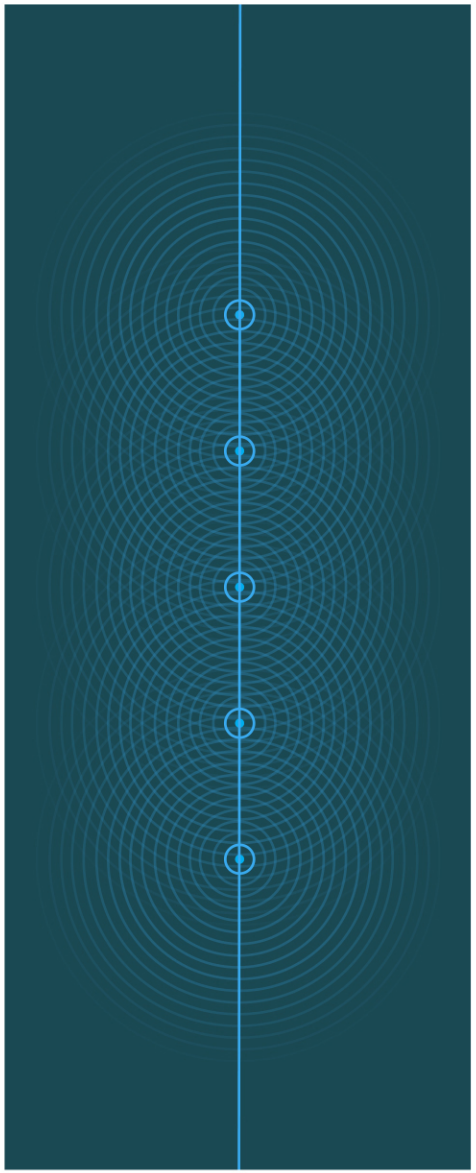

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Structuring your article correctly

on Saturday 19 October, 2019

Presented by Anthony Newman

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10 reasons to get – and use – an ORCID iD

on Friday 24 April, 2020

Presented by Alice Meadows

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How to prepare your manuscript

on Wednesday 23 October, 2019

Presented by Anthony Newman

Suzanne DeBell
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Writing a persuasive cover letter for your manuscript

on Friday 24 April, 2020

Presented by Anthony Newman, Lora Heisler

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Philippe Terheggen
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fe27b390-7680-11ea-b54a-2bfdc5c787c7

Certificate of Completion

This is to certify that

Maria Preethi Mathew

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Certificate in Sports Nutrition

course on 4 April 2020

Medvarsity™

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has successfully completed

Certificate on COVID-19 – Awareness and Management

Conducted by Medvarsity
In partnership with NATHEALTH & FICCI

Awarded on 10 April 2020

NATHEALTH Healthcare Federation of India | Medvarsity | FICCI

Gerald Jaideep
CEO, MEDVARSITY

Candidate Trainer

presented to

Maria Preethi Mathew

in recognition of successful completion of

ModCAL for Training Skills

November 15, 2019

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Plagiarism

on Thursday 17 October, 2019

Presented by Catriona Fennell

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Philippe Terheggen
Managing Director, Science,
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22.07.2020

To

Dr. Prabha Dasila
MGM New Bombay College Of Nursing, MGM Institute of Health Sciences (Deemed To Be University)),
Navi Mumbai - 410209

Dear Dr. Prabha Dasila,

We are pleased to inform you that you have been selected for the two – year PSG-FAIMER Institute Fellowship program for the years 2020-2022.

Due to the current COVID 19 pandemic, your onsite sessions will be deferred until June 2021. However, we hope to begin online discussions by January 2021. We will update you regarding the same in due course.

Please sign and send your acceptance (format attached) of the offer immediately by email to drsudhafaimer@gmail.com, drthomasvchacko@gmail.com and psg.faimer@gmail.com on or before 1st August 2020.

Please note that your acceptance letter should reach us by the stipulated date, otherwise the position will be offered to other applicants in the waiting list.

We appreciate your interest in the FAIMER Educational Leadership Fellowship program and hope that it will be a satisfying experience for both you and your home institution. In case you need any other information, you can contact Dr Sudha Ramalingam, Co-Director PSG FRI via e-mail (drsudhafaimer@gmail.com) or PSG FRI Secretariat at +91 422 4345815

Yours Sincerely,

Dr. Thomas V Chacko

Dr. Sudha Ramalingam

Copy: The Dean / Head of Institution

PSG INSTITUTE OF MEDICAL SCIENCES & RESEARCH, COIMBATORE 641004 TN, INDIA
Phone: 91 422 4345815, e-mail : psg.faimer@gmail.com, drthomasvchacko@gmail.com

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This is to certify that

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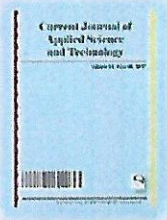
Current Journal of Applied Science and Technology



Certificate No: SDI/HQ/PR/Cert/61814/RPO

2020

Certificate of Excellence in Reviewing

awarded to

R.Ponchitra

MGM New Bombay college of Nursing, India

in recognition of an outstanding contribution to the quality of the journal.

Dr. M Basumondal
Chief Managing Editor

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Learner Achievement Verification

This is to certify that the management of Alison has decided to award Ponchitra Ramanathan living in India the certificate of completion in Change Management – Guiding Principles and Practices - Revised.

Learner Details

Name: Ponchitra Ramanathan

E-mail: ponchitra76@yahoo.co.in

Country: India

Course and Result

Score
88%

Study Time
2:38:07

Change Management – Guiding Principles and Practices - Revised

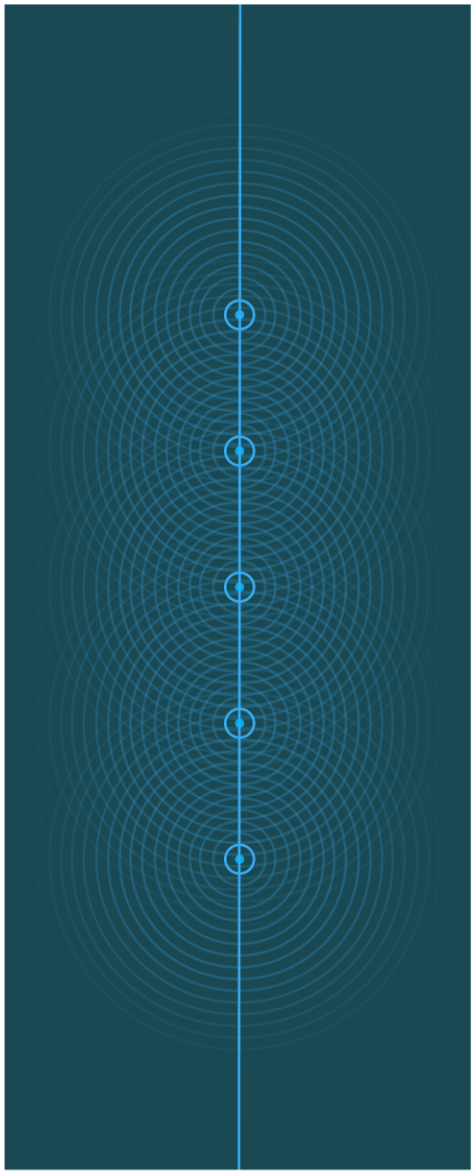
An organization needs to run as a system, if it wants to implement change successfully. 'Systems-thinking' emphasizes how the whole affects the parts and how the parts affect the whole. In this course you will learn about the principles and practices of effective change management systems. Communication is central to an organization's effectiveness and survival. However, there are challenges to communicating in today's organizations.

Modules Studied

Module 1: Module 1: Collaborative Change

Module 2: Module 2: Identifying and Solving Problems

Module 3: Course assessment



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