

Post-ICU Care: Why, What, When and How? ISCCM Position Statement

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Received on: 08 February 2024; Accepted on: 22 March 2024; Published on: 10 August 2024

Keywords: Critical care, Intensive care unit, Post-ICU care, Post-ICU syndrome.

Indian Journal of Critical Care Medicine (2024): 10.5005/jp-journals-10071-24700

INTRODUCTION

Critical care is not restricted to care provided in intensive care unit (ICU) and extends beyond the walls. Patients with critical illness are at risk of multiple physical and mental comorbidities, and it would be prudent to diligently follow them upon being transferred out of the ICU and subsequently from the hospital. Early identification of issues and a multidisciplinary care plan are essential to improve overall outcome.

Post-ICU syndrome (PICS) has been identified increasingly in patients after discharge from ICU in western literature, but there is limited data from Asian countries. Indian Society of Critical Care Medicine identified this area of concern and scope for improved care and created a task force to better understand the burden of the issue and create a scientific position statement.

BACKGROUND

Post-ICU Syndrome (PICS)

Post-ICU syndrome is a syndrome, which is characterized by new or worsening impairments in any one or more of the domains of cognitive function, psychological function and/or physical function that occur in critically ill patients, after discharge from the ICU.

- The *cognitive* impairment presenting with deficits of attention, memory, executive functions, and visuospatial perception.¹
- The *psychological* impairment is usually anxiety, depression, and post-traumatic stress disorder (PTSD).
- The *physical* impairment manifests as neuromuscular deficits, clubbed together as “Intensive care unit acquired weakness” (ICU-AW) that can present as swallowing difficulty, breathing difficulty, problems with mobility, and personal autonomy.²

Risk Factors

Multiple factors have been associated with higher risk for developing PICS. However, there is no preferred method to predict or an ideal tool that can be used systematically to identify who will develop the syndrome. The risk factors that can predispose one to PICS can be grouped as given below:³

- Those that are present even before the onset of critical illness, such as pre-existing frailty, functional impairment, cognitive dysfunction, anxiety, depression or PTSD.

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How to cite this article: Ramakrishnan N, Abraham BK, Barokar R, Chanchalani G, Jagathkar G, Shetty RM, *et al.* Post-ICU Care: Why, What, When and How? ISCCM Position Statement. *Indian J Crit Care Med* 2024;28(52):S279–S287.

Source of support: Nil

Conflict of interest: None

- Those that happen during the critical illness—prolonged sedation, delirium, sepsis, shock, hypoxemia, acute respiratory distress syndrome (ARDS), life support, and memories of frightening experience in the ICU.

Patients with one or more risk factors are at a very high risk of developing PICS. They should be screened using recommended tools and those at risk should be followed after being transferred out of ICU.

Recognition

The clinical features of PICS are variable. Even though it is classically described to happen after treatment in an ICU, it can occur as early as 24 hours after ICU admission and persists as long as 15 years after ICU discharge. The presence of symptoms of any one domain described above is sufficient for the diagnosis.⁴ The symptoms of all three domains can occur during any phase of critical illness.

Despite lack of strong evidence, there is an overwhelming agreement among experts that the assessment for identifying PICS should be initiated early. The initial assessment should be done at admission to the ICU to evaluate for pre-ICU functional abilities.³ This should be followed by functional status assessment at discharge from ICU, but prior to hospital discharge to compare the results with patients' pre-ICU functional abilities. After discharge from hospital, the assessment for PICS should be done within 2–4 weeks, continued and sustained serially along the path of recovery, done using identified screening tools and prioritized to patients identified as having high risk for developing PICS. The information from these assessments should guide the physician in making a care plan in consultation with other specialists to address the identified problem.⁵

Objectives

The objective of this position statement from ISCCM is to provide pragmatic evidence-based scientific statements for the diagnosis of PICS and the care of survivors of critical illness with PICS. The scope of the document is limited to recognition and management of PICS in Post-ICU follow-up clinics in India and does not include home healthcare.

Methods

The ISCCM nominated a task force led by a chairperson and eight domain experts to formulate a position statement on post-ICU care. The Chairperson of the task force created subgroups to focus on specific aspects of PICS care and each subgroup conducted a MEDLINE search of existing literature. MESH Term used was post-intensive care syndrome (PICS) and key words used for search included ICU, Intensive Care, Critical Care, Critical Care Unit, Post-intensive Care.

Initial search found 7,653 articles which was reduced to 265 articles after removing studies that were not relevant. A scoping review of 72 articles, which were appropriate for drafting our position statement was done. Of note, there were not much data available from India and other low- and middle-income countries (LMIC).

Each of the subgroups presented a summary of the evidence at three meetings held online. Using these summaries, the chairperson drafted the first version of this position statement, which was then reviewed by each of the members. The chairperson, having considered the revisions, drafted a final version of the statement that was approved by all the members. In view of the limited literature from India on post-ICU care, the task force decided to draft scientific statements based on available information from western data and consensus development panel.

DISCUSSION

What is the Need for Post-ICU Care in India?

The need for post-ICU care was recognized in the western world about a decade ago. For the improvement of long-term outcomes in survivors of critical illness, a systematic recognition of impairments in the three domains of PICS, during the transition of care from critical care to recovery was recommended.⁵

Epidemiological data indicate that the incidence of critical illness is increasing in LMICs.⁶ Even though critical care is a growing subspecialty in India, there are only 3.6 ICU beds per 100,000 population. The data from INDICAPS I study shows that the mortality of patients admitted to Indian ICUs is 21.7% with a median

ICU length of stay of 6 days (IQR 3-13).^{7,8} Globally, the outcomes of critical illness are improving with increased survival, which in turn increases the burden of PICS. Since 2019, there have been multiple publications^{1,2,4} in the medical literature documenting impairments in cognitive, psychological, and physical domains affecting the health-related QOL among survivors of critical illness in India providing evidence for the increasing prevalence of PICS. These publications have led to an awakening among the Indian critical care community on the need for post-ICU care in India.⁹

What are the Challenges of Setting up Post-ICU Care in India?

There is very little data in medical literature looking at challenges of setting up post-ICU care in India or in other LMICs. However, considering how fragmented healthcare system is in this region, the way critical care or post-ICU care is delivered would be influenced by multiple factors including limited training among the healthcare work force, healthcare costs which are mostly borne by patients and cultural/social influence.⁸ Anecdotally, intensivists face challenges in convincing the patients to follow-up for post-ICU care. The most cited reasons for this are follow-ups not synchronized with primary physician appointments, fear of contracting infection from visit to the hospital, physical disability to travel and also a feeling that post-ICU follow-ups are not necessary or are meaningless (currently unpublished data from post-ICU Clinic in South India). Limitations in accessing post-ICU clinics is cited as the most common barrier in western literature too. This could be due to distance and physical difficulties in visiting the clinic.¹⁰

Seamless transition of patient care at the various transition points—from ICU to the ward, the ward to rehabilitation, or the community appears to be a big challenge.¹¹ Factors that are recognized as a barrier for the establishment of post-ICU care include lack of funding for the post-ICU clinics, lack of space for the clinics, improper identification of patients, practice variation between clinicians, and hospital billing practices. The reason for patients feeling that post-ICU care is meaningless could be because they are developing resilience and adapting to the limitations in the healthcare system.¹⁰ Social, economic, and cultural factors can influence patient experience and psychological needs during recovery.¹¹ There is emerging evidence that determinants of resilience and mental make-up to deal with stress and trauma in Indian population varies from that in the west.¹²

PICS Assessment Tools

Post-ICU syndrome as specified in the definition represents new or worsening impairments in physical, psychological, or cognitive health after an episode of critical illness. Any assessment of PICS therefore needs to include clinical signs and symptoms in all these domains. Existing tools and clinical judgment are not sufficiently reliable for the prediction of PICS and also not specifically validated in Indian population (Table 1 for suggested tools). The Society of Critical Care Medicine (SCCM)'s *International Consensus Conference on Prediction and Identification of Long-term Impairments After Critical Illness*³ has identified the following attributes as factors associated with higher risk of developing PICS. These include the presence of pre-existing cognitive dysfunction, mental health problems or functional disability, frailty, delirium during ICU stay, use of sedatives specifically benzodiazepines, presence of sepsis, shock, hypoxia or ARDS during the ICU stay, and need for organ support such as invasive ventilation.³

Table 1: Suggested tools for assessment of post-intensive care patients. Please note that administering any or all of the tools may be challenging and have not been specifically validated in Indian/LMIC population

Psychological assessment
Hospital Anxiety and Depression Scale (HADS)
PTSD-DSM-5
Impact of Events- Revised (IES-R)
Cognitive assessment
Mini-mental test
Montreal Cognitive Assessment (MoCA)
Physical assessment
Performance status: Barthel scale
Pain status: Visual analog scale
Physical function: 6-minute walk test
Functional performance
Handgrip strength
Six minute walking test
Timed up and Go (TUG)
Muscle strength
Shuttle Walk Test (SWT)
International Classification of Functioning, Disability and Health (ICF)
KATZ-ADL
Amsterdam Linear Disability Scale (ALDS)
Quality of life
SF-36
Respiratory status
Borg scale
Modified Medical Research Council (MMRC) dyspnea scale
Spirometry
Nutritional status
NRS 2002
Mini Nutritional Assessment Short form (MNA-SF)

The SCCM consensus conference also identified and recommended screening tools for the assessment of PICS. For cognition, the recommended tool is the Montreal Cognitive Assessment (MoCA) score.^{13,14} A score of less than 10 is considered severe cognitive dysfunction and between 10 and 17, as moderate. For symptoms of anxiety and depression, the recommended tool is the Hospital Anxiety and Depression Scale (HADS).^{14,15} Using HADS, a score of 8 or greater on the anxiety or depression sub-scale is used to identify symptoms of clinically significant anxiety or depression. The SCCM consensus conference based on existing evidence provided strong recommendations for the use of the MoCA and HADS.³ Similarly, for the assessment of physical function, the suggested tools are the 6-min walk test¹⁶ and the EuroQoL-5D-5L tools.¹⁷ For the assessment of post-traumatic stress disorder, the suggested tool is the Impact of Event Scale-Revised (IES-R) or the abbreviated 6-item IES-6 scale.^{18,19}

One of the major limitations of this screening approach is the need for multiple tools and the substantial time needed for completion of the assessments. In addition, patients affected by PICS are likely to have challenges completing some or all components of these evaluations. Researchers are working on developing and validating newer tools that can simplify assessments while still retaining the multidimensional structure essential to such evaluations.^{20,21}

Timing of Assessments

There is not sufficient evidence at this point to recommend specific time-points or intervals. A reasonable strategy would be an early assessment at around 2–4 weeks after discharge followed by serial assessments. The first post-ICU visit would provide an opportunity to re-establish contact with the patient and caregivers and ensure that they understand that continued care is essential and respond to their apprehensions and queries.³ In addition, early assessments of physical, cognitive, and psychological symptoms may provide a sense of the focus and intensity of support that the patient might require. Subsequent visits can be timed at 3-monthly intervals or more frequently depending on the challenges faced by the patient. Models for follow-up may include the option of online or virtual follow-up in addition to in-person attendance at a clinic (hybrid approach).²²

Post-ICU Care Domains

Physical Rehabilitation

One of the key components defining PICS is the physical disability which can range from generalized deconditioning to severe polyneuromyopathy. It manifests as ICU acquired weakness (ICUAW) with a reported incidence of around 25% and is shown to be associated with poor outcomes including the need for significant additional and on-going care after discharge.^{23,24} The impact of ICUAW can be long-term with studies reporting exercise intolerance and decreased physical quality of life lasting for almost 5 years.²⁵ Notably, these limitations are characterized by severe muscle wasting and include impaired swallowing, restricted mobility, breathing difficulties, and limitations in activities of daily living (ADL).²

With respect to the impact of physical therapies on the long-term outcomes of the ICU survivors, most of the data are conflicting as they are from an extremely heterogeneous population and lacking in standardized therapies and interventional protocols. Irrespective of the long-term outcomes, early mobilization seems to have a positive impact on the duration of mechanical ventilation, incidence of delirium, length of stay and muscle strength.²⁶ Multiple techniques of early mobilization can be tried depending on the infrastructure and the expertise available in the hospital. Passive mobilization, range of motion exercises, resistance training, and assisted exercises can be initiated as early as feasible. Interestingly, a systematic review and meta-analysis including 10 RCTS and 1110 patients failed to demonstrate any significant benefit of enhanced rehabilitation in patients who were mechanically ventilated and discharged from the ICU in terms of either quality of life or mortality.²⁷

Considering the lack of guidelines and validated rehabilitation protocols for the post-ICU care, individualizing the strategies is suggested based on the patient's physical and psychological condition, available infrastructure including the availability of long-term care and physiotherapist and occupational therapist.

Nutrition Support

Critically ill patients are subjected to profound metabolic alterations with a predominance of catabolism in the acute phase.²⁸ As the patients tide over the acute crisis, stabilize and are transitioned to post-ICU care, their physiology is more receptive for anabolic metabolism. However, most of the research has focused on the role of nutritional interventions during the acute phase with lack

of guidelines about nutritional support during the post-ICU period. Intensive care unit survivors are often at risk for malnutrition with physical and psychological disability highlighting the importance of nutritional support during this period.

Most of the data show inadequate nutritional delivery both in terms of calories and proteins during the post-ICU phase.²⁹ Lack of clarity with respect to energy requirement and protein needs makes this more difficult. Available literature has suggested multiple barriers toward achieving optimal nutritional delivery in these patients, which can be grouped as:

- Biological factors, such as poor appetite, early satiety, nausea, and vomiting. Another important factor is oropharyngeal dysphagia which is commonly reported in many ICU patients particularly those on mechanical ventilatory support and/or with tracheostomy. The accompanying muscle weakness can contribute to poor volitional intake in these patients.
- Organizational and process factors, such as fixed meal timing, generalization of feeding protocols for all hospitalized patients may influence nutritional intake.
- Factors related to knowledge among the care givers on goals and importance of nutritional intervention.

Psychological Care

Post-ICU sequelae on patient psychology can range from PTSD, anxiety and depression. A third of ICU patients experienced a psychiatric disorder 1 year after discharge from the ICU of whom 28% had depression, 17% reported anxiety and 6% with PTSD, all of them are negatively impacted patients' health-related quality of life.³⁰

According to estimates, 25–30% of persons who go through a highly upsetting event such as assaults, accidents, or exposure to the atrocities of war develop PTSD. Post-traumatic stress disorder symptoms might vary from person to person, but they frequently include flashbacks and nightmares, avoiding emotional triggers, emotional numbing, and hyperarousal. It is unclear whether an ICU stay yields symptoms of similar magnitude but symptoms qualifying as PTSD are clearly associated with PICS.

Initial evaluations can help in identifying psychological distress with potential treatment options, while on-going evaluations can help in directing therapy and monitoring progress. Both interviews and self-report assessments are part of instruments used. The more commonly used screening tests in ICUs to rule in the possibility of PTSD in patients are the IES-R and Diagnostic and Statistical Manual of Mental Health (DSM IV). It has been observed that even patients who do not formally fulfil criteria for PTSD experience significant suffering.^{31,32}

Given the complexity of proving causation in clinical research, the evidence for risk factors for psychologic distress especially PTSD after ICU stay is mixed. The best associations have been found with pre-existing anxiety and ICU practices such as the use of steroids or benzodiazepine sedation. Severity of disease has not shown a consistent association, although severe respiratory distress requiring mechanical ventilation has been seen to lead to greater post-ICU distress. One of the pertinent reasons people develop PTSD is because they have altered memories of the ICU. The memories are often having a basis but may get distorted to represent threatening events, possibly attributable to underlying ICU delirium. For instance, urinary catheterization may be recalled as sexual assault.^{30,33,34}

Multipronged approaches have been tried for managing PTSD among non-ICU population. For adult patients with PTSD, the summary of Recommendations of the APA Guideline Development Panel for the Treatment of PTSD (<https://www.apa.org/ptsd-guideline/ptsd.pdf>) strongly recommends that clinicians should offer one of the following psychotherapies/interventions, such as cognitive behavioral therapy (CBT), cognitive processing therapy (CPT), cognitive therapy (CT), prolonged exposure therapy (PE). Among drugs, venlafaxine or sertraline are useful, although the strength of evidence for pharmacologic treatment of PTSD is not robust.

The convalescence period after discharge from the ICU prolongs the process of psychologic rehabilitation. Various ICUs have started tackling the problem of altered ICU memories by trying strategies to help the patient reconstruct the narrative of what happened during their time in the ICU. Some measures in use are ICU diaries, in which healthcare workers and patient families make entries, such that later patients can correlate the events to their memories and ICU summaries which serve similar roles but are maintained only by healthcare workers (HCWs).^{35–39} However, showing someone a diary is an intervention that has to be done at the right time; otherwise, there is a risk of triggering PTSD in a patient who had previously not shown symptoms. Timing this intervention is tricky as the problems might be embedded if too late and triggered if done too early as patients might not yet require help.⁴⁰

Anxiety and depression are the other components of post-ICU syndrome. In a recent meta-analysis, anxiety was found to affect up to one-third of ICU patients in the first year of their discharge from the ICU. Survivors' propensity for depressed mood states varies depending on the measure and length of the follow-up, but the median prevalence across more than 30 studies was 28% (measured mostly within a year of critical illness). Major depressive episodes and other severe depressed states are less frequent than mild depressive states.⁴¹ The most commonly used instrument was the HADS-A (22 studies, 81%), followed by the State-Trait Anxiety Inventory (4 studies, 15%) and in-person, mail and phone assessment in the rest. Female sex, lower levels of education, unemployment, and concomitant physical and mental health conditions are risk factors.⁴¹ Potential risk factors for critical illness and intensive care include the degree of organ failure, the use of large doses of benzodiazepines, longer ICU stays, unpleasant ICU experiences, and early post-intensive care discomfort. Survivors who experience anxiety and depression also tend to have worse health-related quality of life, reduced physical function, additional mental illness, and cognitive and occupational impairment.⁴²

With limited data from Indian ICUs, we understand that depression, anxiety, and altered memories may be more common than PTSD as compared with data from developed countries.¹² Nevertheless, the effect of post-ICU mental health problems cannot be ignored as they worsen the post-ICU quality of life of the population.^{33,34}

Cognitive Care

Approximately, 40% of survivors of ICU management may have cognitive impairment after 3–6 months of critical illness.⁴³ This includes impaired long-term memory, attention, language, decision making, and executive functioning and is thought to be related to metabolic abnormalities, cerebral ischemia, inflammation, and oxidative stress among other causes. In a study of 126 mechanically ventilated medical ICU patients, 99 of whom survived ≥ 3 months

post-critical illness; long-term cognitive outcomes were obtained for 77 (78%) patients. Delirium is highly prevalent among critically ill patients, and is associated with worse outcomes including long-term cognitive impairment.⁴⁴

Cognitive impairment is diagnosed using restrictive or comprehensive evaluation tools. The MoCA is used often, being readily available, simple, and reliable.⁴⁵ It evaluates orientation, memory, language, attention, reasoning, and visual-constructional abilities. The other tool that had been popular was the Folstein Mini-Mental State Examination (MMSE), till the tool got copyrighted.^{14,46}

Prevention and management of post-ICU cognitive decline go hand in hand, and therefore, management of delirium in ICU is paramount. Sedatives and analgesics are the most commonly prescribed drugs in the ICU. Though required to control pain, relieve anxiety, and improve ventilator synchrony, these medications are also associated with increased risk of delirium, with benzodiazepine being independently associated with the occurrence of delirium. Other “non-modifiable” risk factors include —greater age, dementia, prior coma, pre-ICU emergency surgery or trauma, and increasing Acute Physiology and Chronic Health Evaluation (APACHE) and American Society of Anesthesiologists (ASA) scores.⁴⁷

A major proportion of delirium in ICU is hypoactive and therefore difficult to diagnose without the use of screening tools. The Pain, Agitation, Delirium (PAD) guidelines recommend the use of screening tools, such as the Confusion Assessment Method for the ICU (CAM-ICU) or the Intensive Care Delirium Screening Checklist. In addition to avoidance of benzodiazepines, the use of a multicomponent, non-pharmacologic intervention is focused on reducing modifiable risk factors for delirium, improving cognition, and optimizing sleep, mobility, hearing, and vision in critically ill adults.⁴⁷

The association between sedation, delirium, and consequent cognitive impairment has encouraged investigators to apply the “ABCDEF” bundle of strategies (Awakening and Breathing Coordination of daily sedation and ventilator removal trials, Delirium monitoring and management, and early mobility, exercise and family involvement) for the prevention of delirium in the hope that this will prevent long-term cognitive impairment. A recent meta-analysis showed that implementation of the ABCDE bundles may reduce length of ICU stay, mechanical ventilation time, delirium, ICU and hospital mortality, and therefore promoted early mobilization in critically ill patients.⁴⁸ A few pharmacologic agents that have been studied in this area are methylphenidate and donepezil, mostly used to prevent cognitive decline in patients with traumatic brain injury.⁴⁹

A worldwide survey of Morandi et al. aiming to assess the knowledge and use of all aspects of the “ABCDEF” bundle showed adherence to recommendations remained suboptimal and high variability among countries were found. Delirium monitoring was performed in 70% of ICUs. However, only 42% used a validated delirium tool. A recent global survey on practices in sedation, analgesia, mobilization, delirium, and sleep deprivation in adult intensive care units⁵⁰ (SAMDS-ICU), the Richmond Agitation Sedation Scale (RASS) (76.6%), and the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) (66.6%) were the most frequently tools used to assess sedation level and delirium, respectively. Midazolam and fentanyl were the most frequently used drugs for inducing sedation and analgesia (84.8 and 78.3%, respectively). Data from a survey conducted by ISCCM in Indian

ICUs on current practices of mobilization, analgesia, relaxants, and sedation⁵¹ showed that only 22% used formal scales to measure delirium with the CAM-ICU score being the most preferred one. These data show much scope for improvement in delirium prevention strategies worldwide which can go a long way in preventing long-term cognitive impairment.

Setting up Post-ICU Clinic

The purpose of establishing a post-ICU clinic is to provide comprehensive and specialized care to patients who have been discharged from the intensive care unit (ICU).⁵² The clinic aims to ensure a smooth transition from critical care to post-ICU recovery and improve the overall quality of life for these patients. There is no published evidence to show which model of post-ICU clinic works best either in the LMIC or developed world. Available guidelines differ in their recommendations about the staffing, eligibility of patients, variables to be assessed and tools of assessment.

Objectives

Objectives of post-ICU clinic are:

- To assess and monitor the physical, psychological, and cognitive recovery of ICU patients post-discharge from the hospital.
- To identify and address any complications or issues arising from the ICU stay.
- To optimize medication management and prevent adverse events.
- To provide rehabilitation, emotional support, and education to both patients and their families.
- To promote continuity of care by facilitating communication between the ICU team, primary care physicians, and other specialists.

Who should be the Core Team Members in the Post-ICU Clinic?

The majority of the post-ICU clinics all over the world mainly include intensivists and nurse practitioners. However, it may be beneficial to have multidisciplinary clinics with the presence of other specialists given the multiple issues these patients may present with. In view of the practical difficulties and cost implications, the minimal core team members recommended to be included in these clinics are intensivists and nurse practitioners (where available) or critical care nurse.⁵³ Other members of the multidisciplinary team may be included as and when required.

Suggested core team members of post-ICU clinic include:

- Intensivist: As the lead clinician, the intensivist will coordinate the clinic and oversee patient care.
- Nurse Practitioner or Physician Assistant or Critical Care Nurse: To assist in patient assessment, care coordination, and follow-up.
- Physical Therapist and Occupational Therapist if available: For rehabilitation and mobility assessment.
- Clinical dietician for nutritional guidance and support.
- Psychologist and/or psychiatrist: To address psychological and cognitive issues.
- Pharmacist: To optimize medication management.
- Social Worker: To provide support and resources for patients and families.

Regular multidisciplinary team meetings to discuss complex cases, treatment plans, and progress would be of value.

Which Patients Would Benefit from Post-ICU Clinic?

There are no proven screening tools to select patients for the post-ICU clinic. However, patients with factors associated with higher risk of developing PICS may be used to select patients. These factors include the presence of pre-existing cognitive dysfunction, mental health problems or functional disability, frailty, delirium during ICU stay, use of sedatives specifically benzodiazepines, presence of sepsis, shock, hypoxia or ARDS during the ICU stay, and need for organ support such as invasive ventilation.²⁵ Following are the commonest criteria used in the most post-ICU clinics for inviting patients to attend post-ICU clinics which may improve compliance and also ensure best use of limited resources.^{25,53}

- Patients requiring mechanical ventilation ≥ 48 hours.
- APACHE II score ≥ 20 .
- Patients who required tracheostomy.

Common experience is that convincing patients to attend the post-ICU follow-up is difficult. Usual reported attendance rates are 20–30%. There are several reasons for such low compliance as discussed in other parts of this position statement.⁵²

What are the Resources and Clinical Processes Required?

Clinic Space

Secure a dedicated clinic space that is accessible, private, and suitable for assessments and consultations. The clinic should be conveniently located and accessible to patients. Consider offering telemedicine options for those unable to travel to the clinic.

Equipment

Ensure that the clinic is equipped with the necessary medical devices and tools for assessments, such as stethoscope, pulse oximeter, blood pressure monitor, ECG machine, spirometer, and computerized medical records systems.

Documentation

Documenting the assessment (Table 1 for suggested tools) and multidisciplinary care plan is required. Patients can electronically complete questionnaires on impairments and restrictions prior to the ICU follow-up visit. Assessment of core set of screening instruments on mental health, cognitive and physical impairments will facilitate and improve the quality of care at the post-ICU clinics.^{1,25,53} Implementing a secure and efficient electronic health record (EHR) system to document and manage patient information would be of value. If this is not feasible, creating a structured paper documentation outlining details of care would be essential.

Multidisciplinary Treatment Plan

- Develop individualized treatment plans for each patient based on the assessment results.⁵⁴
- Initiate rehabilitation programs as needed based on findings of the assessment, focusing on nutrition support, physical, and occupational therapy to enhance recovery.
- Conduct a thorough review of the patient's medications to optimize dosages and prevent adverse events.
- Provide counselling, support groups, and resources to address mental health and social needs.

Collaboration with Primary Care Providers

In India, primary care physicians act as frontline care providers and provide personalized care for most health problems and are the first line of contact with the patient and its family.⁵⁵ Patients with PICS have multiple medical conditions, with extensive medication lists and sizable teams of care providers across specialties and sites. Primary care providers can assist with diagnostic accuracy, a reduction in avoidable hospitalizations, decrease in number of emergency department visits and better health outcomes.⁵⁶

Increasing provider education and awareness, can ease the transition from acute care, and increase the rate of identification of PICS.⁵⁷ Primary care physicians, may need to develop a new set of skills to allow goal setting to create a routine for regular review of patients, and allow multidisciplinary team involvement, with oversight of the team work.

The collaboration with the primary healthcare providers will involve:

- Effective information transfer with detailed discharge notes from the hospital, including data on respiration, mobility, swallowing, activities of daily life, as well as cognition and mental health status, in order to ensure optimal primary care assessment.
- Patient-defined problems be identified along with medical problems diagnosed by primary care physicians.
- Setting targets, goals, and planning, in which patients and providers focus on a specific problem, set realistic objectives, and develop an action plan for attaining those objectives in the context of patient preferences and readiness.
- Active and sustained follow-up, in which patients are contacted at specified intervals to monitor health status, identify potential complications, and check and reinforce progress in implementing the care plan.

PTSD/Depression in Caregivers: Diagnosis and Management

What is PICS-family?

Patient caregivers often experience PICS—family consisting of developing new psychological symptoms, including depression, anxiety, complicated grief, fatigue and sleep disorders, and PTSD.⁵⁸ Studies have shown the incidence of PTSD of 33–66% at 6 months and 68–80% at 12 months.⁵⁹ An Indian study has found that no caregiver had possible PTSD that could be directly linked to ICU stay.⁶⁰ However, data on management of PICS-F is still limited, and few trials are underway.^{61,62}

PICS-Family is modifiable and there are various risk factors which play a role:⁶³

- Patient factor: Increased severity of illness, death. Long-term stress and demands of care-giving including managing complex medical and emotional needs, and lifestyle changes.
- Caregiver factor: Younger age, financial instability, low education level, lack of social support, job loss, care burden, previous history of anxiety, depression, or PTSD.⁵⁹
- Environmental factors: Traumatic experience witnessing their loved ones' suffering from and after severe illness. Poor communication between staff and family and lack of family presence for updates are contributing factors. The uncertainty of recovery, fear of complications, and potential setbacks and limited access to support systems are additional factors.

There are various screening tools to identify caregivers with PICS-F, for example, perceived stress, hospital anxiety and depression, impact of event, and National Institutes of Health Toolbox Emotion Battery.

How to Manage PICS-family?

As the poor outcomes in the caregiver can affect the outcome of the patient, interventions to mitigate the development, early identification and treatment of PICS-F should be undertaken. Various studies have researched the following methods:

- Regular screening and follow-up of caregivers for mental health problems during ICU follow-up programs should be considered.⁶⁴
- Improved and proactive communication between treating physician and family, and provision of detailed information plays a pivotal role.⁶⁵ Family satisfaction has found to have independent association with PICS-F development.⁶⁶
- Allowing the presence of family members on ICU rounds and shared decision making.^{67,68} The usefulness of ICU diaries is being explored and has been found to have controversial results.⁶⁹
- Stress management intervention and app-based delivery of CBT to family members are other feasible options.^{70,71}

SCIENTIFIC STATEMENTS AND RECOMMENDATIONS

- We suggest development and promotion of awareness programs on PICS for healthcare professionals and the general public.
- We suggest that all secondary and tertiary care hospitals that provide intensive care services develop post-ICU care systems for survivors of critical illness.
- We suggest that all patients admitted to the ICU should have an assessment at admission for pre-ICU functional ability. This functional status assessment report should be recorded as a part of their clinical evaluation. Serial assessments for “Functional reconciliation” are suggested for patients in ICU for more than 48 hours.
- Delirium is highly prevalent among critically ill patients and associated with long-term cognitive impairment. We suggest that all patients admitted to ICU receive formal assessment and management of delirium.
- We suggest that patients with risk factors for developing PICS should be referred for post-ICU care and have a repeat assessment of their functional status within 2–4 weeks. These functional assessments should be continued serially, at 3–6 months interval until recovery.
- We suggest that post-ICU clinics provide comprehensive and specialized care to patients with PICS to ensure a smooth transition from critical care to post-ICU recovery and improve their overall quality of life.
- Suggested core team members of post-ICU clinic include Intensivist, Nurse Practitioner (or Physician Assistant (where available) or Critical Care Nurse, Clinical Dietician, Physical and Occupational Therapist, Psychologist, Pharmacist and a Social worker (if available).
- We suggest early involvement of clinical dietitians in assessing, planning, and executing a nutritional plan. Focusing on ability

to swallow, nutritional delivery, customizing to patient needs and encouraging family members to be involved in the process is essential.

- We suggest collaborating with the primary care physician in managing PICS and to ensure continuity of clinical care.
- In the absence of high-quality evidence for validated rehabilitation protocols we suggest an individualized approach that considers patient factors and resource availability for long-term care.
- Supporting families dealing with PICS requires a holistic approach, providing informational, emotional and practical support, to help them navigate the challenges that arise with the prolonged and uncertain symptoms of PICS in their loved ones. Managing PICS-Family will facilitate the recovery journey and improve patient outcomes.

CONCLUSION

Post-intensive care syndrome is under-recognized and has significant impact on quality of life. There is a need for creating end-user centric post-ICU care system in India particularly in hospitals providing secondary and tertiary level care. Setting up a post-ICU clinic involves establishing clear objectives, assembling a multidisciplinary team, allocating necessary resources, designing a comprehensive protocol, and determining the frequency, duration, and location of follow-up visits. Post-ICU care plays a vital role in promoting the recovery and well-being of patients and should continuously adapt to meet the evolving needs of this patient population.

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