

# POST-INTENSIVE CARE SYNDROME IN THE RESPIRATORY POPULATION

Respiratory Care Seminar, October 13<sup>th</sup>, 2022

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# Objectives

- Define Post-Intensive Care Syndrome (PICS) and Post-Intensive Care Syndrome-Family (PICS-F)
- Identify signs, symptoms, and risk factors of PICS
- Discuss the correlation between patients with respiratory failure and PICS
- Identify techniques to minimize patient risk for PICS
- Understand the importance of the ABCDEF Bundle in preventing and reducing PICS
- Discuss resources available to help both patients and family members who develop PICS symptoms



**IT ALL STARTS WITH A STORY...**

<https://www.icudelirium.org/patients-and-families/patient-testimonials>

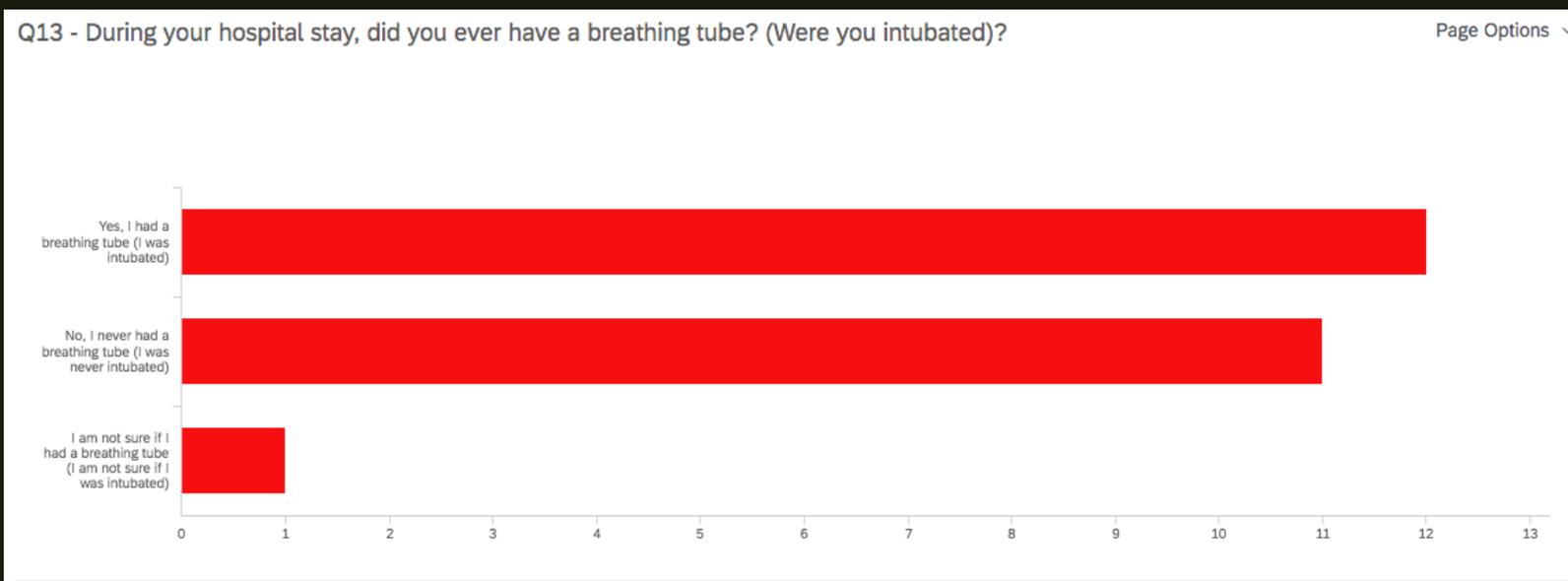
# What is Post-Intensive Care Syndrome (PICS)?

- “new or worsening impairments in physical, cognitive, or mental health status arising after critical illness and persisting beyond acute care hospitalization” (Needham et. al., 2012.)
- 30-80% of post-ICU patients 3-12 months after ICU stay (Maley et. al., 2016 ), and up to 90% in COVID-ARDS patients (Matillo et. al., 2021)
- In other words: after leaving the ICU, patients may experience big changes in their ability to move or think, and often have new or worsened anxiety, depression, or post-traumatic stress disorder (PTSD).
- Each patient experience with PICS is different in both severity (how bad their symptoms are) as well as the number of symptoms experienced.

- Marra et. al. (2018)
  - 406 survivors of critical illness tested at 3 and 12 months.
  - 3-month follow up:
    - 62% had at least one problem in a PICS domain
    - Only 20% had symptoms in more than one domain
  - 12 month follow up:
    - 63% had at least one problem in a PICS domain
  - What separated those who were PICS-positive and PICS-free?
    - Risk factors = mechanical ventilation, septic shock, delirium, being comatose during ICU stay.
    - Severity of illness scores were similar between both groups
- Brown et. al. (2019) added in ARDS as a high-risk group

# Who's At Risk?

# PRE-DATA: WERE THEY INTUBATED?



# Cognitive

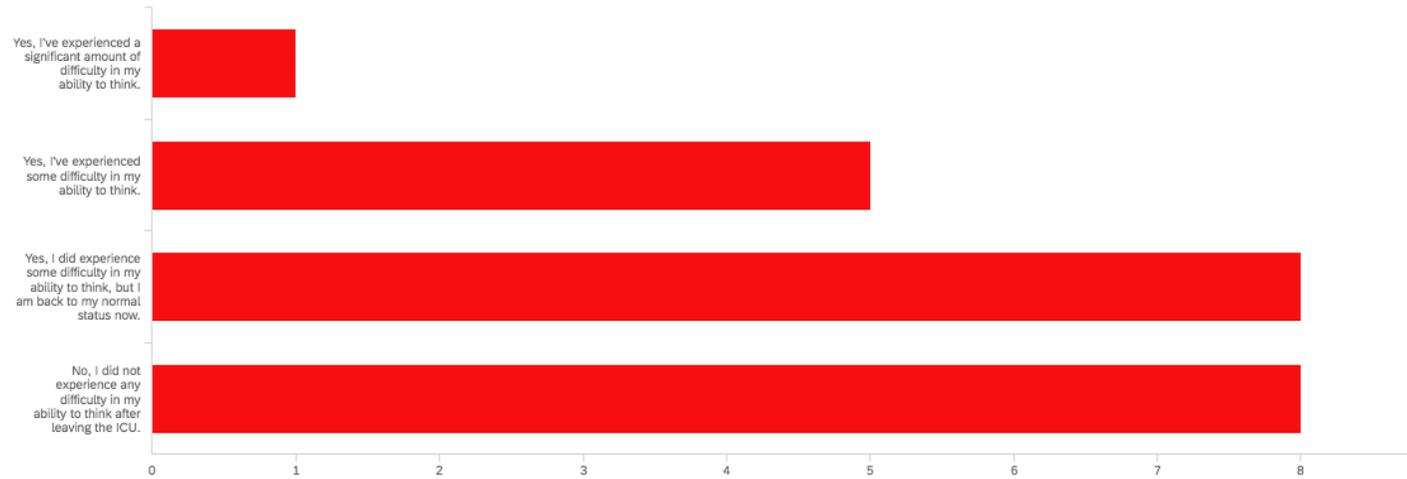
- Problems connected with memory, paying attention, solving problems, word-finding difficulty, and organizing and working on complex tasks.
- Pandharipande et. al. (2013),
  - *Enrolled 821 adults with respiratory failure or shock for in-hospital delirium, and then assessed global cognition and executive function 3 and 12 months post-discharge*
  - *74% developed in-hospital delirium*
  - *3 months: 40% of patients had global cognition scores 1.5 SD below average, similar to patients suffering moderate traumatic brain injuries (TBIs). 26% were 2 SD below average, similar to mild Alzheimer's disease.*
  - *12 months: 34% were 1.5 SD below average, 24% 2 SD below average.*
  - *The longer the delirium, the worse the post-hospital global cognition scores.*
- Heydon et. al. (2020)
  - *Surveyed 34 patients, only one was able to return to work by the three-month mark at their former level of employment due to their cognitive and functional PICS symptoms.*

# The Role of Delirium

- The more severe a patient's delirium, the greater the atrophy in the hippocampus and the frontal cortex. (Ely, 2021.)
- Delirium associated with white matter disruption, which is associated with worse cognition scores up to 12 months after discharge (Morandi et. al., 2012.)

Q15 - Did you experience difficulties in you ability to think after leaving the ICU? This might look like memory loss, decreas...

Page Options



PRE-  
SURVEY  
DATA

# UIHC Data: Cognition

- “My attention span is less and my problem solving skills have suffered slightly”
- “General confusion of where I was and why. Getting back to “normal” life habits and routines quickly helped with recovery”
- “Difficulty with attention. Comes out all messed up or not at all. Then she can't remember anything. It eventually comes back. She gets all upset when she can't remember something. It's like her memory is stuck there. She remembers certain things, but there's some days that it's slower than others. It's not constant.”
- “my family tells me I repeated myself a lot but it went away”
- “It basically just took time.”
- “I have a lot of what I call "brain fog". My ability to concentrate/deep focus is diminished. This could also just be age or poor sleep quality.”

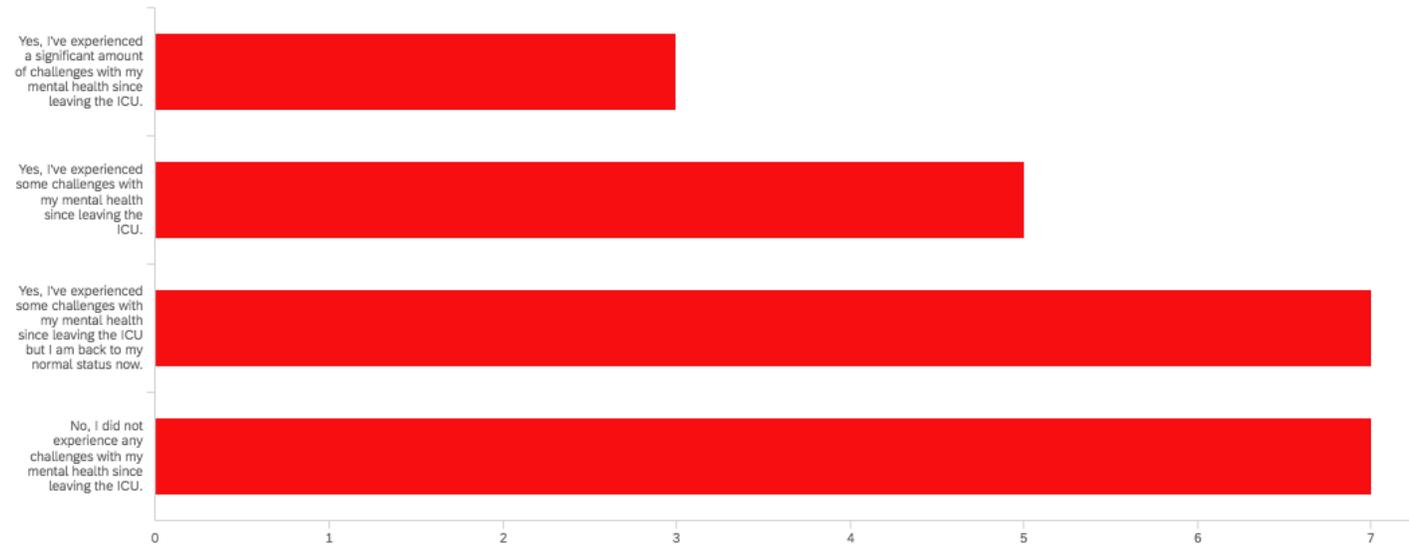
# UIHC Data: Cognition

- “Trouble remembering things”
- “I was very forgetful and had trouble remembering things. I seem to be doing better now.”
- “I assumed this was covid related. The brain fog was real and similar to what my mother in law experienced post stroke. I could see what i wanted to say but the words coming from my mouth were similar but not the same. The ability to focus and concentrate was nearly destroyed post covid.”
- “I called it Covid brain and it was like i messed up on things I've done for years.”

# Psychosocial/Mental Health

- Presents as: anxiety, depression, PTSD, insomnia, nightmares
- 58% of patients in the study by Maley et. al. (2016) reported one or more symptoms of anxiety, depression, and/or posttraumatic stress disorder (PTSD) six months after hospital discharge
- Patients in multiple studies wished they had been given more mental health resources and felt that they were not adequately prepared for the depression, anxiety, and PTSD they experienced after discharge (Heydon et. al., 2020; Hatch et. al., 2018; Fan et. al., 2014)
- Hatch et. al. (2018)
  - *anxiety, depression, and PTSD rates in the first year after ICU discharge in 26 hospitals in the United Kingdom, and 20-year survival after discharge.*
  - *55.2% had at least one of the conditions*
  - *patients who screened positive for depression “were around 50% more likely to die in the two years after discharge” compared to those who didn’t screen positive for depression (Hatch et. al., 2018, p. 7.)*
- Mental Health difficulties often persist longer than cognitive and functional decline.
  - *Fan et. al. (2014) - psychological and cognitive components of PICS often persist well after physical function and muscle strength recovery,*
  - *Larger emphasis needed on psychological support to facilitate the physical function recovery (p. 857.)*
- Functional and Cognitive difficulty can lead to or worsen the mental health difficulties
  - *Sidrias et. al. (2019), patients who had ICUAW reported greater pain, sleep disturbances, and social isolation 6 months after discharge.*

Q19 - Did you experience challenges with your mental health after leaving the ICU? This might look like new or worsened a... Page



PRE-  
SURVEY  
DATA

# UIHC Patient Data: Psychosocial/Mental Health

- “I have worsened anxiety and some PTSD that has improved over time” – 2018 patient
- “Anxiety and PTSD. Mechanical sounds and hospital settings still feel mildly uncomfortable but very manageable” – 2018 patient
- “Anxiety, I take a pill now. Helps me sleep - sleep issues were related to anxiety.”
- I get some anxiety when I couldn't breathe. Other than that I'm doing pretty good. I have some pills to take and breathing techniques.”
- “Some anxiety. Take a pill at night to get to sleep.”
- “I had a bit of anxiety, panicky feelings, difficulty sleeping”
- “Increased depression, anxiety and insomnia. Weird dreams.”
- “Depression, fatigue”
- “I knew I was depressed while I was in the hospital. But also had severe anxiety especially about dialysis. Since release don't have those feelings much anymore. But even returning to the hospital for a simple procedure made me nervous & I've never been nervous before.”

# UICH Patient Comments: Mental Health

- “When he first left the MICU he had a lot of anxiety. He did not sleep well, his pulse rate would increase, his bp would be elevated. He is still taking a prescription for it.”
- “The intense darkness that i experienced, i assumed was, again, covid related. It cleared up dramatically after my first booster post covid.”
- “Depression, fatigue”
- **“I (mom) was scared to leave her alone at first in case she needed anything. She sometimes would tell me "I don't know why I'm here," but I don't think she was suicidal. Sleeps quite a bit, has been very emotional and depressed. "When you get depressed, you don't want to do anything but sleep." Same with the pain. When she first came back she said she had really bad nightmares. She had hallucinated a lot of things when at the hospital and it came back to her when she was sleeping. She'd relive what she was thinking about here, bizarre things. She'd look out the window and thought she was in England. See birds flying back and forth. She might have had some PTSD too. We were surprised at all she experienced in regards to her mental health after leaving.”**

# Physical

ICU Acquired Weakness (ICUAW) causes:

- *SIRS response*
- *Neuromuscular blockers*
- *Steroids*
- *Long-term bed rest*
- *Associated with prolonged mechanical ventilation (Sidiras et. al., 2019)*

Fan et. al. (2014) - each day a patient remains on bed rest results in a decrease in their muscle strength by 3-11%.

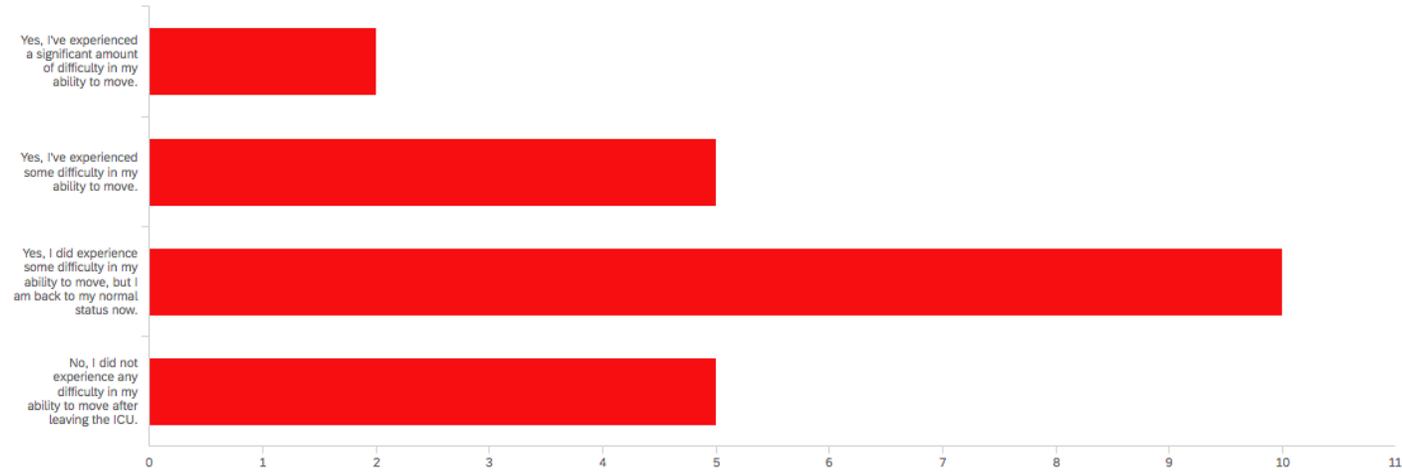
Maley et. al. (2016) - 56% reported some level of physical impairment

Sidharis et. al. (2019) -

- *Studied relationship between functional decline and quality of life (QoL)*
- *Three months post discharge: ICUaW patients had significantly reduced QoL in physical abilities, energy and emotional reactions.*
- *Six months post discharge: ICUaW patients had significantly reduced QoL in all 6 domains*

Q14 - Since leaving the hospital, have you had any physical difficulties or difficulties in your ability to move? Examples ma...

Page Options ▾



PRE-  
SURVEY  
DATA

# UIHC Patient Data: Physical/Functional

- “I had trouble moving my right arm but through physical therapy I have regained full motion.”
- “General mobility and breathing problems – physical therapy and positive attitude helped with recovery.”
- “I tried walker, I didn’t use well. I fell a couple of times.”
- “I had a therapist come to help with rehab. Not back to normal yet – I have to stop and catch my breath frequently. To fix dinner tonight I had to sit down and do it a little bit at a time. This is a bit better than it was.”
- “She complains about her legs. We try to encourage her to exercise as much as she can, but she’s going to a pain specialist to help. She can’t sit very long. She also has to be careful how long she stands because she gets light headed. She almost passed out trying to reach something yesterday.” – pt in MICU in October.

# UIHC Patient Data: Physical/Functional

- “Agility, slow movements, lack of strength. These areas have improved over the past few months with p.t. when he first came home he had to have assistance when showering or getting dressed. He needed someone with him or use a walker when he walked around.”
- “Was in a hospital bed so long I had a rough time getting to walk etc. again. but now have no difficulty with day to day tasks”
- “I experienced a lot of (muscles around the) knee weakness long after most of the rest of me had recovered. I had to focus exercise on stair climbing to rebuild what I considered to be a normal ability to push my body up stairs without hauling on rails with my hands.”
- “My UIHC PT team did a great job with helping me keep moving and be able to walk again along other simple ADLs before discharge.”

- “Impairments that prevent survivors from returning to work include decreased pulmonary function, reduced strength of respiratory and extremity muscles, reduced 6-minute walk test distance, and limited ability to perform activities of daily living (ADLs), instrumental ADLs, and drive (Ohtake et al., 2018).”
- Heydon et. al. (2020) – cognitive and functional decline were the primary causes of disability to return to work (33/34).

## Impact on Work

# COVID-19 and PICS

## Long-COVID vs. PICS

- *Can co-exist*

## Martillo et. al. (2021)

- *COVID-19 patients in New York City for PICS symptoms one month after ICU discharge.*
- *91% of their COVID-19 patients met criteria for PICS.*
- *Study done at the beginning of the COVID-19 pandemic prior to their severe bed and nursing shortage, which suggests that PICS rates would only increase as the pandemic worsened.*

## Ruhl et. al. (2015)

- *Studied 138 ALI-survivors 2 years post-discharge*
- *80% had one or more inpatient readmissions. Associated cost = estimated \$35,259 (\$10,565–\$81,166) per patient*
- *Hospital readmissions represented 76% of total inpatient costs, and having Medicare or Medicaid before ALI was associated with increased costs.*

# So What's the Deal with Readmissions?

CMS reimbursement

Donaghy et. al. (2018)

- *Interviewed 58 ICU survivors and their caretakers re: causes for unplanned hospital readmissions.*
- *8 of the top 10 themes relating to hospital readmissions relate to the symptoms of seen in PICS.*
- *Polypharmacy issues after discharge, psychological problems, poor mobility, poor preparation for hospital discharge, poor communication between acute and community-based care, inadequate psychological care, inadequate medication support, and a lack of goal setting (Donaghy et. al., 14.)*
- *Often resulted from a lack of mental health resources and mental health support from the healthcare system*
- *All five focus groups discussed that they were frustrated at the lack of support from their healthcare providers, and the “insufficient information about what to expect” after ICU discharge (Donaghy et. al., 2018, p. 11.)*

Kang and Jeong (2018)

- *Each hospital readmission “resets” a patient’s post-intensive recovery process*

# PICS-F

30% of family members may experience their own mental health problems, such as:

- *Depression*
- *Anxiety*
- *PTSD*
- *Stress*
- *Changes in Sleep*
- *Feeling Overwhelmed*

Ways to help:

- *Get involved in care*
- *Seek professional help*
- *Take time to rest and recuperate yourself*

# Family Involvement



Help with orientation – date, time, place, what’s going on at home



Bring in familiar items or pictures



ICU diary/journal



Read aloud



Help with brain puzzles, card games, etc.



Encourage sleep/wake cycle



Help promote early mobility, bed exercises, etc.

# What Did You Expect?

- Donaghy et. al. (2018)
  - *Patients are leaving the hospital not knowing that they should expect to face challenges when they return home*
- Daniels et. al. (2018)
  - *The primary barrier to improved quality of life for both patients and caretakers was a “lack of awareness and understanding of PICS [...] specifically, patients and caregivers experienced difficulty remember and understanding what happened to them while in the ICU and what to expect after leaving the ICU” (Daniels et. al., 2018, 361.)*
  - *Led to patients & caretakers feeling isolated, which further contributed to them having a hard time asking for help or seeking out counseling.*
  - *“interventions should be easily accessible, offer more information about the recovery process, involve caretakers, and highlight reassurance and data from experts (p. 361.) “*

# Why Should We Care?

- Quote from Dr. Jim Jackson regarding the thing he most often hears from patients:
- “Dr. Jackson, life after the ICU has been really difficult, I've really struggled considerably. The thing that has been really frustrating though, is that no one told me to expect it. I think that if my doctors who I know cared a lot about me had just been able to tell me ‘hold on to your hat, these are some big waves ahead, brace yourself, because you might develop some problems with your memory, you might feel really anxious or traumatized, brace yourself.’ If someone had told me that, I think I would have been okay. But when it hit me like a truck and I wasn't expecting it, that really threw me off my game.”

# What Can We Do to Help?

- Brown et. al. (2019) –
  - *Still much unknown about best-practice for post-ICU interventions*
  - *Other patient populations (i.e. congestive heart failure, stroke, and oncology patients) have used structured telephone support, educational materials, review of discharge plans, and case management programs to decrease readmissions.*
- Esses et. al. (2019) - pilot study on educational interventions regarding PICS for caregivers of hospitalized children.
  - *Compared three different types of education delivery.*
  - *Written brochure, a scripted conversation, and watching a video.*
  - *Prior to receiving education only 26% of caregivers were familiar with the signs and symptoms of PICS, which increased to 89% after the educational intervention.*

# What can we do to help prevent PICS?

Minimize sedation

Monitor for and prevent delirium

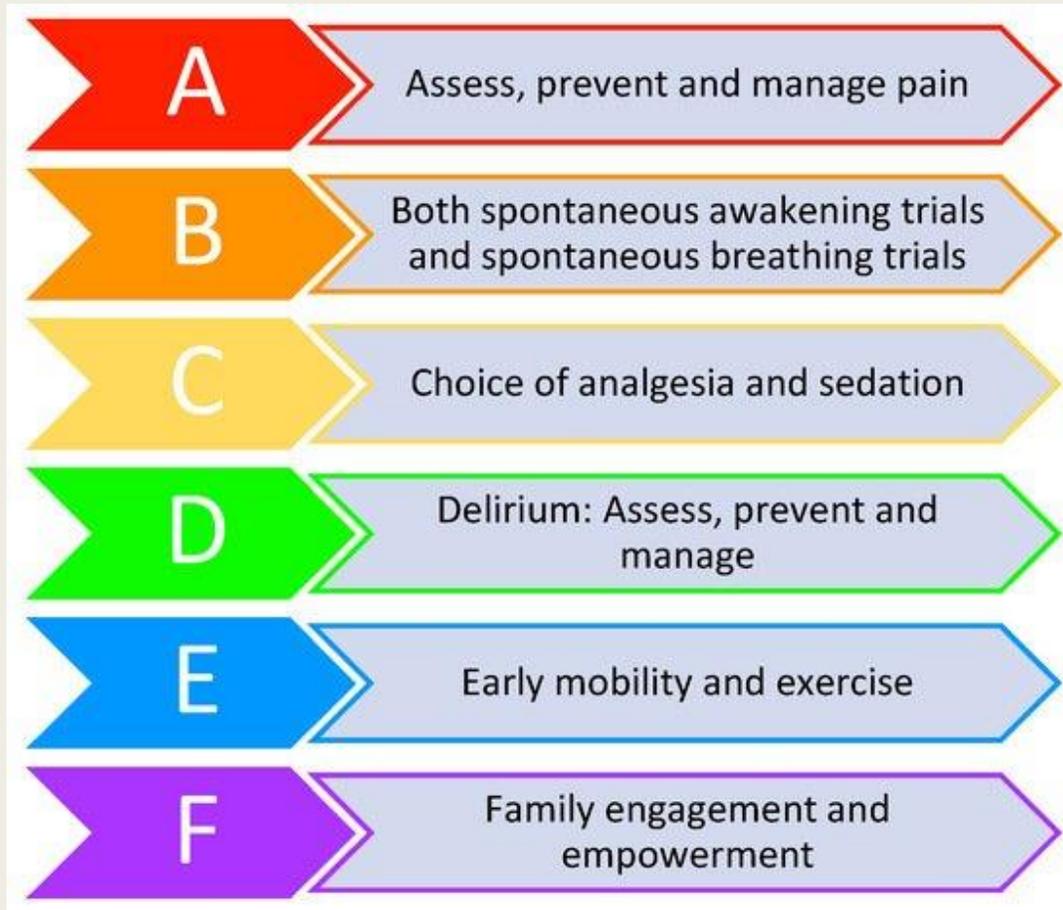
Promote sleep/wake cycle

- Offer up resources from the patient library for daytime stimulation (Call 62468 on UIHC phones)
- Use sound machines, ear plugs, eye masks at night

Offer families journals

Early Mobility

Occupational Therapy



**FOLLOW  
THE  
ABCDEF  
BUNDLE**

# A Note on Delirium Prevention

- Schweikert et. al. (2009) – paired PT/OT with daily sedation vacation versus standard PT/OT care improved functional status by 24%, decreased delirium from 4 to 2 days, and decreased ventilator days
- Use CAM-ICU to monitor
- Reduce modifiable risk factors – restraints, meds, use hearing aids/glasses, sleep promotion, etc.

**Get to Know Me...**

Name: \_\_\_\_\_

I Like To Be Called: \_\_\_\_\_

Military Affiliation: \_\_\_\_\_

Occupation: \_\_\_\_\_

About my Family: \_\_\_\_\_

Favorites: \_\_\_\_\_

    Movie: \_\_\_\_\_

    TV Show: \_\_\_\_\_

    Book: \_\_\_\_\_

    Music: \_\_\_\_\_

    Sport: \_\_\_\_\_

    Color: \_\_\_\_\_

    Foods: \_\_\_\_\_

    Pets: \_\_\_\_\_

    Quote/Saying: \_\_\_\_\_

    Activities/Hobbies: \_\_\_\_\_

Achievements Of Which I Am Proud: \_\_\_\_\_

Things That Stress Me Out: \_\_\_\_\_

Things That Cheer Me Up: \_\_\_\_\_

Other Things I'd Like You To Know About Me: \_\_\_\_\_

At Home I Use:  Glasses  Hearing Aid  Walker  
 Contact Lenses  Dentures  Cane  
 Other

Photos Here: \_\_\_\_\_

**madigan**  
Healthcare System

# ICU Journals

- Drumwrist et. al. (2021) implemented ICU diary program at the VA with positive feedback from patients and staff on patient satisfaction and staff engagement with patients and families.
- Sayde et. al. (2020) – Found no difference between diary group and control group, but did identify that patients at high risk aren't often connected to follow-up care.
- Low-cost intervention.
- [lcu-diary.org](http://lcu-diary.org)

# Post-ICU Clinics and Support Groups

## Clinics:

- Pharmacist role: medication education, identification of potential need for medication discontinuation, restarting home meds, etc. (Coe et. al., 2020)
- Social Worker
- Physician/LIP
- Physical Therapist

## Support Groups:

- Six different styles of peer support groups (McPeake et. al., 2019)
- Barriers: patients not identifying their issues to their ICU stay, lack of institutional financial support for the programs, sustainability, location

### **First Appointment Expectations**

Each appointment is tailored to the needs of our patients which are identified a few days prior to the appointment via a phone encounter.

- Debrief of ICU course and associated health challenges/concerns on behalf of the patient
- Depending on health status, obtain spirometry (pulmonary function test), a chest x-ray, and a 6 minute walk test, with results of tests being delivered by the physician and APP
- Complete assessment tools for nutrition, activities of daily living, surveillance of depression, anxiety and Post Traumatic Stress Disorder (PTSD)
- Appraisal of physical function with a physical therapist
- Evaluation with respiratory therapy, if indicated, for reconciliation of and education regarding oxygen and/or inhaled treatments
- Based on this throughout evaluation, an assessment and plan is assembled by the multidisciplinary team, and conveyed to the patient by the physician, with details of the recovery treatment plan. A comprehensive visit summary is given to the patient, as well as sent to patient's primary care provider.

## U-M PULSE: COMPREHENSIVE CARE AFTER THE ICU



Critical illness is a life-changing experience, and recovery does not stop when you leave the hospital. Many individuals continue to experience physical, cognitive and emotional challenges that impact their quality of life as well as that of their loved ones. In addition, survivors of critical illness must navigate a complex system as they transition to life outside of the hospital.

The University of Michigan Post ICU Longitudinal Survivor Experience Clinic (U-M PULSE) is designed to help patients and their families manage this challenging time following discharge from the intensive care unit (ICU). The U-M PULSE team partners with you and your family to provide medical care and expert guidance after critical illness.

Our multi-disciplinary team includes:

- A critical care physician who specializes in post critical care recovery.
- A critical care pharmacist with expertise in medications related to your illness.
- A social worker skilled in helping you understand and process the psychological impacts that occur after a critical care stay.

The U-M PULSE team works to:

- Identify the changes that are most disruptive to your life.
- Identify your strengths and supports.
- Develop a comprehensive care plan that addresses your goals.
- Help you access additional services and support.

## Common Symptoms After Critical Illness



Weakness



Shortness of breath



Sadness



Fatigue



Difficulty sleeping



Slow thinking



Anxiety



Difficulty concentrating



Poor memory

To schedule an appointment at the U-M PULSE clinic, please call 888-287-1084 and request an appointment with Dr. Jakob McSparron.

For more information, visit [uofmhealth.org/um-pulse](http://uofmhealth.org/um-pulse).

Because recovery does not end when a patient is discharged from the ICU, the U-M PULSE clinic's multidisciplinary team is here to help.

# What's Coming?

- A call to include PICS and PICS-F in the ICD codes for better tracking and identification (Peach, Valenti & Sol, 2021)
- SCCM recommendations on prediction and identification of long-term impairments: evaluate pre-ICU function, serial assessments within 2–4 weeks of hospital discharge using the Montreal Cognitive Assessment test, Hospital Anxiety and Depression Scale, 6-minute walk, Impact of Events Scale-Revised (IES-R) to assess for PTSD, and/or the EuroQol-5D-5L to assess the quality of life (Mikkelsen et al., 2020). See next slides for tables.

**TABLE 1. Patients at High-Risk for Long-Term Cognitive, Mental Health, and Physical Impairments After Critical Illness in Whom Screening Is Recommended**

Functional Domain	Before Critical Illness	During Critical Illness	After Critical Illness
Cognition	Preexisting cognitive dysfunction	Incidence and duration of delirium Sedation (benzodiazepines) Sepsis Shock Hypoxia Acute respiratory distress syndrome Life support <sup>a</sup>	
Mental health	Preexisting mental health problems (anxiety, depression, or post-traumatic stress disorder)	Memories of frightening experiences in ICU	Early symptoms of anxiety, depression, or post-traumatic stress disorder
Physical	Preexisting functional disability Frailty Preexisting cognitive impairment		

<sup>a</sup>Life support (e.g., invasive mechanical ventilation) was identified as a key risk factor for post-ICU problems (weak recommendation, 72% agreement).

**TABLE 2. Recommendations Related to Factors to Risk-Stratify Who Should Be Assessed for Long-Term Impairments After Critical Illness**

<b>Statements Related to Post-Intensive Care Syndrome Prediction and Assessment</b>	<b>Agreement, %</b>
<b>Cognition</b>	
Patients with preexisting cognitive impairment (recognized or not) before the ICU will have those problems afterward	92
Key risk factors for post-ICU cognitive impairment are delirium, benzodiazepines, sepsis, hypoxia, acute respiratory distress syndrome, and shock	80
<b>Mental health</b>	
Key risk factors for mental health problems are prior anxiety or depression, memories of frightening experiences in the ICU, and early symptoms of anxiety, depression, or post-traumatic stress disorder	92
Patients with preexisting mental health problems (recognized or not) before the ICU will have those problems afterward	76
Absence of social support across the illness is a key risk factor for mental health problems post-ICU	75
<b>Physical</b>	
Patients with preexisting physical impairment (recognized or not) before the ICU will have those problems afterward	84
Key risk factors for post-ICU functional disability are pre-ICU functional disability, pre-ICU cognitive impairment, and frailty	80
<b>Social</b>	
Social determinants of health could be key factors for post-ICU mental health problems; these have not been adequately researched, but should be	100
Religiosity and spirituality could be key factors for post-ICU mental health recovery; these have not been adequately researched, but should be	85

Strong and weak recommendations, respectively, defined as agreement of 80% and 60%.

**TABLE 3. Recommended Screening Tools to Detect Long-Term Cognition, Mental Health, and Physical Function**

Domain	Screening Test	Comments	Recommendation
Cognition	Montreal Cognitive Assessment (MoCA) (54, 62–64)	Mild cognitive impairment defined as a score of 18–25, moderate as 10–17, and severe as less than 10	Strong
Anxiety	HADS (51, 62)	A score of 8 or greater on the anxiety or depression subscale is used to identify symptoms of clinically significant anxiety or depression	Strong
Depression	HADS (51, 62)		Strong
Post-traumatic stress disorder	IES-R (52) or the abbreviated IES-6 (53, 65)	The optimal screening threshold has been established as 1.6 (IES-R) (62) or 1.75 (IES-6) (53)	Weak
Physical function	6-min walk (66–68) and/or EuroQol-5D-5L (55)	Can be evaluated as a percent predicted against available normative data	Weak
		Includes assessments of mobility, self-care, and usual activities, in addition to pain and anxiety/depression	Weak

HADS = Hospital Anxiety and Depression Scale, IES-6 = Impact of Event Scale-6, IES-R = Impact of Events Scale-Revised.

**TABLE 4. Recommendations Related to Screening Tools and Timing to Identify Long-Term Impairments After Critical Illness**

Statements Related to PICS Screening	Agreement, %
General comments	
An assessment of selected patients for PICS problems should occur early (e.g., 2–4 wk after discharge)	95
Serial assessments for PICS problems should occur with important health and life changes	90
Cognition	
A default assessment for cognitive problems can be the MoCA or MoCA-blind	88
Mental health	
A default assessment for anxiety and depression can be the Hospital Anxiety and Depression Scale	94
A default assessment for post-traumatic stress disorder can be the Impact of Events Scale-Revised or the six-item Impact of Event Scale-6	76
Physical	
A default objective assessment for physical problems can be the 6-min walk test and/or the EuroQol-5D-5L	67

MoCA = Montreal Cognitive Assessment, PICS = post-intensive care syndrome.

Strong and weak recommendations, respectively, defined as agreement of 80% and 60%.

## **Post-Intensive Care Syndrome (PICS): Preparing You and Your Loved Ones for Life after the ICU**

### **What is Post-Intensive Care Syndrome (PICS)?**

- ““new or worsening impairments in physical, cognitive, or mental health status arising after critical illness and persisting beyond acute care hospitalization” (Needham et. al., 2012.)
- In other words: after leaving the ICU, patients may experience big changes in their ability to move or think, and often have new or worsened anxiety, depression, or post-traumatic stress disorder (PTSD).
- Each patient experience with PICS is different in both severity (how bad their symptoms are) as well as the number of symptoms experienced.

### **Who is at risk for PICS?**

- Main risk factors
  - Previous chronic health problems.
  - Critical Illness, specifically inflammation, sepsis, and Acute Respiratory Distress Syndrome (ARDS)
  - Consequences of critical illness, such as requiring a breathing tube, requiring sedation medication, lying in bed without moving, and delirium (a sudden confused mental state.)
- Family members can experience PICS-F, or PICS-Family
  - Family members experience anxiety, depression, and difficulty sleeping after being with their loved one in the ICU.

### **What could this look like after leaving the ICU?**

- Physical difficulties (ability to move)
  - Difficulty or inability to do daily tasks, such as get dressed, feed themselves, bath, or walk
- Cognitive difficulties (ability to think)
  - Memory Loss
  - Decreased ability to pay attention
  - Decreased ability to solve problems or
  - Difficulty with complex tasks that can make it difficult to return to work
- Mental health difficulties
  - Depression
  - Anxiety
  - Post-Traumatic Stress Disorder (PTSD) – might include difficulty sleeping or nightmares
- Symptoms may start right away, or you may not notice them for a few weeks.

### **What do we do at UIHC to reduce your risk for PICS?**

- Use the smallest necessary amount of sedation (medication to keep patients asleep)
- Turn off the sedation medication every day, usually in the morning. This is called a “sedation vacation.”
  - There are some days where we cannot do this, but we look at the patient daily to do these vacations as soon possible.
- Help the patient move and work with physical therapy as soon as possible, even while on the ventilator when possible. This is called “early mobility.”

- Keep the lights on during the day and off at night
- Try to not bother or wake them as much as possible at night, grouping cares at night to promote a sleep schedule
- For awake patients, we have sound machines, sleep masks, and ear plugs available.

### **What can I do to help my family member who is at risk for PICS?**

- Family members can talk to their loved one and keep a journal for them after the ICU.
- If you know they like certain music, movies, or TV shows, play that for them during the day.
  - Order up CDs, laptops, and other items from the patient library to keep the patient stimulated and awake during the day. Call 62468 on the patient’s room phone or (319)-356-2468 on a regular phone to check out what’s available.
  - Check out the patient library catalog at this QR link:



- Once your loved one is awake and oriented, help them understand what happened to them while they were in the ICU, as well as what they missed at home.
- Help them understand that recovery will take a long time, but that you will be there with them.

### **What resources are available to me after I leave the ICU?**

- Psychiatry at UIHC
  - Call (319)-353-6314, or ask your primary care provider for a referral.



- Rehabilitation Therapies at UIHC
  - Call (319)-356-2663 for Physical Therapy (PT), Occupational Therapy, or Pulmonary Rehabilitation.
  - UIHC also has a specific chronic pain PT clinic
  - You do not need a provider referral for Physical Therapy, but you will for Occupational Therapy or Pulmonary Rehabilitation



- PICS support groups via the Thrive initiative through SCCM – includes virtual options



- SCCM – The Society of Critical Care Medicine on PICS



- Understanding ICU Delirium



- After the ICU: Advice from people who've been there



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# Great Resources for Learning about PICS

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”Every Deep Drawn Breath” by Wes Ely  
(Vanderbilt)

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[The Society of Critical Care Medicine \(SCCM\)](#)  
resources on PICS

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[The Critical Illness, Brain Dysfunction, and  
Survivorship \(CIBS\) Center](#)

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[After the ICU: Advice from People Who’ve Been  
There](#) from Mayo Clinic

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This Podcast: [“Dr James Jackson \(PsyD\): Post  
Intensive Care Syndrome in the Era of COVID-19”](#)

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