

LONG-TERM CONSEQUENCES OF CRITICAL ILLNESS: A NEW OPPORTUNITY FOR HIGH-IMPACT CRITICAL CARE NURSES

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In the past decade, we have learned some disconcerting information about the long-term consequences that patients in intensive care units (ICUs) and their families suffer. Each year in the United States, we discharge millions of critically ill patients back into the community. Although we have always assumed that an ICU stay takes a toll and that recovery may take a while, we now know how common, devastating, and prolonged the potential long-term consequences of critical illness can be. Critical care researchers and practitioners are currently working to identify ways to reduce the incidence of long-term consequences of critical illness.¹ Armed with knowledge of the potential consequences, critical care nurses can play a key role in prevention and in promoting awareness among those involved in outpatient care.

Three emerging concepts in health care are driving and supporting quality initiatives to address the long-term consequences of critical

illness. The first is the emphasis on family-centered care. The second is the focus on safe transitions and handoffs across the continuum of care. The third is the concept that critical care is defined by the patient and not by the location. Critically ill patients' episodes of care are now seen as beginning wherever their condition becomes critical and ending when the long-term consequences of critical illness are managed. Addressing the long-term consequences of critical illness in patients and their families involves communication across the continuum of care and understanding the potential problems that our patients and their families may experience long after they are discharged from our units.¹

Scope

Here is some of what we know about the scope of the long-term consequences of critical illness in patients and their families.

Mortality Rates

- Mortality rates for patients 1 year after discharge from the ICU ranges from 26% to 63%.²
- For patients more than 65 years old, the mortality rate 6 months after ICU discharge is 14% and 3 years after discharge is 40%.³
- Risk factors for dying after ICU discharge include age, comorbid conditions, severity of illness while in the ICU, duration of delirium, and presence of sepsis.^{2,3}

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Functional Consequences

- Weakness acquired in the ICU occurs in 25% to 50% of patients who receive mechanical ventilation for 4 to 7 days and 50% to 75% of patients with sepsis.^{2,4} ICU-acquired weakness refers to muscle weakness developing during an ICU stay that may become prolonged.²
- 85% to 95% of ICU patients with ICU-acquired weakness still have neuromuscular abnormalities 2 to 5 years after discharge.^{2,4}
- 50% of all ICU patients and 70% of ICU patients who require mechanical ventilation experience difficulty with activities of daily living or instrumental activities of daily living 1 year after discharge.²
- Active or passive exercise begun early in critically ill patients significantly increases exercise capacity and self-perceived functional status at hospital discharge.^{2,4}

Cognitive Consequences

- Potential cognitive impairments include problems with memory, attention, mental processing speed, planning, problem solving, and visual-spatial awareness.^{2,5,6}
- 30% to 80% of patients have cognitive impairment after ICU discharge.^{2,5,6} Cognitive function improves in some patients during the first year after discharge, but patients may not return to their pre-ICU level of cognitive functioning.^{2,5,6}
- 75% of ICU survivors with acute respiratory distress syndrome experience neurocognitive impairment at hospital discharge. These impairments are still present 1 year later in 46% and 6 years later in 25%.⁷
- In ICU survivors more than 65 years old who had severe sepsis, post-ICU cognitive impairment lasts up to 8 years.²

Psychological Impairments

- 10% to 50% of ICU survivors may experience symptoms of depression, anxiety, posttraumatic stress disorder, and sleep problems after ICU discharge.^{2,7-12}
- It is not clear how long these psychological problems can persist. Some studies have shown improvement in 2 to 12 months, but the problems may persist for years after discharge.^{3,7-12}
- Clinically significant symptoms of depression occur in 28% of ICU survivors. These symptoms can improve 2 to 12 months after ICU discharge.⁸
- Clinically significant signs and symptoms of posttraumatic stress disorder occur in 28% of ICU

survivors.^{2,9} These signs and symptoms may not improve and have been reported in patients studied 8 years after ICU discharge.²

Return to Previous Status

- ICU survivors report lower quality of life, especially in the physical domains. Quality of life can improve slowly and can return to normal or baseline several years later.¹³
- 51% of ICU survivors with acute respiratory distress syndrome and a median age of 45 years have not returned to work 1 year after ICU discharge, and 33% never return to work.¹¹
- 50% of ICU survivors require caregiver assistance 1 year after ICU discharge.^{2,12,13} The support required may range from assistance with activities of daily living to full care.
- Less than 10% of ICU survivors who receive prolonged mechanical ventilation are alive and functionally independent 1 year after ICU discharge.^{2,12} In these studies, the definition of prolonged mechanical ventilation varied and ranged from longer than 4 days to longer than 7 days.

Consequences for Families of ICU Survivors

- 33% of family members of all ICU patients and 50% of bereaved family members experience symptoms of depression after ICU discharge.¹⁴⁻¹⁶
- 70% of family members of ICU patients experience symptoms of anxiety after ICU discharge.¹⁴⁻¹⁶
- Depression and anxiety in ICU patients' family members decrease over time but are higher than normal 6 months after ICU discharge.²
- 33% of family members of ICU patients have symptoms of posttraumatic stress disorder 90 days after the patient is discharged from or dies in the ICU.¹⁶
- Symptoms of posttraumatic stress disorder in family members of ICU patients can persist for 4 years or more after death or ICU discharge, and these symptoms may not decrease over time.²

Risk Factors

There is hope. Currently, a tremendous amount of research is being done around the world to understand the risk factors for long-term consequences of critical illness developing. Risk factors that have been identified include²⁻¹³

- age more than 65 years
- sepsis
- mechanical ventilation
- heavy sedation, delirium
- hypoglycemia
- hypoxia

Reducing the risk factors may mitigate the long-term consequences that ICU patients and their families suffer. Early physical and occupational therapy started while patients are in the ICU and are hemodynamically stable can improve physical function.^{2,4} ICU diaries kept by patients' families and staff that are reviewed by the patient after discharge can reduce the occurrence of the symptoms of posttraumatic stress disorder.¹⁷ A self-directed ICU rehabilitation manual also improves physical function and reduces symptoms of posttraumatic stress disorder.¹⁷ The manual contains instructions for a 6-week exercise plan for after ICU discharge and advice on potential psychological, psychosocial, and physical problems that former ICU patients may experience.¹⁷

Increasing Awareness of Long-Term Consequences of Critical Illness in Patients and Their Families

Although critical care practitioners are becoming increasingly aware of the ongoing work in this field, the post-acute care community has not been included in this dialogue. Almost all studies of the long-term consequences of critical illness have been published in critical care journals. We have an obligation to our patients and their families to promote awareness in those who will care for them after hospital discharge. If we do not, then who will? It is time for us to take responsibility for more effective communication and collaboration with our post-acute care colleagues.

To begin the process of informing the outpatient community of the potential long-term consequences that our patients and their families may suffer, the Society of Critical Care Medicine's Long-Term Consequences of Critical Illness Task Force convened a meeting of stakeholders in September 2010.¹ Invited participants included representatives of relevant organizations (American Academy of Hospice and Palliative Care, American Academy of Physical Medicine and Rehabilitation, American Association of Retired People, American Occupational Therapy Association, American Physical Therapy Association, American Speech-Language-Hearing Association, Association of

Academic Physiatrists, Long-Term Acute Care, National Association of Long-term Hospitals, National Heart Lung and Blood Institute, Illinois Citizens for Better Care, and Sepsis Alliance) and health care systems (Kaiser Permanente and Veterans Administration).¹ During the 2-day meeting, expertise and perspectives were shared. Participants are in the process of implementing strategies to increase awareness and improve care for ICU patients and their families.

What Critical Care Nurses Can Do

The focus of the task force is to better inform members of the health care team outside of the ICU so that patients will receive the appropriate follow-up after discharge from the ICU. However, the emerging science will have a direct impact on ICU nurses. Critical care nurses can collaborate to establish practices that are known to mitigate the long-term consequences of critical illness and to increase awareness in both their critical care and non-critical care colleagues.

We strongly encourage each of you to embrace the changes in practice that will be required to provide our patients with the best chance of physical, psychological, cognitive, and functional recovery. These changes will take more time and dedication on your part to actualize. You may be asked to

- Maintain patients at lower levels of sedation and attend to glycemic control with vigilance to prevent hypoglycemia.²⁻¹³
- Encourage patients to do cycling exercises and range-of-motion activities within the first few days of admission, even those patients we once thought were appropriately left in a pharmacologically comatose state.^{2,4}
- Reduce the use of benzodiazepines and, instead, use other sedating agents and nonpharmacological measures to combat anxiety and discomfort imposed by critical illness.²⁻¹³
- Work hand-in-hand with therapists to move patients who are receiving mechanical ventilation, patients who had once stayed in bed and at most achieved a head-of-bed-elevated position, out of bed and onto tilt-tables or chairs.²⁻¹³
- Help create a diary for a patient so that the patient's family can have a working document to later slowly move the patient past the delusions and misconceptions that gather in the muddled mind during critical illness.¹⁷

- Involve patients' families more at the bedside by giving them clear instruction on how they can help so they are better prepared for the long-term caregiving that will be required of them later.¹⁸⁻²¹
- Work with your discharge planners and social workers to increase their awareness of the potential for long-term consequences of critical illness.
- Work with discharge planners and social workers to establish mechanisms to increase communication and collaboration with the post-acute care community in order to ensure that long-term consequences of critical illness in patients and their families are recognized and addressed.

This new work will not be easy and it will take time. Maybe YOU will be the one who creates a team focused on this issue at your facility and begins the process of establishing measures to minimize and address the long-term consequences of critical illness across the continuum of care.

Conclusion

We struggle to save lives and celebrate our ability to send patients home. However, we can no longer measure our success by our ability to save lives. Patients and their families measure our success by their reaching the level of function and the quality of life that they had before the critical illness. Sending them home without having done our best to maximize their chances to reach these goals is no longer acceptable.

We must keep up with what is known about preventing the long-term consequences of critical illness, work to implement these strategies in our units, and inform our patients and their caregivers of the potential for these consequences of critical illness. It requires establishing new relationships and lines of communication with those in the post-acute care community. It comes at a time when we are all stretched to meet our patients' needs. But, what can be more important than helping to make the lives we save lives worth living? **CCN**



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Financial Disclosures
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