Meeting the Challenges of Establishing Intensive Care Unit Follow-up Clinics

By Brad W. Butcher, MD, Tammy L. Eaton, PhD, RN, FNP-BC, ACHPN, Ashley A. Montgomery-Yates, MD, and Carla M. Sevin, MD

Intensive care unit follow-up clinics are becoming an increasingly widespread intervention to facilitate the physical, cognitive, psychiatric, and social rehabilitation of survivors of critical illness who have post–intensive care syndrome. Developing and sustaining intensive care unit follow-up clinics can pose significant challenges, and clinics need to be tailored to the physical, personnel, and financial resources available at a given institution. Although no standard recipe guarantees a successful intensive care unit aftercare program, emerging clinics will need to address a common set of hurdles, including securing an adequate space; assembling an invested, multidisciplinary staff; procuring the necessary financial, information technology, and physical stuff; using the proper screening tools to identify patients most likely to benefit and to accurately identify disabilities during the visit; and selling it to colleagues, hospital administrators, and the community at large. (*American Journal of Critical Care.* 2022;31:324-328)

As the COVID-19 pandemic emerged, hospital administrators and intensive care unit (ICU) directors relied on a paradigm of disaster management that focuses on space, staff, and stuff to meet the challenges before them. This framework, with a few simple additions (see Table), can also be employed by health care systems to successfully establish and grow ICU follow-up clinics. These multidisciplinary post–acute care clinics, initially developed for survivors of critical illness, are also well suited to the needs of those with "long" COVID-19, which shares many features with post–intensive care syndrome (PICS).[1,2]

As founders and directors of 3 successful ICU follow-up clinics, we hope to broadly address the questions that are commonly asked of us by other clinicians interested in starting their own ICU follow-up clinics. Given disparities in institutional personnel, resources, and interests, a granular, step-by-step approach to developing an ICU follow-up clinic is not feasible here; instead, we provide a blueprint of compulsory considerations that can be tailored to your institution's specific needs and capabilities. Other models of ICU aftercare, including support groups for survivors of critical illness and telephone check-ins that may prompt referrals to specialists or therapists, are beyond the scope of this article.

CE 1.0 Hour

This article has been designated for CE contact hour(s). See more CE information at the end of this article.

doi:https://doi.org/10.4037/ajcc2022987

Space

Few medical centers have unused clinic space available, and clinic developers will need to negotiate with hospital leaders to find a space that meets their needs. One important consideration is size, which determines how many patients and clinicians can be simultaneously accommodated. A communal, confidential space where clinicians can discuss and document patient encounters is as important as the number of examination rooms. Although many assessments performed during an ICU follow-up visit can occur in a conventional examination room, a robust physical therapy assessment requires a space capable of accommodating such testing. For ICU follow-up clinics that are primarily telemedicine based, an increasingly popular model given the constraints of the pandemic, space concerns are limited to a confidential work space with the requisite

Table
Key considerations for establishing an ICU follow-up clinic

Consideration	Questions
Space	Does my medical center have available and affordable space for an ICU follow-up clinic? How many patients and clinicians can it accommodate at a time? Is there a confidential space for discussion and documentation? Is there sufficient room for a robust physical therapy assessment (eg, 6-minute walk test)? For telemedicine-based clinics: Is there a confidential space with the requisite technology to accommodate 1 or more clinicians?
Staff	What complement of clinicians and therapists will be able to participate in a clinic visit? How will they be financially compensated for their time? For telemedicine-based clinics: Who can participate on the call simultaneously? Will we partner with researchers?
Stuff	How will the ICU follow-up clinic be funded? What equipment will need to be purchased for the clinic (eg, spirometer, food/drink for swallowing evaluation, assistive devices for the 6-minute walk test)? How do we partner with the information technology department to design a note template that can accomplish both clinical and research goals? For telemedicine-based clinics: Do we have the appropriate technology available for the clinic?
Screening	What patients will we choose to be seen in the ICU follow-up clinic? Who will perform the screening and set up the appointments? How often and at what intervals should we see patients? What screening tests will we use to determine physical, cognitive, psychiatric, and social disabilities? How do we ensure people come to their appointment and how do we handle no-shows?
Selling it	How can we increase awareness of PICS among intensivists, other physicians, administrators, and the public at large? How can we convince others about the need for ICU aftercare? How can we use our ICU follow-up clinic to impact health care resource utilization? How can we use our ICU follow-up clinic to meaningfully impact care provided in the ICU?

Abbreviations: ICU, intensive care unit; PICS, post–intensive care syndrome.

technology. On certain platforms, multidisciplinary team members can securely join virtual visits from disparate locations.

Staff

This model of comprehensive ICU follow-up relies on coordinated care that is provided by a multidisciplinary team with expertise in the various domains of critical illness rehabilitation, including pharmacists, respiratory therapists, occupational and physical therapists, speech-language pathologists, dietitians, social workers, case managers, and critical care clinicians. Not every institution will be able to assemble a full complement of post–acute care clinicians, and personnel resources may be limited by staff availability, interest, and finances. In some models, clinic responsibilities are built into larger roles; for example, unit-based pharmacists and respiratory therapists may have ICU follow-up clinic time folded into their job descriptions and compensation. For telemedicine-based clinics, having a full complement of rehabilitation specialists, pharmacists, respiratory therapists, and social workers may not be feasible, so identifying who might be available to participate in the telehealth visit is important. Volunteerism, although not indefinitely sustainable, may buy enough time to show the clinical value of such services. Partnering with hospital administrators is key to navigating such reimbursement issues. Collaboration with researchers can help develop a research program from data generated by clinical care.

Stuff

Starting and sustaining an ICU follow-up clinic requires financial planning. Although ICU follow-up

About the Authors
Brad W. Butcher is an associate professor and director of the Critical Illness Recovery Center, Department of Critical Care Medicine, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania. **Tammy L. Eaton** is a health services researcher with the Department of Systems, Populations, and Leadership, University of Michigan School of Nursing, Ann Arbor, Michigan and a National Clinician Scholars Program postdoctoral VA research fellow with the Institute for Healthcare Policy and Innovation, University of Michigan, Ann Arbor, Michigan. **Ashley A. Montgomery-Yates** is an associate professor and director of the ICU Recovery Clinic, Department of Medicine, Division of Pulmonary, Critical Care, and Sleep Medicine, University of Kentucky, Lexington, Kentucky. **Carla M. Sevin** is an associate professor, director of the Pulmonary Patient Care Center, and director of the ICU Recovery Center, Department of Medicine, Division of Allergy, Pulmonary, and Critical Care Medicine, Vanderbilt University Medical Center, Nashville, Tennessee.

Corresponding author: Brad W. Butcher, MD, 1400 Locust St, Ste 4230, Pittsburgh, PA 15219 (email: butcherbw@upmc.edu or bradbutchermd@gmail.com).

> Post–intensive care syndrome is not a static set of problems but is more similar in course to a chronic illness, and recovery among patients is not uniform.

clinics are unlikely to be revenue-generating enterprises, economic impact on the health system may be realized through cost savings.[3] Preventing hospital readmissions,[4] identifying safety events, and addressing goals of care are several ways in which ICU follow-up clinics may provide such benefit. If up-front funding is not forthcoming, starting a clinic on a pilot basis may yield an opportunity to demonstrate its value and secure more durable resources. Data collection is an important tool in this regard. Data showing decreased hospital readmissions, improved patient satisfaction scores, or other markers of value-based care may influence administrative priorities. Nearly everyone knows someone whose life changed dramatically because of critical illness, and many lament the lack of resources available to their loved ones following hospital discharge.[5] Such personal stories are powerful adjuncts to empiric data. Insurers may also be interested in cost sharing by funding a case manager to follow clinic patients who are health plan members.

Some equipment will need to be purchased or shared for in-person clinics. Spirometry, for example, requires a spirometer, mouthpieces, and nose clips. Food and drink of various consistencies are needed for swallowing evaluations and must be continually restocked as they expire. Physical assessments may necessitate mobile pulse oximeters, sphygmomanometers, handgrip dynamometers, and assistive devices, including canes and walkers. Clinics that are primarily telemedicine based may not need additional supplies but are limited in their ability to assess physical function. Printing marketing materials serves a dual purpose: clinic brochures and literature about PICS raise awareness about both the disease and the vital recovery services ICU follow-up clinics provide. Graphic design and marketing expertise can boost impact.

The electronic medical record is critical to a successful clinic. A good relationship with the information technology department ensures that data captured during the visit can accomplish both clinical and research goals. Think about the most meaningful way to organize the data collected and design a note template that accomplishes that vision. Epic software (Epic Systems Corporation), for example, enables data entry into flow sheets that can be seamlessly incorporated into the note template for easy documentation and later extracted for research and quality improvement purposes.

Screening

There is currently no firm consensus regarding screening for post-ICU impairments; each clinic should tailor screening to their specific resources and patient population.[6] Patient selection criteria may include ICU length of stay; certain diagnoses, such as respiratory failure, sepsis, or delirium; or severity of illness. Patients with limited life expectancy or significant prehospitalization disability may not derive significant benefit from an ICU follow-up clinic, although this has not been definitely shown. Patient screening may be done by members of the ICU care team, such as pharmacists, or by a team member who determines patient candidacy by using the electronic medical record to identify a list of patients with a minimum length of stay.

Post–intensive care syndrome is not a static set of problems but is more similar in course to a chronic illness, and recovery among patients is not uniform. Serial assessments and flexible interventions are likely required to meet the needs of this often fragile and heterogeneous population of patients. Optimal timing of follow-up is unknown, but 2 to 4 weeks after hospital discharge is a common target, with further follow-up dependent upon the severity of patients' disabilities and times of important health and life changes.[6] We see patients at 3, 6, and 12 months after discharge if they continue to require rehabilitation. Others need more frequent assessments or may "graduate" early if needs are met.

There is no uniform approach to screening in an ICU follow-up clinic. A multidisciplinary approach can inform which tests to use.[6] The 6-minute walk test is the best-studied measure of exercise capacity in this population and may be supplemented by the short physical performance battery, gait speed evaluation, handgrip dynamometry, and spirometry. Validated tools such as the Katz and Lawton questionnaires assess functional capacity in activities of daily living and instrumental activities of daily living, respectively. The Montreal Cognitive Assessment and the Hospital Anxiety and Depression Scale are commonly used screens for cognitive dysfunction, anxiety, and depression. Less consensus exists regarding screening for posttraumatic stress disorder (PTSD); options

> Given an increasing number of critical illness survivors and millions of people impacted by the COVID-19 pandemic, PICS is becoming a leading public health challenge of the 21st century.

include the Impact of Event Scale–Revised, PTSD Checklist for *DSM-5* (*Diagnostic and Statistical Manual of Mental Disorders [Fifth Edition]*), and Impact of Event Scale–6. Quality of life questionnaires include the EuroQol 5-Dimension questionnaire and the 36-Item Short Form Survey. Caregivers can also be assessed for caregiver burden and for anxiety, depression, and PTSD using these tools. All screening tools except for the 6-minute walk test, other tests of physical function, and spirometry can be administered via a telemedicine appointment, making telemedicine an attractive alternative to traditional in-person care.

Getting patients to an in-person clinic can be a challenge. Patients may need to overcome multiple hurdles to make their appointment; these obstacles often overlap with the primary manifestations of PICS.[7] Weakness, cognitive impairment, anxiety, depression, and PTSD may all contribute. Clinicians must be persistent in devising solutions to help patients and caregivers navigate these challenges. Patients may lack transportation or financial means to attend an appointment, barriers ably addressed by social workers or case managers. Getting patients to the clinic may require repeated phone calls, reminders, and creative solutions. Telemedicine, which eliminates the need to overcome many of these barriers, may be one such solution[8] but does require the patient or caregiver to have the necessary technology, be savvy in its use, or to remember the appointment. By overcoming many of the barriers that might prevent patients from participating in ICU follow-up clinics, including distance, lack of transportation, profound physical weakness, and the desire to avoid the site of recent trauma, telemedicine could enhance equity of care among survivors of critical illness and their loved ones.

Selling It

Awareness of PICS remains incomplete among intensivists, hospitalists, primary care physicians, specialists, and laypersons. Significant work is required to educate patients and caregivers about the struggles they may experience and to manage expectations about recovery. Providing educational materials describing PICS, sharing clinic details, and listing additional resources can help. Educating involved clinicians about PICS is key to garnering support for your clinic and justifying its existence to hospital administrators. In-service training for nurses and therapists, noon conferences, grand rounds, and on-demand webinars can teach colleagues about the prevalence and prevention of PICS. To raise public awareness, efforts should be made to speak with members of the lay press when possible. The COVID-19 pandemic has shined a light on the plight of survivors of critical illness, calling attention to their prolonged and persistent disabilities, which were codified under the term PICS only 10 years ago.[2] Institutions such as the Society of Critical Care Medicine and the Critical and Acute Illness Recovery Organization facilitate networking, clinician support, research, and advocacy (www.sccm.org, www.cairorecovery.org).

Aside from educating and rehabilitating patients, ICU follow-up clinics can impact health care utilization by addressing goals of care, ensuring that patients who no longer want future aggressive therapies have their wishes documented and followed. Enhancing patient and family satisfaction, increasing downstream referrals to other clinicians in your health care system, and decreasing burnout among physicians and other members of the health care team are other potential but as yet unproven benefits. Lessons learned in ICU follow-up clinics can have a meaningful impact on ICU care via quality improvement projects informed by post-ICU outcomes, such as enhanced mobility protocols or delirium prevention.[9] These clinics can also create new roles for survivors, many of whom yearn to assist others in their recovery journeys through peer support and mentorship.[10-12]

Summary

Given an increasing number of critical illness survivors and millions of people impacted by the COVID-19 pandemic, PICS is becoming a leading public health challenge of the 21st century.[13] With recent literature suggesting improvements in clinical[4] and financial outcomes,[3] ICU follow-up clinics are becoming more common, but they can be challenging to establish

> There is currently no firm consensus regarding screening for post-ICU impairments; each clinic should tailor screening to their specific resources and patient populations.

and grow. Motivated clinicians with a commitment to interprofessional teamwork, defined operational processes, and creative problem-solving skills are needed.[14] Because of variable resources and goals of health care institutions, there is no standard recipe for sustaining an ICU follow-up clinic. However, a framework that includes securing an adequate space; assembling an invested, multidisciplinary staff; procuring financial, information technology, and physical stuff; using screening tools to identify patients most likely to benefit and to identify disabilities; and selling it to colleagues, hospital administrators, and the community can increase the likelihood of success.

FINANCIAL DISCLOSURES
No financial support was provided for the writing of this manuscript. The clinic on which this work was based was funded in part by a Beckwith Institute research grant and by a grant provided by the Society of Critical Care Medicine THRIVE collaborative.

REFERENCES

1. Martillo MA, Dangayach NS, Tabacof L, et al. Postintensive care syndrome in survivors of critical illness related to coronavirus disease 19: cohort study from a New York City critical care recovery clinic. *Crit Care Med.* 2021;49(9):1427-1438.
2. Needham DM, Davidson J, Cohen H, et al. Improving long-term outcomes after discharge from intensive care unit: report from a stakeholders' conference. *Crit Care Med.* 2012; 40(2):502-509.
3. Snell KP, Beiter CL, Hall EL, et al. A novel approach to ICU survivor care: a population health quality improvement project. *Crit Care Med.* 2020;48(12):e1164-e1170. doi:10.1097/CCM.0000000000004579
4. Bloom SL, Stollings JL, Kirkpatrick O, et al. Randomized clinical trial of an ICU recovery pilot program for survivors of critical illness. *Crit Care Med.* 2019;47(10):1337-1345.
5. McPeake J, Boehm LM, Hibbert E, et al. Key components of ICU recovery programs: what did patients report provided benefit? *Crit Care Explor.* 2020;2(4):e0088. doi:10.1097/CCE.0000000000000088
6. Mikkelsen ME, Still M, Anderson BJ, et al. Society of Critical Care Medicine's international consensus conference on prediction and identification of long-term impairments after critical illness. *Crit Care Med.* 2020;48(11):1670-1679.
7. Mayer KP, Boustany H, Cassity EP, et al. ICU recovery clinic attendance, attrition, and patient outcomes: the impact of severity of illness, gender, and rurality. *Crit Care Explor.* 2020;2(10):e0206. doi:10.1097/CCE.0000000000000206
8. Telehealth-enhanced patient-oriented recovery trajectory after ICU (TelePORT ICU). ClinicalTrials.gov. April 24, 2019. Updated January 26, 2021. Accessed March 16, 2022. https://clinicaltrials.gov/ct2/show/NCT03926533
9. Bellinghausen AL, LaBuzetta JN, Chu F, Novelli F, Rodelo AR, Owens RL. Lessons from an ICU recovery clinic: two cases of meralgia paresthetica after prone positioning to treat COVID-19-associated ARDS and modification of unit practices. *Crit Care.* 2020;24(1):580.
10. Haines KJ, Sevin CM, Hibbert E, et al. Key mechanisms by which post-ICU activities can improve in-ICU care: results of the international THRIVE collaboratives. *Intensive Care Med.* 2019;45(7):939-947.
11. McPeake J, Iwashyna TJ, Boehm LM, et al. Benefits of peer support for intensive care unit survivors: sharing experiences, care debriefing, and altruism. *Am J Crit Care.* 2021; 30(2):145-149.
12. Robinson C, Hibbert E, Bastin AJ, et al. An international study exploring the experience of survivors of critical illness as volunteer within ICU recovery services. *Crit Care Explor.* 2020;2(11):e0273. doi:10.1097/CCE.0000000000000273
13. Iwashyna TJ. Survivorship will be the defining challenge of critical care in the 21st century. *Ann Intern Med.* 2010;153(3):204-205.
14. Haines KJ, McPeake J, Hibbert E, et al. Enablers and barriers to implementing ICU follow-up clinics and peer support groups following critical illness: the Thrive Collaboratives. *Crit Care Med.* 2019;47(9):1194-1200.

CE 1.0 Hour Category C

Notice to CE enrollees:

This article has been designated for CE contact hour(s). The evaluation demonstrates your knowledge of the following objectives:

1. Identify the 3 categories of disability commonly associated with post–intensive care syndrome (PICS) and potential screening tests.
2. Describe several ways in which intensive care unit (ICU) follow-up clinics can benefit patients, their families, and the health care system.
3. List some ways in which ICU in person follow-up clinics differ from primarily telemedicine-based ICU follow-up clinics.

To complete the evaluation for CE contact hour(s) for this article #A223141, visit www.ajcconline.org and click the "CE Articles" button. No CE evaluation fee for AACN members. This expires on July 1, 2024.

The American Association of Critical-Care Nurses is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation, ANCC Provider Number 0012. AACN has been approved as a provider of continuing education in nursing by the California Board of Registered Nursing (CA BRN), CA Provider Number CEP1036, for 1.0 contact hour.