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Post-ICU Recovery Clinics in the Era of Digital Health and Telehealth

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To the Editor:

We read with great interest the viewpoint by Sevin and Jackson (1) published in a recent issue of *Critical Care Medicine* on post-ICU clinics. We would like to recognize Sevin and Jackson (1) for studying ICU survivors in the post-ICU setting and identifying unique issues in this vulnerable population as a result of ICU healthcare interventions. Transitions of care from the hospital to the postacute care setting is a key component for quality care in health systems and is particularly important for ICU survivors, for whom ICU healthcare interventions can have a marked impact beyond the period of critical illness (2). Telemedicine and remote patient monitoring offer tools to facilitate post-ICU clinics and comprehensive care of the ICU survivor in the future.

For post-ICU recovery clinics, the opportunities that exist for telehealth and mobile technologies to help extend care delivery, reduce costs, improve the quality of care, and the patient experience in the postdischarge period are significant. The demand for intensive care is projected to rise because of an aging population with complex comorbidities and the expanded use of advanced healthcare treatments, and as a result, the number of ICU survivors will rise (3). Survivors of critical illness require early identification of symptoms and early interventions to decrease symptom burden and enhance their quality of life. Redesign of post-ICU care management and postacute care delivery systems is needed to engage ICU survivors in self-care, monitor for early signs of deteriorating health, intervene early, and reduce costs. As new value-based payment models for medical services increasingly take hold, financial incentives will also need to align with rehabilitation-oriented services in this population with greater focus on post-ICU care.

With advances in health information technology, telemedicine, digital health, and remote patient monitoring, there has been increasing exploration on the use of these technologies to facilitate patient-clinician communication, track disease, intervene earlier for symptom management, and provide educational support to patients beyond the walls of the hospital and clinic (4). Such technologies have shown promise in other fields of medicine (5), but they are not being used to their full extent for survivors of critical illness. Telehealth and digital health can address unique issues to the ICU survivor population: 1) many ICU

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survivors have increasing geography after their ICU stay, with poor ability to ambulate and hence commute to a physical clinic; 2) wearables may allow for early recognition of physical impairment with potential for early physical therapy intervention; 3) timely and appropriate multidisciplinary care via an outpatient post-ICU teleclinic may allow for greater potential to reduce readmissions (group meetings via telemedicine are possible even if members of the post-ICU clinic are remote); 4) early case management review after discharge may assist in removing financial, geographic, and societal barriers to recovery; and 5) telemedicine offers the opportunity to understand the patient's home environment and their challenges because of that environment because of the capability to virtually "see" inside a patient's living environment. Monitoring post-ICU recovery is usually not provided to patients after discharge from the hospital, but one can imagine a future where telehealth and wearables enable remote symptom monitoring and surveillance of high-risk ICU survivors up until the point of a post-ICU clinic visit.

Post-ICU clinics can be at the forefront of using mobile health and telehealth technologies to demonstrate clinical validation of their use in the ICU-survivor population and assess for potential of delivering personalized interventions that early on target complications of ICU care and improve health outcomes. When properly implemented for ICU survivors, digital health and telehealth have great potential to help achieve important policy goals of improving access to efficient and high-quality healthcare and, most importantly, help ICU survivors achieve maximal posthospital recovery.

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