

INNOVATIONS AND PROVOCATIONS

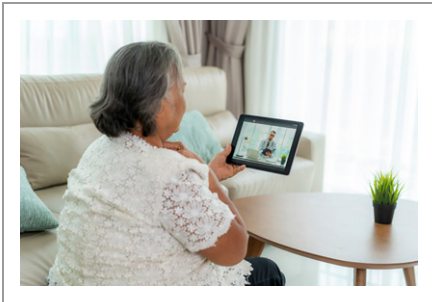
Translating Postsepsis Care to Post–COVID-19 Care The Case for a Virtual Recovery Program

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Each year, 14 million sepsis survivors are discharged from hospitals, many experiencing poor long-term outcomes (1). On that background, the coronavirus disease (COVID-19) pandemic will add a surge of serious illness survivors for whom targeted interventions to promote transition out of acute care settings and continued recovery will be necessary (2).

Although long-term follow-up studies may ultimately reveal distinctive characteristics of COVID-19 survivors, it is presently reasonable to assume that COVID-19 survivors experience similar trajectories to patients surviving other serious illnesses, such as sepsis (3). Therefore, one approach to establishing a COVID-19 transition and recovery program might be to follow the example of sepsis survivorship programs. Our group has successfully implemented a multicomponent Sepsis Transition and Recovery (STAR) program delivered virtually through a nurse navigator to provide

best-practice care to high-risk sepsis survivors after discharge. The program's innovative virtual platform addresses the challenges of care delivery in a pandemic setting, including 1) capacity strain from an acute surge in survivors and 2) reduced accessibility of traditional primary care follow up owing to physical distancing (4). Here, we describe our existing virtual STAR program as a potential model to complement other approaches to providing optimal care to survivors of serious illnesses.

What Is Needed to Implement a Virtual Serious Illness Recovery Program?

Recognizing the need to develop a high-value program to support sepsis survivors (5), we designed a virtual STAR program, which uses specialized sepsis recovery navigators (Box 1) to facilitate the delivery of best-practice care through low-technology telehealth modalities (electronic health record [EHR], secure messaging service, and telephone) (6). The primary patient–navigator encounter occurs as synchronous communication by phone. The STAR program is a hub-and-spoke model of care delivery that enables sepsis navigators to monitor and support patients from a centralized, geographically distant location. In our experience, the following conditions are

important for the successful implementation of a virtual transition and recovery program.

Adequate Human, Financial, and Technological Resources

We believe the success of a navigator-driven survivorship program hinges on engaged and adequately trained navigators. The navigator role combines nursing and case management skills to deliver patient-centered care within a complex healthcare system. Our navigators receive disease (sepsis)-specific education as well as training in communication skills, including motivational interviewing, crucial conversations, and active listening. Navigators also develop skills in health disparity and cultural awareness to enable the provision of support based on each patient's current health literacy, preferred language, and motivation. Minimal technological resources include telephone and EHR access. Programs will likely require internal upfront funding anticipating a return on investment related to the reduction in downstream use but may also capitalize on recently expanded reimbursement for chronic care management and additional telehealth services through Centers for Medicare and Medicaid Services (7).

Method to Identify High-Risk Patients

To maximize value and sustainability, virtual transition and recovery programs should efficiently identify eligible patients and ideally select a high-risk group that will derive the most benefit. We developed and

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Patient Trajectory through the Sepsis Transition and Recovery (STAR) Program

Proactive and sepsis-specific care management of patients during hospitalization and transition into post-acute settings

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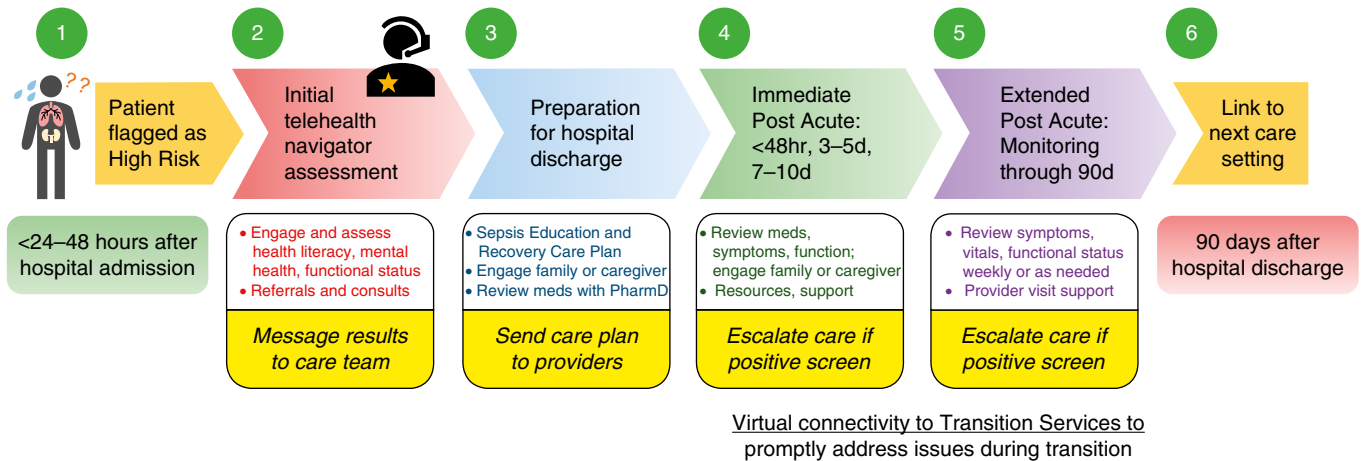


Figure 1. Sepsis Transition and Recovery Navigator Workflow Diagram.

deployed a data-driven, EHR-embedded algorithm to apply sepsis identification criteria and use risk models to enrich patients at high risk of postdischarge mortality or rehospitalization. In our experience, identifying patients using near-real time risk modeling enables engagement early in the hospital course, which allows the STAR navigator to 1) gain trust with the patient, increasing the likelihood of meaningful engagement after discharge, and 2) follow the hospital course in near real time. Many hospital systems already embed common disease severity and readmission risk screening tools into the EHR that can be leveraged to identify appropriate patients for transition and recovery support. Our risk threshold for the application of support services is influenced by navigator capacity, but, ultimately, risk cutoffs should be based on empirically derived benefit and cost-benefit considerations.

Robust and Effective Operational Processes

We worked with stakeholders to develop protocols to support the delivery of the best-practice care elements, establish documentation mechanisms, and specify clinical oversight. For efficient exchange of information, programs should be well-networked within and across

organizations with robust communication pathways between navigators and relevant partners. A nonphysician navigator will need connectivity to a clinical provider to ensure an appropriate scope of work. Our STAR navigators are supported by a hospitalist physician who reviews cases and discusses issues that arise. Figure 1 provides an overview of the STAR navigator’s operational workflow. Development of optimal and feasible operational processes will require contextual nuance for different implementation settings but should include the following core elements (1).

Optimization of Medications

Medication management for survivors of serious illnesses is complex, requiring discontinuation of medications needed in the acute critical care phase and restarting medications that were initially held. Often, optimal medication management includes frequent reassessment and titration after discharge. In our program, STAR navigators engage with a pharmacist to rectify any discharge medication errors and create a medication titration plan if needed (e.g., restart β-blocker when blood pressure target met, titrate insulin to achieve glucose goals). The navigator ensures the patient has the appropriate medications, understands how they are to be taken, and monitors for side effects of high-risk medications. Careful attention to medication management and

residual effects will be important for COVID-19 survivors who may be exposed to investigational therapies.

Screen for Functional, Cognitive, and Mental Health Problems

Sepsis survivors frequently suffer long-term morbidity across functional, cognitive, and psychological domains (8–10), and COVID-19 survivors will foreseeably experience similar or worse long-term sequelae (11). Because early intervention may mitigate some of these deficits (12), STAR navigators coordinate physical, occupational, and speech therapy evaluations during hospitalization. Once patients reach their discharge environment, the STAR navigator assesses functional limitations as well as cognitive and mental health problems using telephone-adapted tools. Protocols guide response for positive screens, such as referral to mental health clinicians for positive depression screening or securing durable medical equipment for a need identified in the patient’s home.

Symptom Monitoring

Because sepsis survivors experience high rates of new or recurrent infection (13), the STAR navigator queries all patients about infection symptoms at each contact. Other symptom monitoring is individualized to patients’ comorbidities (e.g., daily weights for heart failure or bleeding for patients

Box 1. Framework for Sepsis Transition and Recovery Navigator Role.

Job Description:

- Uses nursing theory and skills to assess, diagnose, plan, implement, and evaluate a care plan for sepsis survivors
- Provides patient education about postsepsis symptoms, infection prevention measures, and optimal management of comorbidities
- Completes screening tools for identification of impairments, referrals sent as needed
- Addresses barriers to care and implements a plan to achieve the plan goals
- Ensures patients have tools and resources for self-management

Job Qualifications:

- Bachelor of Science in Nursing and Certified Case Manager credentials preferred
- Knowledge base regarding sepsis or critical illness recovery care to include recovery continuum, resolution of system barriers, health disparities, and cultural sensitivity
- Ability to implement patient-centered care in a complex integrated healthcare system, which includes setting common goals, merging resources, providing education, and cross-training of roles

Training and Onboarding:

- Sepsis and sepsis survivor education
- Care management modules
- Experiential learning shadowing experienced sepsis transition and recovery navigator
- Proactive internal and external relationship-building and networking

Supervision Structure:

- Oversight by a medical director of hospital transitions service, regular review, and discussion of cases
- Yearly peer reviews of patient contacts and documentation of interventions and follow up provided with constructive feedback

receiving anticoagulation). Many COVID-19 survivors require dedicated monitoring of residual pulmonary symptoms. Attention to best-practice care for underlying comorbidities in the sepsis recovery period is often overlooked but essential (14) because exacerbation of underlying comorbidities contributes to considerable morbidity in sepsis survivors (13). Protocols guide escalation of care to the patient’s primary care physician or a backup hospitalist physician for positive symptoms. In our integrated health system, home health or community paramedicine providers can be activated for evaluation or treatment in patients’ homes.

Establish Goals of Care

A sepsis hospitalization can be a salient “pause point” (15) to reevaluate patients’ goals and ensure that future care aligns with these goals. Our STAR navigator facilitates palliative care consultation for appropriate patients during hospitalization. Because of their skillset and experience, nurses play key roles in initiating and participating in critical conversations (16). Once patients are home or in their post-acute care setting, the STAR navigator ascertains and documents patients’

goals for future care and communicates this information to the patient’s PCP.

Advantages of a Virtual Navigator Platform for STAR Programs

The COVID-19 pandemic has catalyzed rapid implementation of virtual care platforms because these allow patients and physicians to participate while maintaining physical distancing requirements. We propose that the virtual platform may have additional advantages in delivering high-quality care to survivors of serious illnesses that position it as an important complement to existing survivorship care delivery approaches.

Improved Access and Adherence to Follow Up

Studies of dedicated post-intensive care unit (ICU) follow-up clinics reveal that impact is limited by poor participation rates (17, 18). Indeed, it is easy to imagine how a sepsis survivor with new physical weakness, cognitive impairments, and anxiety may have trouble attending a clinic appointment. The navigator care delivery model addresses the mismatch between patient workload (understanding the

plan for care, obtaining support from others, and accessing healthcare services) and capacity (quality and availability of resources for patients) (19). As such, a virtual transition and recovery program may reduce rural, socioeconomic, and disability disparities to the extent that they exist in the delivery of postsepsis care. On the other hand, the program has poor reach to patients with unstable housing and telephone access, and we continue to pursue solutions to these challenges.

Longitudinal Follow Up at Short Intervals Allows Frequent Reassessment and Adjustment of the Care Plan

Although no longer meeting criteria for inpatient treatment, recovery takes time, and survivors experience both progress and setbacks after hospital discharge. The efficiency of the virtual navigator platform allows frequent evaluation and modification of the care plan as patients adapt to their new environment and traverse their individual recovery trajectories. Our navigator program spans 90 days after discharge with a tapering frequency of contact for improving patients and consistent contact for patients with persistent challenges.

Consistent “Check-Ins” from a Familiar Provider May Accrue Psychological Benefits

Sepsis survivors experience high rates of stress disorders (20), which may be mitigated by review and processing of factual information (21) (typically studied in the form of ICU diaries). A navigator who has followed the patients’ hospital course in real time can plausibly also serve this function. The navigator may also help set realistic expectations about recovery, which are associated with better psychological well-being when facing new limitations (22).

Cost/Scalability

Similar to other virtual or telehealth applications, a virtual STAR program has anticipated benefits of bridging the widening supply–demand ambulatory care

gap and realizing efficiencies through a hub-and-spoke model of care delivery. For example, one STAR navigator accepts 20–30 new patients per month, providing 90 days of support; thus, it is an appealing model for value and scalability. Improvement and implementation science can play a key role in addressing contextual factors associated with the successful implementation of this complex intervention.

Conclusions

Managing survivors of serious illness will be a challenge for the medical community during and after the COVID-19 pandemic. We posit that a virtual STAR program is a high-value

platform for improving outcomes for survivors of serious illness and should be included in the armamentarium of care delivery approaches for these patients. The virtual delivery mode is an ideal platform to maintain physical distancing requirements but also provides additional advantages in terms of value and quality that warrant consideration of this platform beyond its role in a pandemic. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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