Innovative Partnership Between Intensive Care Unit **Nurses and Therapists** to Care for Patients With COVID-19

Sara M. Reese, PhD, MPH, CIC
Jennifer Johnson, MSN, RNC-OB
Jennifer Edwards, MSPT
Michelle Oliveti, MSPT
Susan Buszkiewic, BSN, RN, CCRN

Background When patients with COVID-19 began presenting to hospitals in early 2020, medical professionals were unprepared to handle the severity of disease and the number of severely ill patients.
Local Problem In response to critical needs of patients with COVID-19 and the threat of nurse burnout, a special operations team comprising physical and occupational therapists was convened to (1) provide help to intensive care unit nurses, (2) help therapists be productive, and (3) use therapists' specialties for critical patients.
Methods Two therapists teamed up each shift to work with every critical patient with COVID-19, performing numerous nursing and therapy activities. Activity frequency was documented by the therapists daily, and duration was estimated and data were summarized by nursing leadership.
Results During the 9-week program, 35 critical patients with COVID-19 were included in the special operations program. During the program, the teams performed 10 activities, including prone positioning, turning, and mobilization, 1937 times with the patients with COVID-19. The partnership saved between 5 and 40 minutes of intensive care nurse time per activity, which resulted in a total of 677.2 hours of nursing time saved.
Discussion Implementation of the special operations program had a positive impact on patients, nurses, and therapists. Patients benefited both clinically and socially from additional time with special operations teams. Nurses benefited from having help caring for critical patients, and therapists benefited from increased productivity during redeployment.
Conclusion Deployment of nonnursing clinical staff could be an effective strategy to leverage available resources while maintaining clinical standards of care and reducing nursing burden during a pandemic or crisis surge. (*Critical Care Nurse*. Published online August 12, 2021)

 doi:https://doi.org/10.4037/ccn2021152

When patients with COVID-19 began presenting to hospitals in early 2020, medical professionals were overwhelmed by the severity of the disease and the number of severely ill patients. Most patients presented with bilateral pneumonia and severe complications such as hypoxemia, acute respiratory distress syndrome, arrhythmia, shock, and acute cardiac injury.[1,2] Critical patients with COVID-19 required extensive care including prolonged ventilation, prone positioning, and extracorporeal membrane oxygenation.[3] The significant increase in the number of critically ill patients influenced the workload of, and placed notable pressure on, nurses working in intensive care units (ICUs).[3]

During the first wave of the pandemic, ICU nurses faced multiple challenges as extremely critical patients began flooding ICUs around the world. Initially, they had to confront a highly contagious and unknown virus, questionable and varying personal protective equipment (PPE), a lack of experience caring for infectious patients, rapidly changing policies and information, overwhelming and unclear communication, and a need to meet patient care needs in new ways while staying safe.[2,4] They also had to familiarize themselves with new diagnostic protocols, pharmaceutical treatments, prone positioning and extracorporeal membrane oxygenation protocols, and extensive use of mechanical ventilation.[5] Bruyneel et al[3] demonstrated a significant difference in the Nursing Activities Score between non–COVID-19 patients in the ICU and patients with COVID-19 in the ICU. The average Nursing Activities Score increased by 20% for the patients with COVID-19, which demonstrates the high acuity and significant impact of treating such patients on nursing time in the ICU.[3] Also, the additional time spent with patients with COVID-19 was dedicated to nonnursing activities such as monitoring, positioning, mobilization, hygiene, and social interaction, and nurses were often the only people by a patient's side when they took their last breath.[3,5]

Nurse burnout is a significant concern under normal conditions in various health care settings, but it has been even more of a concern during the pandemic.

The increased responsibilities of ICU nurses during the first wave of the COVID-19 pandemic, the excessive workload, and their inability to save patients significantly affected nurses' health. In numerous studies, ICU nurses reported extreme exhaustion, fatigue, psychological stress, depression, and insomnia.[4,6,7] Crowe et al[8] reported that up to 73% of ICU nurses who cared for patients with COVID-19 demonstrated mild to severe symptoms of posttraumatic stress disorder. Nurse burnout is a significant concern under normal conditions in various health care settings (including ICUs),[9] but it has been even more of a concern during the pandemic.

In response to the critical needs of patients with COVID-19 and the emotional impact of the COVID-19 pandemic on ICU nurses, our level 1 trauma hospital deployed physical therapists (PTs) and occupational therapists (OTs) to partner with ICU nurses to help provide daily care for severely ill patients with COVID-19. This group, called the special operations (SO) team, had 3 specific objectives: (1) to aid the nurses caring for the high-acuity patients with COVID-19 in the ICU; (2) to make the available PTs and OTs more productive; and (3) to use the clinical expertise of PTs and OTs to improve outcomes among patients with COVID-19. This article describes the implementation and outcomes of the SO program.

Methods

Setting

The SO program was implemented in a level 1 trauma center with 68 ICU beds (among a total of 408 beds). The hospital employs 184 ICU nurses, 25 PTs, and 20 OTs. Patients with COVID-19 initially presented during the first week of March 2020, and the SO program operated from April 4 to June 6, 2020.

Authors

Sara M. Reese is the infection prevention manager at Swedish Medical Center, Englewood, Colorado.

Jennifer Johnson is a labor and delivery nurse at Swedish Medical Center.

Jennifer Edwards is the Director of therapy and wound care at Swedish Medical Center.

Michelle Oliveti is the Assistant Director of therapy and wound care at Swedish Medical Center.

Susan Buszkiewic is the Nursing Director of the intensive care units at Swedish Medical Center.

Corresponding author: Sara M. Reese, PhD, MPH, CIC, Swedish Medical Center, 501 E Hampden Ave, Englewood, CO 80113 (email: smkimbrell.reese@gmail.com).

Program Initiation

The ICU nursing and acute therapies leadership developed the program, and the chief nursing officer and chief executive officer supported it. Its success was due to the long-standing partnership between the ICU and the acute therapy department. Before the COVID-19 pandemic, PTs and OTs worked frequently with critically ill patients receiving ventilation, using early mobilization techniques such as turning, dangling, and sitting. During the first month of caring for patients with COVID-19 (March 2020), ICU nurses and physicians were the only clinical workers allowed to interact with the patients to limit potential exposure to the virus among health care workers who were not on the direct care team. Early rehabilitation techniques were limited for those patients at that time. Also, therapists' productivity was low because of the small census of patients without COVID-19, whereas ICU nurses were overwhelmed by the high volume of patients with COVID-19. The partnering departments identified the SO program as a solution that would leverage therapists' expertise and availability to support nursing challenges. The intention was for the SO team to provide "helping hands" and skilled therapeutic interventions that would assist nurses in caring for the patients with COVID-19.

PT and OT Training

Staff assigned to the SO team already were knowledgeable about ICU operations and could competently mobilize critically ill patients. The PTs and OTs complete 2 annual competency evaluations: the first in respiratory therapy, including respiratory therapy terminology, respiratory support options (eg, nasal cannula, simple mask, nonrebreather mask, heated high-flow nasal cannula, tracheostomy collar), mechanical ventilation terminology, and ventilator alarm meanings; the second in working as a therapist in a critical care unit, which highlights ICU equipment and monitors, ICU terminology, commonly used patient devices (eg, central catheters, external ventricular drains, lumbar drains, chest tubes), patients undergoing craniotomy, patients receiving extracorporeal membrane oxygenation, medications, the Richmond Agitation-Sedation Scale, the Confusion Assessment Method for the ICU, vital signs, and continuous renal replacement therapy. They also undergo competency evaluations related to progressive mobility training, including the importance of and medical criteria for progressive mobility levels and documentation information. Nurses from the ICU trained PTs and OTs in how to appropriately don and doff PPE and use PPE when caring for patients with COVID-19. In addition, respiratory therapy and ICU nurses trained the SO team on procedures for prone positioning.

Program Overview

Teams of 2 PTs and OTs performed daily rounds through the COVID-19 ICUs and the following patient care activities: turning, prone positioning, toileting, providing meals, measuring vital signs, changing bed linens, providing chlorhexidine gluconate bed baths, providing social support, and administering early mobilization techniques. Activities were determined by a patient's need, level of alertness, and medical stability. Before seeing any patients, an SO team would check in with nurses to devise a schedule for the day and determine any anticipated care needs and timing. The presence of the SO teams on the unit allowed the ICU nurses time to focus on nursing-specific duties.

For example, at the end of their shifts in the late afternoon, the SO teams helped place patients in the prone position; at the start of their shifts, they assisted with placing patients supine. A team of 4 or 5 staff, including an SO team, a respiratory therapist, and nurses, are needed to place patients prone or supine. Sedation was lighter when the patients were supine, which allowed the SO teams to provide early mobility and perform other tasks. For patients who were more alert and awake, SO teams provided significant social support, from being a friendly face for conversation to assisting with making phone calls to family members who were not permitted to visit. The SO teams worked 7 days a week during the day shift (7:30 AM to 4:00 PM). After seeing all patients, the SO teams would assist with tasks such as cleaning and restocking PPE. Although the SO teams did not participate in daily multidisciplinary rounds, they did share patient care information with the primary nurse, who relayed that information to physicians during rounds.

At the end of their shifts in the late afternoon, the SO teams helped place patients in the prone position; at the start of their shifts, they assisted with placing patients supine.

The hospital used tools developed through a collaboration between ICU nurses, intensivists, acute therapists,

Protocol Statement

It is the practice of the critical care unit that all patient transfers and lifts are done safely and appropriately to protect the employee and patient from injury. All patient lifting, transferring, repositioning, and mobilizing will be done with mechanical lifting or transfer equipment when appropriate.

It is the responsibility of the caregiver to take reasonable care of their own safety, as well as that of their coworkers and their patients during patient handling activities by following this policy.

Purpose

This protocol will help ensure the safety of employees and patients during lifting, transferring, repositioning, and mobilization of patients. The purpose of the progressive mobility protocol is to advance the patient's activity level as early as the patient can tolerate, with the goal of progressing the patient to their capable functional level.

Procedure

Progressive mobility begins at admission for all patients.

Patients should be turned at least every 2 hours while on bed rest. Use wedges, quad pads, and pillows to prop the patient and to off-load areas at high risk for pressure ulcers. Document reason why turning is contraindicated or if patient does not tolerate turning.

Maintain the head of the bed of patients receiving mechanical ventilation at least 30° unless contraindicated.

Perform range of motion at least every shift for all patients who cannot actively participate in their care.

Perform range of motion on any restrained extremity at least every 2 hours.

Evaluate readiness for and progression of activity each shift. Document mobility and any reason for failure to progress.

Evaluate activity tolerance and progress to the next progressive mobility level. A patient may progress through more than 1 level.

Progressive mobility should occur at least 2 to 3 times daily, regardless of the level.

Consider physical therapy/occupational therapy to develop a care plan to maintain muscle strength, prevent contractures, and mobilize patients.

Consider an occupational therapy consult to retrain for activities of daily living and cognitive issues.

Provide a safe environment: use appropriate lift equipment and use the appropriate number of staff to secure catheters/tubing while safely transferring the patient.

Exclusion Criteria (these patients will remain at level 1 until stable)

Active bleeding

Intra-aortic balloon pump

Femoral sheath or arterial catheter

Cardiovascular instability

- Hypotension: systolic blood pressure < 90 mm Hg or > 200 mm Hg
- Tachycardia: heart rate > 130 beats/min
- Unstable heart rhythm
- Two or more vasopressors/inotropes, or more than hourly titration of 1 vasopressor

Respiratory instability

- Respiratory rate >35 breaths/min
- Fraction of inspired oxygen > 0.60
- Positive end-expiratory pressure > 10 cm H_2O
- Neuromuscular blockade medications
- Pressure control ventilation mode

Neurological instability

- Acute traumatic brain injury, intracerebral hemorrhage, or subarachnoid hemorrhage
- Intracranial pressure monitoring
- Lumbar drain monitoring
- External ventricular drain
- Unstable spinal cord injury or vertebral fracture

Obtain specific activity orders from physician for patients with pulmonary embolism or venous thromboembolism

Lifting/Transferring Equipment

Overhead lifts

Hoyer lift

Turn-and-position device

Slings/slide sheets/slide boards/seated slide boards

Gait belt

Nonskid socks

Walker

Appendix A Intensive Care Unit Progressive Mobility Standard of Care.

and respiratory therapists; these tools included the ICU Progressive Mobility Standard of Care, progressive mobility levels, and a bedside checklist. The ICU Progressive Mobility Standard of Care highlights the purpose of, protocol for, and exclusion criteria for patient mobilization in the ICU (Appendix A). The progressive mobility

Mobility level	Level of consciousness	Status	Activity	Caregiver responsible	Criteria for progression to next level
I	Unconscious	Unstable	Turn/reposition patient at least every 2 h Elevate HOB as tolerated PROM every shift; PROM for any restrained extremity every 2 h; consider OT for splinting needs	RN; may use family members to help perform PROM	See exclusion criteria in Appendix A
II	Conscious	Stable	Level I activity, plus patient in a sitting position in bed for a minimum of 20 min each shift	RN; consider PT, OT, or both to help develop plan of care	Patient can move arm against gravity Patient remains hemodynamically stable with activity
III	Conscious	Stable	Level I and II activities, plus: Lift to cardiac chair 2 to 3 times daily; sit up for a minimum of 30 min, maximum of 60 min Dangle legs at edge of bed Sit on edge of bed with feet flat on the floor	RN; consider PT, OT, or both to help develop plan of care	Patient is able to maintain balance while sitting at the edge of the bed and is able to move leg against gravity Patient is able to stand at the bedside with minimal to moderate assistance
IV	Conscious	Stable	Level I, II, and III activities, plus: March in place at side of bed Active transfer to chair and sit for 30-60 min, 4 times daily	RN; consider PT, OT, or both to help develop plan of care	Patient is able to actively transfer to a chair and is ready to start ambulating with assistance
V	Conscious	Stable	Active transfer to chair, minimum of 30 min, as needed Ambulate in room	RN; consider PT, OT, or both to help develop plan of care	Patient is able to sit in a chair at least 3 times a day
VI	Conscious	Stable	Up and in a chair at least 3 times per day Ambulate in hallway with assistance	RN; consider PT, OT, or both to help develop plan of care	

Abbreviations: HOB, head of bead; OT, occupational therapist; PROM, passive range of motion; PT, physical therapist; RN, registered nurse.

Exercise Intolerance

All levels of activity are to be performed with assistance, and patients should be evaluated for activity tolerance. If any of the following occur during activity, the activity should be terminated and the patient reassessed for readiness at the current level:

- Oxygen saturation <88%, unless otherwise specified by physician
- Change in breathing pattern with an increase in accessory muscle use, a paradoxical pattern, nasal flaring, or an appearance of distress
- Hypotension associated with dizziness, fainting, or diaphoresis
- Unstable tachycardia
- Change in heart rhythm
- Chest pain
- Excessive pallor or flushing of skin
- Extreme fatigue or severe intolerable dyspnea with respiratory rate greater than baseline by >20/minute
- Patient request to stop

Appendix B Progressive mobility levels for intubated and nonintubated patients.

levels outline criteria for the 6 mobility levels for patients and signs of exercise intolerance (Appendix B). These levels were used to determine a patient's level of tolerance for early mobilization techniques including range-of-motion exercises, dangling, sitting at the edge of the bed, transferring to a chair, and ambulating. The bedside checklist evaluates level of consciousness, patient stability, recommended activity level, the health care worker responsible for the activity, and criteria required for progression to the next level through the use of the ABCDE (Awakening and Breathing Coordination/Delirium Assessment and Nonpharmacological Interventions/Early Exercise and Mobility) assessment (Appendix C). The various sections of the ABCDE assessment outline the parameters for ventilator settings; determine Richmond Agitation-Sedation Scale/Confusion Assessment Method for the ICU scores; and note pain management, exercise levels, and any pressure control medication. This checklist was an effective tool for minimizing potential perceived barriers to mobilization.

ABC: Awakening and Breathing Coordination (Nursing and Respiratory Therapy Assessment)

	Date	Date	Date	Date	Date	Date	Date
F_{IO_2} < 0.50, RR < 35 breaths/min, PEEP < 10 cm H_2O							
Spontaneous awakening trial (SAT) Pass (Yes/No)							
Spontaneous breathing trial (SBT) Pass (Yes/No)							
SAT and SBT coordinated?							
Vital signs stable (no increase of vasopressors in past 2 h)							
If patient does not meet all criteria, may not progress beyond level 1 of Early Exercise and Mobility.							

D: Delirium Assessment and Nonpharmacological Interventions (all caregivers)

	Date	Date	Date	Date	Date	Date	Date
CAM-ICU negative/positive							
Pain management (< 5)							
RASS score –2 to +1							
SDA protocol							
SDA protocol (6 AM activity, 2-4 PM nap, 6 PM activity, 9 PM HS back care, 10 PM sleep time)							
Nonpharmacological interventions: Orient: talk about day, date, place, current events, caregiver names; use clock/whiteboard in room Sensory: provide hearing aids, eye glasses Sleep: consider noise reduction, SDA protocol, HS back care							

E: Early Exercise and Mobility (directed by physical therapy and occupational therapy, all caregivers)

	Date	Date	Date	Date	Date	Date	Date
Level 1: Passive range of motion							
Level 2: Sit in high Fowler position in bed							
Level 3: Sit in cardiac chair, dangle legs							
Level 4: Transfer to chair (active, includes standing)							
Level 5: Ambulate (march, walk in room)							
Level 6: Ambulate in hallway							

What You Need to Ask:

Can the patient tolerate activity? Be specific about your plan. Yes____ No____

Is patient's current RASS score between –2 (light sedation) and +1 (restless)? Yes____ No____

Has blood pressure consistently been > 90/40 and < 200/100 mm Hg for at least last 4 hours? Yes____ No____

Is F_{IO_2} < 0.6 with Spo_2 > 88%? Yes____ No____

Is PEEP < 10 cm H_2O? Yes____ No____

Is respiratory rate < 35 breaths/min? Yes____ No____

Is patient body temperature 38 °C? Yes____ No____

Any signs of cardiac ischemia during past 24 hours? Yes____ No____

Any new cardiac arrhythmias requiring a new medication? Yes____ No____

Is patient receiving vasopressor medication? If yes, may need to limit session to bed exercises only. Yes____ No____

Does patient have an order to initiate progressive mobility? If yes, activity status is "Activity as Tolerated." If patient still has bedrest ordered, ask physician or RN to enter order to cancel bedrest and enter activity as tolerated. Yes____ No____

Call respiratory therapist for any change in position.

Appendix C Bedside checklist for progressive mobility standard of care.

Abbreviations: CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; F_{IO_2}, fraction of inspired oxygen; HS, half strength; PEEP, positive end-expiratory pressure; RASS, Richmond Agitation-Sedation Scale; RN, registered nurse; RR, respiratory rate; SDA, schedule daily activity.

Data Collection and Analysis

Each time an interaction occurred between a patient and an SO team, the team would document on a tracking tool which activities they performed and how many times. The ICU director, who was most familiar with the activities, estimated the average amount of time (minutes) an SO team would require to complete each task. The total time an SO team spent could then be calculated to determine the time saved for ICU nurses. We also collected other data, including patient demographic characteristics, clinical outcomes, disposition at discharge, and days receiving mechanical ventilation.

We aggregated the data and calculated descriptive statistics. We then calculated the daily activities per patient-day and determined trends. Analyses of variance and a trend analysis were completed; a P value <.05 indicated statistical significance. In addition, we collected qualitative data from both ICU nurses and SO team members as they reflected on their experience with the program through interviews. This project was a quality improvement study that was not performed as scientific research; therefore, the HealthOne institutional review board deemed it to be non–human subject research and informed consent was not needed from the nurses and therapists.

Results

Demographic Characteristics and Clinical Outcomes

Between April 4 and June 6, 2020, 102 patients were admitted to the hospital because of COVID-19, 37 (36%) of whom required critical care in the ICU. Of these 37 patients, 35 (94.6%) were included in the SO program. Two patients were excluded: one because they stayed in the ICU less than 1 day, and the other because they required high-acuity care and died within 2 days of ICU admission. The demographic and clinical characteristics of the patients in the SO program are described in Table 1.

Almost two-thirds (60.0%) of the patients required mechanical ventilation. Most discharged patients were either sent home (25.7%), home to receive home health care (14.3%), or to an acute rehabilitation facility (14.3%). The mortality rate was 22.9% among the population.

SO Activities and Time Saved

During the SO program, the teams performed 10 patient activities 1937 times with patients with COVID-19.

Table 1 Demographic and clinical characteristics of patients who participated in the special operations program (N = 35)

Characteristic	No. (%) of patients[a]
Age, median (IQR), y	64.6 (19.4)
Male sex	19 (54.3)
BMI,[b] median (IQR)	30.3 (12.3)
Diabetes	21 (60.0)
Race	
White	22 (62.9)
Asian	2 (5.7)
Black	1 (2.9)
Other	7 (20.0)
Unknown	3 (8.6)
Ethnicity	
Non-Hispanic	24 (68.6)
Hispanic	8 (2.9)
Unknown	3 (8.6)
Length of stay, median (IQR), d	9.0 (15.0)
Received ventilation	60.0 (21)
Days receiving mechanical ventilation, median (IQR)	9.1 (10.0)
Discharge disposition	
Home	9 (25.7)
Dead	8 (22.9)
Home with home health	5 (14.3)
Acute rehabilitation	5 (14.3)
Hospice	3 (8.6)
Skilled nursing facility	3 (8.6)
Against medical advice	1 (2.9)
Long-term care	1 (2.9)

Abbreviations: BMI, body mass index; IQR: interquartile range.

[a] Unless otherwise indicated.
[b] Body mass index is calculated as weight in kilograms divided by height in meters squared.

The teams most often turned patients, changed bed linens, gave patients chlorhexidine gluconate baths, and mobilized patients (Table 2). An estimated time for completion, ranging from 5 to 40 minutes per occurrence, was assigned to each activity performed by the SO teams. The SO teams had the most notable impact on nursing time saved through mobilization, prone positioning, and changing beds (Table 2). The SO team cumulatively saved a total of 677.2 nursing hours (56.4 × 12-hour nursing shifts) with their time spent with patients with COVID-19. The SO team also assisted with tasks such as cleaning and restocking PPE, which saved a mean of 30 min/d, equating to 1830 minutes (30.5 hours) throughout the duration of the program.

Table 2 Frequency and estimated duration of, and total nursing time saved by, each special operations activity

Activity	No. of instances	Estimated time per activity, min	Total nursing time saved, min
Place patient in the prone position	40	40	7880
Turn patient	10	10	4990
Provide toileting	40	40	6000
Provide meal support	15	15	375
Obtain vital signs	5	5	665
Perform CHG bathing	5	5	1000
Change patient bed	15	15	6195
Provide social support	15	15	2625
Help patient dangle legs over the side of the bed	20	20	2900
Mobilize patient	40	40	8000
Clean and stock PPE	30	30	1830

Abbreviations: CHG, chlorhexidine gluconate; PPE, personal protective equipment.

Throughout the 9-week program, the SO team increased their participation in activities (see Figure). The number of patient activities per patient-day increased significantly (+0.03 activities per day) across the 63 days of the program ($P < .001$). During the first week of the program, SO teams participated in 2.5 activities per patient-day; by the ninth week of the program, SO teams were participating in 4.9 activities per patient-day.

Qualitative Data

The ICU nurses who cared for the patients with COVID-19 valued the SO teams tremendously and reflected on their experience with them.

- Nurse 1: "It was nice to have the extra hands, people who wanted to be there. They made sure we were safely [placing patients in the prone position]—telling me to 'watch their shoulder'—and facilitating early ambulation. We would never have had the manpower to [help] a sick vent[ilat]ed patient [sit and stand] without their expertise. They were the body mechanics experts, skin experts, positioning experts. We were a dynamic team."
- Nurse 2: "They were a huge part of the success of our patients. In my 20 years of nursing it was the best relationship that we've ever had. They were everything awesome."
- Nurse 3: "They took the lead in [prone positioning]. They provided organization and structure to how we did it."
- Nurse 4: "Our patient care was at a higher level because we had the help and expertise needed. So great to have a team that was dedicated to prone patients—free and available to do it safely."
- Nurse 5: "As we have learned, the PT/OT support to the patients and the ICU staff surpassed expectations. They [as a group] performed their 'normal' duties [progressive mobility, PT/OT treatments] and went above their duties [baths, oral care, turns]. Every day, the PT/OT team [was] eager to learn more about patient care and honestly always wanted to do more to help this patient population and the ICU staff. On one specific day, they went even further by assisting the nurse in postmortem care on a patient. They were a bit emotional, never have taken care of a patient that had died, but were very appreciative of the final cares that are so important for the patient, the nurse, and the family."

The SO team members also were eager to share their experiences working with the ICU nurses and the patients with COVID-19:

- Therapist 1: "Every day spent in the COVID pods in the special op[eration]s team has been a unique experience. Some days, we've seen great progress with patient recovery! On other days, we've said goodbye to people we've worked with for weeks but never spoken to. I'm particularly thankful for my experiences working with one patient. I spent 2 weeks working with a very sick patient, mobilizing

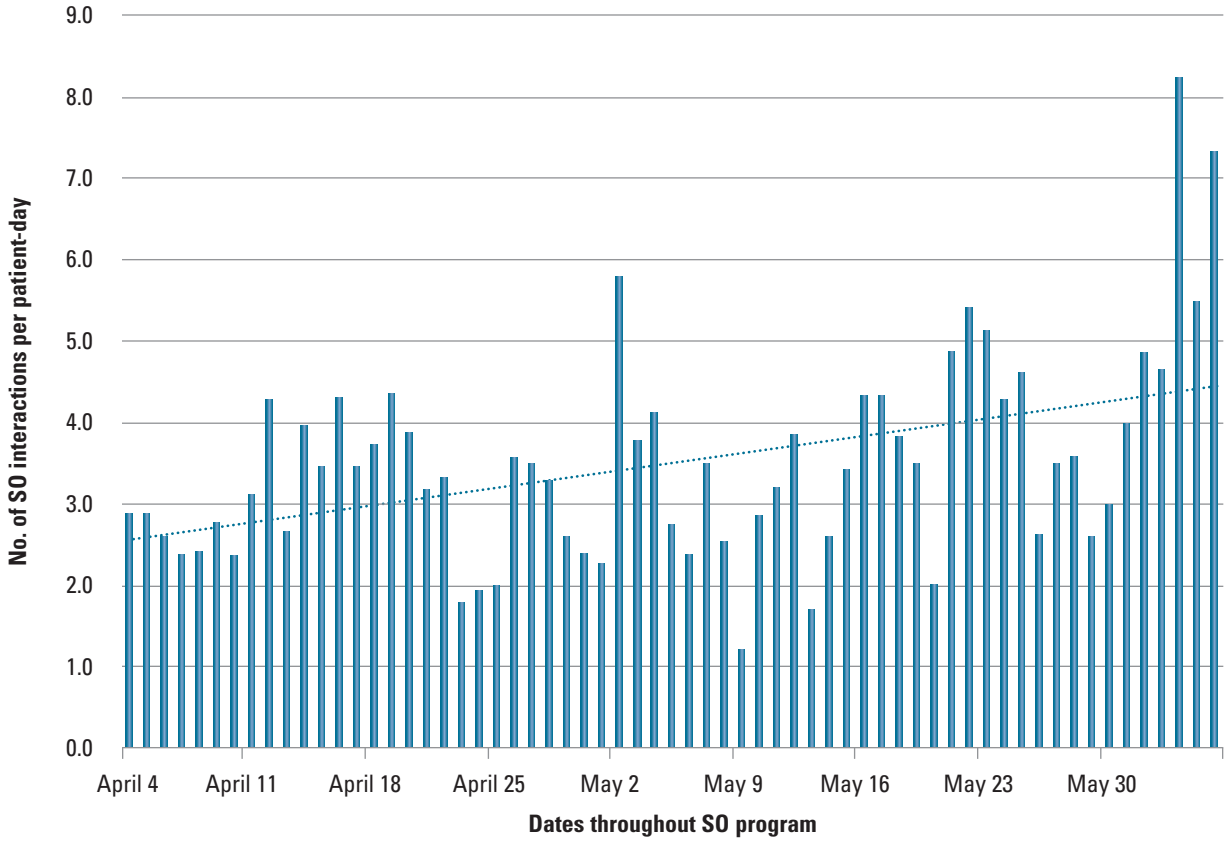

Figure Number of special operations (SO) team interactions per patient-day in 2020. The number of activities significantly increased ($P < .001$) during the SO program. The dotted line represents the trend over time for SO activities per day.

[them] out of bed and listening to music. Fortunately, this man made a fantastic recovery and I was even able to see him as he progressed to discharge to a rehabilitation facility. He and I discussed how many practitioners saw him and contributed to his care, even though he hardly remembers his time in the ICU—probably for the better. Although we've lost many [patients], I'm still thankful for those that have persevered and struggled to survive."

- Therapist 2: "COVID-19 patients are some of the sickest people I have worked with and their perseverance, determination, and positive attitude to return to their prior level of function has been very humbling. I feel honored to be part of their progress and completely overjoyed to cheer them on as they enter back into their normal lives."
- Therapist 3: "It is unfathomable the improvement that patients have made throughout their recovery process. I admire each and every individual for their strength and patience in having to regain skills to achieve independence again."
- Therapist 4: "Watching patients go from being unresponsive and [in the prone position] for hours a day to sitting at the edge of the bed for the first time, calling their wife for the first time, standing on their own two feet for the first time: it's powerful. It's been a bright spot in this otherwise very dark time. And it has been an honor to be part of the team to get these patients back home, to live their lives, to be with their families. The first time a patient was able to say to 'Thank you' as they were leaving the hospital is something that will stay with me a long, long time."

Discussion

The SO program had 3 overall goals: (1) to provide help to ICU nurses; (2) to increase productivity for the therapists; and (3) to use the therapists' specialties for

critical patients. The program allowed overworked nurses with a complex and large patient load to receive assistance in completing essential tasks; therapists were able to be more productive during a time of a low patient census, and patients with COVID-19 were provided early rehabilitation. The program ultimately provided 677.2 hours of patient care along with 30.5 hours of cleaning and PPE stocking and preparation.

The SO teams became an integral part of the ICU care team for these critical patients, resulting in almost 700 nursing hours saved. Many factors contribute to clinician burnout—most notably workload, job demands, inefficiency, lack of resources, lack of control and flexibility, loss of social support and community at work, and lack of a work-life balance.[10] This program helped overcome many of these challenges by increasing efficiency, reducing workload, and providing social support and community among ICU nurses and the SO teams. In addition, the SO teams became more efficient and effective throughout the program, completing up to 4.9 activities per patient-day. This increase in efficiency is probably due to 2 factors: (1) an increase in the PTs' and OTs' comfort with the tasks assigned; and (2) and an increase in their comfort working with patients with COVID-19.

Another benefit of the SO program was the social support the PTs and OTs offered the isolated patients with COVID-19. The SO teams provided more than 2600 minutes (43 hours) of social support. According to Holt-Lunstad,[11] isolated people tend to exhibit anxiety and poor mental health. Substantial evidence documents that a lack of social connection significantly increases the risk for premature mortality, more so than other well-known risk factors such as obesity, physical inactivity, and air pollution.[11] Because of the strict no-visitation policies for patients with COVID-19, all the patients spent their time in the hospital without visits from friends or family. The SO teams would spend time with each patient, forming meaningful relationships and connecting them with their family and friends. The SO teams often were the ones by a patient's side when they took their last breath, so they did not have to die alone.

The SO teams became an integral part of the ICU care team for these critical patients, resulting in almost 700 nursing hours saved.

The final benefit of this program was the potential improvements to patient outcomes when therapists implemented early mobilization techniques. Throughout the 9 weeks of the program, the therapists provided 133.3 hours of early mobilization to patients with COVID-19. Evidence suggests that early mobilization improves outcomes by decreasing ICU-acquired weakness,[12] reducing the duration of delirium while in the ICU,[13] and reducing overall hospital length of stay.[14] Before implementation of the SO program, patients with COVID-19 were provided only limited early mobilization because of the risk of health care workers being exposed to the virus. Early involvement of a team of therapy staff to help patients turn, dangle, sit, and work on range of motion also allowed the nursing staff to remain focused on providing quality medical care.

Evidence suggests that hospitals responded to the influx of patients during the COVID-19 pandemic by implementing similar teams. Miguel et al[15] described the implementation of a prone positioning team comprising operating room nurses, operating room assistants, and outpatient PTs. That team completed 228 prone positionings and 211 supine positionings during 8 weeks. Survey results indicated that more than 90% of the nurses agreed that the prone positioning team was an asset to the ICU, and almost 75% of physicians stated that they were more likely to order prone positioning knowing a prone positioning team was available. Wells et al[16] described a similar program with a prone positioning team comprising surgical technicians and certified registered nurse anesthesiologists who participated in more than 800 prone and supine positionings. Although our SO team was similar to these prone positioning teams, this program is to our knowledge the first to go beyond prone positioning to provide an extra set of hands to assist nurses during a critical time.

This program was effective and efficient in many ways, but it did have some limitations. The program was supported for only 2 months, which was not sufficient to allow a comparison of the overall outcome data with data for other hospital outcomes to determine the clinical effectiveness of the program in relation to outcomes. Second, the SO teams collected activity data, which may have introduced bias during data collection. Third, a comparison of burnout among ICU nurses working with and those working without the SO program would have strengthened this study.

Conclusion

This program resulted in numerous benefits for the patients, ICU nurses, and therapists. It reduced ICU nursing burden, increased time nurses could spend providing direct care to patients, and increased therapists' productivity. Redeployment of nonnursing clinical staff could be an effective strategy to leverage available resources while maintaining clinical standards of care and reducing nursing burden during a pandemic or crisis surge. CCN

Acknowledgments
The authors thank the intensive care nurses and physical and occupational therapists for their hard work during this project. The authors also thank the respiratory therapists who assisted in training the physical and occupational therapists in the special operations program. This project would not have succeeded without their participation.

Financial Disclosures
None reported.

See also

To learn more about caring for patients with COVID-19, read "Battling Burnout at the Frontlines of Health Care Amid COVID-19" by Howell in *AACN Advanced Critical Care,* 2021;32(2):195-203. Available at **www.aacnacconline.org**.

References

1. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020;395(10223):497-506.
2. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. 2020;395(10223):507-513.
3. Bruyneel A, Gallani MC, Tack J, et al. Impact of COVID-19 on nursing time in intensive care units in Belgium. *Intensive Crit Care Nurs.* 2021;62:102967.
4. Shen X, Zou X, Zhong X, Yan J, Li L. Psychological stress of ICU nurses in the time of COVID-19. *Crit Care.* 2020;24(1):200.
5. González-Gil MT, González-Blázquez C, Parro-Moreno AI, et al. Nurses' perceptions and demands regarding COVID-19 care delivery in intensive care units and hospital emergency services. *Intensive Crit Care Nurs.* 2021;62:102966.
6. Liu S, Yang L, Zhang C, et al. Online mental health services in China during the COVID-19 outbreak. *Lancet Psychiatry.* 2020;7(4):e17-e18. doi:10.1016/S2215-0366(20)30077-8
7. Sun N, Wei L, Shi S, et al. A qualitative study on the psychological experience of caregivers of COVID-19 patients. *Am J Infect Control.* 2020;48(6):592-598.
8. Crowe S, Howard AF, Vanderspank-Wright B, et al. The effect of COVID-19 pandemic on the mental health of Canadian critical care nurses providing patient care during the early phase pandemic: a mixed method study. *Intensive Crit Care Nurs.* 2021;63:102999.
9. Kerlin MP, McPeake J, Mikkelsen ME. Burnout and joy in the profession of critical care medicine. *Crit Care.* 2020;24(1):98.
10. Gomez S, Anderson BJ, Yu H, et al. Benchmarking critical care well-being: before and after the coronavirus disease 2019 pandemic. *Crit Care Explor.* 2020;2(10):e0233. doi:10.1097/CCE.0000000000000233
11. Holt-Lunstad J. The potential public health relevance of social isolation and loneliness: prevalence, epidemiology, and risk factors. *Public Policy Aging Rep.* 2017;27(4):127-130.
12. TEAM Study Investigators; Hodgson C, Bellomo R, Berney S, et al. Early mobilization and recovery in mechanically ventilated patients in the ICU: a bi-national, multi-centre, prospective cohort study. *Crit Care.* 2015;19(1):81.
13. Nydahl P, Sricharoenchai T, Chandra S, et al. Safety of patient mobilization and rehabilitation in the intensive care unit. Systematic review with meta-analysis. *Ann Am Thorac Soc.* 2017;14(5):766-777.
14. Bergbower EAS, Herbst C, Cheng N, et al. A novel early mobility bundle improves length of stay and rates of readmission among hospitalized general medicine patients. *J Community Hosp Intern Med Perspect.* 2020; 10(5):419-425.
15. Miguel K, Snydeman C, Capasso V, Walsh MA, Murphy J, Wang XS. Development of a prone team and exploration of staff perceptions during COVID-19. *AACN Adv Crit Care.* 2021;32(2):159-168. doi:10.4037/aacnacc2021848
16. Wells C, Zhang Z, Huelskamp S, et al. Prone team: a large-scale prone position initiative during COVID-19 pandemic. *J Nurs Adm.* 2021; 51(4):E13-E17. doi:10.1097/NNA.0000000000001003