Establishment of a COVID-19 Recovery Unit in a Veterans Affairs Post-Acute Facility

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Coronavirus disease 2019 (COVID-19) is now an epidemic of global proportion, with major adverse impacts on older adults, persons with chronic diseases, and especially residents of long-term care facilities. This health catastrophe has challenged healthcare facilities' capacity to deliver care to not only COVID-19 patients but all patients who need hospital care. We report on a novel approach of utilizing long-term care beds at a Department of Veterans Affairs healthcare facility for managing recovering COVID-19 patients. J Am Geriatr Soc 68:2163-2166, 2020.

Keywords: COVID-19; long-term care facility; recovery; coronavirus

INTRODUCTION

Coronavirus disease 2019 (COVID-19), also known as severe acute respiratory syndrome coronavirus 2, has now been well described by investigators from Wuhan, China.[1,2] The population at risk for acquisition of this infection who have the poorest prognosis are older adults and individuals with chronic underlying disorders, such as diabetes mellitus, type II, hypertension, cancers, cardiac, lung, and renal diseases, and immunocompromised states. Thus, it is not surprising that COVID-19 has become a major health concern for residents of long-term care facilities, who comprise a disproportionate number of cases because of their extreme age, multimorbidity, and congregate setting.[3] Furthermore, the overwhelming number of COVID-19 cases has challenged the global healthcare system's ability to provide acute and post-acute care for these patients. Acute-care beds in the hospital may be occupied by COVID-19 patients, leaving a limited number of beds for non–COVID-19 patients. One approach to address this conundrum is to establish care centers outside of the acute-care hospital for COVID-19 patients who have become clinically stable.[4,5] The authors of this report describe the feasibility of a post-acute care recovery unit for clinically stable patients with COVID-19, who need further medical observation, in a long-term care facility at a Department of Veterans Affairs (VA) medical center.

PHYSICAL DESCRIPTION OF COVID-19 RECOVERY UNIT

In the VA healthcare system, there are nationwide 170 VA medical centers, with many hosting a long-term care skilled nursing facility called a community living center (CLC), which provides long-term supportive (chronic maintenance) care (≥90 days) and short-term skilled nursing and rehabilitation care (<90 days), as well as palliative and hospice care (a unique hospice care unit is located at a separate campus). On the north campus of the West Los Angeles VA Medical Center (which is the main campus of the VA Greater Los Angeles Healthcare System), the CLC operates a total of 150 beds, distributed in two adjacent buildings. On the uppermost floor of one building, the east and west wings each feature 25 beds. One wing was selected to serve as the site for the initial COVID-19 recovery unit (CRU). The opposite wing (another 25 beds) is currently being reserved for potential "surge" of additional COVID-19 patients. The CRU maintains the traditional nursing station with the necessary telephones, call system, computers, workstation, and meeting space. A special designated area by the entry of the CRU provides personal protective equipment (PPE), including disposable gowns, gloves, face masks, hair covers, and face shields. Most rooms are double occupancy, and the patient rooms closest to the nurse station are designated for patients who may need closer observation or may be wanderers. In rare situations, if a patient's clinical status changes that requires more intensive management, the

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patient is transferred back to the hospital for further acute care.

Figure 1 is a schematic representation of this unit.

ADMISSION AND DISCHARGE CRITERIA

Patients are eligible to be admitted to the CRU if they had confirmed infection with COVID-19, do not require nebulizers or continuous positive airway pressure, are free of restraints, and have not needed a safety attendant for 24 hours. In addition, for 2 days before admission to the CRU, the patient temperatures must be less than 100°F (<37°C), with respiratory rates of 14 to 24 breaths per minute without supplemental oxygen, unless the patient had chronic oxygen requirement requiring supplemental oxygen before onset of COVID-19. The day before admission to the CRU, patients are required to have a room-air pulse oximetry value of greater than 93%, stable heart rate of between 60 and 100 beats/minute for 4 days, a blood D-dimer of less than 2 μg/mL (measured as fibrinogen equivalent units) or downward trend for 2 consecutive days, and a white blood cell count of less than 11,000 cells/mm^3. All transfers from the acute-care hospital to the CRU are reviewed by inpatient infectious disease specialists and CRU medical staff (geriatricians) for suitability.

While in the CRU, patients are monitored with vital signs every 8 hours, and nursing notes documenting patient's status every shift (see section on Nursing Staff and Implications). D-dimer, completed blood count, and serum lactic dehydrogenase values are checked biweekly. To assure coordination of care, an infectious diseases nurse practitioner liaises with the CRU team on a daily basis and communicates any concerns to the infectious diseases staff at the acute-care hospital.

Patients are transferred back to the acute-care unit (hospital) if room-air pulse oximetry values measure 93% or less or change from established baseline values for the patient with chronic oxygen requirements; temperature of 100°F (37.7°C) or higher; respiratory rates less than 14 or greater than 24 breaths per minute; new or existing laboratory tests becoming abnormal; and if, in the judgment of the CRU staff, there appears evidence of clinical deterioration (e.g., delirium, agitation, or reduced urinary output).

In those patients who continue to recover uneventfully, repeat testing for coronavirus is performed weekly. When two consecutive tests performed 24 hours apart are negative, the patient can then be discharged from the CRU. Each patient's ultimate destination after discharge will be dependent on his/her overall clinical status and psychosocial and support system. For example, some veteran patients continue in the long-term care facility for additional physical therapy, whereas others are discharged to home with outpatient physical therapy.

NURSE STAFFING AND IMPLICATIONS

Developing a nurse staffing plan to support high-quality care for vulnerable geriatric patients with COVID-19 posed a new challenge for nurse leaders. Due to preexisting chronic noncommunicable diseases that are prevalent in this patient population, it is essential that the team of nursing staff providing patient care is highly skilled and experienced in the care of the geriatric population. The ability to competently recognize changes from patients' baseline is essential for early diagnostic assessment and therapeutic interventions. Staffing decisions should be based on research and nonconventional sources of evidence, professional judgment, critical thinking, and flexibility, as well as taking into consideration nursing workload. Nursing workload is defined by multiple factors that include time spent in direct and indirect patient care, competency, physical exertion, and complexity of care.[6,7]

The CLC uses nurse-sensitive indicators, such as the Resident Assessment Instrument and Minimum Data Set, to assist in the planning of care and continuous quality monitoring. Unit workload data pre–COVID-19 formed the baseline for safe staffing levels and were favored over the use of large national databases, as they provided more meaningful data to each unique clinical practice setting.[8] Nursing hours per patient-day (NHPPD) were upwardly adjusted from 6.2 NHPPD to 7.0 NHPPD to accommodate for increased frequency of patient assessments and clinical
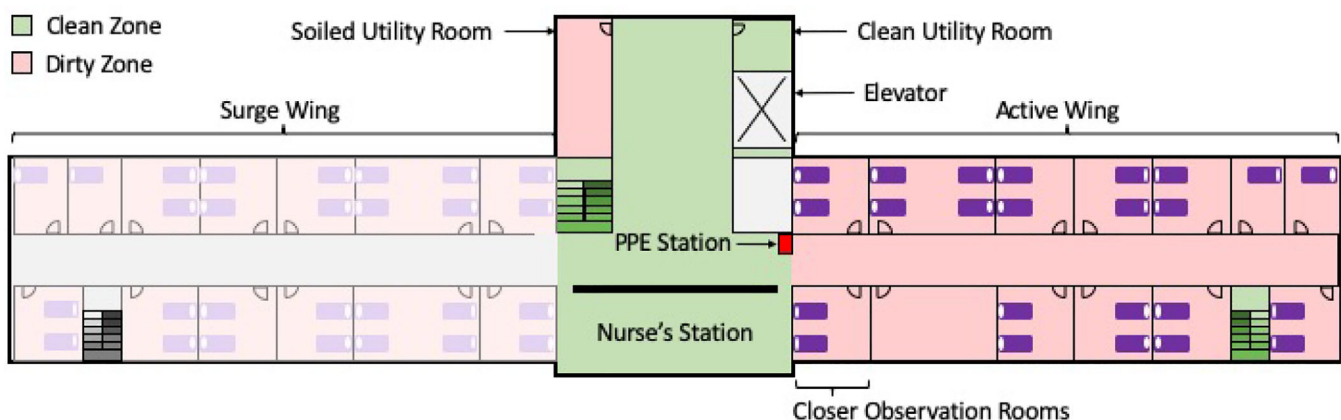

Figure 1. Diagram of coronavirus disease 2019 (COVID-19) recovery unit. PPE, personal protective equipment.

care demand, such as time used for frequent donning and doffing of PPE. Team nursing is utilized, and the skill mix consists of 30% registered nurses, 30% licensed vocational nurses, and 40% unlicensed assistive personnel. A dedicated pool of nursing staff is assigned to the unit, and floating staff in or out of the unit is strongly discouraged to minimize the potential spread of infections, and to maintain consistency in practice.

Understanding the routes of COVID-19 transmission, the appropriate use of PPE, and the importance of nursing staff to quickly identify subtle worsening symptoms and signs of COVID-19–positive patients formed the bases for enhanced nursing education. The focus was on infection control, prevention practices, and rapid patient assessment. The initial action was to create a defined, access-controlled environment to limit the movement of infected patients who may be prone to wandering. Visitation is strictly prohibited to the unit, and nursing staff perform 24-hour surveillance screening on all staff entering the unit, with temperature monitoring following Centers for Disease Control and Prevention (CDC) guidelines. Staff assigned to the CRU receive didactics and education on infection control practices utilizing CDC guidelines for long-term care facilities.[9] Competency validation for specimen collection was also incorporated. Simulation exercises are used to enhance learning experience; emphasis is placed on proper hand hygiene and appropriate selection, donning, and doffing of PPE based on CDC guidance. Infection control staff and unit nurse leaders monitor staff for adherence to infection control and prevention practices, with real-time feedback and reeducation as needed. A standardized template for nursing assessment and documentation was deployed for consistency in practice and ease of information retrieval. Vital signs are monitored every 8 hours, and the medical

provider is notified immediately of a patient's change in vital signs and oxygen saturation, as described above (Admission/Discharge Criteria), as well as alteration in patient's clinical status. All staff working in the CRU are tested for COVID-19, and, after 6 weeks of operation, all test results have been negative. This in part is highly attributable to ongoing, effective education that reinforces consistency in practice. Repeat testing for COVID-19 is performed every 2 weeks on all staff.

PHYSICIAN RESPONSIBILITIES AND COVERAGE

As stated earlier, the CRU was established to admit patients who were COVID-19 positive but recovering after stabilization in the acute-care hospital. All five physicians in our CLC are board-certified internal medicine or family medicine specialists with additional certification in geriatric medicine and/or have had experience in medical care of patients/residents in a long-term care setting. With the CRU requiring more intensive patient observation than the usual chronic care management of nursing facility residents, the unit was similar to a medical subacute ("step-down") unit. Hence, responsibilities included performing initial admission examination with subsequent daily (7 days a week) patient care rounds. As with nurses entering the CRU, the physicians are required to wear full PPE. The physicians were responsible for taking CRU evening and weekend stand-by availability by telephone and had to be available to come to the CRU within 30 minutes (refer to Table 1 [Key Features of the COVID-19 Recovery Unit]).

DISCUSSION

We describe one of the first COVID-19 care unit in a traditional long-term care unit at a VA medical center. At the time of this writing, the CRU has been operational for approximately 6 weeks. The average daily census has varied from 12 to 18 patients; age of patients was 55 to 80 years; length of stay ranged from 1 to 3 weeks; the vast majority were transitioned to our non-CRU section of long-term care beds; and only two patients have required transfer back to our acute-care facility. Overall, nursing staff and physicians functioned well in the CRU, and no staff has contracted COVID-19 infection. As our facility accumulates more COVID-19–positive patients, we will develop greater experience and insights on what modifications need to be made, if any, and how we can best accommodate the needs of the patients during their stay in the CRU.

Medical center/hospital leaders will have to assess the need, value, resources, feasibility, and cost-effectiveness of establishing such a unit as we describe. Certainly, a nursing facility such as ours (VA prototype) with dedicated in-house physicians and a relatively close proximity of the acute hospital is not typical of most long-term care facilities. Nevertheless, the model we describe can be used as a framework for a post-acute care recovery unit (refer to Table 1).

As the nation and healthcare system gains more experience and knowledge on the pathogenesis, clinical course, and management of COVID-19, we should be able to develop additional innovative models of care for patients with this devastating infection. Whether the COVID-19 experiences in long-term care settings will in the future alter

Table 1. Key Features of the COVID-19 Recovery Unit

Nursing
- Dedicated pool of nursing staff
- Workload
  - Complexity of patient care
  - Competencies of nursing staff
  - Nursing hours per patient day
  - Direct and indirect
    - Physical exertion/manual labor

Medical
- Daily physician bedside clinical assessment of CRU patients
- Evening physician telephone coverage

Physical/environment
- One wing/hallway on floor for the unit
- Unit separate/enclosed by double doors with panic locks
- Review of airflow, air filtration, and ventilation with engineering

Policies/guidance
- Patient selection
- Criteria for admission to the CRU
- Patient monitoring in the CRU
- Criteria for change in condition requiring return to medical center
- Criteria for discharge from the CRU to general nursing home population

Abbreviations: COVID-19, coronavirus disease 2019; CRU, COVID-19 recovery unit.

how residents in these facilities will be better managed and, also, equally important, establish early detection of highly communicable diseases remain to be seen. Certainly, preventive interventions, such as better and more frequent monitoring of residents, improved infection control, vaccinations, early identification of infected residents, and developing different models of care, such as the CRU, will play significant roles in reducing the morbidity and mortality that devastates this precious population, as well as decrease the need for acute hospital beds.

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