

# UCLA

## UCLA Previously Published Works

### Title

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

### Permalink

<https://escholarship.org/uc/item/74x1t0kk>

### Journal

Journal of the American Geriatrics Society, 68(10)

### ISSN

0002-8614

### Authors

Sohn, Linda  
Lysaght, Marcia  
Schwartzman, William A  
[et al.](#)

### Publication Date

2020-10-01

### DOI

10.1111/jgs.16690

Peer reviewed

## Establishment of a COVID-19 Recovery Unit in a Veteran Affairs (VA) Post-Acute Facility

Linda Sohn, MD, MPH\*

Marcia Lysaght, DNP, RN, CENP

William A. Schwartzman, MD\*

Steven R. Simon, MD, MPH\*

Matthew B. Goetz, MD\*

Thomas Yoshikawa, MD\*

\*Department of Veterans Affairs Greater Los Angeles Healthcare System, Los Angeles,  
California 90073

Address correspondence to:

Linda Sohn, MD, MPH

VA Greater Los Angeles Healthcare System

11300 Wilshire Blvd, Los Angeles, CA 90073

Email: [Linda.Sohn@va.gov](mailto:Linda.Sohn@va.gov)

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/jgs.16690

**Abstract**

Coronavirus disease 19 (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.

## Introduction

Coronavirus disease 2019 (COVID-19), also known as severe acute respiratory syndrome coronavirus 2 (SARS-COV-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, 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 Recovery Unit (CRU)

In the VA healthcare system there are nationwide 170 VA medical centers with many hosting a long-term care skilled nursing facility called community living centers (CLC), which provide long-term supportive (chronic maintenance) care (greater than 90 days) and short-term skilled nursing and rehabilitation care (less than 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 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 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 (CPAP), are free of restraints, and have not needed a safety attendant for 24 hours. In addition, for two days prior to admission to the CRU, the patient temperatures must be less than 100 F (37. C), and respiratory rates of 14-24 breaths per minute without supplemental oxygen, unless they had chronic oxygen requirement requiring supplemental oxygen prior to 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 60-100 beats/minute for 4 days, a blood D-dimer less than 2  $\mu\text{g/ml}$  (measured as fibrinogen equivalent units) or downward trend for 2 consecutive days; and a white blood cell count of less than 11,000 cells/ $\text{mm}^3$ . 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 document patient's status every shift (See section on Nursing Staff and Implications). D-dimer, completed blood count, and serum lactic dehydrogenase values are checked bi-weekly. 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, reduced urinary output).

In those patients who continue to recovery 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, while others discharge 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 pre-existing chronic non-communicable 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 non-conventional 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 was favored over the use of large national databases, as it 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 care demand, such as time used for frequent donning and doffing of PPE. Team nursing is utilized, and the skill mix consist of 30 percent registered nurses, 30 percent licensed

vocational nurses, and 40 percent 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 personal protective equipment (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 and 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 re-education 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 patient's change in vital signs and oxygen saturation as described above (Admission/Discharge Criteria), as well as alteration in their clinical status. All staff working in



the CRU are tested for COVID-19, and, after six weeks of operation, all test results have been negative. This in part is highly attributable to ongoing, effective education that reinforces consistency in practice.

### **Physician Responsibilities and Coverage**

As stated earlier, the CRU was established to admit patients who were COVID 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 PPEs. 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 were 55 to 80 years old; length of stay ranged from 1 to 3 weeks; and the vast majority were transitioned

to our non-CRU section of long-term care beds; 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 how residents in these facilities will be better managed and, also, equally important, establish early detection of highly communicable diseases, remains 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.

## ACKNOWLEDGMENTS

We thank the VA Greater Los Angeles Healthcare System CLC nursing and physician staff for the excellent care they provided to our Veterans in the CRU. We thank Alexander Winnett for preparation of the figure.

### **Disclaimer:**

The views expressed in this article are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs.

### **Financial Disclosures:**

Steven R. Simon, MD, MPH: is Principal Investigator on grants unrelated to this project that are funded by the VA Health Services Research and Development Service.

Matthew B. Goetz, MD: is a Co-Investigator on grants unrelated to this project that are funded by the Centers for Disease Control and Prevention, the National Institute of Allergy and Infectious Diseases, the National Institute for Alcohol Abuse and Alcoholism, the Agency for Healthcare Research and Quality, and the Veterans Health Administration.

Thomas T. Yoshikawa, MD: is a Co-Investigator on a National Institute for Minorities and Health Disparities infrastructure grant unrelated to this project at another academic institution.

Linda Sohn, MD, MPH: None, have no disclosure to report.

Marcia Lysaght, DNP, RN, CENP: None, have no disclosures to report

William Schwartzman, MD: None, have no disclosures to report.

**Conflicts of Interest:** The authors do not have any conflicts of interest

**Author Contributions:** All authors made substantial contributions to this manuscript.

**Sponsor's Role:** None

## REFERENCES

1. Chen N, Zou M, Dong X et al: Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Retrieved from [www.thelancet.com](http://www.thelancet.com) February 15, 2020;395:507-513.
2. Wang D, Hu B, Chang H et al: Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA doi:10.1001/jama.2020.1585, February 7, 2020; E1-E9.
3. D'Adamo H, Yoshikawa T, Ouslander JG (2020) Coronavirus disease 2019 in geriatrics and long-term care: The ABCDs of COVID-19. J Am Geriatr Soc, 68: 912-917
4. Grabowski DC, Joynt KE: Postacute care preparedness for COVID-19. Thinking ahead. JAMA Published Online March 25, 2020; E1-E2.
5. Ouslander JG (2020) Coronavirus disease 19 in geriatrics and long-term care: An update. J Am Geriatr Soc, 68: 918-921.
6. Department of Veterans Affairs, Veterans Health Administration. VHA Directive 1351: Staffing Methodology for VHA Nursing Personnel. Department of Veterans Affairs. Washington, DC, 2017.

7. Alghamdi MG. Nursing workload: A concept analysis. *J Nurs Manag* 2016;4:449-457.
8. Paulsen R: Taking nurse staffing research to the unit level. *Nurs Manage* 2018;49:42-48. DOI: 10.1097/01.NUMA.0000538915.53159.b5. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039374/>
9. Coronavirus Disease 2019 (COVID-19). Healthcare-Associated Institutions: Long Term Care Facilities. *Acute Communicable Disease Control Manual (B-73)*. Revision, April 10, 2020.

**Figure 1:** Diagram of COVID-19 Recovery Unit

Accepted Article

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

<b>Nursing</b>
<ul style="list-style-type: none"> <li>• Dedicated Pool of Nursing staff</li> <li>• Workload               <ul style="list-style-type: none"> <li>○ Complexity of Patient Care</li> <li>○ Competencies of Nursing Staff</li> <li>○ Nursing Hours Per Patient Day ( NHPPD)                   <ul style="list-style-type: none"> <li>▪ Direct and Indirect</li> </ul> </li> <li>○ Physical Exertion/manual labor</li> </ul> </li> </ul>
<b>Medical</b>
<ul style="list-style-type: none"> <li>• Daily physician bedside clinical assessment of CRU patients</li> <li>• Evening physician telephone coverage</li> </ul>
<b>Physical/Environment</b>
<ul style="list-style-type: none"> <li>• One wing/hallway on floor for the unit</li> <li>• Unit separate/enclosed by double doors with Panic locks</li> <li>• Review of airflow, air filtration and ventilation with engineering</li> </ul>
<b>Policies/guidance</b>
<ul style="list-style-type: none"> <li>• Patient selection</li> <li>• Criteria for admission to the CRU</li> <li>• Patient monitoring in the CRU</li> <li>• Criteria for change in condition requiring return to medical center</li> <li>• Criteria for discharge from the CRU to general nursing home population</li> </ul>

