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Feature Article

The Agile Clinical Nurse Specialist

Navigating the Challenges of the COVID-19 Pandemic

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Purpose/Objectives:

This article describes the contributions of the clinical nurse specialist in navigating the challenges of the COVID-19 pandemic to ensure patient and staff safety while providing science-based quality of care.

Description:

The group of clinical nurse specialists using advanced practice knowledge and skills within the 3 spheres of impact (ie, patient, organization, and nurse) developed and implemented strategies that supported frontline clinicians and met emerging organizational needs during the COVID-19 pandemic.

Outcomes:

The clinical nurse specialist's agility was imperative in navigating the challenges of the pandemic to ensure the safety of patients and staff by providing strategies and standardization to workflow processes across the organization.

Conclusion:

The group's combined clinical expertise and support of frontline nurses positioned the clinical nurse specialist to rapidly escalate the bedside nurse's concerns and provide recommendations to improve workflow while maintaining patient and staff safety.

KEY WORDS:

agility, clinical nurse specialist, COVID-19, impact, pandemic

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As the world celebrated the start of a new decade on January 1, 2020, no one anticipated a pandemic would follow. In late December 2019, a pneumonia of unknown cause, detected in Wuhan, China, was first reported to the World Health Organization (WHO) country office in China.¹ On February 11, 2020, WHO named the virus severe acute respiratory syndrome coronavirus 2, and the disease it caused was named coronavirus disease 2019 (COVID-19). Just 11 days after its initial appearance, WHO declared the outbreak a public health emergency of international concern. The virus spread across the world, with the first documented case in the United States reported on January 20, 2020.²

The COVID-19 pandemic has illustrated and brought to the forefront the vital role of the clinical nurse specialist (CNS) and CNSs' unique contributions within 3 spheres of impact: patient, organization, and nurse. The ability of the CNS to navigate challenges during this pandemic helped these nurses lead their organizations through an uncertain time; the CNS provided knowledge and support to frontline clinicians.^{3,4} The indisputable commitment of CNSs and their ability to adapt their roles enabled the CNS to rapidly respond to issues and concerns experienced by frontline clinicians. Staff shared feeling anxious about personal protective equipment supply, bed capacity, patient deconditioning, and staff and their family members becoming infected. As staff were provided the knowledge and skills related to their concerns, we observed a decrease in staff anxiety, and a sense of support and calmness emerged. In this article, we describe the strategies and contributions of CNSs and how, in collaboration with other leaders, CNSs were able to guide the University of California, Los Angeles (UCLA) Health System through a very difficult time. The university's diverse team of 26 CNSs represents various patient populations and practice settings and subspecialties including inpatient and outpatient areas of practice. Patient

populations include the following: medical-surgical, critical care, geriatrics, pediatrics, cardiovascular, neonatal intensive care unit, wound and ostomy continence care, diabetes, and palliative care.

THE CNSS ROLE AND UNIQUE CONTRIBUTIONS DURING THE COVID-19 PANDEMIC

The CNS is an advanced practice registered nurse who holds a master's or doctoral degree and whose function is to improve care and patient outcomes. The National Association of Clinical Nurse Specialists defines the CNS professional role: "The essence of Clinical Nurse Specialist practice is advanced clinical expertise in diagnosis and intervention to prevent, remediate, or alleviate illness and promote health with a defined specialty population."^{5(p9)} The CNS is an expert in clinical practice, patient education, research, and consultation and uses these roles to influence 3 spheres of impact: patient care, nurse, and organization. Clinical nurse specialists work in various settings, including hospitals, ambulatory care, and public health sectors. Cornerstones of CNS practice are implementing evidence-based practice and making contributions to achieve health system goals such as reducing costs and patients' length of hospital stay and evaluating practice and systems to improve patient safety and outcomes.⁶

University of California, Los Angeles is a Magnet Facility for Nursing Excellence recognized by the American Nurses Credentialing Center. The university's CNSs are clinical leaders who influence patient outcomes, advance the profession of nursing practice, and support the goals established by the health system. With executive leadership support, CNSs focus on leveraging their strengths and talents to create a resilient, unified group and strong collaborations to provide clinical expertise and share knowledge. As a team of expert clinicians, they build a culture of clinical inquiry by educating and mentoring frontline nurses. Clinical nurse specialists also are engaged in collaborative research with frontline nurses to discover new knowledge and bring evidence-based practices directly to the bedside.

These activities of the CNS became even more evident throughout the early stages of the COVID-19 pandemic. The CNS group within the health system quickly organized across 2 campuses to develop and implement a plan for rapid identification of patients with COVID-19 and propose interventions for clinical care.

The COVID-19 pandemic highlighted the following examples experienced in our facility:

- Nurses are and always have been the backbone of any hospital organization. Within their scope and standards of practice, they exercised their autonomy and role as practitioner, educator, leader, and scientist.

- Pandemics result in many uncertainties and unprecedented challenges that require strong clinical skills and frontline leadership.
- The CNS can be positioned as a frontline leader to provide safe, science-based recommendations that optimize patient and nursing care and facilitate the safe operation of the organization.

CNS LEADERSHIP

Clinical nurse specialists are uniquely trained and positioned at the center of the aforementioned 3 spheres of impact, and this has led to success in patient care delivery during the pandemic. Workflows must be organized, concerns must be addressed, and education and solutions to problems must be provided. Information and its delivery need to be clear and concise. During the pandemic, CNSs took the initiative to ensure these needs were met. They collaborated with experts across the UCLA Health System as well as national experts to support not only the patients but also the nurses and the system. Clinical nurse specialists engaged in sharing best practices, streamlining workflow to help minimize personal protective equipment (PPE) use and determining the best treatment options for patients with COVID 19.

PATIENT SPHERE OF IMPACT

Clinical nurse specialists performed daily clinical rounds at the bedside during the initial phases of the pandemic and were able to monitor trends in vital signs and clinical manifestations of COVID-19 and present their findings during interprofessional team discussions. For example, clinicians noticed an unusual symptom presentation: some patients had low levels of oxygen saturation yet did not present with the typical signs and symptoms of respiratory distress or failure. These patients were receiving high levels of oxygen support and yet did not report distress with breathing. The typical presentations of shortness of breath, use of accessory muscles, or any symptoms of typical hypoxia were absent. In later months, the literature described this phenomenon as "silent hypoxia."⁷

Outside the intensive care setting, daily clinical surveillance and rounding by the CNS provided an opportunity for early identification of patients who showed clinical indications for the need for increased oxygen and perfusion. This led to a CNS working closely with the bedside nurse to advocate to the interprofessional team for the patient's early transfer to the intensive care unit to avoid potential intubation. The team consisted of but was not limited to physicians, nurses, and respiratory therapists, who all collaborated with the CNS and bedside nurse with a common goal of transferring the patient to provide an appropriate level of care.

Another example is that of a cardiovascular CNS who led the creation of a COVID-19 code blue team, which

resulted in efficient and safe care for the patients and staff. The code blue team received specialized training in the proper use of PPE when responding to an emergency, transporting a critically ill patient, and implementing emergency protocols while in an isolation room. In the situation where COVID-19 patients were approaching end-of-life, the palliative care CNS collaborated with spiritual care staff and wrote a policy to guide clinicians in the health system on how to safely allow visitation to a dying patient. These patients were provided the opportunity for 1 to 2 family members to be present at the bedside during end-of-life care.

Yet another example of the impact of CNSs in the patient sphere is that of a CNS who recommended using video surveillance of patients with COVID-19 who were at high risk of falling. This intervention ultimately resulted in reduced PPE use, minimized staff exposure, and avoided unnecessary entries in a patient's room. Because of physical distancing requirements by the California Health Department and health system policies, hospitalized patients with COVID-19 could not have visitors. Video technology similar to that used for patient safety surveillance was used for patients' families to stay connected to their hospitalized loved ones. Later on, this video technology was extended to family members for the purpose of visitation.

NURSE SPHERE OF IMPACT

Within the nurse sphere of impact, CNSs responded quickly to provide education and information related to virus transmission, clinical presentation, and management of COVID-19. In addition, PPE protocols, N95 ultraviolet germicidal light decontamination treatment, COVID-19 code blue practices, and safe transfer processes of a patient with COVID-19 were all included as part of the ongoing education provided to staff (Table).

Early inclusion of CNSs and unit leadership in discussions on the admission of patients with COVID-19 was vital. Early notification and involvement with appropriate personnel in admissions helped avoid anxiety. By informing staff early of expected admissions, there was the advantage of time to field questions and concerns and offer an opportunity for staff to be heard and supported. Clinical nurse specialists built on their knowledge and expertise as registered nurses to drive changes in care for patients with COVID-19 across the organization. The CNS team continuously consulted with other CNSs nationally through professional organizations to keep abreast of developments regarding the virus, treatment options, emerging research, and safe practices.

The CNSs of the designated COVID-19 units worked closely with frontline nurses to collect information on staff suggestions to expedite care of patients with COVID-19. Many interventions came from staff brainstorming, trialing interventions, and changes in workflows to determine the

best course of action. The priority was always to keep patients and staff safe. For example, nurses worked with nutritionists to batch meals and implement standard mealtimes, as compared with our usual patient-centered approach, which allows meal delivery at any time. Batching of meals allowed more coordinated care to help reduce multiple entries into the room of a patient with COVID-19. Another example is medication storage. Before the pandemic, multidose medications were returned to the patients' medication cassette in the medication room. An innovation to support nurses included collaboration with the pharmacy department to consolidate medications and designate areas to keep multiuse medications. Another significant innovation was the use of electroencephalographic monitors to provide video surveillance of COVID-19 patients. This led to a reduction of PPE use by allowing staff to monitor patients safely without multiple reentries to the room.

ORGANIZATIONAL SPHERE OF IMPACT

During daily clinical rounds across various units, the CNSs observed that most nurses and physicians caring for their first patients positive for COVID-19 had an enormous amount of anxiety. Factual scientific information and organizational standards provided by the CNS and other team leaders helped alleviate anxiety. The CNS group stayed informed of new evidence-based practices nationally and internationally by consulting with experts via various professional organizations (including National Association of Clinical Nurse Specialist, American Nurses Association, and American Association of Critical-Care Nurses). The group also met weekly for a CNS huddle during which concerns about clinical practice, supplies, and workflows were discussed.

These meetings facilitated an opportunity for CNSs to exchange ideas and solve problems. Over time, other experts and leaders such as those from infection prevention were included to address issues. During the CNS huddles, the group created a health system COVID-19 spreadsheet which identified, documented, and tracked issues, solutions, and discussions. This spreadsheet allowed the CNSs to keep a pulse on rising clinical concerns, delegate follow-up items appropriately, and escalate concerns to the chain of command, if needed. The spreadsheet enabled CNSs to anticipate clinical concerns early on and have the appropriate individuals attend the CNS huddle calls to address concerns in a timely manner. The spreadsheet also provided a clear route for senior leadership to understand issues as they occurred, allowing for more transparency amid some of the chaos that was inevitable with the pandemic.

The clear understanding of organizational standards and factual scientific information provided by the CNSs and other team leaders helped dissipate anxiety. At the close of the meetings, the CNS team discussed the best strategies to deliver clinical updates to staff.

Table. Examples of Clinical Nurse Specialist Recommendations to Optimize Safe Patient Care

CNS Sphere of Impact	Identified Concern	CNS Influence	Outcomes
> Patient	COVID-19 medical emergency response	CNS: <ul style="list-style-type: none"> initiated the process to supply the COVID unit with appropriate PPE for crash carts. conducted mock code blue events through simulation-based learning. created efficient and safe workflow for emergency response team members. 	<ul style="list-style-type: none"> CNS created a standard operating procedure for PPE donning and doffing during the COVID-19 medical emergency. CNS implemented training of interprofessional team members.
> Patient	COVID-19 end-of-life	Palliative care CNS collaborated with spiritual care staff to explore options for providing support to patients with COVID-19 who were at the end of life. CNS collaborated with spiritual care staff and created a workflow to support family and friends of dying patient.	<ul style="list-style-type: none"> CNS wrote policy to guide clinicians in the health system on how to safely allow visitation to a dying patient. Patients with COVID-19 who were receiving end-of-life care were provided the opportunity for 1 to 2 family members to be present.
> Nurse	Increased exposure risk when checking on patient and increased use of PPE	CNS recommended the use of video surveillance to keep a close eye on patients and reduce the risk of exposure by avoiding unnecessary trips into patients' rooms thus decreasing the use of PPE.	> Electroencephalographic video surveillance was established for patients. This helped clinicians monitor and offer reminders to patients when necessary.
> Nurse	Different times of medication administration increase the number of entries to rooms	CNS worked with pharmacy to establish batching of medications.	> Increase proficiency when bundling care, decrease use of PPE, and decrease risk of exposure
> Nurse	COVID-19 safety monitor nurse	CNS collaborated with staff nurses to create roles and responsibilities for safety champions. The development of the roles and responsibilities provided standardization and consistency in ensuring safe practices were implemented by all team members.	<ul style="list-style-type: none"> Safety monitor joined weekly CNS huddle with infection prevention specialists. Collaboration of CNSs and safety monitor to identify and resolve or elevate clinical concerns.
> Organization	Lack of streamlined communication regarding COVID-19 clinical implications	CNS created a spreadsheet to capture identified concerns, discussions, and action items for follow-up and to track status.	<ul style="list-style-type: none"> A spreadsheet was made available to the entire team and guided weekly CNS discussions. Using the spreadsheet led to timely identification, appropriate escalation of concerns when necessary, identification of key stakeholders, and resolution.
> Organization	Limited supply of N95 masks.	CNS led a trial of ultraviolet light disinfection of N95 masks for reuse. The process expanded to various units and procedural areas with CNS oversight. CNSs operationalized the workflow for safe reuse of N95 masks.	<ul style="list-style-type: none"> Conservation of PPE for potential surge CNS developed communications for system-wide standardized practice.

Abbreviations: CNS, clinical nurse specialist; PPE, personal protective equipment.

Communication strategies included in-person unit huddles, emails (eg, about workflow processes for cleaning of patient equipment), online learning modules (eg, COVID-19 pathophysiology and management), videos (eg, safe transport of patients with COVID-19), and in-person training (eg, donning and doffing of PPE). To increase staff knowledge,

the CNS group also shared with staff recently published scholarly articles related to patient management and care of patients with COVID-19.

During the pandemic, the health systems initiated a command center to provide support for staff regarding answers to questions from staff about PPE, patient transport, visitation

policies, and other operational policies. The 24-hour command center was staffed by a nurse and an administrative person. The CNSs were able to expedite communication of staff concerns to the command center, which was integral in addressing clinical concerns, improving workflow, and preventing an overload of similar questions asked of the command center. The availability of a nurse in the command center facilitated responses to clinical issues in real time.⁸

Modifications to Admission and Surgeries

Various modifications were implemented in the UCLA Health System to ensure adequate bed capacity and the ability to accommodate the anticipated high volumes of patients with COVID-19. As a result, several postsurgical medical-surgical units were converted into COVID-19 cohort units. Most elective surgeries were postponed; thus, a challenge was to ensure that all emergent surgical patients received an optimal level of care in non-COVID-19 surgical units. To provide optimal patient care, multiple patient consultations were made by the CNS with interprofessional team members to identify high-risk patients and ensure standards of care were maintained during the pandemic. Examples of CNS consultations included providing education about evidence-based practices for pain management.

The CNS also rounded with various surgical teams and participated in the decision making to prioritize patients needing to be scheduled for surgery. Before rounds, the CNS conducted an immediate focused evaluation by reviewing patients' healthcare records and identifying important clinical issues requiring discussion on rounds. Some of these clinical issues included electrolyte imbalances and potential postoperative risk factors such as complicated wound healing, hyperglycemia management, and decreased peripheral perfusion. The CNS collaborated with the team to plan interventions to be implemented immediately after surgery. The CNS provided clinical support by assessing patients immediately after surgery and reviewing patients' charts. The CNS also supported the nursing staff by conducting unit-based nurse rounds that focused on postoperative infection prevention, fall prevention, and early mobility of patients. The constant presence of the CNS ensured that nursing staff had access to clinical expertise and resources to provide care to a diverse group of surgical patients for whom elements of care differed from that of the nurses' primary patient population.

Overflow Patient Care Areas

Another health system modification was the creation of boarding areas for overflow patients when universal COVID-19 testing was required for all the patients admitted to the hospital. The CNS was a key member of the interprofessional team that created a boarding area and established criteria and processes for this patient population. Every patient who presented to the emergency room was screened and

tested for COVID-19 upon admission. While awaiting test results, these patients were placed in a designated medical-surgical COVID-19 overflow unit. Patients who tested positive remained in this unit, whereas those who tested negative were transferred to a general medical-surgical unit.

The implementation of overflow holding areas helped decrease the number of patient transfers, promoted continuity of care, and established a more efficient process for workflow. The CNS's knowledge of bedside clinical workflow, combined with their clinical expertise, was vital in creating these changes in patient care practices.

Personal Protective Equipment

During the 2014 Ebola outbreak, the medical intensive care unit in our facility had established protocols and training for a select group of nurses to care for Ebola patients. However, because of the nature of COVID-19 transmission, it was determined that having a specially trained, select group of frontline nurses would not be sufficient to care for COVID-19 patients. Immediate collaboration between the CNSs and hospital administration led to a decision to train all nurses in the correct use of appropriate PPE. Using lessons learned from the Ebola outbreak, the CNSs introduced a new nurse's role called the "safety monitor nurse role." The safety monitor nurse was a registered nurse on each unit who was knowledgeable and skilled in PPE donning and doffing. The safety monitor nurse was a unit-based resource who remained in close contact with the unit-based CNS to stay current about the continuously developing changes in practice. The safety monitor advocated for bedside clinicians by communicating staff questions and issues as needed. Through ongoing consultation between the CNS and the safety monitor nurse, the CNS was able to bring staff nurses' questions, issues, and responses to the weekly huddle meetings.

The training provided to staff and having the safety monitor helped maintain our organization's PPE standards. The training also offered support and guidance to other members of the interprofessional team regarding the care of patients with COVID-19. The CNS became the major resource and point of contact for continued issues related to PPE and safety.

OUTCOMES

The CNS is knowledgeable about all aspects of the clinical environment and can appreciate staff fear and anxiety related to the unknown. During the COVID-19 pandemic, the role of the CNS in the 3 spheres of impact was evident in outcomes affecting nurses, patients, and the organization. For example, recognizing overwhelming uncertainty among the staff, CNSs at UCLA Health System partnered with bedside nurses to identify potential issues related to patients with COVID-19 (eg, obtaining blood samples for laboratory tests, patient transportation, nutrition support,

bedside imaging). At the organizational level, there was a clear need for innovative and creative modifications to the delivery of care. This led to the creation of standardized practices for transporting patients with COVID-19, including what PPE is required, which clinician should accompany the patient, which elevators to use, and how to clean the gurney.

Another outcome of the COVID-19 code blue team was the formation of the specialized COVID-19 code blue team which successfully prevented emergent intubation of patients on the medical-surgical units.

An example of the CNS's sphere of impact on patients included the ability of patients' families to use video to connect with their loved ones in the hospital. Video contact helped families get through this difficult time of separation and had a tremendous positive impact on the patients' and their families' experience. Family members reported feeling connected at a time when making a connection was very difficult. Family members also reported feeling safe, knowing that they were able to communicate with their loved ones even if they could not be physically in the room.

CONCLUSION

The ability of CNSs to be agile and flexible during a pandemic enables them to assess a situation and then quickly develop and implement standards of practice standardized across an organization. At our facility, changes occurred rapidly, and the CNS played a vital role in all phases of the change process. Clinical rounding across the hospital system and ensuring that all clinicians were aware of recent updates were key in keeping everyone informed of the latest evidence and practices as they related to caring for patients with COVID-19. More important was the CNS rounding with staff and fielding concerns that were then escalated to the chain of command and in real time. This provided information and the support needed for clinicians to care for patients safely and to feel safe themselves.

As the COVID-19 pandemic continues, our healthcare system continues to evaluate the best practices for addressing

patient and staff needs. The CNS role and practice remain the cornerstones of our system's approach to ensuring safe and efficient care. The evolving pandemic demanded hospitals to reorganize resources and personnel quickly. As an academic medical institution, we quickly set up a command center similar to other academic hospitals in the community and collaborated with interdisciplinary team members to create workflows for the care of patients with COVID-19. During the crisis, the CNSs quickly identified many challenges and proposed effective solutions.

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