AACN Tele-critical Care Nursing Practice: An Expert Consensus Statement Supporting Acute, Progressive and Critical Care 2022

AMERICAN ASSOCIATION of CRITICAL-CARE NURSES

AACN Mission
Patients and their families rely on nurses at the most vulnerable times of their lives. Acute and critical care nurses rely on AACN for expert knowledge and the influence to fulfill their promise to patients and their families. AACN drives excellence because nothing less is acceptable.

AACN Vision
AACN is dedicated to creating a healthcare system driven by the needs of patients and families where acute and critical care nurses make their optimal contribution.

AACN Core Values
As AACN works to promote its mission and vision, it is guided by values that are rooted in, and arise from, the Association's rich history, traditions, and culture. Our values are the foundation upon which we build our relentless pursuit of
excellence. AACN's members, volunteers, and staff will honor the following:

- **Integrity** — We demonstrate sound judgment, ethical behavior, and accountability in all we do.
- **Inclusion —** We build an equitable culture, inviting the full contribution of all people.
- **Transformation —** We drive change and innovation to positively impact the healthcare system and improve the lives of patients, families, and nurses.
- **Leadership —** We advocate and influence to achieve optimal outcomes and healthy work environments.
- **Relationships —** We collaborate and advance partnerships, honoring each individual to strengthen the collective.

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Introduction

AACN Scope and Standards for Progressive and Critical Care Nursing Practice,[1] which describes the specialty practice and standards of performance for progressive and critical care nursing, acknowledges the expansion of the practice beyond the walls of the intensive care unit (ICU). These standards apply to critical care nursing in traditional as well as expanded practice settings, such as virtual critical care units. "Progressive and critical care nurses practice in settings where patients require complex assessments and therapies, high-intensity interventions, and high-level, continuous nursing vigilance. These settings are not defined by the patient's location in a designated unit, but by the needs of the patient"[1] Models of nursing care, such as the collaborative partnership with tele-critical care teams, require specific recommendations to guide practice.

In August 2010, AACN convened a TeleICU Task Force to delineate guidelines for tele-critical care nursing practice. In September 2017 and again in October 2021, a new task force convened to review and update the previous document. Task force members represented nurses in tele-critical care clinical and leadership positions from diverse organizational settings who have experience using a variety of technology vendors and practice models. Both editions of this document used a series of in-person and virtual meetings and telephone calls to clarify the practice of tele-critical care nursing by asking fundamental questions such as, "What is the unique contribution of the tele-critical care nurse to optimize patient outcomes?" and "What are the essential elements of tele-critical care nursing practice that contribute to team effectiveness and patient outcomes?" For each version of this document, a panel of expert reviewers representing a wide variety of roles and experience related to tele-critical care nursing practice validated the recommendations, essential elements, and supporting text.

As there is insufficient research or evidence to substantiate strong recommendations in a clinical practice guideline, this document was developed as an expert consensus statement to assist in the development, growth, and enhancement of tele-critical care programs. This consensus statement reflects current evidence, best practice, and the expert opinions of AACN's Tele-critical Care Task Force. Tele-critical care nursing practice continues to evolve and requires nurses to reevaluate and collaboratively shape the best environments and models for advancing the practice. The advances in technology and success of programs such as tele-critical care nursing have contributed to the expansion of telehealth services to support additional patient populations, age groups, and patient needs, broadening their reach to include locations throughout and beyond hospital settings. Additionally, the contributions of tele-critical care nurses have evolved to offer expertise through education, mentoring, precepting, and support of progressive and critical care nurses providing direct care to patients. There is no doubt that telehealth services will continue to grow. Significant growth in the number of tele-critical care services has occurred both within and outside traditional critical care areas. These services have contributed to improvements in clinical practice and patient and family outcomes during the COVID-19 pandemic. Continuing research will need to evaluate and recommend current and emerging practices, with results disseminated via many channels.

Purpose

This expert consensus statement defines tele-critical care nursing and identifies the essential elements that assist organizations, leaders, and nurses to implement, evaluate, and improve tele-critical care nursing practice. It also serves as a foundation to identify strengths and opportunities for improvement, facilitating the creation of an environment where tele-critical care nurses make their optimal contribution to patient- and family-centered care. In addition, this statement delineates the essential interprofessional collaboration and partnerships necessary for the successful integration of tele-critical nurses as valued members of the health care team. This statement is not intended to be a comprehensive guide for developing and operating a tele-critical care program; it is a tool to inform and evaluate tele-critical care nursing practice.

background

Early reports of tele-critical care systems began in the 1970s with models that included on-site providers linking with off-site consultants to discuss patients.[2,3] At that time, remote providers had no direct access to patients or their health care information. In 1982, the first report of a clinical trial of telemedicine in the ICU was published in *Critical Care Medicine,* when Grundy and colleagues described their intermittent telemedicine consultation service between intensivists in a university setting and staff in an inner-city hospital with no on-site intensivists.[4]

The first report of an around-the-clock intensivist model was published in 2000, when Rosenfeld and colleagues described a telemedicine intensivist program for a 10-bed trauma and surgical unit in an academic-affiliated community hospital.[5] Since that time, the number of tele-critical care units has increased across the United States. A 2020 article notes that of 2816 hospitals with ICUs in 2018, 26.8% reported having tele-critical care services.[6] The American Hospital Association's 2022 statistics[7] reported that over 112 359 ICU beds in the 5139 non-federal public hospitals responded to their survey.

The early design of the tele-critical care concept used a physician-only model of care. Critical care nursing was quickly identified as a necessary component for the provision of safe, optimal patient care. Today, most tele-critical care programs employ a collaborative model of care that includes nurses, physicians, information technology personnel, and administrative support personnel. Some models also include advanced practice nurses, pharmacists, and other members of the interprofessional health care team, thus expanding the breadth of services offered. Despite variations in provider staffing, critical care nurses are essential to the provision of tele-critical care and integrating the remote tele-critical care nurse with the on-site direct caregiver team.

As the health care environment continues to evolve, tele-critical care programs have become more pervasive with expansions in technologies, modalities, and the number of patients served. Likewise, the contributions of tele-critical care nurses have expanded to embrace additional risk assessments, interventions, and patient safety measures related to issues such as physiologic instability or sepsis. Services that integrate with and complement the on-site clinical team include surveillance, collaboration in providing guideline- and evidence-based care, and mentoring on-site nurses. Changes in hospital nurse staffing have resulted in a loss of experienced nurses from the on-site team, leaving an experience gap. The expertise of tele-critical care nurses in the provision of direct care and in facilitating the ongoing growth and development of nurses newer to this practice area helps address this gap and supports excellent nursing care. Services now reach patients not only in ICU and progressive care settings, but also may reach patients in medical/surgical units and even in home-care settings.

Standardization of processes to mentor, develop, and empower nurses who are new to the tele-critical care field led to recognition of the value of dedicated certification pathways and credentials. Studies of practice conducted by AACN Certification Corporation in 2006 and 2008 demonstrated the evolving

practice of tele-critical care nursing over time. In 2009, the activities of nurses and types of patients in tele-critical care programs paralleled those in traditional critical care areas, so the initial CCRN certification credential was fully extended to the practice of tele-critical care nurses and designated as CCRN-E.[8] AACN Certification Corporation continues to conduct studies of practice at regular intervals, determining any changes in practice that are then reflected in the subsequent test plan for the CCRN-E certification exam.

definitions

The following definitions apply and serve as the context for this consensus statement. For additional information on terminology, refer to *A Working Lexicon for the Tele-Intensive Care Unit: We Need to Define Tele-Intensive Care Unit to Grow and Understand It.*[3]

Burnout

A "maladaptive response to chronic work-related stress that has negative consequences for patients, clinicians, and the health care system in general."[9,10]

Compassion fatigue

A combination of burnout and psychological stress due to prolonged exposure to the stress, suffering, and trauma of others. It can cause feelings of numbness and anxiety, lack of empathy, intrusive thoughts, emotional and physical exhaustion, hypervigilance, impaired sleep, and feeling that one has nothing left to give.[11,12]

Emotional intelligence

The ability to identify and manage the emotions of self and others, including the ability to recognize emotions, regulate one's own emotions and help others, and apply emotions to thinking and problem solving.[13]

Diversity

A broad range of individual, population, and social characteristics, including but not limited to age; sex; race; ethnicity; sexual orientation; gender identity; family structures; geographic locations; national origin; immigrants and refugees; language; physical, functional, and learning abilities; religious beliefs; and socioeconomic status.[14]

Equity

The ability to recognize the differences in the resources or knowledge needed to allow individuals to fully participate in society with the goal of overcoming obstacles to ensure fairness.[15]

Healthy work environment (HWE)

Safe, healing, and humane workplaces that are respectful of the rights, responsibilities, needs, and contributions of all people, including patients, their families, nurses, and other health care professionals. These environments are collaborative and patient focused and depend on 6 essential standards to achieve and sustain them. The standards are skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition, and authentic leadership.[16]

Inclusion

Environmental and organizational cultures in which all people with diverse characteristics thrive. Inclusive

environments require intentionality and embrace differences, not merely tolerate them. Everyone works to ensure the perspectives and experiences of others are invited, welcomed, acknowledged, and respected.[14]

Interprofessional team

A group involving 2 or more professionals[17] who collaborate to achieve shared goals, which may involve patient management or quality improvement activities.

Moral distress

"Knowing the right thing to do but being in a situation in which it is nearly impossible to do it."[18]

On-site

The location of practice where direct caregivers are physically present with patients.

Practice excellence

The clinical result when nurses make their optimal contribution to patients and work environments, and their efforts are recognized. They accomplish this optimal contribution through clinical excellence[19] in their practice.

Progressive and critical care nursing

A nursing specialty that manages human responses to actual or potential life-threatening problems. The scope of practice for nursing care of patients of all ages encompasses the dynamic interaction of the patient and family, the nurse, and the environment where care is being provided, with a goal of ensuring optimal patient outcomes. The foundation of progressive and critical care nursing practice is based on a body of specialized scientific knowledge, an ethical model for decision-making, nurse/patient/system interrelatedness described in the AACN Synergy Model, and a commitment to interprofessional collaboration. This foundation highlights the unique value nurses bring to caring for this patient population.[1]

Relational coordination

A theory that describes the components that are key to relationships as shared goals, shared knowledge, and mutual respect.[20] These components are critical to the successful coordination of care, with the patient as the central focus of all interactions between collaborating sites and the tele-critical care unit. This theory describes shared knowledge as evidence-based practice and clinical expertise. It also describes mutual respect as the acceptance of each individual's unique talents, skills, and contributions, which are demonstrated through skilled communication. Relational coordination asserts that when there is mutual respect between 2 individuals, the quality of communication and their interactions are enhanced, and patient care is improved.[21]

Remote

The practice location of tele-critical care nurses and teams that are not physically present with patients. Patient monitoring is accomplished using technology and telecommunication equipment.

Surveillance

The purposeful and continuous assessment, monitoring, analysis, and synthesis of patient and environmental data to help identify complicated illnesses and syndromes, detect the risk of adverse events, enhance care coordination, and recognize gaps in care with a goal to augment clinical decision-making.[22] Surveillance is a skill that needs to be developed over time.

Tele-critical care nursing

Critical care, progressive care, or acute care nursing that uses active surveillance to synthesize data gathered from various health information systems and telecommunication technologies to enhance patient care

in collaboration with the care team members providing on-site (hands on) care. In addition to the same knowledge, skills, and abilities required for on-site nursing, tele-critical care nurses must possess high-level skills in communication, collaboration, decision-making, systems thinking, surveillance, and computer literacy. Due to the nature of tele-critical care practice, opportunities for proactive, protocol-driven interventions, mentoring, and innovation are prevalent.

Tele-critical care nurse leaders

Those who facilitate the practice of tele-critical care nurses by supporting the integration of nursing care in the interprofessional team within the tele-critical care practice area, with collaborating sites and administrative teams in their organization. They apply skills in relational coordination to ensure processes, outcomes, and initiatives for performance improvement to best serve patients, families, nurses, the interprofessional team, and organizations with which they work.

Tele-critical care health care organizations

Organizations that host, support, or receive the practice of tele-critical care. Departments in the organization that help ensure tele-critical care success include executive, finance, information technology, management, nursing, medical, quality, and regulatory oversight.

Telehealth

A virtual tool connecting individuals and their health care providers when in-person care is not necessary or possible. Using telehealth services, patients can receive care, consult with a provider, get information about a condition or treatment, arrange for prescriptions, and receive a diagnosis.[23] The most common methods for connection are:

- Virtual visits using video, live chat, or telephone for live, synchronous interaction between a patient and a health care provider.
- Chat-based interactions, which are asynchronous communications for patients to transmit health data to a health care provider for review at a later time.
- Remote patient monitoring, which supports ongoing monitoring and may be synchronous or asynchronous. It involves collection, transmission, evaluation, and communication of individual health data from a patient to a health care provider or extended care team from outside the hospital or clinic office. It may include the use of wearable sensors, implanted health monitors, wireless devices, mobile apps, and smartphones.
- Technology-enabled modalities that provide physician-to-physician consultation, patient education, digital diagnostics, data transmission and interpretation, digital therapeutics, data transmission and interpretation, and digital therapeutics.

Telemedicine

Telemedicine uses telecommunication and information technology to provide clinical care to patients at distant/remote sites. Tele-critical care is a type of telemedicine.[24]

Telenursing or telehealth nursing

The practice of nursing delivered through various telecommunication technologies to interact with a client who is at a remote site to receive the client's health status and initiate and transmit therapeutic interventions and regimens, and monitor and record the patient's responses and nursing care outcomes.[25]

Tele-critical care

A collaborative interprofessional care model focused on critically ill patients that is enabled by leveraging

audio, video, data, and other technologies to engage critical care experts in patient care, along with clinicians at collaborating sites. Services may be expanded to include other acute and progressive care patients.[26] Per the Society of Critical Care Medicine, the term is defined as "critical care services delivered using communications technologies from anywhere to anywhere."[27]

Conceptual Frameworks

This statement builds on the foundation of *AACN Scope and Standards for Progressive and Critical Care Nursing Practice,*[1] which is grounded in 3 conceptual frameworks. The nursing process provides the model for nursing practice that describes the steps nurses take to create, implement, and evaluate a plan of care.[1] The AACN Synergy Model for Patient Care is the framework that describes the creation of optimal patient care and outcomes when patient characteristics and nurse competencies are matched effectively.[28] *AACN Standards for Establishing and Sustaining Healthy Work Environments: A Journey to Excellence, 2nd ed.*[16] provides the standards, rationale, and criteria for creating the optimal environment in which nurses can provide care. Each of the 6 standards is essential to a healthy tele-critical care work environment. The milieu of tele-critical care nurses' work involves multiple work environments at any time, which add to the complexity of achieving and sustaining a healthy work environment (HWE). Because of the unique challenges that are inherent in the relationship between the tele-critical care remote and collaborating sites, skilled communication and true collaboration are particularly applicable to successful implementation of the tele-critical care nursing model of practice.

The 6 HWE standards are as follows:

Skilled Communication
Nurses must be as proficient in communication skills as they are in clinical skills.

True Collaboration
Nurses must be relentless in pursuing and fostering true collaboration.

Effective Decision Making
Nurses must be valued and committed partners in making policy, directing and evaluating clinical care, and leading organizational operations.

Appropriate Staffing
Staffing must ensure the effective match between patient needs and nurse competencies.

Meaningful Recognition
Nurses must be recognized and must recognize others for the value each brings to the work of the organization.

Authentic Leadership
Nurse leaders must fully embrace the imperative of a healthy work environment, authentically live it, and engage others in its achievement.[16]

In addition to these conceptual frameworks, relational coordination is a theoretical foundation that is relevant to tele-critical care nursing practice. The theory describes the components that are key to relationships as shared goals, shared knowledge, and mutual respect.[20,21] These components are critical to the successful coordination of care, with the patient as the central focus of all interactions between collaborating sites and the tele-critical care unit. With the patient as the focus, shared goals lead to positive patient outcomes. This theory describes shared knowledge as evidence-based practice and clinical expertise, and mutual respect as the acceptance of each individual's unique talents, skills and contributions, and demonstrated through skilled communication. Relational coordination asserts that when there is mutual respect between 2 individuals, the quality of communication and their interactions are enhanced, and patient care is improved.

The AACN Tele-critical Care Nursing Practice Model (see Figure 1) integrates the practice excellence components of relational coordination with the key concepts of true collaboration and skilled communication from *AACN Standards for Establishing and Sustaining Healthy Work Environments: A Journey to Excellence, 2nd ed.* These skills are integral to the provision of tele-critical care nursing. Technology is the modality through which tele-critical care nurses apply these skills to achieve optimal patient and family care, and optimal outcomes. The evolution of practice is accomplished through audiovisual, clinical surveillance, and other health information exchange technologies as tele-critical care personnel engage with the patient, family and on-site clinical team, and adapt to the dynamic clinical environment across the care continuum.

Building upon the *AACN Synergy Model for Patient Care,*[28] patients' needs drive the competencies of the nurses practicing in both remote tele-critical care and on-site direct care environments. Patient needs differ in the many environments of care. The Synergy Model ensures nurses adapt to those varying needs. The model is also supported by the application of authentic leadership from *AACN Standards for Establishing and Sustaining Healthy Work Environments: A Journey to Excellence, 2nd ed.* Authentic leadership helps ensure that the practice environment encompasses all HWE standards, including those related to resources and decision-making that support nurses' opportunities to optimize practice and to ensure safe and effective patient care. The third support for the model is an environment of equity, diversity and inclusion (EDI), which drives both the approach to patient and family care, and also the tele-critical care nurse's interprofessional relationships and essential patient- and family-centered interactions.

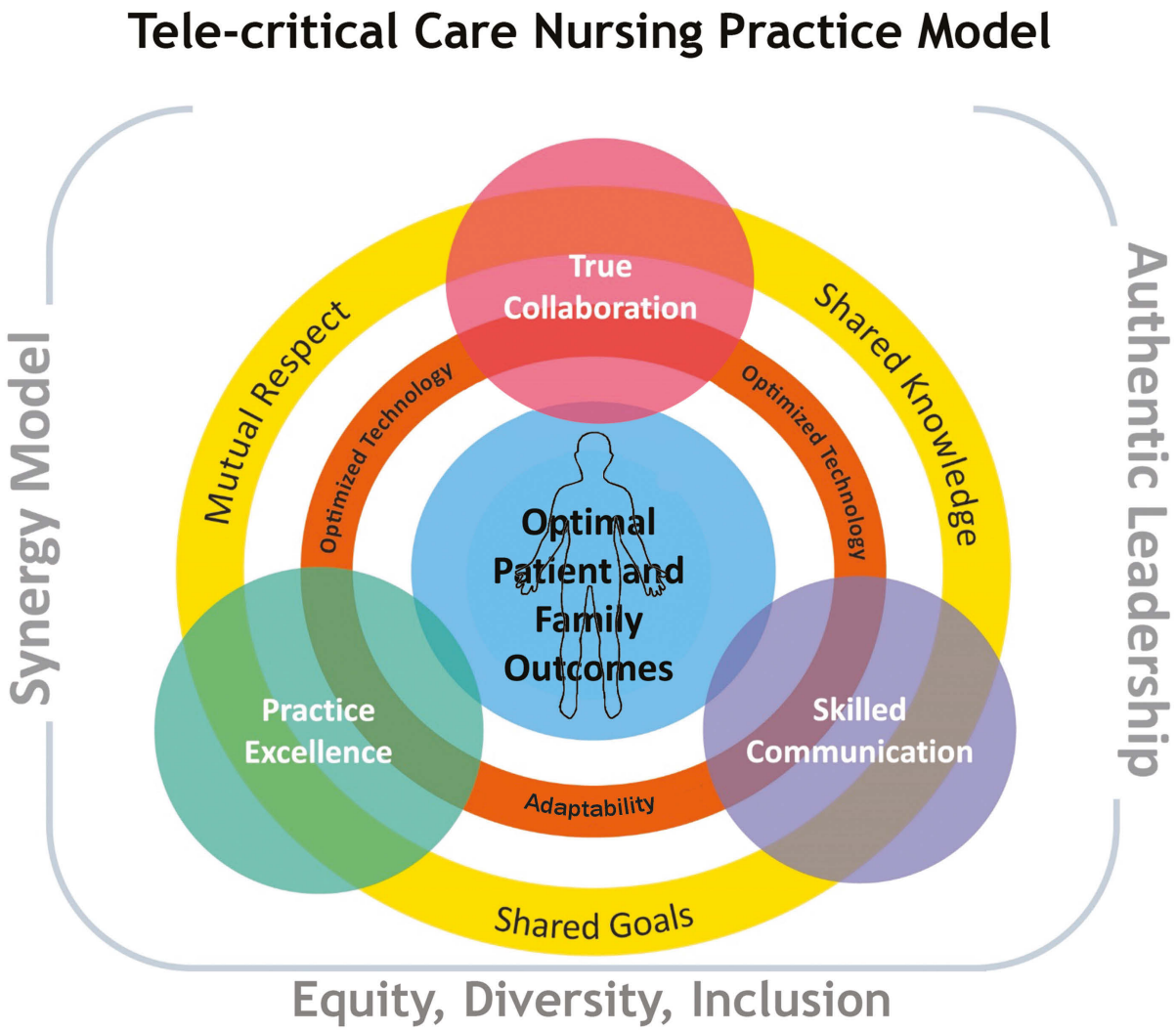

Figure 1 – AACN Tele-critical Care Nursing Practice Model

AACN Tele-critical Care Nursing Practice Recommendations

These systematically developed recommendations provide the best available evidence and/or expert consensus. They function as a resource for RNs and nurse leaders who practice within the tele-critical care model of care and their associated health care organizations. Each recommendation is essential and necessary for the successful practice of tele-critical care nursing. Variations in practice are expected across settings based on the structures, processes and culture of each organization, and the clinical priorities they address.

recommendation 1

It is recommended that tele-critical care nurses, leaders, and health care organizations establish and sustain a practice environment that promotes ethical care, cultural humility and inclusiveness, effective communication, collaboration, and collegiality to leverage expertise and ensure optimal outcomes for patients and families.

Essential Elements

Tele-critical Care Nurses:

- Demonstrate that shared goals, shared knowledge, and mutual respect are the necessary elements to create successful integration of the tele-critical care environment and on-site nursing practice.
- Demonstrate competency with skilled communication, effective decision-making, and true collaboration to enhance relationships with the entire interprofessional team, and create optimal outcomes for patients and families.
- Are recognized and recognize all members of the interprofessional team for the value each individual brings to patient care.
- Recognize and honor the inherent value of the diverse range of beliefs, experiences, and values of patients, families, and colleagues.
- Proactively engage in resolving conflicts that are barriers to care.
- Proactively engage with the interprofessional team to assess patient risk and to individualize care that minimizes risk and promotes patient safety.
- Seek resources to expand understanding of EDI in their practice environment to facilitate culturally appropriate interactions.
- Implement approaches to protect patient privacy and confidentiality based on the unique environmental challenges of telehealth.
- Identify and address the unique ethical dilemmas and moral distress that can be encountered when working in the tele-critical care environment.
- Provide peer-to-peer support when nursing colleagues are experiencing moral distress.
- Maintain an appropriate virtual video and audio communication etiquette - see Appendix 3 for an example.

TeleICU Nurse Leaders:

- Collaborate with tele-critical care nurses and those sites supported by tele-critical care to create and

routinely review policies and protocols to standardize procedures and processes. These include but are not limited to:

- Patient and family rights, communication, and education
- Patient rounding
- Monitoring and responding to alerts and alarms
- Managing bedside emergency situations
- Patient care hand-offs
- Informal team debrief for challenging cases/events
- Formal case review process for incidents or complaints
- Planned and unexpected downtime procedures
- An escalation process to support nurses in addressing real-time care concerns
- Evaluating the impact of decisions regarding tele-critical care workflow and staffing
- Processes supporting true collaboration during interprofessional rounds
- Tele-critical care support of disaster response (eg, surges in hospitalizations during pandemic, natural disaster)
- Proactive plans for support in the event of staffing shortages

- Lead excellence in tele-critical care by demonstrating behaviors that include:
  - Exhibiting authentic and compassionate leadership
  - Promoting EDI behaviors among units and staff
  - Ensuring that staff comply with appropriate virtual and audio etiquette
  - Designing or implementing systems to track and report outcomes
  - Establishing goals between tele-critical care and the on-site units they support
  - Advocating for staffing models and practices that are designed to enhance high-quality and safe patient care
  - Providing opportunities for a shared governance model

Tele-critical Care Health Care Organizations:

- Actively support administrative, information technology, nursing and medical leaders in all areas engaged in tele-critical care to work as equal partners in modeling and fostering true collaboration.
- Provide (on-site and remote) team members engaged in all aspects of tele-critical care with education and resources to promote true collaboration and skilled communication.
- Establish processes to promote dialogue and resolution of breakdowns in collaboration and communication, ethical dilemmas, moral distress, and burnout.
- Ensure that patients and families are informed and supported in understanding tele-critical care.
- Encourage and support their leaders to participate in meaningful recognition of the tele-critical nurse's contribution to patient care and quality outcomes.
- Provide education and resources needed to promote EDI.
- Ensure a collaborative approach to disaster planning, integrating telehealth teams, and creating flexible processes that embrace innovation.
- Support innovations in tele-critical care processes that arise from changing clinical and system needs, ensuring the resources and technology necessary to provide patient and family care.

recommendation 2

It is recommended that tele-critical care nurses, leaders, and health care organizations develop and demonstrate proficiency in specific knowledge, skills, and abilities to contribute optimally to patient outcomes and nursing practice.

Essential Elements

Tele-critical Care Nurses:

- Possess the same foundational knowledge base and critical thinking skills as on-site nurses for the patient populations and age ranges that tele-critical care nurses support.
- Demonstrate competence in using available technology to complete patient assessments.
- Ensure documentation of the collaboration and care they provide.
- Actively engage in learning about new or evolving patient care practices and technologies; share their learning with both tele-critical care and on-site colleagues.
- Develop skills in coaching, mentoring, and ongoing development of their knowledge and critical thinking skills.
- Demonstrate continuing clinical competence and lifelong learning appropriate to their role in tele-critical care.
- Achieve and maintain CCRN/CCRN-e/CCRN-K and/or other specialty certification appropriate to the environment (strongly recommended).
- Demonstrate the knowledge, skills, and abilities related to several health informatics core competencies when participating with direct care staff in the care of patients and families, including the ability to work with various information and communication technologies, electronic medical records, clinical decision support tools, and telehealth tools.
- Employ systems thinking and problem-solving strategies to manage unintended or undesirable consequences of remote-monitoring technology.
- Engage in surveillance activities and interpretation of findings, and participate in real-time clinical decision support to collaborate with on-site nurses on conditions that require immediate attention, including physiologic changes that result from the actions or inactions of the care team.
- Apply clinical judgment to identify emerging trends in available data that may indicate impending patient instability, establishing increased surveillance as needed to prevent patient deterioration.
- Use decisional support technologies and resources that support expert processes of care, communicating them to effectively support team care activities.
- Proactively support and serve as a resource for the interprofessional team.
- Adapt workflows as technology, environments, and patient locations change to support the full continuum of care, generating innovative approaches when needed.
- Adapt care to address changes in patient condition, communicate changes with appropriate care team members, and seek opportunities to support patients and on-site staff.
- Support development of nursing colleagues through formal and informal mentoring, coaching and precepting activities, and continuous learning.
- Identify opportunities to help on-site caregivers support the emotional needs of families.

- Demonstrate the ability to recognize unmet patient and family needs and evolving physiological instability.
- Demonstrate emotional intelligence to understand how integral their role is to the provision of excellence in patient care.
- Actively participate in activities to enhance collaboration, communication, and support within the care team.

Tele-critical Care Nursing Leaders:

- Possess high-level skills in communication, collaboration, decision-making, systems thinking, business acumen, innovative thinking, and computer literacy.
- Communicate outcomes from tele-critical care practice.
- Engage the team to envision future enhancements in care delivery.
- Maintain sufficient clinical acumen to evaluate tele-critical care nurse performance and support the staff's continued growth.
- Mentor staff to increase their knowledge, skills, and abilities regarding tele-critical care practice and professional development.
- Mentor staff to increase their knowledge regarding laws, compliance, and regulatory issues relevant to tele-critical care practice.
- Mentor staff to understand the importance of their efforts in providing the evidence of return on investment from tele-critical care.
- Support tele-critical care nurses in achieving and maintaining certification to validate their expertise and knowledge.
- Ensure that licensing and regulatory requirements for practice in remote locations are addressed and met.
- Ensure that skills in communication and collaboration are addressed in the tele-critical care nurses' performance appraisals and clinical advancement process.
- Ensure that organizational documents addressing the scope and role of the tele-critical care nurse are consistent with *AACN Scope and Standards for Progressive and Critical Care Nursing Practice* and this consensus statement.
- Identify opportunities to improve patient care through expanding tele-critical care partnerships and developing new ones.

Tele-critical Care Health Care Organizations:

- Collaborate with tele-critical care leaders to define and evaluate accountability for communication and collaboration.
- Provide resources for education and training for communication and collaboration within the tele-critical care team and with on-site interprofessional teams.
- Establish processes for ongoing evaluation and improvement in communication and collaboration skills.
- Collaborate with tele-critical care leaders to identify required competencies and behaviors for on-site staff to ensure appropriate use of tele-critical care technology; ensure education and competence in its use.
- Collaborate with tele-critical care leaders to identify opportunities to improve patient care by supporting tele-critical care nurses in the provision of high-quality and safe care.

- Champion the value of telehealth initiatives as an integral part of the organization's approach to providing care.

recommendation 3

It is recommended that tele-critical care nurses, leaders, and health care organizations support and engage in conducting research, implementing best evidence, and measuring and analyzing outcomes to ensure optimal quality and safety in patient care and tele-critical care nurses' contributions to care.

Essential Elements

Tele-critical Care Nurses:

- Engage the tele-critical care interprofessional team in decision-making about the work environment and workflows (eg, shared-governance council).
- Participate with the health systems' interprofessional teams to collaboratively drive the translation of evidence into usable, relevant and accessible knowledge, and promote application of evidence-based practice, quality improvement, and system decision-making.
- Are active partners with interprofessional teams to ensure the delivery of evidence-based patient care.
- Collaborate with interprofessional teams as active partners in continuous performance improvement to achieve optimal patient and family outcomes.
- Apply a solid understanding of evidence in practice and when mentoring novice nurses.

Tele-critical Care Nursing Leaders:

- Ensure that continuous quality improvement plans are in place and tele-critical care nurses are engaged in all phases of the plans, including evaluation of results and any subsequent practice changes.
- Establish quality assurance and measurement frameworks to evaluate patient and family outcomes.
- Regularly monitor the value (interventions, quality outcomes, costs, and fiscal results) that tele-critical care brings to the organization, and communicate with the interprofessional tele-critical care team.
- Share outcome metrics broadly within the health care organization to emphasize the unique contributions of tele-critical care.
- Strategize with members of critical care committees or other organizational meetings as appropriate to improve patient care and quality outcomes.

Tele-critical Care Nurses and Nurse Leaders:

- Analyze tele-critical care outcome data and implement changes as indicated.
- Promote and support high-value, culturally safe, inclusive, and equitable patient- and family-centered care to optimize patient safety and quality outcomes.
- Actively increase knowledge, skills, and abilities related to quality improvement activities and implementation of evidence-based practice.
- Develop expertise in crisis intervention.
- Recognize and promote further investigation in topic areas that include but are not limited to:
  - Appropriate staffing models
  - The skill mix of tele-critical care providers

- Culturally safe, inclusive, and equitable delivery of tele-critical care
- Optimal communication methods
- Decision support tools and the impact of technology on patients and families
- Tele-critical care outcomes

- Disseminate the results of scientific inquiry, best practices, and innovations through multiple professional channels in the health system and the professional community.
- Advocate for tele-critical care practice by influencing policy at organizational, local, and national levels.

Tele-critical Care Health Care Organizations:

- Encourage and support both tele-critical care and on-site nurses' networking opportunities in the broader tele-critical care community.
- Leverage technology in gathering and evaluating metrics as a means to measure and report on fiscal impact and quality data to inform and transform care.
- Support tele-critical care nurses and nurse leaders to interpret their outcomes and demonstrate their value and contributions.

Conclusions

The increasing need for acute, progressive and critical care services, the shortages of intensivists, experienced critical care nurses, pharmacists, respiratory therapists and other team members, the complexity of critical, progressive and acute care patients, the demands for patient safety and quality, the dynamic work environment, and regulatory oversight are shaping the landscape of health care delivery around the world. Tele-critical care nursing and telehealth form a partnership model of care that supports the delivery of care to patients regardless of their location. As tele-critical care practice continues to evolve, it remains clear that shared goals, shared knowledge, and mutual respect are foundational to its success.

This expert consensus statement creates a framework to implement and evaluate tele-critical care nursing practice. These recommendations outline the essential elements that tele-critical care nurses, leaders, and organizations can take to achieve tele-critical care excellence. They represent expert consensus, reflecting what is currently known about tele-critical care nursing, while acknowledging further research is needed. Further research, both quantitative and qualitative, is necessary to support tele-critical care into the future, so clinicians and organizations may achieve the highest level of care and optimal patient outcomes. Inquiry into appropriate staffing models, the skill mix of tele-critical care providers, optimal communication methods, nursing interventions, mentoring, retention, moral distress, return on investment, and the impact of the tele-critical care nursing model on patients and families represent just a few of the areas to investigate.

The American Association of Critical-Care Nurses calls upon nurses and nurse leaders in tele-critical care and collaborating sites to embrace this model of care and engage nurses in its growth and the optimization of its contributions to exceptional patient care.

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Appendix 1

Clinical Vignettes Demonstrating Each Key Recommendation

recommendation 1

It is recommended that teleICU nurses, leaders, and health care organizations establish and sustain a work environment that promotes effective communication, collaboration, and collegiality to leverage expertise and ensure optimal outcomes for patients and families.

Tele-critical Care Nursing: Emergency Response

At a small critical access hospital on an island in Alaska, a patient presented in cardiac arrest with cardiopulmonary resuscitation (CPR) underway. This rural and geographically isolated facility is small and has limited resources including locum physician coverage. As soon as the patient arrived, the bedside nurse contacted the teleICU to assist. The teleICU nurse entered the room via voice and video technology, noticing that the room was chaotic, filled with nurses, family, and a physician who specialized in family practice medicine.

The physician stated that they had followed Advanced Cardiac Life Support (ACLS) protocol and at this time they required additional critical care expertise. The teleICU nurse partnered with the clinical team to facilitate treatment. She anticipated which drugs to use next and calmly coached the nurses at the bedside on what drips to prepare and next steps, following ACLS protocol. Ordinarily, the teleintensivist and teleICU nurse would collaboratively provide this support, but in this instance the intensivist was leading cardiac resuscitation efforts in an ICU and was unavailable for this situation. After 4 hours of continuous resuscitative efforts, the patient was stable enough for air transport to a larger acute care facility where he remained for 11 days. Following recovery, he had no neurological deficits. Upon review of the incident, the attending physician shared that as soon as collaboration began with the teleICU nurse, there was a sense of increased confidence, and teamwork was enhanced for those involved in this patient's care.

Tele-critical Care Disaster Management: Triage, Logistics, and Leveraging Expertise

Twenty-four hours before a category 4 hurricane that encompassed the entire state of Florida, clinical teams were planning how to sustain patient care delivery during a major disaster. The Telehealth Center, consisting of the teleICU and The Transfer Center (TTC) were split to cover both the day and the night shifts, ensuring uninterrupted care for the multihospital system.

The Telehealth Center is connected to 5 hospitals and assisted with the evacuation of 2 additional hospitals. The ICUs were filled to capacity, and the teleICU intensivists were on standby to assist with patient admissions using teleICU carts. Due to the lack of electricity after the storm, patients could not be discharged home; therefore, the teleICU team was on standby to round on discharge patients as needed.

Due to the impact of the hurricane on numerous health care systems, the teleICU provided temporary support for a variety of telemedicine services despite the devastating loss of land-based communications. Telehealth Center connections were maintained with cruise ships out at sea in international waters to provide uninterrupted consultative clinical care. Throughout the storm, TTC coordinated care for telepsychiatry and telestroke patients and for patients who needed hyperbaric chamber treatment for dive accidents and wound care.

Infrastructure, including broadband technology, generator power, uninterrupted power supply, and a reinforced building structure, created a telehealth environment to withstand the forces of nature and other mass casualty incidents. Optimal technology combined with essential expertise and well-defined workflows created the opportunity to provide key services unaffected by the disaster.

Tele-critical Care Nursing: COVID-19 Response and Innovation

Nurses are innovative by nature and they problem solve. But during a pandemic those skill sets were put on high alert. In order to help support direct care nurses who were struggling to keep themselves safe from the virus while caring for their patients, the tele-critical care unit offered hourly rounding to their on-site colleagues. Every hour the tele-critical care nurses went into the patient's room, virtually examining the ventilator, IV pumps, and medications and assessing the patient with high-fidelity 2-way audiovisual equipment. This information was then relayed to the on-site nurse reducing their exposure to the virus and preserving precious personal protective equipment (PPE). Mobile carts were purchased and equipped with tele-critical care platforms and put into overflow units and rooms to help support the rising COVID-19 census. With the increasing patient volumes, additional nurses were also needed. The CDC determined there were certain health conditions that were deemed high-risk for nurses in on-site patient care. The tele-critical care unit collaborated with those on-site nurses who met this high-risk criterion, adding them to the tele-critical care team. This shift of assignment from direct care to the tele-critical care team allowed them to work remotely and continue to use their skills to help manage patients while keeping them safe due to their high-risk conditions. Cameras, monitors, laptops, and headsets were bought and sent home with most of the tele-critical care nurses to ensure that they were safely able to work in a socially distant environment. This approach also ensured that if they were exposed and needed to quarantine, but remained healthy, they could support the additional nursing needs.

Emotionally, the pandemic was difficult. It was hard to watch so many patients die alone. Tele-critical care nurses were able to use their technology to connect family members to patients whenever possible, and at times were in the patients' rooms speaking to them over the camera as they drew their last breath. These tele-critical care nurses celebrated the wins with their on-site teammates when patients were able to be transferred out of the ICUs, and they grieved with them when outcomes were not ideal.

Tele-critical Care Nursing: Cultural Diversity

Due to shortages of intensivists, tele-critical care units are sometimes staffed by providers from many different countries other than the United States. One such unit takes advantage of differences in time zones and uses intensivists from overseas who work during the overnight shifts in this country, allowing US-based physicians to sleep. However, solving staffing problems can sometimes present cultural and linguistic challenges. The tele-critical care nurse working in a rural US hospital requested the assistance of an overseas physician during the middle of the night. When the provider appeared on camera and spoke to the patient, the tele-critical care nurse noted that the patient seemed to have difficulty understanding the provider. Likewise, the provider was having difficulty understanding the patient. This situation made the patient uncomfortable, and he immediately asked for a different physician. Although both parties spoke English, there was enough of a language barrier to make communication challenging. The tele-critical care nurse quickly recognized that the quality of communication can have an important impact on patient safety, satisfaction, and outcomes. The tele-critical care nurse acknowledged the patient's feelings and took additional time to clarify any confusion and answer all questions after the virtual interaction and during subsequent interactions. Using closed-loop communication in this and any other instance of cultural or linguistic differences is paramount to ensure the patient and/or family is comfortable with the care being provided. Tele-critical care nurses must add translation services and cultural resources to their toolkit as our clinicians are becoming more and more diverse.

recommendation 2

It is recommended that tele-critical care nurses, leaders, and health care organizations develop and demonstrate proficiency in specific knowledge, skills, and abilities to contribute optimally to patient outcomes and nursing practice.

Tele-critical Care Nursing: Patient Safety

A tele-critical care nurse received an alert that a patient's oxygen saturation showed a negative trend. This patient was previously on noninvasive ventilation and was now on a non-rebreather mask trial. The tele-critical care nurse activated the bedside camera to perform an assessment and identified that the alarms were turned off. The tele-critical care nurse immediately contacted the on-site nurse, who wasn't aware that the alarms were turned off. The on-site nurse placed the patient back on noninvasive ventilation, turned on the alarms, and the patient's oxygen saturation improved rapidly. The on-site nurse expressed her appreciation, having truly been unaware of the alarms being turned off.

Tele-critical Care Nursing: Expediting Care

The tele-critical care nurse received a trend alert of an elevated heart rate for a patient in a progressive care unit, who was 1 day post-surgery. The tele-critical care nurse activated the patient's on-site camera and saw the patient was sitting up in a chair. The cardiac monitor showed supraventricular tachycardia (SVT). The patient reported he felt like his heart was "going fast" and he "can't breathe." The tele-critical care nurse asked him to remain in the chair until on-site help arrived and continued to coach and calm him. Noting that he had no cardiac history, the nurse asked another tele-critical care nurse to contact the on-site team for assistance. When the on-site team came to the room, the tele-critical care nurse who had interacted with the patient provided report on the events that occurred. The on-site team assisted the patient back to bed and implemented vagal maneuvers and cough to convert the SVT. The tele-critical care nurse called the rapid response team, who arrived to find the patient still in SVT. They administered adenosine, successfully converting the patient back to sinus rhythm. The patient was transferred from the progressive care unit to the ICU for further observation.

Tele-critical Care Leader to Organization: ROI

A tele-critical care nurse manager shared data from a recent quarter with departmental and hospital leaders. The focus of the discussion was sepsis, and the tele-critical care nurse manager relayed to the management team that with the tele-critical care nursing staff's involvement, the hospital system had a 24% reduction in mortality, 23% reduction in 30-day readmissions, and a 10% reduction in progression to septic shock. The management team was amazed that the tele-critical care nursing staff's involvement in such a process created such positive outcomes. The nurse manager relayed to the team that the sepsis surveillance system is currently being used with clinical data from software programs identifying patients who meet any of the systemic inflammatory response system (SIRS) criteria to determine if the patient should be considered septic or to have septic shock. The nurse manager then stated that with the tele-critical care nursing staff's involvement, the system is seeing an increase in meeting the sepsis 6-hour milestones with interventions including blood cultures within 3 hours, antibiotics within 1 hour, intravenous fluid infusion given per weight-based recommendations, and reperfusion assessments. The increase in compliance is a direct result of the tele-critical care nursing staff contacting the on-site staff via telephone or secure message to inform them that a deadline is approaching, or to contact a provider to let them know that an additional order is necessary to keep the protocol in line with Centers for Medicare & Medicaid Services (CMS) guidelines. The management team was gratified to have the tele-critical care nursing staff's involvement, because of its impact on outcomes in their patient population.

Tele-critical Care Leader to Unit: ROI

During the COVID-19 pandemic, patients were unable to have family visitors at the bedside. This problem required a unique solution. Therefore, the tele-critical care unit nursing staff, their direct manager, and the on-site nursing staff created a workflow that incorporated families into the solution. The tele-critical care nurses realized that one of their current programs could create a secure video call to families that wanted to connect to their loved ones hospitalized with COVID-19. The tele-critical care nurses used this technology to create secure and confidential links between families and their loved ones. Even though it wasn't as perfect as in-person connections, technology allowed families a sense of closeness to their loved ones. The tele-critical care nurse manager talked to on-site managers to get their feedback on how the process

was working. During a tele-critical care staff meeting, the manager relayed to the tele-critical care staff that the families expressed gratitude and increased faith in the care that their loved ones were receiving, simply because they could see and talk with their loved ones. The process also reassured on-site staff, as they were freed up to provide critical care nursing interventions instead of taking time to answer family requests for an update on the patients.

recommendation 3

It is recommended that tele-critical care nurses, leaders, and health care organizations support and engage in conducting research, implementing best evidence, and measuring and analyzing outcomes to ensure optimal quality and safety in patient care and tele-critical care nurses' contributions to care.

Expanding Roles for Tele-critical Care Nurses: Systems Thinking, Escalation of Care, and Mentorship

Emergency medical services arrived at the home of a young adult who was unresponsive. Identifying the patient had ventricular fibrillation without a pulse, they performed CPR for about 20 minutes and transferred the patient to the emergency department (ED) at a small rural hospital, where resuscitation continued. The ED physician requested transfer to a tertiary facility for a higher level of care. The tele-critical care nurse was facilitating the transfer and asked the ED physician if he started the hypothermia protocol. He responded that their facility had not yet adopted the hypothermia protocol. The tele-critical care nurse collaborated with the sending and receiving facilities and guided the sending nurse through implementation of hypothermia. Lacking specific hypothermia equipment at the sending hospital, the approach was adapted by placing ice bags on the patient's groins and underarms. The tele-critical care nurse coordinated with air transport personnel to continue hypothermia during transportation. On the patient's arrival at the receiving facility, their temperature had reached 36.2° C. Targeted temperature management measures were continued with cooling equipment per the hypothermia protocol. As a result of the collaboration and coordination of care, the patient reached the tertiary center within 30 minutes with hypothermia in progress. After 4 days, the patient was extubated, neurologically intact, and ready to be transferred from the ICU.

Tele-critical Care: Concurrent Crisis Management

A tele-critical care nurse responded to a trend alert for low oxygen saturation. The patient had been extubated earlier during the day after being on a ventilator for 2 weeks but was now observed to be in respiratory distress.

The tele-critical care nurse informed the tele-critical care intensivist, who then activated the on-site camera to assess the patient and determined that the patient would need to be reintubated. The tele-critical care nurse immediately reached the on-site nurse while the tele-critical care intensivist initiated a Code Blue. The on-site intensivist arrived, intubated the patient, and assumed management of the patient.

While this was happening, another tele-critical care nurse had a patient in the same hospital, but in another ICU, who developed cardiac arrest. The tele-critical care intensivist activated the on-site camera in the second patient's room and ran the Code Blue there, as the on-site intensivist was occupied with the first patient.

The tele-critical care nurse continued camera rounding while both patient emergencies continued. A patient was in respiratory distress in another unit. Since the tele-critical care intensivist was occupied with the second case and the on-site code team was still treating the first case, the tele-critical care nurse acted as the code team leader until the tele-critical care intensivist was available. This scenario happened within 30 minutes.

Tele-critical Care Nursing: Translation Services

During the pandemic, a patient with limited English proficiency came in with COVID-19 pneumonia. At the time, no visitors were allowed in the hospital. As the patient's hospital stay progressed, the patient was deteriorating to the point that the staff was desperately trying to have the family make some decisions about further care of the patient. Frustration was expressed during a phone conversation between the on-site nurse and the tele-critical care nurse. The tele-critical care nurse realized that there was an opportunity to use technology to connect the patient, family, providers, and a translator to have this difficult discussion. The tele-critical care nurse was able to connect the group via a secure video call to discuss the next steps. The translator interpreted to help the providers determine the capability of the patient to make her own decisions, discuss the diagnosis and prognosis, and support the patient and family making a decision on the direction of care. By the end of the video call, the determination was made to change the focus to comfort care. Through the interpreter, the nurses were able to explain to the family that with this transition in care, per the facility's policy, they would allow 4 family members to come in to see the patient, but for only 15-minute time periods. The family was very grateful for the ability to designate certain family members to see the patient in person before making the patient's status fully comfort care. The family could perform traditional rituals and prayers that a person of their religion would normally receive before death. Without the use of a virtual translator, the values and concerns of the patient and family would have not been expressed, and this patient would not have received care that is patient and family centered.

Tele-critical Care Nursing: Sepsis

While reviewing a patient's chart, the tele-critical care nurse identified a notification for potential sepsis. After performing a review of the patient's labs, radiological reports, and vital signs it was identified that the patient had an elevated WBC count, tachypnea, tachycardia, and infiltrates noted on CXR. The tele-critical care nurse contacted the on-site team to discuss the patient's status and her findings. Using established sepsis protocols, the tele-critical care nurse entered a lactic acid order and asked if an order for blood cultures could be obtained. The tele-critical care nurse stated she would follow the results and notify the on-site team if the lactic acid was elevated, to ensure the 3- and 6-hour bundles could be followed. The patient's lactic acid level was 4.8 mmol/L, so the tele-critical care nurse initiated a Code Sepsis and worked with the on-site team to ensure all bundle elements (antibiotics, repeat lactic acid, and appropriate fluid bolus) were completed within the appropriate time frames. With the technology at hand, the tele-critical care nurse was able to ensure the Code Sepsis protocol was completed, which ensured the patient received timely, effective, and high-quality care based on best practices.

Expanding Roles for Tele-critical Care Nurses: Systems Thinking, Escalation of Care, and Mentorship:

Just before the first wave of the COVID-19 pandemic in the US, a tele-critical care team began providing services at 2 hospitals covering 50 ICU beds within a 21-hospital system. As the initial patients with COVID-19 arrived, the health system opted to stop tele-critical care services and move all intensivists into direct care ICU shifts.

As the volume and acuity of patients with COVID-19 increased, the need to bring the tele-critical care program back online became evident. This resumption of service would leverage intensivist nursing and medical expertise for the increased number of acutely and critically ill patients entering the health care system. It would also leverage the technology to support and mentor staff through execution of complex therapeutic interventions, such as proning patients and optimization of ventilatory and hemodynamic support.

The 2 initial facilities were inundated with patients with COVID-19. Tele-critical care nurses began assisting with proning procedures and bringing information from numerous resources to help inform care, which proved to be invaluable. In addition to developing a proning checklist, tele-critical care nurses helped address knowledge gaps of the on-site ICU staff regarding the use of special beds for proning versus manual pronation steps, tools, and processes. Proning became a collaborative practice where tele-critical care nurses performed screening, recommended increased observations and surveillance where indicated,

identified patients eligible for proning, coordinated a time for the proning procedure, and used audiovisual technology to join the team at the bedside and walk them through the proning steps.

The role of the tele-critical care nurse was to translate evidence-based knowledge in a consultative and collaborative way that supported on-site partners, to achieve the shared goal of safe and effective patient care. By the time the next surge in patients with COVID-19 occurred, manual pronation had become hardwired for the on-site staff. Tele-critical care continued to support on-site partners and expanded services to 6 more hospitals.

Knowledge and expertise are precious commodities, especially when executing therapeutic interventions in the care of patients with complex conditions. The tele-critical care team provided an extra layer of support and used telecommunication technologies to share procedural knowledge. This approach demonstrated the value of using a consultative, shared knowledge support model built on collaboration to support on-site ICU clinicians and improve the care provided to patients.

Appendix 2

Examples of Common Tele-critical Care Nursing Interventions

Tele-critical care nurses, like on-site nurses, perform nursing interventions. These interventions may be independent, interdependent or dependent, using voice and video technologies. The surveillance and intervention also might be performed on a proactive basis or in response to an urgent or emergent patient need. The following are examples of the many unique nursing interventions that tele-critical care nurses perform:

Surveillance Interventions

- Conducting best practice rounds to ensure compliance with interventions for VTE prophylaxis, stress ulcer prophylaxis, glucose control, VAE prevention, and/or ABCDEF bundle implementation
- Screening patients for potential deterioration in medical-surgical, emergency department, progressive, and critical care units
- Performing physical assessments as appropriate using available technologies, such as peripheral devices, and in collaboration with on-site clinicians
- Identifying and evaluating patients with sepsis to ensure bundle elements are implemented (eg, if the lactate is elevated, is there an order for repeat lactate? Have antibiotics and fluids been infused to meet target goals?)
- Investigating negative trends such as hypoxemia. The tele-critical care nurse might use the video in a patient room to investigate if the patient has removed their oxygen, or if it appears that the work of breathing has increased. The tele-critical care nurse would then interact with the appropriate bedside clinician to address the patient's needs.
- Performing continuous proactive surveillance to provide a purposeful, organized framework for tele-critical care system workflows that are synergistically focused on patient safety
- Redirecting patients via camera to prevent a negative outcome. If on rounds the tele-critical care nurse finds an agitated patient about to extubate themselves, the nurse can redirect the patient while calling the unit for bedside assistance.

Collaborative Interventions With On-site Team

- Evaluating and interpreting patient assessment data to ensure implementation of evidence-based practice
- Assisting to implement a consistent, evidence-based treatment protocol for a common ICU diagnosis, such as sepsis, ABCDEF, health care-acquired conditions, etc
- Supporting on-site nurses with activities needed when escalation of care occurs due to patient deterioration:
  - Documentation, calling consults, or mentoring bedside nurses
  - Monitoring effectiveness of CPR, serving as recorder of the event, notifying when to give meds or change compressors
  - May also provide surveillance of other patients while the on-site team is actively resuscitating a patient
- Checking medication calculations with an on-site peer

- Obtaining and relaying needed clinical information for the on-site clinician that is clinically relevant to the patient's ongoing clinical condition and acuity
- Initiating calls to other disciplines involved in patient care or needing to be involved in patient care
    - Examples include respiratory care for ventilated patients showing signs of respiratory distress, or organ procurement agencies that need to be alerted about a potential donor patient.
- Notifying their on-site peer of new laboratory results, while the peer is providing care that prevents them from accessing the hospital electronic health record
- Alerting the tele-critical care intensivist to an unstable patient situation needing physician assistance
- Notifying the tele-critical care intensivist of abnormal electrolyte results needing orders for replacement therapy or of significant changes from previous results
- Providing frequent observation of confused patients to help prevent falls
- Proactive rounding and surveillance at the request of on-site clinicians due to actual or potential increase in patient acuity or severity of illness
- Managing best practice alerts, recognizing that the alerts may not capture everything and identifying how best to translate that to the direct care nurses
- Guiding proning teams by ensuring the pronation safety checklist is being followed
- Providing second RN validation for blood product cosignature
- Observing to ensure a sterile technique is followed without breaches for procedures requiring a sterile technique (eg, central line insertion, central line dressing change, etc)
- Assisting in monitoring real-time ECG rhythms and dysrhythmia interpretation
- Reassessing and documenting following interventions for pain
- Assisting in teleneuro visits for Code Stroke on the floor and ICU floors, especially for patients in isolation due to COVID-19
- Documenting frequent vital signs (eg, unstable patient requiring frequent vasoactive infusion titration, patent receiving targeted temperature management with frequent temperature documentation, procedural documentation when on-site nurse is too busy to document, such as during a cardiac arrest)
- Assisting in troubleshooting a camera cart in an isolation area, such as in a COVID-19 unit
- Assisting nurses with titration of high-risk medications, such as vasoactives or sedation
- Participating in multidisciplinary rounds
- Assisting the tele-intensivist and the on-site physician team in triage of critical care patients
- Identifying medications that may cause an adverse reaction in a patient. For instance, sulfonylureas or antibiotics combined with other medications that can cause hypoglycemia, especially in a patient that has a history of recurrent hypoglycemia
- Providing new admission record review to provide the on-site team with a synopsis of a patient's health history, recent health changes, and pre-admission medications
- Performing short-term observations of a patient at higher risk for a change in condition (eg, postextubation, new vasoactive infusion initiated, sedation vacations, vasoactive infusion discontinuation)
- Ensuring ventilator bundles are followed (eg, ventilator-acquired pneumonia [VAP] bundles, weaning criteria, daily sedation vacations, and spontaneous breathing trials)

Interprofessional/Interdepartmental Collaboration

- Monitoring catheter-associated urinary tract infection (CAUTI) and central line-associated bloodstream infection (CLABSI) data, and discussing with the team the potential to discontinue these medical devices to prevent the risk of infection
- Participating as an ambassador at on-site units. Attending their unit meetings, providing education to the bedside staff on their capabilities, and creating positive relationships with their staff
- Performing case review and quality interventions in order to identify needed changes for interventions that didn't go as planned
- Providing tele-critical care perspective on interdepartmental or intersystem committees (eg, organ procurement, critical care steering, sepsis quality improvement)
- Creating and implementing protocols that can be used by the tele-critical care nurse. For instance, being able to order a repeat lactic acid for a patient in Code Sepsis, or standardizing orders for electrolyte replacement
- Working with system-wide electronic medical record (EMR) and information technology (IT) developers to create computer-based programs so the tele-critical care staff can navigate the online environment quickly and efficiently
- Realizing that medicine has to adapt, and working with the hospital system to find innovative ways to provide high-quality care

Mentoring and Coaching

- Mentoring a novice on-site nurse, float nurse, or traveling nurse on practices that may be unfamiliar or if they need support [eg, validating physical exam findings, initiating a new vasopressor or titration, pain and sedation interventions and monitoring, caring for an obstetric patient in the ICU, assessing a patient using the National Institutes of Health Stroke Scale (NIHSS), monitoring a patient with an Impella, continuous renal replacement therapy (CRRT), intra-aortic balloon pump (IABP), etc, interpreting lab, intracranial pressure (ICP), neuro exam or hemodynamic data, or guiding a process such as interprofessional communication]
- Sharing a newly published best practice research article with bedside teams, using real-time mentoring and real-time education
- Providing peer-to-peer support (debriefing, reassurance, validation, teaching, mentoring, coaching, brainstorming, etc)
- Participating in classes on new or emerging equipment (ie, extracorporeal membrane oxygen (ECMO) or left ventricular assist device (LVAD) to be able to troubleshoot and mentor on-site staff
- Providing coaching to newer on-site nurses, to provide them with a sense of confidence and a point person to contact if they are unsure of a process or need a second set of eyes
- Serving as a preceptor for a nurse who is new to practice

Patient Education and Support

- Providing patient and family education via camera for concerns such as medications, procedures, and what to expect during the hospital stay
- Having conversations with patients via camera that allow the bedside staff to spend less time in the personal protective equipment (PPE) needed for COVID-19 isolation

Family Support

- Providing reassurance to patients or family members
- Providing secure video conferences with family and staff, especially regarding patients with COVID-19
- Connecting translation services, patients, families, and the on-site team to provide secure decision-making meetings, especially if the patient is in isolation or the family is unable to be physically present in the hospital
- Collaborating on an end-of-life discussion

Appendix 3
Example of Virtual Etiquette

Atrium Health - Virtual Critical Care Experience Bundle for Virtual Clinicians

Core Values	CARING	COMMITMENT	INTEGRITY	TEAMWORK
Atrium Health Behaviors	Connect with all individuals using empathy and compassion.	Promote a healthy and safe work environment.	Demonstrate respect for all.	Acknowledge and celebrate accomplishments of our teammates and patients.

Further, we demonstrate our Core Values using our G.R.E.A.T. Virtual Customer Service Standards.

Begin each camera interaction by establishing a virtual presence

- Let the patient know you are entering the room on camera
- Create a good first impression: Introduce yourself by name and title; Adjusting camera settings for optimal interaction; resolve technical issues
- Make eye contact by looking into the camera
- Ask the patient what they would prefer to be called; use requested name
- Acknowledge everyone in the room and make a warm connection
- Introduce and/or manage up bedside teammates & departments
- Physical appearance: neat and professional (one brief chance to make a first impression)

Connect with empathy and compassion; anticipate spoken and unspoken needs

- Virtual clinicians need to understand and compensate for diminished non-verbal cues that occur due to technology
  - Be self-aware of your non-verbal cues including: posture, facial expression, eye contact
  - Verbal cues: tone, clarity and pace of speech; take additional time to wait for responses; avoid “um” and “uh”
- Appreciate the cultural norms and values of the patient
- Show compassion; acknowledge emotions by adjusting verbal/non-verbal cues
  - Use a calm tone of voice and positive body language
- Personalize encounter; find a way to connect on a personal level; stay professional while informal

Clarify your role, the situation and the plan as clearly as possible

- Use plain language — no acronyms or medical terms (unless you explain)
- Tell what will happen and why
- Share what to expect at every step, including how long wait times, tests, procedures, tasks &
  results will take
- Discuss how each step/experience fits with the overall plan of care
- Honor the patient’s privacy; be mindful when discussing personal information

Use open-ended questions and active listening to ensure understanding

- Anticipate the patient's questions and concerns
- Ask questions to learn about the patient's needs and expectations
- Avoid yes/no questions; use questions that require longer responses
- Listen to understand, not to respond
- Acknowledge your patient's emotions, answer questions and address concerns
- Ask the patient to tell you what they understand, in their own words

End the interaction with caring and show gratitude

- Tell the patients you appreciate them for…
  [waiting, speaking with you, their commitment to the care plan, etc.]
- Inspire and reassure
- Thank the patients for being a partner with us in their care

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