

Legal Perspectives on Telemedicine Part 2: Telemedicine in the Intensive Care Unit and Medicolegal Risk

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Perm J 2019;23:18.294

E-pub: 08/29/2019

<https://doi.org/10.7812/TPP/18.294>

ABSTRACT

Tele-intensive care unit (tele-ICU) implementation has been shown to improve clinical and financial outcomes. The expansion of this new care delivery model has outpaced the development of its accompanying regulatory framework. In the first part of this commentary we discussed legal and regulatory issues of telemedicine in general and expanded on tele-ICU implementation in particular. Major legal and regulatory barriers to expansion remain, including uncertainty regarding license portability and reimbursement. In this second part we discuss the effects of telemedicine implementation on the various aspects of medicolegal risk and risk mitigation, with a particular focus on tele-ICU. There is a paucity of legal data regarding the effect of tele-ICU implementation on medicolegal risk. We will therefore systematically discuss the effects of tele-ICU on the various root causes of medical error. Given the substantial capital and operational investment that must be undertaken to build and run a tele-ICU, any reduction in risk adds to the financial return on investment and further decreases barriers to implementation.

INTRODUCTION

In this second part of a 2-part commentary on legal perspectives on telemedicine, we discuss the effects of telemedicine implementation on the various aspects of medicolegal risk and risk mitigation, with a particular focus on tele-intensive care unit (tele-ICU).

Evidence Base on Risk Mitigation

Tele-ICU is the use of an off-site command center in which a team of critical care practitioners participates collaboratively in the care of critically ill patients in remote bedside intensive care units (ICUs) through linked and interfaced health information, electronic medical records, data streams, and audiovisual connections. In addition to cost savings and increased access and clinical care efficiency,¹⁻⁴ tele-ICUs also have potential to greatly reduce risk through a variety of mechanisms. A recent study by a large multistate, nonprofit health care system that implemented a tele-ICU program in 2006, covering 450 ICU beds across 5 states, found that the frequency of malpractice claims and incurred costs for critically ill adults were significantly lower at sites with a tele-ICU than at those without a tele-ICU.⁵ Specifically, in a study looking at 5 years before implementation of a tele-ICU to 1 year after, claims costs dropped

from an average of \$6 million annually to less than \$500,000, and the number of ICU-specific claims dropped to less than 50% of claims in prior years.⁵

A study of the Physician Insurers Association of America Data Sharing Project, the largest ongoing independent database of Medical Professional Liability claims, found that of the approximately 94,000 claims between 2004 and 2013, a mere 196 cases (0.2%) involved telemedicine, with only 56 (0.05%) of these resulting in payment.⁶ Most closed claims relating to telemedicine in the Data Sharing Project named diagnostic error or failure to respond as the chief medical factor involved in the allegation.⁶

Common Root Causes of Medical Error

According to the Agency for Healthcare Research and Quality,⁷ which is part of the US Department of Health and Human Services, there are 8 common root causes of medical error:

1. Communication problems (the most common cause of medical errors)
2. Inadequate information flow (including problems that prevent the availability of critical information when needed to influence treatment decisions and timely and reliable communication of critical test results)

3. Human problems (relating to how standards of care, policies, or procedures are followed and may include suboptimal documentation)
4. Patient-related issues (including incomplete patient assessment)
5. Deficient organizational transfer of knowledge (relating to the level of knowledge needed by individuals to perform the tasks they are assigned)
6. Staffing patterns and workflow (can cause errors when health care practitioners are too busy because of inadequate staffing or when supervision is inadequate)
7. Technical failures (including device or equipment failure)
8. Inadequate policies (poorly documented, nonexistent, or clinically inadequate procedures).

In the context of an ICU, problems in communication, particularly between physicians and nurses, are frequent causes of human error. The demanding, dynamic, and complex environment of the ICU can also pose challenges relating to distraction, burnout, and fatigue. Furthermore, in many ICUs, the nature of the physician's contact with each patient is intermittent, and as the number of patients that the intensivist is responsible for supervising increases, further reducing the frequency of patient-provider contact, so does the risk of error. The key to reducing the risk

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Keywords: e-ICU, electronic intensive care unit, legal perspectives, medicolegal risk, regulation, tele-ICU, tele-intensive care unit, telemedicine electronic intensive care unit

of medical error in the ICU is “good communication and transfer of information ... a complete, coherent, and updated knowledge base of the patient status requires a 2-way information flow among team members.”⁷

TELE-INTENSIVE CARE UNIT AND RISK MITIGATION

A tele-ICU is uniquely equipped in at least 5 ways to greatly reduce the risk of medical error in all of the above-described areas. First, the tele-ICU provides for constant, continuous exchange of patient information between the tele-ICU and the local caregivers. The tele-ICU’s 2-way audio and video connections allow staff to speak directly with bedside physicians and nurses as well as patients and their family members. Because most tele-ICUs operate in a 24-hour, 7-day/week environment they are very useful in filling in gaps in which bedside providers may not be available to communicate with families, patients, or other health care practitioners. The enhanced level of communication and continuous flow of information provided by the tele-ICU are important factors in reducing the risk of medical error.

Second, the tele-ICU’s sophisticated alerting and monitoring mechanisms integrate and prioritize multiple data points and various levels of clinical information to enable rapid treatment decisions. For example, the tele-ICU software, eICU program, developed by VISICU Inc, Baltimore, MD, and Philips, Amsterdam, The Netherlands, is able to identify any trending pattern and alert the tele-ICU when the likelihood of an adverse event or deterioration of the patient’s condition increases. Because the alerts go directly to the tele-ICU, its staff can streamline workload for the bedside staff and enhance safety for the patient by identifying and filtering out false alarms. In this way, the focused, undistracted environment of the tele-ICU, combined with its technologically advanced software, can substantially reduce the risk of medical error from inadequate information flow, organizational transfer of knowledge, staffing patterns and workflow, and technical failures.

The third way that tele-ICUs can reduce the risk of medical error is by providing a built-in second opinion, which reinforces

the capabilities of the bedside caregivers. Most tele-ICU operations perform comprehensive evaluations on all new patients admitted to their monitored ICUs, which usually includes an audiovisual evaluation, review of the medical record, and frequently a discussion with members of the bedside team. The tele-ICU practitioners will document their overall assessment in an admission note, which is entered into the permanent medical record. This feature is fairly unique in clinical critical care delivery, which usually operates with 1 critical care specialist documenting the critical care and added consultants documenting their specific issues. In this way, the addition of a second critical care expert’s documentation can serve as a powerful “automatic” second opinion, allowing an opportunity for medical team opinions to be confirmed by a second expert when reflecting consensus on the clinical care being provided. In a study published earlier this year, the Mayo Clinic in Rochester, MN, demonstrated the value of second opinions.⁸ The study found that as many as 88% of patients who sought a second opinion obtained a new or refined diagnosis. Second opinions can lead to quicker access to lifesaving treatment, stop unnecessary treatments, reduce stress for patients and their loved ones, and prevent diagnostic error. Misdiagnosis or delayed diagnosis is a common basis for medical malpractice actions.

It is important to note that the current evidence has clearly established that the value of tele-ICU services depends vitally on their implementation and ongoing support.^{3,9,10} Bedside practitioners buy-in and acceptance of the provided collaborative tele-ICU services along with clear and effective communication pathways between the tele-ICU and bedside teams are essential to maximize value in patient management, supervision, and monitoring. After evaluating a new ICU patient admission, the tele-ICU practitioner must discuss any active additional patient management feedback and suggestions with the bedside provider team in a collegial and timely fashion, similar to any consultant providing recommendations. Documentation of the initial assessment and subsequent interactions should be professional and nonconfrontational. The

tele-ICU admission note is entered into the medical record, and it, along with any subsequent interactions, also taking on the character of consultation notes, should establish the consensus and discuss any additional or differing recommendations by the tele-ICU practitioner. Just like between all multidisciplinary bedside teams caring for a given patient, complete consensus is not always expected, but a discussion of why a particular pathway was chosen is helpful.

The fourth way that tele-ICUs can reduce the risk of medical error is through the surveillance and support provided by the tele-ICU to the bedside physicians. This surveillance not only reduces risk of an adverse outcome but also strengthens the ability of health care providers to establish that the standard of care has been met should a malpractice action be brought. For example, in a case against a hospital alleging failure to adequately monitor an ICU patient’s condition, where the hospital includes telemedicine in patient care, practitioners will be able to bolster their defense by showing that the local physician acted properly *and* that telemedicine was in place to continuously monitor the patient. Currently, there is a dearth of reported malpractice cases involving tele-ICU care. One case involved an alleged failure to adequately remotely monitor and assess an ICU patient and to summon in a timely manner an intensivist for a more thorough bedside evaluation.¹¹ Again, communication among practitioners is a critical factor in the success of a tele-ICU in reducing medicolegal risk. With a well-implemented, well-supported tele-ICU in place, defendants in malpractice litigation can argue that the plaintiff must overcome an additional hurdle to prove departures from the standard of care. The promulgation of specific standards of care related to the practice of telemedicine, still mostly limited to teleradiology, would also assist practitioners in establishing that the standard of care has been met. As such, hospitals and health care practitioners with telemedicine embedded in patient care would therefore be less vulnerable to the success of frivolous malpractice cases, and malpractice carriers may reduce collective and individual insurance rates where telehealth solutions are in place.

The last way that tele-ICUs can reduce the risk of medical error is that tele-ICU expert staff can aid in the organizational transfer of knowledge through standardization and support of bedside practitioners¹² as well as in the buffering of workload surges.¹³ As a recent important study on the financial impact of tele-ICU implementation with enhanced care standardization and logistics support features has shown, a centralized tele-ICU can serve well to harmonize and standardize clinical care practices and procedures, thereby indirectly reducing risk in a meaningful way.²

CONCLUSION

Tele-ICUs can greatly reduce the risk of medical error in many ways: From providing constant, continuous exchange of patient information with local caregivers to enabling rapid treatment decisions by integrating and prioritizing multiple data points, providing an automatic second opinion, and facilitating the organizational transfer of knowledge. Going forward, the key to its continued success and growth will include implementation and ongoing support, as well as buy-in and acceptance from bedside providers. Moreover, adoption by state legislatures of a uniform standard of care for providers with telemedicine in place would both assist with proper implementation and reduce medicolegal risk. ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

Acknowledgments

Kathleen Loudon, ELS, performed a primary copy edit.

How to Cite this Article

Becker CD, Dandy K, Gaujean M, Fusaro M, Scurlock C. Legal perspectives on telemedicine part 2: Telemedicine in the intensive care unit and medicolegal risk. *Perm J* 2019;23:18.294. DOI: <https://doi.org/10.7812/TPP/18.294>

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