

Virtual Emergency Department Practice Policy in the United States: A Scoping Review

Hasan M. Alshamrani, MBBS***

ABSTRACT

Virtual emergency departments (EDs) have become integral to modern healthcare by providing patients with direct access to emergency physicians without visiting overcrowded hospitals. Their use has expanded rapidly during the COVID-19 pandemic, demonstrating that telemedicine can provide timely and effective emergency care when traditional access is limited. However, the growth of virtual EDs continues to face major challenges due to fragmented and inconsistent medical licensure across the United States. Physicians are still required to hold separate state licenses to prevent them from providing virtual care during emergencies. Although the Interstate Medical Licensure Compact was created to streamline this process, it remains incomplete and excludes several large states, leading to delays, inequities, and unnecessary restrictions. These barriers limit access to urgent care and undermine the purpose of virtual emergency medicine. Ethical concerns also arise, as patients without reliable internet access or adequate digital literacy are left behind and cannot benefit from virtual services equally. Experience during the COVID-19 crisis showed that temporary federal waivers allowing cross-state telemedicine improved emergency responses and patient outcomes. Establishing a permanent federal emergency telemedicine licensure framework would remove these obstacles, strengthen national emergency readiness, and ensure that every patient, regardless of location, can receive timely and equitable care when it matters most.

Keywords: *Digital health; Telehealth; Telemedicine; Virtual Emergency Department*

INTRODUCTION

With telehealth and virtual emergency departments (EDs), patients can access care from emergency physicians across the US without having to visit overcrowded hospital ED. More patients adopted telemedicine because of the coronavirus disease 2019 (COVID-19) pandemic, leading to more virtual discussions with ED specialists in the US¹. Although virtual emergency services increase access to urgent care, their growth is hindered by fragmented medical licensing across states¹. A federal emergency telemedicine licensure program supported by legislative authorization and infrastructure funding should be implemented to allow qualified physicians to deliver care easily across state lines.

Using unique technology, telehealth was initially implemented to provide care to rural populations. However, today, it has expanded to provide medical care across many industries. Previously, healthcare providers could only provide support through phone and video calls². Telemedicine providers can now administer complex treatments using the latest digital tools and secure apps. Amid rising demand for medical care, overcrowded EDs, and the widespread adoption of mobile devices, virtual EDs have emerged as a major modality for acute treatment³. As calls for reform intensified, experts, including those from the Petrie-Flom Center at Harvard, proposed a federal emergency telemedicine licensure program. This would allow qualified providers to deliver care across state lines during emergencies without needing multiple individual state licenses, supported by centralized oversight and federally coordinated implementation mechanisms, such as funding, infrastructure development, and regulatory alignment. Federal and

state policies made remote care simpler when hospitals were full, and visits could transmit the infection⁴. The act also provided support and flexible guidelines for accelerating the construction of a nationwide telehealth system. There were five-fold more tele-ED consultations in 2022 than before the pandemic³. Although virtual EDs have made care more accessible and efficient, post-crisis legal, regulatory, and ethical challenges remain in the health industry.

METHODS

The methodology for this review was a targeted search of the body of literature to find and examine papers about the usage and effects of digital health technology in ED. It is crucial to make clear that this was a focused assessment rather than a thorough systematic review, with the goal of gathering pertinent, high-quality information to address the study's main goal without rigorously following the detailed procedures of a full systematic appraisal. The research began with a methodical search using Google Scholar and Medline, two reputable academic databases. To maximize the identification of relevant publications, the search strategy was purposefully built around a series of key terms: "Digital health," "Telehealth," "Telemedicine," "Virtual visit," and "Emergency Department."

A thorough, multi-step screening procedure based on predetermined inclusion and exclusion criteria was put in place after these papers were retrieved. In order to guarantee direct relevance and timeliness, the main requirements for inclusion were set as follows: articles had to be published only in English, have a particular focus on the ED setting, and have been released in the post-COVID-19 pandemic era. On the other

* Department of Emergency Medicine, Faculty of Medicine
King Abdulaziz University, P. O. Box 80215
Jeddah 21589, Saudi Arabia.

** Administration Fellow, Department of Emergency Medicine Oregon Health & Science University, 181 S.W. Sam Jackson Park Road
Portland, Oregon, USA.
Email: hasan.m.h@outlook.sa

hand, publications that were written in a language other than English, dealt with environments other than the emergency department, or were found to be duplicates were methodically eliminated. Ultimately, few articles were deemed eligible for inclusion in the review. All these studies fully adhered to the established criteria and were thus selected to be used in this review article.

Legal and Policy Analyses: Interstate Licensing Barriers

Virtual EDs struggle because of the division of medical licensing in the US. Current rules require a physician to be compulsorily licensed in the patient's state to administer care, regardless of whether the consultation happens virtually⁵. Although this rule applies to regular face-to-face care, its application poses many restrictions, which make emergency telehealth too inflexible. During the COVID-19 pandemic, some states temporarily released waivers, permitting physicians from other states to provide virtual care. Consequently, the use of telemedicine has markedly increased². However, since the termination of the waivers, healthcare providers have again been prevented from offering emergency care in other states.

As barriers exist for doctors seeking licenses in more than one state, the Interstate Medical Licensure Compact (IMLC) was created to facilitate this process. Presently, the Compact includes 37 states, including the District of Columbia and Guam; the 13 non-joiners include New York, California, and Massachusetts⁵. Therefore, doctors working remotely may face no issues in some areas, but may experience delays and rejections in others³. In addition, the formation of Arab unity in the IMLC states is a slow-moving process. They must submit their paperwork repeatedly, pay multiple fees, and meet various state-specific requirements. In emergency medicine, delays in approvals from higher-ups undercut the main goal of quick healthcare⁶. In the case of *Wiener v. South-coast Health System* (2004), because the court's case deals with diagnostic responsibility under limited data, the decision is significant for virtual medicine cases. As telehealth-related lawsuits increase, both courts and legislators are under pressure to clarify what constitutes proper treatment, particularly during emergencies, in which mistakes could prove fatal.

Because of these limitations, the IMLC is not ideal for virtual EDs in urgent situations. If all the states do not join the IMLC and systems remain unchanged, there will be no broad, simple ways for people to access emergency care outside their own state⁷. Moreover, states that have not joined the IMLC often argue about insufficient monitoring and medical standards, upholding a difference in regulations that leaves patients in poorly covered or very populated parts of the country at a disadvantage⁸. Legislators must place patient outcomes and provider flexibility atop their concerns for virtual EDs, rather than focusing on outdated state-specific licensing.

State Licensure Limitations and Emergency Exceptions

Licensing rules that apply to different states lead to constant challenges in making virtual emergency care more widespread. Although it was normal for states to set temporary rules during the COVID-19 pandemic, most returned to their previous restrictions. In most places, real estate homestead exemption is not well defined; however, in Georgia, it is. According to Ga. Comp. R. & Regs. r. 360-2-.17, those who are licensed out of the state may provide emergency telehealth services to the residents of Georgia, provided that care is necessary and meets the required medical guidelines⁹. This means that healthcare workers can quickly help patients in emergencies regardless of the state from which they are licensed.

For example, Virginia reduced only some of the hurdles faced by doctors when obtaining a license. State laws allow patients to regularly

consult a doctor electronically to maintain care. However, they do not allow providers from other states to administer emergency treatment. Consequently, a doctor in North Carolina is not allowed to provide urgent telemedicine advice to a Virginian unless a previous relationship exists, which is almost impossible in the case of a true emergency. The purpose of the IMLC is to solve this problem by creating an easier way for doctors to be licensed in several states; however, it is up to each state to decide whether to join, and much bureaucracy is involved. In 2025, only 13 states were signed up for the Compact, which means that the Compact is limited nationally and does not serve every patient who seeks virtual ED care.

To address these challenges, Petrie-Flom Center scholars at the Harvard Law School suggested creating a federal telemedicine licensure compact. This initiative aims to enable qualified experts to assist in neighboring states without encountering unnecessary barriers in the event of a disaster¹⁰. Within a federal framework, everyone in need of help would be treated the same way in any emergency department throughout the country. Although passing such a law would depend on Congress or agreement between states, it would help solve the problem of inconsistent and strict state rules, which hamper the effective provision of virtual emergency medicine.

Ethical Analysis: Digital Equity in Emergency Care

Although virtual EDs offer increased convenience and accessibility, they still cause ethical concerns regarding gaps in access to technology during emergencies. Effective virtual care requires patients to have functioning internet, appropriate equipment, and adequate digital literacy¹¹. Many rural, tribal, and low-income urban residents lack one or more of these resources, which is a major disadvantage. Thus, in such situations, a virtual ED might only exist theoretically and may be difficult for people to use, which can worsen existing health inequalities and delay important treatments for the sickest patients¹². Ensuring fair access to emergency care is unethical if important groups are excluded by technology.

Delays in care are especially dangerous in emergencies, because they can be harmful and even endanger someone's life. If a patient does not use digital services well or lacks a reliable internet connection during an urgent situation, virtual triage cannot help them¹. State that the quick turn of events in emergencies means little time to resolve technical challenges or explain various interfaces. Elderly people, immigrants, and people with cognitive impairment are likely to be overlooked when digital fluency is assumed by systems⁷. A virtual emergency care system should focus on eliminating these issues, instead of seeing them as incidental.

Healthcare providers should ensure that their telehealth systems focus on meeting the needs of patients requiring emergency care. This means developing good broadband technology, offering accessibility and easy-to-understand websites, and providing extra help with computer skills for use in an emergency¹⁰. Public organizations should provide support via mobile digital health teams and local representatives, so that patients can be helped directly. Ultimately, providing ethical emergency care virtually requires working on better systems to ensure that each patient can use the service when necessary.

Counterarguments and Responses: Licensure Reform and Quality Concerns

Virtual EDs are often praised for providing fast services, reducing the number of people in emergency rooms, and making medical care more accessible to those in rural or underserved areas¹³. Supporters of virtual EDs believe that digital tools powered by rich diagnostics can provide

effective and equivalent care for a variety of urgent but not very severe conditions¹⁴. Thanks to these platforms, medical systems can easily use doctors from various places, making them more ready and effective during times of public health crises.

However, people continue to resist major progress, making it easier for doctors to practice across state lines. Many medical boards are unsure about relinquishing their duties of enforcing rules, dealing with disciplinary issues, and confirming their quality^{15,16}. California and New York have not joined the IMLC because they are concerned that a national compact might threaten their efforts to maintain patient safety¹⁰. Because of this resistance, a uniform licensure system has been delayed, and patients who live in certain states cannot receive needed virtual ED care during emergencies.

People across states remain worried about how well and consistently patients are treated when physicians perform emergency triage. Those who oppose the spread of virtual EDs mention the risk of difficulty in following up, coordinating, or deciding accurately when consultations are across different states.¹ They highlight that providers who are less familiar with local healthcare may misunderstand the patient's story, place too much trust in what the patient reports, and slow down the decision of in-person consultation¹². These issues prove that it is necessary to create clear rules, implement modern referral methods, and maintain transparency standards before expanding virtual emergency care worldwide.

Federal Emergency Care Licensure Exception

A federally authorized emergency telemedicine licensure program established through national legislation is one of the most urgent reforms required to strengthen virtual EDs. Difficulties in obtaining rapid care for those who need it across state lines are primarily attributable to the way licensing is handled in each state¹². Although the IMLC was designed to make it easier for doctors to work in various states, it does not require participation and covers only a few locations. Today, several states have declined to participate in the telemedicine bill, leaving the legal environment in poor condition for emergency physicians to deliver timely help using online tools¹⁴. This inefficiency would not exist if licensed doctors were granted a federal exemption, because they would then be able to provide help to those in need regardless of their location.

As part of this solution, the Petrie-Flom Center suggested the creation of a national emergency telemedicine registration compact. Using this model, emergency care experts would be able to enroll in a shared registry and offer their services in all states as long as they are qualified¹². It would give states control over medical care while helping patients in remote or overcrowded areas access the needed care, since a professional would usually be based in another state. Compacts may be implemented when there are public health emergencies, disasters, or staff shortages, similar to how the federal government responds to health problems.

Centralized intervention has already occurred in this manner. When the COVID-19 pandemic hit, the Health and Human Services temporarily eliminated the need for emergency health providers to obtain licenses in different states⁸. This flexible approach to healthcare helped patients and demonstrated that national efforts could be successful. Congress should create long-lasting legislation permitting telemedicine to become available without special licensing during emergencies⁴. This change would strengthen online emergency services and ensure that all patients can access urgent care services without discrimination.

Limitations

The findings presented here are subject to several limitations. First, the methodology constituted a focused literature review rather than a full systematic appraisal of all available literature. Second, the absence of comparative quantitative studies hinders the ability to precisely quantify risks such as misdiagnosis, delayed referral, or issues concerning patient safety and cost-effectiveness. Finally, while acknowledging legitimate regulatory resistance to nationalized oversight, the paper does not detail the specific operational solutions required for centralized quality assurance under a new federal system. Despite these limitations, the paper successfully articulates the core policy conflict and advocates for a necessary shift toward a unified national legislative approach.

CONCLUSION

Virtual EDs have the potential to ease major strain on the American healthcare system, especially in rural and overcrowded regions, by remotely connecting patients to physicians. However, fractured and inconsistent state licensure laws have significantly delayed or blocked timely virtual emergency care. The inability to deliver treatment across state lines remains an urgent and solvable issue, although significant concerns regarding patient autonomy and digital equity persist. The most pressing and solvable problem is the inability to deliver care across state lines. To fully realize the promise of virtual EDs, a federal emergency telemedicine licensure framework should be established, or interstate accords such as the IMLC should be strengthened. In the future, governments must prioritize national solutions that balance patient access with provider accountability. A federal license or multistate agreement can significantly accelerate the growth of virtual ED services.

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Competing Interest: None

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REFERENCE

1. Mubarak E, Kaur S, Min MTK, et al. Emerging Experiences with Virtual Clinical Ethics Consultation: Case Studies from the United States and Malaysia. *J Clin Ethics* 2023;34:51-7.
2. Barry R, Green E, Robson K, et al. Factors Critical for the Successful Delivery of Telehealth to Rural Populations: A Descriptive Qualitative Study. *BMC Health Serv Res* 2024;24:908.
3. Lee AT, Ramasamy RK, Subbarao A. Barriers to and Facilitators of Technology Adoption in Emergency Departments: A Comprehensive Review. *Int J Environ Res Public Health* 2025;22:479.
4. Itamura K, Tang DM, Higgins TS, et al. Comparison of Patient Satisfaction Between Virtual Visits During the COVID-19 Pandemic and In-Person Visits Pre-Pandemic. *Ann Otol Rhinol Laryngol* 2020;130:810-7.
5. Rui JR, Guo J, Yang K. How Do Provider Communication Strategies Predict Online Patient Satisfaction? A Content Analysis of Online Patient-Provider Communication Transcripts. *Digit Health* 2024;10:20552076241255617.
6. Levine SB, Abbruzzese E, Mason JW. Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults. *J Sex Marital Ther* 2022;48:706-27.

7. Patel AD, Joshi C, Das R, et al. The Tell on Telehealth. *Epilepsy Curr* 2024;24:232-41.
8. Gustavsson ME, Juth N, Arnberg FK, et al. Dealing with Difficult Choices: A Qualitative Study of Experiences and Consequences of Moral Challenges Among Disaster Healthcare Responders. *Confl Health* 2022;16:24.
9. Georgia Composite Medical Board. Requirements for Telemedicine Licensure. Ga Comp R & Regs R 360-2-.17; OCGA 33-24-56.4, 43-34-31.1. Original rule adopted Jan 4, 2021; effective Jan 24, 2021. In: Georgia Compiled Rules & Regulations, Department 360 – Rules of Georgia Composite Medical Board, Chapter 360-2 – License Requirements.
10. Iqbal MZ, Xu X, Nallur V, et al. Security, Ethics and Privacy Issues in the Remote Extended Reality for Education. In: Cai Y, Mangina E, Goei SL, eds. *Gaming Media and Social Effects*. Springer; 2023:355-80.
11. Shaunta G, Abrar AM, Diah W. Ethical Implications of Using Digital Health Technologies in Maternal and Child Care. *J Clin Ethics* 2024;35:98-105.
12. Chang JE, Lai AY, Gupta A, et al. Rapid Transition to Telehealth and the Digital Divide: Implications for Primary Care Access and Equity in a Post-COVID Era. *Milbank Q* 2021;99:340-68.
13. telehealth.hhs.gov. Telehealth Practices for Emergency Departments. Accessed 12 June 2025.
14. Petrie-Flom Center. Pursuing an Interstate Medical Telemedicine Registration Compact. Accessed 12 June 2025.
15. Clarke K, Borges K, Hatab S, et al. Ethical Considerations Related to Virtual Visiting for Families and Critically Ill Patients in Intensive Care: A Qualitative Descriptive Study. *BMC Med Ethics* 2024;25:126.
16. Wiener v. Southcoast Childcare Centers, Inc. 32 Cal 4th 1138; 12 Cal Rptr 3d 615; 88 P3d 517 (Cal 2004).