Telehealth Research Recap: Emergency Care

Telehealth and Emergency Care

Telehealth use for emergency care includes diverse approaches, resulting in varied findings regarding its effectiveness. For example, a study found that the use of telehealth to triage patients prior to their arrival at the emergency department (ED) prevented unnecessary ED visits and hospitalizations.[1] Another study conducted in critical access hospitals found that telehealth led to more rapid patient transfers for patients presenting with trauma.[2] However, one study found that patients recently discharged from the hospital were more likely to have a subsequent ED visit when their follow-up care was delivered by telehealth (see Figure 1).[3] Additionally, telehealth is used for patients of all age groups seeking ED care. One study on pediatric emergency care found that children assessed via telehealth in the ED were more likely to be transferred to another hospital, ensuring they received specialized health care when needed.[4] These varied findings indicate the need for more research to understand how to optimize the value of telehealth for emergency care.

Telehealth and Behavioral Health Emergency Care

Mental health and substance use disorders account for a significant share of visits to the ED.[5,6] Telehealth is a tool providers can use to meet behavioral health emergency care needs. At the Veterans Health Administration, the telemental health video-based program aims to increase access to behavioral health services for veterans receiving care, including in rural EDs.[7] Both veterans and clinicians acknowledged the value of the program.[8] Another study on behavioral health care delivered in rural EDs found that telehealth was most frequently used for admissions for suicide or poisoning by drugs and was associated with higher rates of transfer to another inpatient facility.[9] This suggests that telehealth helped identify the severity of the patient's mental health and inform the decision to transfer the patient for a more advanced behavioral health intervention.[10] These studies highlight the effectiveness of telehealth in supporting emergency patients presenting with behavioral health care needs.
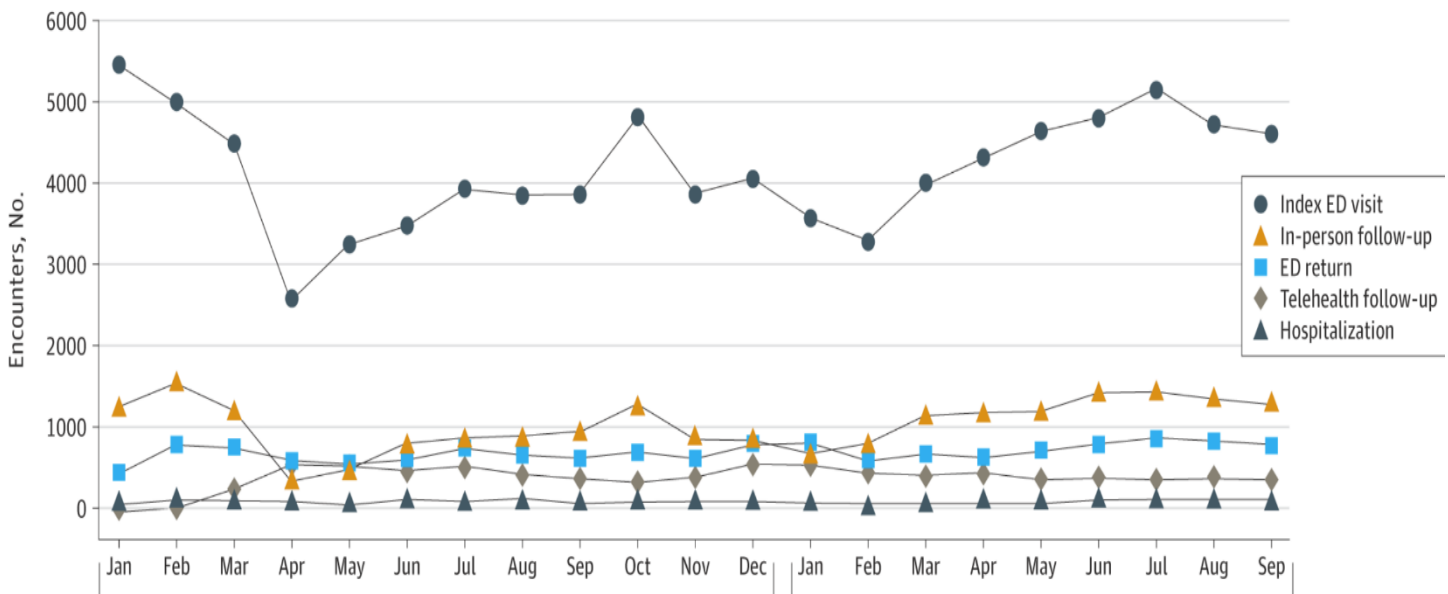

Figure 1. Encounter Rates Over Time for Patients with a Telehealth and In-Person Follow-ups and ED Returns and Hospitalizations[3]

Telestroke Care in Emergency Departments

Many hospital EDs use telehealth to improve access to care for patients presenting with stroke symptoms. One survey of hospitals found that one-third of telestroke programs were initiated between 2018 and 2020.[11] Through telehealth, hospitals can tap into offsite stroke specialists, enabling timely treatment for patients presenting with stroke symptoms.[12] One analysis of telestroke programs in EDs indicated that use of telehealth technology was associated with a shorter time to interpretation of computed tomography (CT) and an increase in the likelihood that patients receive tissue plasminogen activator (tPA) when eligible.[13] Figure 2 illustrates the impact of telehealth on time to interpretation of a health CT scan and administration of tPA. Telestroke is an increasingly common program, increasing timely access to care.
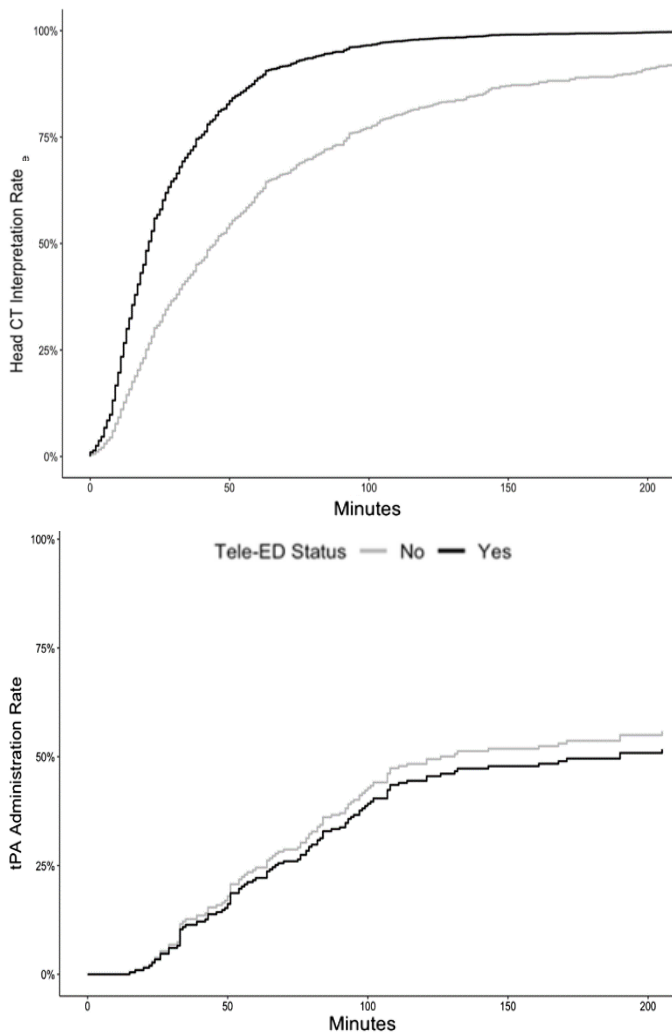

Figure 2. Time to Testing and Treatment for Patients Presenting in the ED with Stroke Symptoms for EDs with and without Telehealth[14]

Quality of Telehealth in Emergency Care

Several studies evaluated the impact of telehealth use in emergency care on timeliness, quality, and appropriateness of treatment across a variety of conditions. One study evaluated the impact of telehealth on infection prevention in the ED.[15] The study found that telehealth use was associated with a lower volume of sepsis cases.[16] Telehealth facilitated consultations with clinical infection prevention experts who provided guidance on the prevention and treatment of this complex condition.[17] Figure 3 shows hospitals with a lower volume of ED sepsis had a higher proportion of patients using tele-ED.[18] Another study found that the use of telemedicine for sepsis care improved adherence to sepsis protocols, including timely fluid resuscitation and antibiotic treatment.[19] A comparison of EDs that used telehealth with those that did not concluded that, for patients with acute myocardial infarction, telehealth reduced the time between the patient's arrival at the ED and the time they received an electrocardiogram.[20] Timely access to care is essential when responding to medical emergencies. Telehealth can play a critical role in addressing emergency health care needs.
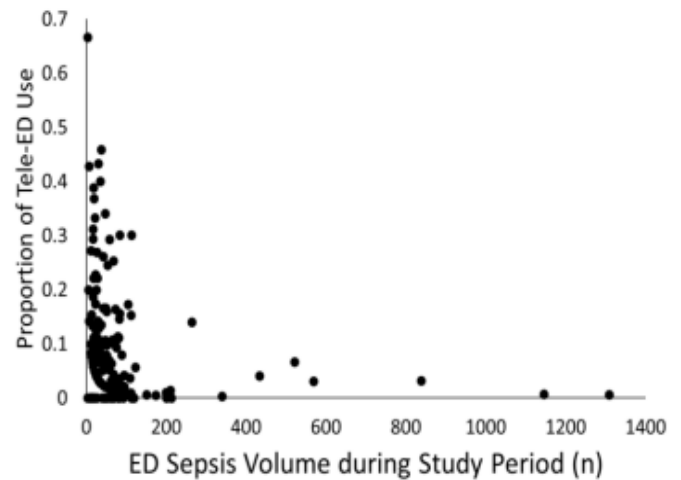

Figure 3. Proportion of Tele-ED Use for EDs with Varying Sepsis Volume[21]

2

Resources

1 Li, K.Y., Kim, P.S., Thariath, J., Wong, E.S., Barkham, J., Kocher, K.E. Standard Nurse Phone Triage Versus Tele–Emergency Care Pilot On Veteran Use Of In-Person Acute Care: An Instrumental Variable Analysis. Acad Emerg Med. 2023; 30: 310-320. doi:10.1111/acem.14681

2 Mohr, N.M., Vakkalanka, J.P., Harland,.K.K., Bell, A., et. al. Telemedicine Use Decreases Rural Emergency Department Length of Stay for Transferred North Dakota Trauma Patients. Journal of Telemedicine and e-Health. 2018;24(3). https://doi.org/10.1089/tmj.2017.0083

3 Shah, V.V., Villaflores, C.W., Chuong, L.H., Leuchter, R.K. et. al. Association Between In-Person vs Telehealth Follow-Up and Rates of Repeated Hospital Visits Among Patients Seen in the Emergency Department. JAMA Open Network. 2022 Oct; 5(1). doi: 10.1001/jamanetworkopen.2022.37783

4 Weigel, P.A., Merchant, K.A.S., Wittrock, A., Kissee, J. Paediatric Tele-Emergency Care: A Study of Two Delivery Models. International Society for Telemedicine. 20109; 27(1). https://doi.org/10.1177/1357633X19839610

5 Anderson, K.N., Johns, D., Holland, K.M., et al. Emergency Department Visits Involving Mental Health Conditions, Suicide-Related Behaviors, and Drug Overdoses Among Adolescents — United States, January 2019–February 2023. MMWR Morb Mortal Wkly Rep 2023;72:502–512. DOI: http://dx.doi.org/10.15585/mmwr.mm7219a1.

6 Santo L., Peters, Z.J., De Frances, C.J. Emergency Department Visits Among Adults with Mental Health Disorders: United States, 2017-2019. National Center for Health Statistics. Data Brief. No 426. Dec 2021.

7 Roddy, M.K., Chen, P., Jeffery, A.D., et.. al. Telemental Health in Emergency Care Settings: A Qualitative Analysis of Considerations for Sustainability and Spread. Academic Emergency Medicine. 2023 April; 30(4). https://doi.org/10.1111/acem.14682.

8 Ibid.

9 Weigel, P., Bhagianadh, D., Merchant, K.A.S., et al. Tele-Emergency Behavioral Health in Rural and Underserved Areas. International Society for Telemedicine. 2019; 27(7). https://doi.org/10.1177/1357633X19887027

10 Ibid.

11 Shea, C.M., Turner, K., Weinstein,J., et. al. Telestroke Infrastructure, Processes, and Support Needs: A Survey of Hospitals in Five States. Journal of Telemedicine and e-Health. 2022 December28(12). https://doi.org/10.1089/tmj.2022.0049

12 Shea, C.M., Turner, K., Tabriz, A.A., North, S. Implementation Strategies for Telestroke: A Qualitative Study of Telestroke Networks in North Carolina. Journal of Telemedicine and eHealth 2019 August. 25(8). https://doi.org/10.1089/tmj.2018.0131

13 Swanson, M.G., Miller, A.C., Ward, M.M., et al. Emergency Department Telemedicine Consults Decrease Time to Interpret Computed Tomography of the Head in a Multi-Network Cohort. International Society for Telemedicine. 2019; 27(6). https://doi.org/10.1177/1357633X19877746

14 Ibid.

15 Mohr, N.M., Young, T., Schuette, A.R.,et. al. Low Volume Emergency Departments are More Likely to Use Telehealth for Sepsis Care in a National Rural Telehealth Network. Rural Telehealth Research Center. November 2022. Available at: https://ruraltelehealth.org/briefs/RTRC_Brief_SepsisMedicare_2202-10-31.pdf

16 Ibid.

17 Ibid.

18 Ibid.

19 Mohr, N., Campbell, K., Swanson, M., et, al, Provider-to-Provider Telemedicine Improves Adherence to Sepsis Bundle Care in Community Emergency Departments. Rural Health Research Gateway. 2020 Jan. Available at: https://www.ruralhealthresearch.org/publications/1307

20 Miller, A., Ward, M., Ullrich, F., et. al. Emergency Department Telemedicine Consults are Associated with Faster Time-to ECG and Time-to Fibrinolysis for Myocardial Infarction Patients. Rural Health Research Gateway .2020 Feb. Available at: https://www.ruralhealthresearch.org/publications/1321.

21 Mohr, N.M., Young, T., Schuette, A.R.,et. al. Low Volume Emergency Departments are More Likely to Use Telehealth for Sepsis Care in a National Rural Telehealth Network. Rural Telehealth Research Center. November 2022. Available at: https://ruraltelehealth.org/briefs/RTRC_Brief_SepsisMedicare_2202-10-31.pdf