

TELEMEDICINE APPLICATIONS IN AMBULANCES

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Emergency Medical Service

- Telemedicine refers to the provision of remote clinical services, via real-time two-way communication between the patient and the healthcare provider, using electronic audio and visual means
- In primary care, telemedicine is usually in the form of phone calls, where the patient seeks the doctor's advice about non-emergency medical problems which don't require the doctor to see the patient. It doesn't replace face-to-face consultation when it is needed, but complements it

- Today, telemedicine usually employs a desktop computer, with a special video card.
- The computer's advantage is that it can store data securely.
- High-speed telephone lines or satellite connections allow interaction between both locations

- Telemedicine provides a unique opportunity for remote patient consultation and care.
- The implementation of video telemedicine into the ambulance for use by emergency medical service (EMS) providers has the potential to enhance the quality of care by decreasing time to definitive care, informing destination decisions and increasing diagnostic accuracy
- As video communication and mobile technology improve, the opportunities to use telemedicine to enhance patient care continue to expand

- Studies have demonstrated the capabilities of telemedicine in the emergency medicine settings, including rural trauma care and military
- Recently, there has been a push for the implementation of telemedicine into the ambulance, primarily to assist with time-sensitive conditions such as acute stroke.
- In EMS, telemedicine is currently being implemented mostly in stroke care and CVD treatment, with noticeably fewer—but existent—trauma and primary care use cases.

- 4G,LTE/5G communication can connect EMS to doctors and hospital for transport guidance, and to activate stroke, trauma and other specialty teams

Telemedicine has more purpose and application, it can be used in your everyday 112 response EMS system, on every ambulance



- Consider ; you are at a residence with a mother and her six-year-old son, who has experienced an asthma exacerbation after physical exertion.
- Mom has already administered her son's prescribed inhaler, and you've arrived on scene to find a patient with mild wheezing that has improved overall. Mom now decides that she'll keep her son home and monitor him for any return exacerbation

- Instead of calling your medical control physician, you hold a telemedicine phone conference so she can lay eyes on the patient, and speak directly with the mother and patient.
- Technology advancements may even allow you to record a digital [auscultation of the patient's lung sounds](#) for the physician to hear directly



Eletronik steteskop

- Especially stroke,
Slurred speech and unilateral extremity weakness,
- Let's say that you're about 15 minutes away from a primary stroke center and 25 minutes away from a comprehensive stroke center with endovascular thrombectomy care available
- Well, you consult with the ED physician, who immediately transfers you to the on-call neurologist. He asks the patient a few more questions, has him perform a few more tasks, and determines that the patient also has neglect: a cortical sign of a [large vessel occlusion stroke](#).

- You're directed to transport to the further comprehensive center because of the symptom onset timeframe and the neurologist consults with the interventional team as you begin your transport
- EMS telemedicine has been shown to decrease time to treatment for acute stroke patients and safely replace a neurologist on a mobile stroke unit, although the scalability of this model is in question

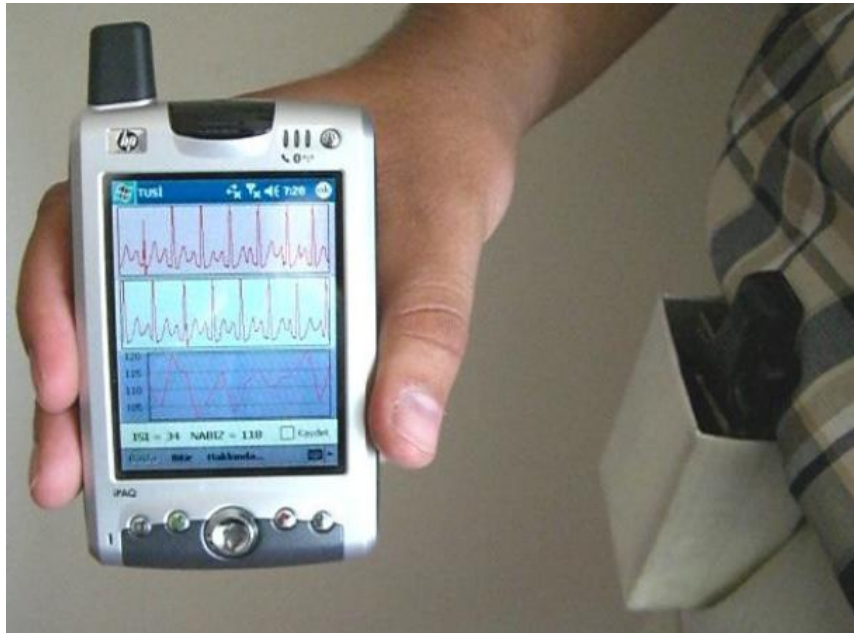
Major Trauma Events

- A picture says a thousand words, so does that mean a video says a million?
- Some EMS agencies are already [wearing body cameras](#) as they enter scenes, now imagine integrating that camera into a broadband network that links it to a live portal for an emergency physician to watch
- Talk about the doctor to the scene with you
- As the approach the vehicle and car incident you have responden to, you observe the patient

- The physician observing you begins activating trauma teams at the hospital level, begins briefing emergency department staff of the patients that you're assessing, and starts coordinating MCI operations and transport with the on-scene incident commander
- This is what interactive MCI and trauma telemedicine can look like

- Currently, the most common forms of telemedical physician consultation delivery are real-time video conferencing and a “store and forward” method, where communication mostly consists of images, documents and video recordings sent to the receiving physician
- There are ongoing efforts to improve the efficiency of the technology used for telemedicine, including the proposal of a 12-Lead/Holter device for mobile ECG applications

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THANK YOU FOR LISTENING