

The Pie: A Cross-Section of Emergency Telemedicine and Triage Strategies:

Problems	Solutions and Results	Technology Status
<p>Emergency Telemedicine Applications:</p> <p>ePCR and 12-lead: Send EMS patient charting data and 12-lead ECGs for STEMI patients</p> <p>Tele-Trauma: Send video and physiological data inter-hospital and/or from ALS ambulance to make trauma specialist “virtually” on-scene.</p> <p>Tele-Stroke: Send or record or video conference neurologist “virtually” on-scene for stroke assessment. May be used inter-hospital or ambulance to hospital.</p>	<p>Cellular data or 3G gateways on ambulance used to send 12-lead and ePCR patient data to hospital. Inadequate for voice video telemedicine.</p> <p>Roll-around ED carts used for sending video and physiologic data inter-hospital via fixed broadband connections to place trauma or stroke specialist or team “virtually” on-scene.</p> <p>Ambulance EMS telemedicine uses wireless mobile broadband to send video, voice, ePCR, 12-Lead STEMI data at high transfer speeds and may be used to place hospital based specialists “virtually” in ambulance.</p>	<p>American Heart Association Mission Lifeline program promotes sending of 12-lead ECG to hospital to transport STEMI patients to cath-lab facility.</p> <p>American Heart Association promotes telestroke ED cart use for video from hospital to hospital to remotely place neurologist “virtually” on-scene for rapid stroke assessment and treatment.</p> <p>EMS telemedicine used to assist ambulance personnel with severe trauma, stroke, and to accelerate 12-lead ECG and ePCR data.</p> <p>Video in ambulance used to protect ambulance personnel and to reduce legal risks similar to proven law enforcement use for this purpose.</p>
<p>Emergency Tele-Triage Applications:</p> <p>Why run your ambulances “hot” (lights and siren) for 4 out of 5 calls, when you could run on 3 out of 5 only?</p> <p>Nonemergent medical 911 calls are routed to a nurse teletriage call center to prioritize dispatches for much increased efficiencies.</p> <p>Resources are redirected to true emergencies decreasing response times, reducing costs, and significantly increasing the quality of patient care.</p>	<p>Implement a centralized, integrated Teletriage solution leveraging proven technology that is being used extensively in Canada and Europe for years.</p> <ul style="list-style-type: none"> • Significantly lowers risks for public and personnel by reducing street level high speed responses • Patients call sooner than 911, saving lives • Emergent transports reduced 30-60% substantially reducing costs • Reduced engine company and law enforcement responses by 30-60% substantially reducing costs. • Treat and Release in-field EMS triage may significantly reduce costs. • Central teletriage database may be used for syndromic surveillance, N1H1, bioterror and bio warfare regional symptoms outbreak patterns. 	<p>Dallas EMS report in 1983 indicated a reduction in emergency “Hot” responses of 20% to 30%.</p> <p>Houston, Seattle, Richmond, Philadelphia now implementing nurse teletriage systems.</p> <p>Controller of the City of Philadelphia projects savings of \$2.5 million annually for city EMS using physician nurse teletriage systems, increasing productivity and reducing the wear-and-tear on vehicles and equipment, as well as reducing stress on personnel.</p> <p>Teletriage software reduces or eliminates legal risks by enforcing and documenting standards of care both for nurse teletriage and EMS field treat and release programs.</p> <p>EMS telemedicine recorded video may further document legal situations like refusals and sensitive events.</p>
<p>Wireless Patient Data Transport Systems:</p> <p>Why invest in 3G and cellular, when it will not be there in a regional emergency (tornado, 9-11 type event, etc.) because of over-loading?</p> <p>3G not a ‘mobile’ protocol for wireless connectivity of moving ambulance.</p> <p>3G gateways and wireless cards represent substantial monthly expense.</p> <p>3G networks have provided limited success in many regions for sending 12-lead and ePCR data.</p> <p>P25 700 MHz and 800 MHz digital radio systems supply 1200 baud low bandwidth and do not provide for high capacity broadband for video, voice advanced life-saving telemedicine.</p>	<p>Implement a localized privately owned public safety broadband network, designed to survive a major regional event.</p> <ul style="list-style-type: none"> • Utilize a not-for-profit corporation and unify the regional emergency, law enforcement, and disaster community • Leverage Federal grant programs, DHS, UASI, RUS, HRSA, ASPR to build a private point-to-point network between major hospitals and a next generation broadband network to allow high bandwidth mobile communications with moving ambulances and law enforcement vehicles. • Survivability of public networks during major event with available redundant emergency networks for P25 700 MHz and 800 MHz. • Minimize or eliminate 3G or cellular expense. • Inter-hospital / inter-ambulance capable. 	<p>Next generation private WiMax broadband for public safety and hospital use. Uses deployment of efficient cost effective high capacity broadband especially designed for patient transport corridors and mobile vehicular “moving” ambulance and law enforcement responder use.</p> <p>Immediate benefit: Send 12-lead STEMI ECGs and ePCR data reliably in seconds rather than minutes.</p> <p>Grant applications for rural broadband and interoperative communications related DHS, HRSA, UASI and State grants may be utilized so that savings may be realized sooner rather than later.</p> <p>These systems, once deployed, provide for redundancy for P25 700 MHz and 800 Mhz communications systems and supply high capacity mobile broadband data bandwidth not present within these systems.</p> <p>May substantially accelerate GPS asset tracking (EMSystems, etc.), situational awareness, security, and data transmission for EMS, Federal and State law enforcement and disaster preparedness.</p>
<p>TeleHealth - Long Term Remote Monitoring:</p> <p>Home remote routine patient monitoring and management plus teletriage may be combined with video teleconferencing, early telestroke diagnosis, or physiological monitoring of patients hospital-to-hospital or in the home or business settings.</p>	<p>A Price Waterhouse Coopers consumer survey concluded that half of consumers would be willing to get healthcare online or through other computer technology instead of face-to-face care for non-emergency visits.</p> <p>Products with remote monitoring of heart, diabetes, weight, oxygen saturation and other physiological parameters available. May be combined with emergency teletriage to substantially reduce ED over-crowding and over-utilization.</p>	<p>The Kaufmann Foundation and the Brookings Institute indicate telemedicine and remote monitoring could save the U.S. \$175 billion over the next 25 years.</p> <p>Studies from the Oklahoma State Telemedicine Program indicate the average rural hospital can save \$370,000 annually utilizing telemedicine and larger institutions may save \$500,000 or more.</p>