

Post-Pandemic Emergency Medical Services

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World-wide, COVID-19 has caused changes in what had been “normal” health and emergency medical delivery practices prior to the onset of the Pandemic. During the early months of the Pandemic, general population isolation and the closure of normal economic activity had the result of reducing the volume of dispatched calls for Emergency Medical Services (EMS) and decreased volume in hospital emergency departments.¹ As the Pandemic progressed, acute hospital services became overwhelmed with threats of lack for access to medical care to large segments of populations. The causes for overwhelmed hospitals were multifactorial, including increased critically ill patient volume and illness and stress among health providers that limited the staffing of health care facilities. World-wide availability of medical resources and supplies, particularly personal protective equipment, was dramatic and even caused health care workers to resort to cleaning and reusing disposable facemasks.

During the evolving Pandemic, health care systems managed to provide some level of care for seriously ill patients, but likely mistakes by overworked providers and delays in appropriate treatment as well as limited supplies compounded both Pandemic-related and unrelated death rates. In the midst of near collapse of the acute medical care systems around the globe, prehospital EMS providers struggled to transport patients to a facility that was able to accept a patient, and often after arrival at a facility, these EMS providers had prolonged times for transfer of patients to hospital staff (offloading) due to emergency department overcrowding and lack of available beds or staffing for incoming patients at the receiving hospital. The term “hospital bed shortage” was often claimed by hospital administrators to allow turning away EMS units while the valid term was actually lack of hospital staffing.

The Pandemic will likely bring about changes in health care delivery. One important trend that had been developing pre-Pandemic and will be accelerated post-Pandemic is the regionalization of health care into health networks of multiple associated hospitals, clinics, out-patient treatment centers, and physician offices. Regionalization of health care delivery allows for an advantageous economy of scale with organized health care networks that are based on economic efficacy which allows for focusing different types of high intensity and costly specialty care at only one or a few centers. Health care networking utilizes the referral of patients from multiple community health sites to these specialty centers, allowing for cost efficiency in managing larger specialized care volume and concentrated specialty medical staffing.

Trauma and cardiac care regionalization has long been an action of governmental EMS agencies, but the regionalization of health care by health delivery groups takes the control of this previous EMS organizational authority from traditional EMS agencies. A future move by organized regional health care networks is to develop internal “EMS” systems within that network of health providers. These internal EMS systems are developed along the concept of community medicine and home health care with out-of-hospital assessments that are managed by standing treatment guidelines or contact with centralized call centers (basically

modeled after public EMS dispatch centers). Patients calling a regional network call center can be referred to a clinic, or have the dedicated EMS providers dispatched to assess and refer the patient or provide ambulance transport to a network clinic or emergency department. Experience in Orange County, California (USA) is that such models for dispatch of ambulances can accurately identify and rapidly transfer calls for those callers with immediate time-sensitive emergencies (serious trauma, cardiac arrest, and acute respiratory failure) to traditional public or government contract EMS providers.

A major Pandemic-related advance in health care is expansion of medical video conferencing. Video conference advancements and existing cell (mobile) telephone technology allows for transmission of real-time video as well as audio from the prehospital setting to network centers. This technology will drive development of health care network dedicated EMS systems by providing a means for the networks to capture and direct their patients from the field. Prehospital video conferencing transmissions to central resource centers² allows for nurse advice without transport or referral or transport of a majority of patients to clinics or out-patient centers as opposed to a current common trend of transport of the majority of EMS patients to an acute care hospital.

Another important outcome of the Pandemic is that EMS personnel are exposed to high infection risks while performing their daily duties. Studies have shown that infection rates among cohorts of EMS personnel are as high as three-times the general population, ranging from 3.0% to 19.3% of all EMS personnel.³⁻⁵ This high infection rate for EMS personnel has likely increased spread of COVID-19 within communities. Education, training, and equipping EMS personnel for addressing the risks of infectious disease is an obvious area for attention by public health authorities. Health care network associated EMS personnel will benefit from access to the rigorous infection control resources, including infection control nurses, available in the hospital sector. In addition to EMS personnel infection control actions, decontamination of transport vehicles is now recognized as an important routine rather than an occasional activity.

During the Pandemic, paramedics and other EMS personnel scopes of practice were extended to accommodate demand for community health provider resources. With appropriate on-demand education, EMS personnel are capable of providing vaccinations for large volumes of people, assess and report on the stability of recently hospital discharged patients, and are often first to identify “hot spots” for COVID-19 infection, such as convalescent and rehabilitation centers. Future structured programs in which EMS personnel prospectively identify outbreaks and other public health emergencies should be incorporated as surveillance tools for local public health departments.

Basically, the COVID-19 Pandemic will bring about broader functions for EMS in contrast to a system focused upon immediate response to out-of-hospital medical and trauma emergencies. EMS will expand into a prehospital community health provider. Current EMS authorities (agencies) must anticipate the coming changes

brought by the Pandemic and look for innovative ways to adopt coming changes in ways that benefit the community. EMS personnel share much of the same risks as other health care providers and their education and work standards should reflect best practices for infection control and expansion of their roles in community health. EMS personnel can effectively extend the reach of public health departments by staffing vaccination clinics, educating the community while they are in the field, and by being the leads in prospective health surveillance.

Most dramatic is that changes will occur with regional health care networks dedicated EMS personnel that will provide field consultations by video contact with primary health care providers and specialists. EMS personnel can prove to be a major benefit for regional health networks by helping prevent unnecessary hospital emergency department visits and making primary and specialist care providers more accessible through video conferencing. By conducting home health care assessments for health

care network patients, EMS personnel add to the benefits for patients to subscribe to health care networks. Additionally, regional health care network-based EMS personnel can transport cases to the appropriate resource within the health care network. Post-Pandemic regional health network changes are inevitable because the changes will provide health care networks with significant financial advantages by keeping patients within the network system, limiting acute care hospital transports, and allowing limited hospital lengths of stay by providing after hospital home evaluation.

Traditional EMS that existed before the Pandemic will disappear as EMS transforms with the changes occurring for health care delivery and public health systems. Public and government-based EMS agencies will have less influence in developing future EMS systems as the health care sector realizes the financial advantages of regionalized health care networks that include dedicated EMS providers that support network patients and services.

References

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