

The Critical Role of Dispatch



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KEYWORDS

• Prehospital • Dispatch • Dispatcher • Public safety answering point • EMS • 9-1-1

KEY POINTS

- Call centers for 9-1-1 serve as de facto coordinating centers for emergency response in the United States.
- The roles of dispatch include information gathering, resource management, and provision of prearrival instructions.
- Prearrival instructions for cardiopulmonary resuscitation have been repeatedly demonstrated to enhance survival from out-of-hospital cardiac arrest.
- High performing systems are able to address common dispatching hurdles such as limited English proficiency callers, high-volume days, disaster management, and the increasing volume of low-acuity callers.

 Audio content accompanies this article at <http://www.cardiology.theclinics.com>.

Dispatcher—“9-1-1, what is your emergency?”
Caller—“My grandmother just passed out!
Please send help!”
Dispatcher—“I show you calling from XXX-XXXX, is that correct?”
Caller—“Please send help, are you coming?
She’s turning blue!”

Every year in the United States, 9-1-1 is activated 240 million times across 5806 primary and secondary public safety answering point (PSAPs), more commonly referred to as dispatch centers.¹ The 9-1-1 system is relatively young, but the role of the emergency medical dispatcher (EMD) and the 9-1-1 system as a whole has developed significantly since its beginning. It provides thousands of communities with an umbrella of security—help is only a phone call away.

Emergency dispatch is the use of a professional telecommunicator to gather information, assign resources, and coordinate layperson and emergency responders in the prehospital setting. It plays a critical role in day-to-day emergency response for local police, fire, and emergency medical services (EMS), resource allocation, disaster response, and public health and acts as the de facto coordination center of many jurisdictions. The importance of the emergency dispatch system and the sense of security that it provides to the community cannot be overstated. High-performance 9-1-1 call centers strive for prompt call answering, low call-processing times for time-critical emergencies, efficient initial dispatch of the most appropriate EMS resource(s), and successful recruitment of bystanders into performing life-saving interventions prior to EMS arrival.

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EMS is a locally driven institution. Protocols and policies can vary widely depending on resource availability, population dynamics, and community needs. What follows is a general description of the history, operations, and critical value to patients of high-performance 9-1-1 dispatch, although there is considerable regional variability.

HISTORY OF EMERGENCY MEDICAL SERVICES IN THE UNITED STATES

The need for an organized response to medical emergencies was brought to the forefront when the National Academy of Sciences released “Accidental Death and Disability: The Neglected Disease of Modern Society” in 1966.² This landmark report identified the inadequacy of prehospital care at the time and its contribution to morbidity and mortality. This was followed shortly after by the era of modern emergency medical dispatch in the early 1970s, where the ability to send appropriate resources to a patient and provide emergency instructions to a caller prior to arrival of first responders were identified as an important link in the chain of survival.³ This continues today, where the American Heart Association (AHA) identifies activation of EMS as the first link in the out-of-hospital cardiac arrest (OHCA) chain of survival.⁴

The first national effort to support EMS as a profession was through the Emergency Medical Service Systems Act of 1973 and creation of the National Registry of Emergency Medical Technicians, which led to the development of the emergency medical technician (EMT) and EMT-paramedic designation in the early to mid-1970s. The first reported use of emergency medical dispatch occurred in Phoenix, Arizona, in 1975. There, a paramedic gave telephone instructions to the mother of an apneic child. The child survived and since then many systems across the world have begun to provide emergency instructions to callers before emergency responders arrive.⁵ In Washington State in 1982, University of Washington Professor Mickey Eisenberg began training 9-1-1 dispatchers to provide instructions to layperson callers on how to perform cardiopulmonary resuscitation (CPR) over the phone. These were the earliest iterations of prearrival instructions (PAIs).

PRIMARY AND SECONDARY PUBLIC SAFETY ANSWERING POINTS

Centers that receive 9-1-1 telephone calls are referred to as PSAPs, or more commonly dispatch centers. The 9-1-1 number was created in the late 1970s through the efforts of the Federal Communications Commission and AT&T. It was eventually adopted as a universal emergency phone number

for all police, fire, and medical emergencies.⁶ Depending on the needs of the community, there may be a single combined PSAP for all types of emergencies or each emergency response agency may have their own.

THE COMPONENTS OF AN EMERGENCY MEDICAL SERVICES DISPATCH SYSTEM

As the chain of survival suggests, there are multiple factors involved in successfully resuscitating a patient in the field. To understand the vital role of dispatch, it helps to understand the available resources and the 9-1-1 dispatch response mechanism (Fig. 1). For example, one of the roles of the dispatcher is allocating the “right resources for the right patient.” Similar to the in-hospital setting, there is a spectrum of potential prehospital care providers that might respond to an emergency.

First is the caller or bystanders who activate 9-1-1. They begin the chain reaction that leads to definitive care.

Callers have traditionally been separated into 4 types⁷:

- A first-party caller is the patient.
- A second-party caller is a person within proximity of the patient who can potentially provide care to the patient.
- A third-party caller is not within proximity of the patient (eg, motorist driving by an accident).
- A fourth-party caller is another public service agency or dispatch (eg, law enforcement or airport dispatch).

Until EMS can arrive on scene, time-critical interventions like CPR and defibrillation can be performed by layperson responders who have either been previously trained in first aid or who can be trained in real time through PAIs provided by the dispatcher.⁸ One way of bridging the gap until professional rescuers arrive is converting third-party callers to a second-party callers so that they are in a position to receive and act on PAIs.

Description of all types of professional rescuers is outside the scope of this article, but it is important to have a rudimentary understanding of the EMS system in a jurisdiction. Skill level can vary greatly by type of rescuer and even among rescuers of the same level in different jurisdictions. For example, a paramedic in one jurisdiction may be authorized to intubate children whereas a paramedic in another jurisdiction may not. Regional variability is based on local protocols, population needs, medical oversight, equipment, and training.⁹ Table 1 provides a description of common EMS providers and their associated scope of practice.

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