

# Health Information Exchange in Emergency Medicine

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Emergency physicians often must make critical, time-sensitive decisions with a paucity of information with the realization that additional unavailable health information may exist. Health information exchange enables clinician access to patient health information from multiple sources across the spectrum of care. This can provide a more complete longitudinal record, which more accurately reflects the way most patients obtain care: across multiple providers and provider organizations. This information article explores various aspects of health information exchange that are relevant to emergency medicine and offers guidance to emergency physicians and to organized medicine for the use and promotion of this emerging technology. This article makes 5 primary emergency medicine-focused recommendations, as well as 7 additional secondary generalized recommendations, to health information exchanges, policymakers, and professional groups, which are crafted to facilitate health information exchange's purpose and demonstrate its value. [Ann Emerg Med. 2016;67:216-226.]

A **podcast** for this article is available at [www.annemergmed.com](http://www.annemergmed.com).

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## FOREWORD

In October 2013, the American College of Emergency Physicians (ACEP) Council adopted Resolution 29(13): Support of Health Information Exchanges:

- Resolved: that ACEP investigate and support health information exchanges
- Resolved: that ACEP work with appropriate stakeholders to promote the development, implementation, and use of a national health information exchange
- Resolved: that ACEP develop an information article exploring a national health information exchange

A workgroup was created to accomplish the third resolution.

## INTRODUCTION

Clinicians use health data to make decisions about patient care, but because patients often receive care in multiple locations, a complete record of a patient's health information is often not available at the point of care. This is a major challenge for information-intensive emergency departments (EDs). Emergency physicians often must make critical, time-sensitive decisions with a paucity of information, with the realization that additional unavailable health information may exist.

Health information exchange provides clinician access to patient health information from multiple sources across the spectrum of care. This can provide a more complete longitudinal record, which more accurately reflects the

way most patients obtain care: across multiple providers and provider organizations. Although current health information exchanges are limited to geographic regions, the ultimate goal is a nationwide health information network to allow patient health information access globally.

In April 2014, the JASON advisory group, which has advised the US government on science and technology matters since 1960, released a report titled "A Robust Health Data Infrastructure."<sup>1</sup> This JASON report detailed the current health information technology landscape and the obstacles preventing the medical community from evolving into a fully functioning health data infrastructure. Similarly, in June 2014, the Office of the National Coordinator for Health Information Technology released a report titled "Connecting Health and Care for the Nation: A 10-Year Vision to Achieve an Interoperable Health IT Infrastructure."<sup>2</sup> This report details challenges and presents 3-, 6-, and 10-year agendas to achieve these important goals.

This article is not an attempt to reproduce the findings or recommendations of these reports or an attempt to distill details of analyses or recommendations. Rather, it explores various aspects of health information exchange that are relevant to emergency medicine and offers guidance to emergency physicians and to organized medicine for the use and promotion of this emerging technology. Although this article focuses on health information exchange as it relates to the practice of emergency medicine, there are some common requirements that cross specialties that are also discussed.

## DEFINITIONS

The Department of Health and Human Services current definition states that “Health Information Exchange is the electronic movement of health-related information among organizations according to nationally recognized standards. The goal of health information exchange is to facilitate access to and retrieval of clinical data to provide safer, timelier, efficient, effective, equitable, patient-centered care.”<sup>3</sup>

The terms *regional health information organization* and *health information exchange* are often used interchangeably. However, a health information exchange is the functional and operational infrastructure, whereas a regional health information organization is a group of organizations that provide the organizational and governance structure under which health information exchange can be built and operated.

## BACKGROUND AND HISTORY

Health information exchange has been a key goal of health care since the advent of the modern computer. Limited, closed exchange networks, primarily for research purposes, emerged in the late 1980s. But it was the propagation of the Internet in the early 1990s that enabled technology to extend exchange beyond institutional walls.

The 1990s saw the emergence of community health management information systems funded by grants from the Hartford Foundation to 7 states and cities to implement large centralized databases for use in assessment activities and billing procedures.<sup>4,5</sup> Later came community health information networks, which were largely commercial ventures focused on the cost savings associated with moving data between providers. These relied on a transactional network model allowing each provider to maintain an individual database, thereby avoiding the need to centralize data.<sup>6</sup> Both models ultimately failed because of a variety of challenges, including a lack of reliable, high-speed connections, competitive and privacy concerns, a lack of data standards, and a lack of financial sustainability.

In the 2000s, the concept of the regional health information organization emerged as a mechanism for governance and convener of multiple, often competing health care stakeholders. The Office of the National Coordinator for Health Information Technology was established in 2004 by the US Department of Health and Human Services. It was designed to be “a resource to the entire health system to support the adoption of health information technology and the promotion of nationwide health information exchange to improve health care.”<sup>7</sup> The Health Information Technology for Economic and

Clinical Health portion of the American Recovery and Reinvestment Act of 2009 allocated more than \$19 billion toward the meaningful use of electronic health records and more than \$500 million for state-level health information exchange.<sup>8</sup> An additional \$250 million in federal funding was made available to 17 health information exchanges through the Beacon program.<sup>9</sup>

As of 2013, there were 315 health information exchange initiatives in the United States, many with improving financial feasibility largely because of hospitals and payer funding.<sup>10</sup> Among health information exchanges responding to the same annual survey, 51.5% indicated they have sufficient revenue from participating entities to cover operating expenses, and 48.5% derived 50% or more of their funding from often transient public sources. Survey respondents expect that hospitals will be the most important source of funding, with a greater role for private payers and decreased funding from state and federal government in the future.

## HEALTH INFORMATION EXCHANGE VALUE TO EMERGENCY MEDICINE AND HEALTH CARE IN GENERAL

### Patient Crossover

Patients often move among providers and hospitals, with significant patient crossover rates in emergency medicine. One study showed that 25% of patients with more than 1 ED visit during a 1-year study period used more than 1 hospital, and those visits composed 19% of all ED visits.<sup>11</sup> A similar, more recent study showed that 40% of patients with ED visits during a 3-year study period had data at multiple institutions.<sup>12</sup> Another study of all visit types found that 41% of patients had visits at multiple facilities during a 23-month study period, accounting for 68% of total encounters.<sup>13</sup> These facts clearly illustrate the value and opportunity health information exchange offers.

### Information Fragmentation

Crossover visits lead to fragmentation of the patient record.<sup>14,15</sup> Estimates from one study revealed that information gaps exist in 32.2% of ED visits, are more common for patients with a higher severity of illness, and the missing information was deemed “essential to patient care” in 47.8% of cases.<sup>16</sup> Obtaining clinical information without health information exchange is problematic, especially in the ED. One study showed that 72% of emergency physicians believed that their attempts to obtain outside data failed more than half the time; that the time to obtain data, when successful, took more than an hour; and

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