

CONCLUDING COMMENTS: LIKELY TRENDS AND HIGH-IMPACT FACTORS

Learning Objectives

1. List and discuss influencers of likely future changes in the health information technology (HIT) management environment.
2. Describe the likely trend of healthcare cost and associated HIT cost factors.
3. Discuss aspects of “consumerism” that are likely to affect delivery of healthcare and roles that HIT may play in addressing consumer needs and wants for engagement in their healthcare.
4. Define the “five Vs” of big data and the role of the HIT manager in assuring the Vs are optimized in the enterprise information systems.

In the preceding chapters of this book, we made our best effort to document the current status of health information technology (HIT), to explore the most pressing industry issues facing managers and clinicians seeking to optimize information technology (IT), to advocate for IT as an essential tool to improve the quality and safety of healthcare, and to project likely trends in industry evolution. However, our “best efforts” are constrained by the rate of technology change and the complexity of the healthcare industry, which compel us to conclude this book with some suggestions for continuing to explore these fascinating and dynamic topics:

It is our considered opinion that several subject areas should be of continued interest to HIT leaders or aspiring leaders, as they likely will increase the complexity of the HIT management environment. While not an exhaustive list of influencers, regulation, fiscal pressures, evolving business models, growing consumerism and the democratization of healthcare, mHealth, digital health and associated digital apps, and the expansion of analytics capability all can be expected to warrant HIT leaders’ attention for some time. Some reliable resources for continued study of these topics are provided in the chapters addressing these topics. A brief summary of some key issues in each area is provided here.

Regulation of healthcare organizations, providers, technologies, research, and so on is arguably a mixed blessing. While oversight and regulation are generally acknowledged as essential for the protection of both business and society, the associated costs and challenges to compliance are almost immeasurable. Despite some attempts at “simplification,” notably in the administrative domain, the harsh reality is that not only can we expect the scope of IT regulation to increase, it likely will be dynamic as a result of the rapid rate of innovation and deployment of IT products and services. Thus, compliance professionals will play increasingly important roles on the HIT team, and, evaluating new technologies will require a regulatory compliance assessment as part of the process. From a broader industry perspective, development of new technologies can be facilitated or constrained, depending on prevailing regulatory agencies’ current perspectives and the political agendas that influence the agencies.

The cost trend of healthcare moves in only one direction—up. Estimates suggest consistent increases of more than 5 percent annually, and healthcare is expected to consume approximately 20 percent of the gross domestic product by 2026. Thus, the fiscal pressures on the entire healthcare system for cost containment and value will not abate. As technology increasingly contributes to the total cost of healthcare delivery, the pressures to make sound investments will remain and likely will become more important. HIT leaders must adopt value-based business models and ensure that clinical needs for technology-supported diagnosis and treatment are met by engaging clinicians in the design and selection processes. Healthcare, almost always a major issue in national elections, likely will become more important in our volatile political climate as cost, access, and quality challenges engender extreme debate positions.

The concept of consumerism, as defined by *Health Affairs* (Carmen, Lawrence, and Siegel 2019), means that individuals “proactively [use] trustworthy, relevant information and appropriate technology to make better-informed decisions about their health care options in the broadest sense, both within and outside the clinical setting.” In essence, it is the democratization of medicine—shifting the expectations that patients or consumers will demand much more transparency and power in decisions that affect their care delivery (Topol 2012). The importance of this concept to the industry is evidenced by the scope of the March 2019 “Patients as Consumers” issue of *Health Affairs*.

Since *information* and *technology* are the driving terms in this definition, HIT leaders must remain informed about current local and national initiatives to ensure public access to needed health and provider information. Also, the ease and effectiveness of the user experience in accessing the healthcare organization’s information is of paramount importance. Both

the patient portal to access individual information and the public portal to access comparative information are important. Issues associated with effective website design include ensuring compliance with the Health Insurance Portability and Accountability Act and data security in addition to applying robust design principles, including meeting disability accessibility standards.

mHealth, also called *digital health*—health information or services provided using mobile digital technology—is adjunctive to consumerism, as individuals seek to become more involved in their personal healthcare activity and choices. A plethora of mHealth and digital health apps exist, many available directly to consumers at low cost, others intended to be deployed by providers to engage individuals and improve compliance with treatment regimens or improve service accessibility. For those deployed by providers, it is important to keep the focus on how apps improve the workflow or the patient experience, and not on the apps themselves, many of which are likely to have short life spans (innovation in that space comes at a high speed).

A second caveat is to ensure that apps meet the needs of both consumers and providers. While consumers may easily collect health information, such as blood glucose levels or blood pressure trends, with their personal apps, connecting their self-collected data with their provider-owned health record can be quite challenging, if connection is even desired by the provider. Many of the issues associated with health apps used by consumers, either independently or collaboratively with the healthcare organization, fall into the categories of policy and security protection. mHealth and digital health regulation is still evolving—thus, there is more burden on providers to anticipate likely directions of key oversight agencies such as the Federal Communications Commission, the Federal Trade Commission, the Food and Drug Administration, and the Department of Health and Human Services.

The “five Vs” of big data, defined as volume, velocity, variety, veracity, and value, are simplistic words used to convey a complex reality, given that the interactions among the terms is the crucial feature of this amorphous concept. Deriving the potential value from the enormous volume of data created, and ensuring its veracity, impelled analytics to a high-profile field of scholarly inquiry and a high-paying professional career, not only in healthcare but in all domains of society. Analytics inform clinical as well as business decisions, enabling evidence-based medicine and performance- and value-based management of personnel, facilities, and service lines. Each V must be considered in designing and implementing information systems, negotiating vendor business solutions, and in fact, almost every aspect of strategic and operational management of HIT services. As with other facets of the HIT enterprise, trained personnel, appropriate products to run analyses, and policies and procedures to guide analytical practices are essential. Most healthcare organizations elect to use vendor products for analytics and

business intelligence, often coordinating multiple applications to enable a range of analytic capability determined by the volume of data and the desired information outcome. Selecting the best products for the organization's analytic needs and recruiting personnel with the desired skill sets are key success factors.

Finally, HIT leaders must contend with the growing desire of business units to exert independence in acquiring and deploying apps and other products, usually to achieve better customer engagement and satisfaction, improve workflow or analytical capacity, or otherwise enhance their bottom-line results. To some extent, this decentralized approach is reminiscent of the "best-of-breed" systems that contributed to the fragmented, redundant, and inefficient information systems IT leaders struggled to integrate in years past. The goal, however, is not to withdraw from the integrated systems used for business and clinical processes, but to use these customer-facing and business utility apps in a complementary manner. Some may be connected to the healthcare organization's systems for data extraction, and others may be stand-alone. Key considerations for the IT leader include much more robust attention to enterprise architecture, assessing security risks for connected systems, managing any desired system integration, and preventing redundancies in data capture and storage.

In the acknowledgments section at the front of the book, we once again expressed our gratitude to Dr. Charles Austin for his vision in initiating a textbook about health information systems that was the first of its kind more than 30 years ago. We appreciate his perseverance in collaborating with Dr. Stuart Boxerman and other colleagues to maintain it as a relevant resource through six editions. This ninth edition is the third edition authored by our team, again with advice and collaboration from many people. As we anticipate our retirements before a tenth edition will be forthcoming, it is our profound desire that one or more individuals with a passion for reporting the then-current status of HIT will ensure continued availability of this long-standing resource for health professions students and working health professionals.

Web Resources

A number of organizations (through their websites) provide more information on the topics discussed in this chapter:

- The website of the Office of the National Coordinator for Health Information Technology (www.healthit.gov/topic/laws-regulation-and-policy/health-it-legislation) summarizes important HIT legislation.

- Health IT Outcomes' website provides access to a white paper on compliance with the HITECH Act (www.healthitoutcomes.com/doc/a-balanced-approach-to-meeting-hit-compliance-0002), as well as suggestions for adapting to future HIT initiatives.
- The *Health Affairs* blog (www.healthaffairs.org/doi/10.1377/hblog20190304.69786/full) addresses consumerism and provides links to other relevant sites.
- Since 2005, the World Health Organization Global Observatory for eHealth (www.who.int/goe/en/) has conducted global surveys and produced reports to establish benchmarks in the adoption of necessary infrastructure to support the growth of eHealth.

Discussion Questions

1. Discuss factors that influence the changing role and importance of the compliance officer.
2. Discuss consumerism, and identify several ways that HIT can be used to engage consumers in their healthcare experience.
3. Identify some pros and cons related to decisions to allow business units to deploy apps and HIT products outside the enterprise-centralized HIT structure.
4. What are key factors to consider in establishing an analytics unit as part of the HIT structure in an enterprise?

References

- Carmen, K., W. Lawrence, and J. Siegel. 2019. "The 'New' Health Care Consumerism." *Health Affairs*. Published March 5. www.healthaffairs.org/doi/10.1377/hblog20190304.69786/full.
- Topol, E. 2012. *The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care*. New York: Basic Books.