Hit Management Research and the Tip of the Iceberg: Setting a Research Agenda – A Commentary

By: Eric W. Ford and Nir Menachemi

Eric W. Ford, Nir Menachemi (2011), Hit Management Research and the Tip of the Iceberg: Setting a Research Agenda – A Commentary, in Jason A. Wolf, Heather Hanson, Mark J. Moir, Len Friedman, Grant T. Savage (ed.) *Organization Development in Healthcare: Conversations on Research and Strategies (Advances in Health Care Management, Volume 10)*, pp.313-317
DOI : 10.1108/S1474-8231(2011)0000010024

Abstract:

In 2009, the Health Information Technology for Economic and Clinical Health Act (HITECH) was signed into law. This Act, part of the broader "stimulus" legislation, represents the U.S.'s largest investment in health information technology (HIT) to date. More importantly, it sets a vision and provides a plan intended to transform the U.S. health care system to a safer, more efficient place to receive care. To that end, the Act seeks to fundamentally change the path HIT applications' adoption and implementation was taking to ensure that "meaningful use" and interoperability are achieved. However, such bold and sweeping changes will not come without unintended consequences, and their broad scope makes measuring the new public policy's success a challenge.

Keywords:

HITECH | heath information technology | United States heath care system | health care policy | health care management

Article:

In 2009, the Health Information Technology for Economic and Clinical Health Act (HITECH) was signed into law. This Act, part of the broader "stimulus" legislation, represents the U.S.'s largest investment in health information technology (HIT) to date. More importantly, it sets a

vision and provides a plan intended to transform the U.S. health care system to a safer, more efficient place to receive care. To that end, the Act seeks to fundamentally change the path HIT applications' adoption and implementation was taking to ensure that “meaningful use” and interoperability are achieved. However, such bold and sweeping changes will not come without unintended consequences, and their broad scope makes measuring the new public policy's success a challenge.

HITECH made $27 billion in incentive payments available to providers interested in adopting, implementing, and “meaningfully using” certain HIT applications (e.g., electronic health records). Given this large investment in the nation's HIT infrastructure, the incentive payments also represent a natural experiment by changing the factors that influence HIT adoption by health care organizations and professionals. More importantly, health care managers in organizations large and small will need to exercise leadership to align their organizations to the changing environment sparked by HITECH, as well as contribute to the overall plan of transforming the U.S. health care system. In many instances, administrators' efforts to achieve meaningful use will thrust them into clinical domains that have historically been the sole purview of health professionals (i.e., doctors, nurses, and pharmacists among others). Two chapters by Stefano Calciolari, and Patrick A. Palmieri et al., in the current issue of Advances in Health Care Management (AHCM) are particularly timely as the diffusion of HIT takes on a central role in many nations' health policy agendas.

The first chapter explores the implementation of specific HIT applications using three case studies drawn from various regions of Italy. The first case explores the use of tele-health to coordinate emergency care for neurology patients in clinics that do not have access to such specialists. The case's main finding is that building a network with effective health information exchange (HIE) for real-time events is a valuable addition to the overall quality of care available across the region. The second case study addresses the use of web-portals to promote care-coordination activities. The portals served both clinicians and consumers' needs. For clinicians, the portal created an online venue for seeking second opinions across the regional systems providers. For consumers, the web-portal allowed them to access educational tools and schedule appointments. The latter feature provided the most compelling storyline with nearly twenty percent of all appointments being made online in 2004. Clearly, such interfaces offer the possibility of creating a more efficient scheduling system. The last case study looked at the use of enterprise resource planning (ERP) to manage administrative functions in eight public hospitals located in the Lombardi region. In effect, the last case was comprised of eight minicases comparing the adoption of common HIT application while allowing the implementation process to be pursued in varying ways. The overall finding was that the new ERP system's success varied greatly depending on how it was implemented. Testing the process used to implement HIT applications in one region of a country prior to rolling them out nationwide is an interesting strategy for achieving a health system's priorities.

The second chapter deals with the potential for HITs to introduce *more* error types into the health care system. These electronically induced errors can come in two forms. The first type of error is best described using the old adage that: "Automating a flawed process only makes bad things happen faster." In other words, adopting HIT systems may serve to further solidify error-prone care practices if the implementation process is not coupled with an effective evaluation and modification of current workflows. The second form of care errors the authors describe are the new types of mistakes that can arise from using HIT systems. The seriousness of this possibility has been deemed significant enough for the Institute of Medicine (IOM) to begin a yearlong study of the problem starting in 2011 (Connolly, 2005). Therefore, it is conceivable that not only will implementing an HIT system mitigate existing sources of medical errors but may also introduce new sources of errors.

The purpose of the chapter by Palmieri et al. is to explore the unintended consequences of HIT use and propose a model for understanding the phenomenon. In particular, the potentially negative impacts on clinical outcomes (iatrogenesis) are explored within the context of the social, cultural, and administrative factors. The chapter then offers a set of management practices that can be used to address potential error sources during the transition process from adoption through implementation.

Both chapters, one broadly discussing unintended consequences of HIT adoption and the other looking very narrowly at the implementation of specific applications, provide a valuable backdrop for considering the research activities that might be pursued to make meaningful use a reality. As the U.S. health care system undergoes major changes stemming from HIT implementations, it is vital that timely and rigorous HIT research – particularly framed through a management lens – be available for health care managers and policy makers alike. Health management scholars provide a unique organizational-level perspective that an HIT research agenda should be developed around. Such an agenda should expand the work of Calciolari and Palmieri et al. to include studies that unleash the power of regional research, focusing not only on "best practices" but also on "worst-demonstrated practices" that may include technological iatrogenesis and the use of ineffective implementation strategies.

Additional research strategies that would help to identify and test "best-" and "worst-demonstrated practices" should also be considered. In particular, studies that look at environmental features, organizational structures, implementation processes, and performance outcomes are needed to provide a more complete model of HIT phenomenon. The case studies presented in the Italian paper controls for environmental features by looking HIT use in discreet regions. Such research provides a valuable "proof of concept," but may not provide an actionable model that other facilities can implement. Therefore, it is essential that research look across differing environmental conditions to identify where HIT innovations are more likely – and less likely – to be successfully implemented. However, the management literature provides very strong evidence that merely finding favorable environmental conditions is not enough to

guarantee success. Rather, it is the fit between environments and organizational structures that managers should seek to achieve (Ford, Menachemi, Huerta, & Yu, 2010; Freudenheim, 2010).

Understanding how organizational structures impact HIT adoption is a critical feature for achieving meaningful use and avoiding the unintended consequences discussed in the electronic iatrogensis chapter. While it is possible for health care facilities of every stripe to have a common goal – delivering safe and effective care – not every hospital has the same wherewithal to implement HIT. In particular, it is likely that smaller facilities, such as the rural hospitals built with Hill-Burton funds, do not have the operational scale to employ dedicated HIT support staff that are critical to implementing HIT. Even relatively large, freestanding facilities may not achieve the purchasing power, economies of scale or coordination benefits that networked systems can bring to bear on HIT activities. In a similar vein, hospitals that are not tightly integrated with a physician group may not be able to get the "doctor buy-in" that has caused other HIT implementations to fail (Kazley & Ozcan, 2007). Therefore, it is critical that organizations' structural and design elements be integrated into HIT research. While having a better picture of how environmental and organizational fit influences HIT implementation is critical, it is still not enough to ensure that meaningful use will be achieved.

The third critical dimension to achieving successful implementations leading to meaningful use of HIT is the implementation process itself. The strategies that health care facilities use to adopt and implement HIT also play a critical role in determining success (Ford et al., 2010). Integrating this third dimension into the environment–organization fit paradigm would make important contributions to both the applied health care and theoretic management literature streams. While this would be an important addition, it does not achieve the ultimate goal of moving beyond "best-demonstrated practices" to the validated, "evidence-based management" (Rousseau, 2006) paradigm needed to ensure the meaningful use of HIT keeps pace with the emergence of new technologies over time.

The two chapters discussed earlier provide useful glimpse at the research field ranging from the purely theoretic to most granular level of applied studies. But the work presented herein and conducted to date is barely the tip of the iceberg. Below the surface of HIT research lies a large body of important topics that still need to be considered within the HIT and meaningful use contexts. Given the extraordinary investments being made in health care writ large and HIT in particular, far more work is warranted lest we sink valuable resources into an expedition that is traversing hazardous waters without a clear view to the other side.

References

Connolly, C. (2005). Cedars-Sinai doctors cling to pen and paper. The Washington Post, p. A1.

E.W. Ford, N. Menachemi, T.R. Huerta, F. Yu (2010), "Hospital IT adoption strategies associated with implementation success: Implications for achieving meaningful use", *Journal of Healthcare Management*, Vol. 55 pp.175 - 188.

Freudenheim, M. (2010). Panel set to study safety of electronic patient data. The New York Times.

A.S. Kazley, Y.A. Ozcan (2007), "Organizational and environmental determinants of hospital EMR adoption: A national study", *Journal of Medical Systems*, Vol. 31 pp.375 - 384.

D.M. Rousseau (2006), "2005 Presidential Address: Is there such a thing as “Evidence-based management”?", *The Academy of Management Review*, Vol. 31 pp.256 - .