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Peers, Regulators, and Professions: The Influence of Organizations in Intensive Insulin Therapy Adoption

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Abstract

Following the landmark Leuven study in 2001, health care organizations implemented intensive insulin therapy (IIT) as the standard of care for critically ill patients. However, a recent meta-analysis showed no mortality benefit and an increased safety risk for patients treated with IIT. IIT affects labor and capital decisions related to nurses, physicians, pharmacists, managers, laboratory personnel, and informatics staff. The expenditure of labor and capital to provide IIT without corresponding outcome improvements suggests the adoption of IIT produces inefficiency in hospitals. In sociology and organizational studies, the tendency for organizations to become more similar without necessarily becoming more efficient is called institutional isomorphism. Institutional isomorphism examines the pressure organizations encounter from peers, regulators, and professions through mimetic, coercive, and normative mechanisms, respectively. To enhance their prospects of survival, organizations establish and maintain legitimacy by adopting socially acceptable approaches to work endorsed by successful peer organizations, regulatory agencies, and professional societies. In this paper, the authors describe how organizational influence—through the Leuven study, the Joint Commission, and professional organizations—played a role in the widespread adoption of IIT. Divergence from institutionalized forms may explain variation in IIT studies following Leuven. Healthcare researchers, practitioners, and managers should consider organizational influence when implementing large scale clinical activities.

Keywords

Intensive insulin therapy; organizational; institutional isomorphism; hospitals

Introduction

In 2001 the Leuven study demonstrated morbidity and mortality improvements in surgical intensive care patients as a result of tight glycemic control achieved through an intensive insulin therapy (IIT) protocol.¹ Professional organizations heralded the results of the single-site randomized trial as the new standard of care for diabetics and non-diabetics alike, and health care organizations adopted IIT protocols. To accommodate IIT, hospitals and health systems enacted considerable changes to organizational structure—the formal policies that dictate roles, responsibilities, and standard operating procedures—involving clinical workflow, nurse workload, blood glucose testing, evidence-based medicine, and, in some approaches, computerization.² However, a 2008 meta-analysis of randomized IIT trials showed no mortality benefit for patients treated with IIT as well as an increased risk of

hypoglycemia.³ The expenditure of labor and capital to provide IIT without corresponding outcome improvements suggests the adoption of IIT produces inefficiency in organizations.

Such widespread change in the absence of conclusive benefit can be explained through the lens of institutional theory, a sociological view that examines the way in which organizations in a field interact, define behavioral norms and expectations, and evaluate each other.⁴ Institutionalists posit that organizations are evaluated by legitimacy, the social view that an organization is “appropriate, rational, and modern,” more so than efficiency.⁵(p344) To enhance their prospects of survival, organizations establish and maintain legitimacy by adopting the “prevailing rationalized concepts of organizational work” endorsed by successful peer organizations, regulatory agencies, and professional societies.⁵(p340) This results in organizations becoming more similar but not necessarily more efficient, a process called institutional isomorphism.⁶ In this article, we use institutional isomorphism to examine the role of organizational influence in intensive insulin therapy’s adoption and effect on organizations. By understanding the role of peers, regulators, and professions in organizational change, health care leaders can make informed decisions concerning the adoption of innovations.

Theoretical Background

Institutionalization is a process in which social behavior is established as a formal structure that serves as a means to an end for an organization and signals to other organizations that an organization is legitimate.^{5, 7} Suchman defines legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.”⁸(p574) When an organization adopts institutionalized forms, its personnel and other organizations are more likely to view it as legitimate, which enhances the organization’s prospects of survival.⁵ However, efficient organizational practice may require divergence from institutionalized forms, a move which threatens legitimacy. In response, organizations become loosely coupled, or “[build] gaps between their formal structures and actual work activities.”⁵(p341) The struggle between adherence to institutionalized forms and real world practice results in ceremonial conformity to maintain legitimacy and reduced overall organizational efficiency.⁵

Institutional isomorphism functions through mimetic, coercive, and normative mechanisms.⁶ *Mimetic* isomorphism occurs when an organization copies the practices of another organization it perceives to be successful, particularly for problems “with ambiguous causes or unclear solutions.”⁶(p151) Hospitals’ adoption of Continuous Quality Improvement as a comprehensive management program is an example of mimetic isomorphism.⁹ An organization experiences *coercive* isomorphism when another organization on which it depends requires it to adopt a structure. An example of coercive isomorphism is in U.S. hospitals’ adoption of practices required by the Joint Commission for Medicare reimbursement eligibility. *Normative* isomorphism involves the diffusion of organizational norms through training and socialization as well as the networks professionals develop through practice societies, educational activities, and common knowledge bases. Examples include physicians who complete fellowships in critical care approaching clinical issues and strategic decisions similarly, and hospitals voluntarily complying with Leapfrog Safe Practices in order to meet professionally defined levels of acceptable clinical care. Through each of the three isomorphic mechanisms, organizations conform to institutionalized structures and attain legitimacy.

Organizational Changes Required for Intensive Insulin Therapy

Before examining the role of organizational influence in intensive insulin therapy adoption, it is important to first understand the changes to organizational structure necessary for IIT. Whether transitioning to IIT from continuous insulin infusion or sliding scale subcutaneous insulin therapy, a health care organization introduces a substantial practice change. Compared to its predecessors, IIT has a lower blood glucose threshold for therapy initiation, which results in patients receiving insulin therapy sooner, and requires different titration logic to maintain euglycemia. Clinicians and managers must develop an IIT protocol, gain staff buy-in through education and training, and modify workflow. Nurses experience an increase in workload in terms of increased frequency of blood draws, dosing calculations, insulin rate adjustments, and corresponding documentation. Laboratories increase their testing capacities in terms of devices, testing supplies, maintenance, and training. Pharmacies dispense more insulin and infusate. If computerized clinical decision support systems are used, informatics personnel must support software that is either developed internally or purchased from a vendor. All of these changes require labor and capital expenditures.

Organizational Influence in the Adoption of Intensive Insulin Therapy

Following the landmark Leuven study, health care organizations have become more similar but not necessarily more efficient in their efforts to implement intensive insulin therapy. Organizational influence has played a role in the adoption of IIT, and the mechanisms of institutional isomorphism provide a framework for understanding how “individual efforts to deal rationally with uncertainty and constraint often lead, in the aggregate, to homogeneity in structure” and inefficiency.⁶(p147) It is important to note that the mechanisms are analytical: they may overlap in practice but provide valuable perspective concerning the causes and consequences of organizational change. The following sections explain the mechanisms of institutional isomorphism and the organizations involved in the adoption of intensive insulin therapy. Table 1 presents a summary.

Mimetic isomorphism

As indicated by its high citation count, the Leuven study captured the critical care community’s attention and prompted practitioners and researchers to attempt to replicate the findings in myriad settings. Organizations tend to imitate other successful organizations’ approaches when facing ambiguity and uncertainty in technologies, problems, and solutions.⁶ Intensive insulin therapy provided a promising possible solution to the problem of mortality in the critically ill,³ and the techniques described in the single-site randomized Leuven study served as the model for hospitals to copy en masse. On an individual hospital level, the results of local pilot site studies may have spurred other hospital units to copy the pilot site’s IIT approach.¹⁰ Because of its novelty, the Leuven approach and its effects may not have been fully understood by imitators. Although mortality reduction is a clear goal, the steps to achieve it are ambiguously defined in the Leuven protocol.¹¹ A large number of confounding variables in clinician behavior and patient demographics also can complicate IIT delivery. Furthermore, metrics for understanding protocol performance and comparing study sites are not widely accepted.¹² Although it lacked external validity, the single-site Leuven study “[served] as a convenient source of practices”⁶(p151) for organizations to adopt in order to respond to problems and attain legitimacy.

Coercive isomorphism

Regulatory requirements resulting from the Leuven study may explain adoption of intensive insulin therapy. U.S. hospitals depend on the Joint Commission for accreditation for

Medicare reimbursement eligibility and certification for quality reporting purposes. According to the Joint Commission website, certification provides “the best signal” of effective care to a hospital’s patients and peer organizations.¹³ Among the requirements for Inpatient Diabetes Certification are the use of protocol-based approaches for blood glucose management and collection of blood glucose performance data.¹³ Because of the Joint Commission’s status as a legitimacy-conferring organization, hospitals adopt organizational changes to accommodate intensive insulin therapy. Similar to hospitals’ dependence on JCAHO, units in a hospital and hospitals in a health system rely on upper management for resources and must enact management’s policies. One large commercial health system has implemented IIT in over 100 hospitals presumably because of health system policy, not because of hospitals volunteering.¹⁴

Normative isomorphism

The participation of physicians, nurses, and administrators in continuing education, workforce socialization, and professional societies may explain the proliferation of Leuven-inspired intensive insulin therapy. Published in a high impact factor journal, the Leuven study reached a broad audience of health care professionals. Sixteen professional societies and five practice councils, including the American Diabetes Association, endorsed the use of intensive insulin therapy following publication of the Leuven study.³ IIT has become the standard of critical care because of the influence of individuals and professional societies in shaping the definition of their work.⁶ Healthcare organizations have responded to the prevailing critical care norms reflected by their clinicians through implementation of IIT. Within a health care organization, IIT diffusion among hospital units may be due to local patterns of socialization amongst clinicians as reported at one institution.¹¹ It is conceivable that a faculty member may present the results of a local IIT study at grand rounds, which prompts other faculty members to consider implementation in their care units.

Conclusion

Examining the adoption of intensive insulin therapy using institutional theory can help researchers, practitioners, and managers reconsider the evidence thresholds and motivations for implementing clinical measures of this magnitude. Regulators and professional societies should consider the external validity of studies as well as the scope of their influence before endorsing particular practices, and hospital decision makers should recognize that practice changes require organizational changes beyond the boundaries of a pilot unit. Although organizations may indicate their conformity to an institutionalized form like intensive insulin therapy, actual work processes may differ substantially and explain the variation in intensive insulin therapy trial results following the Leuven study. Institutional theory provides a useful analytical framework for health care decision makers to understand past events and approach future scenarios.

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Table 1

Mechanisms of institutional isomorphism and organizations involved in IIT adoption

Mimetic	Coercive
•Leuven study	•Joint Commission
Normative	
<u>Professional societies</u>	
<ul style="list-style-type: none"> • American Association of Critical-Care Nurses • American College of Chest Physicians • American College of Emergency Physicians • Canadian Critical Care Society • European Society of Clinical Microbiology and Infectious Diseases • European Society of Intensive Care Medicine • European Respiratory Society • International Sepsis Forum • Japanese Association for Acute Medicine • Japanese Society of Intensive Care Medicine • Society of Critical Care Medicine • Society of Hospital Medicine • Surgical Infection Society • World Federation of Societies of Intensive and Critical Care Medicine • German Sepsis Society • Latin American Sepsis Institute 	
<u>Practice councils</u>	
<ul style="list-style-type: none"> • Institute for Healthcare Improvement • Volunteer Hospital Association • Michigan Health and Safety Coalition • American Association of Clinical Endocrinologists • American Diabetes Association 	