

Application Of Integration Science To Integrated Health Systems Research

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Abstract

The purpose of this study was to determine the application of integration science to integrated healthcare delivery systems and the importance of integration or implementation science to these health systems. The research methodology used was qualitative research based on a historical model of past events in order to better grasp the idea of the present and future patterns in an integrated healthcare delivery system. It is vital that health systems understand the role implementation science plays in healthcare systems today.

Chapter I

Introduction

Integration Science has become very vital in today's society. Many different fields of study are incorporating integration science in the classroom as well as in the workplace with it playing a major role. In the aerospace industry, many use integration science in order to have a system that is more permissive, flexible, semantically powerful, and more formal in the way of analyses and processes (Landauer and Bellman, 1996).

This paper will discuss the application of Integration Science through Integrated Health Systems. Integration Science is a cumulative approach to a scientific study that synthesizes the perspectives of an individual's disciplines and integrates them during all phases of the approach to a question or problem, with the results having an influence on policy and management decisions (Gallagher et al. 2008). Greenhalgh (2004) has three concepts when it comes to implementation science. The first concept is diffusion, which is a passive, untargeted, unplanned spread of new practices. The second concept is dissemination, which is an active spread of new practices to target the audience using a planned strategy. The last concept by Greenhalgh (2004) is implementation. The third concept consists of a process of adoption, integration, and use of new practices within a setting. A health system is concerned with individuals' health while connecting other parts of interconnection for one purpose.

There are several frameworks and models used to describe implementation science and its effects on certain systems. We will look at the Quality Enhancement Research Initiative (QUERI) this framework focuses on the improvement of healthcare quality directly related to the Veterans Affairs system. The next framework discussed is the Consolidated Framework for Implementation Research (CFIR), which will focus on the application of implementation science into healthcare delivery systems using five domains to incorporate into their systems. The Capability Maturity Model for Integration (CMMI) will also be discussed. This model will explore how having goals and processes can create the best practices for integration.

Purpose

This research is intended to look at the application of integration science to integrated healthcare delivery systems. According to Mittman (2008), there are three major aims pertaining to healthcare:

1. To generate reliable strategies for improving health-related processes and outcomes to facilitate the widespread adoption of these strategies.
2. Produce insights and generalizable knowledge regarding the implementation process, barriers, facilitators, and strategies.
3. To develop, test, and refine implementation theories of hypotheses, methods, and measures.

Based on past data, information, and research using historical data as a research method and strategy, we will look at past theories that were used to improve health systems and processes to make them more efficient.

Chapter II

Review Of Literature

The main objective of this paper and the research question is: "What is the relation to integration science as it applies to Health Systems Management?" The problem that sources are attempting to solve is incorporating integration science into healthcare delivery systems that will create a systematic approach and improve the quality and effectiveness of healthcare services. This research is working towards individuals and organizations to accomplish a common goal to improve health services in a way that will affect professional and organizational behaviour.

In Laura J Damschroder's article, implementation science or integration science can be effective in the healthcare system in today's society. Implementation is used as an intervention to assimilate into an organization (Damschroder 2009). The effectiveness of implementation or integration science in healthcare systems is a comprehensive system that is in the process of trying to evolve in integrated health systems. Based on the article, the researcher's goal is to implement the Consolidated

Framework for Implementation Science (CFIR) that will focus on what will work in the system and why it will work.

There are five domains that make up the CFIR. The first domain is intervention, which can be understood as having 'core competencies' and an adaptable periphery, according to Damschroder (2009). These core components are necessary and crucial to intervention, while the adaptable periphery has elements and structural make-ups that coincide with interventionists and the organization in which it is being implemented. The example given by Feldstein and Frambach (2008) expresses how core competencies and adaptable periphery intertwine by giving an example of a clinical reminder to make sure there is a screen for obesity testing at the right time for the right patient. The core component is the feature of having an obesity screening alert, while an adaptable periphery can allow the system to be modified without jeopardizing the integrity of the intervention. This will create a co-evolving or co-adaptive way to a modified setting.

The second and third domains in the CFIR are inner and outer settings, according to Damschroder (2009). Outer settings can influence what is happening in the organization and, in turn, affect the integration. These outer settings may consist of political, economic, and social connections that may influence change. Inner setting connections can be made up of structural, political, and cultural backgrounds that will influence the implementation process. Damschroder (2009) states that inner and outer settings do not always have a clear distinction and separation from each other. The example given was outlying clinics and how they can be a part of an inner or outer setting depending on which study, which can create a gray area. The inner setting can be tight or loose entities that are made up of tangible and intangible structural characteristics, networks, and climate. (Damschroder 2009).

Individuals, which is also the fourth domain, play a big role in the integration or intervention process because they influence individuals, cultural, organizational, professional, as well as professional mindsets that contribute overall to implementation or integration science, according to Damschroder (2009). One of the most recent studies conducted by Godin, Belanger, and Eccles (2007) focused on social cognitive theories of the behaviour of individuals and the predictability of clinical behaviour of healthcare professionals by implementing the most often used model called the Theory of Planned Behavior (TPB). This model explained the intent of healthcare professionals in addition to predictability.

The fifth domain is the implementation process in the CFIR. The implementation process is often related to processes progressing simultaneously at multiple levels of the organization (Pettigrew 2001). This process is intended to inter-correlate different professions together to come up with one plan and head in one direction in order to create an effective integration.

This article focuses on integration science and how effective it is when applied properly. The consolidated framework for implementation goes into detail on these five domains and could significantly improve integrated health systems based on integration science. Damschroder (2009).

Integration climate also contributes to the overall effectiveness of the process since there will be a focus on the tangible and accessible means to policies, procedures, and rewards (Gershon, Stone, and Bakken 2004). Integration science provides a means for integrated health systems to come together and consolidate their efforts.

An effective and integrated process improvement approach is the Capability Maturity Model Integration (Erukulapati 2011). The Quality Enhancement Research Initiative, also called QUERI, is a strategy that was created to generate research-driven initiatives that directly enhance healthcare quality within the VA and simultaneously contribute to the field of implementation science (Stetler 2008). Looking at these two models, it is important to link them two together to understand the importance of integration. These models encompass customer service, quality improvement, and support system structure.

These three structures are CMMI DEV, CMMI ACQ, and CMMI SVC. Within this CMMI model, there are several process areas and capability levels that contribute to the model in order to ensure best practices. The QUERI model relates to CMMI on processes in order to obtain best practices because it also consists of a six-step process that looks at existing patterns and outcomes, a document that best practices improved outcomes, variation of best practices, and ensuring outcomes are associated with improved quality (Stetler 2008). The CMMI has goals and practices associated with each process area that is intended to overall improve their practices.

CMMI consists of six capability levels. The capability levels represent an achievement of capability for a particular process area (Erukulapati 2011). When each process area is achieved, the capability level will be met. There are no goals for capability level zero, while capability level one is considered a performed process. Capability level one is important because it focuses on improvement and making sure processes are maintained. Capability level two is a managed process that serves to support processes. Capability level three is a defined process that is based on organizational levels and also applied at the organizational level. Level four is a quantitatively managed process that clearly defines goals and objectives based on statistical information. Level five implies that all of the processes are stabilized. QUERI enables the organization to set standards and reinforce behaviour. Like CMMI, QUERI has a set of six objectives to aid in their success of proper integration. The expectation required for excellent performance was for QUERI centres to report specific annual implementation goals. QUERI started with a beginning stage that would encourage centers to set expectations then over time, they would be held formally accountable (Stetler 2008). The strategic plan and annual report, built on the six-step QUERO framework (Stetler, Mittman, and Francis 200), provide the basic job description, related performance expectations, and criteria for periodic renewal of a QUERI centre (Stetler 2008).

Improving the quality of a system is vital. Researchers employ additional QUERI frameworks and tools to enhance the achievement of each project's quality improvement and implementation science goals (Stetler 2008). In order to improve a multifaceted implementation role for health services in the context of research, quality improvement, and clinical leadership, there had to be a shift in the process (Stetler 2008).

The databases used to conduct this research were ProQuest, Open Access, and the National Center for Biotechnology Information (NCIB). Keywords are implementation science, integration science, healthcare, and health systems. Inclusion criteria consist of any research conducted with the incorporation of implementation science in the past ten years.

Chapter III

Methods

Looking at different theories from different perspectives of the health care realm were examined to better understand implementation science in depth as well as the role it plays in integrated health systems. The Consolidated Framework for Implementation Research (CFIR), Quality Enhancement Research Initiative (QUERI), Capability Maturity Model for Integration (CMMI), and Greenhalgh's concepts of diffusion, dissemination, and implementation describes how to appropriately incorporate integration science in health care delivery systems was studied in order to see past information and theories that affect present and future health systems. Surveying historical information will aid in the process of establishing a plan to gather and analyze data.

During this research, it was important to examine the theories related to integration science in health care systems. The starting point of research began with the CFIR. Damschorder's framework emphasized the five domains that contributed to the successful implementation of integration science in integrated health systems. These five domains were broken down and further examined in their contribution to implementation science. After analyzing the CFIR, Greenhalgh's concepts of dissemination, diffusion, and implementation were examined and the relationship these concepts had with the CFIR and integration science. These terms were used to explain integration science will propose a better understanding of the role implementation science plays in health care delivery systems. QUERI was another theory that was reviewed and its relation to the improvement of Veteran Affairs related to its health care system. This program was examined due to the involvement of improving the quality of health care using a systematic approach and related practices that would be considered integration science. It was vital to analyze this program and the part this program played in health systems. The CMMI explored the integration process and how the capability levels are an important part of the model. With this model, organizations are able to improve processes, customer service, and quality improvement. The literature review provided insights into the CMMI, QUERI, and CFIR.

Chapter IV

Results

References

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