Chapter 76

Business Intelligence for Healthcare:
A Prescription for Better Managing Costs and Medical Outcomes

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ABSTRACT

Using an interpretive case study approach, this chapter describes the data quality problems in two companies: (1) a Multi-Facility Healthcare Medical Group (MHMG), and (2) a Regional Health Insurance Company (RHIS). These two interpretive cases examine two different processes of the healthcare supply chain and their integration with a business intelligence system. Specifically, the issues examined are MHMG's revenue cycle management and RHIS's provider enrollment and credentialing process. A Data and Information Quality (DIQ) assessment of the revenue cycle management process demonstrates how a framework, referred to as PGOT, can identify improvement opportunities within any information-intensive environment. Based on the assessment of the revenue cycle management process, data quality problems associated with the key processes and their implications for the healthcare organization are described. This chapter provides recommendations for DIQ best practices and illustrates these best practices within this real world context of healthcare.

INTRODUCTION

Organizations rely on data for a multitude of applications: customer service and relationship management, decision making, business intelligence (BI), and regulatory compliance. One of these, BI has the potential for improving the quality of information in any industry, although there is currently a push specifically in healthcare to be smarter about its management of key performance outcomes. One contributing factor motivating industry leaders is that healthcare organizations

tend to be rich in data, but information poor. Although, healthcare organizations have been slow to embrace BI, these organizations are beginning to search for methods to deliver information to decision makers in more intelligent ways. The two main drivers for developing BI within healthcare are a desire to lower costs and improve patient outcomes. Therefore, one option is for BI to form the heart of any system that delivers organizationally sustaining data to providers and healthcare managers so they can make decisions that positively impact patient and service outcomes, while better managing the revenue cycle.

The challenge is to convince administrators, clerical staff, clinicians and physicians to buy-in to the importance of integrating previously disparate data to create a real-time view of the relationship between a patient, the provider, and the payer or payers. This chapter focuses on business intelligence (BI) systems that support healthcare, and the data and information quality (DIQ) issues that are inherent in any environment that is information intensive. BI has tremendous potential to impact healthcare, from multiple perspectives – patients, providers and payers. From a patient's perspective, BI can provide clinicians treatment and immunization recommendations that are preventative in nature, improving both diagnostic accuracy and better implemented care plans. Billing is critical in today's healthcare environment; providers transmit claims to multiple payers, and payment denials are common. BI dramatically improves data and information quality. Therefore, from the provider's perspective, IT professionals can streamline the complex billing process using BI. From a payer's perspective, a better connection to providers and a more intelligent way to enroll and credential them will reduce claims adjustments and disputes.

This chapter provides a brief literature review of healthcare, business intelligence (BI), as well as data and information quality (DIQ). Then the chapter discusses the healthcare industry as a whole with a particular emphasis on stakeholders

and their interrelationships. After the literature and industry review, the chapter examines two cases that make the point that BI is a reasonable approach to manage key healthcare performance outcomes. The first case examines the process of adult immunization, specifically with respect to the Zoster vaccine. This case focuses on four key outcomes: medical outcomes, financial performance, compliance and overall customer satisfaction. The second case details the process that a payer performs to enroll and credential a healthcare provider. This second case looks at the key outcomes of compliance, customer satisfaction and financial performance. Next, we examine background information pertaining to healthcare, business intelligence and data and information quality.

BACKGROUND

Healthcare: As defined by the U.S. Department of Health and Human Services, a healthcare provider is "a provider of services as defined in §1861(u) of the Act (Social Security Act), a provider of medical or health services as defined in §1861(s) of the Act, and any other person or organization who furnishes, bills, or is paid for healthcare services or supplies in the normal course of business." (U.S. Department of Health and Human Services, 2001) Until recently, healthcare providers were paid when sick people sought treatment. Quality and outcomes were not rewarded, but rather providers were paid based on how much was done to treat the patient. In the future, healthcare providers will be given financial incentives to keep people well, and quality, not treatment, will matter a great deal. This shift from volume to value will require a rethinking of treatment plans and a shift towards preventative care.

Ensuring the health of its citizens continues to be at the forefront of politics in the United States, as well as on many corporate and personal agendas. Healthcare systems are judged based on

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