Chapter VI

Applying Automatic Data Collection Tools for Real-Time Patient Management

Richard J. Puerzer, Hofstra University, USA

ABSTRACT

The management of patients in healthcare facilities, such as outpatient clinics and hospital emergency departments, is a significant hospital management problem. In an effort to deal with the volume of patients who visit an emergency department, hospitals often haphazardly add more resources to their emergency department, such as hiring more personnel or adding more treatment rooms, without proper analysis of the impact of the additional resources on the system. These solutions can be quite expensive and yet their effect on improving problems in the system is often negligible. Knowledge management can make these challenges tractable and lead to more effective solutions. For example, through the application of an automated patient management system that collects and utilizes information concerning the status of patients, the flow of patients can be better managed. Hospitals can effectively deal with many of the problems associated with scheduling and overcrowding, and improve the quality of care provided by their institution. To accurately capture and provide access to the volume of precise information required to effectively manage a healthcare facility, an extensive information acquisition system must be created. The information collected can then be used for both real-time and long-term management decisions. These ideas are discussed and elaborated upon in this chapter.

INTRODUCTION

The purpose of this chapter will be to investigate the problems involved in managing patient flows and to describe the application of automatic data collection tools that will optimize the use of resources through knowledge management. Improvements in knowledge management through the collection and utilization of information and, subsequently, in the control and management of the emergency department, will result in increased productivity and cost effectiveness of emergency department resources, better flow of patients through the department, and improved quality of patient care.

This chapter will describe, as a case study, the development of tools capable of addressing the issues involved with patient management. The case study will describe the development of an information systems framework for the creation of a patient flow management system. It will then describe the use of this framework in the creation of an experimental patient tracking and control system that was developed utilizing automatic data collection tools with a computer-based interface to track the flow of patients throughout a model hospital emergency department. The experimental system utilizes a graphical interface to aid emergency department staff in the control and management of patients. In addition, the system has built-in monitoring and analysis tools. Control is accomplished by increasing the use of information and by providing more information feedback to emergency department staff.

The goal of the chapter will be to further the understanding of the use of technology for the improvement of the quality of patient care, specifically through the use of automated data collection technology and control systems for the management of patients and patient information. Advances in these technologies for real-time decision making allow for optimization of resource allocation and, ultimately, the care of patients. On a larger scale, these technologies thus represent advancement in the knowledge management of healthcare systems and enterprises.

PATIENT OVERCROWDING PROBLEM

The overcrowding of patients in hospital emergency departments and outpatient clinics throughout the United States is a serious problem that often results in increased facilities and/or personnel. Research shows that the patient overcrowding problem affects hospitals of all types throughout the United States. One survey (Ranseen, 1991) states that 38% of United States households include someone who has visited a hospital emergency department for a minor illness or non-life-threatening emergency in the last two years. Another study (Kellerman & Lynn, 1991) shows that three of four institutions have reported that their rate of emergency department usage has increased in the past few years. That same study reported that during one reference month, 40% of reporting hospitals diverted ambulances to other hospitals part of the time, and one-third were required to transfer patients to other hospitals due to overcrowding. The introduction of managed care is supposed to have an effect on the usage of emergency departments. However, Shortell and Reinhardt (1992) report that, "while managed care is being touted as an effective approach to both cost control and quality improvement, there is relatively little research to document the extent to which these savings and quality improvements have been realized."

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/applying-automatic-data-collection-tools/7227

Related Content

Applying Business Intelligence and Analytics to Clinical Costing Data
Martin Hugo Rennhackkampand Graeme K. Hart (2019). *Clinical Costing Techniques and Analysis in Modern Healthcare Systems (pp. 54-86).*
www.irma-international.org/chapter/applying-business-intelligence-and-analytics-to-clinical-costing-data/208278

Movies and Medicine: An Interview with Dr. Agahse
Tamkin Khan (2013). *International Journal of User-Driven Healthcare (pp. 89-91).*
www.irma-international.org/article/movies-and-medicine/103925

Software Life Cycle
Roy Rada (2008). *Information Systems and Healthcare Enterprises (pp. 26-54).*
www.irma-international.org/chapter/software-life-cycle/23378

Impact of Accreditation on Healthcare Professionals' Knowledge on Quality Management
Meenakshi Prasad Gijare, Prabir Kumar Bandyopadhyayand Sonali Bhattacharya (2021). *International Journal of Reliable and Quality E-Healthcare (pp. 1-15).*
www.irma-international.org/article/impact-of-accreditation-on-healthcare-professionals-knowledge-on-quality-management/279108

Ubiquitous Information Therapy Service through Social Networking Libraries: An Operational Web 2.0 Service Model
Vahideh Zarea Gavgani (2011). *User-Driven Healthcare and Narrative Medicine: Utilizing Collaborative Social Networks and Technologies (pp. 446-461).*
www.irma-international.org/chapter/ubiquitous-information-therapy-service-through/49269