

Technical note

# The impact of strategic operations management decisions on community hospital performance

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## Abstract

Over the past decade, 10% of community hospitals have closed. In this challenging time, our study presents hospital administrators with some valuable information that can help improve community hospitals' performance. The purpose of this paper is to develop a strategic operations management model that links long-term service choices, intermediate operations decisions, and hospital performance given the structural constraints of location, size, and medical teaching status. Data collected from 151 community hospitals are used to test the model. The research identifies strategic operations management decisions in the US community hospitals, shows their causal relationships, and identifies their effects on hospital performance. Specifically, we find that intermediate infrastructural operations decisions affect a community hospital's cost, quality, and financial performance after the structural decisions of location and size have set the stage. Our study also reveals that community hospitals have adopted new staff and demand management decisions in response to the market needs. © 2002 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

Service is positioned at the center of economic activities in any society. As a matter of fact, no economy can function without the infrastructure that service organizations provide in the form of transportation, education, and health care (Fitzsimmons and Fitzsimmons, 2000). In recent years, we have witnessed a major evolution in the industrial nations, from being primarily manufacturing-based to primarily service-based. Therefore, knowing how to effec-

tively manage a service organization has become a priority. Due to the increasing needs for better direction and management of service organizations, operations management researchers and practitioners have started to apply operations management concepts and techniques developed in manufacturing sectors to service industries (Heineke, 1995; Buler et al., 1996; Fitzsimmons and Fitzsimmons, 2000).

One significant segment of the service sector in the US is the health care industry. Health care service is a patient-oriented service that requires continuous interaction with customers. It utilizes facilities and equipment, and consumes a large volume of

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nursing care. Therefore, it becomes increasingly important to health care executives to understand what kind of facility, equipment, and workforce decisions are critical to achieve the commonly acknowledged goal of providing quality health service at a reasonable cost.

The health care industry uses management models that were developed in manufacturing to improve its performance. In the late 1980s and early 1990s, health care professionals adapted quality control methods such as the Fishbone Diagram and quality control charts used by US manufacturers (Berwick et al., 1991). Recent health care research suggests that the health care industry can apply strategic operations management models developed in manufacturing to achieve better performance in the changing health care environment (Heineke, 1995; Roth and Van Dierdonck, 1995; Buler et al., 1996).

Community hospitals account for 80% of US hospitals (AHA Survey of Hospital Data Base, 1995). A community hospital is a non-federal short-term general or other special hospital that is not a hospital unit of an institution (AHA Survey of Hospital Data Base, 1995). Until now research on operations strategy in community hospitals has not been well developed, especially when it relates operations strategy to the current health service condition. Most of the operations-oriented studies focus narrowly on issues of hospital cost containment, capacity planning, or personnel scheduling (Buler et al., 1996). For example, Roth discusses a strategic model that focuses on hospital technology management (Roth and Johnson, 1996), and another model that studies hospital resource management using the Material Requirements Planning concept (Roth and Van Dierdonck, 1995). Heineke (1995) applies the Hayes and Wheelwright strategic manufacturing model to health service, specifically in the infrastructure management of obstetric departments. Through these innovative studies, the conceptual background for integrating strategic operations management to hospital administration is established. However, few examples can be cited where long-term structural decisions, intermediate operations decisions, and performance are included explicitly in the management of health service operation.

Over the past decade, even as an aging population is consuming more health services, about

10% of US community hospitals have closed due to low occupancy rates and poor financial performance (Anonymous, 2001). The existing community hospitals are trying to find ways to survive, or even thrive, in the competitive health service market. Many strategic decisions, such as adding outpatient health service plans and partnering with physicians, have been used to improve market presence, utilization, and care condition (Edlin, 2001). At the same time, health care administrators have begun to realize that focusing on one decision area, such as structural decisions, is not enough. Instead, developing a congruent operations strategy is the key to improving a hospital's utilization and financial performance (Buler et al., 1996). The purpose of our study is to develop a strategic operations management model that links long-term equipment and service choices, intermediate operations decisions, and performance given structural constraints for community hospitals. The expected contributions of this study include a better understanding of strategic operations management decisions in the US community hospitals, identifying the causal relationships among operations decisions, and recognizing their effects on hospital performance. The research is further expected to find out the key strategic decisions that can help improve a community hospital's performance in the changing health service environment.

There are two issues discussed in this study. First of all, given the structural constraints of location, size, and medical teaching status, what are the long-term service choices and intermediate infrastructural operations decisions developed by US community hospitals in response to the market needs in the current health service environment? Secondly, with various structural constraints, how do intermediate infrastructural operations decisions impact a hospital's cost and quality measures and financial performance? The effects of intermediate decisions on performance are emphasized in this study because a previous study has suggested that health service, such as obstetric departments, relies upon a well-managed intermediate infrastructure decisions to deliver quality health service at a reasonable cost (Heineke, 1995). Several hypotheses related to the two research questions will be presented in the next section.

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