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Adapting a strategic management model to hospital operating strategies

A model development and justification

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Introduction

The management literature of the last two decades has extolled the virtue and necessity of strategic thinking among executives in order to create and defend a firm's competitive position effectively. One industry conspicuously absent in the research associated with this topic, has been health care. Great changes have occurred in most of American industry. However, nowhere has the pressure for change become more evident than in the health-care industry, where market, regulatory and economic forces have combined to restructure delivery systems and dislocate many existing relationships[1,2]. Health-care experts are becoming increasingly aware of the need for more systematic planning to deal with the numerous and complex changes affecting the health-care industry. Yet, there exists a lack of clear definition of strategic planning and how it is accomplished in a health-care setting[3,4]. Specifically, there is no model of strategic planning which addresses the divergence that exists in this industry. The primary scope of this article will be on the hospital sector of the health-care system.

This article examines the need for a business-oriented model of strategic management in health care and proposes a framework for such a model. The suggested model adapts the insights of business strategists like Porter[5], and Fine and Hax[6], and leads to a more complete explanation of strategic management in health care.

Hospitals were originally charitable institutions, built through acts of private philanthropy and, subsequently, through public works. These origins account for the not-for-profit status of most of America's hospitals. With the founding of Blue Cross in the 1930s, and the enactment of Medicare and Medicaid in the 1960s, the second party coverage of hospital fees has increased, thus stimulating an increased demand for hospital services. Recent changes have seen the realities of declining in-patient census (number of occupied beds) and attempts by second party providers to reduce expenditures. As a result, the hospital industry has been transformed from primarily a social-welfare institution, existing on cost-reimbursed government subsidies, into an

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economic institution struggling to maintain viability in an increasingly competitive market[7-9]

Health care today is big business, accounting for 13 per cent of the gross national product by 1991. This makes health care the third largest industry in the USA with expenditures equalling 13.6 per cent of disposable income in 1990[10,11]. With increases in competition, policy changes in health financing, alternatives in delivery systems, and the comprehensive health-care reform proposals of the Clinton administration, hospitals are experiencing the stresses of a maturing market[12]. Multi-hospital systems may face even more complicated challenges than individual hospitals[13].

Economic viability and survival depends on making sound strategic choices regarding the mission and structure of the hospital, its operations, its relationships with its customer, and its relationships to other entities in the health-care, business and regulatory environments[14-16].

Recent developments and the nature of the problem

Hospitals have been faced with a competitive environment which has resulted in the need for increasing high levels of capital investment to support facilities and equipment perceived necessary to retain top quality physicians. The physicians, in turn, supply the patients to the hospital, and consequently a synergistic relationship has developed. Hospitals continued to invest capital in tangible, and hopefully billable, equipment in order to retain a public image of being a "state-of-the-art" facility and to attract and retain the needed physicians who, in turn, funnelled their patients to the hospital that was best equipped. At the same time, physicians who live with the fear of malpractice suits took what were, for them, logical actions to ensure that every diagnostic and medical action was preceded by whatever medical testing could be used, to both reinforce their diagnosis, and reduce their risk of being sued for malpractice. The best of all worlds would be that the physician's risk of liability was being reduced at the expense of the patient, either directly or indirectly through the patient's insurance carrier.

The "field of dreams" analogy (if you build it they will come) permeated the capital expenditure decision. Equally potent, was the fear that if, for some reason, the hospital failed to have the latest equipment, it would lose the needed physician referrals and the stream of revenue would dry up. Hospitals were like the mouse on the wheel; running as fast as they could, but not getting anywhere. The result of these strategies was that a critical sector of health care had costs that were continuing to rise at alarming rates. With no physician wishing to be "at risk", referrals for tests increased, and testing required that the hospitals continue to purchase the latest in technology. Technology-driven medical equipment suppliers focused their strategies on providing new and better equipment for use in hospitals with a demonstrated willingness to continually upgrade. The market behaviour of all involved was logical. A recent study of 500 hospitals by Shortell[17] found that 25 per cent pursue a strategy of trying to be first in new product, new service, and new market development, with an additional 13 per cent gravitating towards such a strategy. The only

troubling elements in this equation were the continually rising expectations of the American public regarding access to health care and the resulting anticipation that someone (anyone) else would pay for it. It seems as if the American public believes that any, and all, illnesses can be eradicated and that no cost is too high to insure that this goal is achieved in their lifetime.

Consumer decisions are somewhat unique, in that most hospital patients are either sent by referral (their doctor); make their decision based on limited, and likely irrelevant, data; or go to the only hospital in their geographic area. Actual patient (customer) demand for the hospital's services is equally volatile and difficult to predict. The next decade is likely to see a dramatic increase in positive lifestyle changes driven by both a greater awareness of the personal value of these behavioural changes and the positive reinforcement provided by businesses attempting to reduce health-care costs. Improved surgical procedures will continue to reduce the length of stay in the hospital. The amount of out-patient surgical procedures developed and conducted over the past decade demonstrates dramatically the changing revenue concerns of hospitals. The single highest health-care costs involve efforts to sustain life in the patient's final six months. Efforts to control health-care costs will eventually lead to a national debate on the issue of death with dignity. A significantly increased demand for hospice care for terminally ill patients would result in a dramatic reduction in hospital revenues and patient costs. The regulatory and economic impacts of health-care reform on hospitals is still unclear, but without a doubt, the next decade will require hospitals to operate in a different fashion than they do today.

Due to the unique blend of public, not-for-profit, and private ownership of hospitals in America, the basic performance objectives have not been necessarily compatible. Recent and anticipated changes in the total spectrum of the external environment for America's hospitals require a significant re-examination of their mission and their implementation and use of strategic management.

In many instances, smaller and rurally located hospitals have not proactively responded to the competitive realities created by the myriad of negative external pressures. Hospital boards, to a large degree, reflect the values of the community and, as such, want their hospital to display behaviours and characteristics which have become in conflict with one another due to external environmental forces. As an example, the board would like to retain values that the hospital exists to serve the entire population of the community while facing the reality that rural areas have a large population of residents who are not covered by insurance and do not have the ability to pay. A second value-clash surfaces when the desire to "be as good as the next town" meets the cost of financing the state-of-the-art technologies that have been made available in the past two decades. Magnetic resonance imaging equipment costs more than two million dollars whether it is installed in New York City or rural North Dakota. Hospitals without strategic plans discovered that simply attempting to "catch-up" the operational elements of the business was not addressing the total picture.

Value-driven mission statements developed by the hospital boards must reflect the realities of the changing health-care environment. It would be

expected that these values and mission statements would differ based on the nature of the hospital itself:

- privately owned, for profit;
- community owned, non-profit;
- not-for-profit charitable (typically church or fraternal order related).

Hospital strategic management research

A comprehensive review of both the practitioner and academic literature in hospital administration has indicated that, while strategic planning is considered important to the industry, research on the development of a specific model of hospital strategic management is virtually non-existent. While many, such as Kis and Bodenger[18], Karger and Vora[19], and Kohlert[3] have stressed the need for strategic planning in hospitals, none have developed such a framework.

Buller and Timpson[4] attempted to adopt the McKensey Seven-S Framework, developed by Peters, Waterman, Athos and Pascale, to the hospital environment[20,21]. The Seven-S model, originally developed as a means of globally analysing organizational problems, has been more recently suggested as a tool for strategic formulation and implementation. The model, however, concentrates only on the internal workings of the organization, avoiding any effects of the external environment. Certainly, in an industry as highly regulated and as rapidly changing as the hospital industry, external considerations are crucial to strategic decision making.

While most researchers would agree that a business-oriented model is appropriate for the hospital industry, Peters and Wacker[22] argue that "the provision of hospital services is based on values very different from the values most typically associated with competitive, free market processes". Therefore, the adoption of a pure business model is inappropriate for the hospital industry. Others, such as Buller and Timpson[4] agree, noting that unique relationships between hospitals, physicians, and payor groups make strategy formulation and implementation more complex than in the traditional business setting. McCormick and Brooks[23] cite a study conducted by Shortell[17] demonstrating the early involvement physicians in the strategic planning process in hospitals which enjoy outstanding staff relations. Cerne[16] indicates that provider networks under managed competition will require new strategic planning partnerships between hospitals and physicians, community leaders and the business community. Such network planning will also force the exchange of proprietary information with other providers and payers.

In order to identify the unique strategic choices in hospitals, an adaptation of existing models to the intricacies of the health-care environment is essential.

Comparing characteristics of two business models

Comprehensive models of strategic management have been discussed in business periodicals for more than two decades. The uniqueness of the hospital

lends itself to the development of a model that is an adaptation of two selected business models: Porter's value chain[5], and a methodology developed by Fine and Hax[6]. Description and comparisons of these models follow.

Porter's value chain

Diagnostic analysis of the key strengths and weaknesses of any firm requires a disaggregation of the firm's structure. Porter's value chain accomplishes this while focusing on the cost structure and differentiation of the firm. A company's value chain of interdependent activities is connected by linkages which exist when the way in which one activity is performed affects the cost of effectiveness of other activities. Porter contends that, at the business unit level, there are nine strategic activities. How well these activities are performed may determine the firm's competitive advantage. By properly identifying these activities, relative strengths and weaknesses can be defined and addressed.

The nine strategic activities include five primary and four support activities. Primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service. Support activities are the firm's infrastructure, human resource management, technology development, and procurement[5,24] (see Appendix for examples of the primary and support activities in Porter's model).

The value chain provides a view of the firm's internal bases for competitive advantage. From this point, the firm's status is compared to benchmark standards, which include: a comparison with the firm's past performance, the current stage of product/market evolution, a comparison against the competition, and a comparison with the key success factors within the industry.

Activities in hospitals are not clearly performed across functional lines, primarily due to the nature of the work, and, to some degree, staffing levels. Therefore, diagnostic analysis of the process seems to be most appropriate in a Porter-like framework. Lacking in the model as it relates to health care is the need to consider the power of the regulatory environment and special interest groups in the organization's strategic decisions.

Fine and Hax[6] developed a methodology for designing an operations strategy that is consistent with the goal of securing a "long-term, sustainable advantage over competitors". This model addresses the interrelationships between the firm's operations units, its other functions, its competitors, and its markets. Fine and Hax[6] contend that there are nine strategic categories involved in developing an operations strategy. These include:

(1) facilities;

(2) capacity;

(3) vertical integration;

(4) processes and technologies;

(5) scope and new products/services;

(6) human resources;

(7) quality management;

(8) infrastructure;

(9) vendor relations.

Like Porter, Fine and Hax[6] believe that by properly identifying these categories, strengths and weaknesses of the operational process can be determined.

The Fine and Hax[6] model focused on the objectives of four performance measures that are all applicable to the health-care environment; these include cost, delivery, quality and flexibility. This model provides a broader definition of competitive advantage than does the Porter model, and may offer a more focused approach to strategic decisions. Another key component of the Fine and Hax model is the interrelationship between operational decisions, support services, and external markets. However, like the Porter model, little or no emphasis is placed on the regulatory and social environments.

Obviously, there are similarities between the health care and other industries. While Porter[5] and Fine and Hax[6] provide a good base for the development of a strategic management model for the hospital industry, certain relationships cannot be explained by either model. Customer markets are not as clearly defined in health care as in manufacturing because of the uniqueness of physician, patient and payor associations. Also, as noted by Peters and Wacker[22], a model that is not entrenched in the legal and social arena probably does not provide a realistic framework for the health-care environment. Therefore, the extension of a business/operations strategic model to the hospital environment is conceivable only if lodged in a suitable framework[18].

Strategy begins with values

In order to recommend any operational strategy the board must begin by a realistic evaluation of the underlying values on which the hospital's existence is based. Values drive mission statements, and the mission of each type of hospital can be clearly different. We would not expect there to be agreement as to mission across a wide variety of hospital types. The multi-vector continuum of Figure 1 provides a simple model that allows for the identification of a multitude of potential combination of hospital types.

A hospital can be further classified by its other positions on the multi-vector continuum. This continuum differentiates hospitals by considering degree of care (primary to tertiary), levels of services provided (general to specialized), and population base (urban to rural).

On the degree of care continuum, hospitals fall on, or between, primary care, defined as under 100 beds and offering basic services, and tertiary care, defined as offering services up to, and including, open heart surgery. This affects, as defined by Fine and Hax[6], those strategic decisions concerning facilities, vertical integration, processes and technologies. Facilities are directly affected by the number of beds and complexity of care required, and vertical integration is a function of services offered (outpatient services, specializations, etc.).

The continuum represented by the vertical line in Figure 1 ranges from urban to rural. Urban facilities are defined as those existing in a metropolitan statistical area[25]. Rural facilities are defined as existing in non-metropolitan statistical areas with a total population of less than 50,000. Availability and cost of labour typically differ across this range, with labour generally being more sparse and sometimes less expensive in the more rural environment. Additionally, the dollar amount of governmental reimbursement for medical services differs across this continuum, rural facilities receiving fewer dollars for identical procedures. Levels of competition decrease generally as the environment becomes more rural, and it can be argued that quality perceptions differ across this range, with expectations rising as the environment becomes more urban.

One diagonal vector represents a continuum for the types of services offered from generalized to specialized. This covers the range from general acute care hospitals to specialty facilities, such as children's and rehabilitation hospitals. Facilities, human resources and technologies differ across this continuum, based on the level of demand (high to low across the continuum), specific care requirements (low to high across the continuum), and expense of treatment (again, low to high across the continuum).

On the other diagonal, ownership status (public or private) is considered. The general mission differs by ownership status. For example, for those that are either fully or partially supported by tax dollars, the hospitals' mission would be more philanthropic based on an obligation to care for a percentage of indigent patients. Even management decisions regarding layoffs or reducing services might be partially mandated by government entities[26]. Investor-

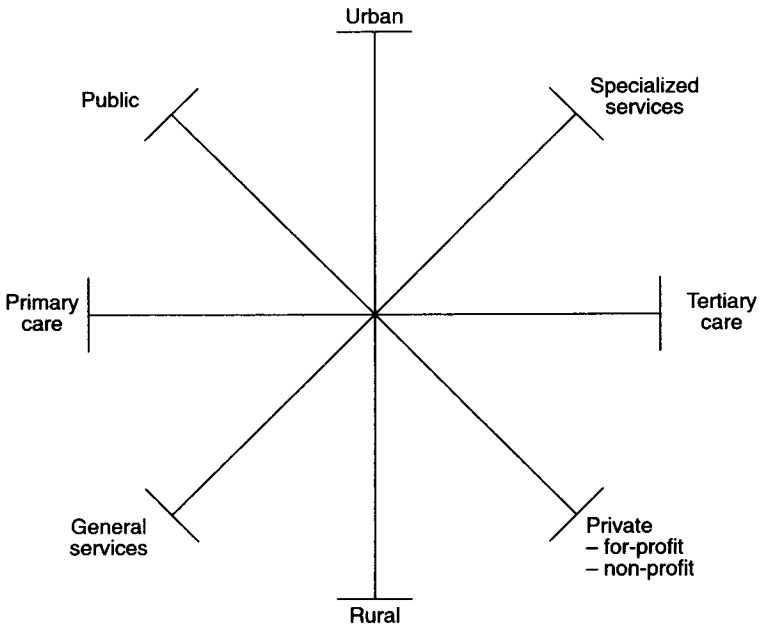


Figure 1.
Hospital industry: a multi-vector continuum

owned hospitals have primary responsibilities to the stockholders which might call for completely different management decisions than publicly funded groups in dealing with issues of profitability and efficiencies.

The implications of this classification method are that, due to the factors noted by the model and based on the hospital's position on the continuum, strategies will differ. After the hospital's position is located on the diagram in Figure 1, a global mission can be developed for the hospital. Hospitals are faced with the challenges of providing quality care at competitive prices. It is important that efficiencies of the production process be controlled, while constantly monitoring effectiveness of services, in order to attain a competitive advantage, or, in some circumstances, in order to survive. The hospital's mission, therefore, must establish the services to be offered while considering pricing and delivery of those services within a reasonable level of profitability[18,27].

The methodological model

The methodological model is portrayed in Figure 2. It must be noted that this model is general in its conception and, therefore, must be adapted to individual situations. It is obvious, therefore, that the operational model cannot be formed in a vacuum; it is affected by numerous entities inside and outside the hospital. The outer framework of the proposed model is an adaptation of Fine and Hax[6]. Strategic decisions in hospitals are a direct result of relationships and interrelationships with both remote and operating environments and the internal environment. There are three regions of considerations that must be addressed prior to discussing the primary operational activities. These are defined as the remote region, the operating region and the infrastructure region[28].

The remote region is defined in terms of legal, regulatory, economic, religious and social issues. This includes activities associated with changes in the economic situation of the country; legislative enactments; religious and social issues such as abortion.

The operating region is defined in terms of those activities that directly affect the hospital industry. These activities include: the labour market, technology market, capital market, supplier market, customer market and payor market. The customer market differs for the traditional firm in terms of its relationship to the product. Physicians are considered primary customers because they often select the product (or supplier of the product) for a secondary customer known as the patient. Furthermore, as a result of certain payor programmes, business and industry are also considered customers because of the part they play in selecting the product. The payor market is defined in terms of those entities that have a part in paying for the services; these include Medicare, Medicaid, health maintenance organizations, physician provider organizations, and insurance companies. Again, this differs from the traditional firm in that payment for the service is generally made by a third party and, therefore, justifies a separate category in the model.

The infrastructure region is defined in terms of those support activities suggested by Porter, but expanded to include activities that are specific to hospitals;

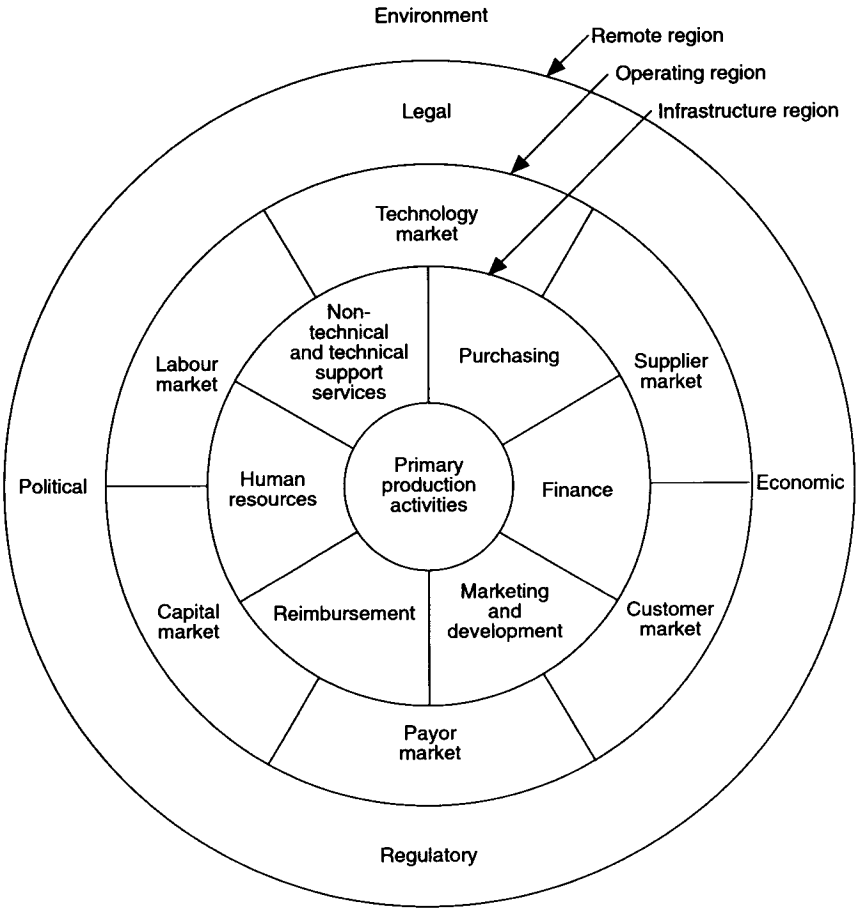


Figure 2.
The methodological model

these include human resource management, finance, reimbursement, marketing and development, purchasing, and non-technical and technical support.

Because labour costs account for about 55-60 per cent of the operating expenses in hospitals, activities associated with recruiting, hiring and retaining employees are of paramount concern. While this function does not differ greatly from other industries, the availability of some labour categories will vary across the rural-urban continuum because of the specialized nature of the work.

Because of the intricacies involved with the payor system, reimbursement is defined separately from finance. While the pure finance activities do not differ considerably from other industries, the reimbursement considerations are important. Whether a service is cost reimbursable by insurance can significantly effect the utilization and competitive advantage of offering the service.

The marketing and development function encompasses both the means of getting the patient to the hospital and future service development. Physician recruitment, relationships with insurance carriers, relationships with business

and industry are all part of the marketing process. Developmental activities include packaging hospital services into programmes, such as ambulatory care, women's medicine, etc.

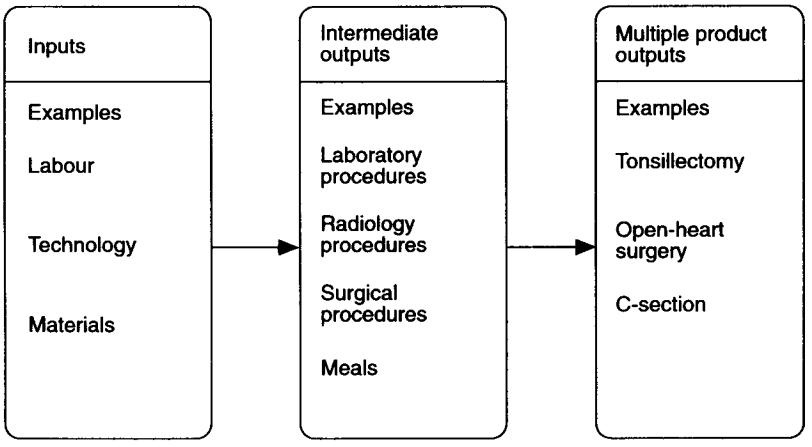
The purchasing function includes the procurement of medical, dietary, pharmaceutical supplies and custodial supplies. Technical and non-technical support services include diagnostic services such as radiology, and functional support services, such as dietary and house-keeping services.

The inner circle of the model describes those activities that are necessary to produce a product. A product is defined as an output from a productive system offered for sale, or made available to the customer[29]. According to Fetter and Freeman[27] the products in hospitals are those specific services that are provided to the patient. These include laboratory tests, radiology procedures, as well as nursing care, surgical facilities and special social services. Since the hospital's objective is to treat the patient optimally, Fetter and Freeman[27, p. 42] refer to these services as "intermediate outputs", and "the specific set of these intermediate outputs provided to each patient as a product of the hospital". Therefore, the authors conclude that a hospital is "a multi-product firm with each product consisting of multiple goods and services" (see Figure 3).

Figure 4 describes the hospital's production function, or relationship between input of productive services per unit to the intermediate outputs per unit type[27]. These functions are an adaptation of Porter's[5] primary activities.

Inbound logistics are those activities associated with bringing all the components necessary for providing the intermediate outputs into the hospital. These functions include receiving, storing and disseminating such things as hospital supplies, pharmaceutical and food products.

Demand management includes those activities associated with recognizing, managing and scheduling all of the demands for the intermediate outputs. This includes initially forecasting the demand and the actual process of scheduling rooms, procedures and other services as necessary. These activities are part of



Source: Adapted from Fetter and Freeman[27]

Figure 3.
Defining the hospital product

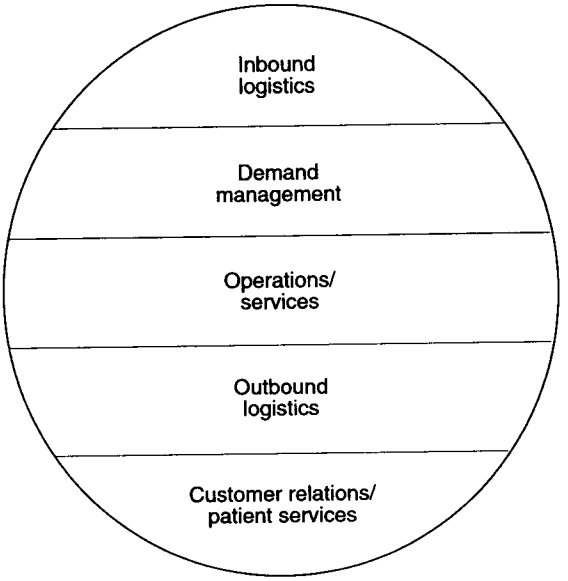


Figure 4.
The hospital's production function

a master schedule which is an essential part of cost management. By aligning available capacity with available labour and technology, lag-time can be avoided, thus avoiding an occurrence of unnecessary labour costs.

Operations/services are those activities associated with directing or regulating the movement of the patient through the treatment cycle. These activities begin with the initial admissions procedures, continue through the patient care cycle, and end with the discharge of the patient from the hospital.

Outbound logistics are activities associated with the after-hospital care of the patient. This may include follow-up treatments, scheduling of home care, rehabilitation, and social service.

Customer relations/patient services are the non-essential, ancillary activities offered by hospitals. These include volunteer services, candystripers, social services, gift shop, patient education and ministry programmes.

According to Porter[5], the cost of the activity is affected by the policy choices of the firm. Therefore, within a hospital's mission, deliberate choices must be made between cost and differentiation. Fetter and Freeman[27] suggest that the diagnosis related groups provide a mechanism to control costs because it allows total costs within an institution to be broken down by both type of product and type of output[30].

It is believed that this can be accomplished within the proposed framework.

Model implementation

While it is recognized that the application of this model is hospital-specific, there is enough commonality to warrant a generalized implementation process. The following is suggested:

- Establish and/or review the hospital mission.
- Conduct a thorough audit of the operating and remote environments to detect threats and/or possible avenues of opportunities.
- Conduct a thorough audit of the internal environment through an examination of the primary functions to detect strengths and weaknesses in the current operations. Examine possible means of repositioning services, where applicable, to address deficiencies.
- Match internal and external audit information to determine, first the appropriateness of services offered, and second, suggested areas of strategic focus. Areas of strategic focus suggest general frameworks for future managerial decisions.
- Develop individual strategies to address specific performance measures to include cost, delivery, efficiency, flexibility and quality.
- Establish time frames and evaluative measures for the implementation of these strategies.

Recognizing that each hospital has its own specific needs is essential to development of the final implementation process; however, it is believed that these steps provide a logical approach to adapting the model to any hospital.

Summary and conclusion

The importance of strategic planning in health care is apparent. Health-care experts recognize the need for more systematic planning to deal with the ever-more dynamic market, regulatory and economic environments. Yet, there is a clear need for a systematic definition of strategic planning and how it is accomplished in the health-care setting. The concept of overlaying a hospital environment with a business model is admittedly new and may be perceived as being arbitrary. The development of such a model is, however, based on the steady evolution of the industry from its philanthropic roots to a cost-motivated, competitive endeavour. The strategic planning model developed in this article is based on business models, and additionally addresses the divergence that exists in the hospital industry.

This research is an attempt to move from a general perception to a more specific understanding of the effects of the various environmental forces on hospital operations strategies. Due to the infinite number of real world configurations that may exist, this model may generalize to many situations, but directly representative of very few.

Future research

Clearly, validation of this model will be achieved only when it has been applied in a real world setting. It may be determined that the decision variables described in this work are sensitive to their combined positions on the multi-vector continuums, and a sensitivity analysis based on real data would be appropriate.

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28 It is important to differentiate definitionally between infrastructure as it is used in the context of this model, and as it appears in Porter's model. Porter uses the term infrastructure to classify those general support activities not otherwise accounted for in the model (other than functional activities). Infrastructure in this model includes all of those activities that support operations, both functional and non-functional.

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30 DRGs represent a multivariate system for classifying hospital discharges from an acute care hospital into groupings of patients or types of cases with like expected patterns of resources used. The DRG, according to Fetter and Freeman[27], therefore, defines the hospital products in terms of patients possessing similar sets of services

Appendix: Primary and support activities of Porter's model

Primary activities

- Inbound logistics may include receiving, material handling, warehousing, inventory control and returns.
- Operations may involve machining, assembly, maintenance, testing, printing and facility operation.
- Outbound logistics include distribution activities (finished goods warehousing).
- Marketing and sales – involve advertising, promotion, sales force, quoting, channel selecting, channel relations and pricing.
- Service activities include product enhancements such as installation, repair, training, spare parts and product adjustment.
- Different industries may inherently key on one or more of these activity types for the purpose of differentiation.

Support activities

- Procurement raw materials, components, services. Procurement spans the value chain by supporting each of the primary activities.
- Technology development includes not only product and process technology, but any technology applied to the performance of any of the primary activities.
- Human resource management involves personnel hiring, training and development. Because people are involved in each of the primary activities, HRM likewise spans the value chain.
- Infrastructure includes all of the business activities that are essential to the operation of the firm but do not fall into any of the primary activities. Examples are accounting, strategy and finance.

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