Operations Model for Trauma Centers: Multiple Case Study

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ABSTRACT

A relevant issue over the past few decades is the care of poly-trauma patients. The literature related to the care of patients suffering from poly-trauma, under the assistance point of view, is sufficiently consolidated concerning the adoption of best practices. These are usually conducted and disseminated by accrediting organizations (for example, ACS). However, recent research and theoretical shortcomings brought some heterogeneous thoughts concerning operations management and design when trying to enlarge the literature beyond the assistential dimension. Therefore, after a review of the most important operations management and health bases, a conceptual model is proposed in this article which covers the relevant elements of an operation’s projects such as: strategy, capacity, human resources, incentive systems, organizational structure and decision-making. This is in order to systematize the current stage of the field, highlighting the differences between recent studies and proposing a set of practices and premises which are necessary for the operationalization of the proposed model.

KEYWORDS

Multiple Case Study, Operations Management, Operations Model, Organizational Structure, Strategy, Trauma Center

INTRODUCTION

The origin of the word” trauma” comes from the Greek trauma (plural: traumathos, traumas) whose significant is “wound”. In medicine, the word accepts different meanings, all of them linked to unforeseen and undesirable events, which, in a more or less violent way, affect individuals involved therein, causing them any kind of lesion or damage (Sbait, 2015). It has an agent (energy), a vector (i.e. fire gun, motor vehicle, etc.) and a host (patient). As a disease, it must be approached by prevention strategies, an early diagnosis, an appropriated treatment and rehabilitation, targeting the reduction of the related morbidity and mortality (ACS, 2014a).

In Brazil, from the 80s on, it constitutes one of the most important points of the epidemiological transition (Azevedo, 2010: 25). Despite being a disease that traditionally focuses on the younger population, the rate of death by trauma and the estimated recovery time increases with age. This generates a significant increase in the use of resources for these older patients (Beilman et al., 2004), and which must be managed in the allocation of resources in a trauma unit. To Evans III et
al. (2001), the great combinations of the human, technological and financial resources, must be one of the organization’s targets, in order to enable the achievement of efficient management and the provision of quality services. Neto & Malik (2011) reinforce the issue of the demand and argue that each patient behaves in a certain way, hindering the rigid standardization of the work process and a rationalization of service delivery.

Enhancing the criticality of this type of operation, the first hour after the accident is said as critical to perform the rescue, patient referral and design of treatment that will be applied and that’s why it’s considered “The Gold Hour”. The initial treatment done in an appropriate way and in timely can significantly improve the prognosis of severe trauma.

According to Brohi, Parr & Coats (2009), understand the incidence of the trauma and specially the major trauma in the region, is critical for the design and development of the systems. Generally, according to the same author, there is no strong population data that support the design of this kind of system. In the Brazilian case, researches performed by the DataSUS show in an aggregated way, the relationship between the number and the death rate due to traffic accidents, which may be the start point for the development of this system.

This text present results of a research project about the Organizational Solutions of treatment to the poly-trauma patients in public hospitals in Brazil. Embrace their projects, their ways of management, resource allocation and the key processes and protocols adopted.

**METHODOLOGICAL APPROACH**

The research methods are the basis for the creation of knowledge, being the tools that lend themselves to understand the reality (Pinsonneault & Kraemer, 1993). To investigate how the Health Units design and manage their trauma centers, it was adopted an exploratory methodology (Jonsen & Jehn, 2011), aiming to obtain descriptive information of these organizations’ practices; and that there is little recent literature devoted to discussion of the design and management of trauma centers.

On the other hand, there is a vast literature approaching the welfare aspects of this type of unit. What it at stake is exactly the development of a theoretical and conceptual perspective, empirically effective (MASON, 2006) to guide the designers and the decision makers when they have to face the demands of this kind of Health Unit’s reality.

To get an insight of how the different characteristics of the models of management of trauma centers interact and interrelate with their organizational project’s development and about the approach and parameters effectively used by the Health Units, it was adopted as a methodological approach the Multiple Cases Study (Yin, 2005; Eisenhardt, 1989), in the context of a comprehensive systematic review of the literature (Van Aken et al., 2007) on the basis: Science Direct, PubMed e ISI Web of Science.

**Object of Analysis: Organizational Solution**

Bensabat et al. (1987) highlight the relevance of the definition of the analysis unit that is most appropriated for the study. Different analysis units imply in distinct ways to gather data and which results and conclusions might be withdrawn from the research (Patton, 2002), namely, the definition of what is waited to be said at the end of the study.

The Organizational Structure defines the units that an organization will have and the relationship among them. It has several degrees of aggregation: from the organization as a whole up to the position filled by the individuals/employees (Baligh, 2005); and define the lines of authority and responsibility of an organization (Burton et al., 2008). This means power to allocate resources, to increase or reduce the staff, to define the directions and/or strategies of the organization (Burton, 2010). These formal structures are complemented by a myriad of arrangements, which help the everyday conduct of organizations, such as commissions, committees, communities of practice, organizational processes (Markus & Jacobson, 2010).
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