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Egypt's Pediatric Oncology Hospital 57357: A Case Study Analysis

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Abstract

Hospital 57357 is the foremost pediatric oncology hospital in Egypt and provides treatment free of charge to children with cancer. Since its establishment in 2007, the hospital has grown to a capacity of 380 patient beds across three locations. Its quest for continuous improvement led to the development of a new performance management system emphasizing the tracking and measurement of a multitude of Key Performance Indicators across all departments. While this new system enables objective and perpetual monitoring of key patient care metrics, its integration into the existing structure introduces challenges that must be addressed. To analyze the external environment of Egypt's healthcare industry and the hospital's position in the market, a PESTEL analysis, Porter's Five Forces analysis, and VRIO analysis were conducted. These analyses inform recommendations for addressing the current challenges faced by the organization. Proposed recommendations include improving physician documentation efficiency, increasing transparency and communication, and creating a recognition system for subjective achievements.

Keywords: pediatric oncology, healthcare industry, Egypt, performance management system

Background: Hospital 57357

Founded in 2007, the Children's Cancer Hospital Egypt, commonly known as Hospital 57357, is the largest pediatric oncology hospital in the world. With 380 beds across three locations, the hospital is a pinnacle of healthcare in Egypt. With an average survival rate of 73%, Hospital 57357 is comparable with pediatric oncology hospitals in many developed countries. Offering an extensive array of high-quality services including chemotherapy, radiotherapy, bone marrow transplant, physical rehabilitation, and surgery, 57357 is at the forefront of medicine in Egypt. The hospital was modeled after St. Jude's Research Hospital in Memphis, Tennessee, and provides all of its services free of charge for children with cancer. The majority of the hospital's revenue comes from donations. Its construction and upfront costs were funded by wealthy private donors. Next, the hospital transitioned to a novel fundraising approach involving mass donations. Its fundraising group, AFNCI, launched a highly successful campaign during the holy month of Ramadan to solicit small donations from the public. The campaign included TV advertisements featuring celebrities and religious icons and requested that viewers make donations to a bank account numbered 57357, which became the namesake of the hospital. The Children's Cancer Hospital Foundation (CCHF) was formed to manage the hospital's operations. In 2007, Hospital 57357 opened in Cairo with 185 beds. In the next year, the Egyptian Cancer Network was created in the United States and Canada to collect donations from Egyptians living abroad.

In the following years, Hospital 57357 increased its capacity to 260 beds and added a 60-bed facility in the rural city of Tanta. The employees of 57357 feel a strong connection to its noble mission of providing exceptional care to children with cancer. Fellows and residents are attracted to the hospital's prestigious research facilities which boast well-equipped labs, a wealth

of patient data, and immense support from management. Hospital leadership fosters a sense of community and individual initiative throughout the organization by promoting the development of leadership skills in all employees.

In 2015, the hospital's strategy advisor, Amr Osman, formulated eight strategic goals, each with four strategic indicators to be measured by key performance indicators (KPIs) in every department. As competition for donations rose, it was vital to create highly intentional KPIs and monitor them often to increase efficiency. Numerous meetings were held with every department to identify and define KPIs, and performance was reviewed holistically, taking into consideration each department's contribution to a given process. Over 900 KPIs had been established by the end of 2019, some of which were department-specific while others related to performance of the hospital as a whole.

Some KPIs could not be automated but required direct observation in order to be measured. It wasn't feasible to directly observe every interaction in the population so, instead, direct observation of a smaller representative sample was used to measure these. To allow for a more comprehensive approach, 57357 augmented the KPI focus with a broad restructuring of the human resources department. A core competencies framework was established to measure soft skills that objective KPIs could not assess. This framework also enabled management to identify employees possessing talents that may be useful in other departments and to discuss with them the opportunity to switch roles. To further emphasize performance, management installed systems for incentives, accountability, and ranking. Employees who achieved their KPI targets were paid bonuses in addition to their salaries. Supervisors and managers at all levels were assessed with KPIs related to those of their subordinates. All employees were ranked by performance along a bell curve and given rewards or penalties based on their rank.

Current Challenges

While the new KPI-driven performance management system had the potential to effect considerable positive change for 57357, its implementation could create multiple challenges. Management was concerned about resistance and negative reactions from employees, the highly structured system's effect on employees' ambition and creativity, the system's capacity to allow for timely reactions to market changes, the inability to measure certain aspects of performance, and the possibility of the KPI-heavy focus causing employees to neglect activities not attached to KPIs.

Physicians were used to receiving subjective performance evaluations from their colleagues, meaning it may be difficult or uncomfortable to use objective KPI-based evaluations. Additionally, physicians may resent the increased amount of time they would have to spend on paperwork to document their work. Management wanted to be able to adjust KPIs in response to performance feedback, but employees may misconstrue these adjustments as a way for management to avoid paying bonuses for meeting KPIs by moving the goalposts. The focus on achieving KPIs may also result in employees focusing more on activities associated with KPIs and neglecting equally important activities but either not measurable by or not connected to KPIs. In addition, the highly structured nature of the new system may suppress employees' creativity and ambition. Management was also concerned about if the new system would allow the hospital to adapt quickly to changing political market conditions in an unstable industry. Finally, there are valuable activities that can't be measured by KPIs, and it's impossible to create a KPI for everything.

External Environmental Analysis

PESTEL Analysis

The PESTEL framework is used to analyze the macro-environmental factors affecting firms in an industry. The framework assesses political, economic, social, technological, environmental, and legal forces that may influence an organization's performance.

Political and Legal

The Egyptian healthcare system is pluralistic, composed of a public sector and a private sector which are both governed by the Ministry of Health and Population. The public sector includes governmental and quasi-governmental organizations, one of the largest of which is the Health Insurance Organization (HIO). The HIO was created to provide health insurance for all citizens but currently covers only 60% of the population (Columbia, 2019). Egypt's public healthcare system is fraught with challenges such as underfunding, low-quality care, and a lack of medical equipment and qualified personnel. (Gericke et al., 2018). Thus, Egyptians that can afford it seek private healthcare. Private insurers receive government support, allowing citizens to acquire private health insurance. However, recent estimates indicate that out-of-pocket expenses still represent a staggering 63% of total health expenditures (World Health Organization, 2022).

The Egyptian government has championed multiple efforts to improve the health of its population. In 2014, Egypt ratified a new constitution emphasizing health and the expansion of health coverage and access to all citizens. This was further supported by Egypt's issuance of the Universal Health Insurance Law in 2018, a ruling demonstrating further efforts to provide health coverage to all. The country has also increased focus on multiple health initiatives designed to

improve global health indicators, including those set forth by the World Health Organization Strategy and Action Plan.

In 2011, growing political unrest culminated in the Egyptian Revolution, as Egyptians protested rampant corruption, poverty, and government oppression. President Mubārak was forced to step down, leaving the country under military control until the election of President Morsi. However, the prolonged turmoil induced a severe economic downturn, causing widespread medicine shortages, higher costs, and decreases in donations. In recent years, the government has taken an antagonistic stance toward healthcare providers, with the National Security Agency arresting more than ten healthcare workers for criticizing the government's response to COVID-19 and the lack of protective equipment and testing (Human Rights Watch, 2020).

Economic

The Egyptian healthcare market is one of the largest in the Middle East, piquing the interests of foreign investors. In addition, the Egyptian government began encouraging private investment in 2013, leading to increased acquisition of private hospitals by private equity firms. Declines in disposable income and the emergence of new philanthropies and NGOs led to donor fatigue, shrinking the pool of resources available to hospitals that relied on donations. In recent years, large-scale reforms have helped to stabilize Egypt's economy. However, the economy is weakened by the government's high debt-to-GDP ratio and underperformance in international revenue-generating activities, including exports and foreign direct investments. With a low employment rate of 39%, there is a shortage of labor available to fill healthcare roles. In addition, approximately 30% of Egyptians live below the national poverty line (World Bank, 2021). Low employment rates decrease the number of Egyptians able to access employer-

sponsored health insurance, and high poverty rates reduce the capital available to make healthcare purchases.

Total health expenditures as a percentage of GDP have remained fairly consistent for the past 12 years and were 4.74% as of 2019 (Fasseeh et al., 2022). Egypt's total healthcare spending is forecasted to experience a compound annual growth rate of 9.7% through 2023, with similar growth rates in the following five years, resulting in a forecasted 17.2 billion USD market value in 2028 (Informa Markets 2020). In 2018, the World Bank promised to support Egypt's healthcare reform initiatives with an investment of 530 million USD (Fitch Solutions, 2019). The combination of these metrics suggests potential for increased profitability for participants in Egypt's healthcare industry.

Social and Demographic

Egypt's population of 106 million is growing at 2.5% per year and is estimated to reach 130 million by 2030. The population is young, with 74% of Egyptians under the age of 40, and one-third of the country under the age of 14. The country is racially homogeneous, with 95% of citizens identifying as Egyptian Arabs. The country's health indicators have improved in recent years, with the average life expectancy increasing significantly from 58 in 1980 to 72 in the present day (Columbia, 2019). A large majority of Egyptians live along the Nile River, making this region one of the most densely populated in the world, with 5,000 people per square mile (Little & Goldschmidt).

Technological

Technological trends in Egypt's healthcare industry include the use of telehealth, the emergence of health-tech startups, and a growing emphasis on artificial intelligence. The COVID-19 pandemic has broadened the use of telehealth and telemedicine technologies to

connect patients and providers in virtual settings. This technology has also increased access to healthcare for patients in rural areas.

In addition, a new wave of startups has been disrupting Egypt's healthcare industry, earning the country a spot on Magnitt's list of the top countries with the most startup investment deals closed in 2019 (Narwani, 2020). Artificial intelligence is gaining popularity throughout the industry, allowing for vast improvements in areas such as diagnostics and patient data management. To capitalize on this trend, Egypt announced a goal of having 7.7% of its GDP derived through AI by 2030 and has also formed a national AI strategy to further integrate AI into multiple sectors including healthcare (PwC, 2018).

Porter's 5 Forces

The potential profitability of a firm competing in a given industry can be analyzed using Porter's Five Forces framework (Porter, 1979). Porter's Five Forces include threat of new entrants, threat of substitutes, rivalry, buyer power, and supplier power. The collective strength of these forces determines an industry's attractiveness, competitive intensity, and potential profitability. The weaker these forces are, the greater the potential for success in the market. Having a comprehensive understanding of these forces enables firms to stay apprised of the greatest opportunities and threats in the industry and allows for formulation of opportunities for diversification.

Threat of new entrants

Establishing a new hospital requires the investment of significant upfront capital for construction and equipment purchases. In combination with lengthy lead times to market and

substantial regulatory and legal obstacles, barriers to entry into the healthcare market are high. Therefore, the threat of new entrants is low.

Threat of substitutes

Few effective substitutes exist in healthcare. Alternative medicines such as acupuncture, herbal remedies, and aromatherapy may be viable options for certain conditions. Additionally, patients may purchase pharmaceuticals to manage symptoms or treat ailments to avoid going to a hospital. However, the severity of certain illnesses may eliminate alternative treatment options, forcing patients to seek treatment at a hospital or clinic. The existence of few substitutes for patients creates a low threat of substitutes.

Rivalry

Rivalry is somewhat high in the Egyptian healthcare industry, with a large number of public and private hospitals available. Hospitals compete primarily on cost and quality of services. Mortality rates, efficacy of treatments, and qualifications of providers and staff all contribute to the perceived quality of healthcare organizations. Consumers value these aspects differently, but a hospital offering excellent care for little or no cost is positioned well to succeed in the industry. Switching costs are low for consumers. Hospitals must compete for donors. For donors, many substitutes exist. New NGOs replicated 57357's fundraising model, increasing options for donors, effectively reducing the pool of donated funds available to hospitals relying on donations to supplement revenue. These factors indicate that rivalry is high within the industry.

Buyer power

There are more than 1,000 hospitals in Egypt, giving consumers many options for medical care (Raven, 2021). However, buyers' options are limited based on the types of care

they need. Egypt has fewer than 30 oncology hospitals and even fewer pediatric oncology hospitals. Patients may opt to seek care for lower costs at public hospitals, but those who can afford them tend to prefer private hospitals due to the outdated equipment, overcrowding, and substandard quality of public hospitals. Thus, the bargaining power of buyers is low.

Supplier power

Suppliers in the healthcare industry include medical equipment suppliers, physicians, and skilled healthcare workers. The vast majority of medical equipment available for purchase in Egypt is imported and resold by Egyptian companies, primarily El Gomhoureya; therefore, healthcare organizations have limited options for equipment suppliers (International Trade Administration). As a result, many private hospitals prefer to import equipment directly from other countries. Further, the high cost of medical equipment, training, and setup means switching costs are high. Egypt's growing population predicts an increased demand for healthcare employees in the coming years. When coupled with the country's low rate of employment, this may lead to labor shortages in healthcare. For these reasons, the bargaining power of suppliers in Egypt's healthcare industry is moderately high.

Strategy

Hospital 57357's state-of-the-art facilities boast superior cancer treatments and patient services, leading consumers to perceive the hospital as providing superior value. The hospital serves a narrow target market. The combination of superior value and a narrow target market indicates that 57357 utilizes a differentiation focus strategy. The hospital differentiates itself with high-quality treatment, robust research, and strategic performance and management designs.

Resources

Hospital 57357 has an extensive collection of tangible and intangible resources that make it a leading force in the industry. With a total of 380 beds across three locations, 57357 is well-positioned to serve multiple patient populations in urban and rural Egypt. Its specialized clinical pharmacy provides extensive services including outpatient services, personalized medication management, nutrition services, and patient education. The hospital's intensive care, bone marrow transplant, surgical, radiotherapy, and radiology units offer patients comprehensive oncological care. Its surgical, radiology, and radiotherapy units are equipped with the latest technologies in cancer treatment. The hospital also boasts cutting-edge diagnostic services including virology, nuclear medicine, cord blood and stem cell collection, cytogenetics, and imaging technologies including CT, MRI, and PET/CT. Additionally, a first-class physiotherapy department, complete with exercise equipment, hydrotherapy, and electrotherapy, gives patients a space to exercise.

Beyond its clinical capacities, 57357 has play areas, an art therapy space, and an in-hospital school for children. The building was designed to evoke feelings of hope, safety, and comfort through the use of natural light and appealing colors. The hospital is fully digitized and nearly paperless. Its unique fundraising model allows it to capture previously untapped revenue sources. Employees enjoy a collaborative culture, opportunities abroad for further training, and the chance to contribute to cancer research.

Notably, the new performance management system allows for continuous, in-depth monitoring of efficiency and alignment with strategic goals while continuously informing management of potential areas for improvement. The board of trustees includes prominent businesspeople and former government ministers, while the executive team comprises leaders

from prestigious and diverse backgrounds including hospitality, teaching, medicine, and research. Employees are driven by 57357's inspiring mission and feel a sense of personal ownership and responsibility for the success of the hospital and its patients' survival. The hospital also enjoys a prestigious reputation in Egypt and the Middle East as one of the region's best healthcare centers.

Competitive Advantage

The resource-based view of the firm posits that an organization's competitive advantage is derived from resources that are valuable, rare, inimitable, and organized (VRIO). Thus, the sources of an organization's competitive advantage can be analyzed using a VRIO framework (Cardeal & António, 2012). A VRIO analysis of Hospital 57357's competitive advantages is seen in Table I. In summation, the organization has many resources providing a sustainable competitive advantage. While the hospital's fully digitized and paperless nature is beneficial for the environment, it is not unique in the industry, meaning this resource only provides competitive parity. Competitive parity is also provided by 57357's opportunities for employees.

Opportunities to pursue further training abroad, participate in research, and take an extended leave of absence are attractive, particularly to fellows and residents, but the salaries offered are not competitive with those offered in Egypt's private healthcare sector.

The art therapy space is valuable and rare but would not be difficult or costly for competitors to imitate, making this a temporary competitive advantage. The new performance management system is classified as an unused competitive advantage because multiple details must still be worked out in order for 57357 to fully and effectively capitalize on this resource. At its inception, 57357's fundraising strategy was the first of its kind. However, the relative ease

with which other philanthropic organizations could imitate this resource decreased its rarity and increased competition over the funds available for donation.

Table I. Competitive Advantage VRIO Analysis

| Resource | Valuable | Rare | Costly to Imitate | Organized | Competitive Implication |
|--------------------------------------|-----------------|-------------|--------------------------|------------------|--------------------------------|
| Capacity (380 beds, 3 locations) | X | X | X | X | Sustainable advantage |
| Treatment units | X | X | X | X | Sustainable advantage |
| Diagnostic services | X | X | X | X | Sustainable advantage |
| Art therapy space | X | X | | | Temporary advantage |
| Digitized and paperless | X | | | | Competitive parity |
| Culture | X | X | X | X | Sustainable advantage |
| Opportunities for employees | X | | | | Competitive parity |
| Performance management system | X | X | X | | Unused advantage |
| Board of trustees and executive team | X | X | X | X | Sustainable advantage |
| Mission | X | X | X | X | Sustainable advantage |
| Reputation | X | X | X | X | Sustainable advantage |
| Fundraising model | X | | | X | Competitive parity |

Recommendation

Hospital 57357 can address its current challenges by implementing initiatives addressing physician documentation efficiency, KPI transparency and communication, and a recognition

system for innovation and achievements not measured by KPIs. To increase efficiency in physicians' documentation processes, 57357 can hire medical scribes to record patient interactions as they occur, allowing for a more seamless documentation process. The use of scribes improves provider satisfaction and increases the number of patients seen per hour. A 2018 study of the impacts of a medical scribe program at an academic hospital found that 90.2% of providers felt that a scribe was valuable and that time spent on documentation at home and at the office decreased 31.9% and 51%, respectively (Martel et al., 2018). In addition, a study of the effects of scribes on physician productivity in an emergency department reported that 81.8% of physicians using a scribe saw more patients per hour, with an overall average of 12.9% more patients seen per hour when scribes were used (Graves et al, 2018).

In addition, automation and artificial intelligence can be utilized to bolster efficiency. Speech recognition and natural language processing technologies can streamline the documentation process by recording physicians' notes in real time during patient interactions, while AI decisions support software can use dynamic clinical data mining to simultaneously analyze these notes to generate suggestions for diagnosis and treatment (Lin et al., 2018). Further, AI can automate documentation related to billing and regulatory compliance to allow more time to be reserved for direct patient care. The combination of a scribe program and artificial intelligence technologies can help Hospital 57357 combat the estimated 49.2% of time spent by physicians on medical documentation (Amisha et al., 2019).

To increase transparency and address employees' misinterpretation of KPI adjustments, the hospital could increase communications regarding the development and adjustment of KPIs. Open, continuous, and transparent communication is crucial to cultivating trust in employees (Rawlins, 2008). Additionally, KPIs should be developed and adjusted with a high degree of

intentionality to reduce the need for future adjustments. Department heads could also meet with employees to discuss their individual KPIs to enable improved alignment and identification with these goals. An individualized KPI dashboard could be created to allow employees to continuously monitor their progress on automated KPIs. The hospital is well-known for empowering physicians and employees to take individual initiative.

To encourage innovation and a continued focus on activities not assessed by KPIs, the hospital can create a recognition program to recognize or reward employees for excellence based on patients' feedback and reviews. To nurture the entrepreneurial spirit of employees, a program could be created wherein employees have the opportunity to present ideas to management for innovations, such as the hospital's art therapy space. Support from management in this area will enable employees to feel that their contributions are valued and that their endeavors are important. Innovation can be tied into specific performance goals or KPIs that are assessed annually, as opposed to monthly, like most of 57357's KPIs. Providing annual bonuses for meeting standards for innovation and creativity promotes the long-term pursuit of innovation (Duarte et al., 2014).

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