



Utilizing health analytics in improving the performance of healthcare services: A case study on a tertiary care hospital



Mohamed Khalifa*, Ibrahim Zabani

King Faisal Specialist Hospital & Research Center, Jeddah, Saudi Arabia

Received 24 June 2016; received in revised form 24 July 2016; accepted 31 August 2016

KEYWORDS

Health analytics;
Performance;
Improvement;
Healthcare services

Summary Among the most common and chronic problems in the healthcare system worldwide is the crowding of emergency rooms (ER); leading to many serious complications. King Faisal Specialist Hospital and Research Center utilized health analytics methods to identify areas of deficiency and suggest potential improvements to ER performance. The project implemented solutions and monitored two indicators; ER length of stay (LOS), reflecting efficiency, and percentage of patients leaving without treatment, reflecting effectiveness of the ER. A retrospective analysis of 26,948 ER encounters in 2014 was done in January 2015. Analytics techniques were used to suggest process redesign based on results. Two recommendations were implemented; a Fast-Track for lower acuity ER patients and an internal waiting area, for those patients who can stay vertical and spare an ER bed. 32.8% of ER patients had lower acuity levels and less than 0.5% of them were admitted to the hospital. After implementing the two solutions, the total ER LOS was reduced from 20 h in 2014 to less than 12 h in 2016; 40% improvement. The percentages of patients left without being seen stayed around 3.5%, while the percentages of patients left before complete treatment was significantly reduced from 13.5% in 2014 to 5.5% in 2016. Consequently, the total percentage of patients left without treatment was reduced from 17% in 2014 to 9% in 2016, with 50% improvement. All other factors were the same, including numbers of ER visits, Patient Acuity Level, working staff, working hours, and the count of ER beds. Health analytics methods can be used to identify areas of deficiency, potential improvements, and recommend effective

* Corresponding author.

E-mail addresses: khalifa@kfshrc.edu.sa (M. Khalifa), izabani@kfshrc.edu.sa (I. Zabani).

solutions to positively enhance ER performance. More solutions should be examined such as team triaging, patients palmar scanning, and placing a physician in triage. Additionally, more indicators should be monitored, such as the effectiveness of ER treatment—including the rates of revisits.

© 2016 King Saud Bin Abdulaziz University for Health Sciences. Published by Elsevier Limited. All rights reserved.

Introduction

Healthcare organizations worldwide are interested in achieving better quality and performance; it is important to define healthcare performance and identify quality improvement dimensions and methods. Many studies discuss how healthcare performance improvement encompasses the combined and continuous efforts of all healthcare stakeholders; healthcare professionals, patients and their families, researchers, payers, planners, and educators, to make the changes that will lead to better patient outcomes, better system performance and better professional development [1]. Many criteria and measurable attributes can define healthcare performance and quality, such as safety, effectiveness, efficiency, availability, accessibility, timeliness, and equity. This is why healthcare professionals and organizations must take into account patient preferences as well as social preferences in assessing and assuring quality [2]. Among the most common and chronic problems in the healthcare system worldwide is the crowding of the emergency room; leading to many serious consequences and complications. This problem needs to be addressed with more innovative and unconventional solutions [3].

Emergency room crowding

Crowding in emergency rooms (ER) and the impaired performance of this essential service has become a major concern for both healthcare professionals and researchers. ER impaired performance is becoming a major barrier to receiving effective, efficient, and timely emergency care. Patients who present to the ER face long waiting times to be treated and those under treatment might even face longer treatment times until they are admitted to the hospital or discharged home [4]. Some researchers analyzed ER crowding and classified its related factors into three interdependent components: input factors, throughput factors and output factors [5]. Other researchers studying

ER length of stay (LOS) divided this key performance indicator into three intervals; waiting time; which is the interval from patient's arrival to the ER until he or she is seen by an ER physician, treatment time; from starting the examination by the ER physician until a decision is made, whether to admit the patient to the hospital or to discharge them home, and boarding time; from making the decision of admission for some patients until they are physically moved to an inpatient hospital bed [6].

Using these conceptual models we can work on developing strategies and solutions to decrease ER crowding and improve performance. The problem of inadequate staffing, due to lack of physicians or nurses, low ER physicians and nurses' productivity, low efficiency of ER staff, and shortages of treatment areas are commonly studied throughput factors that may cause ER crowding and prolonged LOS [7]. Lower staffing levels or productivity of physicians and triage nurses predisposed patients to wait longer for care [8]. Competency of attending physicians in ER, in terms of skills and efficiency, and lack of, or slow, responsiveness of ER nurses has been associated, in many studies, with patients leaving without being seen or leaving before complete treatment. The use and/or delays of the ancillary services, including lab, radiology and other procedures, usually prolong the ER length of stay [9].

This study describes in details the processes implemented in the ER performance improvement at King Faisal Specialist Hospital and Research Center, Jeddah, Saudi Arabia. The executive management of the medical and clinical affairs of the hospital decided to utilize health analytics methods to identify areas of deficiency and suggest potential improvements then implement solutions and finally monitor ER using two main key performance indicators; the ER LOS for ER patients, reflecting the efficiency of performance [10], and the percentage of patients leaving the ER without treatment, including both patients who left without being seen and those who left before complete treatment, reflecting the effectiveness of ER performance [11].

Download English Version:

<https://daneshyari.com/en/article/5672847>

Download Persian Version:

<https://daneshyari.com/article/5672847>

[Daneshyari.com](https://daneshyari.com)