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Research Article

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Extraction and Comparison of the Discharge Process in a Teaching Hospital

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Abstract

Background and Objectives: Lengthy discharge process is associated with delay in admitting new patients, increased waiting time, and extra costs of patient management. The aim of the present study was to develop a computational method for identifying discharge process pattern which can help reveal factors influencing the length of this process.

Methods: A the fuzzy model of the hospital discharge process and the hospital workflow pattern was developed based on the most frequent patterns in the data and experts' opinions. In the following, the dotted charts of the different sectors were extracted and analyzed using the process mining tools.

Findings: After analyzing the dotted charts, the delayed segments on the pattern of the workflow were specified based on which a number of potential solutions to delayed discharge could be identified.

Conclusions: It was revealed that the virtually all hospital departments are involved in the patient discharge process and thus to improve this process a holistic and systems view is required.

Keywords: Hospital discharge process, Workflow pattern, Process detection, Process improvement

Background and Objectives

In modern societies, healthcare and treatment is in the center of attention, and sometimes it is even considered as a matter of political, social and economic issue of the societ.[1] In a competitive market of healthcare, hospitals focus on the ways of streamlining their processes so as to provide higher quality services at the same cost.[2] In addition, on one hand, the government and on the other hand, the health insurance companies put more pressure on the hospitals to raise their efficiency as much as possible since it is anticipated that in the near future, there will be greater demands for the high-quality healthcare.[3] Process mining offers new tools for improving the processes in a range of some different software.[4] In fact, the aim of the process mining is to discover valuable information from the event log of the organizations and sometimes it does not work based on what is thought to occur in organizations.[5] One of the most important processes that a patient is involved in during his/her stay in the hospital is the discharge process.[6,7] Incorrect implementation of the discharge process may lead to the patient and staff dissatisfaction, discharge unit congestion at certain hours, an increase in the pending cases, delay in the release time, and delay in accepting the new patients. On the other hand, improving the quality of the discharge process can lead to the increased level of the patient and staff satisfaction, reduction in the number of pending cases, reduction in the discharge time, and timely admission of the new patients which is of benefit to the patients and hospital's staff and it would result in a reduction in the hospital costs and an increase in its revenue. In order to improve the discharge processes, there is a growing need for the identification of the workflow patterns in the discharge processes. Among the advantages of identifying the workflow pattern is the improvement of the bed and hospital management through offering some solutions to facilitate discharge processes.[8]

In organizational terms, hospital dominates other components of the health system, so that the care provided at the hospital is not comparable at any level and no health system can serve without the existence of the hospitals.[9] The patient discharge process is one of the influential steps with respect to the patient

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