

Patient Safety and Quality Enhancement in the Healthcare Industry

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Abstract

The discrepancies in the provision of quality health care services and adherence to patient safety in Illinois have been widely reported. This study investigated the situation by analyzing the available data with an objective of identifying the factors associated with poor patient safety and quality profile in the region. The impact of poor patient safety and quality was also investigated. Finally, strategies necessary for patient safety and quality enhancement in the region were identified. The study was carried out using a qualitative method based on case study approach. The study analyzed a total of 93 patient records in 5 hospitals in Illinois and 50 online case studies from 5 different databases recorded between the year 2006 and 2015. The data collection for this study was done from April 16, 2016 to April 29, 2016. The study results identified insufficient and unqualified workforce, lack of adequate equipment and patient-related factors to be associated with poor quality and patient safety to a significantly varying degree ($P < 0.05$). Patient confidence, worsening of the clinical condition, trauma and occurrence of death were identified as some of the impacts of poor patient safety and quality. The study finally identified timely response to patient need, responsible leadership, adoption of advanced technology, collaboration with other health institutions and reduction of error as important strategies in patient safety and quality enhancement.

Keywords: Insufficient staff, Poor quality and patient safety, Unqualified workforce, Strategies

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1 Introduction

Healthcare is a complex sector that involves many professionals working together to serve patients. Different personnel with various specialties providing health service to a patient have the potential to contribute to errors that may lead to poor quality service delivery and the endangering of the patient's safety [1]. The manner in which a patient is handled, diagnosed, treated and followed-up determines whether patient's safety and quality is adhered to. Failure to follow evidence-based guidelines at any of the mentioned stages can lead to the provision of poor health quality that may result in the endangering of patients' safety [2]

Major incidences of poor patient safety and the delivery of poor quality services have been reported in hospitals [3]. An annual number of patients that die in United States of America due to poor healthcare services are suggested to as high as 7000. Errors that occur in American healthcare sector are estimated to cost up to \$29 billion annually. Based on the gravity of the safety and quality issue in healthcare system, focus have been laid on establishing the various aspects of the health practice associated with delivery of poor quality services that endanger the patient's safety. Research studies have taken place with the aim of creating a criterion for identifying high-quality practices within hospitals. They also identified the key factors that are used to categorize hospital based on their patient safety and quality of service deliverance [4].

Addressing safety and quality issues in healthcare sector requires that different stakeholders in the healthcare sector are actively involved in the identification of quality management and clinical strategies and are ready to take responsibility for the quality issues that arise [5]. However, it is important to note that quality health services can only be achieved if systematic and evidence-based studies are carried out to identify areas of quality disparities and suggest the possible ways of improving them [6].

This study was set out to assess the available data on quality issues and patient safety in Illinois, USA, with an aim of suggesting possible ways of improving the prevailing quality and patient safety status. Illinois was chosen for the study since the healthcare system of the region has been widely mentioned to have high cases of reported poor patient safety and poor health services [7]. To accomplish the stated objective, the study aimed at answering three main questions. The first question referring to the factors associated with the poor quality provision and patient safety management, by determining the correlation of the different factors with the poor quality provision and patient safety management. The second question focused on the determination of the impact of poor patient safety and quality healthcare on various sections of Illinois society. Finally, the study aimed to reply to the question on the strategies adopted in the health sector towards improving patient safety and quality service delivery. Although the study focused on the USA health system, the recommendation from the study is expected to contribute to positive change in the provision of health care in the USA and globally.

2 Research Design

Objectives of this study were assessed by the use of a qualitative method based on a case study approach. Case study design is appropriate for this study since it enables the researcher to evaluate the different aspects of the case being studied with the aim of providing a holistic and detailed analysis of the situation [8]. This design, therefore, enables the evaluation of the existing data concerning the quality issue and patient safety with the aim of establishing trends that exist and drawing meaningful conclusions and recommendations from the observed trends. The specific type of case study that was utilized is the multi-level case study design where separate sources of information were treated as independent case studies and the information from those studies were extracted and organized in a manner that best answered the study question [9]. Different levels that were considered in this study included: the patient level, individual health practitioner level, and the health institutional level. The term refers to the different level elements considered a case study as earlier described by Starman [9]. The study design was executed by first extracting the necessary data from all the identified sources guided by the research objectives. The identification of the source of information for this study was based on purposeful sampling approach. The sampling approach was executed by identifying the various websites and hospital records that had sufficient and up to date record of the information required. Five sources were then chosen based on the quantity and the quality of the data that it contained. Data quality was determined based on the mode of collection and the site reviews. Throughout the study, efforts were directed towards consolidating data while avoiding any possible cause of bias by ensuring that the data selection was not influenced by researcher's bias. Ten different reports on safety issue and strategy to ensure patient safety from each of the five selected databases were considered for study according to the guidelines provided by Creswell [10]. The schematic representation of the sampling approach used is shown in Figure 1.

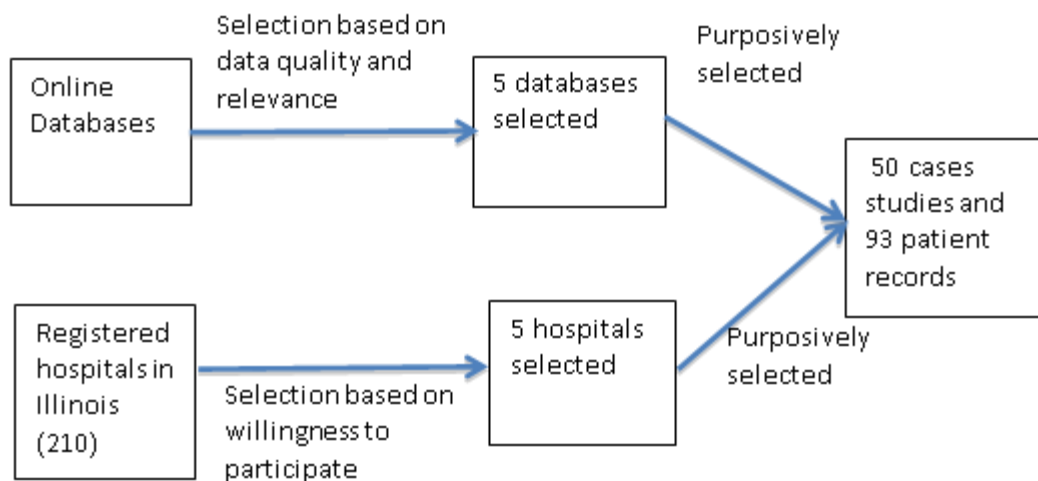


Figure 1

All 210 licensed hospitals in Illinois were considered for the study. However, the inclusion of the hospitals was based on the willingness to avail the required data. Based on this criterion, the study examined five eligible hospitals. The five hospitals included three General Medical and Surgery hospitals, one psychiatric hospital and an Acute Long-Term Care hospital. Written account of patient safety issues that includes the errors and strategies to ensure patient safety were assessed based on case study approach. A set of written questions was used as a guide during the retrieval of the information. A total of 93 cases of patient safety issues were examined from the five hospitals.

3 Data Collection

Data were collected from five different websites which included “Agency for Healthcare Research and Quality” which is a US Department of Health and Human services website that contains data on various hospital surveys and strategies used for the provision of health care. The other sources included: “Center for Medicare and Medicaid Services”, “Illinois Department of Public Health” website and Hospital Survey on Patient Safety Culture Comparative Database. Other sources included the hospital records. Five hospitals in Illinois, USA were selected based on their willingness to avail their data on reported qualities issues and strategies to ensure patient safety.

4 Statistical Analysis

Data obtained from the different sources mentioned above were coded, sorted and put into different categories. Categorization of the data was done based on the different themes derived from the research objectives. Thematic analysis of data was then executed to examine the data and establish the trends. The computed means were compared using ANOVA tests using SPSS Ver. 22.0 software. The difference between the means was established using generalized linear models at a significance level of 0.05.

5 Results

Factors associated with poor patient safety and quality in healthcare system

The comparison of the data obtained from various hospital records considered in the study revealed that the unqualified hospital workforce contributes to a significantly high (67.6%, $P=0.021$) cases related to poor patient safety and quality. The other factors that were noted to contribute to the deterioration of patient safety and the quality of health service included insufficient workforce (44.4%) and lack of adequate health equipment (45.85%). The contribution of the insufficient workforce and lack of adequate health equipment to poor patient safety was however significantly different from each other ($P=0.001$). The patient-related factors such as a poor description of condition and non-adherence to provided health care were also observed to contribute to 34.7% to poor patient safety. Based on the data used in the study, the contribution of patient-related factors to the poor quality of health service and patient safety was significantly lower ($P=0.031$) than the other three mentioned factors (Figure 2).

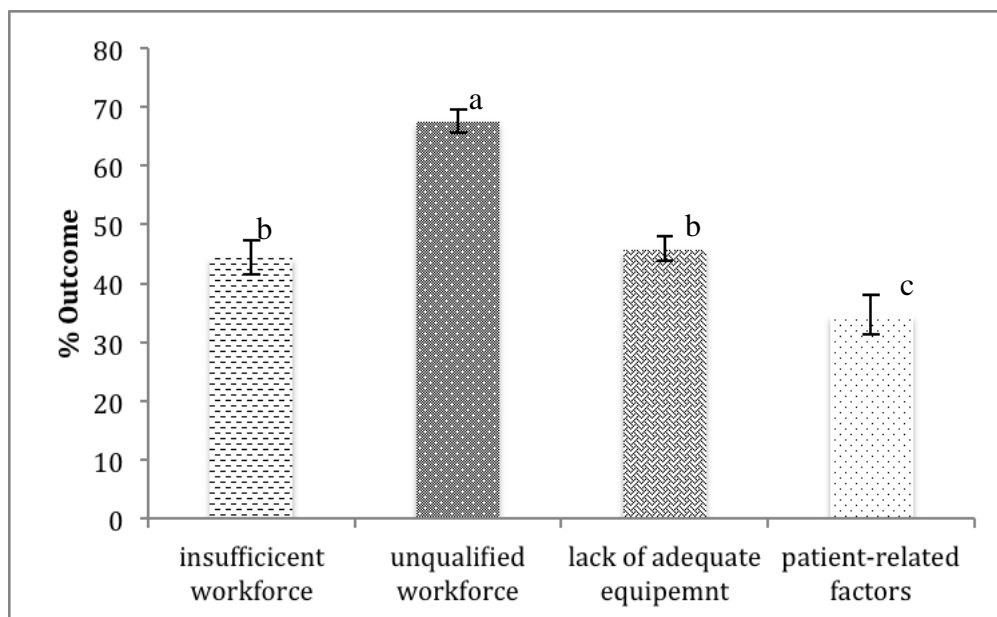


Figure 2: Results on the factors associated with poor patient safety and quality in the healthcare system in Illinois, US.

The impact of poor patient safety and quality in healthcare

The analysis of the impact of poor patient safety and quality in healthcare showed that the effects are mainly associated with the patient. According to this study, poor quality service and non-adherence to patient safety result in worsening of the patient clinical condition. This was observed in 38.3% of the cases in which the poor health service and patient safety was reported. Thirty-four percent (34%) of the cases of such cases resulted in trauma to the patient while death occurred in 3.6% of the cases. The proportion of cases that resulted in the worsening of the clinical condition and the occurrence of trauma were not significantly different from each other, but the proportion of cases in which death occurred was significantly lower ($P=0.002$). Poor quality services and patient safety also affected the reputation of the hospital as shown by the 45.9% of the patients reporting a loss of confidence with the hospitals associated with the delivery of poor quality service (Figure 3).

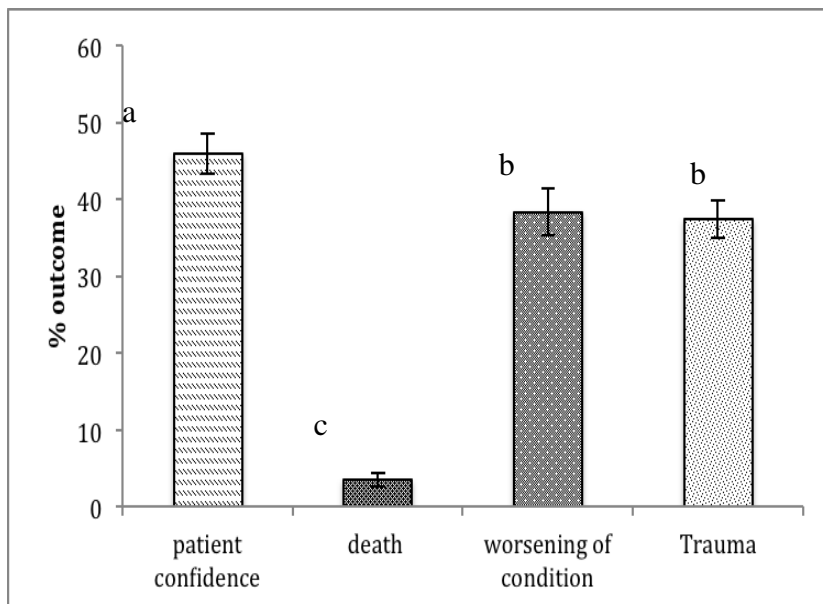


Figure 3: Results on the impact of poor patient safety and quality in the healthcare system in Illinois, USA.

Strategies to improve patient safety and quality enhancement

The study identified various strategies that were shown to be efficient in the improvement of patient safety. The results in Table 1 indicate that timely response to the patient needs is key in improving patient safety as shown by 23% increase in patient safety. Another strategy based on the reduction of errors was also shown to improve the patient safety by 65% through the adoption of correct disease diagnosis and intervention strategy. A strategy based on responsible leadership was also shown to improve the patient safety by 34% through improved staff motivation and efficiency. Focus on collaboration strategy was also shown to result in the improvement of patient safety by 26%. The improvement was shown to be due enhanced exchange of knowledge and experiences between the health practitioners resulting in improved patient care. Adoption of advance technology was also shown to result in 55% increase in patient safety by improving the tracking of patient response to medication through better patient data keeping. Advanced technology was shown to contribute to faster diagnosis, efficient record keeping and nursing satisfaction.

Table 1: Effect of the different strategies on patient safety

Strategy	% Increase in patient safety
Timely response to patient needs	23 ±1.02
Reduction of errors	65 ± 0.34
Responsible leadership	34 ± 2.24
Collaboration	26 ±1.57
Adoption of efficient technologies	55 ±2.09

6 Discussion

Research results indicate that various factors affect patient safety and quality of health services by varying proportion. The factor that was shown to be highly associated with poor patient safety and quality of health service is the unqualified health staff (67.6%, $P=0.021$). The unqualified health staff in this study refers to the health practitioners who are practicing out of their area of specialization. The result also indicates that insufficient health staff results in poor patient safety and quality (44.4%). The effect of insufficient health staff on patient safety and quality of health services is related to the overworking of the available staff. Some of the nurses, according to the study, only get to rest for 5 hours in a day. The exhaustion that occurs due long hours of work may result in poor judgment and errors that may lead to poor quality service and endangering of patient safety [11].

Poor patient safety and quality of health services was found to be associated with the lack of adequate health equipment (45.85%). The study noted that health equipment such as the PT/CT scanners and MRI machines in some of the hospitals in Illinois. The effect of the inadequate health equipment was suggested to result in poor quality diagnostic services. The use of wrong equipment due to unavailability of appropriate equipment endangers the patient safety. The results also showed that patient-related factors contribute to 34.6% of poor safety and quality cases. This study agrees with previous studies on the contribution of patient related factors such as poor description of health history during diagnosis and non-adherence to medication [12, 13] to poor quality and patient safety. The failure of the patients to participation fully in health service administration increases the risks of errors occurring during the administration of health service [14].

Poor patient safety and quality of health services were also found to have a negative impact on the reputation of healthcare facilities. The study has shown that patients' perception on a given healthcare facility is negatively impacted (45.9%, $P=0.034$) by poor patient safety and quality. The negative perception is

reported to affect the operation of the hospitals by either reducing the number of patients visiting the facility or by lowering the motivation of the staff. It is reported that some health staff prefers to move away from the facility that is perceived to offer poor services since they do not want to be associated with the facility's bad reputation. The loss of staff can render the affected healthcare facility unable to deliver service due to inadequate staff. Studies done by Suurmond and colleagues [15] and Alrubaiee and Alkaa'ida [16] support the impact of negative perception on the operation of the hospitals indicated by the current study. The results have also showed that the patient's health is negatively affected by poor quality service and patient safety. Poor quality service can result in the worsening of the patient's clinical condition. This mainly occurs in a situation where poor diagnostic procedure is performed [17]. This leads to the inability of the physician to manage the condition adequately. It can also result in complete underestimation of the seriousness of the problem. This has also been reported in other studies where serious conditions such as cancer have advanced to critical stages due to poor diagnosis [18].

The occurrence of trauma and death by 38.3% and 3.6% respectively were found to be increased by the poor service delivery and poor adherence to patient safety, as well. These results are associated with the fact that poor quality service can result in a chain of events that result in trauma to patients or death. High morbidity results from cases such as surgical procedures performed by incompetent staff. Paralysis that occurs due to errors during treatment is associated with the development of trauma in patients [19]. Deaths and trauma due to poor quality service and patient safety have also been reported in previous studies [20, 21] indicating the need for concerted efforts towards ensuring improved patient safety.

Various strategies were identified to be associated with improved patient safety. Strategies such as timely response to the patient's needs have been shown to be effective in enhancing quality service delivery and patient safety in healthcare facilities in Illinois. The strategy can be implemented by proper management of the patient through the observation of the signals that indicate the need for intervention. The staff should also be equipped with adequate response facilities such as ambulances to enable respond faster to distress calls. Adequate staff should also be available to attend to the patients particularly in times of disasters where inadequate staff can results in errors due to strain and exhaustion [22]. It was also found that focusing on error reduction through interventions such as continuous health education, improved communication between the patient and physician, follow-up and tracking of the patient progress, improved diagnostic tools, benchmarking and performance assessment reduces the cases of poor quality. The study also has highlighted the importance of responsible leadership in ensuring patient safety and quality enhancement. Responsible leadership strategies such as proper management of health staff, provision of hospital equipment, adequate staffing and performance monitoring have been reported to increase patient safety. Monitoring of the healthcare staff can be done through appraisals

where the staff can discuss their jobs with management with an aim of identify possible areas of improvement [23]. However, job appraisals have been reported to be lacking in the healthcare sector, and urgent steps should be put in place to ensure that staff performance is appraised. Other strategies that have been suggested by the study include collaboration and adoption of advanced technology. Collaboration can be achieved through the exchange of staff or transfer of the patient. This helps to improve the transfer of knowledge and experience in specific areas of delivery of service [24]. The use of advance technology improves patient safety and the delivery of health services, according to this study's results. However, technology should be introduced through proper professional training to ensure proper utilization and enhanced adoption [25].

7 Conclusion

Patient safety and quality enhancement in Illinois's health services have been shown to be affected by three main factors that include the number and quality of the workforce and inadequate health equipment. The association of insufficient staff, inadequate health equipment and unqualified staff to poor quality service and patient safety has been shown to vary. The highest reported cases of poor patient safety are linked to unqualified staff. The study have identified varies strategies such as timely response to patient need, responsible leadership, adoption of technology, collaboration with other health institutions and reduction of errors to be important in enhancing patient safety and the quality health services.

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