Avoid Medication Errors, Reporting Systems

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Creating an effective multiple-phase reporting method to lower medication errors can act to identify the baseline rates of prescription errors. Hence, this can enable a recognition of the major types of medication errors and thereby assist in risk-reduction through the application of various preventive measures. A successful strategy to prevent and detect drug-related problems may involve three stages: pre-intervention phase, intervention phase, and post-intervention phase.

Keywords: medical errors ; medication error ; improve ; medication error reporting program ; health care professional ; patients ; health organizations

1. Introduction

Medical errors are described as unintentional mistakes either by omission or commission. Medical errors are classified into an error of execution or an error of planning, which are explained as the unsuccessful process of deliberate action or utilization of an improper plan to attain a goal, respectively, or by deviating from the process of care that may potentially cause harm to the patient [1]. In 2008, the US Department of Health and Human Services Office reported 180,000 deaths by medical errors among hospitalized patients [1]. A high percentage of medical errors is attributed to medications that account for almost 1.5 million victims of medical errors every year [2]. The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) defines a medication error as “any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.” These events can be linked to procedures, healthcare commodities, professional practice, along with systems consisting of prescription, order communication, dispensing, monitoring, product labeling, distribution, compounding, administration, nomenclature and packaging, education, and use. These events can be linked to healthcare commodities, procedures, professional practice, along with systems started with nomenclature and packaging, storing and distributing, prescribing, transcribing, documenting, reviewing, preparing (or compounding), product labeling, educating, dispensing, and ended with drug administration and monitoring [3]. Medication errors significantly impact the well-being of individuals, organizations, and healthcare systems. According to an NCCMERP report, medication errors are ranked the sixth cause of mortality in the United States, with 5–10% of the reported medication errors classified as harmful [3]. Recently, medication errors have become a challenge facing healthcare systems and are directly linked to hospital mortality and morbidity rates [4]. Specifically, medication errors cause adverse effects on hospitalized patients and weaken the public’s confidence in the healthcare system and the healthcare services being provided [5]. In addition, medication errors negatively impact clinical outcomes such as length of stay (LOS), incurring substantial costs of about USD 2000-2500 per patient [2][6]. Another issue is the high proportion of underreporting of medication errors (estimated to be 50–60%) across healthcare organizations that is attributed to the lack of medical recording systems in many hospitals [2]. Therefore, different prevention programs were implemented to monitor errors targeting triggers and/or influencing factors of medication errors [7][8][9][10] through using carefully formulated establishment-wide reporting systems to find the likely sources of medication errors [11]. Although the reporting of medication errors offers usable data for identifying areas of improvement with regard to patient safety, the advancement of patient safety is impeded and the lack of formal reporting is well recognized [12]. A variety of standards at the institutional level and a higher level of government exist for designing an effective medication error reporting system [12]. Simultaneously, the transformation of medication error reporting systems is required to facilitate easily preventable mistakes and their often-severe aftereffects [12]. Thus, understanding what hinders reporting could eventually result in superior patient care [12]. Whilst plentiful reports have studied the contributing factors [7][8][9][10], rates of prescription errors, and adverse events [13][14][15], insufficient researches have analyzed the characteristics of successful medication error reporting systems.

2. Creating an Effective Reporting Method

Creating an effective multiple-phase reporting method to lower medication errors can act to identify the baseline rates of prescription errors. Hence, this can enable a recognition of the major types of medication errors and thereby assist in risk-

reduction through the application of various preventive measures [16]. A successful strategy to prevent and detect drug-related problems may involve three stages: pre-intervention phase, intervention phase, and post-intervention phase [17]. The pre-intervention phase reinforces voluntary medication error reporting in the healthcare facility by healthcare professionals utilizing standardized forms. Reports must be continuously monitored, reviewed, and documented on a daily basis throughout the pre-intervention phase [17]. During the pre-intervention phase, medication handling stages are monitored, patient records will be reviewed, and all procedures will be documented. The incident(s) and types of medication error(s) within the healthcare facility will be identified. Quantitative and qualitative analyses of the collected reports should be carried out during the intervention phase [16][17]. Multiple quantitative and qualitative data analyses can be applied here based on the data available, such as quantitative root-cause analysis or qualitative content analysis. Root factors that contribute to prescription errors that have caused or have had the possibility to cause harm “near miss” to the patient can thus be realized [16]. The intervention phase is an integral corrective phase as it should consist of training programs for the targeted healthcare providers [17]. Training programs should be directed towards the identification of medication errors, causation, the harm inflicted, and the importance of effective communication to promote patient safety parameters within the healthcare facility. The post-intervention phase ought to embrace continuous monitoring after the intervention corrective phase [17]. It should also emphasize the re-collecting of data and comparing it with the pre-intervention data. This phase studies the adherence of staff to voluntarily report the incidents of medication errors. The incident is then reported nationally through the organization’s system or online electronic-form.

3. Recommendations to Improve Medication Errors Reporting Systems

3.1. Blame-Free or Non-Punitive Culture

A system that can properly evaluate and rectify errors needs to be non-punitive if is to provide meaningful, applicable data [18]. There should be a system where blame is not assigned to those experiencing the errors or those that annotate them. Priorities of an effective medication error reporting system need to target pre-emptive and retroactive actions as opposed to placing blame on an individual. Corrective actions can prevent an incident recurrence, mitigate prescription errors, and enhance the long-term well-being of patients, thus improving their quality of care [19].

3.2. Anonymity

The reporting system should also consider maintaining anonymity in the reporting incident data, allowing the reporter to remain anonymous while reporting the medication error [19]. A lesson can be learned from Australian and British work on “open disclosure” and “being open”; this will help individuals to enhance their understanding as the majority of these are unintended and can later be seen with transparency [20].

3.3. Responsive and Productive

A responsive medication error reporting system stimulates internal reporting within a health organization significantly [21]. Analysis of these reports needs to be undertaken urgently, especially those that are found to be at a more critical or detrimental level; these reports, in turn, need to be made readily available to those that can take appropriate action. The response should be visible, useful, and constructive for the health care system change [21].

3.4. Encourage Involvement

Patient safety is the responsibility of everyone in the healthcare organization. Engaging key stakeholders will increase the acceptance of the priorities and result in the successful implementation of improvement efforts [22]. Key stakeholders can include the patient safety officer, chief executive officer, chief nursing officer, chief operating officer, chief medical officer, director of pharmacy or chief pharmacy officer, and the Pharmacy and Therapeutics (P&T) Committee chair. Thus, it can be seen that including patient education in as many programs as possible (both medical and non-medical) is of the utmost importance [22].

3.5. Accountability

Coordinating with senior leadership is needed to develop formal or informal authority to ensure that any unsafe practices are evaluated and immediately addressed if necessary [22]. Developing a mechanism for holding others accountable through committees or senior leaders is essential to the success of medication safety efforts [22]. Through proper education and subsequent guidance, patients themselves will be trained to prevent such medication errors and aid both the personnel and the system that is designed to help them [22].

3.6. Create an Environment That Supports Reporting

With the advent of modern technologies and infrastructure, it is imperative to utilize such data analyses to further attenuate medication errors. This is more possible now than ever; especially in the way that computerized physician entries tie in with the barcoded distribution of medication and conciliate one another [23]. Hospitals that utilize mechanics such as aided journal entries and an appropriate system helping them make decisions have been shown to alleviate complications and mortality rates and consequently reduce operating expenditure [24][25]. An organizational reporting system should be made user-friendly and accessible to all employees, students, and teaching staff (if not employees) [23]. System design changes should be considered to make it easy and meaningful to report; for example, minimize the number of screens or paper pages required for reporting, balance the need for detail with ease of use, and utilize check-boxes or drop-downs [24]. These methodologies will be most effective when every user is well-versed in the running and systemic architecture of the system [24].

3.7. Review Summary on a Regular Basis

When working to enhance a medication error reporting program, the focus should be on increasing the reporting and analysis of reports that did not result in patient harm, with the goal of decreasing harmful events [25]. Excessive focus on trends and ‘the numbers’ through monthly statistical reports can be counterproductive if it results in a de-emphasis on the analysis of root causes that can lead to corrective actions and process improvement [25]. However, a review of summary information on a quarterly, semi-annual, or annual basis is often helpful to refocus safety improvement efforts as well as identify areas of the organization that are underreporting [26].

3.8. System-Oriented

To fully enhance the system and keep it in a state of improvement, it is essential that individuals feel that they are not being held responsible. They should feel empowered to improve the different facets of the system [26]. Doing so will create culture of safety to be accommodated at an individual level [26]. This will also reinforce the concept that despite an error occurring due to human individual error, it would be replicable at some point due to the deficiencies present in the reporting system [26].

3.9. Expertise

There needs to be experts in place that can properly assess the clinical requirements of an individual case and the fundamental system architecture that allowed this to exist in the first place [16]. Such a job requires technically-aligned experts if a reporting system is to be fully utilized [16].

3.10. Psychological Safety

Psychological safety should be made a requirement of healthcare organizations. Essentially it is “being able to show and employ one’s self without fear of negative consequences of self-image, status, or career” [27]. Implementing these core values allows the workplace to be one where there is both trust and respect afforded to those who are part of it [27]. Doing so allows the whole mechanism of reporting systems, in its giving and receiving feedback and identification of errors, to be further enriched [27].

3.11. Enough Resources

The implementation of reporting systems without adequate resources will not be useful [28]. The analysis and understanding of the root/core reasons of why various errors are occurring are paramount and need an appropriate level of due-diligence afforded; such improvements may rely on fine margins and thus need attention [28].

3.12. Physical Wellbeing

Healthcare providers need to have good concentration and physical wellbeing, particularly in an emergency situation [29]. Deterioration of healthcare providers’ awareness or memory coordination may impact their performance and result to mediation prescription and administration errors [30]. Previously published research has revealed that sleep deprivation among healthcare providers is linked with medical errors occurrence [31]. There is an evidence that night-shift healthcare workers commit medical errors more often than their dayshift counterparts as they experience poorer quality and shorter duration of sleep [32]. Therefore, offering shorter periods of time on a night-shift and less working hours may lead to better sleep quality and less occurrences of less medication ERRORS.

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