

Safety Huddle methodology development in patient safety software: an experience report

Criação da metodologia Safety Huddle em um software para segurança do paciente: relato de experiência
Creación de la metodología Safety Huddle en software para seguridad del paciente: relato de experiencia

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ABSTRACT

Objectives: to report the development and implementation of a digital tool developed by a group of nurses and information technology professionals working in healthcare quality management. **Methods:** an experience report regarding the development of the Safety Huddle digital model, using the agile Scrum methodology. **Results:** the first stage was the development of the model proposed by the team of nurses and IT professionals, based on the demand of quality and patient safety leaders in Brazil, and the second phase was the software implementation. **Final Considerations:** the development and implementation of the Safety Huddle contributed to expedite the detection and distribution of actions, in addition to promoting integration among teams, accountability, and empowerment of professionals to foresee and identify issues related to patient safety and face them through action plans. **Descriptors:** Patient Safety; Risk Management; Software; Medical Errors; Quality of Health Care.

RESUMO

Objetivos: relatar a criação e implantação de uma ferramenta eletrônica desenvolvida por um grupo de enfermeiros e profissionais da tecnologia da informação que atuam na área da Gestão da Qualidade em Saúde. **Métodos:** trata-se de um relato de experiência sobre a construção do modelo eletrônico do *Safety Huddle* por meio do método ágil *Scrum*. **Resultados:** a primeira etapa foi a construção do modelo proposto pelo time de enfermeiros e profissionais de tecnologia da informação, a partir da demanda de líderes de qualidade e segurança do paciente no Brasil, e a segunda etapa foi a implementação do *software*. **Considerações Finais:** a construção e implantação do *Safety Huddle* contribuiu para agilizar na detecção e distribuição das ações, além de promover a integração entre as equipes, a responsabilização e empoderamento dos profissionais, de modo a antever e/ou identificar os problemas relacionados à segurança do paciente e enfrentá-los a partir de um plano de ação. **Descritores:** Segurança do Paciente; Gestão de Riscos; *Software*; Erros Médicos; Qualidade em Saúde.

RESUMEN

Objetivos: relatar la creación e implementación de una herramienta electrónica desarrollada por un grupo de enfermeros y profesionales de tecnología de la información actuantes en el área de gestión de calidad en salud. **Métodos:** relato de experiencia sobre construcción del modelo electrónico del *Safety Huddle* mediante el método ágil *Scrum*. **Resultados:** la primera etapa consistió en construir el modelo propuesto por el equipo de enfermeros y profesionales de tecnología de la información partiendo de la demanda de líderes de calidad y seguridad del paciente en Brasil. En la segunda etapa se implementó el *software*. **Consideraciones Finales:** la construcción e implementación del *Safety Huddle* contribuyó a agilizar la detección y distribución de acciones, además de promover la integración entre equipos, la responsabilización y empoderamiento de los profesionales, de modo de prever y/o identificar los problemas relativos a seguridad del paciente y enfrentarlos a partir de un plan de acción. **Descriptorios:** Seguridad del Paciente; Gestión de Riesgos; Programas Informáticos; Errores Médicos; Calidad de la Atención de Salud.

INTRODUCTION

Over the last years, an increasing evolution on the theme of patient safety, both in theory and practice, has been observed among healthcare professionals, researchers, senior management leaders, and healthcare service users. Patient safety (PS) means reducing the risk of unnecessary damage associated with health care at a minimum acceptable level⁽¹⁻³⁾.

According to the report "To err is human" published by the Institute of Medicine (IOM) of the United States, approximately 44,000 to 98,000 deaths per year, in the country, were associated with medical and hospital care errors. The occurrence of serious errors in health care led to the need for developing policies and implementing protocols to support the care provided in healthcare institutions, with the aim of reducing the occurrence of incidents causing harm or adverse events (AEs)⁽¹⁻⁴⁾.

The World Health Organization (WHO) created the World Alliance for Patient Safety in 2004, and subsequently, in 2009, a work team developed the International Classification for Patient Safety (ICPS), which is still used nowadays. This classification presents a set of concepts organized into a structure that emphasizes risk identification, prevention, detection, and mitigation⁽¹⁻³⁾.

According to the ICPS, AEs are incidents that occurred during healthcare provision and resulted in harm to patients. It may be physical, social, or psychological harm, including diseases, injuries, suffering, disabilities, or death⁽¹⁻⁴⁾.

In 2013, the Brazilian Ministry of Health established the Patient Safety National Program (PNSP, as per its acronym in Portuguese), with the purpose of implementing patient safety actions by means of six basic protocols based on the following priority areas: appropriate patient identification; effective communication among healthcare professionals; safety regarding prescription, use, and administration of medications; safe surgery; hand hygiene; and minimization of risk and harm caused by falls and pressure ulcers⁽²⁻⁴⁾.

Therefore, in order to reduce risk of unnecessary harm to an acceptable minimum and provide safe and quality care, the implementation of safety protocols is of utmost importance to contribute to a safer care process. In addition, an effective communication channel must be established, allowing teams to deliver and receive clear and accurate information within all healthcare organization levels⁽²⁻⁵⁾.

According to the Joint Commission on Accreditation of Healthcare Organizations, contributing factors related to communication failure were identified as some of the main causes of AEs. This fact was evidenced from 1995 to 2004 in more than 60% of the AEs. Between 1993 and 1998, the Food and Drug Administration (FDA) evaluated reports of errors related to medications, which increased with catastrophic damage and were found in 16% of the AEs⁽²⁻⁴⁾.

The Safety Huddle methodology, also called "safety briefing", was proposed by the Institute for Healthcare Improvement (IHI), and emerged from this context of communication failure and the need for early detection of AEs. According to the authors, this method increases safety awareness at the operational level or front line, and assists organizations in the development of safety culture⁽⁵⁻⁶⁾.

Corroborating the methodology of the IHI, the PNSP recommends early identification, discussion among work teams, and implementation of improvement plans based on systematized

actions of the risk management process, which is a pillar of clinical governance⁽⁵⁻⁷⁾.

However, some actions are required to operationalize the method and ensure it is successful, such as data collection to monitor care provision, identification of issues found during patient treatment, detection of risky circumstances or unsafe conditions, and near-miss. In practice, healthcare institutions encourage the detection of these findings through the voluntary notification of incidents⁽⁷⁻⁸⁾.

Another important aspect is to identify the perception of work teams on factors that affect their daily work and propose feedback, so they can understand that changes may add value to the work process, consequently resulting in improvements. In this respect, a group of independent hospitals manifested the need for as early as possible identification of information related to the care provided in their institutions and unsafe conditions detected in care processes. Therefore, the initiative of developing the digital Safety Huddle emerged, developed by experts working as external consultants, that is, without an employment bond to the institutions, in a company that produced the incident management software.

OBJECTIVES

To report the experience on the development and implementation of a digital tool developed by a group of nurses and IT professionals working in healthcare quality management.

METHODS

This was an experience report on the development and implementation of the Safety Huddle digital tool for use in all Brazilian hospitals. It is part of a master's project submitted to the School of Medicine of the Fluminense Federal University, under Certificate of Presentation for Ethical Consideration (CAEE, as per its acronym in Portuguese) protocol no. 17558819.9.0000.5243 and Research Ethics Committee (CEP, as per its acronym in Portuguese) protocol no. 3.567.788.

Initially, the development of the digital model was requested by a group of 40 hospitals distributed into different regions in Brazil and that already used incident management software. The group indicated the need for improving issues related to prompt communication and incident treatment in a proactive way for work teams of healthcare institutions. Therefore, managers suggested a company with expertise in the area to propose a tool able to provide early detection, communication, discussion, and intervention in incidents and potential incidents in institutions.

The following phases were carried out for software development: reviewing the scientific production available in the literature with the purpose of mapping knowledge on the theme, identifying potentialities and weaknesses, and integrating studies on the development of the tool; definition using the Agile Scrum method; and software's implementation in healthcare institutions.

Because this was an experience report, previous authorization from the company's board responsible for the software was requested to launch the initiative. In addition, according to Resolution 466/12 of the National Research Ethics Commission (CONEP, as per its acronym in Portuguese), no data or information

enabling the identification of the hospitals and the participants involved in the development of the software was released.

RESULTS

In order to facilitate the presentation of results, the development process of the digital tool and the software implementation were described in stages:

Stage 1 – Development of the digital model

Considering the model proposed by the Institute for Healthcare Improvement for the Safety Huddle, clients' need for a digital methodology was first understood.

The kickoff, that is, the initial meeting of the project, involved the participation of quality and patient safety leaders of the hospitals that already used incident management software. It is worth mentioning that they were all nurses with expertise in the area.

For this first stage, two quality tools were used. Brainstorming, the first, is a technique that encourages group creativity and has the purpose of achieving an objective for a specific process or task. After exposing ideas, operationalization was discussed by means of the drawing up of a flowchart in the Bizagi 3.3/2018 software to carry out validation with the IT team.

The software's development team was made up of two nurses, two IT professionals with training in development and programming, and one product manager, who is a nurse, specialized in quality and patient safety.

Scrum was the methodology used⁽⁹⁻¹⁰⁾, which expedites and optimizes the management and planning of software projects. The method's name emerged from the comparison between developers and rugby players, that is, a quick meeting that occurs before the initial throw.

According to some authors, using this method brings the following benefits: increase in client satisfaction; improvement in communication among the development team; motivation of the product and service development team; improvement in the quality of products and services produced; and reduction in development costs⁽¹⁰⁾. The operationalization of this technique for software development established a set of rules and management practices adopted for a successful project.

The flow drawn up by leaders of the healthcare institutions was presented to the development team, and requirements and estimation of hours for software development were discussed, as recommended by Scrum. This was carried out through the

backlog of product or service, that is, list of actions and functionalities to be developed, considered as an important practice for organization and management of the requirements collected, whose responsibility is shared with the development team⁽⁹⁻¹⁰⁾.

The project was carried out through meetings, and the backlog was daily updated after a quick meeting among team members, in order to set tasks to be carried out during the day and identify results achieved on the previous day. A checklist with these three questions was prepared to hold the meeting objectively: What was carried out yesterday? What will be carried out today? Was any obstacle identified when undertaking activities?⁽⁹⁻¹⁰⁾

The software was developed within six weeks, with a communication plan for clients, development of educational materials on the Safety Huddle method, and a guiding manual on its use.

Stage 2 – Software implementation in healthcare institutions

Meeting with the hospitals involved in the project was held for presentation of the operationalization flow of the digital Safety Huddle tool. The description of the flow consisted of sending a daily alert by email with all notifications of incidents in the institution over the past 24 hours. Classification according to the ICPS was only carried out after the report of notifications, when problems and possible risks were identified and mitigated as early as possible. This reading was carried out at 7 a.m. by the quality and patient safety team of the institution.

The software enabled to save the emails of all leaders through the creation of specific groups according to work teams. For example, a team of critically ill patients made up of a physician coordinator of high-complexity units, a nurse coordinator of critical units, a clinical pharmacist, and other members according to the needs of institutions.

The quality and patient safety team was responsible for sending notifications to work teams up to 8 a.m. Upon receipt, team members should discuss notifications up to 10 a.m. through the Safety Huddle Unit meeting, to discuss contributing factors and risks without prevention barriers, and developing short, medium, and long-term improvement plans.

The choice of notifications to be discussed in the Safety Huddle unit was based on the following important points: consequence for patients based on ICPS/WHO taxonomy, experience of professionals involved, and the historical series of the notifications discussed in meetings with quality and patient safety leaders of the hospitals that already used incident management software, as presented in Chart 1.

Chart 1 – Incidents discussed in the Safety Huddle Unit, International Classification for Patient Safety/World Health Organization, 2009

Nº	Type of incident	Consequence for patients
1	Clinical governance	Severe/Death
2	Process/clinical procedure	Mild/Moderate/Severe/Death
3	Medication/fluids	Moderate/Severe/Death
4	Blood/blood derivatives	Mild/Moderate/Severe/Death
5	Oxygen/gas/vapor	Moderate/Severe/Death
6	Device/medical equipment	Moderate/Severe/Death
7	Behavior	Mild/Moderate/Severe/Death
8	Accidents with patients	Mild/Moderate/Severe/Death
9	Infrastructure/building/facilities	Mild/Moderate/Severe/Death
10	Any notification with risk of image/lawsuit for institutions and healthcare professionals	Mild/Moderate/Severe/Death

After choosing notifications, work teams were responsible for engagement to mitigate risks and deal with incidents, in order to reduce the degree of harm and contribute to a better outcome for patients, employees, and organization.

At last, *in loco* discussion with the quality and patient safety team and work team was proposed, at 2 p.m. At this time, the quality and patient safety team participated, and validated actions discussed and implemented by the group. This kind of meeting, also called stand-up meeting, enables greater agility and does not affect the routine of the unit and sector where incidents occurred.

FINAL CONSIDERATIONS

Effective communication, which is set as an international patient safety goal, and interdisciplinary work team are key factors for safety and quality of care provided to individuals in healthcare services. It is worth mentioning that communication failure among healthcare professionals has been pointed out as one of the main factors that contribute to the occurrence of incidents/adverse events, and, consequently, an unfavorable outcome to patients. In this respect, identification, analysis, and treatment of risks and incidents as early as possible are of utmost importance for better results in health care.

The development and implementation of the digital Safety Huddle contributed to expedite the detection and distribution of actions, in addition to promoting integration among work teams. Therefore, it also ensures accountability and empowerment of front-line healthcare professionals to foresee and identify issues related to patient safety and face them based on action plans collectively developed.

The experience, throughout this process, showed that involvement of senior leaders of institutions is of utmost importance for the structuring and implementation of actions, with the aim to ensure patient safety and promote voluntary notification of incidents.

However, considering the critical-reflexive development of the method, the tool is not limited to the format herein purposed. The original tool lists several other pieces of data that may be collected, thus providing the possibility of continuous encouragement to improve quality and safety, as well as the development of further studies related to the tool as an intervention object for care improvement.

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