



Thank you for asking: Exploring patient perceptions of barcode medication administration identification practices in inpatient mental health settings



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ABSTRACT

Background: Barcode medication administration systems have been implemented in a number of healthcare settings in an effort to decrease medication errors. To use the technology, nurses are required to login to an electronic health record, scan a medication and a form of patient identification to ensure that these correspond correctly with the ordered medications prior to medication administration. In acute care settings, patient wristbands have been traditionally used as a form of identification; however, past research has suggested that this method of identification may not be preferred in inpatient mental health settings. If barcode medication administration technology is to be effectively used in this context, healthcare organizations need to understand patient preferences with regards to identification methods.

Purpose: The purpose of this study was to elicit patient perceptions of barcode medication administration identification practices in inpatient mental health settings. Insights gathered can be used to determine patient-centered preferences of identifying patients using barcode medication administration technology.

Methods: Using a qualitative descriptive approach, fifty-two ($n = 52$) inpatient interviews were completed by a Peer Support Worker using a semi-structured interview guide over a period of two months. Interviews were conducted in a number of inpatient mental health areas including forensic, youth, geriatric, acute, and rehabilitation services. An interprofessional team, inclusive of a Peer Support Worker, completed a thematic analysis of the interview data.

Results: Six themes emerged as a result of the inductive data analysis. These included: management of information, privacy and security, stigma, relationships, safety and comfort, and negative associations with the technology. Patients also indicated that they would like a choice in the type of identification method used during barcode medication administration. As well, suggestions were made for how barcode medication administration practices could be modified to become more patient-centered.

Conclusion: The results of this study have a number of implications for healthcare organizations. As patients indicated that they would like a choice in the type of identification method used during barcode medication administration, healthcare organizations will need to determine how they can facilitate this process. Furthermore, many of the concerns that patients had with barcode medication administration technology could be addressed through patient education.

1. Introduction

For a number of years, the World Health Organization (WHO) has advocated for healthcare providers (e.g. nurses and physicians) to properly identify patients before any clinical procedures as a fundamental patient safety practice [1]. The use of two patient identifiers (e.g. name, date of birth, medical record and encounter number

obtained either from a wristband barcode, and date of birth obtained orally) has been encouraged when a healthcare provider is administering medications, blood or blood components [2,3]. In some cases, independent double checks by two healthcare providers have been suggested during the administration process to further enhance safety, and reduce the potential for a medication error [4]. These strategies are done to ensure that medication errors do not occur during the

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administration process.

Despite these efforts, medication administration errors (MAEs) currently account for a large portion of adverse medication events in mental health settings [5–7]. In a 2013 study by Soerensen and colleagues [7], one of the most frequent causes for a MAE was determined to be a lack of establishing the patient's identity prior to the administration of a medication. In another study, it was revealed that patient identification was not verified in 66.8% of medication administrations in a medical-surgical setting [8], thus putting patients at risk of receiving wrong or inappropriate medications. These examples highlight that strategies to ensure that proper patient identification is completed during medication administration, is required if MAEs are to be reduced.

Previous research has suggested that nurses in mental health settings may feel that they know their patients well, and therefore do not have to use a patient identifier when administering medications every time [5–7]. However, several studies have highlighted that despite some nurses having these beliefs, MAEs are still occurring in mental health settings, often as a result of improper identification [7]. One mechanism to reduce MAEs in this setting is to implement barcode medication administration (BCMA) technology [1]. In doing so, nurses would be required to identify patients before every medication administration, unless the system was overridden. During a system 'override', steps during the medication administration process that ensure safety are manually skipped. To use the technology, a series of barcodes are scanned to ensure a patient receives medications in accordance with the rights of medication administration [9]. To accomplish this, a nurse logs into a patients' electronic medication administration record (eMAR), scans a form of patient identification e.g. a wristband which typically states their name, medical record number, encounter number and birth date, and then scans the medication. When the medication details embedded in the eMAR correspond correctly with the patient and medication, the medication may be safely administered to the patient. In completing these steps, the risk of a healthcare provider making a MAE, is reduced. In a number of previous studies, the introduction of BCMA into clinical practice has resulted in a statistically significant decrease in MAEs when adoption (indicated by high scanning rates) of the technology was high [10–12].

Typically, the form of patient identification commonly used in acute care medical settings for medication administration is a patient wristband [1,13] with a barcode present when BCMA is used; however, research has suggested that other identification methods may be preferred by patients in mental health settings. For example, a 2011 study by Kelly and colleagues investigated patient perceptions of identification methods in a mental health setting not using BCMA technology [14]. Results of this study indicated that some patients preferred technical methods such as a photograph, while others preferred interpersonal methods such as patient recognition. To date, no known studies have reviewed patient perceptions of identification methods in the context of BCMA technology, where only technical methods can be used. If MAEs are to be reduced through the use of BCMA in mental health inpatient settings, high patient identification scanning rates need to be achieved on each and every medication administration. Thus, the primary purpose of this study was to obtain patient perceptions of BCMA identification preferences in mental health inpatient settings. As well, overall patient perceptions of BCMA technology, and strategies to enhance its adoption in a patient-centered way, were also uncovered.

2. Methods

2.1. Design

This study used a qualitative descriptive methodology [15] employing semi-structured interviews of patients, and was analyzed using thematic analysis. Thematic analysis is an inductive approach to identifying and acknowledging patterns that emerge from collected data

[16]. In this study, data collected through interviews with patients about their perceptions of BCMA identification practices and its overall use, was conducted and transcribed. The practice of obtaining feedback to inform the co-design and/or co-creation of health informatics strategies and applications in mental health settings is well accepted, and considered trustworthy [17,18]. A thematic analysis of the transcriptions was then completed by the study team.

2.2. Setting and sample

The setting for this study was an urban mental health and addiction organization in Toronto, Canada. Within qualitative research, a sample size is determined based on the ability to achieve data saturation [19]. For example, in a previous study, which interviewed patients about their perceptions of an electronic health record, data saturation was reached with 37 participants [20]. To achieve saturation in this study, fifty-two patients participated from five inpatient care settings (forensic, youth, geriatric, acute, and rehabilitation services). These inpatient units hold between fifteen and twenty-four patients, and range in their acuity from stable requiring minimal support, to acute crisis or serious impairment requiring significant support. Patients cared for on these units vary in age from approximately fourteen to over sixty-five years old. The length of stay ranges from several days to over a year, and the clinical diagnoses of patients include a number of mental health diagnoses, concurrent disorders, dual diagnoses and challenges with addictions.

2.3. Data collection

An interview guide was developed with six open and closed ended questions. Questions were based on a review of the literature in relation to patients preferred method of identification during medication administration, and their perception of both the technology and scanning process [14,21]. Specifically, participants were asked questions related to their understanding of the BCMA process, preferred method of identification, experience with the technology, any concerns they had, and suggestions to improve the BCMA process.

Peer Support Workers (PSWs) are members of the interprofessional team who connect with individuals through shared experiences of emotional and psychological pain. The role focuses on seeing an individual as an expert in their life experiences, and the worker often helps normalize stigmatized experiences. Support focuses on an individual's strengths, not their illness; educating peers on self-empowerment and self-advocacy; and offering hope that could lead peers towards a journey of recovery and self-discovery. The role is unique from other clinical roles since there is an acknowledgment that the peer support process is of mutual benefit, with both the peer and the worker learning and growing together [22]. In this study, the PSW was engaged in all aspects of the project including planning, execution, analysis and knowledge translation activities. The PSW was trained to demonstrate the medication administration process to patients using the appropriate technology, and conduct patient interviews using the developed interview guide.

Communication via email with the managers of the various inpatient units participating in the study was completed to identify the most appropriate time for the PSW to conduct interviews e.g. avoiding meal or medication times. Recruitment was done face-to-face by the PSW of a convenience sample of patients on the five inpatient units. The PSW explained the purpose of the study, its voluntary nature, that no personal information would be collected, and expectations of participation. Patients then had the opportunity to agree or decline to participate in the study. The interviews took approximately ten to thirty minutes each, and were conducted in September and October of 2016.

Before the interviews began with each participant, the PSW provided a demonstration of BCMA technology being used during a mock medication administration process. Props, including a barcode scanner,

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