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Adverse events occurring on mental health units

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ABSTRACT

Objective: While the study of suicide on mental health units has a long history, the study of patient safety more generally is relatively new. Our objective was to determine the type and relative frequency of adverse events occurring on **Veterans Health Administration** (**VHA**) mental health units; the primary root causes for these events; and make recommendations for abating or mitigating these events.

Methods: We searched our national database for any reported adverse event that occurred on an inpatient mental health unit between January 1, 2015 and December 31, 2016. We found 87 Root Cause Analysis (RCA) reports and 9780 safety reports. The safety reports were coded for type of event and the RCAs were further coded for underlying causes and severity.

Results: Of the 87 RCA reports, there were 31suicide attempts, 16 elopements, 10 assaults, 8 events involving hazardous items on the unit, 7 falls, 6 unexpected deaths, 3 overdoses and 6 cases coded as "other". For the 9780 safety reports falls were the most common event, followed by medication events, verbal assaults, physical assaults, medical problems and hazardous items on the unit.

Conclusions: As with medical units, patients on mental health units are at risk for many types of adverse events. The same focus on patient safety is just as important for our mental health patients as for our medical patients. Mental health unit staff should undertake a structured assessment of all risk on their units. This broad approach may be more successful than focusing on a particular event type.

Patient safety is a relatively new field. In 1991, the Harvard Medical Practice Study found that 3.7% of hospitalized patients in a large randomly selected sample had disabling injuries caused by medical treatment [1–2]. In 1999, the National Academy of Medicine reported that between 44,000 and 98,000 deaths each year were related to medical errors in the inpatient setting [3]. Medical error continues to be a significant cause of mortality and morbidity in the United States [4]. To prevent harm, health systems must proactively identify when and where errors are happening and mitigate the harm before it reaches the patient rather than relying on human perfection [5–6]. This challenging task may be achieved by adopting the principles of high-reliability organizations [7–8]. High-reliability organizations use tools such as root cause analysis (RCA) to perform this function [9].

While the study of suicide prevention on mental health units has a long history [10–11], there have been few comprehensive assessments of avoidable adverse events and medical errors in the inpatient mental health environment. Most studies focus on a specific type of adverse event, such as suicide [11–14]; elopement [15–18]; assaults [19–20] medication errors [21–23] or falls [24–25]. Few studies have looked at the overall occurrence of adverse events in acute psychiatric environments. Carr et al. [26] found associations between patient characteristics and length of stay, absconding and aggressive incidents. Martens et al. [27] found that 73% of the medical staff surveyed was personally involved in at least one serious adverse event in their careers. To date no study has examined detailed reports of adverse events occurring on mental health units in a national healthcare system to determine the overall type and frequency, as well as the underlying causes of these events.

In an effort to understand the full range of adverse events occurring on inpatient mental health units, we looked at all available reports of adverse events occurring on **Veterans Health Administration** (**VHA**) mental health units over a two-year period. Our objectives included: Determining the type and relative frequency of adverse events occurring on mental health units; determining the primary root causes for these events; and making recommendations for abating or mitigating these events on mental health units.

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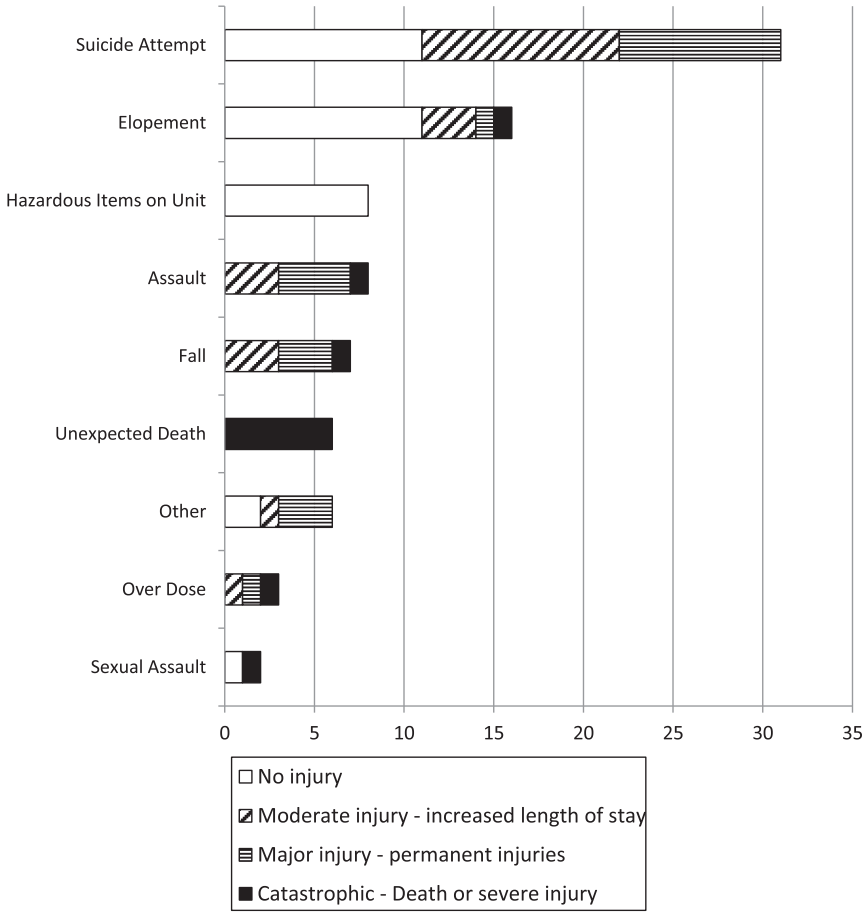

Fig. 1. Type of adverse event and level of injury for 87 RCA reports that occurred on mental health units in VHA in 2015–2016.

1. Methods

1.1. VHA root cause analysis system

The VHA has 152 medical centers, 113 of which have acute mental health units, with over 77,000 mental health admissions per year [29]. There is a Patient Safety Manager at each facility to investigate adverse events when they occur. VHA defines an adverse event as "untoward incidents, therapeutic misadventures, iatrogenic injuries, or other adverse occurrences directly associated with care or services provided within the jurisdiction of a VHA facility" (30, page 2). These events are distinct from both medical complications that may be expected to occur in a certain percentage of cases and from intentionally unsafe acts. All adverse events are reported to the Patient Safety Manager who then evaluates the event to determine if a Root Cause Analysis (RCA) is needed. RCA is a method for investigating adverse events first developed in high-reliability organizations to understand the root causes of adverse medical events. RCA reports are narrative reports that describe what happened leading up to and during an adverse event and determine the underlying causes for the event [30].

The Patient Safety Manager assigns a numerical code to each adverse event based on the severity of the event and the probability of the event happening again. Events that have a high severity of harm and high probability of recurrence are recommended to have a RCA [30–31]. Events that did not involve significant harm to a patient are logged as Safety Report (a brief description of the event). For each RCA, patient safety mangers form a team of subject matter experts who were not involved in the event. The RCA team determines the processes and vulnerabilities that contributed to the adverse event rather than focusing on individual performance. For example, if there was a clinician error, the team must determine why the larger system was not able to catch the error before the harm reached the patient. The RCA team also reconstructs the time-line leading up to the event. The RCA report outlines what happened, why it happened and what the facility must do to avoid this type of adverse event in the future [31]. RCA reports must be completed within 45 days of the event. Once they are completed, de-identified RCA reports are uploaded to a National Center for Patient Safety (NCPS) secure intranet site. All RCA reports in our database are de-identified. There is a strong focus on the systemic issues associated with the adverse event, but limited specific information about the patients or clinicians involved.

1.2. Identification and coding of adverse events in acute mental health units

We searched our database for any report that occurred on a **VHA** inpatient mental health unit between January 1, 2015 and December 31, 2016. All reports are coded by hospital location after they come into our main database in Ann Arbor. This search produced 109 RCA reports and 9780 Safety Reports. Of the 109 RCA reports, 22 were culled out because the adverse event did not occur on the mental health unit (21 reports) and one case that involved the loss of data in the medical record, resulting in 87 reports for our analysis. The RCA reports were then coded by one of the authors (PDM) for primary type of event. Patient safety managers at local facilities coded severity level and root causes.

The 9780 Safety Reports were coded at the local facility by the patient safety manager for the following categories: Suicide Attempt, Medication Events, Missing Patient, Fall, or Other Type; resulting in 3406 reports of falls, 1383 of medication events, 100 suicide attempts, 46 cases of missing patients, and 4845 cases coded as "other". We randomly sampled 167 cases (roughly every 30th case in chronological order) from the "other" category and coded these cases for the type of event. In this process we found several more cases in the categories