



## Psychiatry and Primary Care

Recent epidemiologic studies have found that most patients with mental illness are seen exclusively in primary care medicine. These patients often present with medically unexplained somatic symptoms and utilize at least twice as many health care visits as controls. There has been an exponential growth in studies in this interface between primary care and psychiatry in the last 10 years. This special section, edited by Jürgen Unutzer, M.D., will publish informative research articles that address primary care-psychiatric issues.

# Treatment of veterans with mental health symptoms in VA primary care prior to suicide



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## ABSTRACT

**Objective:** We describe Veterans Affairs (VA) primary care received by veterans with mental health symptoms in the year prior to suicide to identify opportunities to improve care.

**Method:** Death certificate data from 11 states were linked to VA national patient care data for veterans who died by suicide in 2009 and had received VA care. We identified 118 age-, sex- and clinician-matched case-control pairs (suicide decedents and living controls) with mental health symptoms. Using McNemar's chi-square and paired *t* tests, we compare primary care follow-up received during the year prior to death.

**Results:** Cases and controls received similar primary care clinician follow-up and treatment for mental health symptoms. Cases were less likely than controls to fill 90 or more total days of an antidepressant during the year ( $P=.02$ ), despite no differences in prescription orders from clinicians ( $P=.05$ ). Cases and controls were equally likely to fill 90 or more consecutive days of an antidepressant ( $P=.47$ ). Across both groups, 48% ( $n=113$ ) received assessment for suicidal ideation in primary care.

**Conclusion:** We identified two areas to improve primary care for veterans at risk for suicide: monitoring antidepressant treatment adherence and improving suicidal ideation assessment and follow-up for veterans with mental health symptoms.

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## 1. Introduction

Suicide is a leading cause of death in the United States (US), ranking as the 10th most common cause of deaths occurring in 2010 [1]. Suicide prevention has been called a *national imperative* [2], and the 2012 National Strategy for Suicide Prevention calls for the integration of suicide prevention into all healthcare reform efforts [3]. Multiple sources have identified primary care as a key healthcare setting for suicide intervention [4–6], and evidence shows that the recognition and management of depression in primary care settings is an effective suicide prevention strategy [7]. Suicide decedents often visit primary care prior to suicide; a 2002 review of 40 studies conducted outside the US found that 77% of suicide decedents are seen in primary care in the

year before death, and 45% visit primary care within a month of death [5]. A recent study of a nationally representative sample of the US population showed that the majority of suicide decedents are seen in primary care and medical specialties during the year prior to death [8].

Among US veterans, studies have found that suicide rates are increasing [9], veterans utilizing Veterans Affairs (VA) healthcare services have a higher suicide rate than the general population [10], and veterans with suicidal ideation (SI) visit primary care more times a year than those without SI [11]. Previous work has also established that veteran suicide decedents receive care in primary care and other medical specialty settings more often than in mental health (MH) settings in the weeks and months prior to death [12,13]. However, we know little about the primary care veterans receive shortly before suicide, especially when SI or MH symptoms have been detected. MH conditions and related symptoms, as well as SI, are often associated with suicide risk among veteran and military populations [14,15], but may go unaddressed in primary care settings [7]. The main objective of this study was to describe the VA primary care received by veterans with MH symptoms in the year prior to suicide to identify opportunities to

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improve care for those at highest risk. We examine assessment, diagnosis and MH treatment. Using case–control comparisons, we explore whether cases were less likely to receive clinical actions and treatment in response to detected MH symptoms as compared to controls.

## 2. Material and methods

This study was approved by the institutional review board of the VA medical center where the study was conducted. Data sharing agreements were completed, and appropriate permissions obtained in order to access and analyze all sources of data. We previously reported some of these methods as part of the larger project, for which our primary data sources and matching procedures were the same [16].

### 2.1. Study design/setting

In 2010, VA MH Services-Suicide Prevention, working through the Veterans Integrated Service Network (VISN)-2 Center of Excellence for Suicide Prevention, began to collect data from death certificates from US states for the purpose of improving timeliness and quality of veteran suicide mortality reporting. A subsequent data-sharing agreement was established for our investigator group to access these data.

For the current study, we used death certificate data from 11 states (the first set of states to have completed data use agreements with the VA): Alabama, Idaho, Maine, Michigan, Minnesota, Missouri, North Carolina, Nebraska, Nevada, Vermont and Washington. These data contained information on individuals determined to have died by suicide (*suicide* or International Classification of Diseases [ICD]-10 codes X60–X84, X87 listed as manner of death) and whose social security number matched exactly to an individual listed in VA's National Patient Care Database. The National Patient Care Database contains all individuals who have had contact with the VA for any benefit purpose. We then obtained data on veteran status and healthcare visits from the national VA Corporate Data Warehouse (CDW), a singular collection of data from many existing VA databases that is accessed securely via the VA Informatics and Computing Infrastructure Workspace. The CDW contains demographic, clinical, utilization, and cost information [17]. Additional screening, assessment and clinical action data were obtained through manual medical record review using the VA Compensation and Pension Records Interchange — an interface that provides approved users' national access to the VA's electronic medical record.

The 11 states were diverse in terms of geographic distribution across the US. Within these states, 41 unique VA parent facilities were represented. A single facility typically includes inpatient and outpatient programs including outlying clinics. Our sample represented roughly one third of the national VA facilities and, as compared to the national sample, was similar across multiple patient and facility characteristics (approximately 90% male, 80% White and over half aged 60 and older) [16].

### 2.2. Study population

We included veterans from 11 states who died by suicide in 2009 and who had contact (telephone or in person) with a VA clinician (physician, nurse practitioner, physician assistant) in a primary care setting in the year prior to suicide. There were no exclusion criteria. For the larger study, we used CDW to identify and match controls to cases using a 2:1 ratio [18]. For each case, we identified the primary care clinician seen most often in the year prior to death. We then identified all patients who received care from these clinicians in the same quarter during the year. We then matched cases to controls by sex, then age, because rates and methods of suicide have been shown to vary by sex and by age [19,20]. When multiple suitable controls were available, controls were selected randomly. Eighty-six percent of controls were seen within 2 weeks prior to, or after, case primary care visits. Exact age matches were obtained for 93% of controls. The remaining case–control sets had

ages within a 10-year gap, with matching preference ordered by age gaps of  $\pm 1$  year, then  $\pm 2$  years and others.

We excluded three cases with only one possible control, seen by primary care clinicians with very small caseloads, resulting in a sample pool of 297 cases with 594 matched controls. For the current study, we then identified cases that had MH symptoms detected during the year prior to death, defined as receipt of a MH diagnosis [posttraumatic stress disorder (PTSD), depression, substance use disorder] and/or a documented screen in primary care that detected possible PTSD, depression or substance use disorder in the year after the index date. We then identified which of these cases had a matched control that also had MH symptoms, using the same criteria. If a case had two matched controls with MH symptoms, we randomly chose one. This resulted in a final sample of 118 matched pairs. The index date for each pair was defined as 1 year prior to the case's date of death, with the main study period spanning the year between index date and death.

We used the date of death from state death certificates. Veteran age, sex, race, ethnicity, marital status, zip code and service-connected disability information were extracted from CDW. Rural versus urban residence was determined by matching patient residence ZIP codes with rural–urban commuting area codes [21,22].

### 2.3. Clinical diagnoses

We used CDW to extract psychiatric and general medical ICD-9-Clinical Modification (ICD-9-CM) diagnoses recorded by any VA clinician for two time periods: the year prior to the index date (for descriptive purposes) and the year after the index date (the main study period). Specific ICD-9-CM codes are available from the authors on request. The Selim comorbidity index, created and validated using VA data [23,24], was calculated for the year prior to the index date to show overall medical morbidity prior to the main study period. Selim is the sum of 30 physical and six psychological ICD-9-CM diagnoses in the prior year, here modified as the sum of these diagnoses plus hyperlipidemia [24].

### 2.4. Treatment received

Using an approach similar to prior studies [12,25], we used a systematic, iterative process to develop a data collection tool to record content of care, including assessment and follow-up for MH conditions and SI, documented in each patient's medical record for the year after the index date (Table 1). In consultation with the investigators, experienced medical record reviewers pilot tested and revised the data collection tool over several iterations until investigators and reviewers agreed on content and coding, and interrater reliability was excellent (i.e.,  $\text{Kappa} \geq 0.75$ ) [26]. Each patient's record was reviewed independently, with ongoing consultation with one or more of the investigators (LD, SD), and periodic retesting of interrater reliability (which remained excellent). We reviewed primary care notes for (a) the entire year after the index date and (b) the day of the last contact with the VA (defined as the last two-way exchange of information between the veteran and the VA, not counting messages left). VA utilizes a team-based approach to primary care that includes a primary care clinician, nurses and other staff such as a care manager. During a primary care contact, a number of these team members may be involved. While all contacts with primary care involved a primary care clinician, some MH screens were conducted by nonclinicians. In our results, we specify when the clinician took a particular action versus anyone on the care team. Last contacts that did not involve primary care teams were not included in these analyses. Additional treatment data were extracted from CDW, namely, *specialty mental health visit* and *prescription fill* (antidepressants, benzodiazepines and opioids) data for the year prior to the index date (for descriptive purposes) and the year after the index date (the main study period). A prescription is counted as filled when the patient requests the prescription order (which comes from the clinician) be filled for pick up or mail-out. For those with an antidepressant fill during the year after the index

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