Unforeseen Inpatient Mortality among Veterans with Schizophrenia

Laurel A. Copeland, PhD[1]
John E. Zeber, PhD[1]
Robert A. Rosenheck, MD[2,3]
Alexander L. Miller, MD[4]

1. Department of Veterans Affairs, South Texas Veterans Health Care System VERDICT HSR&D, San Antonio, Texas
2. Northeast Program Evaluation Center of the Veterans Affairs Connecticut Healthcare System, West Haven, Connecticut
3. Yale University School of Medicine, New Haven, Connecticut
4. University of Texas Health Science Center at San Antonio, Department of Psychiatry, San Antonio, Texas

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Contact Information: Laurel A. Copeland, PhD
South Texas Veterans HCS-ALMD, VERDICT Center
7400 Merton Minter (11C6)
San Antonio, TX 78229-4404
(210) 617-5300, ext. 17232 fax: (210) 567-4423
email: copelandl@uthscsa.edu

Abstract

Background. Patients with schizophrenia have co-occurring medical conditions, like other patients, but may lack the capacity to provide good self-care or to work with their providers to ensure appropriate medical treatment. We hypothesized that death among patients with schizophrenia occurs more frequently following minimal care of comorbid conditions.

Methods. All patients who died in VA hospitals during FY02 were categorized as to type of death: unforeseen (age<80, 1-2 inpatient days past year), cancer, organ failure (heart, lungs, kidneys), frailty (dementias, hip fractures, dehydration, etc.), or other deaths. Logistic regression explored factors in unforeseen death.

Results. During the year, 27,798 patients died in VA facilities; 3% had schizophrenia (n=943). Roughly two-thirds of all deaths were from cancer or organ failure, 11% frailty, 9% other, and 8% met criteria for unforeseen death. Among patients with schizophrenia, however, 20% fell into the unforeseen death category. In an adjusted model, schizophrenia was associated with a two-fold increased risk of unforeseen death compared to any other category (OR=2.4, 95% CI 1.6-3.4). Unforeseen death was less likely among patients with substance abuse diagnoses in the year prior to death and more likely when patients had no outpatient medical care.

Conclusions: VA patients with schizophrenia were more likely to die as inpatients with little previous-year care compared to other inpatient decedents without schizophrenia. Outreach efforts may be necessary to engage patients with schizophrenia in treatment for potentially life-threatening conditions.

Key words: aging, comorbidity, health services, mortality, schizophrenia, veterans

Introduction

Most deaths in the US result from chronic illnesses that require intensive care, as health declines prior to death. Patients with schizophrenia, however, are less likely to avail themselves of medical care services,[1] a circumstance that may contribute to delayed diagnosis and more fragmented medical care.[2] Older patients may reduce their pursuit of care in general, further complicating the issue.[3] In addition, clinicians may be less able to manage treatment for all arising conditions, due to "competing demands" on their time with complex patients.[4] Patients with schizophrenia have a life-span that averages 9-12 years less than that of persons without serious mental illness, and may be closer to the end of life than would be expected from their age alone.[5] Therefore, it is possible that deaths following minimal care of comorbid conditions occur more often among patients with schizophrenia than among other patients. Such deaths may include a surfeit of preventable deaths, traditionally a marker for poor quality of care.[6] At the same time, a better awareness and understanding of these deaths would allow intervention and amelioration of the problem.

The study of patient deaths has long been of interest to sociologists as well as the medical community, although some would argue their usefulness is limited.[7] Trajectories of dying related to functional decline were proposed by Glaser & Strauss in their book *Time for Dying*.[8] After observing patients, family members, and providers at length, Glaser & Strauss proposed four basic qualitative patterns to describe the end of life. Causes of death that were associated with these different patterns of functional decline were "sudden" or unforeseen deaths, cancer, organ failure, and frailty. These trajectories have recently been operationalized, with a fifth category "other deaths" (i.e., not in any other group), and studied in a sample of Medicare decedents in the years 1993-1998 by Lunney and colleagues,[9] who categorized patients according to their cause of death and health care utilization. Unforeseen deaths were defined as any that occurred among patients less than 80 years old who had minimal healthcare use in the preceding year **a**nd accounted for 7% of Medicare decedents. While Lunney and colleagues defined minimal healthcare use in terms of dollars (<$2,000 in Medicare reimbursements), we reinterpreted this in terms of inpatient days of stay (no more than 2 days of hospitalization), a more suitable approach in the VA system where there is no direct billing. The average cost of a day of inpatient medical care was $1600 in the VA in fiscal year 2004.

We hypothesized that patients with schizophrenia were more likely to die unexpectedly, that is, without the pattern of intensive health services utilization typically seen in other terminally ill Veterans Health Administration (VA) patients. We tested this hypothesis among inpatient deaths occurring in VA hospitals. To assess the diagnostic specificity of these analyses, we also included decedents with other mental illnesses.

Methods

Sample and Source of Data

We used administrative data on inpatients in both regular and extended care inpatient facilities recorded in national VA databases. Patients aged 18 or older who were discharged at death from VA hospitals during fiscal year 2002 (October 1, 2001-September 30, 2002) were identified (N=27,798). The study received institutional review board approval.

Measures

Following the approach taken by Lunney and colleagues,[9] diagnoses recorded in inpatient bedsection records were used to categorize deaths into five groups: (1) unforeseen deaths, (2) cancer deaths, (3) organ failure deaths, (4) frailty deaths, and (5) other. These classifications were made hierarchically, so that a patient in category 4, frailty deaths, must have met inclusion criteria for frailty diagnoses and also have failed to meet criteria for unforeseen, cancer, or organ failure death. Unforeseen deaths were defined as those occurring among patients less than 80 years of age and having no more than two inpatient days in the year preceding death; these deaths had no restrictions as to diagnoses. Although such deaths have been termed "sudden" deaths in previous studies, we renamed them "unforeseen" to avoid confusion with the Medical Subject Headings (MeSH) term describing sudden cessation of all bodily functions, a specific cause of death. Cancer deaths were ascribed to patients diagnosed with ICD-9 codes 140-209, excluding 173 non-melanoma skin cancer, and not falling into the unforeseen deaths category. Organ failure encompassed cardiopulmonary and renal failure, with diagnoses of chronic obstructive pulmonary disorder (COPD), congestive heart failure (CHD), or end-stage renal disease (ESRD) excluding cancer or unforeseen death. The frailty category was characterized by ineligibility for any of the three categories already described and also by diagnosis of one of the following: dementia including Alzheimer's and Pick's disease, delirium, Parkinson's, stroke, hip fracture, pneumonia, incontinence, dehydration, leg cellulitis, or syncope. The final catchall category included any decedents not already assigned to a group. Because we were interested in unforeseen deaths, we created an indicator for this outcome versus any other death for use in analysis.

The primary predictor of interest was having a diagnosis of schizophrenia in the past year, defined by one inpatient diagnosis or two outpatient diagnoses on

different dates.[10] As we were interested in a specific mental illness, schizophrenia, we sought to distinguish its effect from that of other mental illnesses. Accordingly, we included indicators for substance abuse (ICD-9 codes 291, 292, 303-305) and "any other mental illness" (ICD-9 codes 290, 293, 294, 296-302, 306-312, 331). We felt that a diagnosis of nicotine dependence was not a sufficiently compelling indication of mental illness or substance abuse, so this was coded separately (ICD-9 code 305.1). Additional covariates included age (to the nearest decade), race (represented by indicators for African-American and other non-white race; reference category was white), marital status (married vs. other status) and gender (indicator for female).

We also controlled for comorbid illnesses with the Charlson comorbidity score, a scale originally developed to help predict mortality from inpatient diagnoses.[11] The diagnoses captured in constructing the Charlson score were retained, for descriptive purposes. Because patients with schizophrenia are at increased risk for accidents, suicide, violence, and injuries, we created an indicator for the occurrence of any E-code (mechanism of injury) in the E900's range. Our last set of predictors consisted of measures of utilization for various types of outpatient care. First we summed the number of visits to primary care clinics, specialty care clinics, and psychiatric care clinics, as well as Emergency Department use. Because the percentage of zeros on these measures was high, ranging from 46% to 89%, we dichotomized the four measures for use in our multivariate models. We included these measures in our analysis to detect the possible substitution of outpatient services for inpatient care, lest patients were being seen in an outpatient setting in lieu of in the hospital. In such cases, patients who met the requirements for unforeseen death (i.e., who had two or fewer days of hospitalization in the year) might have high levels of outpatient care.

Analysis

Descriptive frequencies and means were examined and bivariate comparisons were conducted using chi-square analysis or Student's t-test as appropriate, followed by logistic regression analyses. The null model with no covariates is presented first, to assess the relationship between unforeseen death and diagnosis of schizophrenia, followed by the adjusted model that adds the covariates of age, race, sex, marital status, other mental illness, substance abuse, nicotine dependence, comorbidity score, E-code indicator, and outpatient utilization. An interaction between schizophrenia and receipt of any outpatient care was hypothesized and included in the final model.

Results

During the study year, 27,798 patients died in VA facilities. Of these, 3.4% had schizophrenia (n=943). Roughly one-third of deaths were cancer deaths, one-third organ failure, 11% frailty, and 8% were considered unforeseen, with 9% other deaths. Among patients who died with a diagnosis of schizophrenia, however, 20% of deaths fell into the unforeseen category.

Decedents are described in Table 1 as averaging 72 years old (SD 11.5, range 20-108); 2.6% were female, 46% married, 18% African-American and 6% other non-white race/ethnicity. Demographic characteristics by schizophrenia diagnosis are presented in Table 2 with results from bivariate comparisons. Schizophrenia patients were only about three years younger than other decedents (69.7 vs 72.5 years). E-codes, describing mechanism of injury for accidents, violence, suicide, and other injuries, were equally prevalent in decedents with and without schizophrenia. Persons experiencing these events are most likely to be treated in the urgent or emergency care facility closest to the scene of the injury; they are also more likely to be younger than our sample;[12] these factors may account for the lack of association between E-codes and schizophrenia which has been reported in previous studies.[13] In Table 3, decedents with schizophrenia, as one would expect, were more likely to receive outpatient psychiatric care as compared to non-schizophrenia patients (30% of patients with schizophrenia received psychiatric care vs 11% of patients without schizophrenia) but were less likely to receive medical outpatient care, including both primary care (31% vs 55%) and specialty care (19% vs 40%) ($p<.001$ for all comparisons). Emergency Department use was also lower among patients with schizophrenia.

We examined diagnoses among patients, by unforeseen vs other deaths and by schizophrenia vs other patients, to explore potential contributors to mortality (Table 4). VA discharge records do not document causes of death but rather, causes of hospitalization, thus this information was at best only an approximation of cause of death; it reflects diseases that were identified as contributing to the admission and length of stay. Conditions were not mutually exclusive, and some have been grouped together to better describe the decedents. Because the definition of unforeseen death was based on low health services utilization without regard to diagnosis, patients in this category might have had any diagnosis including those defining subsequent types of death.

Approximately 21% of unforeseen death patients were diagnosed with cancers, 38% had cardiovascular conditions, 36% liver, renal, or lung disorders, 18% diabetes, and 26% other conditions (HIV, AIDS, dementia, peptic ulcer disease (PUD), hemiplegia, rheumatic disease). For all but the last catchall category, these percentages were significantly lower among patients with unforeseen deaths than among other patients.

Subdividing unforeseen deaths into schizophrenia vs non-schizophrenia patients, we note that most conditions were less commonly diagnosed among patients with schizophrenia and unforeseen death, with the exception of COPD which was more common. Some rare conditions (HIV, lymphomas) had insufficient numbers for analysis at this level.

In the bivariate model predicting risk of unforeseen death, patients with schizophrenia had an increased risk compared to other veterans (OR=3.3, 95% CI 2.8-3.9). This effect persisted in the multivariate model (OR=2.5, 95% CI 2.1-3.0) after adjusting for demographics, outpatient care including Emergency Department use, substance abuse, other mental illnesses, nicotine dependence, injuries, and the Charlson comorbidity score.

In our final analysis, we included the interaction between schizophrenia diagnosis and use of (any) outpatient care in the previous year. Table 5 documents factors associated with unforeseen mortality in the multivariate model. The interaction terms were positively related to unforeseen deaths. Non-schizophrenia patients with no outpatient care in the prior year were at similar risk for unforeseen death (OR=1.9, 95% CI 1.5-2.5) as schizophrenia patients with outpatient care (OR=2.4, 95% CI 1.6-3.4). Patients with both risk factors – schizophrenia diagnosis and no outpatient care – had greatly increased relative odds of unforeseen death (OR=4.9, 95% CI 3.6-6.8). The covariate indicating other mental illness was marginally associated with unforeseen death (OR=1.1, 95% CI 1.0-1.2). All other covariates were negatively associated with unforeseen death or unrelated altogether. These included substance abuse (OR=0.53, 95% CI 0.45-0.64), nicotine dependence (OR=0.69, 95% CI 0.55-0.88), receipt of specialty care (OR=0.81, 95% CI 0.70-0.96), psychiatric care (OR=0.61, 95% CI 0.48-0.77), injuries including accidents, suicides, and violence (OR=0.35, 95% CI 0.25-0.49), age in decades (OR=0.80, 95% CI 0.77-0.84), and Charlson scores (OR=0.72, 95% CI 0.70-0.74). The age effect should be expected from the definition of unforeseen versus other deaths, which required age less than 80 years at death. The last two effects must be interpreted per unit increase in the predictor. That is, there was a reduction in risk of unforeseen death, quantified by an odds ratio of 0.80 *per decade* increase in age, across the entire age range of two to ten decades.

Concerned that geographic practice variations might account for some of the observed results, we examined the effect of Census region (Northeast, South, Midwest, West) in exploratory analyses. We found no significant differences by region, suggesting that type of inpatient death in the VA system does not vary by geographic region (data not shown).

Discussion

Causes of death that have been identified as especially frequent among schizophrenia patients include cardiovascular disease, suicide, and respiratory disease.[5;13-17] All of these conditions have modifiable risk factors and invite intervention.

In our study of VA inpatient deaths, we observed that 20% of patients with schizophrenia who died fell into the category "unforeseen death" compared to 8% of patients with no diagnosis of schizophrenia. Unforeseen deaths were those where the patient was aged less than 80 years and died in a VA hospital after being hospitalized for no more than two days in the year preceding death; all other deaths were associated with more hospitalization and were subtyped according to dominant diagnoses (cancers, organ failure, conditions associated with old age). Unforeseen deaths were so named because they were not preceded by a record of treatment of life-threatening disorders to the extent seen with most chronic illnesses. While many unforeseen deaths can not be prevented, resulting from sudden, uncontrollable and unpredictable events such as lethal stroke or heart attack or accident, the surfeit of unforeseen deaths among patients with schizophrenia needs to be explained. Even holding other factors constant, such as age, race, gender, marital status, outpatient care, substance abuse, other mental illness and comorbidity status, we noted a substantial increase in the odds of unforeseen death among VA patients with schizophrenia, on the order of two to three times with 95% confidence. When we examined the data for an interaction between receipt of any outpatient care and schizophrenia, we found that failure to receive any outpatient had an impact similar to that of schizophrenia alone, and that patients with both schizophrenia and no last-year outpatient care had 5-fold increased odds of unforeseen death compared to non-schizophrenic decedents with a history of outpatient use.

The observation of a relatively low rate of unforeseen deaths among those diagnosed with nicotine dependence and schizophrenia deserves comment, as it is well established that this group smokes more than the normal population. The nicotine effect most likely represents a positive association between smoking and chronic illnesses (cancers, pulmonary and heart disease), although it should be interpreted with caution, given the low prevalence of this indicator among our VA decedents and the high rates of smoking among living veterans (70% or more).[18]

In investigating whether a substitution of care could be operating among these patients, we looked for increased use of outpatient care among patients with little inpatient use (those with unforeseen deaths). Instead we found that engagement in two types of outpatient care was protective against unforeseen death

while a complete lack of outpatient care was an independent risk factor. Thus, patients at greater risk for unforeseen death seemed to have dropped out of contact with the health care system to a considerable degree. Their infrequent care was readily detectable through administrative database analyses. Veterans with schizophrenia were less likely than other decedents to have received outpatient care in the year leading up to death; thus, they were more likely to have this risk factor operating against them. Because veterans with schizophrenia tend to be closely tied to the VA system, having few other healthcare options,[19] treatment drop-out or a prolonged absence from care should indeed be a significant warning of a potential adverse event or risk of impending mortality.

It is possible that veterans with schizophrenia were receiving medical care elsewhere, for example, in a halfway house or other residential facility. In that case, their pre-death care would be underrepresented in our study, as we only included care received from VA outpatient clinics, hospitals, or extended care facilities. While Medicare-eligible veterans use both VA and non-VA care,[20] VA patients with schizophrenia are much less likely to use non-VA services than other mental health patients.[19;21] Together, these studies suggest that schizophrenia decedents would be more likely than other decedents to have their outpatient care correctly represented in our study. The association between lack of outpatient care and unforeseen death may be caused by a lack of records of both inpatient and outpatient final-year care among VA patients who depend primarily on non-VA facilities. It is also possible that patients with schizophrenia experience more rapid progression of comorbid diseases, reducing clinicians' ability to observe and treat them.

Our study was limited to patients who died as inpatients. Patients who died at home, in non-VA hospices, at other facilities or on the street would not be represented and may include more cancer patients. This could lead to overestimation of the rate of unforeseen deaths in the current study. On the other hand, when death is unexpected, the patient is less likely to be in a hospital a priori, leading to possible underestimation of unforeseen deaths (for example, deaths from suicide or accident, both of which are typically elevated among persons with schizophrenia).

A lack of inpatient health care use in the year preceding death may be caused by a lack of symptoms perceived as requiring care, but it could also signal lost opportunities to address treatable comorbid conditions. These opportunities include (a) a failure on the part of the system to find or engage the patient in care; (b) an inability on the part of the clinician to diagnose, treat, or convince the patient of the need for follow-up care; (c) an inability on the part of the patient to discern and report symptoms of an imminent health crisis. Patients with schizophrenia often lack insight into their psychiatric condition.[22] This limitation may extend to other signs and symptoms of disease that would motivate the non-schizophrenic patient to seek medical care.[23] Symptoms of schizophrenia may interfere with the ability to seek out and benefit from appropriate medical care. Paranoia could limit the patient's ability to acquiesce to medical testing and treatment, or poverty of speech and thought may limit the patient's ability to express what is wrong. Persuading individuals with schizophrenia to maintain treatment with antipsychotic medication is typically of the highest priority, and given high rates of non-adherence,[24] may require all available clinical contact time, especially with many competing demands on clinical time.[4] In order to address mounting comorbidities that accrue with age and poor self-care,[3] extra efforts may be needed to contact these patients, bring them in for treatment, and work with them to prevent premature death.

Whether patients with schizophrenia die from untreated medical conditions or suicide, much could be done to reduce these preventable deaths, some of which were captured by our outcome of unforeseen deaths. Studies have consistently found that, once engaged in treatment, VA patients with schizophrenia receive good quality medical care;[25-28] the problem is more one of getting patients engaged in medical care in the first place. Some innovative programs, such as the Prime Clinic in the South Texas VA, have recognized this difficulty and incorporated basic primary care into an outpatient psychiatric clinic. Nonetheless, when patients do not come in for care, whether psychiatric or medical, the risk of death goes up.

Conclusion

Using a method that categorizes deaths from administrative data, we found an excess of unexpected deaths among patients with schizophrenia. We also identified an important indicator of this increased risk beyond diagnosis with schizophrenia: lack of outpatient medical care. We are currently exploring other approaches to looking at patterns of utilization that may be predictive of imminent death among patients with schizophrenia, so as to provide practitioners with specific recommendations for reducing preventable deaths in this vulnerable population.

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Table 1: Descriptive Statistics, VA Inpatient Deaths in Fiscal Year 2002 (N=27,798)

Characteristic	N	%
Cause of Death		
Cancer	10,255	36.9%
Organ Failure	9,966	35.9%
Frail	3,037	10.9%
Unforeseen	2,151	7.7%
Other	2,389	8.6%
Schizophrenia Diagnosis in Past Year	943	3.3%
Substance Abuse Diagnosis in Past Year	2,761	9.9%
Nicotine Dependence	2,034	7.3%
Other Mental Illness Diagnosis in Past Year	9,720	35.0%
Age ≥ 55 years (mean 72.4, SD 11.5)	25,048	90.1%
Ethnicity (missing / unknown = 1,824)		
White	19,669	75.7%
African American	4,700	18.1%
Other	1605	6.2%
Women	735	2.64%
Married	12,750	46.2%
Charlson Comorbidity Score of 3+ (mean 3.4, SD 2.1)	16,770	60.3%
Accident, Injury, Suicide, Violence Code Past Year	1,359	4.9%
Outpatient Care Past Year		
Primary Care	14,931	53.7%
Specialty Care	10,871	39.1%
Psychiatric Care	3,145	11.3%
Emergency Department Use Past Year	7,100	25.5%

Table 2. Characteristics of Veterans who Died in VA Hospitals, Schizophrenia vs. Other Patients (N=27,798)

	Patients with Schizophrenia (N=943; 3%)	Other Patients (N=26,855; 97%)	Number of Deaths	p-value from Chi-square
	N (cell %) or mean (SD)			
Unforeseen Death	189 (20%)	1962 (7%)	2,151	<.001
Other Death	754 (80%)	24,893 (93%)	25,647	
Diagnosis of Other Mental Illness	483 (51%)	9,237 (34%)	18,078	<.001
No Other Mental Illness	460 (49%)	17,618 (66%)	9,720	
Diagnosis of Substance Abuse	117 (12%)	2,644 (10%)	2,761	.010
No Substance Abuse	826 (88%)	24,211 (90%)	25,037	
Diagnosis of Nicotine Dependence	91 (10%)	1,943 (7%)	2,034	.005
No Nicotine Dependence	852 (90%)	24,912 (93%)	25,764	
Accident, Injury, Suicide, Violence Codes in Past Year	55 (6%)	1,304 (5%)	1,359	n.s.
None of These Codes	888 (94%)	25,551 (95%)	26,439	
Older Patients (age 55+)	794 (84%)	24,254 (90%)	25,048	<.001
Younger Patients	149 (16%)	2,601 (10%)	2,750	
African-American	196 (21%)	4,504 (18%)	4,700	.033
White	671 (73%)	18,998 (76%)	19,669	
Other Race	52 (6%)	1,553 (6%)	1,605	
Males	912 (97%)	26,151 (97%)	27,063	n.s.
Females	31 (3%)	704 (3%)	734	
Married	170 (18%)	12,580 (47%)	12,750	<.001
Not Married	767 (82%)	14,089 (53%)	14,586	
Age in Years (range 20-108)	69.7 (11.9)	72.5 (11.4)		<.001
Charlson Score (range 1-6)	2.8 (2.1)	3.5 (2.0)		<.001

Table 3. Comparison of Outpatient Care Utilization among Decedents with and without Schizophrenia (N=27,798)

Type of Care	Number (%) Who Received Care	Significance
Primary Care		<.001
Patients with Schizophrenia (n=943)	289 (31%)	
All Other Patients (n=26,855)	14,642 (55%)	
Specialty Care		<.001
Patients with Schizophrenia (n=943)	176 (19%)	
All Other Patients (n=26,855)	10,695 (40%)	
Psychiatric Care		<.001
Patients with Schizophrenia (n=943)	287 (30%)	
All Other Patients (n=26,855)	2,858 (11%)	
Emergency Department Use		<.001
Patients with Schizophrenia (n=943)	165 (17%)	
All Other Patients (n=26,855)	6,935 (26%)	

Table 4. Medical Conditions Diagnosed Among Inpatient Decedents with and without Schizophrenia: Unforeseen vs Other Deaths (N=27,798)

Variable	Other Deaths, No Schizophrenia (n=24,893)	Unforeseen Deaths, No Schizophrenia (n=1,962)	Other Deaths, Schizophrenia (n=754)	Unforeseen Deaths, Schizophrenia (n=189)	Unforeseen Deaths (N=2,151)	Other Deaths (N=25,647)
General Conditions						
Diabetes [a]	23%	18%	23%	17%	17.5%	23.3%
Cardiovascular system disorders [a]	44%	38%	38%	34%	37.6%	43.8%
Other organ disorders (lung, liver, kidney)	49%	35%	52%	51%	36.4%	49.2%
Cancers [a]	40%	22%	29%	16%	21.3%	40.0%
AIDS, dementia, PUD, etc. [b]	22%	25%	31%	31%	25.9%	21.8%
Charlson Index Conditions						
Diabetes without complications [a]	21%	15%	22%	15%	15.4%	21.2%
Diabetes with Complications [a]	6%	3%	5%	2%	3.3%	5.7%
Congestive Heart Failure [a]	26%	15%	21%	17%	14.8%	25.6%
Cerebrovascular Disease	15%	17%	15%	14%	16.8%	15.0%
Myocardial Infarction [a]	13%	11%	8%	4%	10.3%	12.5%
Perivascular Disease [a]	6%	3%	5%	4%	3.2%	6.1%
COPD [b]	31%	23%	41%	44%	24.8%	31.8%
Cirrhosis of the Liver [a]	7%	5%	5%	1%	4.7%	6.7%
Hepatitis [a]	5%	3%	3%	1%	2.7%	4.8%
Renal Disease [a]	18%	10%	13%	9%	9.5%	18.0%
Metastatic Cancers [a]	23%	10%	16%	7%	10.1%	22.5%
Lymphomas	2%	1%	1%	1%	1.0%	2.1%
Leukemias	3%	1%	2%	1%	1.4%	2.7%
Other Cancers (excludes non-melanoma skin cancer) [a]	33%	17%	25%	14%	16.9%	33.0%
AIDS [a]	1%	1%	2%	0%	0.8%	1.4%
HIV	0%	0%	1%	0%	0.1%	0.3%
Dementia [a]	13%	19%	23%	26%	19.2%	13.7%
Rheumatologic Disease	1%	1%	1%	2%	0.9%	1.2%
Peptic Ulcer Disease (PUD)	3%	2%	4%	2%	1.9%	2.9%
Hemiplegia	4%	5%	3%	2%	4.5%	3.8%

[a] This condition was less common among patients with Schizophrenia plus Unforeseen Death
[b] This condition was more common among patients with Schizophrenia plus Unforeseen Death

Table 5: Factors Related to Unforeseen Inpatient Mortality among Veterans, Controlling for Demographic and Clinical Correlates (N=27,798)

Parameter	Odds Ratio	95% C.I.	Significance Level
Schizophrenia Diagnosis without Outpatient Care *	4.9	3.6-6.8	<.001
Schizophrenia Diagnosis with Outpatient Care	2.4	1.6-3.4	<.001
No Schizophrenia Diagnosis without Outpatient Care	1.9	1.5-2.5	<.001
Substance Abuse Disorder	0.5	0.4-0.6	<.001
Other Mental Illness	1.1	1.0-1.2	.05
Nicotine Dependence	0.7	0.6-0.9	<.001
Female	0.8	0.6-1.1	n.s.
African American	0.9	0.8-1.0	n.s.
Other Ethnic Group	0.8	0.7-1.0	n.s.
Married	1.1	1.0-1.2	n.s.
Age in Decades (range 2-10)	0.8	0.8 – 0.8	<.001
Charlson Score (range 0-6)	0.7	0.7 – 0.7	<.001
Accidents, Injuries, Violence, Suicide	0.3	0.2-0.5	<.001
Emergency Department Care	1.0	0.8-1.1	n.s.
Primary Outpatient Care	0.8	0.7-1.0	n.s.
Specialty Outpatient Care	0.8	0.7-1.0	.01
Psychiatric Outpatient Care	0.6	0.5 – 0.8	<.001

* The reference group was decedents without schizophrenia whose deaths were not classified as unforeseen.