

## Chapter 4: Other Patient Characteristics

### Medical Comorbidity

Many depressed veterans are older and have comorbid medical conditions that further impact their functioning and well-being. The following table outlines the prevalence of common medical comorbidities, using diagnostic groupings derived from the Clinical Classification System.

The Clinical Classifications System was developed by the Agency for Healthcare Research and Quality (AHRQ), and groups patient with specific diagnoses and procedures into a manageable number of clinically meaningful categories.

We found that only 12% of depressed VA users did not have a medical co-morbidity. Approximately 45% of depressed veterans had a diagnosis of hypertension and 20% have a diabetes diagnosis. These rates of medical comorbidity are higher than is seen in the general VA user population. Using similar methodology, Wei et al (2003) found that 28% of the overall population of VA users had no chronic medical conditions, that 37% of the had hypertension and that 17% had diabetes (Wei et al. 2003).

**Table 4.A: Medical Comorbidities (using Clinical Classification System)**

						All
		Dep alone or w/OthAnx	Dep + SABuse	Dep + PTSD	complicated Dep	
Entire Population		158,768	67,890	57,720	20,744	N=305,122
Percent with no comorbidities	%	54.87	22.34	16.92	5.87	11.80
Chronic Viral Infection	%	4.66	19.15	5.28	4.48	7.99
Cancer	%	9.85	6.17	8.79	10.35	8.86
Diabetes	%	21.61	13.36	22.60	23.82	20.11
Other Endocrine	%	7.66	4.53	7.52	9.27	7.05
Anemia	%	6.37	6.44	6.09	8.95	6.51
Chronic Neurological Disorders	%	14.77	14.53	15.95	19.76	15.28
Hypertension	%	46.88	39.13	46.94	49.44	45.34
Coronary Artery Disease	%	25.46	16.40	23.03	25.78	23.01
Cerebrovascular Disease	%	6.47	3.57	5.02	11.61	5.90

						All
		Dep alone or w/OthAnx	Dep + SAbuse	Dep + PTSD	complicated Dep	
Peripheral Vascular Disease	%	5.19	3.31	4.29	5.30	4.61
COPD	%	16.23	18.20	16.69	18.89	16.93
Diseases of the Digestive System	%	40.27	47.64	48.67	47.18	43.97
Liver Disease	%	2.52	7.50	2.80	2.65	3.69
Genitourinary Symptoms	%	25.29	20.07	25.56	29.67	24.48
Arthritis	%	46.34	48.37	53.38	43.79	47.95
Injury and Poisoning	%	16.52	24.92	20.15	19.73	19.29

### **Global Assessment of Functioning (GAF)**

The Global Assessment of Functioning (GAF) was available for 37% (N=10,974) of depressed inpatients and 82% (N=247,706) of the depressed outpatients who were treated in FY02 (See Table 4C). The GAF is widely used in clinical practice and research settings. While reliance upon the GAF as the only tool to assess patients' functioning is problematic, numerous studies have documented the GAF's reliability and usefulness as an indicator of health status and treatment outcomes (Startup, Jackson, and Bendix 2002; Jones et al. 1995). The VHA Directive 97-059 requires mental health clinicians to complete a GAF score for outpatients every 90 days and a GAF score for inpatients at the time of discharge.

For patients in the depression registry, the mean lowest inpatient GAF score was 41, and the mean outpatient GAF score was 55, both indicating serious to moderate impairment in functioning. Among depressed outpatients, patients with both depression and substance abuse had the lowest GAF scores.

### **Mortality**

Major depression and sub-threshold depressive symptoms have a significant impact on older individuals' ability to function and their quality of life (Ormel et al. 1998). Depression has also been strongly associated with other adverse outcomes such as increased medical morbidity and mortality (Penninx et al. 1998). According to the ECA, a large epidemiological study in the US, the odds of dying among individuals with MDD were >2.6 times those of individuals without MDD (Kouzis, Eaton, and Leaf 1995).

For the NARDEP, we used the mortality data available in the BIRLS and PTF data files, to calculate a Standardized Mortality Ratio (SMR) for depressed veterans. However, we found that these data likely under-report mortality. Using age-specific mortality in the

general US population, we calculated an overall Standardized Mortality Ratio (SMR) of 0.82 for depressed patients, suggesting that these depressed veterans have a lower mortality rate than the general US population. However, The SMR for a random sample (N=60,000) of all VA patients in FY01 was even lower (0.65), suggesting under-reporting of mortality is an issue in PTF and BIRLS data.

In logistic regression analyses, adjusting for age group, race, gender, and medical comorbidities using the Charlson Comorbidity Index, patients in the depression registry in FY01 were slightly more likely to die during FY02 than patients in the random sample of FY01 VA patients (OR=1.1, p<0.01). These findings are in line with previous studies suggesting higher mortality among depressed patients.

In the logistic analyses, mortality increased significantly with increasing age, and depressed patients with 1 or with 2 or more medical comorbidities during FY01 were significantly more likely to die during FY02 than were patients with no medical comorbidities (OR=1.9 and 4.4 respectively, p<.0001).

**Service Connection**

Veterans are considered to have a service-connected disability if they have a disorder or injury that was incurred or aggravated by their service in the armed forces. Both health care benefits and compensation payments are tied to the degree of service-connected disability. We determined depressed veteran’s degree of service connection using the VA’s PTF, OPC, and C&P Mini-master file. (See Table 4C.) Approximately 20% of veterans in the depression registry have a SC disability of 70% or greater. Among patients who have a SC disability, approximately 60% have some of their disability status as a result of a psychiatric condition.

**Table 4.B: Service Connection for Depression or a Psychiatric Diagnosis, (N=126,491 patients that are service connected)**  
*(Service connection was determined using the C&P Mini-master file only, Missing = 178,631)*

	<b>Dep alone or w/OthAnx</b>	<b>Dep + SAbuse</b>	<b>Dep + PTSD</b>	<b>Complicated Dep</b>	<b>Overall</b>
	56,120	21,648	40,375	8,348	N=126,491
<b>% SC for Depression</b>	15.4%	8.4%	6.1%	9.9%	10.9%
<b>% SC for any psych</b>	40.9%	64.8%	80.3%	64.5%	59.1%

## **VERA Patient Class**

The VERA 2003 model used in this report includes ten new patient price groups designed to allocate funding to the VISNs. The VERA Patient Classification system provides the criteria for placing each patient into one of 47 different classes, and these classes are then aggregated into the 10 price groups. Patient workload is funded at the VISN level based on the 10 VERA price groups and pro-rated person (PRP) methodology. More information on the VERA patient price groups is available at [vaww.arc.med.va.gov](http://vaww.arc.med.va.gov), and the 10 Price Groups are presented in Appendix B.

The distribution of depressed patients in the 10 VERA price groups is shown in Table 4C. As can be seen in the table, the largest percentages of depressed patients fall into VERA 3, mental health or VERA 6, multiple medical.

## **Homelessness**

In studies of individuals who are homeless, up to one-third have been found to be affected by mental illness (Bassuk et al. 1998; 1992). Homeless individuals suffer from a high rate of battery, rape, mental distress, and depression. (Caracci and Mezzich 2001). The mentally ill fare even worse than other homeless individuals in terms of physical health, subsistence needs, victimization, and subjective quality-of-life (Sullivan et al. 2000).

We report the percentage of patients whose administrative data indicate they are homeless. In the outpatient sector, homelessness was defined by documentation in patient's chart of any of the following clinic stops (501-HMI outreach, 515-CWT/TR for homeless chronically mentally ill, 528-Phone/HMI, 529-HCHV/HMI, 590-community Outreach Homeless-staff). In the inpatient sector, homelessness was defined as patient's use of the following bed sections (28-HCMI CWT/TR or 37-DHCV-Dom. Care for homeless) or ICD-9 code V60.0.

As noted in Table 4C, administrative data indicated that approximately 9% of depressed veterans are homeless. This is likely an undercount, given that many homeless individuals do not receive homeless outreach services or stay in residential or domiciliary programs. Thus, the homelessness appears to be a substantial problem among depressed veterans, particularly those with accompanying substance abuse disorders.

## **Accessibility**

Access to medical care is a complex issue that can be measured along multiple dimensions, including affordability, availability, and geographic accessibility (Penchansky and Thomas 1981). Since the issues of cost and insurance are less pertinent for our population, we report on access in terms of geographic accessibility, operationalized in terms of miles to VA providers. Distance in miles has been fairly consistently found to have a negative effect on health services utilization (Horner et al. 1994). For mental health services, the

impact of distance is even greater (Fortney et al. 1995). A meta-analysis identified the same relationship between distance and use with mental health services as with medical services, in both private and community health systems (Shannon, Bashshur, and Lovett 1986). Patients living farthest from hospitals had significantly longer lengths of stay, greater costs and worse outcomes. Among active VA patients with psychoses, greater distance is associated with decreased volume and continuity of care (McCarthy 2002). Patients traveling long distances for care may also be dislocated from important social support systems.

The VA has conducted numerous studies examining issues of access due to distance. Zip code areas have been used in studies of both medical and mental health services (Fortney, Owen, and Clothier 1999). Distance was one of the primary reasons that veterans did not obtain needed care. Patients living farther away from primary mental health services were 4.8 times as likely to have acute psychiatric admissions (Fortney, Owen, and Clothier 1999).

For the purposes of this report, access was defined as the distance from a patient's residence to their nearest VA Medical Center (excluding contract care facilities) and to their nearest Service Center. Ninety-eight percent of the nearest Service Centers were CBOCs or VAMCs (domiciliary, nursing home and contract care providers were excluded from this category). Distances are based on straight-line estimates of the geographic placement of patients' postal zip code to the zip code of the closest VA provider.

Data from the VA Planning Systems Support Group (PSSG) were used to ascertain the zip codes of the VA facilities and the patient's zip codes were retrieved from the PTF and OPC files.

In addition, we assessed the percentage of patients living in a Metropolitan Statistical Area (MSA). An area qualifies for recognition as an MSA in one of two ways: the presence of a city of at least 50,000 population or an urbanized area of at least 50,000 with a total metropolitan population of at least 100,000 (75,000 in New England).

**Table 4.C: Other Patient Characteristics**

		Dep/OthAnx	Dep/SAbuse	Dep/PTSD	Comp.Dep	All
Lowest inpatient GAF score	Mean	42	41	38	35	41
	Std	15	13	14	14	14
Mean Outpatient GAF score	Mean	58.1	50.9	51.9	52.1	54.8
	Std	10	10.4	9.3	10.9	10.6
At least 1 inpatient GAF		24.6%	41.5%	29.3%	35.0%	37.4%
At least 1 outpatient GAF		78.2%	84.7%	86.5%	83.2%	81.6%
Died in FY02		1.5%	1.2%	1.0%	2.3%	1.4%
<b>Service Connection (SC)</b>						
Non-SC		60.6%	63.0%	24.7%	53.9%	53.9%
SC 0 - 29%		11.8%	10.1%	8.7%	10.0%	10.7%
SC 30 - 69%		15.2%	11.9%	23.6%	13.4%	15.9%
SC 70 - 99%		7.1%	7.3%	23.5%	7.3%	10.3%
SC 100%		5.3%	7.7%	19.5%	15.4%	9.2%
Total		100%	100%	100%	100%	100%
<b>VERA GROUPS</b>						
VERA 1: Non-reliant Care	%	0.4	0.1	0.2	0.1	0.3
VERA 2: Basic Medical	%	22.5	9.1	13.3	16.4	17.4
VERA 3: Mental Health	%	44.5	26.9	44.4	41.4	40.4
VERA 4: Heart/Lung/GI	%	10.6	5.1	6.4	7.3	8.4
VERA 5: Oncology/Inf Dis	%	3	8.3	2.9	2.4	4.1
VERA 6: Multiple Medical	%	14.7	35.1	26.4	20.3	21.8
VERA 7: Specialized Care	%	1.7	4.5	3.5	2.2	2.7
VERA 8: Support Care	%	1.6	4.5	1.4	2.8	2.3
VERA 9: Chronic Mental	%	0.4	5.7	1.1	5.4	2
VERA 10: Critically Ill	%	0.7	0.7	0.5	1.6	0.7
Total	%	100	100	100	100	100

Homeless in FY02		2.7%	29.0%	3.0%	4.9%	8.8%
Reside in MSA		74.7%	80.9%	72.0%	79.1%	75.9%
Miles to closest VAMC	Mean	39.9	30.4	42.7	30.2	37.7
	Std	87.6	74.4	91.6	51.5	83.8
Miles to closest VA service	Mean	12.9	10	13.6	11.2	12.2
	Std	13.7	13.3	15.8	11.9	14

### **Key Findings**

- Average lowest inpatient GAF score was 41, with a mean outpatient score of 55, both indicating moderate to severe impairment in global functioning.
- 40% of registry patients were categorized as VERA 3 (Mental Health), and 22% were categorized as VERA 6 (Multiple Medical).
- 54% of the registry population was not service connected, 11% were 0-29% connected, 16% were 30-69% connected, 10% were 70-99% connected, and 9% were 100% service connected.
- Using distance from care as a proxy, patients lived, on average, 38 miles from the nearest VA medical center and 12 miles from any VA service site.
- Approximately 9% of depressed veterans treated in specialty care had administrative data indicating homelessness. This is likely an underestimate.
- Medical comorbidity is very common among veterans with depression, with 88% having at least one significant comorbidity.

**Section 4: Patient Characteristics  
by VISN**

		VISN																				All	
		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V15	V16	V17	V18	V19	V20	V21	V22		V23
Lowest inpatient GAF score	Mean	35	44	43	45	40	42	42	40	40	44	44	41	48	37	45	44	40	32	40	38	42	41
	Std	13	9	11	10	12	12	13	14	12	10	14	12	14	16	12	13	13	18	17	14	13	14
Mean Outpatient GAF score	Mean	52	53.8	56.3	55.7	53.2	55	54.5	56.4	54.5	56.4	57.6	54.1	56.4	55	53.3	55.2	51.1	51.7	54.8	52.3	57.3	54.8
	Std	10.4	9	9.4	10.3	10.2	10.3	9.5	10	10.4	11.3	10.3	11.3	10.9	10.2	9.8	11.4	10.4	10.7	10	13.1	10.2	10.6
At least 1 IP GAF	%	38.7	64.5	42.4	36.9	54.2	25.9	33.3	28	31.3	46	30.2	58.8	17.3	52.5	40.3	24.3	30.7	45.8	22.2	22.6	44.8	37.4
At least 1 outpatient GAF	%	85.9	90.2	83.7	77.9	67.8	85.3	89.6	76.5	81	79.4	84.9	83.4	83.5	96.7	81.5	83.9	81.3	68.4	82.6	61.5	79.5	81.6
Died in FY02	%	1.4	1.2	1.2	1.6	1.1	1.5	1.2	1.7	1.9	1.4	1.4	1.4	1.8	1.4	1.3	1.6	1.3	1.2	0.8	1.3	1.8	1.4
Service connected (SC), %																							
Non-SC	%	50.4	58.4	59.8	57.5	58.7	45.7	50.9	52.7	52.8	65.6	62.8	61.3	59.5	50.8	45.4	50.2	49.6	45.4	52.8	59.1	53.7	53.9
SC 0 - 29%	%	9.7	10.8	11.2	10.3	10.2	10.8	11.4	12	10.5	11.3	11.1	10.1	10.2	10.8	10.7	10.3	10.2	10.8	9.6	10.5	10.6	10.7
SC 30 - 69%	%	15.3	14.4	14	15.5	14.6	20.1	18.3	16.5	17	13.5	14.4	13	14.7	17.4	18.8	15.4	17.1	17.6	14.6	12.9	15.4	15.9
SC 70 - 99%	%	13.3	8.7	7.8	9	7.7	12.9	10.1	9.3	9.2	5	6.3	8	7.8	11.5	14.3	13.1	11.7	15.2	12.8	8.2	10.4	10.3
SC 100%	%	11.2	7.7	7.1	7.6	8.9	10.6	9.2	9.5	10.5	4.6	5.4	7.6	7.8	9.6	10.8	11	11.4	11.1	10.1	9.2	9.9	9.2
Total	%	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SC for depression	%	9.6	8.6	9	12.2	12.4	11.3	9.1	12	10.3	8.4	9.2	10.5	8.9	12.5	11.4	10.6	11.8	12.3	9.5	10.8	12.9	10.9
SC for any psychosis	%	65.5	61.4	66.7	62.7	57.7	57.6	55.3	56.3	56.1	51.4	52.4	59.4	58	58.4	62	56.5	59.3	61.6	64	59	61	59.1
VERA Groups, %																							
VERA 1	%	0.3	0.5	0.2	0.5	0.6	0.4	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.4	0.1	0.2	0.3
VERA 2	%	13.5	15.4	15	16.2	15.7	19.4	19.1	17.4	20.8	14.5	17.7	14.7	19.4	20.3	18.6	18.8	17.9	14.2	14.7	16.9	19.1	17.4
VERA 3	%	43.7	44.6	40.6	43.2	32.6	39.5	41.5	38.2	39.1	44.2	42.7	36.6	39.8	41.1	37.8	39.4	42.2	41.2	42	39.4	38.6	40.4
VERA 4	%	6.4	7.5	7.9	8.7	8.5	10.1	8.5	8.9	9.8	8.3	8.7	7.3	10.4	9.3	7.5	9.5	7.5	6.7	6.9	6.8	8.8	8.4
VERA 5	%	3.6	3.6	5.2	4.3	5.5	3.9	4.1	3.8	3.3	3.5	4.4	3.9	3.6	4.5	3.4	4.2	3.7	4.4	5.9	4.6	3.2	4.1
VERA 6	%	23.4	18.9	20.6	19.5	25.2	20	20	25	20.6	21	20.2	25.5	19	18.9	23.7	21.9	21.8	25.3	22.2	24.7	20.7	21.8
VERA 7	%	3.7	3	4.1	2.6	3.5	2.5	2.8	2.6	1.7	2.8	2.5	3.6	2.6	2	2	2.1	2.7	2.9	3.5	2.7	2.9	2.7
VERA 8	%	2.1	2.6	2.4	2.2	4.1	1.8	1.7	2.3	2.1	2.6	1.5	3.6	2.4	1.8	3.4	2.2	1.1	2.4	1.9	2.1	3	2.3
VERA 9	%	2.7	3.3	3.2	2.1	3.7	1.8	1.7	0.9	1.7	2.3	1.3	3.9	1.9	1.5	2.5	1.1	2.3	2.1	1.7	1.9	2.4	2
VERA 10	%	0.6	0.7	0.8	0.8	0.5	0.7	0.5	0.7	0.7	0.9	0.7	0.7	0.7	0.5	0.8	0.7	0.5	0.6	0.9	0.7	1.2	0.7
Total	%	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Number of patients

Visn1	Visn2	Visn3	Visn4	Visn5	Visn6	Visn7	Visn8	Visn9	Visn10	Visn11	Visn12	Visn15	Visn16	Visn17	Visn18	Visn19	Visn20	Visn21	Visn22	Vi 23
15,261	8,357	11,389	13,786	7,424	13,955	17,387	28,388	14,096	12,800	12,166	11,393	14,167	27,988	13,648	13,329	8,791	15,508	13,814	17,217	14,258

Section 4, cont.		VISN																				All	
		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V15	V16	V17	V18	V19	V20	V21	V22		V23
Homeless in FY02	%	9.4	8.3	13.2	7.9	17.4	6	7.5	5.4	4.8	10.8	10.2	11.7	6.6	7	10	7.5	7.4	12.2	10.9	12.1	7.1	8.8
Reside in MSA	%	77.4	76.3	98.8	79.9	87.4	63.7	68.7	86.5	59.4	77.4	75.4	79.4	55.8	69.5	79.4	74.6	72.9	72.7	86.4	99.4	54.3	75.9
Miles to closest VAMC	Mean	22	26.4	11	20	15.8	28.4	38.4	39.3	38.3	28.8	34.1	24.6	32.9	44.6	45.6	52.9	49.3	108.7	35.7	19.5	45.4	37.7
	Std	22.4	25.9	10.7	17.5	19.1	22.7	29	33.8	30.8	20.2	29.5	27.1	31.8	36.8	54.9	67.9	52.6	327.4	45.3	25.2	45.2	83.8
Miles to closest VA service	Mean	8.8	8.2	4.3	9.1	7.7	17.2	17	9.6	16.3	9.2	13.5	9.4	13.8	18.4	11.3	11.1	13.2	15.2	9.4	6.5	18.7	12.2
	Std	8.6	7.5	4.1	7.8	7.2	13.5	14.8	8.9	13	8.3	12	10	13.1	15.8	10.8	13.3	17.7	28.9	10.8	7.2	18.7	14