

16

Chronic Renal Failure

A Rural Veterans Health Care Atlas Series
1st edition FY-2014



OVERVIEW	1
Process of Data Compilation	1
Diagnostic Codes Used to Define Cohort (Chronic Renal Failure)	4
Organization of Data Tables and Maps	6
Section I Highlights: VHA Patients with Chronic Renal Failure	
National Overview	10
VISN Overview	10
State Overview	11
County Overview	11
Table 1	13
Maps 1 - 7	14
Section II Highlights: Rural and Highly Rural VHA Patients with Chronic Renal Failure	21
National Overview	22
VISN Overview	22
State Overview	22
County Overview	23
Table 2	24
Maps 8 - 21	25

Section III Highlights: Rural and Highly Rural VHA Subgroups of Patients with Chronic Renal Failure

Gender	39
Table 3	40
Maps 22 - 25	41
Age Group	45
Table 4	46
Maps 26 - 31	47
Service Connection and Low Income Enrollment Priority Groups	53
Table 5	54
Maps 32 - 43	55

Section IV Highlights: VHA Patients with Chronic Renal Failure (Outpatient Utilization)67

Tables 6 - 7	68
Tables 8 - 9	71
Maps 44 - 49	73

References.....79

Project Team.....79

OVERVIEW

The staff at the GeoSpatial Outcomes Division accessed data repositories available through the VHA Support Service Center (VSSC) <http://vssc.med.va.gov/> to query and extract the data used to generate this chapter's tables, charts, and maps. The Diagnosis Cube, in particular, is a single repository cube with tools for diagnosis monitoring of the Veteran patient population.¹

According to a canned report available in the Diagnosis Cube, Chronic Renal Failure - specifically ICD-9-CM code 585.6 (representing only one of 30 Chronic Renal Failure ICD-9-CM codes) - is listed as #4 of the Top 20 Diagnoses by Frequency (with 6,276,911 occurrences of that particular ICD-9-CM code) among all VHA facilities during FY-2014. When rural areas are queried from this selection, Chronic Renal Failure diagnostic code 585.6 was still ranked high at #4 (with 2,040,338 occurrences) and when highly rural areas were queried, diagnostic code 585.6 was positioned at #6 (with 53,981 occurrences). This represents a need for analysis of health care access and delivery for the Chronic Renal Failure cohort living in rural and highly rural areas. The GSOD team utilized scholarly and reliable web resources to confirm the 30 Diagnosis ICD-9-CM codes used to identify patients with Chronic Renal Failure (see *Diagnostic Codes Used to Define Cohort* section below).*** The team then extracted the appropriate data.

Process of Data Compilation

Using the VSSC and Proclarity Desktop Professional Version 6.3.129.200, data were extracted from the Diagnosis Cube. **Prevalence and demographic data** were queried on a broad level and then drilled down to specific ruralities. The following parameters were entered in different combinations to present various scenarios:

- **Measures:** Unique Patients
- **DXDate Date:** FY-2014
- **Diagnosis ICD9 Desc:** All, 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 585, 585.4, 585.5, 585.6, 585.9, 586, 587, 588, 588.1, 588.81, 588.89, 588.9, 792.5, V42.0, V45.1, V56.0, V56.1, V56.2, V56.31, V56.32, V56.8
- **Home County VISN:** V01, V02, V03, V04, V05, V06, V07, V08, V09, V10, V11, V12, V15, V16, V17, V18, V19, V20, V21, V22, V23

Chronic Renal Failure



- **DiagnosisPosition:** Primary Diagnosis, Secondary Diagnosis
- **Priority:** 1 Svc Con 50% +, 2 Svc Con 30%-40%, 3 Svc Con 20%/POW/Special, 5 Non Service Con Below Income
- **Rurality:** Highly Rural, Rural, Urban, Unknown
- **Gender:** Female, Male, Unknown
- **Age:** <25, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+, Unknown

Then the following parameters were entered to extract **outpatient encounters** and were used in different combinations to present various scenarios:

- **Measures:** Frequency
- **DXDate Date:** FY 14
- **Diagnosis ICD9 Desc:** All, 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 585, 585.4, 585.5, 585.6, 585.9, 586, 587, 588, 588.1, 588.81, 588.89, 588.9, 792.5, V42.0, V45.1, V56.0, V56.1, V56.2, V56.31, V56.32, V56.8
- **Home County VISN:** V01, V02, V03, V04, V05, V06, V07, V08, V09, V10, V11, V12, V15, V16, V17, V18, V19, V20, V21, V22, V23
- **DiagnosisPosition:** Primary Diagnosis, Secondary Diagnosis
- **Rurality:** Highly Rural, Rural, Urban, Unknown
- **Source:** Outpatient Encounters

ESRI ArcGIS Desktop was used to import the tabular data and create custom maps at National and VISN scales. The tabular data is broken down by rows of FIPS codes (county level geographic units), State, VISN, and then by columns of the following:

- Count of total number of patients with Chronic Renal Failure in the VHA.
- Counts and percentages of patients with Chronic Renal Failure versus all patients (uniques) broken down by rurality (Rural, Highly Rural, Urban, Total), with Rural and Highly Rural combined for the purposes of patient confidentiality
- Counts and percentages of patients with Chronic Renal Failure versus all patients (uniques) *by gender* broken down by rurality (Rural, Highly Rural, Urban, Total), with Rural and Highly Rural together for the purposes of patient confidentiality

- Counts and percentages of patients with Chronic Renal Failure versus all patients (uniques) *by age group* (<65, 65+) broken down by rurality (Rural, Highly Rural, Urban, Total), with Rural and Highly Rural combined for the purposes of patient confidentiality
- Counts and percentages of patients with Chronic Renal Failure versus all patients (uniques) *by enrollment priority* (groups 1, 2 and 3) broken down by rurality (Rural, Highly Rural, Urban, Total), with Rural and Highly Rural combined for the purposes of patient confidentiality
- Counts and percentages of patients with Chronic Renal Failure versus all patients (uniques) *by enrollment priority* (group 5) broken down by rurality (Rural, Highly Rural, Urban, Total), with Rural and Highly Rural combined for the purposes of patient confidentiality
- Counts and percentages of outpatient encounters of patients with Chronic Renal Failure in rural and highly rural areas versus outpatient encounters of patients with Chronic Renal Failure in all rural categories, with Rural and Highly Rural combined for the purposes of patient confidentiality.

***GSOD would like to acknowledge The Dartmouth Institute for Health Policy and Clinical Practice for producing the The Dartmouth Atlas of Health Care which collected the ICD-9 codes used for Chronic Renal Failure. The qualifying diagnosis codes are available here: http://www.dartmouthatlas.org/downloads/methods/Chronic_Disease_Codes.pdf and the research methods used in production of that atlas are available here: http://www.dartmouthatlas.org/downloads/methods/research_methods.pdf. GSOD would like to acknowledge the Veterans Aging Cohort Study (VACS) conducted by Yale School of Medicine, funded by the National Institute of Medicine (NIH) which also confirmed some of the qualifying diagnosis codes. Additional information is available here: <http://medicine.yale.edu/intmed/vacs/>.

Diagnostic Codes Used to Define Cohort (Chronic Renal Failure)

ICD-9 CM code	Description
403.01	HYPERTENSIVE RENAL DISEASE - MALIGNANT WITH RENAL FAILURE*
403.11	HYPERTENSIVE RENAL DISEASE BENIGN WITH RENAL FAILURE*
403.91	HYPERTENSIVE RENAL DISEASE UNSPECIFIED WITH RENAL FAILURE*
404.02	HYPERTENSIVE HEART AND RENAL DISEASE - MALIGNANT WITH RENAL FAILURE*
404.03	MALIGNANT WITH RENAL AND HEART FAILURE*
404.12	BENIGN WITH RENAL FAILURE*
404.13	BENIGN WITH RENAL AND HEART FAILURE*
404.92	UNSPECIFIED WITH RENAL FAILURE*
404.93	UNSPECIFIED WITH HEART AND RENAL FAILURE*
585	CHRONIC RENAL FAILURE*
585.4	CHRONIC KIDNEY DISEASE STAGE IV (SEVERE)**
585.5	CHRONIC KIDNEY DISEASE STAGE V**
585.6	END STAGE RENAL DISEASE**
585.9	CHRONIC KIDNEY DISEASE UNSPECIFIED**
586	RENAL FAILURE, UNSPECIFIED*
587	RENAL SCLEROSIS, UNSPECIFIED*
588	RENAL OSTEOFYSTROPHY*
588.1	NEPHROGENIC DIABETES INSIPIDUS*
588.81	NEPHROGENIC DIABETES INSIPIDUS*
588.89	OTHER SPECIFIED DISORDERS RESULTING FROM IMPAIRED RENAL FUNCTION*

ICD-9 CM code	Description
588.9	UNSPECIFIED DISORDER RESULTING FROM IMPAIRED RENAL FUNCTION*
792.5	CLOUDY (HEMODIALYSIS) (PERITONEAL) DIALYSIS EFFLUENT*
V42.0	KIDNEY TRANSPLANT STATUS*
V45.1	RENAL DISALYSIS STATUS*
V56.0	EXTRACORPOREAL DIALYSIS*
V56.1	FITTING AND ADJUSTMENT OF EXTRACORPOREAL DIALYSIS CATHETER*
V56.2	FITTING AND ADJUSTMENT OF PERITONEAL DIALYSIS CATHETER*
V56.31	ENCOUNTER FOR ADEQUACY TESTING FOR HEMODIALYSIS*
V56.32	ENCOUNTER FOR ADEQUACY TESTING FOR PERITONEAL DIALYSIS*
V56.8	OTHER DIALYSIS*

*SOURCE: VACS (VA COHORT STUDY)

**SOURCE: LIST OF ICD-9-CM CODES BY CHRONIC DISEASE CATEGORY - 9 IEZZONI
CHRONIC CONDITIONS, DARTMOUTH

Organization of Data Tables and Maps

The data tables and maps for Veterans with Chronic Renal Failure are organized into four sections. The first section (Section I) focuses on the total numbers of VHA patients with Chronic Renal Failure. We first present an overview of the data at the National, Veterans Integrated Service Network (VISN), State, and county levels. In addition to the overall number of patients with Chronic Renal Failure, data are presented by gender, age group, and enrollment status. Table 1 contains the data used in the narrative summary. Following the table, there are a series of maps that visually illustrate the data.

- Map 1: Number of Patients with Chronic Renal Failure by VISN, FY-2014
- Map 2: Number of Patients with Chronic Renal Failure by State, FY-2014
- Map 3: Number of Patients with Chronic Renal Failure by County, FY-2014
- Map 4 - 7: Number of Patients with Chronic Renal Failure by County, FY-2014 – Zoomed VISN views

Section II of the chapter focuses on the overall prevalence of Chronic Renal Failure by the following rurality categories: *rural, highly rural, urban, and unknown*. Since the *rural and highly rural* categories are of particular interest in this volume, numbers and percentages are distinctively highlighted in shades of blue in Table 2. National, VISN, State, and county overview are presented focusing on the rural and highly rural Veterans with Chronic Renal Failure. Because the number of highly rural Veterans is so small, we combined the data for mapping purposes. For the maps, urban areas are shaded and urban patients are removed from the numerator and denominator. The following maps illustrate graphically the data on rural and highly rural VHA patients with Chronic Renal Failure:

- Map 8: Number of Rural and Highly Rural Patients with Chronic Renal Failure by VISN, FY-2014
- Map 9: Percent of Rural and Highly Rural Patients with Chronic Renal Failure of Total Rural and Highly Rural Patients by VISN, FY-2014
- Map 10: Number of Rural and Highly Rural Patients with Chronic Renal Failure by State, FY-2014
- Map 11: Percent of Rural and Highly Rural Patients with Chronic Renal Failure of Total Rural and Highly Rural Patients by State, FY-2014
- Map 12: Number of Rural and Highly Rural Patients with Chronic Renal Failure by County, FY-2014
- Map 13: Percent of Rural and Highly Rural Patients with Chronic Renal Failure of Total Rural and Highly Rural Patients by County, FY-2014

- Maps 14, 16, 18, 20: Number of Rural and Highly Rural Patients with Chronic Renal Failure by County, FY-2014 – Zoomed VISN views
- Map 15, 17, 19, 21: Percent of Rural and Highly Rural Patients with Chronic Renal Failure by County, FY-2014 – Zoomed VISN views

Section III provides more detail on subgroups of rural and highly rural patients. Table 3 contains data broken down by gender and rurality, with accompanying maps of rural and highly rural female VHA patients:

- Map 22: Number of Rural and Highly Rural Female Patients with Chronic Renal Failure by VISN, FY-2014
- Map 23: Percent of Rural and Highly Rural Female Patients with Chronic Renal Failure of Total Rural and Highly Rural Female Patients by VISN, FY-2014
- Map 24: Number of Rural and Highly Rural Female Patients with Chronic Renal Failure by State, FY-2014
- Map 25: Percent of Rural and Highly Rural Female Patients with Chronic Renal Failure of Total Rural and Highly Rural Female Patients by State, FY-2014 *** **Note:** County level maps are not presented for this disease condition, as the number of VHA female patients with Chronic Renal Failure is very small.

Table 4 contains data broken down by age group and rurality, with accompanying maps of rural and highly rural VHA patients by 65 years of age and older:

- Map 26: Number of Rural and Highly Rural Patients Aged 65+ with Chronic Renal Failure by VISN, FY-2014
- Map 27: Percent of Rural and Highly Rural Patients with Chronic Renal Failure Aged 65+ of Total Rural and Highly Rural Patients Aged 65+ by VISN, FY-2014
- Map 28: Number of Rural and Highly Rural Patients Aged 65+ with Chronic Renal Failure by State, FY-2014
- Map 29: Percent of Rural and Highly Rural Patients Aged 65+ with Chronic Renal Failure of Total Rural and Highly Rural Patients Aged 65+ by State, FY-2014
- Map 30: Number of Rural and Highly Rural Patients Aged 65+ with Chronic Renal Failure by County, FY-2014
- Map 31: Percent of Rural and Highly Rural Patients Aged 65+ with Chronic Renal Failure of Total Rural and Highly Rural Patients Aged 65+ by County, FY-2014

Table 5 contains data broken down by enrollment priority and rurality, with accompanying maps of rural and highly rural

Chronic Renal Failure



VHA patients by Service Connection (Enrollment Priority Groups 1-3) and Low Income (Enrollment Priority Group 5):

- Map 32: Number of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure by VISN, FY-2014
- Map 33: Percent of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 1-3 by VISN, FY-2014
- Map 34: Number of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure by State, FY-2014
- Map 35: Percent of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 1-3 by State, FY-2014
- Map 36: Number of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure by County, FY-2014
- Map 37: Percent of Rural and Highly Rural Patients in Priority Group 1-3 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 1-3 by County, FY-2014
- Map 38: Number of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure by VISN, FY-2014
- Map 39: Percent of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 5 by VISN, FY-2014
- Map 40: Number of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure by State, FY-2014
- Map 41: Percent of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 5 by State, FY-2014
- Map 42: Number of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure by County, FY-2014
- Map 43: Percent of Rural and Highly Rural Patients in Priority Group 5 with Chronic Renal Failure of Total Rural and Highly Rural Patients in Priority Group 5 by County, FY-2014

The final section of the chapter (Section IV) provides information on the outpatient encounters of VHA patients with Chronic Renal Failure. Table 6 examines the outpatient encounters of patients with a **primary** diagnosis of Chronic Renal Failure and breaks the encounter information by rurality and Table 8 provides information on the number of outpatient

encounters of patients with a **secondary** diagnosis of Chronic Renal Failure, also categorized by rurality. Table 7 and Table 9 provide information on the numbers and percentage of rural and highly rural Chronic Renal Failure encounters of total Chronic Renal Failure encounters for patients with a primary diagnosis of Chronic Renal Failure (Table 7) and secondary diagnosis of Chronic Renal Failure (Table 9). The accompanying maps display the total numbers and percentages of rural and highly rural patients with **either** a primary or secondary diagnosis of Chronic Renal Failure to capture the total workload (outpatient encounters) of this disease in rural and highly rural areas:

- Map 44: Number of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters by VISN, FY-2014
- Map 45: Percent of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters of VHA Chronic Renal Failure Patient Encounters by VISN, FY-2014
- Map 46: Number of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters by State, FY-2014
- Map 47: Percent of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters of VHA Chronic Renal Failure Patient Encounters by State, FY-2014
- Map 48: Number of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters by County, FY-2014
- Map 49: Percent of Rural and Highly Rural Veterans Chronic Renal Failure Patient Encounters of VHA Chronic Renal Failure Patient Encounters by County, FY-2014

Note: An asterisk (*) that appears in the tables signifies a low number or proportion of unique patients.

Section I Highlights: VHA Patients with Chronic Renal Failure

National Overview

In Fiscal Year 2014, the Veterans Health Administration had 258,799 patients with the diagnosis code indicating a primary or secondary diagnosis of Chronic Renal Failure (Table 1). This number represents approximately four percent (4.17%) of the total patient population during the fiscal year. As with most patients seen in the VHA, the majority of patients with Chronic Renal Failure were male (97.89%); however, females represented a marginal proportion of 2.11%. The age distribution of patients with Chronic Renal Failure showed that 1.36% were under the age of 45, 4.14% were ages 45-54, 15.77% were ages 55-64, 32.8% were ages 65-74, and 45.94% were ages 75 or older.

We examined two groups of patients by their Enrollment Priority. Enrollment Priority Groups 1-3 were combined into one group, which includes Service-Connected Veterans rated by the VA from 10-100%. A second group, Enrollment Priority Group 5, was selected to represent non Service-Connected and noncompensable Service-Connected Veterans rated 0% disabled by VA with annual income and/or net worth below the VA National income threshold and geographically-adjusted income threshold for their resident location.² The table shows that about half of patients with Chronic Renal Failure (43.07%) were Service-Connected injured Veterans enrolled in Priority Groups 1 – 3 and approximately one-quarter (25.21%) were Priority 5 (non Service-Connected/low income).

VISN Overview

At the time of this edition, the Veterans Health Administration consisted of 21 networks. Examining data at the network level, the volume of patients with Chronic Renal Failure ranged from a high of 28,961 individuals in the Sunshine Network (VISN 8, which serves Veterans in most of Florida, Puerto Rico, U.S. Virgin Islands, and a portion of Georgia) to a low of 4,477 individuals in the Upstate New York Network (VISN 2, which includes the majority of the State of New York and a small portion of northern Pennsylvania.) When examining the number of patients with Chronic Renal Failure proportionally to all patients, the Heartland Network (VISN 15) had the highest proportion at 5.15% and the Northwest Network (VISN 20) had the lowest proportion at 3.01%. The VISN with the highest ratio of females to males was in the Northwest Network (VISN 20), where 2.84% of the patients with Chronic Renal Failure were female, followed closely by the Southwest Network (VISN 18) with 2.82%. Nationally, the 75+ age group had the highest prevalence of patients with Chronic Renal

Failure to all VHA patients (45.94%); at the network level, seven of the 21 VISNs had more than one-half of the VHA patient population in this age group diagnosed with Chronic Renal Failure, while the remaining VISNs had well over-third. The New England Network (VISN 1) led with 59.48%. All VISNs had one-third to one-half of patients with Chronic Renal Failure in the VHA enrolled as Service-Connected (Priority Groups 1-3), the Heart of Texas Network (VISN 17) leading at 54.84%. Nationally and across all networks, around one-quarter of patients with Chronic Renal Failure in the VHA were enrolled as non Service-Connected/low income (Priority Group 5). Map 1 shows the number of Veterans with Chronic Renal Failure by quartile across the 21 VISNs.

State Overview

Map 2 shows the number of VHA patients with Chronic Renal Failure by State (by quartile). The top 10 States with the highest number of patients with Chronic Renal Failure by rank order were Florida (N=25,654), Texas (N=20,697), California (N=18,388), Pennsylvania (N=11,464), Illinois (N=10,839), Ohio (N=10,776), New York (N=9,904), Georgia (N=9,315), North Carolina (N=9,124), and Missouri (N=6,918). The District of Columbia had the highest percentage of patients with Chronic Renal Failure (6.1%), followed by these U.S. States and territories (in rank order): Puerto Rico (6.05%), Illinois (5.8%), West Virginia (5.48%), Kansas (5.44%), Florida (5.27%), Indiana (5.15%), Nevada (5.11%), Louisiana (5.05%) and Georgia (5.04%). Thus, the States of Illinois, Florida, and Georgia showed both a high number and a high proportion of patients with Chronic Renal Failure.

County Overview

The number of patients with Chronic Renal Failure by county is displayed by quartiles in Map 3. The highest 25% in terms of volume is designated by the darkest color. In addition to the National map, four additional maps are provided that zoom to the VISN level (Maps 4-7) to give a clearer picture of the number of patients with Chronic Renal Failure and the geographic patterns within each VISN. The top 10 counties with the largest number of VHA patients with Chronic Renal Failure across the U.S. were in the States of Illinois (1 county), California (2 counties), Arizona (1 county), Texas (3 counties), Nevada (1 county), and Florida (2 counties). Cook County, Illinois had the largest number of patients with Chronic Renal Failure (N=4,146), followed by, in rank order: Los Angeles County, California (N=3,328), Maricopa County, Arizona (N=2,459), Harris County, Texas (N=2,310), Bexar County, Texas (N=2,138), Clark County, Nevada (N=2,085),

Chronic Renal Failure

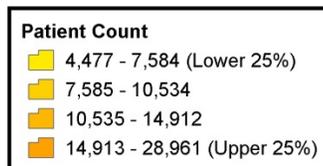
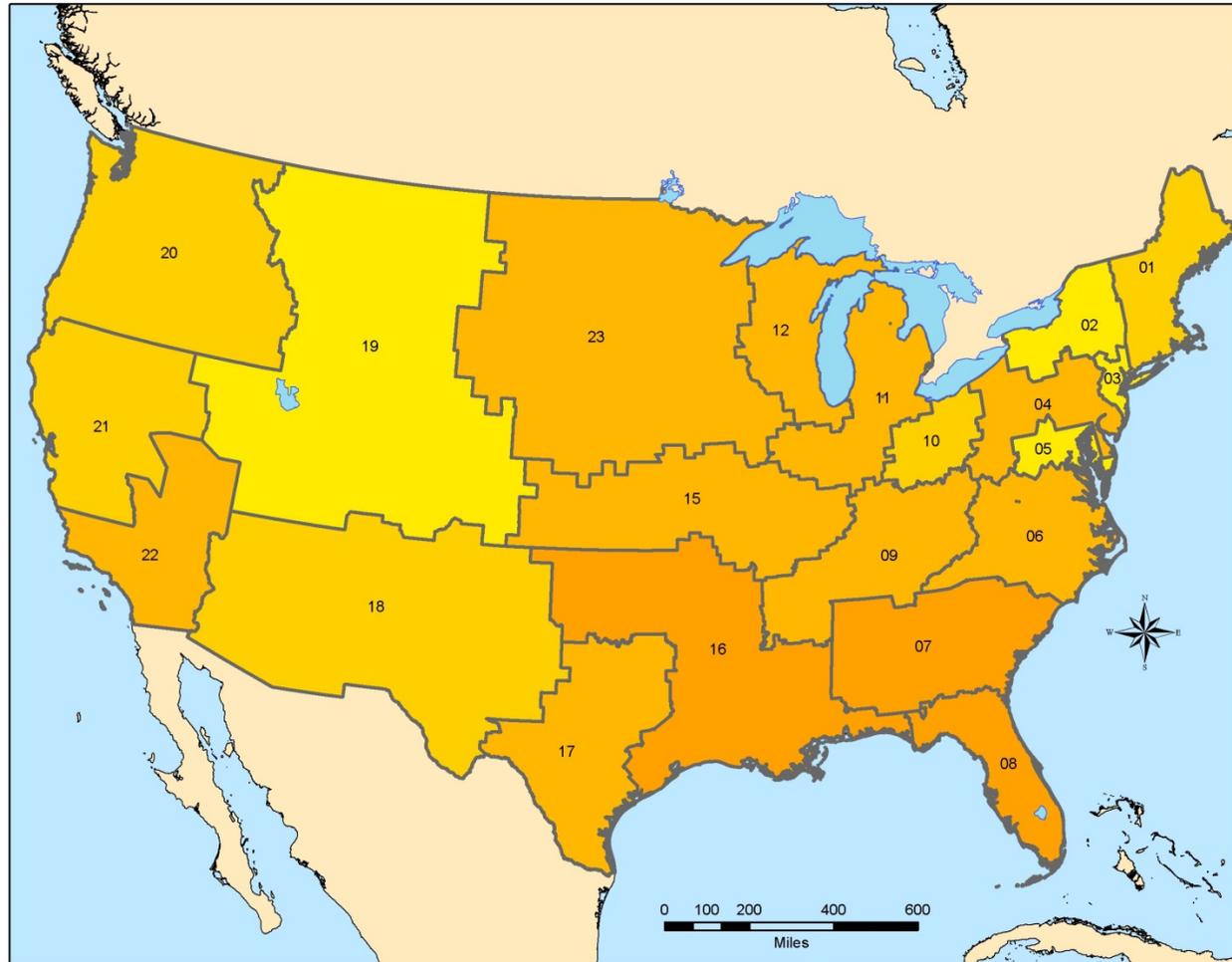


Pinellas County, Florida (N=1,896), San Diego County, California (N=1,797), Dallas County, Texas (N=1,780), and Palm Beach County, Florida (N=1,611).

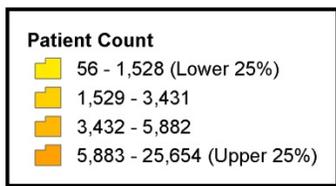
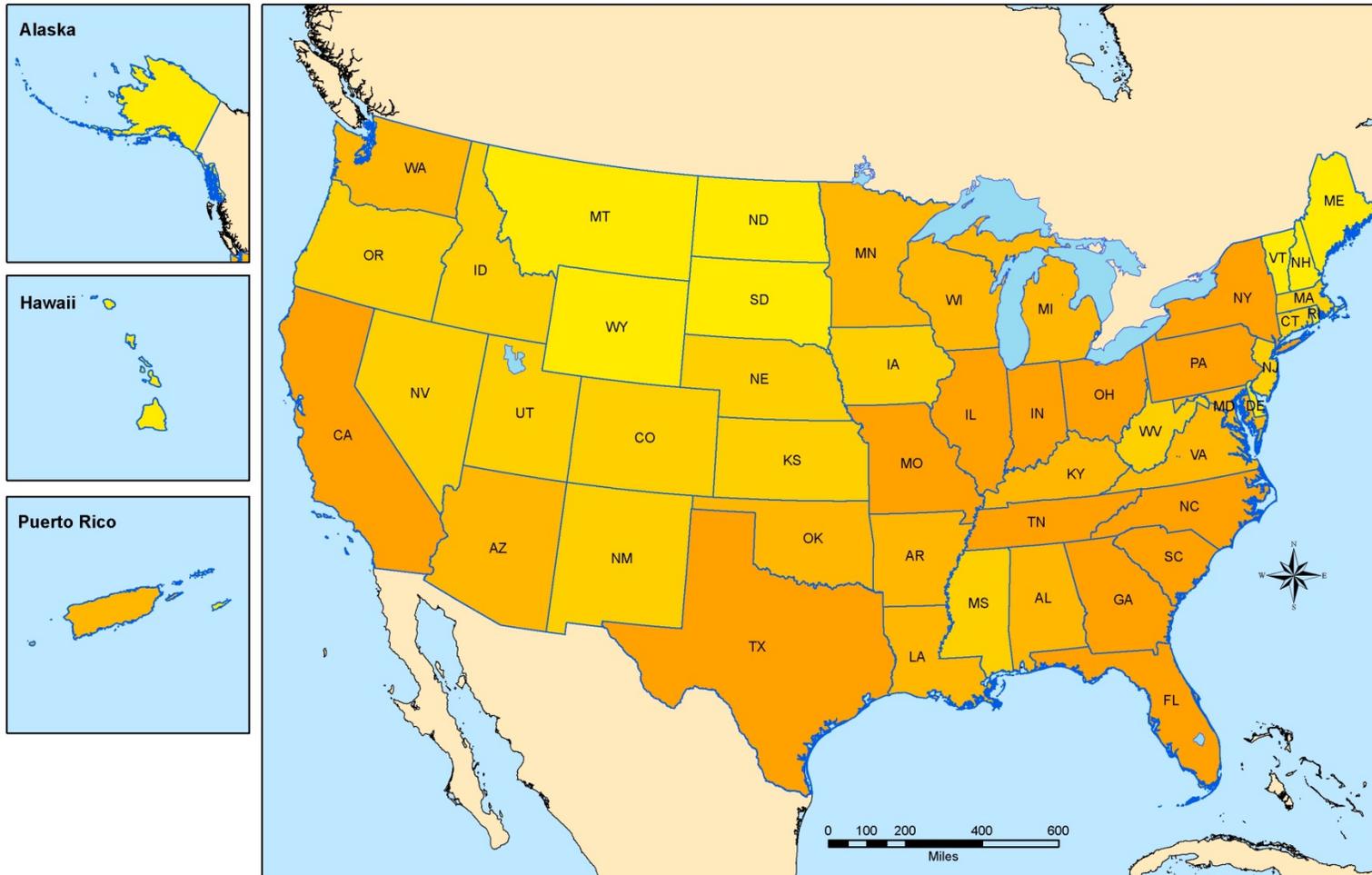
Table 1: National and VISN Numbers and Percentages of VHA Patients with Chronic Renal Failure, FY-2014

Overall Prevalence Statistics- Chronic Renal Failure, FY-2014												
Veterans Integrated Service Network	Total Number of Patients	Patients with Chronic Renal Failure		Gender (%)		Age Group (%)					Enrollment Priority Groups (%)	
		N	(%)	F	M	<45	45-54	55-64	65-74	75+	Service Connected (Priority 1-3)	Low Income (Priority 5)
New England (01)	253,326	9,168	3.62	2.01	97.99	0.49	1.95	9.72	28.37	59.48	41.03	21.72
Upstate NY (02)	136,497	4,477	3.28	2.41	97.59	0.94	2.86	12.91	28.34	54.97	35.89	28.57
NY/NJ (03)	174,457	7,584	4.35	1.33	98.67	1.07	2.89	12.39	27.15	56.50	36.08	25.70
Stars and Stripes (04)	310,940	14,507	4.67	1.67	98.33	0.74	3.16	12.48	29.52	54.10	33.94	26.48
Capitol (05)	150,012	5,363	3.58	2.16	97.84	1.85	4.53	18.31	30.49	44.83	37.89	30.64
Mid-Atlantic (06)	359,692	14,912	4.15	2.13	97.87	1.69	5.43	19.13	35.90	37.88	48.21	24.93
Southeast (07)	408,164	19,084	4.68	2.15	97.85	2.43	6.92	21.29	34.36	35.01	49.74	23.81
Sunshine (08)	576,411	28,961	5.02	2.26	97.74	1.34	4.09	13.26	29.76	51.56	39.72	25.53
Mid South (09)	298,396	12,936	4.34	1.89	98.11	1.29	4.07	16.66	35.08	42.93	43.56	26.68
Ohio (10)	231,319	10,534	4.55	2.21	97.79	0.84	3.72	16.10	33.39	45.97	35.82	29.52
Vets in Partnership (11)	282,135	11,506	4.08	1.87	98.13	1.13	4.09	15.80	33.84	45.13	40.95	26.94
Great Lakes (12)	266,879	12,330	4.62	2.04	97.96	1.04	3.68	13.64	30.55	51.11	32.19	25.57
Heartland (15)	245,357	12,635	5.15	1.92	98.08	1.06	3.78	15.28	33.37	46.52	39.85	26.05
South Central (16)	502,681	22,245	4.43	1.88	98.12	1.61	4.71	17.96	35.31	40.42	46.59	25.74
Heart of Texas (17)	306,581	12,986	4.24	2.73	97.27	2.30	5.61	20.10	36.12	35.88	54.84	21.03
Southwest (18)	271,557	10,264	3.78	2.82	97.18	1.41	3.57	15.16	34.00	45.86	45.90	24.88
Rocky Mtn. (19)	202,350	6,257	3.09	2.22	97.78	1.36	3.90	14.86	32.88	47.02	44.57	23.65
Northwest (20)	288,322	8,665	3.01	2.84	97.16	1.18	3.19	16.64	37.33	41.67	48.09	24.80
Sierra Pacific (21)	293,645	10,215	3.48	1.90	98.10	0.92	3.40	15.63	33.70	46.36	45.48	25.60
Desert Pacific (22)	328,951	12,444	3.78	2.35	97.65	1.78	4.59	16.99	35.48	41.19	45.79	26.73
Midwest (23)	324,728	11,726	3.61	1.80	98.20	0.78	2.29	11.36	29.06	56.54	47.74	18.68
Grand Total	6,212,400	258,799	4.17	2.11	97.89	1.36	4.14	15.77	32.80	45.94	43.07	25.21

Chronic Renal Failure



Map 1:
Number of VHA Patients with Chronic Renal Failure
By VISN FY - 2014

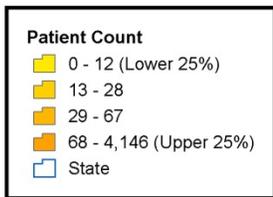
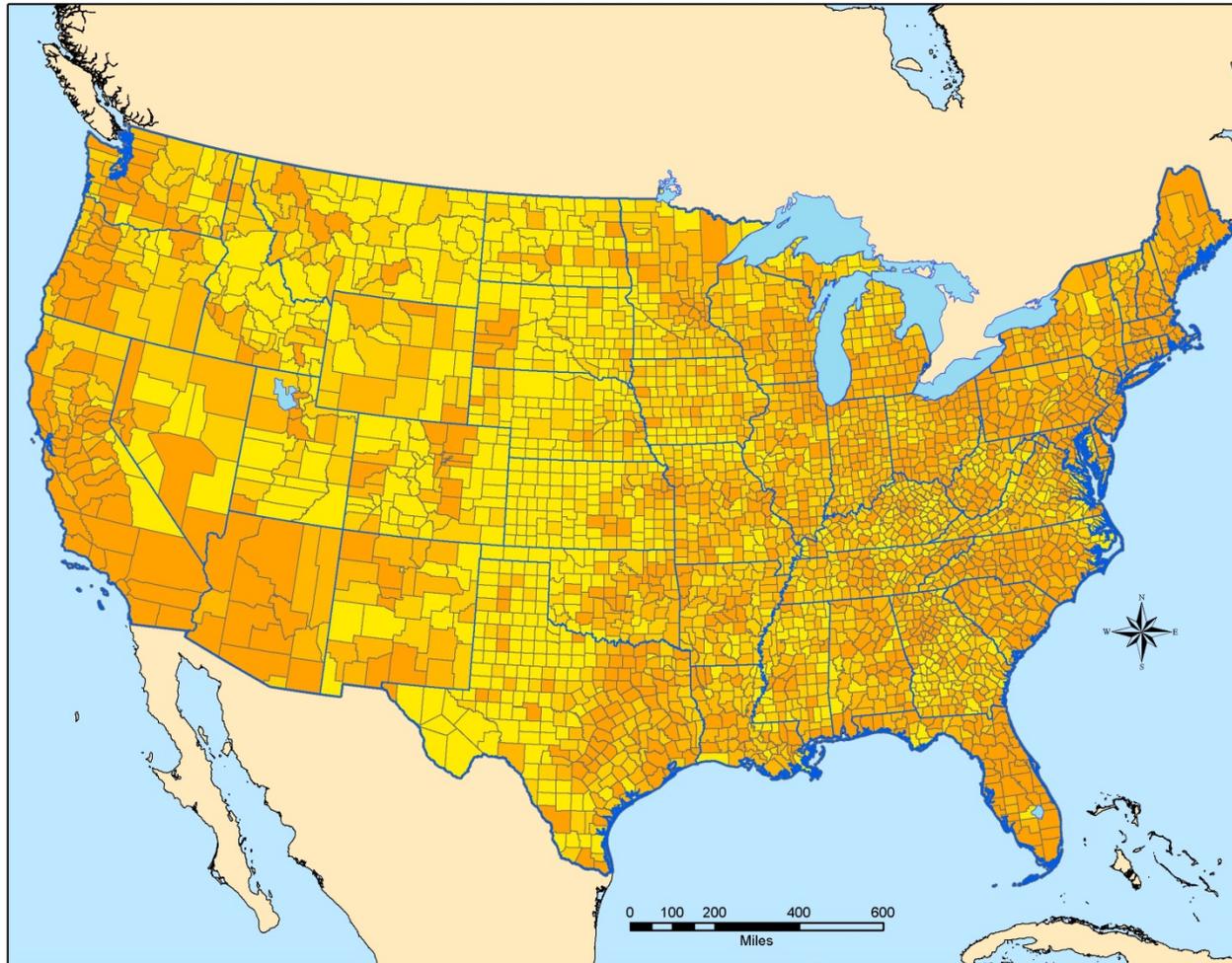


Map 2:
Number of VHA Patients with Chronic Renal Failure
By State FY - 2014

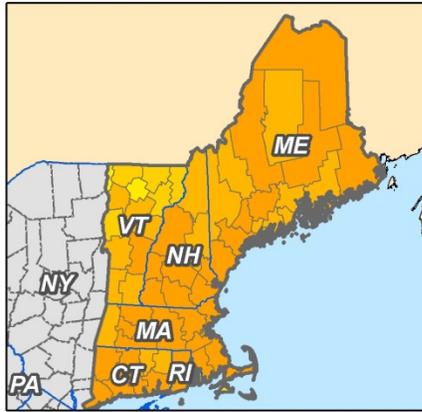


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

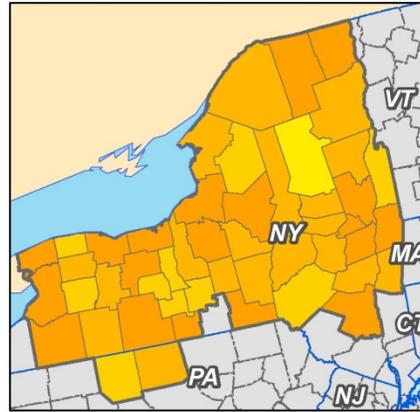
Chronic Renal Failure



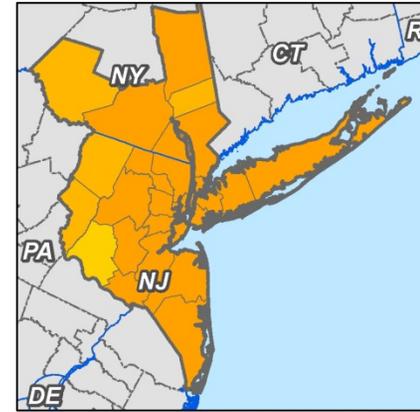
Map 3:
Number of VHA Patients with Chronic Renal Failure
By County FY - 2014



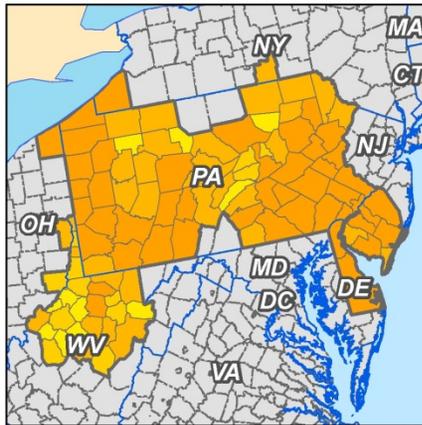
VISN 1



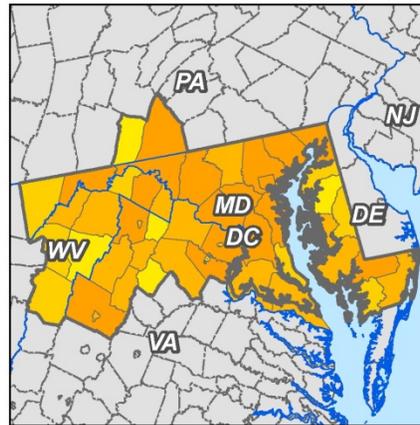
VISN 2



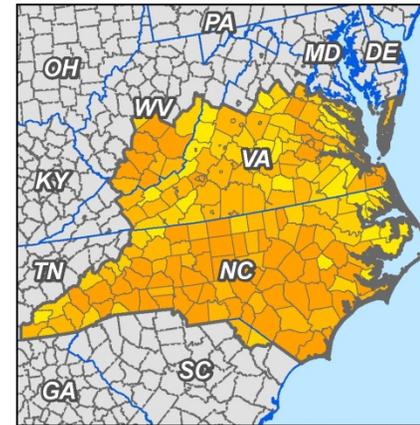
VISN 3



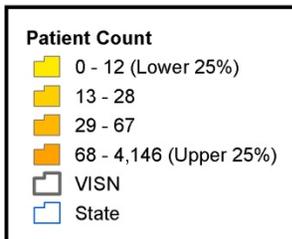
VISN 4



VISN 5



VISN 6

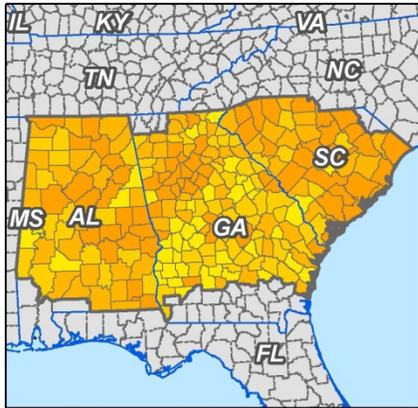


Map 4:
Number of VHA Patients
with Chronic Renal Failure
by County, FY - 2014

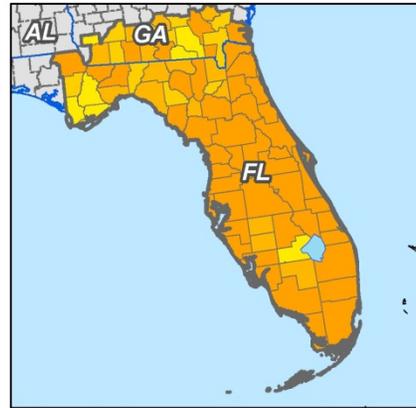


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

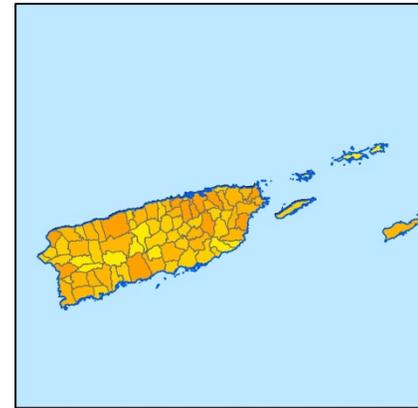
Chronic Renal Failure



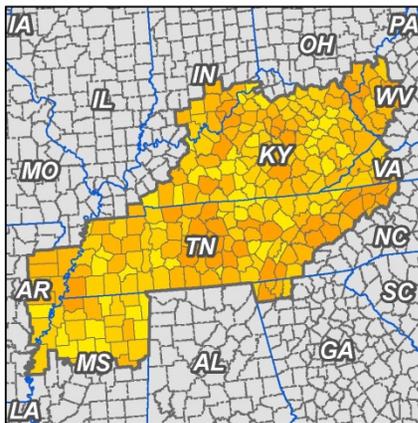
VISN 7



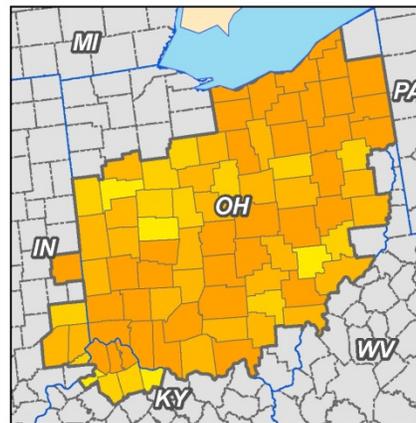
VISN 8



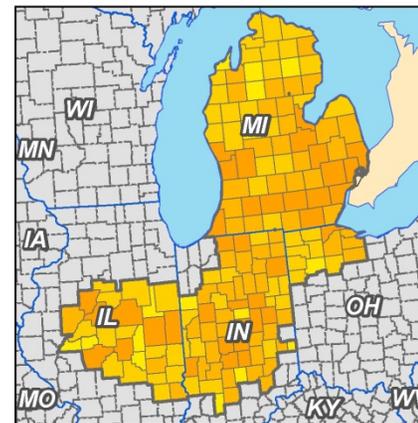
VISN 8 Puerto Rico & Virgin Islands



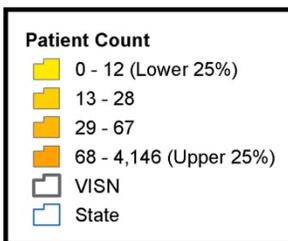
VISN 9



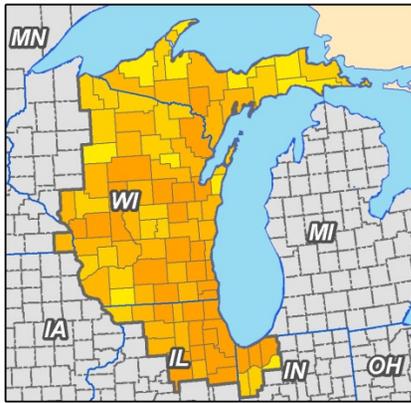
VISN 10



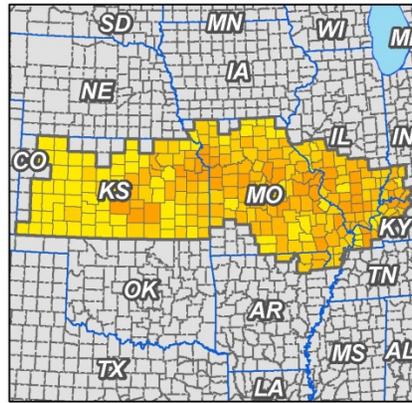
VISN 11



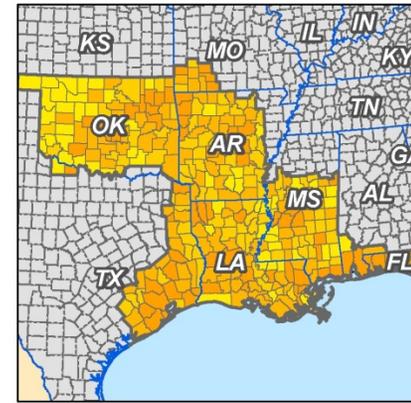
Map 5:
Number of VHA Patients
with Chronic Renal Failure
By County FY - 2014



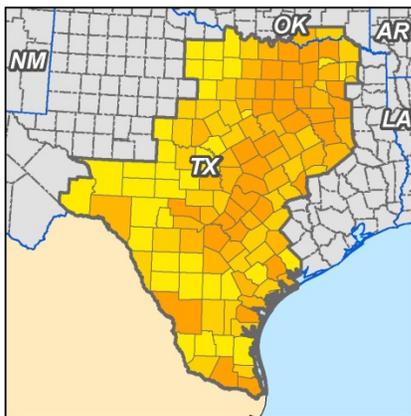
VISN 12



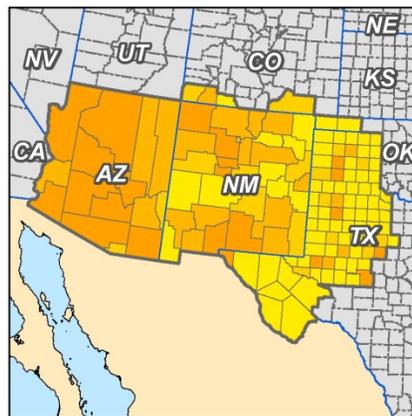
VISN 15



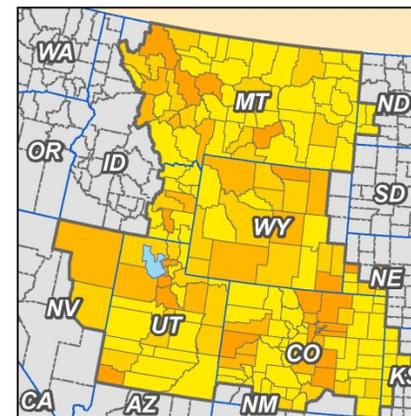
VISN 16



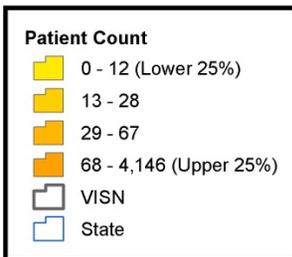
VISN 17



VISN 18



VISN 19



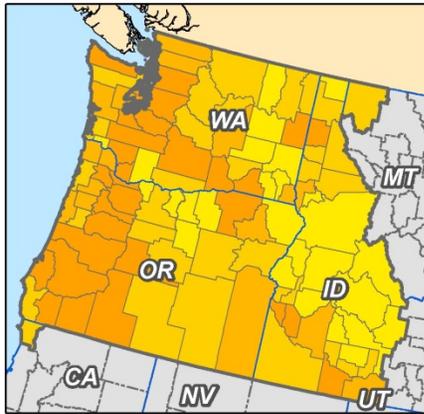
Map 6:

Number of VHA Patients
with Chronic Renal Failure
By County, FY - 2014

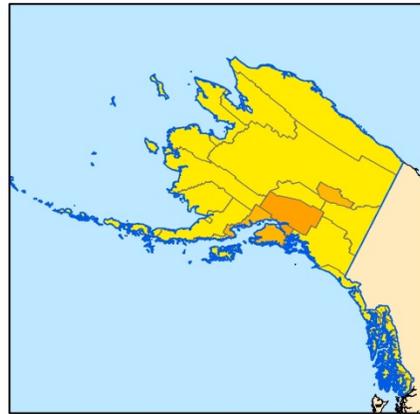


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

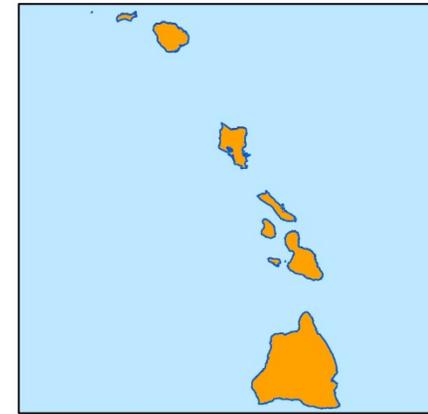
Chronic Renal Failure



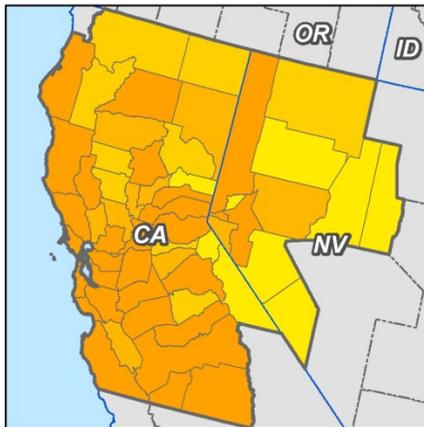
VISN 20



VISN 20- Alaska



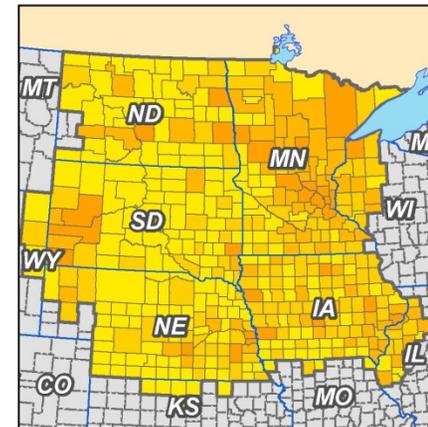
VISN 21- Hawaii



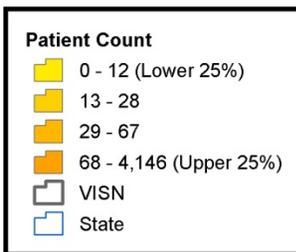
VISN 21



VISN 22



VISN 23



Map 7:
Number of VHA Patients
with Chronic Renal Failure
By County, FY - 2014

Section II Highlights: Rural and Highly Rural VHA Patients with Chronic Renal Failure

This section focuses on the overall prevalence of Chronic Renal Failure in each Veterans Integrated Service Network, broken down by the following rurality categories: *rural*, *highly rural*, *urban*, and *unknown*. Beginning with Fiscal Year 2011, the repository from where these data were extracted obtained the rural designation data from the most recent geocoded rurality table provided by VHA's Planning System Support Group (PSSG). If not available from this source, the repository's algorithm then looks to the Office of Rural Health's (ORH) ZIP-based file located on the ORH website.¹ In FY-2014*, the VHA's definition of rurality was based on the U.S. Census definition for rural and urban, with an added category of Highly Rural. The definition of these categories is as follows:

- ❖ *urban* - areas defined by U.S. Census as an urbanized area
- ❖ *rural* - all other areas excluded in U.S. Census defined urbanized areas
- ❖ *highly rural* - any rural area within a county with less than 7.0 civilians per square mile

Since the *rural* and *highly rural* categories are of particular interest in this volume, numbers and percentages are distinctively highlighted in shades of blue in Table 2. For the maps, urban areas are shaded and urban patients are removed from the numerator and denominator. The maps in this section illustrate graphically the data on rural and highly rural patients with Chronic Renal Failure. For this section, both the number and the percentages of rural and highly rural with Chronic Renal Failure at the VISN, State, and county levels are mapped.

*Note: Starting at the beginning of FY-2015, the VA changed its definitions based on Rural-Urban Commuting Area (RUCA) Codes. Future editions of the Rural Veterans Health Care Atlas will use the new definition of rurality: Urban Area: Census tracts with at least 30 percent of the population residing in an urbanized area as defined by the Census Bureau; Rural Area: Land areas not designed as urban or highly rural. Highly Rural Area: Sparsely populated areas — less than 10 percent of the working population commutes to any community larger than an urbanized cluster, which is typically a town of no more than 2,500 people.

National Overview

In FY-2014, 258,799 VHA patients had a primary or secondary diagnosis of Chronic Renal Failure. The majority of patients with Chronic Renal Failure lived in urban areas (63.69%). However, more than one-third resided in either rural (N=90,821) or highly rural (N=3,045) areas (36.27% combined).

VISN Overview

The Rocky Mountain Network (VISN 19) had the highest number of patients with Chronic Renal Failure residing in a defined *highly rural* area at 875, which represented 13.98% of the total number of patients with Chronic Renal Failure in that network (Table 2). The South Central Network (VISN 16) had the highest number of patients with Chronic Renal Failure residing in a defined *rural* area at 10,878, which represented 48.9% of the total number of patients with Chronic Renal Failure in that network. Three of the 21 VISNs had a higher proportion of *rural* patients than *urban* patients with Chronic Renal Failure: Mid South Network (VISN 9), Heartland Network (VISN 15), and Midwest Network (VISN 23).

Map 8 and Map 9 show the number and percentages of rural and highly rural patient with Chronic Renal Failure by VISN. VISNs 7 and 16 showed both a high volume of rural and highly rural patients with Chronic Renal Failure and a large proportion of their rural and highly rural patient population who had this disorder. VISN 23 had a relatively large number of patients with Chronic Renal Failure, but the proportion of rural and highly rural patients with Chronic Renal Failure represented a low to moderate percentage of the total rural and highly rural patient population. Conversely, VISN 3 had a low to moderate number of combined rural and highly rural patients with Chronic Renal Failure, but this disorder was quite prevalent in the rural and highly rural patient population.

State Overview

Map 10 shows the number of VHA rural and highly rural patients with Chronic Renal Failure by State (by quartile). The top 10 States with the highest number of rural and highly rural patients with Chronic Renal Failure by rank order were: Texas (N=6,848), Florida (N=4,764), North Carolina (N=4,623), Ohio (N=3,936), Pennsylvania (N=3,750), Georgia (N=3,624), Missouri (N=3,498), Tennessee (N=3,059), Kentucky (N=2,954), and Illinois (N=2,919). The proportion of rural and highly

rural patients with Chronic Renal Failure to the total rural and highly rural patient population was displayed in Map 11. The States with the highest percentage of their rural and highly rural patients (and more than 10 patients classified as rural or highly rural) that had Chronic Renal Failure are: Florida (5.78%), District of Columbia (5.77%), West Virginia (5.5%), Louisiana (5.34%), Georgia (5.17%), Illinois (5.16%), South Carolina (5.14%), Alabama (5.1%), Nevada (5.07%), and Kansas (5.07%). Thus, the States of Florida, Georgia, and Illinois showed both a high number and a high proportion of rural and highly rural patients with Chronic Renal Failure.

County Overview

The number of rural and highly rural patients with Chronic Renal Failure by county is displayed by quartiles in Map 12, with the highest one-third in terms of volume designated by the darkest shade. The proportion of rural and highly rural patients with Chronic Renal Failure of the total rural and highly rural patient population is portrayed in Map 13, with the highest 25% in terms of proportion designated in the darkest shade. In addition to the National map, eight additional maps are provided that zoom to the VISN level (Maps 14-21) to give a clearer picture of the number and percentages of rural and highly rural patients with Chronic Renal Failure and the geographic patterns by county within each VISN. The top 10 counties with the largest number of VHA rural and highly rural patients with Chronic Renal Failure across the U.S. were in the States of Florida (5 counties), Arizona (3 counties), Pennsylvania (1 county), and Oregon (1 county). Marion County, Florida had the largest number of rural and highly rural patients with Chronic Renal Failure (N=427) followed by, in rank order: Mohave County, Arizona (N=316), Yavapai County, Arizona (N=311), Butler County, Pennsylvania (N=277), Columbia County, Florida (N=272), Pima County, Arizona (N=268), Douglas County, Oregon (N=261), Alachua County, Florida (N=257), Putnam County, Florida (N=233), and Citrus County, Florida (N=227). Interestingly, the aforementioned five Florida counties are in close geographic proximity to one another in the north central part of the State. The top 10 counties with the largest proportion of their rural and highly rural patients (and there were at least 10 rural and highly rural patients) with a Chronic Renal Failure diagnostic code were Carolina Municipio, Puerto Rico (23.08%), Mayaguez Municipio, Puerto Rico (18.18%), Vega Baja Municipio, Puerto Rico (16.67%), Macon County, Alabama (13.15%), Richmond County, North Carolina (12.6%), Nassau County, New York (12.5%), Portsmouth City, Virginia (12.5%), Blaine County, Nebraska (12.5%), Pulaski County, Illinois (12.19%), and Morrill County, Nebraska (11.87%).

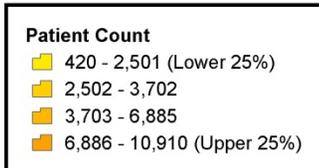
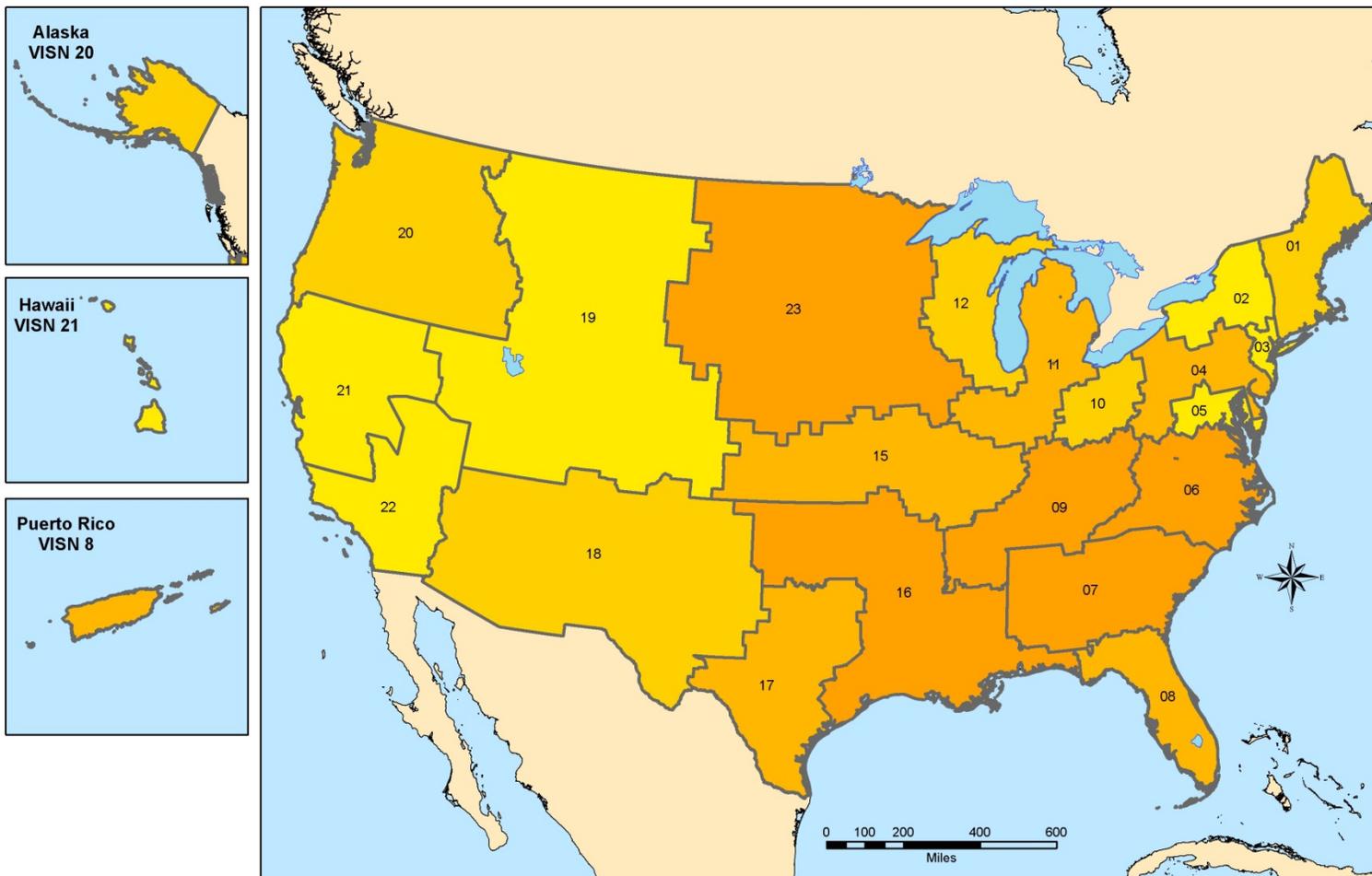
Chronic Renal Failure



Table 2: National and VISN Numbers and Percentages of VHA Patients with Chronic Renal Failure by Rurality,

FY-2014

Prevalence Statistics by Rurality- Chronic Renal Failure, FY-2014									
Veterans Integrated Service Network	Total Number of Patients with Chronic Renal Failure	Highly Rural		Rural		Urban		Unknown	
		N	(%)	N	(%)	N	(%)	N	(%)
New England (01)	9,168	35	0.38	2,861	31.21	6,274	68.43	*	*
Upstate NY (02)	4,477	*	*	2,121	47.38	2,355	52.60	*	*
NY/NJ (03)	7,584	*	*	420	5.54	7,165	94.48	*	*
Stars and Stripes (04)	14,507	*	*	5,233	36.07	9,273	63.92	*	*
Capitol (05)	5,363	*	*	1,153	21.50	4,211	78.52	*	*
Mid-Atlantic (06)	14,912	4	0.03	7,353	49.31	7,557	50.68	*	*
Southeast (07)	19,084	*	*	8,110	42.50	10,974	57.50	*	*
Sunshine (08)	28,961	4	0.01	5,334	18.42	23,625	81.58	*	*
Mid South (09)	12,936	*	*	7,190	55.58	5,745	44.41	*	*
Ohio (10)	10,534	*	*	3,702	35.14	6,834	64.88	*	*
Vets in Partnership (11)	11,506	*	*	4,744	41.23	6,762	58.77	*	*
Great Lakes (12)	12,330	10	0.08	3,075	24.94	9,244	74.97	*	*
Heartland (15)	12,635	84	0.66	6,801	53.83	5,750	45.51	*	*
South Central (16)	22,245	32	0.14	10,878	48.90	11,336	50.96	*	*
Heart of Texas (17)	12,986	75	0.58	4,380	33.73	8,528	65.67	3	0.02
Southwest (18)	10,264	451	4.39	2,928	28.53	6,881	67.04	6	0.06
Rocky Mtn. (19)	6,257	875	13.98	1,510	24.13	3,871	61.87	*	*
Northwest (20)	8,665	405	4.67	3,084	35.59	5,177	59.75	*	*
Sierra Pacific (21)	10,215	146	1.43	2,355	23.05	7,621	74.61	93	0.91
Desert Pacific (22)	12,444	207	1.66	903	7.26	11,332	91.06	*	*
Midwest (23)	11,726	712	6.07	6,686	57.02	4,327	36.90	*	*
Grand Total	258,799	3,045	1.18	90,821	35.09	164,842	63.69	111	0.04

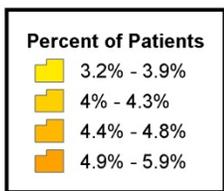
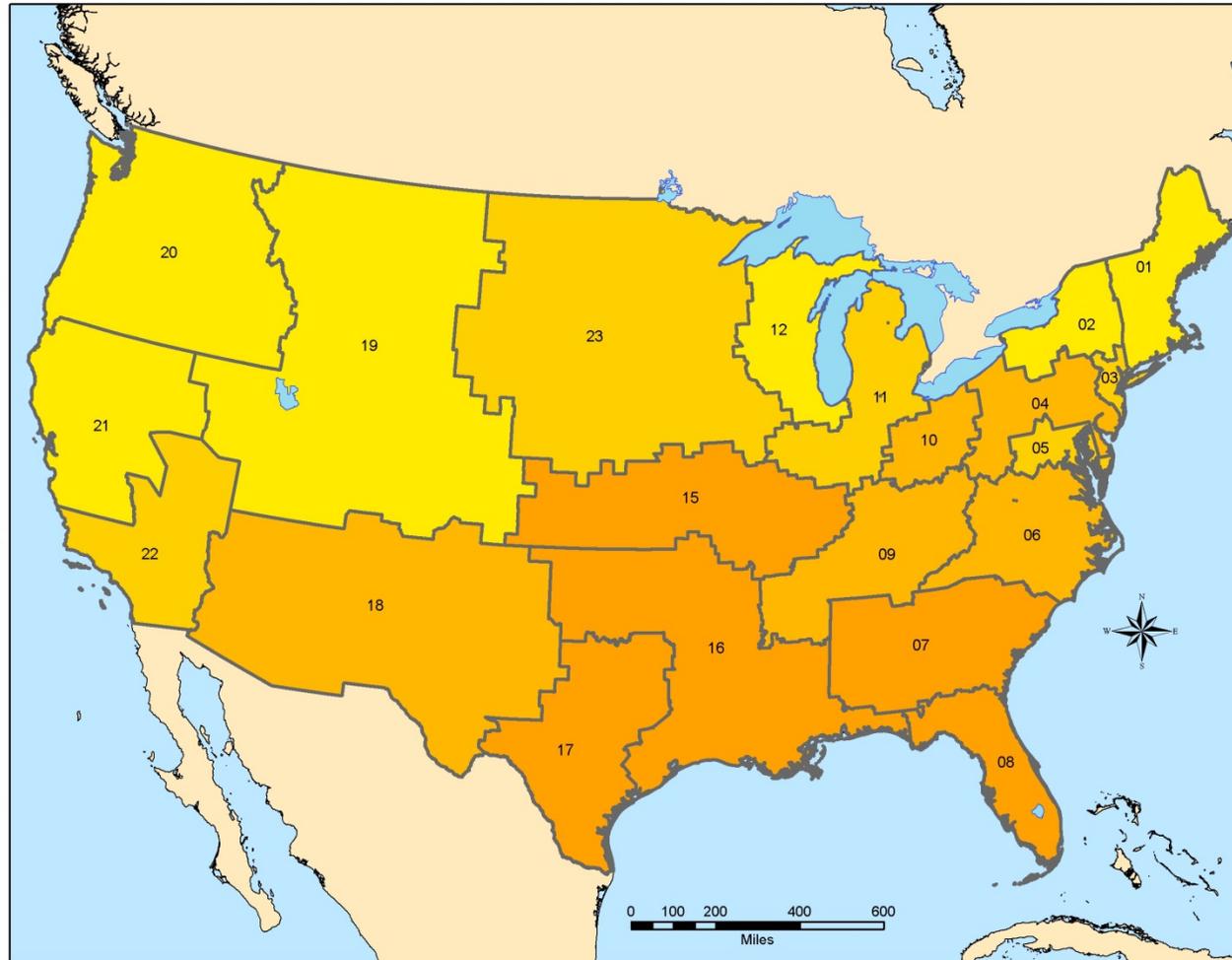


Map 8:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By VISN FY - 2014

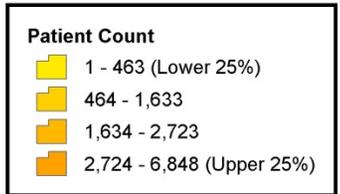
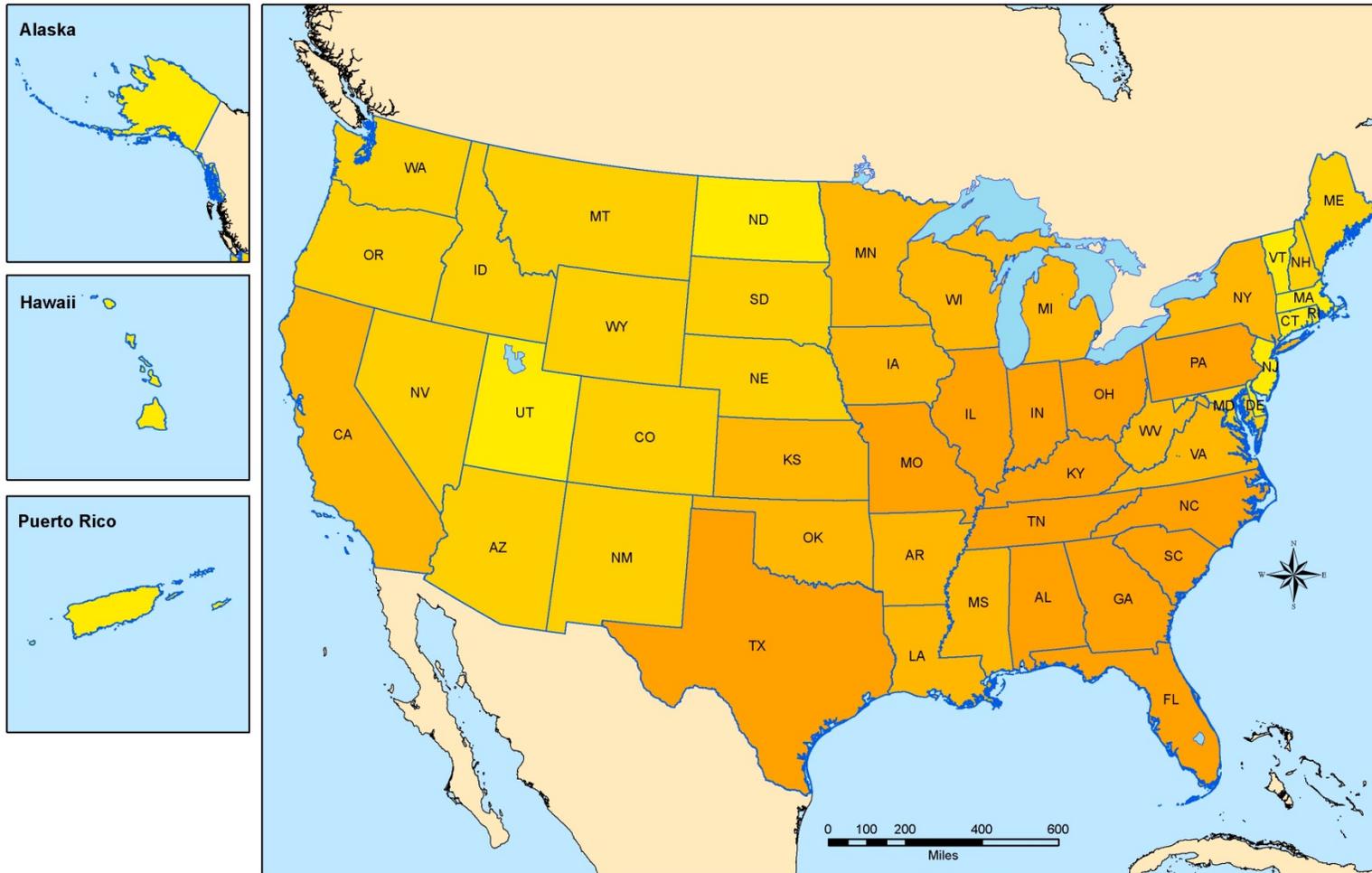


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 9:
Percent of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Of All Rural and Highly Rural VHA Patients
By VISN FY - 2014

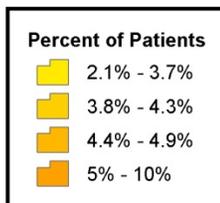
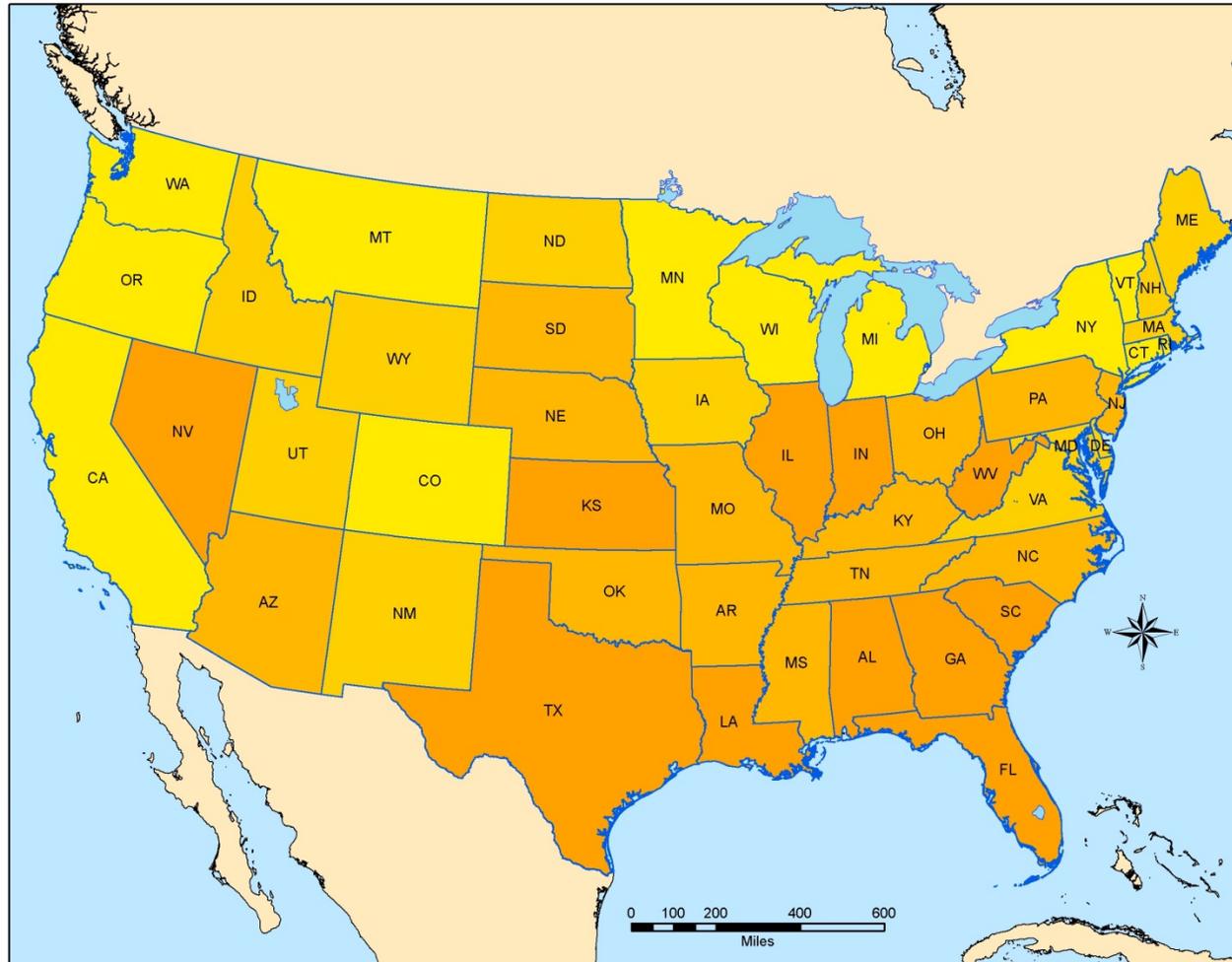


Map 10:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By State FY - 2014

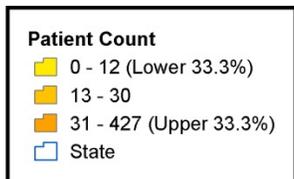
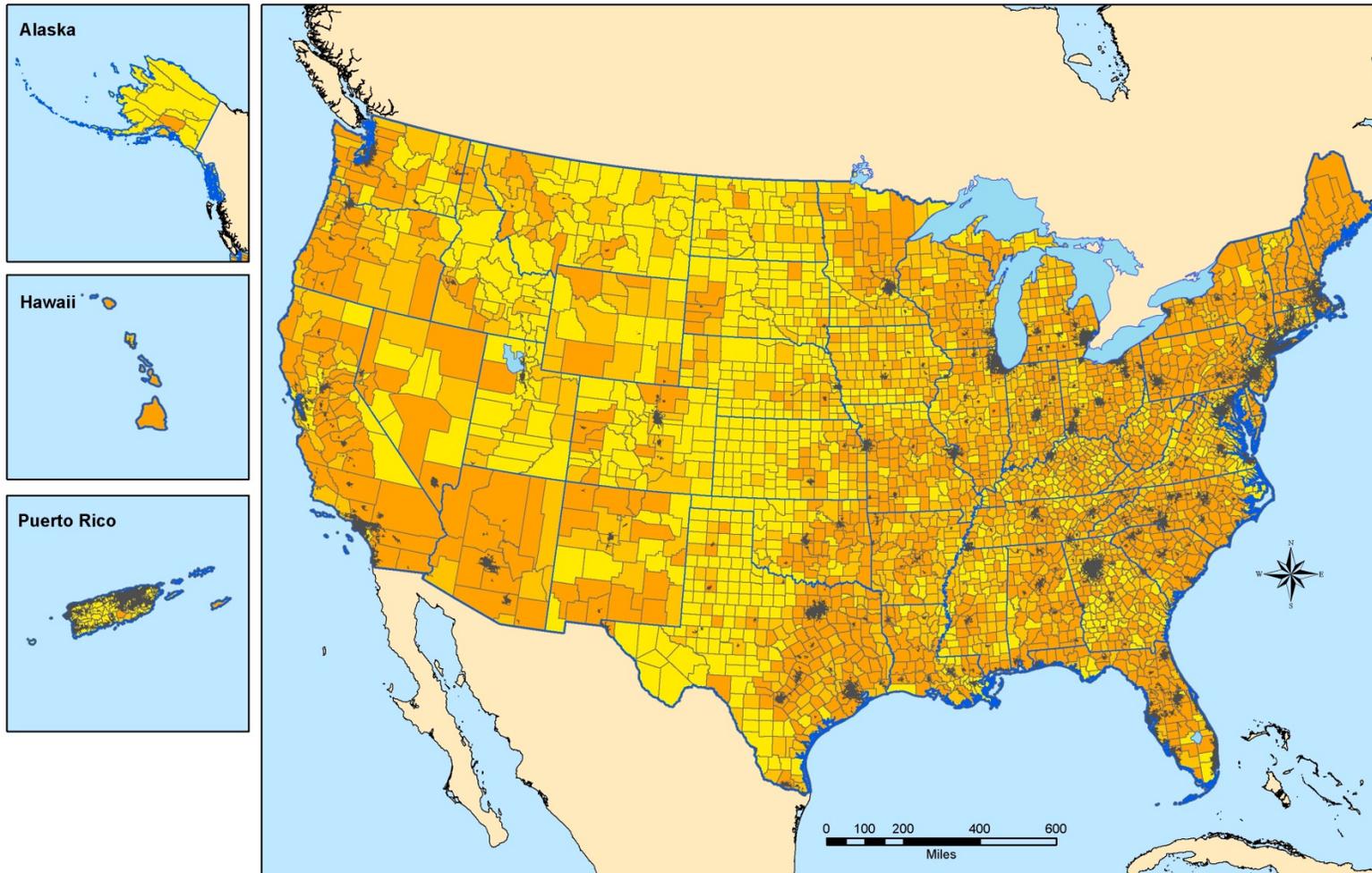


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 11:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Of All Rural and Highly Rural Patients By State FY - 2014

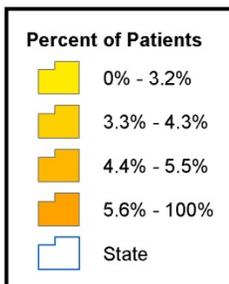
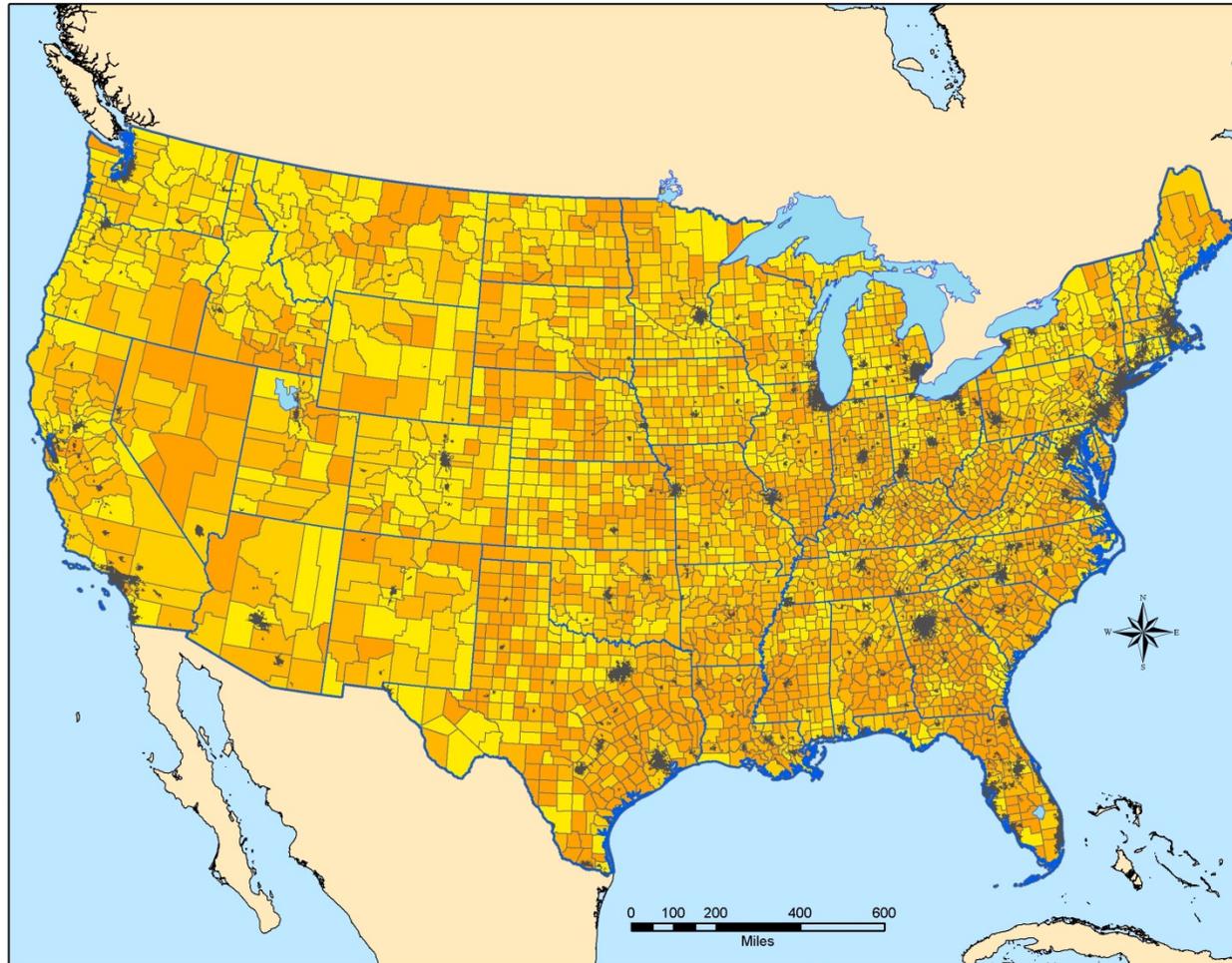
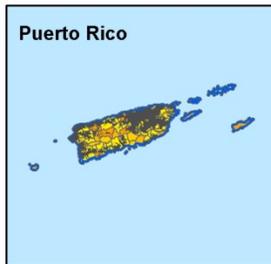


Map 12:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By County, FY - 2014
Urban Areas "Shaded"

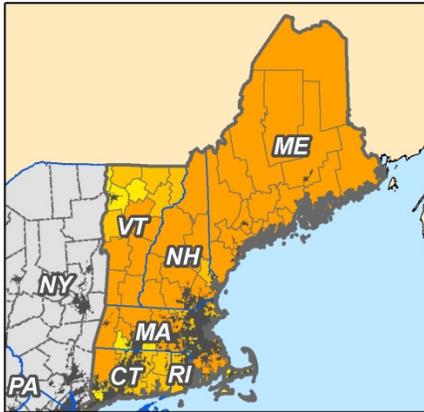
 **GeoSpatial
Outcomes Division**
VHA Office of Rural Health

Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

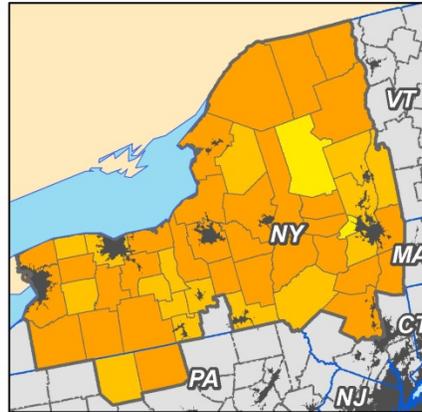
Chronic Renal Failure



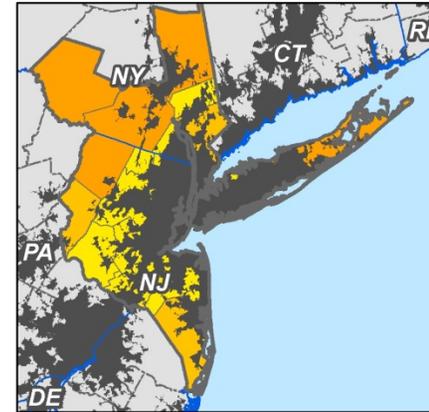
Map 13:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure
Of All Rural and Highly Rural Patients
By County FY - 2014
Urban Areas "Shaded"



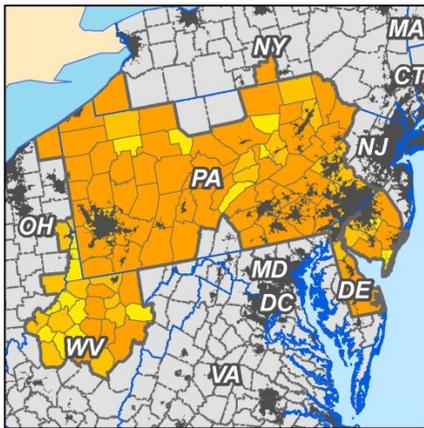
VISN 1



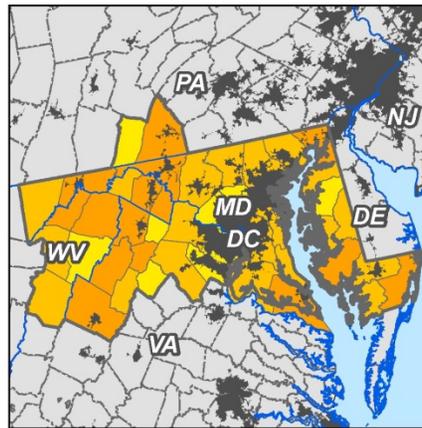
VISN 2



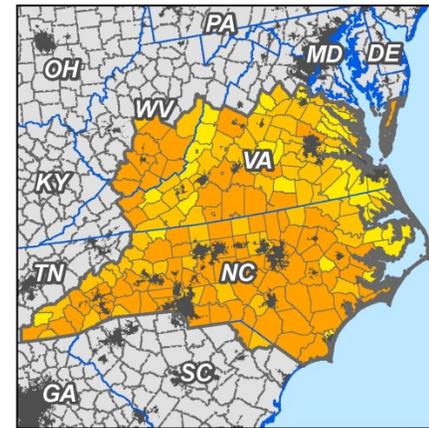
VISN 3



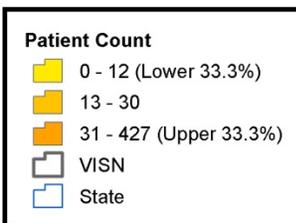
VISN 4



VISN 5



VISN 6

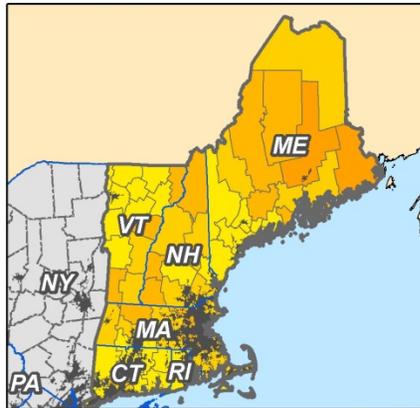


Map 14:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By County FY - 2014
Urban Areas "Shaded"

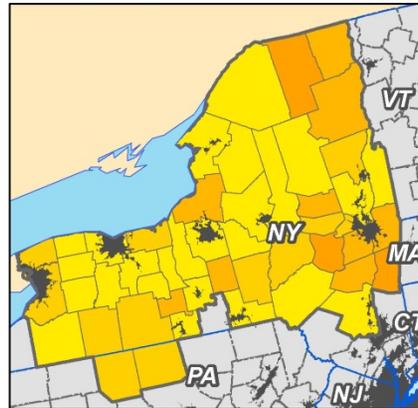


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

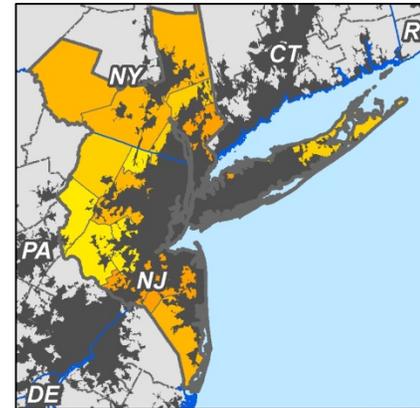
Chronic Renal Failure



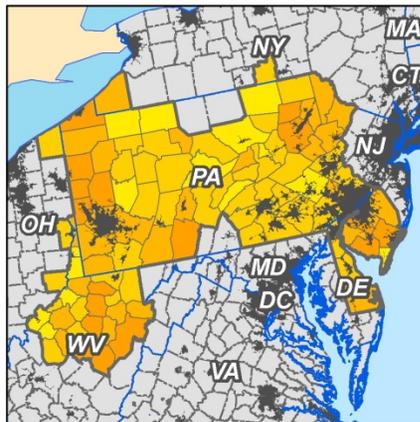
VISN 1



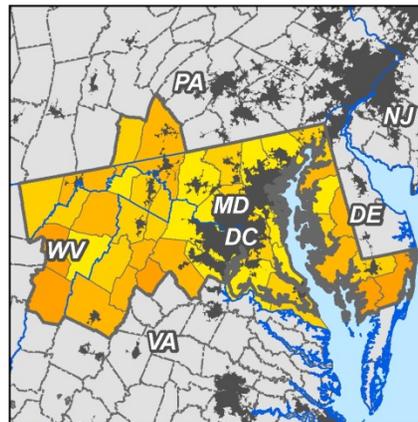
VISN 2



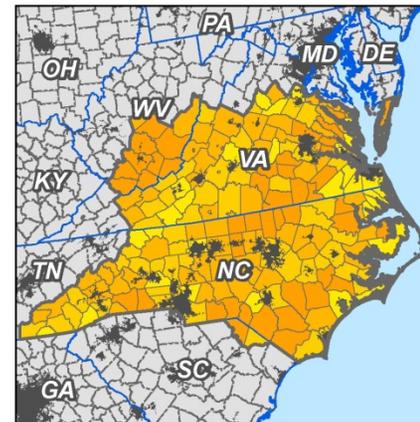
VISN 3



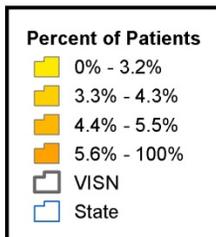
VISN 4



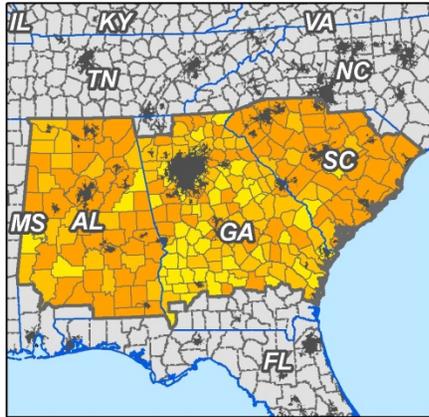
VISN 5



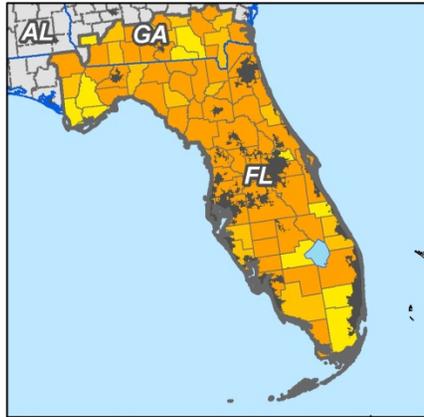
VISN 6



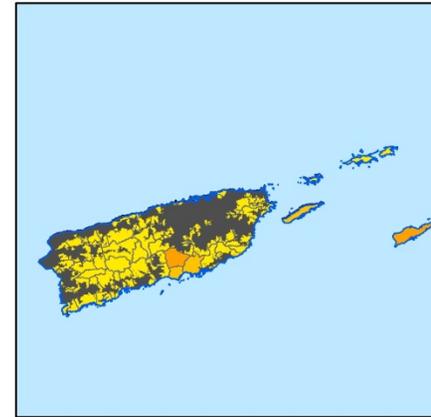
Map 15:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Of All Rural and Highly Rural Patients By County FY - 2014
Urban Areas "Shaded"



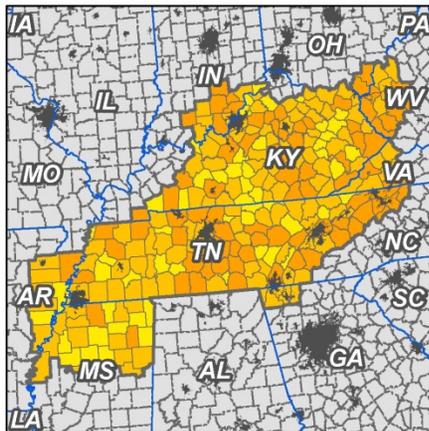
VISN 7



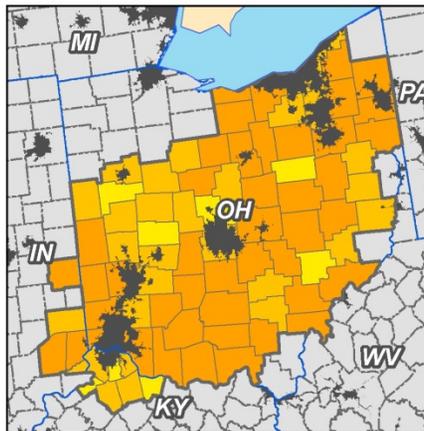
VISN 8



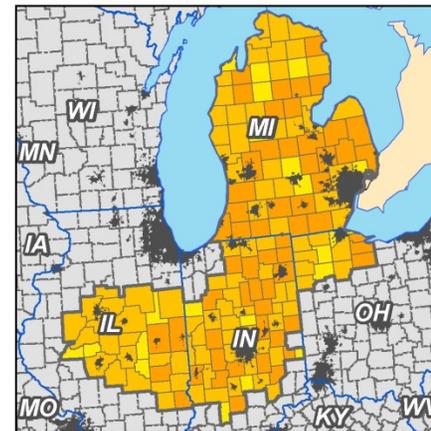
VISN 8 Puerto Rico & Virgin Islands



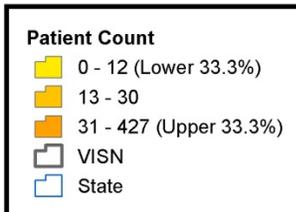
VISN 9



VISN 10



VISN 11



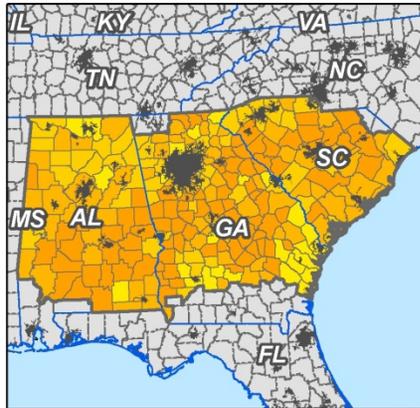
Map 16:

Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By County FY - 2014
Urban Areas "Shaded"

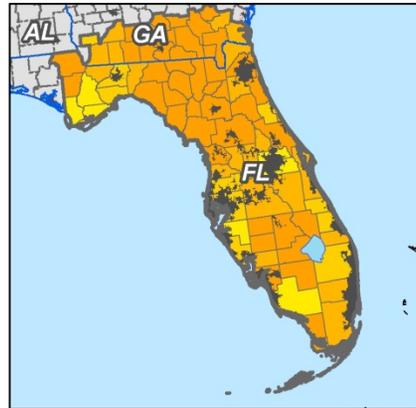


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

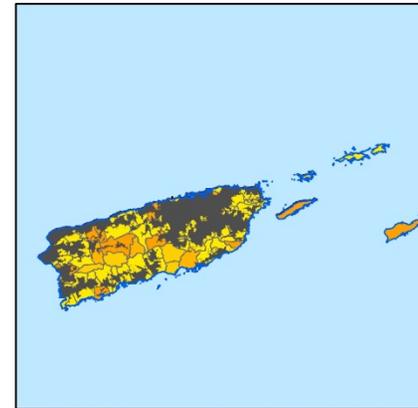
Chronic Renal Failure



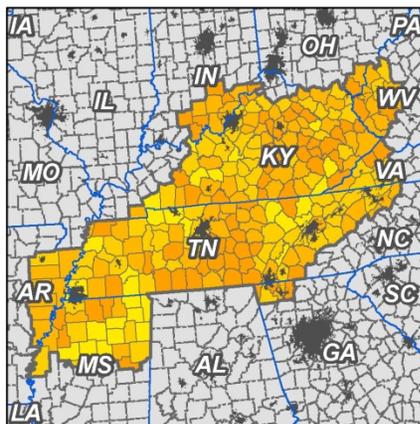
VISN 7



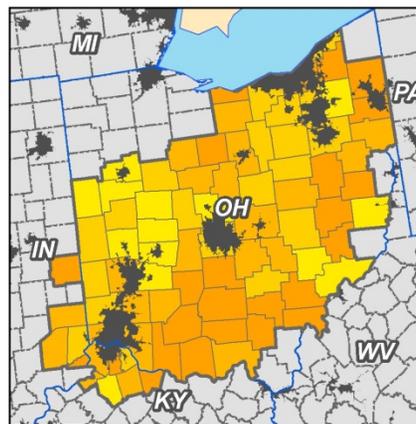
VISN 8



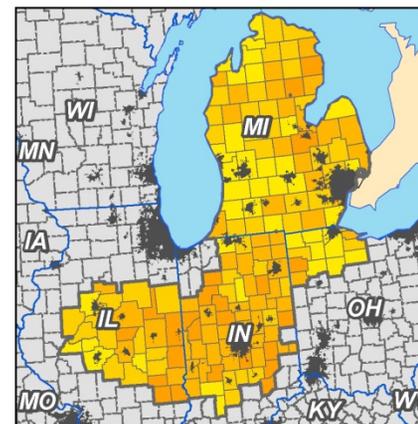
VISN 8 Puerto Rico & Virgin Islands



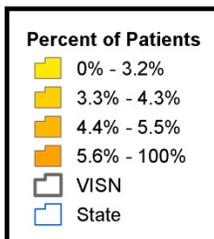
VISN 9



VISN 10

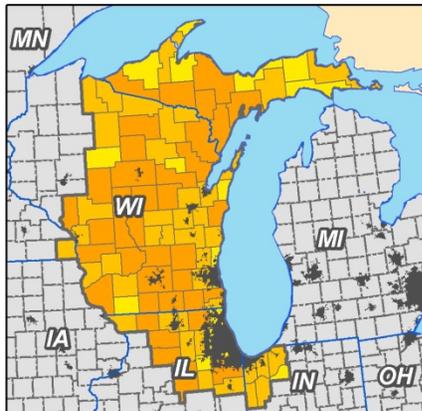


VISN 11

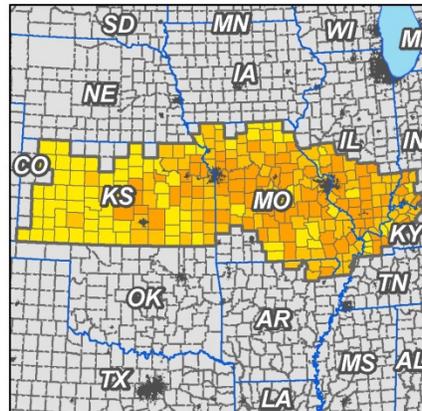


Map 17:

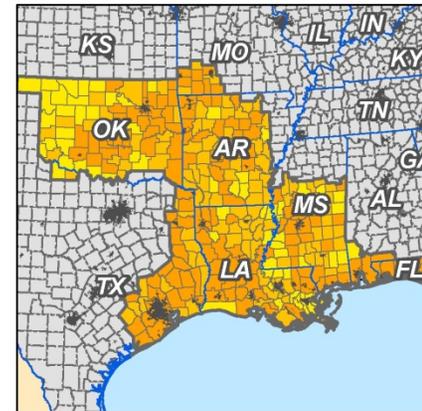
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Of All Rural and Highly Rural Patients By County FY - 2014
Urban Areas "Shaded"



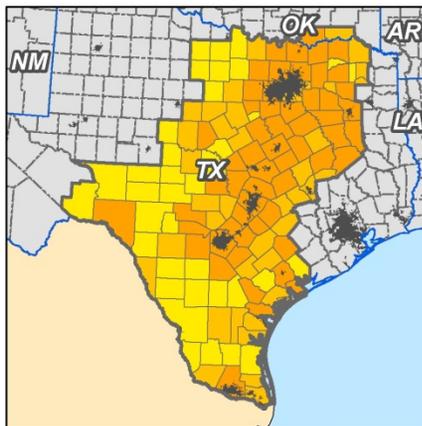
VISN 12



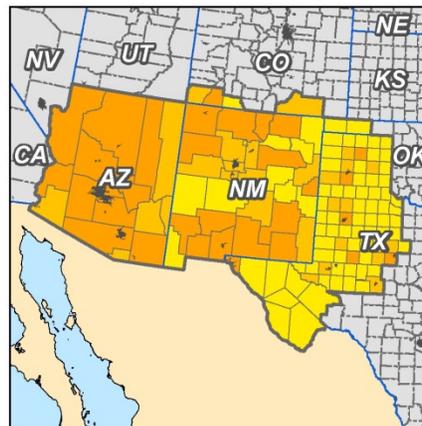
VISN 15



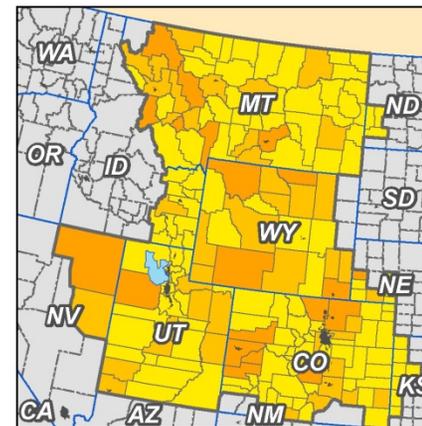
VISN 16



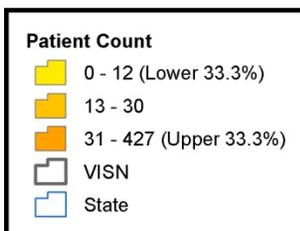
VISN 17



VISN 18



VISN 19



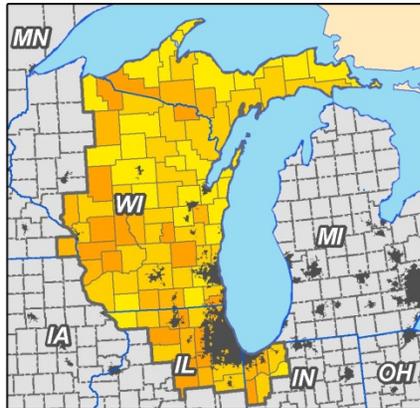
Map 18:

Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By County FY - 2014
Urban Areas "Shaded"

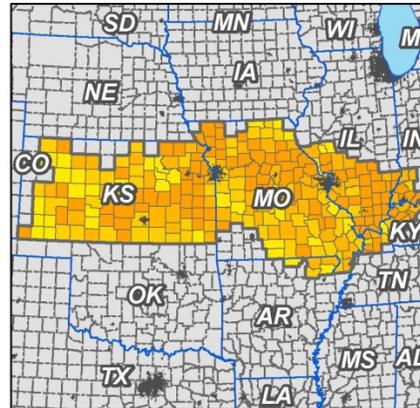


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

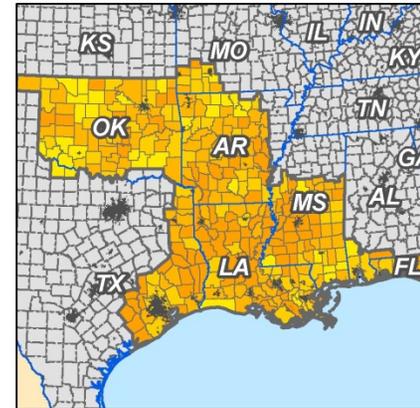
Chronic Renal Failure



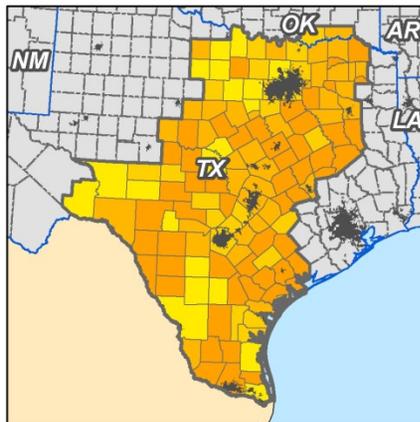
VISN 12



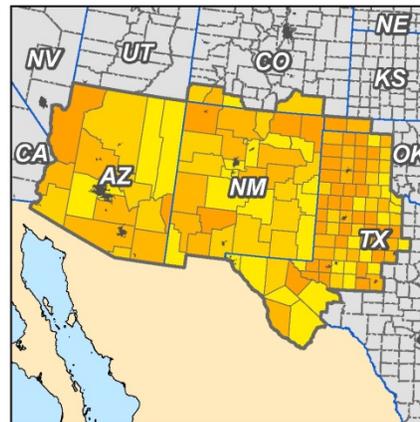
VISN 15



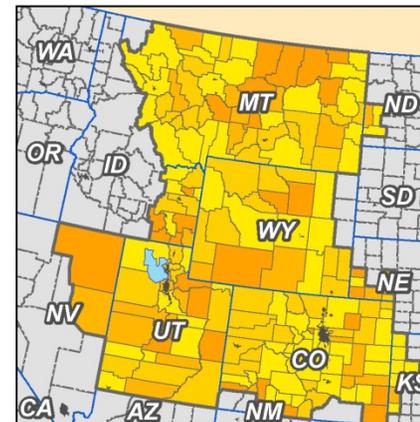
VISN 16



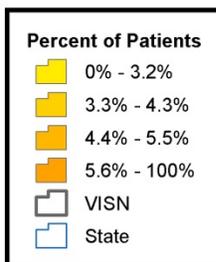
VISN 17



VISN 18

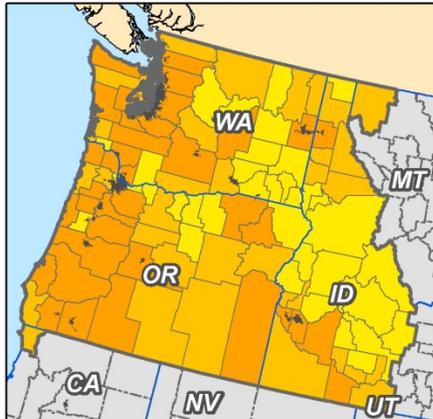


VISN 19

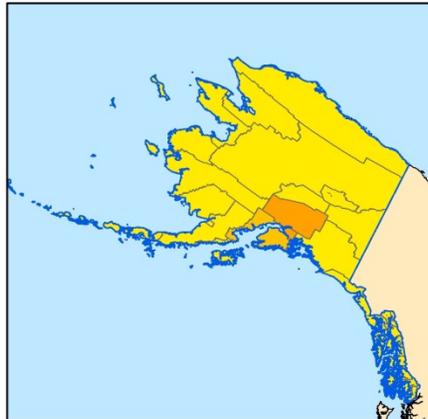


Map 19:

Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Of All Rural and Highly Rural Patients By County FY - 2014 Urban Areas "Shaded"



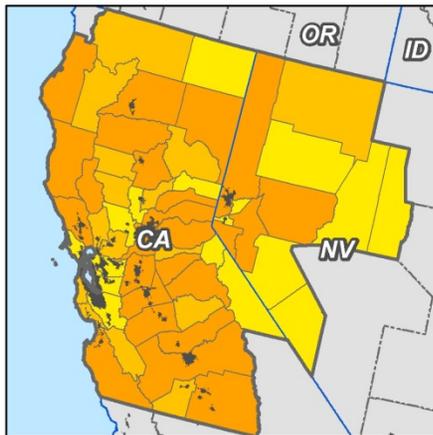
VISN 20



VISN 20- Alaska



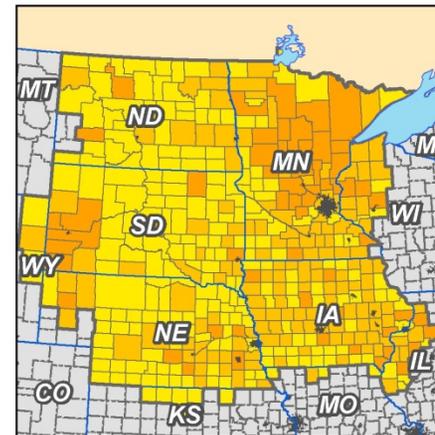
VISN 21- Hawaii



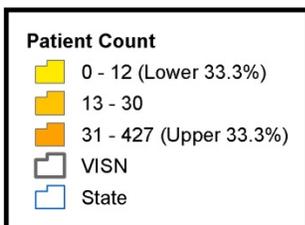
VISN 21



VISN 22



VISN 23



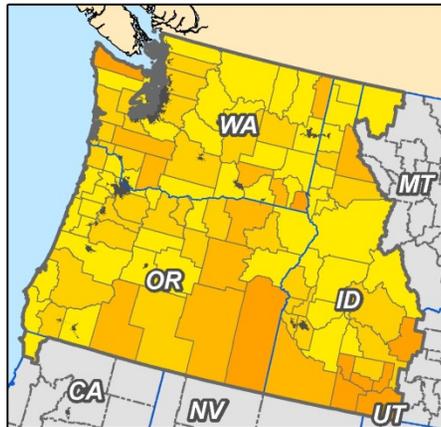
Map 20:

Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
By County FY - 2014
Urban Areas "Shaded"

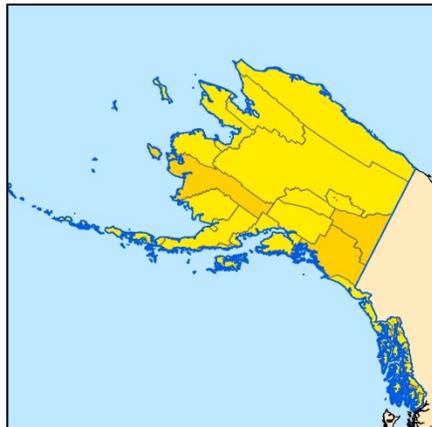


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



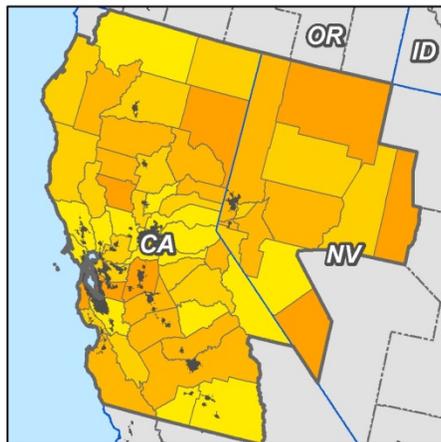
VISN 20



VISN 20- Alaska



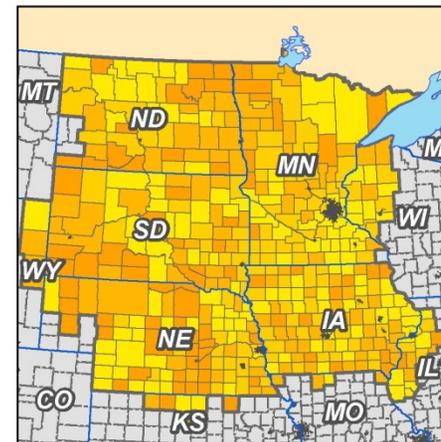
VISN 21- Hawaii



VISN 21



VISN 22



VISN 23

Percent of Patients

- 0% - 3.2%
- 3.3% - 4.3%
- 4.4% - 5.5%
- 5.6% - 100%
- VISN
- State

Map 21:

Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Of All Rural and Highly Rural Patients By County FY - 2014 Urban Areas "Shaded"

Section III Highlights: Rural/Highly Rural VHA Subgroups of Patients with Chronic Renal Failure

GENDER

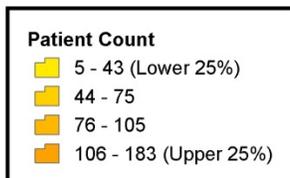
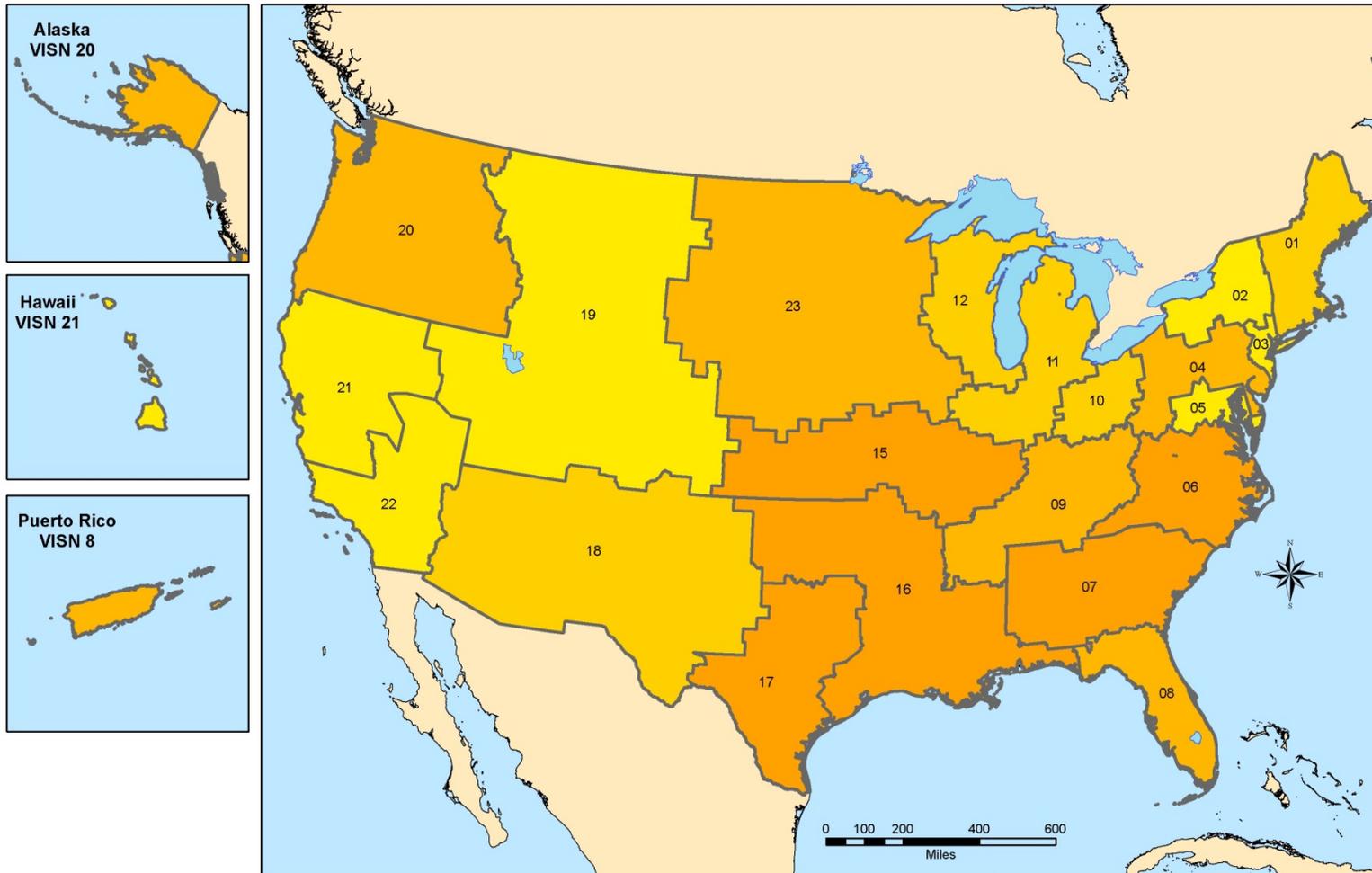
Table 3 further illustrates overall prevalence of Chronic Renal Failure in each network, broken down by gender of patient and the same rurality categories as in Table 2. For the purposes of simplicity, the percent-column adjacent to the rurality columns are a combined percentage of rural and highly rural patients, indicated in red text. Female patients in rural and highly rural areas comprised 0.63% of total number of patients with Chronic Renal Failure at the National level, and in all 21 VISNs, female patients comprised less than one percent. Male patients, as expected, represented a much higher percentage of total patients with Chronic Renal Failure in each network. In three networks, more than half of male patients with Chronic Renal Failure lived in rural and highly rural areas, and in ten networks, the percentage was more than one-third. Male patients with Chronic Renal Failure in the Midwest Network (VISN 23) constituted the highest prevalence of 62.2% of total patients with Chronic Renal Failure in that network. The New York/New Jersey Network (VISN 3) had the lowest prevalence of rural and highly rural patients with Chronic Renal Failure - both for males (5.47%) and females (0.07%). Maps 22-25 display the number and percentage of rural and highly rural female patients with Chronic Renal Failure by VISN, with the darkest shade designating the highest quartile (upper 25% or 50%) in terms of volume and proportion. VISNs 15 and 17 showed both a high volume and large proportion of rural and highly rural female patients with Chronic Renal Failure of the total rural and highly rural female patient population, as portrayed in Maps 22 and 23. VISNs 6, 7, and 20 had a high volume but relatively low to moderate proportion of rural and highly rural female patients with Chronic Renal Failure of the total rural and highly rural female patient population. Conversely, those maps also show that VISNs 10 and 22 had a low volume but high proportion (in upper 25% quartile) of rural and highly rural female patients with Chronic Renal Failure of the total rural and highly rural female patient population. Seven of the 50 U.S. States, as shown on Maps 24 and 25, had both a high volume (in upper 50%) and high proportion (in upper 25% quartile) of rural and highly rural female patients with Chronic Renal Failure of the total rural and highly rural female patient population. Those U.S. States were Florida, Indiana, New Mexico, Ohio, Oregon, Texas, and West Virginia.

Chronic Renal Failure



Table 3: National and VISN Numbers and Percentages of VHA Patients with Chronic Renal Failure, by Rurality and Gender, FY-2014

Prevalence Statistics by Gender and Rurality- Chronic Renal Failure, FY-2014											
Veterans Integrated Service Network	Total Number of Patients with Chronic Renal Failure	Female					Male				
		HR	R	%	U	Unk	HR	R	%	U	Unk
New England (01)	9,168	*	65	0.72	118	*	34	2,796	30.87	6,156	*
Upstate NY (02)	4,477	*	43	0.96	65	*	*	2,078	46.46	2,290	*
NY/NJ (03)	7,584	*	5	0.07	96	*	*	415	5.47	7,069	*
VISN 04 (04)	14,507	*	101	0.70	141	*	*	5,132	35.39	9,132	*
Capitol (05)	5,363	*	19	0.35	97	*	*	1,134	21.14	4,114	*
Mid-Atlantic (06)	14,912	*	111	0.74	207	*	4	7,242	48.59	7,350	*
Southeast (07)	19,084	*	125	0.65	287	*	*	7,985	41.84	10,687	*
Sunshine (08)	28,961	*	93	0.32	562	*	4	5,241	18.11	23,063	*
Mid South (09)	12,936	*	93	0.72	152	*	*	7,097	54.86	5,593	*
Ohio (10)	10,534	*	70	0.66	163	*	*	3,632	34.48	6,671	*
Vets in Partnership (11)	11,506	*	75	0.65	140	*	*	4,669	40.59	6,622	*
Great Lakes (12)	12,330	*	57	0.46	195	*	10	3,018	24.56	9,049	*
Heartland (15)	12,635	*	109	0.88	131	*	82	6,692	53.61	5,619	*
South Central (16)	22,245	*	182	0.82	235	*	31	10,696	48.22	11,101	*
Heart of Texas (17)	12,986	*	113	0.87	241	*	75	4,267	33.44	8,287	3
Southwest (18)	10,264	13	58	0.69	218	*	438	2,870	32.23	6,663	6
Rocky Mtn. (19)	6,257	15	24	0.62	100	*	860	1,486	37.49	3,771	*
Northwest (20)	8,665	9	69	0.90	168	*	396	3,015	39.37	5,009	*
Sierra Pacific (21)	10,215	4	29	0.32	159	*	142	2,326	24.16	7,462	91
Desert Pacific (22)	12,444	5	27	0.26	258	*	202	876	8.66	11,074	*
Midwest (23)	11,726	15	90	0.90	106	*	697	6,596	62.20	4,221	*
Grand Total	258,799	65	1,558	0.63	3,839	4	2,980	89,263	35.64	161,003	106

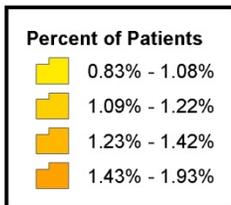
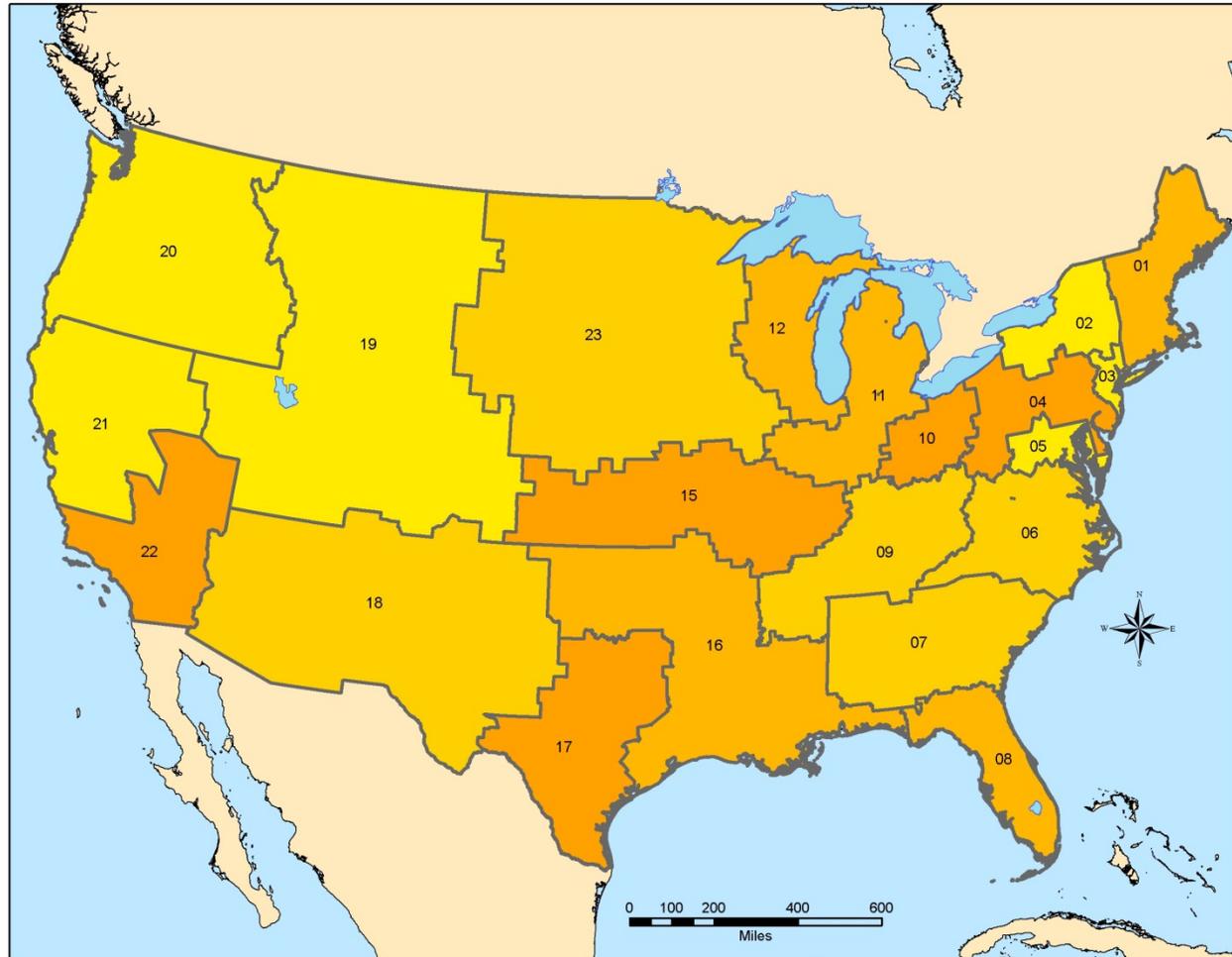


Map 22:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Female
By VISN FY - 2014

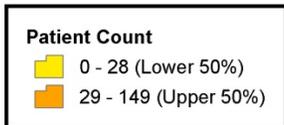
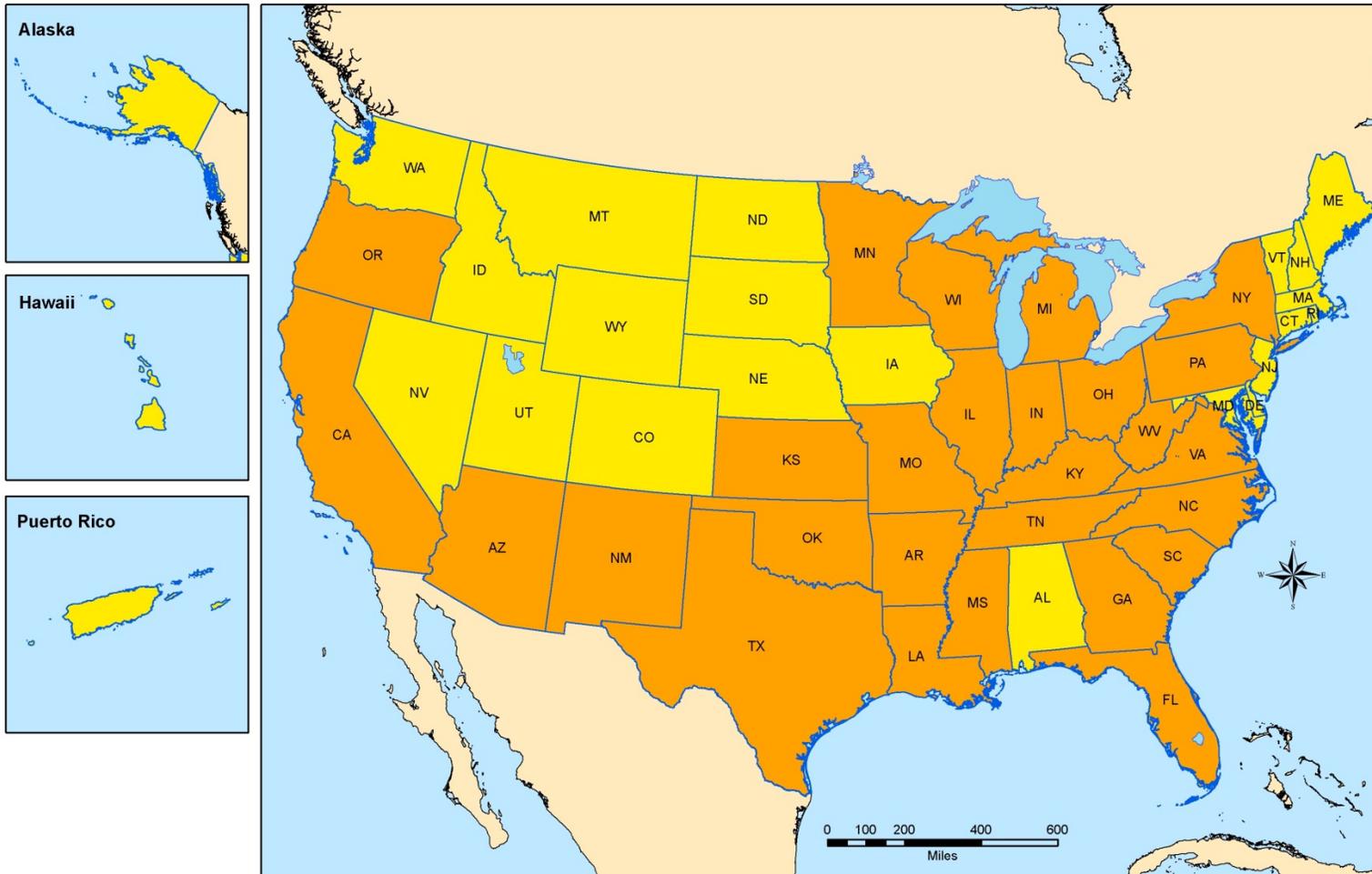


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 23:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Female
Of All Rural and Highly Rural VHA Patients Female
By VISN FY - 2014

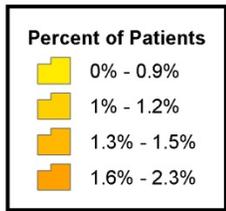
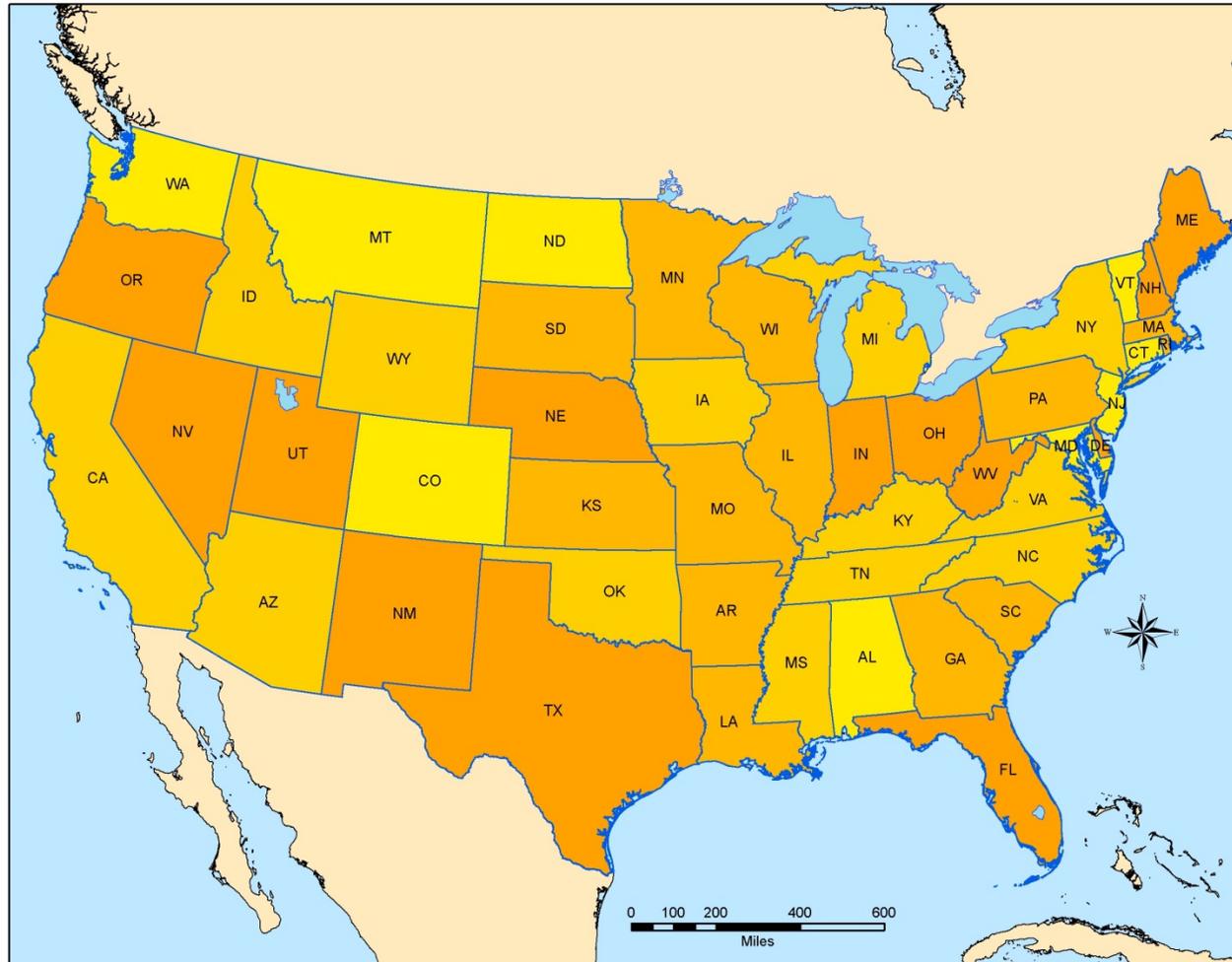


Map 24:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Female
By State FY - 2014



Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 25:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Female
Of All Rural and Highly Rural Patients Female
By State FY - 2014

AGE GROUP

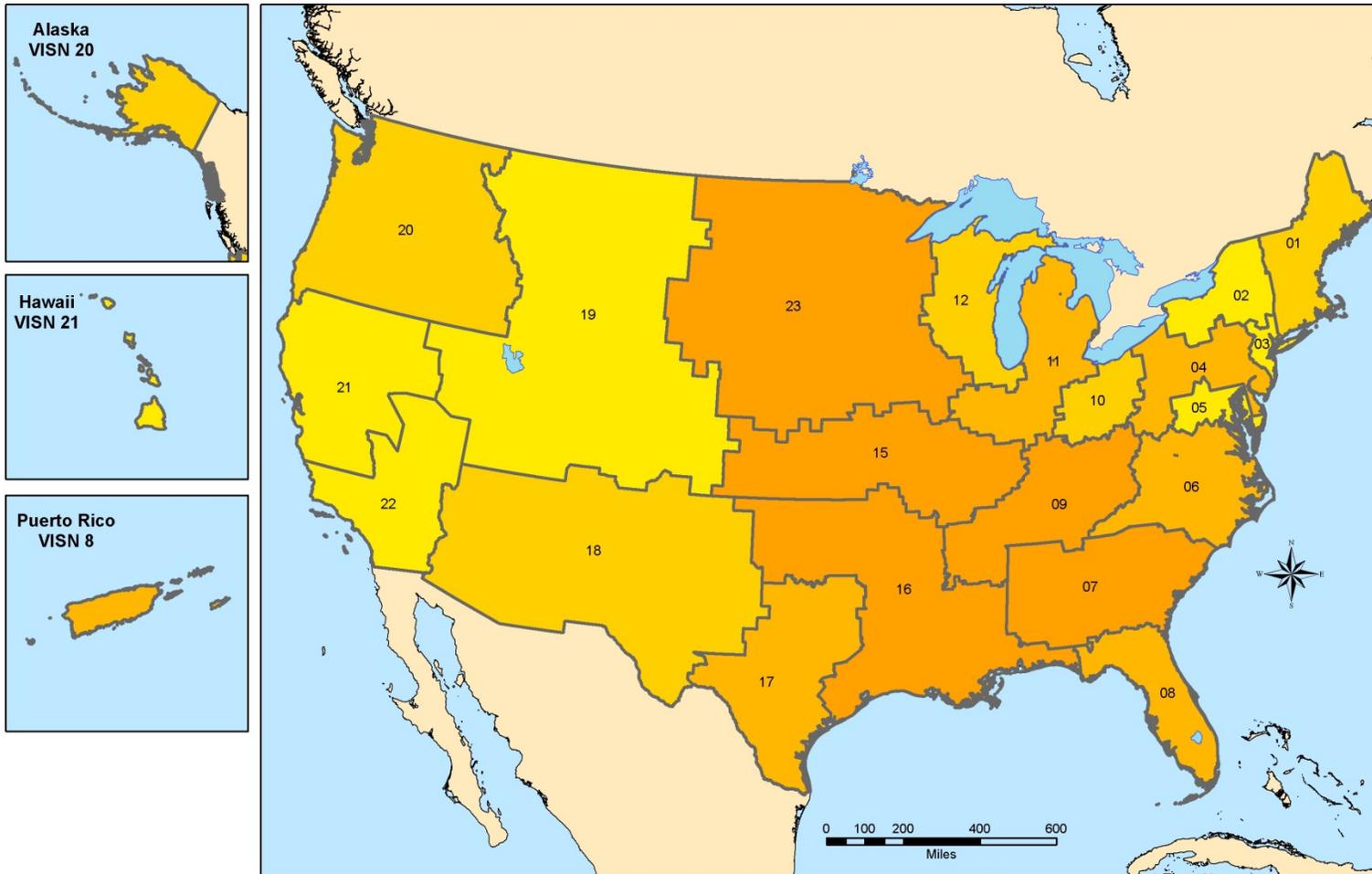
Examining the age groups of rural and highly rural patients is also of particular interest to the policy and planning community within the VHA. In Table 4, only rural and highly rural categories were included, since that is the focus, and urban and unknown categories were omitted. For simplicity's sake, the percent-column adjacent to the rurality columns are a combined percentage of rural and highly rural patients, indicated in red text. The 75+ age group, at the National level, had the highest prevalence of patients with Chronic Renal Failure in rural and highly rural areas at 17.29%. At the network level, four VISNs had more than one-quarter of Chronic Renal Failure patients aged 75+, with Midwest Network (VISN 23) ranking highest at 37.03%, followed by VISNs 15, 2, and 9. Across all age groups, the New York/New Jersey Network (VISN 3) had the fewest number of patients and lowest percentage of patients of rural and highly rural patients with Chronic Renal Failure of the total rural and highly rural patient population. Maps 26-31 display the number and percentage of rural and highly rural patients age 65 and over with Chronic Renal Failure by VISN, State, and county, with the highest 25% or 50% in terms of volume and proportion designated by the darkest shade. VISNs 7, 15, and 16 showed both a high volume and high proportion (in upper 25% quartile) of rural and highly rural patients age 65 and over with Chronic Renal Failure of the total rural and highly rural patient population age 65 and over, as portrayed in Maps 26 and 27. Five of the 50 U.S. States, as shown on Maps 28 and 29, had both a high volume and high proportion (in upper 25% quartile) of rural and highly rural patients age 65 and over with Chronic Renal Failure of the total rural and highly rural patient population age 65 and over. Those U.S. States were Florida, Georgia, Illinois, Kentucky, and Texas.

Chronic Renal Failure



Table 4: National and VISN Numbers and Percentages of VHA Patients with Chronic Renal Failure, by Rurality and Age Group, FY-2014

Prevalence Statistics by Age Group and Rurality- Chronic Renal Failure, FY-2014																	
Veterans Integrated Service Network	Total Number of Patients with Chronic Renal Failure	<45			45-54			55-64			65-74			75+			
		HR	R	%	HR	R	%	HR	R	%	HR	R	%	HR	R	%	
New England (01)	9,168	*	9	0.10	*	59	0.67	4	314	3.47	11	940	10.37	18	1,539	16.98	
Upstate NY (02)	4,477	*	15	0.34	*	53	1.18	*	260	5.81	*	634	14.18	*	1,159	25.91	
NY/NJ (03)	7,584	*	3	0.04	*	9	0.12	*	50	0.66	*	109	1.44	*	249	3.28	
Stars and Stripes (04)	14,507	*	29	0.20	*	101	0.70	*	502	3.46	*	1,634	11.26	*	2,967	20.47	
Capitol (05)	5,363	*	8	0.15	*	28	0.52	*	136	2.54	*	359	6.69	*	622	11.60	
Mid-Atlantic (06)	14,912	*	95	0.64	*	278	1.86	*	1,220	8.18	*	2,768	18.56	4	2,993	20.10	
Southeast (07)	19,084	*	118	0.62	*	385	2.02	*	1,495	7.83	*	2,978	15.60	*	3,134	16.42	
Sunshine (08)	28,961	*	67	0.23	*	197	0.68	*	731	2.52	3	1,754	6.07	*	2,586	8.93	
Mid South (09)	12,936	*	70	0.54	*	212	1.64	*	1,030	7.96	*	2,648	20.47	*	3,233	24.99	
Ohio (10)	10,534	*	17	0.16	*	94	0.89	*	506	4.80	*	1,311	12.45	*	1,775	16.85	
Vets in Partnership (11)	11,506	*	38	0.33	*	110	0.96	*	569	4.95	*	1,629	14.16	*	2,398	20.85	
Great Lakes (12)	12,330	*	23	0.19	*	65	0.53	*	333	2.72	5	1,010	8.23	3	1,645	13.37	
Heartland (15)	12,635	*	60	0.48	*	182	1.46	9	861	6.89	25	2,327	18.61	47	3,372	27.06	
South Central (16)	22,245	*	133	0.60	*	389	1.75	*	1,670	7.52	12	3,938	17.76	17	4,750	21.43	
Heart of Texas (17)	12,986	*	45	0.35	3	139	1.09	8	697	5.43	31	1,663	13.04	32	1,836	14.38	
Southwest (18)	10,264	4	17	0.20	15	71	0.84	64	401	4.53	149	1,037	11.55	219	1,402	15.79	
Rocky Mtn. (19)	6,257	5	13	0.29	18	43	0.97	77	204	4.49	301	537	13.39	474	714	18.99	
Northwest (20)	8,665	4	19	0.27	9	71	0.92	57	417	5.47	157	1,191	15.56	178	1,387	18.06	
Sierra Pacific (21)	10,215	*	11	0.12	4	54	0.57	17	301	3.11	65	858	9.04	59	1,131	11.65	
Desert Pacific (22)	12,444	*	9	0.08	*	27	0.23	28	142	1.37	82	355	3.51	94	370	3.73	
Midwest (23)	11,726	3	39	0.36	9	111	1.02	75	694	6.56	205	1,921	18.13	420	3,922	37.03	
Grand Total	258,799	20	838	0.33	65	2,678	1.06	343	12,533	4.98	1,047	31,601	12.62	1,570	43,184	17.29	



Patient Count

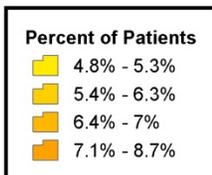
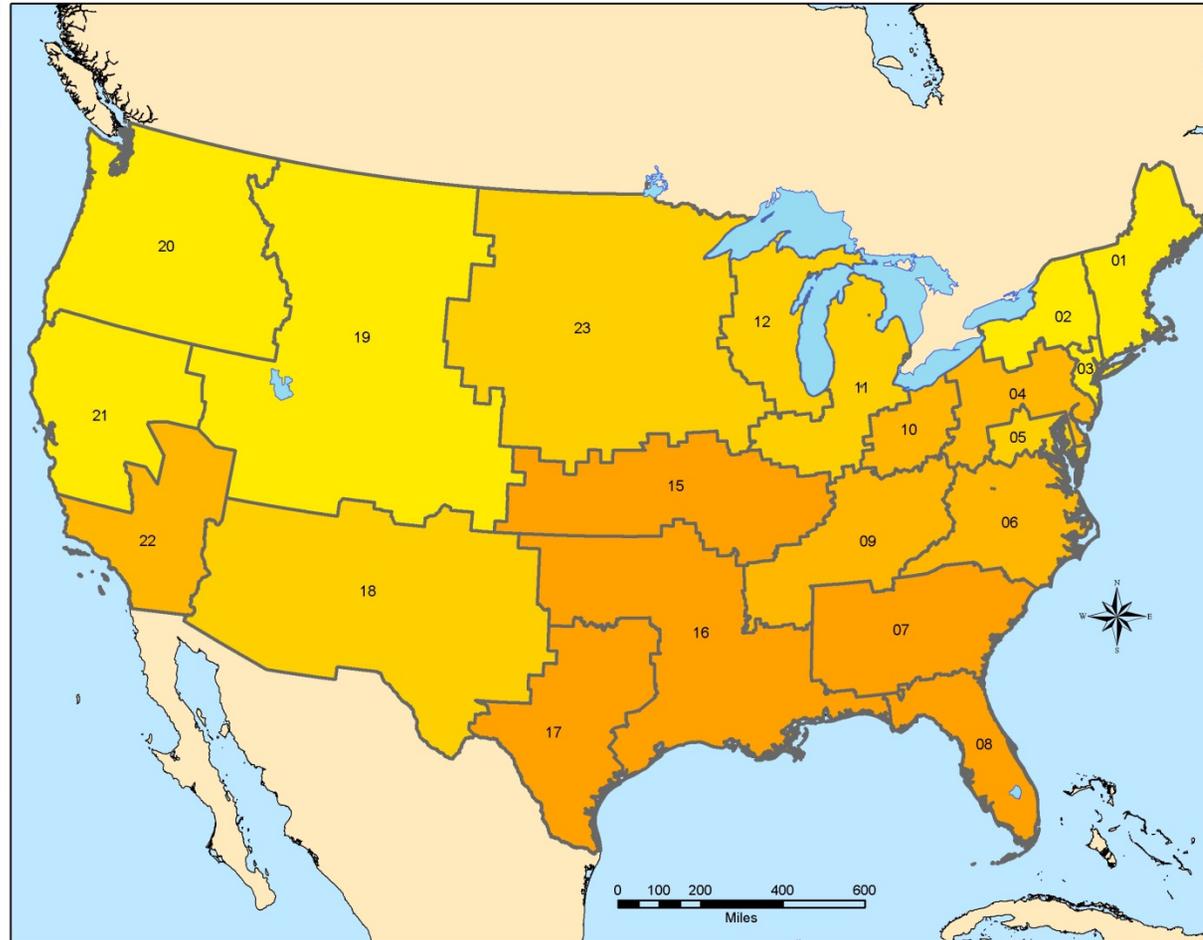
- 358 - 2,113 (Lower 25%)
- 2,114 - 3,086
- 3,087 - 5,765
- 5,766 - 8,717 (Upper 25%)

Map 26:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Age 65 and Over
By VISN FY - 2014



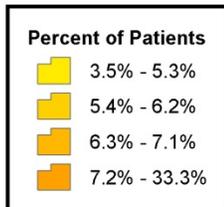
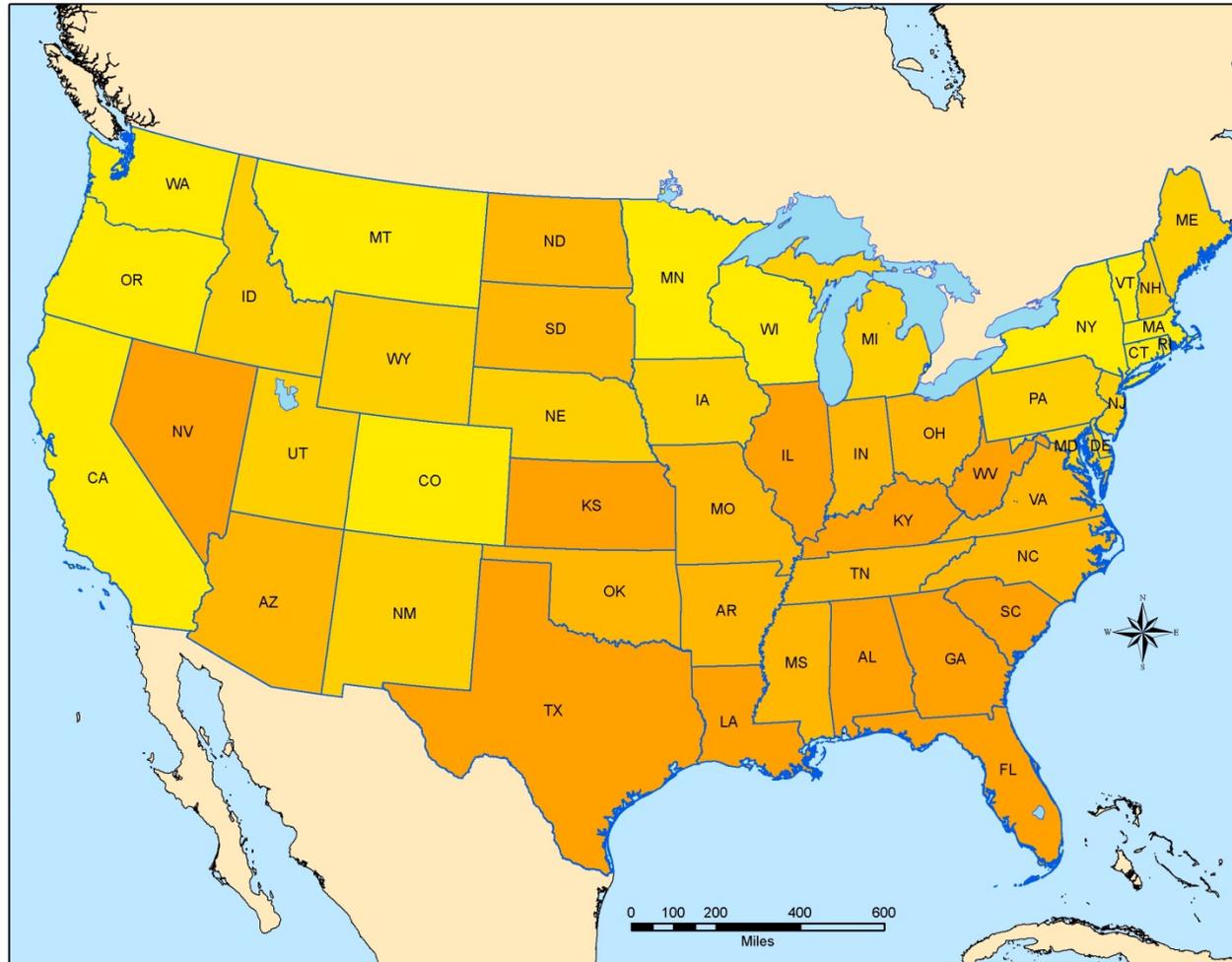
Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure

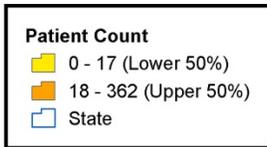
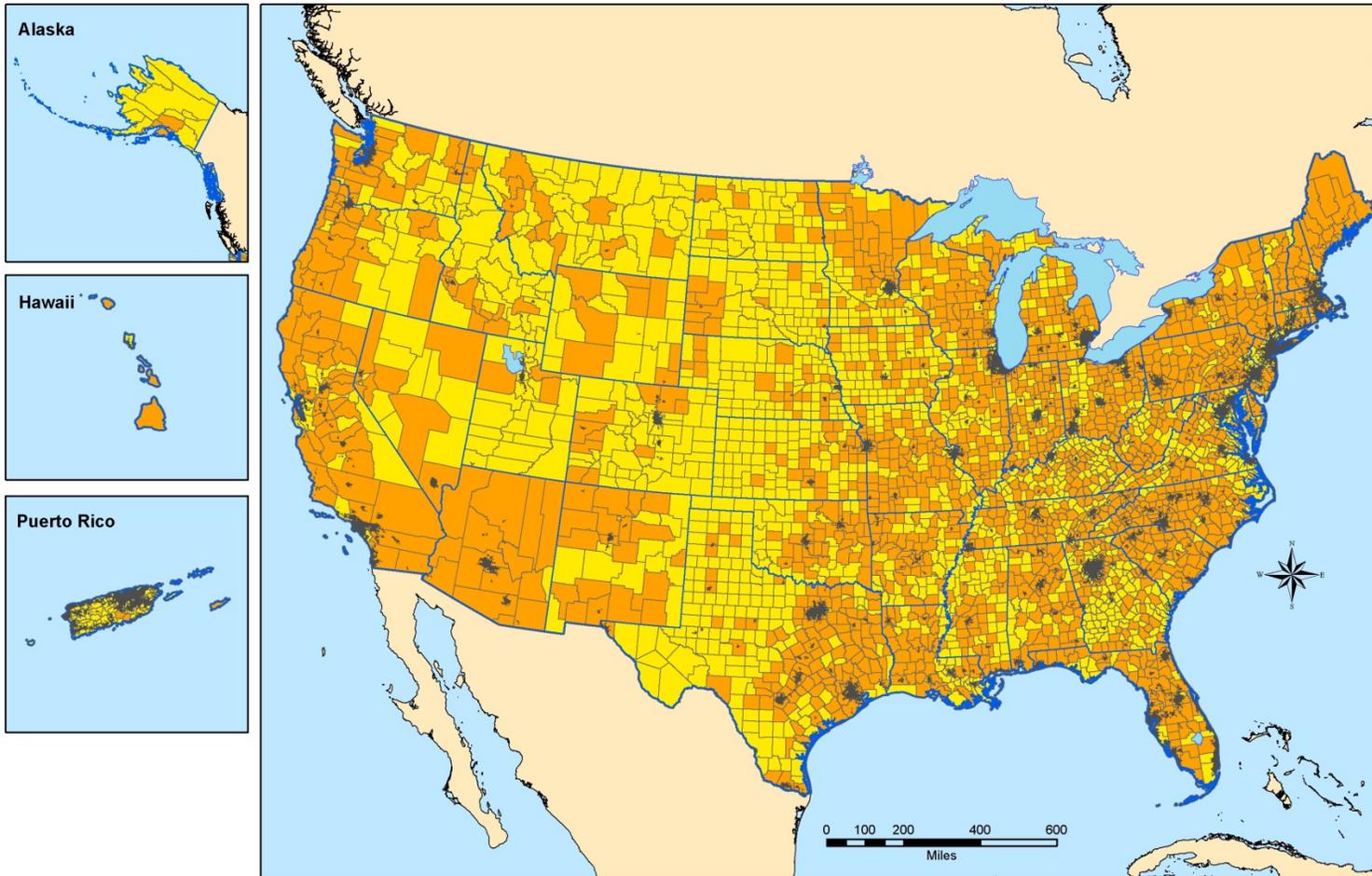


Map 27:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Age 65 and Over
Of All Rural and Highly Rural VHA Patients Age 65 and Over
By VISN FY - 2014

Chronic Renal Failure



Map 29:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Age 65 and Over Of All Rural and Highly Rural Patients Age 65 and Over By State FY - 2014

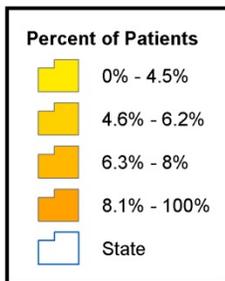
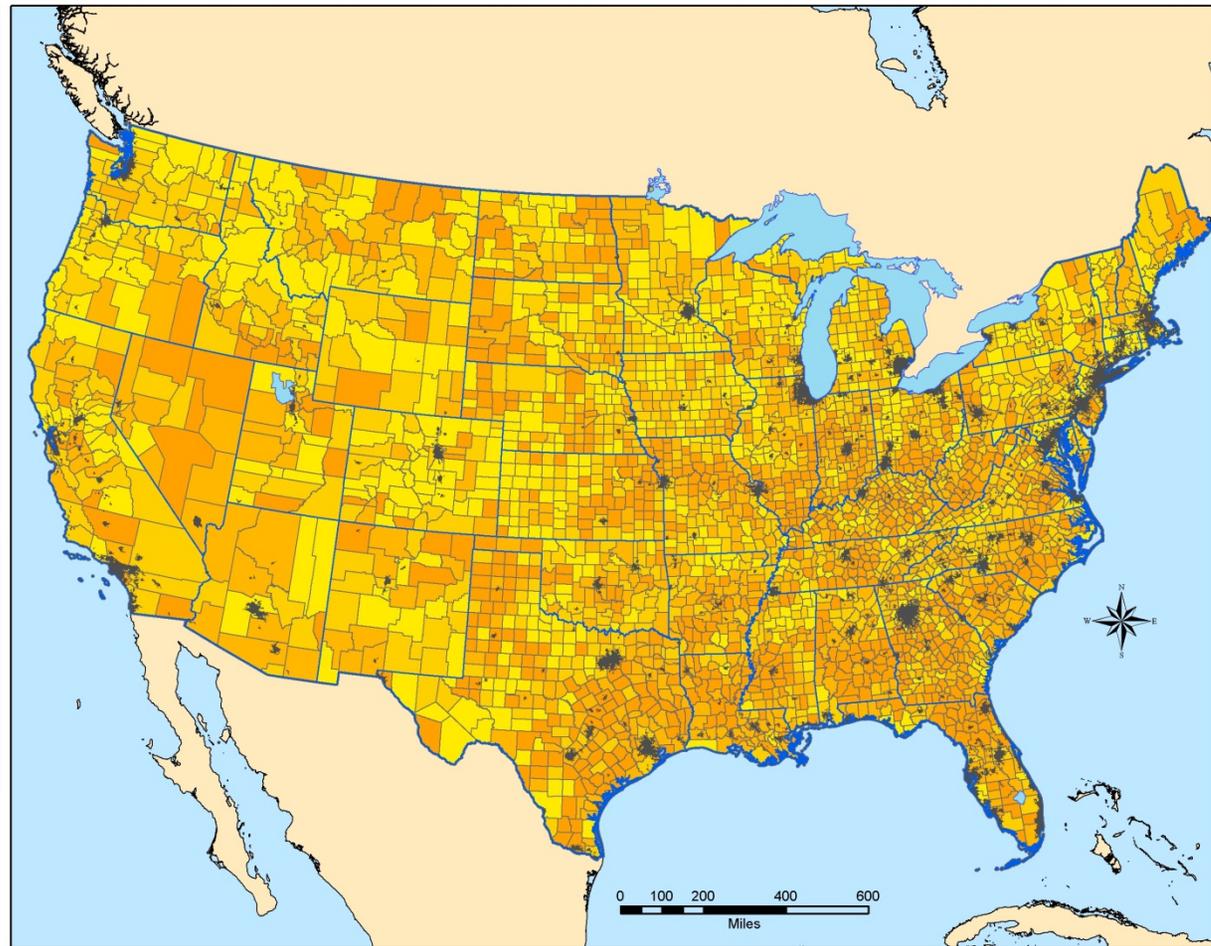


Map 30:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Age 65 and Over
By County FY - 2014
Urban Areas "Shaded"

 **GeoSpatial
Outcomes Division**
VHA Office of Rural Health

Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 31:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Disease, Age 65 and Over Of All Rural and Highly Rural Patients Age 65 and Over By County FY - 2014
Urban Areas "Shaded"

SERVICE CONNECTION AND LOW INCOME ENROLLMENT PRIORITY GROUPS

Table 5 examines selected enrollment priority groups and what percentage of those patients resided in rural and highly rural areas. At the National level, rural and highly rural patients with Chronic Renal Failure with a service-connected disability represented 15.51% of the total number of patients with Chronic Renal Failure in the VHA. At the network level, the South Central Network (VISN 16) ranked the highest with 4,934 rural and highly rural service-connected patients with Chronic Renal Failure. However, the Midwest Network (VISN 23) ranked the highest at 28.59%, in terms of proportion of rural and highly rural service-connected patients with Chronic Renal Failure to all patients with Chronic Renal Failure. Maps 32-35 display the number and percentage of rural and highly rural patients with a service-connected disability with Chronic Renal Failure by VISN and State, with the highest 25% in terms of volume and proportion designated by the darkest shade. Maps 36-37 display the same information by county, with the highest 50% in volume and highest 25% in percentage designated by the darkest shade.

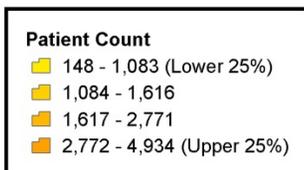
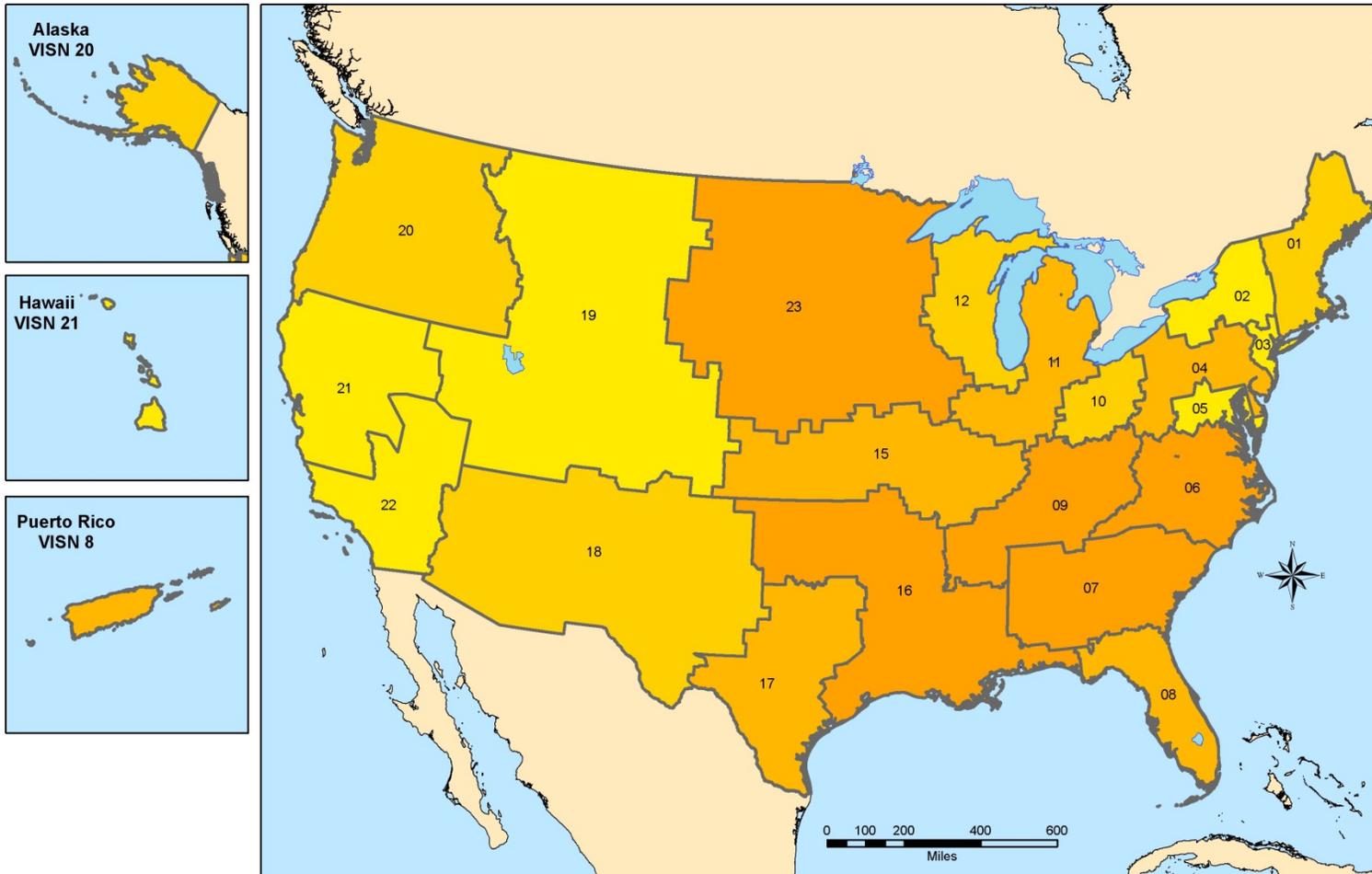
Patients with Chronic Renal Failure residing in rural and highly rural areas who were enrolled in Priority Group 5 represented 9.28% of the total patient population with Chronic Renal Failure across the United States. The South Central Network (VISN 16) again ranked the highest with 3,006 rural and highly rural low-income/non-Service Connected/non-compensable Service-Connected patients with Chronic Renal Failure. The Mid South Network (VISN 9) had the highest proportion at 15.07%. Maps 38-41 display the number and percentage of rural and highly rural patients in Priority Group 5 with Chronic Renal Failure by VISN and State, with the highest 25% in terms of volume and proportion designated by the darkest shade. Maps 42-43 display the same information by county, with the highest 50% in volume and highest 25% in percentage designated by the darkest shade.

Chronic Renal Failure



Table 5: National and VISN Numbers and Percentages of VHA Patients with Chronic Renal Failure, by Rurality and Enrollment Priority Group, FY-2014

Prevalence Statistics by Service Connection Type and Low Income by Rurality- Chronic Renal Failure, FY-2014											
Veterans Integrated Service Network	Total Number of Patients with Chronic Renal Failure	Service Connected Priority 1-3					Low Income				
		HR	R	%	U	Unk	HR	R	%	U	Unk
New England (01)	9,168	14	1,193	13.17	2,555	*	14	666	7.42	1,311	*
Upstate NY (02)	4,477	*	780	17.42	827	*	*	605	13.54	674	*
NY/NJ (03)	7,584	*	148	1.95	2,588	*	*	86	1.13	1,864	*
Stars and Stripes (04)	14,507	*	1,745	12.03	3,180	*	*	1,385	9.55	2,456	*
Capitol (05)	5,363	*	375	6.99	1,657	*	*	344	6.41	1,300	*
Mid-Atlantic (06)	14,912	*	3,436	23.05	3,753	*	*	1,947	13.06	1,769	*
Southeast (07)	19,084	*	3,834	20.09	5,659	*	*	2,082	10.91	2,461	*
Sunshine (08)	28,961	*	2,065	7.14	9,437	*	*	1,511	5.22	5,882	*
Mid South (09)	12,936	*	3,122	24.13	2,513	*	*	1,950	15.07	1,501	*
Ohio (10)	10,534	*	1,338	12.70	2,435	*	*	1,057	10.03	2,053	*
Vets in Partnership (11)	11,506	*	1,970	17.13	2,742	*	*	1,214	10.55	1,886	*
Great Lakes (12)	12,330	3	1,193	9.70	2,773	*	*	663	5.39	2,488	*
Heartland (15)	12,635	18	2,753	21.93	2,264	*	20	1,704	13.64	1,568	*
South Central (16)	22,245	13	4,921	22.18	5,431	*	5	3,001	13.51	2,719	*
Heart of Texas (17)	12,986	44	2,217	17.41	4,860	*	13	1,027	8.01	1,690	*
Southwest (18)	10,264	184	1,271	14.18	3,255	*	129	767	8.73	1,656	4
Rocky Mtn. (19)	6,257	304	668	15.53	1,817	*	227	350	9.22	902	*
Northwest (20)	8,665	158	1,458	18.65	2,551	*	128	763	10.28	1,259	*
Sierra Pacific (21)	10,215	67	1,016	10.60	3,502	61	29	637	6.52	1,929	20
Desert Pacific (22)	12,444	93	386	3.85	5,219	*	60	233	2.35	3,033	*
Midwest (23)	11,726	270	3,082	28.59	2,246	*	164	1,238	11.96	789	*
Grand Total	258,799	1,172	38,971	15.51	71,264	62	795	23,230	9.28	41,190	26

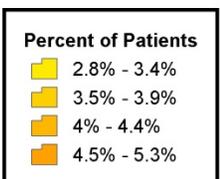
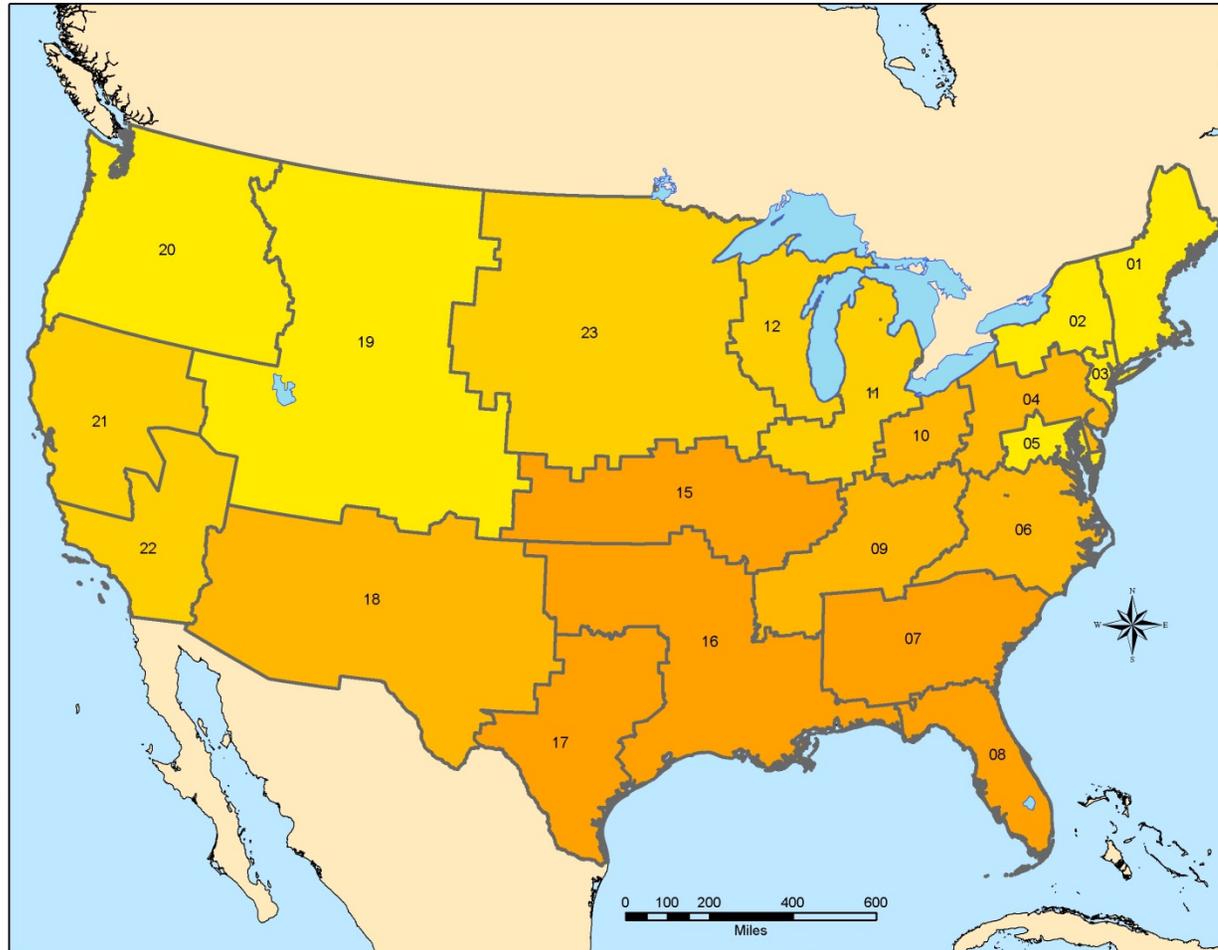


Map 32:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Priority 1-3
By VISN FY - 2014

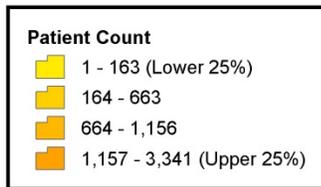
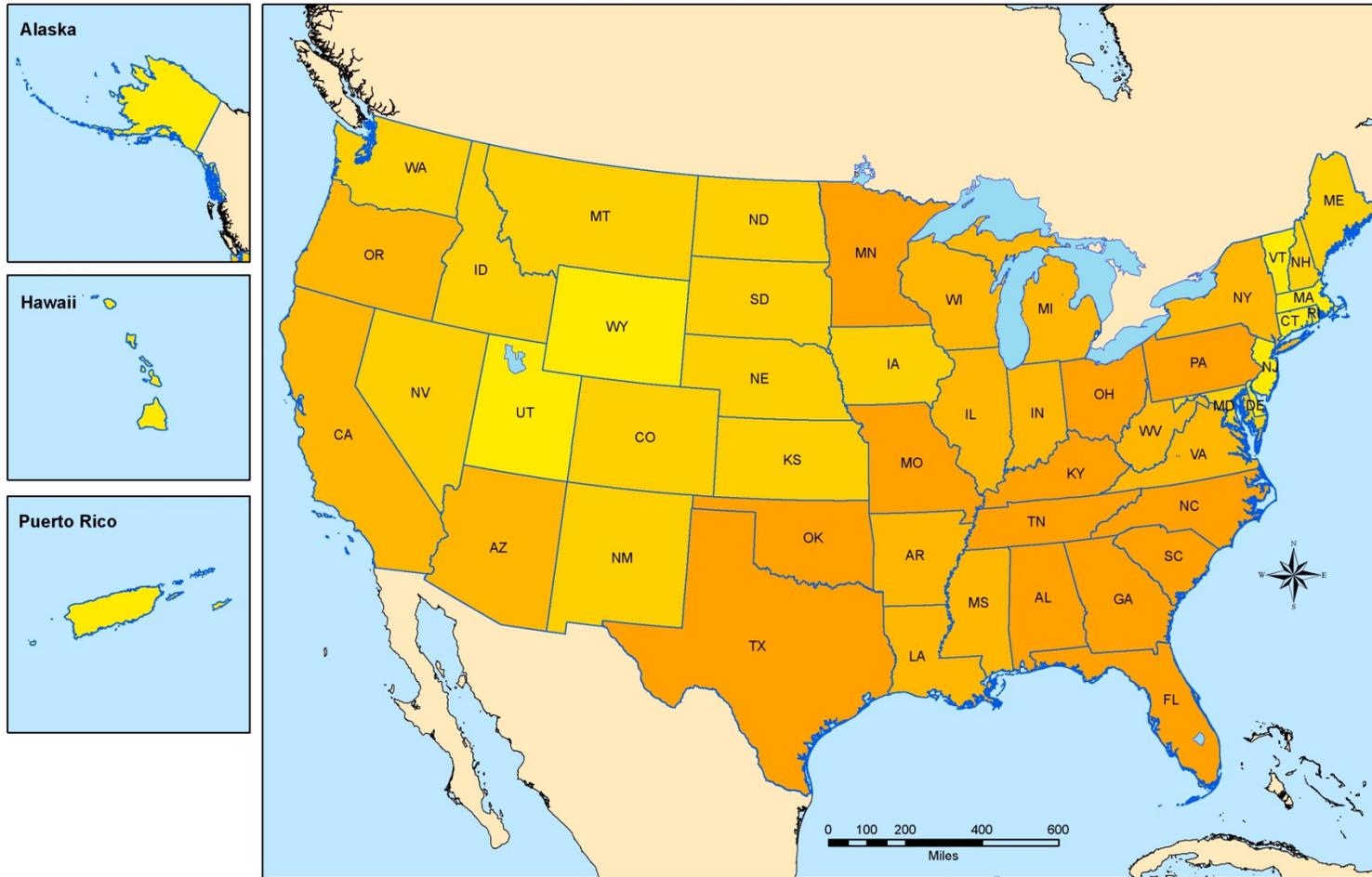
 **GeoSpatial
Outcomes Division**
VHA Office of Rural Health

Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 33:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 1-3
Of All Rural and Highly Rural VHA Patients Priority 1-3
By VISN FY - 2014

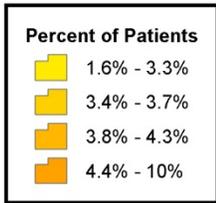
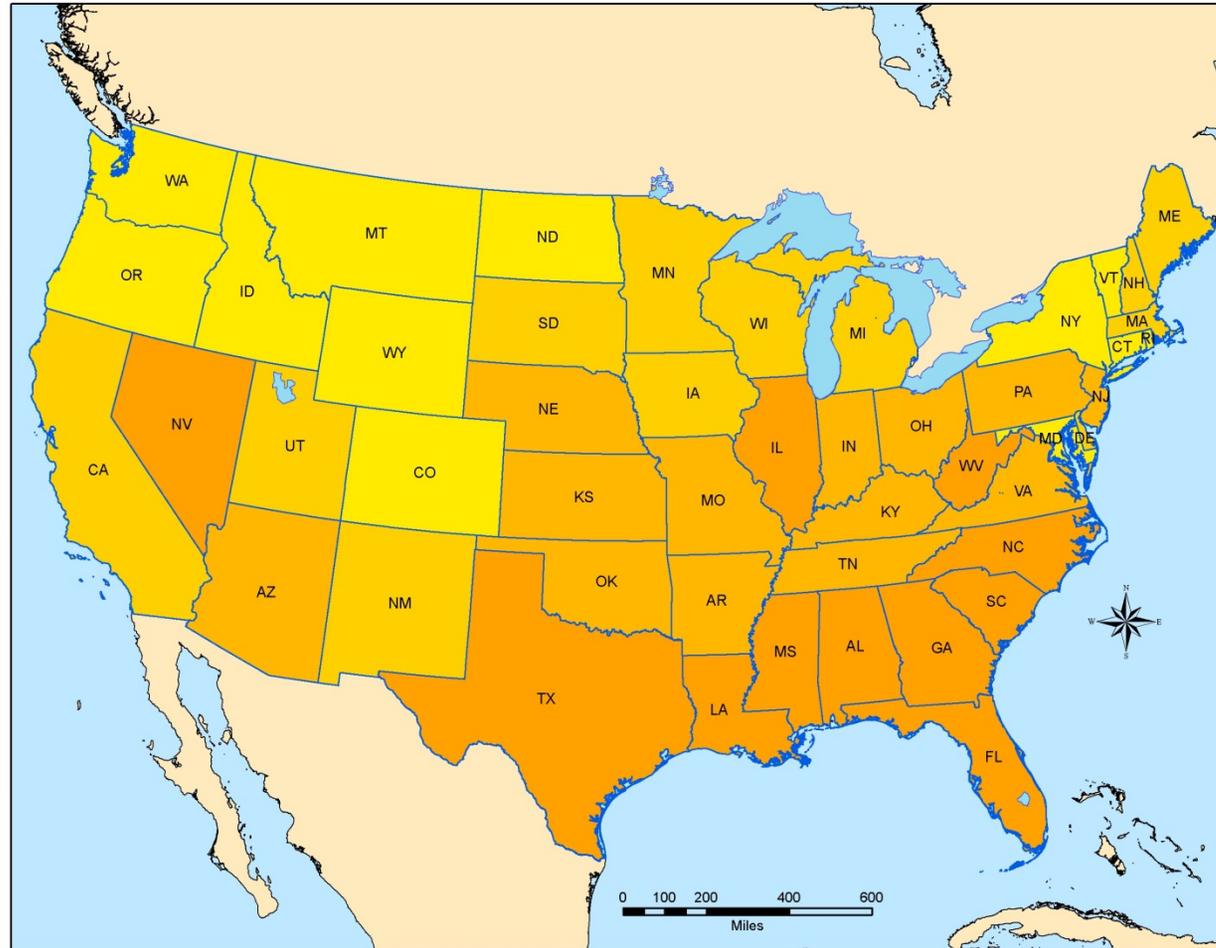


Map 34:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Priority 1-3
By State FY - 2014

 **GeoSpatial
Outcomes Division**
VHA Office of Rural Health

Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

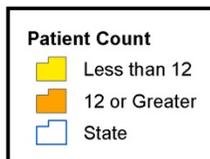
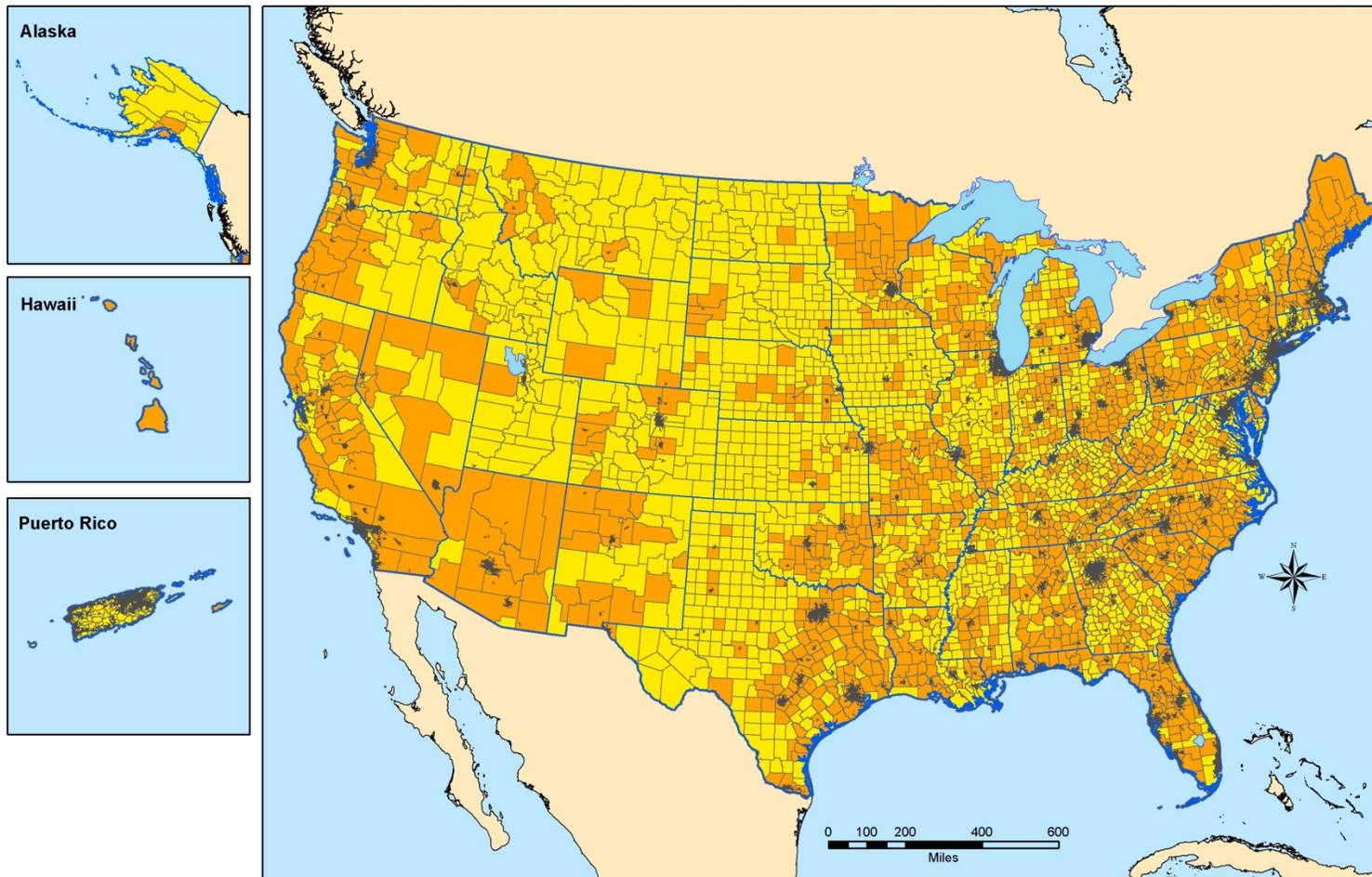
Chronic Renal Failure



Map 35:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 1-3
Of All Rural and Highly Rural Patients Priority 1-3
By State FY - 2014

GeoSpatial Outcomes Division
VHA Office of Rural Health

Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

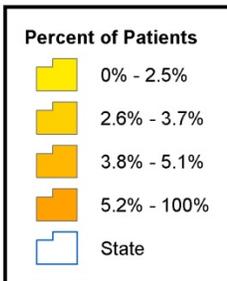
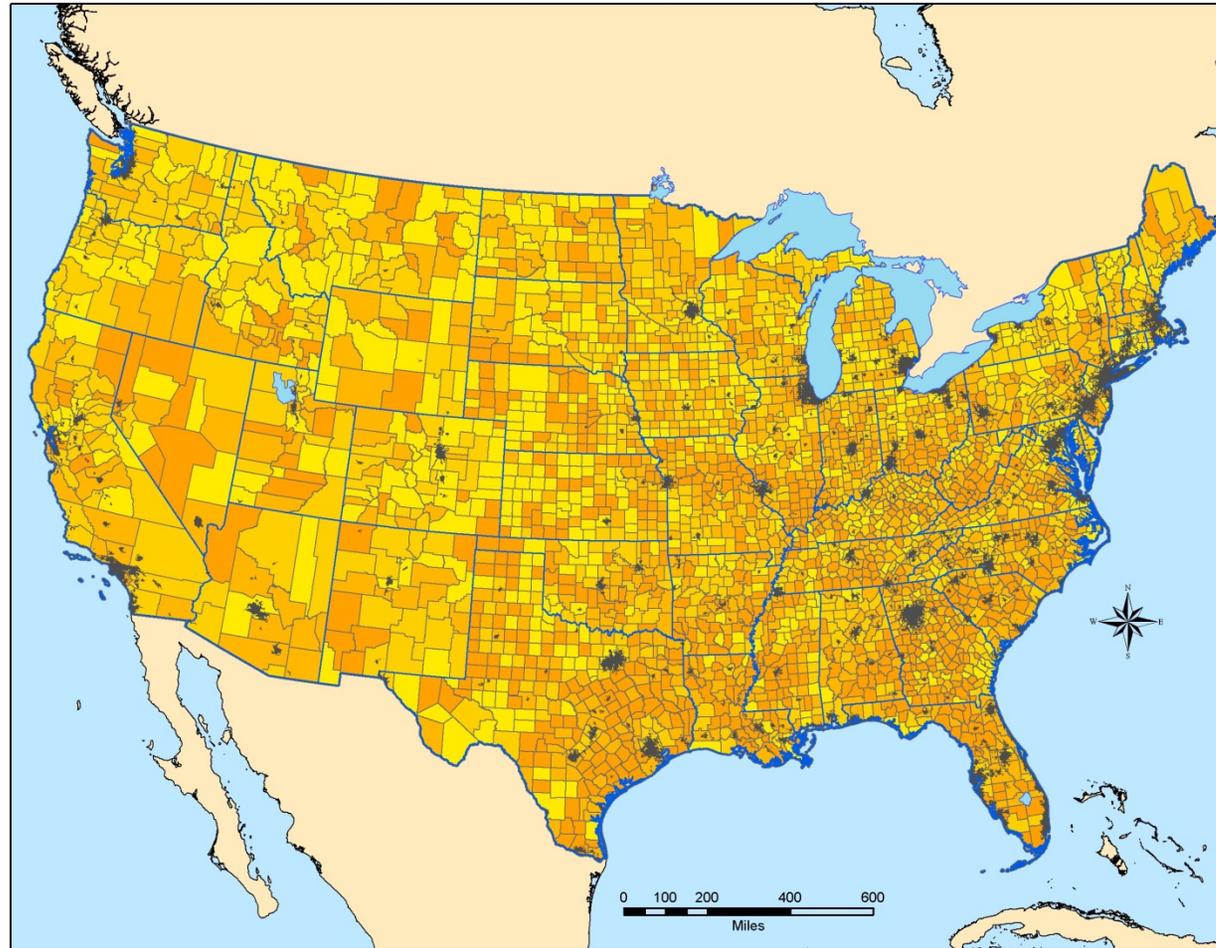


Map 36:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Priority 1-3
By County FY - 2014
Urban Areas "Shaded"



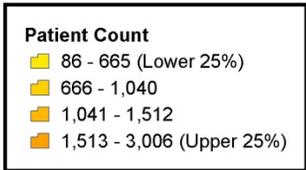
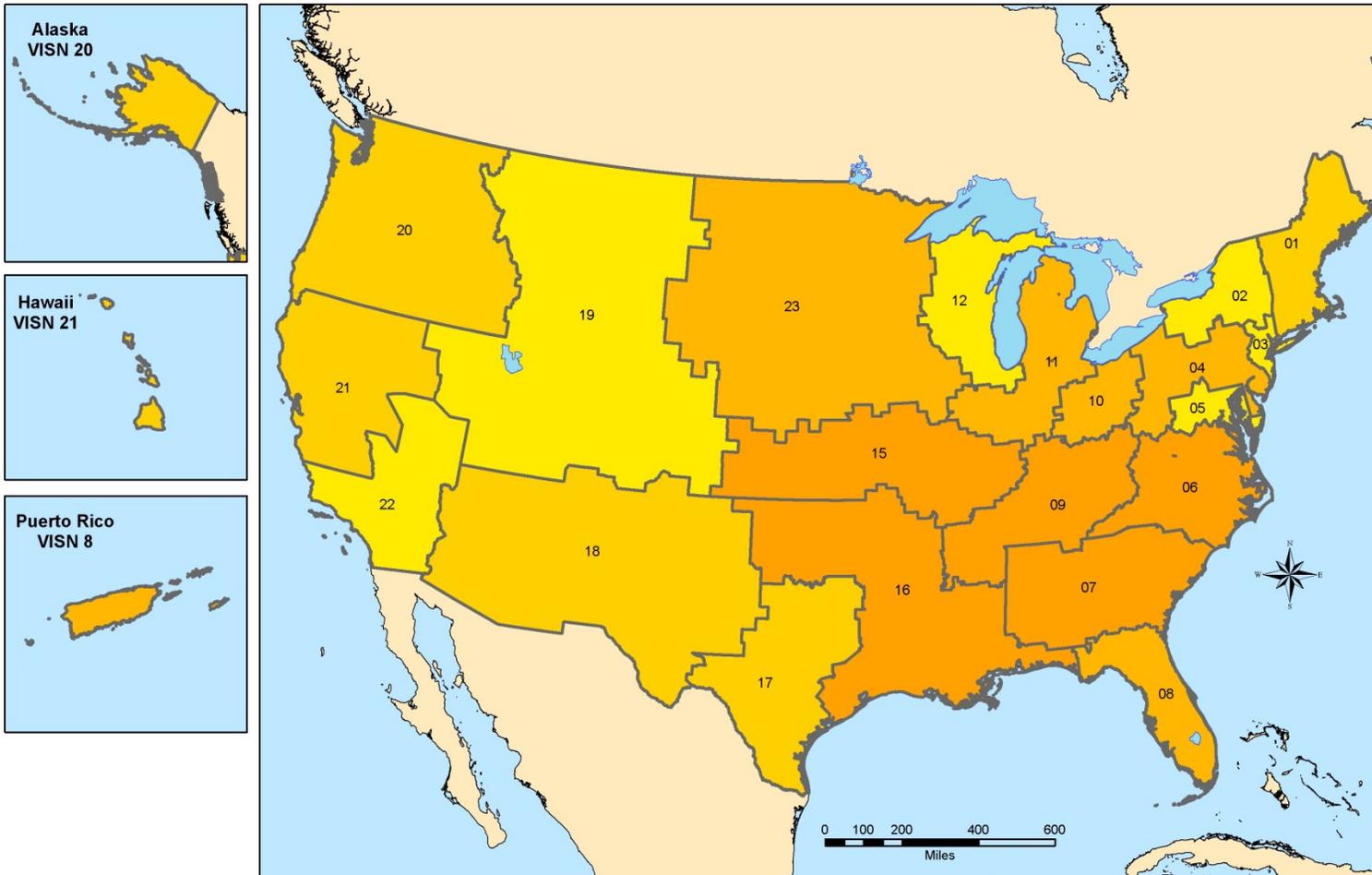
Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 37:

Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 1-3
Of All Rural and Highly Rural Patients Priority 1-3
By County FY - 2014
Urban Areas "Shaded"

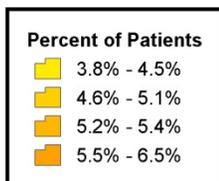
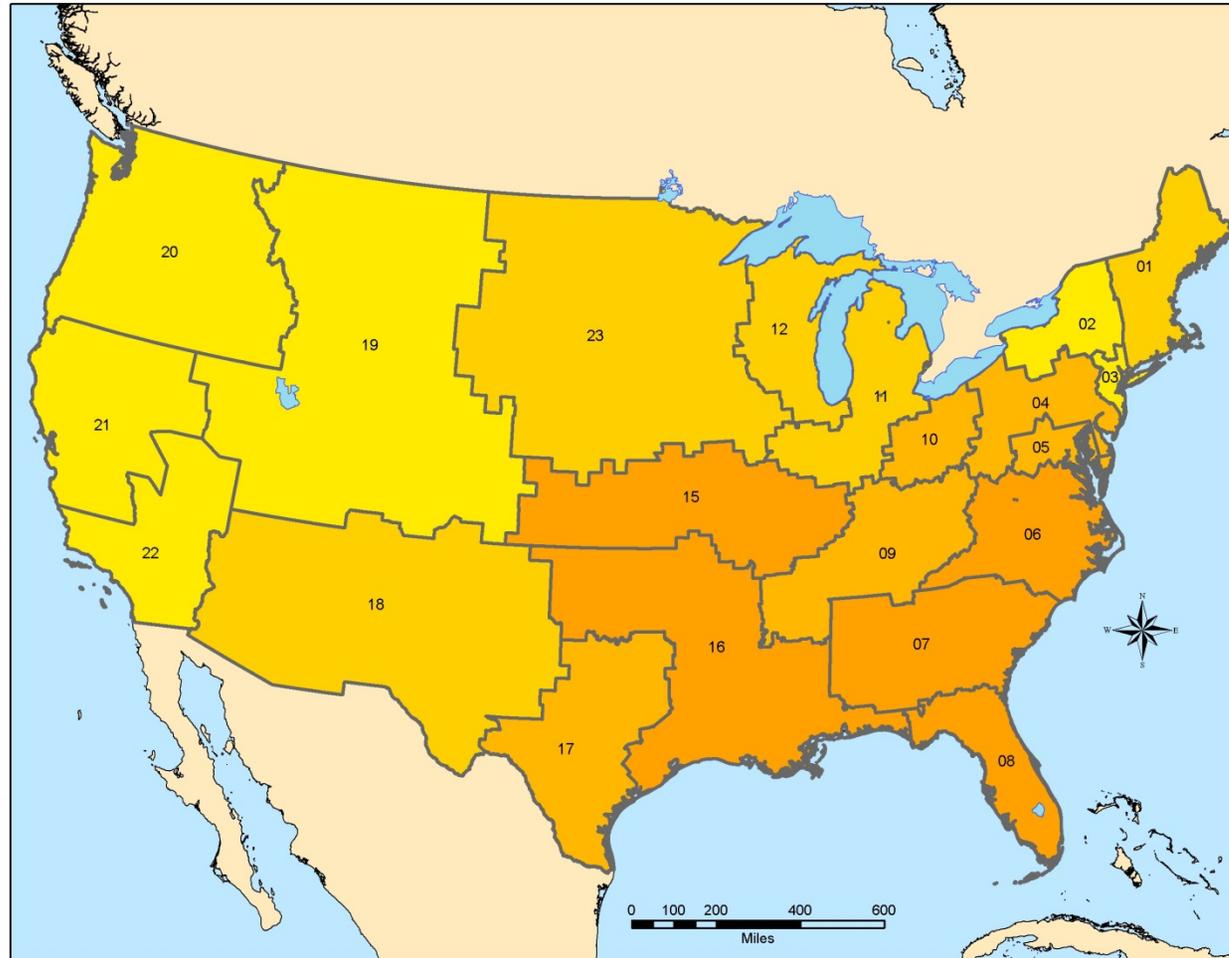


Map 38:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure, Priority 5
By VISN FY - 2014

 **GeoSpatial
Outcomes Division**
VHA Office of Rural Health

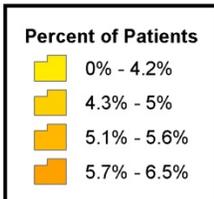
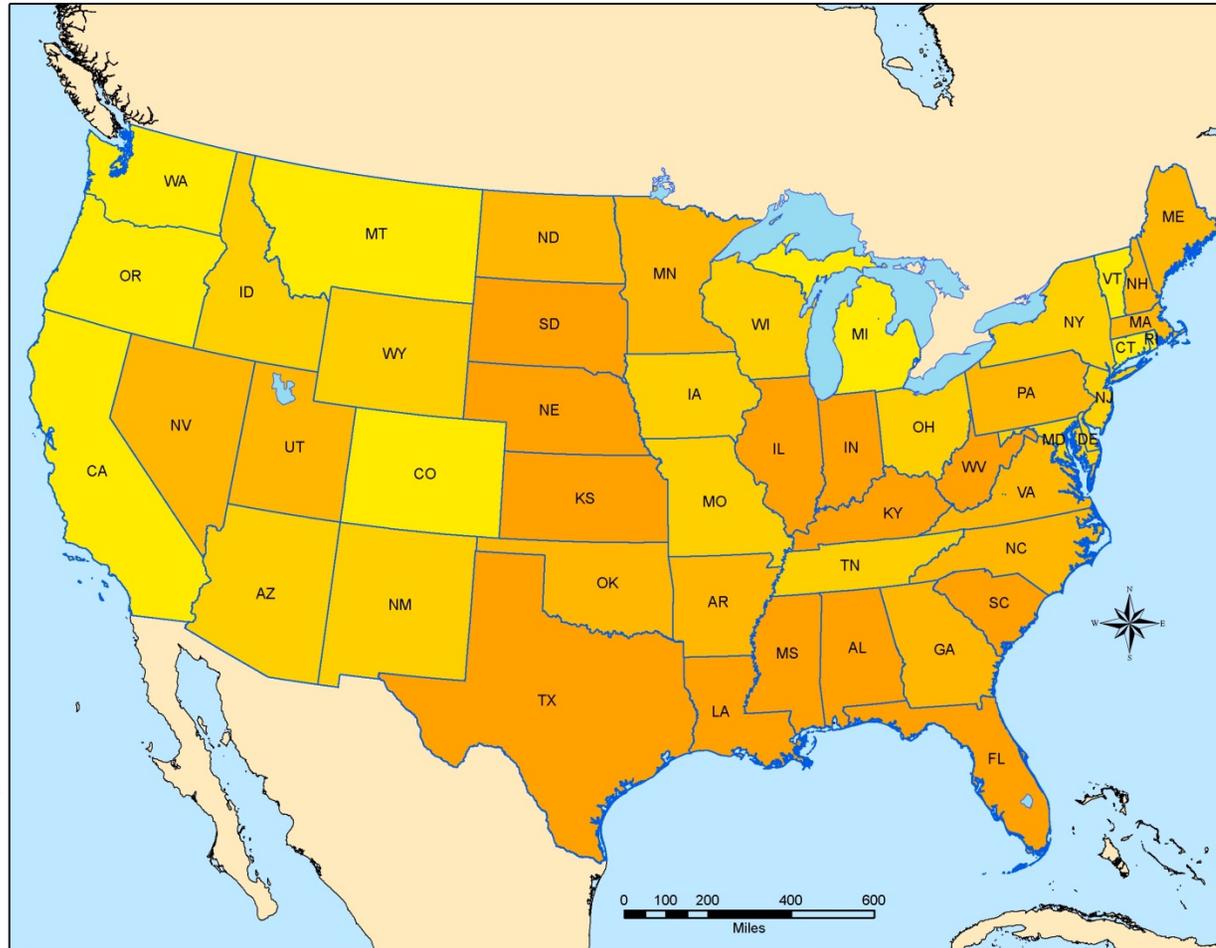
Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure

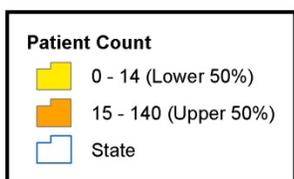
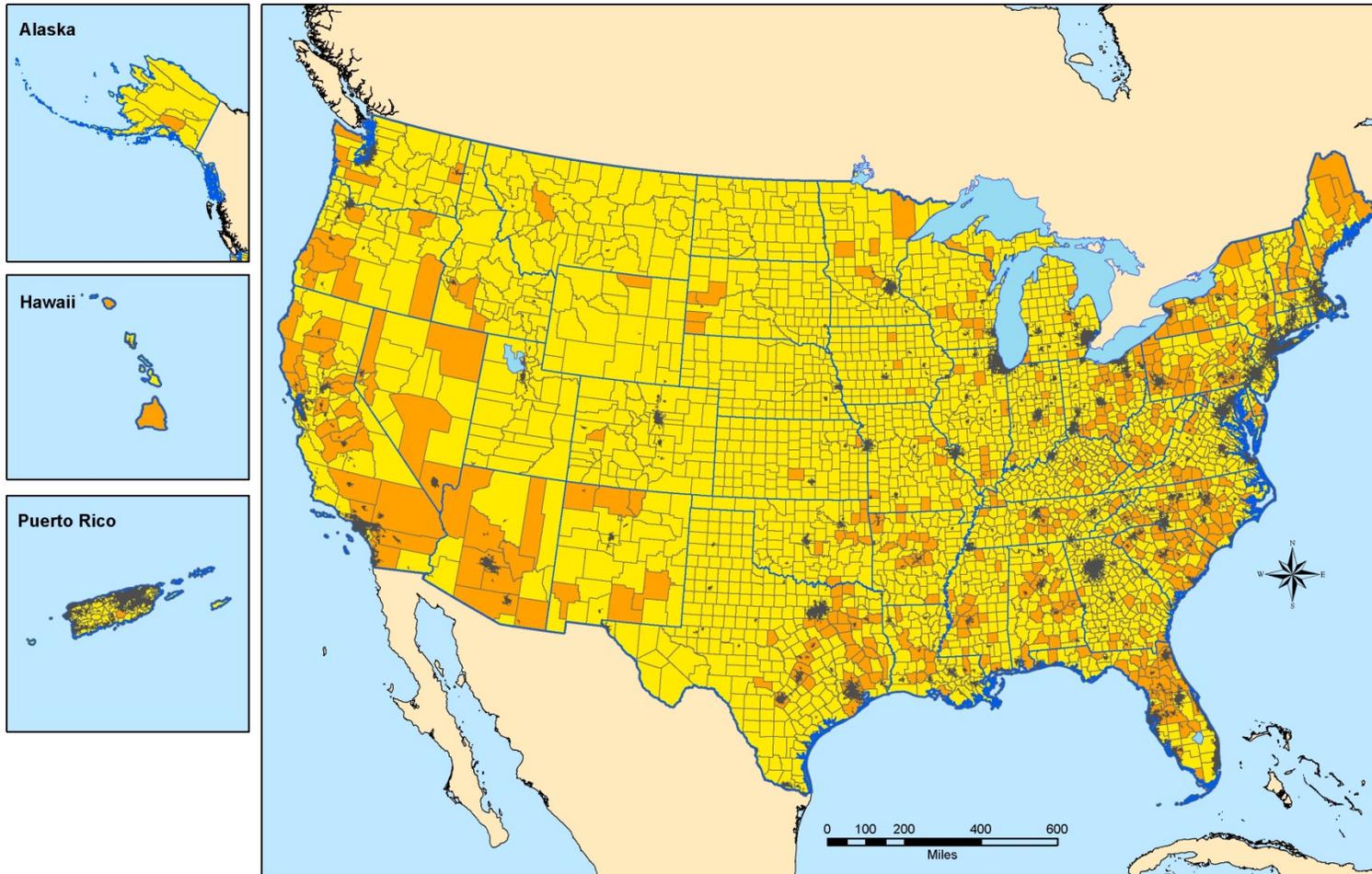


Map 39:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 5
Of All Rural and Highly Rural VHA Patients Priority 5
By VISN FY - 2014

Chronic Renal Failure



Map 41:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 5
Of All Rural and Highly Rural Patients Priority 5
By State FY - 2014

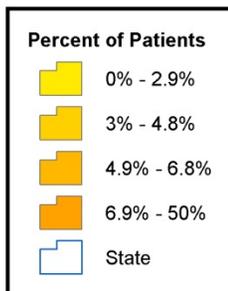
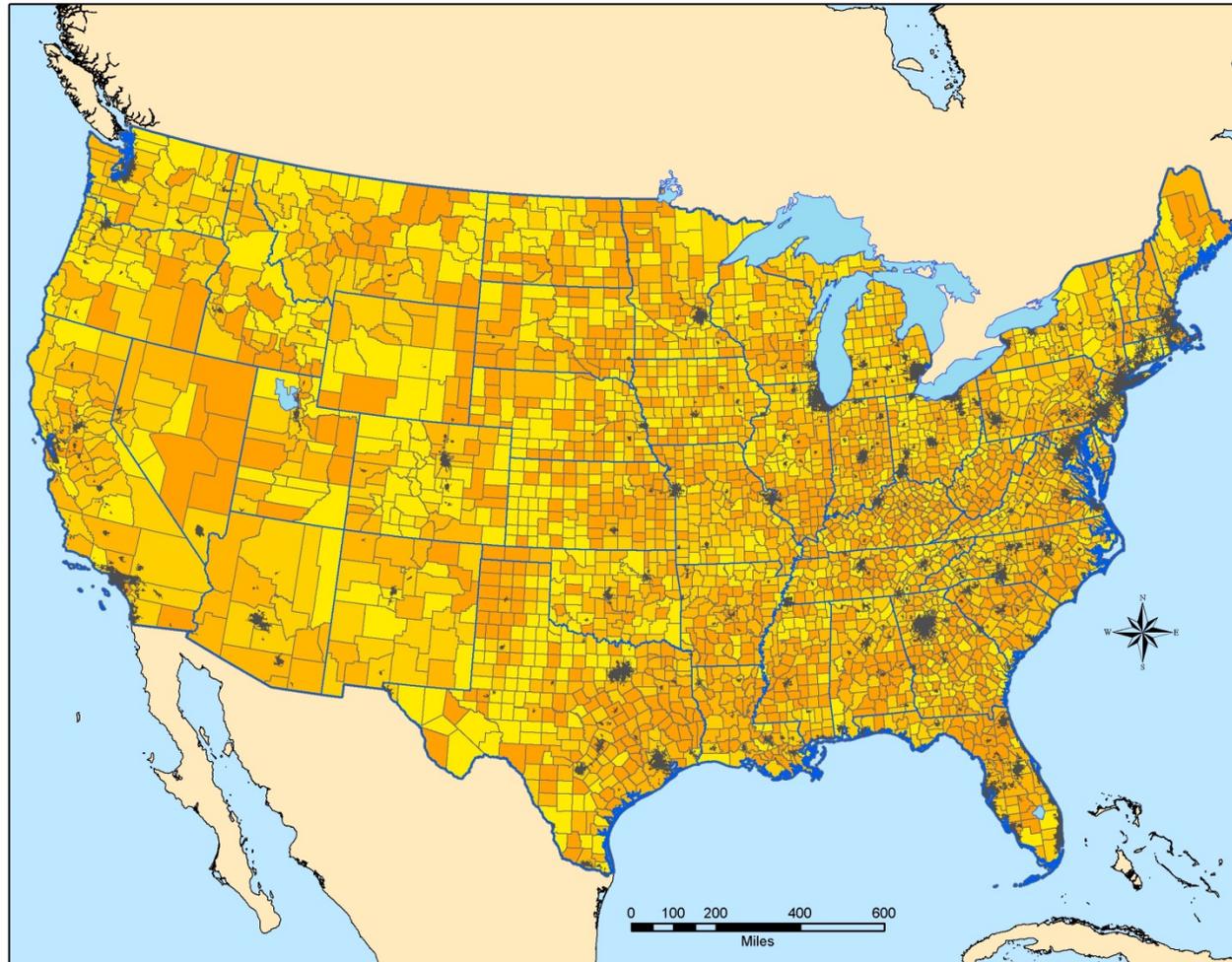
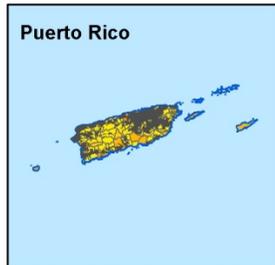


Map 42:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Priority 5
By County FY - 2014
Urban Areas "Shaded"



Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 43:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Priority 5
Of All Rural and Highly Rural Patients Priority 5
By County FY - 2014
Urban Areas "Shaded"

Section IV Highlights: VHA Patients with Chronic Renal Failure (Outpatient Utilization)

Table 6 examines overall utilization of VHA health care facilities by those VHA patients with a primary diagnosis of Chronic Renal Failure. That is, patients who may have had an encounter with the diagnosis set as the primary diagnosis. At the National level, 1.46% (N=90,665) of all VHA patients had a primary diagnosis of Chronic Renal Failure. At the network level, the range ran from a low of 1,647 individuals in the Upstate New York Network (VISN 2), representing 1.21%, to a high of 8,999 individuals in the Sunshine Network (VISN 8), representing 1.56%.

Using the example of the Sunshine Network (VISN 8), a small percent (0.31%) of all 17,255,468 outpatient encounters were by those VHA patients with a primary diagnosis of Chronic Renal Failure. A closer examination can be conducted for counts and percentages of outpatient encounters by those residing in rural and highly rural areas. For the purposes of simplicity, a combined percentage – indicated in red text – was calculated for both rural and highly rural numbers, both at the network and National levels. Again, looking at the Sunshine Network (VISN 8), combined rural patients with a primary diagnosis of Chronic Renal Failure represented only 0.03% of all outpatient encounters in that network, compared to 0.31% when compared to overall rurality categories combined (highly rural, rural, urban, unknown).

Table 7 provides information on outpatient encounters for all patients with a primary diagnosis of Chronic Renal Failure by rurality. In this table, some very interesting urban-rural comparisons across VISNs emerge. For example, the South Central Network (VISN 16) had a total of 29,940 outpatient encounters for patients who had a primary diagnosis of Chronic Renal Failure. Almost one-half (40.26%) of the encounters were from patients living in rural or highly rural areas of the VISN. Following VISN 16, two other networks (in rank order, VISNs 23 and 9) also had nearly one-third of encounters from patients living in rural and highly rural areas of the VISN.

Chronic Renal Failure



Table 6: Outpatient Encounters of Patients with a Primary Diagnosis of Chronic Renal Failure

Overall Resource Utilization- Chronic Renal Failure (Primary Diagnosis Group) Compared to All Users, FY-2014										
Veterans Integrated Service Network	Total Number of Patients	Patients with Chronic Renal Failure		Outpatient Encounters						
		N	%	Total	Chronic Renal Failure					
					N	HR	R	%	U	Unk
New England (01)	253,326	3,355	1.32	7,306,431	11	5,243	0.07	20,250	0	0.35
Upstate NY (02)	136,497	1,647	1.21	4,189,442	1	5,270	0.13	17,751	0	0.55
NY/NJ (03)	174,457	2,792	1.60	5,308,815	0	766	0.01	41,615	0	0.80
Stars and Stripes (04)	310,940	4,155	1.34	8,188,223	0	3,495	0.04	26,901	0	0.37
Capitol (05)	150,012	2,152	1.43	3,919,003	0	995	0.03	13,564	0	0.37
Mid-Atlantic (06)	359,692	5,504	1.53	9,682,967	4	12,748	0.13	48,647	0	0.63
Southeast (07)	408,164	7,132	1.75	10,588,864	0	8,581	0.08	29,807	0	0.36
Sunshine (08)	576,411	8,999	1.56	17,255,468	2	5,289	0.03	48,299	0	0.31
Mid South (09)	298,396	4,687	1.57	8,424,188	0	10,038	0.12	22,130	0	0.38
Ohio (10)	231,319	3,883	1.68	7,511,566	0	2,754	0.04	29,259	0	0.43
Vets in Partnership (11)	282,135	3,673	1.30	7,691,758	0	5,103	0.07	28,580	0	0.44
Great Lakes (12)	266,879	3,777	1.42	7,705,668	12	2,565	0.03	32,328	0	0.45
Heartland (15)	245,357	4,070	1.66	7,009,124	73	6,128	0.09	19,703	1	0.37
South Central (16)	502,681	7,530	1.50	13,310,260	9	12,046	0.09	17,885	0	0.22
Heart of Texas (17)	306,581	5,140	1.68	7,950,682	49	5,743	0.07	30,241	0	0.45
Southwest (18)	271,557	3,795	1.40	6,738,226	1,002	3,976	0.07	20,616	1	0.38
Rocky Mtn. (19)	202,350	2,292	1.13	4,987,574	796	1,858	0.05	13,254	0	0.32
Northwest (20)	288,322	3,560	1.23	6,791,502	347	4,037	0.06	13,430	0	0.26
Sierra Pacific (21)	293,645	3,766	1.28	6,828,680	200	3,055	0.05	25,740	62	0.43
Desert Pacific (22)	328,951	4,981	1.51	8,520,022	162	3,256	0.04	65,471	1	0.81
Midwest (23)	324,728	3,775	1.16	8,146,785	2,658	6,650	0.11	18,807	1	0.35
Grand Total	6,212,400	90,665	1.46	168,055,248	5,326	109,596	0.07	584,278	66	0.42

Table 7: Outpatient Encounters of Patients with a Primary Diagnosis of Chronic Renal Failure by Rurality

Veterans Integrated Service Network	Outpatient Encounters by Patients with Primary Chronic Renal Failure DX					
	Total	Rurality				
	N	HR	R	%	U	Unk
New England (01)	25,504	11	5,243	20.60	20,250	0
Upstate NY (02)	23,022	1	5,270	22.90	17,751	0
NY/NJ (03)	42,381	0	766	1.81	41,615	0
VISN 04 (04)	30,396	0	3,495	11.50	26,901	0
Capitol (05)	14,559	0	995	6.83	13,564	0
Mid-Atlantic (06)	61,399	4	12,748	20.77	48,647	0
Southeast (07)	38,388	0	8,581	22.35	29,807	0
Sunshine (08)	53,590	2	5,289	9.87	48,299	0
Mid South (09)	32,168	0	10,038	31.20	22,130	0
Ohio (10)	32,013	0	2,754	8.60	29,259	0
Vets in Partnership (11)	33,683	0	5,103	15.15	28,580	0
Great Lakes (12)	34,905	12	2,565	7.38	32,328	0
Heartland (15)	25,905	73	6,128	23.94	19,703	1
South Central (16)	29,940	9	12,046	40.26	17,885	0
Heart of Texas (17)	36,033	49	5,743	16.07	30,241	0
Southwest (18)	25,595	1,002	3,976	19.45	20,616	1
Rocky Mtn. (19)	15,908	796	1,858	16.68	13,254	0
Northwest (20)	17,814	347	4,037	24.61	13,430	0
Sierra Pacific (21)	29,057	200	3,055	11.20	25,740	62
Desert Pacific (22)	68,890	162	3,256	4.96	65,471	1
Midwest (23)	28,116	2,658	6,650	33.11	18,807	1
TOTAL	699,266	5,326	109,596	16.43	584,278	66

Chronic Renal Failure



Table 8 examines the overall outpatient encounters at VHA health care facilities by those VHA patients with a secondary diagnosis of Chronic Renal Failure. That is, patients who had an encounter with Chronic Renal Failure as the secondary diagnosis. At the National level, 3.79% (N=235,431) of all VHA patients had secondary diagnosis of Chronic Renal Failure. At the network level, the range ran from a low of 4,117 individuals in the Upstate New York Network (VISN 2), representing 3.02%, to a high of 26,694 individuals in the Sunshine Network (VISN 8), representing 4.63%.

In Table 9 (similar to Table 7 for patients with a primary diagnosis of Chronic Renal Failure) information on outpatient encounters for all patients with a secondary diagnosis of Chronic Renal Failure by rurality is reported. In six networks, the percentage of encounters by rural and highly rural patients with a secondary diagnosis of Chronic Renal Failure constituted more than one-third of the total Chronic Renal Failure encounters. VISN 16 led at 43.05%, followed closely by, in rank order, VISNs 23, 9, 20, 11, and 1.

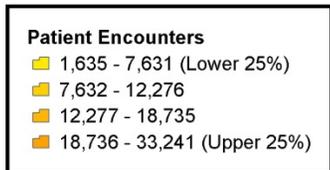
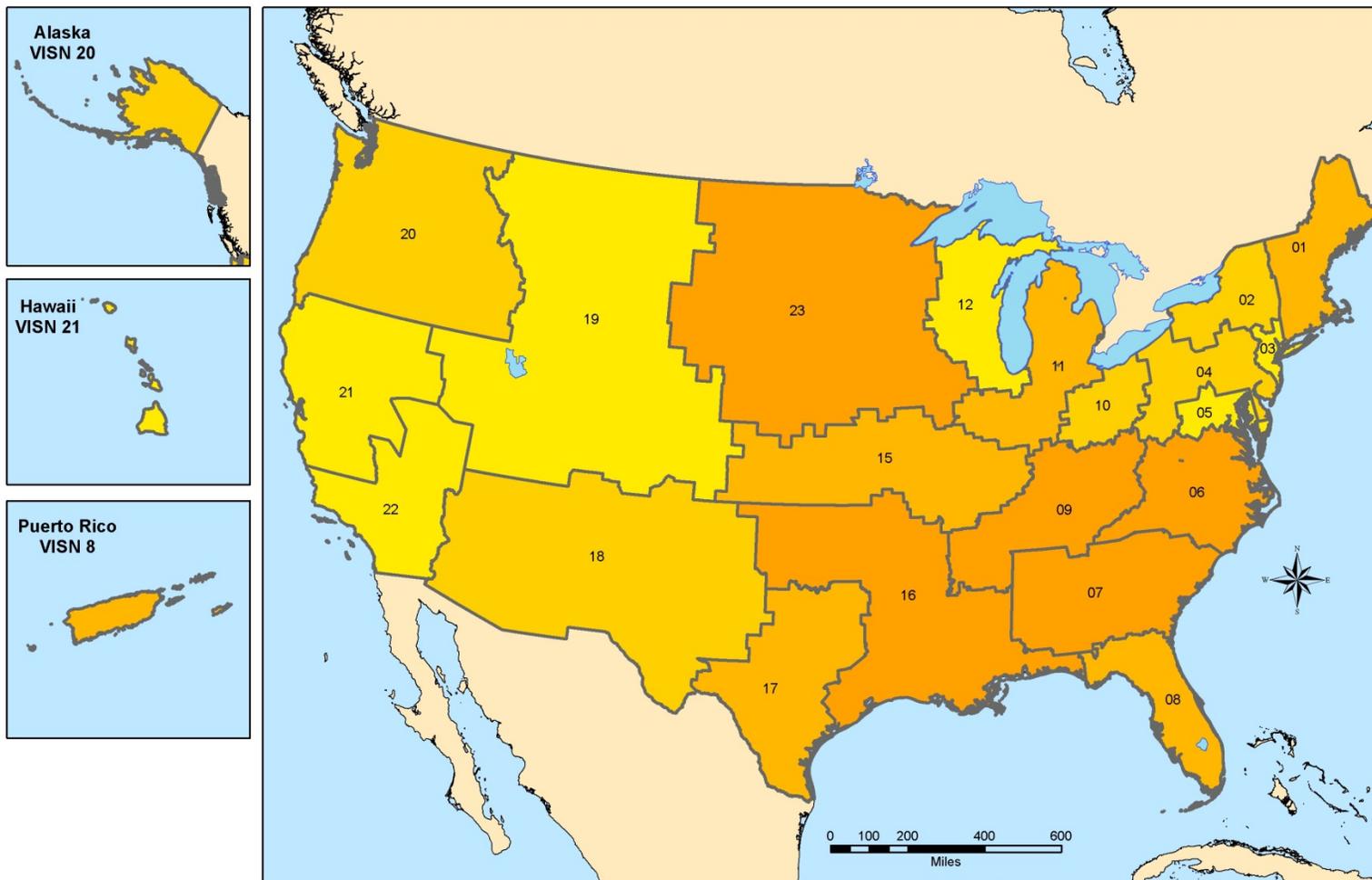
Table 8: Outpatient Encounters of Patients with a Secondary Diagnosis of Chronic Renal Failure

Overall Resource Utilization- Chronic Renal Failure (Secondary Diagnosis Group) Compared to All Users, FY-2014										
Veterans Integrated Service Network	Total Number of Patients	Patients with Chronic Renal Failure		Outpatient Encounters						
		N	%	Total	Chronic Renal Failure					
	N			HR	R	%	U	Unk	%	
New England (01)	253,326	8,166	3.22	7,306,431	44	10,795	0.15	20,634	0	0.43
Upstate NY (02)	136,497	4,117	3.02	4,189,442	0	5,955	0.14	16,038	0	0.52
NY/NJ (03)	174,457	6,956	3.99	5,308,815	0	869	0.02	34,418	0	0.66
Stars and Stripes (04)	310,940	13,478	4.33	8,188,223	9	8,772	0.11	37,387	0	0.56
Capitol (05)	150,012	4,919	3.28	3,919,003	0	2,044	0.05	11,163	0	0.34
Mid-Atlantic (06)	359,692	13,770	3.83	9,682,967	6	20,483	0.21	58,543	0	0.82
Southeast (07)	408,164	16,915	4.14	10,588,864	0	14,589	0.14	33,487	0	0.45
Sunshine (08)	576,411	26,694	4.63	17,255,468	0	10,816	0.06	70,998	0	0.47
Mid South (09)	298,396	11,911	3.99	8,424,188	0	14,596	0.17	26,121	1	0.48
Ohio (10)	231,319	9,670	4.18	7,511,566	0	6,727	0.09	21,750	0	0.38
Vets in Partnership (11)	282,135	10,479	3.71	7,691,758	1	8,490	0.11	15,807	0	0.32
Great Lakes (12)	266,879	11,356	4.26	7,705,668	21	5,033	0.07	40,312	0	0.59
Heartland (15)	245,357	11,731	4.78	7,009,124	131	12,403	0.18	28,664	0	0.59
South Central (16)	502,681	20,290	4.04	13,310,260	53	20,727	0.16	27,485	0	0.36
Heart of Texas (17)	306,581	11,604	3.78	7,950,682	95	7,731	0.10	19,401	2	0.34
Southwest (18)	271,557	9,153	3.37	6,738,226	941	5,638	0.10	21,515	7	0.42
Rocky Mtn. (19)	202,350	5,629	2.78	4,987,574	1,389	2,682	0.08	16,408	0	0.41
Northwest (20)	288,322	7,573	2.63	6,791,502	636	5,000	0.08	10,299	0	0.23
Sierra Pacific (21)	293,645	9,213	3.14	6,828,680	211	4,052	0.06	19,476	114	0.35
Desert Pacific (22)	328,951	11,145	3.39	8,520,022	382	2,633	0.04	42,320	2	0.53
Midwest (23)	324,728	10,662	3.28	8,146,785	2,889	11,973	0.18	25,208	3	0.49
Grand Total	6,212,400	235,431	3.79	168,055,248	6,808	182,008	0.11	597,434	129	0.47

Chronic Renal Failure

Table 9: Outpatient Encounters of Patients with a Secondary Diagnosis of Chronic Renal Failure by Rurality

Veterans Integrated Service Network	Outpatient Encounters by Patients with Secondary Chronic Renal Failure DX					
	Total	Rurality				
	N	HR	R	%	U	Unk
New England (01)	31,473	44	10,795	34.44	20,634	0
Upstate NY (02)	21,993	0	5,955	27.08	16,038	0
NY/NJ (03)	35,287	0	869	2.46	34,418	0
VISN 04 (04)	46,168	9	8,772	19.02	37,387	0
Capitol (05)	13,207	0	2,044	15.48	11,163	0
Mid-Atlantic (06)	79,032	6	20,483	25.92	58,543	0
Southeast (07)	48,076	0	14,589	30.35	33,487	0
Sunshine (08)	81,814	0	10,816	13.22	70,998	0
Mid South (09)	40,718	0	14,596	35.85	26,121	1
Ohio (10)	28,477	0	6,727	23.62	21,750	0
Vets in Partnership (11)	24,298	1	8,490	34.95	15,807	0
Great Lakes (12)	45,366	21	5,033	11.14	40,312	0
Heartland (15)	41,198	131	12,403	30.42	28,664	0
South Central (16)	48,265	53	20,727	43.05	27,485	0
Heart of Texas (17)	27,229	95	7,731	28.74	19,401	2
Southwest (18)	28,101	941	5,638	23.41	21,515	7
Rocky Mtn. (19)	20,479	1,389	2,682	19.88	16,408	0
Northwest (20)	15,935	636	5,000	35.37	10,299	0
Sierra Pacific (21)	23,853	211	4,052	17.87	19,476	114
Desert Pacific (22)	45,337	382	2,633	6.65	42,320	2
Midwest (23)	40,073	2,889	11,973	37.09	25,208	3
TOTAL	786,379	6,808	182,008	24.01	597,434	129

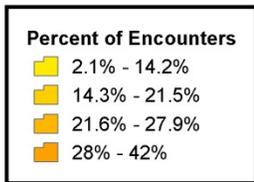
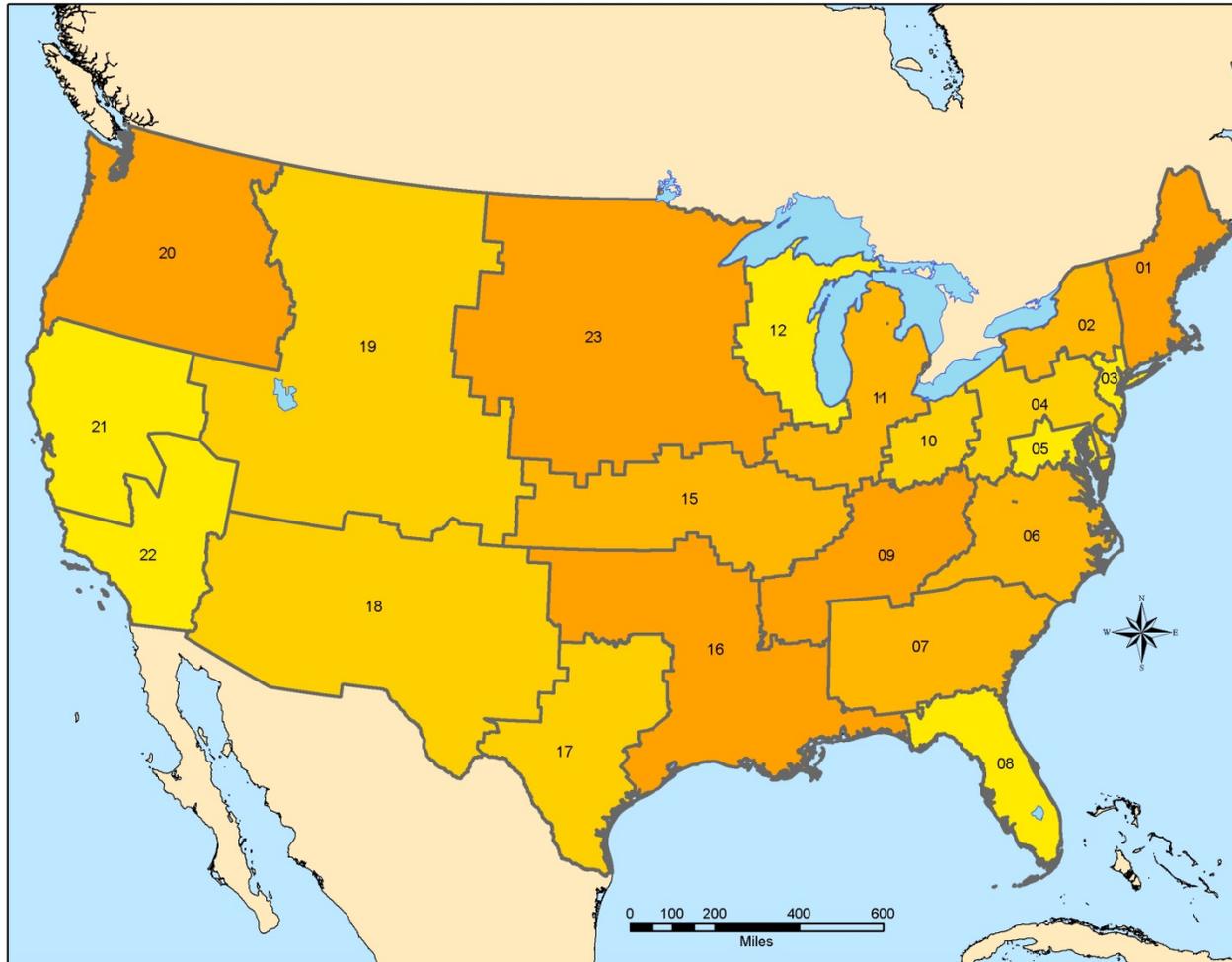


Map 44:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Encounters
By VISN FY - 2014

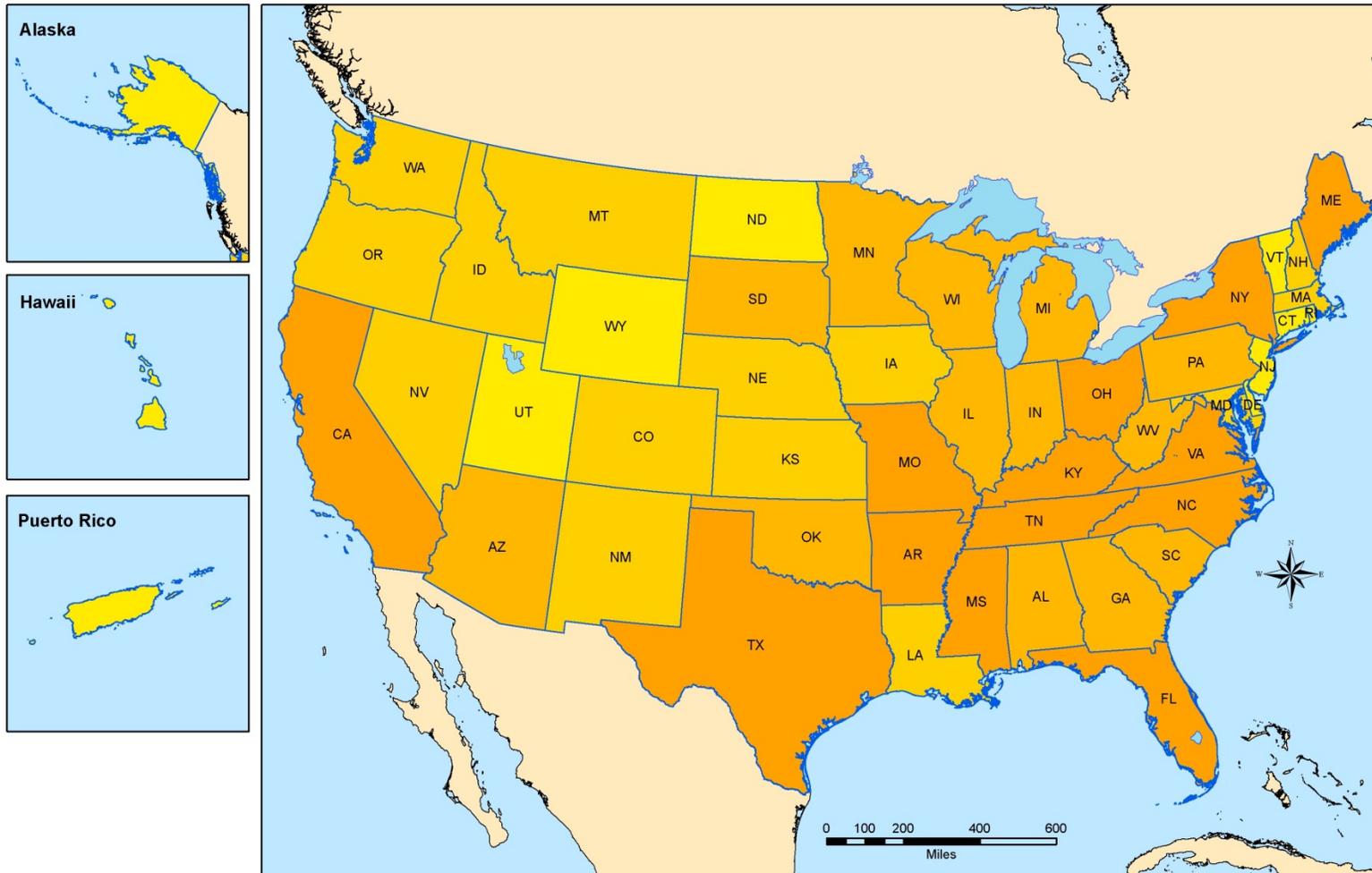


Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 45:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Encounters Of All VHA Patient Chronic Renal Failure Encounters By VISN FY - 2014

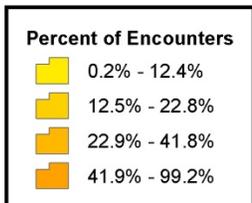
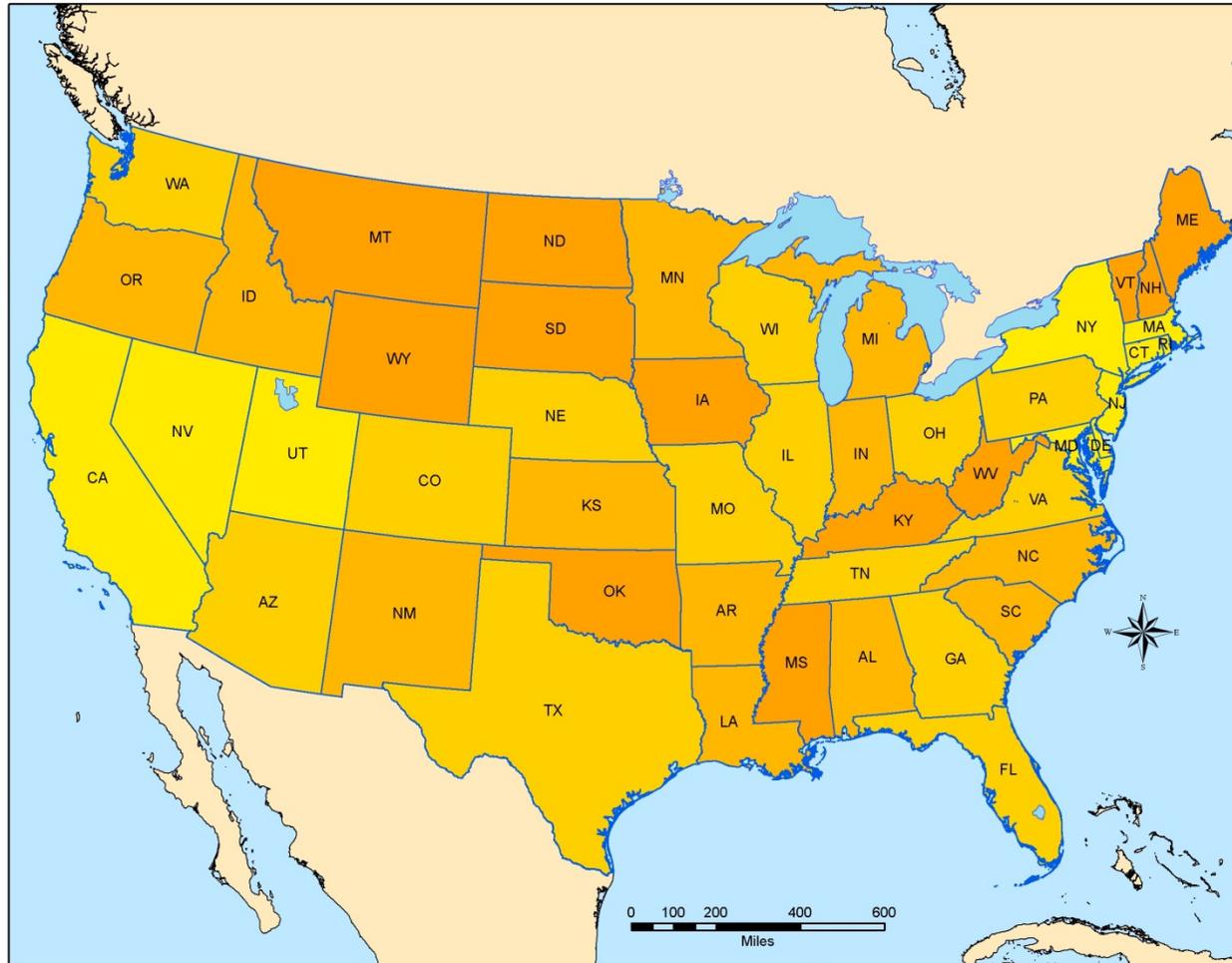


Patient Encounters	
	1 - 1,442 (Lower 25%)
	1,443 - 5,120
	5,121 - 9,107
	9,108 - 21,401 (Upper 25%)

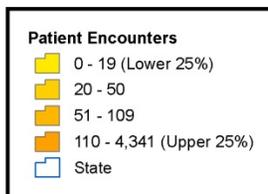
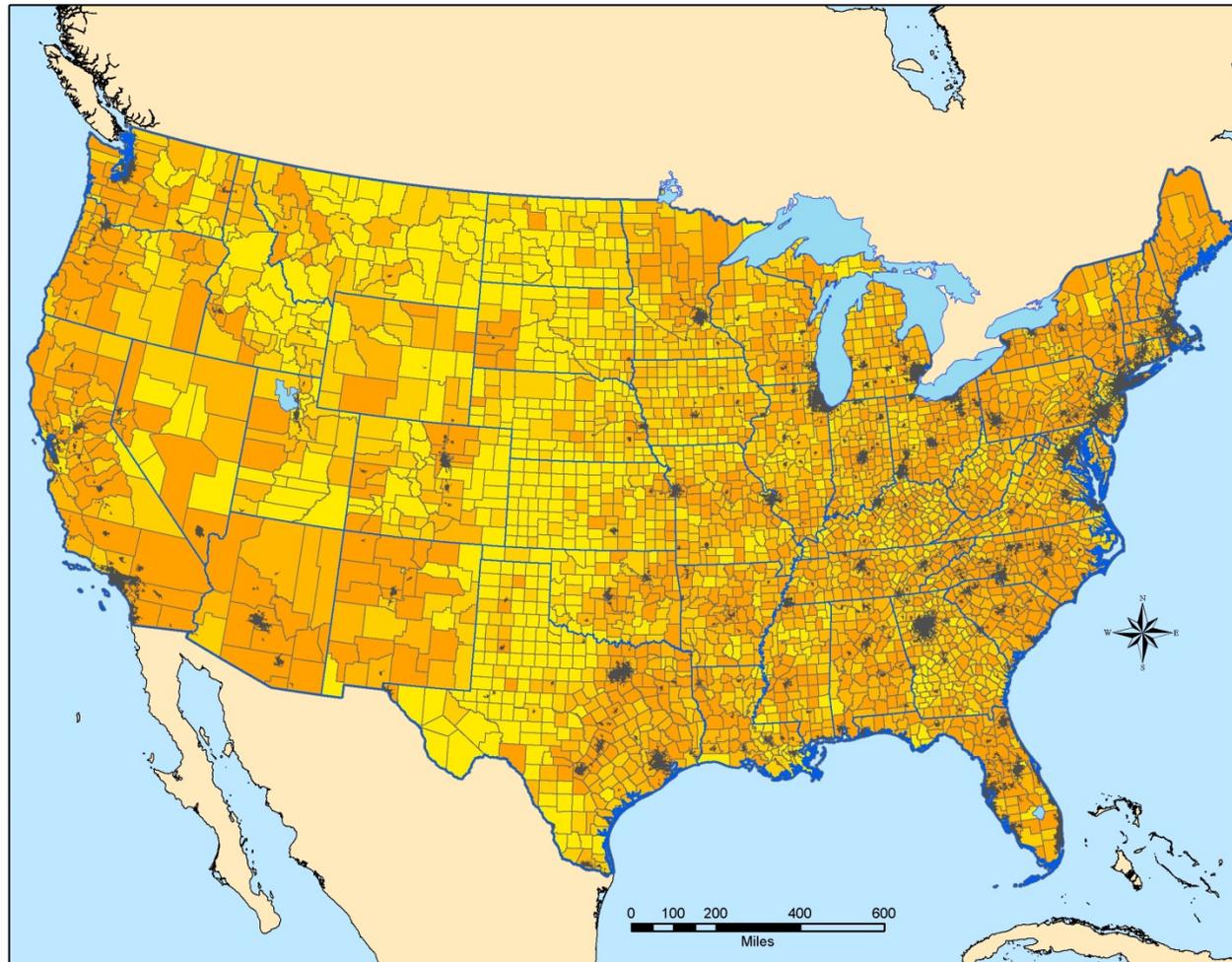
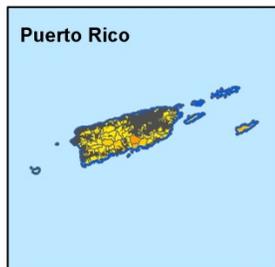
Map 46:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure
Encounters
By State FY - 2014


VHA Office of Rural Health
Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 47:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure Encounters Of All VHA Patient Chronic Renal Failure Encounters By State FY - 2014

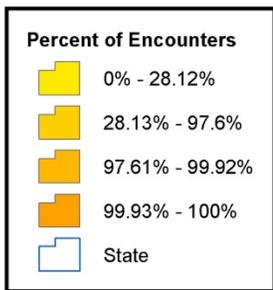
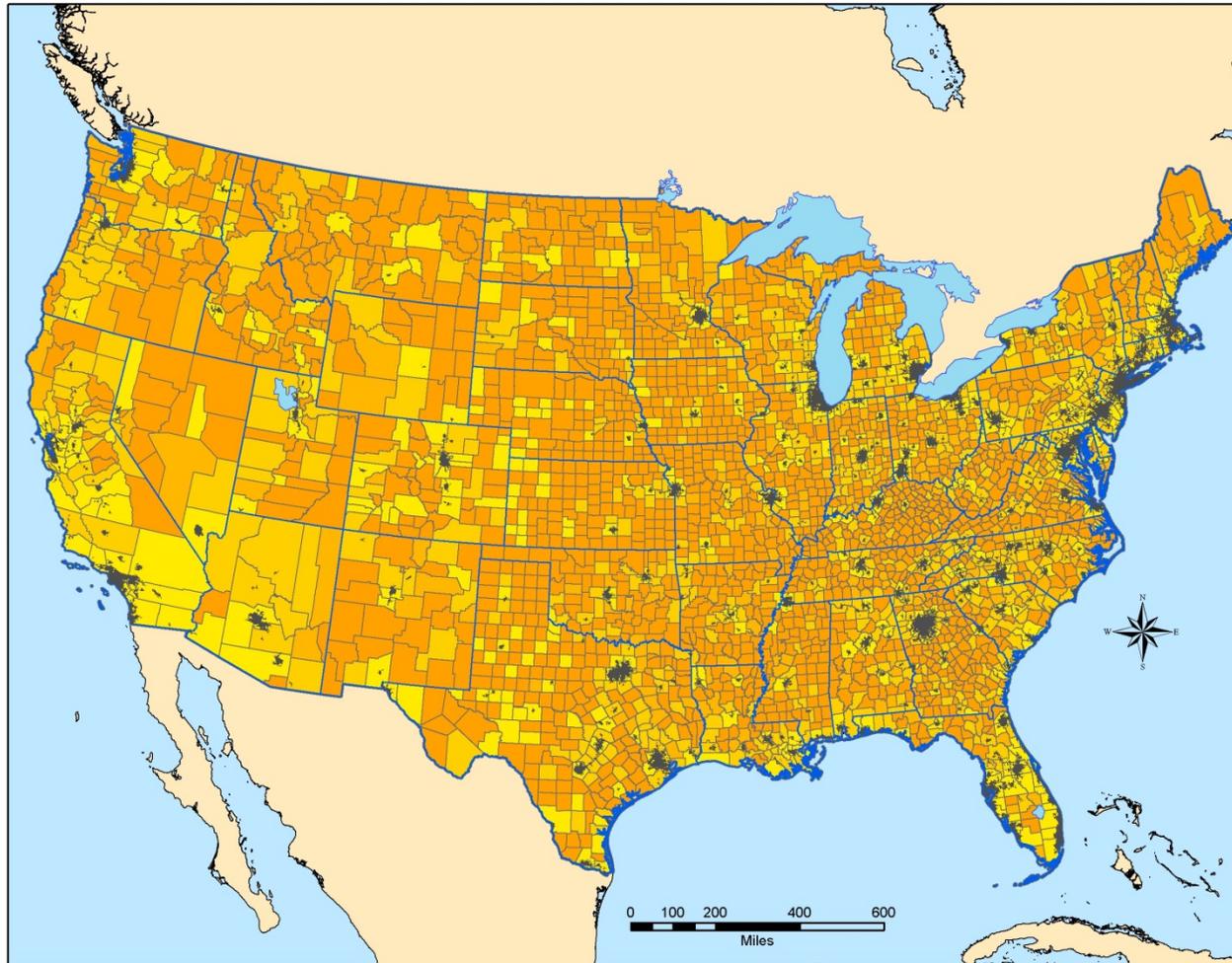
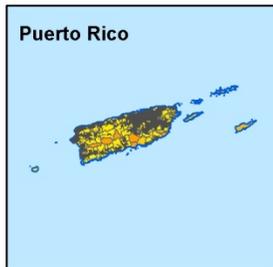


Map 48:
Number of Rural and Highly Rural VHA Patients
with Chronic Renal Failure, Encounters
By County FY - 2014
Urban Areas "Shaded"



Map Created By: ORH RHRC-ER (DCR, LKW, JKA, ERL)
GeoSpatial Outcomes Division
(Map Creation Date: 9/2/2015)
Map Information by: PSSG, VSSC, ESRI
ArcGIS 10.2x

Chronic Renal Failure



Map 49:
Percent of Rural and Highly Rural VHA Patients with Chronic Renal Failure, Encounters of All VHA Patient Chronic Renal Failure Encounters By County FY - 2014
Urban Areas "Shaded"

References

1) Diagnosis Cube Documentation, available at:

<http://vaww.vssc.med.va.gov/VSSCEnhancedProductManagement/DisplayDocument.aspx?DocumentID=16>

NOTE: This is an internal VA website and is not accessible to the public.

2) Enrollment Priority Groups, available at:

http://www.va.gov/healthbenefits/resources/publications/IB10-441_enrollment_priority_groups.pdf.

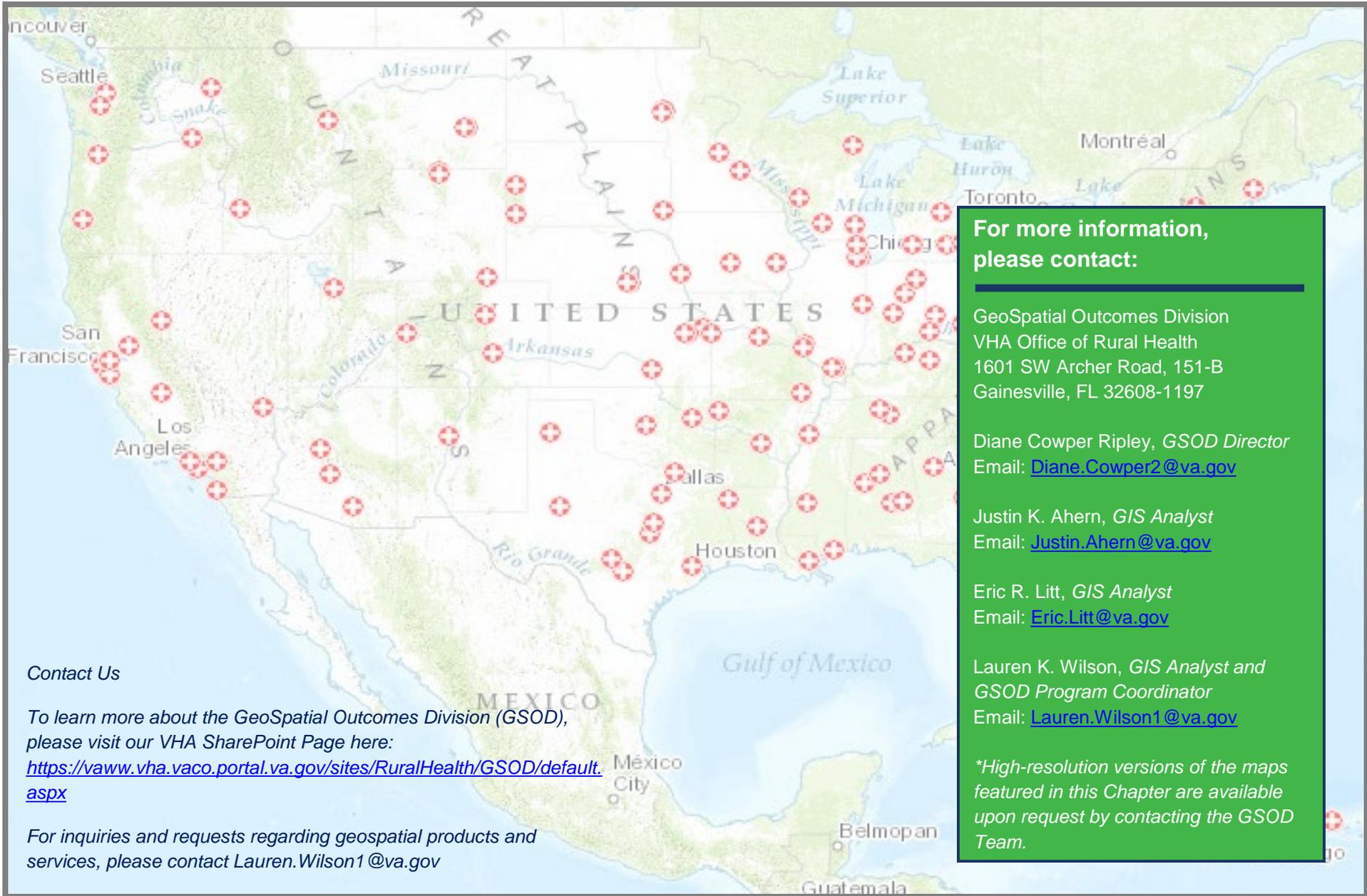
Project Team

Diane C. Cowper Ripley, Ph.D. is presently Site Co-Director of the HSR&D-funded Center of Innovation on Disability and Rehabilitation Research (CINDRR) and the Director of the Veterans Rural Health Resource Center-Eastern Region's GeoSpatial Outcomes Division (GSOD). Her research has focused on Veterans' access and utilization issues for over 31 years.

Justin K. Ahern, B.A. is a geographer and the newest staff member of the GeoSpatial Outcomes Division. He hopes to bring his diversity of skills and experiences to satisfy the GSOD's mission of supporting both Research and Operations related to improving access to health care for rural Veterans.

Eric R. Litt, B.A. is a geographer and has been with the VA since 2006. He also serves as Deputy Director of the GeoSpatial Outcomes Division. Mr. Litt has a strong interest in and deep commitment to assisting our Veterans by providing geospatial analyses that ultimately may improve access to health care services.

Lauren K. Wilson, B.S. serves as the program coordinator and GIS Analyst with the GeoSpatial Outcomes Division. She has been employed with the VA since 2009 and has been using GIS tools since 2005. Her main focus is geospatial analyses and geostatistics and their myriad uses for evidence-based research and policy influence for meaningful change in access to health care for rural Veterans.



For more information, please contact:

GeoSpatial Outcomes Division
 VHA Office of Rural Health
 1601 SW Archer Road, 151-B
 Gainesville, FL 32608-1197

Diane Cowper Ripley, *GSOD Director*
 Email: Diane.Cowper2@va.gov

Justin K. Ahern, *GIS Analyst*
 Email: Justin.Ahern@va.gov

Eric R. Litt, *GIS Analyst*
 Email: Eric.Litt@va.gov

Lauren K. Wilson, *GIS Analyst and GSOD Program Coordinator*
 Email: Lauren.Wilson1@va.gov

**High-resolution versions of the maps featured in this Chapter are available upon request by contacting the GSOD Team.*

Contact Us

To learn more about the GeoSpatial Outcomes Division (GSOD), please visit our VHA SharePoint Page here: <https://vaww.vha.vaco.portal.va.gov/sites/RuralHealth/GSOD/default.aspx>

For inquiries and requests regarding geospatial products and services, please contact Lauren.Wilson1@va.gov