



# HEALTH CARE IN WEST VIRGINIA



August  
2018

## A Workforce Supply and Demand Analysis Report



### **A Special Thank You to Our Funder**

The West Virginia Rural Health Association (WVRHA) is grateful for the generous financial contributions from the following workforce project funder:

**Claude Worthington Benedum Foundation**

Commissioned by the West Virginia Rural Health Association, this report focuses upon the current and future healthcare needs of the citizens of West Virginia and the impact the needs currently have upon the healthcare providers and the communities they serve. This report was created in cooperation with the National Center for the Analysis of Healthcare Data.

## Table of Contents

<b>INTRODUCTION.....</b>	<b>5</b>
<b>OVERALL STATE OF HEALTH COMPARITIVE ANALYSIS .....</b>	<b>6</b>
<b>OUR COMMITMENT.....</b>	<b>6</b>
<b>HEALTHCARE WORKFORCE SUPPLY .....</b>	<b>8</b>
Primary Care Workforce Supply and Trend Analysis.....	18
Economic Impact of Primary Care Physician Mal-distribution .....	21
<b>SPECIALTY CARE PHYSICIAN SUPPLY AND DEMAND .....</b>	<b>23</b>
Specialty Physician Needs and Trend Analysis.....	25
Specialty Physician Comparative Analysis.....	33
<b>NEW DATA FOR THE PORTAL .....</b>	<b>37</b>
Health Determinants.....	46
Physical Environment .....	46
Social and Economic.....	49
Health Behaviors.....	51
Health Outcomes.....	55
Mortality - Premature Death.....	55
Incidences of Cancer .....	59
<b>DATA SOURCES.....</b>	<b>67</b>
<b>LIMITATIONS .....</b>	<b>67</b>
<b>WEST VIRGINIA RURAL HEALTH ASSOCIATION .....</b>	<b>68</b>
<b>2018 BOARD OF DIRECTORS .....</b>	<b>68</b>
<b>REFERENCES .....</b>	<b>70</b>
<b>APPENDIX A – NCAHD NATIONAL DATA COLLECTION PROCESS .....</b>	<b>71</b>

# Health Care in West Virginia

## A WORKFORCE SUPPLY AND DEMAND ANALYSIS REPORT

### INTRODUCTION

The West Virginia Rural Health Association (WVRHA) is a non-profit 501(c)(3) organization with a volunteer Board of Directors (BOD) elected from healthcare organizations and individuals from around the state.

(For a list of board members, please visit: <http://www.wvrha.org/index.php?nav=board>). The mission of the West Virginia Rural Health Association is to unite people, communities and organizations to strengthen rural health in West Virginia.

WVRHA membership includes a variety of people and organizations that are interested in the health of rural West Virginia by working together to identify the health care concerns and find ways to improve services in our communities.

WVRHA identified the need to conduct an environmental assessment of current healthcare workforce supply during WVRHA's 2011 strategic planning process. This assessment was completed in October 2012, with a report created by the West Virginia Rural Health Research Center.

In June of 2013, WVRHA moved forward with the next phase of the process, with the development of a demand report as a partner to the supply report – Health Care Demand Report. The National Center for the Analysis of Healthcare Data (NCAHD) was contacted to generate a report that would provide data and visualizations (maps). The report is to inform West Virginia rural health stakeholders, citizens, policy and decision-makers on the where and how their health care demands were affecting the state.

Additionally, the major provisions of the 2010 Patient Protection Affordable Care Act (PPACA) implemented in 2014 and the impact newly eligible citizens have had upon the current healthcare delivery system must be considered. Since the expansion of Medicaid under the Affordable Care Act (ACA), the number of people receiving health insurance through Medicaid and the Children's Health Insurance Program (CHIP) in West Virginia, makes this the second largest expansion in the US.

Unfortunately, the recently released U.S. Census data indicates that from 2016 to 2017 there was a net increase in the rate of uninsured from 5.3% to 6.1% with 13,000 less West Virginians uninsured. Additionally, poverty rates for children, minorities and seniors increased in 2017 while West Virginia's median household income remained the lowest in the nation at \$43,469 (\$16,867 below the national average).<sup>1</sup>

## OVERALL STATE OF HEALTH COMPARITIVE ANALYSIS

Annually, several national healthcare foundations generate reports shared through internet portals, which are based upon county and state level measures that allow states to compare the progress of their policy and funding efforts. One of these portals called America’s Health Rankings, compares a comprehensive set of behaviors, public and health policies, community and environmental conditions, and clinical care data. The comparison chart below may be useful for those creating reports, conducting comparative analysis or grant writing. The core measures in green are those that are having a positive influence upon health and the gold are those having a negative influence upon West Virginia health.

Core Measures Impact: West Virginia, 2017 Annual Report

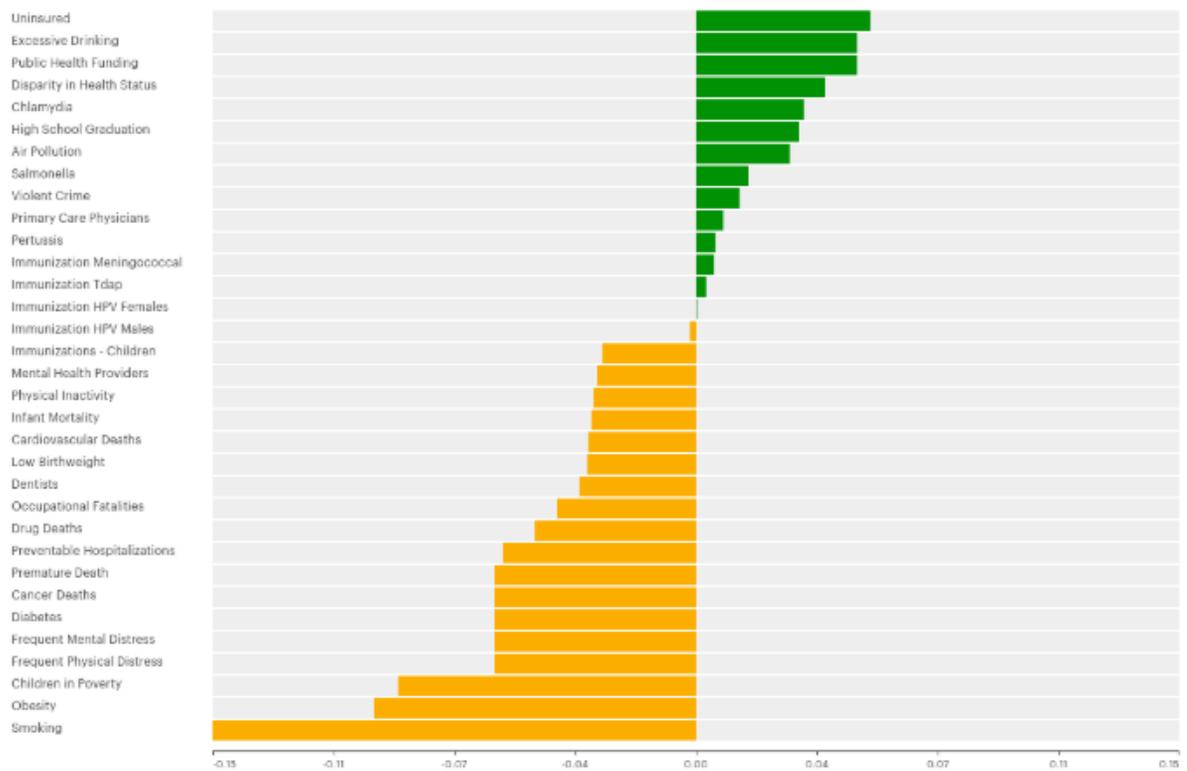


FIGURE 1 - WEST VIRGINIA MEASURES IMPACTING HEALTH

(Note: Although much of the data in their portal comes from West Virginia sources, some of this information may be more dated than what can be found within the West Virginia Health Data portal.)

## OUR COMMITMENT

The WVRHA envisions the WV Health Data Portal as a free resource available to anyone needing current facts about the health workforce in West Virginia and a demonstration of the impact the healthcare workforce mal-distribution and shortages have upon current and future West Virginians. WVRHA membership is required to access information below the county level.

WVRHA is committed to provide yearly updates while adding additional disciplines, specialties, and trend analysis to the portal. This comprehensive information will describe health care shortages in rural areas and serve as an economic development and decision making tool for all West Virginia stakeholders.

West Virginia's Health Data Portal was launched during the January 2013 Rural Health Workforce Day in Charleston, West Virginia. The entire content from the 2013 West Virginia Workforce Demand report along with supply data from NCAHD's 2013 enhanced state licensure data was integrated into the internet-based interactive web mapping tool. In addition to being able to view all of the healthcare workforce data in the previously published supply and demand reports, the following functionalities enable the public to perform the following:

- Analyzing specialty physician needs through health outcomes
- Viewing aging providers in rural and underserved areas
- Drive time distance analysis
- Using the buffer tool to determine potential workforce from clinics
- Viewing service region for a healthcare facility based on distance or time
- Determining the workforce/patient demographics in the service region

Additionally, the healthcare providers licensed in adjacent states were added to the portal to help improve understanding about the entire healthcare workforce landscape that impact West Virginia's citizen's access to care. The results of trend analysis by NCAHD to measure the migration of primary care workforce may be found in the Workforce Data Portal.

Contact Debrin Jenkins if you or your stakeholder group would like to either host or participate in a portal training session. During the training sessions, participants are given step-by-step guides on how to use the portal and how to answer the following healthcare questions as example of what the portal can provide:

- Is there equitable distribution across all of the health professions in rural vs. urban workforce distribution?
- Which areas in the state have higher patient populations with multiple chronic diseases?
- Are healthcare training opportunities available in rural areas?
- What is the distance from my clinic to the hospital?
- What is the service area around the hospital/clinic?
- How many people are potentially served within 45 minutes or 45 miles of a healthcare facility?
- How many dentist or dental hygienists are within 25 minutes of my town?

## HEALTHCARE WORKFORCE SUPPLY

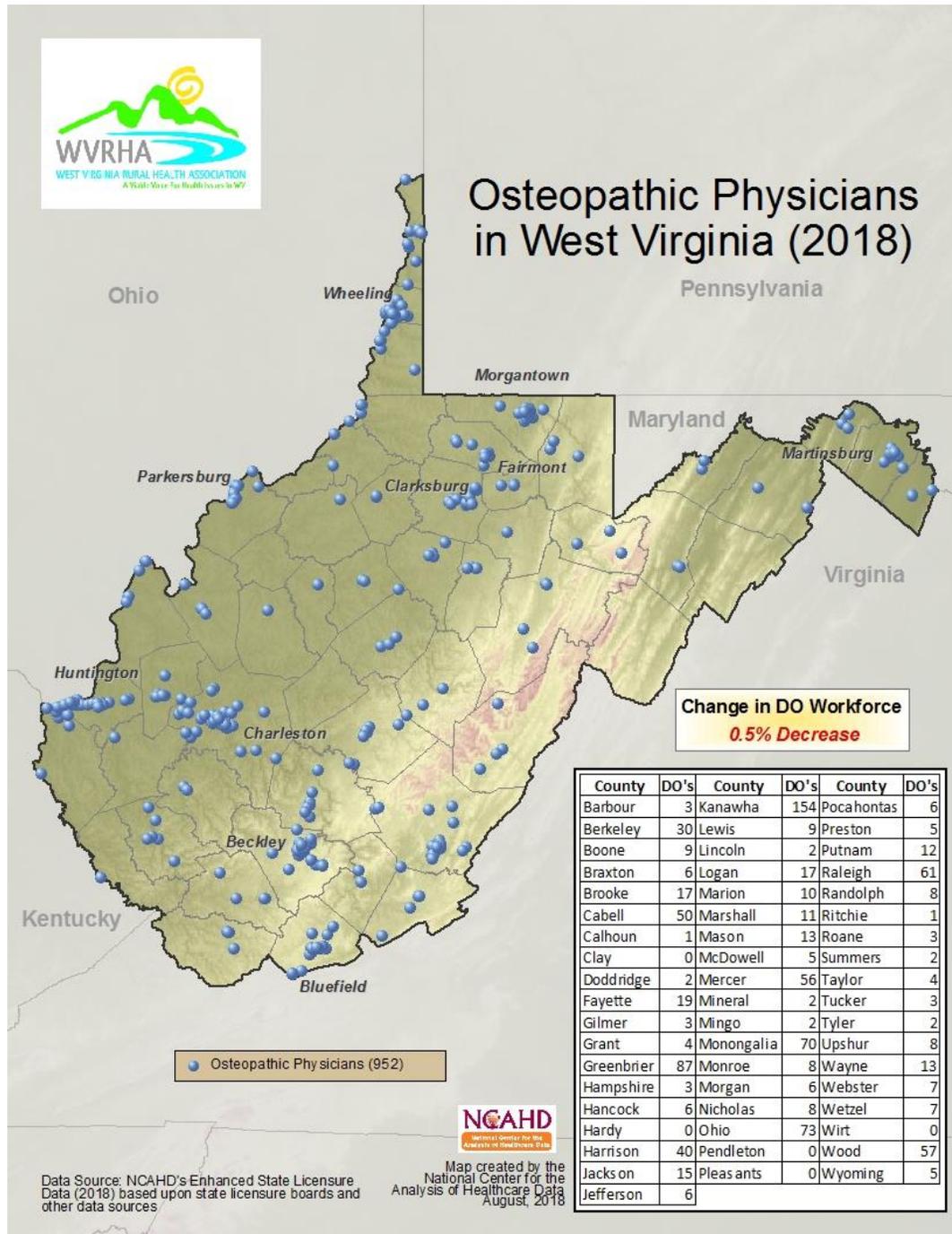
West Virginia institutions of higher education offer an array of health profession training programs, many of which emphasize training in primary care and the importance of providing care in rural and underserved areas of the state. These education and training programs are the foundation of statewide efforts to increase the supply and improve the distribution of primary care providers. To complement the training programs, West Virginia also significantly invests in pipeline programs, community-based training for students in primary care training programs, and incentive programs for primary care providers.

A host of pipeline programs are offered in middle school, high school, and college and allow students to explore healthcare careers. Each of the state's three academic health centers located at Marshall University, the West Virginia School of Osteopathic Medicine, and the West Virginia University Health Sciences Center partner with communities across the state to host enrichment programs like health career clubs, summer camps, and shadowing programs. Many of these activities are conducted in partnership with the state's five Area Health Education Center regional sites.

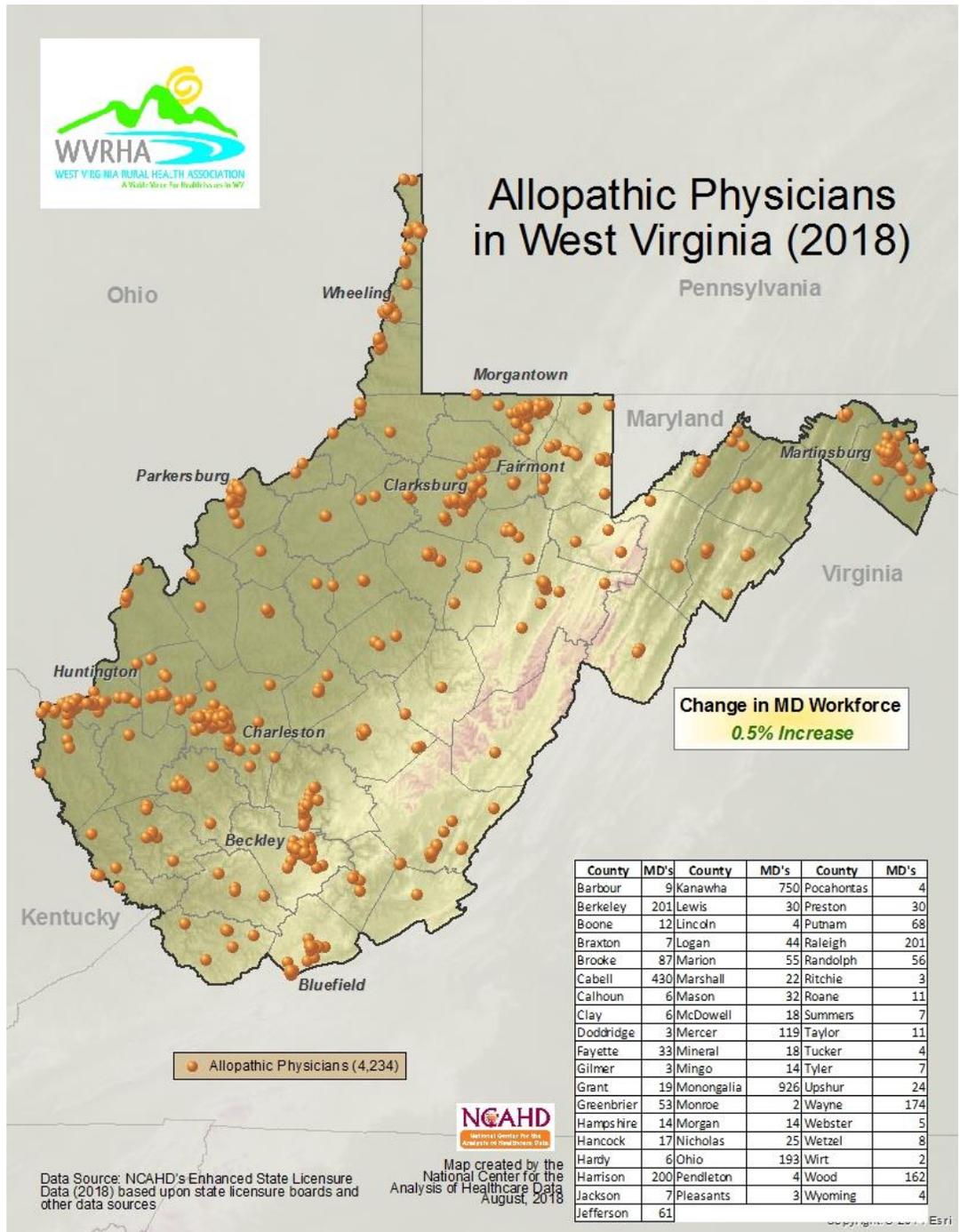
Scores of primary care providers in West Virginia volunteer as clinical preceptors to ensure students and residents incur meaningful experiences while on clinical rotations. The state-funded Rural Health Initiative provides significant funding to support student rotations and housing, community-based research, incentive stipends, and intensive field experiences for students and residents most interested in primary care and rural health.

In addition to federal programs like the National Health Service Corps, West Virginia offers several state-funded incentive programs designed to attract a variety of primary care providers to underserved areas of the state. These programs include the Bureau for Public Health's Recruitment and Retention Community Project and the West Virginia Higher Education Policy Commission's Health Sciences Scholarship Program which offer between \$10,000 and \$50,000 in assistance to primary care providers in exchange for at least a two-year service obligation.

For the following maps, the provider's practice site is shown relative to county boundaries and major cities. Where there are clusters of providers, the assumption is that multiple providers practice at the same facility/site. For each provider there are four maps: Individual provider distribution, county aggregate (with the number practicing within the county), normalized county aggregated (to 10,000 population) and regional aggregation (with the total by region indicated).



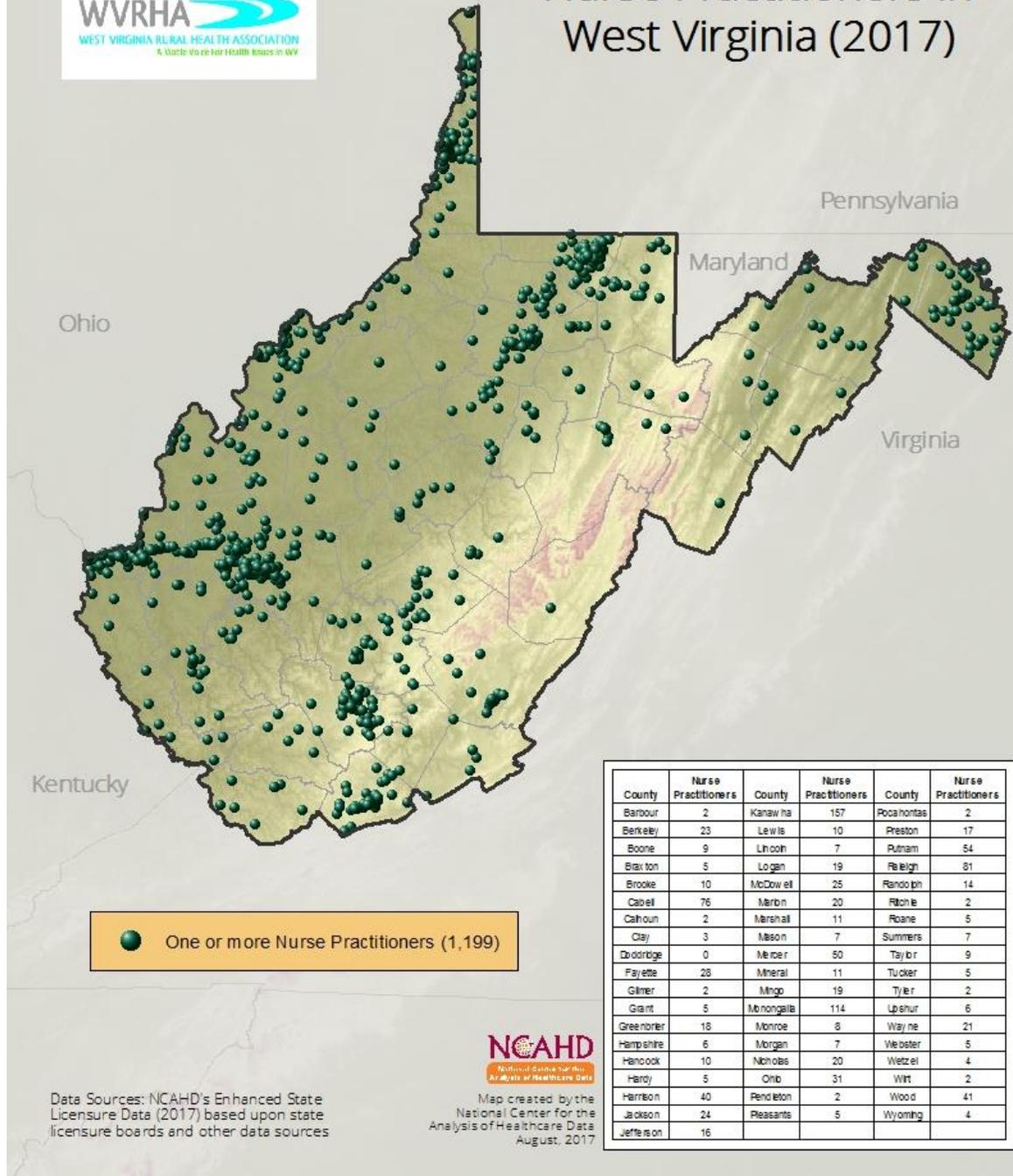
MAP 2- STATEWIDE DISTRIBUTION OF OSTEOPATHIC PHYSICIANS



MAP 3- STATEWIDE DISTRIBUTION OF ALLOPATHIC PHYSICIANS



## Nurse Practitioners in West Virginia (2017)



● One or more Nurse Practitioners (1,199)

County	Nurse Practitioners	County	Nurse Practitioners	County	Nurse Practitioners
Barbour	2	Kanawha	157	Pocahontas	2
Berkeley	23	Lewis	10	Preston	17
Boone	9	Lincoln	7	Putnam	54
Braxton	5	Logan	19	Randolph	81
Brooke	10	McDowell	25	Reno	14
Cabell	75	Marion	20	Richie	2
Calhoun	2	Marshall	11	Roane	5
Clay	3	Mason	7	Summers	7
Doddridge	0	Mercer	50	Taylor	9
Fayette	28	Mineral	11	Tucker	5
Gilmer	2	Mingo	19	Tyler	2
Grant	5	Morgan	114	Upshur	6
Greenbrier	18	Monroe	8	Wayne	21
Hampshire	6	Morgan	7	Webster	5
Hancock	10	Nichols	20	Wetzel	4
Harby	5	Ohio	31	Wirt	2
Harrison	40	Pendleton	2	Wood	41
Jackson	24	Putnam	5	Wyoming	4
Jefferson	16				

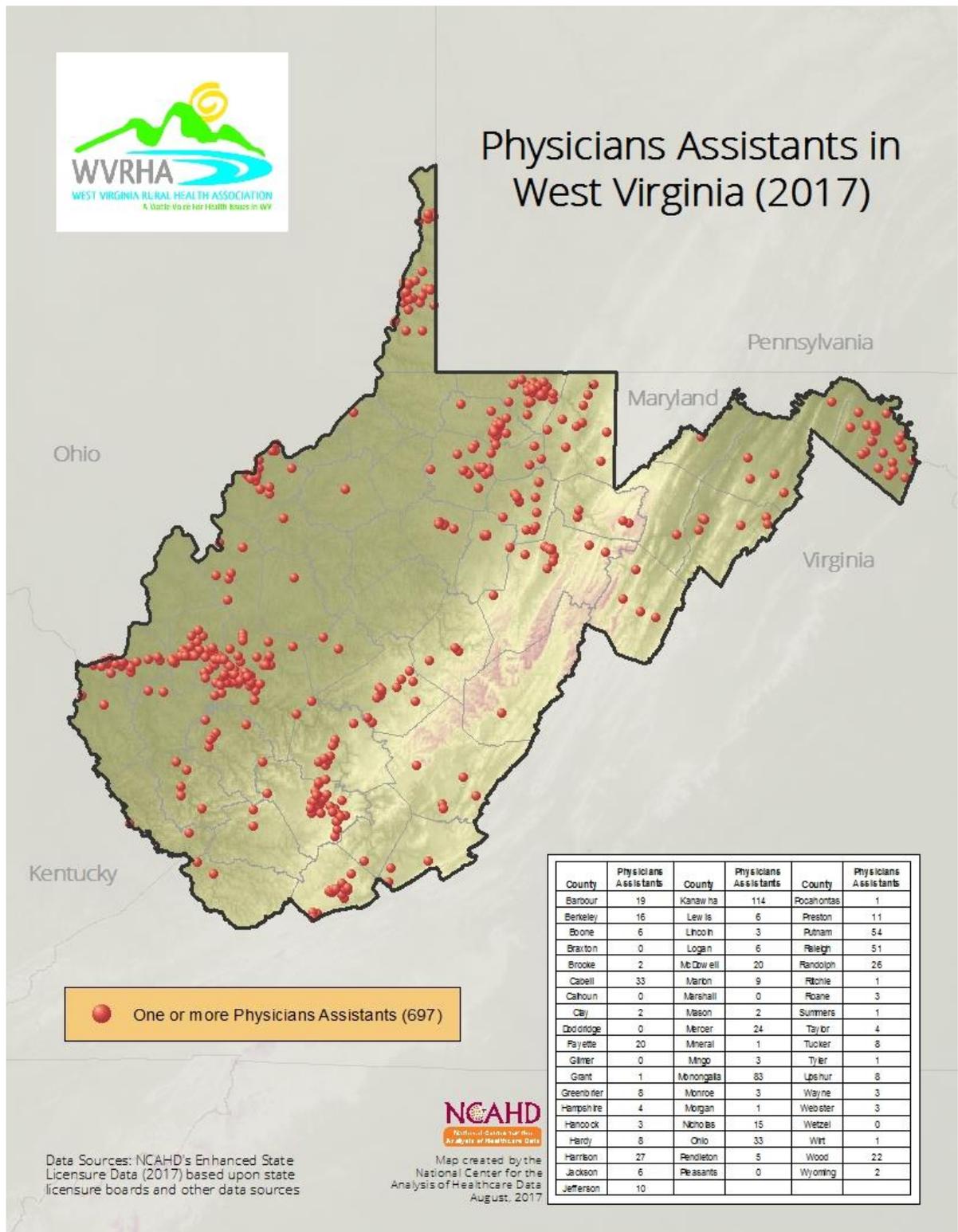
Data Sources: NCAHD's Enhanced State Licensure Data (2017) based upon state licensure boards and other data sources

**NCAHD**  
 National Center for the  
 Analysis of Healthcare Data  
 August, 2017

MAP 4 - STATEWIDE DISTRIBUTION OF NURSE PRACTITIONERS



## Physicians Assistants in West Virginia (2017)



● One or more Physicians Assistants (697)

County	Physicians Assistants	County	Physicians Assistants	County	Physicians Assistants
Barbour	19	Kanawha	114	Pocahontas	1
Berkeley	16	Lewis	6	Preston	11
Boone	6	Lincoln	3	Putnam	54
Braxton	0	Logan	6	Reign	51
Brooke	2	McDowell	20	Randolph	26
Cabell	33	Marton	9	Roche	1
Calhoun	0	Marshall	0	Roane	3
Clay	2	Mason	2	Summers	1
Dodridge	0	Mercer	24	Taylor	4
Fayette	20	Mineral	1	Tucker	8
Gilmer	0	Mingo	3	Tyler	1
Grant	1	Monongalia	83	Upshur	8
Greenbrier	8	Monroe	3	Wayne	3
Hampshire	4	Morgan	1	Webster	3
Hancock	3	Nichols	15	Wetzel	0
Hardy	8	Ohio	33	Wirt	1
Harrison	27	Pendleton	5	Wood	22
Jackson	6	Putnam	0	Wyoming	2
Jefferson	10				

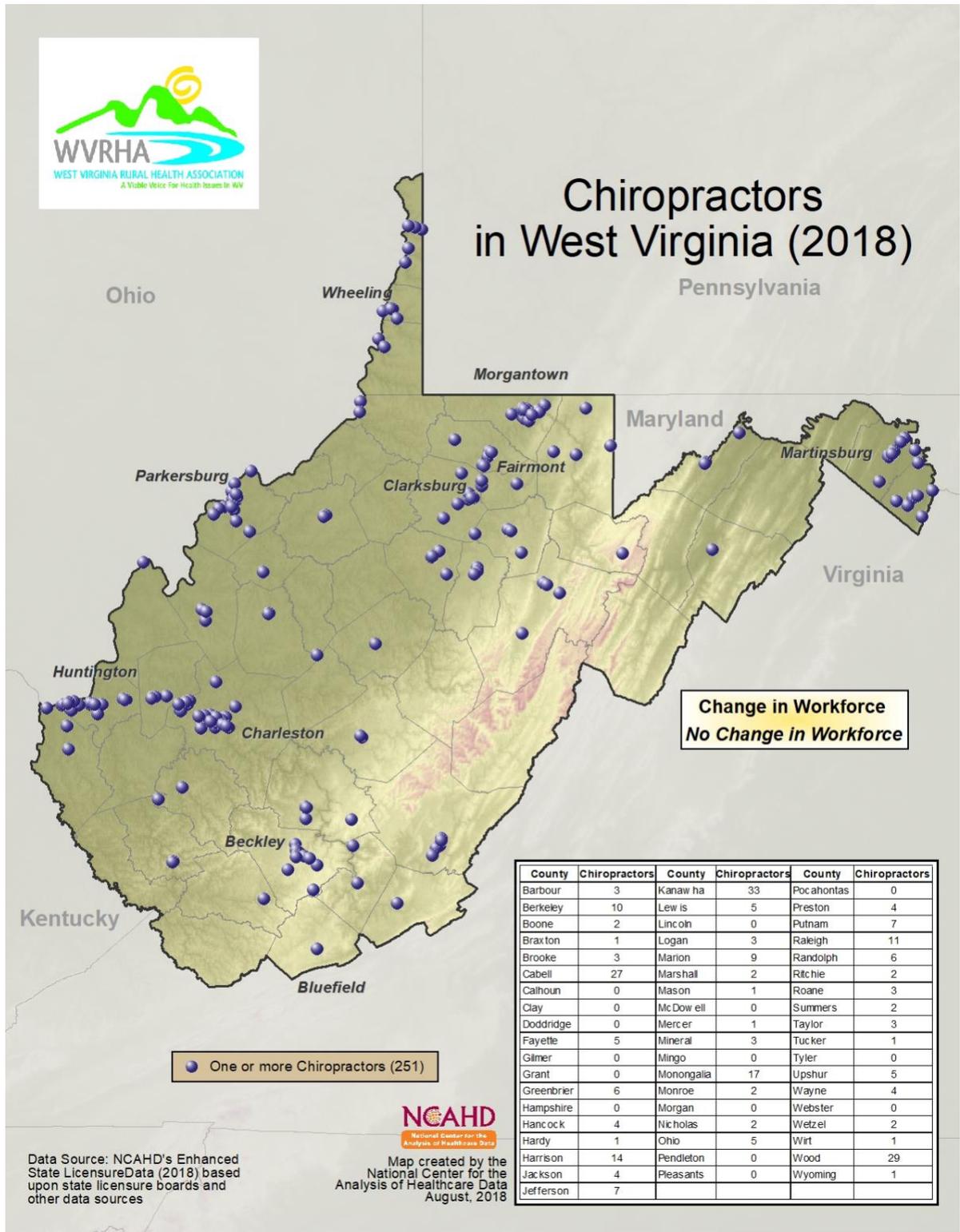
Data Sources: NCAHD's Enhanced State Licensure Data (2017) based upon state licensure boards and other data sources

**NCAHD**  
National Center for the Analysis of Healthcare Data  
Map created by the National Center for the Analysis of Healthcare Data  
August, 2017

MAP 5 - STATEWIDE DISTRIBUTION OF PHYSICIAN ASSISTANTS



# Chiropractors in West Virginia (2018)



County	Chiropractors	County	Chiropractors	County	Chiropractors
Barbour	3	Kanaw ha	33	Pocahontas	0
Berkeley	10	Lew is	5	Preston	4
Boone	2	Lincoln	0	Putnam	7
Braxton	1	Logan	3	Raleigh	11
Brooke	3	Marion	9	Randolph	6
Cabell	27	Marshall	2	Ritc hie	2
Calhoun	0	Mason	1	Roane	3
Clay	0	Mc Dow ell	0	Summers	2
Doddridge	0	Mercer	1	Taylor	3
Fayette	5	Mineral	3	Tuc ker	1
Gilmer	0	Mingo	0	Tyler	0
Grant	0	Monongalia	17	Upshur	5
Greenbrier	6	Monroe	2	Wayne	4
Hampshire	0	Morgan	0	Webster	0
Hancock	4	Nic holas	2	Welzel	2
Hardy	1	Ohio	5	Wirt	1
Harrison	14	Pendleton	0	Wood	29
Jackson	4	Pleasants	0	Wyoming	1
Jefferson	7				

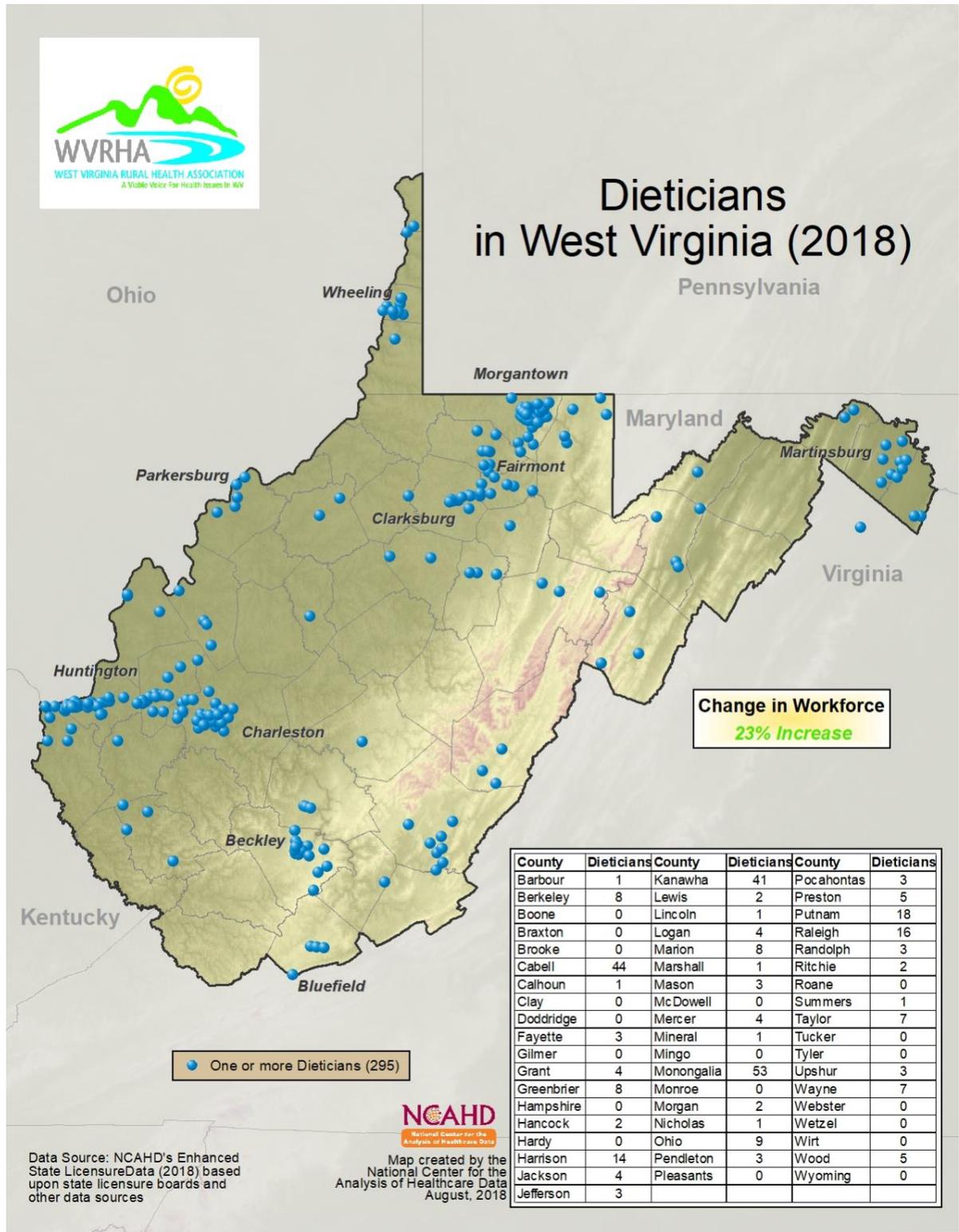
Data Source: NCAHD's Enhanced State Licensure Data (2018) based upon state licensure boards and other data sources

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MAP 6 - DISTRIBUTION OF CHIROPRACTORS



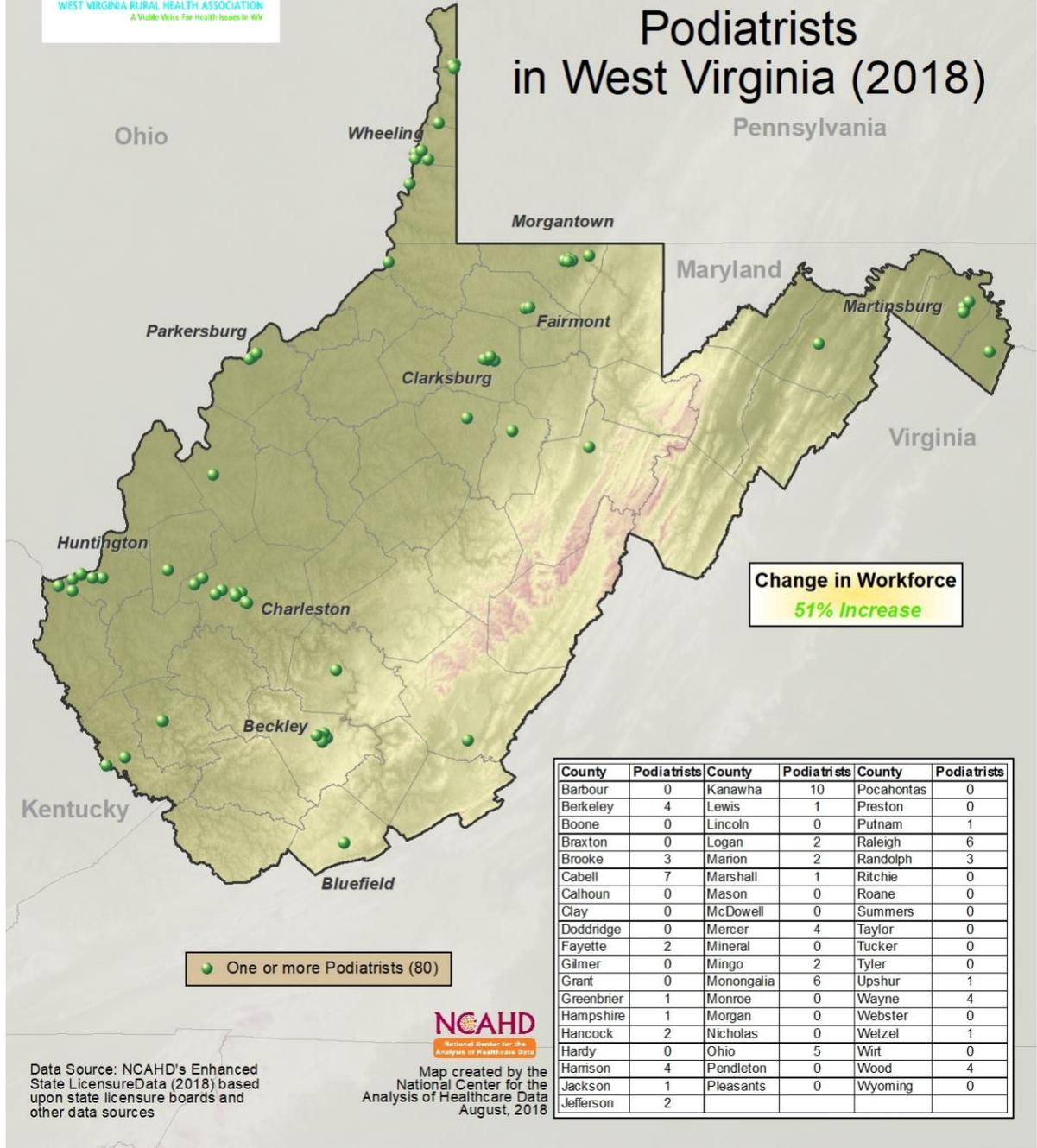
# Dietitians in West Virginia (2018)



MAP 7 - DISTRIBUTION OF DIETICIANS



# Podiatrists in West Virginia (2018)



**Change in Workforce**  
51% Increase

● One or more Podiatrists (80)

County	Podiatrists	County	Podiatrists	County	Podiatrists
Barbour	0	Kanawha	10	Pocahontas	0
Berkeley	4	Lewis	1	Preston	0
Boone	0	Lincoln	0	Putnam	1
Braxton	0	Logan	2	Raleigh	6
Brooke	3	Marion	2	Randolph	3
Cabell	7	Marshall	1	Ritchie	0
Calhoun	0	Mason	0	Roane	0
Clay	0	McDowell	0	Summers	0
Doddridge	0	Mercer	4	Taylor	0
Fayette	2	Mineral	0	Tucker	0
Gilmer	0	Mingo	2	Tyler	0
Grant	0	Monongalia	6	Upshur	1
Greenbrier	1	Monroe	0	Wayne	4
Hampshire	1	Morgan	0	Webster	0
Hancock	2	Nicholas	0	Wetzel	1
Hardy	0	Ohio	5	Wirt	0
Harrison	4	Pendleton	0	Wood	4
Jackson	1	Pleasants	0	Wyoming	0
Jefferson	2				

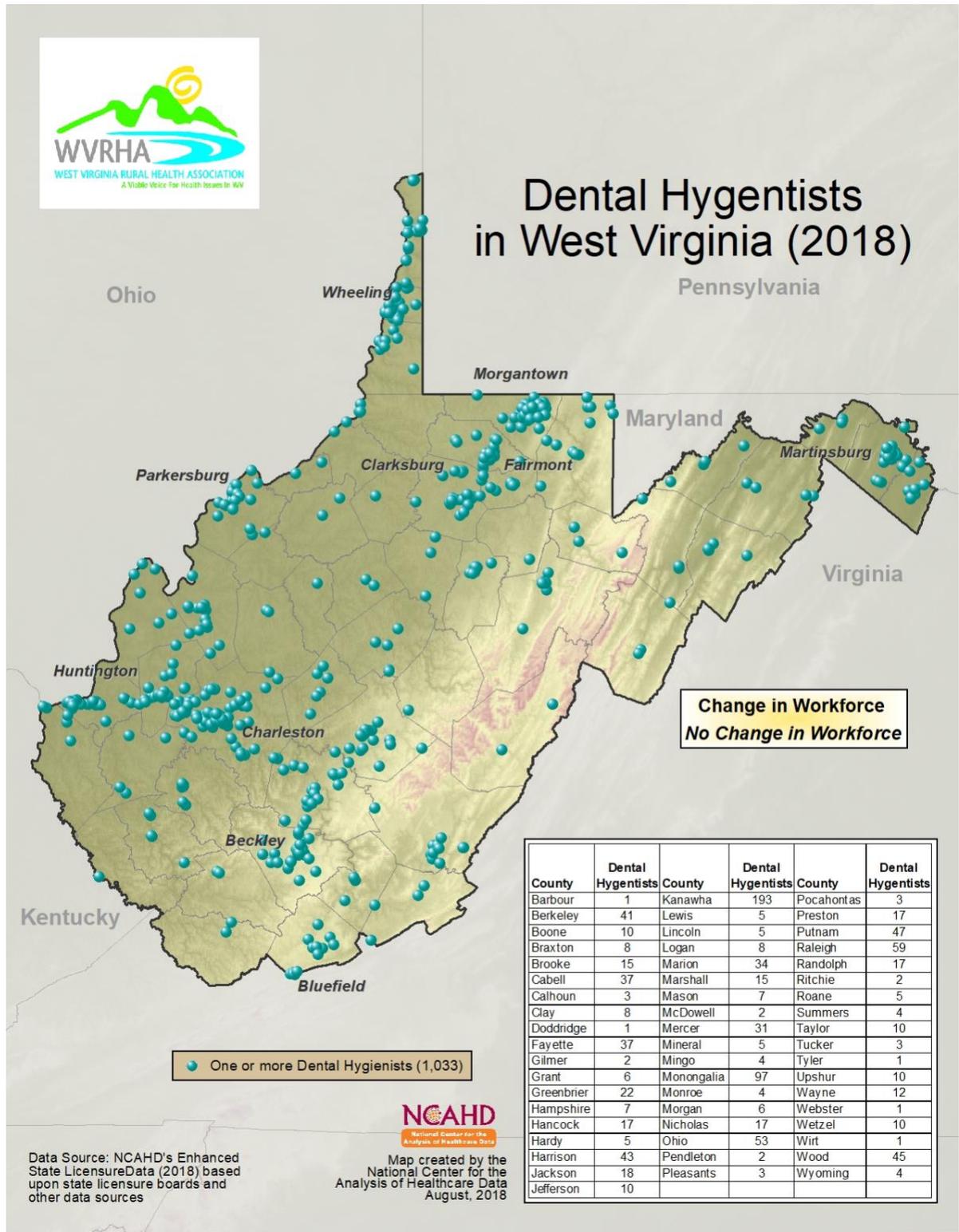
Data Source: NCAHD's Enhanced State Licensure Data (2018) based upon state licensure boards and other data sources

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August, 2018

MAP 8 - DISTRIBUTION OF AUDIOLOGISTS



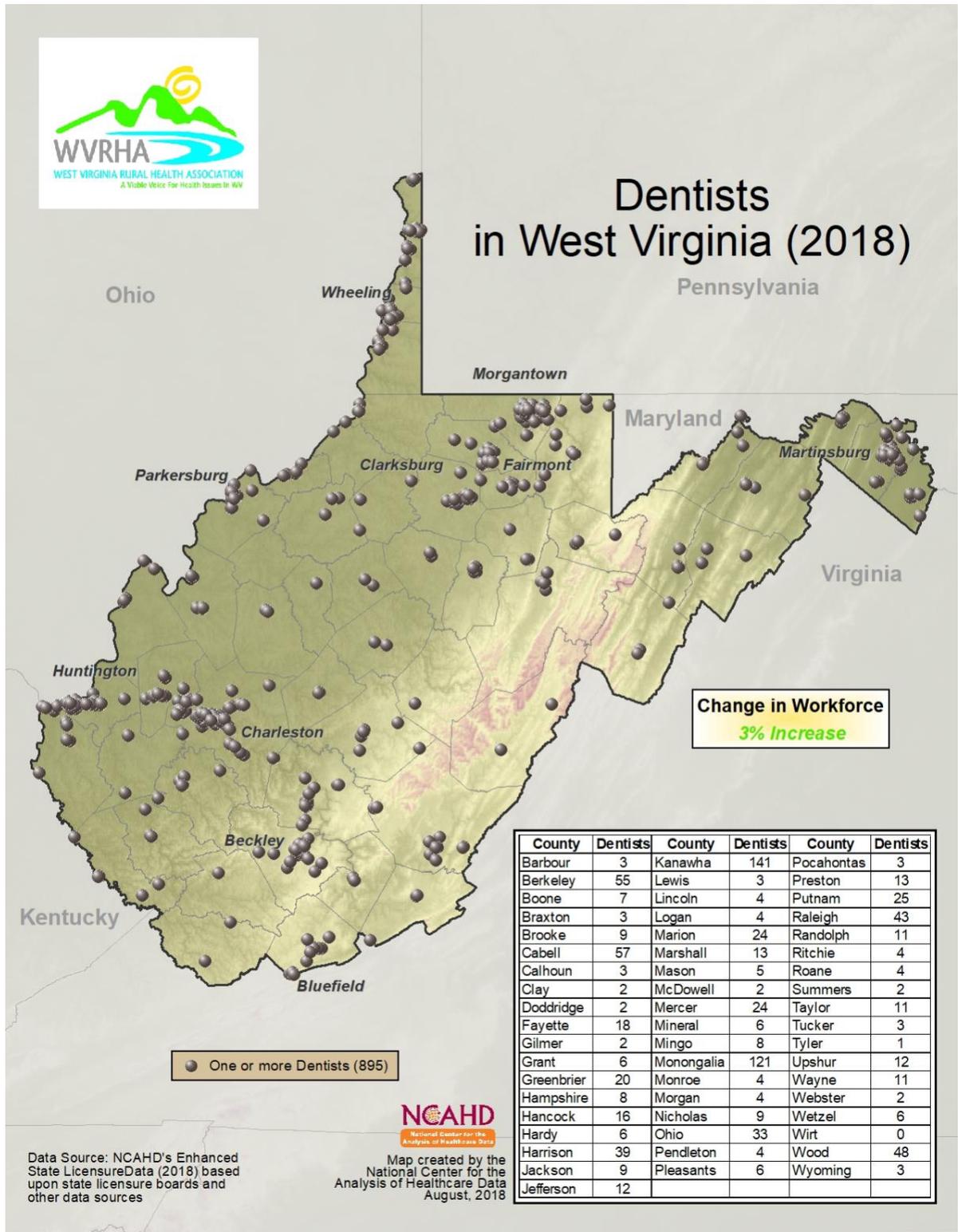
# Dental Hygentists in West Virginia (2018)



MAP 9 - DISTRIBUTION OF PSYCHOLOGISTS



# Dentists in West Virginia (2018)



County	Dentists	County	Dentists	County	Dentists
Barbour	3	Kanawha	141	Pocahontas	3
Berkeley	55	Lewis	3	Preston	13
Boone	7	Lincoln	4	Putnam	25
Braxton	3	Logan	4	Raleigh	43
Brooke	9	Marion	24	Randolph	11
Cabell	57	Marshall	13	Ritchie	4
Calhoun	3	Mason	5	Roane	4
Clay	2	McDowell	2	Summers	2
Doddridge	2	Mercer	24	Taylor	11
Fayette	18	Mineral	6	Tucker	3
Gilmer	2	Mingo	8	Tyler	1
Grant	6	Monongalia	121	Upshur	12
Greenbrier	20	Monroe	4	Wayne	11
Hampshire	8	Morgan	4	Webster	2
Hancock	16	Nicholas	9	Wetzel	6
Hardy	6	Ohio	33	Wirt	0
Harrison	39	Pendleton	4	Wood	48
Jackson	9	Pleasants	6	Wyoming	3
Jefferson	12				

Data Source: NCAHD's Enhanced State Licensure Data (2018) based upon state licensure boards and other data sources

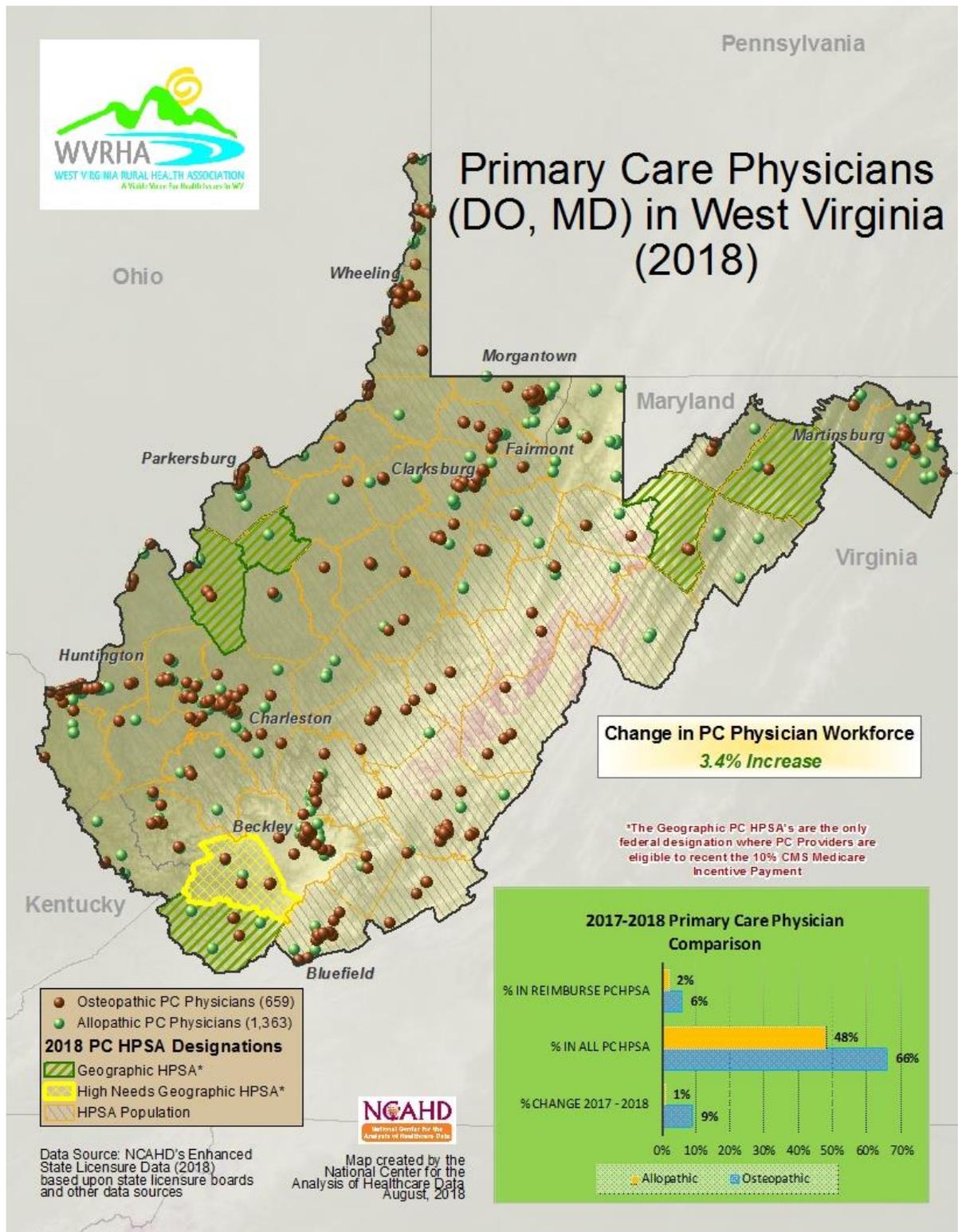
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MAP 10 - DISTRIBUTION OF DENTISTS

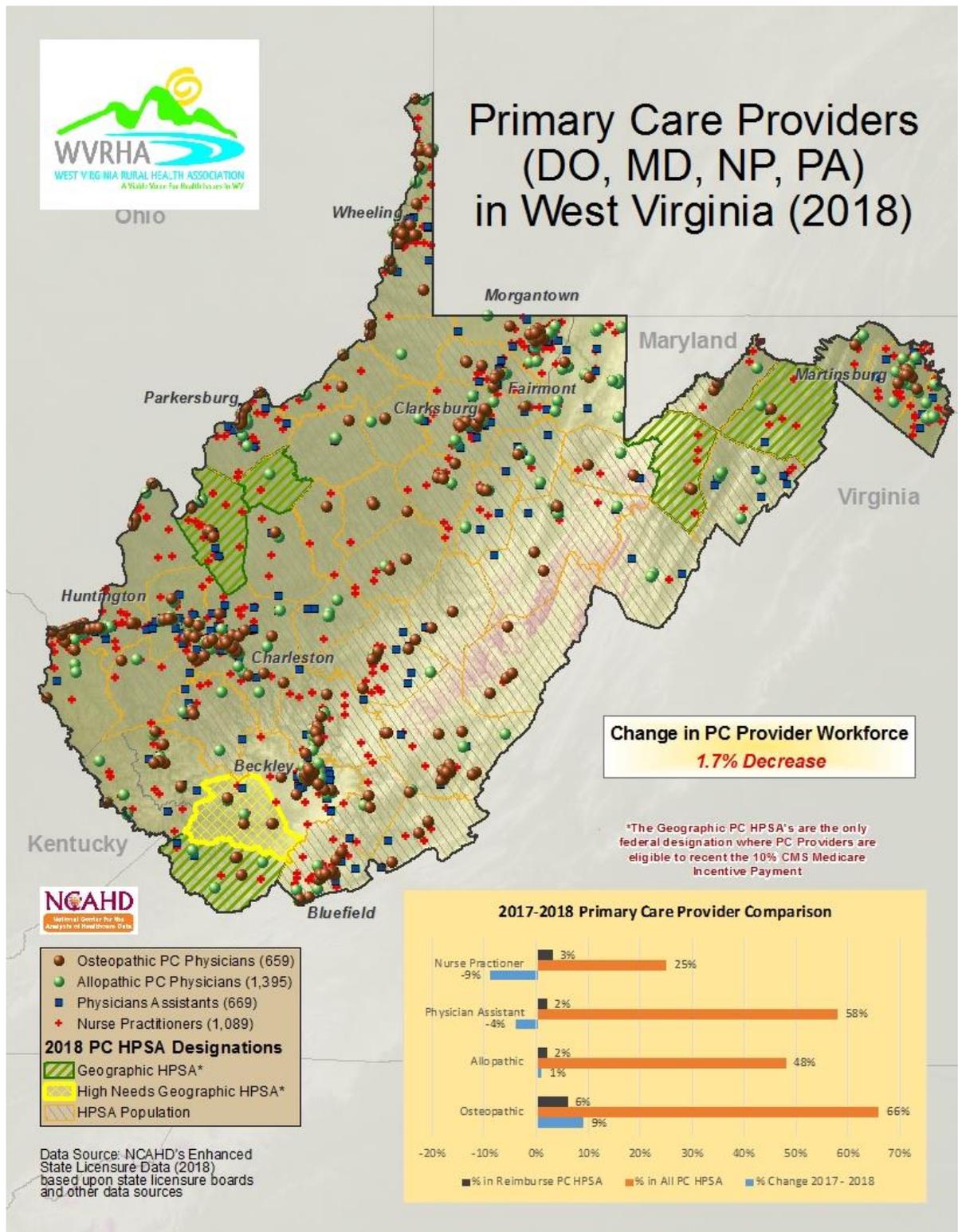
## Primary Care Workforce Supply and Trend Analysis

The U.S. primary care workforce consists of physicians specializing in family medicine, general practice, general internal medicine, general pediatrics and obstetrics-gynecology and nurse practitioners (also known as advance practice registered nurses) (NP) and physician assistants (PA).

Currently, West Virginia's primary care workforce (primary care physicians, nurse practitioners and physician assistants) has realized very little change. Because many of these providers rely, in part, upon the federal shortage designation 10% reimbursement for primary services provided to Medicare patients, and the fact that federal designation program only changed in 2017, it was important to analyze how this would impact West Virginia providers. This analysis is included in the following maps as a graph.



MAP 11 - STATEWIDE DISTRIBUTION OF PRIMARY CARE PHYSICIANS



MAP 12 - STATEWIDE DISTRIBUTION OF PRIMARY CARE PROVIDERS

### Economic Impact of Primary Care Physician Mal-distribution

Most stakeholders are familiar with federal shortage designations programs managed by the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Profession. These programs are coordinated with each state’s state primary care office. In 2008, the National Center for Rural Health Works (NCRHW) created an economic impact model to measure the economic impact of a rural primary care physician. Since the Primary Care Health Professional Shortage Area identifies areas where there are shortages, the application of the economic impact model to those shortage areas was performed to discern the costs of this healthcare workforce shortage. (Note: Over time, the NCRHW has updated their estimates to current wage earning.)

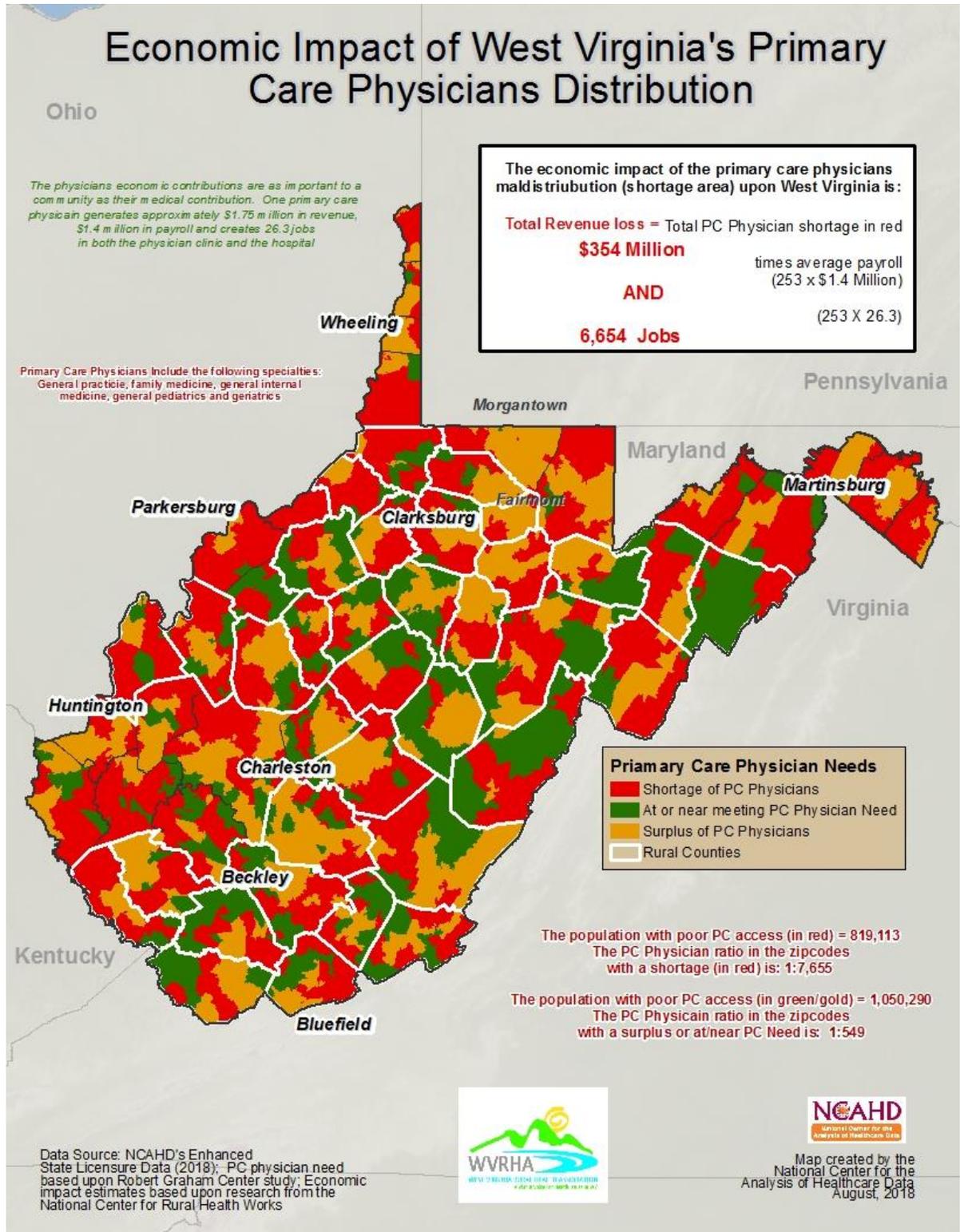
In December of 2012, the Robert Graham Center (RGC) published a new methodology for measuring primary care physician need by established a utilization rate based upon Medical Expenditure Panel Survey (MEPS) data<sup>2</sup>. This new approach is designed to look at demand for primary care services based upon actual need rather than estimating the existence of shortage and is age adjusted. Because this methodology was designed to anticipate the additional patient load as the Affordable Care Act is implemented, it helps bring a more realistic view to current and future workforce demands than the current federal shortage program can produce through its methodology. Therefore, we have applied the RGC primary care utilization rate of 1.6 office visits per year by each West Virginia citizens. The PC Physician shortage figures below reflect this methodology for determining need and were utilized in creating the county- based PC physician needs data available through the portal. **Map 13** demonstrates the zipcode aggregates of PC Physician distribution disparities. There was a 50% decrease in this disparity since 2018 indicating a positive migration and retention trend of primary care physicians into or within the rural areas.

Even though there was a positive trend between 2017 and 2018, there still exists a significant disparity in the number of patient’s rural primary care physicians serve compared to their urban counterparts. The population with poor access to care (shown in red on the map) is 829,113 with only 107 PC physician servings all of these areas. The population-to-physician ratio is 1:7,655. In the urban areas, the population of 1,050,290, has 1,906 PC physician providing care for a population-to-physician ratio is 1:551.

Primary Care Physician Economic Impact Analysis Results						
<i>Economic Impact Trend Analysis (2013 - 2018)</i>						
Year	Total PC Physicians	Estimated Revenue Generation *	Estimate Job Generation	PC Physician Shortage	Revenue Loss Due to Shortage	Job Loss Due to Shortage
2013	1,914	\$1.7 Billion	44,022	478	\$430.2 Million	10,994
2014	1,953	\$1.8 Billion	44,919	514	\$462.6 Million	11,822
2015	1,994	\$2.6 Billion	48,254	477	\$620.1 Million	11,591
2016	1,765	\$2.3 Billion	42,713	452	\$587.6 Million	10,938
2017	2,013	\$2.8 Billion	52,942	503	\$704 Million	13,229
2018	2,022	\$2.8 Billion	53,179	253	\$354 Million	6,654

\*In 2013, the National Center for Rural health Works estimated one primary care physician generate \$900,000 and 23 jobs at both the clinic and through hospital admissions. This estimate changed in 2017 to \$1.4 in payroll and 26.3 jobs.

**TABLE 2 - PC PHYSICIAN ECONOMIC IMPACT TREND ANALYSIS**



MAP 13 - WEST VIRGINIA ECONOMIC IMPACT OF PC PHYSICIAN MALDISTRIBUTION

## SPECIALTY CARE PHYSICIAN SUPPLY AND DEMAND

Historically, the federal government has created primary care physician ratios in support of their shortage designation program. The creation of similarly based ratios for the other specialty physicians (e.g. general surgeons, endocrinologists, etc.) has been accomplished and probably will not occur due to a multitude of mitigating factors. Consequently, most specialty physician ratios are population based relative to national physician datasets. NCAHD has for eleven years, generated their own unique enhanced state licensure data from which the following specialty ratio chart and maps were created.

In the first series of maps, we generated the county level specialty physician need based upon 2017 census population estimates and compared this to current supply to determine shortages or surpluses. As for the trend analysis, we compared these results to the first time we performed this analysis (2013) to demonstrate trends in supply and demand of the specialty physicians.

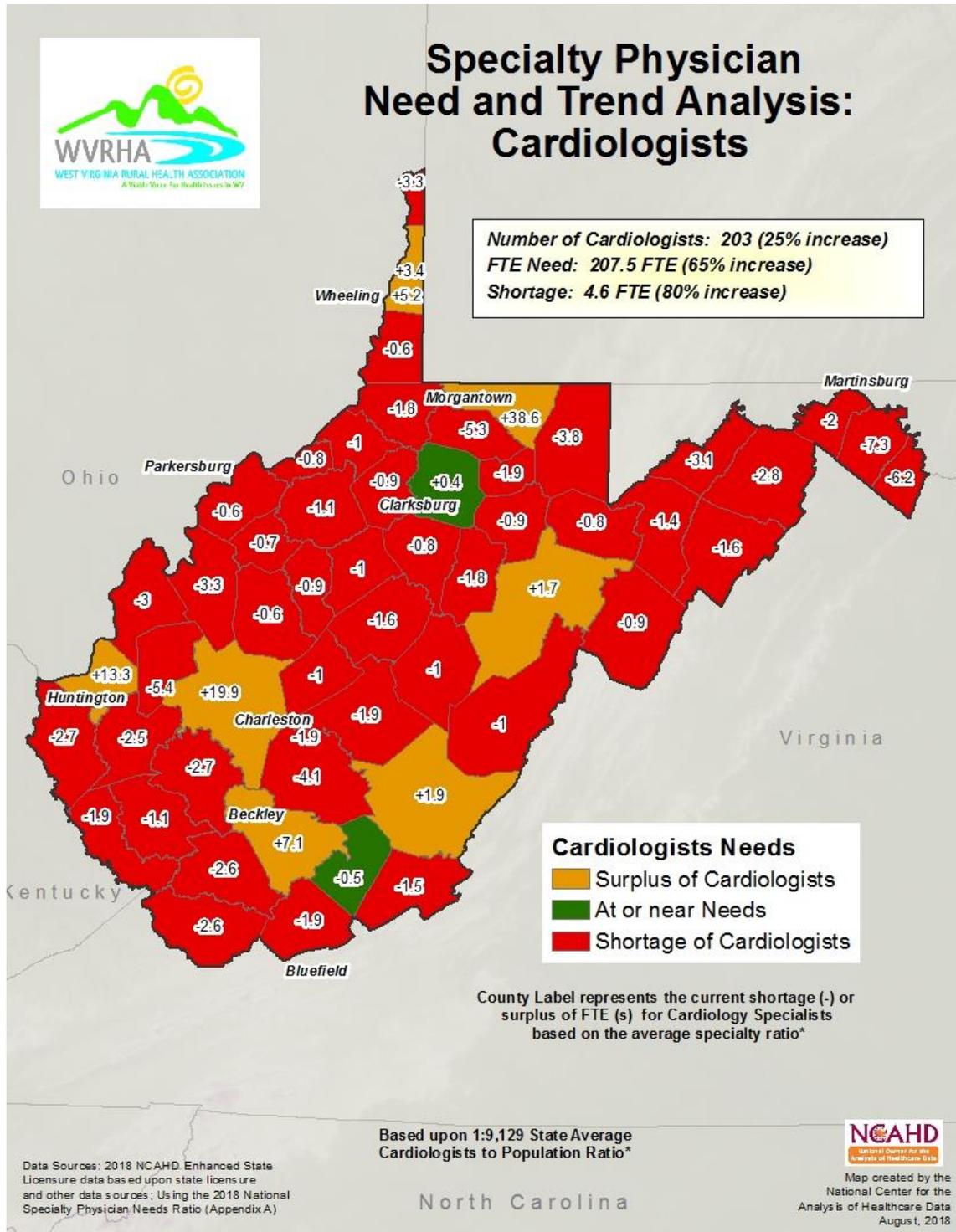
For the second series of maps, we mapped the current specialty physician's supply and compared it to a relevant demographic, disease or health outcome they typically are associated with treating.

2018 West Virginia Specialty Physician Needs Comparison						
Specialties	National Totals	West Virginia Totals (DO)	West Virginia Totals (MD)	National	West Virginia	% Difference
				Average Ratio	Average Ratio	
<b>Primary Care</b>						
Family Medicine	92,451	417	561	1:3,531	1,876	0.47
Internal Medicine	88,110	148	382	1:3,057	3,462	0.07
Pediatrics	42,041	25	212	1:7,766	7,742	0.00
<b>Medical Specialties</b>						
Allergy & Immunology	2,778		16	1:117,521	114,680	0.02
Cardiology	18,778	11	190	1:17386	9,129	0.47
Dermatology	9,512	9	47	1:34,322	32,766	0.05
Endocrinology Diabetes, & Metabolism	4,178	5	44	1:78,141	37,447	0.52
Gastroenterology	9,544	0	64	1:34,207	28,670	0.16
Hematology & Oncology	10,212	3	82	1:31,970	21,587	0.32
Infectious Disease	24,444	1	34	1:13,356	52,425	-2.93
Nephrology	4,251	7	59	1:76,799	27,801	0.64
Neurology	11,401	2	91	1:28,636	19,730	0.31
Psychiatry	38,841	21	193	1:8,405	8,574	-0.02
Pulmonology	5,610	7	74	1:58,195	22,653	0.61
Rheumatology	2,001	1	20	1:163,155	87,375	0.46
Other Specialty	38,107	9	339	1:8,567	5,273	0.38
<b>Surgical Specialties</b>						
General Surgery	31,004	27	174	1:10,530	9,129	0.13
Neurological Surgery	4,610	1	36	1:70,819	49,591	0.30
Obstetrics & Gynecology	33,987	27	187	1:9,606	8,574	0.11
Ophthalmology	14,370	3	118	1:22,719	15,164	0.33
Orthopaedic Surgery	28,120	30	140	1:11,610	10,793	0.07
Plastic Surgery	5,610	0	29	1:58,195	63,272	-0.09
Urology	7,511	6	57	1:43,466	29,125	0.33
Other Surgical Specialties	9,451	4	78	1:34,544	22,377	0.35
<b>Hospital-Based</b>						
Emergency Medicine	37,590	135	371	1:8,685	3,626	0.58
Anesthesiology	35,441	39	186	1:9,212	8,155	0.11
Radiology-Diagnostic	41,009	12	221	1:7,961	7,875	0.01
Pathology-Anatomic and Clinical	13,009	5	112	1:25,096	15,683	0.38
<b>Pediatric Subspecialties</b>						
Pediatric Cardiology	925	0	15	1:352,945	122,325	65%
Pediatric Neurology	435	0	7	1:750,515	262,126	65%
Pediatric Psychiatry	3,910	0	3	1:83,497	611,627	-633%
Other Pediatric Subspecialties	8,435	0	80	1:38,705	22,936	41%

\*Using our 2017 Enhanced State Licensure data\*, we normalized to ACGME standards, the specialty information for all Allopathic and Osteopathic physicians and then applied the 2017 Estimated Demographics for all population, rural population and urban separately. Rural is defined by the OMB metro/non-metropolitan.

TABLE 1 - WV SPECIALTY PHYSICIAN RATIOS

Specialty Physician Needs and Trend Analysis



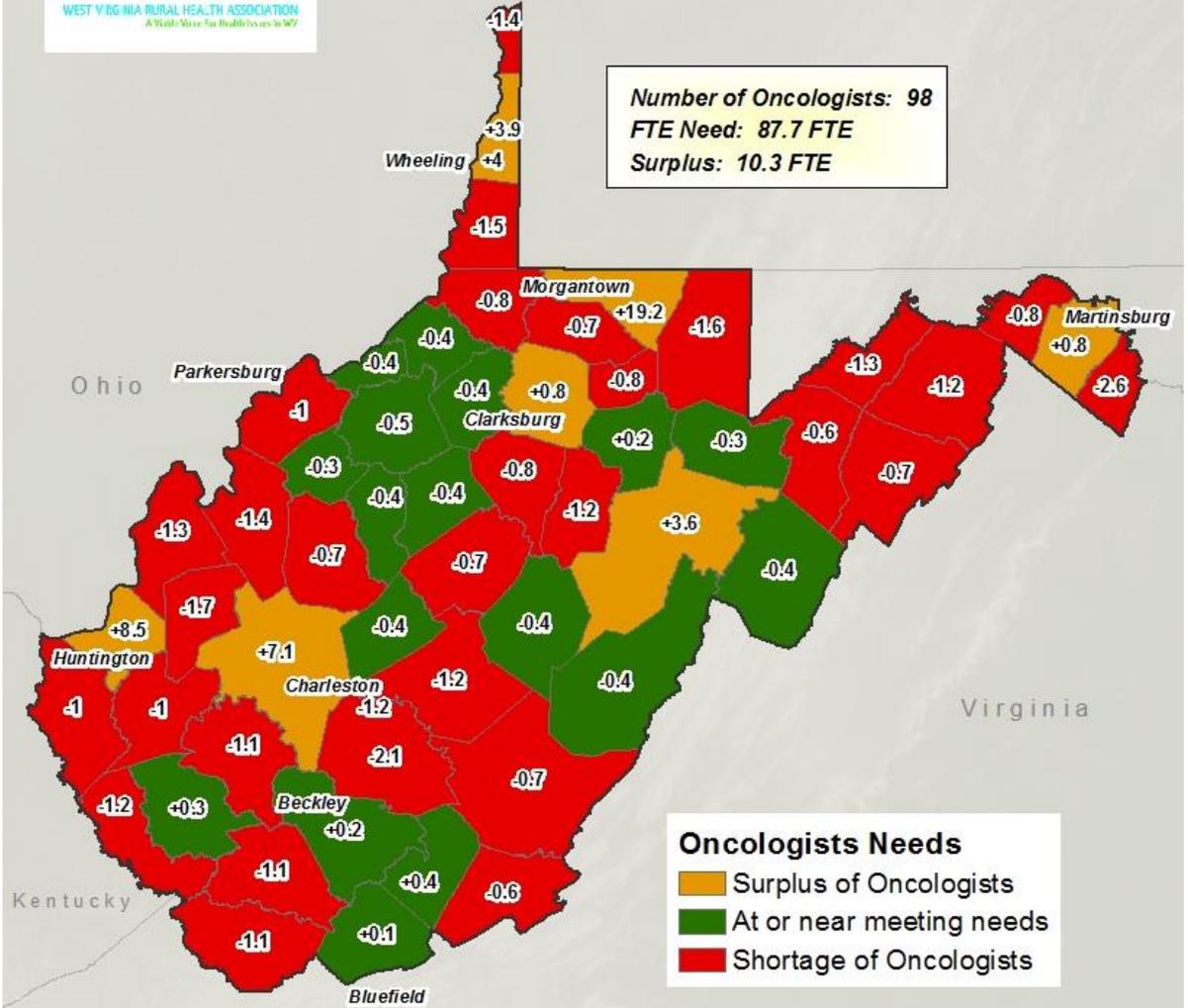
MAP 14 - CARDIOLOGISTS SPECIALTY NEEDS





# Specialty Physician Need Analysis: Oncologists

Number of Oncologists: 98  
 FTE Need: 87.7 FTE  
 Surplus: 10.3 FTE



**Oncologists Needs**  
 Surplus of Oncologists  
 At or near meeting needs  
 Shortage of Oncologists

County Label represents the current shortage (-) or surplus of FTE (s) for Oncologists Specialists based on the average specialty ratio\*

Based upon 1:21,587 Statel Average Oncologists to Population Ratio\*

Data Sources: 2018 NCAHD Enhanced State Licensure data based upon state licensure and other data sources; Using the 2018 National Specialty Physician Needs Ratio (Appendix A)



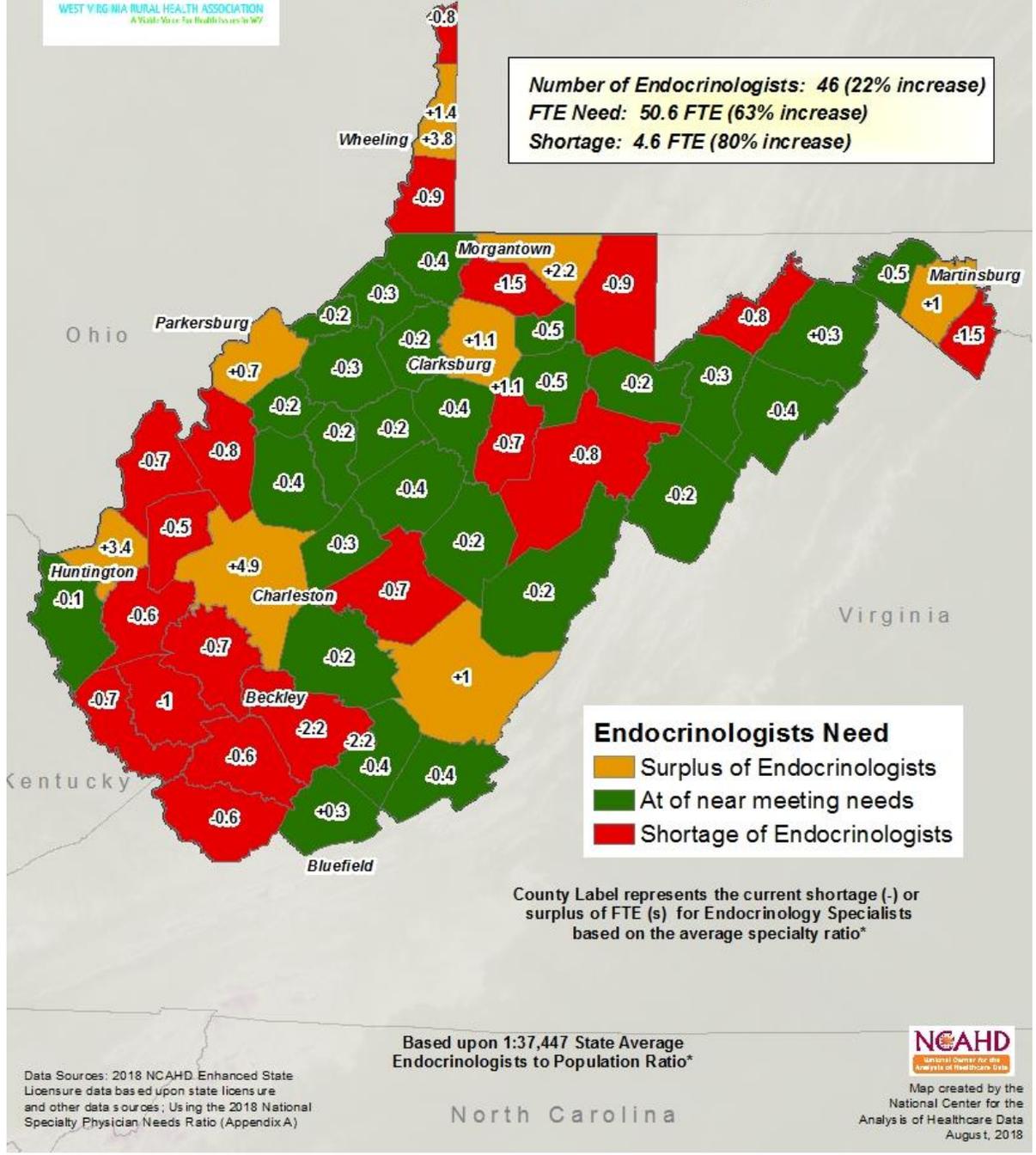
Map created by the National Center for the Analysis of Healthcare Data August, 2018

MAP 16 – ONCOLOGIST SPECIALTY NEEDS



# Specialty Physician Need and Trend Analysis: Endocrinologists

**Number of Endocrinologists: 46 (22% increase)**  
**FTE Need: 50.6 FTE (63% increase)**  
**Shortage: 4.6 FTE (80% increase)**

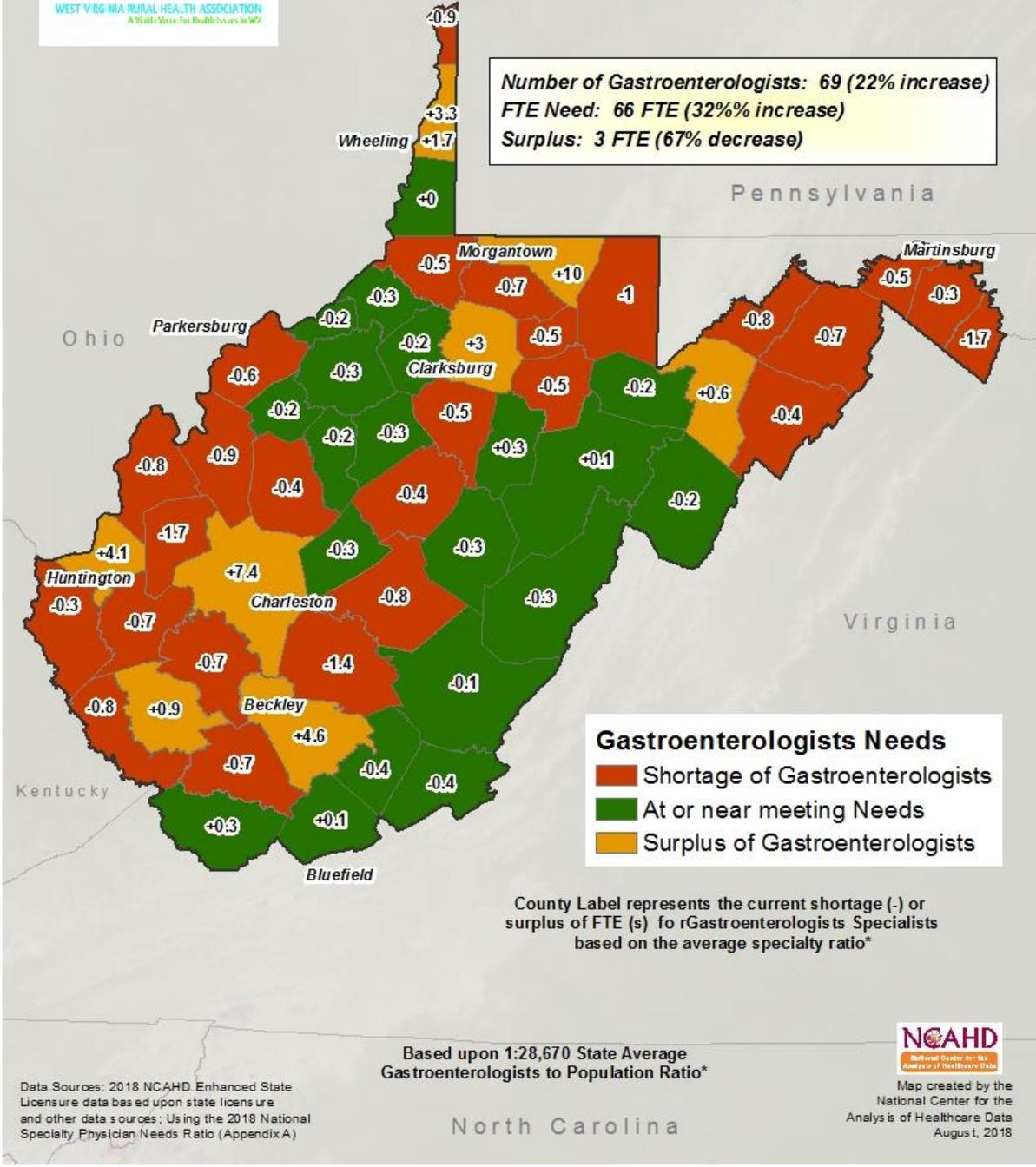


MAP 17 - ENDOCRINOLOGIST SPECIALTY NEEDS



# Specialty Physician Need and Trend Analysis: Gastroenterologists

Number of Gastroenterologists: 69 (22% increase)  
 FTE Need: 66 FTE (32% increase)  
 Surplus: 3 FTE (67% decrease)

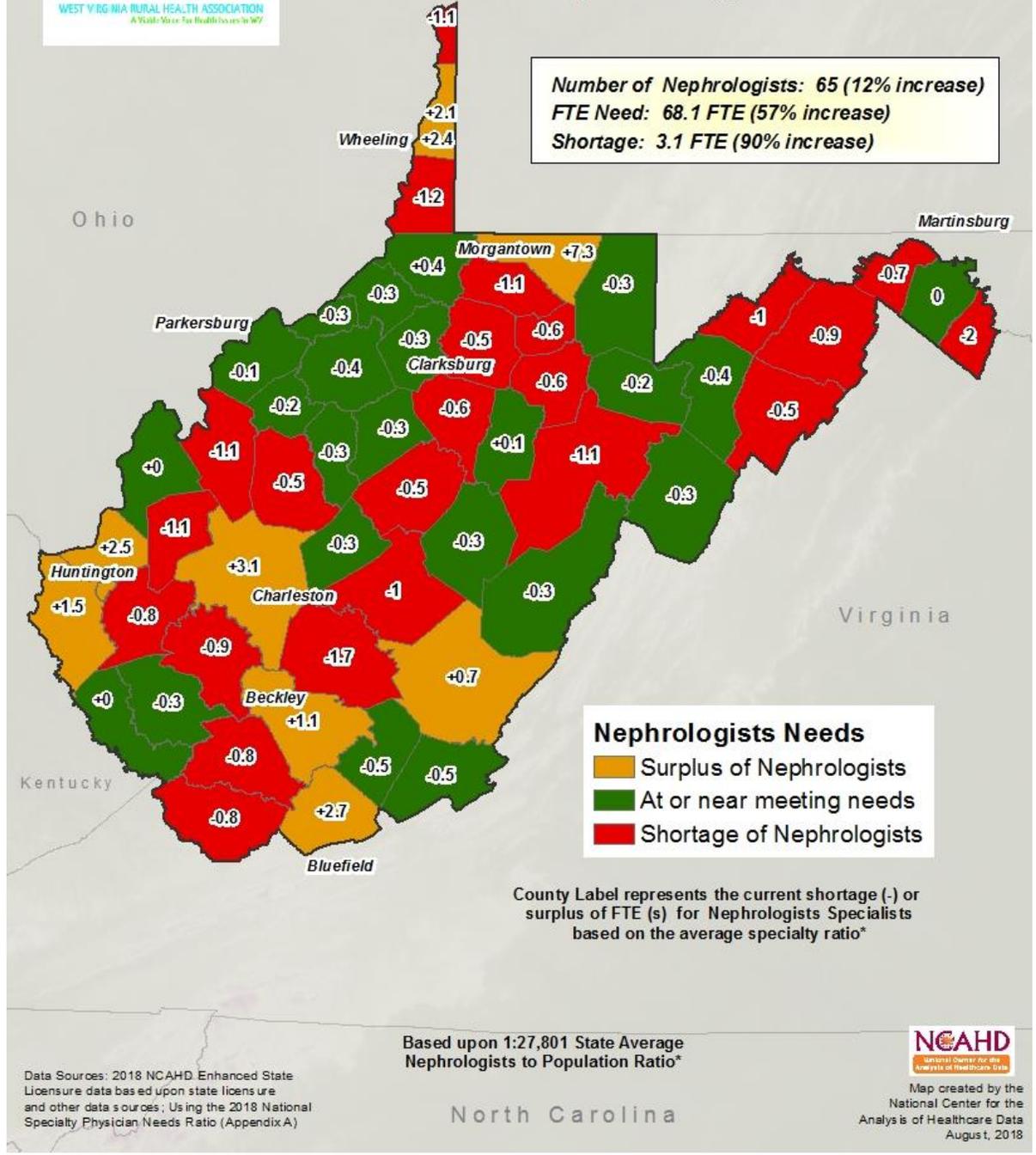


MAP 18 - GASTROENTEROLOGIST SPECIALTY NEEDS



# Specialty Physician Need and Trend Analysis: Nephrologists

**Number of Nephrologists: 65 (12% increase)**  
**FTE Need: 68.1 FTE (57% increase)**  
**Shortage: 3.1 FTE (90% increase)**

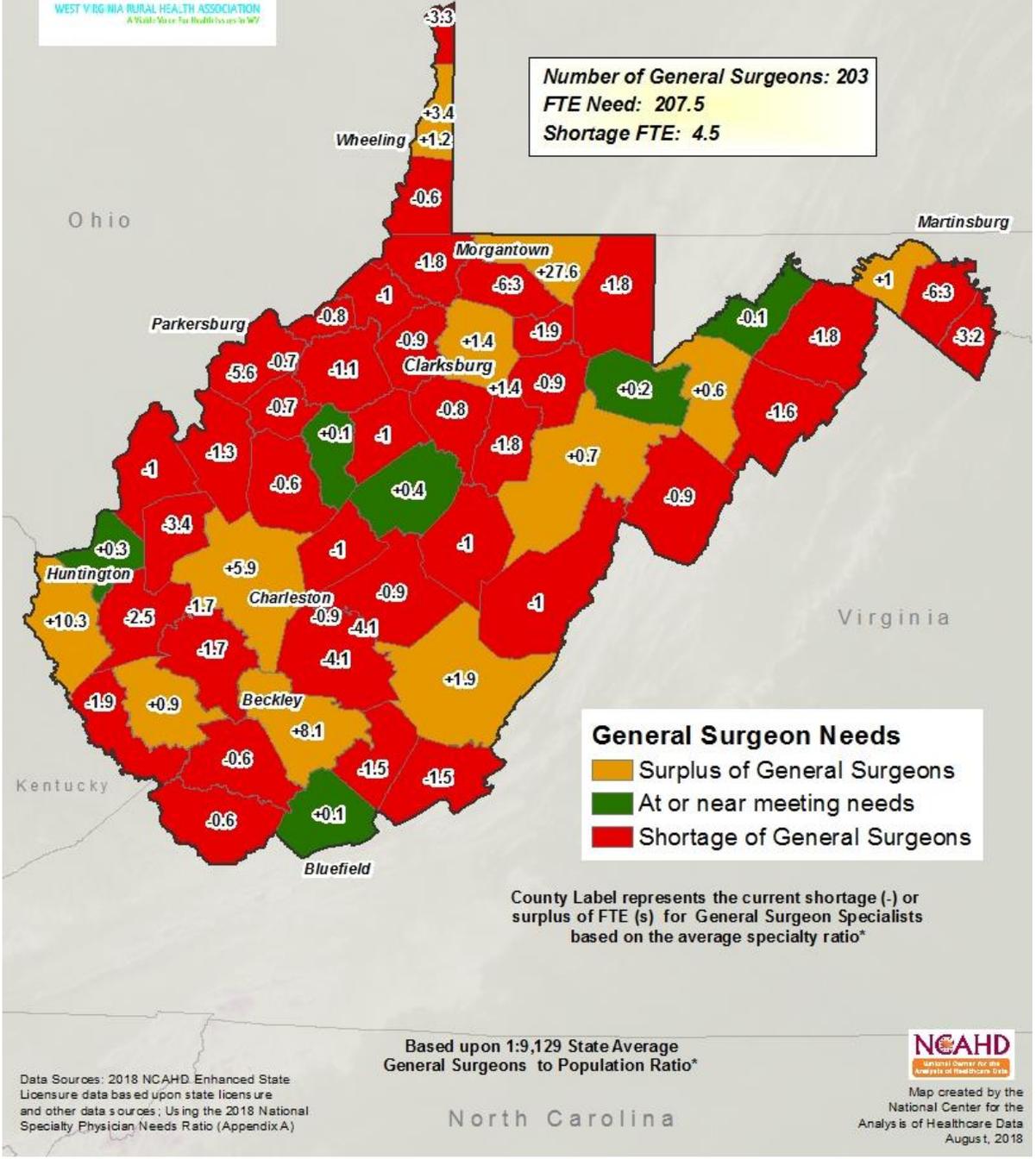


MAP 19 – NEPHROLOGIST SPECIALTY NEEDS



# Specialty Physician Need: General Surgeons

Number of General Surgeons: 203  
 FTE Need: 207.5  
 Shortage FTE: 4.5

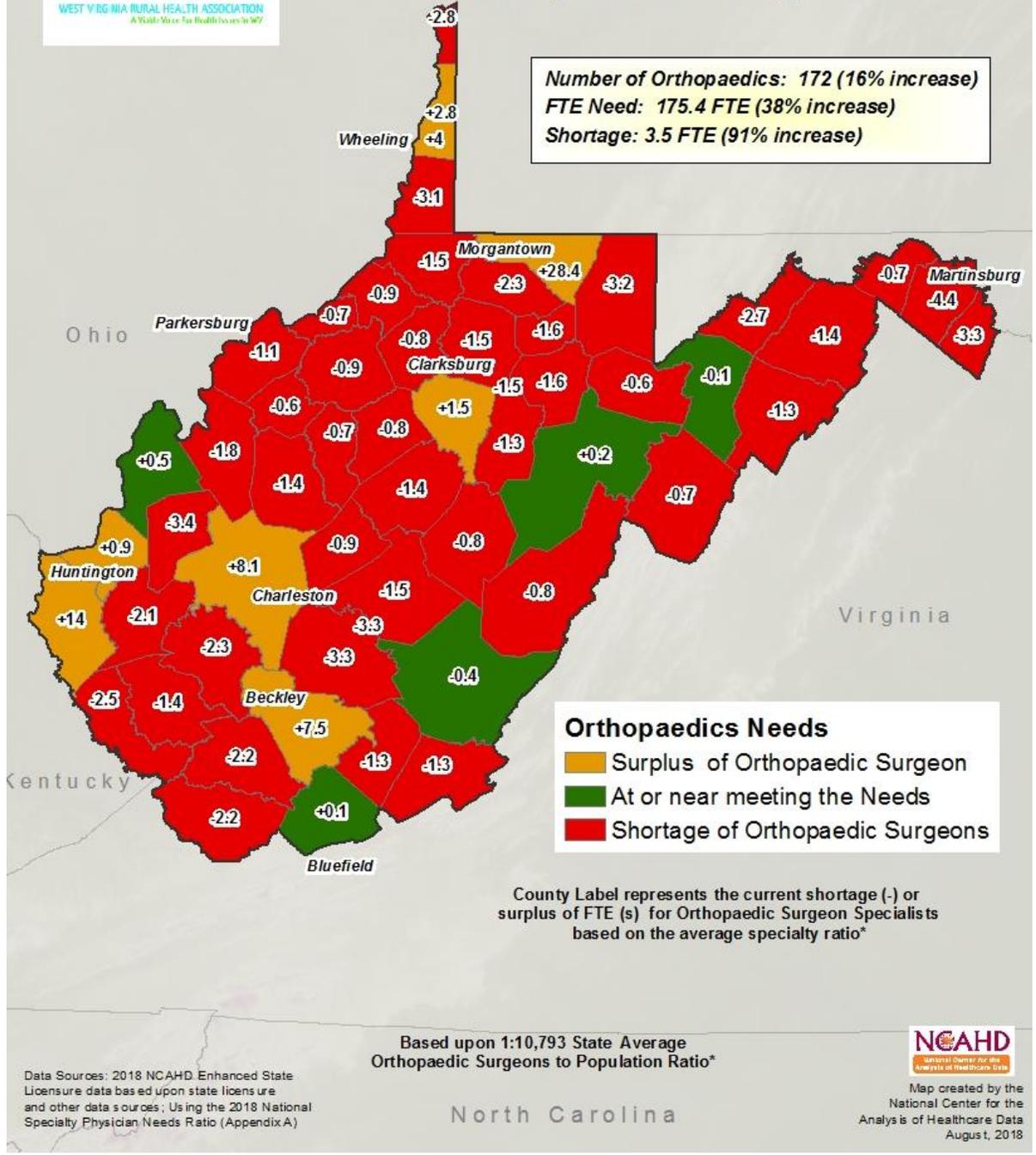


MAP 20 – GENERAL SURGEON SPECIALTY NEEDS



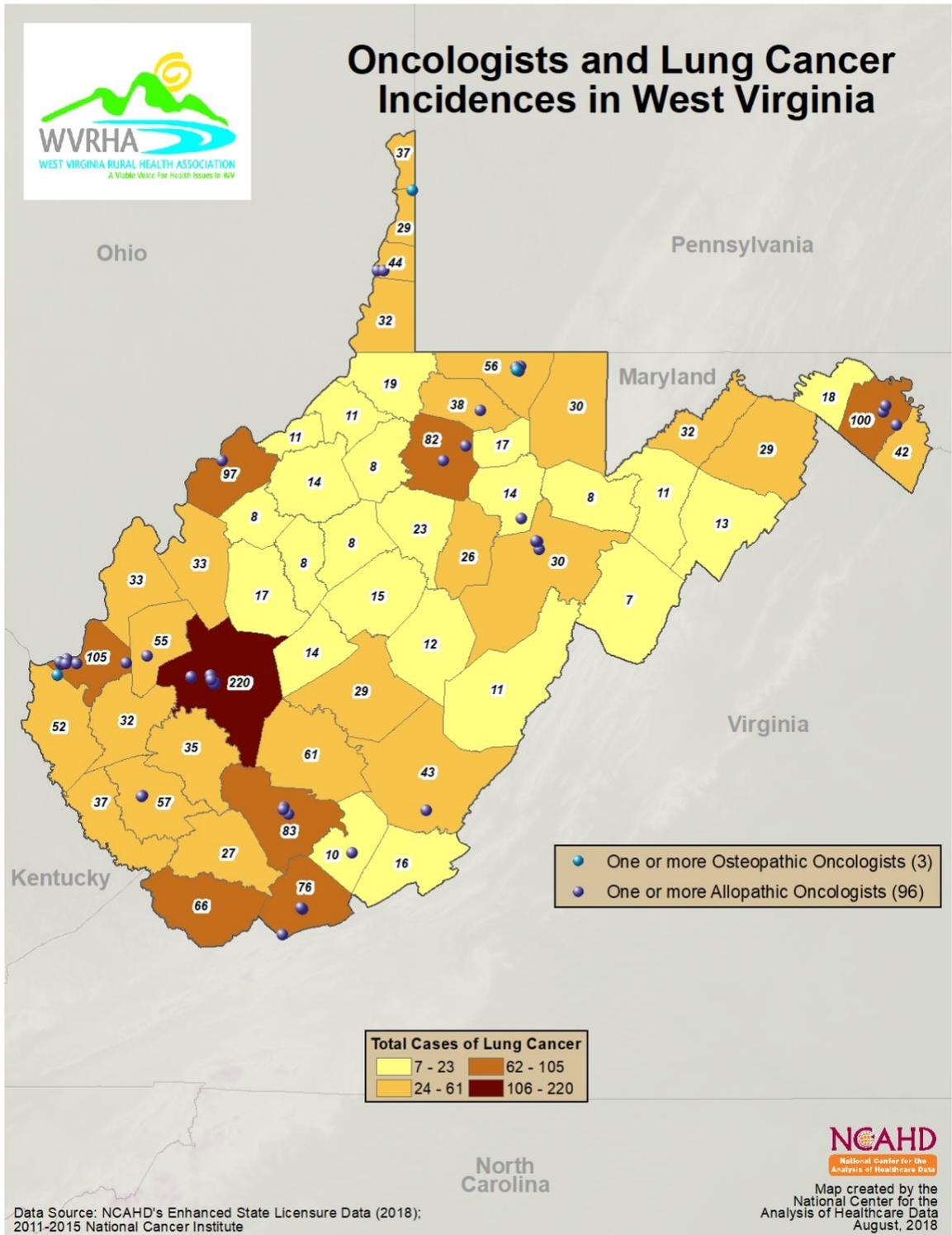
# Specialty Physician Need and Trend Analysis: Orthopaedic Surgeons

**Number of Orthopaedics: 172 (16% increase)**  
**FTE Need: 175.4 FTE (38% increase)**  
**Shortage: 3.5 FTE (91% increase)**

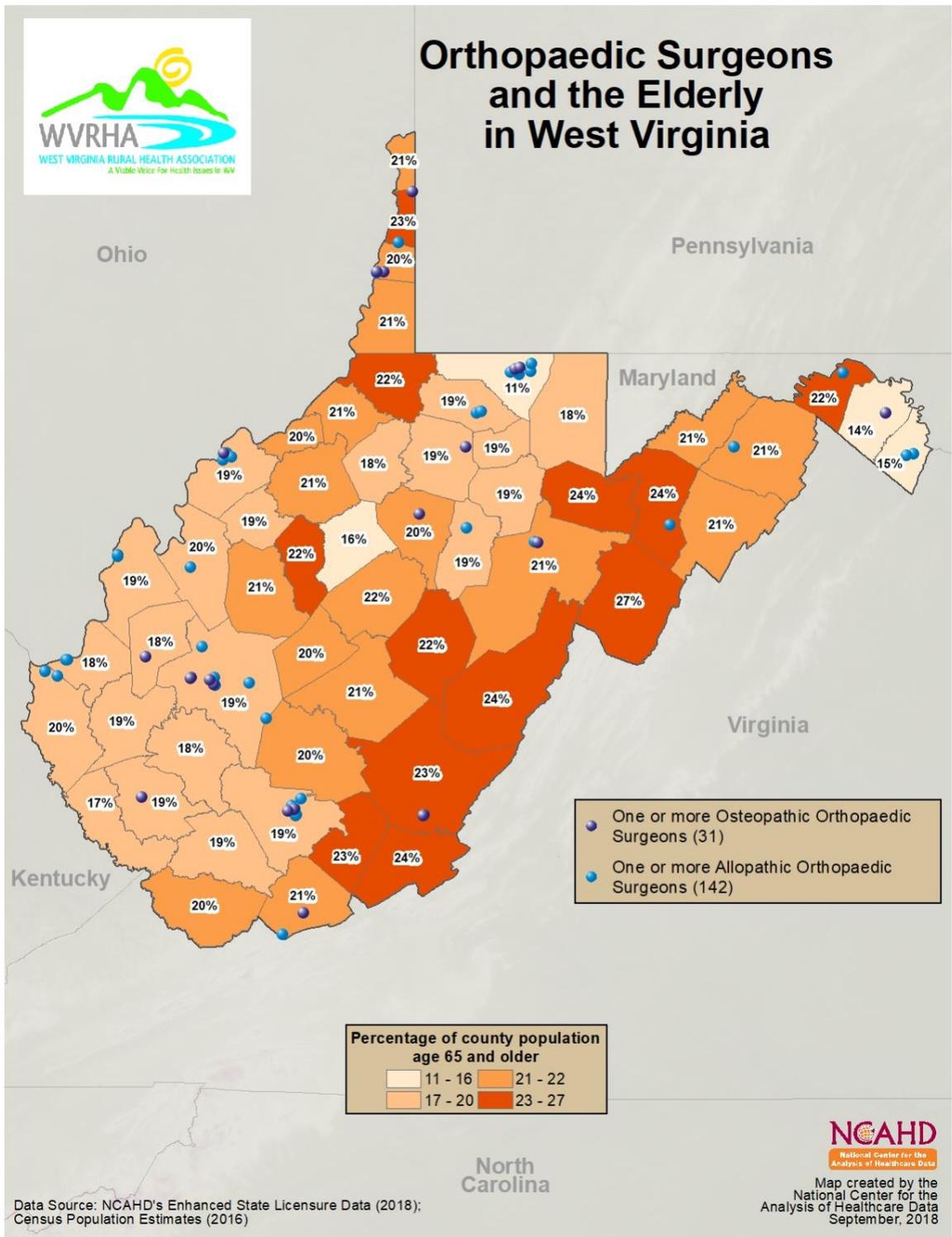


MAP 21 – ORTHOPAEDIC SURGEON SPECIALTY NEEDS

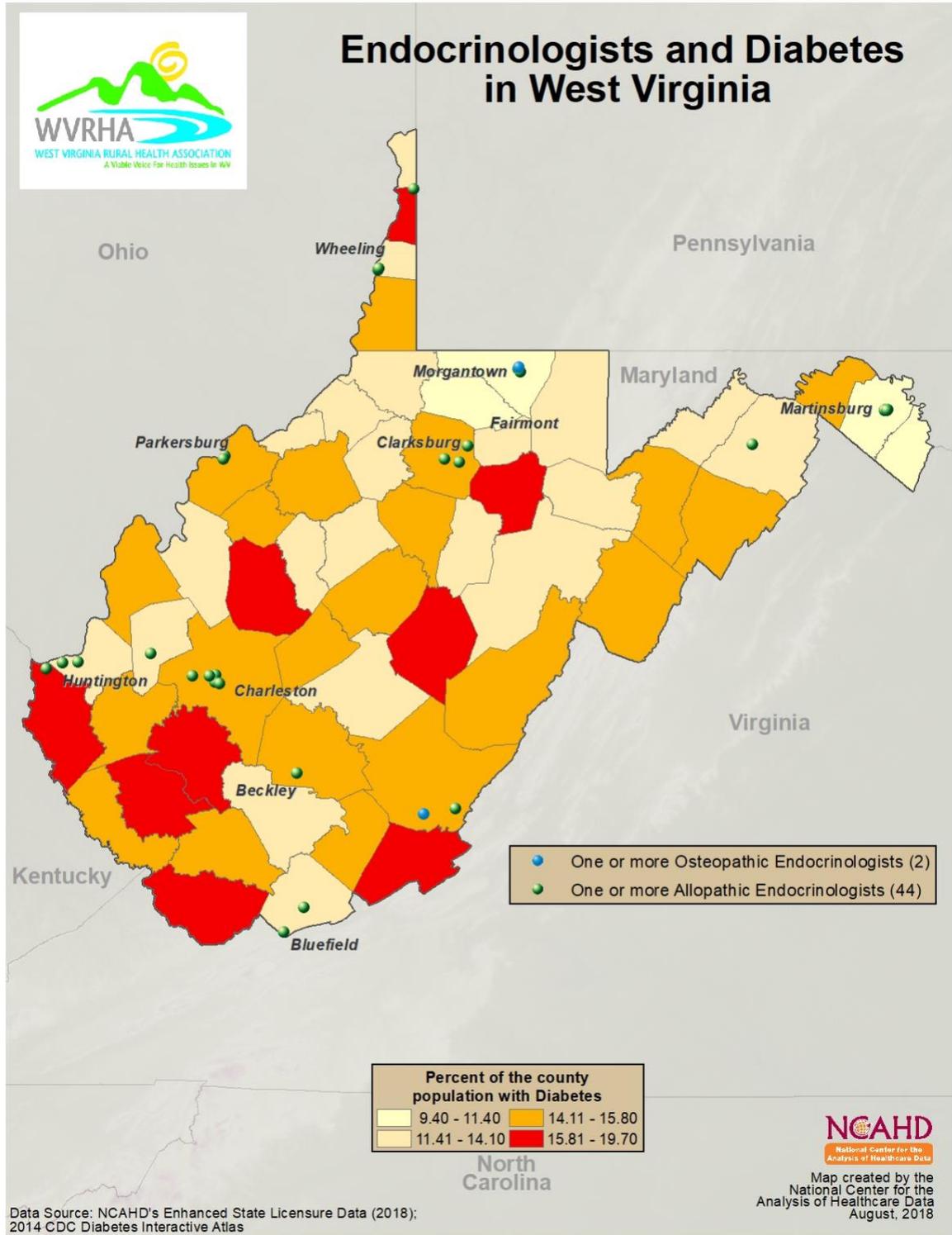
Specialty Physician Comparative Analysis



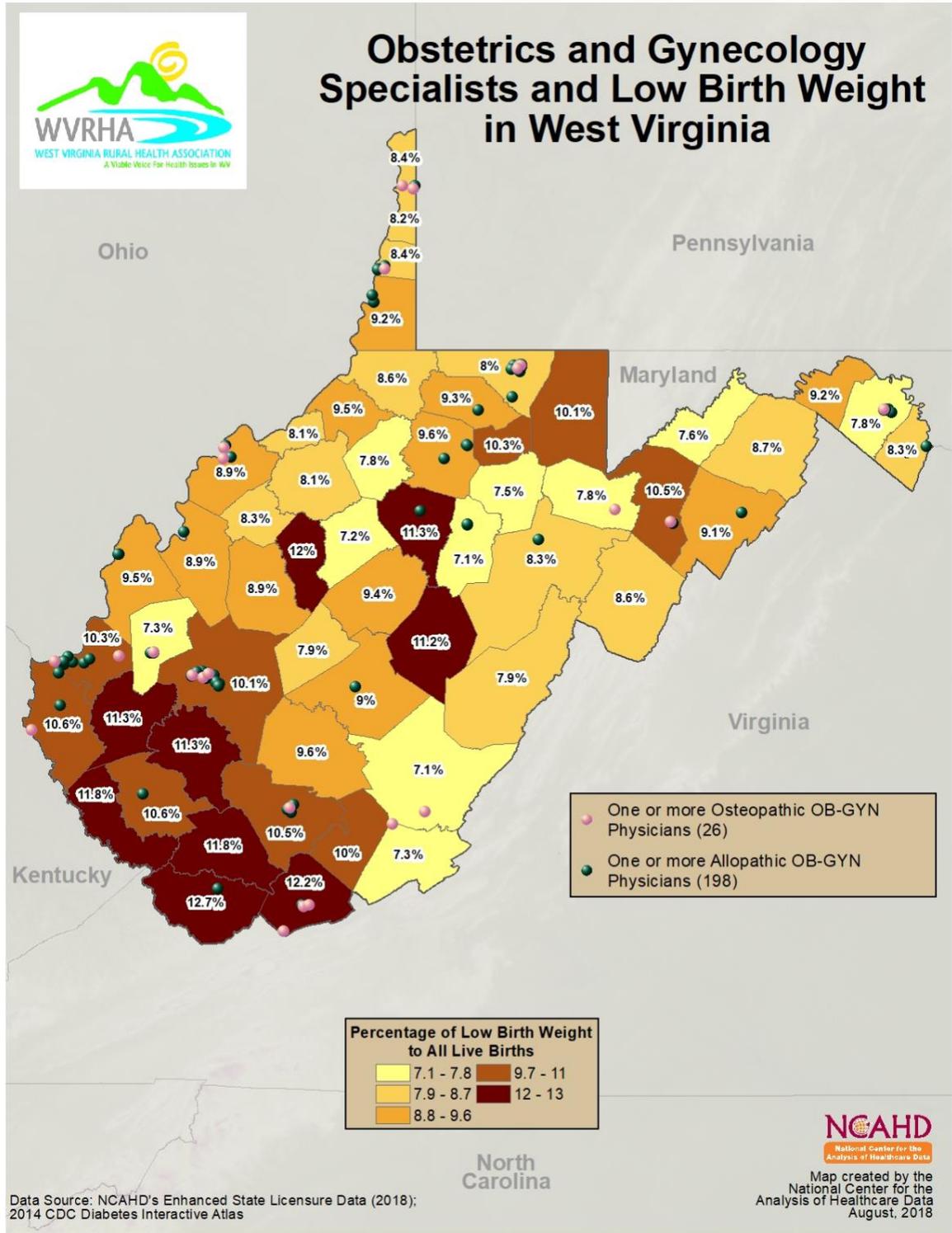
MAP 22 – LUNG CANCER TO ONCOLOGISTS DISTRIBUTION



MAP 23 – ELDERLY TO ORTHOPAEDIC SURGEONS



MAP 24 – DIABETES POPULATION TO ENDOCRINOLOGISTS



MAP 25 – % LOW BIRTH WEIGHT BABIES TO OBSTETRICS/GYNECOLOGISTS

## NEW DATA FOR THE PORTAL

Currently, the portal contains over 300 unique datasets that can be viewed, analyzed, downloaded and mapped using the various tools found with the portal. Each year, the WVRHA actively garners input to include in the report and subsequently the portal through webinars, presentations and conferences.

For the 2018 report, in addition to updating all of the existing datasets, NCAHD is adding the data categories to choose from:

- Cancer Incidences
- Counties with drinking water violations
- HIV Incidences
- Children living in single-parent households
- Alcohol impaired driving deaths
- Healthcare costs by county
- Overdoes Mortality Rate
- Nursing homes
- Number of Individual Registered with Organ Donation
- Children in poverty
- Adults 25-44 with some post-secondary education

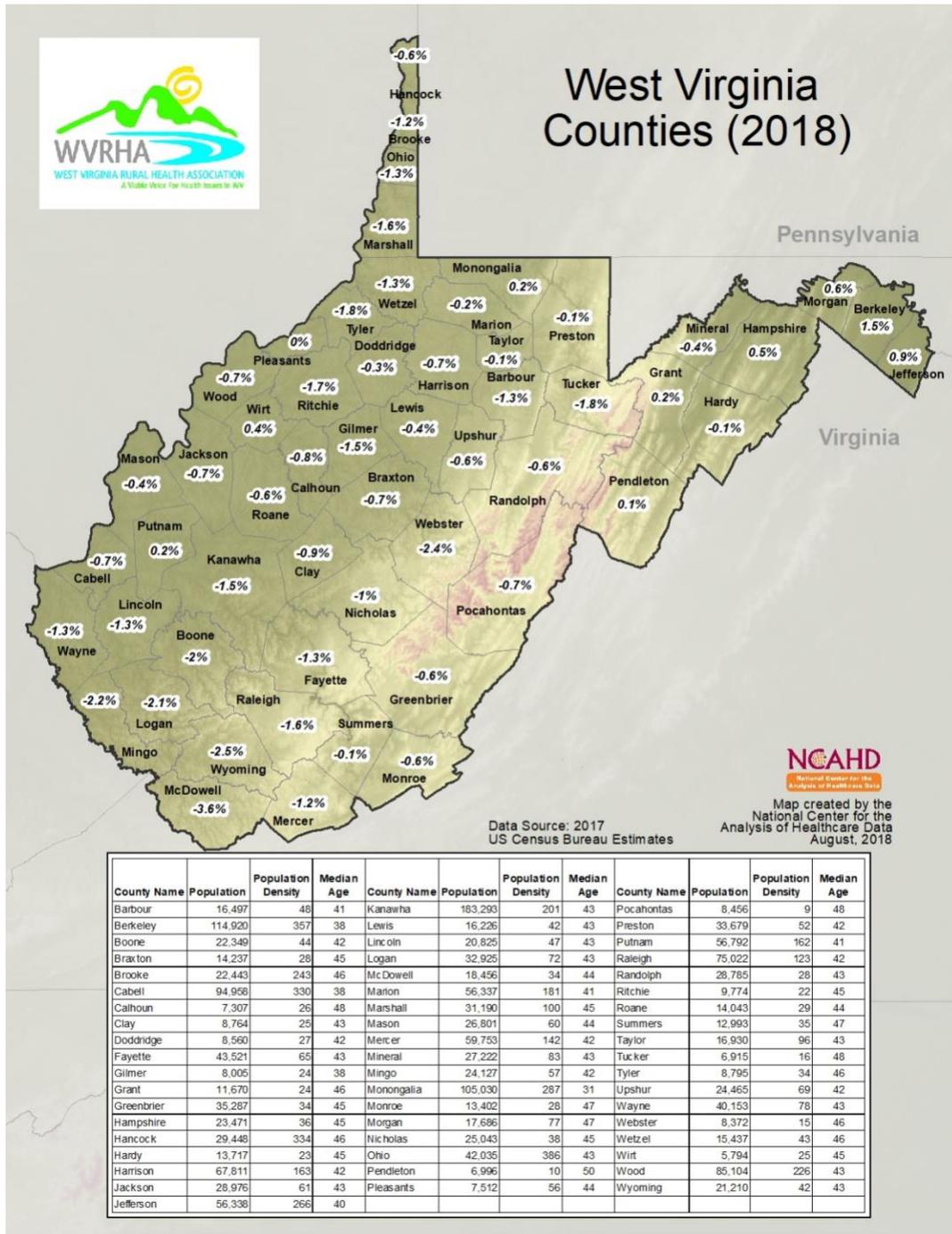
This information is available through the West Virginia Health Data Portal. You may access this data by going to (<http://portals.ncahd.org/wvhdp/> ).



Portal Address: (<http://portals.ncahd.org/wvhdp/> )

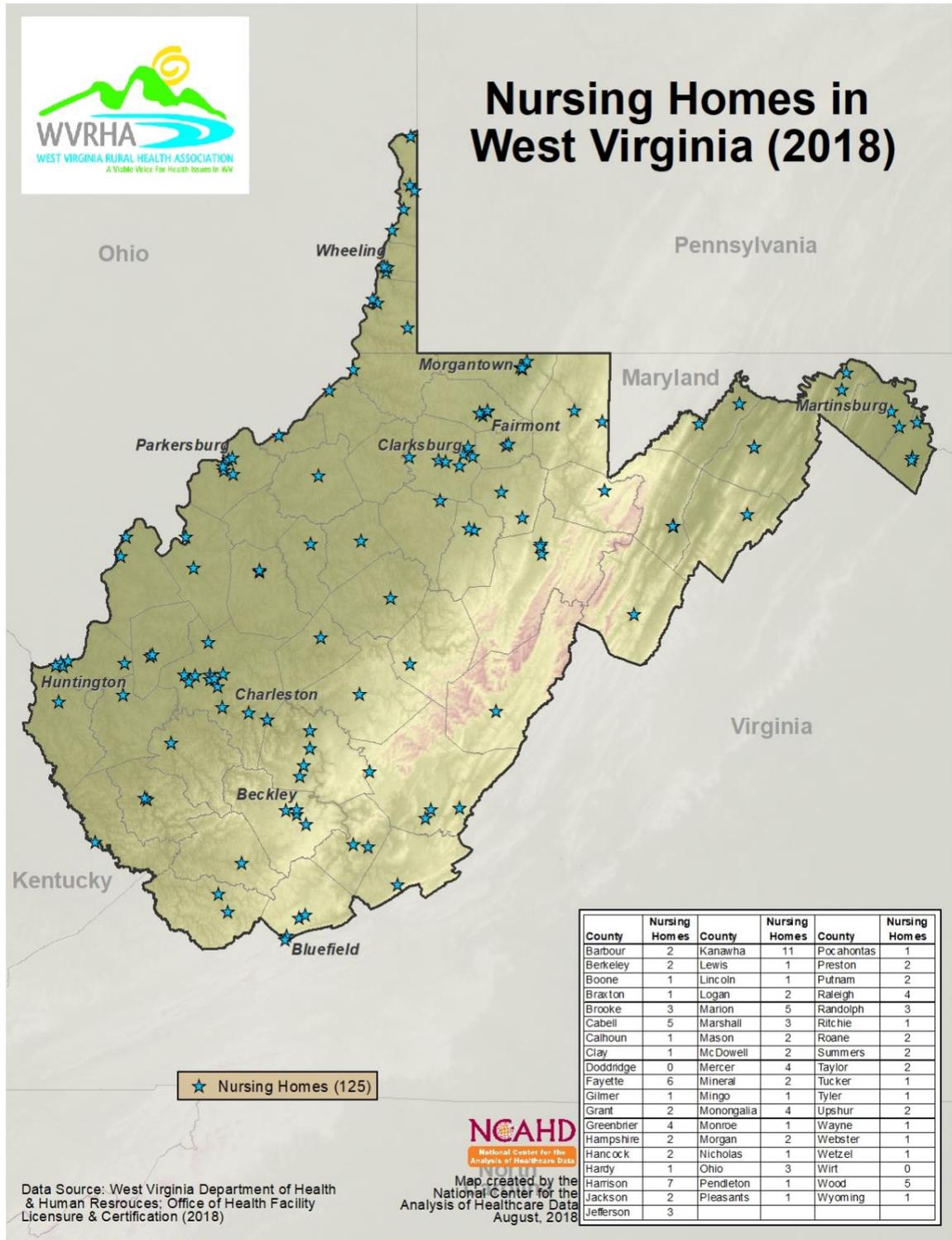
Health Care in West Virginia – Workforce Demand Analysis

All of the population estimates and analysis dealing with population are based upon the 2017 population estimates from U.S. Census (see **Map 26** below).

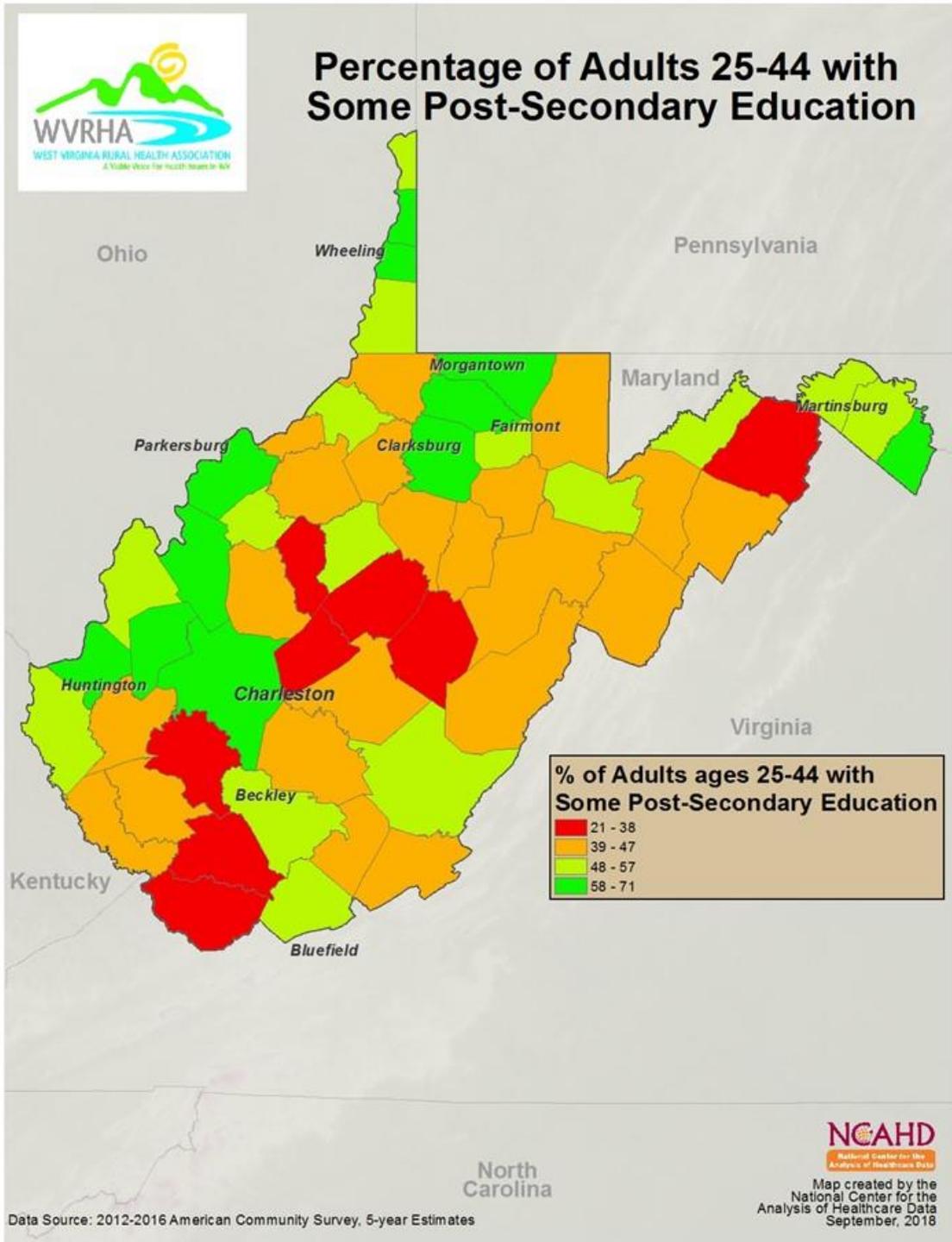


MAP 26 - 2017 WV COUNTY POPULATION ESTIMATES

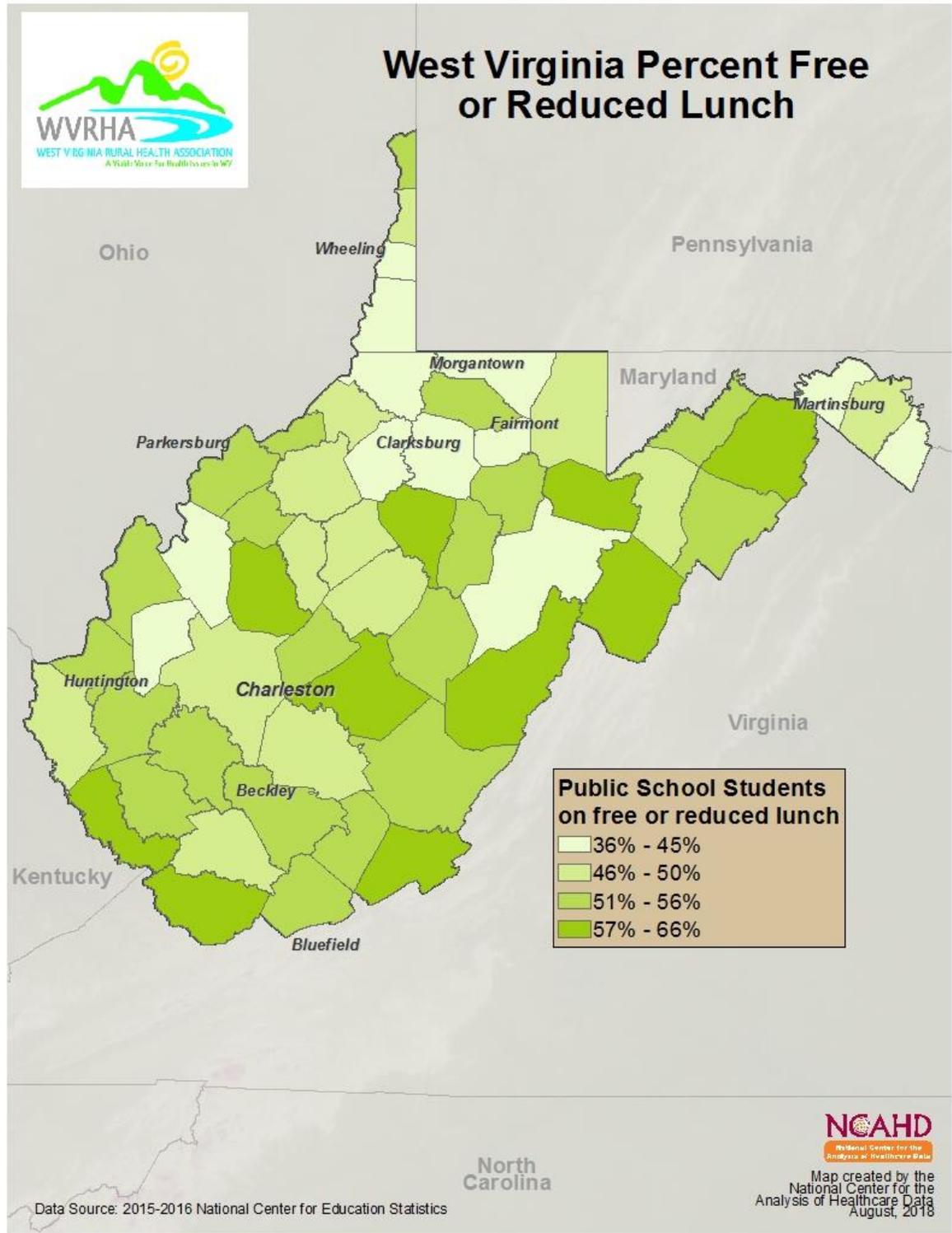
NEW MISCELLANEOUS DATA



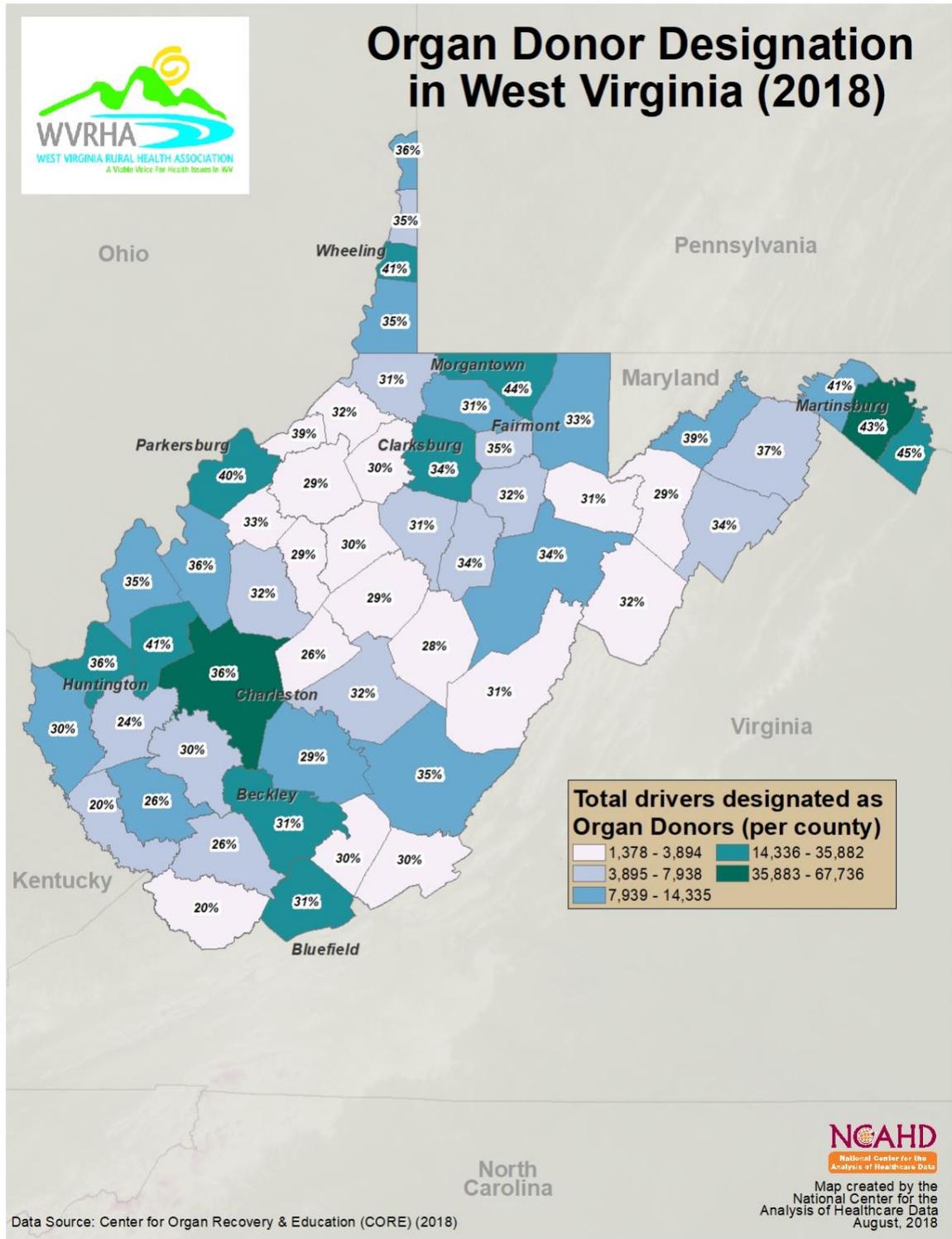
MAP 27 – NURSING HOME LOCATIONS



MAP 28 – % OF ADULTS WITH SOME POST-SECONDARY EDUCATION



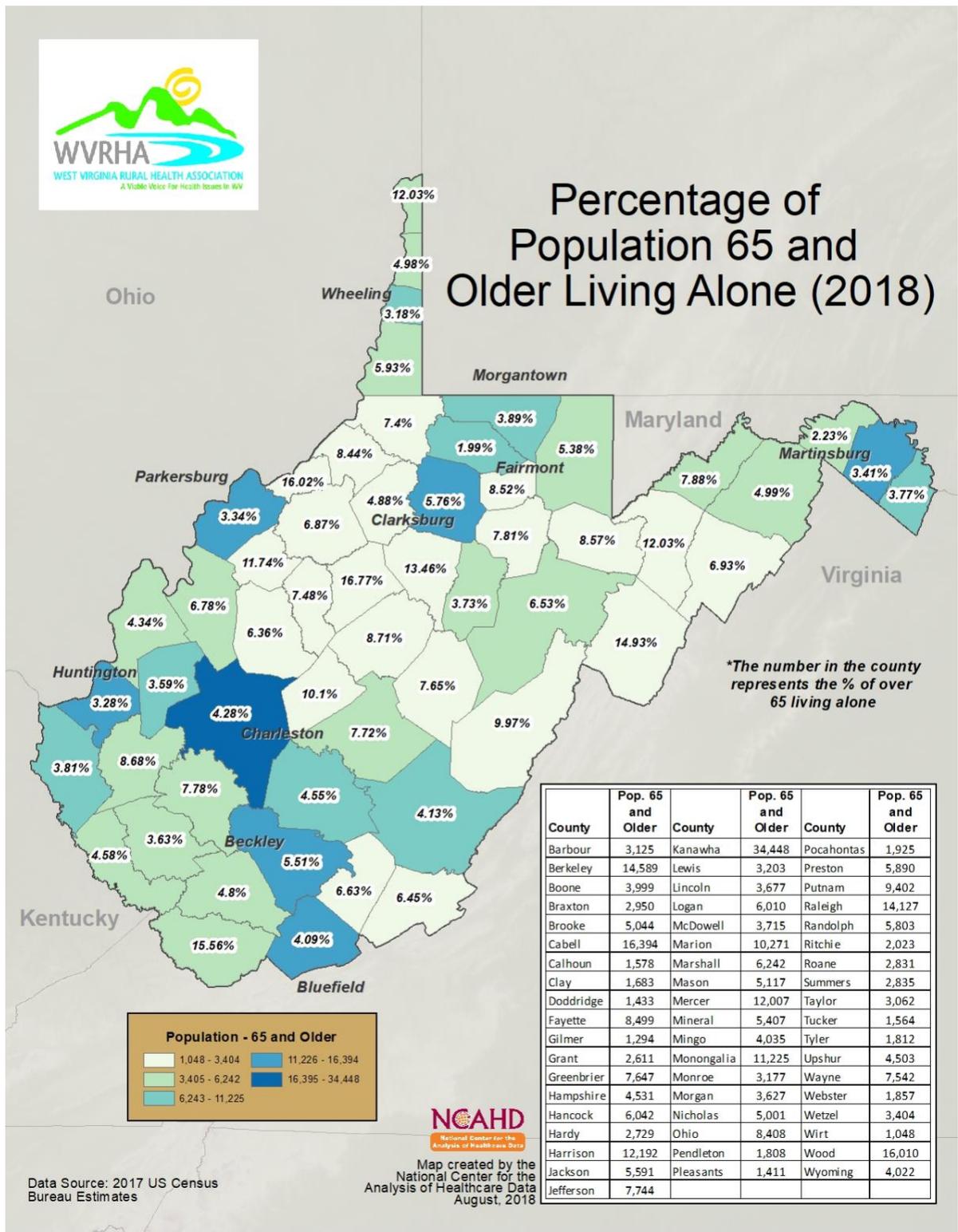
MAP 29 – % OF STUDENT ON FREE OR REDUCED LUNCH



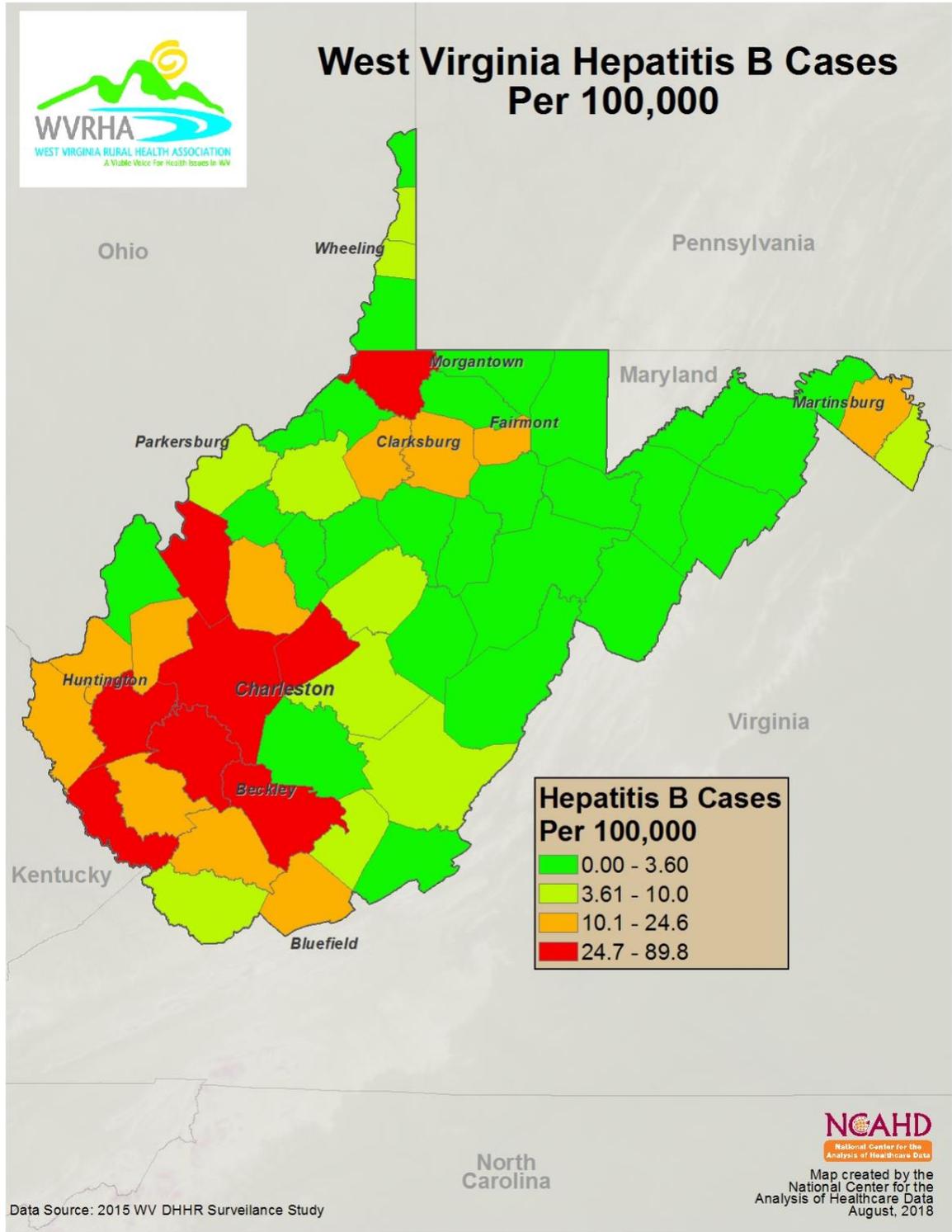
MAP 30 – COUNTY NUMBER OF ORGAN DONOR DESIGNATIONS



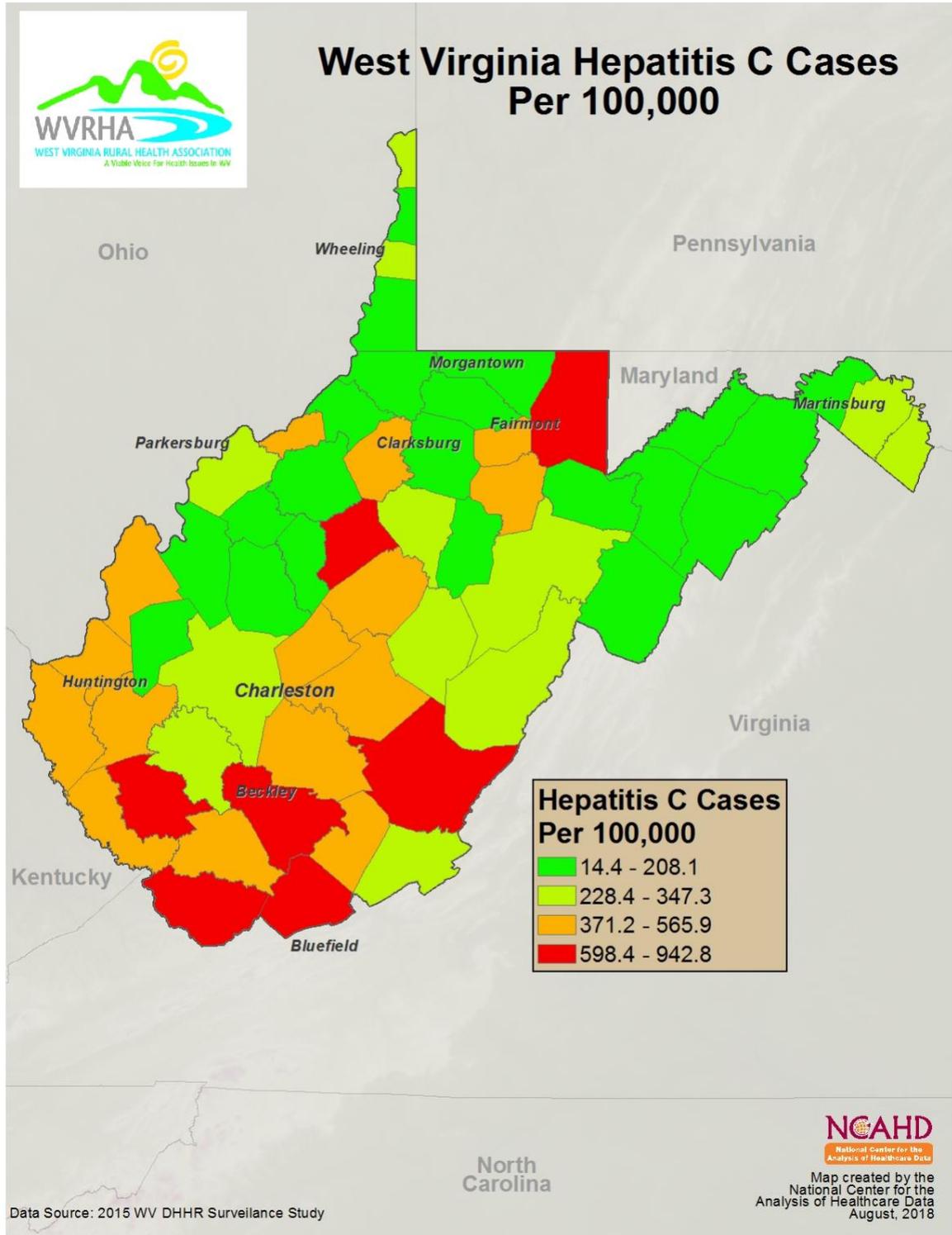
# Percentage of Population 65 and Older Living Alone (2018)



MAP 31 - % OF OVER 65 LIVING ALONE



MAP 32 – HEPATITIS B INCIDENCIES

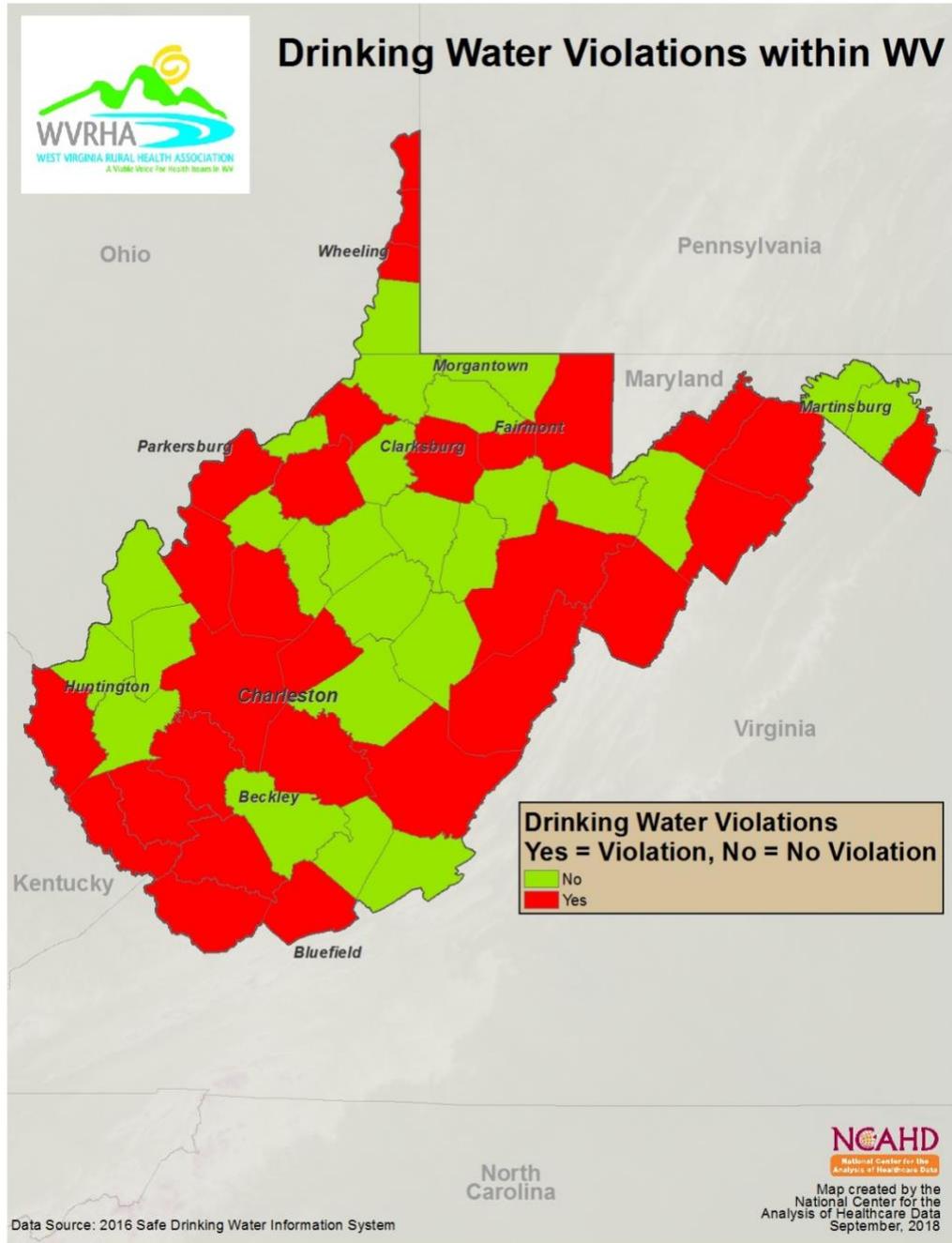


MAP 33 – HEPATITIS C CASES

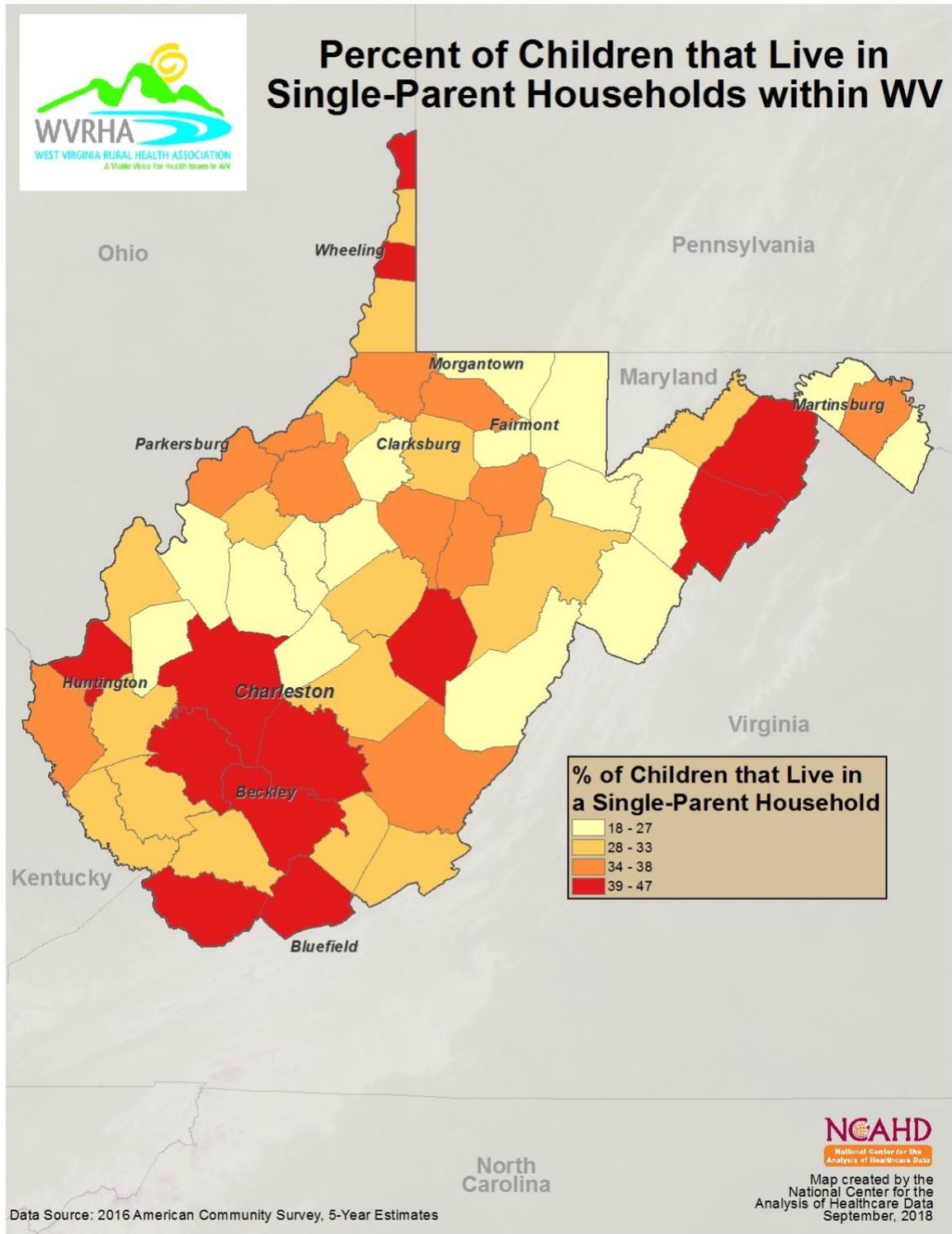
## Health Determinants

This year we were asked to identify both health determinants and health outcomes seen below in the map series. In providing this data through the portal, stakeholders have the unique ability to interactively view, analyze and map what influences residents in living a healthy life.

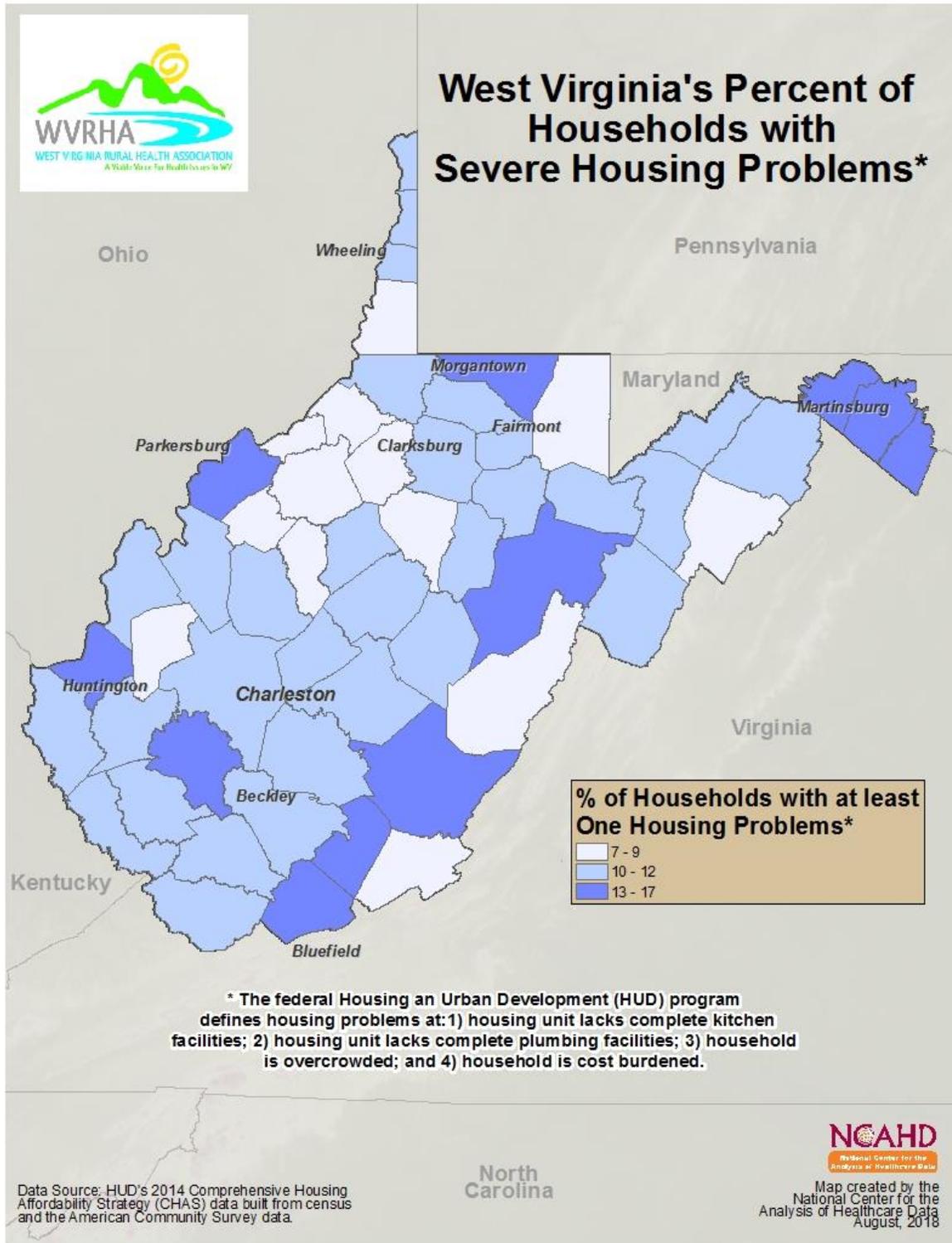
### Physical Environment



MAP 34 – COUNTY NUMBER OF DRINKING WATER VIOLATIONS

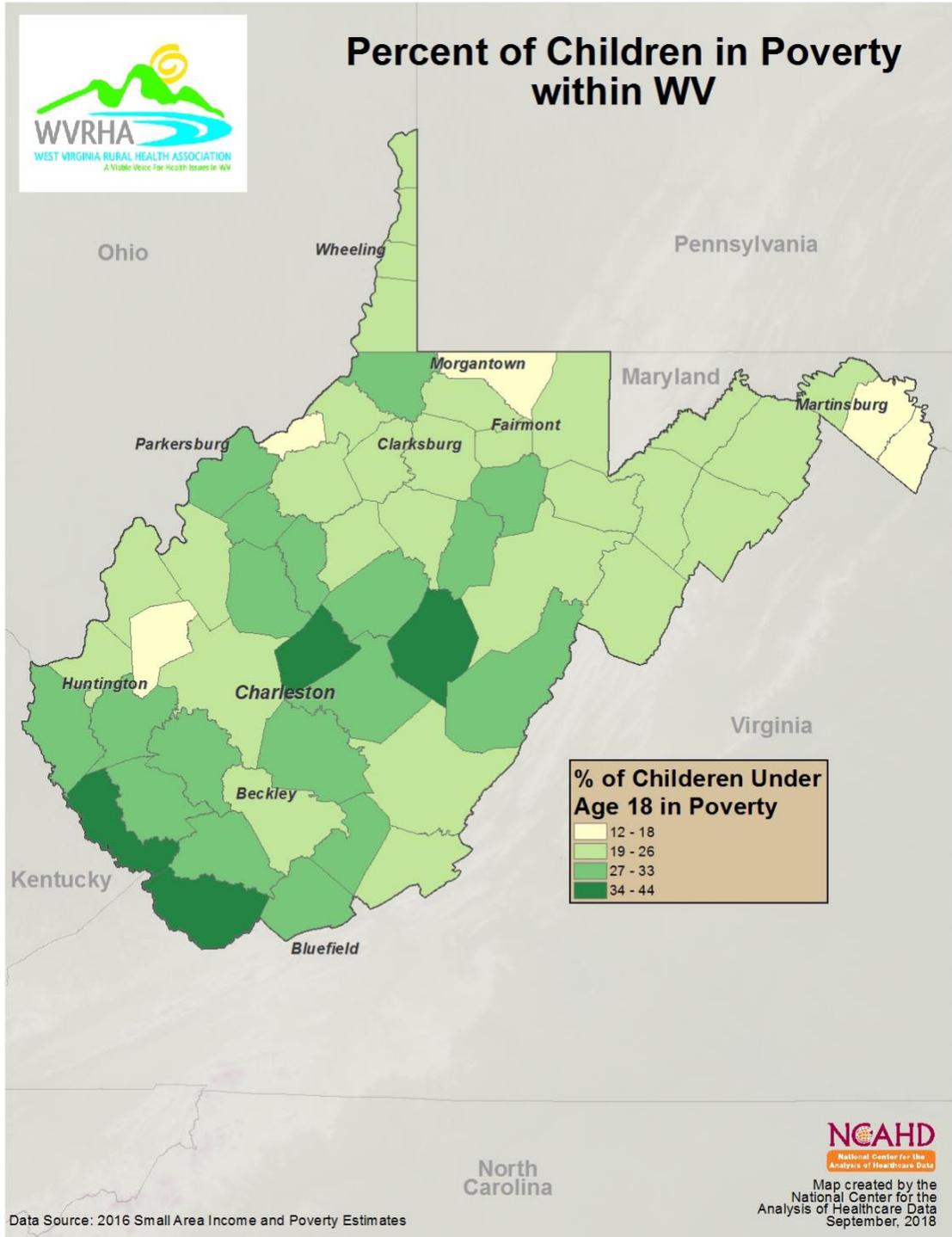


MAP 35 - % CHILDREN LIVING IN SINGLE-PARENT HOUSEHOLDS

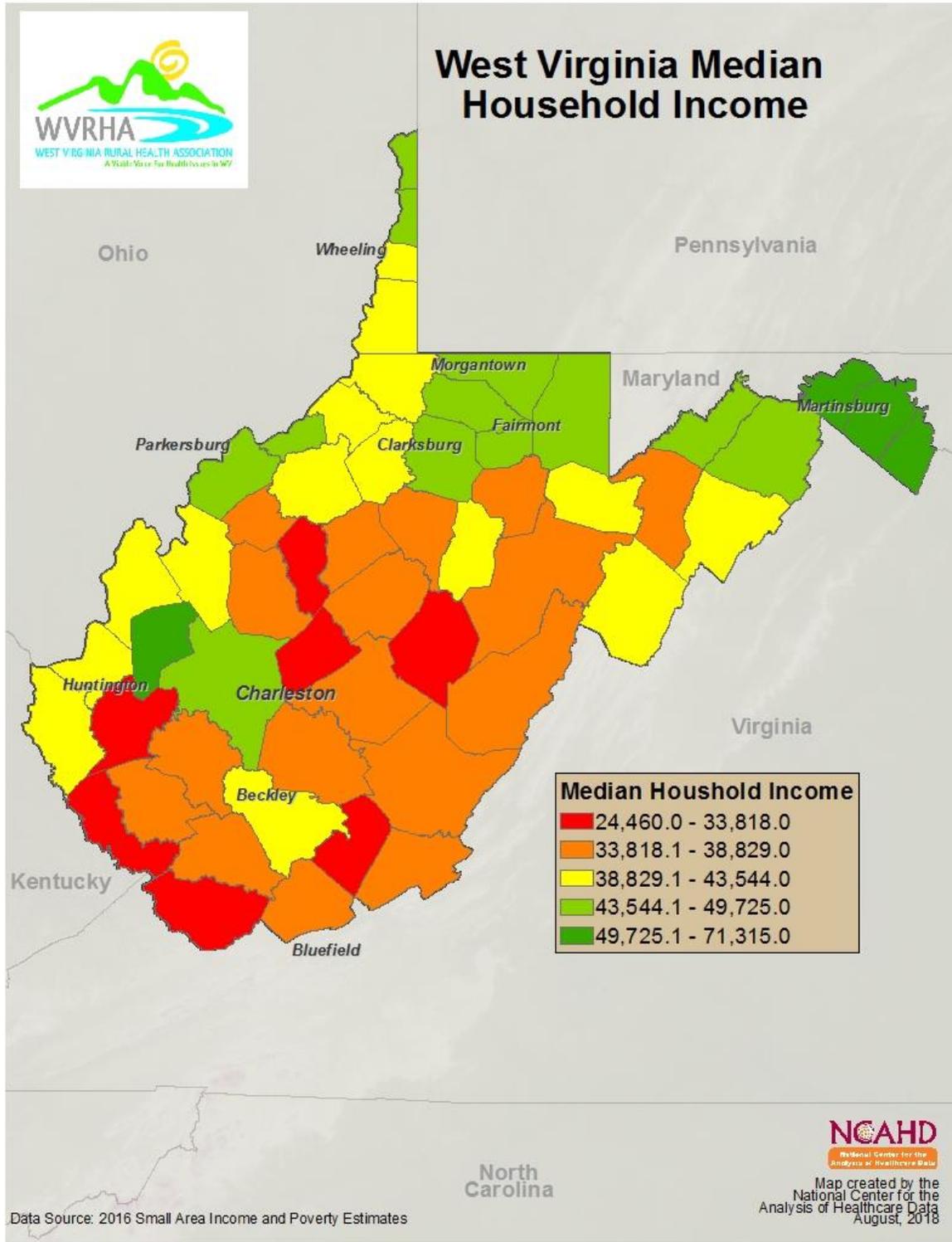


MAP 36 - % HOUSEHOLDS WITH 1-4 HOUSING PROBLEMS

Social and Economic

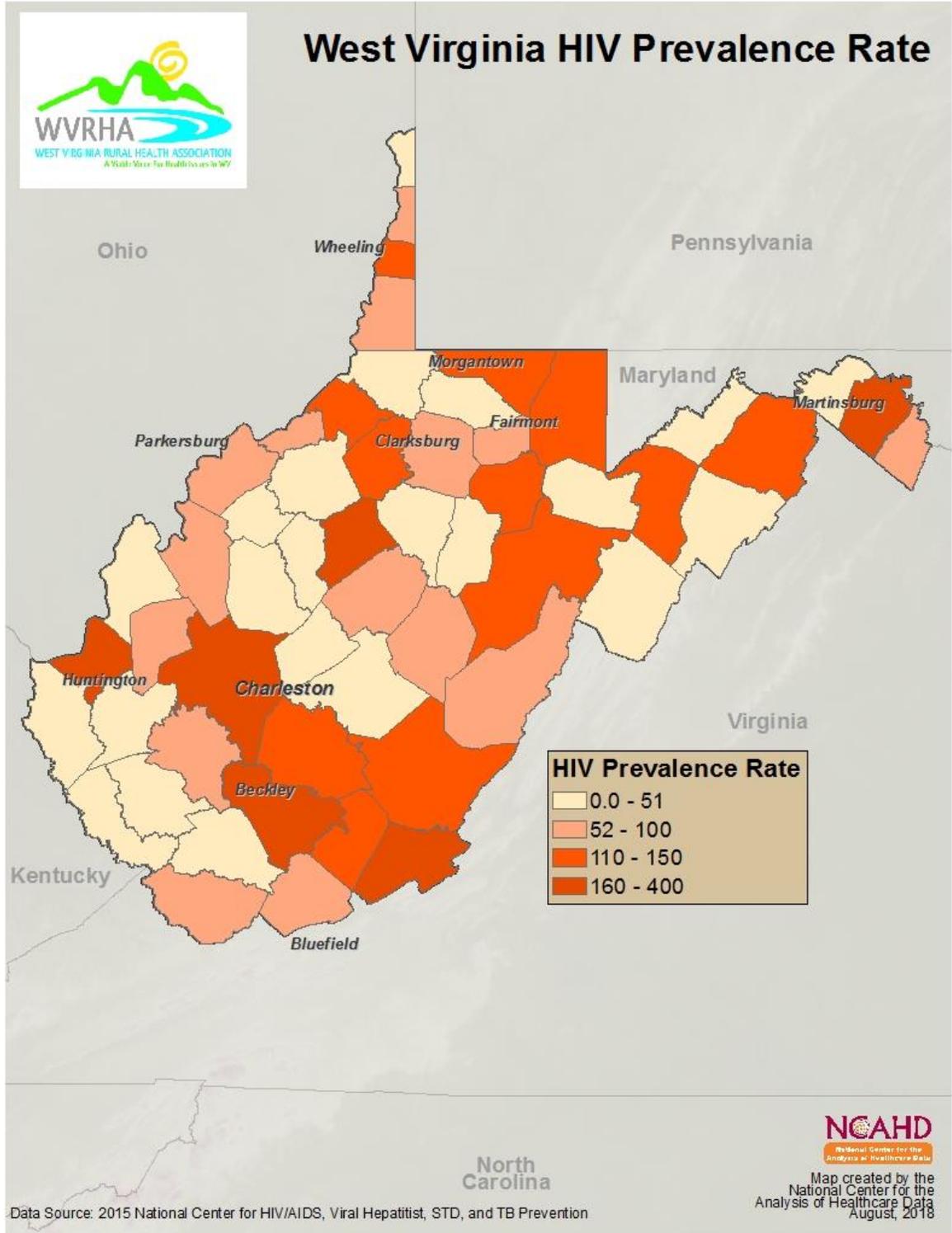


MAP 37 – CHILDREN UNDER 18 IN POVERTY

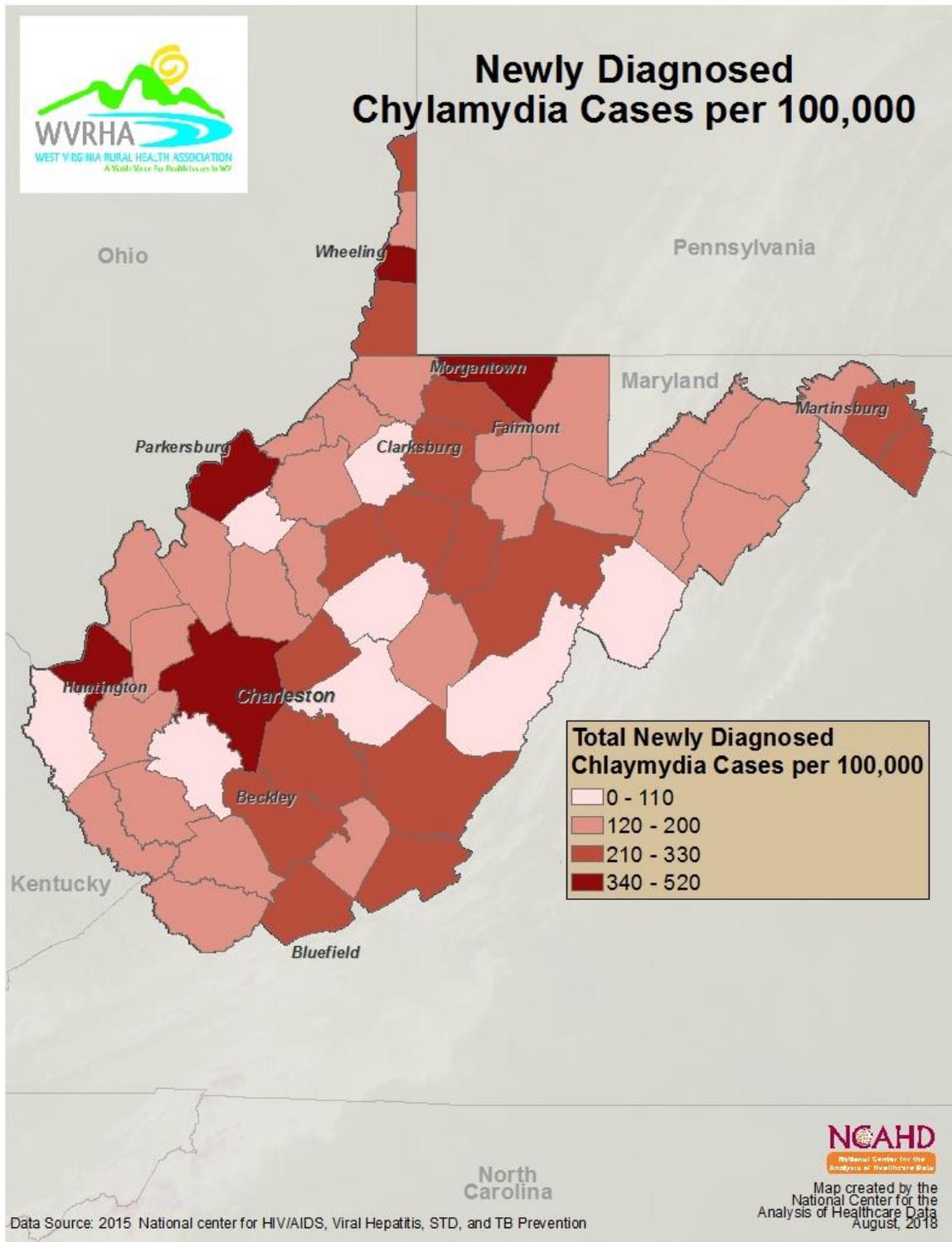


MAP 38 – MEDIAN HOUSEHOLD INCOME

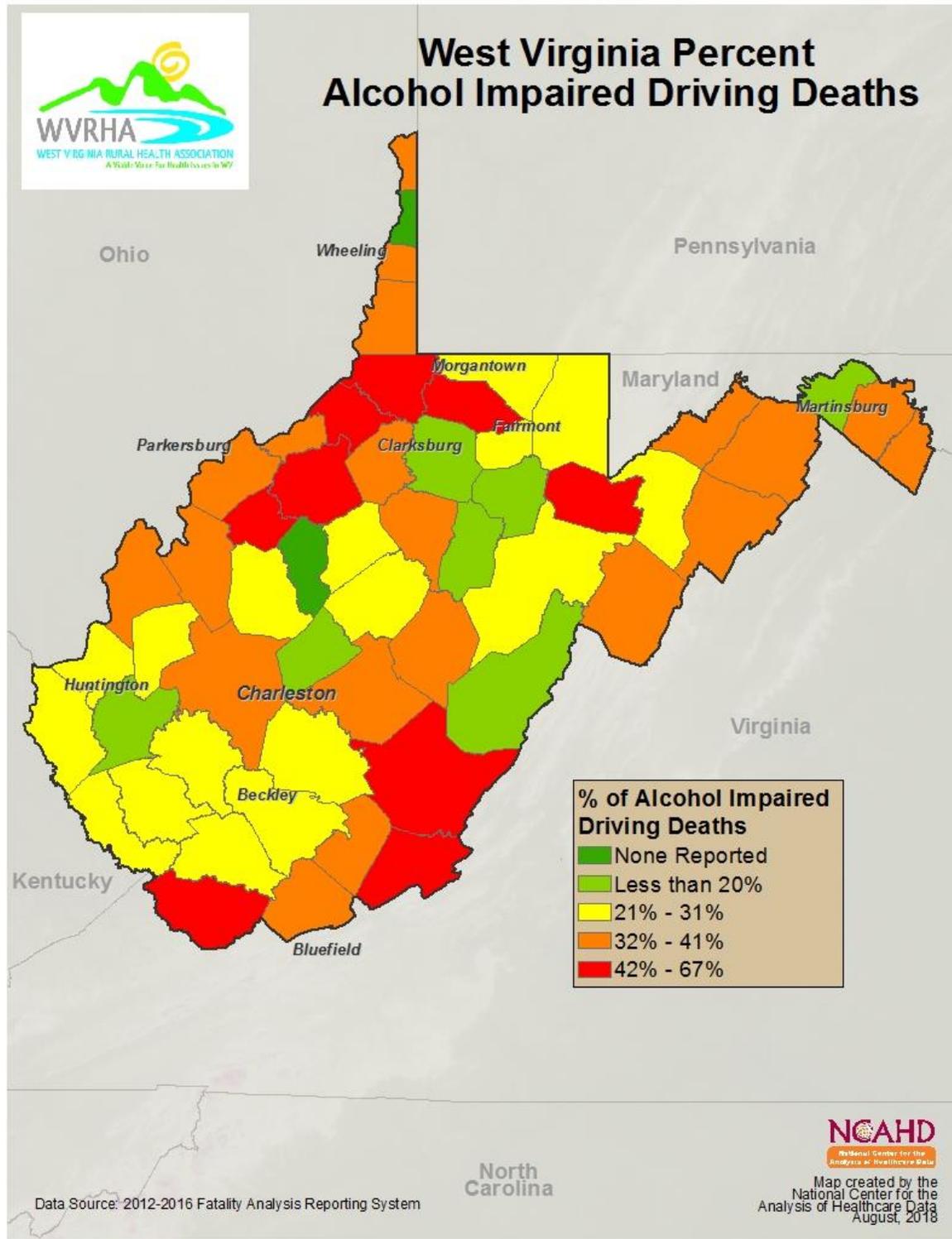
Health Behaviors



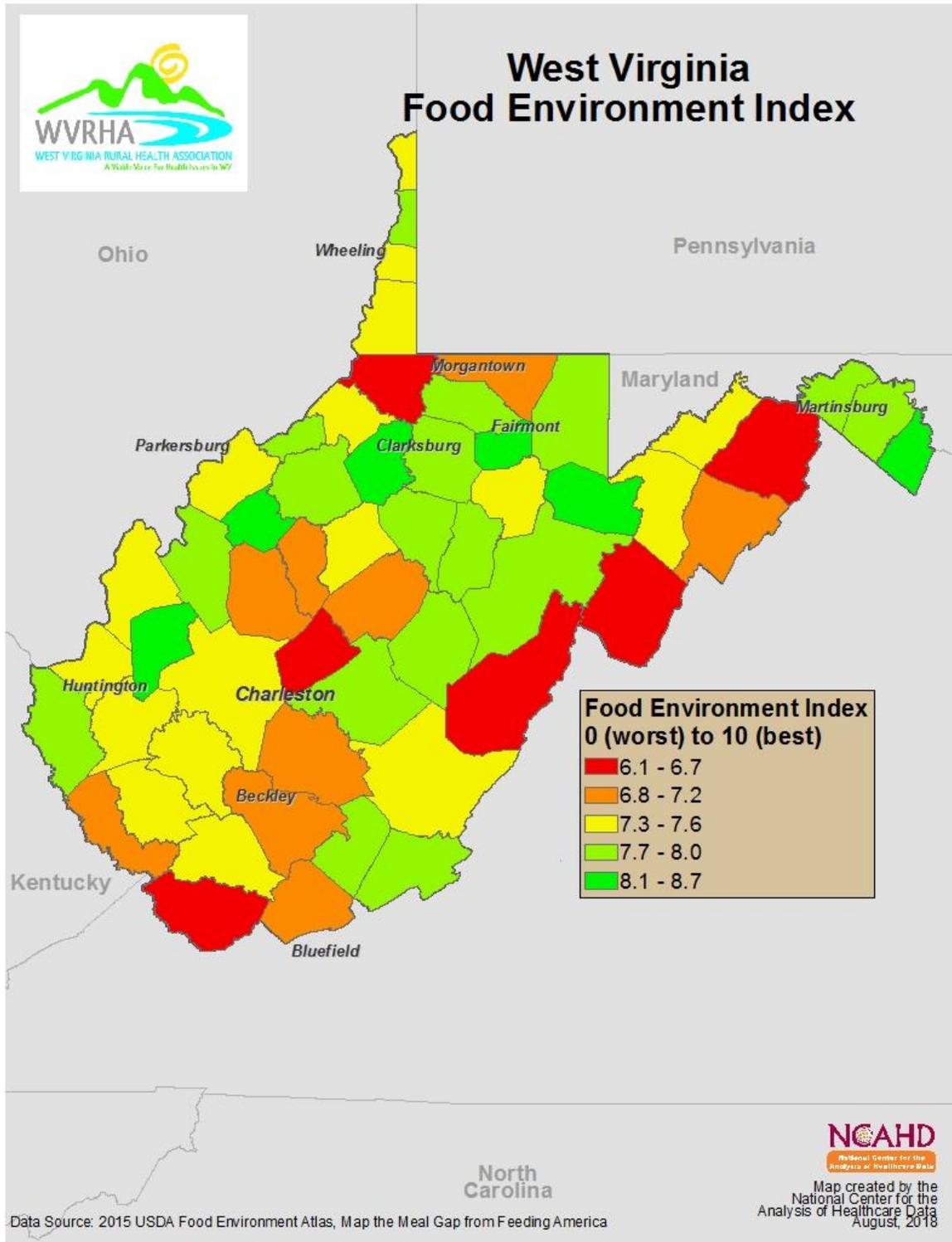
MAP 39 – HIV PREVALENCE RATE



MAP 40 – NEW CHYLAMYDIA CASES PER 100,000 POPULATION



MAP 41 - % DRIVING DEATHS DUE TO ALCOHOL

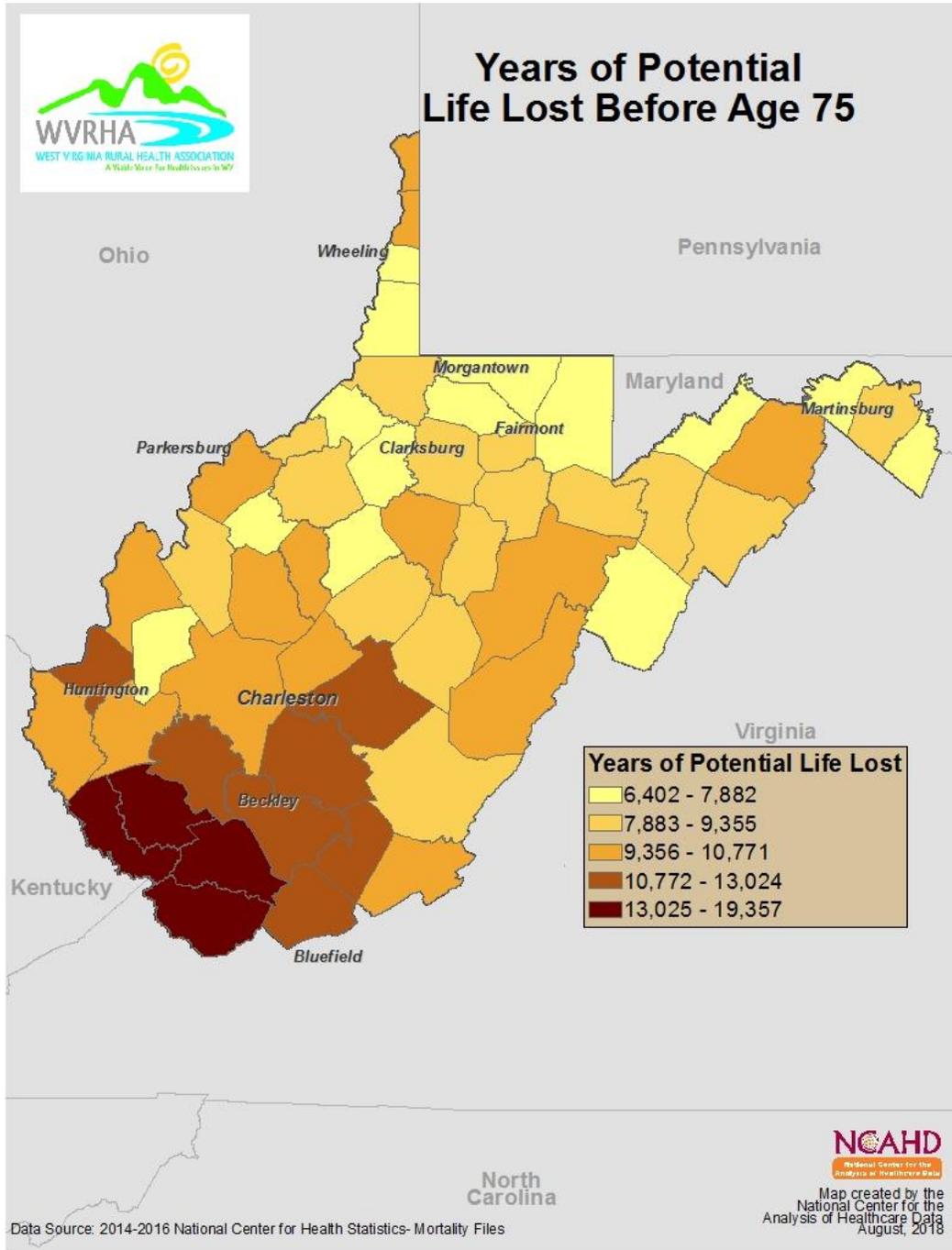


MAP 42 – FOOD ENVIRONMENT INDEX

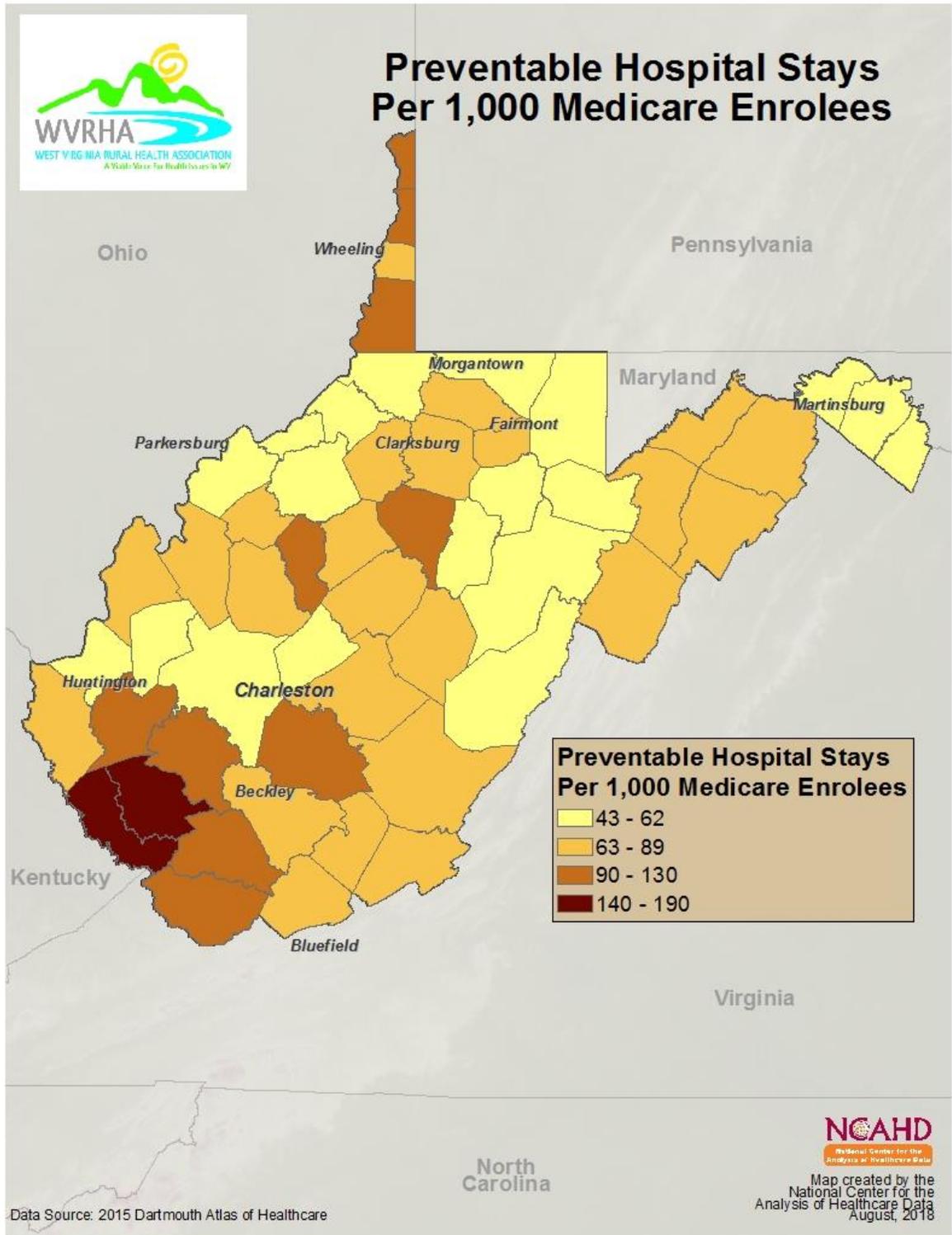
**Health Outcomes**

Typically, the measures of a county's health is through Mortality (length of life) and Morbidity (quality of life). Below are additional measures that will be added to the portal

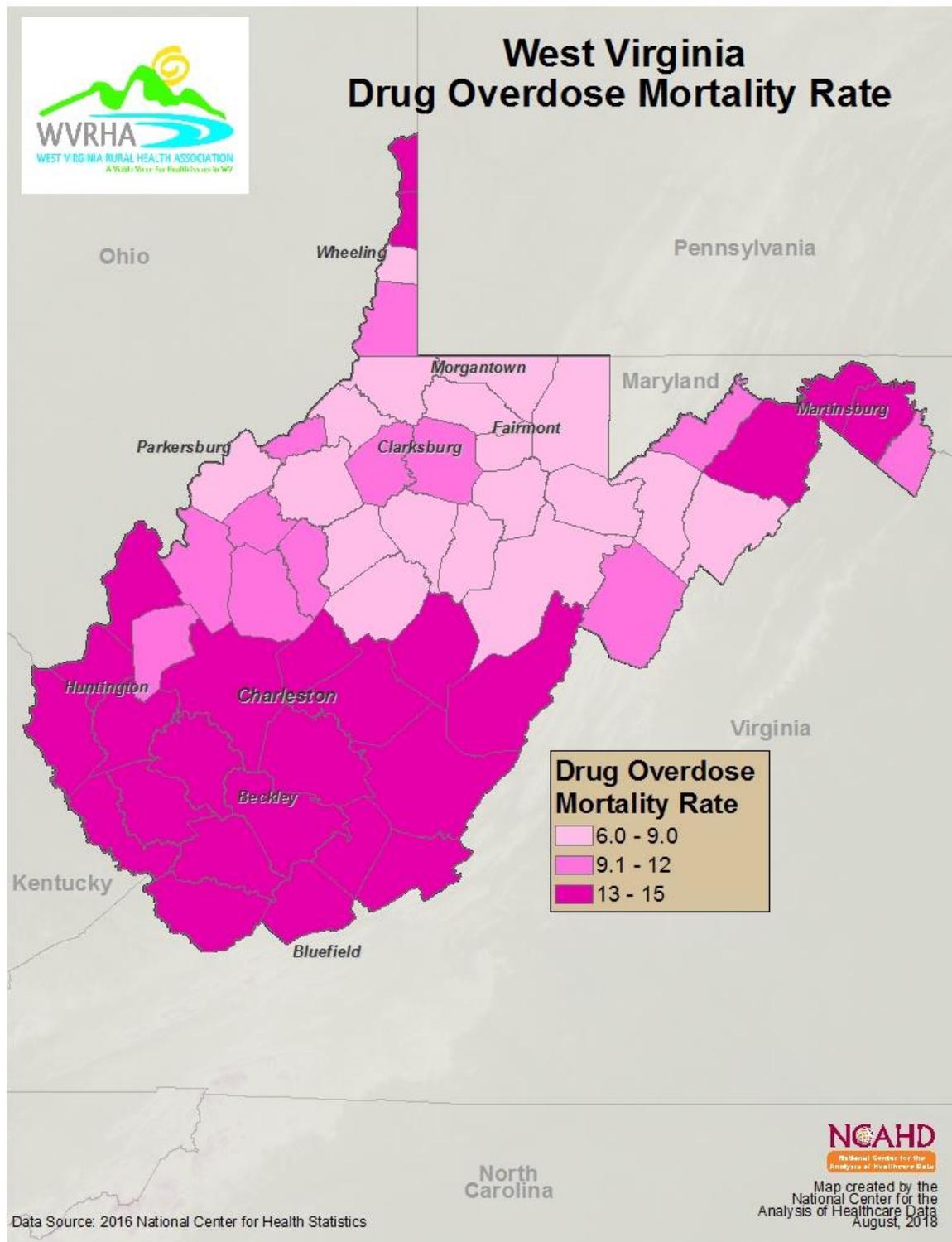
**Mortality - Premature Death**



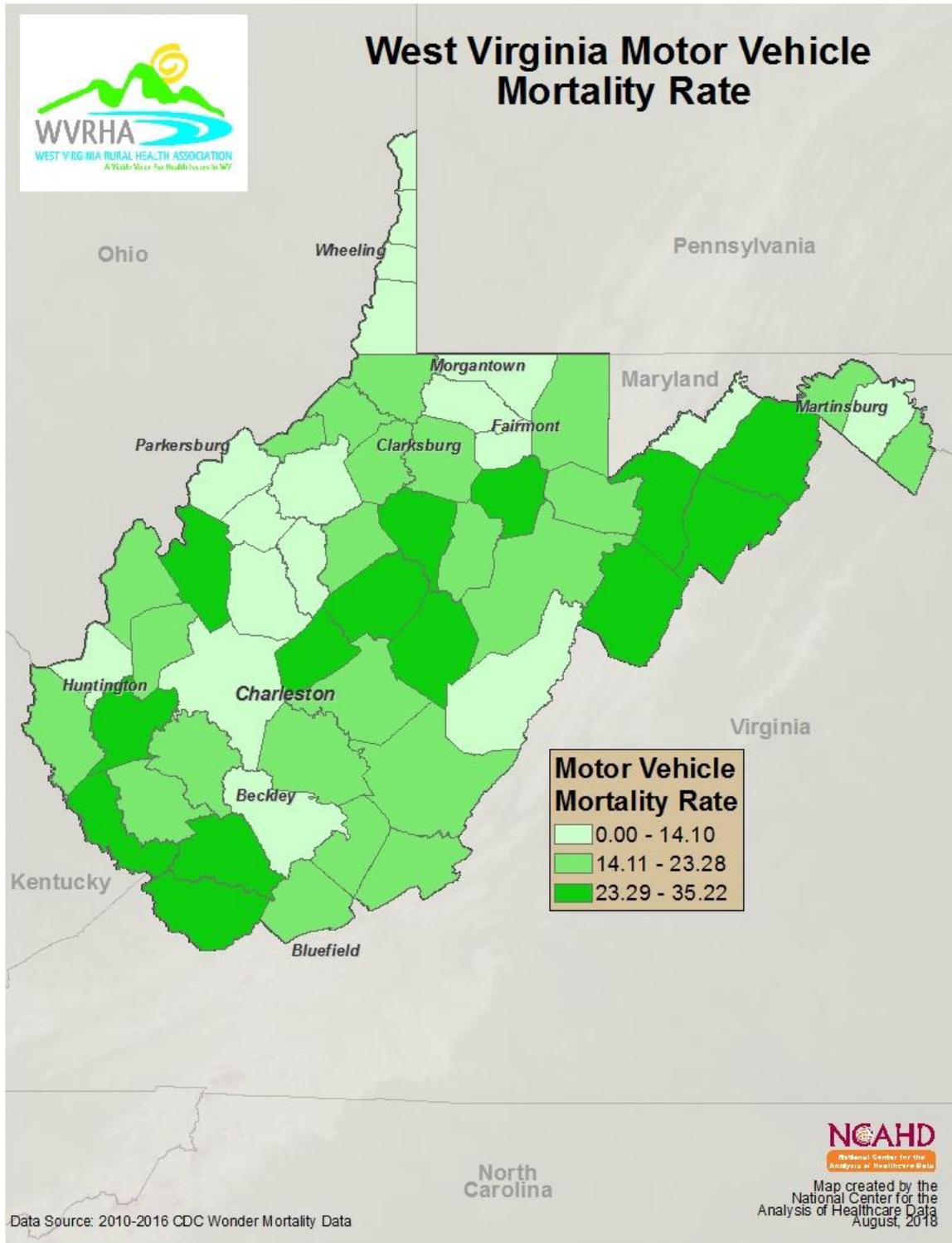
**MAP 43 – YEAR OF POTENTIAL LIFE LOST**



MAP 44 – PREVENTABLE HOSPITAL STAYS

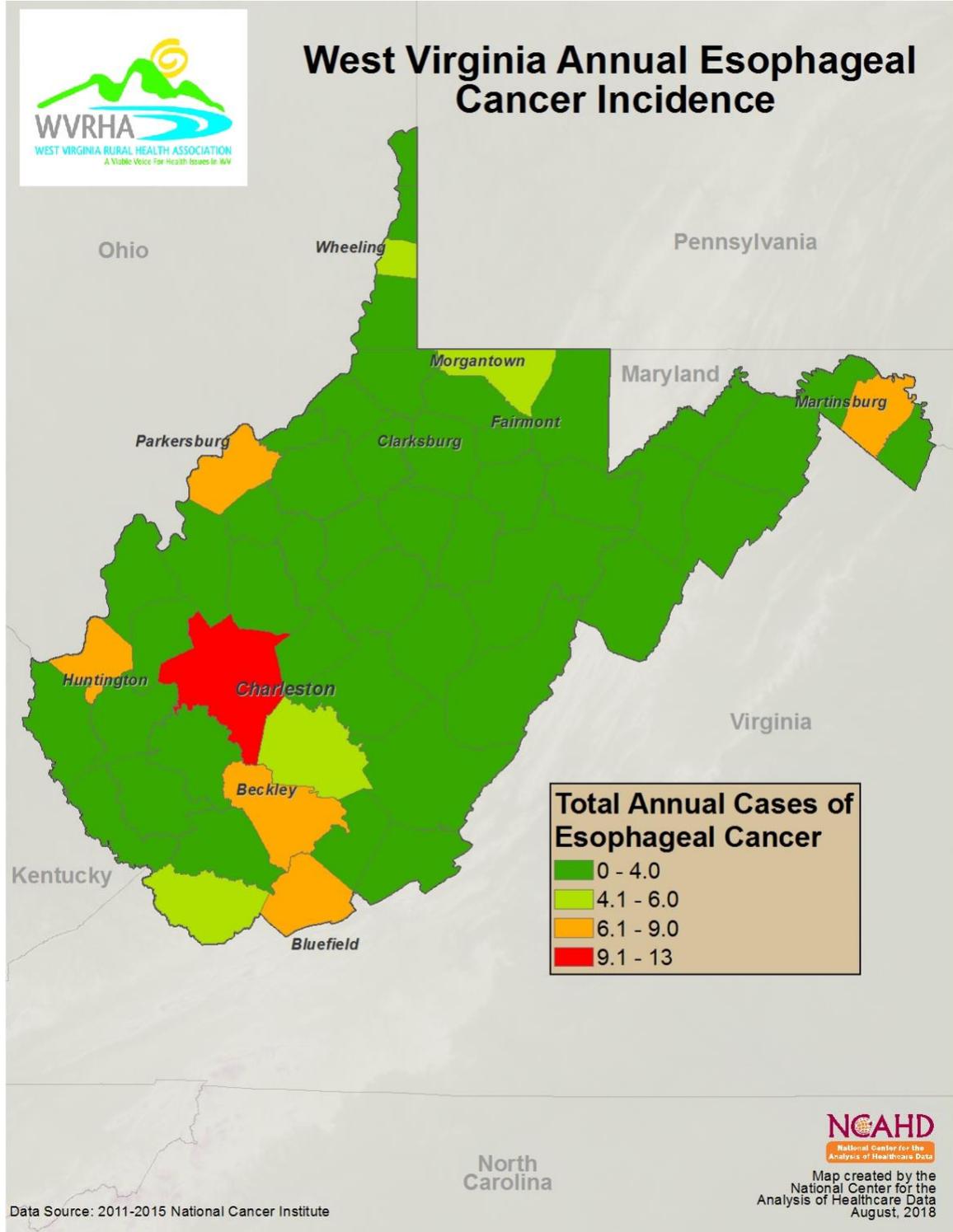


MAP 45 – DRUG OVERDOSE MORTALITY RATE

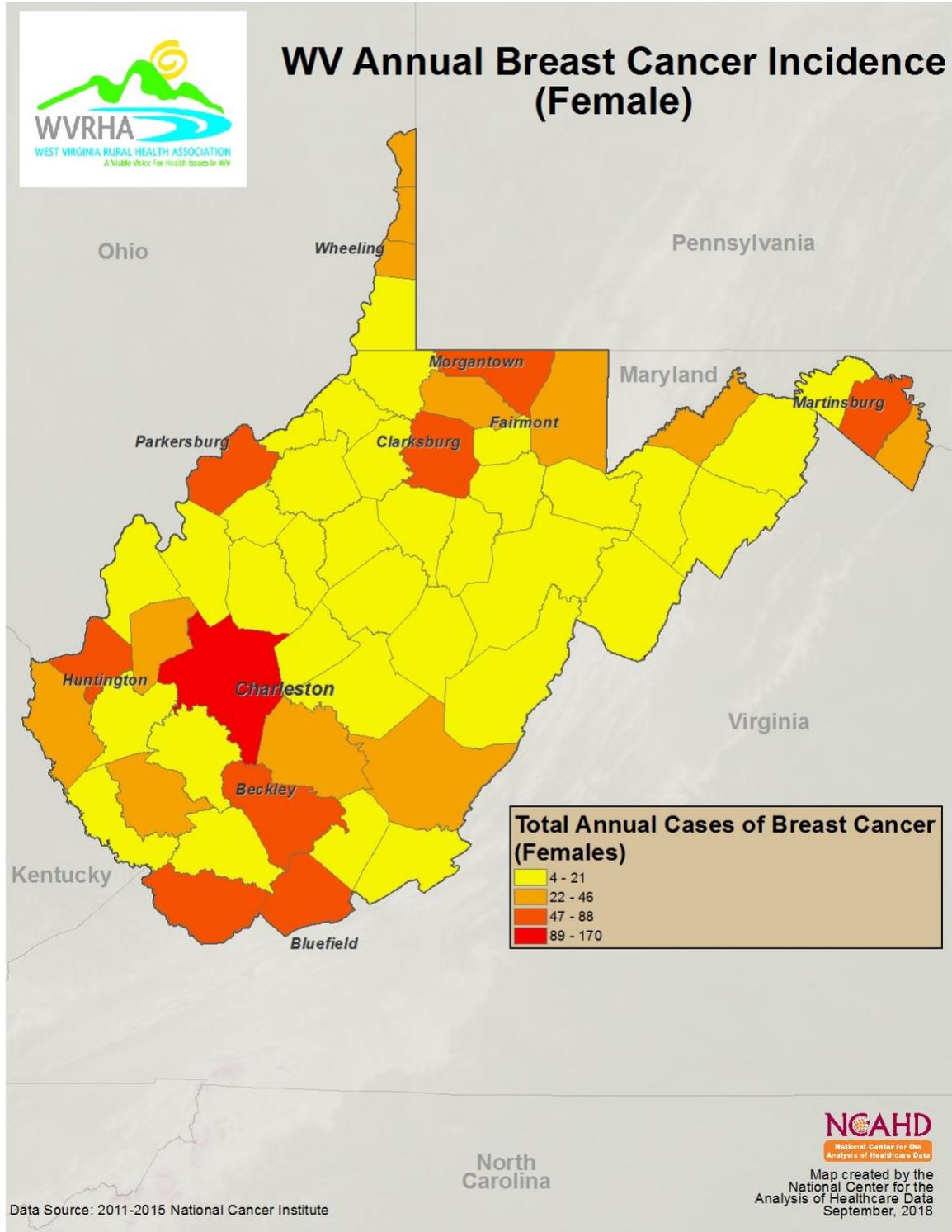


MAP 46 – MOTOR VEHICLE MORTALITY RATE

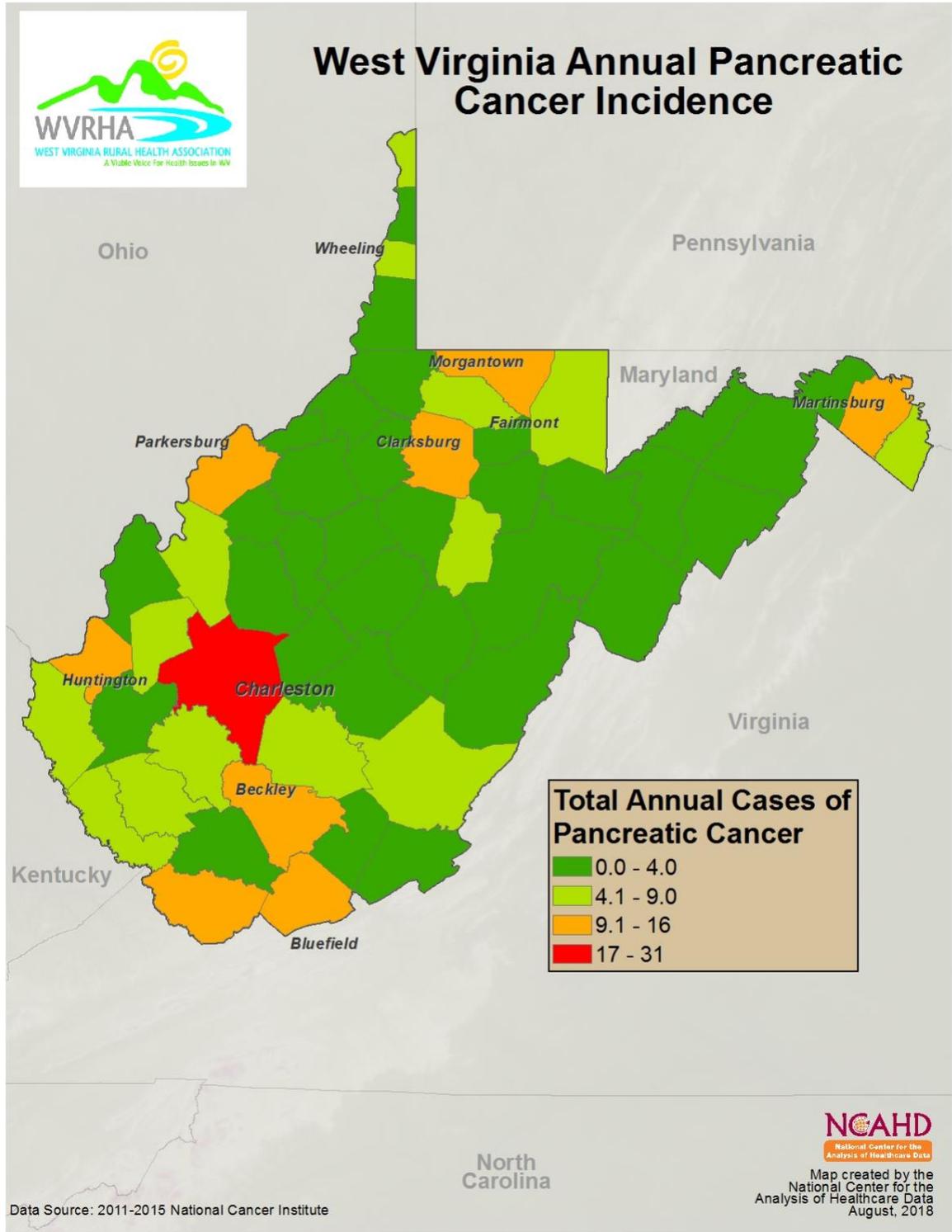
Incidences of Cancer



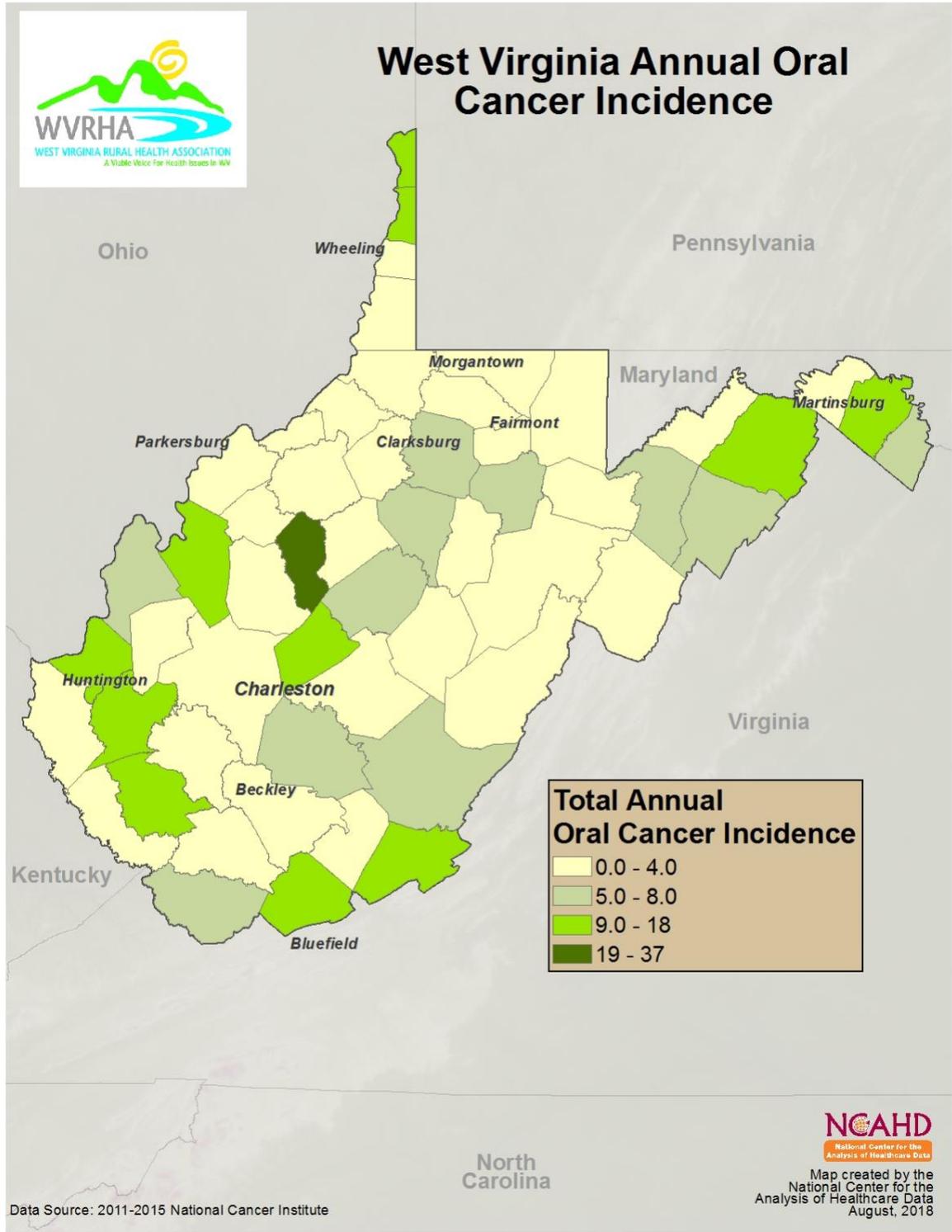
MAP 47 – CASES OF ESOPHAGEAL CANCER



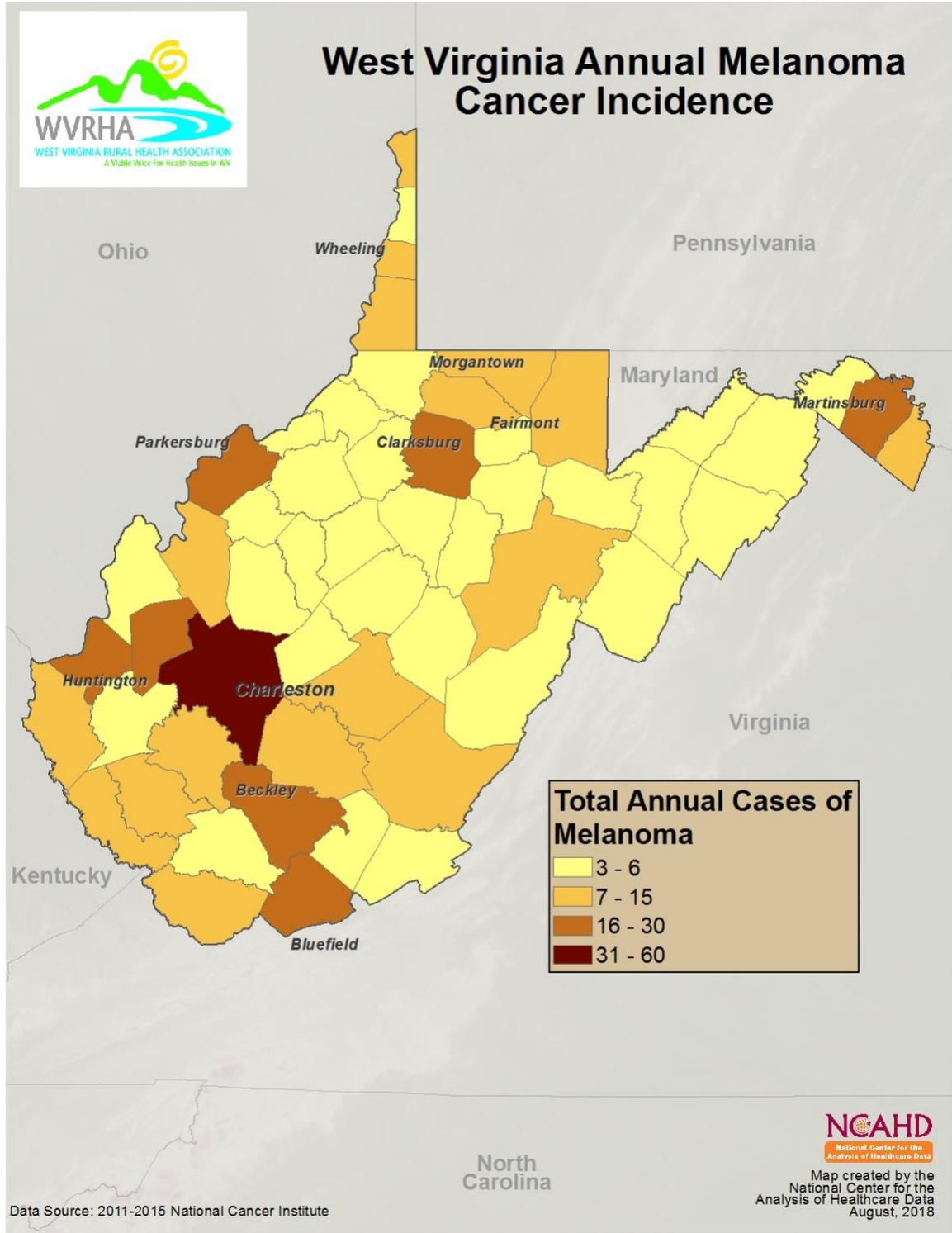
MAP 48 – INCIDENCES OF BREAST CANCER



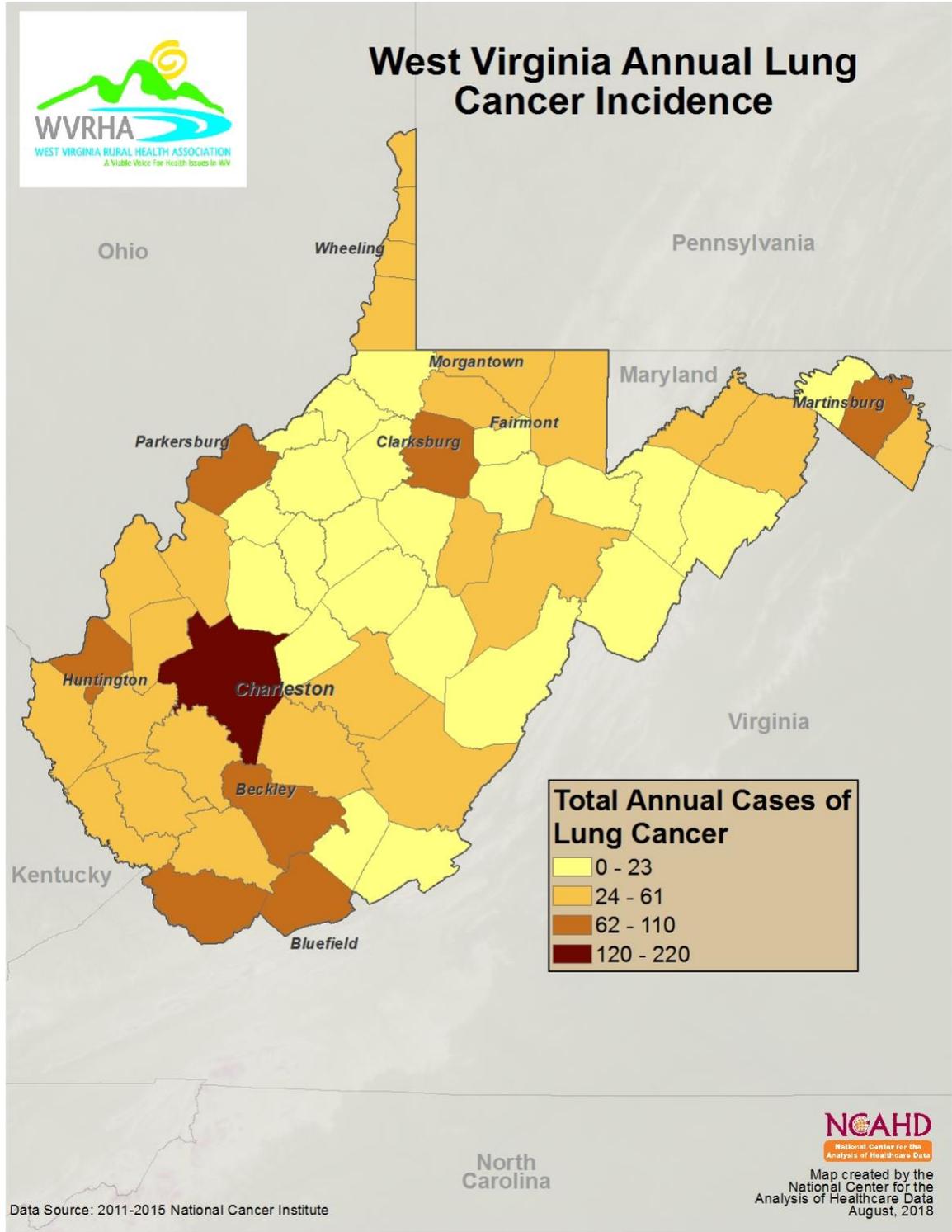
MAP 49 – INCIDENCIES OF PANCREATIC CANCER



MAP 50 – INCIDENCIES OF ORAL CANCER

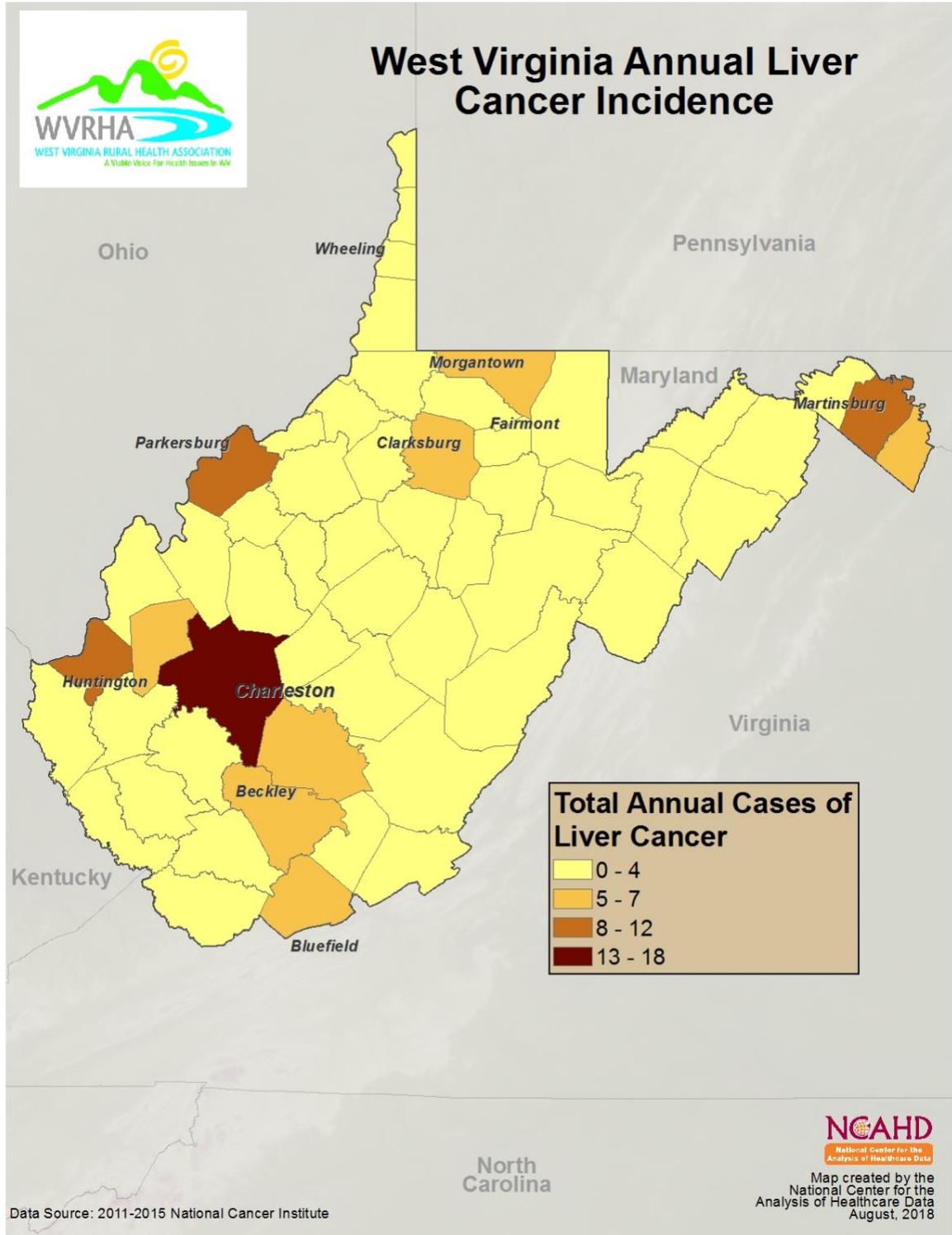


MAP 51 – INCIDENCIES OF MELANOMA

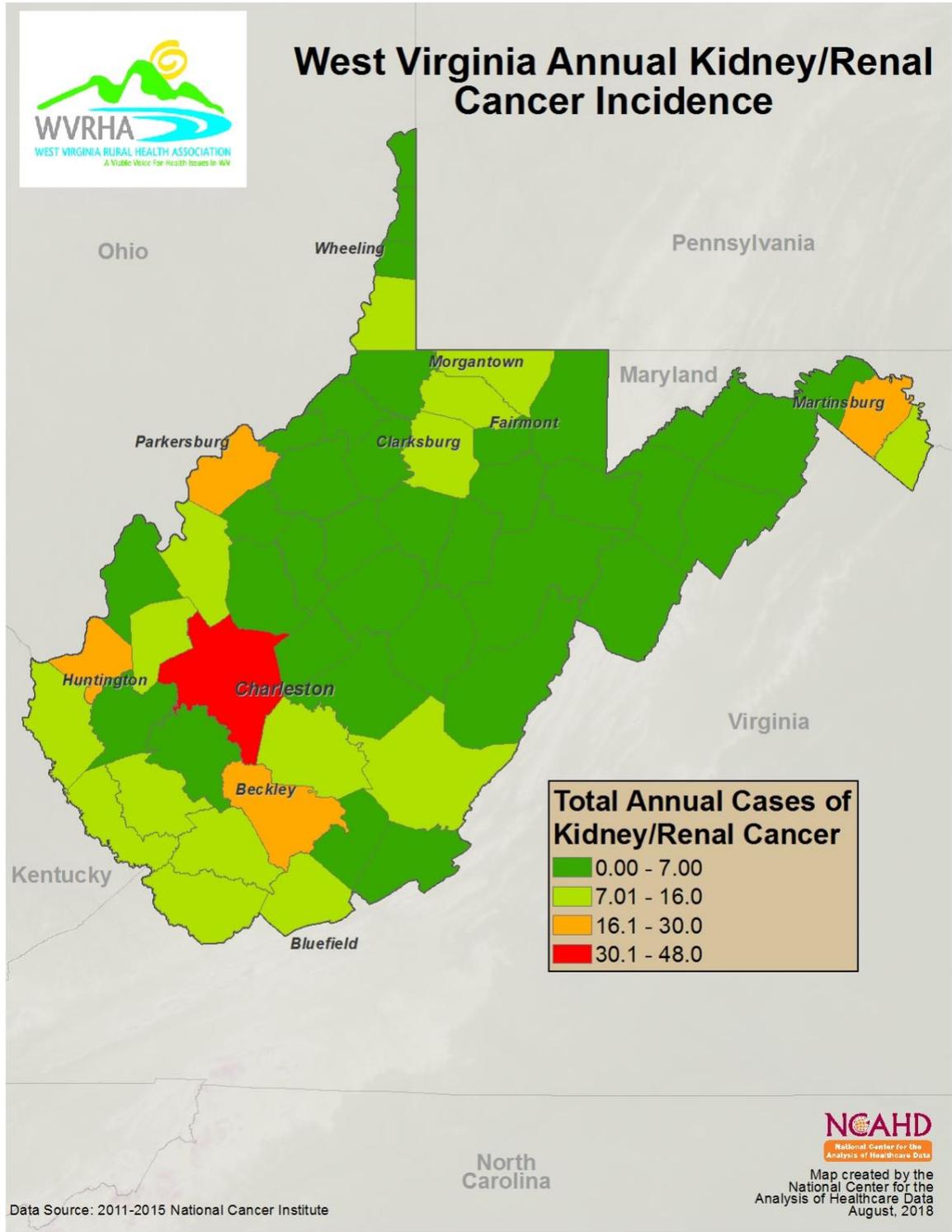


MAP 52 – INCIDENCIES OF LUNG CANCER

MAP



53 – INCIDENCIES OF LIVER CANCER



MAP 54 – INCIDENCIES OF KIDNEY/RENAL CANCER

## DATA SOURCES

The primary source for the provider data is their respective state licensure board which NCAHD collects and process annually (since 2007) to create the Enhanced State Licensure (ESL) dataset. In 2013, NCAHD determined the quality of certain attributes from the National Provider Index (NPI) met the center's QA/QC standards and integrated these attributes into the current ESL. (For more information on this process, see **Appendix A-NCAHD's National Data Collection Process**).

## LIMITATIONS

The state licensure process for healthcare providers collects numerous elements of information (data) that are not released to the public, including the number of hours they practice, whether they accept Medicare, etc.; therefore, we assume that each licensee is equal to one Full-Time Equivalent (FTE).

Additionally, for those providers that practice in more than one location, we utilize their primary practice site only in the analysis since the additional practice site information is not publically released.

All of the other data utilized in the maps or on the portal are properly cited on the map and/or within the portal.

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*It is the mission of the West Virginia Rural Health Association to unite people, communities and organizations to strengthen rural health in West Virginia.*

*Only those who will risk going too far can possibly find out how far one can go.*

*T. S. Eliot*

*I am not a product of my circumstances. I am a product of my decisions*

*Stephen Covey*

*The best and most beautiful things in the world cannot be seen or even touched – they must be felt with the heart.*

*Helen Keller*

## REFERENCES

<sup>1</sup> Centers for Medicare and Medicaid Services, March 31, 2016 Effectuated Enrollment Snapshot, (Baltimore, MD: Centers for Medicare and Medicaid Services, June 2016), available online at <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-06-30.html> (last accessed Dec. 6, 2016).

<sup>2</sup> Petterson, S.M., et.al, (2012). Project US Primary Care Physician Workforce Needs: 2010-2025. *Annual Family Medicine*;10:503-509 doi:10.1370/afm.1431

## APPENDIX A – NCAHD NATIONAL DATA COLLECTION PROCESS

Many of the national healthcare provider organizations have created and maintain their own membership-based data inventories for their profession but the aggregation of these datasets for public access or assurance of their data quality has been well publicized. Considering the well published disparities in membership association data, and other private sector data sources, we determined that because the quality and consistency of provider data is controlled through state mandated licensure processes, it would become the basis for our national healthcare workforce data.

Therefore, in 2007, the National Center for the Analysis of Healthcare Data (NCAHD) took on the daunting task of researching and identifying sources for healthcare workforce data to establish a process that could assure a consistent data quality that would meet the needs of the research, healthcare education planning and more effective policy and decision-making. Consequently, NCAHD has collected, processed, normalized and made spatial the 2008, 2009, 2010, 2011, 2012 and 2013 licensure data from each licensure board in all 50 states for Allopathic and Osteopathic physicians and 14 non-physician healthcare providers (Physicians, Audiologists, Certified Registered Nurse Anesthetists (CRNAs), Certified Nurse Midwives (CNMs), Chiropractors, Clinical Nurse Specialists (CNS), Dentists, Dental Hygienists, Naturopaths, Nurse Practitioners (NPs), Optometrists, Oral and Maxillofacial Surgeons, Pharmacists, Physical Therapists (PTs), Physician Assistants (PAs), Podiatrists, Psychologists, and Speech-Language Pathologists (SLPs).

Since the type of data collected on each provider in each state is mandated differently (with all collecting a basic core set of elements: licensure #, address, status), we created a standardized process for data collection and management that helps to improve the quality of the licensure data.

For each data collection cycle, we utilized our unique national data collection and management system coupled with spatial analysis performed in three separate processes: Procurement, Data Normalization and Spatial Analysis and Aggregation

1. **Procurement:** Our process starts with identifying the source of each of the providers' state licensure information which is either their own provider licensure board or through a state repository. We contact each of these entities each year to determine any regulatory changes that may have transpired regarding either the collection or publication of the state licensure data and record any of those changes. Additionally, we determine the costs associated with the acquisition of the state licensure data and initiate the process to procure the data. After determining the costs and procurement process, we issue the check and wait for the state licensure board to send the data to our center for further processing.
2. **Data Normalization:** Upon receipt of each provider file, basic information is recorded as to date, number of raw records received and the format and if necessary, is converted into Excel spreadsheet format. Next, we conduct a thorough inventory of the data attributes and quality of the data and record this information in an automated data matrix. In the next step, we remove duplicates, retired, deceased, overseas military and inactive licensees based upon the information provided by the state licensure boards on their status, licensure number and provider name. These licensees are put into a separate

file for future reference. Our next step is to normalize the headers, names and addresses for each provider for each database in order to standardize the data and so that we manage the data for future research purposes.

- 3. Handling of Multiple State Licenses:** Those licensees with multiple state licenses are assigned to the state in which their license is sent assuming that this is their main practice address. If the licensee has the license sent to a practice address within each of the states they are licensed in, it is assumed that they practice in each of those states to some degree throughout the year.
- 4. Spatial Analysis and Aggregation:** At this point in the process, we will make the data spatial first through our automated geocoding process built within the GIS software. (We utilize the most current and spatially refined georeference file purchased separate from this grant for by the center.) We strive to geocode to the most refined level of geography provided through the licensure data. The resulting accuracy of the geocoding process is recorded as a part of each record. Providers that are not found through this process are identified through on-line internet searches.

After the data is made spatial, we segregate those providers that are in-state from all out-of-state providers and for the purposes of the HRSA grant, only aggregated the in-state providers to the county level. Our spatial aggregation process utilizes the most current county boundary file within the GIS. At the end of the spatial aggregation, we check the total number per state to the original in-state totals.

As a part of our data quality assurance process, we compare the county totals to the previous year's state licensure county totals. For those numbers that are off by more than 5%, we go back through the entire process again including checking with the data source to inquire as to the large difference from the previous year. If there was a data processing error, it is caught upon re-processing the file. If the large change was due to migration of providers or other potential suggestion by the board, we indicate it within the comments section of the file.

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<sup>1</sup> O'Leary, S. (9/2018). "Census Data Shows Lack of Progress for West Virginia", West Virginia Center on Budget & Policy, [http://www.wvpolicy.org/census\\_data\\_shows\\_lack\\_of\\_progress\\_for\\_west\\_virginia](http://www.wvpolicy.org/census_data_shows_lack_of_progress_for_west_virginia)