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INTRODUCTION

The West Virginia Rural Health Association (WVRAH) is a non-profit 501 (c) (3) organization with a volunteer Board of Directors (BOD) elected from a variety of people and organizations that are interested in the health of rural West Virginians. Our members work together to identify the health care concerns and find ways to improve services and access in our communities.

For a list of board members, please visit: www.wvrha.org. The mission of the West Virginia Rural Health Association is to unite people, communities and organizations to strengthen rural health in West Virginia.

The West Virginia Rural Health Data Portal was launched January 2013 as a resource for anyone needing current facts about the health workforce in West Virginia and to show the impact of mal-distribution and shortages have upon current and future West Virginians and the economy. There are over three hundred data sets and trend analysis that are updated annually. Additionally, WVRHA adds new data and trend analysis each year and publishes a workforce supply and demand analysis report focusing on healthcare in West Virginia.

The primary source for the provider data are state licensure boards which is collected annually by the National Center for the Analysis of Healthcare Data (NCAHD). NCAHD determines the quality of certain attributes from the National Provider Index (NPI) and met the center’s QA/AC standards and integrated these attributes into the current ESL.

This tutorial was developed to familiarize users with all of the various types of portal data and how to use the mapping system efficiently and effectively. It is our hope that this data will be used by policy makers, researchers, grant writers, workforce development, academia and by any stakeholder to determine where and how health care demands are affecting the state.
Accessing the Portal’s Secured Data Area

**Purpose:** Members of the West Virginia Rural Health Association have access to view, analyze and map individual provider point level data through a password protected area.

**Exercise:** Once a member is provided a user name and password (from NCAHD), they can access, view, analyze and map point level data along with all of the other public data sources. For this tutorial, the user wants to look at chronic disease densities relative to healthcare providers.

1. The user wants to view densities of Obesity which is found under the **Patient Information** category in the **Health Determinants** data category and select the **Obesity** dataset. It will appear on the screen.

![Map Image](image)

2. The user wants to view the availability of **Endocrinologists** and **Primary Care Physicians** the user with access to the secured layers would scroll down to the blue box **Click Here to view Secure Layers** and the login screen will appear...
that the user will input their user name and password and select Login.

Another data category Secure Layers will show at the bottom of the data list.
3. The user will select Primary Care Physicians from the Primary Care Workforce data category and choose Endocrinology from the Specialty Care Workforce data category.

4. To see the individual provider data more clearly, the user can make the Obesity data more transparent by move the bar underneath the dataset
and the data will vanish.
Viewing providers in rural and underserved areas and downloading data

**Purpose:** Looking at various healthcare workforce interactively, helps bring an awareness and being able to download the data for future use within the user’s own work environment has multiple benefits.

**Exercise:** This exercise will turn on multiple providers in both the public and secured areas and use the transparency bar to look at them interactively.

1. Enter portal and notice that a popup informing you about access to individual provider level data is only an option through the secured access. To not continue to view this, click on the checkbox so the check no longer appears:

   ![West Virginia Health Data Portal](image)

2. Focusing on primary care workforce, turn on the **Primary Care Physician, Nurse Practitioners and Physician Assistants** found under the **Primary Care Workforce** tab. Note: As you turn these layers on, their statistics will appear on the map. The shading represents the percentage of that provider is over 55 years of age within the county. The number is the actual number of providers that are over 55 years of age in the county.

3. To interactively view these providers, use the slide bar to the right of the data layers name. As you move it back and forth, you’ll see the next layer (in this case, Nurse Practitioners).

4. If you’d like to target your view to those rural areas, turn on **RUCA Rural** from the **Baseline** tab. It will draw on top of the county layers. Again, if you want to
make this less apparent, use the transparency bar to make it appear less.

5. If you have access to the secured data, then enter your passcode and the individual workforce can be viewed.

6. If you want to view all primary care providers and see the location of the aging workforce relative to each other, then turn on from the **Secured Layers tab**, the **Nurse Practitioners, Physicians Assistance and Primary Care Physicians**.

7. If you want to download the workforce data, choose the **Identify** tool and a popup window will appear. From the **Identify Layer**, choose from the dropdown under 2013 Workforce and 2010 Demographic Data, **County**. Click on the select box and choose the counties that you want data on. The results will appear in the popup window and the area will be highlighted red on the screen. If you want to look at the data for the county, choose the plus next to the county name and it will expand to show you the data.

8. To download the data on the counties selected, choose the **Export Results** button and a popup window will appear which allows the user to save the data (as a .csv file) to their desktop environment.

9. The .csv file can be either dragged unto an open Excel spreadsheet or opened through Windows Excel.
Analyzing Specialty Physician Needs through Health Outcomes

**Purpose**: To help target areas of greatest need for specialty services, need for additional patient education and physician placement

**Exercise**: Compare health outcomes to corresponding specialty physicians to see any correlation

1. Enter portal and select the following data layers:

2. The data on the health outcomes will appear on the screen.
To view the aggregate values on the specialty physician, choose the aggregate summary tool found in 4. **Select a Tool of Further Analysis**

![Aggregate Summary Tool](image)

and a popup box will appear that you can select to view the total numbers (in the **View by**) at the county, zipcode geographies in the **View by** drop down (select the down arrow and they geographies will appear). You also can view the total numbers of providers in aggregate or the normalized number. Use the **Display** to choose with **Total** or **Normalized**. Once
you have chosen, then select the **Calculate** button. Your will now see both data layers on top of each other.

Although you can faintly see the other dataset, to view the layers interactively, you **Clear** the aggregated data to see the other dataset.

3. The other option is to become a member of the WVRHA so that you can access the individual point level data for providers as seen below.

4. Select the **Secure Layers** and enter your access code.
5. Select Orthopaedic Surgeons from the Specialty Care Workforce.

6. Use the transparency bar on the Arthritis data layer so the individual points show better on the screen.
Using the Service Area tool to perform analysis and download data

**Purpose:** To view service area and routing distances and time between two or more points (e.g. hospital, city, patient etc.) based upon either drive time or distance

**Exercise:** The user defines two or more points and the portal provide the results. This demonstration doesn’t require the user to turn on any data. The user can measure the distance between two points on the map. For this exercise, we’ll measure the distance between two hospitals for a patient injured in Monongahela National Forest.

1. Turn on Hospital data will appear on the screen.
2. To create a service area for a hospital, choose the **Service Areas Tool** in the **Tool** section and a popup will appear.

3. The user will choose a hospital and distance or time in the **Measure** boxes and decide the **Travel Direction**. The user would then select the **Add Facility** button and a marker would appear on the screen indicating the center of the service area analysis. The user would select **Solve** and the analysis would start with the results show in the view.
4. Optional analysis to use the service area to summarize the data within the service area. The user will choose the type of data they want the service area to analyze from the **Summary Type** dropdown and choose the **Solve** button.

5. Optional analysis to use the service area to download data layers is available by the user selecting the **Identify Layer** and choosing a data layer to download. Any data that touches the service area will be identified through the analysis.
5. The user can view the data by selecting the + next to the name and it will expand. or the user can choose to download the data using the Export tool. The portal will generate a .csv file which the user can save to their desktop computer. Below is an image of the .csv file which can be saved by the user as an excel spreadsheet.
|   | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   | K   | L   | M   | N   | O   | P   | Q   | R   | S   | T   | U   | V   | W   | X   |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | Name | STATE | Population | RUCA | Nona | PhysTo | TotDD | TotMRD | NonPhys | PrimaryC | PrimaryN | Physician | Nurse | PA  | NA | CNS | MW  | Dentists | DentalHy | CD  | PD  | DS  | PT  | PT  | Pharmacist | AD | SP |
| 2 | Cavin | WV   | 1004  | 10   | 1    | 0    | 0    | 0    | 7    | 0    | 0    | 1    | 4    | 0    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 3 | Camden | WV  | 1054  | 11   | 1    | 1    | 0    | 1    | 2    | 0    | 1    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 4 | Diana  | WV   | 764   | 10   | 1    | 0    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 5 | Hacker Va  | WV | 594   | 10   | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 6 | Uppergl WV   | WV | 382   | 10   | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 7 | Webster WV | WV   | 1041  | 10   | 1    | 6    | 4    | 2    | 5    | 2    | 1    | 2    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 1    | 0    |
| 8 | Sutton WV | WV   | 5123  | 10   | 1    | 5    | 3    | 2    | 6    | 1    | 2    | 0    | 0    | 0    | 0    | 0    | 2    | 1    | 0    | 0    | 0    | 0    | 0    | 3    | 0    |
Workforce Distribution Relative to Urban/Rural Areas and Shortage Designation

**Purpose:** Users want to be able to view and determine number of providers in rural and underserved areas. The identify tool will all the users to learn numbers and type of providers in rural and underserved areas.

**Exercise:** Users will learn how to find and turn on healthcare providers data and overlay various rural and underserved designations.

1. Select from the **Primary Care Workforce** data category, **Primary Care Physicians (MD, DO)**, **Nurse Practitioners** (Under the **Advanced Practice Registered Nurse** data category), and **Physician Assistants**. (Note: The data will only appear in aggregate unless the user is a WVRHA member, then they’ll see the individual provider level data).

![Map of workforce distribution](image)

2. To view the data, select the **Aggregate Summary** tool from the **4. Select a Tool for Further Analysis**. The below popups windows appear.

![Aggregate Summary tool](image)

After selecting the tool, this screen with providers selected will appear.
3. Make sure the provider you want to view are listed under the **Layers to Summarize**. You will have the options to view the data by county or zip code total or view the data normalized to 100,000 population.

4. If you move your mouse over the county/zipcode, the number of providers will popup on the screen.

5. To view the rural areas, select **RUCA Rural** from the **Baseline** data category and it will appear on top of the aggregated data. To view the federal shortage designations, you would select these data layers and they would overlay on top of the aggregated provider data.
**Viewing and Mapping Access to Care and Patient Health Demographics/Determinants/Outcomes**

**Purpose:** There are multiple factors that impact the access to quality healthcare but being able to target those areas where there is a known high percentage of uninsured, proximity of providers, transportation access, etc. Interactively viewing specialty providers to specific patient health determinants/outcomes will be useful for planning.

**Exercise:** In this exercise, the user will turn on multiple layers and view them interactively and print a map for future reference. The user will learn how to use the **Aggregate Summary** tool and the **Print map** and the **Export map** tools.

1. Enter the portal and turn off the warning popup.

2. Under the **Patient Information** tab, open the **Health Determinants** tab and under it you’ll see the **Uninsured** dataset and turn it on. The map will show the percentage uninsured by county.

3. To view the federal designation for primary care physicians shortage areas (**PC HPSA**) along with the **Uninsured**, the user will find **PC HPSA** in the Baseline data category and turn it on. The user adjusts the coloring with the transparency bar.
located under the data layer. The changes are seen below.

4. To view access to specialty care to patient populations, the user will view both data layers, for example **Elderly by county** under the **Healthcare Determinants** data category and turn on **Orthopedic Physicians (both MD and DO)** under the **Specialty Physician** data category.

5. The user will see the **Elderly by county** on the screen and will have to use the **Aggregate Summary** in the in **4. Select a Tool for Further Analysis**. A dropdown box will appear with only those layers that the user want to summarize (in this
case, Orthopaedic Surgeons). When the user selects the Calculate button, the aggregated provider data will appear on top of the elderly data.

6. If the user wants to view the distribution of the providers, they will need to be members of the WVRHA and access this data through the Secure data layers found in . The Secure Layers data category will appear.
If the user has been provided their access code information, they can choose Orthopedics Surgeons under the Specialty Physicians data category, and the providers will appear on top of the Elderly population data.

7. If the user wants to create a titled map, they would choose the print map button at the top and in the next interface, enter a title, e.g. West Virginia Elderly and Orthopedic Surgeons and then select . The computer will process the request and generate a map that can be sent to the user’s printer.
8. If the user prefers to create a map image for user in a report or saving, it will be without a title. The user will select the Export Map button at the top. The interface allows the user to choose the size of the image export and format. (Note: MAP_ONLY is chosen for a normal size map.) Once you choose the image format, then the user selects Open Export. To View and save the map, the user would choose the “Open Export” and the map would appear. The user would user either a right mouse click to download or the other interface for printing/saving.
Accessing the Portal’s Data Relative to Opioid Abuse Issue

**Purpose:** Data has been added to the portal that may assist those individuals, organizations and policy maker in having the ability to view, analyze and map data relative to the opioid crisis in West Virginia.

**Exercise:** Users can view the various opioid abuse and treatment data and overlay political and other patient demographic data. For this exercise we’ll look at grandkids living with grandparents relative to Drug Deaths by county.

1. Turn on the **2015 Rate of Children Living the Grandparents** found under the **Social and Economic Factors** under the **Patient Information** data category.

![Map of West Virginia with data overlay](image)

Then turn on **Drug Deaths** found under the **Healthcare Determinants** data under the **Patient Information** data category.
2. The users can use the transparency bar to look at the two data layers together.
3. To look at the various treatment centers, choose from the **Human Resource Center**. Many of the state/federal treatment centers are listed.

4. Use the **Identify** tool to learn more about the treatment centers or any of the other healthcare facilities. Scroll down to find the data layer and choose it. And it will show up in the **Identify Layer** window.

5. Select what **Mode**, either a single facilities ✨ or multiple facilities 🌟.
Determining Distance and Time between Two Locations on the Map

Purpose: It has been published, that patients are less likely to keep their appointment if they have to travel more than 28 minutes.

Exercise: This exercise will help the user visualize drive and time distances to/from facilities.

1. Enter portal and turn the data that you are trying to determine the distance between, for example the distance to/from a hospital. This data is found in the data category called Healthcare Facilities.

3. To Identify the hospitals, you can turn on the labels (as seen in the image above or choose the Identify tool from 4. Select a Tool for Further Analysis.

4. Select a Tool for Further Analysis
A popup window will appear and from the **Identify Layer** dropdown, choose **Hospitals**.

Then click on the select tool located in the popup window and draw a box around the hospitals that you are wanting to identify. The results will appear in the Identify popup box.
Click on the + next to the hospital name and more information about the healthcare facility will appear.

4. To engage the routing tool, choose the **Routing** tool from **4. Select a Tool for Further Analysis**. A popup box will appear that instructs you to click on the map twice and instantly the route Time and Distance will be calculated.

You can add an additional site or clear and choose another facility.
Determining the number of healthcare providers or healthcare facilities within a distance from a user defined point on the map

Purpose: If a healthcare facility or healthcare training site is considering an expansion of their services or education programs, then knowing the workforce within a certain proximity is helpful in planning. This information may be useful for grant applications too. For a healthcare training site, knowing the availability of potential trainers/educators is useful in targeting sites better suited for the type of expansion being considered.

Exercise: We will turn on healthcare facilities and education sites and show how to use the buffer tool and the service areas tool can help in learning about workforce.

1. Enter the portal and turn off the warning box.

2. From the Baseline tab, turn on States and County boundaries (for reference).

3. If a rural health clinic is considering the expansion into dental services, then from the Healthcare Facilities tab, turn on Rural Health Clinics.

4. Either turn on labels or use the Identify tool found in 4. Select a Tool for Further Analysis to identify a rural health clinic.

5. Use the Zoom in tool to zoom closer into the facility.
6. Select the **Buffer tool** from **4. Select a Tool for Further Analysis** and a popup and a popup window will appear. This tool allows the user to interactively choose which provider they want the distance to be calculated upon.

![Buffer tool screenshot](image1)

7. Choose from the dropdown, the provider (e.g. Nurse Practitioners) and then input a distance into the window next to **Buffer Distance**.
8. Click on the map where you want a buffer analysis to be performed and the results will appear under the buffer tool and the buffer will show on the screen.

9. To use the **service area tool**, select the tool from **4. Select a Tool for Further Analysis** and a popup window will appear. First you enter the distance or time.
you want to analyze and enter in the **Measure** boxes.

Also, the user can select the types of provider to analyze in the area in the dropdown under **Summary Type (optional)**. And the user can also choose data to be analyzed that fall within the service area and download this data.

10. Once the user has completed the parameters of their analysis, they will choose **Add Facility** and use their mouse to put a point on the map that the analysis will be performed. To initiate the analysis, the user must select **Solve**.
11. The results will appear below the box and on the screen. The user can look at both the summary statistics or choose to download the data.

12. If the user wants to change the type of provider or facility to analyze, they select the Clear and choose another provider type from the Summary Type.

13. To download the layer identified (e.g. zipcode workforce data), the user would select Export and the spreadsheet will appear on the user’s screen and they can save it on their computer.