



# NEBRASKA STATE GEOINQUIRIES

ACCESS AND BARRIERS: NEBRASKA HEALTHCARE

## Teacher Directions

**Summary:** Students will use Central Place theory to examine the distribution of healthcare services in Nebraska. They will also examine the future issues and changes in healthcare.

### Nebraska State Social Studies Standards

*This activity has been designed to meet the following Nebraska State Standards...*

#### Primary:

Apply geographic knowledge and skills to interpret the past and present in order to plan for the future.

#### Secondary:

Analyze how geospatial skills and geo-literacy are applied to improve standards of living and solve problems.

### Lesson Objectives:

*By completing this activity students will have the ability to...*

- Comprehend central place theory and apply it to healthcare facilities in Nebraska.
- Comprehend the origins and distribution of cities in Nebraska.
- Analyze geospatial data to interpret patterns of healthcare shortage areas in Nebraska.
- Evaluate the impact of future population growth and age on healthcare in Nebraska.

**URL:** <https://arcg.is/105eii>

### Activity:

*Follow these steps to complete the Geoinquiry*

 = A Mapping function students will need to complete

 = A piece of information or background students will need to know

 ask your question

### Ask a Question: *How does the distribution of healthcare facilities impact Nebraska?*

 = Open the map using the link above

 = Central Place Theory has several parts. It deals with size and spacing of cities. In an ideal world, cities would exist on a flat level plain with equal spacing between each city. The pattern would look like a series of hexagons with a large city in the center that would deliver more specialized services that are usually more expensive and utilized less often than smaller cities. This ideal pattern did not develop in Nebraska. The state was mislabeled by early explorers as "The Great American Desert" making much of the state the last place to be settled in the west. The railroad began in the eastern part of the state and needed watering stations along the path of the rails. This helped to propel the development of cities along railroad lines with access to water. The result of this pattern is still with us today as the specialized services of the large



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cities in the eastern part of the state results in people in the rest of the state having to travel long distances for medical care. At the local level, in order to offer basic as well as emergency services necessitates having a hospital with a doctor on staff. As populations in the state migrate, grow and decline, making sure adequate healthcare facilities is important. This exercise investigates the connections between Central Place theory and the distribution of healthcare in the state now and in the future.

**Teacher Notes:** The teacher might want to discuss this with some examples such as small towns often offer services like a gas station or local diner, but the size of the population would not support a major baseball team stadium. In terms of healthcare, small towns have doctors but to have a major surgery such as a heart bypass the patient would travel to a major medical hospital.

? How does the size of the city impact the number and type of services that it offers?

The smaller the town the fewer number of specialized services it will be able to offer.

 = Click on the box beside “Central Place Diagram” and then click on the “+” that appears by Omaha. Click on the photo and compare the two diagrams that appear.

? What observations can you make when comparing the two diagrams?

People are willing to travel further distances to go to a law office.

? Why do you think Omaha attracts people from further distances?

Services from a lawyer (like drawing up a will) are more expensive and something that people do less often than buying groceries.

? How might the map of medical services look similar and different from the two diagrams?

For a minor medical issue, the map may look like the grocery map. For very serious medical issues (like a major surgery), the map may look more like the law office map.

## Collect New Information:

***What created the population distribution of cities in Nebraska?***

 = Click on the box in the content menu beside “Railroads” and unclick the box “USA Counties (Generalized)”. Use the “+” and “-“ symbols in the upper left of the map to zoom in and back out. Zoom in and compare the location of the railroads to the location of cities on the map. The “+” and “-“ symbols look like this:



? What observations can you make?

When many of the railroad lines were built, the cities developed along the railroad lines creating the pattern of towns and settlement across the state.



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### Collect New Information:

***How does the population of the state impact the distribution of critical access hospitals in the state?***

 = Click on the box beside “USA Counties (Generalized)”, leave the box “Railroads” checked and click the box “Nebraska Critical Access Hospitals”.

? What observations can you make when comparing the location of hospitals to cities?

People in the cities need medical services so the hospitals are often found along the town which sprung up along the railroad lines.

### Analyze for Trends and Patterns:

**Where and why are some counties state designated family practice shortage areas?**

 = The federal government helps fund medical care facilities in Omaha, Lincoln and Native American reservations. As a result, the counties within a 25 mile radius are not designated by the state for healthcare designation. The state of Nebraska seeks to have a goal of one doctor per 1500 people.

? What patterns do you see?

Answers will vary.

Teacher Note: Hooker and Boyd counties have a small population and a couple of physicians which can change quickly if retirement or moves occur.

? How does Central Place Theory help to explain some of the patterns on the map?

Generally, where there are larger towns/cities there are more people and can support more medical services. Towns with smaller populations may have a more difficult time attracting doctors to their communities.

? How might the state incentivize\* doctors to live in state shortage areas?

Teacher Note: The state of Nebraska offers loan repayment programs that are used by the state office of Rural Health to help communities with recruitment/retention. The state has found the loan repayment programs to be most impactful. You can check the annual rural health advisory commission report which shows impact and numbers of providers. Currently 50% of family medicine health care providers have or are serving a loan repayment obligation. Many times, counties/communities are not excited to see their area no longer designated as a short area due to not being able to offer loan repayment. The state health department attempts to have counties fully staffed with health care before they drop off the list.



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### Planning for the Future:

 = In the content menu, unclick “State-Designated Family Practice Shortage Areas” and click on the box by “2020-2050 USA Population Growth”. Click on Legend and observe the differences in color for counties that are projected to grow in population and the color for counties that are projected to lose population by 2025.

 = Zoom into your county.

Zoom into your county.

? = What observations can you make?

Answers will vary.

? = Looking at the parts of the state that will experience the most growth from 2020-2050, how might this impact health care?

Answers will vary.

 = In the content menu, click on the box “Nebraska Population Pyramid”. A push pin will appear in the center of the state. Click on the head of the pin and a window will open.

? = What does the diagram show?

The number of males and females at different ages in Nebraska.

? = In five years, what will likely happen to the number of people in the 60-65 age range?

The number of elderly people in the state will likely increase.

? = The population pyramid projects the population of older people is growing larger; how might this impact health care in the state?

Answers will vary.

? = How might telehealth\*\* help health care in Nebraska?

Answers will vary.

### **Share what You Have Found: How does the distribution of healthcare facilities impact Nebraska?**

Possible assessments:

Have a panel discussion around the central question above.

Invite local healthcare experts to discuss the current and future healthcare in your community.

Create an info graphic that highlights the key findings from the discussion.

### **Develop an Action Plan: How does the distribution of healthcare facilities impact Nebraska?**

Have a panel discussion around the central question above.

Invite local healthcare experts to discuss the current and future healthcare in your community.

Present your findings to a local group (PTA, panel of educators, local school board or county board).



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Other extensions:

Research the uses and limitations of telehealth and present the research to a local group (i.e. local school board)

Create other map layers such as age distribution, internal medicine, OB/GYN physicians and analyze the maps for key findings.

### **General Formatting Standards**

 = Perform a mapping function

 = Use this to include pieces of information students will need to know

? = Denotes a line of questioning for students to answer [Place answer in brackets at end]

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### **Sources and Additional Readings:**

*Be sure to check out these resources to learn more*

- “The Status of the Nebraska Healthcare Workforce Update March 2020”  
<https://dhhs.ne.gov/licensure/Credentialing%20Review%20Docs/CRAPRNWorkforce2020NikkiCarritt.pdf#search=Shortages%20by%20County>
- “Nebraska Rural Health Advisory Commission’s Annual Report” December 2020  
<https://dhhs.ne.gov/Reports/Rural%20Health%20Annual%20Report%20-%202020.pdf#search=rural%20health>
- Nebraska Department of Health and Human Services  
<https://dhhs.ne.gov/Pages/default.aspx>

### **Footnotes:**

\* [Incentivize](#) to make someone want to do something, such as to buy something or to do work, especially by offering prizes or rewards

\*\* [Telehealth](#) is the distribution of health-related services and information via electronic information and telecommunication technologies. It allows long-distance patient and clinician contact, care, advice, reminders, education, intervention, monitoring, and remote admissions.

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