**Exploring Health Inequities and Redlining**

**Overview**:

For this assignment, you will be exploring patterns of and relationships between historic redlining data and modern statistics of human health. You will work in small groups to explore the National Community Reinvestment Coalition (NCRC) website. The NCRC website has a set of interactive digital maps that were produced by a data science project in which some old historic maps (which will be described in more detail below) were digitized and merged with modern data from the Center for Disease Control and Prevention (CDC) and demographic data from the Census Bureau. Like many data science projects, the NCRC website has impressive graphics or, using the data science lingo, “visualizations”. As you explore the question of patterns of redlining and health, you are also encouraged to reflect upon on how modern technology allows us to explore data patterns in new ways.

**Background Information on the historic HOLC maps**

How do you buy a house in the United States? For most Americans, buying a house depends on getting a special type of loan called a “mortgage” in which the property to be purchased will be collateral. The buyer fills out an application for a loan, and the bank or lender makes a final decision on whether to approve the loan. The assessed value of the property may also influence the loan details. In addition to the approval process, the bank and potential buyer will also have to agree on the interest rate for repaying the loan. What information do banks and lenders use to decide whether to loan money to a potential home buyer? What information is used to decide on an interest rate and what factors influence the assessed value of the property being purchased?

A set of old paper maps created by the Home Owners’ Loan Corporation (HOLC) documents some of the ways that lenders evaluated loan risk and assessed property values around the 1930’s. Until quite recently, these historic HOLC maps were only available to in-person visitors to the National Archives Building in Washington, DC. In 2016, a group of scholars completed most of the digitization of the maps, making both the images of the maps and the location-based data in the maps, freely available to anyone with access to the internet. The HOLC was a corporation created by government policies associated with the New Deal. The maps are both the product of a New Deal policy (being created by a government-sponsored agency) and also a reflection of lending patterns that preceded 1930’s and that preceded the existence of the Home Owners’ Loan Corporation.

**Objective**

In this activity, you will explore modern health statistics with respect to urban neighborhood location, specifically with reference to a group of residential security maps created in the 1930’s by the Home Owners’ Loan Corporation (HOLC).

**Pre-Work**

* Read through the “What is redlining” section here: <https://www.esri.com/arcgis-blog/products/arcgis-living-atlas/announcements/redlining-data-now-in-arcgis-living-atlas/>
* Watch the following video: <https://youtu.be/O5FBJyqfoLM> .

**Worksheet Questions**

1. What is redlining? What is systemic racism? Your group can define these terms using your collective common knowledge or you or your group can use an internet site to help you define them. If you use any internet sources to define these terms, please either paraphrase or use quotation marks. In either case, please provide the link to the site you used.

2. In what way might redlining affect public health? In other words, how might communities in redlined areas suffer in a health sense compared to greenlined areas?

3. Besides health, what are other disadvantages that redlined communities suffer?

4. Visit the following link: <https://ncrc.org/holc-health/> and scroll to the “VIEW Maps and Data for 150 Cities” – pick a city to explore. (Sometimes the site may “time-out” to a “Wait, before you go” message, and you can just click “No thanks” to return to your original page.) Each group member should pick a city that interests them, and it is fine for group members to pick the same or different cities. Discuss with your group members why you chose your city and help each other out if anyone in your group has trouble navigating the website.

Pick any two HOLC polygons on the map (ideally, pick two polygons with different trajectories or different redlining scores). If you happen to pick the same city as another group member, try to pick a different pair of polygons. Summarize the information about those polygons as in the example below for Atlanta, GA. You may have to spend some time exploring polygons until you find the ones that contain the health data – a few of the cities and some polygons may be missing data. Try to pick polygons with all the data listed below.

If you are completing this activity without help from your instructor, this video will explain aspects of the NCRC website and maps: <https://youtu.be/A9wrYa45aHY>

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **City** | **HOLC polygon** | **Risk Color (1930’s)** | **Social Vulnerability** | **Percent Minority** | **Life Expectancy** | **Poverty** | **Asthma** | **Cancer** | **Diabetes** | **High Blood Pressure** |
| Atlanta, GA | C22 | Yellow | 0.62 | 62.5 | 73.4 | 18.6% | 9.7% | 5.5% | 11.7% | 34.8% |
| Atlanta, GA | C23 | Yellow | 0.04 | 40.4 | 76.3 | 7.3% | 8.8% | 5.4% | 9% | 29.3% |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

5. What city did you choose and why?

6. The Centers for Disease Control and Prevention (CDC) is a federal agency in the Department of Health and Human Services. These two questions relate to information found on the CDC websites.

What is the social vulnerability index? <https://www.atsdr.cdc.gov/placeandhealth/svi/fact_sheet/fact_sheet.html>

Explore the following two CDC sites: <https://www.cdc.gov/chronicdisease/about/index.htm> and <https://www.cdc.gov/chronicdisease/about/index.htm> -

What are chronic diseases and what are chronic disease indicators according to the CDC? What chronic disease indicators were reported on the NCRC website? What stands out to you regarding these measurements after reviewing the CDC links?

7. When doing this activity and exploring the city or cities that you or your group chose – what patterns did you discover and observe? Feel free to comment on more than just the two polygons that you explored. What are some possible hypotheses for why those patterns exist?

8. Do you think the neighborhoods that you lived in as a child influenced your or your family’s health in good or bad ways? If yes, in what ways and why? If no, why not?

9. Have you studied or done any class activities on community health in relation to racism before? What parts of this activity were new to you? (At the end of the worksheet is a list of terms/concepts covered in the activity.) Which parts of this activity were already familiar? What will you “take home” from this activity? If your career goals are health oriented, consider commenting on how awareness of these patterns are important to your future career.

10. What new unanswered questions arose in your group or to you alone as you completed this activity?

11. What is the National Community Reinvestment Coalition (NCRC)? What is the purpose of their organization? If you are curious about their policy recommendations, you can scroll to the bottom of this page: <https://ncrc.org/holc-health/> Propose a question that you would ask the staff of the NCRC if given an opportunity to engage in a conversation with them.

12. The NCRC website and NCRC interactive maps are a quintessential example of a data science project. Data from different sources were brought together using digital technology to reveal new patterns and to answer new questions. The ability for the NCRC to create visualizations that combined all three data sources arises from the fact that all three datasets contained a variable in common that allowed them to be merged. That variable was location. List/brainstorm some other examples of data that is available on the internet or elsewhere that has a location component (georeferenced). Propose a different location-based health-related question that could be explored using data science techniques like those observed at the NCRC website.

**Terms, acronyms, and concepts covered in this worksheet:**

* Redlining
* Systemic racism
* Data science
* Visualizations
* Digitization
* Georeferenced data
* Chronic disease
* Chronic disease indicators
* Social vulnerability index
* Mortgage
* Home ownership
* Public health
* Home Owners’ Loan Corporation (HOLC)
* CDC
* Census Bureau
* HOLC maps
* New Deal policies
* National Community Reinvestment Coalition (NCRC)