Introduction: Social determinants of health (SDOH) are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life risks and outcomes. In addition to the more material attributes of “place,” the patterns of social engagement and sense of security and well-being are also affected by where people live. Resources that enhance quality of life can have a significant influence on population health outcomes (Healthy People 2020). The Nebraska Collaborative Improvement & Innovation Network (CoIIN) Social Determinants of Health (SDOH) Team has been working in the SDOH Learning Network of the nationwide Infant Mortality CoIIN since 2015. The aim of the SDOH Learning Network is to build state and local capacity to influence SDOH.

The mapping of risk and protective factors is identified as a strategy for guiding policy, program, and community decisions. In Nebraska, mapping of risk and protective factors at the county level is a way to engage individuals and groups in conversations about population health not limited to individual behavior. In this way, conversations about equity can be guided by the variations in the conditions and circumstances in which we live.

The NE SDOH COIIN Team seeks to use maps to tell a story about engagement in civic life, through access to the internet, and access to cultural and social institutions and organizations across the state. Four maps are presented: C1 Voter Participation, C2 Access to High Speed Internet, C3 Cultural Institutions, and C4 Social Associations. Map C1 includes the feature of showing for each county the percent of minority population.

Maps: (Full-size maps are available in the Appendix section)
The Significance We See:

C1: In considering voter participation by county, the team became very interested in racial/ethnic composition of the population. What is the impact of changing population demographics on voter participation? While the map does not provide conclusive data, the team was interested to observe there may be a relationship between large minority population and lower voting participation.

C2: Internet access is associated not only with basic communication and social connectedness, but is also related to obtaining a job, seeking information about self-care and health issues, applying for public assistance, accessing emergency and public safety information and services, seeking answers to parenting questions, and finding a health care provider. Vast areas of the state do not have internet service meeting the minimum threshold for the map, signifying a significant disparity in access. We observe that internet access follows the path of Interstate 80. This data, from 2013, is the most recent available in September 2017.

C3: Cultural institutions represent physical assets in the environment for families and persons of all ages. We assume cultural institutions are accessible to the public, but also recognize there may be costs associated with use. Therefore, cultural facilities might not be available to or utilized by all on an equal or equitable basis.

C4: Social institutions that are based on membership serve a self-selected group that excludes non-members. “Joining” behavior may vary by generation, culture, and urban/rural differences. Social institutions may express a mission or purpose that contributes to advocacy and organized action. Membership in a social institution may indicate a communication network.

Accessing social and cultural institutions is dependent on means of transportation as well.

Suggested Questions for Discussion:

- Do you think citizens in your community experience any barriers to voting?
- What cultural institutions and social organizations are present in your communities or counties? Do you know how and by whom they are utilized? Do any provide community service opportunities in the community?
- What is your experience of internet access in your community? How does access to internet broadband strength compare to access to cell-phone signal and smartphone access?
- What are other ways you think community engagement and social connectedness might be viewed or measured in your community?
Limitations of the Maps:

The number of cultural, arts, and entertainment institutions as well as the number of social associations per 10,000 people is somewhat dependent on population size. The cultural, arts, and entertainment institutions map and the number of social associations map don’t reveal anything about how far people will need to travel to access these places, how frequently they are utilized, or by whom. The social associations map doesn’t reveal actual membership and participation. The maps seem “aged”, showing as they do 2013 and 2013 data sets.

Unexpected Insights from the Maps:

The map on Internet Access led to several discussion points and questions. The topic seems very significant to social determinants of health in modern times. The portrayal of how uneven internet access is statewide was startling.

Recommendations – Using this Information:

- Use this work as a stepping off point to explore and better understand how different groups might be served differently by social and cultural resources.
- Seek out more information about the policy and resource decisions that underlie internet access in Nebraska. What barriers exist to achieving equitable access in all areas?
- Raise awareness about the role of civic engagement and participation in creating healthy environments conducive to population health.
- Raise awareness and understanding of voting as a driver to impact population health, well-being, and equity.
APPENDIX 1: C1 Voting Turnout of Registered Voters

Percent of Registered Voters who Voted in the 2014 General Election and Percent of the Population that are a Racial and Ethnic Minority by County, Nebraska

Legend

Percent minority
- 1% - 15%
- 16% - 30%
- 31% - 45%
- >46%

Voter turnout
- 30% - 44%
- 45% - 59%
- 60% - 75%

Source: Nebraska Secretary of State 2014 general election voter turnout results.
The percent of the population that are a racial and ethnic minority was calculated from 2010 Census data.
APPENDIX 2: C2 Access to High Speed Internet

Percent of Residents With Access to High Speed Internet by County, 2013, Nebraska

Legend
Percent (%)
- 0
- 0.1% - 5%
- 5.1% - 25%
- 25.1% - 50%
- 50.1% - 92%

*Access to high speed internet is defined as access to three or more wireline Internet service providers, and two or more providers that offer maximum download speeds of 50 megabits per second. Measured at the neighborhood scale, higher values are better.

Source: National Telecommunications & Information Administration and the Federal Communications Commission June 2013 National Broadband Map
APPENDIX 3: C3 Cultural, Arts, and Entertainment Institutions

The Number of Cultural, Arts, and Entertainment Institutions per 10,000 People by County 2012, Nebraska

Legend
No. per 10,000 Population

Source: AARP Livability Index (https://livabilityindex.aarp.org), US Census Bureau, and 2012 County Business Patterns. Cultural, arts, and entertainment institutions include performing arts companies, museums, concert venues, sports stadiums, and movie theaters.
APPENDIX 4: C4 Social Associations

Number of Social Associations per 10,000 Population, Nebraska, 2013

Legend

No. per 10,000 population

- No Data
- 1 - 9
- 10 - 19
- 20 - 29
- 30 - 45

Source: County Health Rankings and Roadmaps (www.countyhealthrankings.org). Social associations include membership organizations such as civic organizations, bowling centers, golf clubs, fitness centers, sports organizations, religious organizations, political organizations, labor organizations, business organizations, and professional organizations.