A MIXED-METHODS STUDY TO UNDERSTAND PUBLIC HEALTH PROFESSIONALS' CAPACITY TO IMPROVE HEALTH EQUITY IN SOUTH DAKOTA

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DISCLAIMER

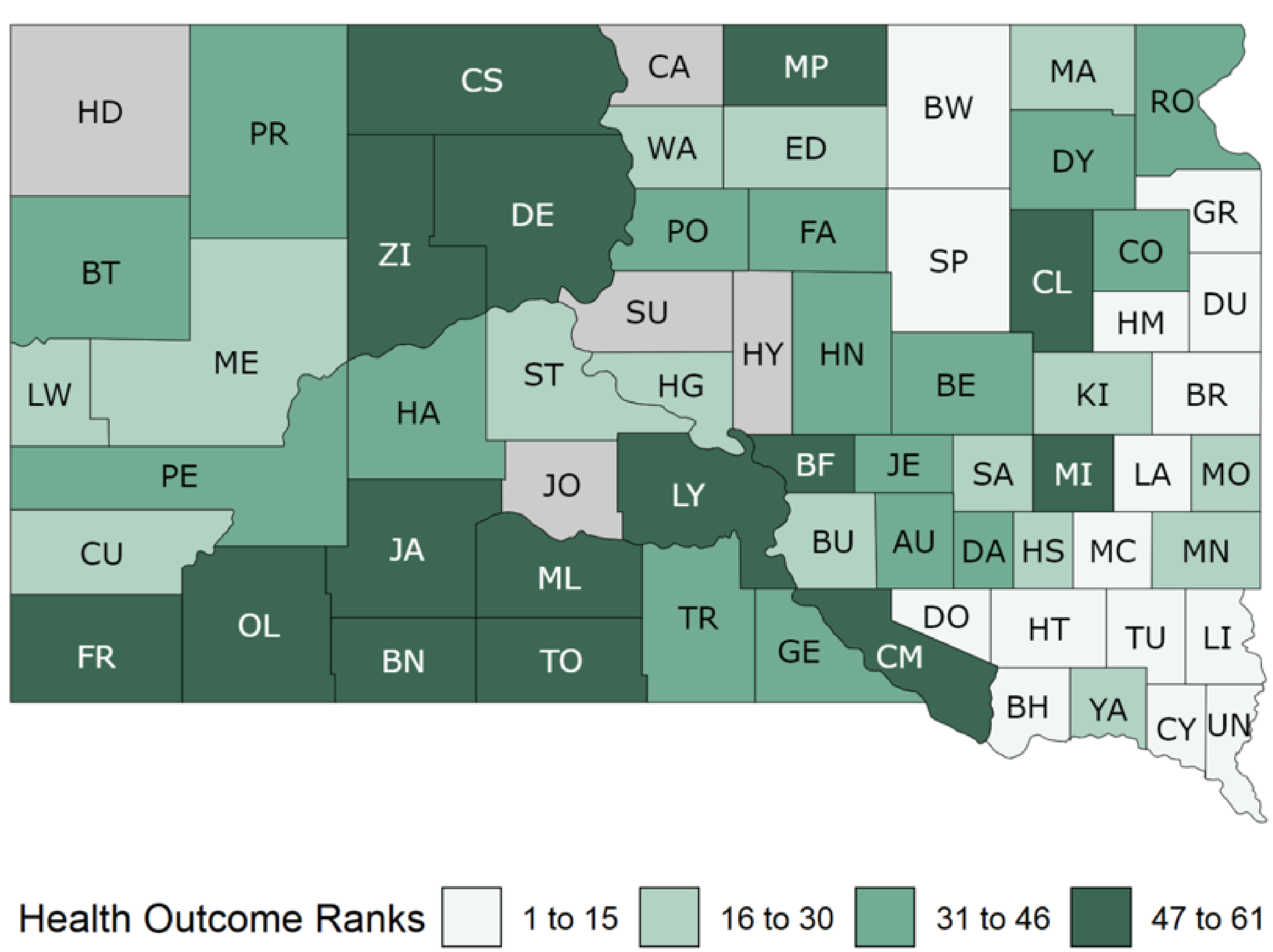
This research was conducted for a dissertation study as part of the requirements for the University of South Dakota degree of doctor of philosophy in health sciences for the Department of Public Health and Health Sciences. This study was not funded by the South Dakota Department of Health. The recommendations that emerged from this study have not been endorsed by the South Dakota Department of Health.

LEARNING OBJECTIVES

Understand	Understand	Apply
Understand the role that health inequities play to shape health outcomes.	Understand public health implications for research, practice, education, and policy.	Apply research findings to public health practice.

BACKGROUND

2022 Health Outcomes – South Dakota



County Health Rankings & Roadmaps
Building a Culture of Health, County by County

PUBLIC HEALTH ROLE

"Public health also works to limit health disparities. A large art of public health is promoting health care equity, quality, and accessibility."

CDC Foundation

U.S. PUBLIC HEALTH SYSTEM

"Community-based organizational networks that include the full complement of public and private organizations that contribute to the delivery of public health services for a given population, including government public health agencies as well as private and voluntary entities" (Mays et al., 2003, p. 180)

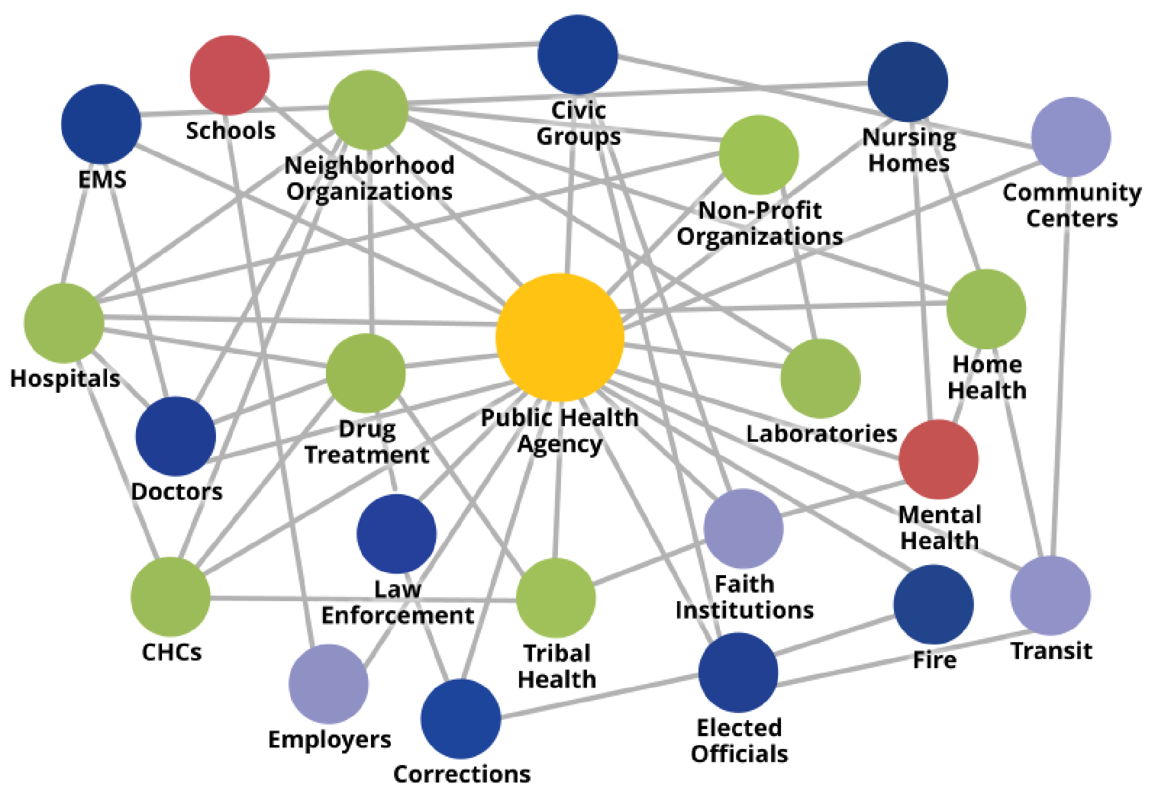
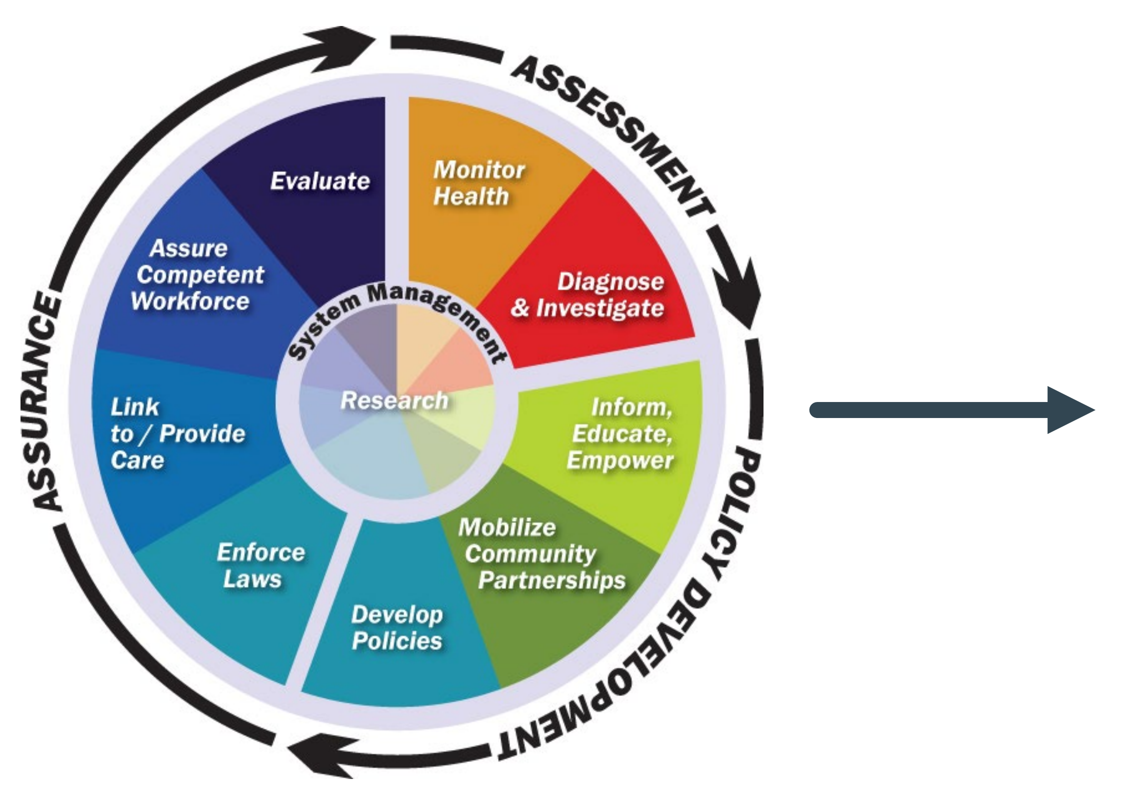


Figure 1: Centers for Disease Control and Prevention. (2020). *The public health system*. https://tinyurl.com/yxb5eusp

10 ESSENTIAL PUBLIC HEALTH SERVICES



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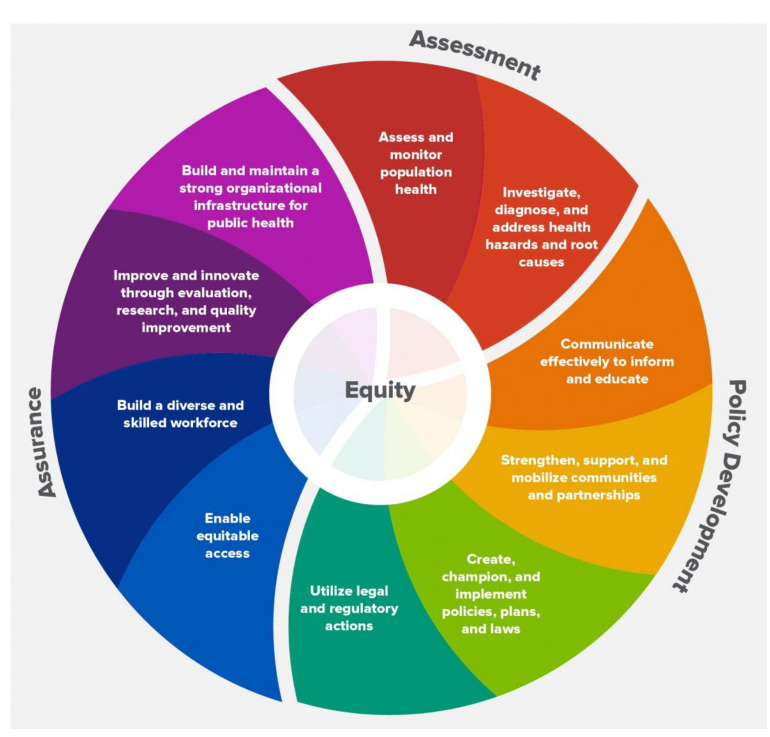


2020

Data source: Centers for Disease Control and Prevention

SOCIAL DETERMINANTS OF HEALTH & HEALTH INEQUITIES

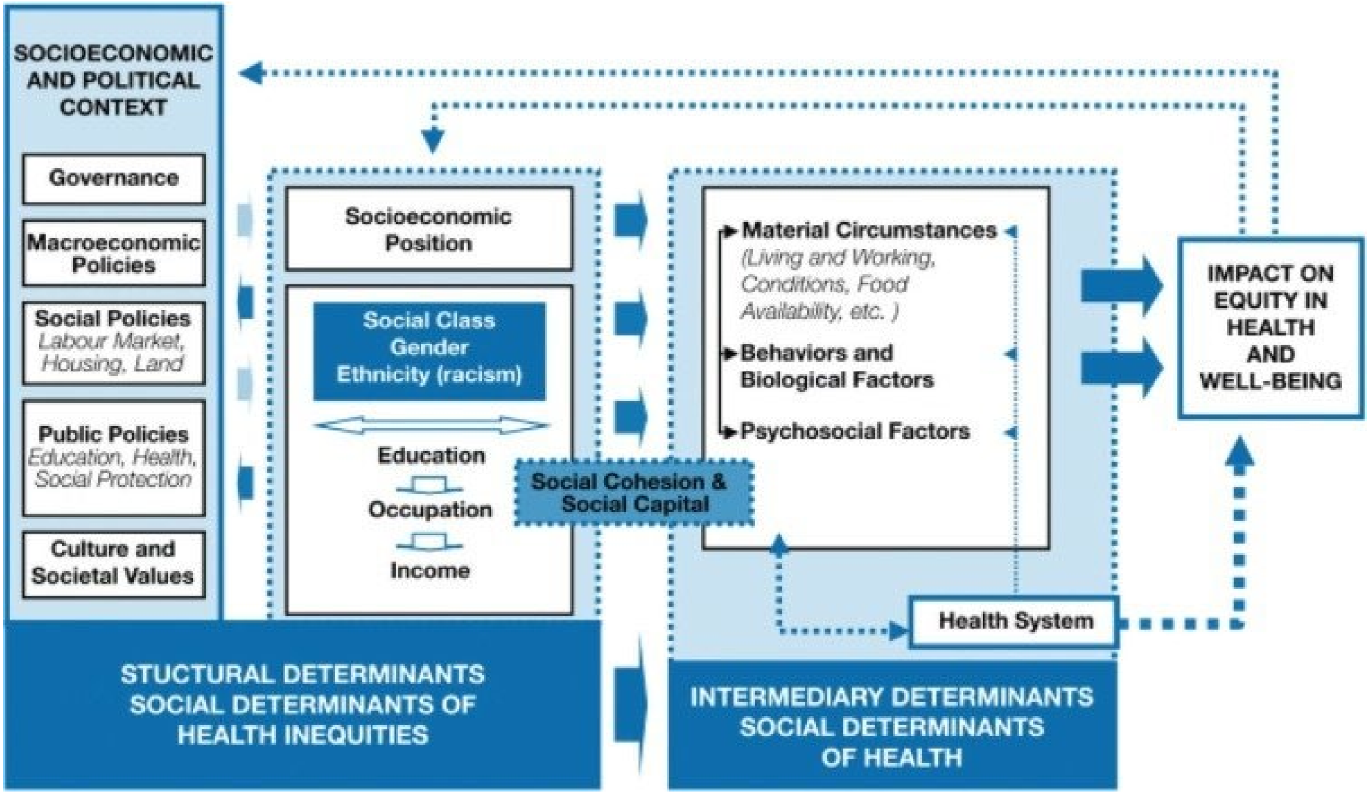


Figure 3: World Health Organization (WHO) conceptual framework.
SOURCE: Solar and Irwin, 2010. Reprinted with permission from the World Health Organization.

RESEARCH STUDY

RESEARCH PURPOSE & DESIGN

The purpose of this study was to understand public health professionals' role to improve health equity In South Dakota

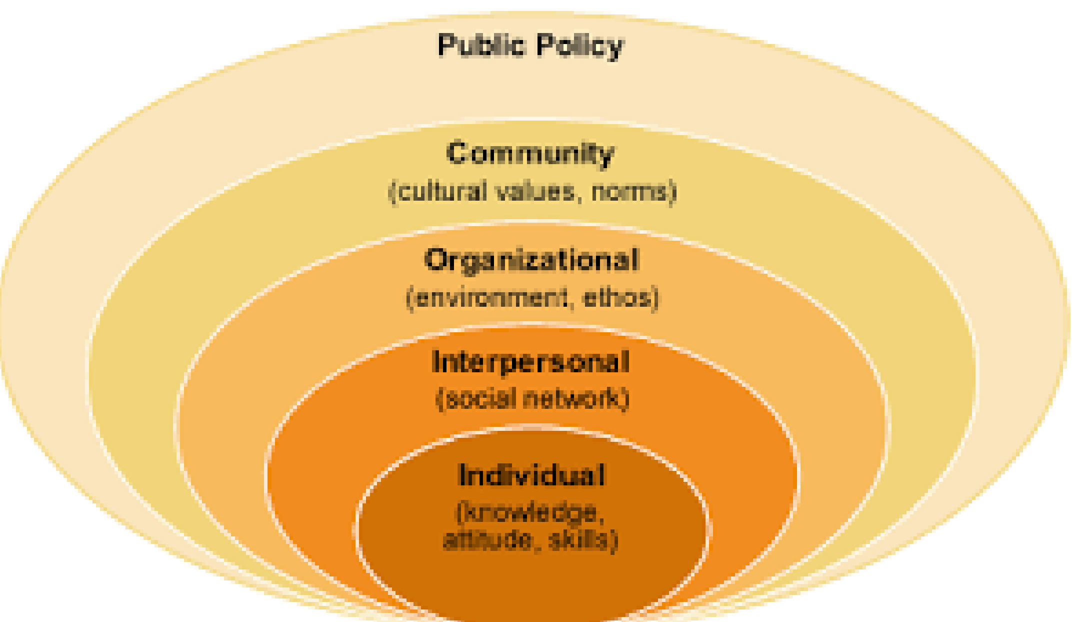
Mixed Methods Study Design (Observational, Cross-Sectional, Explanatory Sequential)

RESEARCH QUESTIONS

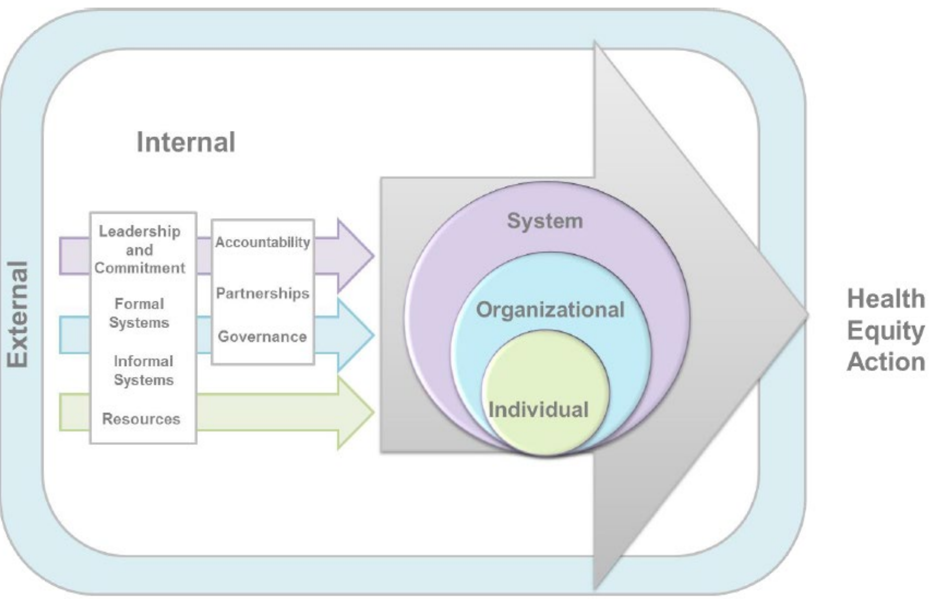
- Phase One: What are the perceptions of public health professionals' skills to improve health equity?
- Phase Two: How can rural public health professionals improve health equity?

FRAMEWORKS

Social Ecological Model



Conceptual Framework for Organizational Capacity for Public Health Action



METHODS

PHASE ONE AND TWO

PHASE ONE METHODS

CROSS-SECTIONAL STUDY

ONLINE SURVEY

CONVENIENCE SAMPLE

INCLUSION CRITERIA

PHASE ONE SURVEY MEASURES

Demographics

Health Equity Concepts and Approaches

Proficiency of Health Equity Skills

- Categories: Communication, Cultural Competency, Program Planning Development, Analytical Assessment, Community Practice, and Leadership and Systems Thinking.

Gap in Proficiency of Health Equity Skills

- Importance of skills; Availability of skills measured across six categories of proficiency
- Gap = The importance of the skill minus its availability, the median split to identify the top 50% (large gap) versus the bottom 50% (small gap).

Organizational Culture and Leadership

PHASE TWO METHODS

EMERGENT, CROSS-SECTIONAL STUDY

SEMI-STRUCTURED KEY INFORMANT INTERVIEWS

ZOOM

PURPOSIVE SAMPLING

INCLUSION CRITIERA

PHASE ONE RESULTS

SURVEY

Demographic and Workplace Characteristics

Characteristic	*n* (%)
Age: 30-39 Years	25 (27.8)
Race/Ethnicity: White or Caucasian	65 (72.2)
Gender: Female	69 (76.7)
Sexual Orientation: Heterosexual	66 (73.7)
Education	
Master of Public Health	18 (20)
Bachelor of Science or Bachelor of Arts	16 (17.8)
Years working in public health practice: 6-20 years	39 (43.3)
Employment Location	
Rural	18 (20)
Urban	33 (36.7)
Employer	
Not-for-Profit	26 (28.9)
State Government	29 (32.2)

Definition of Health Equity (N = 90)

Definition	Example quote	Frequency, *n* (%[a])
Limited Definition		
Definition is limited. Emphasizes health care and equality not equity.	"Equal access to health care"	22 (26.5)
Moderate Definition		
Definition is broader than limited definition and includes terms specific to equity, e.g., just, fair, opportunity	"Health equity means that everyone has a fair and just opportunity to be as healthy as possible."	32 (38.6)
Comprehensive Definition		
Definition is inclusive of limited and moderate definition as well as addresses social justice, e.g., fair pay, poverty, race, discrimination.	"Ensuring that everyone has access to the tools and resources that they need to have positive health outcomes, regardless of geographical location, social economic status, race, creed, sexual orientation, sex or beliefs.."	8 (9.6)

[a] Percent of responses that fall into this category.

Descriptives of Study Variables (N = 90)

Variables	*n*	*M*	*SD*	*Range*	*Cronbach's Alpha*
Proficiency of Health Equity Skills [a]	88	3.05	.69	1.1 - 4.88	.84
Communication [b]	88	3.00	.76	1.2 -5.0	
Cultural Competency [c]	88	3.00	.76	1.2 -5 .0	
Program Planning and Development [d]	87	3.19	.79	1.0 – 5.0	
Analytical Assessment [e]	85	3.02	.76	1.0 – 4.5	
Community Practice [f]	84	3.22	.83	1.0 – 5.0	
Leadership and Systems Thinking [g]	83	2.78	.78	1.0 – 5.0	
Organizational Culture and Leadership [h]	77	3.45	.59	2.0 – 5.0	.76

Note. For means relative to proficiency of health equity skills; *1 = Unaware, 2 = Aware, 3 = Function, 4 = Proficient, 5 = Expert;* For means relative to organizational culture and leadership; *1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree*

Missing includes: [a] *n* = 2, [b] *n* = 2, [c] *n* = 2, [d] *n* = 3, [e] *n* = 5, [f] *n* = 6, [g] *n* = 7, [h] *n* = 13

Descriptives of Study Variables (N = 90)

Variables	*n*	*M*	*SD*	*Range*	*Cronbach's Alpha*
Gap in Proficiency of Health Equity Skills [a, b]	79	.99	.82	-.67 – 2.50	.87
Communication [c]	78	1.04	.57	-1.0 – 3.0	
Cultural Competency [d]	79	1.18	.52	-1.0 – 3.0	
Program Planning and Development [e]	79	1.05	.64	-1.0 – 3.0	
Analytical Assessment [f]	79	.92	.62	-1.0 – 3.0	
Community Practice [g]	78	1.04	.59	-1.0 – 3.0	
Leadership and Systems Thinking [h]	79	1.04	.59	-1.0 – 3.0	

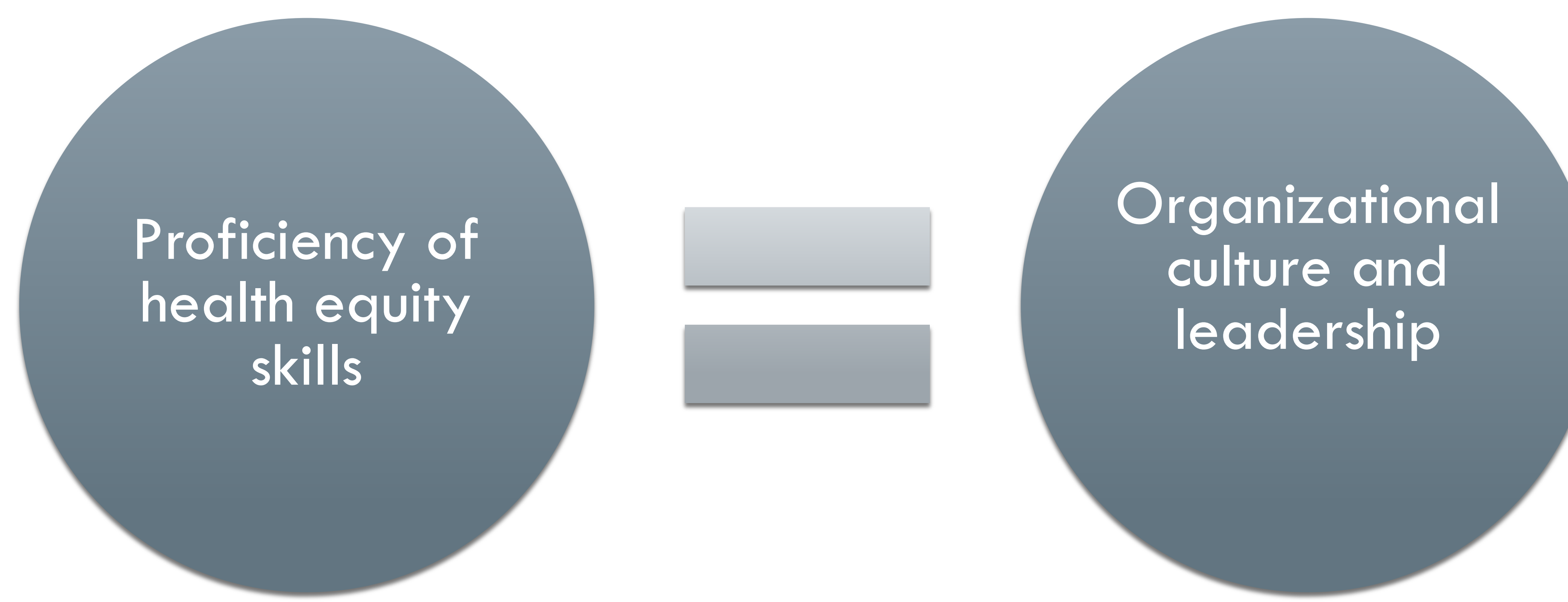
Note.

[a] Gap defined by importance of skills minus availability of skills. Missing includes [b] *n* = 2, [c] *n* =12, [d] *n* =11, [e] *n* = 11, [f] *n* =11, [g] *n* =12, [h] *n* =11

STATISTICALLY SIGNIFICANT RESULTS

- Proficiency of health equity skills within the analytical assessment domain based on educational attainment (i.e., Associates and Bachelors, Master and Doctorate) of participants was significantly associated with proficiency of health equity skills.
- Proficiency of health equity skills within the leadership and systems thinking domain based on race (i.e., white, Non-White) of participants, and gender (i.e., male, female) were significantly associated with the proficiency of health equity skills relative to race as well as gender.
- Gap in proficiency of health equity skills within the program planning and development domain based on years in public health practice (i.e., 0-5 years, 6+ years) of participants was significantly associated with a gap in proficiency.
- Gap in proficiency of health equity skills within the analytical assessment domain based on employment location (i.e., rural, urban) of participants was significantly associated with a gap in proficiency.
- Organizational culture and leadership support for health equity based on race (i.e., White, Non-White) of participants was significantly associated with organizational culture and leadership support.

CORRELATION OF OUTCOME VARIABLES



OPEN-ENDED QUESTIONS

- Strategies to Improve Skills: Elevate current public health practice (e.g., training and education), and emerging public health practice (e.g., community engagement, policy, and advocacy, collaboration and partnerships, organizational strategies).
- Gaps in the Public Health System: Policy; training, education & awareness, community engagement, workforce capacity, communication, social determinants of health, upstream public health practice, and organizational barriers.
- Capacity to Improve Health Equity:
  - Positive: Increased awareness and dialogue, Expanded public health approaches, Highlighted inequities, and public health needs
  - Negative: Community outreach was difficult, and Reduced workforce capacity to address inequities.

PHASE TWO RESULTS

KEY INFORMANT INTERVIEWS

Demographic Characteristics of Study Sample (N = 11)

Characteristic	*n*
Gender	
Female	11
Race	
White	9
American Indian	1
Two or More Races	1
Rural Practice [a]	11
Regions of Practice	
Eastern South Dakota	5
Western South Dakota	3
Statewide	3
Traditional/Non-traditional Public Health Professional	
Traditional	2
Non-traditional	9
Urban/Rural Residence	
Rural	9
Urban	2
Work directly with Tribal Nations	6

Occupational Characteristics of Study Sample (N = 11)

Characteristic	*n*
Practice 10 Essential Public Health Services [a]	
Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it	11
Strengthen, support, and mobilize communities and partnerships to improve health	9
Investigate, diagnose, and address health problems and hazards affecting the population	4
Utilize legal and regulatory actions designed to improve and protect the public's health	4
Number of 10 Essential Public Health Services Practice in Current Role	
1-5 Essential Public Health Services	6
6-10 Essential Public Health Services	5
Years of Public Health Practice	
0 - 5 years	1
6 - 20 years	9
21+ years	1

Note.

[a] Essential public health services participants practice for current occupation (top two, bottom two).

LEVELS OF INFLUENCE

Individual	Interpersonal	Organizational	Community	Policy
• **Facilitators / Barriers:** Knowledge and Skills, Attitudes	• **Facilitators/ Barriers:** Relationships, Social Networks	• **Facilitators/ Barriers:** Leadership and commitment, Partnerships, Resources, Culture and history • **Other Barriers:** Governance and decision-making, Process and structures	• **Facilitators:** Cultural norms and values • **Barriers:** Cultural norms and values, Implicit bias	• **Facilitators:** Macro Policy, Social Policy • **Barriers:** Macro policy, Economic Policy, Formal policy

INTERPERSONAL INFLUENCES: SOCIAL NETWORKS

Facilitators: Foster and sustain action

- "it took me three times meeting with county commissioners to finally get them on board with my…campaign, but once I did, they have been faithful."

Barriers: Trust of outsiders

- Participants described the trust of outsiders as a factor in "not feeling welcomed" and "to understand the communities…on a deeper level."

ORGANIZATIONAL INFLUENCES: LEADERSHIP & COMMITMENT

Facilitator

- “I think having leadership that understands the value of diversity, equity, and inclusion, anti-racism.”
- “They’re supportive, they provide us with a lot of cultural training, they’re very receptive” and “when it comes to providing leadership commitment to this project and what we do, being very sensitive to the culture that we’re working with.”

Barrier

- “if it’s not a key priority for the, if the community is not a priority for them, then it's not going to move forward. And so that project stalled and then a year later, some administrators pushed it forward in their own way but left out the community.”

COMMUNITY INFLUENCES: CULTURAL NORMS AND VALUES

Facilitators: Traditional culture and values of American Indian populations

- "the strengths are people that are revitalizing some of those practices and just using the community to implement solutions rather than somebody else coming in and trying to implement a solution that doesn't work."

Facilitator: Sense of community

- Participants noted the traditional values grounded in rural communities, where everyone knows each other and supports each other, supports social connectedness and fosters networks the support community health and wellbeing.

Barriers: Lack of Inclusion

- "I originally grew up in a rural, very small rural community, so I sort of get it, but unless you're an insider, you don't have as much influence in a rural community."

STRENGTHS OF A RURAL COMMUNITY

Community Connectedness (Social Capital, Collaboration and Partnerships, Trust)

- "…because when you can trust your neighbor to tell you about something, you're more likely to get involved with it, and if you see TV or your radio ad, umm, it's that word of mouth and that trust and knowing of the people in your community."

Non-traditional Roles and Support for Community Health

Resources

Community Champions

Culture and Language

Other

ACTION ON HEALTH EQUITY

Sectors

Influences to Leverage

- Community Champion
- Relationships and Collaboration
- Non-traditional sectors
- Interplay of Influences

Current Public Health Practice

- Community Engagement
- Education
- Evidence-Based Public Health
- Workforce Development

Upstream Public Health Practice

- Foster Partnerships and Culture Change
- Invest in Community Infrastructure
- Address Socio-Economic Status
- Other

NOTABLE QUOTES

Community Champion

- "thinking about those key champions in rural communities…it sort of comes down to relationships, but it also comes down to insider or outsider status…an insider who's also a champion can go a long way."

Community Engagement

- "Being at the forefront of that rural community."

Foster Partnership and Culture Change

- "I think the more partnerships and the more education that we can do, especially to outer lying individuals who maybe don't understand and are willing to understand um the more we can move the needle forward for, for the health and tribal communities."

DISCUSSION

INTEGRATION OF FINDINGS

Study highlighted public health professionals who practice in rural areas of South Dakota have a lower proficiency of health equity skills compared to public health professionals who practice in urban areas of South Dakota, including limited workforce capacity, resources, and health equity practice.

Rural public health has the advantage of community connectedness to improve health equity over urban public health.

Public health professionals have heightened awareness of the impact of health inequities on South Dakota populations.

Public health professionals have varied capacities and skills to improve health equity, shaped by organizational influences.

Gaps in the public health systems regarding policy influences, development, and implementation.

Recommendations to elevate current public health practices and emerging public health practice.

IMPLICATIONS

- Strengthen workforce training.
- Convene cross-sector partners at all levels.
- Enhance course offerings in schools and programs of public health and schools of medicine.

Education

- Enhance current public health practice approaches.
- Enhance emerging public health approaches.

Practice

IMPLICATIONS

- The role organizational and policy influences have on advancing health equity.
- The role of non-traditional public health organizations to improve health equity.
- Identify metrics to measure progress on health equity.
- Explore broader public health system and role in shaping or hindering progress on health equity.
- The role multi-levels of influences in rural communities to advance health equity.

Research

- Revisions to the public health workforce taxonomy (Beck et al., 2018).
- Organizational policy that advances health equity (Bernabei, 2017).
- Robust public health funding that supports upstream public health approaches (Furtado et al., 2018; Trust for America's Health, 2020).
- Policy approaches that remove systemic barriers that limit progress on health equity (Thornton et al., 2017).

Policy

RECOMMENDATIONS

Exploration of the impact the 10 Essential Public Health Services have on the proficiency of health equity skills among a large sample of public health professionals might provide a deeper understanding about public health workforce capacity.

Further exploration of organizational and policy influences that facilitate or inhibit action on health equity might help explain variance in skills among public health professionals, as well as their role in shaping health equity within varying environments.

Further examine changes to public health practice focused on health equity, including the impact of COVID-19 pandemic and social and economic world events.

Elevate workforce development to address gaps in skills and knowledge.

Elevate implementation of upstream approaches important to advance health equity: community engagement, multi-sector collaboration, policy engagement, change management, and systems change.

CITATION

Melstad, S. (2022, October). *A mixed-methods study to understand public health professionals' capacity to improve health equity in South Dakota*. Presentation, Chronic Disease Prevention & Health Promotion Annual Partners Meeting, Mitchell, SD.

thank you!

CONTACT INFORMATION

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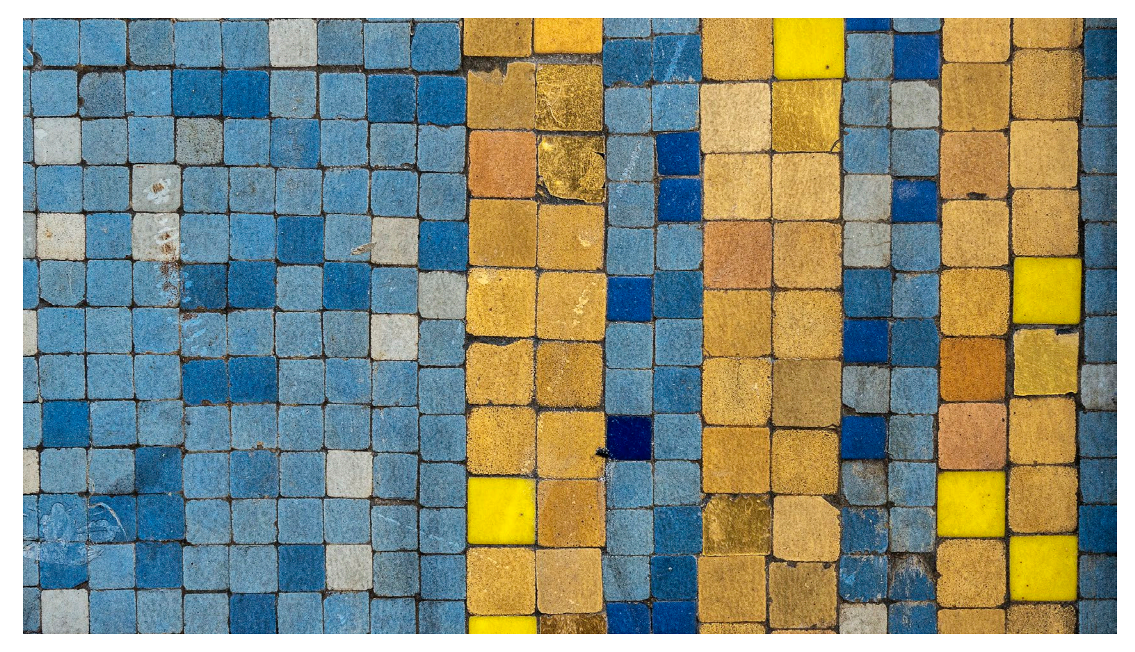

REFERENCES

- Alderwick, H., & Gottlieb, L. M. (2019, Jun). Meanings and misunderstandings: A social determinants of health lexicon for health care systems. *Milbank Q, 97*(2), 407-419. https://doi.org/10.1111/1468-0009.12390
- Allies for Reaching Community Health Equity. (2017). Health equity from the inside out. A data-driven exploration of the challenges and best practices for operationalizing health equity. C*enter for Global Policy Solutions*. https://healthequity.globalpolicysolutions.org/wp-content/uploads/2017/08/HED-Lab-1-Final-Report.pdf
- Association of Schools and Programs of Public Health. (2013). *Blue ribbon employers advisory board report, Public health trends and redesigned education*. https://s3.amazonaws.com/aspph-wp-production/app/uploads/2015/02/BlueRibbon-FinalRptforFTFSitein2015.pdf
- Association of State and Territorial Health Officials. (2020). *Health equity and social determinants of health*. https://www.astho.org/Programs/Health-Equity/
- Bay Area Regional Health Inequities Initiative. (n.d.). *A Public health framework for reducing health inequities*. http://barhii.org/framework/

REFERENCES

- Braveman, P., Arkin, E,. Orleans, T., Proctor, D, and Plough, A. (2017). *What is health equity? And what a difference does a definition make?* Princeton, N.J.: Robert Wood Johnson Foundation. https://www.rwjf.org/content/dam/farm/reports/issue_briefs/2017/rwjf437393
- Centers for Disease Control and Prevention. (Revised, 2020). *10 Essential Public Health Services – Revised*. https://tinyurl.com/yxb5eusp
- Centers for Disease Control and Prevention. (2013). CDC health disparities and inequalities report — United States, 2013. MMWR 2013;62(Suppl 3). https://www.cdc.gov/mmwr/pdf/other/su6203.pdf
- Coleman-Jensen, a., Rabbitt, M., Gregory, C., Singh, A. (2018). *Household food security in the United States in 2018*. U.S. Department of Agriculture, Economic Research Service. https://frac.org/maps/food-secu
- Furtado, K. S., Brownson, C., Fershteyn, Z., Macchi, M., Eyler, A., Valko, C., & Brownson, R. C. (2018). Health departments with a commitment to health equity: A more skilled workforce and higher-quality collaborations. Health Aff (Millwood), 37(1), 38–46. https://doi.org/10.1377/hlthaff.2017.1173

REFERENCES

- Health Equity Council. (2010). Health equity at work, skills assessment of public health staff. National Association of Chronic Disease Directors.
- Lambton Public Health. (2017). Building organizational capacity for health equity action: A framework and assessment tool for public health. https://nccdh.ca/images/uploads/comments/Lambton-Public-Health-Building-Organizational-Capacity-for-Health-Equity_2017.pdf.
- Liburd, L, Hall, J, Mpofu, J., Willams, M., Bouye, K. & Penman-Agular, A. (2020). Addressing health equity in public health practice: frameworks, promising strategies, and measurement considerations. *Annual Review of Public Health 41*, pp. 17.1-17.16. DOI: 10.1146/annurev-publhealth-040119-094119
- National Academies of Sciences Engineering and Medicine. (2017). *Communities in action: pathways to health equity*. http://nationalacademies.org/hmd/~/media/Files/Report%20Files/2017/Promote-Health-Equity/CoHConceptual-Model.pdf

REFERENCES

- National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Population Health and Public Health Practice; Committee on community-based solutions to promote health equity in the United States.; Communities in action: Pathways to health equity. Washington (DC): National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK425845
- National Center for Chronic Disease Prevention and Health Promotion. (2019). *Health equity*. In Centers for Disease Control and Prevention website. https://www.cdc.gov/chronicdisease/healthequity/index.htm
- National Partnership for Women & Families. (2019, May). Advancing health equity: Addressing the role of structural racism. https://www.nationalpartnership.org/our-work/resources/health-care/advancing-health-equity-addressing-the-role-of-structural-racism.pdf
- National Rural Health Association. (2016). *Rural public health.* https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/NRHARuralPublicHealthPolicyPaperFeb2016.pdf.aspx

REFERENCES

- Office of Behavioral Health & Social Sciences Research. (n.d.). Adapted from: Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. American Psychologist, 32(7), 513-531.
- Penman-Aguilar, A., Talih, M., Huang, D., Moonesinghe, R., Bouye, K., & Beckles, G. (2016). Measurement of health disparities, health inequities, and social determinants of health to support the advancement of health equity. Journal of Public Health Management and Practice, 22, S33-S42. https://doi.org/10.1097/phh.0000000000000373
- Reifsnider, E., Gallager, M., & Forgione, B. (2005). Using ecological models in research on health disparities. *Journal of Professional Nursing 21(4*), pp. 216-222. doi:10.1016/j.profnurs.2005.05.006Rozier, M. D.. (2020). Nonprofit Hospital Community Benefit in the U.S.: A Scoping Review From 2010 to 2019. Frontiers in Public Health, 8(72), 1-13. http://doi.org/10.3389/fpubh.2020.00072
- Richman, L., Person, J., Beasley, C. & Stanifer, J. (2019). Addressing health inequalities in diverse, rural communities: an unmet. *Population Health 7*, pp. 1-4. https://doi.org/10.1016/j.ssmph.2019.100398

REFERENCES

- Rozier, M. D.. (2020). Nonprofit Hospital Community Benefit in the U.S.: A Scoping Review From 2010 to 2019. Frontiers in Public Health, 8(72), 1-13. http://doi.org/10.3389/fpubh.2020.00072
- Rural Health Information Hub. (2020). *Social determinants of health for rural people.* https://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/
- Rural Health Information Hub. (2020). South Dakota. https://www.ruralhealthinfo.org/states/south-dakota
- Shaw, K., Theis KA, Self-Brown, S., Roblin, D., & Barker L. (2016). Chronic Disease Disparities by County Economic Status and Metropolitan Classification, Behavioral Risk Factor Surveillance System, 2013. *Prev Chronic Dis 13*:160088. DOI: http://dx.doi.org/10.5888/pcd13.160088external icon.
- Solar, O., & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice)*. World Health Organization. https://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf

REFERENCES

- South Dakota Department of Health. (2018). *Vital statistics.* https://doh.sd.gov/statistics/2018Vital/HealthStatusMaps.pdf
- Suarez-Balcazar, Y. Mirza, P. & Garcia-Ramirez, M. (2018) Health disparities: Understanding and promoting healthy communities. *Journal of Prevention & Intervention in the Community, 46*(1), 1-6, DOI: 10.1080/10852352.2018.1386761
- The Walsh Center for Rural Health Analysis. (2018). *Exploring strategies to improve health and equity in rural communities.* https://www.norc.org/PDFs/Walsh%20Center/Final%20Reports/Rural%20Assets%20Final%20Report%20Feb%2018.pdf
- University of Michigan/Center of Excellence in Public Health Workforce Studies, University of Kentucky/Center of Excellence in Public Health Workforce Research and Policy. (2012). *Strategies for Enumerating the U.S. Government Public Health Workforce.* Washington, DC: Public Health Foundation. http://www.phf.org.

REFERENCES

- The Walsh Center for Rural Health Analysis. (2018). *Exploring strategies to improve health and equity in rural communities.* https://www.norc.org/PDFs/Walsh%20Center/Final%20Reports/Rural%20Assets%20Final%20Report%20Feb%2018.pdf
- U.S. Census Bureau. (2019). *2014-2018 American Community Survey 5-year data.* https://data.census.gov/cedsci/
- Van Schaik, P., Peng, Y., Ojelabi, A., & Ling, J.. (2019). Explainable statistical learning in public health for policy development: the case of real-world suicide data. *BMC Medical Research Methodology, 152.* http://doi.org/10.1186/s12874-019-0796-7