

Expanding the Capacity of Rural Cancer Care With Teleoncology

Jason Semprini
University of Iowa
jason-semprini@uiowa.edu

Abstract

Background: In the United States, 6 of the 25 leading causes of death stem from site-specific cancers, resulting in over 1.7 million deaths annually. Yet, this burden is not evenly distributed. While the incidence of cancer is significantly higher in urban areas, rural regions face higher rates of cancer mortality. Identifying the factors contributing rural cancer disparities can facilitate more effective and feasible policy solutions.’

Problem Definition: Rural Americans are geographically isolated from high-quality cancer services and face systemic barriers to NCI designated comprehensive cancer centers. Given this disparity, rural Americans have failed to fully realize the benefits of expanded federal investment in improved cancer care. Efforts to increase the supply of rural oncologists have yielded mixed results. Rather, this policy review identifies an opportunity to expand the capacity of America’s oncologists through provider-to-provider telehealth models.

Methods: Federal and state statutes were scanned for telehealth legislation. CMS guidance relating to telehealth capacity building were also reviewed. The tabulated political venues and policy activity were reported by branch and level of government. Policy recommendations were then made by the focusing on states implementing provider-to-provider teleoncology models in rural regions.

Policy Report: In 2016, Congress passed the Project ECHO Act which aimed to evaluate all provider-to-provider telehealth capacity building models. However, the 2019 Project ECHO Act, which aimed to build upon the initial pilot, failed to progress through the Senate. Most provider-to-provider teleoncology activity occurred at the state-level through Medicaid Waivers.

Conclusion: Neighboring states can build upon the success of these innovative healthcare delivery models by expanding the diffusion of Medicaid waiver demonstrations which authorize reimbursement for provider-to-provider teleoncology in rural areas.

Keywords: *cancer, telehealth, disparities, rural health, policy*

Follow this and additional works at: <https://newprairiepress.org/ojrrp>

 Part of the Education Commons



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in ORJJP by an authorized administrator of New Prairie Press. For more information, please contact cads@k-state.edu.

BACKGROUND

Cancer is the second leading cause of death in America (Mokdad 2018). Six of the 25 leading causes of death stem from site-specific cancers, resulting in over 1.7 million deaths annually (Siegel, Miller, & Jemal, 2019). Yet, this burden is not evenly distributed. While the incidence of cancer is significantly higher in metro and urban areas, rural regions face higher rates of cancer mortality (Henley, 2017). This disparity pervades across multiple cancers, including those responsible for the greatest number of annual deaths (Figure 1). Identifying the factors contributing rural cancer disparities can facilitate more effective and feasible policy solutions.’

PROBLEM DEFINITION

Rural health has been on the national agenda since 1990 (U.S. Congress 1990). Hospital closures, physician shortages, and limited technological capacity have been identified as the major components of the health-care inequity between rural and urban Americans (Hartley, 2004; Ricketts, 2000). In the three decades that have passed since, federal funding for cancer care and research has increased dramatically, peaking during the Obama Administration at \$5 billion a year (Park 2016; ARRA 2009; Barlas, 2016). These expenditures, however, were exclusively for National Cancer Institute (NCI) designated comprehensive cancer centers and largely allocated for highly technical, specialized services (Park 2016). Given the systemic barriers which prevent rural Americans from accessing these comprehensive cancer centers, rural Americans have failed to realize the benefits of expanded federal investment and improved cancer care.

Rural Americans are geographically isolated from high-quality cancer services. Depending on the definition of rurality, 46 to 65 million Americans live in a rural area (Ratcliffe 2018). Yet, all NCI designated comprehensive cancer centers are in metropolitan counties, effectively impeding access to the highest quality cancer care and innovative treatment for millions of Americans (Institute of Medicine 1989; National Academies of Sciences 2019).

While geography can be overcome, disparities persist for the rural Americans with means to travel vast distances to access the cutting-edge cancer treatment. Evidence is sparse, but in metropolitan counties with an NCI designated cancer center, only 15% of Medicare Advantage plans include that center in network (Jacobson 2016). This metric serves as a strong proxy for the proportion of private insurance plans in urban areas but overestimates the likelihood of privately insured rural adults with an NCI designated cancer center included in the plan’s network (Jacobson 2016; Yasaitis 2017). Further, the high cost associated with cancer care significantly increases as the distance from treatment increases

(Collado & Brownell, 2019; Zafar 2013). The evidence linking financial burden and cancer survival outcomes remains limited, but recent evidence has supported the negative effects of increased financial burden on other chronic disease outcomes (Murphy 2019; Nasir & Khera, 2019).

Receiving treatment at an NCI designated cancer center returns considerable benefits, which cannot be understated. One study investigated 51 different cancer centers to evaluate surgical outcomes in the Medicare population (Birkmeyer 2005). Post-operative mortality was found to be significantly lower at NCI designated cancer centers, with the disparity increasing with more common surgeries (Birkmeyer 2005). Another study controlled for socioeconomic factors, such as residence, to study patients at a Los Angeles cancer center (Wolfson 2015). This research showed 5% to 15% lower 5-year survival for patients receiving care outside of an NCI designated cancer center (Wolfson 2015). This same study found that geographic factors were highly predictive of receiving care at an NCI designated cancer center. All else equal, living further than 9 miles away resulted in a 40-60% reduction in the likelihood of receiving care at a cancer center. Finally, a recent study found that among academic institutions, the only predictor of improved survival was receiving care at an NCI designated center (Shulman 2017).

Despite clear benefits, the politics of NCI designation and the capital investment required to develop the infrastructure limit the development of comprehensive cancer centers outside of major academic institutions in high-density metropolitan centers (Rubenson 16; Rubenson & Kapp, 2017; Rubenson 2019). While funded by public grants, the cancer centers are primarily private, tax-exempt institutions, which hold a monopoly over the continued “war on cancer” and scientific breakthroughs in treatment (Barker & Jordan, 2003). Without competition, consumers lack the power to make healthcare decisions on how to access the most appropriate care (Roemer 1982). Not only is the market restricted, but the growth in federal spending has created high-volume, high-capital hospitals as an implicit requirement for entry (Weimer & Vining, 2017). The necessary economies of scale to operate an NCI designated cancer center, along with the “insider,” physician-driven designation process presents itself as a failure of the free market, but also a failure of governance (Hammer 2007).

These failures have intensified as the political and economic power of rural America continues to deteriorate (Parker 2018). However, health services research, alone, rarely leads to policy development (Burris 2012; Folz 2005). By nature, Rural Americans represent a minority, and are sparsely located throughout the country. Yet, despite the factors minimizing this group’s collective advocacy, national and state leaders are paying attention

to their continued story (Hall & Tolbert, 2018; Kaiser Family Foundation, 2019). In addition to media and presidential hopefuls putting rural health at the forefront of political debate, this year's Rural Health Day culminated by showcasing *The Providers* (2019), an award-winning film documenting the frontlines of Rural Americans amidst the opioid crisis, hospital closures, and specialist shortages (AORH, 2019). In 2020, Rural Health will be at the forefront of the political agenda.

PREVIOUS SOLUTION: INCREASE THE SUPPLY OF RURAL PROVIDERS THROUGH INCENTIVES.

In response to the market and governmental failures that have isolated rural Americans from high-quality cancer care, the federal government implemented a set of programs aiming to increase the supply of providers in rural communities. Two prominent examples were the Physicians for Underserved Areas Act, which waived J-1 visa restrictions to encourage immigrant physicians to relocate to high-need areas (2007), and Emergency Health Personnel Act which created scholarship and loan forgiveness programs for medical professionals committing to practice in underserved regions (1970). This program was later permanently reauthorized by the Patient Protection Affordable Care Act (2010). Rural cancer advocates believed that by increasing the number of oncologists, rural patients would not only have greater access to care, but the power dynamics and competition would return to balance. While these policies accomplished the goal of infusing rural areas with more providers, the effect was minimal for cancer care, as most oncology J1 visa slots go unfilled (Verma 2016). More so, even when oncologists were placed, the programs failed to retain providers past five years (Burriss 2012; Kahn 2010). Not only was the impact only marginally effective and highly unsustainable, but arguably unjust from a global perspective. These policies ultimately financed “brain drain”, regressively redistributing providers from areas of detrimental need (Dovlo, 2005). An update to the J-1 Visa program is currently in the Senate Judiciary Committee (Conrad State 30). Despite the bipartisan support, the inefficiencies of this program relegate this bill to a compliment, not a substitute, to innovative cancer control alternatives.

ALTERNATIVE PROPOSAL: INCREASE THE CAPACITY OF RURAL PROVIDERS THROUGH TELEONCOLOGY

Rather than increase the supply of providers or NCI designated sites, the *reach* of America's greatest oncology providers should be expanded through telehealth. Better outcomes are associated with initial treatment at NCI

designated centers, but these hospitals are difficult to access for rural Americans. The infeasibility of dramatic expansion of NCI designated hospitals and unsustainable efficacy of programs incentivizing rural oncology practice has not impacted the disparity of rural cancer mortality. This growing disparity warrants immediate attention from policy makers (Figures 2-3).

This report presents a proposal to develop the capacity of rural oncology service delivery by linking rural hospitals and clinics via teleoncology with NCI designated comprehensive cancer centers, allowing patients to receive equitable access to the highest-quality of cancer screening and treatment, without the added financial burden associated with travelling long distances or out-of-pocket expenses from lack of in-network coverage. This teleoncology proposal shifts rural cancer control to an efficient allocation of resources for rural patients and hospitals, but also for participating providers at NCI designated centers.

CURRENT POLICY ACTIVITY

In each of the three government branches, at both the state and federal level, telehealth has held strong policy precedent. America's Federalist system of governance facilitates state-level variation, but also policy diffusion, in addition to top-down models of centralized implementation (Robson, 1947). In the health system especially, this interaction between levels and branches has dramatically increased in recent years (Thompson, 2013; Weissert, 2008; Weissert 2017). The following cases, bills, and executive actions showcase the emerging political venues where this teleoncology proposal can transition from agenda to policy, even amidst a highly partisan atmosphere within a seemingly divided government (Sparer, 2011; Volden, 2017).

FEDERAL GOVERNMENT

Legislative

In 2016, then Senator Orin Hatch (UT-R) introduced a bill which created a pilot program to enhance the capacity of telehealth specialists in health shortage areas, typically rural communities, as defined by U.S. Code 42 254e. Signed by President Obama after considerable bipartisan support in both the house and congress, this 3-year pilot program called for a comprehensive evaluation of the model's effect. The Expanding Capacity for Health Outcomes (ECHO) Act of 2016 “requires the Department of Health and Human Services (HHS) to report on technology-enabled collaborative learning and capacity building models, which connect specialists to primary care providers through videoconferencing to facilitate case-based learning, dissemination of best prac-

tices, and evaluation of outcomes.” (2016).

Executive

The model for the ECHO Act was initially designed by the University of New Mexico as Project Echo (Arora 2007). Since its launch, this program has been disseminated across the globe to care for diseases with wide-ranging complexity and environmental barriers to traditional care (Zhou 2016). Until recently, Project Echo has not penetrated the oncology sector. However, in 2014, MD Anderson, an NCI designated Comprehensive Cancer Center, began the process to become the first teleoncology “Super-Hub” (Satcher 2014).

STATE GOVERNMENT

Legislative

Since 2015, 235 telehealth bills have been enacted in 49 states (NCSL 2019). However, only one state (Washington) incorporated provider training within the scope of telehealth legislation (WA S 5386 2019). In 2019, the Washington State Senate passed a law which detailed the necessary and appropriate training standards for provider-to-provider telehealth practice. This bill was introduced by a former hospital administrator, Senator Randi Becker, who served on the Ways and Means committee and chaired the health care committee. The governor signed this law, which took effect in July 2019.

Executive

One of the major contributors to enhanced state-to-state variation in federal health policy implementation has been the rise of executive Medicaid waivers (Sparer 2011 Fried 2014). While always in the purview of state authority, only recently did federal congress delegate expedited, targeted waiver approval powers to the President (Morgan 2011). This has subsequently led to considerable differences in how states manage their Medicaid programs (Thompson & Burke, 2009).

Three states have utilized Medicaid waivers to authorize reimbursement for provider-to-provider telehealth models of service (CHCS 2017). The Center for Medicare and Medicaid Services (CMS) authorizes administrative or direct claims related to chronic disease management, as defined by SMDL #04-002 (2004). To mitigate substance abuse among its Medicaid beneficiaries, Colorado created a Chronic Disease Accountable Care Organization (ACO) which bills for provider education from chronic disease specialists in Connecticut and Arizona (Massey 2017). Similarly, Oregon and New Mexico operate their Medicaid program under Managed Care as granted by a 1115 waiver (CMS 2016; New Mexico

2016; Gaffney 2016). But while both states have taken identical routes of implementation, Oregon focuses their telehealth program to assist providers with psychiatric medication management, while New Mexico extends specialized services throughout rural primary care networks to lessen the burden related to travel (CHCS 2017).

POLICY MAKING OPPORTUNITIES

The presence of multiple political venues increases the likelihood that this teleoncology proposal will translate into policy. Given the current political environment, tying an agenda to a single branch or level of government carries considerable risk. Rather, this review has identified three opportunities to advance teleoncology policies.

Goal 1: Pass the ECHO 2019 Act

The 2016 ECHO Act authorized the temporary evaluation of provider-to-provider, telehealth models of service delivery. No federal funds were allocated for expanding these models and no technical assistance was provided to facilitate their development. In February 2019, the final report, which detailed the outcomes related to the 2016 pilot, were presented to congress (ASPE 20189). This report highlighted the positive impact of the ECHO telehealth model, but more importantly, showed the limited reach across the country (Fischer 2019). The gaps signal opportunities to grow this innovative program. Upon submitting the report to Congress, a new bill authorizing grant provisions and technical assistance was drafted by Senator Brian Schatz (HI-D) (ECHO 2019). Like its predecessor, the 2019 bill has significant bipartisan support (Udall 2019). Despite the bipartisan nature, and presence of high-profile cosponsors (Murkowski, Kaine, Collins), this bill has not moved past its referral to the Senate HELP committee. Instead, the language from the ECHO Act has been adopted for the *Lower Health Care Costs Act* (S.1895 2019). The authorization of grants and technical capacity has been completely replicated into the new bill. However, this act is much wider in scope, and thus more expensive (CBO 2019). Yet, this bill has bipartisan support and has since advanced past the Senate HELP committee (Bluth 2019). Currently, this bill is on the general assembly calendar. Yet, the considerable opposition from hospital interest groups cast doubt on the act’s fate, making the ECHO Act’s attachment to the grandiose *Lower Health Care Costs Act* both a blessing and a curse (AHA 2019; AAMC 2019).

Goal 2: Increase access to teleoncology hubs

Despite the uncertain prospects of federal legislation, increasing the utilization of provider-to-provider telehealth programs remains popular among providers (AMA

2019). Teleoncology, through “virtual hubs,” however has not been widely practiced. The 2019 ECHO report to congress indicates that only eight states have conducted any provider-to-provider activity related to cancer. Further, most of these virtual hubs link to hospitals outside of the U.S. (Fischer 2019). The Department of Health and Human Services (HHS), which oversees Medicare and Medicaid, in addition to the National Cancer Institute, could intervene to require hospitals with an NCI designation to act as a virtual hub for in-state critical access hospitals, sole-community hospitals, or federally qualified health centers. HHS could also authorize cross-state partnerships between high-need hospitals in medically underserved areas and NCI designated cancer centers.

The funding mechanism for this partnership would initially be driven by Medicare. Two options would exist to facilitate the relationship between the participating NCI designated cancer center and partner rural hospital. The first would be Medicare revenue-sharing through a global budget. This approach has shown efficacy as a way of treating vulnerable, including rural, populations with high-quality, efficient care (CAPH 2016; Sharfstein 2016 & 2017). The second mechanism would be to create teleoncology as a reimbursable benefit for rural Medicare Advantage plans. While Medicare Advantage continues to grow in popularity, rural enrollment lags (Kember 2015). Further, quality indicators for specialized services are heavily dependent upon the Medicare Advantage plan network (Haeder 2019). Reimbursing teleoncology via partnerships with NCI designated centers should encourage greater access to high-quality cancer services for seniors in-need and increase the value of private Medicare Advantage plans in rural areas.

Goal 3: Expand teleoncology via Medicaid (1115 Waivers)

Health policy does not always trickle down from the federal government. Innovative models of service delivery and financing have also begun at the state level, with the subsequent diffusion resulting in considerable state-to-state variation or nation-wide implementation (Weissert 2008; Thompson 2009). Nowhere has this expanding state influence been more prominent than Medicaid (Weissert 2017). Although Medicaid is a federal program, states have authority over implementation and can request waivers to reallocate or target existing programs. It is this realm which the current teleoncology proposal has the most potential for immediate implementation, as the key features facilitating success (neighbor diffusion and policy precedent) are present in the target states (Imhof & Kaskie 2008; Nattinger 2016).

As discussed, three states currently authorize Medicaid reimbursement for ECHO models under managed

care programs (CHCS 2017). Six states have either created a task force or have requested technical assistance from the University of New Mexico to explore avenues to implement a Medicaid Managed Care program which could reimburse ECHO activities (Ibid.). Five of these states: KS, MO, MT, NV, UT are the primary target for this teleoncology proposal (Figure 4). Not only are these five states showing interest in the innovative model but are also neighbors to states which have already initiated Medicaid Managed care with some cancer focus (CHCS 2017; Fischer 2019).

While the ACA was a highly partisan initiative, Medicaid Expansion turned out to be less so. A governor’s political party did not perfectly determine the decision to expand (KFF 2019). However, ideologically conservative states were more likely to expand Medicaid via waiver (Weissert 2017). These governors utilized Medicaid Expansion as a means of fulfilling a campaign healthcare agenda, while also extending federally subsidized coverage. This method of expanding and managing Medicaid has proliferated significantly, especially through the Delivery System Reform Incentive Payment Program (DSRIP) (Gates & Guyer, 2014).

DSRIP waivers are particularly attractive to states aiming to control Medicaid costs through privatization. This model is a primary target for the two states which have not yet expanded Medicaid. Both Kansas and Missouri can improve cancer outcomes by linking a greater proportion of rural Medicaid enrollees to the in-state NCI designated Cancer Centers. By expanding Medicaid into a private managed care program, the 1115 waiver allows the state to increase coverage and shift federal funds to the private sector, allowing compromise for the split governments of each state. The two states which have already expanded, but do not have an in-state NCI designated center should authorize ECHO reimbursement, but through the disease management model, rather than service delivery. Nevada and Montana already have a case management waiver in place for their Medicaid program, but neither explicitly targets cancer as the chronic disease of interest. Yet, by establishing an interstate partnership (similar the CO-CT partnership mentioned above) the degree to which providers can be reimbursed for managing Medicaid enrollees increases, as does access to high-quality services for rural residents. The final recommendation (Table 1) for Utah differs due to the scope of the current waiver and presence of an in-state NCI designated cancer center. Utah’s 1115(c) waiver aims to increase technology utilization for Medicaid-taking providers, allowing an easy transition to an ECHO model. However, to further incentivize ECHO participation for both the NCI designated cancer center and rural providers, the 1115(c) waiver, under federal authority SMDL #13-005, explicitly creates shared-savings programs for all collaborating oncology specialists.

Ending the current disparity between rural and urban cancer mortality can best be accomplished by proliferating teleoncology throughout rural America. While this state-level, Medicaid waiver approach may seem small in scale, state-to-state diffusion can rapidly expand across the country. The five states with documented interest in ECHO models, near three state which are currently reimbursing ECHO through Medicaid, provide a strong starting point. Colorado, the most interesting model state given its rural makeup, political context, and ECHO reimbursement, also manages 6 distinct teleoncology platforms (Fischer 2019). These teleoncology programs cover the entire spectrum of care, from screening and treatment to survivorship and serve as an excellent model of policy diffusion to surrounding rural states. The similarities in key political (median state senate ideology), institutional (policy innovativeness), and governmental features (state taxation and expenditures) between the model and target states support the prediction that these teleoncology policy recommendations will be successfully implemented (Klamer 2013; Jordan 2017; Perkins 2019).



Jason Semprini completed his Master's in Public Policy at the University of Chicago as a Cancer Disparities Research Fellow. In 2019, he received a Scholar-in-Training award from the American Association of Cancer Research. He is currently pursuing a PhD in Health Services and Policy at the University of Iowa.

REFERENCES

- Ahern, M., & McCoy, V. (1993). Effects of Payment Changes on Urgent/Emergent Admissions in Rural and Urban Communities. *The Journal of Rural Health, 9*(2), 120–128. <https://doi.org/10.1111/j.1748-0361.1993.tb00503.x>
- Alyabsi, M., Charlton, M., Meza, J., Islam, K. M. M., Soliman, A., & Watanabe-Galloway, S. (2019). The impact of travel time on colorectal cancer stage at diagnosis in a privately insured population. *BMC Health Services Research, 19*(1), 172. <https://doi.org/10.1186/s12913-019-4004-6>
- American Hospital Association (AHA) June 19, 2019. [Policy Statement] *Senate HELP leaders introduce Lower Health Care Costs Act*.
- American Telemedicine Association (ATMA). May 27, 2015. Milestone—Most States Now Have Telehealth Parity Laws.
- American Recovery and Reinvestment Act of 2009 (ARRA): law, explanation and analysis: P.L. 111-5, as signed by the President on February 17, 2009. Chicago, Ill.
- Association of American Medical Colleges (AAMC) June 26, 2019. [Policy Statement]. AAMC Statement on the Lower Health Care Costs Act.
- Arora, S., Geppert, C. M. A., Kalishman, S., Dion, D., Pullara, F., Bjeletich, B., ... Scaletti, J. V. (2007). Academic Health Center Management of Chronic Diseases through Knowledge Networks: Project ECHO. *Academic Medicine: Journal of the Association of American Medical Colleges, 82*(2). <https://doi.org/10.1097/ACM.0b013e31802d8f68>
- Association of Offices of Rural Health. (2019). National Rural Health Day. Retrieved November 21, 2019, from Power of Rural website: <https://www.powerofrural.org/>
- Barker, A. D., & Jordan, H. (2003). Legislative History of the National Cancer Program. Holland-Frei Cancer Medicine. 6th Edition. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK13873/>
- Barlas, S. (2016). The White House Launches a Cancer Moonshot. *Pharmacy and Therapeutics, 41*(5), 290–295.
- Birkmeyer, N. J. O., Goodney, P. P., Stukel, T. A., Hillner, B. E., & Birkmeyer, J. D. (2005). Do cancer centers designated by the *National Cancer Institute* have better surgical outcomes? *Cancer, 103*(3), 435–441. <https://doi.org/10.1002/cncr.20785>
- Blackburn, B. E., Soisson, S., Rowe, K., Snyder, J., Fraser, A., Deshmukh, V., ... Hashibe, M. (2019). Prognostic factors for rural endometrial cancer patients in a population-based cohort. *BMC Public Health, 19*(1), 921. <https://doi.org/10.1186/s12889-019-7262-7>
- Bluth, R. (2019, June 26). Senate Panel Makes Surprisingly Fast Work Of ‘Surprise Medical Bills’ Package. Retrieved November 26, 2019, from Kaiser Health News website: <https://khn.org/news/senate-panel-makes-surprisingly-fast-work-of-surprise-medical-bills-package/>
- Burris, S., Mays, G. P., Douglas Scutchfield, F., & Ibrahim, J. K. (2012). Moving from Intersection to Integration: Public Health Law Research and Public Health Systems and Services Research. *The Milbank Quarterly, 90*(2), 375–408. <https://doi.org/10.1111/j.1468-0009.2012.00667.x>
- California Association of Public Hospitals and Health Systems (CAPH) June 2016. [Policy Brief] *ISSUE BRIEF: THE GLOBAL PAYMENT PROGRAM IM-*

- PROVING CARE FOR THE UNINSURED IN CALIFORNIA'S PUBLIC HEALTH CARE SYSTEMS.* Center for Health Care Strategies (CHCS). 2017. [Technical Assistance Tool] Medicaid Financing Models for Project ECHO. Retrieved from https://www.chcs.org/media/ECHO-Financing-Matrix_120117.pdf
- Center for Medicare & Medicaid Services (CMS), HHS. 2016. 81 FR 27497.
- Collado, L., & Brownell, I. (2019). The crippling financial toxicity of cancer in the United States. *Cancer Biology & Therapy*, 20(10), 1301–1303. <https://doi.org/10.1080/15384047.2019.1632132>
- Congressional Budget Office (CBO) 2019, June 26. S. 1895, Lower Health Care Costs Act.
- Conrad State 30 and Physician Access Reauthorization Act. S.948 – 116th Congress (2019-2020)
- Dovlo, D. (2005). Taking More Than a Fair Share? The Migration of Health Professionals from Poor to Rich Countries. *PLOS Medicine*, 2(5), e109. <https://doi.org/10.1371/journal.pmed.0020109>
- Expanding Capacity for Health Outcomes Act or the ECHO Act, S. 2873, 114th Cong. (2016).
- Expanding Capacity for Health Outcomes Act or the ECHO Act, S. 1618, 116th Cong. (2019).
- Emergency Health Personnel Act. Pub. L. 91-623, Dec. 31, 1970, 84 Stat. 1868. 42 U.S.C. 201. 1970.
- Fischer, S., Rose, A., McBain, R., Faherty, J., Sousa, J., Martineau, M. 2019. Evaluation of Technology Enabled Collaborative Learning and Capacity Building Models: Materials for a Report to Congress. Rand Corporation.
- Folz, C. E. (2005). Health Policy Roundtable—View from the State Legislature: Translating Research into Policy. *Health Services Research*, 40(2), 337–346. <https://doi.org/10.1111/j.1475-6773.2005.00359.x>
- Gaffney, K. and Etherton, L. (December 19, 2016). Oregon Medicaid Advisory Committee [open letter]. Retrieved from https://www.oregon.gov/oha/HPA/HP-MAC/Documents/MAC%201115%20Waiver%20Renewal%20Cover%20Letter_Governor_FINAL.pdf
- Gates, A., & Guyer, J. (2014). An Overview of Delivery System Reform Incentive Payment (DSRIP) Waivers. The Henry J. Kaiser Family Foundation. Retrieved from <https://www.kff.org/medicaid/issue-brief/an-overview-of-delivery-system-reform-incentive-payment-waivers/>
- Haeder, S. F. (2019). Quality Regulation? Access to High-Quality Specialists for Medicare Advantage Beneficiaries in California. *Health Services Research and Managerial Epidemiology*, 6. <https://doi.org/10.1177/2333392818824472>
- Hall, C., & Tolbert, J. (2018, October 22). Health Care and the Candidates in the 2018 Midterm Elections: Key Issues and Races. The Henry J. Kaiser Family Foundation. Retrieved from <https://www.kff.org/health-reform/issue-brief/health-care-and-the-candidates-in-the-2018-midterm-elections-key-issues-and-races/>
- Hammer, J., Aiyar, Y., & Samji, S. (2007). Understanding Government Failure in Public Health Services. *Economic and Political Weekly*, 42(40), 4049–4057. Retrieved from JSTOR.
- Hartley, D. (2004). Rural Health Disparities, Population Health, and Rural Culture. *American Journal of Public Health*, 94(10), 1675–1678.
- Health professional shortage areas. 42 U.S. Code §254e. 2006.
- Helping Communities Invest in Infrastructure Act. H.R. 4110. 116th Congress (2019).
- Henley, S. J. (2017). Invasive Cancer Incidence, 2004–2013, and Deaths, 2006–2015, in Nonmetropolitan and Metropolitan Counties—United States. *MMWR. Surveillance Summaries*, 66. <https://doi.org/10.15585/mmwr.ss6614a1>
- Housing Assistance Council. (2011). Rurality in the United States. Policy Brief.
- Imhof, S. L., & Kaskie, B. (2008). Promoting a “Good Death.” Determinants of Pain-Management Policies in the United States. *Journal of Health Politics, Policy and Law*, 33(5), 907–941. <https://doi.org/10.1215/03616878-2008-024>
- Institute of Medicine (US) Division of Health Care Services. A Stronger Cancer Centers Program. Washington (DC): National Academies Press (US); 1989. APPENDIX B, List of NCI-Supported Cancer Centers. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK222698/>
- Jacobson, G., Damico, Anthony, & Neuman, Tricia. (2018, November 13). A Dozen Facts About Medicare Advantage. Retrieved August 29, 2019, from The Henry J. Kaiser Family Foundation website: <https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage/>
- Jordan, Marty P. and Matt Grossmann. 2017. The Correlates of State Policy Project v.2.1. East Lansing, MI: Institute for Public Policy and Social Research (IPPSR).
- Kahn, T., Hagopian, A., & Johnson, K. (2010). Retention of J-1 Visa Waiver Program Physicians in Washington State’s Health Professional Shortage Areas. *Academic Medicine*, 85(4), 614–621. <https://doi.org/10.1097/ACM.0b013e3181d2ad1d>
- Kaiser Family Foundation. (2019, August 2). Different Takes: Let’s Take The Debate About Health Care Back To Affordability; Repealing The ACA Would Hurt Millions On Medicaid In Rural Areas. Kaiser Health News. Retrieved from <https://khn.org/morning-breakout/different->

- takes-lets-take-the-debate-about-health-care-back-to-affordability-repealing-the-aca-would-hurt-millions-on-medicaid-in-rural-areas/
- Kaiser Family Foundation (KFF). 2019. "Status of State Action on the Medicaid Expansion Decision."
- Kemper, L., Barker, A. R., McBride, T. D., Mueller, K., Rural Health Research & Policy Centers, & Rural Policy Research Institute, RUPRI Center for Rural Health Policy Analysis, University of Iowa College of Public Health, Department of Health Management and Policy. (2015). Rural Medicare Advantage Plan Payment in 2015. Rural Policy Brief, (2015 12), 1–5.
- Klarner, Carl, 2013, "Other Scholars' Competitiveness Measures," <https://doi.org/10.7910/DVN/QSDYLH>, HarvardDataverse, V1, UNF: 5:we2ixYigyI3GVaDGksU58A
- Lin, C.-C. C., Dievler, A., Robbins, C., Sripipatana, A., Quinn, M., & Nair, S. (2018). Telehealth In Health Centers: Key Adoption Factors, Barriers, And Opportunities. *Health Affairs*, 37(12), 1967–1974. <https://doi.org/10.1377/hlthaff.2018.05125>
- Lower Healthcare Costs Act, S.1895 – 116th Congress (2019).
- Massey, T. 2017. Department of Health Care Policy & Financing. *Accountability Care Collaborative Administrative Report, submitted to Joint Budget Committee, Public Health Care and Human Services Committee of the House of Representatives, and the Health and Human Services Committee of the Senate*. Retrieved from <https://www.colorado.gov/pacific/sites/default/files/2017%20HCPF%20ACC%20Implementation%20Report%20-%20December%201%2C%202017.pdf>
- Mokdad, A. H., Ballestros, K., Echko, M., Glenn, S., Olsen, H. E., Mullany, E., ... Murray, C. J. L. (2018). The State of US Health, 1990-2016: Burden of Diseases, Injuries, and Risk Factors Among US States. *JAMA*, 319(14), 1444–1472. <https://doi.org/10.1001/jama.2018.0158>
- Morgan, K. J., & Campbell, A. L. (2011). Delegated Governance in the Affordable Care Act. *Journal of Health Politics, Policy and Law*, 36(3), 387–391. <https://doi.org/10.1215/03616878-1271000>
- Murphy, P. B., Severance, S., Savage, S., Obeng-Gyasi, S., Timsina, L. R., & Zarzaur, B. L. (2019). Financial toxicity is associated with worse physical and emotional long-term outcomes after traumatic injury. *Journal of Trauma and Acute Care Surgery*, 87(5), 1189. <https://doi.org/10.1097/TA.0000000000002409>
- Nasir, K., & Khera, R. (2019). Financial Toxicity of Acute Cardiovascular Disease in India: A Dive Beyond the Tip of an Iceberg. *JAMA Network Open*, 2(5), e193839–e193839. <https://doi.org/10.1001/jamanetworkopen.2019.3839>
- National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; National Cancer Policy Forum. (2019). Developing and Sustaining an Effective and Resilient Oncology Careforce: Proceedings of a Workshop (S. J. Nass, M. Patlak, E. Zevon, & E. Balogh, Eds.). Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK547159/>
- National Conference of State Legislatures (NSLC) 2019. Health Innovations State Law Database. Retrieved via Lexis Nexis. <http://www.ncsl.org/research/health/health-innovations-database.aspx>
- Nattinger, M. C. (2016). Examining the formation of Medicaid elderly 1915(c) waivers. Theses and Dissertations. <https://doi.org/10.17077/etd.nebcf360>
- New Mexico Human Services Department, New Mexico Behavioral Health Purchasing Collaborative. 2016. *Medicaid Managed Care Telehealth Requirements*. 4.8.16. p. 87.
- N.C. State Bd. of Dental Examiners v. Fed. Trade Comm'n, 135 S. Ct. 1101 (2015). US SC.
- Office of Health Policy, Office of the Assistant Secretary for Planning and Evaluation (ASPE). February 2019. Current State of Technology-Enabled Collaborative Learning and Capacity Building Models: Report to Congress. U.S. Department of Health and Human Services.
- Park, J., Blume-Kohout, M., Krestel, R., Nalisnick, E., & Smyth, P. (2016). Analyzing NIH Funding Patterns over Time with Statistical Text Analysis. University of California Irvine, 6.
- Parker, K., Horowitz, J., Brown, A., Fry, R., Cohn, D., & Igielnik, R. (2018). Demographic and economic trends in urban, suburban and rural communities. Pew Research Center's Social & Demographic Trends Project. Retrieved from <https://www.pewsocialtrends.org/2018/05/22/demographic-and-economic-trends-in-urban-suburban-and-rural-communities/>
- Patient Protection and Affordable Care Act, 42 U.S.C. §18001 P.L. 111-148 (2010).
- Paolo Di Lorenzo (2019). usmap: US Maps Including Alaska and Hawaii. R package version 0.5.0. <https://CRAN.R-project.org/package=usmap>
- Perkins, H. 2019. Book of the States 2019, Chapter 2: Federalism and Intergovernmental Relations. Council of State Governments.
- Physicians for Underserved Areas Act. 120 STAT. 3572 PUBLIC LAW 109-477—JAN. 12, 2007
- The Providers*. Directed by Laura Green and Anna Moot-Levin, produced by Jamie Meltzer, Chris Brown, Ben Sozanski, Lisa Fruchtmann, Paul Brill, and Frazer Bradshaw. Stray Pony Productions LLC. 2019.

- RStudio Team (2015). RStudio: Integrated Development for R. RStudio, Inc., Boston, MA URL <http://www.rstudio.com/>
- Ratcliffe, M., Burd, C., Holder, K., & Fields, A. (2018). Defining Rural at the U.S. Census Bureau. United States Census Bureau, 8.
- Ricketts, T. C. (2000). Health care in rural communities. *Western Journal of Medicine*, 173(5), 294–295.
- Robson, C. B. (1947). [Review of Review of Federal Government, by K. C. Wheare]. *The Journal of Politics*, 9(3), 453–455. <https://doi.org/10.2307/2125807>
- Roemer, M. I. (1982). Market Failure and Health Care Policy. *Journal of Public Health Policy*, 3(4), 419–431. <https://doi.org/10.2307/3342006>
- Rubenson, D. (2016). A Countdown: Top 10 Problems With NCI-Designated Cancer Centers. The Cancer Letter. Retrieved from https://cancerletter.com/articles/20161104_4/
- Rubenson, D. (2019). Opinion: Are 71 NCI-Designated Cancer Centers Too Many? The Scientist Magazine®. Retrieved from <https://www.the-scientist.com/news-opinion/opinion--are-71-nci-designated-cancer-centers-too-many--66370>
- Rubenson, D., & Kapp, D. S. (2017). Getting real about NCI-designated Cancer Center advertising. *Nature Reviews Clinical Oncology*, 14(4), 195–196. <https://doi.org/10.1038/nrclinonc.2017.28>
- Satcher, R., Bogler, O., Hyle, L., Lee, A., Simmons, A., Williams, R., ... Brewster, A. (2014). Telemedicine and telesurgery in cancer care: Inaugural conference at MD Anderson Cancer Center. *Journal of Surgical Oncology*, 110(4), 353–359. <https://doi.org/10.1002/jso.23652>
- Sharfstein, J. M. (2016). Global Budgets for Rural Hospitals. *The Milbank Quarterly*, 94(2), 255–259. <https://doi.org/10.1111/1468-0009.12192>
- Sharfstein, J., Gerovich, S., Moriarty, E., Chin, D. (2017). *An Emerging Approach to Payment Reform: All-Payer Global Budgets for Large Safety-Net Hospital Systems*. The Commonwealth Fund.
- Smith, D. Director (February 25, 2004). Center for Medicaid and State Operations. Retrieved from <https://www.medicaid.gov/Federal-Policy-Guidance/downloads/smd022504.pdf>
- Shulman, L. N., Palis, B. E., McCabe, R., Mallin, K., Loomis, A., Winchester, D., & McKellar, D. (2017). Survival As a Quality Metric of Cancer Care: Use of the National Cancer Data Base to Assess Hospital Performance. *Journal of Oncology Practice*, 14(1), e59–e72. <https://doi.org/10.1200/JOP.2016.020446>
- Siegel, R. L., Miller, K. D., & Jemal, A. (2019). Cancer statistics, 2019. *CA: A Cancer Journal for Clinicians*, 69(1), 7–34. <https://doi.org/10.3322/caac.21551>
- Smith, A. S., & Trevelyan, E. (2019). The Older Population in Rural America: 2012–2016. 21.
- Sparer, M. S. (2011). Federalism and the Patient Protection and Affordable Care Act of 2010: The Founding Fathers Would Not Be Surprised. *Journal of Health Politics, Policy and Law*, 36(3), 461–468. <https://doi.org/10.1215/03616878-1271099>
- Thompson, F. J. (2013). The Rise of Executive Federalism: Implications for the Picket Fence and IGM. *The American Review of Public Administration*, 43(1), 3–25. <https://doi.org/10.1177/0275074012461561>
- Thompson, F. J., & Burke, C. (2009). Federalism by Waiver: MEDICAID and the Transformation of Long-term Care. *Publius: The Journal of Federalism*, 39(1), 22–46. <https://doi.org/10.1093/publius/pjn026>
- Udall, Tom. 2019, September 25. Bipartisan ECHO Letter to HHS. [Open Letter] Retrieved from <https://www.tomudall.senate.gov/imo/media/doc/Bipartisan%20ECHO%20letter%20to%20HHS.pdf>
- U.S. Census Bureau, 1990, 2000, and 2010 Censuses of Population (corrected), and 2018 County Total Population Estimates.
- U.S. Congress, Office of Technology Assessment, Health Care in Rural America, OTA-H-434 (Washington, DC: U.S. Government Printing Office, September 1990).
- U. S. National Institutes of Health, National Cancer Institute. 2019.
- United States Cancer Statistics – Mortality Incidence Rate Ratios: 1999–2016, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2019.
- Verma, V., Shah, C., Lautenschlaeger, T., Lin, C., Berival, S., Zhen, W., ... Zietman, A. L. (2016). International Medical Graduates in Radiation Oncology: Historical Trends and Comparison With Other Medical Specialties. *International Journal of Radiation Oncology*Biophysics*Physics*, 95(4), 1102–1106. <https://doi.org/10.1016/j.ijrobp.2016.03.008>
- Volden, C. (2017). Policy Diffusion in Polarized Times: The Case of the Affordable Care Act. *Journal of Health Politics, Policy and Law*, 42(2), 363–375. <https://doi.org/10.1215/03616878-3766762>
- Washington Senate 5386 (2019). *Telemedicine Training*. Chapter 48, Laws of 2019. 66TH Legislature.
- Wickham, H. ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York, 2016.
- Weimer, D. L., & Vining, A. R. (2017). Policy Analysis: Concepts and Practice. Taylor & Francis.
- Weissert, C. S., & Scheller, D. (2008). Learning from the States? Federalism and National Health Policy. *Public*

- Administration Review*, 68(s1), S162–S174. <https://doi.org/10.1111/j.1540-6210.2008.00986.x>
- Weissert, C. S., & Weissert, W. G. (2017). Medicaid waivers and negotiated federalism in the US: Is there relevance to other federal systems? *Journal of Health Services Research & Policy*, 22(4), 261–264. <https://doi.org/10.1177/1355819617702175>
- Wolfson, J., Sun, C.-L., Wyatt, L., Hurria, A., & Bhatia, S. (2015). Impact of Care at Comprehensive Cancer Centers on Outcome – Results from a Population-based Study. *Cancer*, 121(21), 3885–3893. <https://doi.org/10.1002/cncr.29576>
- Yasaitis, L., Bekelman, J. E., & Polsky, D. (2017). Relation Between Narrow Networks and Providers of Cancer Care. *Journal of Clinical Oncology*, 35(27), 3131–3135. <https://doi.org/10.1200/JCO.2017.73.2040>
- Yu, L. (2019). Rural–Urban and Racial/Ethnic Disparities in Invasive Cervical Cancer Incidence in the United States, 2010–2014. *Preventing Chronic Disease*, 16. <https://doi.org/10.5888/pcd16.180447>
- Zafar, S. Y., Peppercorn, J. M., Schrag, D., Taylor, D. H., Goetzinger, A. M., Zhong, X., & Abernethy, A. P. (2013). The Financial Toxicity of Cancer Treatment: A Pilot Study Assessing Out-of-Pocket Expenses and the Insured Cancer Patient’s Experience. *The Oncologist*, 18(4), 381–390. <https://doi.org/10.1634/theoncologist.2012-0279>
- Zahnd, W. E., Fogleman, A. J., & Jenkins, W. D. (2018a). Rural–Urban Disparities in Stage of Diagnosis Among Cancers With Preventive Opportunities. *American Journal of Preventive Medicine*, 54(5), 688–698. <https://doi.org/10.1016/j.amepre.2018.01.021>
- Zahnd, W. E., Fogleman, A. J., & Jenkins, W. D. (2018b). Rural–Urban Disparities in Stage of Diagnosis Among Cancers With Preventive Opportunities. *American Journal of Preventive Medicine*, 54(5), 688–698. <https://doi.org/10.1016/j.amepre.2018.01.021>
- Zhou, C., Crawford, A., Serhal, E., Kurdyak, P., & Sockalingam, S. (2016). The Impact of Project ECHO on Participant and Patient Outcomes: A Systematic Review. *Academic Medicine*, 91(10), 1439–1461. <https://doi.org/10.1097/ACM.0000000000001328>

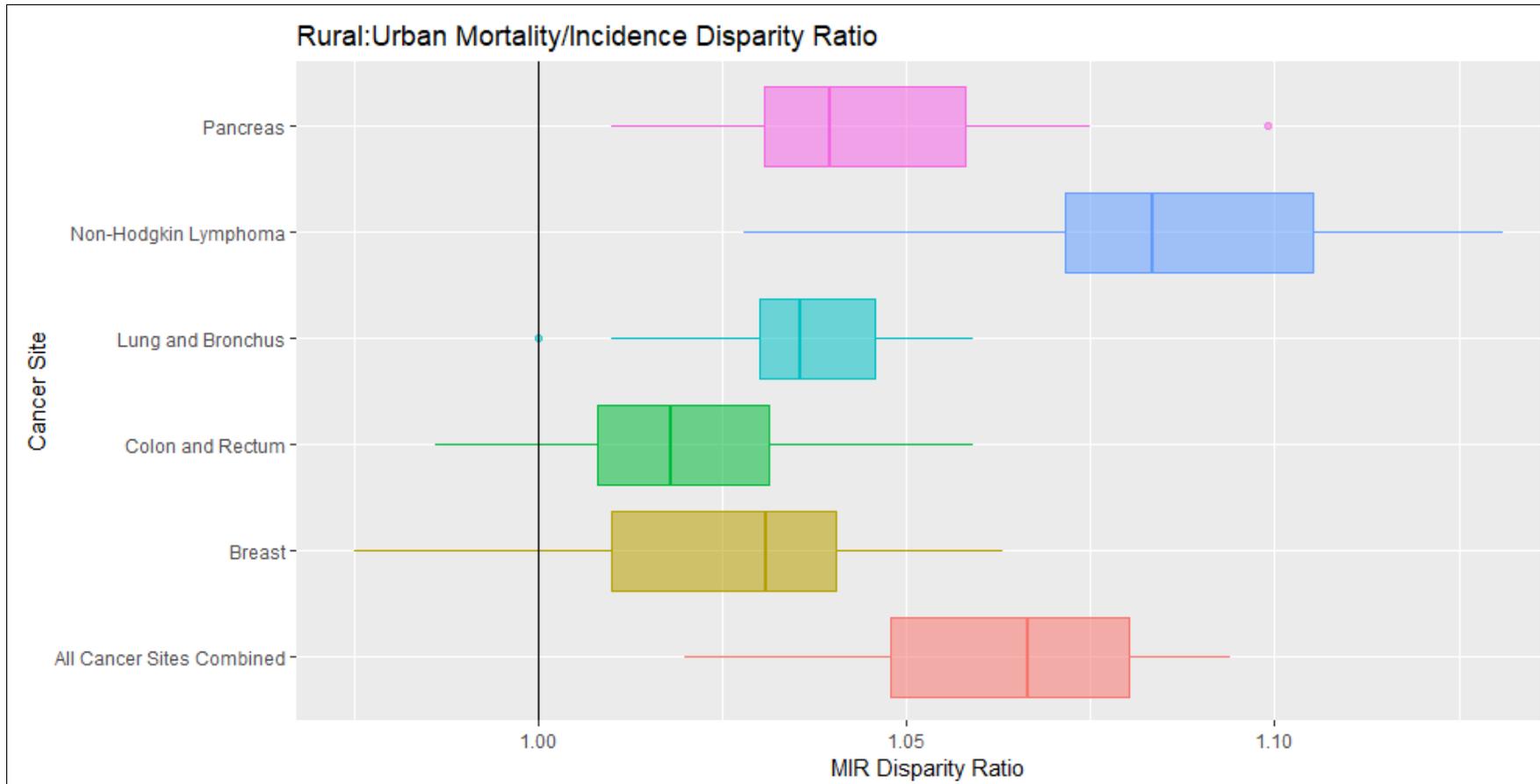


Figure 1. Rural/Urban Cancer Disparities

The Rural : Urban Mortality Incidence Rate Disparity Ratio figures are calculated by dividing the mortality rate by the incidence rate for both nonmetro and metro populations. The nonmetro mortality-to-incidence ratio (MIR) is then divided by the metro MIR. These cancers are in the 25 leading causes of mortality. Figure 1 shows the disparity between nonmetro MIR and metro MIR for all counties in the United States between 1999 and 2016. Box plots not crossing 1 indicate a significant disparity between nonmetro and metro counties ($p < 0.05$). Error bars indicate 99% C.I. **The MIR ratio provides a population-based indicator of survival disparities between 2 groups.**

Source: United States Cancer Statistics - Mortality Incidence Rate Ratios: 1999-2016, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2019. Figure 1 was created using RStudio and ggplot2 package.

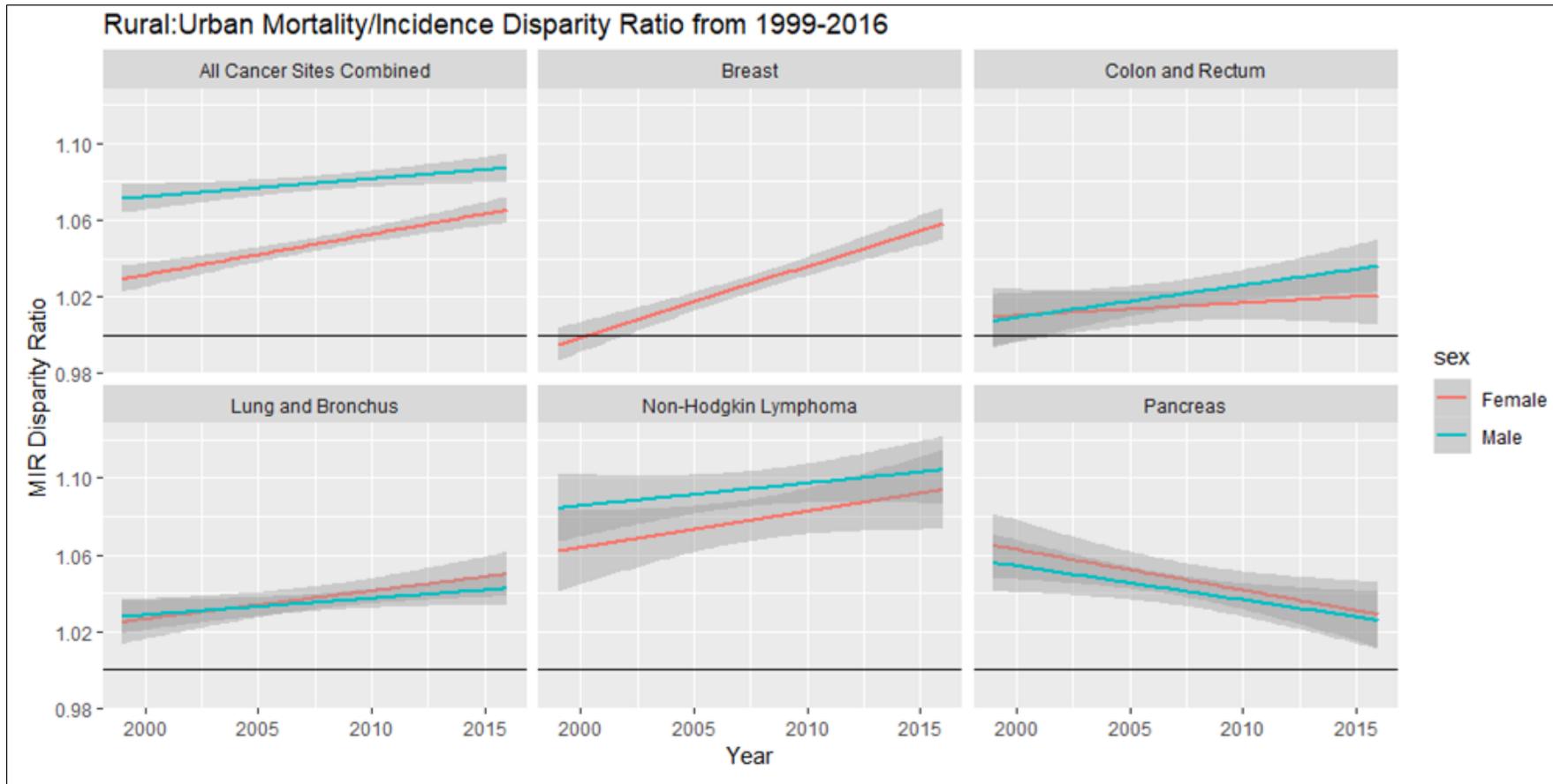


Figure 2. Rural/Urban Mortality since 1999

The Rural : Urban Mortality Incidence Rate Disparity Ratio figures are calculated by dividing the mortality rate by the incidence rate for both nonmetro and metro populations. The nonmetro mortality-to-incidence ratio (MIR) is then divided by the metro MIR. These cancers listed in the 25 leading causes of mortality. Figure 2 shows the change in disparity between nonmetro MIR and metro MIR from 1999 to 2016. Shaded regions represent the 95% confidence interval around the predicted value. Shaded regions not crossing 1 indicate a significant disparity between nonmetro/metro counties ($p < 0.05$). **The MIR ratio provides a population-based indicator of survival disparities between 2 groups.**

Source: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 9 Regs Research Data, Nov 2018 Sub (1975-2016) ;Katrina/Rita Population Adjustment; - Linked To County Attributes - Total U.S., 1969-2017 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2019, based on the November 2018 submission. Figure 2 was created using RStudio and ggplot2.

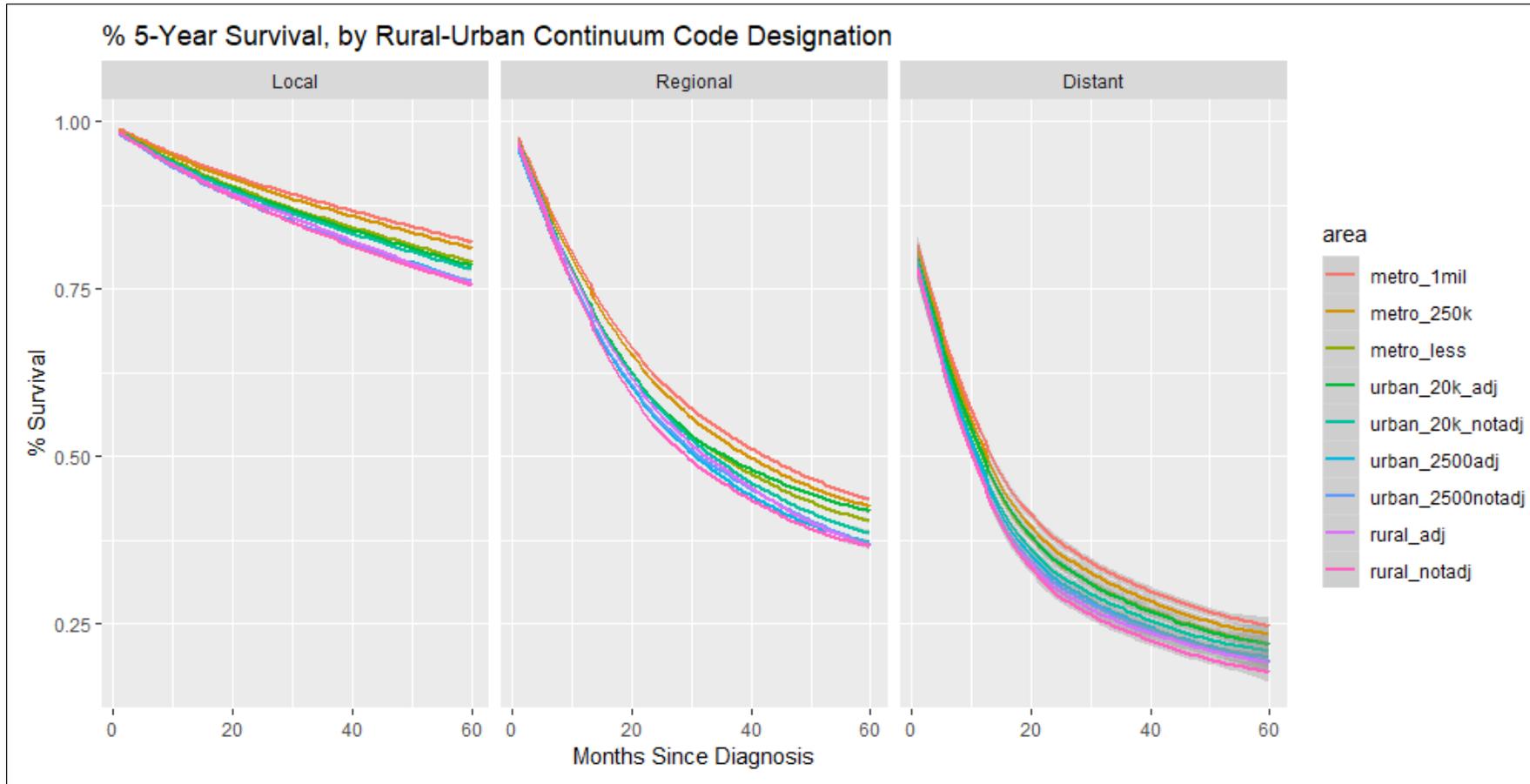


Figure 3. Five-Year Survival by Rural Continuum Code and Stage of Diagnosis

Figure 3 stratifies all U.S. cancer patients by Rural-Urban Continuum Codes, then compares the probability of 5-year survival for Local (1), Regional (2), and Distant (3) diagnosis stages. These survival tables highlight the disparity in survival between metro, urban, and rural regions, regardless of stage at diagnosis. “adj” indicates county is adjacent to a metro county. “notadj” indicates the county is NOT adjacent to a metro county.

Source: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 9 Regs Research Data, Nov 2018 Sub (1975-2016) |Katrina/Rita Population Adjustment| - Linked To County Attributes - Total U.S., 1969-2017 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2019, based on the November 2018 submission. See SEER RUCCA Codes for guidance.

Table 1. Target State Recommendations

State	Expanded Medicaid ¹	Relevant Medicaid Waiver Program ²	In-state NCI Cancer Center ³	Recommendation ⁴
Kansas	No	None	University of Kansas Cancer Center	Expand Medicaid via Private Managed Care Waiver, authorizing ECHO reimbursement through 1115 DSRIP Waiver, inking oncology care for Medicaid enrollees to in-state NCI. Shared Savings Optional.
Missouri	No	Managed Care, 1915 Expires 2020	Washington University School of Medicine; Barnes-Jewish Hospital.	Expand Medicaid by resubmitting Healthnet Waiver, authorizing ECHO reimbursement through 1115 DSRIP Waiver, linking oncology care for Medicaid enrollees to in-state NCI. Shared Savings Optional.
Montana	Yes	Case Management, 1915 Expires 2022	None	Reauthorize waiver to include ECHO reimbursement through Disease Management Program (under federal authority SMDL #04-002), linking oncology care to out of state NCI (MD Anderson).
Nevada	Yes	None	None	Submit case management waiver for Medicaid, which authorizes Disease Management ECHO reimbursement (under federal authority SMDL #04-002) and links Medicaid enrollees to out of state NCI (MD Anderson).
Utah	Yes	Technology, 1115(c) Expires 2023	Huntsman Cancer Institute University of Utah	Reauthorize current waiver to include ECHO reimbursement under SPA Waiver (under federal authority SMDL #13-005), linking enrollees to in-state NCI through shared savings program.

Table 1 shows the five target states and characteristics relevant to authorizing ECHO reimbursement under Medicaid.

Source(s):

¹ Kaiser Family Foundation (2019)

² Center for Medicare and Medicaid Services (2019) State Waiver List

³ National Cancer Institute (2019)

⁴ Center for Health Care Strategies Inc. (2017)