Title:
Measuring Health Status in the Era of Medicaid Work Requirements: A Scoping Review

Authors:

Jennifer S. Oliveira[1], Letycia Nuñez-Argote[2], and Kevin J. Sykes[3]

1. University of Kansas Medical Center, School of Medicine, Department of Population Health, Kansas City, KS

2. University of Kansas Medical Center, School of Health Professions, Department of Clinical Laboratory Sciences, Kansas City, KS

3. University of Kansas Medical Center, School of Medicine, Department of Otolaryngology-Head and Neck Surgery, Kansas City, KS

ABSTRACT

In January of 2017, the Department of Health and Human Services began allowing states to enforce work requirements for Medicaid recipients. In the past, these types of requirements have had negative effects on access to safety net programs. We reviewed the literature for articles that looked at the effects on the health of Medicaid recipients who were impacted by work requirements. We identified nine texts, but the methods and evidence varied in quality. The research we found on this subject is done by academic universities and paid for by some private, but mostly public funds. The included texts describe effects on different groups of people, mostly those who are vulnerable or suffering from acute and chronic disease. With so little evidence at this time, we cannot clearly say if work requirements have positive or negative impacts on health. However, we found that there is an opportunity for researchers to anticipate the impact on health, so they can design and carry out studies that measure any likely changes.

KEYWORDS

Medicaid, section 1115 waiver, health, work requirements, review

INTRODUCTION

In 1965, United States (U.S.) President Lyndon B. Johnson signed into law the Medicare and Medicaid programs as an amendment to the Social Security Act of 1935. The principal purpose of Medicaid is "to provide health-care coverage to populations that otherwise could not afford it."[1] Forty-five years later the Affordable Care Act (ACA) aimed to increase access to health care services by expanding eligibility for health insurance coverage, with one key initiative being the 2014 establishment of the nationwide health insurance marketplace.[2] States opting into Medicaid expansion could provide coverage to a larger portion of the population who may have been previously uninsured or underinsured.[2] As of 2023, Washington, D.C. and 38 states had expanded Medicaid to the benefit of over 21 million Americans, with an additional state, South Dakota, also adopting expansion in July of 2023.[3,4]

In light of the ACA reform, the Department of Health and Human Services (HHS) began issuing Section 1115 waivers for state implementation of Medicaid expansion. These waiver requests allow states to experiment with different implementation approaches for the Medicaid program which may differ from federal statutes.[5] In January of 2017, HHS issued 1115 waivers began authorizing states to implement work requirements for Medicaid recipients under the ACA provisions to both expansion and non-expansion states. Between 2016 and 2020, the Trump administration's guidance in support of these waivers asserted that the establishing work and community engagement requirements has the potential to improve health and well-being, despite prior assessments that it would likely impede access to health resources under Medicaid.[5] Upon the election of Joe Biden in 2020, policy on this topic changed once again, this time to prioritize 1115 waiver initiatives that would increase access to services under Medicaid

and curtail punitive or restrictive programs.[6] Immediately prior to the announcement and subsequent public health measures implemented due to the coronavirus disease 19 (COVID-19) pandemic, Arizona, Arkansas, Georgia, Indiana, Kentucky, Maine, Michigan, Nebraska, New Hampshire, Ohio, South Carolina, Utah, and Wisconsin received approval of Section 1115 waivers instituting work requirements for enrollment of certain groups under Medicaid.[7] As of this writing, approval was still active, being re-applied for, or scheduled to resume in Arkansas and Ohio.[8,9] The remaining states did not enforced the requirements either due to them letting the program lapse or their approval being withdrawn by the Biden Administration's policies, or because of pending lawsuits filed in U.S. District courts blocked waiver implementation.[7,10-12] In the past, changes to government program eligibility through work requirements have demonstrated a negative effect on access to health services for US families. For example, in 1996 the Aid to Families with Dependent Children (AFDC) program which allowed low income Americans to obtain Medicaid coverage along with other financial assistance, was replaced by the Temporary Assistance for Needy Families (TANF) program, which obligated beneficiaries to meet work requirements.[13] At the time, AFDC was the leading cash transfer program in the U.S. assisting low income families.[14] However, throughout the 1980's and early 1990's the majority of state governments had requested multiple waivers to first reduce and later grow welfare and other programs benefiting the poor.[14]

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), which included the TANF reforms, was introduced by Representative John Kasich, passed under the 104th United States Congress, and signed into law by President Bill Clinton.[15] This law restricted access to welfare, transformed it from a right to benefit, promulgated the

principles of personal responsibility into law, and codified limits for accessing government programs.[16] Evidence suggests those who lost welfare or TANF coverage at that time were less likely to be able to afford prescriptions, dental and mental healthcare, and more likely to have no medical visits in the past year.[17] Other studies demonstrated systems designed to provide sufficient job opportunities for those who are able to work can increase employment and decrease negative health outcomes.[18,19] There is no consensus as to whether work leads to good health, or whether "access to health care makes productive work possible."[20]

We conducted a study to describe the published research documenting changes in the health status of the US population after the ACA's expansion of Medicaid and with the implementation of Section 1115 work requirement waivers. This literature review is meant to be a snapshot of the status of research on Medicaid work requirements prior to the start of the COVID-19 emergency in the U.S. when many of the Section 1115 programs were halted or delayed.

The objective of this work was to provide an evaluation of available literature that informs the potential impacts of instituting work requirements on individuals who would qualify for Medicaid coverage after implementation of the ACA's expansion program. Our key research questions for this review are (1) Which study designs are being used to examine the impact of Medicaid expansion and work requirements on the health status of the population of the US? (2) Which health conditions are associated with these policy changes? And (3) Is there evidence of changes to the health status of vulnerable populations who are more likely to need Medicaid?

METHODS

A scoping review of the literature addresses broad exploratory research questions. Our protocol incorporated items from the "PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation" by Tricco *et al*, in alignment with additionally established methodologies, to answer our study questions by focusing on evidence that can inform and provide direction to ongoing research priorities.[21,22]

Eligibility criteria

We performed an initial unrestricted search for all publications indicating a relationship between work requirements, health, and Medicaid expansion. The words Medicaid expansion and work requirement* were entered between quotation marks to ensure the concepts would be searched for as a whole, and an asterisk was included at the end of the word requirement perform a multiple character wildcard search.[23,24] In addition, we applied the Boolean conjunction AND between all three terms looking for records where all terms exist anywhere in the document.[24] In some instances, all three terms did not yield results. In this case, we excluded the term health. References were imported into EndNote software where they were organized by reference type.[25] We used EndNote to de-duplicate the reference lists. Also, we used this software to exclude texts not classified as a journal article or report, such as book chapters, conference proceedings, website and blog posts, news and magazine articles, editorials and commentaries. Upon individual review of the included literature, we further excluded any publications that did not, upon title and abstract review, report on the impact of Medicaid expansion and work requirements on the health status or health conditions of a target population. We also excluded duplicate articles not removed by the software, those that did not

apply to the United States healthcare system or that were in languages other than English. Additional excluded articles were those where the full text was not available for review.

Information sources and searches

For this review we cast a wide net by searching 14 databases: Academic Search Premier, PUBMED, Cochrane review, Consumer Health Complete, FirstSearch, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, JAMA Evidence, JSTOR, MEDLINE, ProQuest Research Library, SpringerLink, ScienceDirect, and Web of Science, from the year when the ACA was signed into law, 2010, to March 2020 at the start of the COVID-19 pandemic. Our search was informed by prior published systematic reviews using adequate keyword configurations depending on the database, including the use of Medical Subject Headings (MeSH) search terms. We combined 3 keywords: (1) Medicaid expansion, (2) work requirement* and (3) health.

Selection of sources and evidence

Study staff conducted the database searches. Once initial filtering criteria were met, they independently screened all relevant titles and abstracts to identify those related to health conditions regardless of design. Any disagreement was discussed to reach consensus. Full texts of 44 documents were assessed for inclusion.

Data charting process and Data items

The relevant information obtained for each of the publications selected after full text review pertained to:

- Author names,
- Author affiliation,

- Year of publication,
- Publication type,
- Study design,
- Data sources,
- Sample size,
- Level of evidence,
- Expansion or non-expansion States,
- Health conditions and special populations

Study staff were responsible for the identification and inclusion of literature in each of the categories. Descriptive analysis was then conducted to create a summary and synthesis of the literature.

Critical appraisal of sources of evidence

Due to the mix of study designs we were unable to use currently available strategies to measure the risk of bias or methodological quality for studies. To mitigate this problem, the investigators used criteria established by the Canadian Task Force ratings as a reference to discern the quality and types of articles to include in the review.[26] A list of study design, level of evidence, data sources, sample sizes, and additional characteristics of included literature is available (Table 1) to help others in the assessment of methodological rigor of individual publications included in this review.

RESULTS

During the initial search we identified 835 texts as shown in Figure 1. Based on our criteria of Medicaid expansion work requirements impacting health, we eliminated 826

documents. The nine remaining articles were published between 2017 and 2020. Figure 1, the PRISMA flowchart, shows the majority of these were published in peer-reviewed journals (n=8; 88.8%).[27]

We reviewed the journal of publication and author affiliation for each of the texts. One text was not a journal article, but an investigative report, from the magazine '*The Nation*' and was included because it contained descriptive information and interviews covering all search terms of interest. Two articles appeared in the American Journal of Public Health and another two were published in the Journal of General Internal Medicine. The remaining articles appeared in the journals Human Organization, Health Affairs, Journal of American Medical Association Network, and Clinical Therapeutics.

Regarding author affiliations and support/funding for peer-reviewed journal publications:

- One journal forum publication did not report funding and was written by a primary care physician at Department of Medicine, Stanford University, Palo Alto, CA,[28]
- One article came from a collaboration between researchers at Michigan State University, East Lansing, MI, the T.H. Chan School of Public Health at Harvard University, Boston, MA, Northern Arizona University, Flagstaff, AR, and the University of Texas at Arlington, TX, with funding from the Michigan Department of Community Health (MDCH),[29]
- One investigative report was performed by a journalist,[30]
- One journal was published by a researcher at the Marxe School of Public and International Affairs, Baruch College, City University of New York, New York, with data from the Kaiser Family Foundation,[31]

- One came from authors at the Milken Institute School of Public Health, George Washington University, D.C., and was supported by a Commonwealth Fund grant,[32]
- One was composed by researchers at the University of Kentucky, Lexington, KY, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, and Emory University, Atlanta, GA, with one author reporting an award from the National Institute on Drug Abuse,[33]
- Two were published under the same first author. The first was a collaboration from multiple departments at the University of Michigan, Ann Arbor, MI, the University of Pittsburgh and the VA Pittsburgh Center for Health Equity Research and Promotion, Pittsburgh, PA, with funding from the Michigan Department of Health and Human Services (MDHHS), and with support of the PI through a K08 Clinical Scientist Development Award from the National Institute on Aging (NIA). In addition support was provided by the Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development (VA HSR&D) Service, including a career development award.[34] The second article was a similar collaboration from researchers at the University of Michigan and the Veterans Affairs Ann Arbor Healthcare System, Ann Arbor, MI, with support from MDHHS, the NIA and the VA HSR&D,[35]
- One article written by researchers from the University of Michigan, Ann Arbor, MI, in collaboration with researchers from Indiana University in Indianapolis, IN, and Indiana University School of Medicine, Ann Arbor, MI, who did not list sources of funding.[36]

Guided by our research questions we also reviewed: (1) study design and level of evidence, (2) Medicaid expansion status, and (3) health conditions and special populations. One study and the news report conducted data collection through qualitative interviews alone,[29,30]

two were literature reviews,[28,36] and one used a mixed methods approach,[34] while the remaining used quantitative methods to analyze either primary or secondary data. Five publications looked at data for Medicaid expansion states with three focusing particularly on Michigan, and two included both expansion and non-expansion states. Sample sizes varied as shown in Table 1.

We examined the type of text, content and level of evidence based on the Canadian Task Force on the Periodic Health Examination criteria for assessment of quality of the evidence, and we classified the articles in three levels with "3" for lowest level of evidence, which included the investigative report and an editorial article based on "opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees."[26] Level "2" defines articles as those with evidence of either qualitative or quantitative data analysis or literature review "evidence obtained from comparisons between times or places with or without the intervention."[26] Finally, Level "1" were higher level of evidence articles containing large data samples and robust scientific methodology for data collection and analysis including descriptive statistics and measure of significance, where "evidence [is] obtained from well-designed cohort or case-control analytic studies."[26]

The health conditions and special populations studied or reported on by the texts in this review focused on certain populations, such as people under 65 years of age (4 articles), the unhoused people (1 article), people with disabilities (1 article), people suffering from addiction (1 article), SNAP recipients (1 article), and students. The specific health conditions we identified from the literature were: acute and chronic outcomes, asthma, diabetes, doctor visits, delayed surgery, exercise, HIV, hypoglycemia, hypertension, health behaviors, hernias, joint

inflammation, heart disease, mental health, prescription use, pre-diabetes, maternal health (i.e. postpartum care, pregnancy miscarriage), preventative health, oral health, stroke, thyroid management, and self-reported health status.[28-36] Data associated with issues of socioeconomic status, minority populations, and food insecurity were also discussed in the context of work requirements for Medicaid recipients.

DISCUSSION

Economists continue to explore the relationship between receiving benefits from government programs and imposing restrictions to such benefits through work requirements.[37] In 2002, Banerjee reported on her study of women who were affected by the PRWORA reforms and concluded that implementation of "work first" style programs do not seem to translate into wage power and self-sufficiency.[16] The paper by Bell *et al* (2017) echoed these findings, and states even when individuals have work underemployment, "long hours and irregular schedules" make it difficult to focus on health.[29] Wen *et al* (2019) suggested "[i]f those with potentially work-limiting health conditions were sanctioned by the work requirements, this could disrupt the continuity of their Medicaid coverage and access to care" and concluded "work requirements disproportionately affect" those with behavioral health conditions.[33] Another study by Greene *et al* (2019) found "two-thirds or more of nonworking Medicaid recipients [in Arkansas, Kentucky, New Hampshire and Indiana] would likely be exempt from work requirements" which leaves 33% of Medicaid beneficiaries needing to comply with state-specific work requirements.[31]

Type of research and author affiliations. In this review we found, with the exception of an article written by Covert, a journalist, all the published literature came from researchers

affiliated with either public or private universities.[28-36] It is usually academics and researchers who are able to generate novel research based on meticulous analysis of evidence. However, in order to create a holistic view of the effects of Medicaid work requirements on health, we included Covert's article for its purposeful study or all three topics. While it is not a peer reviewed publication, this investigative report uses primary data collection through interviews, and can provide precedent for additional and more robust research.

Funding for these studies came from various sources including the Kaiser Family Foundation, Department of Veterans Affairs Michigan, and others.[31,34,35] However, funding from MDHHS was most prominent in its support of research that led to findings associated with the topics of interest to this review. Assessing the type of research and who is conducting it informs the nature of potential bias, particularly as sponsorship could influence the research agenda and produce results which support specific policy responses.[38,39] The articles identified through this review show strong interest from the public health sector and private foundations to create and fund research that addresses the measurement of the impact of work requirements on Medicaid beneficiaries' health. There is a strong influence by researchers from Michigan in our findings. This is relevant seeing that, in 2018, there was a push from the now former administration in that state to include work requirements as part of the 1115 waiver for implementation of Medicaid expansion.[40]

Similar to the welfare reforms of 1996, peer-reviewed literature lags on effects on health of Medicaid expansion. However, in the case of the MDHHS sponsored work, we can see policy-driven, concurrent studies to help better understand the implications to the wellbeing of individuals and communities after program reforms. Our findings suggest methodologically

sound research should be required to prevent simply describing the potential economic impacts for those affected by this policy without focusing on the relationship between Medicaid coverage and the health of those who benefit from the program.[37]

Health conditions and special populations affected by policy change. Tipirneni *et al* and Covert suggest lack of health coverage does not lead to employment, rather Medicaid coverage provided the opportunity for improved access to needed health services which sometimes encouraged employment.[30,34] As a result of the work requirement, Medicaid beneficiaries have reported heightened concern and anxiety regarding their ability to care for their health, income and/or employment.[28,30,35,36] We found Medicaid recipients who qualified through the ACA expansion may be the most affected. Several populations were impacted by the work requirement despite their health status, including many from lower socioeconomic groups, those with qualifying disabilities, SNAP beneficiaries, unhoused individuals, those suffering from addiction or a wide variety of acute and chronic conditions as listed in the results.[28-36] These individuals may qualify for exemptions due to disability or other health considerations, but at least three authors reported the administrative burden of applying for disability may cause these individuals to be dropped from Medicaid due to the work requirement.[30,31,33] As a result of coverage loss, we found these individuals suffered additional health burdens such as struggling to afford needed prescriptions, postponing care, food insecurity, and consequences of mental and behavioral conditions.[28,29,32]

Limitations.

Although our search was systematic following an established protocol, we sought to answer exploratory research questions using general search terms, and thus some relevant

studies may have been missed. We found copious literature addressing work requirements in government programs, but few of them used health as a measure or focus for the research and, because of this, we may have missed including relevant articles which did not explicitly report changes in health by using a keyword search. Additionally, due to the heterogeneity of the included studies, we could not compare risk of bias across designs, nor perform a meta-analysis, and we could provide only a narrative synthesis of the available literature. Lastly, most of the articles we found examined Michigan's implementation of Medicaid expansion and its relationship to work requirements; therefore, it is not possible at this time to generalize the research on this topic to other states that have sought, acquired or implemented work requirements, regardless of Medicaid expansion status. Individual policies and interpretation of policies may make variability across states significant.

Implications for practice.

Based on the available evidence we cannot conclude imposing work requirements on Medicaid recipients has a positive or negative impact on health. However, previous work found healthcare coverage positively contributes to employment status and, conversely, that work requirements can be harmful, particularly to those individuals who have reduction or loss of benefits when they start working.[16,35] There is an opportunity for health policy researchers to design and implement studies that follow different cohorts of Medicaid recipients to explore this topic prospectively, especially since these requirements were halted by the courts or suspended due to the coronavirus emergency, but are now set to resume in a number of states.[7,11,12] Longitudinal survey designs, such as those conducted by researchers from Michigan, could capture how individuals may be affected by changes in local and/or regional legislation

that imposes work requirements.[35] Focusing on specific populations or health conditions can help inform what type of impact these work requirements may be having specifically for these groups and the population as a whole.

REFERENCES

1. *Gresham v. Azar Secretary of Health and Human Services*, 19 5094 1 (District of Columbia Circuit Court February 14, 2020).
2. Henry J. Kaiser Family Foundation. Medicaid and CHIP Health Reform Implementation Timeline. Accessed April 26, 2023. https://www.kff.org/wp-content/uploads/2013/01/8064.pdf
3. Henry J. Kaiser Family Foundation. Status of state Medicaid expansion decisions: interactive map. KFF San Francisco (CA). Updated March 27, 2023. Accessed April 26, 2023. https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/
4. Health Insurance Organization. Medicaid expansion; What Is Medicaid Expansion? Accessed April 15, 2020, https://www.healthinsurance.org/glossary/medicaid-expansion/
5. Hinton E, Musumeci M, Rudowitz R, Antonisse L, Hall C. Section 1115 Medicaid Demonstration Waivers: the current landscape of approved and pending waivers. *Henry J Kaiser Family Foundation Issue Brief*. 2019. Accessed April 23, 2023. http://resource.nlm.nih.gov/101717151
6. Henry J. Kaiser Family Foundation. Medicaid waiver tracker: approved and pending Section 1115 Waivers by state. Updated March 02 2023. Accessed March 13, 2023. https://www.kff.org/medicaid/issue-brief/medicaid-waiver-tracker-approved-and-pending-section-1115-waivers-by-state/

7. Thomhave K. Medicaid Work Rules, State by State. The Progressive. Madison: Progressive Incorporated; 2019. p. 41.

8. Governor Sarah Huckabee Sanders Directs DHS To Add Work REquirement To Medicaid Program. February 15, 2023. Accessed March 13, 2023. https://humanservices.arkansas.gov/news/governor-sarah-huckabee-sanders-directs-dhs-to-add-work-requirement-to-medicaid-program/

9. Ohio Department of Medicaid. Resuming routine Medicaid eligibility operations. Updated February 02. Accessed April 26, 2023. https://medicaid.ohio.gov/stakeholders-and-partners/covidunwinding/covidunwinding

10. Ayanian JZ, Tipirneni R, Goold SD. Mitigating the Risks of Medicaid Work Requirements. *New England Journal of Medicine*. 2018;379(9):803-805.

11. The Commonwealth Fund. Status of Medicaid Expansion and Work Requirement Waivers. Updated January 12, 2022. Accessed April 19, 2023. https://www.commonwealthfund.org/publications/maps-and-interactives/2020/jul/status-medicaid-expansion-and-work-requirement-waivers

12. Meyer H. Judge blocks Michigan's Medicaid work requirement. Crain Communications, Inc. Updated March 04, 2020. Accessed April 26, 2023. https://www.modernhealthcare.com/medicaid/judge-blocks-michigans-medicaid-work-requirement

13. Currie J, Grogger J. Medicaid expansions and welfare contractions: offsetting effects on prenatal care and infant health? *Journal of health economics*. 2002;21(2):313-335.

14. Moffitt RA. Explaining Welfare Reform: Public Choice and the Labor Market. *International Tax and Public Finance*. 1999;6(3):289-315.

15. Personal Responsibility and Work Opportunity Reconciliation Act of 1996, Pub. L. No. 104-193, 110 Stat. 2105 (1996).

16. Banerjee MM. Voicing realities and recommending reform in PRWORA. *Social Work*. 2002;47(3):315-328.

17. Sillanpää V. Measuring the impacts of welfare service innovations. *International Journal of productivity and performance management*. 2013;

18. Corman H, Dave DM, Das D, Reichman NE. Effects of welfare reform on illicit drug use of adult women. *Economic inquiry*. 2013;51(1):653-674.

19. Kaestner R, Kaushal N. Welfare reform and health insurance coverage of low-income families. *Journal of Health Economics*. 2003/11/01/ 2003;22(6):959-981.

20. Jost TS. Health care in the United States and the Affordable Care Act. *Human Rights*. 2018;43(3):6.

21. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*. 2018;169(7):467-473. doi:10.7326/m18-0850

22. Colquhoun HL, Levac D, O'Brien KK, et al. Scoping reviews: time for clarity in definition, methods, and reporting. *Journal of Clinical Epidemiology*. 2014/12/01/ 2014;67(12):1291-1294.

23. University of Wisconsin-Milwaukee Libraries. Frequently Asked Questions: Searching and Finding. Accessed Apr 15, 2020. https://guides.library.uwm.edu/faq

24. KU Dykes Library. Help with Search Operators. Accessed July 23, 2020. https://voyagercatalog.kumc.edu/Help/Home?topic=search#Wildcard%20Searches

25. *EndNote [Computer software].* Version X9.2. Clarivante Analytics; 2019.

26. Hill N, Frappier-Davignon L, Morrison B. The periodic health examination. *Canadian Medical Association Journal*. 1979;121:1193-1254.

27. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine*. 2009;151(4):264-269.

28. Basu S. Income Volatility: A Preventable Public Health Threat. *American Journal of Public Health*. 2017;107(12):1898-1899.

29. Bell HS, Martínez-Hume AC, Baker AM, Elwell K, Montemayor I, Hunt LM. Medicaid Reform, Responsiblization Policies, and the Synergism of Barriers to Low-income Health Seeking. *Human Organization*. 2017;76(3):275-286.

30. Covert B. How does losing Medicaid help you get a job? Article. *Nation*. 2019;308(7):20-25.

31. Greene J. Medicaid Work Requirements: Who Will the New State Policies Impact? *Journal of General Internal Medicine*. 2019;34(4):532-534.

32. Ku L, Brantley E, Pillai D. The Effects of SNAP Work Requirements in Reducing Participation and Benefits From 2013 to 2017. *American Journal of Public Health*. 2019;109(10):1446-1451.

33. Wen H, Saloner B, Cummings JR. Behavioral And Other Chronic Conditions Among Adult Medicaid Enrollees: Implications For Work Requirements. *Health Aff (Millwood)*. Apr 2019;38(4):660-667. doi:10.1377/hlthaff.2018.05059

34. Tipirneni R, Kullgren JT, Ayanian JZ, et al. Changes in Health and Ability to Work Among Medicaid Expansion Enrollees: a Mixed Methods Study. *Journal of General Internal Medicine*. 2019;34(2):272-280.

35. Tipirneni R, Ayanian JZ, Patel MR, et al. Association of Medicaid Expansion With Enrollee Employment and Student Status in Michigan. *JAMA Network Open*. 2020;3(1):e1920316-e1920316.

36. Villavicencio JC, McHugh KW, Edmonds BT. Overview of US Maternal Mortality Policy. *Clinical Therapeutics*. 2020;42(3):408-418.

37. Sommers BD, Goldman AL, Blendon RJ, Orav EJ, Epstein AM. Medicaid Work Requirements — Results from the First Year in Arkansas. *New England Journal of Medicine*. 2019;381(11):1073-1082. doi:10.1056/NEJMsr1901772

38. Fabbri A, Lai A, Grundy Q, Bero LA. The influence of industry sponsorship on the research agenda: a scoping review. *American journal of public health*. 2018;108(11):e9-e16.

39. Odierna DH, Forsyth SR, White J, Bero LA. The cycle of bias in health research: a framework and toolbox for critical appraisal training. *Accountability in research*. 2013;20(2):127-141. doi:10.1080/08989621.2013.768931

40. Norris L. Michigan and the ACA's Medicaid expansion. Updated June 28, 2020. Accessed July 23, 2020. https://www.healthinsurance.org/michigan-medicaid/#expansion

Figure 1. PRISMA Flowchart of Literature Selection: impact on health of work requirements for Medicaid recipients after expansion (2010-2020).

Note. PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses[24]

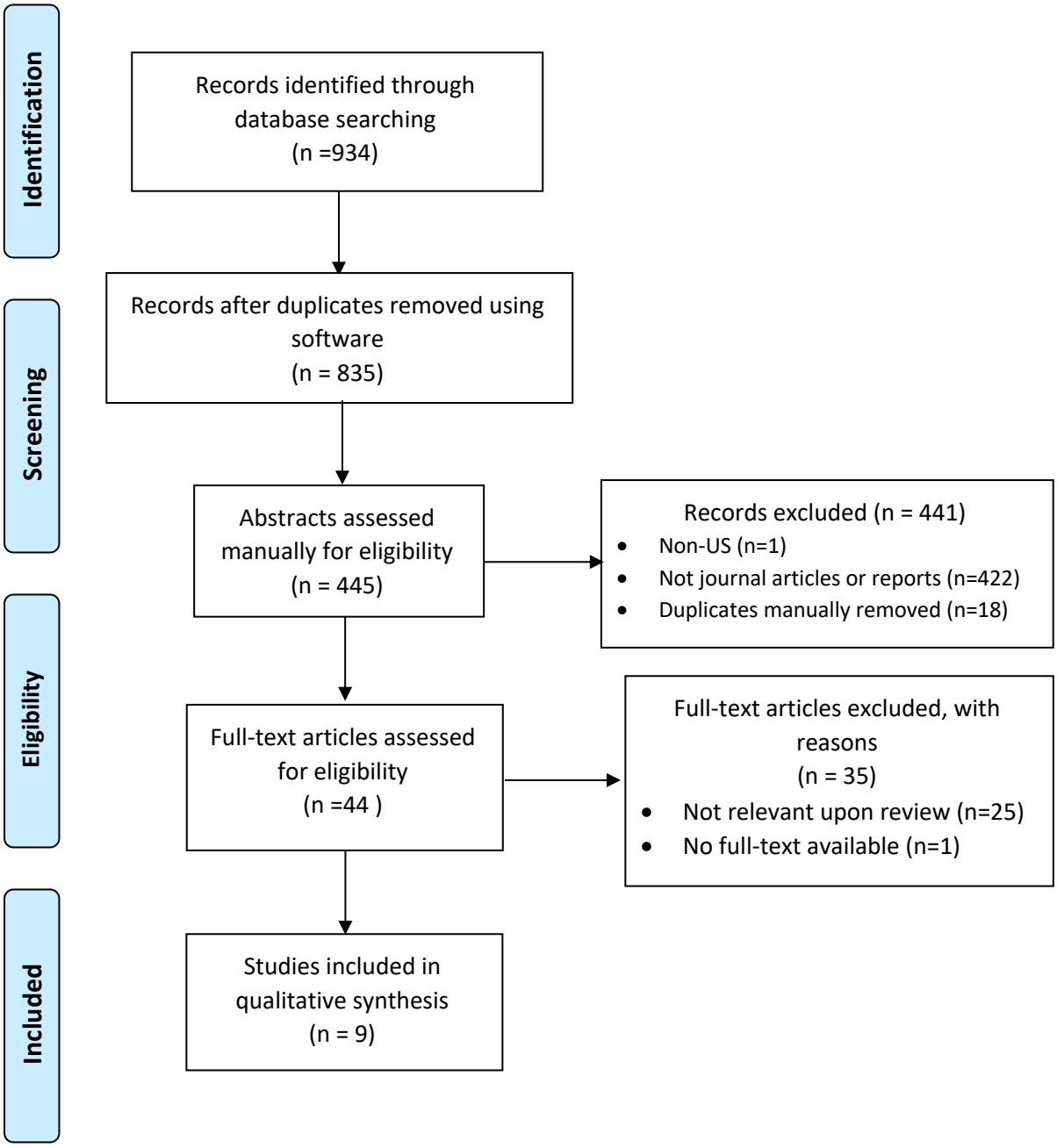

Table 1: Results of individual sources of evidence

Author	Date	Publication type	Study design	Data sources	Sample size	Level of evidence[¥]	Status of expansion	Health and vulnerable populations
Basu[25]	2017	Journal	Literature review	Secondary literature	N/A	2	N/A	Low income household
Bell, et al[26]	2017	Journal	Qualitative Cross Sectional	Interviews	31 interviews	2	Expanded: MI	At or below 138% FPL under 65 years of age
Covert[27]	2019	Report (magazine)	Qualitative Observational	Interviews and secondary data from multiple sources	7 interviews	3	Expanded: AR	Homeless; people with disabilities; people suffering from addiction; children
Greene[28]	2019	Journal	Quantitative data analysis	Secondary: 2014 KFFNTF	1,002 survey respondents	1	Expanded: AR, IN, KY, NH	Non-working adults aged 25-54; health problems and disability
Ku et al[29]	2019	Journal	Quantitative data analysis	Secondary: 2012-2017 FNS administrative data	21,690 observations	1	Both: 46 states and DC	SNAP recipients
Wen et al[30]	2019	Journal	Quantitative Cross Sectional	Secondary: 2014-2016 NSDUH	13,058 observations	1	N/A	Non-elderly adults 18-64; behavioral health
Tipirneni, et al[31]	2019	Journal	Mixed methods Sequential	Interview & survey	67 interviews 4,090 survey respondents	1	Expanded: MI	Non-elderly adults 18-64; health status & changes
Tipirneni, et al[32]	2020	Report	Quantitative Observational	Longitudinal survey	3,104 survey respondents	1	Expanded: MI	Chronic health condition, mental health disorder, low income, students, minority populations
Villavicencio et al[33]	2020	Journal	Literature review	Secondary literature	N/A	2	Both	Maternal health

[¥] Levels of evidence adapted from: Hill N, et al, *The periodic health examination*.[23]

FNS: Food and Nutrition Service

FPL: Federal Poverty Level

KFFNTF: Kaiser Family Foundation National Telephone Survey

NSDUH: National Survey on Drug Use and Health

SNAP: Supplemental Nutrition Assistance Program