

MILLIMAN REPORT

Approaches for addressing nonmedical health drivers through Medicaid managed care

Landscape study and actuarial analysis in the state of Texas

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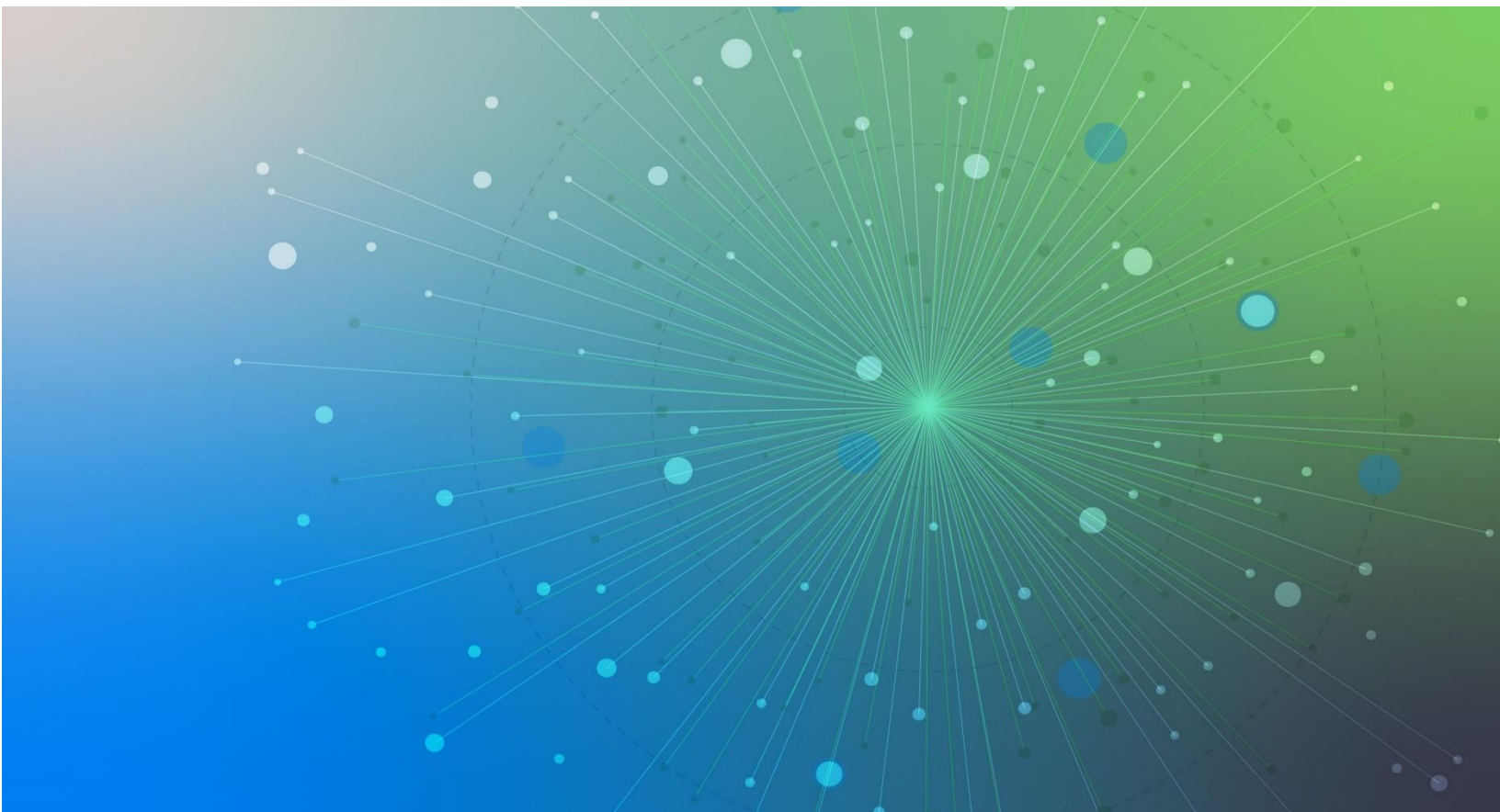


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Executive summary

As there is growing recognition that health outcomes and healthcare costs are impacted by nonmedical factors,¹ particularly in lower-income populations, an increasing number of states are finding ways to address these factors through their state Medicaid programs. Milliman was engaged by the Episcopal Health Foundation (EHF) to complete a landscape study of the various approaches through which state Medicaid programs are working to address nonmedical drivers of health. Nonmedical drivers of health include the conditions and environments in which people live, work, learn, and play that affect a wide range of health, functioning, and quality-of-life outcomes and risks.² We also completed an actuarial analysis of cost drivers for selected groups of Medicaid beneficiaries in Texas who may experience higher medical and nonmedical risks. This includes individuals with high-risk pregnancies in the State of Texas Access Reform (STAR) program, individuals with serious mental illness in the STAR+PLUS program, and children in foster care in the STAR Health program.

After reviewing the literature on programs currently underway or in planning stages in state Medicaid programs around the country, we identified several dimensions on which these efforts varied. These dimensions include:

- The style of governance
- Policy levers used to authorize support for nonmedical drivers of health
- Levels of interventions put in place around those drivers
- The specific types of needs addressed
- The types of populations targeted

We found a mixed environment in terms of whether executive or legislative actions are required to authorize changes to state Medicaid programs. States can address nonmedical drivers of health in different ways, including through Section 1115 waivers, contract flexibilities in managed care programs, or through other options such as home and community-based services (HCBS) waivers.

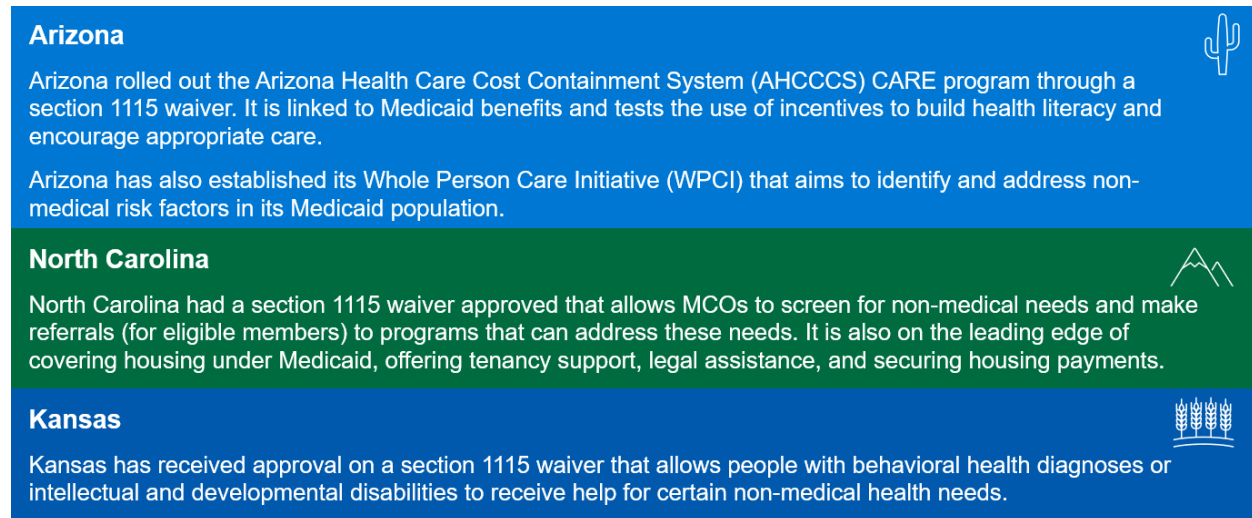
Based on our research, many states are focused on collecting information through screenings and connecting beneficiaries to existing community resources, and fewer are involved with directly funding nonmedical support services beyond HCBS. Needs related to food or nutrition, transportation, housing, and employment are currently the most common nonmedical focus areas for state Medicaid programs in states that are seeking to address nonmedical health needs. Besides screening programs, most states are focusing their efforts on higher-risk populations with distinct needs, rather than their entire Medicaid-eligible populations.

At EHF's request, we examined efforts underway in a few specific states more closely and provide profiles of these states within this report. The graphic in Figure 1 shows high-level details around these states and their programs.

¹ Centers for Disease Control and Prevention. Social Determinants of Health at CDC. Retrieved February 9, 2023, from <https://www.cdc.gov/socialdeterminants/about.html>.

² Healthy People 2030. Social Determinants of Health. HHS. Retrieved February 9, 2023, from <https://health.gov/healthypeople/priority-areas/social-determinants-health>.

FIGURE 1: STATE PROGRAMS



While the body of evidence for the impact of programs to address nonmedical drivers of health is growing, we found in our review of available literature that many state Medicaid programs and interventions are still relatively new and have not yet been subject to rigorous evaluations of outcomes. An ongoing challenge in evaluating effectiveness is that some interventions may improve outcomes but not reduce total Medicaid costs and others may do both, but over a longer period of time. Some may have indirect effects on other societal costs, even if they are not impacting Medicaid costs. For these reasons, it is important to tie any evaluation metrics to appropriate program goals and aims. One recent study of Arizona's AHCCS housing program found both improved outcomes and reduced costs, demonstrating that, in some cases, both of these aims are potentially achievable.³

The Episcopal Health Foundation (EHF) requested that we complete an analysis of healthcare use and cost patterns for select Medicaid beneficiaries in Texas who may potentially be targeted with interventions addressing nonmedical health needs, with the aim of highlighting places where the healthcare experience of the target populations differ from that of other Medicaid beneficiaries in Texas. We analyzed claims data from five Medicaid managed care organizations (MCOs) in the Harris and Jefferson service delivery areas (SDAs) in Texas. We provide results separately for Harris and Jefferson SDAs to illustrate potential differences in healthcare patterns between urban and rural areas. The claims from these SDAs include multiple Medicaid programs, including STAR (which covers low-income children, pregnant women, and families), STAR Kids (which covers children and adults under 20 who have disabilities), STAR+PLUS (which covers adults who have disabilities or are age 65 or older), and STAR Health (which covers children in foster care). At EHF's request, we focused our actuarial analysis on three specific populations: individuals with high-risk pregnancies in STAR, individuals in STAR+PLUS with serious mental illness (abbreviated SMI and defined as a mental, behavioral, or emotional disorder resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities⁴), and children in STAR Health.

All of these populations experience complex medical and nonmedical needs and could potentially benefit from greater access to nonmedical services. To provide some context on how the healthcare experience of these populations differs from those without similar risk factors, we have compared healthcare costs for high-risk pregnancies to non-high-risk pregnancies in STAR, individuals with SMI to individuals without SMI in STAR+PLUS, and children in STAR Health (in foster care) to children in STAR. While many factors likely contribute to cost differences among these populations, we found that individuals in the higher-risk populations were consistently more likely to have nonmedical health needs that were identified in a clinical setting (based on the presence of certain diagnosis codes on healthcare claims, as described in a later section of this report). Some portion of the observed cost differences may be related to these needs and may

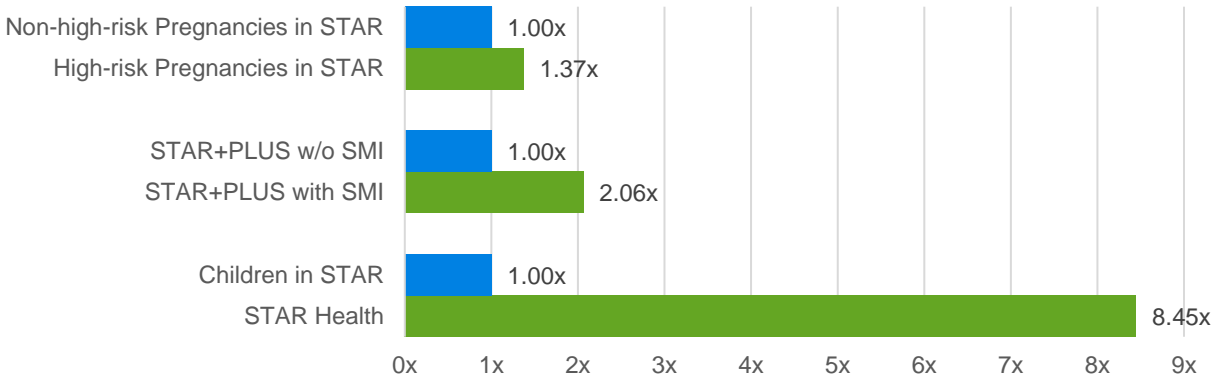
³ AHCCCS MCO Learning HUB, Webinar (July 18, 2022). Leveraging Medicaid to Address Health Disparities.

⁴ National Institute of Mental Health. Statistics: Mental Illness. Retrieved February 9, 2023, from <https://www.nimh.nih.gov/health/statistics/mental-illness>.

present an opportunity for the healthcare experience and associated costs of these populations to be improved through efforts to address some of their nonmedical health needs.

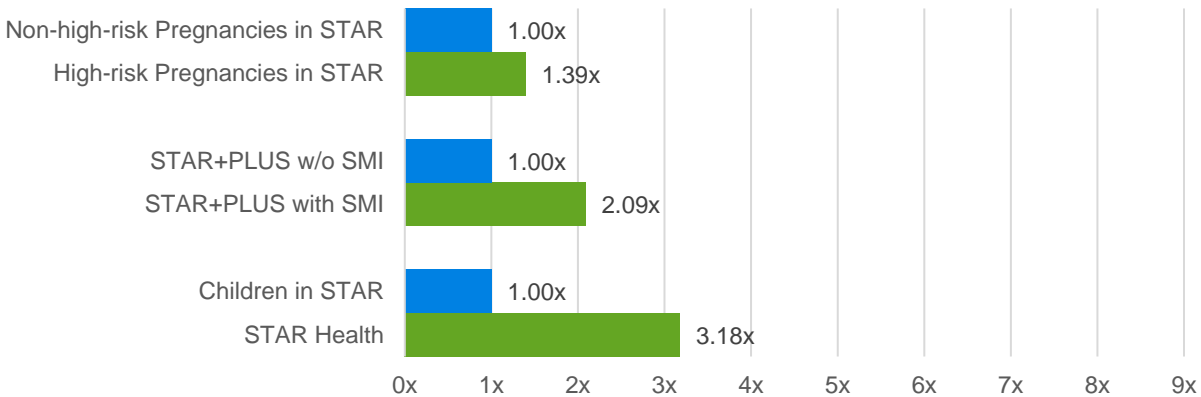
Figures 2 and 3 show cost comparison ratios for all three populations; the ratios represent cost per delivery (nine months pre-delivery and two months postpartum) for pregnancies and per member per month (PMPM) costs for the other groups. Results are provided separately for Harris and Jefferson SDAs to provide an example of how results differ between one urban (Harris) and one rural (Jefferson) area. Further details on how these populations compare are provided in a later section of this report.

FIGURE 2: HEALTHCARE COST RATIOS BY COMPARISON GROUP, HARRIS SDA FY2021



In the Harris SDA in fiscal year (FY) 2021, we found that high-risk pregnancies make up 36% of all pregnancies in STAR and cost 37% more on average than non-high-risk pregnancies. Individuals with SMI make up 24% of the STAR+PLUS population and have healthcare costs 106% higher than others in STAR+PLUS without SMI. Healthcare costs for children in STAR Health are about eight times higher than healthcare costs for children in STAR. Children in foster care also require considerably more behavioral healthcare services, as further described in a later section of this report.

FIGURE 2: HEALTHCARE COST RATIOS BY COMPARISON GROUP, JEFFERSON SDA FY2021



In the Jefferson SDA in fiscal year 2021, we found that high-risk pregnancies make up 37% of all pregnancies in STAR and cost 39% more on average than non-high-risk pregnancies. Individuals with SMI make up 31% of the STAR+PLUS population and have healthcare costs 109% higher than others in STAR+PLUS without SMI. In general, we found that healthcare costs tended to be lower on a per person or per pregnancy basis in Jefferson than in Harris SDAs. Healthcare costs for children in STAR Health are about three times higher than healthcare costs for children in STAR. As noted above, children in foster care also require considerably more behavioral healthcare services.

Introduction

EHF engaged Milliman to conduct a landscape study around the policy options and financial impacts related to utilizing Medicaid managed care rate-setting tools and adjustments to incentivize investment in nonmedical services to address health needs. This study included a review of program design considerations in selected states that are already addressing nonmedical health needs through their Medicaid programs, an assessment of the approaches and focus areas for programs that are currently underway, and any evidence available to date on their effectiveness.

EHF also engaged Milliman to conduct an actuarial analysis of Texas Medicaid managed care data to identify cost drivers for certain high-risk populations, which often result in more expensive care. Five of the six Medicaid MCOs in the Harris and Jefferson SDAs partnered with EHF and Milliman and shared their detailed claims data for this report. We chose to focus on the Harris and Jefferson SDAs to capture one urban area and one rural area that included the same MCOs. While these comparisons are meant to be informative, many factors likely contribute to differences in results between SDAs, such as differences in the underlying demographics, local care delivery patterns, healthcare needs and provider availability, community resources, and other factors. Results for these SDAs may not be appropriate to extrapolate from and may not be generalizable to other areas of Texas.

Approaches to addressing nonmedical drivers of health through Medicaid managed care programs

There is an increased awareness that nonmedical factors, such as unemployment and lack of stable housing, can have a substantial impact on an individual's health.⁵ This, in turn, can increase healthcare spending.

Medicaid is the nation's largest payer for healthcare services for the low-income population, and many state Medicaid programs have begun exploring ways to address nonmedical drivers of health for their program beneficiaries. We completed a broad landscape study of how states are structuring their efforts to date. Approaches vary considerably from state to state, both in terms of governance and policy levers used, as well as the types of interventions and needs addressed. In this section we describe key trends and themes identified in our review of state efforts to date, organized around the program design considerations shown in Figure 4.

FIGURE 4: PROGRAM DESIGN CONSIDERATIONS FOR ADDRESSING NONMEDICAL HEALTH NEEDS



GOVERNANCE

New programs or policies to address nonmedical health needs are generally required to obtain formal authorization in some fashion, though the specific requirements can vary by state. Rules vary among states regarding what Medicaid policy changes require executive action or legislative action.⁶ Executive action requires direction from a state's governor's office or Medicaid agency, whereas legislative action comes about from a new state law. If federal funds are being used, change to the Medicaid program requires coordination between the state government or agency and the federal government.

⁵ Healthy People 2030, op cit.

⁶ Kaiser Family Foundation. (February 2015). An Overview of Actions Taken by State Lawmakers Regarding the Medicaid Expansion. Retrieved February 9, 2023, from <https://files.kff.org/attachment/fact-sheet-an-overview-of-actions-taken-by-state-lawmakers-regarding-the-medicaid-expansion>.

Executive actions that can lead to state Medicaid program changes include governor's office budget proposals, executive orders, or other significant announcements.⁷ In some cases, state Medicaid directors can also instruct the Medicaid agency to make certain changes without requiring additional legislative authorization.

However, some policy changes may require changes to state law or statute and require legislative approval. State legislative branches have directed Medicaid agencies to seek 1115 waivers, authorized funding, defined payment and delivery system goals, authorized changes in eligibility, and more.⁸ The precedent in Texas is a joint effort between the governor's office and the legislative branch. This process dictates the authorization of state funds. In order to secure federal matches for services in these programs further authorization may be required.

POLICY LEVERS

Section 1115 waivers have been the dominant avenue used to address nonmedical drivers of health needs by state Medicaid programs, but states can also direct MCOs to prioritize these needs through MCO contracts in a variety of ways. Some options available to MCOs through managed care contract flexibilities include value-added services, in-lieu-of services, reinvesting savings, and incentivizing outcomes. States can also enact section 1915 HCBS waivers designed to help individuals who otherwise might be institutionalized to instead remain at home. Finally, there are avenues for states to directly fund services to address nonmedical needs outside the context of Medicaid funding sources, such as only using state dollars or other non-Medicaid funding sources.

Section 1115 waivers

Section 1115 of the Social Security Act gives the Secretary of the U.S. Department of Health and Human Services (HHS) authority to approve experimental, pilot, or demonstration projects that are found by the Secretary to be likely to assist in promoting the objectives of the Medicaid program.⁹ These waivers are intended to demonstrate and evaluate state-specific policy approaches to better serve the Medicaid populations. Additionally, they must be budget-neutral to the federal government over the life of the waiver period, requiring the state to demonstrate that there will be expected savings to offset any additional costs.

At least 25 states are using section 1115 waivers to address nonmedical drivers of health.¹⁰ The Center for Health Care Strategies has compiled common themes across these waivers, which include:¹¹

- A focus on enhancing care coordination and community partnerships to address nonmedical drivers of health.
- Payment incentives being deployed to address nonmedical drivers of health.
- Demonstrations that create healthy behavior incentives are common but generally do not discuss ways to address nonmedical health needs that influence health behaviors.

The most recent round of section 1115 waiver approvals indicate that the Centers for Medicare and Medicaid Services (CMS) is supportive of potentially broadening the range of Medicaid beneficiaries who can be targeted, or the types of nonmedical health needs that can be addressed.¹² Some recent approvals have included justice-involved populations, those experiencing or at risk for homelessness, and high-risk pregnancies.¹³ A recently posted demonstration opportunity also specifically provides options for nutrition and housing support services, with other types of services considered on a case-by-case basis.¹⁴ Additionally, in recent section 1115 waiver approvals, CMS has noted that certain difficult-to-project expenditures related to nonmedical health needs may be considered "hypothetical" (up to a

⁷ Kaiser Family Foundation (February 7, 2023). Status of State Medicaid Expansion Decisions: Interactive Map. Retrieved February 9, 2023, from <https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/>.

⁸ *Understanding Medicaid Section 1115 Waivers: A Primer for State Legislators*. National Conference of State Legislatures. (2017). Retrieved November 10, 2022, from https://www.ncsl.org/Portals/1/Documents/Health/Medicaid_Waivers_State_31797.pdf

⁹ Medicaid.gov. About Section 1115 Demonstrations. Retrieved February 9, 2023, from <https://www.medicaid.gov/medicaid/section-1115-demonstrations/about-section-1115-demonstrations/index.html>.

¹⁰ Center for Health Care Strategies (December 2018). Addressing Social Determinants of Health via Medicaid Managed Care Contracts and Section 1115 Demonstrations. Retrieved February 9, 2023, from <https://www.chcs.org/media/Addressing-SDOH-Medicaid-Contracts-1115-Demonstrations-121118.pdf>.

¹¹ Ibid.

¹² Smithey, A. et al. (December 19, 2022). Testing One, Two, Three: CMS's New Demonstration Opportunity to Address Health-Related Social Needs. Center for Health Care Strategies. Retrieved February 9, 2023, from <https://www.chcs.org/testing-one-two-three-cms-new-demonstration-opportunity-to-address-health-related-social-needs/>.

¹³ Ibid.

¹⁴ Ibid.

cap) in the required cost neutrality calculations, potentially making it easier for state Medicaid programs to pay for these services.^{15,16}

Managed care contract flexibilities

Outside of section 1115 waivers, states can also direct MCOs to prioritize nonmedical drivers of health through MCO contracts in a variety of ways. Some of the additional funding mechanisms that exist include:¹⁷

- **Value-added services:** The managed care model gives MCOs the flexibility to cover additional services beyond Medicaid-covered services. MCOs are financially responsible for value-added services; they cannot be reflected in the health plan's capitation rates, though they may have an offsetting impact on the underlying benefit costs. Some examples of value-added services in the Harris SDA include a 24-hour nurse line, extra dental or vision services, and play and exercise programs.¹⁸
- **In-lieu-of services (ILOS):** MCOs may also cover "in-lieu-of services," which are services or settings that a plan substitutes for a similar service covered under fee-for-service (FFS). Under federal requirements, eligible in-lieu-of services need to be indicated in the MCO contract. For example, the state authorized certain behavioral health services to be added as in-lieu-of other services under SB 1177 of the 87th Legislative Session and is currently in the process of negotiating certain behavioral health in-lieu-of-services with CMS.¹⁹ CMS recently released further guidance around ILOS, stating that it believes ILOS can be used by states and managed care plans to improve access to healthcare and help address many unmet physical, behavioral, developmental, and nonmedical health needs to Medicaid enrollees. As states expand their use of ILOS, CMS will monitor and evaluate results to identify and share best practices.²⁰
- **Reinvesting savings:** Another option is for cost savings from managed care to be used by the states or MCOs to provide additional services. In Texas, MCOs are required to refund savings with the state through an experience rebate process. This is a common process used to mitigate the risk of MCO capitation rates exceeding benefit costs by more than a specified margin. It is also an existing process that could be leveraged in determining the amount of reinvestment opportunity for Texas MCOs. The rate-setting process restricts the amount of margin included in the rates. Additionally, some states also require reinvestment of savings in approved community programs.²¹ Year-to-year volatility may mean that in some years there are minimal to no savings to reinvest, so this is not always a predictable revenue stream.
- **Incentivizing outcomes:** Performance withholds or bonuses for providers are MCO reimbursement strategies based on outcomes that states can implement. States can also implement performance incentives for the MCO itself. This creates an incentive for MCOs to adopt strategies to address nonmedical drivers of health.

Other approaches

Some states have used other approaches to address nonmedical drivers of health that are less common or less wide-ranging, such as:

¹⁵ Ibid.

¹⁶ Mann, C. & Lipson, M. (January 10, 2023). CMS's New Policy Framework for Section 1115 Medicaid Demonstrations. Commonwealth Fund. Retrieved February 9, 2023, from <https://www.commonwealthfund.org/blog/2023/cms-new-policy-framework-section-1115-medicare-demonstrations>.

¹⁷ Health Management Associates (December 2021). Medicaid Managed Care: Strategies to Address Social Determinants of Health and Health Equity. Arizona for Better Medicaid. Retrieved February 9, 2023, from https://assets.togetherforbettermedicaid.org/media/azbm_hma_strategies-for-addressing-sdoh-and-health-equity-brief-12.09.21-final.pdf.

¹⁸ Texas Health and Human Services (October 1, 2022). Compare "Value-Added" or Extra Services Offered by STAR+PLUS Medical Plans in the Harris Service Area. Retrieved February 9, 2023, from <https://www.hhs.texas.gov/sites/default/files/documents/services/health/6/medicaid-chip/programs/star-plus/comparison-charts/nf-mo-harris.pdf>.

¹⁹ Sim, Shao-Chee & Smithey, A. (December 2022). Moving Upstream: How Medicaid in Texas Could Use In-Lieu-Of Services to Address Nonmedical Drivers of Health. Center for Health Care Strategies, Retrieved February 9, 2023, from <https://www.chcs.org/resource/moving-upstream-how-medicare-in-texas-could-use-in-lieu-of-services-to-address-non-medical-drivers-of-health/>.

²⁰ Tsai, D. (January 4, 2023). Additional Guidance on Use of In-Lieu-Of Services and Settings in Medicaid Managed Care. CMS. Retrieved February 9, 2023, from <https://www.medicare.gov/federal-policy-guidance/downloads/smd23001.pdf>.

²¹ Hinton, E., & Stolyar, L. (February 23, 2022). 10 Things to Know About Medicaid Managed Care. Kaiser Family Foundation. Retrieved February 9, 2023, from <https://www.kff.org/medicaid/issue-brief/10-things-to-know-about-medicare-managed-care/>.

- Section 1915(c) waivers: These waivers provide for home and community-based services (HCBS) that can help individuals receiving long-term care services remain at home. These programs often intersect with nonmedical drivers of health but are generally narrower than 1115 waivers in that their main goal is to keep individuals at risk of being institutionalized in their homes or communities.²²
- Section 1915(i) waivers: These waivers are similar to section 1915(c) waivers but can target individuals not otherwise requiring long-term care.²³
- State-only funding of nonmedical drivers of health programs in Medicaid outside of partnerships with CMS.
- Funding through non-Medicaid sources, such as partnership or coordinating with other state or local programs such as housing agencies, nutrition services, child welfare agencies, etc.

LEVELS OF INTERVENTION

The level of intervention is a key decision for stakeholders when considering programs to address nonmedical drivers of health. Most states have various requirements related to screening, data collection, and reporting on nonmedical drivers of health. Most states also have requirements that MCOs coordinate with or provide referral to existing community-based organizations. Less frequently, some states are implementing specific staff and training requirements, developing financial requirements or incentives, or directly funding nonmedical services. We have grouped many of the programs that we have seen into five levels of intervention. A study published last year by the Milken Institute School of Public Health at George Washington University provided findings from a detailed review of contracting requirements related to nonmedical drivers of health in state Medicaid managed care contracts in 2019 and 2020. We have organized those findings in the broad levels of intervention shown in the table in Figure 5.²⁴

FIGURE 5: INTERVENTION LEVELS AND EXAMPLES

BROAD LEVEL OF INTERVENTION	EXAMPLES
SCREENING, DATA COLLECTION, AND REPORTING	Nonmedical drivers of health screening processes are required in primary care by 30 states (AZ, CA, CO, DE, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, MN, MS, NC, NH, NJ, NM, NY, OH, PA, RI, SC, TN, VA, WA, WI).
	Nonmedical drivers of health data collection and reporting processes are required in nine states (CO, DE, FL, KS, LA, MI, NE, NH, OH).
	MCOs are required to submit nonmedical quality measures in 14 states (AZ, CO, HI, IL, KS, LA, MD, MI, NH, NJ, OH, OR, PA, WI).
CARE COORDINATION AND PARTNERSHIP WITH COMMUNITY-BASED ORGANIZATIONS	MCOs are required to incorporate nonmedical drivers into care coordination in 26 states (CA, CO, DE, GA, HI, IN, KS, KY, LA, MA, MD, MN, MS, NC, NH, NJ, NM, OH, OR, PA, RI, SC, TN, TX, VA, WA).
	MCOs are required to maintain relationships with social service providers in 33 states (AZ, CA, CO, DE, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MS, NC, NH, NJ, NY, OH, OR, PA, RI, SC, TN, TX, VA, WA, WI, WV).
	MCOs are required to provide educational resources about social services in nine states (AZ, CA, CO, GA, IA, LA, MD, MI, TX).
STAFF AND TRAINING REQUIREMENTS	MCOs are required to train providers on identifying and responding to nonmedical health needs in 12 states (AZ, CA, DE, FL, GA, KS, LA, MN, NC, NH, NY, TN).
	MCOs are required to have staff dedicated to nonmedical health needs in 19 states.
FINANCIAL REQUIREMENTS OR INCENTIVES	MCOs are required to incentivize or make minimum expenditures on nonmedical costs in four states (CO, KS, OR, PA).
	MCOs have nonmedical performance incentives in one state (CO).

²² Supra 8.

²³ Medicaid.gov. Home & Community Based Services 1915(i). Retrieved February 9, 2023, from <https://www.medicaid.gov/medicaid/home-community-based-services/home-community-based-services-authorities/home-community-based-services-1915i/index.html>.

²⁴ Shin, P., Rosenbaum, S., Somodevilla, A., Handley, M., Morris, R., Casoni, M., & Sharac, J. (December 13, 2021). Review of Social Determinants of Health Terms in 2019-2020 State Medicaid Managed Care Contracts. George Washington University. Retrieved February 9, 2023, from <https://publichealth.gwu.edu/sites/default/files/RWJF%20MMC%20SDoH%20Contract%20Review%201213.pdf>.

Medicaid MCOs have generally been targeted in their programming up to this point. Many of the interventions shown in Figure 5 have been rolled out only to target high-risk populations, such as individuals with behavioral health needs or children with complex care needs. As of now, very few states are seeking separate federal funding for nonmedical health needs beyond HCBS needs and screening, so additional services are mostly not accounted for in payment methodologies. However, recent trends in section 1115 waiver approvals may change this. State-only funding for nonmedical services is less common for screening and referral or coordination processes. Even when funding exists, these processes are often also limited by existing capacity among social service providers and community-based organizations.

NONMEDICAL HEALTH NEEDS ADDRESSED

There is a wide range of services offered to address nonmedical health needs, but four of the most common addressed needs are food and nutrition, supportive housing, transportation, and employment-related supports. The table in Figure 6 shows examples of some of the benefits offered in these categories and lists the states that are currently offering a benefit within each category.²⁵ Note that this includes states offering a benefit under a section 1915(c) waiver or section 1915(i) state plan amendment, which have narrower HCBS aims than other nonmedical interventions. In several states, including Texas, the applicable benefits shown in Figure 6 are only offered to the HCBS waiver population, which constitutes a very small subset of the aged and disabled Medicaid population.

FIGURE 6: EXAMPLES OF INTERVENTIONS AND STATES THAT USE THEM

AREA OF NEED	EXAMPLES	EXPANSION STATES	NON-EXPANSION STATES
FOOD/NUTRITION	- Home-delivered meals - Nutritional consultation	AK, AR, AZ, CA, CO, CT, DE, HI, IL, IN, IA, KY, LA, MA, MD, ME, MI, MN, MT, ND, NH, NJ, NY, NV, PA, OK, OR, UT, VA	FL, NC, SC, SD, TN, TX, WI, WY
SUPPORTIVE HOUSING	- Rental assistance - Home modifications - Provide housing to unhoused people - Provide housing as an alternative to long-term care (LTC) facilities	AK, AR, AZ, CA, CO, CT, DC, DE, HI, IA, IL, IN, KY, LA, ME, MD, MA, MI, ND, NH, NJ, NV, OH, OK, OR, PA, SD*, UT, VT, WA, WV	AL, FL, NC, SC, TN, TX, WI, WY
TRANSPORTATION	- Provide transportation for medical/nonmedical services - Vehicle modification for improved accessibility	AK, AZ, CA, CO, CT, DE, HI, IA, ID, IL, IN, KY, LA, ME, MA, MD, MI, MO, MT, ND, NE, NH, NM, NV, OH, OK, OR, PA, UT, WV	AL, FL, GA, MS, NC, SC, WI, WY
EMPLOYMENT-RELATED SUPPORTS	- Job trainings - Job search assistance	CA, CO, CT, DC, DE, HI, IA, IL, IN, MA, MD, ME, MI, MT, ND, NV, NH, NJ, NV, NY, OH, OK, OR, PA, UT, VT, WA, WV	AL, FL, KS, NC, SC, SD, TX, WI, WY

* South Dakota has adopted but not yet implemented Medicaid expansion.²⁶

The specific benefits and targeted populations vary by state, but at least 37 states have some program in place to address each of these four areas of need. The sections below highlight a few programs that show the differences in targeted populations and benefits provided within a broad category of nonmedical drivers.

Food and nutrition

Thirty-six states offer benefits in the food and nutrition category. These benefits can range from nutritional consultation to healthy groceries to tailored home-delivered meals. For example:

- Massachusetts offers grocery shopping and delivery for individuals who are physically disabled and served through a 1915(c) waiver.²⁷

²⁵ Ibid

²⁶ Kaiser Family Foundation, Status of State Medicaid Expansion Decisions: Interactive Map, op cit.

²⁷ CMS. 1915(c) waivers by State. Retrieved February 10, 2023, from <https://www.cms.gov/Outreach-and-Education/American-Indian-Alaska-Native/AIAN/LTSS-TA-Center/info/1915-c-waivers-by-state#Massachusetts>.

- Wisconsin offers home-delivered meals to individuals with intellectual and developmental disabilities and served through a 1915(c) waiver.²⁸

Supportive housing

Thirty-eight states are offering support in some way around housing benefits. This is a common benefit offered through section 1915(c) waivers to help support individuals in staying at home (versus an institutional setting), but there are a handful of section 1115 waivers providing temporary or permanent supportive housing as well. For example:

- California offers housing and utility setup and moving services to individuals aged 65+ through a section 1115 waiver.²⁹
- Through a section 1115 waiver, Massachusetts helps MassHealth-eligible individuals who have been incarcerated obtain housing.³⁰

Transportation

Thirty-eight states offer a benefit in the transportation category. States are required to provide a benefit for transportation to medical services; some states have extended the service to other nonmedical transportation needs. For example:

- Alaska provides nonmedical transportation to get to work and to access community resources and activities for individuals served through a section 1915(c) waiver.³¹
- Wyoming offers nonmedical transportation to individuals 65 and up and to individuals with disabilities ages 19 to 64 served through a section 1915(c) waiver.³²

Employment

Thirty-seven states offer support around employment; most exist to help people develop job skills and get interviews. For example:

- Alabama provides individual employment support and coaching to individuals with intellectual and developmental disabilities through a section 1115 waiver.³³
- Kansas has employment counseling and assistance for disabled individuals served under its Medicaid Buy-In Program.³⁴

INTENDED BENEFICIARIES

Most programs target particular groups of beneficiaries, and programs offered for the entire Medicaid-eligible population are not common. The most common broad-reaching programs are lower-intensity interventions such as screening and referral programs. Moderate-intensity programs such as care coordination and food or transportation assistance programs tend to be more targeted. High-intensity interventions, such as housing assistance, tend to have the narrowest reach.

Currently, most state programs target high-risk and/or high-need populations such as:

²⁸ CMS. 1915(c) waivers by State: Wisconsin. Retrieved February 10, 2023, from <https://www.cms.gov/Outreach-and-Education/American-Indian-Alaska-Native/AIAN/LTSS-TA-Center/info/1915-c-waivers-by-state#wisconsin>.

²⁹ Medicaid.gov. California Waiver Factsheet: CA Multipurpose Senior Services Program (0141.R06.00). Retrieved February 10, 2023, from <https://www.medicaid.gov/9edicaid/section-1115-demo/demonstration-and-waiver-list/Waiver-Descriptor-Factsheet/CA#0141>.

³⁰ MassHealth (September 2022). Fact Sheet: MassHealth's Newly Approved 1115 Demonstration Extension Supports Accountable Care and Advances Health Equity. Retrieved February 10, 2023, from <https://www.mass.gov/doc/1115-waiver-extensionfact-sheet/download>.

³¹ State of Alaska Department of Health & Social Services (June 1, 2020). Alaska Medicaid Recipient Handbook. Retrieved February 10, 2023, from <https://health.alaska.gov/dhcs/Documents/PDF/Recipient-Handbook.pdf>.

³² CMS. 1915(c) waivers by State: Wyoming. Retrieved February 10, 2023, from <https://www.cms.gov/Outreach-and-Education/American-Indian-Alaska-Native/AIAN/LTSS-TA-Center/info/1915-c-waivers-by-state#wyoming>.

³³ Alabama Medicaid Agency. 1115 Waiver Application to Support Alabama's New ID Community Waiver HCBS Program. CMS. Retrieved February 10, 2023, from <https://www.medicaid.gov/9edicaid/section-1115-demonstrations/downloads/al-community-waiver-prog-pa.pdf>.

³⁴ KanCare. Working Healthy Medicaid Buy-In Program. Retrieved February 10, 2023, from <https://kancare.ks.gov/consumers/working-healthy>.

- Individuals with autism, intellectual disabilities, and developmental disabilities.
- Individuals with serious mental illness or other significant behavioral health needs.
- Individuals with physical disabilities.
- Individuals with severe or complex conditions (such as HIV/AIDs or brain injuries) or multiple comorbid conditions.
- Family and caretakers of individuals with disabilities.
- Pregnant women and young children.
- Older adults, especially those with disabilities or in poor health.
- Individuals with very low incomes, food insecurity, housing instability, or who are in need of utility assistance.

Because the concept of covering nonmedical benefits through Medicaid is still relatively new, many states only cover these services for a subset of Medicaid beneficiaries and must find creative funding mechanisms to get them covered.

Body of evidence

The Commonwealth Fund's Evidence Guide for Health-Related Social Needs Interventions lists many nonmedical interventions that are shown to improve health outcomes and generate savings.³⁵ Specific findings for housing and nutrition interventions can be found below, along with details from a few specific programs in Arizona, Massachusetts, and North Carolina. A number of studies have also been completed on transportation and home modification programs, but the interventions, methods, and measures were less consistent across these studies and are not as readily summarized.

HIGHLIGHTS FROM THE COMMONWEALTH FUND'S EVIDENCE GUIDE³⁶

HOUSING

This Evidence Guide reported that interventions around temporary housing assistance or permanent supportive housing often led to improved outcomes and medical cost savings. However, medical cost savings do not always lead to total program savings net of housing costs.

- ER visit rates were 14% to 54% lower compared to a control group in six studies.
- Hospital admission rates were 15% to 42% lower compared to a control group in five studies.
- Hospital days were 29% lower in one study and 43% lower in another.
- Hospital length of stay was 14% shorter compared to a control group in one study.
- Additionally, some studies saw increases in outpatient, primary care, mental health (MH), or pharmacy costs compared to a control group, indicating an improvement in access to care.

NUTRITION

The Evidence Guide also reports that interventions to increase access to healthy food can lead to lower utilization, lower costs, and a positive return on investment (ROI). Across eight interventions around home-delivered meals, they found:

- ER visits were 28% to 70% lower compared to a control group in three studies.
- Inpatient hospital admissions were 12% to 52% lower compared to a control group in five studies.
- Hospital 30-day readmissions were 16% lower compared to a control group in one study.
- Hospital average length of stay was lower, 37% shorter compared to a control group in one study.
- Skilled nursing facility (SNF) admissions were 28% to 72% lower compared to a control group in two comparisons.
- Overall medical costs were 3% to 24% lower compared to a control group in four studies.
- There was a greater impact on healthcare utilization in studies that used nutritionally tailored meals to meet an individual's needs; however, the cost of providing these meals is higher than for non-tailored meals.

The graphic in Figure 7 shows key figures from interventions across the country that have been in place long enough to be evaluated for financial impact and clinical outcomes.

³⁵ McCarthy, D., Lewis, C., Horstman, C., Bryan, A., & Shah, T. (2022). Guide to Evidence for Health-Related Social Needs Interventions: 2022 Update. Commonwealth Fund. Retrieved February 10, 2023, from https://www.commonwealthfund.org/sites/default/files/2022-09/ROI_calculator_evidence_review_2022_update.pdf.

³⁶ Ibid.

FIGURE 7: INTERVENTION EVALUATIONS

<p>Food and Nutrition</p> <p>Massachusetts Medically Tailored Meals</p> <ul style="list-style-type: none"> • 10 tailored meals weekly • For adults referred by a clinician based on need • Savings of 16% in per person per month health care costs 	<p>Supportive Housing</p> <p>Arizona AHCCCS Housing Program</p> <ul style="list-style-type: none"> • Strengthening outreach and securing housing funding • For members who are homeless or at-risk of homelessness • Average savings of \$5,563 per member per month
<p>Transportation</p> <p>North Carolina NEMT Services</p> <ul style="list-style-type: none"> • Non-Emergency Medical Transportation during working hours • For members of a Medicare ACO with clinical or social barriers • Participants averaged 9.2 more outpatient visits per year 	<p>Home Modification</p> <p>CAPABLE Program in Various States</p> <ul style="list-style-type: none"> • Assembles a specialized team to evaluate participants' needs • For high-need, low-income adults aged 65 and older • Lowered unplanned hospitalization and ED costs by 18%

MASSACHUSETTS: MEDICALLY TAILORED MEALS³⁷

In 2019, a study examined the impact of the Medically Tailored Meals (MTM) program on healthcare utilization and costs, with a specific emphasis on the impact on hospitalizations. The study used a matched cohort design on individuals who resided in Massachusetts from 2016 to 2019.

Each week, the MTM program delivered 10 meals tailored to a recipient's specific medical needs. Individuals were referred for MTM by a clinician on the basis of both nutritional and social risk; there was no outreach made to recruit participants as part of the intervention. The authors expected to see improved health outcomes because of both the supply of necessary nutrition and through the freeing of resources that could be used on medications or other measures to improve health.

The study found statistically significant reductions in inpatient admissions for the group receiving meals compared to if they had not been receiving meals. A similar effect was seen on skilled nursing facility (SNF) admissions. The program resulted in a savings of 16% in healthcare costs per person.

The authors point out that the group receiving the meals was high-risk and medically needy and that savings likely would have been lower in a healthier population. It is important to target a needy population with an effort such as this to see net benefits in terms of financial results. Other populations may also benefit, though may be less likely to experience cost reductions that fully offset the costs of the additional benefit.

ARIZONA: AHCCCS HOUSING PROGRAM³⁸

The Arizona Health Care Cost Containment System (AHCCCS) used a section 1115 waiver to create the Housing and Health Opportunities Demonstration (H2O). The program is designed to complement the existing housing program and will enable the state to extend supportive housing services to individuals who are homeless or at risk of becoming homeless.³⁹ In July 2022, it released preliminary findings from the program.

In FY2020, 2,472 individuals were in AHCCCS's Permanent Supporting Housing program (rental subsidies with wraparound Medicaid-compensable supports). This population had a 31% reduction in emergency room (ER) visits, a 44% decrease in inpatient admissions, a 92% reduction in behavioral health residential facility admissions, and an average savings of \$5,563 per person per month.

³⁷ Berkowitz, S. M., Terranova, J., Randall, L. et al. (April 22, 2019). Association Between Receipt of a Medically Tailored Meal Program and Health Care Use. *JAMA Intern Med.* Retrieved February 10, 2023, from <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2730768>.

³⁸ AHCCCS MCO Learning HUB, Webinar (July 18, 2022), op cit.

³⁹ AHCCCS. AHCCCS Housing and Health Opportunities (H2O) Demonstration.. Retrieved February 10, 2023, from <https://www.azahcccs.gov/Resources/Federal/HousingWaiverRequest.html>.

NORTH CAROLINA: NEMT SERVICES⁴⁰

In North Carolina, a study was undertaken to evaluate the impact of providing nonemergency medical transportation (NEMT) to individuals with clinical or social barriers to care. The NEMT benefit was offered to members of the University of North Carolina (UNC) Health Alliance accountable care organization (ACO). Transportation could be set up to and from outpatient and ambulatory settings as well as pharmacies, often using common ridesharing services.

The study found that the participants had 9.2 more outpatient visits per person per year than the individuals of the comparison group and accumulated \$4,420 more in outpatient spending. The program did not result in healthcare cost savings, but it had a positive impact as it allowed for increased utilization of health benefits. Participants of this program were highly satisfied and felt more in control of their health.

CAPABLE PROGRAM IN VARIOUS STATES⁴¹

In 2009, the Community Aging in Place—Advancing Better Living for Elders (CAPABLE) program was developed to help reduce activities of daily living (ADL) limitations and to allow older, low-income adults to age safely in their own homes. To evaluate the success of the CAPABLE program on a broader scale, the program was launched within diverse communities of California, North Carolina, Pennsylvania, and Vermont in a study called “Aging Gracefully in Place: An Evaluation of the Capability of the CAPABLE Approach.”

The program leverages the support of in-home occupational therapists and registered nurses as well as home repair professionals to address an individual's health and safety needs. This team of professionals worked together to examine the risks each individual faced and helped to figure out functional solutions. These solutions could include durable medical equipment (DME), home modifications, or everyday items. During the intervention period, teams made an average of nine home visits.

The study showed that seven months after the CAPABLE intervention, the program participants demonstrated greater improvements than the control group in the following categories: ADL limitations, reduction in falls, depression, and pain. In addition, the one-year expenditures for unplanned hospitalizations and ER visits fell by 18% within the intervention group (\$2,434 vs. \$2,968). As shown in other studies of the CAPABLE program, the intervention improved both physical and mental health outcomes of the participants.

⁴⁰ Berkowitz, S.A., Ricks, K.B., Wang, J., Parker, M., Rimal, R., & DeWalt, D.A. (March 2022). Evaluating A Nonemergency Medical Transportation Benefit For Accountable Care Organization Members. *Health Aff (Millwood)*;41(3):406-413. doi: 10.1377/hlthaff.2021.00449. PMID: 35254938; PMCID: PMC9400526.

⁴¹ Breyse, J., Dixon, S., Wilson, J., & Szanton, S. (March 2022). Aging Gracefully in Place: An Evaluation of the Capability of the CAPABLE® Approach. *J Appl Gerontol*;41(3):718-728. doi: 10.1177/07334648211042606. Epub 2021 Sep 2. PMID: 34474609.

State-specific profiles

In the previous sections, we highlighted some of the key trends and considerations in coverage of nonmedical drivers of healthcare costs across the market as a whole. In this section, we will take a closer look at specific programs in a few states identified by EHF for which it requested a deeper dive.

ARIZONA

Arizona's Medicaid program is called the Arizona Health Care Cost Containment System (AHCCCS) and it utilizes MCOs to cover its enrollees. Arizona expanded Medicaid under the Patient Protection and Affordable Care Act (ACA) in 2013. As of August 2022, there were 2.4 million Arizonans covered by Medicaid or the Children's Health Insurance Program (CHIP) and the state saw its uninsured rate fall by 33% from 2010 to 2019.⁴²

In September 2016, CMS approved a section 1115 waiver, which created the AHCCCS Choice, Accountability, Responsibility, Engagement (CARE) program for enrollees with income levels between 100% and 133% of the federal poverty level (FPL). The state links Medicaid benefits to an AHCCCS CARE program that tests the use of incentives to build health literacy, achieve identified health targets, and encourage appropriate care. This program also includes "Healthy Arizona," which is a healthy behaviors component to incentivize beneficiaries to engage in managing preventive healthcare and chronic illnesses. Individuals who meet a healthy behaviors target qualify for elimination of their monthly contribution for six months and have access to incentive payments from their AHCCCS CARE account.

In 2019, Arizona began a Whole Person Care Initiative (WPCI), with the aim of enhancing efforts to identify and address nonmedical risk factors. The WPCI provides support or benefits in the following areas:⁴³

- Provides transitional housing support for qualifying individuals, including those discharged from an inpatient behavioral health facility, experiencing chronic homelessness, or transitioning from correctional facilities with limited resources
- May allow use of nonemergency medical transportation services to provide access to healthy food and employment services
- Partnered with the Arizona Health Information Exchange to establish a statewide referral system

Arizona has a housing program that is state-funded and provides supportive housing services to individuals with serious mental illness or substance use disorders (SUDs). According to state data, there are approximately 2,700 individuals covered by this program.⁴⁴ Arizona also has an AHCCCS Housing and Health Opportunities Demonstration (H2O). In 2021, Arizona requested an amendment to its 1115 research and demonstration waiver to implement H2O. H2O is designed to complement the existing housing program and will enable the state to extend supportive housing services to individuals who are homeless or at risk of becoming homeless.⁴⁵

NORTH CAROLINA

North Carolina's Medicaid program covers low-income people who are aged, blind, or disabled. It also covers children, pregnant women, and adult caregivers of children at different income thresholds. The state's Medicaid program does not cover childless nondisabled adults regardless of their income status. As of late 2021, about 2.6 million people in North Carolina were covered by state Medicaid and CHIP. In 2015, North Carolina implemented a managed care program and began to contract with MCOs. Called Prepaid Health Plans (PHPs), it provides services for Medicaid enrollees.⁴⁶

⁴² Norris, L. (January 29, 2023). Arizona and the ACA's Medicaid Expansion. Healthinsurance.org. Retrieved February 10, 2023, from <https://www.healthinsurance.org/medicaid/arizona/>.

⁴³ AHCCCS. AHCCCS Whole Person Care Initiative (WPCI). Retrieved February 10, 2023, from <https://www.azahcccs.gov/AHCCCS/Initiatives/AHCCCSWPCI/>.

⁴⁴ AHCCCS. AHCCCS Housing Programs. Retrieved February 10, 2023, from <https://www.azahcccs.gov/AHCCCS/Initiatives/AHP/>.

⁴⁵ Supra 39.

⁴⁶ Norris, L. (January 26, 2022). North Carolina and the ACA's Medicaid Expansion. Healthinsurance.org. Retrieved February 10, 2023, from <https://www.healthinsurance.org/medicaid/north-carolina/>.

North Carolina's section 1115 waiver is effective from 2019 through 2024. The demonstration includes a pilot program called the North Carolina Enhanced Case Management and Other Services Pilot Program, which is designed to address eligible enrollees' specific health determinants and improve health outcomes and lower healthcare costs.⁴⁷

Under the waiver, MCOs not only screen for nonmedical drivers of health but are also required to make referrals to programs that can address nonmedical needs. They are also required to track the outcomes of such referrals.⁴⁸ Eligible individuals include those who are enrolled in a prepaid health plan (PHP) with additional special needs and risk factors. Having a body mass index (BMI) over 25, or two or more chronic conditions, are examples of special needs, while homelessness and food insecurity are examples of risk factors. The table in Figure 8 lists some examples of the services covered under North Carolina's section 1115 demonstration.

FIGURE 8: NORTH CAROLINA SECTION 1115 SERVICES

CATEGORY	SERVICES
HOUSING	- Tenancy support and sustaining services - Legal assistance - Securing housing payments
FOOD	- Food support services - Meal delivery services
TRANSPORTATION	- NEMT
INTERPERSONAL VIOLENCE/TOXIC STRESS	- Interpersonal violence-related transportation - Intimate partner violence (IPV) and parenting - Child-parent support

KANSAS

In 2011, Kansas created KanCare, the state's comprehensive managed care program. Under this program, MCOs cover Medicaid and CHIP for most eligibility groups, including children, pregnant women, low-income adults, people with disabilities, and people with dual eligibility for both Medicare and Medicaid.⁴⁹ As of late 2021, there were about 444,000 Kansans covered by Medicaid and CHIP.⁵⁰

Kansas has an active section 1115 waiver for a Disability and Behavioral Health Employment Support Pilot Program.⁵¹ KanCare members who are ages 16 through 65 and have behavioral health diagnoses, intellectual or developmental disabilities, or physical disabilities are eligible for the program. The table in Figure 9 lists some examples of covered services under this waiver:

⁴⁷ CMS (October 19, 2018). Approval letter: North Carolina Medicaid Reform Demonstration. Retrieved February 10, 2023, from <https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/nc/Medicaid-Reform/nc-medicaid-reform-demo-demo-appvl-20181019.pdf>.

⁴⁸ Medecision (May 3, 2022). Taking action: How states are using Medicaid 1115 waivers to address SDOH. Medecision Blog. Retrieved February 10, 2023, from <https://blog.medecision.com/medicaid-1115-and-sdoh/>.

⁴⁹ Bruffett, K. M., Huang, C.-C., & McClendon, S. (January 2019). Kansas Medicaid: A Primer 2019. Kansas Legislative Research Department. Retrieved February 10, 2023, from http://www.kslegresearch.org/KLRD-web/Publications/HealthCare/MedicaidPrimer_01-19.pdf.

⁵⁰ Norris, L. (October 6, 2022). Kansas and the ACA's Medicaid Expansion. Healthinsurance.org. Retrieved February 10, 2023, from <https://www.healthinsurance.org/medicaid/kansas/>.

⁵¹ CMS (June 17, 2022). Approval letter: Amendment Approval. Retrieved February 10, 2023, from <https://www.medicaid.gov/medicaid/section-1115-demonstrations/downloads/ks-kancare-dem-appvl-ltr-ca.pdf>.

FIGURE 9: KANSAS SERVICES

SERVICE	DESCRIPTION
PREVOCATIONAL SERVICES	Individualized services and supports that assist persons to develop or reestablish the skills, attitudes, personal characteristics, interpersonal skills, work behaviors, functional capacities, etc., expected to lead to integrated competitive employment.
SUPPORTED EMPLOYMENT	Employment-related support services provided to participants who need sustained support to maintain a job in a competitive, customized, or self-employment environment. Services may include job coaching, individual and small group employment support, and other evidence-based practices.
PERSONAL ASSISTANT SERVICES	Services that assist individuals with ADLs and instrumental ADLs (IADLs).
INDEPENDENT LIVING SKILLS TRAINING	Training designed to enhance or improve the ability of the participant to live as independently as possible in the community and use existing community resources.
ASSISTIVE TECHNOLOGY	Equipment, devices, and modifications, not already provided under the Medicaid state plan, that enhance the functional abilities of individuals with disabilities, with emphasis on supporting employment and independent functioning.
TRANSPORTATION	Services to transport individuals to and from locations essential to obtaining and maintaining employment.

Analysis of target populations and cost drivers

In addition to a review of how different state Medicaid programs are addressing nonmedical health needs, EHF requested that we complete an actuarial analysis for certain Medicaid beneficiaries in Texas for whose programs to address nonmedical health needs might be considered. The intent of this analysis is to provide context on the healthcare experience of certain high-risk populations identified by EHF, and how their experience differs from other populations without the same risk factors. This analysis is intended to illustrate unique features of how these populations experience healthcare that may be informative as programs to address nonmedical health needs are considered. This analysis is not intended to directly measure costs that are driven solely by nonmedical health needs or to calculate potential financial impacts for any particular intervention.

In cooperation with EHF, five MCOs covering Medicaid in the Harris and Jefferson SDAs in Texas provided healthcare claim data for this analysis. The Harris SDA is an urban region including the greater Houston area, and the Jefferson SDA is a rural area northeast of Houston. Medicaid delivery and populations can look quite different in urban and rural areas, and this allowed us to examine these differences. The main eligibility categories we examined include low-income children, pregnant individuals, and families covered by STAR; adults who have disabilities or are aged 65 or older covered by STAR+PLUS; children in families that earn too much to qualify for Medicaid but are unable to afford private insurance, covered by CHIP; and the STAR Health program, which covers children in foster care.⁵²

Our analysis focused on three key groups of Medicaid beneficiaries: high-risk pregnancies in STAR, STAR+PLUS individuals with serious mental illness (SMI), and children in STAR Health. These three populations are all relatively high-cost and experience unique healthcare needs compared to other Texas Medicaid beneficiaries who are similar demographically. These comparisons allowed us to identify where the target populations were experiencing differences in costs relative to their demographically similar peers.

Our first focus was on high-risk pregnancies in STAR. We defined a high-risk pregnancy as one in which any of the following criteria are met:⁵³

- The pregnant beneficiary is less than 16 years old or greater than 34 years old.
- The pregnant beneficiary has been diagnosed with preeclampsia, high blood pressure, or diabetes.
- The pregnant beneficiary has been diagnosed with a mental or behavioral health condition or a substance use disorder.

Our second focus was on individuals with serious mental illnesses (SMI) in STAR+PLUS, a population that often requires complex care. While SMI can include individuals with any mental health condition that causes serious impairment, for the purposes of this analysis we defined SMI consistent with typical convention for claim analyses, which includes individuals with a diagnosis for at least one of the conditions bipolar disorder, major depressive disorder, or schizophrenia. EHF chose to focus on the SMI population in STAR+PLUS because of their high costs and complex conditions. The STAR+PLUS program is for adults who have disabilities or are age 65 or older (many of whom may be dually eligible for both Medicare and Medicaid coverage), and these individuals often face higher rates of chronic illness, behavioral health conditions, and nonmedical risk factors than those who are younger or not disabled.⁵⁴ Healthcare cost patterns for this group are impacted by the unique benefits provided by STAR+PLUS compared to other Texas Medicaid programs, and by coordination of benefits between Medicare and Medicaid for the subset of dual-eligible individuals in STAR+PLUS who are also enrolled in Medicare. In these cases, Medicaid only pays a portion of their costs; for many services, Medicare is the primary payer and Medicaid covers all or a portion of the patient's cost-sharing amounts.

⁵² Texas Health and Human Services. Medicaid & CHIP. Retrieved February 10, 2023, from <https://www.hhs.texas.gov/services/health/medicaid-chip>.

⁵³ The Texas Medicaid program also considers pregnant members who have had a previous preterm birth to be high-risk. The state maintains a list of previous preterm births that MCOs can access; however, we did not have access to the list for this analysis.

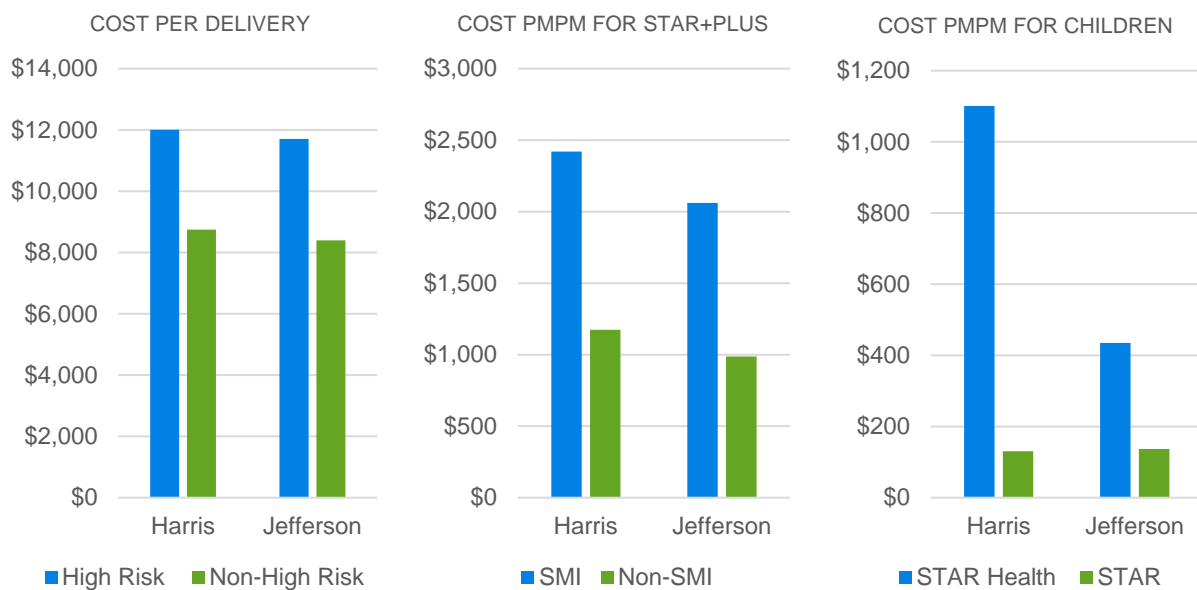
⁵⁴ Palmieri, C., Kagan, J., Smith, L., Kiel, M., & Soper, M. (July 14, 2022). Integration of Medicare and Medicaid Services Is Essential for Dually Eligible Individuals With Behavioral Health Needs. *Health Affairs Forefront*. Retrieved February 10, 2023, from <https://www.healthaffairs.org/content/forefront/integration-medicare-and-medicare-services-essential-dually-eligible-individuals>.

The final cohort on which we focused was STAR Health. Children in foster care often have complex health needs. We compared this population to children in STAR Kids and STAR.

For high-risk pregnancies, our comparison group was non-high-risk pregnancies in STAR. For individuals with SMI in STAR+PLUS, our comparison population was individuals without SMI in STAR+PLUS. Finally, the comparison group for children in STAR Health was children in STAR. Figures 10 shows overall cost comparisons between the target populations and their comparison populations for the Harris and Jefferson SDAs in FY2021.

We note here that comparison populations are adjusted for demographics but not for other factors, including risk factors, medical or otherwise. In addition, even with nonmedical needs addressed it may not be possible to achieve outcomes consistent with the comparison population. The comparison populations are intended to add some level of context to the figures for the populations studied to assist in understanding how the targeted populations differ from a more general population, and for determining potential for intervention outcomes.

FIGURE 10: TOTAL COST PER DELIVERY OR PMPM FOR TARGET AND COMPARISON POPULATIONS, FY2021



The individuals in our target populations had considerably higher healthcare costs than the comparison populations. Some of these cost differences may be addressable through programs that support nonmedical drivers of health, while others are driven by other factors that may not be impactable through this type of intervention. The following sections take a closer look at the key drivers of these cost differences so that stakeholders can understand where they might be able to make an impact.

HIGH-RISK PREGNANCIES IN STAR

In 2019 and 2020, 50% of all births in Texas were covered by Medicaid.⁵⁵ In the Harris and Jefferson SDAs, we found that about a third of pregnancies met the criteria to be considered high-risk (as further described in the Data and Methodology section of this report below).

The table in Figure 11 shows the percentage of pregnancies that were high-risk by SDA for fiscal years 2019 to 2021 and illustrates that the prevalence of high-risk pregnancies has increased each year.

⁵⁵ March of Dimes (January 2022). Preterm Birth. Retrieved February 10, 2023, from <https://www.marchofdimes.org/peristats/data?reg=99&top=11&stop=154&lev=1&slev=4&obj=1&sreg=48>.

FIGURE 11: HIGH-RISK PREGNANCIES IN STAR BY SDA AND YEAR

YEAR	HARRIS		JEFFERSON	
	PERCENT HIGH-RISK	TOTAL PREGNANCIES	PERCENT HIGH-RISK	TOTAL PREGNANCIES
2019	31%	14,257	32%	2,184
2020	33%	18,898	34%	2,365
2021	36%	16,856	37%	2,141

The tables in Figures 12 and 13 show the costs for high-risk and non-high-risk pregnancies. Costs per pregnancy include all costs incurred up to nine months prior to the delivery date and two months post-delivery. In both SDAs, high-risk pregnancies are 35% to 50% more expensive than non-high-risk pregnancies, with the main drivers each year being higher costs for cesarean section deliveries (partially offset by a reduction in normal deliveries), emergency and ambulance services, laboratory/radiology/pathology, and pharmaceuticals (retail pharmacy and office-administered). In Jefferson SDA, outpatient facility costs are also elevated for high-risk pregnancies compared to non-high-risk pregnancies.

FIGURE 12: COST COMPARISON FOR HIGH-RISK VS. NON-HIGH-RISK PREGNANCIES, HARRIS SDA, FY2019-FY2021

SERVICE CATEGORY	COST PER DELIVERY		DIFFERENCE BETWEEN HIGH-RISK AND NON-HIGH-RISK			
	HIGH-RISK	NON-HIGH-RISK	PER DELIVERY	PERCENT OF TOTAL	COST RATIO	TOTAL ⁵⁶
FISCAL YEAR 2019						
MATERNITY – NORMAL DELIVERY	\$1,314	\$1,358	-\$44	-1.6%	0.97x	-\$193,627
MATERNITY – CESAREAN SECTION	\$1,870	\$1,105	\$765	26.9%	1.69x	\$3,342,978
MATERNITY – NONDELIVERY	\$501	\$234	\$267	9.4%	2.14x	\$1,165,707
EMERGENCY AND AMBULANCE SERVICES	\$1,043	\$588	\$455	16.0%	1.77x	\$1,987,377
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,260	\$838	\$422	14.8%	1.50x	\$1,844,414
INPATIENT FACILITY CARE	\$87	\$53	\$34	1.2%	1.65x	\$150,091
OUTPATIENT FACILITY CARE	\$492	\$302	\$190	6.7%	1.63x	\$830,564
PROFESSIONAL CARE	\$1,755	\$1,470	\$284	10.0%	1.19x	\$1,240,756
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$1,074	\$600	\$474	16.7%	1.79x	\$2,071,320
TOTAL	\$9,395	\$6,548	\$2,848	100%	1.43x	\$12,439,580
FISCAL YEAR 2020						
MATERNITY – NORMAL DELIVERY	\$1,489	\$1,532	-\$43	-1.5%	0.97x	-\$270,056
MATERNITY – CESAREAN SECTION	\$1,991	\$1,211	\$781	27.3%	1.64x	\$4,879,696
MATERNITY – NONDELIVERY	\$586	\$231	\$355	12.4%	2.54x	\$2,218,738
EMERGENCY AND AMBULANCE SERVICES	\$998	\$614	\$384	13.4%	1.63x	\$2,402,742
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,129	\$769	\$360	12.6%	1.47x	\$2,251,125
INPATIENT FACILITY CARE	\$114	\$48	\$66	2.3%	2.38x	\$413,879
OUTPATIENT FACILITY CARE	\$404	\$232	\$172	6.0%	1.74x	\$1,074,378
PROFESSIONAL CARE	\$1,795	\$1,494	\$301	10.5%	1.20x	\$1,880,016
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$1,013	\$528	\$485	16.9%	1.92x	\$3,029,972
TOTAL	\$9,519	\$6,658	\$2,861	100%	1.43x	\$17,880,490
FISCAL YEAR 2021						
MATERNITY – NORMAL DELIVERY	\$2,334	\$2,546	-\$212	-6.5%	0.92x	-\$1,269,195
MATERNITY – CESAREAN SECTION	\$3,020	\$1,876	\$1,144	35.1%	1.61x	\$6,858,183
MATERNITY – NONDELIVERY	\$769	\$353	\$417	12.8%	2.18x	\$2,497,291
EMERGENCY AND AMBULANCE SERVICES	\$1,294	\$835	\$459	14.1%	1.55x	\$2,748,313
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,201	\$807	\$394	12.1%	1.49x	\$2,360,070
INPATIENT FACILITY CARE	\$164	\$87	\$77	2.4%	1.89x	\$463,699
OUTPATIENT FACILITY CARE	\$554	\$292	\$263	8.1%	1.90x	\$1,573,981
PROFESSIONAL CARE	\$1,769	\$1,485	\$284	8.7%	1.19x	\$1,703,379
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$901	\$470	\$431	13.2%	1.92x	\$2,584,308
TOTAL	\$12,005	\$8,749	\$3,257	100%	1.37x	\$19,520,030

⁵⁶ Cost difference = difference per delivery * number of high-risk pregnancies. This is not an estimate of potential cost savings.

FIGURE 13: COST COMPARISON FOR HIGH-RISK VS. NON-HIGH-RISK PREGNANCIES, JEFFERSON SDA, FY2019-FY2021

SERVICE CATEGORY	COST PER DELIVERY		DIFFERENCE BETWEEN HIGH-RISK AND NON-HIGH-RISK			
	HIGH-RISK	NON-HIGH-RISK	PER DELIVERY	PERCENT OF TOTAL	COST RATIO	TOTAL ⁵⁷
FISCAL YEAR 2019						
MATERNITY – NORMAL DELIVERY	\$1,126	\$1,254	-\$129	-4.5%	0.90x	-\$89,593
MATERNITY – CESAREAN SECTION	\$2,298	\$1,273	\$1,024	35.6%	1.80x	\$714,043
MATERNITY – NONDELIVERY	\$290	\$162	\$128	4.5%	1.79x	\$89,340
EMERGENCY AND AMBULANCE SERVICES	\$606	\$354	\$253	8.8%	1.71x	\$176,072
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,187	\$744	\$443	15.4%	1.60x	\$309,018
INPATIENT FACILITY CARE	\$173	\$41	\$132	4.6%	4.18x	\$91,808
OUTPATIENT FACILITY CARE	\$890	\$456	\$434	15.1%	1.95x	\$302,536
PROFESSIONAL CARE	\$1,661	\$1,495	\$165	5.8%	1.11x	\$115,311
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$933	\$508	\$425	14.8%	1.84x	\$296,286
TOTAL	\$9,163	\$6,287	\$2,876	100%	1.46x	\$2,004,821
FISCAL YEAR 2020						
MATERNITY – NORMAL DELIVERY	\$1,449	\$1,545	-\$96	-2.7%	0.94x	-\$77,025
MATERNITY – CESAREAN SECTION	\$2,519	\$1,556	\$963	27.3%	1.62x	\$771,675
MATERNITY – NONDELIVERY	\$416	\$191	\$225	6.4%	2.18x	\$180,002
EMERGENCY AND AMBULANCE SERVICES	\$854	\$387	\$467	13.3%	2.21x	\$374,358
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,341	\$718	\$623	17.7%	1.87x	\$498,971
INPATIENT FACILITY CARE	\$89	\$21	\$68	1.9%	4.27x	\$54,619
OUTPATIENT FACILITY CARE	\$889	\$394	\$495	14.1%	2.26x	\$396,604
PROFESSIONAL CARE	\$1,790	\$1,477	\$313	8.9%	1.21x	\$250,492
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$956	\$491	\$465	13.2%	1.95x	\$372,844
TOTAL	\$10,304	\$6,780	\$3,524	100%	1.52x	\$2,822,541
FISCAL YEAR 2021						
MATERNITY – NORMAL DELIVERY	\$2,036	\$2,205	-\$169	-5.1%	0.92x	-\$133,832
MATERNITY – CESAREAN SECTION	\$3,169	\$2,299	\$870	26.3%	1.38x	\$689,639
MATERNITY – NONDELIVERY	\$562	\$162	\$400	12.1%	3.46x	\$317,065
EMERGENCY AND AMBULANCE SERVICES	\$904	\$426	\$478	14.4%	2.12x	\$379,023
LABORATORY/RADIOLOGY/PATHOLOGY	\$1,262	\$760	\$502	15.2%	1.66x	\$398,385
INPATIENT FACILITY CARE	\$27	\$74	-\$47	-1.4%	0.37x	-\$37,348
OUTPATIENT FACILITY CARE	\$1,043	\$553	\$491	14.8%	1.89x	\$388,979
PROFESSIONAL CARE	\$1,736	\$1,408	\$327	9.9%	1.23x	\$259,660
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$966	\$508	\$458	13.8%	1.90x	\$363,541
TOTAL	\$11,706	\$8,396	\$3,310	100%	1.39x	\$2,625,112

There are some common themes and cost drivers across all years, including:

- C-section deliveries drive excess costs more than any other category. These pregnancies are more complex and so are the births. High-risk pregnancies are more likely to lead to a C-section delivery than non-high-risk pregnancies and they are more expensive when they do.
- High-risk pregnancies have higher costs in the lab and radiology service category, further indicating increased levels of complexity for these pregnancies.
- In the Jefferson SDA we are also seeing an increase in costs for outpatient facility care.

Differences in costs for newborns are likely associated with the riskiness of pregnancies. Neonatal costs typically appear on the child's healthcare claims and cannot be reliably linked to a specific pregnant member in the data available for our analysis. As such, we have not broken out neonatal costs by pregnancy risk. However, it is known that certain risk factors affecting pregnancy may lead to more preterm births or may otherwise complicate the health of newborns. For example, previous preterm births, high blood pressure, and diabetes are all factors that qualify a pregnancy as high-risk in our analysis and are more likely to lead to preterm births. In turn, preterm births have a greater likelihood

⁵⁷ Cost difference = difference per delivery * number of high-risk pregnancies. This is not an estimate of potential cost savings.

of babies requiring more intensive and costlier levels of neonatal care.⁵⁸ We have broken out neonatal care into five levels of care (and have also included a line for newborns we were not able to classify).⁵⁹ To the extent that nonmedical interventions are able to reduce pregnancy risks, newborns may be positively impacted as well. The tables in Figures 14 and 15 show the neonatal (newborn) utilization and costs covered by MCOs in the Harris and Jefferson SDAs. Newborns that had care in multiple levels are shown once in the highest level of care that they received.

FIGURE 14: NEONATAL COSTS BY LEVEL OF CARE, HARRIS SDA

NEONATAL LEVEL OF CARE	DELIVERIES NUMBER (PERCENT) ⁶⁰	PER DELIVERY	TOTAL COST
FISCAL YEARS 2019-2021			
NURSERY – GENERAL CLASSIFICATION	10,300 (13.2%)	\$2,447	\$25,199,274
LEVEL 1 – WELL NEWBORN NURSERY	25,889 (33.2%)	\$3,555	\$92,033,084
LEVEL 2 – SPECIAL CARE NURSERY	4,066 (5.2%)	\$26,153	\$106,336,276
LEVEL 3 – NEONATAL INTENSIVE CARE UNIT (NICU)	3,854 (4.9%)	\$85,982	\$331,374,005
LEVEL 4 – REGIONAL NICU	1,029 (1.3%)	\$250,299	\$257,557,540
OTHER/NOT CLASSIFIABLE	32,921 (42.2%)	\$1,207	\$39,733,731
ALL DELIVERIES	78,059 (100.0%)	\$10,918	\$852,233,911

FIGURE 15: NEONATAL COSTS BY LEVEL OF CARE, JEFFERSON SDA

NEONATAL LEVEL OF CARE	DELIVERIES NUMBER (PERCENT)	PER DELIVERY	TOTAL COST
FISCAL YEARS 2019-2021			
NURSERY – GENERAL CLASSIFICATION	1,449 (14.8%)	\$2,727	\$3,951,442
LEVEL 1 – WELL NEWBORN NURSERY	3,784 (38.7%)	\$2,899	\$10,968,863
LEVEL 2 – SPECIAL CARE NURSERY	621 (6.3%)	\$26,162	\$16,246,585
LEVEL 3 – NICU	713 (7.3%)	\$68,627	\$48,931,131
LEVEL 4 – REGIONAL NICU	74 (0.8%)	\$209,931	\$15,534,859
OTHER/NOT CLASSIFIABLE	3,149 (32.2%)	\$1,558	\$4,906,948
ALL DELIVERIES	9,790 (100.0%)	\$10,270	\$100,539,829

The cost per delivery increases drastically after level 1 of neonatal care. Very few births require care levels 2 through 4, but those that do are substantially more expensive and make up 81% of total neonatal costs despite making up only 11.8% of deliveries across the two SDAs combined. There is an opportunity for MCOs and the state to find significant savings if they are able to reduce the number of babies who require care in levels 2 through 4. Focusing on reducing pregnancy risk factors prior to delivery (including those related to nonmedical drivers of health) may be an effective way of doing so.

Additionally, we examined the level of nonmedical health needs that have been identified in a medical setting for high-risk pregnancies compared to non-high-risk pregnancies. Clinicians are able to document certain nonmedical health needs using ICD-10-CM diagnosis codes in the Z55-Z65 range. The table in Figure 16 shows the ratios between high-risk and non-high-risk pregnancies in both Harris and Jefferson SDAs.

⁵⁸ Mayo Clinic. Premature Birth. Mayo Clinic. Retrieved February 10, 2023, from <https://www.mayoclinic.org/diseases-conditions/premature-birth/symptoms-causes/syc-20376730>.

⁵⁹ Barfield, W. D., Papile, L.-A., Baley, J. E., Benitz, W., Cummings, J., Carlo, W. A., Kumar, P., Polin, R. A., Tan, R. C., Wang, K. S., & Watterberg, K. L. (September 1, 2012). Levels of Neonatal Care. American Academy of Pediatrics. Retrieved February 10, 2023, from <https://publications.aap.org/pediatrics/article/130/3/587/30212/Levels-of-Neonatal-Care?autologincheck=redirected%3FnfToken>.

⁶⁰ The number of deliveries does not match between Figures 14 and 15 compared to Figure 11 above due to differences in inclusion requirements for each analysis.

FIGURE 16: RATE OF NONMEDICAL HEALTH NEEDS RECORDED VIA ICD-10-CM DIAGNOSIS CODES FOR HIGH-RISK PREGNANCIES COMPARED TO NON-HIGH-RISK PREGNANCIES, FY2021

ICD-10-CM CODES: PROBLEMS RELATED TO	RATIO OF HIGH-RISK TO NON-HIGH-RISK	
	HARRIS SDA	JEFFERSON SDA
Z55: EDUCATION AND LITERACY	10.05x	N/A
Z56: EMPLOYMENT AND UNEMPLOYMENT	2.17x	0.33x
Z57: OCCUPATIONAL EXPOSURE TO RISK FACTORS	0.68x	0.00x
Z58: PHYSICAL ENVIRONMENT	N/A	N/A
Z59: HOUSING AND ECONOMIC CIRCUMSTANCES	4.38x	12.26x
Z60: SOCIAL ENVIRONMENT	2.08x	3.95x
Z62: UPBRINGING	4.56x	N/A
Z63: PRIMARY SUPPORT GROUP, INCLUDING FAMILY CIRCUMSTANCES	3.39x	0.89x
Z64: CERTAIN PSYCHOSOCIAL CIRCUMSTANCES	1.71x	2.28x
Z65: OTHER PSYCHOSOCIAL CIRCUMSTANCES	1.40x	0.67x
TOTAL	2.06x	2.19x

High-risk pregnancies are about twice as likely to have had a nonmedical health need recorded on a healthcare claim as non-high-risk pregnancies. They are substantially more likely (four to 12 times) to have needs related to housing and economic circumstances (which includes food insecurity).

INDIVIDUALS WITH SMI IN STAR+PLUS

On a per-person basis, individuals with SMI in STAR+PLUS have significantly higher healthcare costs than those without SMI. The table in Figure 17 shows the percentage of individuals in STAR+PLUS who have been diagnosed with an SMI condition in each SDA, by fiscal year.

FIGURE 17: INDIVIDUALS WITH SMI IN STAR+PLUS

FISCAL YEAR	HARRIS SDA		JEFFERSON SDA	
	PERCENT WITH SMI	MEMBER MONTHS	PERCENT WITH SMI	MEMBER MONTHS
2019	25%	636,759	32%	78,281
2020	25%	812,662	32%	85,625
2021	24%	834,948	31%	92,460

Despite making up a quarter to a third of the STAR+PLUS population, individuals with SMI account for nearly half of the total costs. The tables in Figures 18 and 19 show per member per month (PMPM) costs adjusted by age and sex for individuals with SMI in STAR+PLUS compared to individuals without SMI in STAR+PLUS.

FIGURE 18: AGE-SEX-ADJUSTED COST COMPARISONS BETWEEN INDIVIDUALS WITH AND WITHOUT SMI IN STAR+PLUS, HARRIS SDA

SERVICE CATEGORY	COST PMPM		DIFFERENCE BETWEEN SMI AND NON-SMI			
	SMI	NON-SMI	PMPM	PERCENT OF TOTAL	COST RATIO	TOTAL ⁶¹
FISCAL YEAR 2019						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$701	\$320	\$382	29.3%	2.19x	\$60,528,184
INPATIENT FACILITY CARE	\$304	\$121	\$183	14.0%	2.51x	\$29,000,112
SKILLED NURSING CARE	\$621	\$136	\$485	37.2%	4.56x	\$76,368,849
OUTPATIENT FACILITY CARE	\$171	\$86	\$85	6.5%	1.99x	\$13,497,094
PROFESSIONAL CARE	\$556	\$453	\$103	7.9%	1.23x	\$16,306,149
EMERGENCY AND AMBULANCE SERVICES	\$90	\$24	\$66	5.1%	3.70x	\$10,464,100
TOTAL	\$2,444	\$1,141	\$1,303	100.0%	2.14x	\$206,164,487
FISCAL YEAR 2020						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$669	\$323	\$346	29.5%	2.07x	\$69,754,666
INPATIENT FACILITY CARE	\$335	\$135	\$201	17.1%	2.49x	\$40,487,741
SKILLED NURSING CARE	\$482	\$113	\$368	31.4%	4.25x	\$73,705,929
OUTPATIENT FACILITY CARE	\$148	\$72	\$75	6.4%	2.04x	\$15,223,488
PROFESSIONAL CARE	\$553	\$442	\$112	9.5%	1.25x	\$22,522,619
EMERGENCY AND AMBULANCE SERVICES	\$93	\$23	\$70	5.9%	3.97x	\$14,061,211
TOTAL	\$2,280	\$1,109	\$1,171	100.0%	2.06x	\$235,755,654
FISCAL YEAR 2021						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$674	\$316	\$358	28.7%	2.13x	\$72,898,557
INPATIENT FACILITY CARE	\$583	\$232	\$351	28.2%	2.51x	\$71,539,223
SKILLED NURSING CARE	\$267	\$60	\$207	16.6%	4.44x	\$41,880,209
OUTPATIENT FACILITY CARE	\$208	\$103	\$105	8.4%	2.01x	\$21,360,823
PROFESSIONAL CARE	\$566	\$430	\$136	10.9%	1.32x	\$27,691,324
EMERGENCY AND AMBULANCE SERVICES	\$122	\$32	\$90	7.2%	3.81x	\$18,378,443
TOTAL	\$2,421	\$1,174	\$1,247	100.0%	2.06x	\$253,748,579

⁶¹ Cost difference = difference PMPM * SMI member months. This is not an estimate of potential cost savings.

FIGURE 19: AGE-SEX-ADJUSTED COST COMPARISONS BETWEEN INDIVIDUALS WITH AND WITHOUT SMI IN STAR+PLUS, JEFFERSON SDA

SERVICE CATEGORY	COST PMPM		DIFFERENCE BETWEEN SMI AND NON-SMI			
	SMI	NON-SMI	PMPM	PERCENT OF TOTAL	COST RATIO	TOTAL ⁶²
FISCAL YEAR 2019						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$687	\$328	\$358	31.3%	2.09x	\$8,926,284
INPATIENT FACILITY CARE	\$262	\$108	\$154	13.4%	2.43x	\$3,833,367
SKILLED NURSING CARE	\$777	\$338	\$439	38.3%	2.30x	\$10,887,051
OUTPATIENT FACILITY CARE	\$174	\$86	\$88	7.6%	2.01x	\$2,179,639
PROFESSIONAL CARE	\$333	\$283	\$49	4.3%	1.17x	\$1,232,393
EMERGENCY AND AMBULANCE SERVICES	\$79	\$23	\$57	4.9%	3.51x	\$1,411,369
TOTAL	\$2,312	\$1,167	\$1,145	100.0%	1.98x	\$28,470,103
FISCAL YEAR 2020						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$715	\$296	\$419	41.8%	2.41x	\$11,420,728
INPATIENT FACILITY CARE	\$280	\$102	\$178	17.7%	2.74x	\$4,845,392
SKILLED NURSING CARE	\$399	\$183	\$216	21.5%	2.18x	\$5,853,992
OUTPATIENT FACILITY CARE	\$142	\$72	\$69	6.9%	1.96x	\$1,890,968
PROFESSIONAL CARE	\$329	\$271	\$59	5.8%	1.22x	\$1,599,836
EMERGENCY AND AMBULANCE SERVICES	\$82	\$19	\$63	6.2%	4.26x	\$1,705,048
TOTAL	\$1,946	\$943	\$1,003	100.0%	2.06x	\$27,315,963
FISCAL YEAR 2021						
RX AND OFFICE-/FACILITY-ADMIN. DRUGS	\$661	\$322	\$339	31.6%	2.05x	\$9,644,040
INPATIENT FACILITY CARE	\$458	\$148	\$310	28.9%	3.10x	\$8,835,556
SKILLED NURSING CARE	\$312	\$130	\$182	17.0%	2.41x	\$5,156,508
OUTPATIENT FACILITY CARE	\$193	\$95	\$98	9.2%	2.04x	\$2,797,084
PROFESSIONAL CARE	\$341	\$269	\$72	6.7%	1.27x	\$2,053,639
EMERGENCY AND AMBULANCE SERVICES	\$96	\$25	\$72	6.7%	3.91x	\$2,042,445
TOTAL	\$2,062	\$988	\$1,074	100.0%	2.09x	\$30,529,271

In both areas, individuals with SMI have roughly 100% higher costs than individuals without SMI in STAR+PLUS. Note that the comparisons between categories should be interpreted with the understanding that STAR+PLUS provides a unique set of benefits compared to other Texas Medicaid programs, and some individuals in STAR+PLUS may also be covered by Medicare, in which case Medicaid is the secondary payer and fills in specific gaps in coverage. Medicaid is a significant payer for prescription drug costs, and this is consistently the service category where we see the greatest share of excess costs. As a result, the distribution of healthcare costs by major service category differs from what is typically seen for other Texas Medicaid programs. For example, a high proportion of total costs for this population are for prescription drugs, inpatient care, and skilled nursing care. Compared to typical cost distributions for other populations, a lower proportion of costs are for outpatient and professional care, including behavioral healthcare.

Not all of the difference should be interpreted as costs impactable by nonmedical interventions. For instance, the prescription drug costs for the SMI group are substantially higher than those for the non-SMI group. However, medication adherence is often a challenge in this population so it is possible that nonmedical interventions would appropriately lead to an increase in prescription drug costs by improving medication adherence, rather than a decrease in costs for this category.

We also examined the prevalence of nonmedical health needs as coded in a medical setting for the two STAR+PLUS groups. The table in Figure 20 shows this comparison.

⁶² Cost difference = difference PMPM * SMI member months. This is not an estimate of potential cost savings.

FIGURE 20: RATE OF NONMEDICAL HEALTH NEEDS RECORDED VIA ICD-10-CM DIAGNOSIS CODES FOR INDIVIDUALS WITH SMI IN STAR+PLUS COMPARED TO THOSE WITHOUT SMI, FY2021

ICD-10-CM CODES: PROBLEMS RELATED TO	RATIO OF SMI TO NON-SMI	
	HARRIS SDA	JEFFERSON SDA
Z55: EDUCATION AND LITERACY	3.99x	N/A
Z56: EMPLOYMENT AND UNEMPLOYMENT	7.10x	4.31x
Z57: OCCUPATIONAL EXPOSURE TO RISK FACTORS	5.91x	N/A
Z58: PHYSICAL ENVIRONMENT	N/A	N/A
Z59: HOUSING AND ECONOMIC CIRCUMSTANCES	12.07x	7.47x
Z60: SOCIAL ENVIRONMENT	7.31x	2.08x
Z62: UPBRINGING	214.53x	0.94x
Z63: PRIMARY SUPPORT GROUP, INCLUDING FAMILY CIRCUMSTANCES	11.43x	20.24x
Z64: CERTAIN PSYCHOSOCIAL CIRCUMSTANCES	2.75x	5.44x
Z65: OTHER PSYCHOSOCIAL CIRCUMSTANCES	6.14x	3.76x
TOTAL	10.06x	6.13x

Individuals with SMI are six to 10 times more likely to have a recorded nonmedical health need than those without SMI. The ratios are particularly high for problems related to upbringing in the Harris SDA, problems related to family circumstances in both SDAs, and problems related to housing and economic circumstances in both SDAs.

CHILDREN IN STAR HEALTH

For children in STAR Health, we have set up a comparison to children covered by the STAR program. The tables in Figures 21 and 22 show cost comparisons for these two populations adjusted by age and sex.

FIGURE 21: AGE-SEX-ADJUSTED COST COMPARISONS BETWEEN STAR HEALTH AND STAR MEMBERS, HARRIS SDA

SERVICE CATEGORY	COST PMPM		DIFFERENCE BETWEEN STAR HEALTH AND STAR		
	STAR HEALTH	STAR	PMPM	PERCENT OF TOTAL	COST RATIO
FISCAL YEAR 2019					
INPATIENT FACILITY CARE – MH/SUD	\$164	\$0	\$164	16.8%	1,303.89x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$149	\$41	\$109	11.2%	3.67x
EMERGENCY AND AMBULANCE SERVICES	\$41	\$20	\$22	2.3%	2.13x
OUTPATIENT FACILITY CARE	\$39	\$26	\$13	1.4%	1.52x
PROFESSIONAL MH/SUD CARE	\$164	\$0	\$164	16.8%	3,568.40x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$232	\$46	\$186	19.1%	5.05x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$320	\$4	\$316	32.5%	85.29x
TOTAL	\$1,108	\$136	\$973	100.0%	8.18x
FISCAL YEAR 2020					
INPATIENT FACILITY CARE – MH/SUD	\$160	\$2	\$158	15.7%	82.51x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$103	\$38	\$65	6.5%	2.71x
EMERGENCY AND AMBULANCE SERVICES	\$40	\$18	\$22	2.2%	2.24x
OUTPATIENT FACILITY CARE	\$44	\$21	\$23	2.2%	2.08x
PROFESSIONAL MH/SUD CARE	\$192	\$4	\$188	18.6%	53.13x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$233	\$41	\$192	18.9%	5.62x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$367	\$4	\$364	36.0%	102.38x
TOTAL	\$1,139	\$127	\$1,011	100.0%	8.94x
FISCAL YEAR 2021					
INPATIENT FACILITY CARE – MH/SUD	\$126	\$2	\$124	12.8%	65.81x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$99	\$45	\$54	5.6%	2.20x
EMERGENCY AND AMBULANCE SERVICES	\$43	\$18	\$25	2.6%	2.41x
OUTPATIENT FACILITY CARE	\$38	\$22	\$16	1.7%	1.75x
PROFESSIONAL MH/SUD CARE	\$187	\$3	\$184	19.0%	58.79x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$249	\$38	\$212	21.8%	6.59x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$359	\$3	\$356	36.6%	120.40x
TOTAL	\$1,101	\$130	\$970	100.0%	8.45x

FIGURE 22: AGE-SEX-ADJUSTED COST COMPARISONS BETWEEN STAR HEALTH AND STAR, JEFFERSON SDA

SERVICE CATEGORY	COST PMPM		DIFFERENCE BETWEEN STAR HEALTH AND STAR		
	STAR HEALTH	STAR	PMPM	PERCENT OF TOTAL	COST RATIO
FISCAL YEAR 2019					
INPATIENT FACILITY CARE – MH/SUD	\$42	\$0	\$42	14.0%	748.28x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$48	\$56	-\$8	-2.7%	0.86x
EMERGENCY AND AMBULANCE SERVICES	\$22	\$18	\$5	1.6%	1.28x
OUTPATIENT FACILITY CARE	\$36	\$32	\$4	1.3%	1.12x
PROFESSIONAL MH/SUD CARE	\$81	\$0	\$81	27.0%	2,190.90x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$155	\$53	\$102	34.1%	2.90x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$78	\$4	\$74	24.7%	18.08x
TOTAL	\$462	\$163	\$298	100.0%	2.83x
FISCAL YEAR 2020					
INPATIENT FACILITY CARE – MH/SUD	\$72	\$1	\$72	21.2%	101.80x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$43	\$38	\$4	1.3%	1.12x
EMERGENCY AND AMBULANCE SERVICES	\$22	\$17	\$5	1.4%	1.27x
OUTPATIENT FACILITY CARE	\$42	\$27	\$16	4.6%	1.58x
PROFESSIONAL MH/SUD CARE	\$80	\$1	\$79	23.3%	88.23x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$140	\$45	\$96	28.3%	3.15x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$71	\$4	\$67	19.9%	19.10x
TOTAL	\$471	\$132	\$338	100.0%	3.56x
FISCAL YEAR 2021					
INPATIENT FACILITY CARE – MH/SUD	\$39	\$1	\$39	13.0%	46.44x
INPATIENT FACILITY CARE – MEDICAL/SURGICAL	\$57	\$52	\$6	1.9%	1.11x
EMERGENCY AND AMBULANCE SERVICES	\$24	\$15	\$9	3.0%	1.58x
OUTPATIENT FACILITY CARE	\$31	\$23	\$8	2.8%	1.37x
PROFESSIONAL MH/SUD CARE	\$71	\$1	\$70	23.5%	92.26x
PROFESSIONAL MEDICAL/SURGICAL CARE	\$145	\$42	\$104	34.8%	3.49x
HOME HEALTH/PRIVATE DUTY/IND. NURSING	\$67	\$4	\$63	21.1%	16.85x
TOTAL	\$435	\$137	\$298	100.0%	3.18x

These comparisons highlight the increased level of behavioral care that children in STAR Health access. These tables also demonstrate that the home health utilization is high for this cohort. The difference is less pronounced in the Jefferson SDA. One potential contributing factor is the accessibility of behavioral healthcare and specialist care; those in more rural areas may not have the same access as those living in urban areas.

We also examined the prevalence of nonmedical health needs that were recorded in a medical setting for these members. The table in Figure 23 shows the comparison.

FIGURE 23: RATE OF NONMEDICAL HEALTH NEEDS RECORDED VIA ICD-10-CM DIAGNOSIS CODES FOR INDIVIDUALS IN STAR HEALTH COMPARED TO CHILDREN IN STAR, FY2021

ICD-10-CM CODES: PROBLEMS RELATED TO	RATIO OF STAR HEALTH TO STAR	
	HARRIS SDA	JEFFERSON SDA
Z55: EDUCATION AND LITERACY	3.96x	3.51x
Z56: EMPLOYMENT AND UNEMPLOYMENT	0.82x	0.00x
Z57: OCCUPATIONAL EXPOSURE TO RISK FACTORS	2.93x	0.00x
Z58: PHYSICAL ENVIRONMENT	0.00x	N/A
Z59: HOUSING AND ECONOMIC CIRCUMSTANCES	9.61x	13.86x
Z60: SOCIAL ENVIRONMENT	24.88x	9.31x
Z62: UPBRINGING	118.34x	136.86x
Z63: PRIMARY SUPPORT GROUP, INCLUDING FAMILY CIRCUMSTANCES	7.67x	8.66x
Z64: CERTAIN PSYCHOSOCIAL CIRCUMSTANCES	0.19x	0.00x
Z65: OTHER PSYCHOSOCIAL CIRCUMSTANCES	7.09x	14.63x
TOTAL	24.90x	26.07x

Children in STAR Health are about 25 times as likely to have a recorded nonmedical health need as children in STAR. This can primarily be seen in the category related to problems with upbringing, where children in STAR Health are 118 to 137 times more likely to have nonmedical needs.

In these comparisons, we do not intend to imply that any MCO would be able to manage the higher-risk group to the same level as the comparison group. Rather, by highlighting the areas where costs diverge the most, we can help interested parties focus on the service categories where they are most likely to be able to make a difference. With time and appropriate resource use, it is possible that the costs for STAR+PLUS individuals with SMI could most closely resemble those of STAR+PLUS individuals without SMI or the costs for high-risk pregnancies could approach those for non-high-risk pregnancies. The populations highlighted here have complex health needs, which may extend to nonmedical needs. Addressing needs such as stable housing, food insecurity, and more may help bridge the gap.

Conclusions

Extrapolating from data for Harris and Jefferson SDAs, we estimate that, statewide, high-risk pregnancies resulted in a total of \$776 million dollars in healthcare costs to the Texas Medicaid program in FY2021. Other data suggest that as many as two-thirds of low-income women between 18 and 44 have reported difficulty paying for food, housing, medical care, or utilities. Those with food insecurity, for example, have experienced various negative health impacts ranging from higher rates of anxiety and depression to higher rates of pregnancy morbidity.⁶³ The body of evidence for interventions to address food insecurity suggests that overall medical cost savings of 3% to 24% may be achievable for individuals who are provided with interventions to address food insecurity, varying based on the effectiveness and reach of the intervention, as well as the circumstances of the supported population.⁶⁴

Similarly, we estimate that statewide, \$3.8 billion dollars were spent on healthcare services by Texas Medicaid for individuals with SMI who are enrolled in STAR+PLUS in FY2021. Individuals who are both disabled and low-income, like many of those in STAR+PLUS, have been found to have significant nonmedical health needs, including low health literacy, poverty, lack of transportation, and food and housing insecurity.⁶⁵ The body of evidence for interventions targeting low-income and disabled individuals with support for food insecurity suggests that these programs have the potential to reduce total medical costs by 24%, depending on the reach and effectiveness of the program.⁶⁶

Finally, we estimate that the statewide health care expenditure for STAR Health in FY2021 is \$376 million. Literature has shown that children in foster care often struggle with medical and nonmedical needs throughout their time in foster care and beyond.⁶⁷ While there are limited studies on nonmedical interventions that specifically target children and adolescents, we know that some of the significant cost drivers for children in STAR Health are related to behavioral health needs. Beyond that, nonmedical health needs are known to influence behavioral health outcomes.⁶⁸ To the extent that nonmedical health needs are addressed, there could be reductions in the cost of care for STAR Health.

The overall impact on health outcomes for individuals in Texas and costs to the Texas Medicaid program would ultimately depend on the types of supports offered, the number of individuals reached, and the effectiveness of the program's delivery. Programs implemented in other states that have been carefully targeted and effectively delivered have been shown to reduce overall healthcare costs in many cases.

⁶³ Healthify (October 11, 2021). The Social Drivers of Maternal Health. WellSky. Retrieved February 12, 2023, from <https://www.healthify.us/healthify-insights/the-social-drivers-of-maternal-health>.

⁶⁴ Supra 35.

⁶⁵ Sorbero, M. E., Kranz, A. M., Bouskill, K. E., Ross, R., Palimaru, A. I., & Meyer, A. (2018). Addressing Social Determinants of Health Needs of Dually Enrolled Beneficiaries in Medicare Advantage Plans. U.S. Department of Health and Human Services. Retrieved February 12, 2023, from https://aspe.hhs.gov/sites/default/files/private/pdf/259896/MAStudy_Phase2_RR2634-final.pdf.

⁶⁶ Supra 35

⁶⁷ Collins, J. L., & Thomas, L. J. (March 1, 2018). The influence of social determinants of health among young adults after they have left foster care in the US. *Journal of clinical nursing*, 27(9-10), 2022–2030. Retrieved February 12, 2023, from <https://doi.org/10.1111/jocn.14317>.

⁶⁸ Deferio, J. J., Breiting, S., Khullar, D., Sheth, A., & Pathak, J. (April 26, 2019). Social determinants of health in mental health care and research: A case for greater inclusion. *Journal of the American Medical Informatics Association (JAMIA)*, 26(8-9), 895–899. Retrieved February 12, 2023, from <https://doi.org/10.1093/jamia/ocz049>.

Data and methodology

We used membership, detailed medical claims, and detailed pharmacy claim data for fiscal years 2019 to 2021 from five of the MCOs offering Medicaid coverage in the Harris and Jefferson SDAs. We did not include any adjustment for incurred but not reported (IBNR) claims as there was enough runout for the data to be considered complete for the time periods examined in this analysis. The MCOs included data for all of their covered Medicaid populations. The authors would like to thank Community Health Choice, Molina Health Plan, Superior Health Plan, Texas Children's Health Plan and United Healthcare for contributing data for this analysis.

We identified pregnancies by first finding a delivery claim. The pregnancy period that we examined included up to nine months prior to the delivery date and two months postdelivery. The table in Figure 24 shows the criteria used to identify deliveries.

FIGURE 24: IDENTIFICATION OF DELIVERIES

CODE TYPE	CODES
APR DRG	539, 540, 541, 542, 560
MSDRG	765, 766, 767, 768, 774, 775, 783 784 785, 786, 787, 788, 796, 797, 798, 805, 806, 807
HCPCS	59400, 59409, 59410, 59510, 59514, 59515, 59610 59612 59614, 59618, 59620, 59622
REVENUE CODE	0720, 0721, 0722

We defined high-risk pregnancies as those in which the MCO member is younger than 16 or older than 34, and has been diagnosed with diabetes, high blood pressure, preeclampsia, or behavioral health conditions. The table in Figure 25 shows the diagnosis codes we used to define diabetes, high blood pressure, preeclampsia, and behavioral health conditions.

FIGURE 25: IDENTIFICATION OF HIGH-RISK CONDITIONS

CONDITION	DIAGNOSIS CODES
PREECLAMPSIA	O14.00 - O14.15, O14.90 - O14.95 and O11.1 – O11.9
HIGH BLOOD PRESSURE	I10 - I16
DIABETES	E08 - E13
ANY MH/SUD	F01 – F99

The Texas Medicaid program also considers pregnant beneficiaries who have had a previous preterm birth to be high-risk and provides MCOs with a list of its members who meet this criteria. We did not have access to this list, and thus did not use this criterion for our analysis. We would also be understating high-risk pregnancies if any of those conditions are present but have not been diagnosed in a medical setting.

While serious mental illness (SMI) can include any behavioral health diagnosis that causes serious functional impairment, ICD-10-CM codes do not capture levels of functional impairment well. To be consistent with conventions used in many claim-based analyses, we defined SMI as having been diagnosed with bipolar disorder, major depression, or schizophrenia. Other definitions may also be reasonable and may produce different results. The table in Figure 26 shows the diagnosis codes we used to define these conditions.

FIGURE 26: IDENTIFICATION OF INDIVIDUALS WITH SMI

CONDITION	DIAGNOSIS CODES
BIPOLAR DISORDER	F06.33, F30-F31
MAJOR DEPRESSION	F06.32, F32-F33, F53
SCHIZOPHRENIA	F20, F25

We identified nonmedical health needs that have been diagnosed in a medical setting through ICD-10-CM diagnosis codes in the Z55-Z65 range. The table in Figure 27 shows the mapping from codes to categories.

FIGURE 27: IDENTIFICATION OF INDIVIDUALS WITH NONMEDICAL HEALTH NEEDS

PROBLEMS RELATED TO	DIAGNOSIS CODES STARTING WITH
EDUCATION AND LITERACY	Z55
EMPLOYMENT AND UNEMPLOYMENT	Z56
OCCUPATIONAL EXPOSURE TO RISK FACTORS	Z57
PHYSICAL ENVIRONMENT	Z58
HOUSING AND ECONOMIC CIRCUMSTANCES	Z59
SOCIAL ENVIRONMENT	Z60
UPBRINGING	Z62
PRIMARY SUPPORT GROUP, INCLUDING FAMILY CIRCUMSTANCES	Z63
CERTAIN PSYCHOSOCIAL CIRCUMSTANCES	Z64
OTHER PSYCHOSOCIAL CIRCUMSTANCES	Z65

The percentage of individuals shown to have a need in each category is likely understated. Often, nonmedical needs are not discussed, diagnosed, or coded in a medical setting. These codes are known to be underutilized in most cases. Our analysis captures only those that were recorded in a medical setting.

We have likely understated the number of individuals with SMI in STAR+PLUS. Because of the unique coverage offered by this program, it is likely that there are individuals diagnosed with an SMI condition in settings that are not as well represented in the Medicaid claim data we have used for this analysis.

We have excluded pharmacy costs in our comparison between STAR Health and children in STAR. The pharmacy claim data we received for STAR Health was incomplete and not reliable, so this analysis focuses only on medical claims for these populations.

Caveats and limitations

This report is intended to highlight the scope of nonmedical services currently being offered by various state Medicaid programs and to demonstrate the opportunity for certain target populations in Texas. It may not be appropriate and should not be used for other purposes. This report does not represent conclusive recommendations regarding nonmedical drivers of health, interventions, or program strategies. Milliman does not intend to benefit or create a legal duty to any recipient of this work.

Milliman relied on detailed claim data from third parties to conduct this analysis. We have not audited or verified these data but have reviewed them for reasonability. If the underlying data is inaccurate or incomplete, the results of our analysis make likewise be inaccurate or incomplete.

Evaluating or validating any purported savings or improvements in outcomes from external studies was beyond the scope of our engagement. We encourage readers to review our references in full.

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Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Matt Caverly and Darin Muse are members of the American Academy of Actuaries, and they meet the qualification standards for performing this analysis. Stoddard Davenport is not a member of the Academy and is not bound by its disclosure requirements but is also well qualified to perform this analysis.

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