

Research Brief

Commonwealth Institute of Kentucky | University of Louisville | November 2022

The Impact of Medicaid Managed Care on Non-Office-Based Service Utilization Among Kentucky Medicaid Beneficiaries with Chronic Disease

Seyed Karimi, PhD, Michael Goldsby, PhD, Bert Little, PhD, Giang Vu, DDS, MS, PhD, Naiya Patel, MPH, Hamid Zarei, MS, Melissa Eggen, MPH

BACKGROUND

The Burden of Chronic Disease on Kentuckians

The burden of chronic disease is high in Kentucky, particularly for mortality related to cancer, diabetes, and cardiovascular disease (CVD). Kentucky consistently has had one of the highest cancer-related mortality rates in the United States. In 2010, Kentucky's cancer-related mortality rate was an estimated 235 deaths per 100,000 people. In 2020, the rate decreased to 177.3 deaths per 100,000 people but remained among the highest in the country.^{1,2} Also, in 2010, Kentucky ranked 8th in the United States for CVD-related mortality at 299 deaths per 100,000 people. Finally, Kentucky had the 5th highest diabetes-related mortality rate in the nation in 2017 (27.7 per 100,000 people), representing an increase from the 7th highest rate in 2014.³

There are significant geographic disparities in mortality rates across Kentucky. Eastern Kentucky, for example, experiences disproportionately higher rates of all three types of mortality compared to other areas of the state. In 2010, nearly all counties in Eastern Kentucky had a higher-than-average cancer-related mortality rate (greater than 300 per 100,000 people) compared to the state (235 deaths per 100,000 people).⁴

Impact on Medicaid Beneficiaries

Chronic disease is a high-cost domain for insurers, particularly Medicaid, because Medicaid beneficiaries usually have poorer health status in general. In 2019, the Kentucky Medicaid program spent significantly more than the national average per adult enrollee at \$6,081 versus \$3,840.⁵ In 2019, 60% of Kentucky Medicaid beneficiaries were adults, the fourth-highest share of adults in a Medicaid program in the country after Oregon (62%), California (61%), and the District of Columbia (61%).⁶

Given the remarkably high burden of cancer, CVD, and diabetes on Kentuckians' health and the extent of Medicaid coverage in Kentucky, it is important to assess the impact of these conditions on the utilization of care and, ultimately, the impact of Medicaid reforms on beneficiaries with chronic disease.

Key Kentucky Medicaid Reforms in the 2010s

Kentucky's Medicaid program underwent fundamental changes in the 2010s. Two major changes were:

- A restructuring of the program that involved the expansion of Medicaid Managed Care (MMC) statewide in 2011, and
- The expansion of the Medicaid program to cover newly eligible beneficiaries under the Affordable Care Act (ACA).

The 2011 reform ended the traditional fee-for-service Medicaid program, where healthcare providers were paid for services performed. Instead, Medicaid health care services were outsourced to private health insurance companies, also known as managed care organizations (MCOs). Under this arrangement, the state paid the MCOs a fixed amount per patient in advance to cover the cost of healthcare services for Medicaid beneficiaries (*i.e.*, capitation). The MCOs were then responsible for organizing provider networks and arranging care delivery for beneficiaries. The state used competitive bidding to select three MCOs and, in November 2011, they began offering Medicaid services. Region 3, which includes the City of Louisville and sixteen surrounding counties, was not exposed to the 2011 reform. In this region, a non-profit MCO maintained a monopoly status in providing Medicaid services until 2013, when for-profit MCOs were allowed to enter the region's Medicaid market.

While Kentucky Medicaid has undergone additional structural changes since the late 1980s, the focus of this study was the 2011 shift from fee-for-service to Medicaid Managed Care (MMC), which shifted the delivery of healthcare services to Medicaid beneficiaries in seven of eight regions of the state's Medicaid program, namely Regions 1, 2, 4–8 (not-Region 3, hereafter). Not-Region 3, then, refers to the regions of the state that were impacted by MMC.

Figure 1: Map of Medicaid Managed Care Regions in Kentucky, 2011



Source: Marton et al. (2017)

Only one study has examined the effect of the 2011 restructuring on medical care utilization in Kentucky's Medicaid program. Marton et al. (2017) used 2010-2013 Medicaid claims data to construct a longitudinal panel of beneficiaries under the age of 65. The study found that statistically significant decreases in the utilization of many important healthcare services occurred in both adults and children after the implementation of MMC. An increase in utilization was measured only in children's dental visits and preventive care in adults.⁷

OBJECTIVES

The objective of this study was to measure the effect of MMC implementation in Kentucky Medicaid regions 1, 2, and 4-8 (not-Region 3) on healthcare utilization. To this end, these regions were compared to Region 3, which did not go through a significant Medicaid market change when MMC

was implemented in other regions. The study also identified racial, geographic, and gender disparities and trends in service utilization and costs associated with the shift to managed care.

This research brief focuses on findings related to non-office-based health services and reports results for services that their utilization changed after the implementation of MMC in not-Region 3, namely, non-hospital outpatient care, emergency transportation, and laboratory services. A [previous brief](#) focused on the impact of MMC on office-based health services.

METHODS

This study used Kentucky Medicaid claims data from 2010-2019 to study adult beneficiaries between the ages of 19 to 64 with at least one of the following conditions, as identified by the International Classification of Diseases Clinical Modification (ICD-9-CM and ICD-10-CM): cancer, diabetes, and/or cardiovascular disease (CVD). Individuals were placed into one of eight groups, based on their condition. The medical conditions, the individual assignment into them, and the number of individuals in each group can be found in Table 1.

To study the long-term impacts of MMC in Kentucky, a longitudinal sample was created consisting of adult Medicaid beneficiaries who:

- were diagnosed with any chronic disease during the first two quarters of 2010
- were never diagnosed with HIV/AIDS, and
- could be assigned a Charlson comorbidity score based on the algorithm developed by Glasheen et al. (2019).⁸

Table 1. Longitudinal Sample by Medical Condition

Total Sample=76,741	
Medical Condition Group	n
Metastatic Cancer	1,371
Any Malignancy Cancer	4,132
Complicated Diabetes with CVD	2,704
Uncomplicated Diabetes with CVD	568
Uncomplicated Diabetes	1,270
Complicated Diabetes	4,069
CVD	17,365
Other Chronic Diseases	44,721

Medicaid claims data was used to identify the place of care (POS) and, where necessary, supplemented with information from the class of service code (COS). For this study, any claim with the POS coded as “Office” and COS codes as either “Preventive Care”, “EPSDT-Related Services”, “Clinical Social Worker”, “Primary Care”, “Family Planning”, or “EPSDT” was categorized as primary and preventive care. EPSDT refers to early and periodic screening, diagnostic, and treatment visits.

Two measures of utilization were calculated for each disease group: the annual utilization rate and the mean annual number of visits. Utilization rate was defined as the percentage of adult beneficiaries with one of this study’s diseases who used a specific type of care at least once among all adult beneficiaries with that disease. The mean annual number of visits was defined as the average number of times a specific type of care was used.

This brief focuses on changes in the mean annual number of visits for non-hospital outpatient care, use of emergency transportation, and laboratory services.

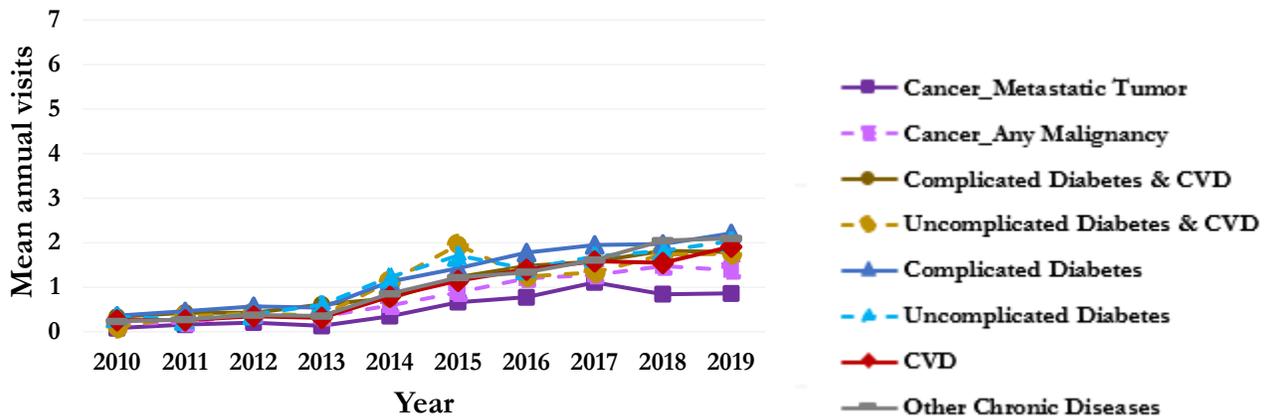
KEY FINDINGS

1. Persistent increases occurred in non-hospital outpatient care most significantly in MMC expansion regions.

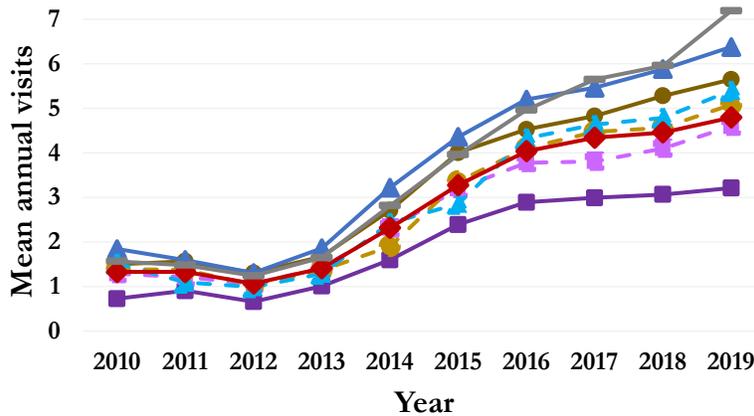
Non-hospital outpatient care refers to services that are administered without an overnight stay in a hospital or medical facility. Except for the first three years of the decade in not-Region 3, the utilization of non-hospital outpatient care was constantly and rapidly increasing. Non-hospital outpatient care was most commonly used by adult beneficiaries with less serious conditions, namely, those with diabetes without CVD comorbidity and other chronic diseases. In Region 3, the rate and the average number of non-hospital outpatient care visits increased slowly from 2010 to 2013 (Figure 2). In not-Region 3, however, the rate and the average number of non-hospital outpatient care visits decreased from 2011 to 2012, when MMC was implemented in these regions. For example, the rate of utilization by adult beneficiaries with uncomplicated diabetes (without CVD comorbidity) decreased from 23% in 2010 to 20% in 2013 while the average number of visits decreased from 1.5 visits in 2010 to 1.0 visits in 2012. These trends indicate the potential influence of the implementation of the MMC in the not-Region 3 on the growth rate of non-hospital outpatient care in the early years of the decade.

Figure 2. The Mean Annual Number of Visits per Beneficiary for Non-Hospital Outpatient Care by Disease Group, 2010 to 2019, Region 3 vs. Not-Region 3

Region 3



Not-Region 3 (MMC Expansion Regions)

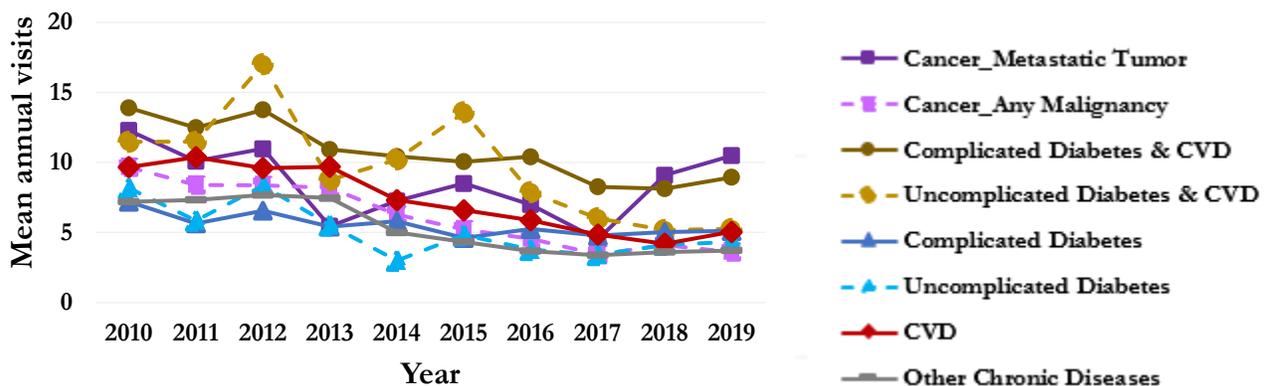


2. There were marked decreases in the use of emergency transportation in MMC expansion regions, compared to Region 3.

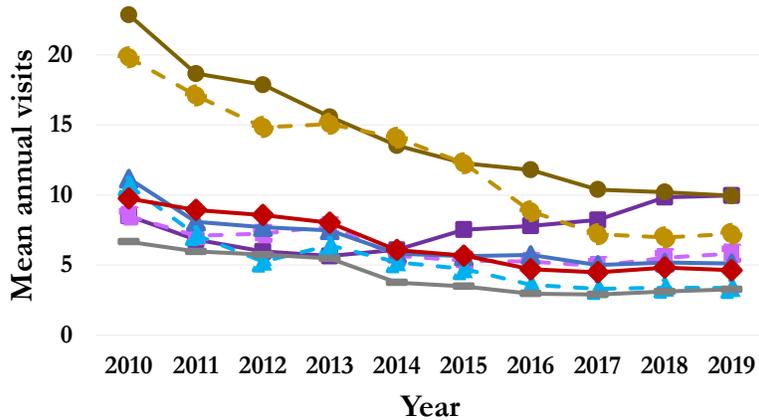
Decreases in the use of emergency transportation were observed in both Region 3 and not-Region 3; however, the speed of decrease in terms of both rate and average use was greater in not-Region 3 (Figure 3). In not-Region 3, the average number of utilization of emergency transportation decreased to a number below 10 for all disease groups in 2019. The decreasing trend in the use of emergency transportation started in 2013 in Region 3, while it started in 2011 in not-Region 3. That is, not-Region saw decreases in the use of emergency transportation prior to MMC implementation. Therefore, it is not clear how much of the early-2010s decreases in emergency transportation utilization were influenced by MMC.

Figure 3. The Mean Annual Use of Emergency Transportation per Beneficiary by Disease Group, 2010 to 2019, Region 3 vs. Not-Region 3

Region 3



Not-Region 3 (MMC Expansion Regions)

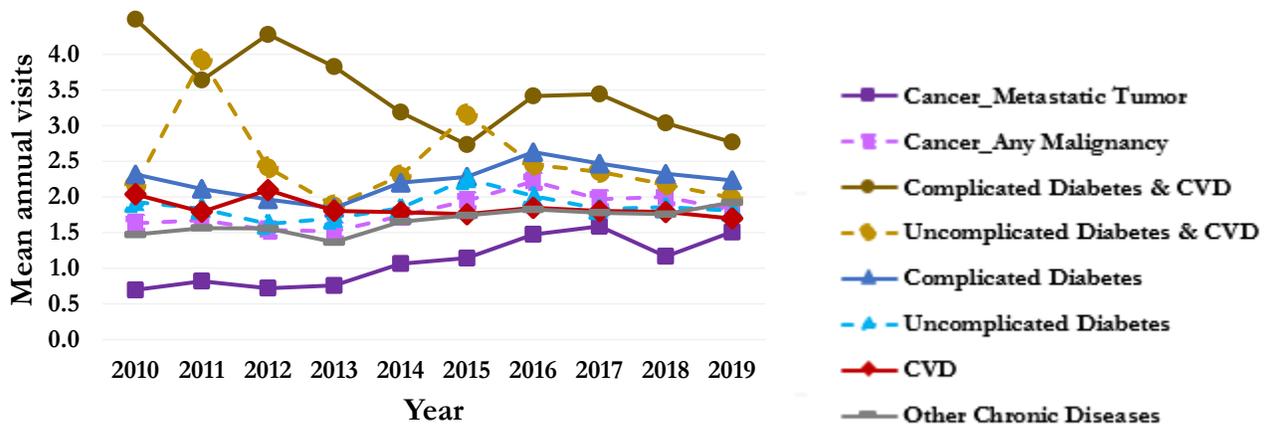


3. The use of laboratory services markedly decreased in MMC expansion regions, compared to Region 3, particularly among those with uncomplicated diabetes with a CVD comorbidity.

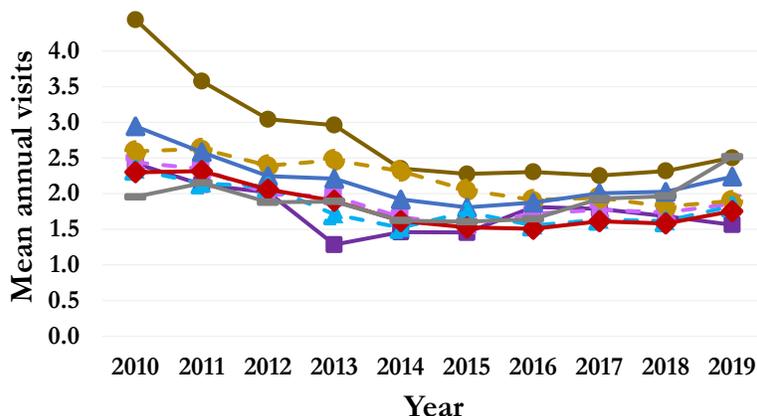
Throughout the 2010s, overall trends in the utilization of laboratory services in Region 3 were generally different from not-Region 3. While utilization was largely increasing in Region 3, it was decreasing in other regions (Figure 4). The trends had similarities during the early years of the decade when MMC was implemented in not-Region 3: in both Region 3 and not-Region 3, the utilization rate and the number of visits were generally decreasing. In Region 3, the decreases were followed by subsequent increases such that the utilization measures in 2019 were at higher levels than in 2010 for most disease groups. In other regions, however, the remarkable decreases that continued from 2010 to 2015 were followed by slight increases from 2016 to 2019. Most strikingly, the average number of laboratory visits sharply decreased from 4.4 in 2010 to 2.3 in 2015, then slightly increased to 2.5 in 2019 for adult beneficiaries with complicated diabetes with CVD comorbidity.

Figure 4. The Mean Annual Number of Visits per Beneficiary for Laboratory Services by Disease Group, 2010 to 2019, Region 3 vs. Not-Region 3

Region 3



Not-Region 3 (MMC Expansion Regions)



CONCLUSION

Following the implementation of MMC in not-Region 3, marked differences were observed in the use of non-hospital outpatient care, emergency transportation, and laboratory services. While increases were observed in non-hospital outpatient care in MMC expansion regions, decreases were observed in the use of laboratory services and emergency transportation. The impact of MMC on the utilization of office-based services, explored in a [previous brief](#), was, effectively, a decrease in the use of primary and preventive care and physician services. Increases were observed in the use of office-based physician assistant and nursing visits. The findings highlighted in this brief point to accompanying decreases in important wraparound services necessary for ensuring optimal outcomes for Medicaid beneficiaries with chronic disease.

POLICY IMPLICATIONS

The impact of persistent decreases in the utilization of preventive and primary care during the 2010s, particularly following the expansion of Medicaid managed care, should be further monitored to assess short and long-term health outcomes of beneficiaries. This research does not investigate factors related to changes in the utilization of services following MMC expansion in not-Region 3. However, national research has pointed toward potential access barriers in states with Medicaid MCOs. In a 2011 survey of state Medicaid programs, over two-thirds of responding states with MCOs reported that Medicaid beneficiaries enrolled in MCOs experienced barriers to access. For instance, one barrier cited in the report was access to specialists, particularly important for those with chronic conditions. Some states reported that access issues among Medicaid beneficiaries enrolled in MCO plans were paralleled by individuals with other insurance types, indicating systemic barriers.⁹ On the other hand, a Florida-based study of Medicaid managed care found evidence to suggest that managed care enrollees faced greater barriers in accessing primary and preventive care services.¹⁰ Further exploration of access barriers and facilitators among Medicaid MCO enrollees in Kentucky is warranted and could provide valuable information to inform data-driven policy.

CONTACT INFORMATION

For more information about this issue brief or to learn more about the Commonwealth Institute of Kentucky, please contact:

Email: cik@louisville.edu

Website: <https://louisville.edu/sphis/departments/cik>

This study was funded jointly by the Kentucky Cabinet for Health and Family Services and the University of Louisville, July 1, 2020-June 30, 2022.

REFERENCES

- ¹ Kaiser Family Foundation. State Health Facts. Number of Cancer Deaths per 100,000 Population. Accessed October 18, 2022. <https://www.kff.org/other/state-indicator/cancer-death-rate-per-100000/?currentTimeframe=0&selectedRows=%7B%22states%22:%7B%22kentucky%22:%7B%7D%7D%7D&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- ² US Health Map | IHME Viz Hub. Accessed June 27, 2022. <https://vizhub.healthdata.org/subnational/usa>.
- ³ Kentucky Cabinet for Health and Family Services. 2020 Kentucky Diabetes Fact Sheet. Accessed November 1, 2022. <https://chfs.ky.gov/agencies/dph/dpqi/cdpcb/dpcp/diabetesfactsheet.pdf>.
- ⁴ US Health Map | IHME Viz Hub. Accessed June 27, 2022. <https://vizhub.healthdata.org/subnational/usa>.
- ⁵ Kaiser Family Foundation. Medicaid Spending per Enrollee (Full or Partial Benefit). Accessed June 27, 2022. <https://www.kff.org/medicaid/state-indicator/medicaid-spending-per-enrollee/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Adults%22,%22sort%22:%22desc%22%7D>.
- ⁶ Kaiser Family Foundation. State Health Facts Medicaid Enrollment by Age . Accessed June 27, 2022. <https://www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- ⁷ Marton J, Talbert J, Palmer A, et al. (2017). *Medicaid Managed Care in Kentucky Final Report*.
- ⁸ Glasheen WP, Cordier T, Gumpina R, Haugh G, Davis J, Renda A. Charlson Comorbidity Index: ICD-9 Update and ICD-10 Translation. *Am Heal drug benefits*. 2019;12(4):188-197. Accessed May 21, 2022. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6684052/>
- ⁹ Gifford, K, Smith, V, Snipes, D, Paradise, J. (September 2011). Kaiser Commission on Medicaid and the Uninsured. A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey. Accessed November 18, 2022 at <https://www.kff.org/wp-content/uploads/2013/01/8220.pdf>
- ¹⁰ Medicaid and CHIP Payment and Access Commission. Managed Care's Effect on Outcomes. Accessed November 18, 2022 at <https://www.macpac.gov/subtopic/managed-cares-effect-on-outcomes/>.