



Michigan Medicaid: Antihypertensive Medication Adherence among Adult Beneficiaries

Findings:

- In 2018, 107,242 adult Michigan Medicaid beneficiaries were defined as taking antihypertensive medication, and 65,943 were adherent (See Methods).
- Two-thirds of Asian/Pacific Islander and non-Hispanic White beneficiaries were defined as adherent. About half of the non-Hispanic Black and Hispanic adults were adherent (Figure 2).
- Medication adherence was lower for the city of Detroit and Berrien, Genesee, Ingham, Jackson, Kalamazoo, Kent, Muskegon, Saginaw, and Washtenaw counties compared to the rest of Michigan (Figure 3 and Supplemental Tables 1-3).

Background

- Having hypertension increases the risk for heart disease and stroke, which are leading causes of death in the United States.¹
- Medication adherence is critical to success in hypertension control for many patients.
- Michigan Medicaid programs provide coverage for health care services to residents in need of financial assistance.
- Michigan is uniquely positioned to be able to monitor antihypertensive medication adherence among Medicaid beneficiaries using health and pharmacy claims and administrative data in the Michigan Department of Health and Human Services (MDHHS) Health Services Data Warehouse.
- This summary provides antihypertensive medication (AHM) adherence prevalence estimates among adult Michigan beneficiaries ages 18-64 years who took antihypertensive medication from 2016 to 2018 (See Methods). AHM disparities are also reported by selected demographic characteristics and county.
- Proportion of days covered serves as one approach to estimate AHM and was used for data analysis. This estimate is based on the number and frequency of prescription refill claims in a calendar year (See Methods).^{2,3}

Antihypertensive Medication Adherence Trend

- In 2016, 99,303 adult Michigan Medicaid beneficiaries were taking antihypertensive medication, and 58,182 were adherent.
- In 2018, 107,242 adult beneficiaries were defined as taking antihypertensive medication, and 65,943 were adherent.
- The percentage of those who were medication adherent was 61.5%, a significant increase from 2016 (58.6%) (Table 1).

Table 1. Number of Beneficiaries Who Took Antihypertensive Medication, the Number Who Were Medication Adherent, and Percent Adherent (18-64 years), Medicaid, 2016-2018

Year	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent (95% CI)
2016	99,303	58,182	58.6 (58.3-58.9)
2017	105,959	63,985	60.4 (60.1-60.7)
2018	107,242	65,943	61.5 (61.2-61.8)

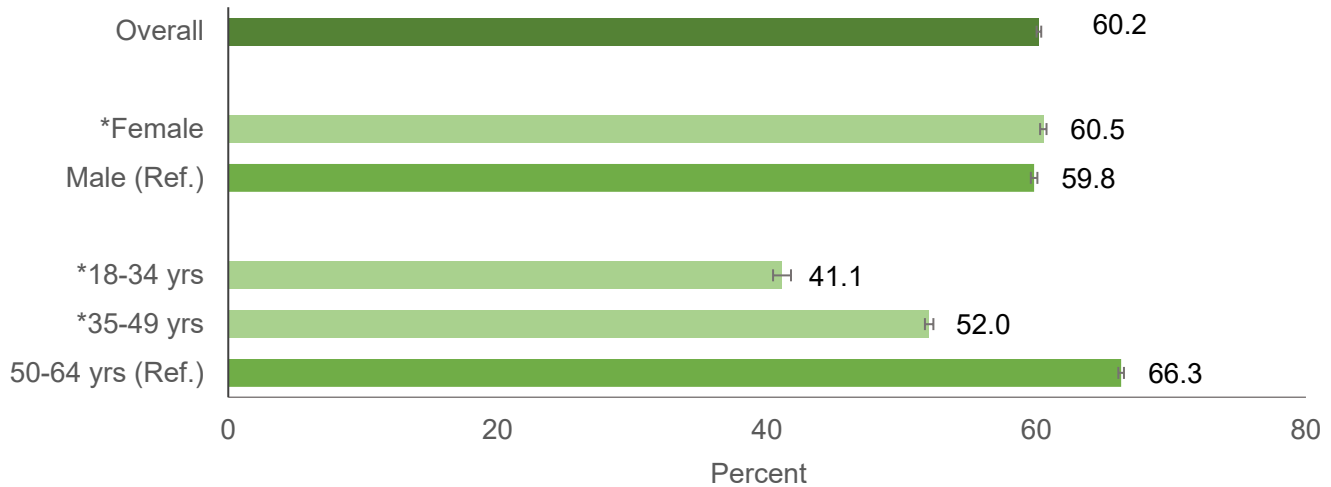
95% CI – 95% Confidence Interval

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018

Disparities in Antihypertensive Medication Adherence by Gender and Age Group

- Between 2016 and 2018, 60.2% of adult Michigan Medicaid beneficiaries adhered to taking their antihypertensive medication based on medication refills (Figure 1).
- Six in 10 females were medication adherent, and nearly six in 10 males were adherent.
- Two-thirds of beneficiaries ages 50 to 64 years were antihypertensive medication adherent compared to half of beneficiaries ages 35 to 49 years and four in 10 beneficiaries ages 18 to 34 years.

Figure 1. Antihypertensive Medication Adherence by Gender and Age Group, Adult (18-64 years), Medicaid, 2016-2018 Combined*

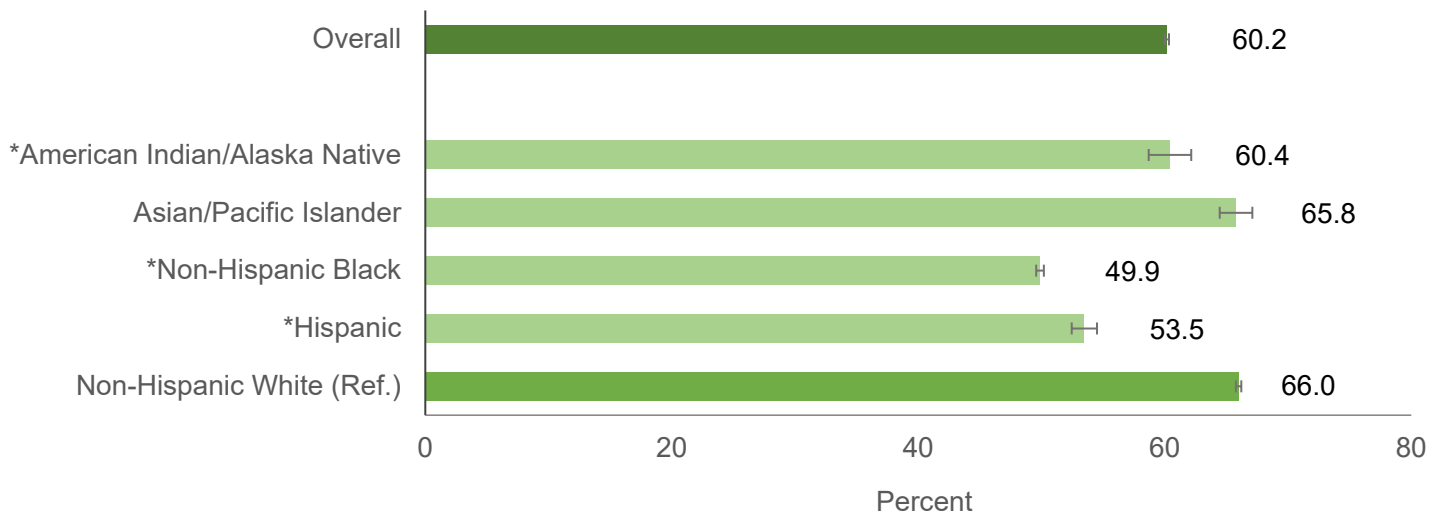


*Statistically Significant Difference (p -value < 0.05); 95% Confidence Interval; Ref. – Reference Group
 Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Disparities in Antihypertensive Medication Adherence by Race/Ethnicity

- Two-thirds of Asian/Pacific Islander and non-Hispanic White adult beneficiaries were adherent to their antihypertensive medication (Figure 2).
- Compared to non-Hispanic White adults:
 - About two thirds of American Indian/Alaska Native adults adhered to taking their medication.
 - About half of non-Hispanic Black and Hispanic adults adhered to taking their medication (Figure 2).

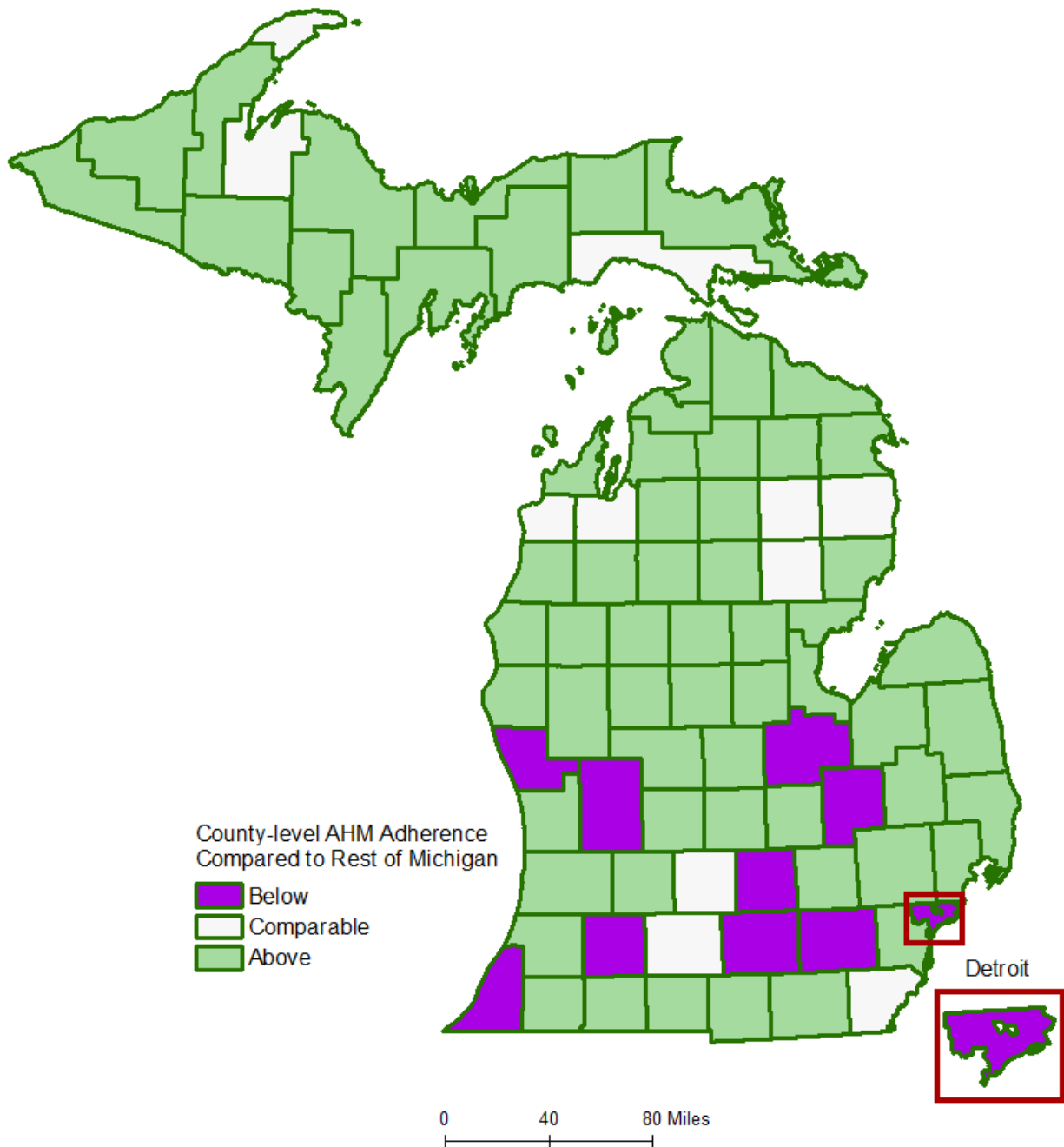
Figure 2. Antihypertensive Medication Adherence by Racial/Ethnic Group, Adult (18-64 years), Medicaid, 2016-2018 Combined*



*Statistically Significant Difference (p -value < 0.05); 95% Confidence Interval; Ref. – Reference Group
 Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Disparities in Antihypertensive Medication Adherence by Michigan County

Figure 3. Antihypertensive Medication Adherence by Michigan County, Adult (18-64 years), Medicaid Beneficiaries, 2016-2018 Combined*



*Statistically Significant Difference (p -value < 0.05) (See Methods); AHM – Antihypertensive Medication
Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

- Between 2016 to 2018, 60.2% of adult Michigan Medicaid beneficiaries were adherent to their antihypertensive medication.
- Seventy-six percent of Michigan counties ($n = 63$) had an antihypertensive medication adherence percentage above the rest of the state.
- The percentage of antihypertensive medication adherence was below the rest of Michigan in the City of Detroit and Berrien, Genesee, Ingham, Jackson, Kalamazoo, Kent, Muskegon, Saginaw, and Washtenaw counties, Figure 3 (See Methods and Supplemental Tables).

Medication Therapy Management Implementation in Michigan

- AHM adherence is crucial in managing hypertension. Michigan continues to develop programs to improve hypertension management among Michigan residents. This summary looked at AHM adherence among Michigan Medicaid adult beneficiaries (61.5% in 2018). Low adherence was observed among those age 18-34 years (41.1%) and 35-49 years (52.0%), non-Hispanic Black (49.9%), and Hispanic (53.5%) adult beneficiaries in addition to several counties with adherence prevalence below the rest of the state.
- Medication therapy management (MTM) is a group of services provided by health care providers, including pharmacists, to ensure the best therapeutic outcomes for patients.⁴ MTM includes five core elements: 1) a medication therapy review, 2) a personal medication record, 3) a medication-related action plan, 4) intervention or referral, and 5) documentation and follow-up. Strong evidence exists that the use of MTM by pharmacists is effective in improving hypertension management.^{5,6} Michigan Medicaid provides coverage of MTM services to beneficiaries. The MDHHS Heart Disease and Stroke Prevention Unit collaborates with external partners to increase both the number of community pharmacies offering this service and pharmacists certified to provide this service.

Methodology

The inclusion criteria were the Michigan Medicaid beneficiaries ages 18 to 64 years (as of the last day of each respective calendar year) who were enrolled in a Medicaid benefit and prescription drug benefit plans. Beneficiaries were not dually enrolled in any other insurance plan (such as Medicare) for at least 11 months of the measurement year. Racial/ethnic groups were defined using the following classification in the MDHHS Health Services Data Warehouse (Data Warehouse): 1) non-Hispanic Black beneficiaries were those who were identified as Black, non-Hispanic, 2) non-Hispanic White beneficiaries were those who were identified as White, non-Hispanic, and 3) Hispanic beneficiaries were those who were identified as Hispanic. American Indian/Alaska Native were those who were identified as American Indian or Alaska Native. Asian/Pacific Islander beneficiaries were those who were identified as Asian American, East Indian, Pacific Islander, or beneficiaries from an East or Southeast Asian country. Hispanic ethnicity was not specified for the American Indian/Alaska Native and Asian/Pacific Islander in the Data Warehouse.

Antihypertensive medication (AHM) adherence was defined for this performance measure using the Proportion of Days Covered (PDC) methodology, which has been endorsed by the Pharmacy Quality Alliance (PQA) and National Quality Forum. A beneficiary being adherent was defined as at least 80% of total prescription supplied divided by the number of days in refill interval.^{2,3}

The AHM criteria were the following:

1. Had to be enrolled in a full coverage Medicaid benefit plan with no other insurance for at least 11 of the 12-month measurement period.
2. Had at least two fills for AHM on at least two different dates during the measurement year.
3. Had a treatment period of at least 90 days as defined by the number of days between the first fill of the measurement year and the last day of the measurement year or disenrollment.^{2,3}

AHM adherence determined using PDC methodology is a conservative measure. Beneficiaries satisfying the AHM refill requirement (denominator) may not necessarily have hypertension. Some beneficiaries who do not have hypertension may take AHM to mitigate a separate disease condition (e.g. decrease burden on the heart post a heart attack event). No claims prior to the measurement year were included in any calculations.^{2,3}

Statistical significance between AHM adherence estimates was determined using a two-proportion z-test ($\alpha = 0.05$). Ninety-five percent confidence intervals were included.

References

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2. Centers for Disease and Prevention. Training and Technical Assistance Support Center. Calculating Medication Adherence for Antihypertensive and Antidiabetic Medications: A Guide for State Evaluators. Atlanta (GA): US Department of Health and Human Services; 2015.
3. Pharmacy Quality Alliance. Technical specifications for PQA-endorsed measures July 2018.
4. Centers for Disease Control and Prevention. Atlanta, GA. Community Pharmacists and Medication Therapy Management. <https://www.cdc.gov/dhdsp/pubs/guides/best-practices/pharmacist-mtm.htm>, Accessed March 11 2020.
5. Cheema E, Sutcliffe P, Singer DRJ. The impact of interventions by pharmacists in community pharmacies on control of hypertension: a systematic review and meta-analysis of randomized controlled trials. *Br J Clin Pharmacol*. 2014;78(6):1238–1247.
6. Santschi V, Chiolero A, Colosimo AL, et al. Improving blood pressure control through pharmacist interventions: a meta-analysis of randomized controlled trials. *J Am Heart Ass*. 2014;3(2).

To learn more about cardiovascular disease, hypertension, and intervention programs, visit www.michigan.gov/cvh.

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Supplemental data for:
 Michigan Medicaid: Antihypertensive Medication Adherence among Adult Beneficiaries
 Disparities in Antihypertensive Medication Adherence by Michigan County

Supplemental Table 1. Antihypertensive Medication Adherence Significantly Above the Rest of State by Michigan County, Adult (18-64 years), Medicaid, 2016-2018 Combined*

County	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent
Alger	275	197	71.6%
Allegan	2,179	1,436	65.9%
Alpena	1,171	794	67.8%
Antrim	649	428	65.9%
Arenac	780	515	66.0%
Barry	1,152	754	65.5%
Bay	3,709	2,311	62.3%
Branch	1,263	799	63.3%
Cass	1,547	991	64.1%
Charlevoix	500	329	65.8%
Cheboygan	1,061	720	67.9%
Chippewa	948	646	68.1%
Clare	1,650	1,129	68.4%
Clinton	1,100	733	66.6%
Crawford	494	329	66.6%
Delta	972	672	69.1%
Dickinson	590	428	72.5%
Emmet	672	439	65.3%
Gladwin	1,180	764	64.7%
Gogebic	572	420	73.4%
Gratiot	1,190	877	73.7%

*Statistically Significant Difference (p-value < 0.05) (See Methods)

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Disparities in Antihypertensive Medication Adherence by Michigan County

Supplemental Table 1 continued. Antihypertensive Medication Adherence Significantly Above the Rest of State by Michigan County, Adult (18-64 years), Medicaid, 2016-2018 Combined*

County	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent
Hillsdale	1,418	950	67.0%
Houghton	869	607	69.9%
Huron	910	620	68.1%
Ionia	1,598	1,021	63.9%
Iosco	1,238	798	64.5%
Iron	448	333	74.3%
Isabella	1,466	960	65.5%
Kalkaska	617	403	65.3%
Lake	760	504	66.3%
Lapeer	1,835	1,219	66.4%
Leelanau	273	198	72.5%
Lenawee	2,575	1,603	62.3%
Livingston	1,814	1,191	65.7%
Luce	228	155	68.0%
Macomb	26,069	17,475	67.0%
Manistee	892	588	65.9%
Marquette	1,351	929	68.8%
Mason	873	582	66.7%
Mecosta	1,297	851	65.6%
Menominee	558	415	74.4%
Midland	2,183	1,439	65.9%

*Statistically Significant Difference (p -value < 0.05) (See Methods)

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Disparities in Antihypertensive Medication Adherence by Michigan County

Supplemental Table 1 continued. Antihypertensive Medication Adherence Significantly Above the Rest of State by Michigan County, Adult (18-64 years), Medicaid, 2016-2018 Combined*

County	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent
Missaukee	486	322	66.3%
Montcalm	2,082	1,368	65.7%
Montmorency	382	254	66.5%
Newaygo	1,750	1,191	68.1%
Oakland	21,927	13,829	63.1%
Oceana	927	603	65.0%
Ontonagon	258	197	76.4%
Osceola	900	600	66.7%
Otsego	590	416	70.5%
Ottawa	2,783	1,772	63.7%
Presque Isle	518	379	73.2%
Roscommon	1,368	932	68.1%
Saint Clair	4,921	3,158	64.2%
Saint Joseph	1,907	1,199	62.9%
Sanilac	1,345	870	64.7%
Schoolcraft	354	253	71.5%
Shiawassee	2,062	1,330	64.5%
Tuscola	1,732	1,090	62.9%
Van Buren	2,580	1,667	64.6%
Wayne, Excluding Detroit	40,138	25,033	62.4%
Wexford	1,226	805	65.7%

*Statistically Significant Difference (p -value < 0.05) (See Methods)

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Disparities in Antihypertensive Medication Adherence by Michigan County

Supplemental Table 2. Antihypertensive Medication Adherence Significantly Below Rest of State by Michigan County, Adult (18-64 years), Medicaid, 2016-2018 Combined*

County	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent
Berrien	5,168	2,875	55.6%
City of Detroit	56,854	29,721	52.3%
Genesee	18,422	10,137	55.0%
Ingham	8,253	4,818	58.4%
Jackson	4,816	2,768	57.5%
Kalamazoo	5,795	3,075	53.1%
Kent	12,656	6,975	55.1%
Muskegon	6,984	4,097	58.7%
Saginaw	9,295	5,128	55.2%
Washtenaw	5,262	3,093	58.8%

*Statistically Significant Difference (p-value < 0.05) (See Methods)

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined

Supplemental Table 3. Antihypertensive Medication Adherence Significantly Comparable to the Rest of State by Michigan County, Adult (18-64 years), Medicaid, 2016-2018 Combined*

County	Number Taking Antihypertensive Medication	Number Identified as Antihypertensive Medication Adherent	Percentage Antihypertensive Medication Adherent
Alcona	413	267	64.6%
Baraga	290	179	61.7%
Benzie	417	262	62.8%
Calhoun	4,752	2,811	59.2%
Eaton	1,990	1,188	59.7%
Grand Traverse	1,609	985	61.2%
Keweenaw	77	50	64.9%
Mackinac	309	199	64.4%
Monroe	3,514	2,145	61.0%
Ogemaw	1,157	725	62.7%
Oscoda	337	220	65.3%

*Statistically Significant Difference (p-value < 0.05) (See Methods)

Source: MDHHS Health Services Data Warehouse, Medicaid 2016-2018 Combined