Department of Health and Human Services
Medical Services Division North Dakota

Phase II Focus Study on Health Services Utilization of North Dakota Youth in Foster Care

FINAL

June 2025

Corporate Headquarters
1979 Marcus Avenue
Lake Success, NY 11042-1072
(516) 326-7767
ipro.org

Table of Contents

List of Tables

List of Figures

Executive Summary

Background and Rationale

Phase I of the *Focus Study on Health Services Utilization of North Dakota Youth in Foster Care* concluded that psychotropic use, polypharmacy, and hospitalization rates for mental illness are higher among foster care enrollees compared to youth enrolled in Medicaid but not in foster care.[1] Key recommendations were to ensure evidence-based practice for provider use of psychotropic medication in youth and to link youth in foster care with accessible behavioral health providers.

National comparisons highlight two opportunities for improvement pertinent to these Phase I study findings, one of which is to assess receipt of evidence-based prescribing practices by providing first-line psychosocial care. The Healthcare Effectiveness Data and Information Set (HEDIS®) performance indicator Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP): Ages 1–17 Years measures the percentage of youth who had a new prescription for an antipsychotic medication and had documentation of psychosocial care as first-line treatment. In 2022, the North Dakota (ND) Medicaid rate (including fee-for-service) for the HEDIS APP measure (54.3%) fell below the national bottom quartile (58.6%).[2]

Phase II Study Aims

IPRO conducted a Phase II study using the same eligible population used for the Phase I study: ND Medicaid enrollees, ages 1–20 years, with an expanded measurement period from January 1, 2022, through June 30, 2024.

The primary aim was to assess disparities between youth in foster care and those not in foster care, both in receipt of evidence-based care, as measured by these relevant performance indicators:

- Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP-CH), ages 1–17 years.
- Follow-up After Hospitalization for Mental Illness, ages 6–17 years (FUH-CH; using member-level vs. discharge-level data).

The Phase II study also evaluated disparities in receipt of first-line psychosocial care and follow-up visits after hospitalization for mental illness among demographic subgroups, i.e., age group, race, ethnicity, and biological sex.

Methodology

IPRO used claims/encounter data to calculate HEDIS APP and FUH rates among demographic subgroups during the measurement period from January 1, 2022, through June 30, 2024. The HEDIS APP rates were calculated separately for foster care and non-foster care enrollees covered by ND Medicaid, using the Centers for Medicare and Medicaid Services (CMS) Child Core Set federal fiscal year (FFY) 2024 measurement year (MY) 2023 APP-CH specifications to calculate rates for Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics. The CMS Core Set APP-CH measure is restricted to enrollees ages 1–17 years. This focus study also evaluated the APP-CH rate among foster care and non-foster care enrollees ages 18–20 years, as this age group is included in the foster care population. Thus, the eligible population for the APP-CH measure included ND Medicaid enrollees aged 1–20 years. The FUH rates were calculated separately for foster care and non-foster care enrollees, using a modified CMS Child Core Set FFY 2024 MY 2023 FUH specification that analyzed data at the individual enrollee level rather than the visit level. The CMS Child Core Set FUH-CH measure is restricted to enrollees ages 6–17 years. This focus study also evaluated the FUH-CH rate among foster care and non-foster care enrollees ages 18–20 years. Thus, the eligible population for the FUH-CH measure included ND Medicaid enrollees aged 6–20 years. Analysis of disproportionate representation was conducted to identify subpopulations who were under-represented for receipt of first-line psychosocial care and follow-up visits after hospitalization for mental illness. Calculating an index of disproportionate under-representation (IDU) provides a way to identify when certain subgroups are significantly under-represented in a specific outcome compared to their representation in the overall population and is especially useful for identifying potential equity issues where interventions might be needed. The IDU was calculated by dividing the percentage that the subset composed of the total APP and FUH denominator, respectively, by the percentage that the subset composed of the APP and FUH numerator, respectively. Values over 100% indicate disproportionate under-representation because the subset composed a greater proportion of the total ND Medicaid eligible population (denominator) than the proportion that same subset composed of the ND Medicaid population who received the evidence-based care (numerator).

Key Findings

- A greater proportion of youth ages 1–17 years in ND foster care received first-line psychosocial care, compared to Medicaid youth not in foster care (69.95% vs. 60.34%; **Figure 1**) and the national median (60.50%). However, for ages 18–20 years, youth in foster care had a lower rate of psychosocial care than peers not in foster care (36.36% vs. 40.85%).
- Non-foster care enrollees ages 18–20 years and non-foster enrollees of American Indian/Alaska Native race were disproportionately under-represented for receipt of first-line psychosocial care.
- Only 17.27% of ND foster care enrollees ages 6–17 years received a 7-day follow-up visit after the first hospitalization for mental illness, slightly higher than non-foster care enrollees ages 6–17 years (14.74%; **Figure 2**). Seven-day follow-up rates after the first hospitalization for mental illness were even lower for young adults ages 18–20, with 0% of foster care enrollees receiving follow-up compared to 10.31% of non-foster care enrollees.
- Non-foster care enrollees ages 18–20 years, non-foster care enrollees of American Indian/Alaska Native race and non-foster care enrollees of Black or African American race were disproportionately under-represented for receipt of a follow-up visit within 7 days of hospitalization for mental illness.
- Children ages 6–17 years in foster care received a 30-day follow-up visit after the first hospitalization for mental illness at a rate of 36.82% of the eligible population (**Figure 3**), slightly lower than non-foster care enrollees ages 6–17 years covered by Medicaid (39.39%). Rates for receipt of a follow-up visit within 30 days of the first hospitalization for mental illness were lower for young adults ages 18–20 years in foster care at 9.09% compared to 24.74% of non-foster care enrollees.
- Foster care enrollees of Black or African American race and non-foster care enrollees of American Indian/Alaska Native race were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization.

Conclusion

In summary, the findings highlight significant opportunities to improve transitions in care for ND foster care enrollees with mental illness. Addressing racial disparities and engaging community partners can improve access to quality care for ND youth, both those enrolled in foster care and all other Medicaid-enrolled youth. Overall, these findings underscore the importance of targeted interventions to support vulnerable youth and improve mental health outcomes.

Recommendations for ND HHS

ND Department of Health and Human Services (HHS) can collaborate with the ND Department of Children and Families to develop and implement educational outreach to primary care providers, adolescents in foster care, and their guardians regarding transitioning to adult primary care. For all Medicaid-enrolled youth, there is an opportunity to address racial disparities by building on the work of the ND Community Health Worker (CHW) Task Force to implement CHW training and certification, as well as providing Medicaid coverage for CHW services as preventive services. The ND prospective payment system (PPS) Hospital Value-Based Purchasing (VBP) program is another recommended partnership with whom to work on integrating assessment of social determinants of health (SDoH) into transition-in-care planning, as well as increasing the number of outpatient mental health providers signing up for Encounter Alerts & Notifications service through the North Dakota Health Information Network (NDHIN). ND HHS might also consider incorporating into the Fee-For-Service Annual Technical Report the performance measures Follow-up After Hospitalization for Mental Illness, ages 6-17 years (FUH7-CH and FUH30-CH) with the aim to exceed the Medicaid national median rates. Stratification of these measures by demographic characteristics would inform opportunities to address disparity subpopulations.

Introduction

Background and Rationale

Phase I of the *Focus Study on Health Services Utilization of North Dakota Youth in Foster Care* concluded that psychotropic use, polypharmacy, and hospitalization rates for mental illness are higher among foster care enrollees compared to youth enrolled in Medicaid but not in foster care.[1] Key recommendations were to ensure evidence-based practice for provider use of psychotropic medication in youth and to link youth in foster care with accessible behavioral health providers.

National comparisons highlight two opportunities for improvement pertinent to these Phase I study findings. First, to assess receipt of evidence-based prescribing practices by providing first-line psychosocial care, the HEDIS performance indicator Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP): Ages 1–17 Years measures the percentage of youth who had a new prescription for an antipsychotic medication and had documentation of psychosocial care as first-line treatment. In 2022, the ND Medicaid rate (including fee-for-service) for the HEDIS APP measure (54.3%) fell below the national bottom quartile (58.6%).[2]

Second, to assess receipt of follow-up care after hospitalization for mental illness, the HEDIS performance indicator Follow-up After Hospitalization for Mental Illness (FUH): Ages 6–17 Years measures the percentage of discharges for members 6 years of age and older who were hospitalized for treatment of selected mental illness or intentional self-harm diagnoses and who had a follow-up visit with a mental health provider within 7 days or 30 days after discharge. In 2022, among children ages 6–17 years, the ND Medicaid rate of 32.6% for the HEDIS FUH 7-day measure (including fee-for-service) fell below the national bottom quartile rate of 40.1%, as did the FUH 30-day rate (56.2% vs. 62.1%).**Error! Bookmark not defined.**

Phase II Study Aims

IPRO conducted a Phase II study using the same eligible population used for the Phase I study: ND Medicaid enrollees, ages 1–20 years, with an expanded measurement period from January 1, 2022, through June 30, 2024.

The primary aim was to assess disparities between youth in foster care and those not in foster care, both in receipt of evidence-based care, as measured by these relevant performance indicators:

- Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP-CH), ages 1–17 years. The following HEDIS APP rates are reported:
    - Ages 1–11 years
    - Ages 12–17 years
    - Ages 18–20 years
    - Total
- Follow-up After Hospitalization for Mental Illness, ages 6–17 years (FUH-CH; using member-level vs. discharge-level data). The following rates are reported for ages 6–17 years and ages 18–20 years:
    - Within 7 days after discharge (FUH 7-day)
    - Within 30 days after discharge (FUH 30-day)

The Phase II study also evaluated disparities in receipt of first-line psychosocial care and follow-up visits after hospitalization for mental illness among demographic subgroups, i.e., age group, race, ethnicity, and biological sex.

Comparisons with national data on the APP-CH and FUH-CH measures provide additional information on benchmarks to highlight opportunities for quality improvement.

Methodology

This study used claims/encounter data for the expanded measurement period from January 1, 2022, through June 30, 2024, to calculate HEDIS APP and HEDIS FUH rates using the CMS FFY 2024 MY 2023 Child Core Set APP-CH specifications. Findings were stratified by demographic subgroups.

The HEDIS APP rates were calculated separately for foster care and non-foster care enrollees covered by ND Medicaid, using the CMS MY 2023 Child Core Set APP-CH specifications to calculate rates for Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics. The CMS Child Core Set APP-CH measure is restricted to enrollees ages 1–17 years. This focus study also evaluated the APP-CH rate among foster care and non-foster care enrollees ages 18–20 years, as this age group is included in the foster care population. Thus, the eligible population for the APP-CH measure included ND Medicaid enrollees aged 1–20 years. The FUH rates were calculated separately for foster care and non-foster care enrollees, using a modified FUH specification that analyzed data at the individual enrollee level rather than the visit level. Therefore, the first hospitalization for mental illness was used to evaluate receipt of a follow-up visit within 7 and 30 days. The CMS MY 2023 Core Set FUH-CH measures are restricted to enrollees ages 6–17 years. This focus study also evaluated FUH-CH rates among foster care and non-foster care enrollees ages 18–20 years, as this age group is included in the foster care population. Thus, the eligible population for the FUH-CH measure included ND Medicaid enrollees aged 6–20 years.

Analysis of disproportionate representation: The IDU was calculated for demographic subgroups for the APP-CH and FUH-CH measures. This method was utilized in place of calculating 95% intervals as originally proposed in the data analysis plan. Due to the small subgroup frequency counts observed in preliminary analyses, the 95% confidence intervals showed ranges greater than 20 points and therefore, this method was found to generate insufficiently precise estimates of the true population values. To address the small numbers problem, this study instead calculated the IDU to evaluate disparity subgroups for the APP-CH and FUH-CH outcomes measures. Calculating an index of disproportionate representation provides a way to identify when certain subgroups are significantly under- or over-represented in a specific outcome compared to their representation in the overall population and is especially useful for identifying potential equity issues where interventions might be needed. The IDU is used to evaluate desired outcomes such as receipt of evidence-based care, whereas the index of disproportionate over-representation (IDO) is used to evaluate adverse outcomes such as death. The IDU was calculated by dividing the percentage that the subset composed of the total APP and FUH denominator, respectively, by the percentage that the subset composed of the APP and FUH numerator, respectively. Values over 100% indicate disproportionate under-representation because the subset composed a greater proportion of the total ND Medicaid eligible population (denominator) than the proportion that same subset composed of the ND Medicaid population who received the evidence-based care (numerator). Because an IDU > 100% does not necessarily equate to a statistically significant finding, a test was applied to determine statistical significance. Statistical significance was determined by calculating a maximum threshold for under-representation by subtracting the standard deviation of the subset's population proportion from its observed population proportion. Numerator proportions below the threshold were interpreted as statistically significant under-representation. The underlying equity expectation is that the numerator distribution should be similar to the subset's distribution in the denominator.

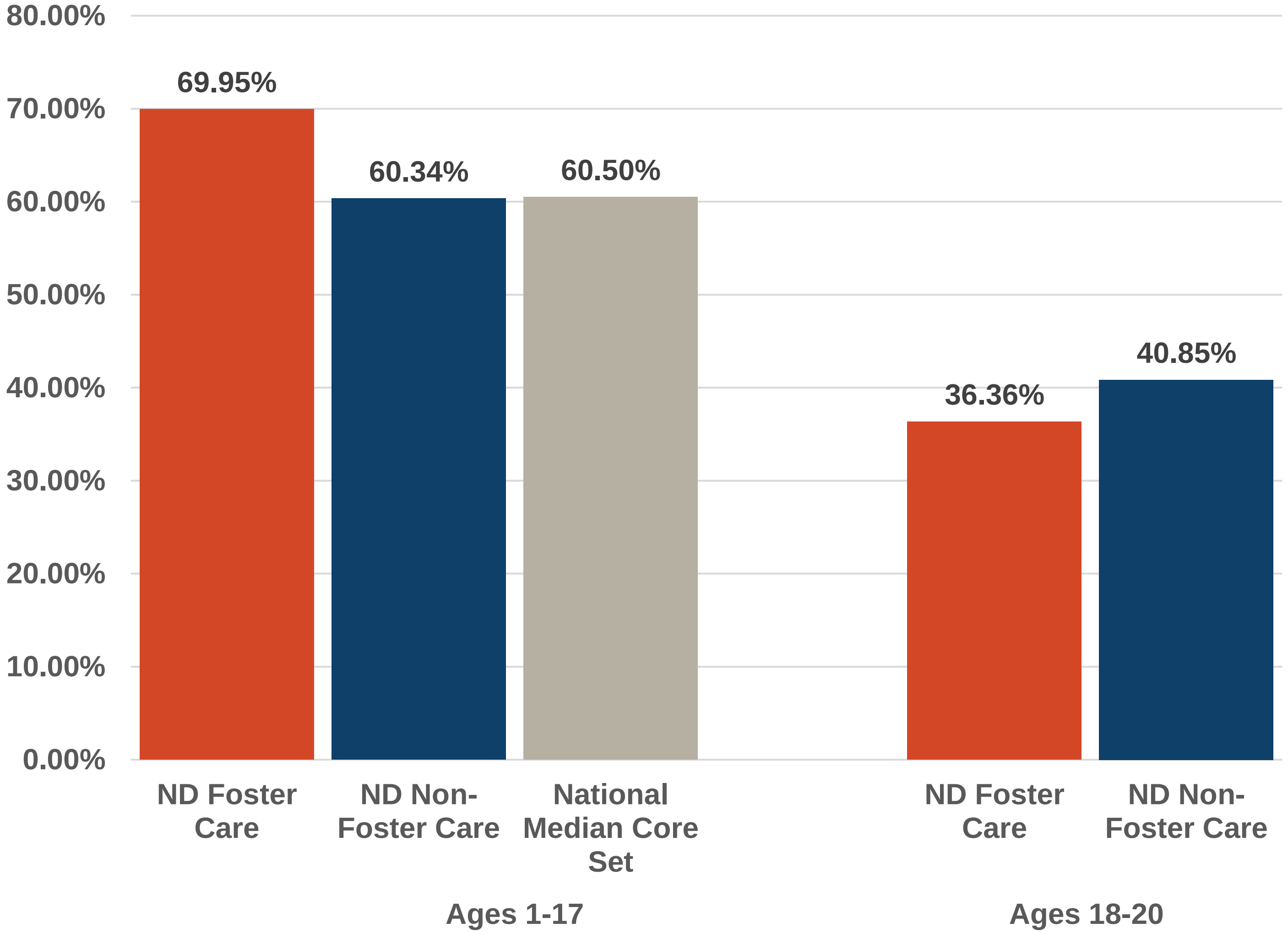
Supplemental Analyses: Because the APP-CH and FUH-CH specifications exclude enrollees who have died, to comprehensively evaluate disparities among the entire ND youth population enrolled in Medicaid, Supplemental Analysis I was conducted to evaluate disproportionate over-representation of deaths among ND Medicaid youth. Supplemental Analysis I included ND Medicaid enrollees from infants (aged less than one year) through youth aged 20 years. The enrollment file field for date of death was used to identify deaths during the study measurement period. The IDO was calculated by dividing the percentage that the subset composed of deceased individuals by the percentage the subset composed of the total ND Medicaid population. Values over 100% indicate disproportionate over-representation because the subset composes a greater proportion of the deceased (numerator) than the proportion that same subset composes of the ND Medicaid population. Statistical significance was determined by calculating a maximum threshold for over-representation by adding the standard deviation of the subset's population proportion to its observed population proportion. Numerator proportions above the threshold were interpreted as statistically significant over-representation. Supplemental Analysis I showed that, among ND Medicaid-enrolled youth, the youngest and oldest age groups were disproportionately over-represented in deaths, whereas neither foster care nor non-foster care enrollees were over-represented. Therefore, to gain insights regarding the clinical and demographic susceptibilities of these two age subgroups, Supplemental Analysis II was conducted using CDC WONDER data to identify underlying cause of death, as well as prevalence by race and county of residence. Thus, in a separate analysis that did not use the ND Medicaid enrollment file, Supplemental Analysis II utilized the United States Centers for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) database[3] to conduct a drill-down analysis to identify underlying causes of death and calculate statewide rates by race and county, using finalized data from 2021–2023 and provisional data for 2024 and 2025. Rates specific for infants less than one year of age who were enrolled in ND Medicaid were obtained from the CDC WONDER database using the linked Birth/Infant Death Records, 2017–2022 Expanded.[4]

Results

Comparative Analysis

The percentage of children and adolescents 1–17 years of age who had a new prescription for an antipsychotic medication and had documentation of psychosocial care as first-line treatment (APP-CH): A greater proportion of youth ages 1–17 years in ND foster care received first-line psychosocial care prior to the earliest prescription-dispensing date for an antipsychotic medication, compared to Medicaid youth not in foster care (69.95% vs. 60.34%; **Figure 1**) and the national median (60.50%). However, for ages 18–20 years, youth in foster care had a lower rate of psychosocial care than peers not in foster care (36.36% vs. 40.85%).

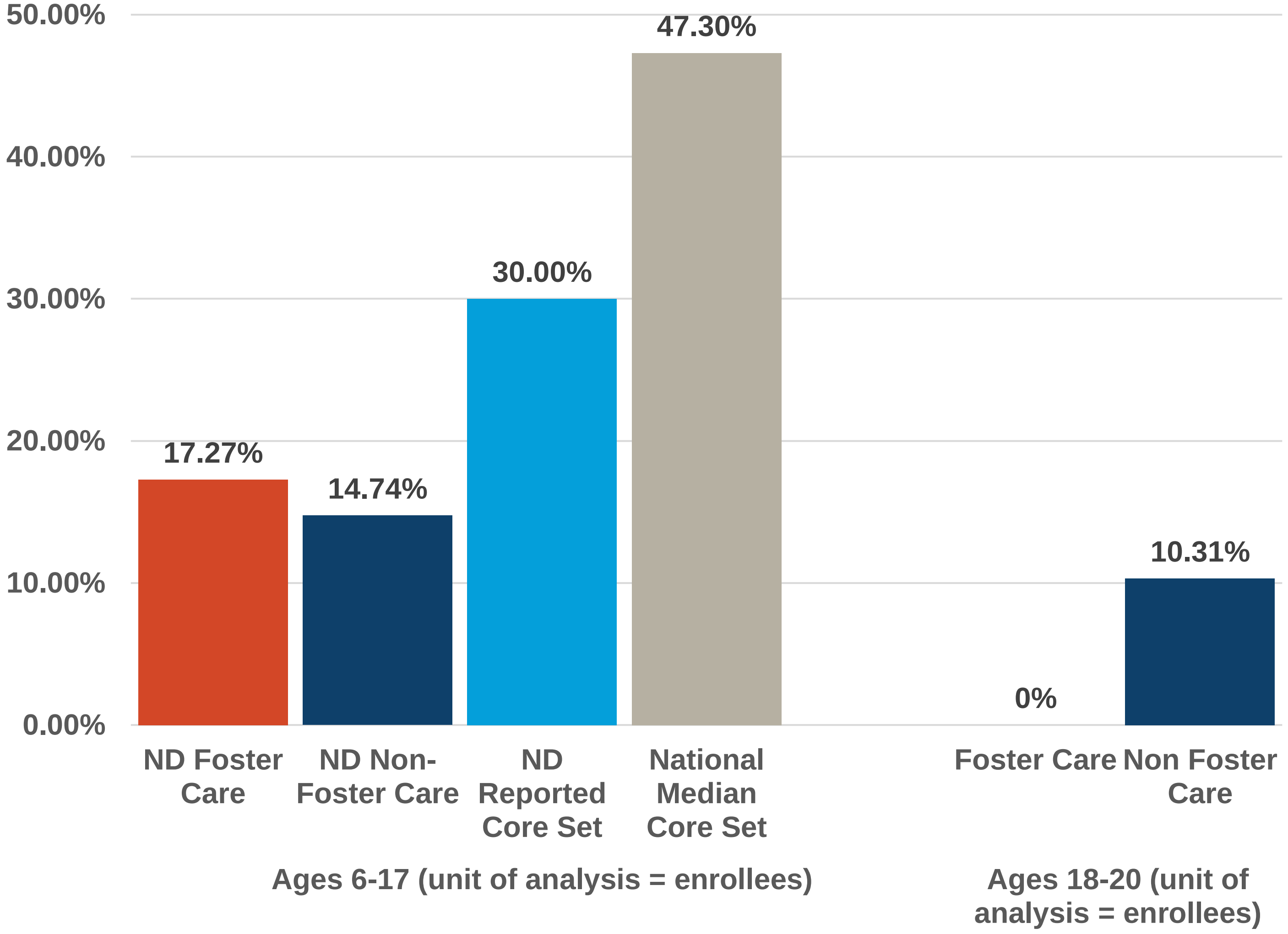
Figure 1: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics



ND foster care and non-foster care focus study measurement period: 1/1/2022–6/30/2024. Red bar: ND foster care; dark blue bar: ND non-foster care; gray bar: National Median (Ages 1–17, 2023 Core Set, MY 2022). ND: North Dakota; MY: measurement year.

The percentage of children and adolescents 6–17 and 18–20 years of age with a 7-day follow-up visit after the first hospitalization for mental illness (FUH-7-CH; unit of analysis modified from visits to enrollees): Only 17.27% of ND foster care enrollees ages 6–17 years received a 7-day follow-up visit after the first hospitalization for mental illness, slightly higher than non-foster care enrollees ages 6–17 years (14.74%; **Figure 2**). Rates for ND foster care and non-foster care Medicaid enrollees with a 7-day follow-up visit after their first hospitalization for mental illness were well below the national median core set (47.30%) and ND reported core set (30.00%); however, the core set measures represent the rate based on follow-up visits for all hospitalizations for mental illness. Seven-day follow-up rates after the first hospitalization for mental illness were even lower for young adults ages 18–20, with 0% of foster care enrollees receiving follow-up compared to 10.31% of non-foster care enrollees.

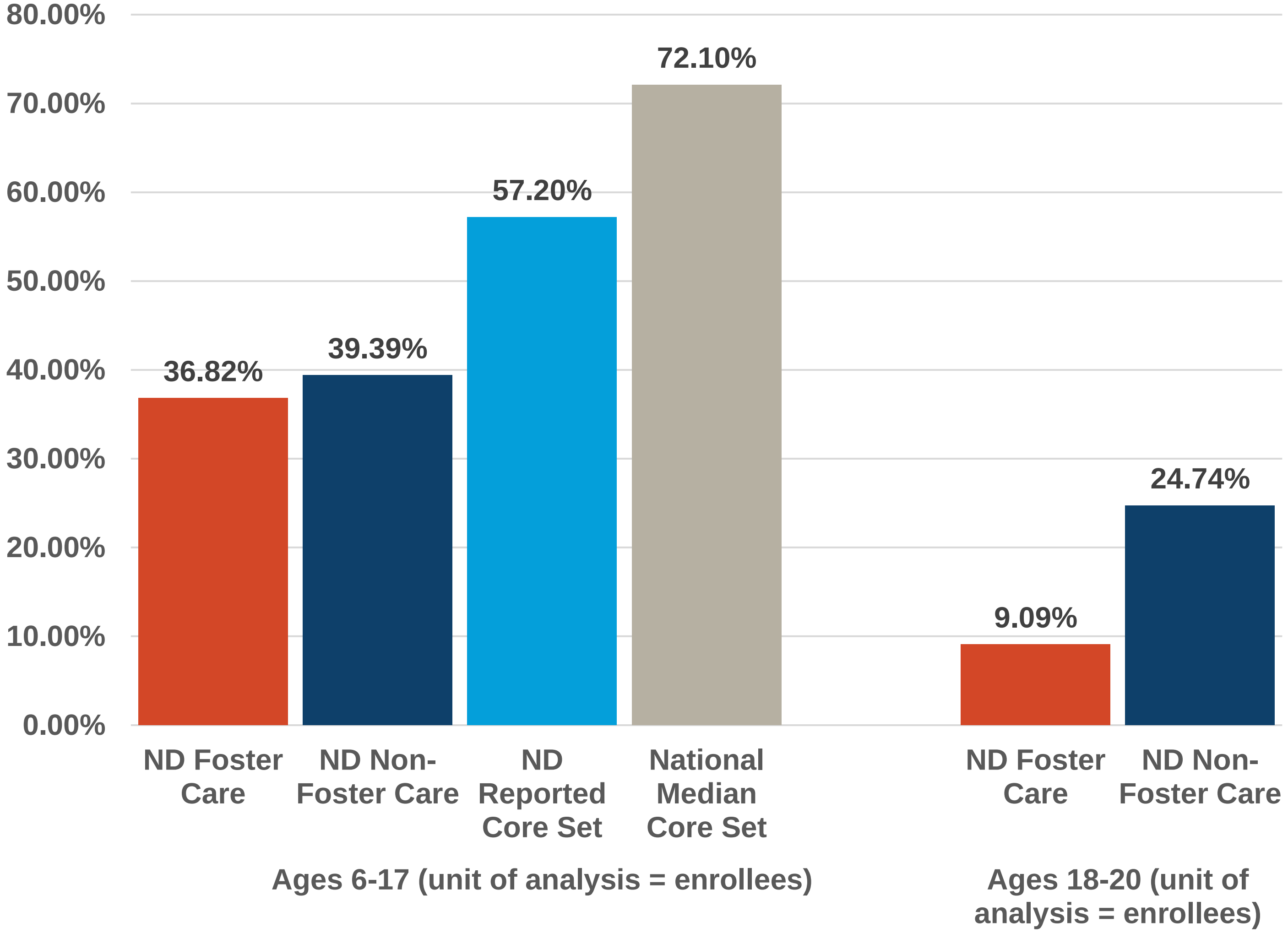
Figure 2: Enrollees with 7-day Follow-up Visit After First Hospitalization for Mental Illness



7-day follow-up visit rates for all hospitalizations for mental illness. ND foster care and non-foster care focus study measurement period: 1/1/2022–6/30/2024. Red bar: ND foster care; dark blue bar: ND non-foster care; blue bar: ND reported core set; gray bar: National Median (Ages 6–17, 2023 Core Set, MY 2022). ND: North Dakota; MY: measurement year.

The percentage of children and adolescents 6–17 and 18–20 years of age with a 30-day follow-up visit after the first hospitalization for mental illness (FUH-30-CH; unit of analysis modified from visits to enrollees): Children ages 6–17 years in foster care received a 30-day follow-up visit after the first hospitalization for mental illness at a rate of 36.82% of the eligible population (**Figure 3**), slightly lower than non-foster care enrollees ages 6–17 years covered by Medicaid (39.39%), and well below the core set measure visit-based rates reported for the national median (72.10%) and ND (57.20%). Rates for receipt of a follow-up visit within 30 days of the first hospitalization for mental illness were lower for young adults ages 18–20 years in foster care at 9.09% compared to 24.74% of non-foster care enrollees.

Figure 3: Enrollees with 30-day Follow-up Visit After First Hospitalization for Mental Illness



30-day follow-up visit rates for all hospitalizations for mental illness. ND foster care and non-foster care focus study measurement period: 1/1/2022–6/30/2024. Red bar: ND foster care; dark blue bar: ND non-foster care; blue bar: ND reported core set; gray bar: National Median (Ages 6–17, 2023 Core Set, MY 2022). ND: North Dakota; MY: measurement year.

Disparity Analysis

Results are presented in the narrative for subgroups with an IDU over 100%.

Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics

Overview: Non-foster care enrollees in the ND Medicaid program were disproportionately under-represented for receipt of first-line psychosocial care (IDU = 103.55%), as this subgroup composed more of the ND Medicaid population eligible for this evidenced-based care (78.52%) than they composed of the population who received it (75.82%; **Table 1**); this finding was interpreted as statistically significant.

Table 1: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics – Foster Care Status

Subpopulation	APP Measure Denominator		APP Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**903**	**100.00%**	**546**	**100.00%**	**N/A**
Foster care: All	194	21.48%	132	24.18%	88.87%
Non-foster care[1]	709	78.52%	414	75.82%	103.55%

[1] Statistically significant.

APP: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics; N/A: not applicable.

Age group: Non-foster care enrollees ages 18–20 years were disproportionately under-represented for receipt of first-line psychosocial care (IDU = 148.04%), as this subgroup composed 7.86% of the ND Medicaid population eligible for this evidenced-based care, yet only 5.31% of those who received it (**Table 2**); this finding was statistically significant. Foster care enrollees ages 18–20 years, as well as non-foster care enrollees ages 1–11 years, also showed elevated IDUs (166.28% and 106.34%, respectively), although these findings were not statistically significant.

Table 2: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics – Age Group

	APP Measure Denominator		APP Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**903**	**100.00%**	**546**	**100.00%**	**N/A**
Foster care: 1–11 years	76	8.42%	52	9.52%	88.37%
Non-foster care: 1–11 years	255	28.24%	145	26.56%	106.34%
Foster care: 12–17 years	107	11.85%	76	13.92%	85.13%
Non-foster care: 12–17 years	383	42.41%	240	43.96%	96.49%
Foster care: 18–20 years	11	1.22%	4	0.73%	166.28%
Non-foster care: 18–20 years[1]	71	7.86%	29	5.31%	148.04%

[1] Statistically significant.

APP: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics; N/A: not applicable.

Race*:* Non-foster care enrollees of American Indian/Alaska Native race were disproportionately under-represented for receipt of first-line psychosocial care (IDU = 116.53%), as this subgroup composed 11.74% of the ND Medicaid population eligible for this evidence-based care, yet only 10.07% of those who received it (**Table 3**); this finding is statistically significant. Non-foster care enrollees of Black or African American race and non-foster care enrollees of white race were disproportionately under-represented (IDU = 104.44% and 101.88%, respectively); however, these findings were not statistically significant. Non-foster care enrollees of Asian race were also disproportionately under-represented; however, the eligible population was comprised of only 2 individuals, limiting statistical interpretation.

Table 3: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics – Race

Subpopulation	APP Measure Denominator		APP Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator[1]	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**903**	**100.00%**	**546**	**100.00%**	**N/A**
Foster care: American Indian/Alaska Native	48	5.32%	33	6.04%	87.95%
Non-foster care: American Indian/ Alaska Native[2]	106	11.74%	55	10.07%	116.53%
Foster care: Asian	1	0.11%	1	0.18%	60.47%
Non-foster care: Asian	2	0.22%	1	0.18%	120.93%
Foster care: Black or African American	9	1.00%	6	1.10%	90.70%
Non-foster care: Black or African American	38	4.21%	22	4.03%	104.44%
Foster care: White	130	14.40%	86	15.75%	91.40%
Non-foster care: White	551	61.02%	327	59.89%	101.88%
Foster care: More than 1 race	6	0.66%	6	1.10%	60.47%
Non-foster care: More than 1 race	10	1.11%	8	1.47%	75.58%
Foster care: Unknown race	0	0.00%	0	0.00%	N/A
Non-foster care: Unknown race	1	0.11%	1	0.18%	60.47%

[1] Total denominator includes 1 non-foster care enrollee of Native Hawaiian/Pacific Islander race/ethnicity not reported as a subpopulation.

[2] Statistically significant.

APP: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics; N/A: not applicable.

Ethnicity: Non-foster care enrollees of non-Latino/Hispanic ethnicity were disproportionately under-represented for receipt of first-line psychosocial care (IDU = 103.04%), as this subgroup composed 72.09% of the ND Medicaid population eligible for this evidence-based care, yet only 69.96% of those who received it (**Table 4**); this finding was statistically significant. Non-foster care enrollees of unknown ethnicity were also disproportionately under-represented (IDU = 332.56%), as 1.22% were eligible for but only 0.37% received this evidence-based care. Although the latter finding was statistically significant, the sample size was small, with only 11 youth in the eligible population, and this appears to have skewed the IDU higher compared to the other elevated IDUs.

Table 4: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics – Ethnicity

	APP Measure Denominator		APP Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**903**	**100.00%**	**546**	**100.00%**	**N/A**
Foster care: Latino/Hispanic	8	0.89%	6	1.10%	80.62%
Non-foster care: Latino/ Hispanic	47	5.20%	30	5.49%	94.73%
Foster care: Non-Latino/Hispanic	184	20.38%	125	22.89%	89.00%
Non-foster care: Non-Latino/Hispanic[1]	651	72.09%	382	69.96%	103.04%
Foster care: Ethnicity unknown	2	0.22%	1	0.18%	120.93%
Non-foster care: Ethnicity unknown[1]	11	1.22%	2	0.37%	332.56%

[1] Statistically significant.

APP: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics; N/A: not applicable.

Biological sex: Non-foster care male enrollees were disproportionately under-represented for receipt of first-line psychosocial care (IDU = 114.68%), as this subgroup composed 36.54% of the ND Medicaid population eligible for this evidence-based care, yet only 31.87% of those who received it (**Table 5**); this finding was statistically significant.

Table 5: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics – Biological Sex

	APP Measure Denominator		APP Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**903**	**100.00%**	**546**	**100.00%**	**N/A**
Foster care: Female	94	10.41%	65	11.90%	87.44%
Non-foster care: Female	379	41.97%	240	43.96%	95.48%
Foster care: Male	100	11.07%	67	12.27%	90.25%
Non-foster care: Male[1]	330	36.54%	174	31.87%	114.68%

[1] Statistically significant.

APP: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics; N/A: not applicable.

Follow-up Visit Within 7 Days After Hospitalization for Mental Illness

Overview: Non-foster care enrollees in the ND Medicaid program were disproportionately under-represented for receipt of a follow-up visit within 7 days of hospitalization for mental illness (IDU = 100.86%; **Table 6**); however, the difference between the eligible population proportion (81.40%) and the proportion who received the evidence-based care (80.71%) was minimal, and the finding was not statistically significant.

Table 6: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness – Foster Care Status

Subpopulation	FUH-7 Measure Denominator Number of Enrollees in the Denominator	 Percentage of Total Denominator	FUH-7 Measure Numerator Number of Enrollees in the Numerator	 Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**197**	**100.00%**	**N/A**
Foster care: All	231	18.60%	38	19.29%	96.42%
Non-foster care	1,011	81.40%	159	80.71%	100.86%

FUH-7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness; N/A: not applicable.

Age group: Non-foster care enrollees ages 18–20 years were disproportionately under-represented for receipt of a follow-up visit within 7 days of hospitalization for mental illness (IDU = 153.86%; **Table 7**), as this subgroup composed 7.81% of the eligible population but only 5.08% of those who received the evidence-based care; this finding was statistically significant. Although IDU was not calculable for foster care enrollees ages 18–20 years, this was due to none of the eligible population receiving evidence-based care, and this finding was statistically significant.

Table 7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness – Age Group

Subpopulation	FUH-7 Measure Denominator		FUH-7 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**197**	**100.00%**	**N/A**
Foster care: 6–17 years	220	17.71%	38	19.29%	91.83%
Non-foster care: 6–17 years	914	73.59%	149	75.63%	97.30%
Foster care: 18–20 years[1]	11	0.89%	0	0.00%	Not calculable, but notable due to 0 of 11 with 7-day follow-up visit
Non-foster care: 18–20 years[1]	97	7.81%	10	5.08%	153.86%

[1] Statistically significant.

FUH-7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness; N/A: not applicable.

Race: Non-foster care enrollees of American Indian/Alaska Native race and non-foster care enrollees of Black or African American race were disproportionately under-represented for receipt of a follow-up visit within 7 days of hospitalization for mental illness (IDUs = 171.72% and 156.63%, respectively; **Table 8**); these findings were statistically significant. IDUs above 100% were also observed for foster care enrollees of American Indian/Alaska Native race (128.33%) and foster care enrollees of Black or African American race (158.62%); however, these findings were not statistically significant. IDUs were also elevated, yet not statistically significant for non-foster care enrollees of more than 1 race (IDU = 122.93%) and non-foster care enrollees of unknown race (IDU = 237.92%).

Table 8: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness – Race

	FUH-7 Measure Denominator		FUH-7 Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	**Number of Enrollees in the Denominator[1]**	**Percentage of Total Denominator**	**Number of Enrollees in the Numerator**	**Percentage of Total Numerator**	**Percentage of Total Denominator ÷ Percentage of Total Numerator**
Total	**1,242**	**100.00%**	**197**	**100.00%**	**N/A**
Foster care: American Indian/Alaska Native	89	7.17%	11	5.58%	128.33%
Non-foster care: American Indian/ Alaska Native[2]	249	20.05%	23	11.68%	171.72%
Foster care: Asian	2	0.16%	0	0.00%	Not calculable due to 0 of 2 with 7-day follow-up visit
Non-foster care: Asian	8	0.64%	2	1.02%	63.45%
Foster care: Black or African American	10	0.81%	1	0.51%	158.62%
Non-foster care: Black or African American[2]	79	6.36%	8	4.06%	156.63%
Foster care: White	118	9.50%	24	12.18%	77.99%
Non-foster care: White	628	50.56%	121	61.42%	82.32%
Foster care: More than 1 race	11	0.89%	2	1.02%	87.24%
Non-foster care: More than 1 race	31	2.50%	4	2.03%	122.93%

	FUH-7 Measure Denominator		FUH-7 Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator[1]	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Foster care: Unknown race	1	0.08%	0	0.00%	Not calculable due to 0 of 1 with 7-day follow-up visit
Non-foster care: Unknown race	15	1.21%	1	0.51%	237.92%

[1] Total denominator includes 1 non-foster care enrollee of Native Hawaiian/Pacific Islander race/ethnicity not reported as a subpopulation.

[2] Statistically significant.

FUH-7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness; N/A: not applicable.

Ethnicity: Non-foster care enrollees of non-Latino/Hispanic ethnicity were disproportionately under-represented for receipt of a 7-day follow-up visit (IDU = 102.60%; **Table 9**); however, this finding was not statistically significant.

Table 9: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness – Ethnicity

	FUH-7 Measure Denominator		FUH-7 Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**197**	**100.00%**	**N/A**
Foster care: Latino/Hispanic	10	0.81%	3	1.52%	52.87%
Non-foster care: Latino/Hispanic	71	5.72%	13	6.60%	86.63%
Foster care: Non-Latino/Hispanic	218	17.55%	35	17.77%	98.79%

Subpopulation	FUH-7 Measure Denominator Number of Enrollees in the Denominator	 Percentage of Total Denominator	FUH-7 Measure Numerator Number of Enrollees in the Numerator	 Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Non-foster care: Non-Latino/ Hispanic	925	74.48%	143	72.59%	102.60%
Foster care: Ethnicity unknown	3	0.24%	0	0.00%	Not calculable due to 0 of 3 with 7-day follow-up visit
Non-foster care: Ethnicity unknown	15	1.21%	3	1.52%	79.31%

FUH-7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness; N/A: not applicable.

Biological sex: Non-foster care male enrollees were disproportionately under-represented for receipt of a 7-day follow-up visit (IDU = 114.69%; **Table 10**), as 30.27% were eligible but only 26.40% received this evidence-based care; this finding was statistically significant. The IDU was also elevated for males enrolled in foster care (IDU = 102.11%); however, the elevation was minimal, and this finding was not statistically significant.

Table 10: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness – Biological Sex

Subpopulation	FUH-7 Measure Denominator Number of Enrollees in the Denominator	 Percentage of Total Denominator	FUH-7 Measure Numerator Number of Enrollees in the Numerator	 Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**197**	**100.00%**	**N/A**
Foster care: Female	128	10.31%	22	11.17%	92.29%
Non-foster care: Female	635	51.13%	107	54.31%	94.13%
Foster care: Male	103	8.29%	16	8.12%	102.11%
Non-foster care: Male[1]	376	30.27%	52	26.40%	114.69%

[1] Statistically significant.

FUH-7: Follow-up Visit Within 7 Days After Hospitalization for Mental Illness; N/A: not applicable.

Follow-up Visit Within 30 Days After Hospitalization for Mental Illness

Overview: Foster care enrollees were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization for mental illness (IDU = 105.70%; **Table 11**), as 18.60% were eligible but only 17.60% received this evidence-based care; however, this finding was not statistically significant.

Table 11: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness – Foster Care Status

Subpopulation	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**466**	**100.00%**	**N/A**
Foster care: All	231	18.60%	82	17.60%	105.70%
Non-foster care	1,011	81.40%	384	82.40%	98.78%

FUH-30: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness; N/A: not applicable.

Age group: Both foster care enrollees and non-foster care enrollees ages 18–20 years were disproportionately under-represented for receipt of a 30-day follow-up visit (IDUs = 412.72% and 151.64%, respectively; **Table 12**), and these findings were statistically significant. Foster care enrollees ages 18–20 years composed 0.89% of the eligible population but only 0.21% received a 30-day follow-up visit. Non-foster care enrollees ages 18–20 years composed 7.81% of the eligible population but only 5.15% received a 30-day follow-up visit.

Table 12: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness – Age Group

Subpopulation	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**466**	**100.00%**	**N/A**
Foster care: 6–17 years	220	17.71%	81	17.38%	101.91%

	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	
Non-foster care: 6–17 years	914	73.59%	360	77.25%	95.26%
Foster care: 18–20 years[1]	11	0.89%	1	0.21%	412.72%
Non-foster care: 18–20 years[1]	97	7.81%	24	5.15%	151.64%

[1] Statistically significant.

FUH-30: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness; N/A: not applicable.

Race: Foster care enrollees of Black or African American race were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization (IDU = 375.20%; **Table 13**). This subgroup composed 0.81% of the eligible population but only 0.21% of those who received evidence-based care; a finding that was statistically significant. Non-foster care enrollees of American Indian/Alaska Native race were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization (IDU = 133.46%; **Table 13**). This subgroup composed 20.05% of the eligible population but only 15.02% of those who received evidence-based care; a finding that was statistically significant. The IDU was also elevated for American Indian/Alaska Native youth in foster care (IDU = 107.72%; **Table 13**); however, this finding was not statistically significant.

Table 13: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness – Race

Subpopulation	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator[1]	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**466**	**100.00%**	**N/A**
Foster care: American Indian/Alaska Native	89	7.17%	31	6.65%	107.72%
Non-foster care: American Indian/ Alaska Native[2]	249	20.05%	70	15.02%	133.46%
Foster care: Asian	2	0.16%	0	0.00%	Not calculable due to 0 of 2 with 30-day follow-up visit
Non-foster care: Asian	8	0.64%	5	1.07%	60.03%
Foster care: Black or African American[2]	10	0.81%	1	0.21%	375.20%
Non-foster care: Black or African American	79	6.36%	34	7.30%	87.18%
Foster care: White	118	9.50%	44	9.44%	100.62%
Non-foster care: White	628	50.56%	257	55.15%	91.68%
Foster care: More than 1 race	11	0.89%	5	1.07%	82.54%

Subpopulation	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator[1]	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Non-foster care: More than 1 race	31	2.50%	12	2.58%	96.93%
Foster care: Unknown race	1	0.08%	1	0.21%	37.52%
Non-foster care: Unknown race	15	1.21%	6	1.29%	93.80%

[1] Total denominator includes 1 non-foster care enrollee of Native Hawaiian/Pacific Islander race/ethnicity not reported as a subpopulation.

[2] Statistically significant.

FUH-30: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness; N/A: not applicable.

Ethnicity: Foster care enrollees of non-Latino/Hispanic ethnicity were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization (IDU = 109.06%; **Table 14**); however, this finding was not statistically significant.

Table 14: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness – Ethnicity

	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**466**	**100.00%**	**N/A**
Foster care: Latino/Hispanic	10	0.81%	7	1.50%	53.60%
Non-foster care: Latino/Hispanic	71	5.72%	27	5.79%	98.66%
Foster care: Non-Latino/Hispanic	218	17.55%	75	16.09%	109.06%
Non-foster care: Non-Latino/Hispanic	925	74.48%	351	75.32%	98.88%
Foster care: Ethnicity unknown	3	0.24%	0	0.00%	Not calculable due to 0 of 3 with 30-day follow-up visit
Non-foster care: Ethnicity unknown	15	1.21%	6	1.29%	93.80%

FUH-30: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness; N/A: not applicable.

Biological sex: Non-foster care male enrollees were disproportionately under-represented for receipt of a follow-up visit within 30 days of hospitalization (IDU = 110.22%; **Table 15**), as they composed 30.27% of the eligible population but only 27.47% of those who received evidence-based care; this finding was statistically significant. Females in foster care were disproportionately under-represented for receipt of a 30-day follow-up visit (IDU = 109.15%; **Table 15**), as they composed 10.31% of the eligible population but only 9.44% of those who received evidence-based care; this finding was not statistically significant.

Table 15: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness – Biological Sex

Subpopulation	FUH-30 Measure Denominator		FUH-30 Measure Numerator		Index of Disproportionate Under-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**1,242**	**100.00%**	**466**	**100.00%**	**N/A**
Foster care: Female	128	10.31%	44	9.44%	109.15%
Non-foster care: Female	635	51.13%	256	54.94%	93.07%
Foster care: Male	103	8.29%	38	8.15%	101.70%
Non-foster care: Male[1]	376	30.27%	128	27.47%	110.22%

[1] Statistically significant. FUH-30: Follow-up Visit Within 30 Days After Hospitalization for Mental Illness; N/A: not applicable.

Supplemental Analysis I: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups

Because the APP-CH and FUH-CH specifications exclude enrollees who have died, as well as enrollees less than one year of age, to comprehensively evaluate disparities among the entire ND youth population enrolled in Medicaid, a supplemental analysis was conducted to evaluate disproportionate over-representation of deaths among ND Medicaid youth, including infants. **Tables 16–20** present calculations for the IDO. Results are presented in the narrative for subgroups with a statistically significant finding of over-representation.

<u>Overview</u>: For ND Medicaid-enrolled youth under 21, neither foster care participants nor other enrollees were over-represented in deaths (**Table 16**).

Table 16: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups – Foster Care Status

	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
Subpopulation	**Number of Enrollees in the Denominator**	**Percentage of Total Denominator**	**Number of Enrollees in the Numerator**	**Percentage of Total Numerator**	**Percentage of Total Numerator ÷ Percentage of Total Denominator**
Total	**87,169**	**100.00%**	**132**	**100.00%**	**N/A**
Foster care: All	5,148	5.91%	7	5.30%	89.79%
Non-foster care	82,021	94.09%	125	94.70%	100.64%

ND: North Dakota; N/A: not applicable.

<u>Age group</u>: ND Medicaid-enrolled youth aged less than one year, both foster care participants and other enrollees, were disproportionately over-represented for the outcome of death (IDO = 364.25%; **Table 17**), as they composed 33.33% of the ND Medicaid-enrolled youth population who were deceased but only 9.15% of the total ND Medicaid-enrolled youth population; this finding was statistically significant. Medicaid-enrolled youth (foster and non-foster care enrollees) ages 18–20 years were disproportionately over-represented for the outcome of death (IDO = 154.98%; **Table 17**), as they composed 16.67% of the ND Medicaid-enrolled youth population who were deceased but only 10.75% of the total ND Medicaid-enrolled youth population; this finding was statistically significant.

Table 17: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups – Age Group

Subpopulation	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Numerator ÷ Percentage of Total Denominator
Total	**87,169**	**100.00%**	**132**	**100.00%**	**N/A**
Less than 1 year[1]	7,977	9.15%	44	33.33%	364.25%
1 to 5 years	20,310	23.30%	34	25.76%	110.55%
6 to 12 years	31,391	36.01%	13	9.85%	27.35%
13 to 17 years	18,117	20.78%	19	14.39%	69.26%
18 to 20 years[1]	9,374	10.75%	22	16.67%	154.98%

[1] Statistically significant. ND: North Dakota; N/A: not applicable.

<u>Race</u>: The following race subgroups of Medicaid-enrolled youth (foster and non-foster care enrollees) were statistically significantly over-represented for the outcome of death: white enrollees (IDO = 107.61%; **Table 18**), enrollees of more than 1 race (IDO = 174.24%), and enrollees of unknown race (IDO = 257.45%).

Table 18: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups – Race

Subpopulation	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Numerator ÷ Percentage of Total Denominator
Total	**87,169**	**100.00%**	**132**	**100.00%**	**N/A**
American Indian/ Alaska Native	15,498	17.78%	22	16.67%	93.74%
Asian	1,531	1.76%	2	1.52%	86.27%
Black or African American	11,647	13.36%	8	6.06%	45.36%
Native Hawaiian/	578	0.66%	1	0.76%	114.25%

	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Numerator ÷ Percentage of Total Denominator
Pacific Islander					
White[1]	54,615	62.65%	89	67.42%	107.61%
More than 1 race[1]	2,274	2.61%	6	4.55%	174.24%
Unknown race[1]	1,026	1.18%	4	3.03%	257.45%

[1] Statistically significant. ND: North Dakota; N/A: not applicable.

<u>Ethnicity</u>: Medicaid-enrolled youth (foster and non-foster care enrollees) of non-Latino/Hispanic ethnicity were statistically significantly over-represented for the outcome of death (IDO = 105.72%; **Table 19**).

Table 19: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups – Ethnicity

	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
Subpopulation	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Numerator ÷ Percentage of Total Denominator
Total	**87,169**	**100.00%**	**132**	**100.00%**	**N/A**
Latino/Hispanic	7,640	8.76%	4	3.03%	34.57%
Non-Latino/Hispanic[1]	77,457	88.86%	124	93.94%	105.72%
Unknown ethnicity	2,072	2.38%	4	3.03%	127.48%

[1] Statistically significant.
ND: North Dakota; N/A: not applicable.

Biological sex: Male Medicaid-enrolled youth (foster and non-foster care enrollees) were disproportionately over-represented for the outcome of death (IDO = 112.39%; **Table 20**); this finding was statistically significant. Males composed 57.58% of deceased Medicaid-enrolled youth but only 51.23% of Medicaid-enrolled youth.

Table 20: Over-Representation of Deaths Among Medicaid-Enrolled Youth Subgroups – Biological Sex

	Measure Denominator: All ND Medicaid Enrollees < 21 Years of Age		Measure Numerator: Deceased		Index of Disproportionate Over-Representation
Subpopulation	Number of Enrollees in the Denominator[1]	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Percentage of Total Numerator ÷ Percentage of Total Denominator
Total	**87,169**	**100.00%**	**132**	**100.00%**	**N/A**
Female	42,511	48.77%	56	42.42%	86.99%
Male[2]	44,655	51.23%	76	57.58%	112.39%

[1] There were three enrollees with a missing value for biological sex.

[2] Statistically significant.

ND: North Dakota; N/A: not applicable.

Supplemental Analysis II: CDC WONDER Data on ND Deaths by Underlying Cause, Race, and County, Ages Less than 1 Year and 18–20 Years

Supplemental Analysis I showed that, among ND Medicaid-enrolled youth, the youngest and oldest age groups were disproportionately over-represented in deaths, whereas neither foster care nor non-foster care enrollees were over-represented. Therefore, to gain insights regarding the clinical and demographic susceptibilities of these two age subgroups, a drill-down analysis was conducted using CDC WONDER data to identify underlying cause of death, as well as prevalence by race and county of residence.

Overview – ND infant mortality: Maternal conditions and sudden infant death syndrome (SIDS) were underlying causes of infant (ages less than 1 year) death among ND Medicaid-covered deliveries. The infant mortality rate was greater among American Indian/Alaska Native compared to white enrollees. Cass and Burleigh counties showed the highest infant mortality rates.

ND infant deaths, Medicaid-covered deliveries, 2018–2022: (Data specific to foster care enrollment were not available.) The greatest frequency of infant deaths were the 28 attributed to "certain conditions originating in the perinatal period" (*International Classification of Diseases, Tenth Revision* [ICD-10] codes P00–P96) per 11,789 births, for an infant death rate of 2.38 per 1,000 births. The next highest frequency was the 25 attributed to "symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified" (ICD-10 codes R00–R99) for a rate of 2.04 per 1,000 births. There were 21 deaths due to SIDS (ICD-10 code R95) for a rate of 1.78 per 1,000 births. The infant mortality rate per 1,000 births by maternal race was 8.03 for American Indian/Alaska Native enrollees compared to 6.5 for white Medicaid enrollees and 6.79 total.

Table 21 presents the counties of residence and percentage of total deaths for the ND children aged less than one year who died during 2021–2025, not restricted to Medicaid enrollees (CDC Wonder data for 2024 are provisional and for 2025 are provisional and partial). Cass, Burleigh, and Grand Forks counties showed the highest percentages at 28.80%, 12.40%, and 10.70%, respectively.

Table 21: Number and Percentage of Deaths Among ND Children Ages Less than 1 Year, 2021–2025

County of Residence	Number of Deaths, Ages Less than 1 Year	Percentage of Total Deaths, Ages Less than 1 Year
Cass County	51	28.80%
Burleigh County	22	12.40%
Grand Forks County	19	10.70%
Ward County	14	7.90%
Williams County	10	5.60%
Total ND counties	**177**	**100.00%**

ND: North Dakota.

Notes (CDC Wonder): Rows with suppressed deaths are hidden, but the deaths values in those rows are included in the totals. Data are suppressed when the data meet the criteria for confidentiality constraints.

Overview – ND mortality, ages 18–20 years: Accidental poisoning by and exposure to narcotics and hallucinogens was the highest frequency cause of death among North Dakotans ages 18–20 years. The mortality rate among American Indian/Alaska Native individuals ages 18–20 years was significantly greater than their white peers. Cass and Burleigh counties showed the highest mortality rates for North Dakotans ages 18–20 years.

ND statewide mortality, ages 18–20 years, 2021–2025*:* (Neither data specific to Medicaid nor foster care enrollment were available.) The only underlying cause of death with sufficient counts for reporting was "accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified." There were 14 deaths by this cause out of a total of 106 deaths (13.20%).

The ND statewide crude mortality rate of 228.4 per 100,000 population (95% confidence interval [CI] = 149.2, 334.7) for American Indian/Alaska Native individuals ages 18–20 years was substantially greater than the rate of 46.1 (95% CI = 36.1, 58.1) for their white peers; this difference was statistically significant.

Table 22 presents the counties of residence and percentage of total deaths for the ND youth ages 18–20 years who died during 2021–2025 (CDC Wonder data for 2024 are provisional and for 2025 are provisional and partial). Cass and Burleigh counties are the only two counties with deaths in this age group.

Table 22: Number and Percentage of Deaths Among ND Youth Ages 18–20 Years, 2021–2025

County of Residence	Number of Deaths, Ages 18–20 Years	Percentage of Total Deaths, Ages 18–20 Years
Cass County	17	16.00%
Burleigh County	11	10.40%
Total ND counties	**106**	**100.00%**

ND: North Dakota.

Notes (CDC Wonder): Rows with suppressed deaths are hidden, but the deaths values in those rows are included in the totals. Data are suppressed when the data meet the criteria for confidentiality constraints.

Discussion

There is an opportunity to improve transitions in care for foster care enrollees with mental illness.

A strength of ND foster care is that a greater proportion of youth ages 1–17 years in foster care received first-line psychosocial care as first-line treatment compared to Medicaid-enrolled youth not in foster care. Yet, foster care enrollees ages 18–20 years had a lower rate of psychosocial care than their peers not in foster care, indicating a decline in support as they transition to adulthood. The American Academy of Pediatrics identifies youth in foster care as vulnerable to gaps in the transition process and highlighted the following supportive resources: engagement of culturally similar peers, use of family navigators and community health workers, and involvement of schools and community centers.[5]

A related disparity is that ND foster care enrollees ages 18–20 years are less likely than their peers not in foster care to be transitioned from mental health inpatient services to outpatient mental health follow-up care. Thus, there is an opportunity for ND Medicaid to facilitate collaboration between Children and Family Services and hospitals to enhance discharge planning and linkage to community mental health providers.

For all North Dakota youth enrolled in Medicaid, there is an opportunity to improve transitions from inpatient to outpatient mental health services.

ND Medicaid rates for follow-up after hospitalization for mental illness lagged behind national median rates for both 7-day and 30-day follow-up visits. As recommended in the Quality Strategy Evaluation, the Follow-up After Hospitalization for Mental Illness measure merits consideration for inclusion in the Quality Strategy.

Racial disparities in receipt of evidence-based care for youth with mental illness highlight opportunities to identify barriers, with findings used to inform tailored approaches to improving access to quality care.

Non-foster care enrollees of the American Indian/Alaska Native race were disproportionately under-represented for receipt of first-line psychosocial care. Non-foster care enrollees of both American Indian/Alaska Native and Black or African American race were disproportionately under-represented for receipt of a follow-up visit within 7 days of hospitalization for mental illness. Further, Black or African American youth in foster care were disproportionately under-represented for receipt of follow-up care within 30 days of hospitalization for mental illness, as were American Indian/Alaska Native youth not in foster care. Studies have demonstrated improved mental health outcomes by engaging CHWs to address mental health disparities in underserved populations.[6] A key role of CHWs is to address an individual's health-related social needs as derived from an individualized assessment of SDoH.[7]

Disparities were observed for all measures among males not enrolled in foster care.

Males not enrolled in foster care were disproportionately under-represented for receipt of first-line psychosocial care and follow-up within 7 and 30 days of hospitalization for mental illness. Stigma is a barrier to adolescents seeking mental health services[8] and to males in general, particularly in the Black community.[9] Interventions shown to promote help-seeking through addressing stigma have been implemented with classroom-based interventions and through peer outreach.[8]

Over-representation of youth ages 18–20 years for the outcome of death shines a spotlight on this vulnerable subpopulation.

The most prevalent underlying cause of death for ND youth ages 18–20 years is “accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens].” This finding highlights the unmet mental health needs of ND youth transitioning to adulthood.

Study Limitations and Strengths

A limitation of this study is that the small sample sizes for the numerators in each measure (APP-CH and FUH-CH) precluded reliable calculation and comparisons of 95% confidence intervals to evaluate statistically significant differences in the proportions of demographic subgroups who received first-line psychosocial treatment and follow-up visits after hospitalization for mental illness. An overall study strength is the calculation of the Index of Disproportionate Under- and Over-Representation to identify disparity subgroups in terms that convey population health relevance. Further, the application of statistical significance testing to population proportions provided guidance for prioritizing disparity subgroups. An important study strength is the inclusion of ND Medicaid enrollees ages 18–20 years, as this subgroup is not included in either the APP-CH or FUH-CH measure yet was shown in this study to be a vulnerable subpopulation with unmet mental health needs. A limitation of the supplemental analysis of deaths using the ND Medicaid enrollment file is that the date of death field is not a validated data source for this outcome. A study strength is the additional use of the CDC WONDER data that uses linked Birth/Infant Death Records.

Conclusion

In summary, the findings highlight significant opportunities to improve transitions in care for ND foster care enrollees with mental illness. While a greater proportion of youth ages 1–17 years in foster care received first-line psychosocial care compared to their peers not in foster care, there is a notable decline in support for foster care enrollees ages 18–20 years as they transition to adulthood. Additionally, ND Medicaid rates for follow-up after hospitalization for mental illness lag behind national median rates, indicating a need for enhanced discharge planning and linkage to community mental health providers. Addressing racial disparities and engaging community partners can improve access to quality care for underserved populations. Overall, these findings underscore the importance of targeted interventions to support vulnerable youth and improve mental health outcomes.

Recommendations for ND HHS

- Facilitate a workgroup of caseworkers from the ND Department of Children and Families Services to develop and implement educational outreach regarding transitioning to adult primary care and provide it to primary care providers, adolescents in foster care, and their guardians. Available resources include the guideline developed by the Transitions Clinical Report Authoring Group, American Academy of Pediatrics, American Academy of Family Physicians, and the American College of Physicians[5] and the “Got Transitions” resource center, run by the National Alliance to Advance Adolescent Health.[10]
- Build on the work of the ND Community Health Worker Task Force[11] by implementing CHW training and certification and providing Medicaid coverage for CHW services as preventive services. Prioritize initial service delivery to vulnerable Medicaid enrollees, including the disparity groups identified in this focus study, e.g., Black or African American youth in foster care and American Indian/Alaska Native youth not in foster care. Mortality findings from the analysis of the CDC WONDER database shine a spotlight on residents of Cass and Burleigh counties and American Indian/Alaska Native youth as disparity subpopulations. Deploy CHWs, caseworkers, patient navigators, and peer support to address SDoH needs.
- Collaborate with the ND Department of Children and Families Services, primary care providers, and hospitals participating in the ND PPS Hospital VBP Program[12] to integrate assessment of SDoH into transitions in care planning. For example, the Accountable Health

Communities Health-Related Social Needs (HRSN) Screening Tool[13] is a validated instrument to assess SDoH needs, including, but not limited to, housing instability, food insecurity, transportation problems, financial strain, disabilities, substance use, and mental health. Deploy CHWs, caseworkers, patient navigators, and peer support to address identified SDoH needs.

- Consider incorporating into the Fee-For-Service Annual Technical Report the performance measures Follow-up After Hospitalization for Mental Illness, ages 6–17 years (FUH7-CH and FUH30-CH) with the aim to exceed the Medicaid national median rates. In addition, the state can stratify these measures by demographic characteristics to identify opportunities for improvement.
- Work with hospitals participating in the ND PPS Hospital VBP Program to increase the number of outpatient mental health providers signing up for Encounter Alerts & Notifications service through NDHIN to receive notifications when their patients present for hospital admission.
- Identify and address unmet health care needs. This study did not aim to evaluate infant mortality; however, findings from the supplemental analysis highlight the need to prevent infant deaths, particularly among American Indian/Alaska Native enrollees and residents of Cass, Burleigh, Grand Forks, Ward, and Williams counties. Further research regarding associations between maternal conditions and infant deaths is merited considering the finding that the greatest frequency of infant deaths was the 28 attributed to “certain conditions originating in the perinatal period.” The March of Dimes (MOD),[14] provides resources to support professionals in the delivery of care to reduce maternal and infant morbidity, as well as health disparities. Policy recommendations from the MOD include licensure for certified midwives, doula reimbursement, and paid family leave.[15] ND HHS can collaborate with participating providers in the ND PPS Hospital VBP Program to identify and address unmet health care needs.
- Conduct a focus study to identify disparities in additional HEDIS measures. Considering the finding that the only underlying cause of death with sufficient counts for reporting was “accidental poisoning by and exposure to narcotics and psychodysleptics,” a focus study to identify disparities in the outcomes of Initiation and Engagement of Substance Use Disorder treatment (HEDIS IET measure), Pharmacotherapy for Opioid Use Disorder (HEDIS POD measure), Use of Opioids at High Dosage (HEDIS HDO measure), and/or Use of Opioids from Multiple Providers (HEDIS UOP measure) merits consideration.

References

[1] IPRO/North Dakota Health & Human Services. (2024, May). *Health services utilization of North Dakota youth in foster care*. https://www.hhs.nd.gov/sites/www/files/documents/quality-vbp/nd-foster-care-study.pdf .

[2] Medicaid.gov. (2022). *Medicaid & CHIP in North Dakota*. Child quality measure data. Retrieved August 2, 2024, from https://www.medicaid.gov/state-overviews/stateprofile.html?state=north-dakota .

[3] Centers for Disease Control and Prevention. (n.d.). National Center for Health Statistics. National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database. Data are from the final Multiple Cause of Death Files, 2018–2023, and from provisional data for years 2024 and later, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Retrieved March 5, 2025, from http://wonder.cdc.gov/mcd-icd10-provisional.html .

[4] Centers for Disease Control and Prevention. (n.d.). National Center for Health Statistics. National Vital Statistics System, Linked Birth/Infant Deaths on CDC WONDER Online Database. Data are from the Linked Birth/Infant Deaths Records 2017–2022, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Retrieved March 5, 2025, from http://wonder.cdc.gov/lbd-current-expanded.html .

[5] White, P. H., Cooley, W. C., Transitions Clinical Report Authoring Group, American Academy of Pediatrics, American Academy of Family Physicians, American College of Physicians. (2018). Supporting the health care transition from adolescent to adulthood in the medical home. *Pediatrics, 142*(5), e20182587.

[6] Barnett, M. L., Miranda, J., Chavira, D. A., & Lau, A. S. (2018). Mobilizing community health workers to address mental health disparities for underserved populations: A systematic review. *Administration and Policy in Mental Health, 45*(2): 195–211.

[7] Centers for Medicaid & Medicare Services. CMCS Informational Bulletin. (2023, November 16). *Coverage of services and supports to address health-related social needs in Medicaid and the Children's Health Insurance Program*.

[8] Velasco, A. A., Cruz, I. S. S., Billings, J., Jimenez, M., & Rowe, S. (2020). What are the barriers, facilitators and interventions targeting help – seeking behaviours for common mental health problems in adolescents? A systematic review. *BMC Psychiatry, 20*(1), 293.

[9] Chatmon, B. N. (2020). Males and mental health stigma. *American Journal of Men's Health, (14)*4.

[10] National Alliance to Advance Adolescent Health. (n.d.). Promote effective transition from pediatric to adult health care: Got transition. Retrieved March 6, 2025, from: https://www.thenationalalliance.org/transition .

[11] North Dakota Community Health Worker Task Force. North Dakota Health & Human Services. (2025). Community health worker task force. Retrieved March 6, 2025, from: https://www.hhs.nd.gov/health/regulation-licensure-and-certification/chw-task-force .

[12] North Dakota Health & Human Services. (2024, July 11). North Dakota PPS hospital value-base purchasing (VBP) program. Version 3.1,. Retrieved February 7, 2025, from: https://www.hhs.nd.gov/healthcare/medicaid/provider/vbp .

[13] Centers for Medicaid & Medicare Services. (2021, October 10). Accountable health communities health-related social needs screening tool. Retrieved March 6, 2025, from: https://www.cms.gov/priorities/innovation/files/worksheets/ahcm-screeningtool.pdf .

[14] March of Dimes. (2025). For health professionals. Retrieved March 6, 2025, from: https://www.marchofdimes.org/our-work/health-professionals .

[15] March of Dimes. (2024). 2024 March of Dimes report card for North Dakota. Retrieved March 7, 2025, from: https://www.marchofdimes.org/peristats/reports/north-dakota/report-card .