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Department of Health and Human Services
Medical Services Division North Dakota

Phase II Maternal Care Quality and Utilization Focus Study

FINAL

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Executive Summary

This study builds on findings from Phase I of the *North Dakota (ND) Maternal Care Quality and Utilization Focus Study* to explore receipt of opioid use disorder (OUD) treatment among ND fee-for-service (FFS) Medicaid beneficiaries during the prenatal, postpartum (up to 60 days), expanded postpartum (61–365 days), and total measurement period, with a particular focus on racial/ethnic disparities. The primary objective of the current study was to assess disparities in access to treatment initiation for maternal OUD, providing the ND Department of Health and Human Services (HHS) with essential insights into access and quality of care.

- The treatment rates of FFS maternal beneficiaries included in this study were compared to the trends observed in Medicaid across the state.
    - The statewide data indicated that only 51.00% of Medicaid FFS beneficiaries with OUD received U.S. Food and Drug Administration (FDA)-approved OUD medications, while 59.21% of maternal beneficiaries in this study received some form of OUD treatment (i.e., inpatient opioid drug admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or medication-assisted treatment (MAT).
    - It is notable that maternal beneficiaries received some form of OUD treatment, surpassing the statewide average for ND Medicaid beneficiaries. This highlights the proactive efforts and access to care available to birthing people with OUD. This contributes to better health outcomes for both birthing people and their newborns.
    - However, despite the access to care, there is considerable room for improvement to increase OUD care initiation and ensure more comprehensive support for all birthing people.
- Prenatal opioid use or dependence treatment was widely utilized among ND fee-for-service Medicaid enrollees. Approximately 72.50% of Medicaid FFS birthing people with an opioid abuse or dependence diagnosis claim received treatment during the prenatal period (219 days prior to delivery).
    - Most common services included receipt of OUD medication (60.00%) and outpatient behavioral health services (55.00%).
    - Notable disparities were observed in prenatal OUD treatment utilization by race/ethnicity. American Indian/Alaska Native, non-Hispanic birthing people were disproportionately under-represented in the receipt of OUD treatment.
- Postpartum treatment for OUD was less frequently utilized. Only 48.98% of Medicaid FFS enrollees with OUD received treatment during the first 60 days postpartum. This marks a critical gap in care.
    - White, non-Hispanic birthing people had the highest treatment rate at 61.02%.
    - The study identified racial/ethnic disparities in postpartum OUD treatment utilization. American Indian/Alaska Native, non-Hispanic; Hispanic; and Black, non-Hispanic birthing people were disproportionately under-represented in receipt of OUD treatment.
- Treatment for OUD was more commonly received during the expanded postpartum care (61–365 days postpartum) compared to care received in the first 60 days postpartum. There were 67.74% of birthing people with OUD who received treatment during the expanded postpartum period. This highlights the beneficial effects of policy changes that expanded the duration of care access postpartum.
    - American Indian/Alaska Native, non-Hispanic birthing people had an OUD treatment rate of 70.00%, indicating that almost three-quarters of those with an opioid abuse or dependence diagnosis claim received OUD treatment following delivery.
    - While treatment rates were high for Hispanic; Black, non-Hispanic; and Multiracial/Unknown, non-Hispanic birthing people, sample sizes were small for these groups.

- Overall treatment during the total measurement period (219 days before delivery through 365 days postpartum) showed that 59.21% of Medicaid FFS birthing people with OUD received some form of treatment.
    - White, non-Hispanic birthing people had the highest rate of treatment (62.90%), followed closely by American Indian/Alaska Native, non-Hispanic birthing people at 60.27%.
    - Black, non-Hispanic (60.00%) and Hispanic (40.00%) birthing people had lower treatment rates, reflecting potential disparities in access and utilization.
    - Hispanic birthing people and Multiracial/Unknown, non-Hispanic birthing people were found to be disproportionately under-represented in receipt of OUD treatment.

Conclusion

This study highlights the substantial progress made in providing OUD treatment to ND Medicaid FFS birthing people, particularly in the prenatal and expanded postpartum periods. However, results also underscore the need to address disparities in treatment access and ensure equitable care, particularly for certain racial/ethnic groups.

Recommendations for ND HHS

Addressing maternal opioid use in North Dakota requires a comprehensive strategy. This should include expanding access to addiction treatment and MAT, especially in rural and underserved areas. Key recommendations also involve developing culturally tailored and trauma-informed care programs, enhancing tribal support through Substance Abuse and Mental Health Services Administration (SAMHSA) resources, and fostering collaboration among healthcare providers, community organizations, and peer support networks. Training providers to recognize implicit bias, integrating telehealth and mobile services, and involving Community Health Workers (CHWs) are also vital steps. Finally, strengthening postpartum follow-up ensures sustained support for maternal health and recovery.

Introduction

Background

Phase I of the *ND Maternal Care Quality and Utilization Focus Study* uncovered significant underutilization of both prenatal and postpartum care among Medicaid FFS enrollees. This was observed particularly among those with behavioral health conditions such as substance use disorder (SUD) and those identifying as American Indian, non-Hispanic; Multiracial, non-Hispanic; or Hispanic. For instance, only 56.3% of birthing individuals in ND received a first-trimester visit, significantly lower than the statewide average of 78.9% and the national average of 74.9%.[1] Phase I of this study also identified that prenatal care rates were notably lower among those with SUD. Furthermore, only 10.0% of postpartum birthing individuals accessed behavioral health services between 61 and 365 days postpartum (data in Phase I report). Recommendations from the Phase I study included enhancing outreach and education on comprehensive care, employing care coordination staff, and providing support before the first prenatal appointment and throughout the care continuum. Building on previous findings, Phase II delves deeper into OUD treatment initiation among ND Medicaid FFS birthing people.

These findings are consistent with broader national trends. National data highlight areas requiring improvement. In 2021, 1.5 million Medicaid beneficiaries were diagnosed with OUD, and two-thirds of those received MOUD.[2] In comparison, 49.8% of ND Medicaid adults with a new episode of OUD initiated treatment within 14 days of their diagnosis and were subsequently engaged in ongoing treatment within 34 days of the initial visit in 2021.[3] Additionally, 51.00% of ND adults ages 18 to 64 with an OUD filled a prescription for or were administered or dispensed a FDA-approved medication for the disorder during calendar year 2023.[4]

Statewide data (representing Medicaid and non-Medicaid beneficiaries) indicate that among ND females aged 15–44 years, unintentional drug poisoning deaths (overdoses) occurred at a crude rate of 15.7 per 100,000, with 121 deaths in a population of 772,803.[5] Suicides by overdose had a crude rate of 2.8 per 100,000, accounting for 22 deaths within the same population.[5] Notable racial disparities were evident, with unintentional overdose deaths showing a crude rate of 98.8 per 100,000 among ND American Indian or Alaska Native females aged 15–44 years, compared to 9.8 per 100,000 among white females. The three counties in ND with the highest numbers of overdoses among females aged 15–44 years are:

1. Cass County, with 26 deaths, accounting for 2.3% of total deaths,
2. Burleigh County, with 23 deaths, representing 2.0% of total deaths, and
3. Ward County, with 18 deaths, comprising 1.6% of total deaths.[5]

Taken together, findings from the *ND Maternal Care Quality and Utilization Focus Study* and all payer statewide data emphasize the need to improve access to appropriate OUD treatment and other maternal health services for this population. The American College of Obstetricians and Gynecologists (ACOG) recommends opioid agonist pharmacotherapy for pregnant individuals with OUD, with continuation postpartum.[6] Phase II seeks to better understand disparities in access to treatment for maternal OUD, with a focus on how these disparities vary by racial/ethnic identity. The results will provide essential insights to inform policy changes and improve healthcare delivery for maternal individuals with OUD during the prenatal and postpartum periods.

Medicaid Coverage

While states are only required to provide pregnancy-related Medicaid coverage through 60 days postpartum, some individuals may continue receiving coverage through other eligibility pathways. However, 20% of those with pregnancy-related Medicaid coverage eventually become uninsured.[7] In 2023, ND expanded Medicaid coverage for eligible pregnant and birthing individuals from 60 days to 12 months postpartum. This expanded is designed to enhance access to essential services, including

contraceptive care, mental health support, and other necessary healthcare services such as dental and preventive care.[7]

Expanded postpartum coverage is particularly important for individuals with OUD, as it facilitates continued access to MAT and other behavioral health services that can improve maternal and infant outcomes. ND's Medicaid program also offers telehealth coverage, including live video consultations, remote patient monitoring, and audio services, which significantly increases access to care for individuals who may otherwise face barriers to in-person visits.[8] Additionally, Medicaid reimbursement for certified nurse-midwives supports greater access to maternity care services, reducing overall healthcare costs and promoting equitable care for underserved populations.[9]

The state's efforts to expand access are further supported by initiatives such as the Maternal Mortality Committee (MMRC), which evaluates and addresses maternal mortality cases, and the North & South Dakota Perinatal Quality Collaborative (NSDPQC), which has implemented quality improvement strategies to enhance obstetric care and outcomes since 2018.[10,11] These initiatives align with the present study's focus on assessing disparities in OUD treatment access and the effectiveness of expanded Medicaid coverage in improving health outcomes for birthing individuals, especially those with OUD.

Methodology

Study Design, Eligibility, and Data Source

The present study focuses on the role of Medicaid coverage in maternal health, particularly for pregnant and birthing individuals with OUD. The total measurement period for the study was January 1, 2021 to June 30, 2024. To identify beneficiaries eligible for the data analysis, IPRO started with vital statistics records to identify birthing people with any births, on or between October 8, 2021, and June 30, 2023 (to allow for 12 months of utilization and 90 days claims run out after the last possible delivery date).

The eligible focus study population consisted of beneficiaries who met the following criteria:

- Had at least one Medicaid claim during the measurement period (claims were matched to beneficiary characteristics using enrollment data).
- Were not enrolled in the Blue Cross Blue Shield of ND Medicaid Expansion health insurance program.
- Had a known Medicaid Category of Eligibility code (beneficiaries with unknown codes were excluded).
- Were FFS enrollees only.
- Had at least one claim with a diagnosis from the Opioid Abuse and Dependence Value Set (included all claims, not just primary diagnoses).

Additional criteria by measure:

- Prenatal measure: Required a claim with an OUD diagnosis prior to the delivery date (219 days before delivery).
- Postpartum measure: Required a claim with a diagnosis during the postpartum measurement period (1-60 days after delivery).
- Expanded postpartum period: Required a claim with a diagnosis during the expanded postpartum measurement period (61-365 days after delivery).
- Total measurement period: Required a claim with a diagnosis during the expanded postpartum measurement period (219 days before delivery-365 days after delivery).

It is important to note that the results presented reflect only individuals who had a diagnosis of substance use or dependence disorder within the specific measurement period (i.e., prenatal, postpartum, expanded postpartum). This distinction is key, because it highlights that the analysis pertains specifically to individuals with an opioid abuse or dependence diagnosis claim. Additionally, if individuals received care only during the prenatal period, that care initiation was not included as part of the postpartum period analysis. Another dataset was created by combining data from the total measurement period to assess OUD care initiation at any point. This methodological approach helps identify potential gaps in the transition from prenatal to postpartum care and provides insights into the effectiveness of postpartum treatment initiatives and relapse prevention strategies.

Enrollee Data and Measurement

Variables examined in this study included:

- demographic characteristics: age group and race/ethnicity.
- clinical characteristics: any claim with a diagnosis, not limited to principal or primary, listed in the Opioid Abuse and Dependence Value Set for the measurement year that corresponded to the delivery date.
- maternal opioid use or dependence treatment: receiving prenatal and postpartum maternal OUD treatment initiation.
    - Prenatal treatment:

        - Eligible population: ND FFS beneficiaries with any births, on or between October 8, 2021, and June 30, 2023, and with a diagnosis of OUD during the prenatal period (219 days before delivery).
        - Denominator: The eligible population (n = 40).
        - Numerator: The percentage of birthing individuals with a diagnosis of opioid use or dependence, continuously enrolled for 219 days prior to delivery with one allowable gap of up to 43 days, who received one or more of the following during the 219 days before delivery: inpatient opioid drug admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or MAT.
    - Postpartum treatment (1–60 days):
        - Eligible population: ND FFS beneficiaries with any births, on or between October 8, 2021, and June 30, 2023, and with a diagnosis of OUD during the postpartum period (1-60 days).
        - Denominator: The eligible population (n = 147).
        - Numerator: The percentage of birthing individuals with a diagnosis of opioid use or dependence during the prenatal period and/or delivery stay, continuously enrolled for 60 days after delivery with one allowable gap of up to 43 days, who received one or more of the following from the delivery date through 60 days post-discharge: inpatient opioid drug admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or MAT.
    - Expanded postpartum treatment (61–365 days):
        - Eligible population: ND FFS beneficiaries with any births, on or between October 8, 2021, and June 30, 2023, and with a diagnosis of OUD during the postpartum period (61-365 days).
        - Denominator: The eligible population (n = 62).
        - Numerator: The percentage of birthing individuals with a diagnosis of opioid use or dependence during the prenatal period and/or delivery stay, continuously enrolled for 365 days after delivery with one allowable gap of up to 43 days, who received one or more of the following from 61 days through 365 days post-discharge: inpatient opioid drug admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or MAT.
    - Treatment anytime during measurement period:
        - Eligible population: ND FFS beneficiaries with any births, on or between October 8, 2021, and June 30, 2023, and with a diagnosis of OUD during the measurement period (219 before delivery–365 days after delivery).
        - Denominator: The eligible population (n = 152).
        - Numerator: The percentage of birthing individuals with a diagnosis of opioid use or dependence who received one or more of the following at any point from 219 days prior to delivery through 365 days following delivery discharge: inpatient opioid drug admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or MAT. Continuous enrollment is not required for this measure; eligibility is based on available claims and enrollment data. Continuous enrollment is not required for this measure; eligibility is based on available claims and enrollment data. Enrollment is determined by the combination of all three data files.

Statistical Methods

This analysis used claims and encounter data to apply the Healthcare Effectiveness Data and Information Set (HEDIS®) value sets for OUD to evaluate the receipt of maternal OUD treatment during the prenatal and postpartum periods, stratified by race/ethnicity. Fisher's exact tests were used to assess statistically significant differences in treatment receipt across racial/ethnic groups. This is particularly suitable for small sample sizes and ensures that the exact probability of obtaining the observed data is calculated based on the distribution of the data. Statistical significance was determined by comparing the *P*-value to a predetermined significance level ($P < 0.05$); if the *P*-value was less than 0.05, the difference in treatment receipt across groups was considered statistically significant.

To gain additional insights into susceptible subpopulations, IPRO conducted an analysis of disproportionate under-representation of opioid use or dependence treatment prevalence. 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 index of disproportionate under-representation (IDU) to evaluate disparity subgroups. Calculating an index of disproportionate under-representation provides a way to identify certain subgroups that are under-represented for a specific outcome compared to their representation in the overall eligible 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. Disproportionate analysis was conducted to evaluate the unequal distribution of OUD treatment services among different racial/ethnic groups of birthing people. The IDU was calculated by dividing the percentage each subgroup composed of the ND Medicaid eligible population of birthing people with OUD by the percentage each subgroup composed of birthing people with OUD who received opioid-related treatments. Values over 100% indicate disproportionate under-representation because the subset composed a greater proportion of the 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. This method helps ensure the equitable distribution of treatment services across different racial/ethnic groups of birthing people, reflecting fair access to care during the prenatal, postpartum, expanded postpartum periods, and total measurement period.

Results

Descriptive Characteristics

Tables 1–12 provide descriptive statistics, i.e., percentage of the total eligible population, and sample sizes for ND Medicaid FFS beneficiaries included in this study.

Characteristics of Individuals with an Opioid Abuse Diagnosis During the Total Measurement Period

Overview: Of the 152 enrollees in the eligible population, all had a diagnosis of OUD at some point during the total measurement period.

Demographics and Delivery Characteristics of Birthing People: The majority were aged 25–34 years (57.24%). Nearly half identified as either American Indian/Alaska Native, non-Hispanic (48.03%) or white, non-Hispanic (40.79%). Three individuals had a non-live birth (1.97%; **Table 1**).

Table 1: Demographic and Delivery Characteristics – Total Measurement Period

Characteristics	% (Number of Enrollees) Total Measurement Period (n = 152)
Demographic characteristics	
Age group	
Less than 25 years	19.08% (29)
25–34 years	57.24% (87)
35+ years	23.68% (36)
Race/Ethnicity	
White, non-Hispanic	40.79% (62)
Black, non-Hispanic	3.29% (5)
American Indian/Alaska Native, non-Hispanic	48.03% (73)
Asian American/Pacific Islander, non-Hispanic	0.66% (1)
Multiracial/Unknown, non-Hispanic	3.95% (6)
Hispanic	3.29% (5)
Delivery characteristics	
Non-live birth (Yes)	1.97% (3)

n: sample size.

Clinical Characteristics: Over half (59.21%) were diagnosed with substance use disorder[1] and 17.76% had alcohol dependence (**Table 2**).

[1] SUD categorization includes observations for opioid dependence; opioid abuse; cannabis dependence; cannabis abuse; sedative, hypnotic, or anxiolytic dependence; sedative, hypnotic, or anxiolytic abuse; cocaine dependence; cocaine abuse; other stimulant dependence; other stimulant abuse; hallucinogen dependence; hallucinogen abuse; inhalant dependence; inhalant abuse; other psychoactive substance dependence; and other psychoactive substance abuse.

Table 2: Clinical Characteristics – Total Measurement Period

Characteristics	% (Number of Enrollees) Total Measurement Period (n = 152)
Clinical characteristics	
Behavioral health condition	
Substance use disorder (Yes)	59.21% (90)
Alcohol dependence (Yes)	17.76% (27)

n: sample size.

Care for Opioid Use or Dependence: Over half (59.21%) received opioid use or dependence care during measurement period including (**Table 3**):

- 18.42% received inpatient care,
- 26.97% received outpatient care,
- 42.11% received outpatient behavioral health services,
- 7.89% had an intensive outpatient encounter or partial hospitalization,
- 2.63% attended a non-residential substance abuse treatment facility visit,
- 0.66% received a community mental health center visit,
- 6.58% received a telehealth/telephone visit, and
- 44.08% received OUD medication treatment.
- No beneficiaries received an e-visit or virtual check-in or weekly or monthly opioid treatment service.

Table 3: Care for Opioid Use or Dependence – Total Measurement Period

Characteristics	% (Number of Enrollees) Total Measurement Period (n = 152)
Care for Opioid Use or Dependence	
Received opioid use or dependence care during measurement period (Yes)	59.21% (90)
Inpatient stay (Yes)	18.42% (28)
Outpatient visit (Yes)	26.97% (41)
Outpatient behavioral health visit (Yes)	42.11% (64)
Intensive outpatient encounter or partial hospitalization (Yes)	7.89% (12)
Non-residential substance abuse treatment facility visit (Yes)	2.63% (4)
Community mental health center visit (Yes)	0.66% (1)
Telehealth or telephone visit (Yes)	6.58% (10)
E-visit or virtual check-in (Yes)	0.00% (0)
Weekly or monthly opioid treatment service (Yes)	0.00% (0)
OUD medication treatment (Yes)	44.08% (67)

n: sample size; OUD: opioid use disorder.

Characteristics of Individuals with an Opioid Abuse Diagnosis During the Prenatal Period

Overview: Of the total 152 enrollees in the eligible population, there were 40 enrollees (26.32%) with a diagnosis of OUD during the prenatal period.

Demographic and Delivery Characteristics of Birthing People: During the prenatal period, over half of birthing people with OUD; 55.00%) were aged 25–34 years. The majority identified as white, non-Hispanic (57.50%), followed by American Indian/Alaska Native, non-Hispanic (37.50%). One individual had a non-live birth (2.50%; **Table 4**).

Table 4: Demographic and Delivery Characteristics – Prenatal Period

Characteristics	% (Number of Enrollees) Prenatal Care (n = 40)
Demographic characteristics	
Age group	
Less than 25 years	15.00% (6)
25–34 years	55.00% (22)
35+ years	30.00% (12)
Race/Ethnicity	
White, non-Hispanic	57.50% (23)
Black, non-Hispanic	2.50% (1)
American Indian/Alaska Native, non-Hispanic	37.50% (15)
Asian American/Pacific Islander, non-Hispanic	0.00% (0)
Multiracial/Unknown, non-Hispanic	0.00% (0)
Hispanic	2.50% (1)
Delivery characteristics	
Non-live birth (Yes)	2.50% (1)

n: sample size.

Clinical Characteristics: Three-quarters of birthing people with OUD (75.00%) had substance use disorder during the prenatal period, while 12.50% had alcohol dependence (**Table 5**).

Table 5: Clinical Characteristics – Prenatal Period

Characteristics	% (Number of Enrollees) Prenatal Care (n = 40)
Clinical characteristics	
Behavioral health condition	
Substance use disorder (Yes)	75.00% (30)
Alcohol dependence (Yes)	12.50% (5)

n: sample size.

Care for Opioid Use or Dependence: Nearly three-quarters (72.50%) received treatment for OUD during the prenatal period, which is the 219 days before delivery. This care included (**Table 6**):

- 27.50% received inpatient care,
- 27.50% received outpatient care,
- 55.00% received outpatient behavioral health services,
- 7.50% had intensive outpatient encounters or partial hospitalization,

- 2.50% attended a non-residential substance abuse treatment facility,
- 10.00% received a telehealth/telephone visit, and
- 60.00% received OUD medication treatment (e.g., naltrexone, buprenorphine, methadone).
- No beneficiaries received a community mental health center visit, e-visit or virtual check-in, or weekly or monthly opioid treatment service.

Table 6: Care for Opioid Use or Dependence – Prenatal Period

Characteristics	% (Number of Enrollees) Prenatal Care (n = 40)
Care for Opioid Use or Dependence	
Received prenatal opioid use or dependence care (Yes)	72.50% (29)
Inpatient stay (Yes)	27.50% (11)
Outpatient visit (Yes)	27.50% (11)
Outpatient behavioral health visit (Yes)	55.00% (22)
Intensive outpatient encounter or partial hospitalization (Yes)	7.50% (3)
Non-residential substance abuse treatment facility visit (Yes)	2.50% (1)
Community mental health center visit (Yes)	0.00% (0)
Telehealth or telephone visit (Yes)	10.00% (4)
E-visit or virtual check-in (Yes)	0.00% (0)
Weekly or monthly opioid treatment service (Yes)	0.00% (0)
OUD medication treatment (Yes)	60.00% (24)

n: sample size; OUD: opioid use disorder.

Characteristics of Individuals with an Opioid Abuse Diagnosis During the Postpartum Period (Up to 60 Days)

Overview: Of the total 152 enrollees in the eligible population, there were 147 enrollees (96.71%) with a diagnosis of OUD during the postpartum period (up to 60 days).

Demographics and Delivery Characteristics of Birthing People: Over half (57.14%) of birthing people were aged 25–34 years. The majority identified as American Indian/Alaska Native, non-Hispanic (48.30%), followed by white, non-Hispanic (40.14%). Two individuals had a non-live birth (1.36%; **Table 7**).

Table 7: Demographic and Delivery Characteristics – Postpartum Period (Up to 60 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (Up to 60 Days) (n = 147)
Demographic characteristics	
Age group	
Less than 25 years	19.05% (28)
25–34 years	57.14% (84)
35+ years	23.81% (35)
Race/Ethnicity	
White, non-Hispanic	40.14% (59)
Black, non-Hispanic	3.40% (5)
American Indian/Alaska Native, non-Hispanic	48.30% (71)
Asian American/Pacific Islander, non-Hispanic	0.68% (1)

Characteristics	% (Number of Enrollees) Postpartum Care (Up to 60 Days) (n = 147)
Multiracial/Unknown, non-Hispanic	4.08% (6)
Hispanic	3.40% (5)
Delivery characteristics	
Non-live birth (Yes)	1.36% (2)

n: sample size.

Clinical Characteristics: Half (51.70%) of birthing people had substance use disorder, and 11.56% had alcohol dependence (**Table 8**).

Table 8: Clinical Characteristics – Postpartum Period (Up to 60 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (Up to 60 Days) (n = 147)
Clinical characteristics	
Behavioral health condition	
Substance use disorder (Yes)	51.70% (76)
Alcohol dependence (Yes)	11.56% (17)

n: sample size.

Care for Opioid Use or Dependence: Almost half (48.98%) received treatment for OUD during the postpartum period (up to 60 days). This included (**Table 9**):

- 19.73% received inpatient care,
- 22.45% received outpatient care,
- 36.73% received outpatient behavioral health services,
- 6.12% had an intensive outpatient encounter or partial hospitalization,
- 2.04% attended a non-residential substance abuse treatment facility,
- 0.68% received a community mental health center visit,
- 4.08% received a telehealth/telephone visit, and
- 37.41% received OUD medication treatment.
- No beneficiaries received an e-visit or virtual check-in or weekly or monthly opioid treatment service.

Table 9: Care for Opioid Use or Dependence – Postpartum Period (Up to 60 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (Up to 60 Days) (n = 147)
Care for Opioid Use or Dependence	
Received postpartum opioid use or dependence care within 60 days (Yes)	48.98% (72)
Inpatient stay (Yes)	19.73% (29)
Outpatient visit (Yes)	22.45% (33)
Outpatient behavioral health visit (Yes)	36.73% (54)

Characteristics	% (Number of Enrollees) Postpartum Care (Up to 60 Days) (n = 147)
Intensive outpatient encounter or partial hospitalization (Yes)	6.12% (9)
Non-residential substance abuse treatment facility visit (Yes)	2.04% (3)
Community mental health center visit (Yes)	0.68% (1)
Telehealth or telephone visit (Yes)	4.08% (6)
E-visit or virtual check-in (Yes)	0.00% (0)
Weekly or monthly opioid treatment service (Yes)	0.00% (0)
OUD medication treatment (Yes)	37.41% (55)

n: sample size; OUD: opioid use disorder.

Characteristics of Individuals with an Opioid Abuse Diagnosis During the Postpartum Period (61–365 Days)

Overview: Of the total 152 enrollees in the eligible population, there were 62 enrollees (40.79%) with a diagnosis of OUD during the postpartum period (61–365 days).

Demographics and Delivery Characteristics of Birthing People: Over half (56.45%) were aged 25–34 years. The majority identified as American Indian/Alaska Native, non-Hispanic (48.39%), followed by white, non-Hispanic (43.55%). One individual had a non-live birth (1.61%; **Table 10**).

Table 10: Demographic and Delivery Characteristics – Postpartum Period (61–365 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (61–365 Days) (n = 62)
Demographic characteristics	
Age group	
Less than 25 years	14.52% (9)
25–34 years	56.45% (35)
35+ years	29.03% (18)
Race/Ethnicity	
White, non-Hispanic	43.55% (27)
Black, non-Hispanic	1.61% (1)
American Indian/Alaska Native, non-Hispanic	48.39% (30)
Asian American/Pacific Islander, non-Hispanic	0.00% (0)
Multiracial/Unknown, non-Hispanic	3.23% (2)
Hispanic	3.23% (2)
Delivery characteristics	
Non-live birth (Yes)	1.61% (1)

n: sample size.

Clinical Characteristics: Nearly 71.00% had substance use disorder (70.97%), and 25.81% had alcohol dependence (**Table 11**).

Table 11: Clinical Characteristics – Postpartum Period (61–365 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (61–365 Days) (n = 62)
Clinical characteristics	
Behavioral health condition	
Substance use disorder (Yes)	70.97% (44)
Alcohol dependence (Yes)	25.81% (16)

n: sample size.

Care for Opioid Use or Dependence: Over half (67.74%) received treatment for OUD during the postpartum expanded period (61–365 days; **Table 12**) including:

- 17.74% received inpatient care,
- 35.48% received outpatient care,
- 56.45% received outpatient behavioral health services,
- 11.29% had an intensive outpatient encounter or partial hospitalization,
- 1.61% attended a non-residential substance abuse treatment facility,
- 1.61% received a community mental health center visit,
- 12.90% received a telehealth/telephone visit, and
- 51.61% received OUD medication treatment.
- No beneficiaries received an e-visit or virtual check-in or weekly or monthly opioid treatment service.

Table 12: Care for Opioid Use or Dependence – Postpartum Period (61–365 Days)

Characteristics	% (Number of Enrollees) Postpartum Care (61–365 Days) (n = 62)
Care for Opioid Use or Dependence	
Received postpartum opioid use or dependence care within 61–365 days (Yes)	67.74% (42)
Inpatient stay (Yes)	17.74% (11)
Outpatient visit (Yes)	35.48% (22)
Outpatient behavioral health visit (Yes)	56.45% (35)
Intensive outpatient encounter or partial hospitalization (Yes)	11.29% (7)
Non-residential substance abuse treatment facility visit (Yes)	1.61% (1)
Community mental health center visit (Yes)	1.61% (1)
Telehealth or telephone visit (Yes)	12.90% (8)
E-visit or virtual check-in (Yes)	0.00% (0)
Weekly or monthly opioid treatment service (Yes)	0.00% (0)
OUD medication treatment (Yes)	51.61% (32)

n: sample size; OUD: opioid use disorder.

Healthcare Utilization for OUD

The next section compares the statewide average OUD treatment rates for all ND Medicaid adults with OUD to the average for ND FFS maternal care beneficiaries in OUD treatment rates. This is followed by an overview of care across the measurement periods and a breakdown by race/ethnicity.

Opioid Use or Dependence Treatment Rates: Comparison of all ND Medicaid Adults with OUD to ND Medicaid FFS Maternal Care Beneficiaries with OUD

Table 13 shows the rates of OUD treatment among ND Medicaid FFS beneficiaries. In 2023, 51.00% of ND Medicaid FFS beneficiaries aged 18 to 64 years with OUD filled a prescription for or were administered an FDA-approved medication for OUD, including buprenorphine, oral naltrexone, long-acting injectable naltrexone, or methadone. In this study, almost 60% of FFS maternal beneficiaries received treatment for OUD during the measurement period. Treatment included services such as inpatient stays, outpatient visits, outpatient behavioral health visits, intensive outpatient encounters or partial hospitalization, non-residential substance abuse treatment facility visits, community mental health center visits, telehealth or telephone visits, e-visits or virtual check-ins, weekly or monthly opioid treatment services, or OUD medication treatments.

Table 13: Rates of Opioid Use or Dependence Healthcare Utilization for All ND Medicaid FFS Adults and ND Medicaid FFS Maternal Care Beneficiaries

ND Medicaid Population	Numerator	Denominator	Rate
ND Fee-for-Service Medicaid Adults Ages 18–64 Years with OUD[1]	449	881	51.00%
ND Medicaid FFS Maternal Care Beneficiaries with OUD[2]	90	152	59.21%

[1] Rate includes percentage of Medicaid fee-for-service adults ages 18 to 64 with OUD who filled a prescription for or were administered or dispensed an FDA-approved medication for the disorder, as submitted by ND for the 2023 Adult Core Set.
[2] Rate includes maternal fee-for-service beneficiaries in this study who had one or more of the following during the 219 days prior to the delivery date through the 365 days following the delivery discharge date: inpatient opioid admissions, outpatient visits, intensive outpatient encounters, partial hospitalizations, telehealth services, or MAT.
ND: North Dakota; FFS: fee-for-service; OUD: opioid use disorder; FDA: U.S. Food and Drug Administration; MAT: medication-assisted treatment.

Opioid Use or Dependence Treatment Rates for ND Medicaid Maternal Beneficiaries by Prenatal and Postpartum Periods

Rates for the prenatal and postpartum periods represent the rate among birthing people who were diagnosed with OUD during each period.
Table 14 shows the rates of maternal OUD treatment during the prenatal and postpartum periods among ND Medicaid maternal beneficiaries in this study.

- The majority of birthing people with OUD (72.50%) received treatment during the prenatal period. This indicates a strong focus on addressing opioid use early in pregnancy.
- A large portion (67.74%) of birthing people with OUD received treatment during the Medicaid expanded postpartum period (61–365 days). This highlights the positive impact of policy changes that expanded access to care beyond the immediate postpartum period.
- Overall, 59.21% of birthing people with OUD received treatment at some point during the measurement period. This suggests that while many have access to care, there are still gaps in treatment throughout the process.
- A lower percentage, 48.98%, received treatment during the postpartum period (1–60 days after delivery). This underscores a critical area for intervention.

Table 14: Rates of Opioid Use and Dependence Care Across Measurement Periods

Measurement Period	Numerator	Denominator	Rate
Prenatal period (219 days before delivery)	29	40	72.50%
Postpartum period (1–60 days after delivery)	72	147	48.98%
Postpartum period (61–365 days after delivery)	42	62	67.74%
Anytime during measurement period	90	152	59.21%

Prenatal Opioid Use or Dependence Treatment by Race/Ethnicity

Table 15 shows the rates of maternal OUD treatment during the prenatal period by race/ethnicity in this study. Fisher's exact test results did not indicate a significant difference in OUD care between the racial/ethnic groups. Among those who received OUD care during the prenatal period:

- 100.00% of enrollees identified as Black, non-Hispanic and Hispanic birthing people received OUD treatment during the prenatal period. However, there was only one individual diagnosed with OUD in each of these racial/ethnic groups,
- 78.26% of enrollees identified as white, non-Hispanic birthing people received OUD care during the prenatal period, and
- 60.00% of enrollees identified as American Indian/Alaska Native, non-Hispanic birthing people received OUD care during the prenatal period.

Table 15: Prenatal Opioid Use or Dependence Treatment by Race/Ethnicity

Race/Ethnicity	Numerator	Denominator	Rate
White, non-Hispanic	18	23	78.26%
Black, non-Hispanic	1	1	100.00%
American Indian/Alaska Native, non-Hispanic	9	15	60.00%
Hispanic	1	1	100.00%

Rates for the prenatal and postpartum periods represent the rate among birthing people who were diagnosed with OUD during each period.

Table 16 shows the results of the analysis of disproportionate under-representation for prenatal opioid use and dependence treatment across racial/ethnic groups.

- American Indian/Alaska Native, non-Hispanic maternal beneficiaries with OUD were disproportionately under-represented for receipt of OUD treatment initiation during the prenatal period (IDU = 120.83%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (37.50%) than they composed of the population who received it (31.03%); though this finding was not interpreted as statistically significant.

Table 16: Analysis of Disproportionate Under-Representation – Prenatal Opioid Use and Dependence Treatment by Race/Ethnicity

Race/Ethnicity	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**40**	**100.00%**	**29**	**100.00%**	**N/A**
White, non-Hispanic	23	57.50%	18	62.07%	92.64%
Black, non-Hispanic	1	2.50%	1	3.45%	72.50%
American Indian/ Alaska Native, non-Hispanic	15	37.50%	9	31.03%	120.83%
Hispanic	1	2.50%	1	3.45%	72.50%

N/A: not applicable.

Postpartum (Up to 60 Days) Opioid Use or Dependence Healthcare Utilization by Race/Ethnicity

Table 17 shows the rates of maternal OUD treatment during the postpartum period (up to 60 days) by race/ethnicity in this study. Fisher's exact test results indicated a significant difference in OUD care between the racial/ethnic groups. This suggests that the distribution of OUD care initiation during the postpartum period varies significantly across these populations.

- White, non-Hispanic birthing people had the highest treatment rate at 61.02% (**Table 17**).
- American Indian/Alaska Native, non-Hispanic birthing people had a lower treatment rate of 45.07% (**Table 17**).
- Black, non-Hispanic birthing people received treatment at a rate of 40.00% (**Table 17**).
- Hispanic birthing people had a treatment rate of 40.00% (**Table 17**), indicating a similar, lower level of care.
- No birthing people identifying as Asian American/Pacific Islander, non-Hispanic or Multiracial/Unknown, non-Hispanic received postpartum treatment, though very small sample sizes are noted (**Table 17**).

Table 17: Postpartum (1–60 Days) Opioid Use and Dependence Treatment Rates by Race/Ethnicity

Race/Ethnicity[1]	Numerator	Denominator	Rate
White, non-Hispanic	36	59	61.02%
Black, non-Hispanic	2	5	40.00%
American Indian/Alaska Native, non-Hispanic	32	71	45.07%
Asian American/Pacific Islander, non-Hispanic	0	1	0.00%
Multiracial/Unknown, non-Hispanic	0	6	0.00%
Hispanic	2	5	40.00%

[1] This enrollee characteristic showed a statistically significant association postpartum care (1–60 days); Fisher's exact test -*P* value < 0.05.

Table 18 shows the results of the analysis of disproportionate under-representation for opioid use and dependence treatment postpartum (1-60 days) across racial/ethnic groups.

- American Indian/Alaska Native, non-Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the postpartum period (IDU = 108.67%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (48.30%) than they composed of the population who received it (44.44%); though this finding was not interpreted as statistically significant.
- Black, non-Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the postpartum period (IDU = 122.45%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (3.40%) than they composed of the population who received it (2.78%); though this finding was not interpreted as statistically significant.
- Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the postpartum period (IDU = 122.45%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (3.40%) than they composed of the population who received it (2.78%); though this finding was not interpreted as statistically significant.

Table 18: Analysis of Disproportionate Under-Representation – Postpartum (1–60 Days) Opioid Use and Dependence Treatment by Race/Ethnicity

Race/Ethnicity	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**147**	**100.00%**	**72**	**100.00%**	**N/A**
White, non-Hispanic	59	40.14%	36	50.00%	80.27%
Black, non-Hispanic	5	3.40%	2	2.78%	122.45%
American Indian/Alaska Native, non-Hispanic	71	48.30%	32	44.44%	108.67%
Asian American/ Pacific Islander, non-Hispanic	1	0.68%	1	1.39%	48.98%
Multiracial/ Unknown, non-Hispanic	6	4.08%	0	0.00%	N/A
Hispanic	5	3.40%	2	2.78%	122.45%

N/A: not applicable.

Postpartum (61–365 Days) Opioid Use or Dependence Treatment by Race/Ethnicity

Table 19 shows the rates of maternal OUD treatment during the expanded postpartum period (61–365 days) by race/ethnicity in this study. Fisher's exact test results did not indicate a significant difference in OUD care between the racial/ethnic groups.

- All birthing people identifying as Hispanic; Black, non-Hispanic; and Multiracial/Unknown, non-Hispanic received OUD treatment at some point during the 61–365 days postpartum period, although it is important to note the small sample sizes in these groups.
- Birthing people identifying as American Indian/Alaska Native, non-Hispanic received OUD treatment during the postpartum expanded period at a rate of 70.00%.

Nearly 60% of white, non-Hispanic birthing people (59.26%) received OUD treatment during the 61–365 days postpartum period.

Table 19: Postpartum (61–365 Days) Opioid Use and Dependence Treatment by Race/Ethnicity

Race/Ethnicity	Numerator	Denominator	Rate
White, non-Hispanic	16	27	59.26%
Black, non-Hispanic	1	1	100.00%
American Indian/Alaska Native, non-Hispanic	21	30	70.00%
Multiracial/Unknown, non-Hispanic	2	2	100.00%
Hispanic	2	2	100.00%

Table 20 shows the results of the analysis of disproportionate under-representation for opioid use and dependence treatment postpartum (61–365 days) by racial/ethnic groups.

- White, non-Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the postpartum expanded period (IDU = 114.31%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (43.55%) than they composed of the population who received it (38.10%); though this finding was not interpreted as statistically significant.

Table 20: Analysis of Disproportionate Under-Representation – Postpartum (61–365 days) Opioid Use and Dependence Treatment by Race/Ethnicity

Race/Ethnicity	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Index of Disproportionate Under-Representation: Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**62**	**100.00%**	**42**	**100.00%**	**N/A**
White, non-Hispanic	27	43.55%	16	38.10%	114.31%
Black, non-Hispanic	1	1.61%	1	2.38%	67.74%
American Indian/Alaska Native, non-Hispanic	30	48.39%	21	50.00%	96.77%

Race/Ethnicity	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Index of Disproportionate Under-Representation Percentage of Total Denominator ÷ Percentage of Total Numerator
Multiracial/ Unknown, non-Hispanic	2	3.23%	2	4.76%	67.74%
Hispanic	2	3.23%	2	4.76%	67.74%

N/A: not applicable.

Maternal Opioid Use or Dependence Treatment Anytime During the Total Measurement Period by Race/Ethnicity

Table 21 shows the rates of maternal OUD treatment at any point during the total measurement period (i.e., from prenatal through 365 days postpartum) broken down by race/ethnicity in this study. Fisher's exact test results did not indicate a significant difference in OUD care between the racial/ethnic groups.

- Birthing people who identified as white, non-Hispanic received OUD treatment at some point during the total measurement period at a rate of 62.90%.
- Among birthing people who identified as American Indian/Alaska Native, non-Hispanic, 60.27% received OUD treatment at some point during the total measurement period.
- Birthing people who identified as Black, non-Hispanic received OUD treatment at a rate of 60.00% at some point during the total measurement period.
- OUD treatment was received by 40.00% of birthing people who identified as Hispanic at some point during the total measurement period.
- Multiracial/Unknown, non-Hispanic birthing people received OUD treatment at some point during the total measurement period at a rate of 33.33%.
- No birthing people who identified as Asian American/Pacific Islander, non-Hispanic received OUD treatment at any point during the total measurement period.

Table 21: Maternal Opioid Use or Dependence Treatment Anytime During the Total Measurement Period by Race/Ethnicity

Race/Ethnicity	Numerator	Denominator	Rate
White, non-Hispanic	39	62	62.90%
Black, non-Hispanic	3	5	60.00%
American Indian/Alaska Native, non-Hispanic	44	73	60.27%
Asian American/Pacific Islander, non-Hispanic	0	1	0.00%
Multiracial/Unknown, non-Hispanic	2	6	33.33%
Hispanic	2	5	40.00%

Table 22 shows the results of analysis of disproportionate under-representation for opioid use and dependence treatment at any time during the total measurement period by racial/ethnic groups.

- Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the measurement period (IDU = 148.03%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (3.29%) than they composed of the population who received it (2.22%); though this finding was not interpreted as statistically significant.
- Multiracial/Unknown, non-Hispanic birthing people were disproportionately under-represented for receipt of OUD treatment initiation during the measurement period (IDU = 177.63%). This subgroup composed more of the ND Medicaid population eligible for this evidence-based care (3.95%) than they composed of the population who received it (2.22%); though this finding was not interpreted as statistically significant.

Table 22: Analysis of Disproportionate Under-Representation – Opioid Use and Dependence Treatment Anytime During the Total Measurement Period by Race/Ethnicity

Race/Ethnicity	Number of Enrollees in the Denominator	Percentage of Total Denominator	Number of Enrollees in the Numerator	Percentage of Total Numerator	Index of Disproportionate Under-Representation: Percentage of Total Denominator ÷ Percentage of Total Numerator
Total	**152**	**100.00%**	**90**	**100.00%**	**N/A**
White, non-Hispanic	62	40.79%	39	43.33%	94.13%
Black, non-Hispanic	5	3.29%	3	3.33%	98.68%
American Indian/Alaska Native, non-Hispanic	73	48.03%	44	48.89%	98.24%
Asian American/ Pacific Islander, non-Hispanic	1	0.66%	0	0.00%	N/A
Multiracial/ Unknown, non-Hispanic	6	3.95%	2	2.22%	177.63%
Hispanic	5	3.29%	2	2.22%	148.03%

N/A: not applicable.

Discussion

Opioid use and dependence (OUD) has increased in the United States, with rural areas particularly affected by higher rates of opioid prescriptions and misuse.[12] ND has experienced an increase in OUD, presenting opportunities to address challenges related to healthcare access and socio-economic factors.[13] Maternal OUD impacts both birthing individuals and infants, leading to complications such as preterm labor, overdose risk, and neonatal abstinence syndrome. [14] In Phase I of the study, birthing people with substance use disorder (SUD) were found to be significantly less likely to receive prenatal care in the first trimester compared to those without behavioral health conditions. Building on these findings, Phase II focuses on evaluating disparities in access to OUD treatment among Medicaid FFS birthing people in ND. The primary aim is to understand how access to care, including MAT and other behavioral health services, varies across the prenatal and postpartum periods. This also included assessing how these disparities may differ by racial and ethnic identity. These insights are essential to informing strategies that improve maternal health equity and close treatment gaps in this high-risk population.

Overall Care Utilization

Across the total measurement period, 59.21% of birthing individuals received care for OUD. This indicates that over half of those with an opioid abuse or dependence diagnosis received care, predominately during the prenatal period (72.50%). However, care initiation decreased after childbirth, with only 48.98% of individuals starting treatment within the first 60 days postpartum. Rates improved during the Medicaid expanded postpartum period (61–365 days), reaching 67.74%. Though, sizable gaps remain in postpartum care initiation. These findings suggest greater access to OUD treatment during the prenatal period. However, there is a need for more consistent and long-term treatment, particularly during the postpartum period. This is a critical period for relapse prevention and recovery maintenance.

Addressing Racial/Ethnic Disparities in Opioid Healthcare in North Dakota

Racial/ethnic disparities in OUD care initiation remain a concern. During the prenatal period, treatment rates varied by race/ethnicity for ND FFS birthing people. Only 60.00% of American Indian/Alaska Native, non-Hispanic birthing individuals with an opioid abuse or dependence diagnosis received treatment. In comparison, 78.26% of white, non-Hispanic individuals initiated treatment. The lower treatment rate for American Indian/Alaska Native birthing people may reflect healthcare access challenges and cultural barriers.

Disparities also persist postpartum. White, non-Hispanic birthing people had higher care initiation (61.02%) compared to American Indian/Alaska Native birthing people (45.07%). Hispanic and Black, non-Hispanic birthing people also had low rates of treatment initiation during this time (both 40.00%). This points to barriers in the early postpartum period. Treatment rates improved in the Medicaid expansion postpartum period. American Indian/Alaska Native and white birthing people received treatment at rates of 70.00% and 59.26%, respectively. These ongoing disparities in treatment access underscore the pressing need to address inequities in care, particularly during the critical postpartum phase for relapse prevention.

The challenges of healthcare access in rural areas, such as ND, further exacerbate these disparities. Limited availability of addiction and maternal care specialists in the state poses a substantial barrier to timely OUD care.[15] This issue becomes even more challenging during the prenatal and postpartum periods. During these times, maternal individuals experience heightened vulnerabilities and have an increased need for specialized, comprehensive care.

Several promising strategies exist to mitigate rural healthcare access challenges. Telehealth services offer a viable solution by bridging geographical gaps, enabling remote consultations and support, and improving treatment adherence for individuals in isolated areas.[16] Mobile clinics for substance use

disorder have also been found to be particularly helpful for those living in rural areas.[17] Additionally, virtual peer support programs have also proven to be highly effective in providing safe spaces for emotional support and shared experiences.[18]

Expanding MAT programs and increasing the availability of specialized addiction care providers in rural areas are essential steps in improving maternal and child health outcomes.[19] Previous research highlights significant disparities in the receipt of MAT during the perinatal period, with Black pregnant and postpartum Medicaid enrollees receiving MAT at lower rates compared to their Hispanic and white counterparts.[20] The present study also reveal lower rates of OUD care initiation among racially/ethnically diverse birthing individuals. These disparities are not only reflective of broader systemic inequities in healthcare but also underscore the need for culturally tailored interventions.[21,22]

Addressing the multifaceted needs of pregnant individuals with OUD requires a holistic and collaborative approach. Collaborative care models that integrate addiction treatment, prenatal care, and mental health services offer a comprehensive approach to addressing the multifaceted needs of pregnant individuals.[23] Collaborative care models have been shown to reduce racial and ethnic disparities in maternal care outcomes by addressing the full spectrum of medical, emotional, and psychological needs.[24] These partnerships are essential for promoting long-term health outcomes for both birthing people and their infants.

Implicit bias training for healthcare providers can improve care and reduce disparities in maternal health outcomes.[25] Providers should adopt a trauma-informed, harm-reduction approach to treatment that prioritizes trust, self-efficacy, and empowerment for birthing individuals.[26] Implementing a comprehensive, collaborative, and trauma-informed care model is crucial for improving outcomes for pregnant individuals with OUD. This can help reduce disparities while prioritizing the birthing person's health, well-being, and dignity throughout their pregnancy journey.

Additionally, partnerships between healthcare providers, addiction specialists, and community organizations can significantly enhance care integration for pregnant individuals.[27] For example, Faces & Voices of Recovery and the Advisory Board Company each offer a toolkit for building recovery community organizations and provide innovative case studies and strategies for reducing health disparities. Strengthening these networks of care is critical for improving health outcomes and addressing systemic challenges faced by pregnant individuals with OUD.

CHWs play a pivotal role in bridging gaps in healthcare access and improving health outcomes, particularly in rural areas.[28] CHWs can provide culturally relevant education, advocacy, and support to address the unique needs of diverse populations. Their involvement in home visiting programs has been associated with improved maternal care and infant health, as well as a reduction in health disparities.[29] CHWs can enhance the reach and effectiveness of healthcare interventions by offering individualized care and addressing social determinants of health. This can help ensure that pregnant individuals with OUD receive the care they need.

Postpartum support is equally critical. Continued addiction treatment, mental health counseling, and family therapy are essential components of postpartum care.[30] These services can reduce the risk of relapse and improve long-term health outcomes for birthing people and their infants. However, as observed in this study, there remains a gap in postpartum care, especially within the first 60 days after delivery. This is notable, because the postpartum period is a time of heightened vulnerability for birthing people recovering from SUD. Ensuring that comprehensive postpartum support services are readily available and easily accessible is crucial for the continued recovery and well-being of birthing people, as well as the health of their infants.

Study Limitations and Strengths

Research suggests that OUD prevalence is likely higher than what is reported in claims data.[31] A key limitation in this study is the relatively low sample size for certain racial and ethnic groups, particularly Black, non-Hispanic; Asian American/Pacific Islander, non-Hispanic; and Hispanic populations. The small sample sizes for the numerators limited the ability to reliably calculate 95% confidence intervals or compare them to evaluate statistically significant differences among demographic subgroups. A study strength is the calculation of the IDU 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.

Conclusion

Addressing the challenges of OUD in pregnant individuals in rural ND requires a multifaceted approach that includes expanding access to MAT, reducing racial/ethnic disparities in care, and integrating telehealth and mobile clinic services. Collaborative care models, CHWs, and expanded postpartum support are also significant components of a comprehensive strategy to improve maternal and child health outcomes. By addressing these gaps and barriers, ND can ensure that all pregnant individuals with OUD receive the care and support they need to achieve better health outcomes for themselves and their children.

Recommendations for ND HHS

Addressing maternal opioid use in ND requires a multifaceted approach. The following recommendations are proposed:

- Expansion of Healthcare Services and MAT Access: Expanding access to addiction treatment, especially in rural areas, and increasing the availability of MAT programs is crucial for addressing opioid dependence throughout and after pregnancy.
- Culturally Tailored Treatment Programs: Culturally tailored addiction treatment programs improve engagement and reduce dropout rates for racial/ethnic minority populations.[21,22]
- Tribal Opioid Response Grants and Educational Opportunities: The SAMHSA website provides resources, support, and treatment locators for mental health and substance use disorders. This includes crisis helplines, prevention, recovery, and grant opportunities, with a focus on culturally appropriate services for Tribal communities.
- Collaboration Between Healthcare Providers and Community Organizations: Partnerships between healthcare providers, addiction specialists, and community organizations can improve support for pregnant women by combining prenatal care, addiction treatment, and mental health services.[23,27] Faces & Voices of Recovery offers a toolkit for establishing and sustaining recovery community organizations. This resource provides a collection of innovative case studies and strategies for building community partnerships aimed at reducing health disparities.
- Training Healthcare Providers on Implicit Bias and Trauma-Informed Care: Implicit bias training for healthcare providers can improve care and reduce disparities in maternal health outcomes.[32] Providers should be encouraged to utilize a trauma-informed approach that combines harm reduction and motivational interviewing. This should prioritize the development of trust, enhance self-efficacy, and empower the birthing person by strengthening their skills and resources.[26]
- Expansion of Peer Support Networks: Develop peer support programs where individuals with lived recovery experience offer guidance and emotional support to pregnant birthing people with substance use disorder.[18]
- Telehealth and Mobile Unit Options for Remote Areas: Use telehealth and mobile services to make addiction treatment and prenatal care more accessible to pregnant individuals in rural and underserved areas.[16,17]

- Incorporate Community Health Workers: CHWs improve healthcare access and reduce disparities by offering culturally relevant education and advocacy, particularly in underserved communities.[33]
- Postpartum Follow-up Care: Strengthen postpartum care to ensure continued access to substance use treatment, mental health services, and other support.

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