MATERNAL HEALTH IN MONTANA

Full Report • May 2022

MOMS Montana Obstetrics & Maternal Support

Rural Institute University of Montana

Montana DPHHS

HRSA Health Resources & Services Administration

COVER ART: Hello, my name is Rachel Twoteeth-Pichardo and I am Chippewa, Cree and Pend O'reille. I am currently a student at The University of Montana, which I am working towards my Bachelors in Art. I work with multiple mediums such as painting, drawing, beading, sewing, print making, dancing, Native American flute playing, and creating/teaching traditional indigenous games. The love and pride I have for my cultural heritage, drives my ambition and I couldn't imagine living a life without it. I titled this piece "A Mother's Love" for Mother's Day this past year. It meant a lot to me to create something so personal because it was my first actual Mother's Day, after becoming a new mom in 2020. My daughter really gave me a new found love, and respect to all mothers before me. I wanted to create something that really shows the beautiful bond between a mother and her baby and I mostly wanted to celebrate other indigenous mothers. This piece was also special to me because the ledger paper I used was from my grandmother's store in the 90's. Even though she is no longer here, I still get to craft and create with her and most importantly, carry her love with me.

Table of Contents

Acronym Glossary

Acronym	Full Name
ACOG	American College of Obstetricians and Gynecologists
AI/AN	American Indian Alaskan Native
AIM	Alliance for Innovation in Maternal Health
CDC	Centers for Disease Control and Prevention
CFSD	Child and Family Services Division
DPHHS	Department of Public Health and Human Services
DUA	Data Use Agreement
ERASE MM	Enhancing Reviews and Surveillance to Eliminate Maternal Mortality
FIPS	Federal Information Processing Standards
HRSA	Health Resources and Services Administration
ICD-10	International Classification of Disease 10th Revision
IHS	Indian Health Service
LGBTQ2S+	Lesbian, Gay, Bisexual, Transgender, Queer, Two Spirit
LOCATe	Levels of Care Assessment Tool
mOUD	Medications for Opioid Use Disorder
MAT	Medication-Assisted treatment
MHA	Montana Hospital Association
MMRC	Maternal Mortality Review Committee
MMRIA	Maternal Mortality Review Information Application
MOMS	Montana Obstetrics and Maternal Support Program
MPH	Master of Public Health
OB/GYN	Obstetrician / Gynecologist
OUD	Opioid Use Disorder
OTC	Over the Counter
PRAMS	Pregnancy Risk Assessment Monitoring Survey
RIIC	Rural Institute for Inclusive Communities
SMM	Severe Maternal Morbidity
SUD	Substance Use Disorder
UM	University of Montana

Executive Summary

The protection of pregnant, birthing, and postpartum individuals is both the policy of the state of Montana and a community responsibility — it signals the value that we place on one of our society's most vulnerable populations and it marks the start of a new life joining our community.

Maternal health describes the health of an individual during pregnancy, delivery, and the postpartum period which lasts up to eight weeks after delivery. Experiencing severe complications or death during childbirth are sentinel events — a measure of a community's overall social, relational, and economic health and well-being. This report describes the state of maternal health in Montana.

The Montana Obstetrics and Maternal Support (MOMS) research team at the University of Montana (UM) has analyzed several years' worth of birth records and hospital discharge data to better understand the landscape of maternal morbidity and mortality in Montana. Among 29,681 hospital-based births that occurred in Montana between 2016 to 2018, American Indian/Alaska Native (AI/AN) women had three times greater risk of experiencing severe maternal morbidity (SMM) compared to White women. SMM and mortality encompasses unexpected outcomes from labor and delivery which result in significant adverse short or long-term impacts on the birthing person's health. The most common indicator of SMM was blood transfusion for both AI/AN and White women.

In this, the second annual maternal health report for Montana, we feature a section on Indigenous experiences of maternal health and wellbeing, written by Amy Stiffarm, MPH (Aaniiih, Cree, Blackfeet), who is currently pursuing her doctoral degree in Indigenous Health at the University of North Dakota. Further, this report provides an in-depth analysis of substance use during pregnancy and highlights the work of the Meadowlark Initiative, a partnership between Montana Medicaid and the Montana Healthcare Foundation. We also provide a detailed overview of the findings from Montana's 2019 Pregnancy Risk Assessment and Monitoring Survey (PRAMS).

The report is intended to be a helpful resource for policymakers, public health practitioners, healthcare providers, philanthropists, and community advocates whose collective actions will create a more equitable and healthy community for Montana families.

We acknowledge that not all people who may become pregnant identify as a woman or a mother. We are committed to using language that is inclusive of two-spirit, transgender, and gender expansive individuals. When describing the research or findings of others, we will use the terms that are reflective of the language used in the publication which we are citing.

State Maternal Health Data

Demographics of Montana Birthing People

Montana Vital Statistics collects data on all births occurring in Montana. These data describe demographic information about the infant, mother/birthing parent, father/co-parent (when available), delivery characteristics, and birth outcomes for the infant and birth parent. A majority (79.3%) of Montana birthing people are White, 12.8% of are AI/AN. Table 1 provides a full list of demographic characteristics of the birthing parent.

Table 1. Birthing Parent Demographics of Montana Births, Vital Statistics, 2019.

Demographics	Birthing Parent Demographics[i] N=11,079 (%)
Age	
24 years and younger	2,748 (24.8)
25 to 39 years	8,040 (72.6)
40 years and older	291 (2.6)
Race	
Non-Hispanic White	8,781 (79.3)
Non-Hispanic American Indian or Alaska Native	1,418 (12.8)
Hispanic	526 (4.8)
Non-Hispanic Asian or Pacific Islander	202 (1.8)
Non-Hispanic Black	102 (0.9)
Unknown	50 (0.5)
Education	
Less than high school	1,150 (10.4)
High school graduate or GED	2,963 (26.7)
Some college or associate degree	3,505 (31.6)
Bachelor's or advanced degree	3,439 (31.0)
Unknown	22 (0.2)
Rurality	
Small Metropolitan	4,017 (36.3)
Micropolitan	3,267 (29.5)
Noncore	3,793 (34.2)

[i]MT DPHHS Vital Statistics, 2019

The MOMS research team at UM analyzed several years' worth of birth record and hospital discharge data to better understand the landscape of maternal health in Montana. The following section summarizes maternal health outcomes in Montana and highlights the geographic and demographic disparities related to poor maternal health outcomes. Data are presented for 2019 or the most recent year where possible.

Pregnancy-Related Mortality

Due to small population sizes, Montana often reports data as three-year rates. The most recent three-year period of Montana pregnancy-related mortality statistics made available from the Centers for Disease Control and Prevention (CDC) is 2015-2017. In 2015-2017, Montana recorded 36,664 live births and three pregnancy-related deaths, according to the CDC Pregnancy Mortality Surveillance System. The subgroups for pregnancy-related deaths are too small to report.

Insurance Coverage

Insurance Coverage During Pregnancy

The Montana Department of Public Health and Human Services (DPHHS) conducts PRAMS in partnership with CDC. PRAMS provides population-based estimates of key maternal and infant health outcomes using a random sample of individuals who experienced a live birth in the past 12 months. PRAMS primarily aims to assess levels of prenatal care use, pregnancy intention at the time of conception, delivery and birth outcomes, and postpartum care utilization. The CDC provides funding to 47 states, including Montana, to assist with the implementation of the PRAMS survey. Throughout the report, we present findings from the 2019 MT PRAMS[1] [1].

Table 2 illustrates detailed findings for insurance coverage by insurance type during pregnancy. Nearly half of pregnant individuals in Montana (42.7%) report insurance coverage through their job, and 42.0% report coverage by Medicaid during their pregnancy. The remaining coverage types include services provided by Indian Health Service (IHS)[2], insurance purchased on the health care exchange, parent's insurance plan, Healthy Montana Kids, TRICARE/Military, and other non-specified types of health insurance coverage. Significant differences in insurance coverage emerge by key individual demographic characteristics, including race, age, rurality, education, and disability status. For example, the majority (57.4%) of pregnant individuals living in the most rural (noncore) counties are covered by Medicaid, while comparatively fewer (approximately one-third) of pregnant individuals living in less rural counties have Medicaid.

[1] The most recent Health Resources and Service Administration (HRSA) guidelines have requested the following breakdowns for education level: less than a high school graduate, high school graduate or GED completed, some college or associate's degree, and bachelor's or advanced degree. PRAMS measures education level using the following benchmarks: less than high school, high school, some college, and college graduate.

[2] IHS is a direct medical and public health services delivery system serving members of federally recognized tribes through the US Department of Health and Human Services.

Table 2. Self-Pay Compared to Any Insurance as Principal Payer for Labor & Delivery in Montana Births, Vital Statistics, 2019.

N=11,079 Frequency (%)	Self-Pay[i]	Insurance[i]
Total	730 (6.6)	10,349 (93.4)
Race, ***		
Non-Hispanic White	632 (86.6)	8,149 (78.7)
Non-Hispanic American Indian or Alaska Native	24 (3.3)	1,389 (13.4)
Hispanic	40 (5.5)	480 (4.6)
Non-Hispanic Asian or Pacific Islander	23 (3.2)	190 (1.8)
Non-Hispanic Black	7 (1.0)	95 (0.9)
Unknown/Other	4 (0.6)	46 (0.4)
Age, ***		
≤24	127 (17.4)	2,621 (25.3)
25-39	577 (79.0)	7,463 (72.1)
40+	26 (3.6)	265 (2.6)
Rurality, ***		
Small Metro	221 (30.27)	3,796 (36.7)
Micropolitan	243 (33.3)	3,024 (29.2)
Noncore	265 (36.3)	3,528 (34.1)
Unknown	1 (0.1)	1 (0.0)
Education, ***		
Less than High School	99 (13.6)	1,051 (10.2)
High School	409 (56.0)	6,059 (58.6)
College Graduate	216 (29.6)	3,223 (31.1)
Unknown	6 (0.8)	16 (0.2)
* = p<.05; ** = p<.01; ***= p<.001		

[i]MT DPHHS Vital Statistics, 2019

Labor & Delivery Insurance Coverage

Montanans experience more uninsured births (6.6%) than the national average of 4.9% self-paid births [2]. Of birthing individuals with primary labor and delivery insurance coverage, approximately 47.1% have private health insurance as their principal payer for labor and delivery, followed by 41.8% receiving primarily Medicaid coverage, 4.2% receiving other or unknown primary coverage, and 6.6% with no insurance coverage. Approximately 1.0% of birthing individuals primarily utilize IHS for labor and delivery services.

Postpartum Insurance Coverage

Table 3 illustrates postpartum insurance for Montana birthing individuals by insurance type. Nearly half report postpartum insurance coverage through their job (40.8%), and 38.3% report coverage by Montana Medicaid. The remaining coverage types include services provided by IHS, insurance purchased on the health care exchange, parent's insurance plan, Healthy Montana Kids, TRICARE/Military, and other non-specified types of health insurance. Similar to during pregnancy insurance coverage, significant differences emerge in postpartum insurance coverage by key demographic characteristics, including race, age, rurality, education, and disability status. Most (54.3%) of pregnant individuals residing in the most rural (noncore) counties are covered by Medicaid, compared to approximately one-fourth of pregnant persons in less rural counties receiving Medicaid coverage.

Table 3. Postpartum Insurance Coverage Among Montana Residents, MT PRAMS, 2019.

N=726 • % (95% CI)	Job[i]	Medicaid[i]	Healthy MT Kids[i]	Parent[i]	IHS / Tribal[i]	Health Care Exchange[i]	Other[i]	TRICARE/ Military[i]	None[i]
Total	40.8 (38.0-43.7)	38.3 (35.4-41.2)	11.6 (9.5-14.2)	4.8 (3.3-6.7)	5.9 (4.9-7.1)	5.4 (4.0-7.3)	5.5 (4.1-7.5)	3.9 (2.7-5.5)	5.0 (3.6-6.9)
Race, ***	***	***	***	**	***	***	***	*	**
Non-Hispanic White	15.0 (10.4-21.2)	74.8 (67.5-80.9)	30.1 (23.3-38.0)	.	46.4 (38.6-54.4)	0	.	.	.
Non-Hispanic American Indian or Alaska Native	.	.	.	.	.	.	.	.	.
Hispanic	.	.	.	.	.	.	.	.	.
Non-Hispanic Asian or Pacific Islander	44.7 (41.3-48.1)	34.3 (31.0-37.8)	9.3 (6.9-12.4)	5.4 (3.7-7.8)	.	6.1 (4.4-8.4)	6.3 (4.6-8.6)	3.2 (2.1-5.0)	4.8 (3.3-7.0)
Non-Hispanic Black	.	.	.	.	.	.	.	.	.
Age, ***	***	***	**	***		**		***	***
≤24	14.5 (9.8 - 20.8)	61.0 (53.0-68.4)	21.7 (15.6-29.3)	16.6 (11.5-23.5)	8.3 (5.4-12.5)	.	.	6.8 (3.9-11.9)	.
25-39	49.2 (45.6-52.8)	30.4 (27.2-33.8)	8.3 (6.3-10.9)	.	5.1 (4.0-6.5)	6.6 (4.8-9.1)	6.0 (4.4-8.3)	3.0 (1.9-4.7)	6.0 (4.3-8.4)
40+	.	.	.	.	.	.	.	.	.
Rurality, ***	***	***	***		***		**	***	
Small Metro	45.2 (39.8-50.7)	32.6 (27.4-38.2)	11.6 (8.2-16.2)	.	2.4 (1.3-4.2)	4.4 (2.6-7.5)	.	7.3 (4.9-10.7)	6.0 (3.6-9.8)
Micropolitan	47.8 (41.1-54.6)	26.0 (20.4-32.5)	.	.	.	8.3 (5.2-13.0)	10.4 (6.7-15.7)	.	.
Non-Core	30.5 (25.3-36.1)	54.3 (48.4-60.1)	17.7 (13.4-23.1)	5.9 (3.4-10.0)	14.0 (11.1-17.5)	.	4.8 (2.8-8.0)	.	.
Education, ***	***	***	***		***	***		***	
Less than High School	.	.	.	.	12.0 (7.0-20.0)	.	.	0	.
High School	21.7 (16.3-28.4)	62.6 (55.0-69.6)	17.3 (11.9-24.3)	7.9 (4.5-13.6)	6.4 (4.0-10.2)	.	.	.	7.1 (4.0-12.3)
Some College	35.7 (30.2-41.6)	39.8 (34.4-45.5)	10.0 (7.0-14.2)	.	8.7 (6.5-11.7)	7.5 (4.7-11.7)	4.9 (2.8-8.5)	5.3 (3.2-8.8)	5.2 (3.0-8.9)
College Graduate	70.1 (64.5-75.2)	7.2 (4.7-10.9)	.	.	.	8.4 (5.5-12.5)	7.8 (5.2-11.5)	4.5 (2.6-7.5)	.
Disability Status	**	***							*
No Disability	42.8 (39.7-46.0)	35.4 (32.4-38.5)	10.6 (8.4-13.2)	5.0 (3.5-7.2)	5.5 (4.4-6.8)	5.7 (4.2-7.7)	5.8 (4.2-7.8)	3.9 (2.7-5.6)	5.2 (3.7-7.3)
Disability	.	.	.	.	.	.	.	.	.

Some cells are suppressed due to too few responses in that category and are represented as "."
* = p<.05; ** = p<.01; ***= p<.001

[i]Montana Pregnancy Risk Assessment & Monitoring System (PRAMS), 2019

Access to Maternal Health Care

Montana Vital Statistics collects data on all births occurring in Montana; these data describe demographic information about the infant, mother/birthing parent, and father/co-parent (when available), delivery characteristics, and birth outcomes for both the infant and birth parent. In 2019, the total number of births among Montana residents decreased slightly, with 11,079 total births occurring, including 161 sets of twins and two sets of triplets. The average gestational age at the time of birth is 38.5 weeks. The average ages of the mother and father/co-parent are 28.7 years old and 31.4 years old, respectively. A majority (84.4%) of mothers and fathers (77.9%) are White; 12.8% of mothers and 9.4% of fathers are AI/AN. Approximately 9.1% of mothers report living on a reservation at the time of delivery.

Prenatal Care

Table 4 shows prenatal care access for all individuals in Montana who gave birth in 2019. Nearly all (98.6%) accessed prenatal care at least once, and most (74.9%) accessed prenatal care in the 1st trimester. Importantly, clear racial disparities emerge in access to prenatal care, especially for AI/AN individuals. AI/AN individuals represent the lowest percentage of birthing persons with access to prenatal care in the first trimester (48.3%) compared to other races. While most (94.7%) AI/AN individuals access prenatal care at least once, AI/AN individuals represent the second lowest percentage of birthing persons accessing prenatal care when compared to other races.

Table 4. Prenatal Care Utilization for Montana Births Occurring in 2019, Vital Statistics 2019.

Demographics	Any Prenatal Care[i]	Prenatal Care in 1st Trimester[i]
Age		
24 years and younger	2,706 (98.5)	1,834 (66.7)
25 to 39 years	7,936 (98.7)	6,253 (77.8)
40 years and older	285 (97.9)	214 (73.5)
Race		
Non-Hispanic White	8,712 (99.2)	6,970 (79.4)
Non-Hispanic American Indian or Alaska Native	1,343 (94.7)	685 (48.3)
Hispanic	524 (99.6)	386 (73.4)
Non-Hispanic Asian or Pacific Islander	201 (99.5)	153 (75.7)
Non-Hispanic Black	102 (100.0)	72 (70.6)
Unknown	45 (90.0)	35 (70.0)
Education		
Less than high school	1,150 (10.4)	585 (50.9)
High school graduate	2,963 (26.7)	4,764 (73.7)
Some college	3,427 (99.7)	2,943 (85.6)
Unknown	16 (72.7)	9 (40.9)
Rurality		
Small Metropolitan	1,103 (95.9)	3,188 (79.4)
Micropolitan	6,381 (98.7)	2,580 (79.0)
Noncore	3,427 (99.7)	2,532 (66.8)

[i]Montana DPHHS Vital Statistics, 2019

Labor & Delivery

Type of delivery remains consistent from 2018 to 2019, with 71.5% of births occurring vaginally and 28.4% occurring by Cesarean section. In 2019, Montana had a slightly lower rate (at 32.0%) of Cesarean section than the national average [2]. In 2019, 712 (6.4% of all deliveries) of Cesarean section births were classified as low-risk.

Nearly all (96.0%) of Montana births occur in a hospital, 2.4% at home, and 1.6% at a birth center. A majority (84.5%) of births are attended by a physician and 14.5% of births are attended by a certified midwife or midwife. Epidurals are given to birthing persons in 71.6% of Montana births. Labor induction occurs in 32.6% of births, antibiotics are given during labor to the birthing individual in 22.7% of births, and augmented labor occurs in 18.6% of deliveries.

Low-Risk Cesarean

Table 5 details the low-risk Cesarean section rate. Low-risk Cesarean sections are those performed on nulliparous pregnant people who have a full-term, headfirst, single-infant birth. In 2019, 712 infants (6.4% of all births) were delivered via low-risk Cesarean sections. Notably, Black Montanans represent the highest percentage of low-risk Cesarean sections (12.8%), while AI/AN Montanans represent the lowest percentage of low-risk Cesarean sections (5.8%) compared to other races.

Table 5. Low-Risk Cesarean Section Among Montana Births, Vital Statistics, 2019.

Demographics	Low-risk Cesarean[i]
Total	712 (6.4)
Age	
24 years and younger	241 (8.8)
25 to 39 years	455 (5.7)
40 years and older	16 (5.5)
Race	
Non-Hispanic White	560 (6.4)
Non-Hispanic American Indian or Alaska Native	82 (5.8)
Hispanic	37 (7.1)
Non-Hispanic Asian or Pacific Islander	17 (8.0)
Non-Hispanic Black	13 (12.8)
Unknown	3 (6.0)
Education	
Less than high school	61 (5.3)
High school graduate	370 (5.7)
College graduate or higher	280 (8.1)
Unknown	1 (4.6)
Rurality	
Small Metropolitan	264 (6.6)
Micropolitan	234 (7.2)
Noncore	214 (5.6)

[i]Montana DPHHS Vital Statistics, 2019

Postpartum Care

Table 6 provides a detailed list of postpartum checkup attendance and postpartum depression screening. Approximately 90.3% of Montana birthing individuals report receiving a postpartum checkup, with significant disparities emerging for postpartum visits among AI/AN individuals (73.0%), compared to White individuals (93.1%). Significant differences also occur by rurality classification, with populations in micropolitan areas (97.0%) attending postpartum checkups more than those in small metropolitan (91.1%) and noncore areas (83.9%). The likelihood of attending a postpartum checkup significantly decreases with declining level of education, with 98.3% of college graduates, 90.5% of people who attended some college, and 85.8% of people who completed high school accessing postpartum visits. Most patients (93.1%) who receive a postpartum checkup are screened for postpartum depression at the postpartum checkup.

Table 6. Postpartum Checkup and Screening Among Montana Residents, MT PRAMS, 2019.

N=721 • % (95% CI)	Postpartum Checkup for Self[i]	Postpartum Depression Screening[i]	Emotional/ Physical Abuse[i] (*N=638)
Total	90.3 (88.0 - 92.2)	93.1 (90.8 - 94.8)	57.4 (53.5 - 61.2)
Race	***		***
Non-Hispanic American Indian or Alaska Native	73.0 (65.1 - 79.6)	94.4 (87.8 - 97.6)	85.6 (77.7 - 91.0)
Non-Hispanic Asian or Pacific Islander	.	.	
Non-Hispanic Black	.	.	.
Non-Hispanic White	93.1 (90.5 - 95.0)	92.7 (90.0 - 94.7)	53.3 (48.8 - 57.7)
Hispanic	.	.	.
Age			
≤24	89.3 (83.1 - 93.4)	91.7 (85.2 - 95.5)	57.7 (48.9 - 66.0)
25-39	90.4 (87.9 - 92.5)	93.5 (91.0 - 95.4)	57.0 (52.5 - 61.3)
40+	.	.	.
Rurality	***		
Small Metro	91.1 (87.0 - 94.0)	91.5 (87.4 - 94.3)	60.0 (53.8 - 66.0)
Micropolitan	97.0 (93.6 - 98.6)	94.3 (90.1 - 96.8)	51.8 (44.5 - 58.9)
Noncore	83.9 (79.0 - 87.8)	93.9 (88.8 - 96.7)	59.6 (52.5 - 66.2)
Education	***		
Less than High School	.	.	.
High School	85.8 (79.3 - 90.4)	91.4 (85.1 - 95.1)	61.7 (53.0 - 69.7)
Some College	90.5 (86.3 - 93.4)	93.8 (89.7 - 96.4)	58.3 (51.6 - 64.6)
College Graduate	98.3 (96.1 - 99.3)	92.9 (89.0 - 95.5)	52.5 (46.3 - 58.6)
Disability Status		***	
No Disability	90.6 (88.2-92.5)	92.5 (90.0 - 94.5)	57.6 (53.6 - 61.6)
Disability	86.5 (74.2 - 93.4)	.	.
Some cells are suppressed due to too few responses in that category and are represented as "."* = p<.05; ** = p<.01; ***= p<.001			

[i] Montana Pregnancy Risk Assessment & Monitoring System (PRAMS), 2019

Postpartum Depression

Table 7 outlines postpartum depression symptoms, which PRAMS measures through self-report of 1) low mood, and 2) anhedonia[3]. Of the birthing individuals screened for low mood in their postpartum appointment, 10.7% report that they "Always" or "Often" feel down, depressed, or hopeless. Significant differences emerge across age groups, with more women aged 24 or younger reporting "Always" or "Often" experiencing low mood (18.0%) than women aged 25 to 39 (8.4%). Significant disparities also emerge by education level, with decreasing self-report of "Always" or "Often" experiencing low mood by education level, as 17.8% of people who completed high school, 10.3% of people who attended some college, and just 5.5% of people who graduated college reporting "Always" or "Often" experiencing low mood.

[3] Anhedonia is the inability to enjoy experiences or activities that normally would be pleasurable.

Of birthing people screened for anhedonia, 11.0% report "Always" or "Often" experiencing little or no interest or pleasure in activities. Significant racial and ethnic disparities emerge among women screened for anhedonia, with more AI/AN individuals "Always" or "Often" experiencing anhedonia (16.6%) than White individuals (10.1%). As observed with low mood, significant differences similarly emerge by education level, with higher education serving as a protective factor against anhedonia. As such, 16.7% of people who completed high school, 11.5% of people who attended some college, and 7.1% of people who graduated college report "Always" or "Often" experiencing anhedonia. Finally, significant differences emerge by rurality classification, with 14.6% of residents living in small metropolitan, 6.5% of residents living in micropolitan, and 10.7% of residents living in noncore areas "Often" or "Always" experiencing anhedonia. No significant differences are observed across age groups.

Table 7. Postpartum Depression, MT PRAMS, 2019.

N=721 • % (95% CI)	Low Mood (Down, Depressed, or Hopeless)[i]		Anhedonia (No Interest)[i]	
	Always / Often	Sometimes / Rarely / Never	Always / Often	Sometimes / Rarely / Never
Total	10.7 (8.5 - 13.4)	89.3 (86.6 - 91.5)	11.0 (8.9 - 13.6)	89.0 (86.4 - 91.1)
Race			*	*
Non-Hispanic American Indian or Alaska Native	12.8 (8.2 - 19.2)	87.2 (80.8 - 91.8)	16.6 (11.4 - 23.6)	83.4 (76.4 - 88.6)
Non-Hispanic Asian or Pacific Islander	.	.	.	.
Non-Hispanic Black	.	.	.	.
Non-Hispanic White	10.5 (8.0 - 13.7)	89.5 (86.3 - 92.0)	10.1 (7.7 - 13.1)	89.9 (86.9 - 92.3)
Hispanic	.	.	.	.
Age	*	*		
≤24	18.0 (12.2 - 25.6)	82.0 (74.4 - 87.8)	15.8 (10.7 - 22.8)	84.2 (77.2 - 89.3)
25-39	8.4 (6.3 - 11.2)	91.6 (88.8 - 93.7)	9.6 (7.4 - 12.4)	90.4 (87.6 - 92.6)
40+	.	.	.	.
Rurality			*	*
Small Metro	13.2 (9.4 - 18.1)	86.8 (81.9 - 90.6)	14.6 (10.8 - 19.5)	85.4 (80.5 - 89.2)
Micropolitan	8.1 (4.7 - 13.7)	91.9 (86.3 - 95.3)	6.5 (3.8 - 11.0)	93.5 (89.0 - 96.2)
Noncore	10.2 (6.9 - 14.8)	89.8 (85.2 - 93.1)	10.7 (7.3 - 15.2)	89.3 (84.8 - 92.7)
Education	**	**	*	*
Less than High School	.	88.8 (77.3 - 94.9)	.	93.1 (85.9 - 96.8)
High School	17.8 (12.1 - 25.3)	82.2 (74.7 - 87.9)	16.7 (11.4 - 23.8)	83.3 (76.2 - 88.6)
Some College	10.3 (7.2 - 14.7)	89.7 (85.3 - 92.8)	11.5 (8.2 - 16.0)	88.5 (84.0 - 91.8)
College Graduate	5.5 (3.3 - 9.0)	94.5 (91.0 - 96.7)	7.1 (4.6 - 10.8)	92.9 (89.2 - 95.4)
Disability Status	**	**	**	**
No Disability	8.9 (6.8 - 11.4)	91.1 (88.6 - 93.2)	9.1 (7.1 - 11.5)	90.9 (88.5 - 92.9)
Disability	.	.	.	.

Some cells are suppressed due to too few responses in that category and are represented as "."
* = p<.05; ** = p<.01; ***= p<.001. Statistical significance was tested by: "Sometimes"/"Rarely"/"Never" and "Always"/"Often" groupings.

[i] Montana Pregnancy Risk Assessment & Monitoring System (PRAMS), 2019

Differences in Healthcare and Birth Outcomes by Racial Inequity, Urban/Rural Classification, and Principal Payer

Montana populations experience inequities based on race across risk indicators in gestational age, preterm birth, low birthweight, and breastfeeding at discharge. Specifically, AI/AN individuals have the lowest average gestational age (38.1 weeks), highest percentage of preterm births (14.0%), second highest percentage of low birthweight (8.6%), and the lowest percentage of breastfeeding at discharge (71.8%) compared to all other races. While AI/AN individuals have the lowest percentage of low-risk Cesarean sections (5.8%) compared to the other races, Black individuals have the highest percentage of low-risk Cesarean sections (12.8%).

AI/AN individuals are also the least likely to initiate prenatal care in the first trimester (48.3%) when compared to other races, likely representing issues related to access to care. AI/AN individuals also experience the highest percentage of pregnancy risk factors, including smoking during pregnancy (26.9%), drinking alcohol during pregnancy (2.3%), previous Cesarean section (18.6%), and any risk factor (37.4%).

Significant differences among racial groups also emerge in labor and birth complications/defects. Compared to all races, Black individuals have the highest percentage of epidurals or spinal anesthesia during labor (77.5%) and induction of labor (34.3%). Asian or Pacific Islander individuals have higher percentages of infants admitted to the NICU (11.4%) and infants needing assisted ventilation (8.4%), although these numbers are too small to draw inferences from at the population level.

We based urban and rural classifications on the National Center for Health Statistics classification scheme using the birthing parent's residential Federal Information Processing Standards (FIPS) code. Montana has three of the six categories: small metropolitan (population less than 250,000 people), micropolitan (population 10,000-49,999 people), and noncore. No statistically significant findings emerge for gestational age, preterm birth, or low birthweight risk indicators between the three urban/rural classifications. However, noncore birthing residents experience the lowest percentage of access to any prenatal care (97.5%) and initiation of prenatal care in the first trimester (66.8%). Noncore residents also represent the highest percentage of people smoking cigarettes (14.6%) and drinking alcohol during pregnancy (1.0%) when compared to small metropolitan and micropolitan residents. The only pregnancy risk factors demonstrating statistically significant differences by rurality are pre-pregnancy hypertension, previous preterm birth, previous poor outcomes, and any risk factor. Specifically, noncore residents experience the highest proportion of pre-pregnancy hypertension, while small metropolitan residents experience the highest rates of the remaining significant risk factors. Specifically, residents from small metropolitan areas have the highest rates of epidural or spinal anesthesia during labor (79.7%) and augmentation of labor (21.3%). Small metropolitan residents also have the highest proportion of birth complications (9.9%) admitted to NICU and receiving assisted ventilation (8.3%).

Health disparities also become evident upon examining insurance coverage and services accessed through IHS. For example, delivering people utilizing IHS as primary health care experience a lower gestational age (38.1 weeks), the highest percent of preterm births (12.9%), and the lowest

percent of breastfeeding at discharge (62.1%). The lowest percent of individuals accessing any prenatal care occurs among deliveries through IHS (91.4%), while the highest percent of individuals accessing any prenatal care comes from individuals covered by private insurance (99.7%). Similarly, individuals covered by Medicaid during deliveries experience the second highest percentage of preterm births (11.6%), and the highest percent of low birthweight (8.9%), compared to individuals covered by all other payers.

Furthermore, individuals delivering under Medicaid coverage have the lowest likelihood of starting prenatal care in the first trimester (63.7%), compared to a much higher percentage of individuals covered by private insurance (85.8%) starting prenatal care in the first trimester. Individuals covered by Medicaid and accessing services through IHS experience the highest percentage of pregnancy risk factors, with deliveries through IHS representing the highest percentage of births (38.8%) experiencing any risk factor. Similar to the results that emerge when stratified by race, many statistically significant differences exist among proportions of labor and delivery complications based on the health insurance source of the birthing person.

Key Findings and Factors

Factors Contributing to Severe Maternal Morbidity

UM conducted an analysis and prepared a report of the rate of SMM among Montana residents 11-50 years who delivered at a hospital in Montana from January 1, 2016, to December 31, 2018, using hospital discharge data collected by the Montana Hospital Association (MHA). This report measures the rate of SMM using the CDC definition, which identifies cases based on the International Classification of Disease 10th Revision (ICD-10). This study finds increased risk of SMM by age, patient rurality, Medicaid status, and race. Patients for whom the primary payer for delivery was Medicaid had an increased risk of SMM compared to patients with private insurance, those who paid out-of-pocket for delivery, and those who had other public insurance. Both younger (less than 20 years) and older (35 years or more) patients had an increased risk of SMM compared to patients 20-34 years old. AI/AN patients were three times more likely to experience SMM compared to white patients; the largest increase in risk among the demographic risk factor groups. Residents of noncore counties had a higher risk of SMM compared to small metropolitan residents.

The findings in this report match national-level trends in health disparities and highlight a path forward for improving maternal outcomes in Montana. Creating culturally appropriate and well-targeted maternal health programs for AI/AN and rural Montanans can reduce SMM across the state. AI/AN individuals are more likely to live in rural counties; effective programs must address the "double" burden faced by these communities. Health providers and public health practitioners should partner with AI/AN and rural populations to develop effective initiatives. Learning from and working with impacted communities will ensure that patients feel empowered and supported throughout their pregnancy and lead to improved obstetric outcomes. The full Severe Maternal Morbidity in Montana [5] report is available on the MOMS website.

SEVERE MATERNAL MORBIDITY DEFINITION

- CDC Definition: The CDC, in partnership with the Council on Patient Safety in Women's Health Care, classifies SMM using 21 different indicators based on diagnosis and/or procedure codes from the International Classification of Disease (ICD). The classification system was specifically developed by the CDC to be used on hospital administrative data [3].

- AIM Definition: Unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a patient's health. AIM provides ICD-10 codes to measure severe maternal morbidity that align with the CDC definition, which outlines 21 different indicators for SMM [4].

Maternal Health Recommendations

Policy & Programmatic Recommendations

Improving maternal health in Montana will require a comprehensive systems-based approach. Such a system provides targeted and culturally sensitive care within a network of interconnected providers, organizations, and agencies. Taking a systems-level approach can lead to improvements in service delivery and access to care. A coordinated maternal health system must include screening and referrals for clinical risk factors, such as hypertension and diabetes, and social determinants of health, including levels of stress, trauma, food insecurity, and neighborhood violence. Identifying risk factors and connecting individuals to services before pregnancy can reduce pregnancy complications and SMM. AI/AN and rural Montanans experience elevated risk for adverse maternal health outcomes. Policy and programmatic interventions should concentrate on addressing adverse maternal health outcomes, including substance use during pregnancy and SMM, particularly among AI/AN and rural residents. Further research on the maternal health needs of the AI/AN community is necessary to create effective interventions.

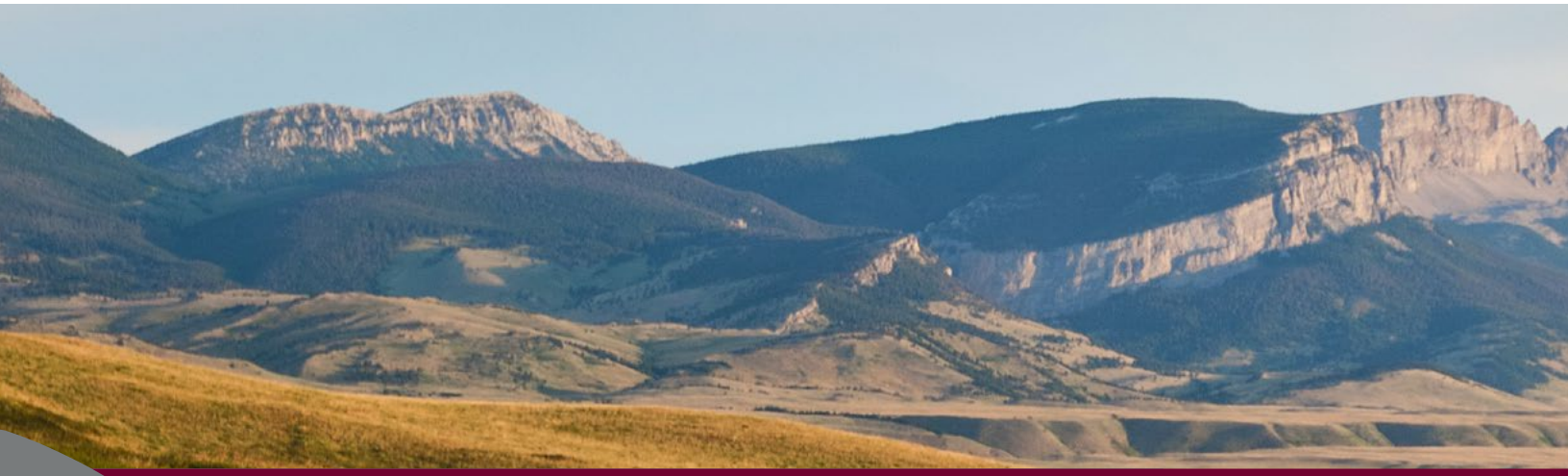
Data Collection & Analysis Improvement Recommendations

Pregnancy-Related Mortality

The award of the HRSA MOMS grant and the CDC Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) grant to Montana DPHHS initiated significant action around pregnancy-related death investigations. Prior to these grants, Montana was one of only two states in the nation that did not have a statewide Maternal Mortality Review Committee (MMRC) reporting into the CDC Maternal Mortality Review Information Application (MMRIA) system. With the investment of these two grants and elevated focus on maternal health, Montana has appointed its first-ever MMRC. This new investigatory body will provide invaluable guidance for preventing future Montana maternal deaths.

Severe Maternal Morbidity (SMM)

Prior to HRSA's award of the MOMS grant to Montana, the state had not conducted regular surveillance of SMM, and the data use agreement (DUA) between DPHHS and MHA did not include key demographic data necessary for disparities analysis. Upon award of the MOMS grant, the UM Rural Institute for Inclusive Communities (RIIC)



entered a DUA with MHA to conduct the first-ever assessment of disparities in SMM in the state of Montana. The first analysis included the years 2016-2018, and results of this study have been disseminated to clinicians and stakeholders in Montana and are being operationalized through Montana's enrollment in the American College of Obstetricians and Gynecologists (ACOG) HRSA-funded Alliance on Innovation in Maternal (AIM) Health Program. Results from this analysis are summarized in the data section above, and this new data partnership will continue to ensure ongoing surveillance and data improvement initiatives so that SMM is consistently tracked, reported back to hospitals, and acted upon for labor and delivery quality improvement. DPHHS plans to enhance maternal health surveillance which will include linkages across major data systems; this development will spur greater access to information about the health of Montanans that can be relied upon for future resource and policy decision-making.

PRAMS

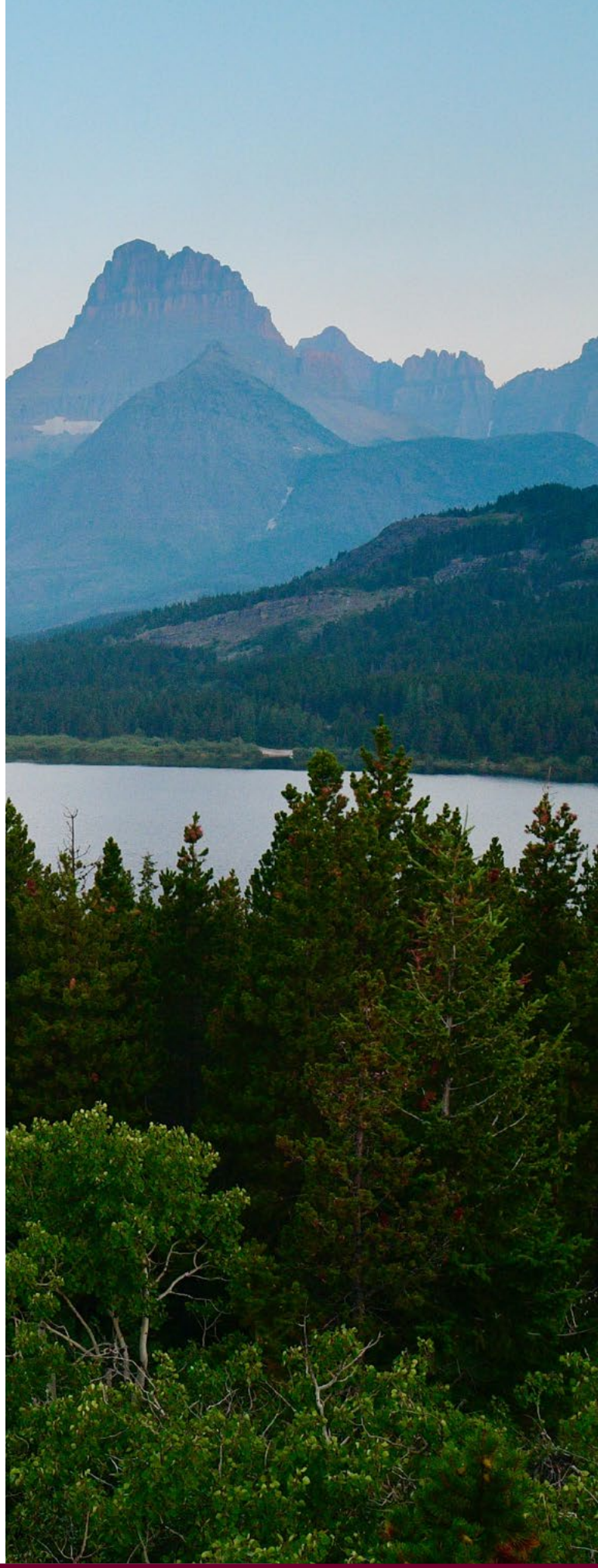
Montana began collecting PRAMS surveys in 2017. Since the inception of the Montana PRAMS, this system has undergone significant growth and improvement, which has culminated in the publication of a dynamic data dashboard in 2021. This dashboard can be accessed here: https://dphhs.mt.gov/ecfsd/PRAMS. This dashboard has facilitated better access to annual PRAMS data, disparities analysis, and information for clinicians and policymakers who are endeavoring to improve maternal and infant health in Montana. The PRAMS program has also released its first issue brief, an analysis of oral health care in Montana from 2017 through 2019, which found significant disparities across key demographics in access to dental care in pregnancy.

LOCATe

In 2021, the MOMS program commissioned a statewide assessment, conducted by UM RIIC, of risk-appropriate maternal and neonatal care through the implementation of the CDC Levels of Care Assessment Tool (LOCATe). Risk-appropriate care is a strategy to support birthing people and neonates receiving care at a facility staffed with the personnel and resources to meet their needs. LOCATe collects initial data about facility capacity and service delivery in the state, provides facilities with the opportunity to self-assess, and offers areas for facilities to consider changes in practice. The data collection occurred from July 23, 2021, to October 31, 2021, with participation from 25 (96%) of the 26 birthing facilities in the state. The results provide a starting point for discussion among maternal health stakeholders on improving the provision of risk-appropriate care in Montana.

Other Relevant Montana-Specific Maternal Health Factors

In the following sections, we present other specific maternal health indicators most relevant to Montanans, including substance use during pregnancy, rural and Indigenous communities, foster care, medication-assisted treatment for opioid use disorders during pregnancy, and legal reporting requirements in Montana. We additionally present the Meadowlark Initiative, an example of a program working to provide substance use treatment to birthing persons and decrease the number of children placed in foster care. We conclude with an overview of Indigenous maternal health and wellness, written by Amy Stiffarm, MPH, to illustrate the gaps between existing Western and desired Traditional pregnancy journeys of Indigenous birthing persons in Montana.



Substance Use During Pregnancy

Breadth, Scope, and Outcomes of Substance Use in Pregnancy

Rising rates of opioid, amphetamine, and cannabis use among individuals of child-bearing age in the United States have resulted in growing rates of substance use disorder (SUD) in pregnancy [6-10]. SUD is defined by the Diagnostic and Statistical Manual of Mental Disorders as a combination of symptoms related to the use of substances like alcohol, caffeine, cannabis, hallucinogens, inhalants, opioids, sedatives, hypnotics, stimulants, and tobacco [8]. Symptoms of SUD include: (1) using greater amounts of substances for a longer amount of time than intended; (2) wanting to cut down or discontinue substance use, but being unable to do so; (3) spending excessive amounts of time obtaining, using, or recovering from substance use; (4) failing to manage responsibilities at home, work, or school due to substance use; (5) continuing to use substances despite resultant relationship problems; (6) giving up important activities due to substance use; (7) using substances repeatedly in dangerous situations; (8) continuing to use substances despite physical or psychological problems caused by or exacerbated by use; (9) developing tolerance to substances; and (10) experiencing symptoms of craving and withdrawal.

Prenatal and postpartum SUD can lead to negative consequences for parents and children, including higher rates of SMM and mortality. A respective analysis of diagnostic codes of 53.4 million delivery hospitalizations suggested that prenatal opioid, amphetamine, and cocaine use disorders were associated with an increased risk of SMM, with potentially life-threatening complications during or after childbirth [12].

Perinatal SUD may also have adverse consequences for children. A recent review of high-quality research studies [13] indicates prenatal substance use can have negative impacts on child development. There is clear evidence that tobacco and alcohol use during pregnancy result in a higher risk for behavioral problems and academic performance in children [13]. Marijuana use during pregnancy is associated with problems in executive and intellectual functioning among children and adolescents [13]. Though the specific impacts of opioid use in pregnancy are unclear, treatment of opioid use disorder with medications like methadone and buprenorphine has not been associated with adverse developmental consequences for children [13]. It is also unclear whether amphetamine use in pregnancy results in adverse developmental consequences; any adverse effects appear to be mediated by environment and adverse childhood experiences [13]. In other words, we cannot conclude based on existing research that amphetamine use in pregnancy results in adverse developmental consequences because such effects could also be at least partially explained by adverse childhood experiences.

Table 10 illustrates self-reported substance use by individuals in Montana during pregnancy, including over-the counter (OTC) pain relievers, prescription pain relivers, and marijuana or hash. Of the people asked about their substance use behaviors during pregnancy, 71.8% reported use of OTC pain relievers, 4.3% reported use of prescription pain relievers, and 1.6% reported use of marijuana or hash.

Table 8. Substance Use in Pregnancy, MT PRAMS, 2019.

N=720 • % (95% CI)	OTC Pain Relievers	Prescription Pain Relievers	Marijuana or Hash
Total	71.8 (68.4 - 74.9)	4.3 (2.9 - 6.2)	1.6 (0.9 - 2.7)
Race	***		***
Non-Hispanic American Indian or Alaska Native	58.3 (50.2 - 66.1)	.	14.5 (9.6 - 21.4)
Non-Hispanic Asian or Pacific Islander	.	.	.
Non-Hispanic Black	.	.	.
Non-Hispanic White	74.8 (70.9 - 78.3)	3.9 (2.4 - 6.1)	5.8 (4.1- 8.4)
Hispanic	.	.	.
Age		**	
≤24	71.0 (63.4 - 77.6)	.	9.8 (5.7 - 16.2)
25-39	72.3 (68.4 - 75.8)	3.5 (2.2 - 5.4)	6.2 (4.6 - 8.5)
40+	.	.	.
Rurality			
Small Metro	73.8 (68.4 - 78.6)	3.5 (1.9 - 6.2)	6.6 (4.3 - 10.1)
Micropolitan	68.7 (61.7 - 75.0)	.	9.3 (5.7 - 14.7)
Noncore	71.9 (66.2 - 77.0)	.	5.6 (3.4 - 9.2)
Education			***
Less than High School	.	.	.
High School	76.2 (69.0 - 82.1)	.	9.7 (5.8 - 15.6)
Some College	71.8 (65.9 - 77.1)	.	8.1 (5.4 - 12.1)
College Graduate	70.0 (64.1 - 75.3)	.	.
Disability Status			*
No Disability	71.1 (67.7 - 74.4)	3.8 (2.5 - 5.6)	5.9 (4.3 - 7.9)
Disability	.	.	.

Some cells are suppressed due to too few responses in that category and are represented as "."
* = p<.05; ** = p<.01; ***= p<.001

The following response categories were excluded from the table due to insufficient power: Adderall, Ritalin, & Other Stimulants; Synthetic Marijuana; Hash, Amphetamines; and Cocaine

[i] Montana Pregnancy Risk Assessment & Monitoring System (PRAMS), 2019

Montana Context – Rural & Indigenous Communities

The rates of SMM and mortality increased between 2007 and 2015, and residents in rural areas had a nine percent greater chance of SMM or mortality compared to residents of urban areas [14]. This may be explained in part by growing rates of prenatal polysubstance use (particularly tobacco and amphetamine use) in rural areas compared to urban areas [8]. In Montana, from 2010 to 2016, the rate of infants exposed to substances in utero and born to patients insured by Medicaid has increased from 3.7% to 12.3% [15]. Relatedly, over the past decade, parental substance use was implicated in twice as many foster care cases in Montana.

The Safety of Medication-Assisted Treatment for Opioid Use Disorder During Pregnancy

For individuals struggling with Opioid Use Disorder (OUD), ACOG advises treatment with long-acting opioid agonists, such as methadone and buprenorphine, which bind to the receptor and produce a similar response to the intended response at that site [16]. Methadone (a full opioid agonist) [17, 18] and buprenorphine (a partial opioid agonist) [19, 20] are both safe and recommended for treatment of OUD during pregnancy [21]. Treatment with these medications for OUD (mOUD) maintains lower levels of opioids in the body (compared to illicit opioids) and reduces withdrawal symptoms and craving [22]. It is important to note that methadone and buprenorphine are not intended to be standalone interventions. Medication-assisted treatment (MAT) includes mOUD as well as psychosocial interventions to improve OUD treatment outcomes among pregnant people [22].

Legal Reporting Requirements in Montana

While the state of Montana requires health professionals (among other individuals) to report suspicion of child abuse or neglect, there is no current requirement to report substance use during pregnancy. This is a result of The Safe Harbor bill, which was passed by the 2019 Montana Legislature and signed into law effective July 1, 2019. This law protects pregnant women who seek evaluation, treatment, or SUD support services from criminal prosecution.

The Meadowlark Initiative
HEALTHY PREGNANCIES & SECURE FAMILIES

The Meadowlark Initiative

Contributing Author: Tressie White (enrolled member of the Turtle Mountain Band of Chippewa Indians and a descendant of the Rocky Boy Chippewa Cree Tribe)

Providing The Right Care at The Right Time

The Meadowlark Initiative brings a new standard of pregnancy care to Montana by offering routine screening and treatment for substance use disorders and mental illness as a part of prenatal and postpartum care. In partnership with the State of Montana, the Montana Healthcare Foundation developed the Meadowlark Initiative to respond to the high rates of foster care placement reported by the Child and Family Services Division (CFSD). Further, recent research demonstrated a lack of treatment available for pregnant women with substance use disorders.

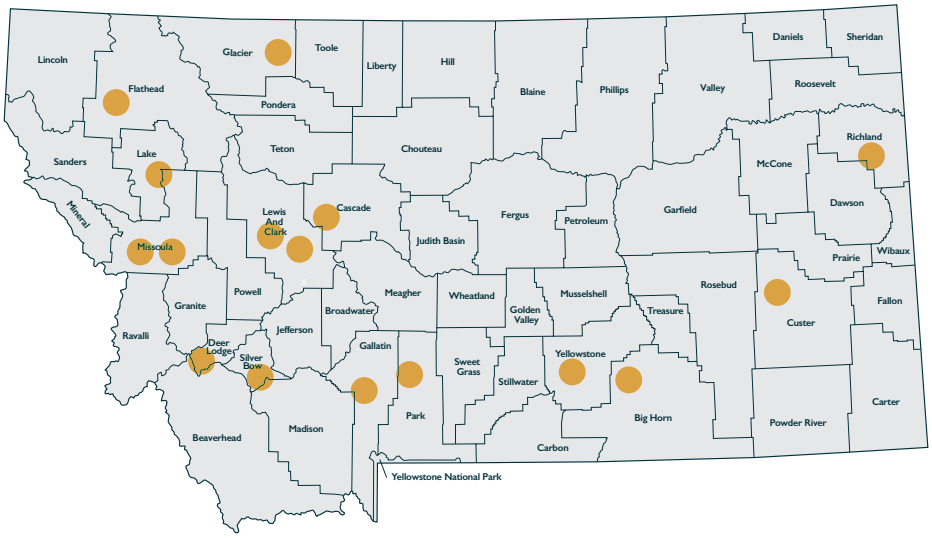
The Montana Healthcare Foundation launched the Meadowlark Initiative (first called the Perinatal Behavioral Health Initiative) in 2017, with the ambitious goal of improving maternal health outcomes, reducing newborn drug exposure and neonatal abstinence syndrome, and keeping families together and children out of foster care. Montana DPHHS joined the Foundation as a partner in 2018, and together they committed more than $5 million in private and federal funds to support this work. There are currently 16 sites participating in the Meadowlark Initiative, and the goal is to add at least ten more sites in the next two years.

The Meadowlark Initiative offers an innovative model that aims to provide the right care at the right time for pregnant and postpartum women. The model brings together a clinical team that includes prenatal care providers, behavioral health providers, and care coordinators. It then coordinates a "community team" of other agencies that can help with needs such as food, safe housing, domestic violence, employment, and transportation. The Meadowlark model of care draws on similar models shown to improve both maternal and neonatal outcomes in other states.

Although the Meadowlark Initiative is still in its early stages, preliminary data shows how it is changing both clinical practice and outcomes for patients and families. First, prenatal providers are becoming more comfortable screening and offering initial treatment to their patients for behavioral health issues. In the first cohort of five grantees, four are screening at least 99.0% of pregnant women for substance use, and three are screening at least 97.0% for depression. By establishing screening as a routine and expected part of care, Meadowlark providers are helping remove the stigma that may keep people from seeking help. The Initiative is also evaluating maternal and neonatal clinical outcomes and will report on such outcomes in future years.

The Meadowlark Initiative is also facilitating new collaborations between medical providers and child protective service workers from the DPHHS CFSD. Meadowlark sites now work with CFSD and patients proactively throughout the pregnancy and have reported many cases in which this collaboration has helped CFSD keep children safe and families together. Early data suggests the Initiative contributes to lower foster care placement rates, with most counties containing the first Meadowlark Initiative sites now showing a reduction (averaging 40.0%) in infant (0-30 days old) removal rates.

To keep Montana families together and minimize foster care placement, the Meadowlark Initiative is successfully forging new partnerships among health care providers, state agencies, and community organizations. The Initiative aims to support at least one prenatal practice in each Montana community with a hospital that delivers babies. Grant funding and technical assistance are currently available for practices in those communities that would like to participate in the Initiative. For more information, please visit mthcf.org/the-meadowlark-initiative/.



- Benefis Health System
- Blackfeet Tribal Health
- Bozeman Health
- Community Hospital of Anaconda
- Community Medical Center
- Helena OB/GYN & Associates
- Holy Rosary Healthcare
- Kalispell Regional Medical Center
- Livingston HealthCare
- OneHealth
- Providence St. Patrick Hospital
- Sidney Health Center
- SCL St. James Healthcare
- St. Luke Community Healthcare
- St. Peter's Health
- St. Vincent Healthcare

The Indigenous Experience of Maternal Health & Wellness

Contributing Author: Amy Stiffarm, MPH (Aaniiih, Cree, Blackfeet)

Tribal Communities in Montana

There are over a dozen Tribal nations in what is now known as the state of Montana: The Blackfeet Nation, Chippewa Cree Tribes of Rocky Boy, Confederated Salish (Bitterroot Salish and Pend Oreille) and Kootenai Tribes of the Flathead Reservation, the Crow Nation, Assiniboine and Gros Ventre Tribes of Fort Belknap, Fort Peck Assiniboine and Sioux Tribes, Northern Cheyenne Tribe, and the Little Shell Tribe. Indigenous people have been birthing here long before this land became a state. To help better serve Indigenous people seeking maternal health care, we must acknowledge the difference in cultures and world views and recognize the strengths found in Indigenous societies. This strength-based perspective on Indigenous maternal health will draw attention away from deficit-based views that focus on negative issues affecting Indigenous people that further perpetuate harmful stereotypes. Instead, this report will demonstrate the beauty and healing potential of Indigenous world views of maternal health.

Inclusive Language Matters

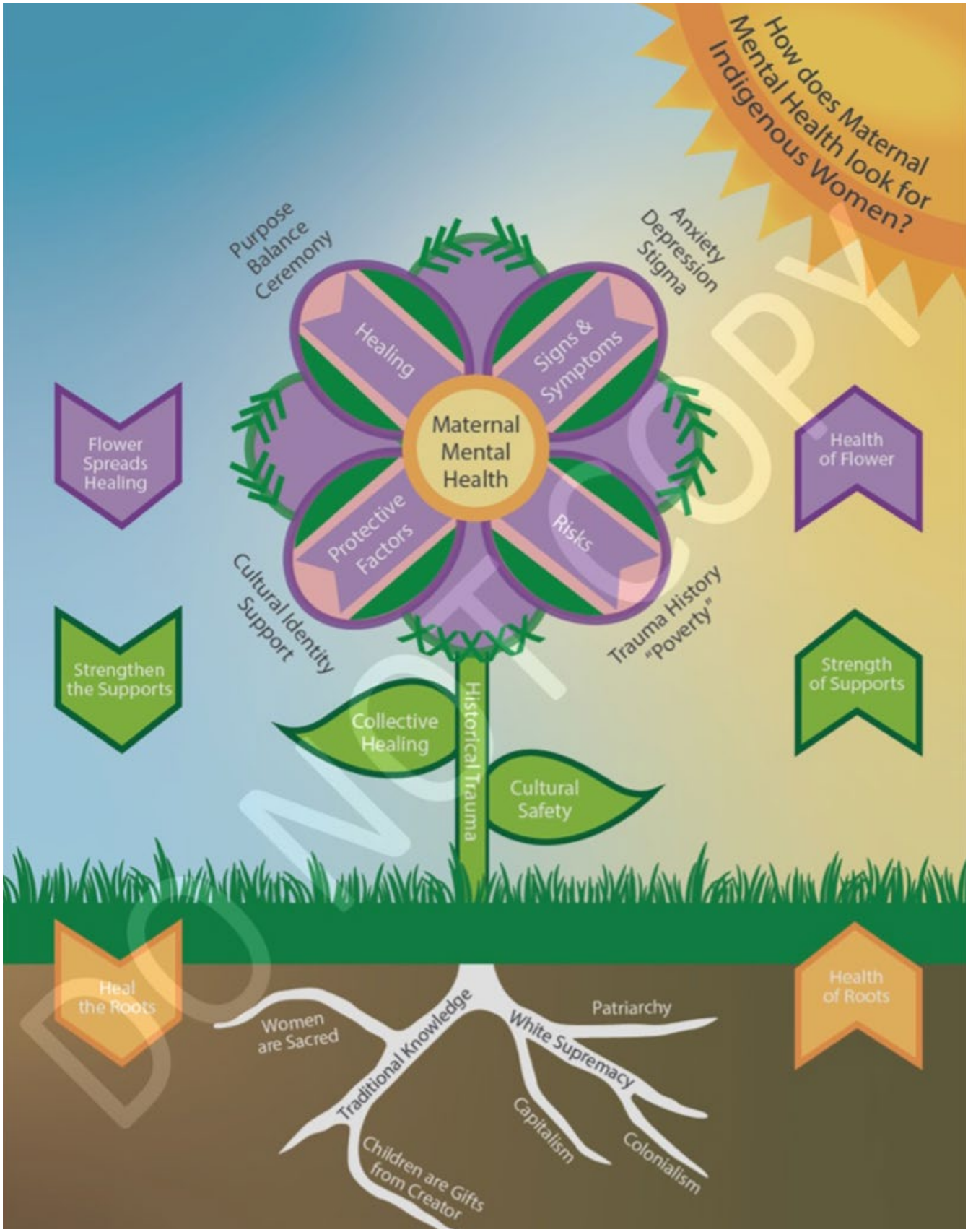
It is important to note that when describing maternal health in Indian Country, the terms birthing people or person are used. Language is important and using incorrect words can cause harm. Before colonization efforts, many genders existed on this land. Eurocentric worldviews are based on physical traits and reflect a rigid dichotomy of boy or girl. An Indigenous worldview of gender is more fluid and is based on a person's spirit or gift. Two-spirit (2S) is often used to describe someone with both masculine and feminine spirits. In 2018, 2S was added to LGBTQ2S+ to be inclusive of Indigenous people [23].

The organizers who implemented the event formerly known as *Native Breastfeeding Week* provide an example of using inclusive language in maternal health. This event is held the second week of August, in conjunction with National Breastfeeding/ Lactation Month. In 2021, the grassroots team announced the name change to *Indigenous Milk Medicine Week* to be inclusive and considerate of the Indigenous populations they are serving [24].

Following these examples, birthing person or people will be used when describing Indigenous people who access maternal health care. If the term woman is used, it is respectfully meant to only identify sex, not gender. It is not the intention to cause further harm to birthing people but to illuminate topic areas that are rarely discussed.

Concept Map

Figure 1. Indigenous Maternal Health Concept Map, developed by Amy Stiffarm, MPH (Aaniiih, Cree, Blackfeet)



To illustrate aspects of maternal health, I developed a concept map, shown here. This concept map was originally created to focus on maternal mental health for Indigenous birthing people. However, many of the topics presented align with maternal health in general. Furthermore, mental health is very relevant to maternal health as postpartum depression is the leading maternal health complication in the United States [25].

First and foremost, it's important to acknowledge that everyone's healing journey is different. This concept map presents ideas that may be true for some Indigenous people in Montana. It is not meant to represent every Native birthing person in the state. A flower represents the beauty of womanhood. Indigenous worldviews recognize the interconnectedness between all things. Plants and humans have a sacred connection as we are in a reciprocal relationship. Plants provide us nourishment and medicine and we honor them and help them spread and grow.

A flower is only as healthy as its roots. The health of the roots determines the strength of its stem which in turn aids the flower in blossoming to its full potential as a healthy thriving plant. The sun is used to shine a light on maternal mental health for Indigenous birthing people and our unique experiences and world views. Because the topics represented in the map are true for maternal health in general, this concept map will be used to help better understand the Indigenous experience.

Roots

The roots symbolize the macro level, or the larger scale view of the issues surrounding maternal health and well-being. How Indigenous people experience health is deeply influenced by Traditional knowledge. Many Indigenous cultures hold the belief that birthing people are sacred due to our ability to bring life into this world. With that knowledge is also the belief that our children are gifts from the Creator, and they travel from the Spirit World to us. Also within the Traditional knowledge realm is the fact that pre-colonization, our communities knew how to take care of birthing people in pregnancy and parenthood.

White supremacy is a rotten root of the flower of womanhood and birthing people's experiences. Colonization continues to disrupt our traditional teachings, including parenting. One of the most recently discussed tactics of the colonizers was the removal of children from Indigenous communities to attend boarding schools (United States) and residential schools (Canada). This topic has been widely discussed in the media since the unearthing of 215 unmarked graves at the former Kamloops Indian Residential School in Kamloops, British Columbia [26].

Indigenous scholars and advocates such as Camie Goldhammer, Founder of Indigenous Breastfeeding Counselor Trainings and co-founder of Hummingbird Indigenous Doulas, have linked this removal of children to near erasure of traditional knowledge relevant to pregnancy and parenting. Montana had seventeen boarding schools throughout the state [27]. These intentional efforts severely disrupted the passing on of Traditional Knowledge and introduced trauma into Indigenous communities. This occurred not just through taking children away from families, but from severe physical, emotional, and sexual abuse that had occurred at these "schools."

White supremacy also only places value on Eurocentric ideals including western medicine and therapies. These models fail to recognize the power of traditional healing modalities that have allowed Indigenous people to survive despite the efforts of colonization. Also stemming from white supremacy is patriarchy. Residuals of patriarchy have been

leftover in many Tribal communities after colonization and boarding schools [28]. This can be seen in some communities in cultural revitalization efforts focusing on male-dominant teaching and ceremonies which are not conducive to a support system of collective healing. This not only affects the strength of cultural identity as a protective factor in a negative way but reduces the potential for healing through ceremony.

Stem and Leaves

The stem and leaves represent the community level. Connected from the experiences of the roots, the stem shows how historical trauma continues to impact Indigenous birthing people. Many Indigenous communities are suffering from disparities from the unhealed trauma stemming from colonization and genocide that occurred in Manifest Destiny's name [29]. Boarding schools caused a lot of this trauma for Indigenous communities, but other strategies of colonization, such as removal from ancestral homelands, cause trauma. Removal from ancestral homelands impacts spiritual connection to place, gathering medicines, and nutrition from hunting and harvesting traditional plants. Because of our belief of being children of Mother earth, removal from our homelands is seen as the first separation of children from their mothers.

Branching off the stem is one leaf of collective healing to represent the Traditional Knowledge that remains and how it can still be utilized to heal Indigenous communities as a collective; this contrasts with western medicine which focuses mainly on individual healing. Indigenous worldviews believe that healing is achieved through community and relationships. Healthy birthing people and parents can be found in healthy communities. Before the medicalization of birth, Indigenous people birthed in ceremony and with the support and help of community.

This issue is especially relevant when we consider the protocols put in place due to the COVID-19 pandemic, where there were limitations regarding who was able to be present during birth. In some scenarios, birthing individuals were completely without their families. A study with Canadian Arctic Indigenous women recognized the stressors associated with needing to travel and be away from their communities to give birth. The authors stated that "for women who delivered away from home, [labor] was a traumatic event intensified by feelings of isolation and worry about their families" [30]. Even before the pandemic, this was an issue for Indigenous birthing people in Montana, as most are expected to leave their communities to attend prenatal appointments and to give birth.

The other leaf is cultural safety. Cultural safety in health care is an important component of maternal health, as the care that a person receives during their pregnancy will impact them forever. Many studies demonstrate how implicit bias in maternal health care negatively relates to lower quality of care [31]. Providing culturally safe care during pregnancy and for the baby and parent(s) afterward allows the mother/parent to feel supported and more secure in their cultural identity [32]. This will also improve trust and communication, allowing the birthing person to speak openly about any potential physical or mental health issues [33]. If a person is receiving western medical care, then that treatment needs to be culturally safe as well. Indigenous people receiving these services should feel the freedom to receive care from both western medicine and Traditional healers if available. This should not be seen as a competition but an opportunity to further overall health and well-being.

Indigenous Doulas

The flower and its petals represent the individual experience of maternal health. There are four petals to represent the protective factors, the risks, the signs and symptoms, and the healing that are associated with maternal health and birthing for an Indigenous person. Indigenous doulas can help with each of these areas. They can be viewed like the essential, sacred water for the plant and aid in many of the issues relevant to maternal health for Indigenous women.

Research has shown that doulas are an important factor for helping pregnant people and parents during this impactful time of birthing people's lives and can aid in positive maternal health outcomes [34]. Having access to Indigenous doulas can help restore supportive relationships, provide culturally safe care, and reclaim ceremony that combats the loss of Traditional knowledge [35]. Indigenous doulas can serve as an additional layer of protection by helping birthing people identify risks they had not considered bringing up to their provider and aiding in recognition of warning signs and symptoms of potential maternal health issues, including mental health during pregnancy and after. Indigenous doulas can be the life force needed to address maternal health issues for Indigenous women by guiding mothers towards healing and restoring the sacred relationships between mothers and community.

When discussing Indigenous doulas, we must acknowledge the strengths already present within Indigenous communities and culture. Before colonization, aunties, moms, sisters, grandmothers, and two-spirit relatives had roles relevant to what are now called doulas. These roles were always present within Indigenous communities. When we advocate for Indigenous birthing people to have access to doulas, we are advocating for the resurgence of Indigenous doulas from within Indigenous communities, not for bringing outside, non-Indigenous doulas into communities. An example of this is work done by Zaagi'idiwin, an Indigenous birth worker organization out of Manitoba, Canada that trains full-spectrum doulas. This past year, thirty participants from across Indian Country in Montana were able to attend this training.

Relationships

At the root level, we must consider the health of the roots and how this affects the stem and the flower. The stem and leaves support and nourish the flower. How strong is this support? This impacts the health of the flower. In looking closer at the petals, the protective factors and risks cancel one another out. Risks can lead to signs and symptoms. However, from an Indigenous perspective, signs and symptoms are only bad if they are not recognized and addressed. Signs and symptoms can lead to further healing. Healing can reduce these signs and symptoms and is represented by the two-way arrow between the petals. Healing may come easier for Indigenous women with more protective factors, and healing will further provide women with additional protective factors. Therefore, these petals also have two-way arrows.

Birth Justice

Once a flower is healthy, the flower can help spread this healing to others. By healing the individual, collective healing of the community can occur. This strengthens the support and sends healing back to the roots. Healing the roots is achieved by increasing Traditional Knowledge translation and reducing the impacts of colonization and white supremacy on Indigenous birthing people. For Indigenous birthing people, a healthy flower system translates to birth justice. This means there are safe, healthy options for where and how they choose to birth [36]. These options should not conflict with but support Traditional Knowledge and ceremony and create a space where patients and their world views are respected.

We need a healthcare system where all Indigenous birthing people can access Indigenous midwives, doulas, and lactation supports. This is birth justice.

Whenever an Indigenous birthing person seeks any type of care for themselves or their child, they are acting despite the wrongs done to the generations of birthing people before them. All birthing people deserve the best prenatal and birth care, where they are safe and respected. When an Indigenous birthing person is present at the doctor's office, they are holding the burden of the history of America and what has been done to their people. However, they also hold the amazing strength of their culture and the power of their ancestors' prayers. With hope for good health, they seek care.

This healthcare system has been failing Indigenous people for far too long. Let us work together to create a system that honors the ceremony of birth and provides the environment necessary for true healing. This environment is not only essential for Indigenous people, but for all birthing people. We must explore how cultural teachings of pregnancy, parenthood, and overall health can be combined with the current maternal healthcare system to improve outcomes for all birthing people. Healthy communities start with healthy birthing people.

Conclusion

In this Maternal Health in Montana Report, we provided an overview of the maternal health landscape in Montana and made recommendations for policy, programming, and data collection and analysis improvement.

Overall, our findings highlighted continuing racial health disparities in the state, as AI/AN individuals had three times greater risk of experiencing SMM compared to White individuals, and the most common indicator of SMM was blood transfusion for both AI/AN and White individuals. Similarly, residents of rural areas who were younger than 20 and older than 34 and covered by Medicaid, demonstrated elevated risk for SMM. Our brief overview of the Meadowlark Initiative and the Indigenous Experience of Maternal Health and Wellness suggest possible avenues for addressing these elevated risks among underserved and vulnerable populations.

It is our hope that Montana will become a leader in maternal wellness and inclusive birthing practices to address these unique risk factors. We encourage the use of this report to promote community responsibility and improve the protection of pregnant, birthing, and postpartum individuals in Montana.

References

1. Montana Pregnancy Risk Assessment Monitoring System. https://dphhs.mt.gov/prams
2. Martin, J. A., Hamilton, B. E., Osterman, M. J., Driscoll, A. K., & Division of Vital Statistics. (2021). Births: Final Data for 2019. National Vital Statistics Reports, 70(2).
3. How Does CDC Identify Severe Maternal Morbidity? | CDC [Internet]. 2021 [cited 2022 Feb 14]. Available from: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm
4. AIM_DataGuide_Oct2020.pdf [Internet]. [cited 2022 Feb 14]. Available from: https://safehealthcareforeverywoman.org/wp-content/uploads/AIM_DataGuide_Oct2020.pdf
5. Severe Maternal Morbidity in Montana – Montana Obstetrics & Maternal Support (MOMS) [Internet]. [cited 2022 Feb 14]. Available from: https://www.mtmoms.org/severe-maternal-morbidity-in-montana/
6. Admon LK, Bart G, Kozhimannil KB, Richardson CR, Dalton VK, Winkelman TNA. Amphetamine- and Opioid-Affected Births: Incidence, Outcomes, and Costs, United States, 2004–2015. Am J Public Health. 2018 Nov 29;109(1):148–54.
7. Cook JL, Green CR, de la Ronde S, Dell CA, Graves L, Ordean A, et al. Epidemiology and Effects of Substance Use in Pregnancy. J Obstet Gynaecol Can. 2017 Oct 1;39(10):906–15.
8. Haight SC, Ko JY, Tong VT, Bohm MK, Callaghan WM. Opioid use disorder documented at delivery hospitalization--United States, 1999-2014. Morb Mortal Wkly Rep. 2018;67:845–9.
9. Jarlenski MP, Paul NC, Krans EE. Polysubstance Use Among Pregnant Women With Opioid Use Disorder in the United States, 2007–2016. Obstet Gynecol [Internet]. 2020;136(3). Available from:https://journals.lww.com/greenjournal/Fulltext/2020/09000/Polysubstance_Use_Among_Pregnant_Women_With_Opioid.16.aspx
10. Young-Wolff KC, Tucker L-Y, Alexeeff S, Armstrong MA, Conway A, Weisner C, et al. Trends in Self-reported and Biochemically Tested Marijuana Use Among Pregnant Females in California from 2009-2016. JAMA. 2017 Dec 26;318(24):2490–1.
11. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington, D.C.: Author; 2013.
12. Jarlenski M, Krans EE, Chen Q, Rothenberger SD, Cartus A, Zivin K, et al. Substance use disorders and risk of severe maternal morbidity in the United States. Drug Alcohol Depend. 2020;216:108236.
13. Guille C, Aujla R. Developmental Consequences of Prenatal Substance Use in Children and Adolescents. J Child Adolesc Psychopharmacol. 2019;29(7):479–86.
14. Kozhimannil KB, Interrante JD, Henning-Smith C, Admon LK. Rural-Urban Differences In Severe Maternal Morbidity And Mortality In The US, 2007–15. Health Aff (Millwood). 2019;38(12):2077–85.
15. Montana Department of Health and Human Services. 2018 Strategic Plan: Preventing child abuse and neglect in Montana. DPPHS; 2018.
16. American College of Obstetricians and Gynecologists. Opioid use and opioid use disorder in pregnancy. Committee Opinion No. 711. Obstet Gynecol. 2017;130:e81-94.
17. Ayanga D, Shorter D, Kosten TR. Update on pharmacotherapy for treatment of opioid use disorder. Expert Opin Pharmacother. 2016;17(17):2307–18.
18. Connery HS. Medication-assisted treatment of opioid use disorder: Review of the evidence and future directions. Harv Rev Psychiatry. 2015 Mar;23(2):63–75.
19. Pecoraro A, Ma M, Woody GE. The science and practice of medication-assisted treatments for opioid dependence. Subst Use Misuse. 2012;47(8–9):1026–40.

20. Bandstra ES. Maternal Opioid Treatment: Human Experimental Research (MOTHER) study: Maternal, fetal and neonatal outcomes from secondary analyses. Addiction. 2012 Nov;107(Suppl 1):1–4.
21. Tran TH, Griffin BL, Stone RH, Vest KM, Todd TJ. Methadone, buprenorphine, and naltrexone for the treatment of opioid use disorder in pregnant women. Pharmacotherapy. 2017;37(7):824–39.
22. Magura S, Nwakeze P, Kang S, Demsky S. Program quality effects on patient outcomes during methadone maintenance: a study of 17 clinics. Subst Use Misuse. 1999;34:1299–324.
23. Researching for LGBTQ2S+ Health. Two Spirit Community. Published 2021. Accessed August 14, 2021. https://lgbtqhealth.ca/community/two-spirit.php.
24. Breimer Y. An Update on Indigenous Milk Medicine Week. Indigenous Milk Medicine Collective. La Leche League USA. Updated August 16, 2021. Accessed August 17, 2021. https://lllusa.org/an-update-on-indigenous-milk-medicine-week/
25. Heck JL. Postpartum Depression in American Indian/Alaska Native Women: A Scoping Review. MCN Am J Matern Child Nurs. 2021;46(1):6-13. doi:10.1097/NMC.0000000000000671.
26. BBC News. Canada mourns as remains of 215 children found at Indigenous school. Published May 29, 2021. Accessed August 14, 2021. https://www.bbc.com/news/world-us-canada-57291530
27. The National Native American Boarding School Healing Coalition. List of Indian Boarding Schools in the United States. Accessed August 14, 2021. https://boardingschoolhealing.org/list/
28. McKay ME. Engaging Feminism: A Pedagogy for Aboriginal Peoples. Published June 2005. Accessed August 13, 2021. https://harvest.usask.ca/bitstream/handle/10388/etd-07282005-151255/etdmarlenethesis.pdf?sequence=1&isAllowed=y
29. Warne D, Dulacki K, Spurlock M, et al. Adverse Childhood Experiences (ACE) among American Indians in South Dakota and Associations with Mental Health Conditions, Alcohol Use, and Smoking. J Health Care Poor Underserved. 2017;28(4):1559-1577. doi:10.1353/hpu.2017.0133
30. Chamberlain M, Barclay K. Psychosocial costs of transferring indigenous women from their community for birth. Midwifery. 2000;16(2):116-122. doi:10.1054/midw.1999.0202
31. Pathak R. Implicit bias in healthcare: Maternal and infant morbidity and mortality in minority patients. D-Scholarship: Institutional Repository at the University of Pittsburgh. Published 2020. Accessed August 10, 2021. http://d-scholarship.pitt.edu/id/eprint/38499
32. Curtis E, Jones R, Tipene-Leach D, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. Int J Equity Health. 2019;18(1):174. doi:10.1186/s12939-019-1082-3
33. Groot G, Waldron T, Barreno L, Cochran D, Carr T. (2020). Trust and world view in shared decision making with indigenous patients: A realist synthesis. J Eval Clin Pract. 2020;26(2):503-514. doi:10.1111/jep.13307
34. Gruber KJ, Cupito SH, Dobson CF. Impact of doulas on healthy birth outcomes. J Perinat Educ. 2013;22(1):49-58. doi:10.1891/1058-1243.22.1.49
35. Cidro J., Doenmez C., Phanlouvong A., Fontaine A. Being a good relative: Indigenous doulas reclaiming cultural knowledge to improve health and birth outcomes in Manitoba. Front Women's Health. 2018;3(4). doi:10.15761/FWH.1000157
36. Every Mother Counts. A National Call for Birth Justice and Accountability: How Many Black, Brown, and Indigenous People Have to Die Giving Birth? Updated 2021. Accessed August 12, 2021. https://everymothercounts.org/birthjusticenow/


MOMS
Montana Obstetrics
& Maternal Support


Rural Institute
UNIVERSITY OF
MONTANA


MONTANA
DPHHS


HRSA
Health Resources & Services Administration