MATERNAL HEALTH IN MONTANA

September 2022

MOMS Montana Obstetrics & Maternal Support

Rural Institute University of Montana

Montana DPHHS

HRSA Health Resources & Services Administration

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Acronym Glossary

Acronym	Full Name
AIAN	American Indian/Alaska Native
AIM	Alliance for Innovation in Maternal Health
ASTHO	Association of State and Territorial Health Officials
BEmOC	Basic Emergency Obstetric Care
CAH	Critical Access Hospital
CDC	Centers for Disease Control and Prevention
DPHHS	Department of Public Health and Human Services
ERASE MM	Enhancing Reviews and Surveillance to Eliminate Maternal Mortality
FICMR	Fetal, Infant, and Child Mortality Review
HRSA	Health Resources and Services Administration
IHS	Indian Health Service
LOCATe	Levels of Care Assessment Tool
MHA	Montana Hospital Association
MHI	Maternal Health Innovation Program
MMRC	Maternal Mortality Review Committee
MMRIA	Maternal Mortality Review Information Application
MOMS	Montana Obstetrics and Maternal Support Program
MPQC	Montana Perinatal Quality Collaborative
PMSS	Pregnancy Mortality Surveillance System
PRAMS	Pregnancy Risk Assessment Monitoring System
RAC	Risk-Appropriate Care
SMM	Severe Maternal Morbidity
UM	University of Montana

Key Findings and Factors

Pregnancy-Related Deaths

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 2016-2018. In 2016-2018, Montana recorded less than five pregnancy-related deaths, according to the CDC Pregnancy Mortality Surveillance System. Given suppression rules for cell sizes less than five, counts are not reported in aggregate for this time period or for requested subgroups.

Montana's Maternal Health Innovation Program and Maternal Mortality Review Committee

Montana's Maternal Health Innovation Program (MHI), entitled the Montana Obstetric & Maternal Support (MOMS) Program, provided funding that enabled Montana to become an Alliance for Innovation in Maternal (AIM) Health State in Fall, 2021, during the second year of the MOMS program. The American College of Obstetricians and Gynecologists (ACOG) requires that states establish a statewide Maternal Mortality Review Committee (MMRC) as part of their enrollment in AIM. Through MOMS, Montana conducted necessary prework, including training, data alignment, and systems assessment, to set up the state's first-ever MMRC.

In acknowledgment of this work and commitment, the Centers for Disease Control and Prevention (CDC) awarded Montana with an Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) grant in Autumn, 2021 during the start of the third year of MOMS. Montana's creation of an MMRC through HRSA's MHI and AIM funding streams and institutionalization of the MMRC through the CDC's ERASE MM funding stream represents a successful case study of the potential for systems-level improvements that intergovernmental coordination and innovation can bring about. The MMRC underwent training and orientation in Fall, 2021 and conducted its first mortality reviews during Summer, 2022. While the MMRC continues to conduct reviews for deaths occurring in the year 2020 and forward, Montana will utilize the Pregnancy Mortality Surveillance System (PMSS) to track pregnancy-related deaths. The ultimate goal of Montana's MMRC is to abstract deaths into the CDC's Maternal Mortality Review Information Application (MMRIA) and transition primary pregnancy-related death surveillance to this system from PMSS.

As Montana has undergone the process of starting up, and staffing the MMRC, the state has pursued several strategies to ensure ongoing coordination between the MMRC and MOMS. First, the Department of Public Health and Human Services (DPHHS), which administers the MMRC and MOMS, appointed the MOMS Medical Director and MOMS Research & Evaluation Director to serve on the MMRC. Second, DPHHS co-locates the MMRC and MOMS programs within the Maternal Child Health Coordination Section at DPHHS, which facilitates ongoing coordination and communication. Third, the MMRC has been specifically tasked with producing preventability recommendations from the multidisciplinary death review process and reporting these recommendations to the MOMS Maternal Health Task Force and other entities tasked with maternal health improvements, such as the Montana Perinatal Quality Collaborative (MPQC) and local county Fetal, Infant, and Child Mortality Review (FICMR) teams.

Severe Maternal Morbidity

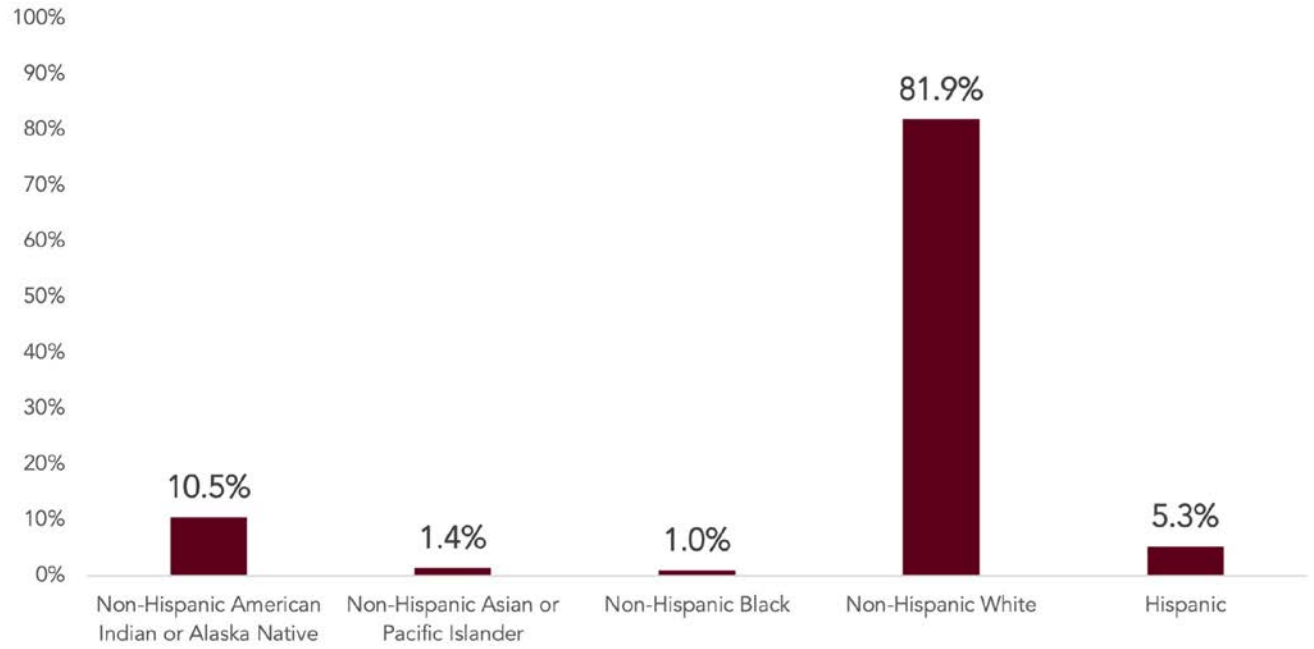
The MOMS grant funded a partnership between the Montana Hospital Association (MHA), which serves as the repository of the Montana Hospital Discharge Data System, and the University of Montana, to facilitate an in-depth analysis of severe maternal morbidity (SMM). Due to Montana's small numbers and desire to examine subgroups to better understand health disparities, this analysis was conducted using three-year rates. The SMM rates reported here represented hospitalized-deliveries only, utilizing discharge data from facilities that report to MHA. Federally run health facilities, such as those run by Veterans Affairs and Indian Health Service, do not report to MHA and are not represented by these data. The SMM rate reported here follows CDC guidelines in categorizing incident cases of SMM per 10,000 hospitalized deliveries using ICD-10 codes.

During the period of January 1, 2017, to December 31, 2019, which represents 30, 332 hospitalized deliveries, Montana's SMM rate was 106.2 per 10,000 hospitalized deliveries, inclusive of blood transfusion. Excluding blood transfusions reduces this rate to 34.3 per 10,000 deliveries. The most frequently occurring types of SMM excluding blood transfusion were hysterectomy, ventilation, acute renal failure, and air/thrombotic embolism.

Geographic and Demographic Disparities

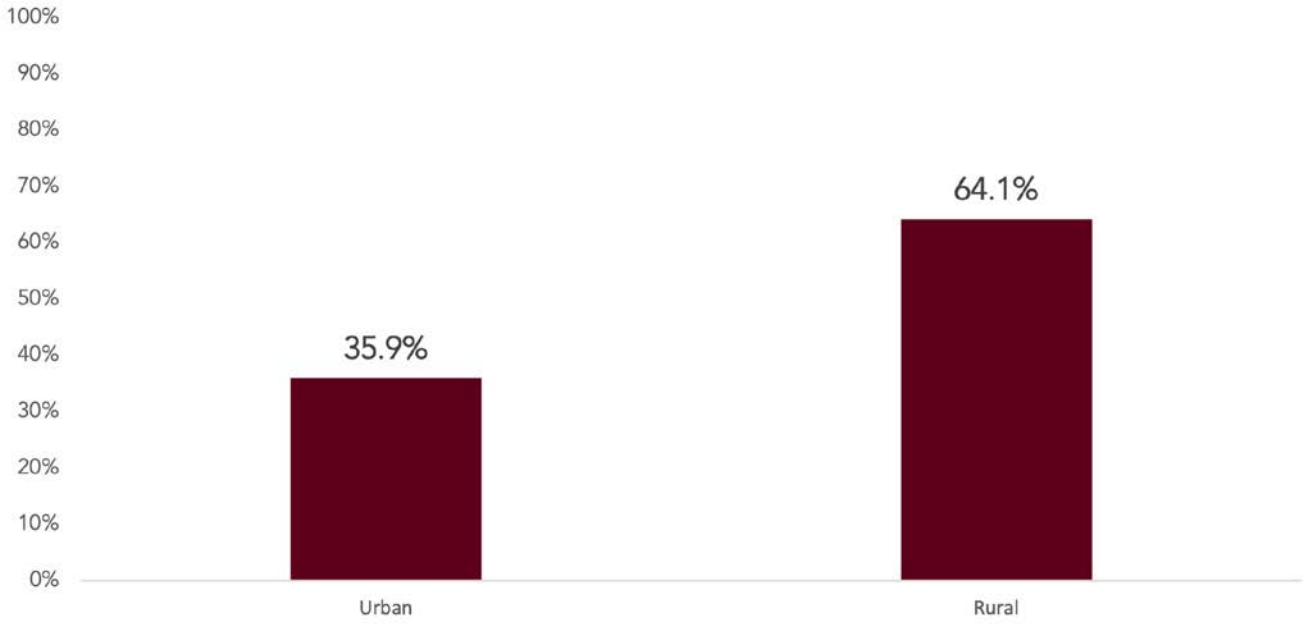
In 2020, Montana Vital Statistics recorded 10,794 live births. The primary demographic health disparities that exist in Montana present as racial health disparities between Indigenous individuals (also referred to in data sources as American Indian/Alaska Native or AI/AN) and White individuals. These racial health disparities have been observed both in terms of health outcomes and in healthcare utilization or access and likely result from a confluence of factors that include historical trauma [1], resource disparities in Reservation communities [2], economic disparities, and institutional bias [3]. The largest minority group in Montana, AI/AN births accounted for 10.5% of all live births during 2020, as illustrated in Figure 1.

Figure 1. Percentage of live births by race/ethnicity (N=10,794). Vital Statistics, 2020.



The other major health disparity that presents within Montana's population are differences in healthcare access and health outcomes between rural and urban residents, with rural residents often exhibiting adverse health outcomes and reduced access to care[4, 5]. Most births in 2020 in Montana were to rural residents, as illustrated in Figure 2. The urban and rural classifications are based on the National Center for Health Statistics urban-rural classification scheme for counties [6]. Throughout this report, urban includes metropolitan counties: large metro, medium metro, and small metro. Rural includes nonmetropolitan counties: micropolitan and noncore counties.

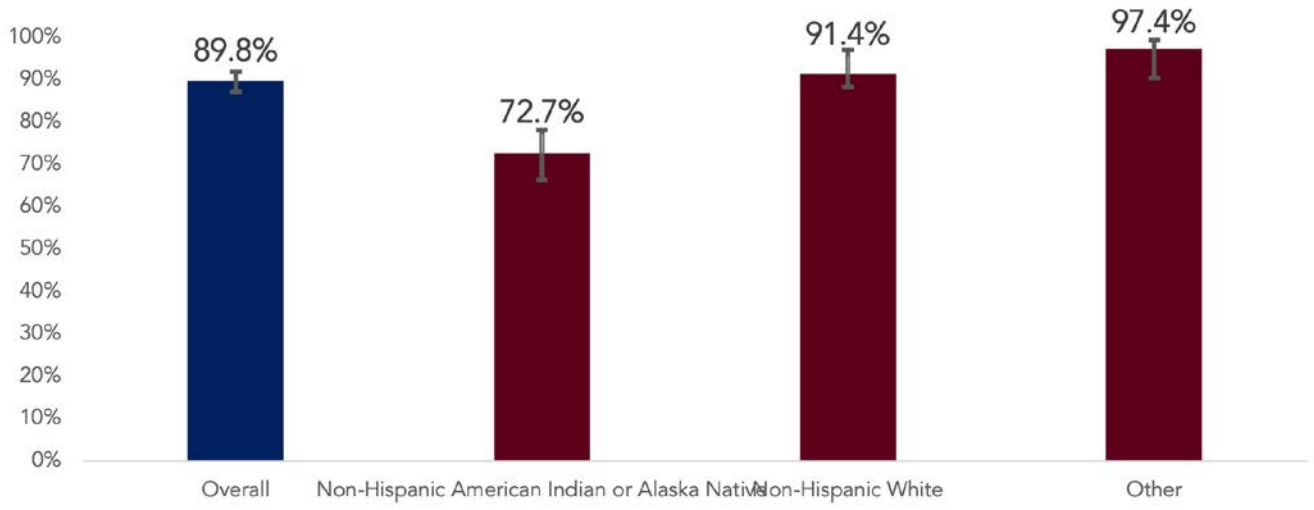
Figure 2. Percentage of live births by rurality (N=10,794). Vital Statistics, 2020.



Disparities in Care

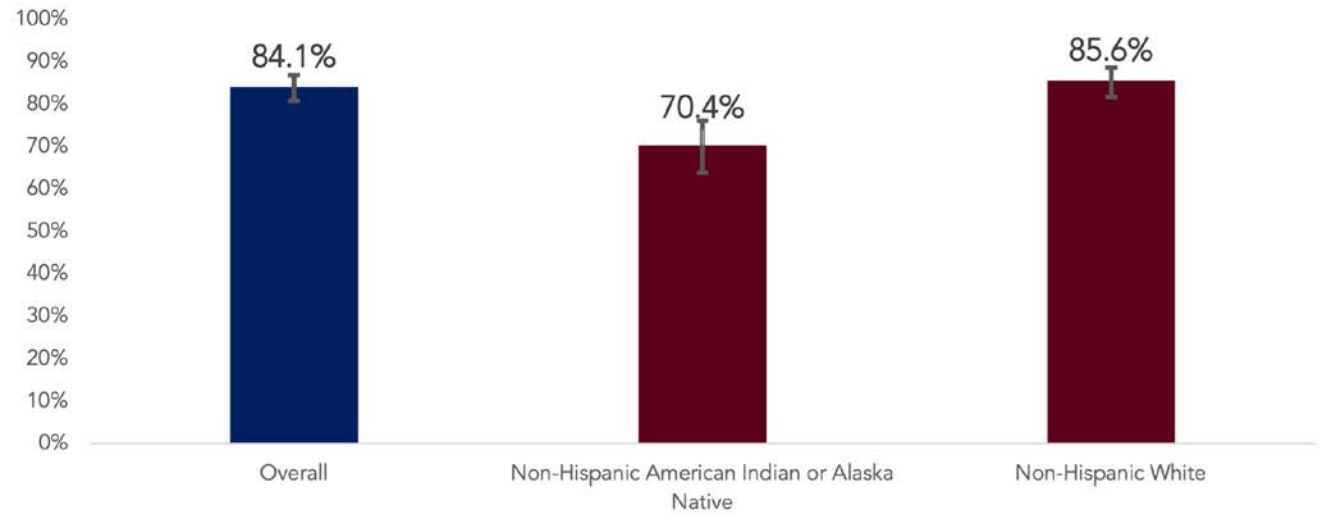
Figure 3 and 4, below, illustrate health disparities in terms of healthcare utilization and access as measured by postpartum healthcare utilization and screening. While 91.4% (95% CI 88.2-93.8%) of Montanans who are white reported getting a postpartum checkup, just 72.7% (95% CI 66.3-78.2%) of Montanans who identify as AI/AN reported the same.[1]

Figure 3. Percentage of women who received a postpartum visit, by race/ethnicity. PRAMS, 2020.



Statistically significant differences in postpartum depression screening rates have also been observed, with 85.6% (95% CI 81.8-88.7%) of White postpartum individuals reporting that they were screened for depression compared to 70.4% (95% CI 63.9-76.1%) of AI/AN individuals reporting they received this screening.

Figure 4. Percentage of women screened for postpartum depression, by race/ethnicity. PRAMS, 2020.



[1] Figures reported in this section correspond to the table provided in the appendix. Data for missing racial/ethnic subgroups were suppressed due to small numbers and statistical instability.

Montanans often experience health disparities in terms of their geographic location and experience of needing to travel great distances to urban centers for care from remote, rural communities. Rural health disparities are often less dramatic than racial health disparities in this state. Notably, statistically significant differences do not exist between residents living in rural and urban areas in terms of accessing postpartum checkups and screenings for postpartum depression, as illustrated below in Figures 5 and 6.

Figure 5. Percentage of women who report receiving a postpartum visit, by geography. PRAMS, 2020.

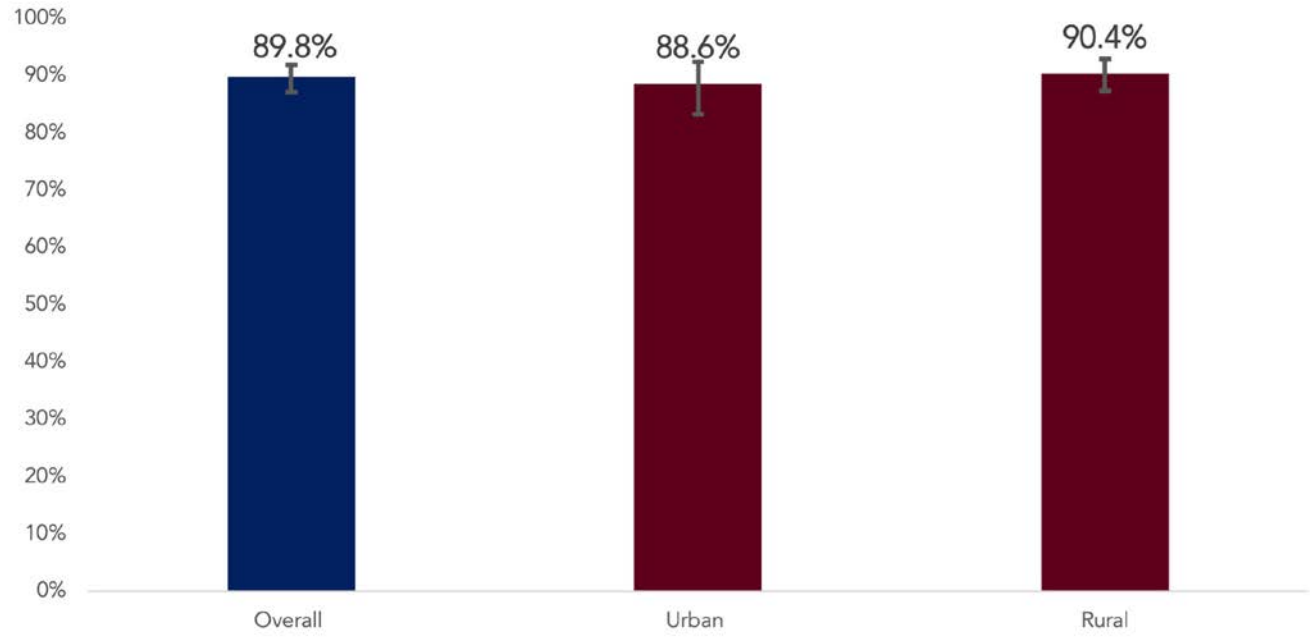
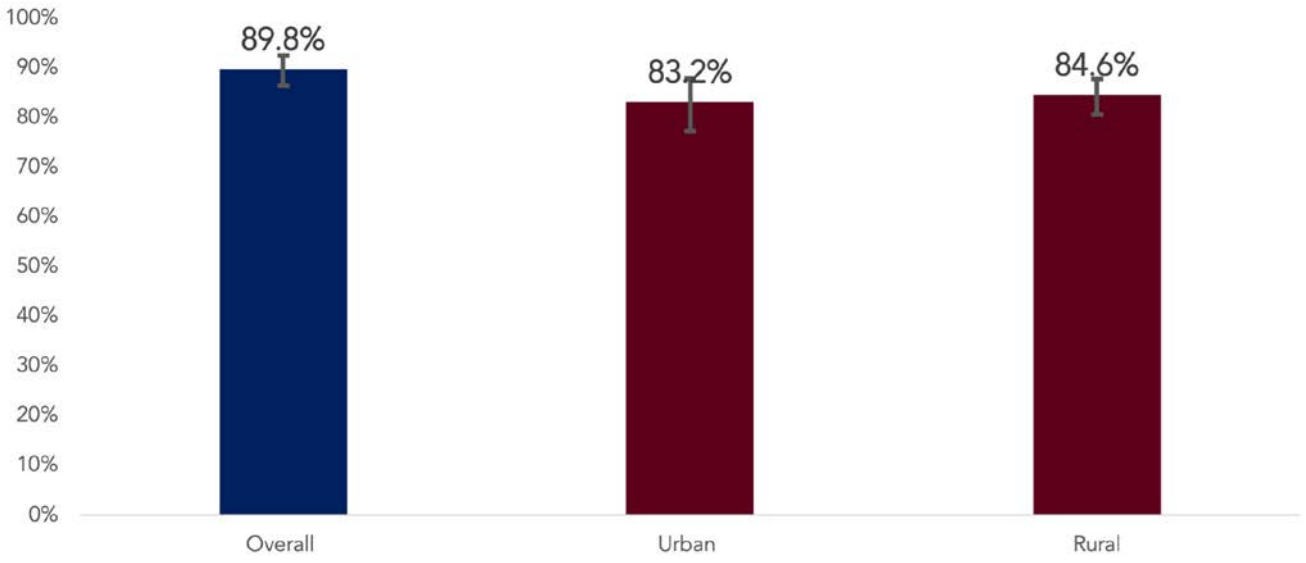
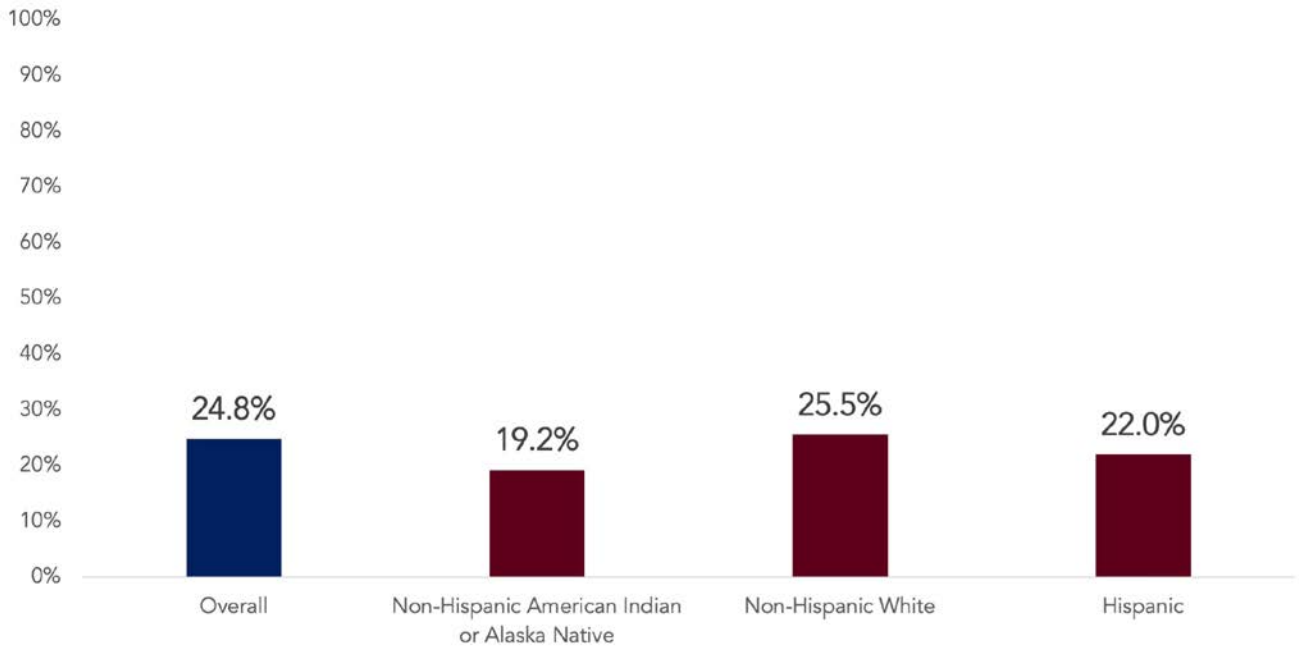


Figure 6. Percentage of women who report being screened for postpartum depression, by geography. PRAMS, 2020.



In 2020, the national rate of cesarean among low-risk patients was 25.9%, with a reduction target to 23.6% identified by Healthy People 2030 [7]. In 2020, Montana's rate of low-risk cesarean fell below the national average, and low-risk cesarean among AI/AN patients fell below the reduced national target, as illustrated below in Figure 7.

Figure 7. Rate of low-risk cesarean delivery, by race/ethnicity. Vital Statistics, 2020.



Disparities between urban and rural residents do not appear to exist for low-risk cesarean in Montana; the urban and rural rates are 24.7% and 24.9% respectively. Montana's low-risk cesarean rate is not concerningly high, and it tracks to national averages. Racial disparities in Montana are also not reflected in the low-risk cesarean rate, and so policy and programmatic recommendations do not prioritize this metric at this time.

Disparities in Health Outcomes

AI/AN patients and patients living in rural communities experience a higher risk for severe complications during delivery than White patients and residents of more populated communities. Compared to residents of small metro counties (the highest category of urbanization present in Montana), residents of noncore counties have a 1.9 times greater risk for SMM (95% CI 1.5-2.5). Racial disparities are more pronounced; AI/AN patients have 3 times the risk that White patients have (95% CI 2.1-4.2) [8]. SMM rates, disaggregated by race/ethnicity and geography, are provided below in Table 1.

Table 1. Rate of SMM per 10,000 hospitalized deliveries, Montana Hospital Discharge Data 2017-2019.

Overall N=30,332	SMM including blood transfusion	SMM excluding blood transfusion
Montana	106.2	34.3

Race N=30,332	SMM including blood transfusion	SMM excluding blood transfusion
White	64.8	30.4
AI/AN	220.6	70.0

Geography N=30,332	SMM including blood transfusion	SMM excluding blood transfusion
Small metro	85.5	35.3
Micropolitan	89.9	28.7
Noncore	145.2	39.3

*All rates presented per 10,000 hospitalized deliveries, 2017-2019 MT Hospital Discharge Data

Maternal Health Policy & Programmatic Recommendations

As reported above, available data indicates that pregnant and postpartum AI/AN individuals have less access to healthcare and experience more adverse health outcomes than White individuals in Montana. All policy and programmatic improvements should be undertaken from a health equity perspective and in partnership with Tribal Nations as well as other institutions and organizations, such as the Indian Health Service, which specifically serve Indigenous populations in Montana. Initiatives originated by tribal communities should be emphasized and strengthened, and partnerships between non-Indigenous and Indigenous organizations should be oriented toward lifting up the voices of members of the community with lived experiences and facilitate leadership and oversight from Tribal Nations and Indigenous health professionals.

To further the important work of closing health disparities and improving the health of populations who have traditionally been disenfranchised and who have experienced disparate outcomes, Montana should pursue healthcare improvement strategies that are grounded in cultural safety[9] and trauma-informed care frameworks [10, 11]. These frameworks reorient health delivery toward a patient-centered approach that emphasizes safety, inclusivity, and shared decision-making between patient and provider.

Policy & Programmatic Recommendations

HRSA's MHI funding in Montana has facilitated significant systems improvements in coordination and data collection and utilization. Based on the state's broader understanding of the drivers of poor maternal health outcomes, there are several policy changes the state could undertake to enable improvements in healthcare.

First, Montana should investigate opportunities to extend postpartum Medicaid coverage to twelve months. In 2020, 45.5% of births in Montana were covered by Medicaid [12]. National evidence has established the vulnerability of postpartum individuals to adverse outcomes and mortality a full year after the end of a pregnancy [13]. Most pregnancy-related deaths happen in the postpartum period, with 19% occurring 1-6 days postpartum, 21% 7-42 days postpartum, and 12% 43-365 days postpartum [14]. In particular, postpartum individuals face health risks related to substance use and relapse as well as suicide during this stressful period of their lives. Continued access to healthcare, including to a primary care provider and mental health services, can provide the support that postpartum individuals need to stay healthy for both themselves and for their families and young infants [14].

Second, Montana should establish a plan to codify the MMRC into state law. Currently, Montana Code Annotated (MCA) provides enabling statutes that allow for county-level mortality review. DPHHS attorneys have interpreted this to allow for the MMRC to operate at the state level, but codification will ensure that MMRC can be institutionalized beyond the life of the MHI and ERASE MM grant programs.

Third, Montana has an opportunity to expand community-based supports for pregnant and postpartum individuals through increased coverage of paraprofessionals, such as peer support specialists, community health workers, and doulas. Increasing access to these community-based supports will require policy changes around Medicaid billing to ensure that patients may access this care regardless of socioeconomic status. Policy changes concerning licensing and certification may also be necessary to ensure quality and achievement of standards of care and scope of practice are well-established. States that have undergone these policy changes, such as Illinois and Oregon, may be useful models for replication in Montana.

Programmatically, the state has several opportunities for maternal healthcare improvements as well. The MOMS program provided seed funding that established the maternal health arm of the MPQC; prior to MOMS, the MPQC focused entirely on infant health quality improvement initiatives. This seed funding supported the implementation of AIM's Obstetric Hemorrhage Patient Safety Bundle in 17 of 26 birthing facilities in Montana during the third year of the MOMS grant. In Fall, 2022, the University of Montana (UM) received an award from the CDC PQC program to fund five additional years of perinatal quality improvement initiatives. Under the CDC PQC grant, UM will continue the MPQC maternal health work initiated by MOMS and implement five additional AIM Patient Safety Bundles, starting with Severe Hypertension in Pregnancy. This new funding will also facilitate an expansion of the MPQC beyond birthing hospitals to the population-health and primary care settings to strengthen Montana's maternal health care continuum and ensure that pregnancy complications are caught before they present as SMM in the delivery room, or that they are prevented altogether. The state can maximize the opportunities presented for perinatal quality improvement in care delivery presented by MOMS and the CDC PQC grants by continuing to foster relationships across care delivery settings and provider types, as well as between the public health system (such as local and tribal health departments implementing Montana's Title V Block Grant) and the medical system, including Montana's birthing hospitals, critical access hospitals, Indian Health Service (IHS) hospitals as well as community health centers and urban Indian health centers.

Using Data to Inform Program Strategies & Activities

The MOMS grant team have been leaders in promoting the use of data in driving decision-making and priority-setting. Two key programmatic decisions exemplify this data-driven approach.

First, Montana utilized data in its selection and prioritization of Patient Safety Bundles that would be implemented through the MPQC. Through the MOMS-funded analysis of SMM [7], the team found that 6.1% of hospitalized deliveries between 2016 and 2018 had an AIM-identified indicator for obstetric hemorrhage and 2.4% had an AIM-identified indicator for severe hypertension; these two complications represented the two most prevalent complications of those AIM has targeted for healthcare quality improvement. Using these findings, MOMS identified the AIM Obstetric Hemorrhage Patient Safety Bundle as the first priority for implementation, and the MPQC will implement Severe Hypertension in Pregnancy as its second Patient Safety Bundle.

MOMS also utilized population-level data to inform the design of the Empaths program, the MOMS substance use in pregnancy demonstration project which is administered by Billings Clinic. An analysis of PRAMS data revealed statistically significant disparities in substance use screening based on race; year after year, more AI/AN respondents to PRAMS report being asked about drug use during pregnancy than White respondents. These differences are statistically significant and may reflect implicit provider bias that may result in both under-screenings for White patients based on a perceived lower risk for substance use, and profiling of AI/AN patients based on a perceived higher risk for substance use. To address this issue, Empaths identified therapeutically-oriented universal screening for substance use in pregnancy as a key systems-level change that could improve patient outcomes and reduce disparities. Since its implementation, Empaths has driven increased rates in screening during pregnancy, with referrals to treatment occurring at higher rates based on the conversations that universal screening has opened up between providers and patients.

Maternal Health Data Collection & Analysis Improvements

Prior to the MOMS grant, Montana had not engaged in systematic and regular analysis of SMM data, and surveillance on SMM was not disaggregated by race or other subgroups to facilitate a better understanding of how SMM may be impacting groups differently. Through the partnership between UM and MHA that was funded by MOMS, SMM data are now regularly analyzed and reported back to hospitals for use in quality improvement through the MPQC, and disparities are assessed to help inform data-driven decisions and resource allocation aimed at improving health equity.

In addition to improving the utilization of datasets that were in existence prior to MOMS, this grant has funded the generation of new primary data that did not previously exist in Montana. At the end of year two of the MOMS grant, MOMS funded a partnership between the CDC and UM to conduct the Levels of Care Assessment Tool (LOCATe) [15]. The CDC provides LOCATe as a means of assessing the levels of maternal and neonatal care that are available within a particular jurisdiction (such as a state) to determine the capacity for providing risk-appropriate care as a unified and coordinated system. LOCATe-assessed levels for neonatal care in Montana ranged from Level I to Level III. Montana does not have any Level IV neonatal care facilities. Most (76%) facilities LOCATe-assessed at Level I or lower for maternal care.

As a result of conducting LOCATe, Montana was invited to participate in the Association of State and Territorial Health Officials (ASTHO) Risk Appropriate Care (RAC) Learning Community. The RAC Learning Community leverages technical assistance and peer-to-peer learning to improve equitable risk-appropriate care practices in participating states by translating LOCATe data into policy and programmatic action.

While conducting LOCATe, the MOMS team noted that critical access hospitals (CAHs) that do not have labor and delivery units still constitute an important part of the perinatal health system in this rural state. In communities far from a designated birthing facility, CAHs may receive and refer emergency deliveries and must be prepared for any number of complex presentations of obstetric and gynecological emergencies. MOMS collected data from 32 out of 34 of Montana's CAHs that do not regularly perform deliveries. More than half (51.6%) of the hospitals had experienced an emergency room birth within the last two years, and 34.4% had experienced a close call or other unanticipated adverse birth outcome. When hospitals needed to transfer a patient, 37.0% of respondents had experienced challenges arranging transport for a pregnant patient. Only one surveyed hospital met all the assessed criteria of the WHO's guidelines for basic emergency obstetric care (BEmOC). These data are being compiled and shared in concert with the LOCATe assessment with the state as it prepares policy and program recommendations around strengthening the maternal healthcare system

Sharing Data

Population-level data and data that have been generated through MOMS-funded programs have been shared broadly through published reports and public presentations during the reporting period that this document covers (September 30, 2021 – September 29, 2022). A bibliography of presentations and reports is provided below.

Presentations

Holman, C., Glover, A.L., Fertaly, K., Nelson, M. (2022). Assessing the capacity of Montana's maternal and neonatal health system to provide geographic- and ability-equitable access to risk appropriate care. Podium presentation at the 2022 CityMatCH Leadership and MCH Epidemiology Conference in Chicago, IL.

Glover, A.L., Holman, C., Brown, D., Nelson, M. (2022). Handling the "drive-by" delivery: An assessment of emergency preparedness in obstetric care in a rural state. Podium presentation at the 2022 CityMatCH Leadership and MCH Epidemiology Conference in Chicago, IL.

Glover, A.L., Eby, A. (2022). Where to start: Planning and doing. Invited presentation to the American College of Obstetricians and Gynecologists Alliance for Innovation on Maternal Health Annual Meeting in Rockville, MD.

Eby, A., Schmitt, A., Krane, K. (2022). Montana Perinatal Quality Collaborative. Presentation at Montana Perinatal Association Conference in Chico, MT.

Holman, C., Fertaly, K. (2022). Risk appropriate care in Montana's maternal and neonatal health system: What it is and why it matters. Presentation at the Montana Hospital Association Health Summit, Butte, MT.

Glover, A.L., Holman, C., Brown, D., Nelson, M. (2022). Emergency Obstetric Care in Montana. Presentation to the Montana Maternal Health Leadership Council.

Glover, A.L. & Eby, A. (2022). Healthy pregnancies, safe deliveries, supported mothers: How MOMS is improving maternal health through policy, data, and collaboration. Presentation at the Montana Public Health Association/Montana Environmental Health Association Annual Conference in Helena, MT.

Holman, C. (2022). Montana Levels of Care Assessment Tool (LOCATe) Initiative. Presentation to the Montana Risk Appropriate Care Learning Community Committee.

Eby, A., Schmitt, A., Glover, A., Holman, C., Mulcaire-Jones, G., Krane, K., Robertson, M., Nelson, M., Birkeland, V. (2022). Making strides in maternal safety in Montana: The Montana Perinatal Quality Collaborative implements the AIM Obstetric Hemorrhage Bundle. Poster at the Montana Public Health Association/Montana Environmental Health Association Annual Conference in Helena, MT. Best poster award.

Holman, C., Glover, A., Fertaly, K., Nelson, M. (2022). Risk appropriate care in Montana's maternal and neonatal health system. Poster at the Montana Public Health Association/ Montana Environmental Health Association Annual Conference in Helena, MT.

Eby, A., Nelson, M. (2022). Montana Obstetrics and Maternal Support (MOMS) program. Presentation to HRSA convening of Region 8 and Region 10 PQCs.

Eby, A. (2022). Montana Obstetrics and Maternal Support (MOMS) Year 2 Data Updates. Presentation to the Montana Department of Public Health and Human Services Public Health & Safety Division.

Reports

Nelson, M., Holman, C., Glover, A. (2022). Montana Perinatal Quality Collaborative Quarter 2 Reports on Alliance for Innovation in Maternal Health Obstetric Hemorrhage Bundle Implementation for the following facilities: Benefis Health System, Billings Clinic, Bitterroot Health Daly Hospital, Cabinet Peaks Medical Center, Central Montana Medical Center, Clark Fork Valley Hospital, Community Medical Center, Glendive Medical Center, Logan Health Kalispell, Logan Health Whitefish, Providence St. Patrick Hospital, Sidney Health Center, St. James Healthcare, St. Luke Community Hospital, St. Peter's Hospital, St. Vincent Healthcare.

Holman, C., Glover, A., Fertaly, K., Nelson, M. (2022). Montana Levels of Care Assessment Toole (LOCATe) Facility Reports for the following facilities: Barrett Hospital, Benefis Health System, Billings Clinic, Blackfeet Community Hospital, Bitterroot Health Daly Hospital, Bozeman Health, Cabinet Peaks Medical Center, Central Montana Medical Center, Clark Fork Valley Hospital, Community Hospital of Anaconda, Community Medical Center, Frances Mahon Deaconess Hospital, Glendive Medical Center, Holy Rosary Healthcare, Livingston Healthcare, Logan Health Kalispell, Logan Health Whitefish, Northern Montana Hospital, Providence St. Joseph Medical Center, Providence St. Patrick Hospital, Sidney Health Center, St. James Healthcare, St. Luke Community Hospital, St. Peter's Hospital, St. Vincent Healthcare.

McKay, K., Holman, C., Nelson, M., Glover, A. (2022). Simulation Training in Obstetric Care for Rural Communities Final Evaluation Report

Holman, C., Glover, A., Fertaly, K., Nelson, M. (2022). Montana Levels of Care Assessment Toole (LOCATe) Report.

Nelson, M., Holman, C., Glover, A. (2022). Montana Perinatal Quality Collaborative Quarter 1 Reports on Alliance for Innovation in Maternal Health Obstetric Hemorrhage Bundle Implementation for the following facilities: Benefis Health System, Billings Clinic, Bitterroot Health Daly Hospital, Cabinet Peaks Medical Center, Central Montana Medical Center, Clark Fork Valley Hospital, Community Medical Center, Glendive Medical Center, Logan Health Kalispell, Logan Health Whitefish, Providence St. Patrick Hospital, Sidney Health Center, St. James Healthcare, St. Luke Community Hospital, St. Peter's Hospital, St. Vincent Healthcare.

Nelson, M., Glover, A. (2022). MOMS Project ECHO Year 3 Quarter 1 Evaluation QI Report.

Nelson, M., Holman, C., Glover, A. (2022). Montana Perinatal Quality Collaborative Baseline Report.

McKay, K., Holman, C., Nelson, M., Glover, A. (2021). Simulation Training in Obstetric Care for Rural Communities Semi-Final Evaluation Report.

Nelson, M., Glover, A., Woo, M., Holman, C. (2021). 16 Severe Maternal Morbidity Snapshot Reports for the following facilities: Benefis Health System, Billings Clinic, Bitterroot Health Daly Hospital, Cabinet Peaks Medical Center, Central Montana Medical Center, Clark Fork Valley Hospital, Community Medical Center, Glendive Medical Center, Logan Health Kalispell, Logan Health Whitefish, Providence St. Patrick Hospital, Sidney Health Center, St. James Healthcare, St. Luke Community Hospital, St. Peter's Hospital, St. Vincent Healthcare.

Nelson, M., Glover, A. (2021). MOMS Project ECHO Year 2 Quarter 3 Evaluation QI Report.

Woo, M., Glover, A.L. (2021). Severe Maternal Morbidity in Montana: Near Miss Obstetric Events in a Rural State.

The MOMS team intends to present maternal health data for both Montana and national audiences in Y4. Several abstracts have been accepted for national conferences occurring between September 30, 2022, and September 29, 2023, which are listed below. In addition to these accepted abstracts, the MOMS team will present maternal health data to each of the quarterly meetings of the Montana Maternal Health Leadership Council, to the annual Montana Perinatal Nurses Association, the Montana Healthcare Conference, and the Montana Public Health Association Annual Conference. Proposals will also be submitted for CityMatCH, Academy Health Annual Research Meeting, and APHA in 2023.

Fitch, S., Robertson, M., McCracken III, C., Lofgren, V., Glover, A. (2023). MOMS Simulation Leadership Academy: A Rural Train-the-Trainer Obstetric Simulation Program. Panel presentation at the 23rd International Meeting on Simulation in Healthcare in Orlando, FL.

Holman, C., Glover, A. (2023). "I did not feel though I was in charge or able to make decisions about my own body." Patient Experiences of Respect in Montana's Maternal Health System. Abstract submitted and accepted to AMCHP.

Echols, A., Fuchs, J., Sharp, N., Reese, S., Fitch, S. (2023). Prioritizing Behavioral Health in Title V: A Sampling of Practice-Based Research Projects Featured in the AMCHP-Sponsored 2023 Maternal and Child Health Journal Supplement on Perinatal Substance Use. 60-Minute Panel Presentation at Association of Maternal Child Health Programs.

Fitch, S., Robertson, M., McCracken III, C., Mulcaire-Jones, G., Lofgren, V., Glover, A. (2023). Implementing a Remote Perinatal Health Simulation Program: The MOMS Simulation Leadership Academy. Abstract submitted to CityMatCH.

Fitch, S., Robertson, M., McCracken III, C., Mulcaire-Jones, G., Lofgren, V., Glover, A. (2023). Utilizing Train-the-Trainer Simulation-Based Learning to Address Perinatal Behavioral Healthcare, Provider Communication and Health Equity, and Emergency Obstetric Care for Rural Health Teams. Abstracted submitted to APHA.

Glover, A.L., Nelson, M., Holman, C., Eby, A., Krane, K., Schmitt, A., Mulcaire-Jones, G., Robertson, M., Birkeland, V. (2022). Quality improvements in obstetric hemorrhage: Measuring progress in the remote implementation of a patient safety bundle. Poster presentation at the Academy Health Annual Conference on the Science of Dissemination and Implementation in Washington, DC.

Glover, A.L., Holman, C., Nelson, M., McKay, K. (2022). "Working at a critical access hospital, anything can walk through the door. Being prepared for that 'anything' is so important." Poster presentation at the Academy Health Annual Conference on the Science of Dissemination and Implementation in Washington, DC.

Reese, S., Fitch, S., McCracken, T., Glover, A.L. (2022). Implementation of SBIRT for perinatal substance use. Poster presentation at the Academy Health Annual Conference on the Science of Dissemination and Implementation in Washington, DC.

Glover, A.L., Holman, C., Brown, D., Nelson, M. (2022). "Hope and pray the flight team has blood on board": An assessment of blood transfusion capacity in obstetric emergencies at critical access hospitals. Oral presentation at the annual American Public Health Association Conference in Boston, MA.

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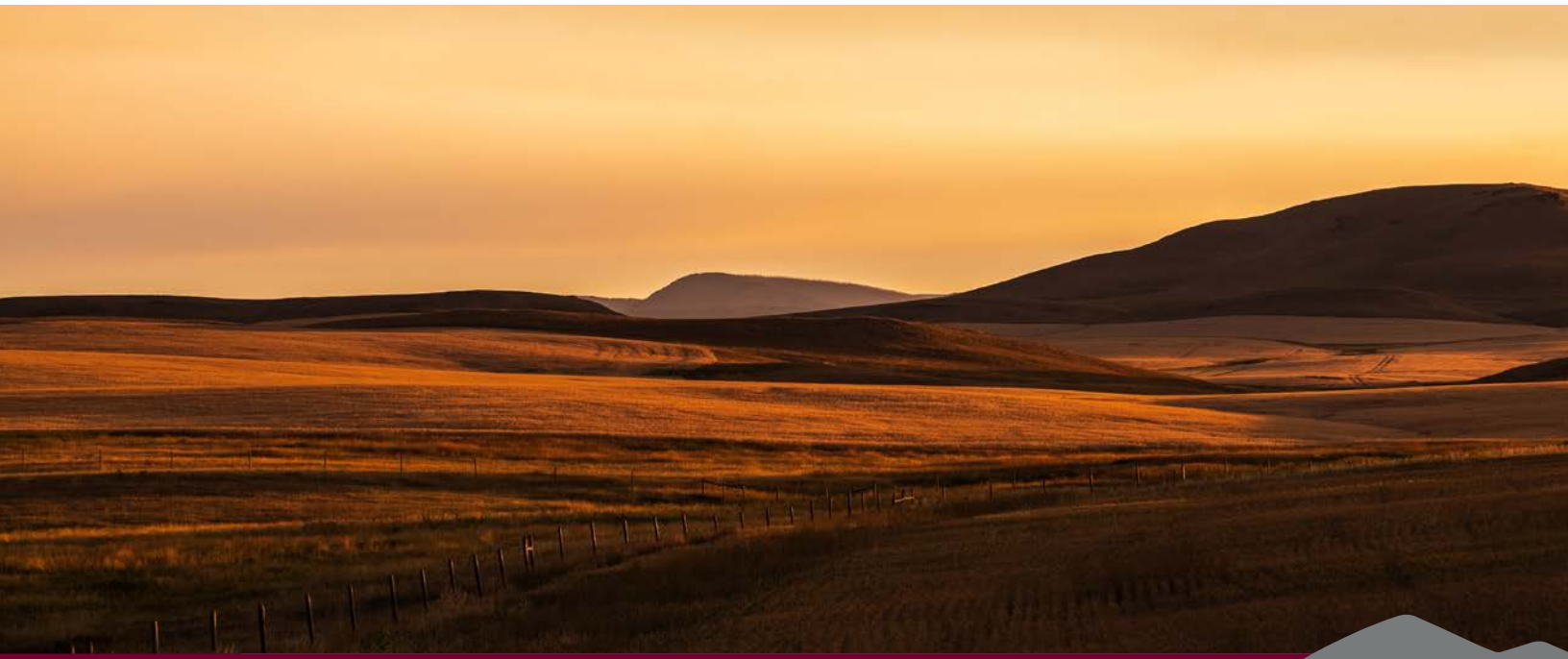

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Appendix

Maternal Health Indicators	Live births	Pregnancy-related deaths	Live births with a source of payment at the time of delivery that is not self-pay	Live births where the mother had health insurance[a]	Cesarean deliveries among term, singleton, vertex births to nulliparous women	Number of term, singleton, vertex births to nulliparous womenb	Rate of low-risk cesarean delivery[b]	Women with a recent live birth who received a postpartum visit	Women with a recent live birth screened for postpartum depression
	(n)	(n)	(n)	(%)	(n)	(n)	(%)	(%)	(%)
Data Source	Live birth certificate	PMSS	Live birth certificate	Live birth certificate	Live birth certificate	Live birth certificate	Live birth certificate	PRAMS	PRAMS
Calendar Year(s)	2020	2016-2018	2020	2020	2020	2020	2020	2020	2020
Total									
	10794	*	10052	93.1	959	3870	24.8	89.8	84.1
Data by Age									
≤24	2523	*	2379	94.3	265	1475	18.0	90.4	85.8
25-39	7971	*	7408	92.9	661	2341	28.2	89.6	83.8
40+	300	*	265	88.3	33	54	61.1	NSD	NSD
Missing/Unknown	0	*	0	**	0	0	**	NSD	NSD
Darta by race/ethnicity									
Non-Hispanic American Indian or Alaska Native	1133	*	1110	98.0	64	333	19.2	72.7	70.4
Non-Hispanic Asian or Pacific Islander	147	*	133	90.5	17	59	**	NSD	NSD
Non-Hispanic Black	110	*	104	94.5	8	42	**	NDD	NSD
Non-Hispanic White	8835	*	8189	92.7	823	3222	25.5	91.4	85.6
Hispanic	569	*	516	90.7	47	214	22.0	NSD	NSD
Other	0	*	0	**	0	0	**	97.4	NSD
Missing/Unknown	0	*	0	**	0	0	**	NSD	NSD
Data by education									
Less than a High School graduate	1024	*	924	90.2	58	353	16.4	78.5	NSD
High School graduate or GED completed	2803	*	2590	92.4	214	994	21.5	84.1	78.7
Some college or Associate's degree	3360	*	3164	94.2	292	1101	26.5	95.1	89.2
Bachelor's or advanced degree	3593	*	3363	93.6	394	1417	27.8	92.8	87.0
Missing/Unknown	14	*	11	**	*	5	**	NSD	NSD
Data by geography (based on county of residence, using NCHS urban-rural classification scheme)									
Urban	3872	*	3668	94.7	360	1460	24.7	88.6	83.2
Rural	6921	*	6383	92.2	599	2410	24.9	90.4	84.6
Missing/Unknown	*	*	*	**	0	0	**	NSD	NSD

NOTES: *Value Suppressed (1-4 observations). **Percentage Suppressed (Numerator < 20). NSD = Not sufficient data (estimate suppressed because it is not statistically stable)

[a] Numerator: Live births with a source of payment at the time of delivery that is not self-pay. Denominator: Total number of live births.
[b] Numerator: Number of cesarean deliveries among term, singleton, vertex births to nulliparous women. Denominator: Number of of term, singleton, vertex births to nulliparous women.


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