



Montana Obstetric and Maternal Support (MOMS)
Emergency Department and Hospitalizations for Obstetric Care in Montana,
2019 - 2023

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Objective:

Maternal health is defined as the health of women during pregnancy, childbirth, and the postnatal period, according to the World Health Organization.¹ The United States has more than 3.5 million births per year, with a birth rate of about 11 per 1,000 people.² Slightly more than 10,000 of those babies were born to Montana residents.³

Maternal complications, also known as maternal morbidity, is defined as “any health condition attributed to and/or complicating pregnancy, and childbirth that has a negative impact on the woman’s well-being and/or functioning”, according to the World Health Organization.⁴ In 2022, over 800 women in the United States died of maternal causes.⁵ This is about one maternal death per 20 to 30 maternal morbidity cases.⁴

Effective emergency department and hospital care is key to preventing maternal deaths and reducing the complications of maternal morbidity. Common symptoms that warrant urgent maternal care includes persistent headaches, fever, severe nausea, no fetal movement, dizziness or fainting, trouble breathing, vaginal bleeding or fluid leaking, extreme swelling, chest pain, overwhelming tiredness, changes in vision, or severe belly pain.⁶ Treating the conditions associated with these symptoms when spotted in the emergency department or hospital can prevent possible future maternal mortality.

This report examines the usage of emergency departments and hospitals across Montana for obstetric-related care from 2019 through 2023.

Methods:

Montana emergency department and hospital discharge data (MHDD) was pulled from 2019 – 2023. Records were flagged if they were obstetric-related primary ICD-10 codes (O00 – O9A, A34, Z03.71 – Z03.79, Z33.1 – Z39.2, Z3A.00 – Z3A.49). These records were then classified as “pregnancy-related”. The ICD-10 codes were then further sorted into the already-existing secondary categories for further analysis.

The MHDD data is only available at visit-level data, which does not allow for identification of individuals or a linear connection between visits. Therefore, this dataset was analyzed with each visit separately and no individual analysis. Additionally, the MHDD data is comprised of Montana hospitals with an agreement to share their data and does not encompass any hospitals outside of MHDD, which excludes Indian Health Services (IHS) and Veteran’s Association (VA) hospitals.

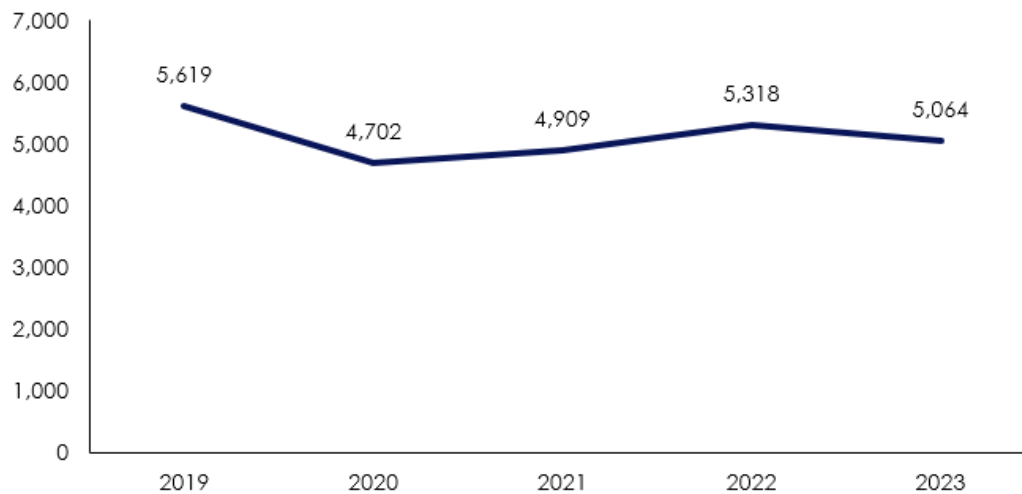
All data was analyzed in SAS 9.4.

Results:

From 2019 to 2023, there were over 25,000 pregnancy-related emergency department visits, with each year having about 5,000 visits. There appears to be no large differences in the number of visits between years. 2019 and 2020 have the largest difference in visit counts with 2020 having 917 less visits, possibly due to COVID-19. However, this cannot be confirmed (Figure 1).

Figure 1: Total Number of Pregnancy-Related Emergency Department Visits by Year, Montana ED/Hospitalizations, 2019 – 2023

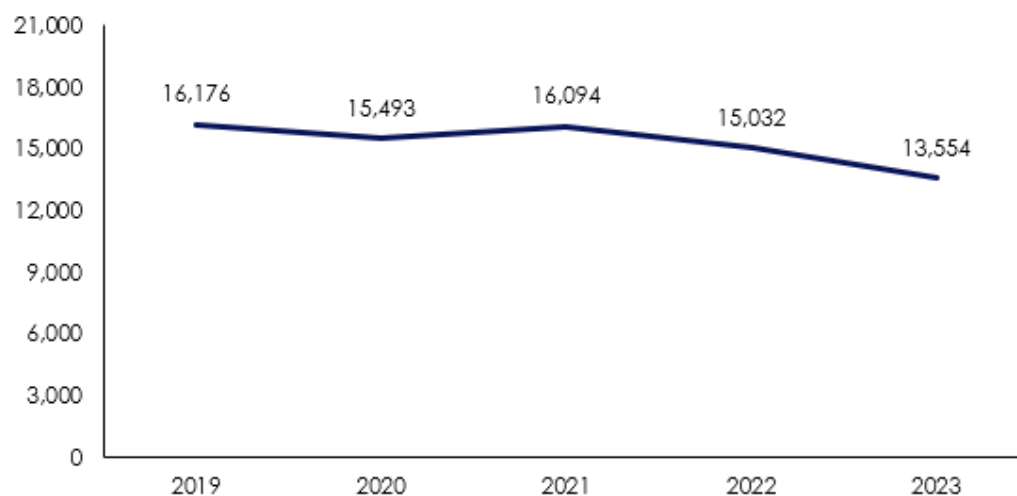
Figure 1: Total Number of Pregnancy-Related Emergency Department Visits by Year, Montana ED/Hospitalizations, 2019 - 2023



While there were only about 5,000 pregnancy-related emergency department visits per year from 2019 to 2023, the number of hospitalizations in that period was much higher. There was a total of 76,349 hospitalizations, which is about 15,000 per year (Figure 2).

Figure 2: Total Number of Pregnancy-Related Hospital Stays by Year, Montana ED/Hospitalizations, 2019 – 2023

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These visits were then categorized to determine the type of visit. The most common pregnancy-related emergency department visit was for "Other maternal disorders predominantly related to

pregnancy” at 50.4% of the visits. An example of a visit such as this is hemorrhaging in pregnancy. However, the most common pregnancy-related hospital stays at 31.2% was for “Persons encountering health services in circumstances related to reproduction” which can be visits such a post-partum care visit (Table 1 and 2).

Additionally, labor and delivery were more common in the hospital than the emergency room. “Complications of labor and delivery” and “Encounter for deliver” added up to more than 20% of the 76,349 hospital stays, while only 3% of 25,612 emergency department visits were for a delivery-related visit (Table 1 and 2).

Table 1: Type of Pregnancy-Related Emergency Department Visits, Montana ED/Hospitalizations, 2019 – 2023

| Type of Pregnancy-Related Emergency Department Visit | N | % |
|---|--------|-------|
| Pregnancy with abortive outcome | 3,146 | 12.3% |
| Supervision of high risk pregnancy | 78 | 0.3% |
| Edema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium | 364 | 1.4% |
| Other maternal disorders predominantly related to pregnancy | 12,910 | 50.4% |
| Maternal care related to the fetus and amniotic cavity and possible delivery problems | 1,231 | 4.8% |
| Complications of labor and delivery | 706 | 2.8% |
| Encounter for delivery | 2 | 0.0% |
| Complications predominantly related to the puerperium | 1,079 | 4.2% |
| Other obstetric conditions, not elsewhere classified | 5,837 | 22.8% |
| Encounter for suspected maternal and fetal conditions ruled out | 13 | 0.1% |
| Persons encountering health services in circumstances related to reproduction | 227 | 0.9% |
| Weeks of gestation | 16 | 0.1% |

Table 2: Type of Pregnancy-Related Hospital Stays, Montana ED/Hospitalizations, 2019 – 2023

| Type of Pregnancy-Related Hospital Stay | N | % |
|---|--------|-------|
| Pregnancy with abortive outcome | 275 | 0.4% |
| Edema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium | 5,464 | 7.2% |
| Other maternal disorders predominantly related to pregnancy | 3,274 | 4.3% |
| Maternal care related to the fetus and amniotic cavity and possible delivery problems | 19,418 | 25.4% |
| Complications of labor and delivery | 14,439 | 18.9% |
| Encounter for delivery | 1,308 | 1.7% |
| Complications predominantly related to the puerperium | 408 | 0.5% |
| Other obstetric conditions, not elsewhere classified | 7,923 | 10.4% |
| Persons encountering health services in circumstances related to reproduction | 23,840 | 31.2% |

The average length of stay for an emergency department visit was about five hours and has an average cost of \$2,945 before insurance. The length of stay of a hospitalization is much longer at about four days and five hours and costs an average of \$30,133.76 also before insurance.

The demographics of the emergency department visits and hospitalizations are different, with emergency department visits having slightly more American Indian/Alaskan Natives (at 12.8% vs 9.2%). However, the percentage of emergency department visits for patients younger than 20 is much lower than the percentage of patients who were hospitalized (10.4% vs 33.6%). Another difference is that for emergency departments, Medicaid/governmental insurance is more common than commercial insurance (56.7% and 29.4%) while hospitalizations is the other way around (40.6% and 46.5%) (Figures 3 and 4).

Figure 3: Demographics of Pregnancy-Related Emergency Department Visits, Montana ED/Hospitalizations 2019 - 2023

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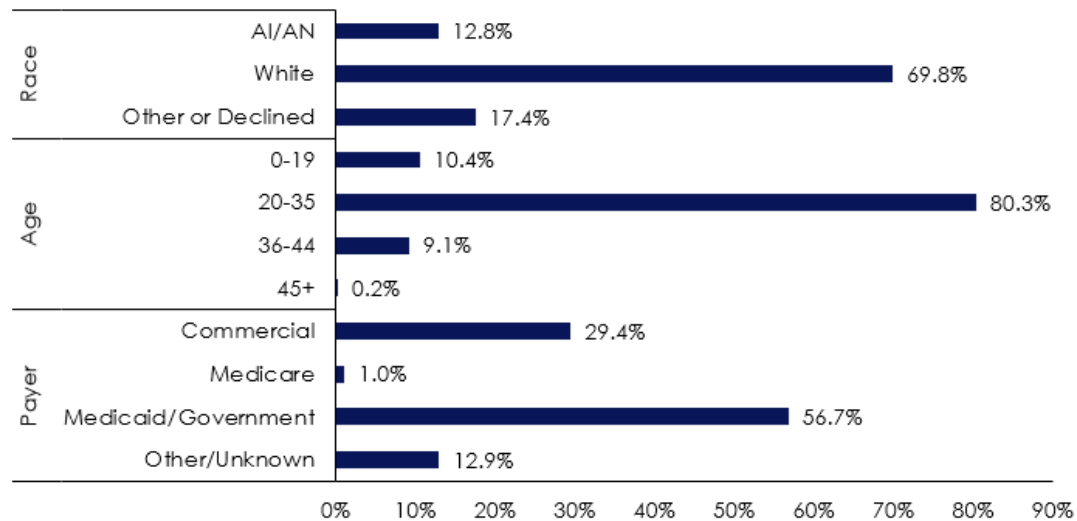
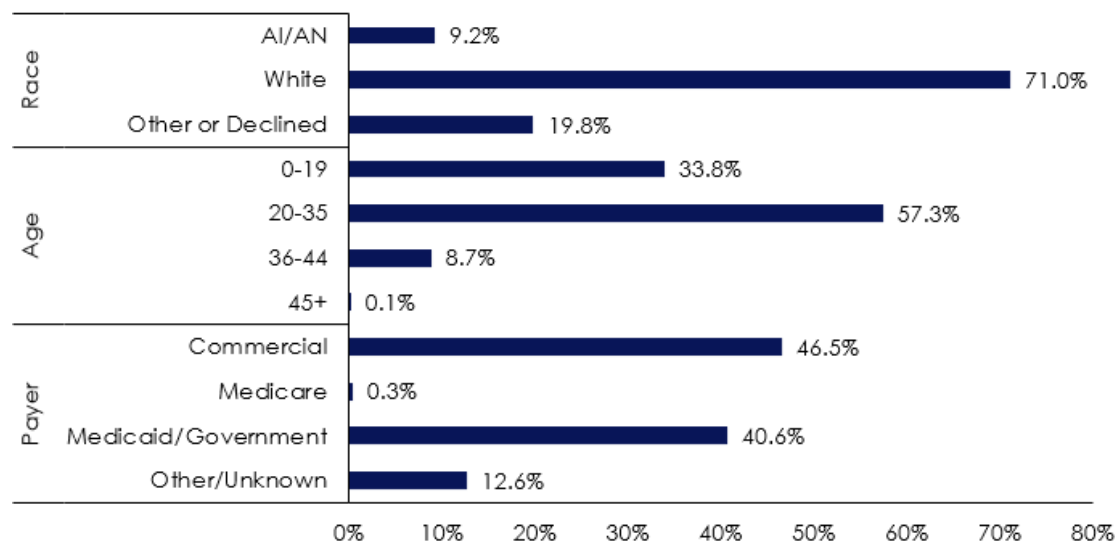


Figure 4: Demographics of Pregnancy-Related Hospital Stays, Montana ED/Hospitalizations, 2019 - 2023

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Discussion:

The number of visits in the emergency department or hospital for pregnancy-related concerns has been relatively stable for the past five years, showing no immediate spike or declines. Further analysis would need to be done to link these trends to Montana's population growth.

The trends for type of visits were as expected – more immediate or “emergency” visits were handled by the emergency departments – such as pregnancies with abortive outcomes, maternal disorders, or other obstetric conditions. It is a success to note that most delivery situations were handled by hospital care such as general labor and delivery or more complex deliveries, as that shows that even during problems there was time to transfer to the hospital.

As for the demographics, it shows that patients who use Medicaid or other government insurance are more common in an emergency department visit as opposed to hospitalizations, indicating that these visits might be the result of avoiding healthcare (possibly due to monetary considerations) until the situation is emergency. While this is not a direct fact to be extrapolated from the data, it is something that the State of Montana maternal health program should be aware of.

In all, it is important to know the utilization of emergency departments and hospitals for pregnancy-related visits to understand the health needs of pregnant people in Montana.

Citations

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