# Maternal Health in the First Months After Hurricane Helene

## *Emergency Department Trends and Economic Impacts in Western North Carolina*

## Why This Matters

Pregnant and postpartum individuals are highly sensitive to disruptions in care, stress, and social support following large-scale disasters. Hurricane Helene caused widespread infrastructure damage and healthcare disruption across Western North Carolina, where approximately 153,000 women of childbearing-age reside. In the Perinatal Care Region 1: Western, which includes the 16 western counties, there were approximately 7.024 births in 2024 (NCDHHS Maternal and Infant Health Data Dashboard), corresponding to a fertility rate of 48.4 per 1,000 women aged 15-44 (2024) (NCDHHS Maternal and Infant Health Data Dashboard).

This analysis examines changes in emergency department (ED) visits for maternal complications before and three months after the storm, including hypertensive disorders of pregnancy (HDP), postpartum hemorrhage, substance misuse, perinatal mood and anxiety disorders (PMAD) (e.g., anxiety and depression), and gestational diabetes. We also estimated excess cases and associated ED-related costs where changes were statistically meaningful. Early identification and support can reduce emergency visits, prevent escalation of chronic conditions, and improve long-term health outcomes for pregnant and postpartum individuals and their infants. The post-disaster period represents not only a time of increased risk, but also a window of opportunity to strengthen maternal care networks and community resilience across WNC.

**Table 1.** Post-Helene Maternal ED Excess Cases and Costs.

| Outcome | Where Change Concentrated | % Increase | Total ED Visits | Excess ED Visits | Excess Cost* |
|---|---|---|---|---|---|
| Hypertensive Disorders (HDP) | Perinatal | 16% | 642 | 89 | $2.2M |
| | Prenatal | 7% | 454 | 30 | $753K |
| | Postpartum | 31% | 178 | 55 | $1.4M |
| Substance Misuse | Perinatal | 13% | 718 | 83 | $1.2M |
| Perinatal Mood and Anxiety Disorders (PMAD) | Perinatal | 15% | 1130 | 147 | $3.2M |
| Anxiety | Prenatal | 59% | 266 | 99 | $2.6M |
| Gestational Diabetes Mellitus | Prenatal | 58% | 133 | 49 | $825K |
| Hemorrhage | Postpartum | 46% | 148 | 47 | $899K |
| | | **Total** | **3,669** | **598** | **$13.1M** |

*Costs reflect median delivery-related encounter values (2022–2024). Excess cases and costs are reported only where statistically meaningful differences were observed.

## At-a-Glance Findings

- Hypertensive disorders increased overall (+16%), resulting in an estimated $2.2M in excess delivery-related costs
- Perinatal mood and anxiety disorders increased (+15%) and represented the highest excess costs of ~$3.2M.
- Prenatal anxiety (+59%, ~$2.6M excess costs) and gestational diabetes (+58%, ~$825K excess costs) showed the sharpest relative increases in excess emergency department visits.
- Postpartum complications showed some of the largest relative increases, particularly hypertensive disorders (+31%) and hemorrhage (+46%).
- There was no post-Helene increase in substance misuse affecting pregnancy.
- Across outcomes, excess ED-related costs likely exceeded ~$13 million following Hurricane Helene

## Opportunities for Actions

These findings reflect only the first three months following Hurricane Helene, when many individuals were still navigating disrupted care, housing instability, and insurance or transportation barriers. The increases observed in emergency department visits likely reflect early signals of broader maternal health impacts, as ED data capture only those who were able to reach hospital care. Maternal complications, including hypertensive disorders and gestational diabetes, often emerge or intensify over time and can have both short- and long-term health implications for pregnant and postpartum individuals and their infants if left unaddressed.

## Near-Term Actions for Health Systems and Communities

- **Strengthen postpartum follow-up** through telehealth, mobile clinics, or extended visit windows.
- **Expand perinatal mental-health screening and referral pathways**, particularly in the first 6–12 months postpartum.
- **Coordinate substance-use and behavioral-health services with obstetric and primary-care providers.**
- **Integrate maternal health indicators into disaster recovery and preparedness plans** to ensure continuity of care during future events.
- **Partner with community organizations and doulas** to support navigation, transportation, and culturally responsive outreach.

## About the Analysis

To understand how Hurricane Helene affected emergency department use, separate from normal seasonal patterns or long-term trends, we used a before-and-after comparison with a built-in control group (difference-in-difference (DID) design). DID is a used quasi-experimental approach for drawing causal inferences from real-world data when randomized studies are not possible. This method compares changes over time in storm-impacted counties with changes in similar, non-impacted counties, helping isolate effects attributable to the hurricane. Our analysis accounted for expected seasonal variation, population differences across counties, and broader healthcare trends, and we examined each outcome separately. This design strengthens confidence that observed increases reflect hurricane-related disruptions to primary care rather than background fluctuations. To-date, the investigators only had data for 2022 to 2024, including only the first three months after the storm. The data for 2025 is anticipated in July/August 2026 and analysis will be forthcoming.

## For more information

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