

# From The National Perinatal Information Center

## Complications of Maternal Hypertension:

### Data from NPIC Special Membership Report for Q4, 2017-Q3, 2018

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**The National Perinatal Information Center (NPIC) is driven by data, collaboration and research to strengthen, connect and empower our shared purpose of improving patient care.**

**For over 30 years, NPIC has worked with hospitals, public and private entities, patient safety organizations, insurers and researchers to collect and interpret the data that drives better outcomes for mothers and newborns.**



#### Background

One of the leading causes of maternal mortality and severe morbidity in pregnancy is hypertensive disease. In 2016, the CDC reported the rate of hypertensive disorders in pregnancy increased 72.5% from 1993-2014, from 528.9 in 1993 to 912.4 in 2014 (per 10,000 delivery hospitalizations). (1)

Health care providers have sought to develop a consensus on the most effective way to manage the care of the pregnant woman with a hypertensive disorder, ultimately improving maternal and neonatal outcomes. Under the direction of the Council on Patient Safety in Women's Health Care, several organizations involved in women's health have come together to establish the Alliance for Innovation on Maternal Health (AIM). AIM is a national data-driven maternal safety and quality initiative based on proven implementation approaches. Patient Safety bundles that focus on readiness, recognition & prevention, response, and reporting/systems learning have been developed for some of the major complications of pregnancy impacting maternal morbidity and mortality, including one on hypertension. (2)

The hypertension bundle review of readiness for every unit includes standardization of protocols for hypertension management, unit education, drills, rapid access to medications and plans to deal with escalation of severe hypertension, including consult and transfer as needed.

Recognition and prevention for every patient addresses the need for standard protocols for measurement and assessment of B/P and urine protein for all pregnant and postpartum women. Early warning signs and investigation of symptoms with lab assessment should be obtained. Maternal education on signs and symptoms of hypertension and preeclampsia should be part of care for prenatal and postpartum women.

Response to severe hypertension/preeclampsia is addressed by standard protocols with checklists and escalation policies. Minimum requirements for the protocol outline specific B/P parameters for notification of providers if systolic B/P  $\geq 160$  or diastolic B/P  $\geq 110$  for 2 measurements within 15 minutes. After the second elevated reading, treatment should be initiated as soon as possible, preferably within 60 minutes of verification. (3)

The final component of the bundle, reporting/systems learning, speaks to each unit doing huddles and post-event debriefs, multi-disciplinary review of severe cases admitted to ICU and monitoring outcomes and process metrics.

#### Findings from the NPIC Special Report

The Special Report for the period Q4, 2017-Q3, 2018 focused on the review of all delivery cases coded with hypertension at each member hospital in comparison to their peer subgroup and the Perinatal Center Data Base (PCDB) as a whole. Table 1 below displays the average distribution of the seven categories of hypertension cases for NPIC member hospitals.

Table 1: Overview	Database Average
Total Deliveries	3,685
Total Deliveries with selected Hypertension coding *	597
Percent of total deliveries	16.2%
<i>For Hypertension cases only:</i>	
ALOS	3.8
C-section rate	46.2%
<b>Hypertension Categories (percent of deliveries coded with Hypertension) *</b>	<b>%</b>
• Gestational hypertension	41.2%
• Mild to moderate preeclampsia; Unspecified preeclampsia	19.6%
• Severe preeclampsia	19.5%
• Pre-existing hypertension (Chronic)	18.3%
• Pre-existing hypertension with preeclampsia (Superimposed)	6.5%
• Eclampsia	0.4%
• Unspecified maternal hypertension	4.4%
Codes available upon request at <a href="mailto:msservices@npic.org">msservices@npic.org</a>	

**Time is precious, just like your patients.**



**Maternal Complications:** A profile of maternal co-morbidities/complications for cases coded with hypertension was also included and Table 2 shows the average rate of those complications across all member hospitals in the PCDB. The data shows that longer lengths of stay are fairly common for hypertension cases and 2.7% of all cases are readmitted within 42 days. This is more than twice the postpartum readmission rate (1.1%) for all deliveries at member hospitals.

Table 2: Maternal Comorbidities/Complications - Deliveries Coded with Hypertension	Database Average
• Antepartum admission (at least one admission and discharge prior to delivery hospitalization)	3.6%
• Multiple gestation	3.4%
• Early onset of labor (prior to 37 weeks completed gestation)	8.9%
• Placenta abruption	1.6%
• Obesity	24.6%
• Anemia	20.7%
• Gestational diabetes	12.6%
• Long LOS (> 2 days vaginal delivery; > 4 days c-section delivery) *	47.7%
• Postpartum readmission within 42 days of delivery discharge	2.7%

\* LOS may include days of care prior to delivery

Feedback from members also confirmed that a percentage of postpartum readmissions were returning with hypertension diagnoses and had no indication of hypertension during the original delivery discharge. Table 3 below shows that almost 24% of the readmissions within 42 days with a diagnosis of hypertension did not have hypertension coded on their delivery discharge summary.

Table 3: Postpartum readmissions within 42 days	
Average Postpartum Readmissions with primary diagnosis of hypertension and delivery encounter NOT coded with hypertension	11
Percent of total postpartum readmissions within 42 days	23.7%

**Neonatal Complications:** More than ninety-six percent (96.2%) of the PCDB mother/baby cases are linked, allowing for the identification of neonatal complications associated with cases coded with maternal hypertension. Table 4 profiles a few of these complications with the largest risk being preterm birth and admission to the

special care nursery, both drivers of increased cost and utilization.

**AIM Severe Hypertension in Pregnancy Bundle:** Many states and national collaboratives, like NPIC are introducing their hospitals to the Severe Hypertension in Pregnancy Bundle as a way to better identify, respond and manage women with escalating hypertension. In addition to implementing the bundle components with their teams, Severe Maternal Morbidity (SMM) outcome metrics for preeclampsia cases are tracked for each hospital's baseline period and then quarterly, after initial implementation of the bundle components.

The denominator for the AIM Severe Maternal Morbidity (SMM) among Preeclampsia Cases outcome measures includes a subset of hypertension codes. Table 5 shows the NPIC Data Base average for both AIM outcome metrics associated with the Severe

Table 5: AIM Severe Hypertension in Pregnancy Bundle Outcome Measure: Severe Maternal Morbidity among Preeclampsia cases	Database Average
Total Deliveries with selected Hypertension coding	597
AIM Preeclampsia Denominator Cases*	172
AIM Preeclampsia Denominator Cases as a percent of total cases coded with hypertension	26.3%
AIM Severe Maternal Morbidity (SMM) among Preeclampsia cases **	%
• Overall rate	8.9%
• Rate excluding cases coded with blood transfusion as the only severe morbidity	5.0%

Alliance for Innovation on Maternal Health (AIM) measure definitions are available at: <https://safehealthcareforeverywoman.org/aim-data/>

\* Includes hypertension categories: Severe preeclampsia; Pre-existing hypertension with preeclampsia (Superimposed); and Eclampsia.

Hypertension in Pregnancy bundle: the overall rate of SMM among preeclampsia cases and the rate excluding cases with blood transfusion coded as the only severe morbidity.

### NPIC Trends

The NPIC Trend Data Base includes hospitals that have been members for the period 2013 - Q3, 2018. For this Special Report, we are focusing on data since the initiation of ICD 10 coding. The analytic period is Q4, 2015-Q3, 2018 (12 quarters). During this period, the Trend Data Base showed a statistically significant increase in all cases coded with hypertension, from 13.5% to 16.7%, a 24% increase in deliveries coded with hypertension. Translating this rate into 1,670 per 10,000 shows a continuing increase over the CDC 2014 rates, a trend of ongoing concern.

### Resources

- 1 CDC (2016). *Hypertensive Disorders 1993-2014*. Retrieved from <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy>.
- 2 *Severe Hypertension in Pregnancy (+AIM) (2018, October 16)*. Retrieved from <https://safehealthcareforeverywoman.org/patient-safety-bundles/severe-hypertension-in-pregnancy/>.
- 3 *Committee on Obstetric Practice and Society for Maternal-Fetal Medicine. (2018). Low-dose aspirin use during pregnancy. ACOG Committee Opinion No. 743. Obstetrics and*

The authors have no relevant disclosures.

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# TOP 10



## RECOMMENDATIONS FOR THE PSYCHOSOCIAL SUPPORT OF NICU PARENTS

Essential evidence-based practices that can transform the health and well being of NICU families and staff

based on the National Perinatal Association's Interdisciplinary Recommendations for Psychosocial Support of NICU Parents

### 1 PROMOTE PARTICIPATION

Honor parents' role as primary caregiver. Actively welcome parents to participate during rounds and shift changes. Remove any barriers to 24/7 parental involvement and avoid unnecessary separation of parents from their infants.



### 2 LEAD IN DEVELOPMENTAL CARE

Teach parents how to read their baby's cues. Harness your staff's knowledge, skills, and experience to mentor families in the principles of neuroprotection & developmental care and to promote attachment.



### 3 FACILITATE PEER SUPPORT

Invest in your own NICU Parent Support program with dedicated staff. Involve veteran NICU parents. Partner with established parent-to-parent support organizations in your community to provide continuity of care.



### 4 ADDRESS MENTAL HEALTH

Prioritize mental health by building a team of social workers and psychologists who are available to meet with and support families. Provide appropriate therapeutic interventions. Consult with staff on trauma-informed care - as well as the critical importance of self-care.



### 5 SCREEN EARLY AND OFTEN

Establish trusting and therapeutic relationships with parents by meeting with them within 72 hours of admission. Follow up during the first week with a screening for common maternal & paternal risk factors. Provide anticipatory guidance that can help normalize NICU distress and timely interventions when needed. Re-screen prior to discharge.



### 6 OFFER PALLIATIVE & BEREAVEMENT CARE

Support families and NICU staff as they grieve. Stay current with best practices in palliative care and bereavement support. Build relationships with service providers in your community.

### 7 PLAN FOR THE TRANSITION HOME

Set families up for success by providing comprehensive pre-discharge education and support. Create an expert NICU discharge team that works with parents to find specialists, connect with service providers, schedule follow-up appointments, order necessary medical supplies, and fill Rx.



### 8 FOLLOW UP

Re-connect with families post-discharge. Make follow-up calls. Facilitate in-home visits with community-based service providers, including Early Intervention. Partner with professionals and paraprofessionals who can screen families for emotional distress and provide timely therapeutic interventions and supports.

### 9 SUPPORT NICU CARE GIVERS

Provide comprehensive staff education and support on how to best meet families' psychosocial needs, as well as their own. Acknowledge and address feelings that lead to "burnout."



### 10 HELP US HEAL

Welcome the pastoral care team into your NICU to serve families & staff.

SUPPORT4NICUPARENTS.ORG