Maternal Hypertension Initiative: Kick-off!

May 2, 2016
12:30 – 2:30 pm
HTN Kick-off Webinar

- ILPQC welcome
- HTN Initiative Overview, Importance, Timeline
- Overview of California’s Experience
  - Nancy Peterson, MSN, RNC-OB, PNNP, IBCLC
    - Clinical Program Manager, CMQCC
  - Holly Champagne, MSN, RNC-OB, CNS
    - Kaiser Permanente, Roseville, CA
  - Connie von Kholer, MSN, RNC-OB, C-EFM, CPHQ
    - Miller Children's Hospital, Long Beach, CA
- Forming your QI team
- Baseline/Data Collection Process
- ILPQC Data System Training
- HTN process flow examples from 2 Wave 1 teams
  - Roma Allen, MSN, RNC-OB – Elmhurst Memorial Hospital
  - Dawn Varacalli, MSN,RN,CLS – Rockford Memorial Hospital
- Next Steps
  - Process Flow Diagrams
  - Storyboards
  - AIM Baseline Survey
- Questions
ILPQC Vision

A statewide perinatal quality collaborative that involves all perinatal stakeholders; utilizes data-driven, evidence-based practices; improves perinatal quality resulting in improved birth outcomes, improved health for women and infants, and decreased costs; builds on Illinois’ existing state-mandated Regionalized Perinatal System, and operates with long-term sustainable funding.
Working Together on State-wide Initiatives
Hospital Engagement

- 109 hospitals participating in one or more ILPQC Initiative
- 107 hospitals in OB Initiatives
  - Over 95% of IL births covered by ILPQC
- 26 hospitals in Neonatal Initiative
  - Over 85% of IL NICU beds covered by ILPQC
www.ilpqc.org

Includes initiative resources and members-only area to collaborate via discussion boards.
Maternal Mortality

**Odd one out**
Maternal-mortality rate, per 100,000 live births

- **Developed countries**
- Germany
- Japan
- United States
- Britain

1990 | 2013
--- | ---
25 | 5
20 | 15
15 | 10
10 | 5
5 | 0

Source: Kassebaum et al, *Lancet*

Economist.com
Maternal Morbidity: Disparities in Illinois


In Illinois in 2011-2013, 7,239 women were affected by severe maternal morbidities — a rate of 161 cases for every 10,000 delivery hospitalizations. This is higher than the published national rate of 129 per 10,000.
ILPQC Maternal Hypertension Initiative

**Aim:** Reduce the rate of severe morbidities in women with severe preeclampsia, eclampsia, or preeclampsia superimposed on pre-existing hypertension by 20% by December 2017

**Approach:** Established workgroup (1/2015), identify hospital teams (5/2016), implement evidence-based practices / protocols / AIM HTN Bundle (6/2016-12/2017)

- OB Advisory Workgroup and HTN Clinical Leadership Team developed process/outcome measures, toolkit/education, data form and reports
- Input from IDPH SQC / Perinatal Network Administrators / AIM Initiative / CA, NY, and NC collaboratives
- Launched Wave 1 in January 2016, Wave 2 May 2016 – TODAY!
Support from Other State Collaboratives Working on HTN

- **CMQCC (California Collaborative) Preeclampsia Initiative**
  - HTN Clinical Lead Team multiple meetings with CMQCC to leverage their measures, data form, and process

- **PQCNC (North Carolina) – Conservative Management of Preeclampsia**
  - Ongoing work with PQCNC to use lessons learned from their initiative and education plan resources

- **New York ACOG – Safe Motherhood Initiative**
  - Ongoing calls to use components of their education plan and quality improvement processes (have 117 hospitals)
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<td>Launch initiative at ILPQC annual meeting</td>
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<td>2-hour educational webinar for all teams – <em>May 2, 12:30-2:30</em></td>
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<td>Face-to-face meeting to launch QI work – <em>May 23, 10am – 3:30</em></td>
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<td>Monthly data collection/team calls (<em>June 2016-Dec 2017</em>)</td>
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Initiative Goals

• Early recognition of hypertension and correct diagnosis during and after pregnancy

• Reduce time to treatment of severe range blood pressure, 160/110(105)

• Deliver not too early and not too late

• Provide patient education and appropriate follow up

• Implementation of evidence based protocols
Keys to Success

• Monthly Team Call (all teams members join)
  • We will review data, discuss QI strategies for HTN bundle implementation, review education topic and Team Talks (hear from teams across IL sharing progress, barriers and successes)

• Submit monthly data into RedCap
  • You will be able to track your progress across time and compare to over 100 hospitals in initiative on reducing time to treatment for severe range BP

• Schedule regular meetings with your HTN Team to review your data and drive QI
Three types of measures

• **Outcome Measures** – Identify whether changes are leading to improvement and achieving aims
  • How is the system performing?
  • What is the result?

• **Process Measures** – identify changes to processes of care that can affect outcome measures. Measuring the results of these process changes will tell you if the changes are leading to an improved, safer system

• **Balancing Measures** – identify changes in one part of the system that may result in new problems in other parts of the system.

CMQCC, 2013
ILPQC HTN Initiative
Goal & Measures

Goal: Reduce preeclampsia maternal morbidity

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<thead>
<tr>
<th>IL Measure</th>
<th>Type</th>
<th>Goal</th>
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<tbody>
<tr>
<td>Severe Maternal Morbidity</td>
<td>Outcome</td>
<td>20% reduction</td>
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<td>No. of women with severe maternal morbidities (e.g. Acute renal failure, ARDS, Pulmonary Edema, Puerperal CNS Disorder such as Seizure, DIC, Ventilation, Abruption) / No. pregnant &amp; postpartum women with new onset severe range HTN</td>
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<td>Appropriate Medical Management in under 60 minutes</td>
<td>Process</td>
<td>100%</td>
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<td>No. of women treated at different time points (30,60,90, &gt;90 min) after elevated BP is identified / No. of women with new onset severe range HTN</td>
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<td>Debriefs on all new onset severe range HTN cases</td>
<td>Process</td>
<td>100%</td>
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<td>Discharge education and follow-up within 7-10 days for all women with severe range HTN, 72 hours with all women with severe range HTN on medications</td>
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<td>100%</td>
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Severe range HTN >160sys / >110 (105) diastolic per hospital standard
BP $\geq 160/110 (105)$

Need To Treat*

*BP persistent 15 minutes, activate treatment algorithm with IV therapy ASAP, < 30-60 minutes
Alliance for Innovation on Maternal Health (AIM)

- ILPQC has been accepted as an AIM mentor state
- Hospitals report AIM variables of interest to ILPQC
- ILPQC will be able to compare IL HTN data to all AIM participating states quarterly
- AIM resources and materials available to IL hospitals include toolkits, webinars, educational materials and provider / nursing training focused on:
  - Readiness
  - Recognition
  - Response
  - Reporting
AIM - Hypertension Measures

- Provider education - % completed
- Nursing education - % completed
- Preeclampsia protocol – yes/no
- Preeclampsia EHR integration – yes/no
- Unit drill protocols – yes / no
- Patient/family support protocols – yes/no
- Debrief and multi-disciplinary case review protocols – yes/no

All measures are reported quarterly or upon completion.
AIM Participation

- ILPQC hospitals report into ILPQC REDCap Data System:
  - Monthly data from the ILPQC Severe Maternal Hypertension Data Form
  - Quarterly and yearly AIM measures (focused on quality improvement initiative process)
- De-identified data shared with AIM to compare IL progress to national data
- Data sharing agreements between hospitals and ILPQC to share de-identified data with AIM
Overview of California’s Experience

• Nancy Peterson, MSN, RNC-OB, PNNP, IBCLC
  • Clinical Program Manager, CMQCC

• Holly Champagne, MSN, RNC-OB, CNS
  • Kaiser Permanente, Roseville, CA

• Connie von Kholer, MSN, RNC-OB, C-EFM, CPHQ
  • Miller Children's Hospital, Long Beach, CA
Hypertension Initiative Lessons
Kaiser Permanente, Roseville

Holly Champagne, MSN, CNS, RN-C
Snapshot

- KP Roseville part of No. California system, largest delivery volume
- Model- OB providers, CNMs, residents around the clock
- Part of CMQCC collaborative for hemorrhage toolkit
- Culture of improvement

- Perspective: How were we doing?
Process

Team formation - RNs both unit, MFM, OB, Quality

Walked the process

Work and rework the algorithm
Lessons learned

Input accepted and welcomed

- The clinicians used the tool and made many suggestions about how to modify the document
- Some information from debriefs, most from hallway conversations
- What information necessary to implement EBP
Treatment of Blood Pressure greater than or equal to 160/xx OR xx/110:

Position: semi-fowlers; cuff at level of heart; displace uterus

Primary RN
- Notify OB of BP
- Notify Charge RN

and

• Start IV and draw Labs
• Recommend IVP med* within 30-60 min of 2nd BP
• Monitor BP q 5 min
• Monitor EFM
• Admit patient

Remains ≥ 160/xx or xx/110?
30-60 min timeframe begins

OB Provider
- Order IV push labetalol or hydralazine *
- Monitor BP q 5 min
- Admit patient

BP ≥ 160/xx or xx/110? May recheck with manual cuff* in 10 minutes *(for verification)

yes

no

Recommend: Recheck every 30 minutes.

◊ Recommend: Continue BPs q 5 min. until BPs remain less than 160/xx or xx/110, then may repeat BP measurement
• every 10 mins for 1 hour,
• then every 15 mins for 1 hour,
• then every 30 mins for 1 hour,
• and then every hour for 4 hours.

◊ Difficult IV start, > 30-60 mins? Give PO nifedipine 10 mg for first med dose (may repeat q 20min PRN x6).
• Does Patient meet criteria for severe preeclampsia? Magnesium Sulfate 4gm loading dose.

◊ Consider

MEd Notes:
Labetalol IVP: (q 10min PRN; 300mg max dose)
Peak response within 5 minutes
*Requires continuous pulse oximetry x 1 hr after each dose.
On M/B unit: contact Mgr re equip/staff requirements.
Contraindicated: Bronchial Asthma or Heart Block

Hydralazine IVP: (q 20min PRN; 25mg max dose)
Onset: 5-15 min
Peak response: 10-80 min
Contraindicated: Mitral Valvular disease

Be sure to CHECK ORDER for details

Rev 5/28/15
Lessons learned

Critical to success: team training
Lessons learned

Culture change: the “BP Protocol”
Data Collection Strategy

Multifaceted

- Initial small audit by mini-team
- Board sign out for other patients, readmits
- Charge RN binder, stickers
- Pharmacy reports for IVP hydralazine and labetalol
- Reminder programmed into med dispensing machine (Pyxis)
- ICD9 codes for all patients with hypertension

- Results…
Best Wishes!
Sharing from Long Beach, CA

Connie von Köhler, MSN, RNC-OB, CPHQ
Program Director,
Perinatal Outreach Education Program
Regional Tertiary Center
Long Beach Memorial Medical Center-

Southeast Los Angeles County

- 24/7 in-house Perinatology & Neonatology
- Teaching Service
- 80 Obstetricians on staff
- 500 deliveries monthly
- 107 licensed NICU beds
Developing our team:

★ Nurses representing:
  ★ Labor & Delivery       ★ High Risk Antepartum
  ★ Mother/Baby            ★ Emergency Department
    • Educators
    • Directors
    • Assistant managers
    • Staff nurses
    • Both shifts

★ Pharmacist

★ Perinatologist
Preeclampsia Collaborative Team meetings:

• **CMQCC monthly conference calls**
  – Monthly calls on Tuesday 12N

• **Miller team meetings**
  – Monthly on Thursday prior to the CMQCC calls
  – Standing Agenda – collaborative objectives
  – Reported out the data / PDSA-outcomes
  – Develop the report out slide for Tuesday
  – Questions for collaborative
Process of Recognition & Treatment

• Online module for staff
  – Reviewed the primary aspects of the toolkit
  – Case scenarios

• Debrief tool
  – Specific for this collaborative
  – Close-loop communication
  – Data Collection
Debriefing Issues

- Staff uncomfortable completing
- Leadership vague on process
- Forms not completed
- Couldn’t find forms
- Submission process unclear
MCH-LBMMC PREECLAMPSIA: DEBRIEF TOOL

Topic: Maternity service team review and document sequence of events, successes with and barriers to swift and coordinated response to preeclampsia.

Goal: Debrief 100% of cases of new onset severe hypertension with preeclampsia or eclampsia (≥160 OR >105) or chronic/gestational hypertension with superimposed preeclampsia (see inclusion table) (Include patients from L&D, PP, ED) (Process Measure, P3)

Minimum Participants: Primary RN and MD participate in the de-briefing session; ideally any and all providers participate along with the shift Coordinator.

Instructions: Complete immediately after event and review with Coordinator before the end of the shift.

Patient Location (Check all that apply)
- OB Triage
- L&D
- PSCU
- Postpartum
- ED

Debrief Participants:
- Primary MD: [ ] YES [ ] NO
- Primary RN: [ ] YES [ ] NO
- Coordinator: [ ] YES [ ] NO
- AUM/RC: [ ] YES [ ] NO
- Resident: [ ] YES [ ] NO
- Anesthesia: [ ] YES [ ] NO

[ ] ORDER SET INITIATED (Acute Hypertension in Pregnancy IP)

Medications (Check all given)
- Magnesium Sulfate
  - Loading Dose:
    - 4gm
    - 6gm
    - Other _________
  - Maintenance Dose:
    - 1g/h
    - 2g/h
    - 3g/h
    - Other

  (Drug, dose, route)

Monitor Medical Management

- Lowest B/P for first hour after completing TX: __________

- Was there a SUDDEN change in the FHR that required intervention? [ ] YES [ ] NO

- If YES, did the intervention require emergent delivery? [ ] YES [ ] NO

- Patient is: [ ] Antepartum [ ] Postpartum

Medical Management: What went well? (Check all that apply)
- Communication went well
- Decision-making went well
- Teamwork went well
- Assessing the situation went well
- Leadership went well
- Other ________________

Briefly describe:

Opportunities for improvement: “non-human factors” (Check all that apply)
- Delay in HTN medications
- Inadequate support (in-unit/other areas)
- Other Medications issue
- Equipment issues
- Delays in transport (intra-, inter-hospital transport)
- Other

Briefly describe:

Opportunities for improvement: “human factors” (Check all that apply)
- Communication needed improvement
- Assessing needed improvement
- Teamwork needed improvement
- Delay in recognition
- Leadership needed improvement
- Other

Briefly describe:

Person completing form: ___________________________ Date & Time: ________________

MCH DEBRIEF TOOL (6/25/14)
Coordinator Review: ____________________________ Date: ____________________
(Signature)

Follow-up action taken: ____________________________________________________

Manager/AUM/Educator Review: ____________________________ Date: ____________________

Follow-up action taken: ____________________________________________________

Referred to Dr. McNulty for: ________________________________________________

Referred to Collaborative Committee: Date: _________________________________

Action: ________________________________________________________________

__________________________________________________________
Closing the Loop

Debrief tool easy to find and return
B/P 160 & or 105

Repeat with manual sphygmomanometer

PDSA

NO

STOP

TREAT

Debrief

PDSA
On Going Data Review:

• Combination of:
  – CMDC list (45 days after end of month)
  – Weekly list from Women’s pharmacist
    • Pts who received: Labetalol or/& Hydralazine
  – Debrief forms
Closing the Loop

Electronic Message Boards

- Interprofessional
- Best Practice Reminders
- Addresses comment, concerns, questions
- New messages every 2 weeks
≥160 &/or ≥105 TREAT within 30 min
Process Flow:

- Data
- Debrief
- Recognize
- Treat
- Do
- Study
- Plan
- Act
INTERPROFESSIONAL PARTICIPATION IN A STATEWIDE COLLABORATIVE TO RECOGNIZE AND TREAT HYPERTENSION IN PREGNANCY

Connie von Kohler, MSN, RNC-OB, C-CFM, CPHQ, Diane Beck, RNC, BSN
Cathy Villarreal, BSN, RNC, MMN, Janet Trial, EdD, MSN, CNM

BACKGROUND

Hypertensive disorders of pregnancy are a leading cause of maternal mortality occurring in 12-22% of pregnancies. The California Pregnancy Associated Mortality Review (CA-PAMR) found the overall rate for preeclampsia deaths between 2002 and 2004 is 1.6/100,000. These disorders are also one of the leading contributors to premature birth leading to significant neonatal morbidity and mortality.

AIM

The goal was to standardize identification and treatment of pregnant/post-partum women presenting with blood pressures ≥ 160 & / or ≥ 105 within 30 minutes.

METHODS:

Initial elevated blood pressures (≥ 160 & / or ≥ 105) were reevaluated within 15 minutes using a manual sphygmomanometer and appropriate size cuff.

Physicians are contacted, “Acute Hypertensive” order-set initiated, medication immediately administered.

Blood pressures are reassessed every 15-20 minutes and medication treatment continued until below threshold values.

IMPLEMENTATION STRATEGIES:

- Perinatal nursing staff were educated including use of manual sphygmomanometer and choice of appropriate cuff.
- Self-learning module with competency evaluation was required.
- Post-partum nurses were educated to give IV hydration.
- Physicians were provided written communication of the new protocol and order set.
- The pharmacist assured necessary level of drug stock.
- Rolling manual blood pressure “kits” with assorted cuffs and guidelines were distributed.
- Electronic message boards continually educated staff.
- Debrief forms provided feedback to the implementation team to complete PDSA cycles.

RESULTS:

The baseline data from 4th Quarter 2012 40% of women with blood pressures meeting the criteria were treated.

December 2014, 81.8% of women with blood pressures meeting criteria were treated within 30 minutes and 90.9% within 60 minutes.

CONCLUSION & IMPLICATIONS FOR NURSING PRACTICE:

Understanding the potential morbidity and mortality has increased the care providers recognition and treatment of acute hypertension. Methodology and implementation strategies were effective in achieving the standardized identification and treatment of pregnant/post-partum women presenting with hypertension.

Unanticipated challenges included providing training in the basic fundamentals of blood pressure measurement. Additionally, institutional approval for IV push hydroxyurea to become standard practice for postpartum nurses.

Next steps in nursing practice include:

- Evaluation of hypertensive patient within one week of hospital discharge.
- Implementation in emergency department.

REFERENCES:


INTERPROFESSIONAL PREECLAMPSIA COLLABORATIVE TEAM

Professionals from Miller Children’s & Women’s Hospital, Long Beach, CA.
Forming Your QI Team

- Your hospital team:
  - Physician Lead
  - Nurse Lead
  - Quality Lead
  - Other Team Members if available (ED, Anesthesiology, etc.)

- Team activities
  - Data form implementation
  - Monthly meetings to review data, identify opportunities for improvement and plan quality improvement work
  - Develop process flow diagram for different settings at your hospital and discuss opportunities for improvement
  - Protocol/policy review
  - Debriefs/case reviews
## Data Collection Process

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<th>Frequency</th>
<th>Form</th>
<th>Content</th>
<th>Timeframe</th>
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<tr>
<td>Monthly</td>
<td>Severe HTN Data Form</td>
<td>Bedside and Chart Review</td>
<td>January 2016 (Wave 1) May 2016</td>
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<td>(Wave 1 &amp; 2)</td>
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<td>Quarterly</td>
<td>Implementation checklist</td>
<td>Opportunities for improvement</td>
<td>May 2016</td>
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<td>AIM Report 3 items</td>
<td>Education Unit Drills</td>
<td>May 2016</td>
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<td>Annual</td>
<td>AIM Report 5 items Y/N</td>
<td>EHR Family Support Debriefs</td>
<td>May 2016</td>
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<td>Reviews</td>
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<td>Discharge data with IDPH</td>
<td>SMM Rates</td>
<td>May 2016</td>
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Our focus before Face-to-Face

Details to follow
Severe HTN Data Form: 2 Options

- Single data form to be used both at the bedside and for chart abstraction
- Separate data forms
  - Bedside data form
  - Chart abstraction tool
- Both options gather the same information
- Use whatever works for your hospital team!
Option 1 – Single Form

SEVERE HYPERTENSION DATA FORM

**Topic:** Maternity service team review and document sequence of events, successes with and barriers to swift and coordinated response to preeclampsia with severe features.

**Goal:** Reduce time to treatment (<60 minutes) for new onset severe hypertension (≥160 systolic or ≥110 diastolic) with preeclampsia or eclampsia or chronic/gestational hypertension with superimposed preeclampsia (include patients from triage, L&D, Antepartum, PP, ED) in order to reduce preeclampsia morbidity in Illinois.

**Instructions:** Complete within 24 hrs. after all cases of new onset severe hypertension (≥160 systolic or ≥110 diastolic) event in pregnancy up to 6 wks postpartum. Debrief should include primary RN and primary MD to identify opportunities for improvement in identification and time to treatment of HTN.

**Date:**
- GA at Event (weeks & days) OR # Days PP:
- GA at Delivery (weeks & days): Transport In? □ YES □ NO Date:
- Adverse Maternal Outcome: Date:
- OB Complications (check all that apply)
  - Transport Out? □ YES □ NO Date:
  - Intracranial Hemorrhage or Ischemic event
  - Pulmonary Edema
  - Pulmonary Edema
  - Premature Rupture of membranes
  - Renal failure
  - Renal failure
  - Placental Abruption
  - Placental Abruption

**Medications (check all given):**

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<tr>
<th>Medication</th>
<th>Dosage(s) given</th>
<th>Reason not given</th>
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<tbody>
<tr>
<td>Labetalol</td>
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<td>Hydralazine</td>
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<td>Nifedipine</td>
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<tr>
<td>Magnesium Sulfate Bolus</td>
<td>4gm 6gm Other</td>
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<tr>
<td>Magnesium Sulfate</td>
<td>1gm/hr 2gm/hr Other</td>
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<tr>
<td>Maintenance</td>
<td>3gm/hr Other</td>
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<tr>
<td>Any ANS (f &lt;34 wks?)</td>
<td>□ Partial Course □ Complete Course □ Not Given</td>
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**BALANCING MEASURE (B1,B2):** Monitor Medical Management

**B1.** Did diastolic pressure fall to <80 within one hour after meds given?
- □ YES □ NO

**B2.** If yes, was there corresponding deterioration in FH rate (Category 3)?
- □ YES □ NO □ NA (for postpartum patients)

**Opportunities for improvement to reduce time to treatment (identification severe HTN to treatment goal <60 minutes):** Debrief

**TEAM ISSUES**

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<th>Went well</th>
<th>Needs improvement</th>
<th>Comment</th>
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<td>Communication</td>
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<td>Recognition of severe HTN</td>
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<td>Assessing situation</td>
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<td>Decision making</td>
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<td>Teamwork</td>
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<tr>
<td>Leadership</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**SYSTEM ISSUES**

<table>
<thead>
<tr>
<th></th>
<th>Went well</th>
<th>Needs improvement</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertensive medication timeliness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation (intra.- inter-hospital transport)</td>
<td></td>
<td></td>
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<tr>
<td>Support (in-unit, other areas)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Med availability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any others:</td>
<td></td>
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</tbody>
</table>

ILPQC DATA FORM (Modified 4/26/15)

Adapted from CMQCC’s Preeclampsia: Debrief and Chart Review Tool
### SEVERE HYPERTENSION DATA FORM: BEDSIDE

**Topic:** Maternity service team review and document sequence of events, successes with and barriers to swift and coordinated response to pre-eclampsia with severe features.

**Goal:** Reduce time to treatment (< 60 minutes) for new onset severe hypertension (>160 systolic OR >110 diastolic) with pre-eclampsia or eclampsia or chronic gestational hypertension with superimposed pre-eclampsia (include patients from triage, L&D, Antepartum, PP, ED) in order to reduce pre-eclampsia morbidity in Illinois.

**Instructions:** Complete within 24 hrs after all cases of new onset severe hypertension (>160 systolic or >110 diastolic) event in pregnancy up to 6 wks postpartum. Debrief should include primary RN and primary MD to identify opportunities for improvement in identification and time to treatment of HTN.

**Date:** G.A. at Event (weeks & days) OR # Days Postpartum:__________

**Patient Location (check all that apply):**
- Triage
- L&D
- Postpartum
- Antepartum
- ED

**Maternal Age:** __________

**Height:** __________

**Current Weight:** __________

**Diagnosis:**
- Chronic HTN
- Gestational HTN
- Pre-eclampsia
- Superimposed Pre-eclampsia
- Postpartum Preeclampsia
- Other

### PROCESS MEASURE (P1): Medical Management

#### Measures

<table>
<thead>
<tr>
<th>Time: H:min</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP reached ≥180 systolic ≥110 (sustained &gt;15 min)</td>
<td></td>
</tr>
<tr>
<td>First BP med given</td>
<td></td>
</tr>
<tr>
<td>BP reached ≤150 and diastolic BP ≤110</td>
<td></td>
</tr>
</tbody>
</table>

#### Medications (check all given)

- Labetalol
- Hydralazine
- Nifedipine
- Magnesium Sulfate Bolus [4 gm, 8 gm, Other]
- Magnesium Sulfate Maintenance [1gm/hr, 2gm/hr, Other]
- Any ANG (if <34 wks)? [Partial Course, Complete Course, Not Given]

### BALANCING MEASURE (B1,B2): Monitor Medical Management

1. **B1.** Diastolic pressure fall to ≤80 within one hour after med given?
   - Yes
   - Yes
   - No
   - NA (for postpartum patients)

2. **B2.** If yes, was there corresponding deterioration in FHR rate (Category 3)?
   - Yes
   - No
   - NA

**Opportunities for Improvement to reduce time to treatment (identification severe HTN to treatment goal ≤60 minutes):**

**Debrief**

**Debrief Participants:**
- Primary MD: [Yes/No]
- Primary RN: [Yes/No]

### SYSTEM ISSUES

<table>
<thead>
<tr>
<th>TEAM ISSUES</th>
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<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition of severe HTN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
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</tr>
</tbody>
</table>

| HTN medication timelyness |
| Transportation (intra, inter-hospital transport) |
| Support (in-unit, other areas) |
| Medication availability |

Any other issues:
**SEVERE HYPERTENSION DATA FORM: CHART ABSTRACT**

**Topic:** Maternity service team review and document sequence of events, successes with and barriers to swift and coordinated response to preeclampsia with severe features.

**Goal:** Reduce time to treatment (<60 minutes) for new onset severe hypertension (=160 systolic OR >110 diastolic) with preeclampsia or eclampsia or chronic gestational hypertension with superimposed preeclampsia (include patients from triage, L&D, Antepartum, FP, ED) in order to reduce preeclampsia morbidity in Illinois.

**Instructions:** Complete within 24 hrs after all cases of new onset severe hypertension (>160 systolic or >110 diastolic) event in pregnancy up to 6 wks postpartum. Chart should include primary RN and primary MD to identify opportunities for improvement in identification and time to treatment of HTN.

**GA at Delivery (weeks & days):**

### OB COMPLICATIONS (check all that apply)

- [ ] OB Hemorrhage with transfusion of ≥ 4 units of blood products
- [ ] Intracranial Hemorrhage or Ischemic event
- [ ] ICU admission
- [ ] Eclampsia
- [ ] Liver failure
- [ ] Other

### Neonatal Outcome:

- [ ] NICU admission
- [ ] IUFD
- [ ] Other

### Maternal Race/Ethnicity (check all that apply):

- [ ] White
- [ ] Black
- [ ] Hispanic
- [ ] Asian
- [ ] Other

### Maternal Transport:

Transport In? [ ] YES [ ] NO Date:

Transport Out? [ ] YES [ ] NO Date:

### PROCESS MEASURE (P2) Discharge Management

A. **Discharge Education:** Education materials about preeclampsia given?

   - [ ] YES
   - [ ] NO

B. **Discharge Management:** Follow-up appointment scheduled within 3-10 days (for all women with any severe range hypertension/preeclampsia)

   - [ ] YES
   - [ ] NO

   **Was patient discharged on meds?**

   - [ ] YES
   - [ ] NO

   **If YES: Was followup appointment scheduled in <72 hours?**

   - [ ] YES
   - [ ] NO

**COMMENTS about Medical Management, Monitoring, Discharge:**

---

**Comment:** Option 2 – Two Forms

**Chart Abstract Form**
Steps for Data Form Implementation

1. Implement the Severe HTN Data Form at the bedside for all women who have been identified with new onset severe HTN

2. Use chart review to collect discharge and outcome data on all women identified with new onset severe HTN

3. Use your EMR to identify all patients with new onset severe HTN to insure you’ve captured all cases through the bedside implementation of the Severe HTN Data Form, can use chart review to collect data on missed patients.

4. Enter data in REDCap by the 15th of the month for the previous month (i.e. May 15th for April data)
**GOAL:** To reduce preeclampsia maternal morbidity in Illinois hospitals

**Key Driver Diagram: Maternal Hypertension Initiative**

**AIM:** By December 2017, to reduce the rate of severe morbidity in women with preeclampsia, eclampsia, or preeclampsia superimposed on pre-existing hypertension by 20%

**Key Drivers**

- **Readiness:** Implementation of standard processes for optimal care of severe maternal hypertension in pregnancy
- **Recognition:** Screening and early diagnosis of severe maternal hypertension in pregnancy
- **Response:** Care management for every pregnant or postpartum woman with new onset severe hypertension
- **Reporting/Systems Learning:** Foster a culture of safety and improvement for care of women with new onset severe hypertension

**Interventions**

- Implement standard order sets and/or algorithms for early warning signs, diagnostic criteria, timely triage, monitoring and treatment of severe hypertension
- Ensure rapid access to medications used for severe hypertension with guide for administration and dosage
- Implement system plan for escalation, obtaining appropriate consultation, and maternal transport
- Perform regular simulation drills of severe hypertension protocols with post-drill debriefs
- Integrate severe hypertension processes (e.g. order sets, tracking tools) into your EHR

- Standardize protocol for measurement and assessment of blood pressure and urine protein for all pregnant and postpartum women
- Standardize response to early warning signs including listening to and investigating symptoms and assessment of labs
- Implement facility-wide standards for patient-centered education of women and their families on signs and symptoms of severe hypertension
- Educate OB, ED, and anesthesiology physicians, midwives, and nurses on recognition and diagnosis of severe hypertension that includes utilizing resources such as the AIM hypertension bundle and/or unit standard protocol

- Execute facility-wide standard protocols for appropriate medical management in under 60 minutes
- Create and ensure understanding of communication and escalation procedures (e.g. implementing a rapid response team through the use of TeamSTEPPS)
- Develop OB-specific resources and protocols to support patients, families, staff through major complications
- Provide patient-centered discharge education materials on preeclampsia and postpartum preeclampsia
- Implement patient protocols to ensure follow-up within 7-10 days for all women with severe hypertension and 72 hours for all women on medications

- Establish a system to perform regular debriefs after all new onset severe hypertension cases
- Establish a process in your hospital to perform multidisciplinary systems-level reviews on all severe hypertension cases admitted to ICU
- Continuously monitor, disseminate, and discuss your monthly data in ILPQC REDCap system at staff/administrative meetings
- Add maternal hypertension assessment and treatment protocols and education to provider and staff orientations, and annual competency assessments
Live REDCap Demo:
Kate Finnegan

- [https://redcap.healthlnk.org/](https://redcap.healthlnk.org/)
- Site navigation
  - Log in
  - How to find the HTN project
- Record entry
  - Saving and adding another record
- How to edit a record
- Troubleshooting - what to do if you forgot user name/password, don’t have access to a project, etc.
Wave 1 Process Flow Examples

• Roma Allen, MSN, RNC-OB – Elmhurst Memorial Hospital
• Dawn Varacalli, MSN,RN,CLS – Rockford Memorial Hospital
Elmhurst Memorial Hospital

Team Members

Roma Allen MSN, RN; Michelle Kavanagh BSN, RN; Kimberly Darey, MD.; Rebecca Cazzato MSN, RN, IBCLC; Kimberly Harris MSN, RNC, C-EFM; Andrea White, BSN, RN; Adriana Calcev MSPHRD.

Family Birthing Center

Approximately 2000 deliveries/year
Level IIE nursery
• Team members meet monthly
  – Multidisciplinary

• Data collection began in February
  – Retrospective
  – Not at the bedside
CURRENT Process Flow Diagram
Team Name: Elmhurst Memorial Hospital  
Date of test: 2/25/16  
Test Completion Date:  

Overall team/project aim: Decrease time to treatment with appropriate resources available

What is the objective of the test? Immediate access to appropriate supplies for administering hypertensive medications

**PLAN:**

Briefly describe the test
- 1m syringe currently in stock to draw up appropriate hydralazine dose (10mg/0.25ml) did not fit into IV tubing. Transfer of hydralazine from 1ml syringe to 3ml syringe was needed in order to administer intravenously through IV tubing. Change in 1ml syringe to one that fits into IV tubing needed.

How will you know that the change is an improvement?
1. Appropriate syringe available for IV administration
2. Time of medication order to administration < 30 minutes
3. Staff feedback on availability and utilization of new syringe

What driver does the change impact?
- Will directly impact the process of administering hydralazine to a maternal patient with severe hypertension.
- Will decrease the amount of steps necessary to administer hydralazine.
- Care management for every pregnant or postpartum woman with new onset severe hypertension

What do you predict will happen?
- Decrease in time to treatment
- Decreased chance of error of amount of medication given, decrease chance of needle stick injuries

<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research appropriate syringes Find one that adapts to current IV tubing</td>
<td>Dr. Carey</td>
<td>March 1, 2016</td>
<td>OB Dept.</td>
</tr>
<tr>
<td>Ask unit manager to order correct 1ml syringe for unit</td>
<td>Michelle Kavanagh</td>
<td>March 10, 2016</td>
<td>OB Dept.</td>
</tr>
<tr>
<td>Contact unit distribution to have new syringe stocked in unit stock room</td>
<td>Jen Stirrat</td>
<td>April 1, 2016</td>
<td>OB Dept.</td>
</tr>
<tr>
<td>Educate staff on presence and purpose of new syringe</td>
<td>Michelle Kavanagh</td>
<td>April 20, 2016</td>
<td>OB Dept.</td>
</tr>
</tbody>
</table>

Plan for collection of Data: Begin May 1, 2016

DO: Monitor availability of syringes, observe RN practice in utilization of syringe, analyze time of order to time of medication administration

Team Name: Elmhurst Memorial Hospital  
Date of test: 3/22/16  
Test Completion Date:  

Overall team/project aim: Improve access to maternal hypertensive medications

What is the objective of the test? Create consistency in medication access in the OB department and ED to improve diagnosis to treatment time

**PLAN:**

Current state: The OB department has a 'Mag Kit' that when accessed in the Pyxis system will also provide you with Labetalol. During a Maternal Hypertension Team Meeting medication, access was inconsistent in the ED and access to Hydralazine was not available in the 'Mag Kit'. ED had no clinical decision support in the Pyxis and all medication must be ordered and removed separately.

The Maternal Hypertension Team meeting recommended the following changes:
1. Pharmacy becomes an Adhoc team member
2. Hydralazine added to the 'Mag Kit'
3. Name changed for consistent messaging to 'Preeclampsia Kit'
4. Duplicate the process in the ED and create a 'Preeclampsia Kit' in the ED Pyxis

How will you know that the change is an improvement?
- Name change to 'Preeclampsia Kit' with access to all medications it provides a trigger for clinical decision support and decrease in the OB and ED department time to treatment
- Rapid access to medications used for severe hypertension with guide for administration and dosage
- Facility-wide standard protocols for appropriate medical management in under 60 minutes

What driver does the change impact?
- Implementation of standard processes for optimal care of severe maternal hypertension in pregnancy
- Care management for every pregnant or postpartum woman with new onset severe hypertension

What do you predict will happen?
Consistent access to medication in the ED prior to transfer to the OB Department

**PLAN:**

List the tasks necessary to complete this test (what) | Person responsible (who) | When | Where |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Add Hydralazine to the 'Kit'</td>
<td>Anne Burns PharmD</td>
<td>May 1, 2016</td>
<td>OB Department</td>
</tr>
<tr>
<td>2. Create Name Change in Pyxis System to 'Preeclampsia Kit'</td>
<td>Anne Burns PharmD</td>
<td>May 20, 2016</td>
<td>OB Department</td>
</tr>
<tr>
<td>3. Add 'Preeclampsia Kit' to ED Pyxis</td>
<td>Anne Burns PharmD</td>
<td>May 20, 2016</td>
<td>OB Department</td>
</tr>
<tr>
<td>4. OB depart. Education nurses &amp; Drs.</td>
<td>Michelle Kavanagh Dr. Carey</td>
<td>May 15, 2016</td>
<td>OB Department</td>
</tr>
<tr>
<td>5. Ed Depart Education nurses &amp; Drs.</td>
<td>Andrea White Dr. Carey</td>
<td>May 15, 2016</td>
<td>OB Department</td>
</tr>
</tbody>
</table>

Plan for collection of data:
Short Term Goals…

• Break down the current process flow diagram to identify barriers and possible solutions.
  – Create ideal process flow diagram

• Identify topics to begin staff education
  – ILPQC Project focus and goals
  – Accurate and consistent blood pressure measurement
  – Importance of discharge teaching and follow up

• Plan for escalation of treatment and resources

• Ensure rapid access to medications
  – Currently working with pharmacy department
• Perinatal Regional Center Northern Illinois
• Level I Trauma Center
• Maternal & Neonatal Transport Teams
• 46 bed NICU
HTN Project Team

Members: Dr. Phillip Higgins, Jen Geary, Donna Mathews, Kate Nieva, Amy Graceffa, Missi Byars, Justine Beaman, Jenni Bowling, Dawn Karcz, Jeff Campbell, Dawn Varacalli-
Team Leader

Ad Hoc Members: Riley Tipton and Brandi Smith- Mercy Hospital, Janesville, WI
Treatment of Blood Pressure greater than or equal to 160/xx OR xx/110 mmHg

Position: semi-fowler, legs uncrossed, BP cuff at the level of the patient’s heart

Primary RN:
- Notify OB & CSC of ↑ BP

and

- Start IV and draw Labs
- Recommend IVP med* within 60 min of 1st BP
- Monitor BP q 5 mins
- Monitor FHR
- Admit patient

then

Continue BP check q 5 mins until BP remains less than 160/xx or xx/110, then repeat BP as follows:
- Q 5mins x 30 mins
- Q 30 mins x 2 hours
- Then hourly for 6 hours
- Continuous SpO2

Remains 160/xx OR xx/110?

YES

May recheck with manual cuff* in 10-15 minutes *(for verification and correlation)
60 minute clock begins

Recommends: BP recheck Q30 minutes

NO

OB Provider
- Order IVP Labetalol or Hydralazine
- Admit Patient

Consider

Difficult IV start, > 60 mins? Consider PO Nifedipine.
Does patient meet criteria for severe preeclampsia?
Consider Magnesium Sulfate 4 gm bolus

*Medication Notes
Labetalol IVP per policy #2000.2025.194
Contraindications: Asthma, COPD, bradycardia, and/or heart block
Hydralazine per policy #2000.2025.45
Contraindication: Mitral valve disease
Consider continuous pulse oximetry with use of either medication.
Where are we at?

**Then**
- Difficulty in isolating our patient populations for inclusion in this project (ICD-10/Pharmacy)
- Multiple initiatives at one time
- Hard to find the staff to help
- Issues with the DUA

**Now**
- Retrospective auditing to submit to RedCap
- Created education for staff in all 3 areas(L&D, M/B, ED)
- Go-Live with bedside audit 6/1/2016
- Still working on DUA, but can submit data to RedCap
Next Steps

• Still accepting teams for Wave 2!
  • Roster link: https://www.surveymonkey.com/r/HTNroster
  • REDCap access form: https://docs.google.com/forms/d/16F_IITLmDvesqhvwaq6bQxCtC17nHGmMchav1-feAsMo/viewform?c=0&w=

• Test data form with one nurse, one patient
• Register for Face-to-Face meeting!
• Draft your process flow diagram and storyboard for Face-to-Face
• Overview of Implementation Checklist and AIM Survey
HTN Face-to-Face Meeting
May 23 Springfield: Registration

- Registration is now live!
- Strongly encouraged to bring both nurse and provider teams leads – currently limited to 3 members per hospital
- [https://www.eventbrite.com/e/maternal-hypertension-face-to-face-collaborative-learning-session-tickets-24489550906](https://www.eventbrite.com/e/maternal-hypertension-face-to-face-collaborative-learning-session-tickets-24489550906)
- Registration fee of $25 plus $2.37 Eventbrite processing fee
- 134 individuals registered as of 4/28/16
- Registration closes on 5/16
- Begin work on process flow / storyboard to bring
What is a Process Flow Diagram?

• Illustrates all of the activities involved - what really happens – to identify and treat severe range blood pressure in Labor and Delivery, Postpartum, and Emergency Department
  • Who is doing each activity, Where, Why, How?
• Involve everyone in the process to help your team understand
  • What steps are missing?
  • Where repetition is occurring?
  • Are the right people performing the right tasks?

Adapted from OPQC.
Discuss with your team before getting started:

• What is the process for blood pressure measurement and recording?
• When and how is the provider contacted when severe range blood pressure is identified?
• How is severe range blood pressure treated?
• How is care coordinated between Units (L&D, PP, ED, ICU)

Adapted from OPQC.
Process Flow Diagram Symbols

- Start or End of the process
- Task in the process
- Decision point in the process

See examples from Elmhurst and Kaiser in this slide set
Storyboard Instructions

Adapted from the New York State Perinatal Quality Collaborative (NYSPQC)

• At the Face-to-Face Learning Session, use the Storyboard to tell your team’s story descriptively, clearly and creatively – photos, collages and illustrations are welcome.

• There is no wrong way to create a Storyboard so don’t be afraid to be creative. Additionally, be sure to keep it simple; the Storyboard is not meant to be an extremely time-consuming project.

• **Storyboards must fit into a space approximately 28 x 40 inches.** It may be created from a collection of letter-sized sheets (print outs of your power point slides or word documents) that are convenient for carrying while traveling. Ten to twelve sheets can fit in the available space – depending on arrangement. Boards for posting and pushpins will be provided at the Face-to-Face Learning Session.

• **Share your story:** about your hospital, about your team, describe your goals for this initiative, include process flow diagram draft, can include any barriers you have identified and opportunities for improvement, describe next steps or action items for your team

Display Tips

• Fewer words: More pictures and graphics
• Real people pictures... At least of your teams
• Font size as big as possible
• Fancy not necessary
• Color to highlight key messages (If you don’t have a color printer, use bright highlighters)
• Clear titles and labels if you use graphs (X and Y axes, dates, brief explanation of what it shows)
AIM: Baseline Survey

- AIM baseline survey helps capture a snapshot of your team’s starting point and provides valuable information to ILPQC that we will use to provide you quality improvement support: 
  https://www.surveymonkey.com/r/AIMbaselinesurvey

- Please designate one team member to complete by May 16 so that we can review this information at our face to face meeting on May 23
AIM Baseline Survey
Bundle Implementation Questions

Readiness - For every unit in your hospital do you have (Yes/No):

1. Standard protocols for early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia (include order sets and algorithms).
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED

2. Unit education on protocols, unit-based drills (with post-drill debriefs).
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED

3. Process for timely identification, triage, and evaluation of pregnant and postpartum women with hypertension including ED and outpatient areas.

4. Rapid access to IV medications used for severe hypertension/eclampsia: Medications should be stocked and immediately available on L&D and in other areas where patients may be treated. Include brief guide for administration and dosage.
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED

5. System plan for escalation, obtaining appropriate consultation and maternal transport, as needed for severe maternal hypertension, preeclampsia, and eclampsia.
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED
AIM Baseline Survey
Bundle Implementation Questions

Recognition - For every OB/postpartum patient in your hospital do you have (Yes/No):


7. Standard response to maternal early warning signs including listening to and appropriately investigating patient symptoms and assessment of labs (i.e. CBC with platelets, AST and ALT)

8. Facility-wide standards for educating prenatal and postpartum women on signs and symptoms of preeclampsia and severe hypertension.
AIM Baseline Survey
Bundle Implementation Questions

Response - For every case of severe hypertension/preeclampsia in your hospital do you have (Yes/No):

9. Facility-wide standard protocols with checklists and escalation policies for management and treatment of: Severe hypertension; Eclampsia, seizure prophylaxis, and magnesium over-dosage; and Postpartum, emergency department and outpatient presentations of severe hypertension/preeclampsia.

10. Minimum requirements for protocol: Notification of physician or primary care provider if systolic BP =/>160 or diastolic BP =/>110 for two measurements within 15 minutes; After the second elevated reading, treatment should be initiated ASAP (preferably within 60 minutes of verification); Includes onset and duration of magnesium sulfate therapy when indicated; Includes escalation measures for those unresponsive to standard treatment; Describes manner and verification of timely follow-up for blood pressure check and evaluation within 7 to 14 days postpartum; Describes postpartum patient education for women with hypertension / preeclampsia describing postpartum preeclampsia.

11. Support plan for patients, families, and staff for ICU admissions and serious complications of severe hypertension.
AIM Baseline Survey
Bundle Implementation Questions

Reporting - In every unit of your hospital, do you (Yes/No):

11. Establish a culture of huddles for high-risk patients and post-event debriefs to identify successes and opportunities for improvement.
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED

12. Multidisciplinary review of all severe hypertension/eclampsia cases admitted to ICU for systems issues.
   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED

   a. L&D
   b. Antepartum/Postpartum
   c. Triage/ED
Getting Started Q&A

• Ways to ask questions:
  • Raise your hand on Adobe Connect to ask your question by phone
  • Post a question in the Adobe Connect chat box
Contact

• Email info@ilpqc.org
• Visit us at www.ilpqc.org