Welcome!

• Please set up your storyboard by perinatal level
• Enjoy continental breakfast in the foyer
• There is one set of restrooms in the foyer just past the stairs, and another set in the main lobby just before the elevators.
• If you have team members here, please try to sit together
ONA-Disclosure Statement

This continuing nursing education activity was approved by the Ohio Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation. (OBN00191)

This program has been awarded 5.0 contact hours.

All planners, content reviewers, faculty and presenters have declared no conflict of interest, nor have any disclosures for this program.
ONA-Criteria for Successful Completion

• In order to earn the contact hours, the participant must:
  • Sign in on the attendance sheet
  • Complete an evaluation form
  • Attend the entire program
ILPQC Obstetric Teams Hypertension Initiative Face to Face

May 18, 2017
10:00 am – 3:30 pm
Today’s Participants

• 255+ participants registered
• 95 hospital teams represented
• Roll call: physicians, midwives, nurses, quality, public health
• Materials check:
  • Face to Face Folder
  • ACOG Order Set Pocket Guide—revised version
  • Preeclampsia Patient Education tear pads
Agenda

- **10:00 – 10:30 am**  
  Goals for Today, Progress to Date of HTN Initiative (Ann Borders)

- **10:30 – 11:00 am**  
  Acute Management of Hypertension Reduces Eclampsia (Larry Shields)

- **11:00 – 11:45 am**  
  Team Storyboard Session

- **11:45 – 12:30 pm**  
  Working Lunch – Teams/Table discussion of lessons learned from story boards

- **12:30 – 1:00 pm**  
  Strategies to Improve Timely Treatment of Severe OB Hypertension (Arthur Ollendorff)

- **1:00 – 1:45 pm**  
  Small group key topic discussions on implementation strategies (All participants)

- **1:45 – 2:00 pm**  
  BREAK

- **2:00 – 2:30 pm**  
  Debrief small group key topic discussions on implementation strategies (Teams)

- **2:30 – 3:15 pm**  
  ILPQC Teams Panel on Testable Systems Changes (Kristen Farney, Jessica Cazares, Chris Lopian, Samantha Schoenfelder)

- **3:15 -- 3:30 pm**  
  Summary and Evaluation
Today’s Presenters

• Ann Borders, ILPQC OB Lead & Executive Director
• Larry Shields, Director of Maternal Fetal Medicine, Marian Regional Medical Center, Santa Maria, California
• Arthur Ollendorff, Director of Medical Education, Mountain Area Health Education Center in Asheville, NC, Clinical Lead for Maternal Projects for the Perinatal Quality Collaborative of North Carolina (PQCNC)
• Patti Lee King, ILPQC State Project Director
Today’s Presenters

• Kristen Farney, Inpatient Nurse Supervisor for Labor and Delivery/High Risk Antepartum/Maternal Transport, Carle Foundation Hospital, Urbana

• Jessica Cazares, Manager of Obstetric Units, Advocate Illinois Masonic Medical Center, Chicago

• Chris Lopian, Staff RN and Perinatal Coordinator at St. John’s Hospital, Springfield

• Samantha Schoenfelder, Clinical Quality Leader for OB, MFM and Pediatrics at Northwestern Medicine Central DuPage Hospital, Winfield
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.
ILPQC: Working with IL Hospitals Across the State

- 112/120 IL birthing hospitals participating in one or more ILPQC Initiative
- 110 hospitals in OB Initiative
  - 99% of IL births covered by ILPQC
- 26 hospitals in Neonatal Initiative
  - 91% of IL NICU beds covered by ILPQC
HOW FAR WE’VE COME!
PROGRESS TOWARDS OUR GOALS
AIM: What are we trying to accomplish?

By December 2017, to reduce the rate of severe morbidities in women with preeclampsia, eclampsia, or preeclampsia superimposed on pre-existing hypertension by 20%
What processes are we focused on to accomplish our AIM?

AIM: Reduce preeclampsia maternal morbidity

<table>
<thead>
<tr>
<th>IL Measure</th>
<th>Type</th>
<th>Goal</th>
</tr>
</thead>
</table>
| Severe Maternal Morbidity  
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 & postpartum women with new onset severe range HTN | Outcome | 20% reduction         |
| Appropriate Medical Management in under 60 minutes  
No. of women treated at different time points (< 30, 60, 90, >90 min) after elevated BP is confirmed / No. of women with new onset severe range HTN | Process | 100%                  |
| Debriefs on all new onset severe range HTN* cases | Process | 100%                  |
| 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 | Process | 100%                  |

Severe range HTN: \( \geq 160 \) systolic / \( \geq 110(105) \) diastolic per hospital standard

*New onset severe range HTN: first episode of persistent severe range HTN (lasting >15 minutes) in a hospitalization (ER, L&D, or other inpatient setting), can be chronic HTN, gestational HTN, preeclampsia and/or postpartum diagnosis.
What were our key strategies?

- Staff education and standardized BP measurement
- Rapid access to medications
- IV treatment of BP’s ≥ 160mmHg systolic or ≥ 110(105) mmHg diastolic within 1 hour
- Uniform policy for magnesium sulfate
- Early postpartum follow-up
- Standardized postpartum patient educational materials.
Controlling blood pressure is the optimal intervention to prevent deaths due to stroke in women with preeclampsia.

The critical initial step in decreasing maternal morbidity and mortality is to administer antihypertensive medications as soon as possible (< 60 minutes) of documentation of persistent (retested within 15 minutes) BP ≥160 systolic, and/or ≥105-110 diastolic.
BP $\geq 160/110(105)$

*BP persistent 15 minutes, activate treatment algorithm with IV therapy ASAP, < 30-60 minutes
Maternal Hypertension Data: Time to Treatment

ILPQC: Maternal Hypertension Initiative
Percent of Cases with New Onset Severe Hypertension Treated in <30, 30-60, 60-90, >90 minutes or Not Treated
All Hospitals, 2016-2017
Maternal Hypertension Data: Time to Treatment

ILPQC: Maternal Hypertension Initiative
Percent of All Reporting Hospitals that Treated Cases with New Onset Severe Hypertension within 60 Minutes
All Hospitals, 2016-2017

- 75-100% of women treated within 60 minutes
- 1-74% of women treated within 60 minutes
- No women treated within 60 minutes

Overall % Treated in 60 Mins
Maternal Hypertension Data: Patient Education

ILPQC: Maternal Hypertension Initiative
Percent of All Reporting Hospitals Where Women Received Discharge Education Materials
All Hospitals, 2016-2017
Maternal Hypertension Data: Patient Follow-up

ILPQC: Maternal Hypertension Initiative
Percent of All Reporting Hospitals Where Follow-up Appointments were Scheduled within 10 Days
All Hospitals, 2016-2017

- 75-100% of women with follow up
- 1-74% of women with follow up
- No women with follow up

Overall % With Follow Up
Maternal Hypertension Data: Debrief

ILPQC: Maternal Hypertension Initiative
Percent of All Reporting Hospitals Where Cases of New Onset Severe Hypertension were Debriefed
All Hospitals, 2016-2017

- 75-100% of cases debriefed
- 1-74% of cases debriefed
- No cases debriefed

Overall % Cases Debrieved

- Baseline
- July
- August
- September
- October
- November
- December
- January
- February
- March
- April
## Severe Hypertension Data Entry Status

<table>
<thead>
<tr>
<th>Month</th>
<th>Total Records</th>
<th># Teams with Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2015)</td>
<td>1619</td>
<td>87</td>
</tr>
<tr>
<td>July</td>
<td>578</td>
<td>75</td>
</tr>
<tr>
<td>August</td>
<td>637</td>
<td>83</td>
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<tr>
<td>September</td>
<td>567</td>
<td>85</td>
</tr>
<tr>
<td>October</td>
<td>448</td>
<td>73</td>
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<tr>
<td>November</td>
<td>548</td>
<td>81</td>
</tr>
<tr>
<td>December</td>
<td>552</td>
<td>75</td>
</tr>
<tr>
<td>January</td>
<td>503</td>
<td>75</td>
</tr>
<tr>
<td>February</td>
<td>458</td>
<td>74</td>
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<tr>
<td>March</td>
<td>478</td>
<td>70</td>
</tr>
<tr>
<td>April</td>
<td>295</td>
<td>61</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>6620</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
WHERE WE GO FROM HERE?
NEXT STEPS TO MEET OUR GOALS
Next Steps to Meet Our Goals

- Culture change in all units – how do you get there?
  - Post visual reminders
  - Educate *all* providers/nurses on protocols
  - Apply implementation checklist
  - Share your data: providers, staff, leadership
- Sustainability across all units
  - System changes build in optimal care: Every provider, every nurse, every unit, every patient, every time
Lessons from Neonatal QI - Visual Reminder in Unit

Number of days since we have had a missed opportunity or delay (> 60 min) in time to treat severe HTN: _____

BP ≥ 160/110(105)
Educate Providers and Nurses on Severe HTN Protocol: AIM eModules & ILPQC Grand Rounds Slides

**AIM eModules**

Available on AIM website. 5 modules range from 5 to 20 minutes long (approximately 1 hour) with quiz and certificate - can ask all providers/staff to submit certificate. View eModules [here](#).

**Severe Maternal HTN Grand Rounds**

Available to download from ILPQC website (or click [here](#)). Speakers group available to provide Grand Rounds across the state. Email [info@ilpqc.org](mailto:info@ilpqc.org) for more information.
Implementation Checklist: Your Tool to Assess Bundle Implementation

- Complete quarterly in REDCap to track your progress
- 14 item assessment of what bundle components - **systems changes** - you do or don’t have in place at your hospital
- Available NOW! Use the Implementation Checklist in your folder:
  - Complete a hospital assessment now for discussion with your team and other teams
  - Take it back to your hospital to enter it into REDCap for 2017 Quarter 1

Implementation checklist adapted from the tool developed by IHI for implementation of the AIM bundles in Louisiana.
Readiness – Items for Every Unit

- Standard protocols for identification and treatment of severe HTN
- Unit education providers/staff on protocols
- Process for timely id, triage, and eval
- Rapid access to IV meds
- System plan for escalation and transport
- Every unit = L&D, antepartum/postpartum, & triage/ED
Recognition & Prevention – Items For Every OB/Postpartum Patient

• Standard protocols for measurement and assessment of BP
• Standard response to maternal early warning signs (MEWS algorithm / tool)
• Facility-wide standards for patient education on preeclampsia
Response – Items For Every Case of Severe HTN

- Facility-wide standard protocols for management and treatment of severe HTN
- Support plan for patients, families, and staff for ICU admissions and serious complications of severe HTN
Reporting/System Learning – Items for Every Unit to Identify Opportunities for Improvement

• Culture of huddles and debriefs
• Multidisciplinary reviews of all cases admitted to ICU
• Monitoring of quality outcomes and process metrics
Maternal Hypertension Data: Physician and Nurse Education

≥50% Physicians Educated  ≥50% Nurses Educated

<table>
<thead>
<tr>
<th>Year Q</th>
<th>Physicians</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Q2 (N=61)</td>
<td>24.6%</td>
<td>37.7%</td>
</tr>
<tr>
<td>2016 Q3 (N=31)</td>
<td>38.7%</td>
<td>77.4%</td>
</tr>
<tr>
<td>2016 Q4 (n=53)</td>
<td>66.0%</td>
<td>90.6%</td>
</tr>
<tr>
<td>2017 Q1 (n=41)</td>
<td>78.0%</td>
<td>95.1%</td>
</tr>
</tbody>
</table>

*Baseline data omitted due to inconsistency in sample size and evidence of misunderstanding the question*
Maternal Hypertension Data: Access to Meds

*Baseline data omitted due to inconsistency in sample size and evidence of misunderstanding the question
Maternal Hypertension Data: Severe HTN Protocol

*Baseline data omitted due to inconsistency in sample size and evidence of misunderstanding the question.
Timely Treatment of Severe HTN: Trends By Collaborative in AIM
HOW WE GET THERE: BACK TO THE BUNDLE
AIM Bundle Readiness Resources: Checklists

- Eclampsia checklist
- Hypertensive emergency checklist
- Postpartum preeclampsia checklist
AIM Bundle Recognition & Prevention Resources: Early Recognition

- Protocols and order sets
- ACOG DII Key Elements for Management of Hypertensive Crisis in Pregnancy
- CMQCC Accurate BP Measurement Guide
- CMQCC Preeclampsia Early Recognition Tool
- CMQCC Consultation Triggers in Severe Preeclampsia
- CMQCC Proteinuria
- CMQCC Nursing Assessment Frequency
- ACOG Sample Order Sets
AIM Bundle Recognition & Prevention Resources: Patient Education

- CMQCC Prenatal and Postpartum Patient Counselling or Education Guide
- FPQC Sample Discharge Instructions
- ACOG DII Preeclampsia Patient Education Handout
- Preeclampsia Foundation Patient Tear Pad
AIM Bundle Response Resources: Treatment Algorithms

- ACOG Committee Opinion 692
- CMQCC Sample Preeclampsia/Eclampsia Medication Toolbox
- CMQCC Steps for Preparation, Storage, Ordering and Administration of Magnesium Sulfate
- ACOG Conservative Management of Preeclampsia
- ACOG DII Labetalol, Hydralazine, and Oral Nifedipine Algorithms
AIM Bundle Reporting/Systems
Learning Resources:

Drills & Simulations
- CMQCC Role of Medical Simulation
- ACOG DII (New York) Eclampsia Scenario
- ACOG Simulation Eclampsia Formative Evaluation
- CMQCC Kaiser Evaluation Form for Drills

Team Communications
- AHRQ TeamSTEPPS Team Strategies & Tools to Enhance Performance and Patient Safety: Briefs, Debriefs, and Huddles
- CMQCC Teamwork and Communication
RESOURCES FOR BUNDLE IMPLEMENTATION
Key QI Tools

- Tools to Identify Opportunities for Change
  - Process Flow Diagram
  - Implementation Checklist
- Tool to test change
  - PDSA Cycle
- Tools to identify interventions and resources
  - MAP-IT
  - Key Driver Diagram
- Toolkit Binder
GOAL: To reduce preeclampsia maternal morbidity in Illinois hospitals

Key Drivers

GET READY
IMPLEMENT STANDARD PROCESSES for optimal care of severe maternal hypertension in pregnancy

RECOGNIZE
IDENTIFY pregnant and postpartum women and ASSESS for severe maternal hypertension in pregnancy

RESPOND
TREAT in 30 to 60 minutes every pregnant or postpartum woman with new onset severe hypertension

CHANGE SYSTEMS
FOSTER A CULTURE OF SAFETY and improvement for care of women with new onset severe hypertension

Interventions

- Develop standard order sets, protocols, and checklists for recognition and response to severe maternal hypertension and integrate into EHR
- Ensure rapid access to IV and PO anti-hypertensive medications with guide for administration and dosage (e.g. standing orders, medication kits, rapid response team)
- Educate OB, ED, and anesthesiology physicians, midwives, and nurses on recognition and response to severe maternal hypertension and apply in regular simulation drills

- Implement a system to identify pregnant and postpartum women in all hospital departments
- Execute protocol for measurement, assessment, and monitoring of blood pressure and urine protein for all pregnant and postpartum women
- Implement protocol for patient-centered education of women and their families on signs and symptoms of severe hypertension

- Execute protocols for appropriate medical management in 30 to 60 minutes
- Implement a system to provide patient-centered discharge education materials on severe maternal hypertension
- Implement protocols to ensure patient follow-up within 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 maternal hypertension cases
- Establish a process in your hospital to perform multidisciplinary systems-level reviews on all severe maternal hypertension cases admitted to ICU
- Incorporate severe maternal hypertension recognition and response protocols into ongoing education (e.g. orientations, annual competency assessments)
Key Data Tools to Monitor QI Progress

• **Monthly Severe Hypertension Data Form** collection when entered in REDCap show your monthly progress towards you goals to:
  • Reduce time to treatment
  • Increase use of debriefs
  • Increase patient discharge education and timely follow up

• **Quarterly Implementation Checklist** and **AIM Measures** provides insight on your progress toward implementation of bundle components

• Use these resources to drive the agenda of your monthly team meetings and PDSA cycles!
Tools to Engage Providers: MOC Part IV Credits

- ILPQC Maternal Hypertension Quality Improvement Initiative approved to meet ABOG Part IV Improvement in Medical Practice MOC Requirements through December 31, 2017.
- NEW: American Board of Medical Specialties’ (ABMS) Multi-Speciality Portfolio Program (MSPP) MOC Part IV
- See flyer in folder for more information
Quality Matters: every patient, every provider, every nurse, every unit every time.

Lauren Bloomstein: 33 year old healthy NICU nurse, wife, mom, severe HTN in labor, preeclampsia not diagnosed, severe HTN not treated, stroked and support withdrawn 20 hours after delivery.
Reducing Maternal Morbidity in Patients With Preeclampsia

Larry Shields, MD
Medical Director for Perinatal Safety
Dignity Health
Maternal Mortality USA

Mortality per 100,000 Births

- 1999: 9.9
- 2000: 9.9
- 2001: 12.1
- 2002: 15.1
- 2003: 12.7
- 2004: 15.5
- 2005: 16.9
- 2006: 19.3
- 2007: 22.0

Years: 1999 to 2013
Severe Maternal Morbidity: USA 1998-2013

Rate per 10,000 Delivery Hospitalizations

1-5% of Deliveries

J. Women’s Health 2014;23:3-9
Selected Maternal Mortality Rates 2010-2013

Illinois:
Births: ~450,000/year
Deaths: ~256/year
SMM rate: 1.6%
SMM: 7,289/year
## Mortality v. ICU Admission

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mortality Ca PMAR</th>
<th>Mortality(^3) Ill. PMAR</th>
<th>Morbidity(^1) 2,970 ICU Admissions</th>
<th>Morbidity(^2) N=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preeclampsia</td>
<td>17%</td>
<td>7%</td>
<td>30%</td>
<td>16%</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>11%</td>
<td>15%</td>
<td>19%</td>
<td>36%</td>
</tr>
<tr>
<td>Sepsis</td>
<td>7%</td>
<td>33%</td>
<td>33%</td>
<td>40%</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>19%</td>
<td>18%</td>
<td>19%</td>
<td>9%</td>
</tr>
<tr>
<td>DVT/PE(^*)</td>
<td>10%</td>
<td></td>
<td>3%</td>
<td>N/A</td>
</tr>
<tr>
<td>AFE</td>
<td>10%</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Vascular</td>
<td></td>
<td></td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>(AFE, PE, CVA, CHTN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1: Crit Care Med 2013 41;1844  
2: Dignity Health  
3: Ill. Mat Child Health databook
## Mortality v. ICU Admission

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mortality Ca PMAR</th>
<th>Mortality III. PMAR</th>
<th>Morbidity¹ 2,970 ICU Admissions</th>
<th>Morbidity² N=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preeclampsia</td>
<td>17%</td>
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<td>Cardiovascular</td>
<td>19%</td>
<td>18%</td>
<td>19%</td>
<td>9%</td>
</tr>
<tr>
<td>DVT/PE*</td>
<td>10%</td>
<td></td>
<td>3%</td>
<td>N/A</td>
</tr>
<tr>
<td>AFE</td>
<td>10%</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Vascular (AFE, PE, CVA, CHTN)</td>
<td>29%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1: Crit Care Med 2013 41;1844  
2: Dignity Health  
3: Ill. Mat Child Health databook
Critical Pathway to Poor Outcome

Maternal Death
1-3/10,000

Serious Morbidity
1-4/100
<table>
<thead>
<tr>
<th>Severe maternal morbidity indicator</th>
<th>ICD-9-CM codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute myocardial infarction</td>
<td>410.xx</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>584.x, 669.3x</td>
</tr>
<tr>
<td>Adult respiratory distress syndrome</td>
<td>518.5, 518.81, 518.82, 518.84, 799.1</td>
</tr>
<tr>
<td>Amniotic fluid embolism</td>
<td>673.1x</td>
</tr>
<tr>
<td>Aneurysm</td>
<td>441.xx</td>
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<tr>
<td>Cardiac arrest/ventricular fibrillation</td>
<td>427.41, 427.42, 427.5</td>
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<tr>
<td>Disseminated intravascular coagulation</td>
<td>286.6, 286.9, 666.3x</td>
</tr>
<tr>
<td>Disseminated intravascular coagulation</td>
<td>642.6x</td>
</tr>
<tr>
<td>Eclampsia</td>
<td></td>
</tr>
<tr>
<td>Heart failure during procedure or surgery</td>
<td>669.4x, 997.1</td>
</tr>
<tr>
<td>Internal injuries of thorax, abdomen, and pelvis</td>
<td>860.xx-869.xx</td>
</tr>
<tr>
<td>Intracranial injuries</td>
<td>800.xx, 801.xx, 803.xx, 804.xx, 851.xx-854.xx</td>
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<tr>
<td>Puerperal cerebrovascular disorders</td>
<td>430, 431, 432.x, 433.xx, 434.xx, 436, 437.x, 671.5x,</td>
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<tr>
<td></td>
<td>674.0x, 997.2, 999.2</td>
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<tr>
<td>Pulmonary edema</td>
<td>428.1, 518.4</td>
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<td>Severe anesthesia complications</td>
<td>668.0x, 668.1x, 668.2x</td>
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<tr>
<td>Sepsis</td>
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<tr>
<td>Shock</td>
<td>669.1x, 785.5x, 995.0, 995.4, 998.0</td>
</tr>
<tr>
<td>Sickle cell anemia with crisis</td>
<td>282.62, 282.64, 282.69</td>
</tr>
<tr>
<td>Thrombotic embolism</td>
<td>415.1x, 673.0x, 673.2x, 673.3x, 673.8x</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>99.0x</td>
</tr>
<tr>
<td>Cardio monitoring</td>
<td>89.6x</td>
</tr>
<tr>
<td>Conversion of cardiac rhythm</td>
<td>99.6x</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>68.3x-68.9</td>
</tr>
<tr>
<td>Operations on heart and pericardium</td>
<td>35.xx, 36.xx, 37.xx, 39.xx</td>
</tr>
<tr>
<td>Temporary tracheotomy</td>
<td>31.1</td>
</tr>
<tr>
<td>Ventilation</td>
<td>93.90, 96.01-96.05, 96.7x</td>
</tr>
</tbody>
</table>
Hypertension in Illinois

Percent of Illinois Women Ages 18-44 with Chronic Health Conditions; BRFSS 2013

- Diabetes: 3.0%
- Hypertension: 9.5%
- Asthma: 8.5%
Recognize and Don’t Ignore Clinical Signs

Treat and Control Blood Pressure

Magnesium for Seizure Prophylaxis

Delivery – 34, 37 weeks

Postpartum Surveillance/Treatment
California PMAR – Healthcare Providers

Delayed response to clinical warning signs

Percent of cases

- Cardiovascular disease (n=49)
- Preeclampsia or eclampsia (n=36)
- Obstetric hemorrhage (n=20)
- Venous thromboembolism (n=20)
- Amniotic fluid embolism (n=18)

Pregnancy-related deaths due to healthcare provider factors

- Ineffective care
- Misdiagnosis
- Lack of continuity of care
- Failure to consult

Dignity Health
Maternal Early Warning Trigger Tool (MEWT)

Maternal Assessment
Temp, BP, HR, RR, O2 sat

Abnormal Maternal Assessment

- Infection-Sepsis
- Cardiopulmonary
- Hypertension
- Obstetrical Hemorrhage

Two Maternal Triggers
Temp: ≥100.4° or ≤ 96.9°
O₂ Sat: <94%
RR: >24/min or <12/min
Sys.BP ≥ 160 or <80 mmHg
Dia.BP ≥ 110 or <45 mmHg
HR > 110 bpm
FHR > 160 (infection only)

Single Maternal Triggers
Temp: ≥100.4° or ≤ 96.9°
O₂ Sat: <94%
RR: >24/min or <12/min
Sys.BP ≥ 160 or <80 mmHg
Dia.BP ≥ 110 or <45 mmHg
HR > 110 bpm
FHR > 160 (infection only)
Maternal Early Warning Trigger Tool (MEWT)

Abnormal Maternal Assessment

Infection-Sepsis

Cardiopulmonary

Obstetrical Hemorrhage

Hypertension

Severe Hypertension in Pregnancy Treatment Algorithm
Antepartum, Intrapartum and Postpartum

Blood Pressure Triggers
(Persistent over 15 minutes)

Single Maternal Triggers
Sys.BP>160 mmHg
Dia.BP>110 mmHg

Gestational HTN = Preeclampsia = CHTN = SuperPreE

IV Anthypertensives First Line Medications

Labetalol or Hydralazine

IV Labetalol: 20 mg (over 2 min)
Repeat BP in 10 minutes if needed, administer IV Labetalol 20 mg
Repeat BP in 10 minutes if needed, administer IV Labetalol 40 mg
Repeat BP in 10 minutes if needed, administer IV Labetalol 80 mg
Repeat BP in 20 minutes if needed, administer IV Hydralazine 10 mg
Repeat BP in 20 minutes if needed, administer IV Hydralazine 20 mg
Repeat BP in 20 minutes if needed, administer IV Hydralazine 50 mg
Repeat BP in 20 minutes if needed, administer IV Hydralazine 100 mg
Repeat BP in 20 minutes if needed, administer IV Hydralazine 200 mg

Seizure Prophylaxis

Magnesium Sulfate

Initial Dose: 2 g over 30 minutes
May repeat dose x 20 minute intervals for a maximum of 5 doses.

*If the maternal HTN is not controlled, this option should be considered.
# TABLE 2

Results from pre- and post-Maternal Early Warning Trigger time periods

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<tr>
<th></th>
<th>Pre-MEWT</th>
<th>Post-MEWT</th>
<th>Trend</th>
<th>$p$-value</th>
<th>Prenonpilot</th>
<th>Postnonpilot</th>
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<td>Deliveries</td>
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<td>CDC-SMM</td>
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<td>&lt;.01</td>
<td>2.4%</td>
<td>2.4%</td>
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<td>.9</td>
<td>&lt;.01</td>
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<td>Composite morbidity</td>
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<td>5.1%</td>
<td>↓</td>
<td>&lt;.01</td>
<td>6.2%</td>
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<td>&lt;.01</td>
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<tr>
<td>Eclampsia/1000a</td>
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<td>↓</td>
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<td>1.1</td>
<td>➔</td>
<td>.9</td>
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Preeclampsia Bundle Compliance:

1. Treat elevated BP
2. Give magnesium sulfate
3. Early PP follow-up

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<td>60.1</td>
<td>70.9</td>
<td>77.3</td>
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<td>82.1</td>
<td>82.8</td>
<td>80.1</td>
<td>89.5</td>
<td>92.7</td>
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Treatment Changes

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<th>Baseline</th>
<th>Phase I</th>
<th>Phase II</th>
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<tbody>
<tr>
<td>Mag</td>
<td>85%</td>
<td>92%</td>
<td>96%</td>
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<tr>
<td>BP Rx</td>
<td>57%</td>
<td>79%</td>
<td>90%</td>
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</tbody>
</table>

Delta 10.8% p<0.01
Delta 33.2% p<0.01

AJOG. 2017 216:415.e1-5
Rate of Eclampsia/1000 births and SMM/100 births

Baseline Phase I Phase II

Eclampsia 1.16 0.82 0.62
SMM 2.4 2.1 1.9

Delta 20.1% p<0.01
Delta 46.5% P=0.02

23 Hospitals, N=69,449
AJOG. 2017 216:415.e1-5
Summary:

- Recommendations consistent with the new ACOG, CMQCC, and Council on Patient Safety in Women’s Health
- Can be implemented relatively quickly
- Results in reduction in both:
  - Reduction in severe maternal morbidity (SMM)
  - Eclampsia
Treatment with Labetalol and Hydralazine

• Some can not give on PP floor/area
  – Allow single dose while arranging to move back to L&D

• If IV labetalol can not be given outside the ED or ICU
  – Work with pharmacy
  – Safe in OB patients
    – *Does not need to have “cardiac monitoring”
    – Caution with significant asthma cardiac disease

*ACOG Committee Opinion 692
Other Logistical Issues - Physicians:

• Physician “buy-in”
  – Should be better with data showing improved patient outcomes

• Reluctant to change ...
  – Individual probability of severe outcome low
  – Like to “do it” like they always have
  – Like to minimize to patients that there is a problem
  – May have limited experience with recommended medications
  – Many still believe Magnesium will treat the BP
Other Logistical Issues - Nursing:

- **Nursing to physician notification**
  - Clear guidelines improves communication
  - BPs repeated within 15 min for verification
  - Don’t try minimize BP (left side, patient is in pain)
  - Should already have second verified BP prior to call
  - Presentation with elevated BP requires action at that time and maybe assistance to meet the treatment within 1 hour guideline
  - Many facilities have standing orders for first dose of BP medication
Other Logistical Issues - ED:

- ED does not recognize BPs of 160/110 as issue
- Preeclampsia patients with RUQ/epigastic pain:
  - Have gallbladder disease or GERD
  - Patients with elevated LFTs have hepatitis
  - Often do not recognize/know patient was recently pregnant
- Case review when delay
- What is common for OB is uncommon for them
Thank You and Questions?
Statewide QI Project for Hypertension in Pregnancy: The North Carolina Experience

Arthur Ollendorff, MD
Maternal Projects Lead
Perinatal Quality Collaborative of North Carolina (PQCNC)
Disclosures

- None
Objectives

• Provide an overview of the North Carolina hypertension project called CMOP
• Review "lessons learned" from CMOP
• Share strategies and approaches to overcome challenges in improving care for women with hypertension in pregnancy
Accomplishing the Mission

• Create value through *time limited* statewide perinatal QI projects
  – Best evidence, reduce variation
  – Partnership with patients and families
  – Resource optimization

• Projects developed and led by expert teams with members from multiple hospitals

• Work conducted by local Perinatal Quality Improvement Teams facilitated/supported by PQCNC core team
PQCNC Initiatives

- Central-Line Associated Blood Stream Infections (CABSI)
- 39 weeks
- Study of Intended Vaginal Birth (SIVB)
- Patient-Family Engagement (PFE)
- Exclusive Breastmilk
- Conservative Management of Preeclampsia (CMOP)
- Neonatal Abstinence Syndrome (NAS)
- Screening for Critical Congenital Heart Disease (CCHD)
- Antibiotic Stewardship/Neonatal Sepsis (ASNS)
- AIM OB Hemorrhage (starts September 2017)
The North Carolina HTN Journey

Conservative Management Of Preeclampsia

- 22-25 hospitals participated (45-52% of deliveries in NC)
  - Pilot Phase (2014)
    - Focused on proper diagnosis and timing of delivery
    - Did not include chronic HTN diagnosis
  - Phase 1 (2015)
    - Focusing on timing of delivery and time to treatment of severe range BP
    - Included chronic HTN diagnoses
  - Phase 2/3 (2016-17)
    - Limited data collection to focus on timing of delivery, full course ANS and time to treatment of severe range BP
    - Focused on bedside engagement, steroid administration, sustainability and patient experience
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<td>Cape Fear Valley</td>
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<tr>
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CMOP Has 3 Core Outcome Measures

- Improving Time to Treatment or Control (TTTC) of severe hypertension
- Eliminating deliveries before 37 weeks for the primary indication of gestational hypertension and preeclampsia without severe features
- Improving rates of complete antenatal corticosteroid course for women delivering prior to 34 weeks
CMOP Phase 1

- 45,406 total deliveries
- 6280 with any HTN diagnosis (13.8% HTN rate)
  - 2442 Cesarean deliveries (39% Cesarean Rate)
  - 1603 delivered < 37 weeks (26% PTD rate)
  - 108 potentially unindicated preterm deliveries
    - 52 delivered for gestational hypertension
    - 56 delivered for preeclampsia without severe features
CMOP Pilot - Criteria for Severe Disease
(when single criteria present)
CMOP Phase 2

- Total Deliveries = 53,149
- Patients < 37 week with HTN = 1738
- Patients < 34 week with HTN = 670
  - Gestational HTN = 63
  - PreE without SF = 27
  - PreE with SF = 367
  - cHTN = 60
  - SIP without SF = 12
  - SIP with SF = 142
CMOP Phase 2 Overview

- Hospital cost avoidance $2,374,320 using Tricare calculator (infants 1500-2500 grams)
- Pro fees not included (estimate $474,866)
- Increasing use of ANS for infants requiring delivery at < 34 weeks (from 71% to 85%) impact on reducing RDS, IVH, and NEC.
- Increasing treatment of HTN moms within 1 hour from 68% to 80%...impact on stroke, abruption, ICU admits mothers
Audience Participation

• If you have a smartphone, tablet of laptop computer go to your web browser and go this website Respond.cc

• When asked for a session key enter 117863

• Answer 4 questions to help direct our conversation
What North Carolina Hospitals Learned

- Proper BP measurement is critical
- Multidisciplinary teams are the most effective
- Patient/family engagement works
- You have to develop systems to support the work of providers and nurses
The Steps To Take a BP

Obtaining Accurate Blood Pressure Measurements

Choose Correct Cuff Size

If blood pressures are at the level that requires treatment, consumption of nicotine or caffeine should not lead to delays in instituting appropriate anti-hypertensive therapies.

Assess for any recent consumption of nicotine or caffeine within past 30 minutes.

If patient sitting or in a non-ambulating position?

Position patient appropriately.

Are patient's feet flat on the ground & legs uncrossed?

Support patient's arm at heart level, ensure patient not to talk.

Support patient's arm at heart level, ensure patient not to talk.

At least one additional reading should be taken within 15 minutes, use highest reading.

Restlessness / patient uncomfortable?

Reassure patient as that arm is at heart level.

At least one additional reading should be taken within 15 minutes, use highest reading.

Pressures within 1.5 mmHg, if still elevated, further evaluation of patient is warranted.

If patient not to talk, do not proceed with obtaining measurement until patient has sat quietly for 3 minutes.

Do not proceed with obtaining measurement until patient has sat quietly for 3 minutes.

If patient is sitting or in a non-ambulating position?

Position patient appropriately.

Do not proceed with obtaining measurement until patient has sat quietly for 3 minutes.

BP 140-90

No further evaluation needed.

BP < 140-90

Must further evaluation ordered.

Document BP, patient position, and arm in which taken.
Multidisciplinary Team Approach to Improve Throughput of Postpartum Patients Seen in ED

Pre-Eclampsia

Is this patient pregnant or has this patient been pregnant in the last 6 weeks?

IF YES:

Is this patient presenting with a combination of these three symptoms?

Blood Pressure greater than 160/110?

Headache?

Epigastric Pain?

"If the patient is exhibiting a combination of these symptoms then she is a PRIORITY TRIAGE patient. THIS PATIENT may be EXPERIENCING Pre-eclampsia symptoms that can lead to a stroke or seizure. Usual treatment is i.v. labetalol within 30 minutes."
Help us get an accurate blood pressure!

When lying down...
Recline in bed with legs uncrossed.
Tilt your belly so you're not flat on your back, but do not lie on your side.
Remain quiet while having your blood pressure taken.

When sitting...
Sit with back supported and arm at level of the heart.
Feet should be flat on the floor, not dangling or crossed.
Remain quiet while having your blood pressure taken.
Developing Systems

- Shared hypertensive order sets across EPIC domains (i.e. ED)
- Embedded order sets that allow nurses to treat confirmed BP above 160/110 in 10 minutes if no response from provider
Results from Our Polling
Other Discussion Points

• Staffing and support for more frequent blood pressure monitoring during and after antihypertensive treatment
• Ensuring subsequent occurrences of severe range BP get the same attention and quick treatment as the initial occurrence in a hospitalization
• Pharmacy resistance to ACOG recommendations
• ED engagement and ownership (engaging ED leadership, identification of pregnant/postpartum women, considering it an emergency)
• Ensuring follow-up appointments are available at discharge
• While having the evidence-based ACOG CO/Guidelines is an asset, hospitals are still facing physician challenges to protocol in the following areas: administer mag sulfate and wait and see, manage pain and wait and see, using a higher threshold for treatment for women with chronic hypertension with superimposed preeclampsia
• Physicians treating but jumping between order sets
• Making time for and getting buy in to complete debriefs
Thank You

Perinatal Quality Collaborative of North Carolina
Team Storyboard Viewing

• Tell your team’s story from 11:00 – 11:45 am
• Learn what other teams are doing
• Understand other teams’ process flow for identification and treatment of severe range blood pressure
• Share your ideas and thought with others
  • Opportunities for improvement
  • Change ideas
  • Strengths
  • Support needed
  • Different challenges across hospital units
Lunch and Networking

- Pick up box lunch in corridor and return to your table
- Discuss storyboards and complete worksheet during lunch from 12:00 – 12:30 pm
  - “Steal Shamelessly Share Seamlessly, Storyboard Worksheet” in folders
  - Use worksheet to discuss storyboards and record ideas from other teams
STAR Awards: Complete HTN, AIM, and Checklist Data Q1 2017

- Evanston Hospital
- Northwestern Memorial Hospital
- Edward Hospital
- Carle Foundation Hospital
- Advocate Lutheran General Hospital
- Westlake Hospital
- Rush-Copley Medical Center
- Presence St. Joseph Medical Center - Joliet
- Northwestern Medicine Central DuPage Hospital
- Palos Community Hospital
- St. Mary's Hospital - Centralia
- Advocate Sherman
- Richland Memorial Hospital
- Northwestern Medicine DelNor Hospital
- CGH Medical Center
- Pekin Hospital
- AMITA Health Adventist Medical Center Hinsdale
- AMITA Health Adventist Medical Center, Bolingbrook
- Advocate BroMenn Medical Center
Complete HTN Data Q1 2017

- Northwest Community Hospital
- Evanston Hospital
- Advocate Condell Medical Center
- Silver Cross Hospital
- HSHS St. John's Hospital
- Northwestern Memorial Hospital
- OSF St. Francis Medical Center
- Rush University Medical Center
- Edward Hospital
- Carle Foundation Hospital
- Advocate Lutheran General Hospital
- Memorial Hospital - Belleville
- Presence Saint Joseph Hospital-Chicago
- Barnes-Jewish Hospital
- MetroSouth Medical Center
- Touchette Regional Hospital
- Westlake Hospital
- Centegra Hospital McHenry
- Rush-Copley Medical Center
- Mount Sinai
- Presence St. Joseph Medical Center - Joliet
- Advocate Good Shepherd
- Stroger Hospital
- Advocate Christ Medical Center
- Northwestern Medicine Central DuPage Hospital
- Abraham Lincoln Memorial Hospital
- Palos Community Hospital
- St. Mary's Hospital - Centralia
- Swedish Covenant Hospital
- Advocate Sherman
- Memorial Hospital of Carbondale
- Advocate Illinois Masonic Medical Center
- AMITA Health Adventist Glen Oaks Medical Center
- Richland Memorial Hospital
- Presence St. Francis - Evanston
- Alton Memorial
- Anderson Hospital
- Blessing Hospital
- Northwestern Medicine DelNor Hospital
- CGH Medical Center
- HSHS Holy Family Greenville (Greenville Regional Hospital)
- Katherine Shaw Bethea Hospital
- Memorial Medical Center
- Morris Hospital and Health Care Centers
- Northwestern Medicine Lake Forest Hospital
- Norwegian American Hospital
- Pekin Hospital
- Presence Resurrection Medical Center
- Presence United Samaritans Medical Center
- Riverside Medical Center
- Swedish American Hospital
- HSHS St. Elizabeth's Hospital
- UI Heath
- AMITA Health Adventist Medical Center Hinsdale
- AMITA Health Adventist Medical Center, Bolingbrook
- Little Company of Mary Hospital
- Advocate Pa-Marc Medical Center
Small Group Key Topics Discussions

• 1:00-1:05pm: Move to assigned area in the Conference Center

• 1:05-1:45pm: Discussion of barriers and opportunities for improvement topic – identify 3 takeaways to share with the larger group

• 1:45-2:00pm: Break

• 2:00-2:30pm: Debrief with all groups
Breakout Discussion Sessions:
Topics and Locations

- Group topics and room locations
  - Implementing and monitoring standardized blood pressure identification protocols
    - Horner
  - Implementing severe hypertension treatment protocols into the hospital's standard of practice
    - Presidential Ballroom, 2 sections
  - Lack of nursing/provider buy-in to adopting protocols, independent provider
    - Presidential Ballroom
  - Optimizing the use of debriefs to drive improvement
    - Altgeld
  - Implementing and sustaining team based communication to support a culture of safety and empower team members
    - Freeport B
  - ED Implementation
    - Yates
  - Simulation and Drills - How to optimize nurse/provider education and how to use simulation drills on a regular basis
    - Freeport A, Section 1
    - Freeport C, Section 2
Debrief with Large Group

• Debrief from small groups to large group 2:00 – 2:30 pm
• Facilitator share top 3 take-aways from group discussion
ILPQC Teams Panel on Testable Systems Changes

Kristen Farney, Inpatient Nurse Supervisor for Labor and Delivery/High Risk Antepartum/Maternal Transport, Carle Foundation Hospital, Urbana

Jessica Cazares, Manager of Obstetric Units, Advocate Illinois Masonic Medical Center, Chicago

Chris Lopian, Staff RN and Perinatal Coordinator at St. John’s Medical Center, Springfield

Samantha Schoenfelder, Clinical Quality Leader for OB, MFM and Pediatrics at Northwestern Medicine, Central DuPage Hospital, Winfield
Carle Foundation Hospital
Urbana, IL.
Perinatal Care at Carle

• Labor & Delivery:
  – 7 Labor and delivery suites, 5 Triage rooms and 2 OR suites.

• High Risk Antepartum:
  – 9 Antepartum beds

• Post-partum Unit:
  – 26 private rooms

• Nursery:
  – 16 cribs, spaced per code
  – Overflow for NICU, 6 Level II beds

• NICU:
  – 28 beds, 25 Level III

• NICU Step-Down:
  – 14 Level II cribs
The Carle Hypertension Project Team

Jamie Fulfer, MD
Physician Champion

Ralph Kehl, MD
Maternal Fetal Medicine Physician

Melissa Tate, APN, MFM
Advance Practice Champion

Pam Unger, MSN,
Maternal/Child Director
Project Team Lead

Chantel Ellis, MSN, RNC
Labor and Delivery/High Risk Antepartum

Kristen Farney, BSN, RNC
Labor and Delivery/High Risk Antepartum Educator

Ashley Lingafelter, BSN, RNC
Labor and Delivery/High Risk Antepartum Educator

Jenn McBride, MSN, RNC
OB Quality Outcomes Coordinator
Debrief: The Change Process

• Debriefs are an opportunity for staff to have a voice in the change process.
• Began the process of implementation through provider and staff education on the importance of debriefs, with an emphasis that the debrief process does not have to be a formal or prescheduled process.
Debriefs: Challenges

• Challenge: Keeping staff focused on the importance of debriefs
  – Solution:
    • Adding debrief discussion to
      – shift safety huddles
      – Monthly staff meetings
      – Monthly steering committee meetings
      – OB provider Meetings
      – One on one coaching with individual staff members
Debriefs: Sustaining Change

OB HTN Quality Report

- Patient Information
- Care Team Information
- Review of Care
- Discussion regarding Missed Opportunities, Barriers, and Successful Treatment
ADVOCATE ILLINOIS MASONIC MEDICAL CENTER

Chicago, IL

Jessica Cazares, RNC-MNN, BSN
Clinical Operations Manager
Obstetric Units
May 18, 2017
Institution Background

Level III Co-Perinatal Center with Rush Medical Center

397 bed Teaching Hospital

Twice recognized for excellence in nursing care by the American Nurse Credentialing Center’s (ANCC) Magnet Recognition Program®, 2008 to 2012 and 2012 to 2016

Baby Friendly Designation completed in October 2016

On average 200 deliveries/month

6 Bed Labor and Delivery, 2 operating rooms, 2 recovery rooms

6 Bed High Risk Antepartum Unit

Obstetricians, Midwives, Maternal Fetal Medicine, Neonatology, Pediatric Surgery on staff
Overview of Implementation

Project began March 2016

- General nursing education
  - Reviewed in email communications, unit huddles, and at staff meetings
- OB resident education
- Monthly telepresence ILPQC talks
- Hospital team talks
Addressing Barriers

- Mandatory Nursing Education August 2016
  - All Labor and Delivery and Mother-Baby nurses and nursing support staff were required to attend a mandatory in-service held by Clinical Practice Partners

- Real time coaching with frontline staff to improve practice

- Monthly data report to review potential qualifying patients

- Implementation of OB Hypertension in Pregnancy PowerPlan

- Meeting with ED leadership

- Maintained Monthly Telepresence ILPQC talks

- Maintained Hospital Team talks
Continuing Communication Among Disciplines

- Pharmacy
- Physicians
- Nursing
  - Women and Children’s Services Report Out
- ED

“Culture does not change because we desire to change it. Culture changes when the organization is transformed; the culture reflects the realities of people working together every day.” (Hesselbein, 1999, p.267)
ILPQC: Maternal Hypertension Initiative
Percent of Delivered Cases with New Onset Severe Hypertension with Follow-Up Appointment Scheduled within 3 - 10 Days
Hospital 056 & Select Comparisons, 2016 - 2017
Opportunities for Improvement and Sustainability

Goals for 2017:

- Continuation of education with on-boarding new nursing staff and incoming residents
- Maintenance of OB Hypertension in Pregnancy PowerPlan
- OB Leadership project focused on follow up appointments in OB Triage within 72 hrs
- Education tool focused for maternal hypertension population
- Partnering with patient advocate
ILPQC Hypertension Initiative
Reducing Time to Treatment

HSHS ST. JOHN’S HOSPITAL
Springfield, Illinois
Level III Perinatal Center

- Serving 37-area counties
- 24/7 Board Certified Obstetrician
- 24/7 Board Certified Neonatologist
- 24/7 Maternal-Fetal Medicine
- Approx. 200 deliveries monthly
- 9 LDR rooms
- 12 Ante Partum rooms
- 17 Post Partum rooms
- 3 OB-ED rooms
TEAM BUILDING

HSHS ST. JOHN’S TEAM

- Physician Lead- Dr. Angelique Rettig, OB-GYN
- OB Physician Champion- Dr. Robert Abrams, Maternal Fetal Medicine and Director of Obstetrics
- Dr. Elizabeth Unal, Maternal Fetal Medicine
- Quality Lead- Kathy Nein, Administrative Assistant and Birth Center System Analyst
- Team Lead- Christine Lopian, BSN, RNC-OB-C-EFM
- Other team members
  - Kathy Chepulis- Quality Management Dept.
  - Brandi Strader-Pharmacy Clinical Manager
DATA COLLECTION PROCESS

- Retrospective chart review and data collection (Oct. 2015-February 2016)
- Real time data collection (March 2016-Present)
- Education provided on the ILPQC HTN Initiative and bedside HTN data collection tool
  - Staff meetings
  - Nursing shift huddle Q shift
  - One on One education
- Implementation of bedside HTN data collection tool and placed at all nurses desk in RED folders (March 2016)
- Folder with charge nurses to log pt. stickers who present with severe hypertension
- Daily admission log audit by Quality Lead (Kathy Nein)
- Bi-monthly pharmacy reports on pts. receiving Mag sulfate, Labetalol, Hydralazine, and Procardia in OB, ICU, and ED
- Monthly ICD-10 coding reports on pts. with hypertension
Barriers To Treatment

• Not all unit PYXIS loaded with HTN meds
• Staff buy-in
• Pt. inclusion unclear to staff
• Staff unclear of process for treatment
• ED participation and education
Solutions

• Added HTN meds to ALL PYXIS on unit
• All HTN meds removable on override from PYXIS
• Education on HTN data collection process and ILPQC initiative included in daily nursing huddle and with all residents and physicians
• One-on-One staff education on pt. inclusion
• HTN protocols reviewed with nursing and residents
• ED sending/notifying OB dept. of all pregnant or PP pts. (within 6 wks.)
• Meeting with ED leadership
Are you pregnant or have been pregnant within the last 6 weeks?

Please alert the staff for prompt evaluation!
BP ≥ 160/110(105)

Need To Treat*

*BP persistent 15 minutes, activate treatment algorithm with IV therapy ASAP, < 30-60 minutes
Collaborated with Dr. Unal and Dr. Abrams to write a Severe HTN order set for our department based on the ACOG hypertensive medication protocols and algorithms

- Posted Labetalol, Hydralazine, and Nifedipine algorithms on the unit for nursing reference

- Dr. Abrams facilitated education to resident staff on HTN treatment algorithms
### Severe Hypertension Tool for Nursing

<table>
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<tr>
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<th>Med Given</th>
<th>Dose</th>
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#### Nifedipine
- BP persists more than 15 minutes
  - ↓ 10mg orally
  - ↓ repeat BP in 20 minutes
  - ↓ BP exceeds limits
  - ↓ 20mg orally
  - ↓ repeat BP in 20 minutes
  - ↓ BP exceeds limits
  - ↓ 20mg orally
  - ↓ repeat BP in 20 minutes
  - ↓ BP exceeds limits
  - ↓ Labetalol 40mg IVP over 2 min

#### Hydralazine
- BP persists more than 15 minutes
  - ↓ 5mg or 10mg IVP
  - ↓ repeat BP in 20 minutes
  - ↓ BP exceeds limits
  - ↓ 10mg IVP
  - ↓ repeat BP in 20 minutes
  - ↓ BP exceeds limits
  - ↓ 10mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ Labetalol 20mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ Labetalol 40mg IVP
  - ↓ repeat BP in 20 minutes
  - ↓ Hydralazine 10mg IVP
  - ↓ repeat BP in 20 minutes

#### Labetalol
- BP persists more than 15 minutes
  - ↓ 20mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ 40mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ 80mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ Labetalol 20mg IVP
  - ↓ repeat BP in 10 minutes
  - ↓ BP exceeds limits
  - ↓ Labetalol 40mg IVP
  - ↓ repeat BP in 20 minutes

Once the BP thresholds are achieved, repeat blood pressure:
- Every 10 minutes for 1 hour
- Every 15 minutes for 1 hour
- Every 30 minutes for 1 hour
- Every hour for 4 hours
HSHS-SJS ILPQC Data to Date
Maternal Hypertension: Patient Education Improvements
Northwestern Medicine Central DuPage Hospital

Presented to: ILPQC Maternal Hypertension Face-to-Face Meeting
Presented on: May 18, 2017
Presented by: Samantha Schoenfelder, Clinical Quality Leader, RNC, MSN
Central DuPage Hospital

- Large community hospital located in Winfield (West Chicago suburb)
- Level III Perinatal Hospital
- 379 bed facility
  - 19 L&D beds (11 LDR, 5 AP, 3 triage)
  - 41 M/B beds (5 AP, 36 PP)
  - 23 NICU beds
- Approximately 3,000 deliveries/year
- 24 obstetricians (3 groups, 4 independent)
  - Employed MFM practice
Patient Education

Defining the Problem

• Baseline data
  – 17.5% of patients received discharge education
• Patient Education materials were available in the EMR
  – RNs had to manually add to the discharge after visit summary (AVS)
  – Information was not up to date
• Preeclampsia Foundation flyers added to D/C packets
  – Not sustainable – limited supply
  – Easily missed in antepartum or triage patient discharges
  – Not consistently documented in the EMR

Understanding Preeclampsia

Preeclampsia is pregnancy-related hypertension that develops after 20 weeks’ gestation. It can lead to health risks for you and your baby. No one knows what causes it.

**Signs and symptoms**

A common sign of preeclampsia is high blood pressure. Other signs and symptoms include:

- Rapid weight gain
- Protein in your urine
- Headache
- Abdominal pain on your right side
- Vision problems (flashes or spots)
- Edema (swelling) in your face or hands (this also commonly happens near the end of normal pregnancies, even without preeclampsia)
Patient Education

Finding the Solution

**GOAL:** Embed Preeclampsia Education into every AVS printed on patients >8 years old discharged from L&D or Mother Baby units

- Obtained licensing to electronic formats of Preeclampsia Foundation flyers
  - Legal contract – took some time
  - Small annual fee
- Add electronic flyers to education resources
  - Unable to embed in EMR (Epic)
- Added preeclampsia flyer text to every AVS printed on obstetric patients
  - Exclude newborns

---

**Preeclampsia Information for all Pregnant and Postpartum Patients**

**Preeclampsia**
Ask Your Doctor or Midwife

**What is it?**

Preeclampsia is a serious disease related to high blood pressure. It can happen to any pregnant woman during the second half of her pregnancy, or up to 6 weeks after delivery.

**Risks to You:**
- Seizures
- Stroke
- Organ damage
- Death

**Risks To Your Baby:**
- Premature birth
- Death
Patient Education Given at Discharge

NM CDH – At 100% since January 2017!
Patient Education
Successes and Opportunities

Successes

• **Preeclampsia patient education on the AVS went live 12/13/16!**
• ILPQC patient education metric at **100%** since go-live
• Updated/corrected the inaccurate patient education information flyer in the EMR clinical resources
• Gave extra paper Preeclampsia Foundation flyers to the RMG physician office
• Increased # of patients returning for preeclampsia symptoms (14 readmissions since Dec 2016)

Opportunities

• Improve the information on the AVS
  - Add graphics
  - Import the entire Preeclampsia Foundation flyer
Thank You

Contact Samantha.Schoenfelder@nm.org with Questions
Panel Q&A

• If you had to specify the most important thing that you did to implement system changes, what would that be?
• What was a mis-step, challenge you had to overcome to achieve improvement?
• How do you plan to sustain these improvements in the future?
Panel Q&A

• If you had to specify the most important thing that you did to implement system changes, what would that be?

• What was a mis-step, challenge you had to overcome to achieve improvement?

• How do you plan to sustain these improvements in the future?
NEXT STEPS
Use the ILPQC Data & Reporting System to Inform Your QI Work

• Collect monthly data and enter May data into REDCap by June 15 (monthly data entered by the 15th of the month for the previous month)
• Enter AIM and implementation checklist for Q1 (quarterly data entered by the 15th of the month following the end of the quarter, e.g. April 15 for 2017 Q1)
• Share your data broadly: team, providers, staff
• Contact ILPQC or your PNA with any questions
Attend OB Monthly Team Calls to Share Strategies

- June 26, 12:30-1:30pm
- July 24, 12:30-1:30pm
- August 28, 12:30-1:30pm
- September 25, 12:30-1:30pm
- October 23, 12:30-1:30pm
# OB Teams Monthly Calls: Back to the Bundle

<table>
<thead>
<tr>
<th>Call Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>June 26</td>
<td>Readiness - Implementing Provider / Staff Education across units and Checklists</td>
</tr>
<tr>
<td>12:30 – 2:30 pm</td>
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<tr>
<td>July 24</td>
<td>Recognition &amp; Prevention – Implementing Early Recognition Protocols (MEWS) and Patient Education</td>
</tr>
<tr>
<td>12:30 – 1:30 pm</td>
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<tr>
<td>August 28</td>
<td>Response - BP Medication and Treatment Algorithms</td>
</tr>
<tr>
<td>12:30 – 1:30 pm</td>
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<tr>
<td>September 25</td>
<td>Reports/System Learning – Drills, Simulations, and Team Communications</td>
</tr>
<tr>
<td>12:30 – 1:30 pm</td>
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</tr>
<tr>
<td>October 23</td>
<td>Sustainability Planning</td>
</tr>
<tr>
<td>12:30 – 1:30 pm</td>
<td></td>
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</table>
ANNOUNCING:
QUALITY IMPROVEMENT RECOGNITION AWARDS
ILPQC SEVERE MATERNAL HYPERTENSION INITIATIVE

<table>
<thead>
<tr>
<th>Gold</th>
<th>Silver</th>
<th>Bronze</th>
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</thead>
<tbody>
<tr>
<td>✓ Structure Measures +</td>
<td>✓ Structure Measures +</td>
<td>✓ Structure Measures +</td>
</tr>
<tr>
<td>✓ All 4 Process Measure goals met</td>
<td>✓ 3 of the 4 Process Measure goals met</td>
<td>✓ 2 of the 4 Process Measure goals met</td>
</tr>
</tbody>
</table>

**Determined by data* for Quarter 3 of 2017**
**To be awarded at 5th Annual ILPQC Conference: November 2017**

*Severe HTN Data, AIM Quarterly Measures, & Implementation Checklist*
**Award Criteria for IL Maternal Hypertension Hospital Teams:**

**Structure Measures:**
- Severe Maternal HTN Policies in place in all units (Implementation Checklist question 1 A-C)
- Provider & Nursing education: ≥80% of providers and nurses educated

**Process Measures:**
- Time to treatment ≤60 minutes: ≥80% of cases
- Debrief: ≥30% of cases
- Discharge education: ≥70% of cases
- Follow-up appointments scheduled within 10 days of discharge: ≥70% of cases
Questions & Wrap-up
May is Preeclampsia Awareness Month
More information at
https://www.preeclampsia.org/get-involved/advocacy-efforts

"Know the Symptoms" video --
https://www.preeclampsia.org/the-news/videos/video/7-symptoms-every-pregnant-woman-should-know
Thank You!

- ILPQC HTN Leadership Team
- ILPQC OB Advisory Workgroup
- Face to Face Planning Subcommittee
- Perinatal Network Administrators and Educators and State Quality Committee
- All Breakout Facilitators
- All volunteers who made today possible!!
ILPQC Administrative Team

Ann Borders
ILPQC Executive Director, OB Lead

Leslie Caldarelli
Neonatal Lead

Patricia Lee King
State Project Director

Now Accepting Applications
Project Coordinator

Email us at info@ilpqc.org
Website: www.ilpqc.org
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