



Maternal Hypertension Initiative Teams Call *Recognition & Prevention*

July 25, 2016
12:30 – 1:30 pm

Overview

- Tools for Communication & Collaborative Learning
- Data
 - Review data
 - Missed Opportunities
- Quality Improvement Tools
 - Implementation Checklist
 - Process Flow Diagrams
 - Key Driver Diagram
 - HTN Toolkit Binder
- Clinical Education
 - Accurate Measurement of Blood Pressure – Debbie Schy
 - Updates on Diagnosis of Preeclampsia – Dr. Soti Markuly
- Team Talks
 - Dr. Soti Markuly – Northwest Community Healthcare
- 4th Annual Conference
- Next Steps & Questions

HTN Communications

- ILPQC implementing twice monthly emails to teams implemented last week
- Email after OB Advisory call (2nd week of the month)
 - Updates
 - Reminders about upcoming teams call and data entry due dates
- Email after OB Teams call (4th week of the month)
 - Recap of key take aways from teams call
 - Important materials (slides, toolkit components of interest, etc.)
- Emails include important and timely items for teams to focus on and links to relevant information

Additional Opportunities for Collaborative Learning



- Working FAQs posted to ILPQC website <http://ilpqc.org/?q=Hypertension>
- Discussion boards on in ilpqc.org member's area – topics posted will be listed in the twice monthly teams email
- Education/discussion key topic at network meetings

Sign Up for Member's Only Area on *ilpqc.org*



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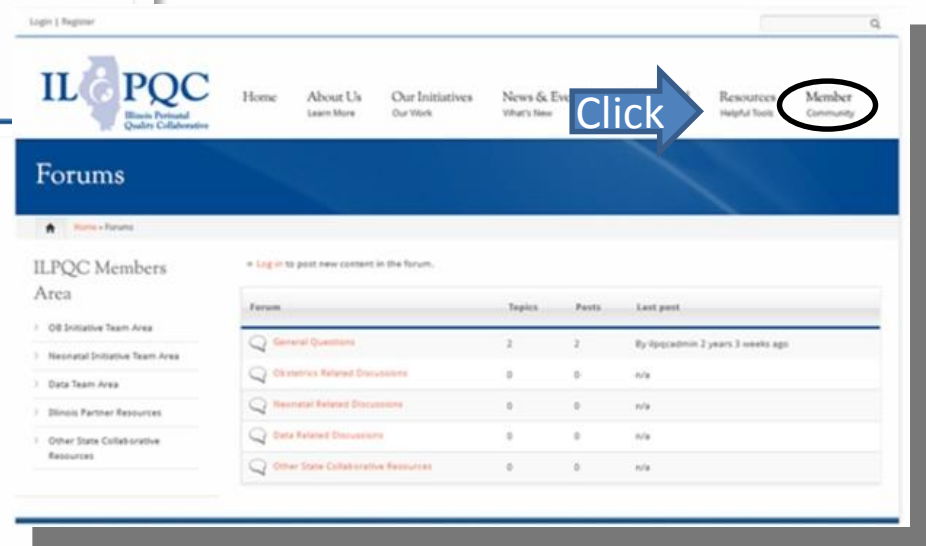
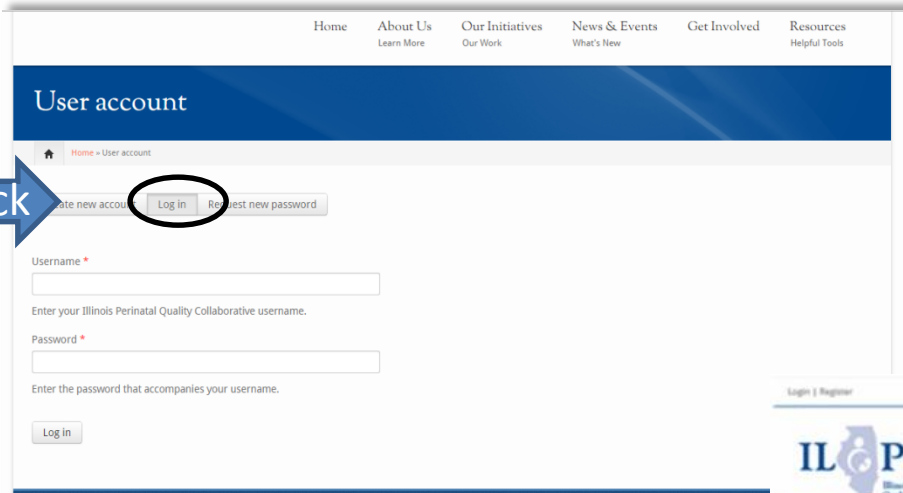
Spaces are allowed; punctuation is not allowed except for periods, hyphens, apostrophes, and underscores.

E-mail address *

A valid e-mail address. All e-mails from the system will be sent to this address. The e-mail address is not made public and will only be used if you wish to receive a new password or wish to receive certain news or notifications by e-mail.

Create new account

Sign Up for Member's Only Area on ilpqc.org



- Share initiative specific resources
- Collaborate and communicate via online ILPQC initiative forums/discussion boards

Data

AIM Quarterly Measures
Review of Severe HTN Data
Missed Opportunities

AIM Quarterly Data

- **Short** (total of 6 questions) form to track:
 - Provider and nurse HTN education over past 2 years
 - Drills completed in last quarter
- Form is labeled “ILPQC AIM Quarterly Measures” in REDCap
 - Please let us know if you do not have access!
- Only one submission per hospital required!
- To date, only **6 Hospital Teams** have completed this form
- Complete once per quarter through December 2017
 - ILPQC will remind you each quarter to submit AIM Quarterly Measures!
 - Quarterly Measures due July 15th – next quarter is due October 15th

AIM Quarterly Data vs. Monthly Severe HTN Data



- AIM Quarterly Data
 - *Qualitative data* submitted quarterly
 - Data collected at the hospital level (provider/nursing education, drills, etc)
 - Tracks progress in implementing AIM Bundles
- Monthly Severe HTN Data
 - *Quantitative data* submitted monthly
 - Data collected on patients
 - Shows improvement in process and outcome measures

Additional Data Resources



- Data Dictionary
 - <http://bit.ly/295NbkW>
- Baseline Data Instructions
 - <http://bit.ly/292A9AW>
- HTN Data Q&A
 - <http://bit.ly/29pKF6b>

Severe Hypertension Data Entry Status

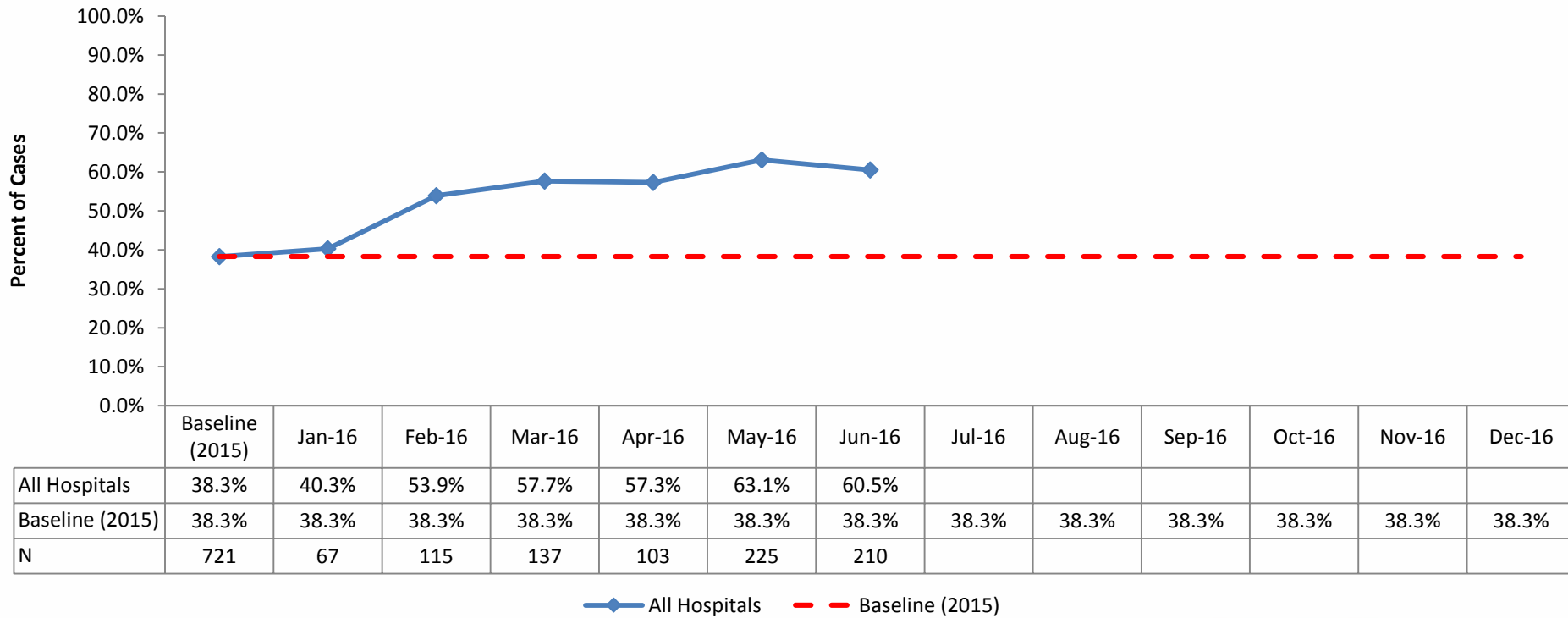


	Total Records	# Teams with Data
Baseline (2015)	878	56
January	71	16
February	136	24
March	162	20
April	127	19
May	252	33
June	249	33
Overall	1875	71

Maternal HTN: Time to Treatment



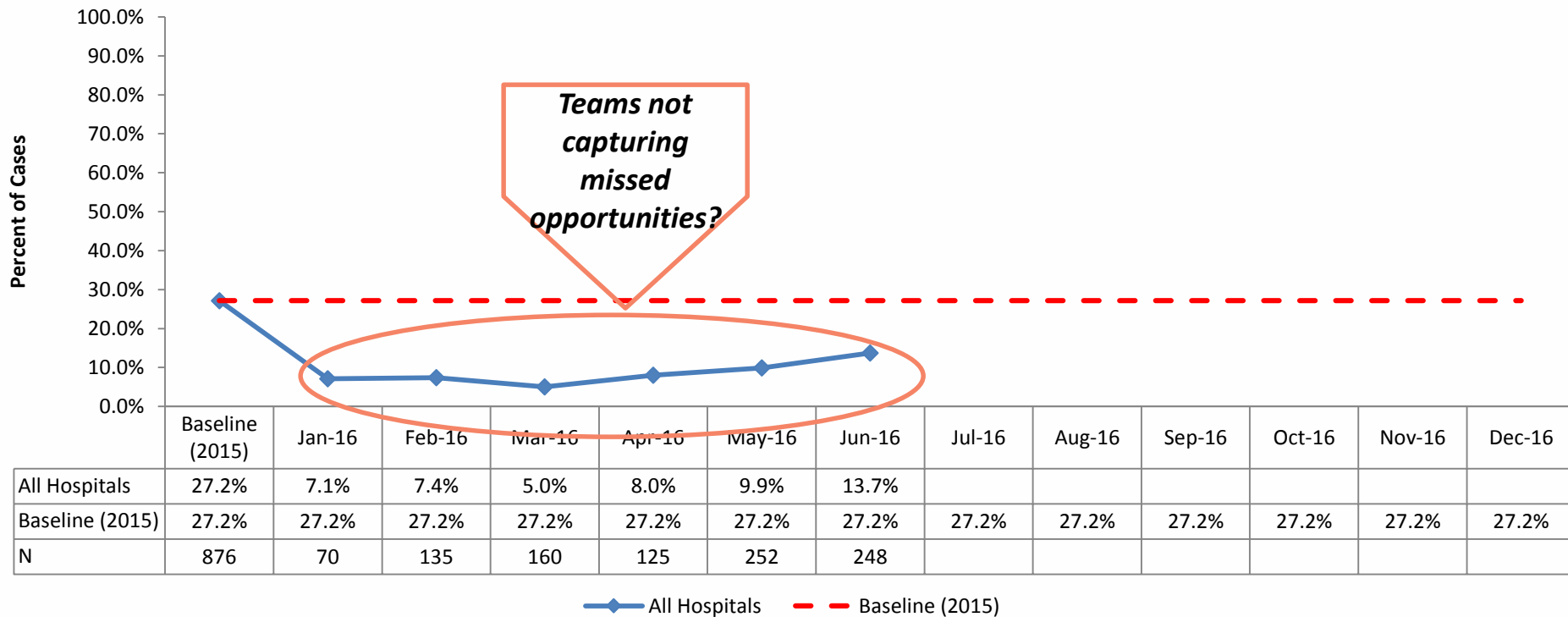
ILPQC: Maternal Hypertension Initiative Percent of Cases with New Onset Severe Hypertension Treated within 60 Minutes All Hospitals, 2016



Maternal HTN: Missed Opportunities



ILPQC: Maternal Hypertension Initiative Percent of Cases with Sustained New Onset Severe Hypertension Not Treated with Anti-Hypertensives All Hospitals, 2016



—◆— All Hospitals - - - Baseline (2015)

Missed Opportunities: How to ID?

- Missed opportunities are times when **no action was taken**
 - When 1st elevated BP is identified and not repeated
 - When confirmatory BP is taken but meds are not started
- Baseline
 - Teams using ICD-9 and ICD-10 codes, EMR key word searches, & pharmacy logs
- Hybrid approach for monthly data collection
 - Bedside data collection in real time
 - Chart abstraction for outcomes (diagnosis at discharge, adverse maternal/neonatal outcomes, follow-up, discharge education)
- ★ ICD-10 codes, EMR key word searches, elevated BP searches, pharmacy logs, delivery log books to ***ID missed opportunities***

Quality Improvement Tools

Implementation Checklist

Process Flow Diagrams

PDSA Cycles Linked to Key Driver Diagram

HTN Toolkit Binder

Opportunities for Quality Improvement



- Early recognition of hypertension and response to clinical triggers of preeclampsia (pregnant and pp)
- Importance of accurate BP measurement and identify severe range BP across all units.
- Reduce time to treatment for BP $\geq 160/110(105)$
- Implement standardized use of ACOG protocols for acute treatment of severe range BP
- Coordination of care (L&D, PP, ED, ICU) and timely evaluations and consultations
- Postpartum follow-up and patient education

Implementation Checklist

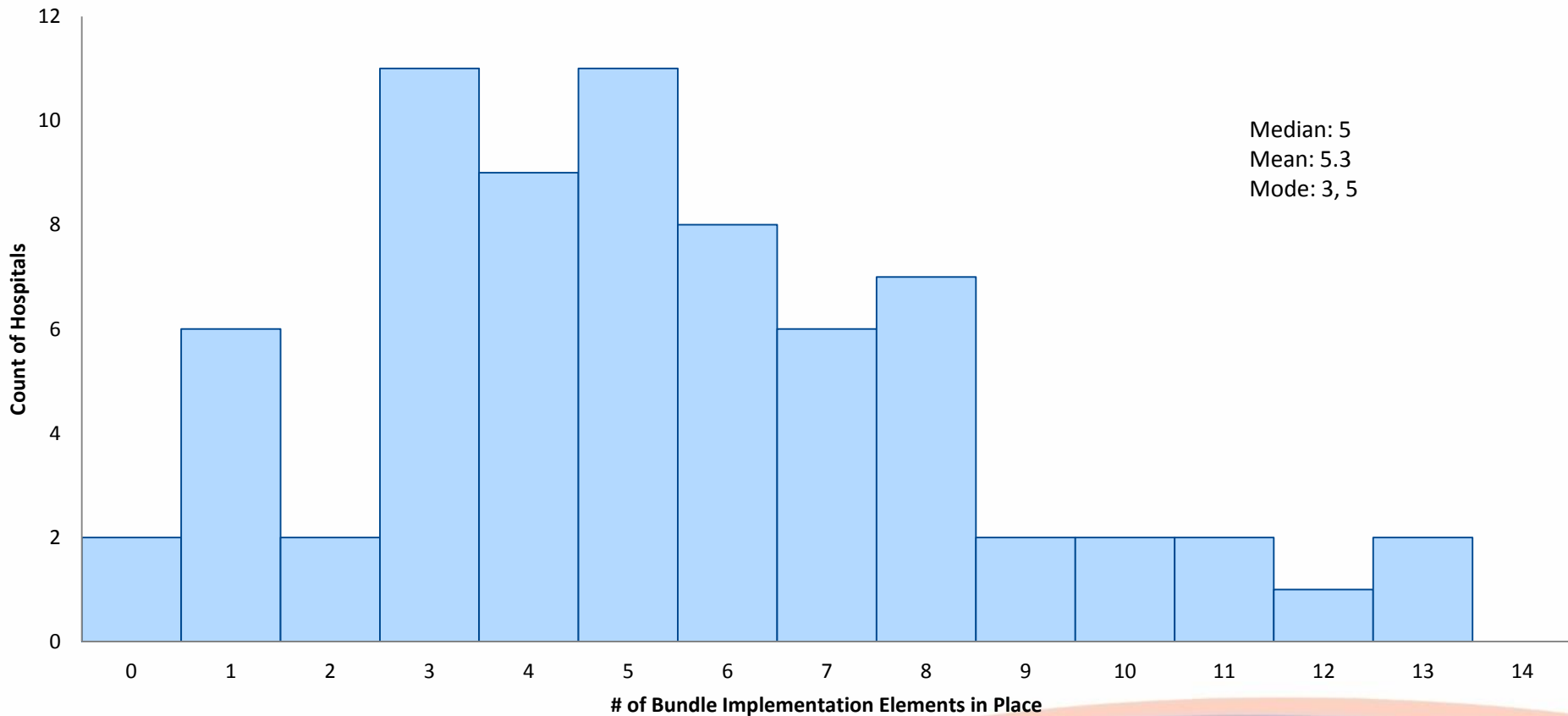


- 14 item assessment of what bundle components hospital has in place, appended to AIM Baseline Survey
- Complete at baseline (May 2016) & quarterly for duration of the initiative
 - Quarterly Implementation Checklist will be completed in REDCap going forward
- Responses highlight opportunities:
 - For change at the hospital level
 - For QI support and resources at the collaborative level
- 71 teams with completed baseline implementation checklists
- Will track quarterly progress towards completion of bundle implementation
 - Report (next slide) shows # of elements with 100% completion from Implementation Checklist (14 items)

Implementation Checklist



ILPQC: Maternal Hypertension Initiative Baseline Bundle Implementation Checklist Completion July 5, 2016



Process Flow Diagrams



- Think of first process flow diagram as a jumping off point!
 - Identifies opportunities for change and will likely change many times during initiative based on PDSA cycles
 - Example: One CMQCC team had 40 drafts of their process flow, which was updated after each test of change
- At each team meeting, take a more nuanced look at your process flow diagrams
- Start to integrate treatment algorithms, HTN policies, etc. into diagrams

Key Driver Diagram: Maternal Hypertension Initiative

GOAL: To reduce preeclampsia maternal morbidity in Illinois hospitals

AIM: By December 2017, to reduce the rate of severe morbidities 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

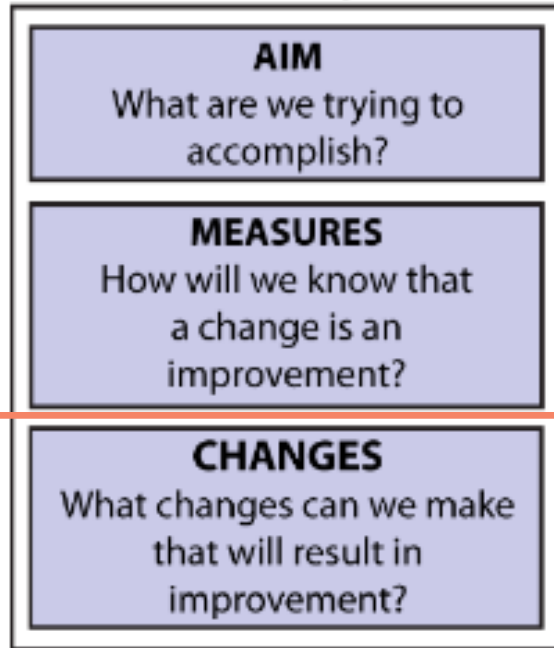
- Implement standard order sets and/or algorithms for early warning signs, diagnostic criteria, timely triage, monitoring and treatment of severe hypertension
- Ensure rapid access to medications used for severe hypertension with guide for administration and dosage
- Implement system plan for escalation, 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 TeamSTEPS)
- 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 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

The Model for Improvement



KDD Interventions link to changes you can test with PDSA Cycles!

Interventions

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PDSA WORKSHEET

Team Name: Hospital A	Date of test: June 1, 2016	Test Completion Date: June 3, 2016
Overall team/project aim: 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 is the objective of the test? To improve access to IV labetalol on the L&D unit.		

PLAN:

Briefly describe the test:

Test use of the severe hypertension medication box containing: magnesium sulfate (with tubing, syringes, and needles), labetalol, hydralazine, and calcium gluconate.

How will you know that the change is an improvement?

Feedback from providers and staff on experience with box after use on one patient – does it contribute to improved access and time to treatment?

What driver does the change impact? *KDD Intervention: Ensure rapid access to medication*

What do you predict will happen?

We predict the medication box will improve access to IV hypertensive medication when caring for patient with severe hypertension.

PLAN

List the tasks necessary to complete this test (what)	Person responsible (who)	When	Where
1. Gather medication for boxes using appropriate protocol	Jane & John	June 1	L&D Room 2X
2. Assemble boxes and label all contents individually and list contents on box.	Jane & John	June 1	L&D Room 2X
3. Mark boxes with a PDSA label so team knows it's part of a test of change	Jane & John	June 1	L&D Room 2X
4. Notify L&D staff and providers of the box and its location in all rooms.	Jane & John	June 2	Staff meeting L&D Room 3X
5. Meet with nurse, provider and any other involved staff after first use for feedback.	John	June 3	L&D Room 3X
6. Develop subsequent PDSA cycle/other action.	Team	June 3	Team meeting L&D Room 3X

Plan for collection of data: Qualitative discussion of nurse and provider experience with the box.

DO: Test the changes.

Was the cycle carried out as planned? Yes No

Record data and observations.

Nurse Joan used the box with a patient on June 3. Felt it greatly increased her access to the medications and patient was treated within 45 minutes of confirmed BP. Feedback that box was difficult to open. Questions about how to ensure new box is in place for next case were raised.

What did you observe that was not part of our plan?

We didn't expect packaging to be an issue.

STUDY:

Did the results match your predictions? Yes No

Compare the result of your test to your previous performance:

First test. Previous treatment required additional steps to access medications.

What did you learn?

Medication box helps but needs to be easier to access in an emergency. Plan for restocking needed.

ACT: Decide to Adopt, Adapt, or Abandon.

Adapt: Improve the change and continue testing plan.
Plans/changes for next test: Change box closure type and retest with one patient. Add checking boxes for restocking to the hospital's existing crash cart check list and review status after one box is used with one patient.

Adopt: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability

Abandon: Discard this change idea and try a different one

HTN Education Plan for OB Teams Calls



Call Date

Topic

Team Members

June 27
12:30 – 2:30 pm

Readiness and Reporting - Drills,
Simulation, and Debriefs

Sherry Jones, Melissa Claudio, Sam
Schoenfelder

July 25
12:30 – 1:30 pm

Recognition - Accurate BP
Measurement & Diagnosis

Heather Stanley Christian, Soti Markuly,
Debbie Schy, Mona LaGrand, Sam
Schoenfelder, Robbin Uchison

August 22
12:30 – 1:30 pm

Response - BP Medication and
Treatment Algorithms

Jim Keller, Angelique Rettig, Felicia
Fitzgerald, Deena Layton, Roma Allen

September 26
12:30 – 1:30 pm

Response - Timing of Delivery

Jim Keller, Deena Layton, Sue Fulara

October 24
12:30 – 1:30 pm

Response - Patient
Education/Engagement and
Postpartum Follow-up

Angelique Rettig, Debbie Schy, Roma Allen

HTN Toolkit Binder

- July clinical education topics linked to HTN Toolkit Binder:
 - Under Tab 6 in the Binder (or click hyperlinks below):
 - Accurate Measurement of Blood Pressure
 - [CMQCC Accurate Blood Pressure Measurement](#)
 - [ACOG Hypertension in Pregnancy page 17](#)
 - Updates to Diagnosis of Preeclampsia
 - [CMQCC Preeclampsia Early Recognition Tool \(PERT\)](#)
 - [CMQCC Consultation Triggers in Severe Preeclampsia](#)
 - [CMQCC Proteinuria](#)
 - [ACOG Sample Order Sets:](#)
 - Labetalol
 - Hydralazine
 - Nifedipine
- All resources available on [ILPQC Maternal Hypertension page](#)

Recognition & Prevention:

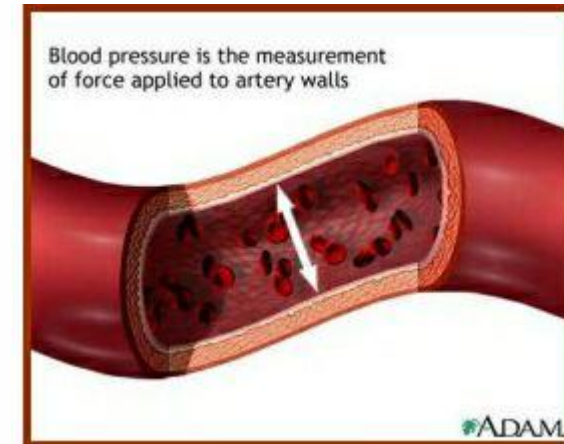
Accurate Measurement of Blood Pressure
Updates on Diagnosis of Preeclampsia

Challenges with accurate measurement of blood pressure

July 25, 2016

Definitions

- **Systolic blood pressure (SBP)**
 - The amount of arterial pressure during left ventricular contraction
 - First sound (Korotkoff I)
- **Diastolic blood pressure (DBP)**
 - The minimum arterial pressure during relaxation and dilatation of heart ventricles of the heart when the ventricles fill with blood
 - Disappearance of sounds (Korotkoff V)
- **MAP – Mean Arterial Pressure**
 - Average pressure throughout the cardiac cycle
 - $MAP = (SBP) + 2(DBP) / 3$
- **Hypertension in Pregnancy**
 - ≥ 140 SBP and/or ≥ 90 DBP
- **Severe hypertension in pregnancy (hypertensive emergency)**
 - ≥ 160 SBP and/or ≥ 110 (105) DBP
 - Acute onset, severe hypertension that is accurately measured using standard technique and is persistent for 15 minutes or more

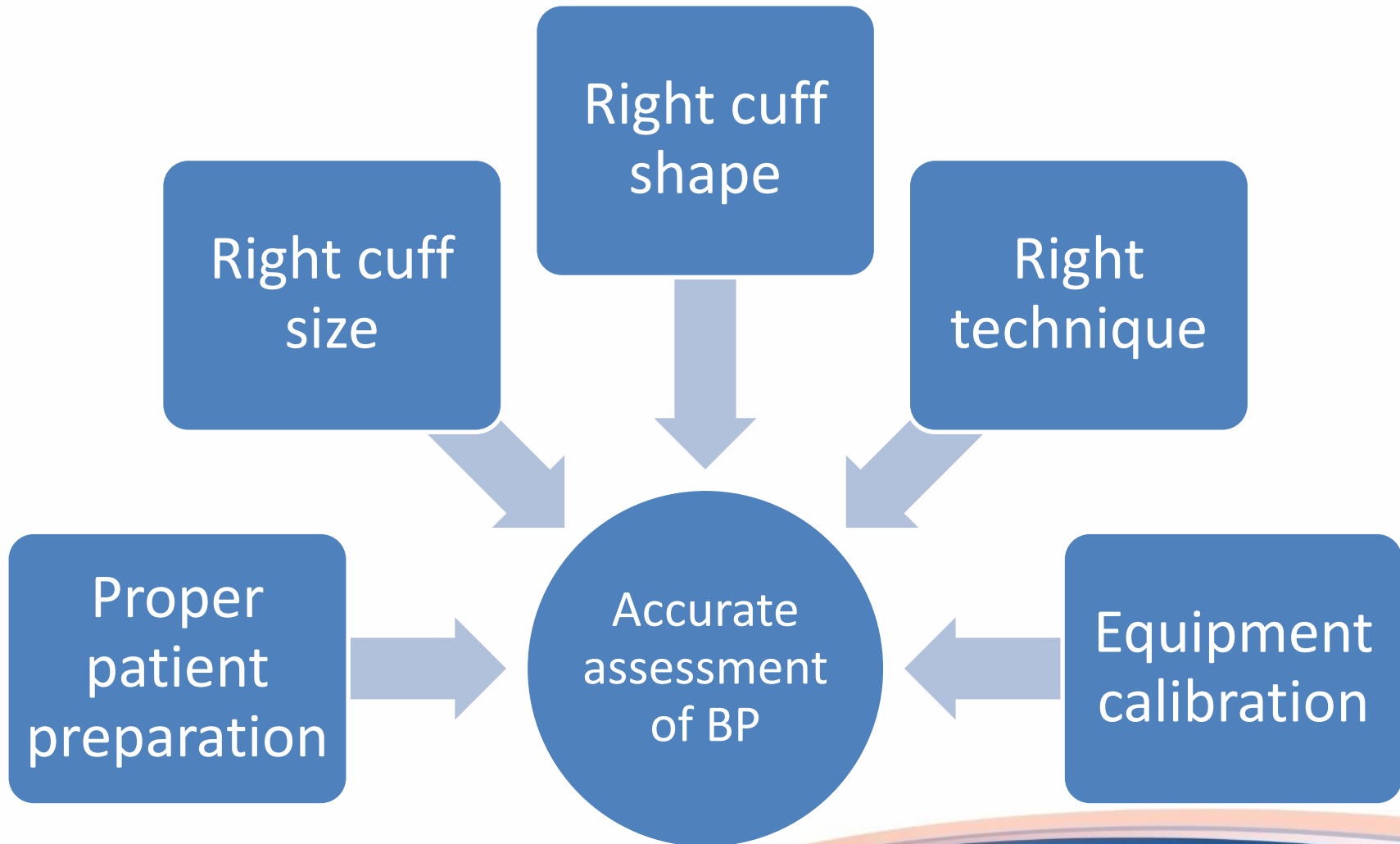


Why is it necessary to review blood pressure assessment?



- Evaluation of blood pressure is essential in assessing cardiovascular health.
- Screening for hypertension is critical for the perinatal patient to reduce maternal morbidity and mortality.
- Monitoring the effectiveness of treatment in patients with established hypertension.
- Proper techniques should be used in order to produce consistent and reliable readings. Improper assessment can lead to missed opportunities or over treatment.

Challenges with accurate BP assessment

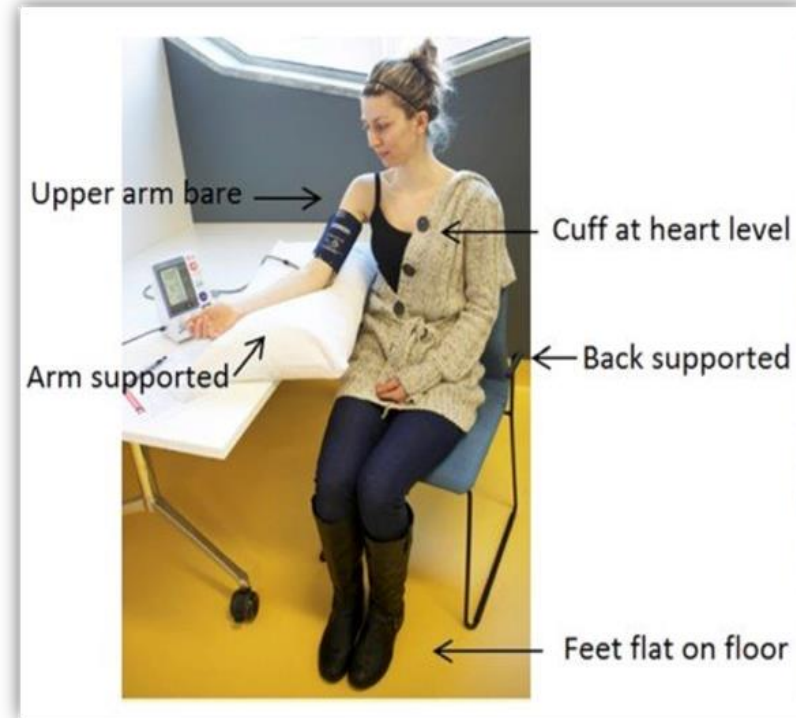




Proper preparation of the woman



- **Position:**
 - **Optimal per ACOG HIP:** Seated in chair, feet resting on the floor (not dangling)
 - If in bed: Semi-fowlers with the head of the bed elevated 30-40 degrees; arm supported; legs uncrossed
 - At least 5 minutes of rest before assessment
 - **Repeat BP must be in the same position. Do not reposition the woman.**
- **Void first:** a full bladder adds 10-15mmHg
- **No talking** : Systolic and diastolic BPs of hypertensive and normotensive patients increase with talking
- Assess for any recent (within 30 min) consumption of caffeine or nicotine.



What effect do these positions have on BP?

Upper arm = lower BP

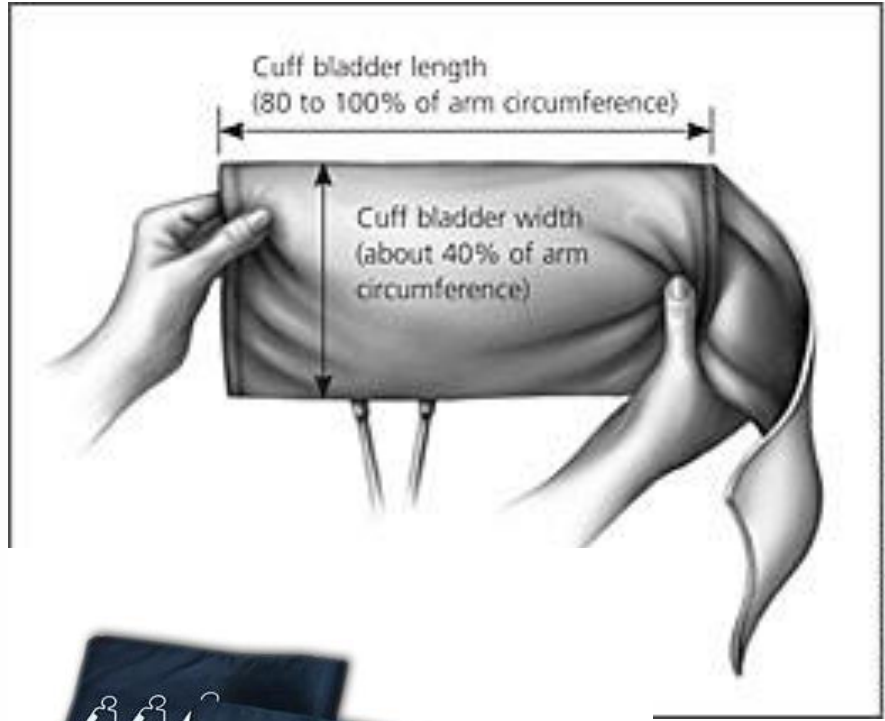


Lower arm = higher BP



Choose the Right Cuff Size


- The cuff bladder width should cover between 40-50% of the circumference of the arm.
- The bladder length should be at least 80% of arm circumference
- Midarm circumference
- The lower cuff edge should be about 1 inch above the antecubital space
- Center the bladder over the brachial artery
- Stethoscope should not touch the cuff

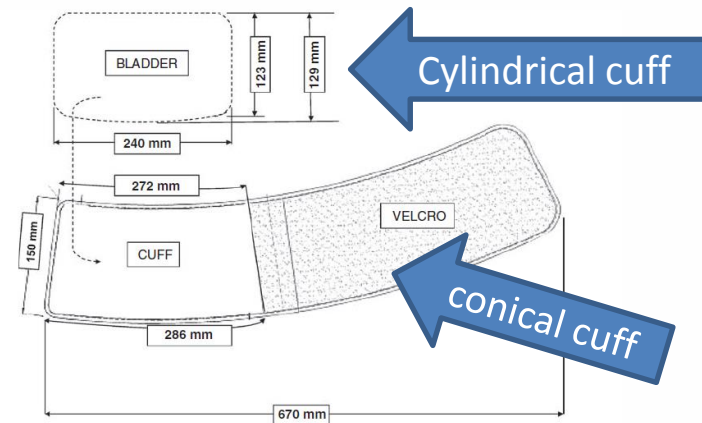




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Choose the Right Cuff Shape

- Some women have an upper arm shape that is conical rather than cylindrical
- Current common equipment used for blood pressure assessment are cylindrical cuffs and bladders
- In obese patients, the upper arm may have a pronounced tronco-conical shape (the circumference near the shoulder is greater than the circumference near the elbow) 
 - a cylindrical cuff cannot exert a uniform pressure on a conical arm, because the distal part will remain loose and will transmit a lower pressure to the subcutaneous tissue overlying the artery.
 - cylindrical cuffs may overestimate BP in women with large arms.
 - ***Tronco-conical cuffs should be used for BP measurement in individuals with large arms***



A common challenge: The Obese Patient

Upper arm circumference > 50 cm

- Can use a thigh cuff if upper arm is long enough
- Conical cuff may be used with tronco-conical shaped arm



Adult leg cuff 46-66CM

Potential option to use forearm

- Choose cuff that covers 40% of circumference
- Inflate cuff and feel for radial pulse

This method is not considered as accurate and should be used in circumstances when a proper cuff can't be obtained.



Use the correct technique

- For auscultatory measurement: use first audible sound (Korotkoff I) as systolic pressure and use disappearance of sound (Korotkoff V) as diastolic pressure
- Deflate cuff slowly, 2-3 mm Hg per heartbeat
- Read to the nearest 2 mm Hg
- If $\geq 140/90$, repeat within 15 minutes
- Watch YouTube of BP assessment at <https://www.youtube.com/watch?v=CmYyj0WVs7M>



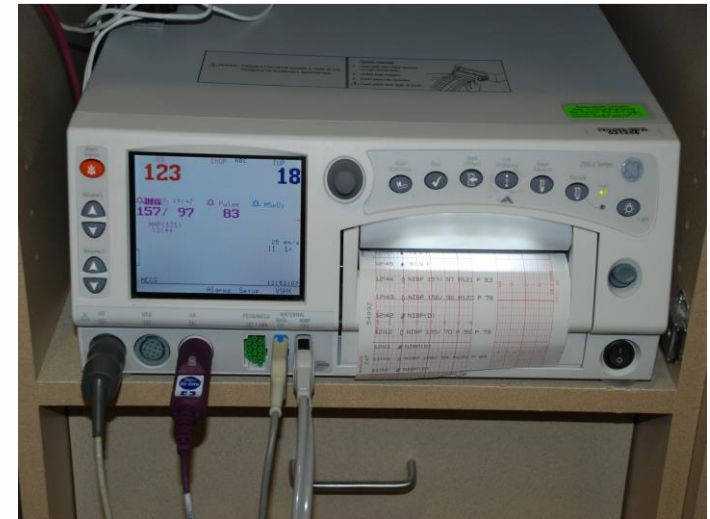
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Calibration of equipment

Oscillatory devices

- Auto BP cuffs overestimate systolic by 4-6 mmHg and underestimate diastolic by up to 10 mmHg
- This equipment takes the reading irrespective of:
 - Maternal position
 - Cuff size/placement
 - Contractions
 - Epidural
 - Pushing
- Biomedical personnel should calibrate annually

Sphygmomanometer – gold standard



Do not “auto-cycle”. Be present to confirm appropriate BP technique criteria have been met



Which apparatus is considered the 'gold standard' for BP assessment?

1. DINAMAP



2. Mercury sphygmomanometer



3. Aneroid BP monitor



4. Oscillometric device ('smart' BP on fetal monitor)



Documentation

- Accurate documentation includes:
 - Patient position
 - Arm used for measurement
- Notification of provider
 - Time / Person notified
- Follow-up recommendations

KEY POINTS

- Position the woman correctly
- Take time to use correct equipment and measure her arm circumference
- Initial blood pressure should be assessed after the woman has been resting with minimal distraction for 5 minutes.
- Be consistent: Same arm, same position, same cuff size
- BP ≥ 160 *or* 110(105) sustained for 15 minutes should be treated within 30-60 minutes
- Consider to validate blood pressure with mercury sphygmomanometer

**Initial BP is
140 systolic OR
90 diastolic**

- Repeat blood pressure in 15 minutes
- Take repeat BP in the same arm
- Do not reposition to side-lying
- Use the **higher** reading

Evaluate for
preeclampsia

**Initial BP is
 ≥ 160 systolic or
 ≥ 110 (105) diastolic**

- Notify provider after first elevated BP
- Reassess after 15 minutes
- Activate treatment algorithms if remains ≥ 160 *or* 110(105)

Activate
Severe HTN
Treatment
Algorithm

KEY POINTS

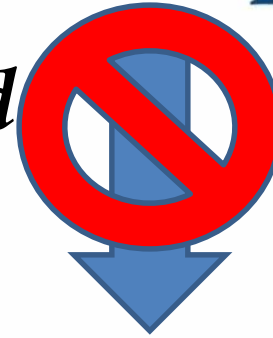
Causes of *Overestimated* Blood Pressure Readings



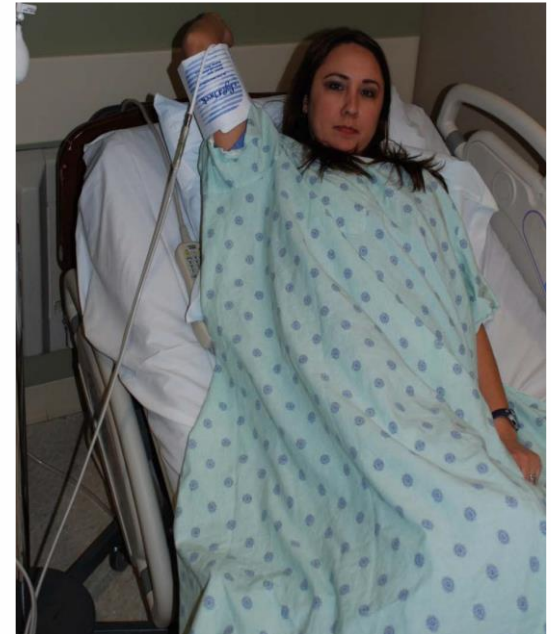
- Cuff too small – Increase systolic by as much as 15mmHg or up to 30mmHg in obese patient
- Cuff applied over clothing
- Cuff too loose
- Cuff not placed over brachial artery
- If the arm is allowed to hang down, unsupported: the BP will be elevated by 10-12 mmHg
- If patient is talking: BP may increase by 8-15 mm Hg
- If back is unsupported: Diastolic may be higher by 6 mmHg
- If the legs are crossed: Systolic may be higher by 2-8 mmHg
- Using lower arm when in side-lying
- Deflation of cuff too slow
- Using the wrong cuff shape for assessment

KEY POINTS

Causes of *Underestimated* Blood Pressure Readings



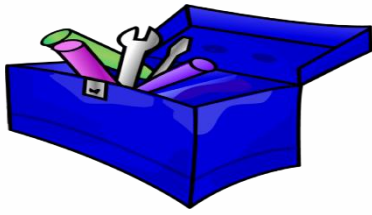
- Cuff too large – Decreases systolic by as much as 10-30mmHg
- Brachial artery above heart level
- Deflation of cuff too fast
- Assessed on upper arm when in side-lying



Education / Implementation Strategies

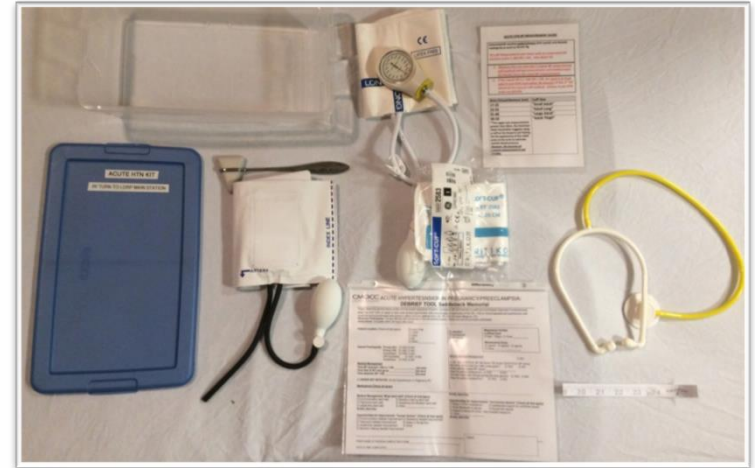


- Ensure proper training of staff: Incorporate accurate BP measurements in annual “skills day”
- Develop a facility specific module
- NEJM BP Training: <http://www.nejm.org/doi/full/10.1056/NEJMvcm0800157>
- Poster Boards
- Laminate “Steps to Obtain Accurate Blood Pressure” download from CMQCC and post on units
- Consider BP kit with all sizes / shapes available or special kit for obese women
- Consider each patient to have their own cuff as part of an ‘admission pack’ and this would travel with the patient to various units: antepartum, L&D, mother/baby



BP Kit

- Selection of cuff sizes
- Sphygmomanometer
- Measuring tape
- Stethoscope
- Laminated instructions for cuff measurements and key actions
- Optional: Reflex hammer, debrief tool



Resources / References



- <https://www.cmqcc.org/resources-toolkits/toolkits/preeclampsia-toolkit>
- <https://www.youtube.com/watch?v=CmYyj0WVs7M>
- Palatini, P; Benetti, E; et. al., Rectangular cuffs may overestimate blood pressure in individuals with large conical arms. *Journal of Hypertension* (2012), 30, 530–536.
- Palatini P, Parati G. Blood pressure measurement in very obese patients: a challenging problem. *Journal of Hypertension* (2011), 29:3, 425-429.


PATIENT CARE AND TREATMENT RECOMMENDATIONS
ACCURATE BLOOD PRESSURE MEASUREMENT

Kristi Gabel, RNC-OB, C-EFM, MSN, CNS, Sutter Roseville Medical Center

BACKGROUND

The current method used most often in the hospital setting for accurate measurement of blood pressure is the oscillatory method, or automated blood pressure machine, which tends to underestimate both systolic and diastolic readings by as much as 10 mm Hg^{1,2}. In the clinic setting and physician offices, blood pressure measurement is often used with the aneroid (mechanical type with a dial) sphygmomanometer. Refer to Table 1 for steps in obtaining accurate blood pressure measurement and Figure 1 for recommended cuff sizes.

Table 1: Steps for Obtaining Accurate Blood Pressure Measurements³

Step 1: Prepare equipment	<ul style="list-style-type: none"> a. Mercury sphygmomanometer is gold standard, can use validated equivalent automated equipment b. Check cuff for any defaults c. Obtain correct size cuff: width of bladder 40% of circumference and encircle 80% of arm (See Figure 1)
Step 2: Prepare the patient: 	<ul style="list-style-type: none"> a. Use a sitting or semi-reclining position with back supported and arm at heart level b. Patient to sit quietly for 5 minutes prior to measurement c. Bare upper arm of any restrictive clothing d. Patients feet should be flat, not dangling from examination table or bed, and her legs uncrossed e. Assess any recent (within previous 30 minutes) consumption of caffeine or nicotine. 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
Step 3: Take measurement	<ul style="list-style-type: none"> a. Support patients arm at heart level, seated in semi-fowlers position b. For auscultatory measurement: use first audible sound (Kortokoff I) as systolic pressure and use disappearance of sound (Kortokoff V) as diastolic pressure c. Read to the nearest 2 mm Hg d. Instruct the patient not to talk e. At least one additional readings should be taken within 15 minutes f. Use the highest reading g. If greater than or equal to 140/90, repeat within 15 minutes and if still elevated, further evaluation for preeclampsia is warranted. <p>Do not reposition patient to either side to obtain a lower BP. This will give you a false reading.</p>
Step 4: Record Measurement	Document BP, patient position, and arm in which taken

Adapted from Peters RM (2008) High blood pressure in pregnancy. Nursing for Women's Health, Oct/Nov, pp. 410-422. Photo courtesy of and printed with permission by Kristi Gabel, RNC-OB, C-EFM, MSN, CNS, Sutter Roseville Medical Center 2013.

CMQCC website

<https://www.cmqcc.org/resources-tool-kits/toolkits/preeclampsia-toolkit>

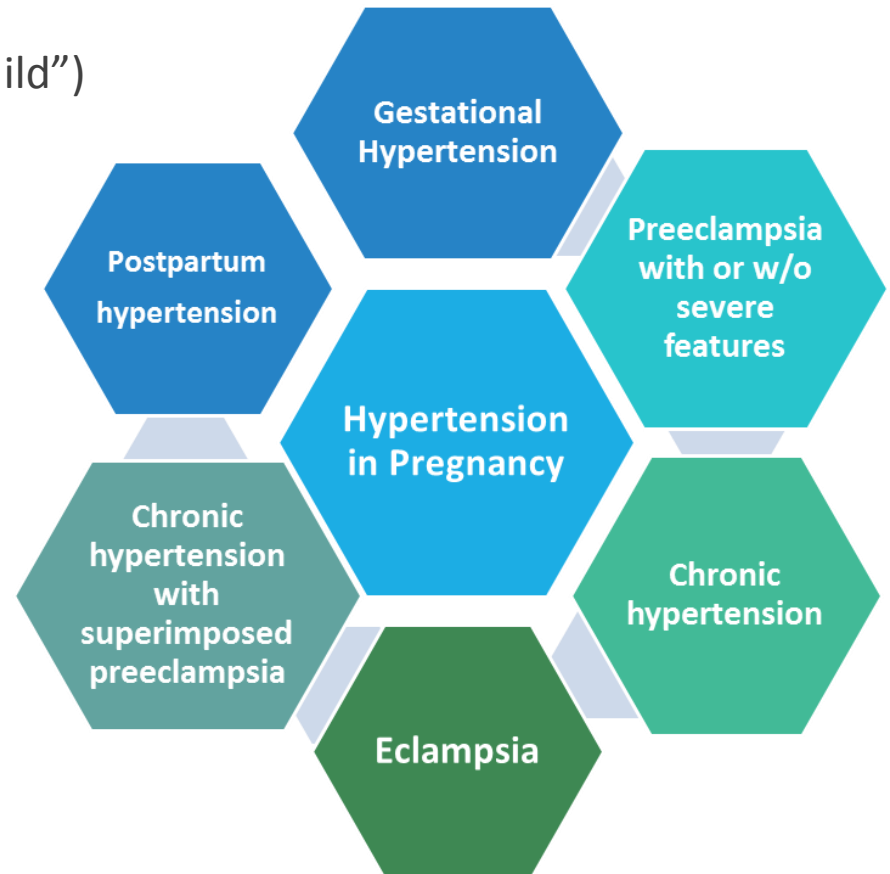
Updates on Diagnosis of Preeclampsia

DR. SOTI MARKULY

SAMANTHA SCHOENFELDER, RNC, MSN

Classification of Hypertension in Pregnancy

- Preeclampsia
 - Without severe features (formerly “Mild”)
 - With severe features
- Eclampsia
- Chronic hypertension (Pre-existing)
- Chronic hypertension with superimposed pre-eclampsia
- Gestational hypertension
- Postpartum Hypertension



Classification of Hypertension in Pregnancy

Preeclampsia Definitions

The disease manifestations of preeclampsia are dynamic and can change in a matter of minutes, the terms “**mild**” preeclampsia and “**severe**” preeclampsia are no longer recommended

Instead, preeclampsia should be reported as the following:

- **Preeclampsia WITHOUT severe features**

OR

- **Preeclampsia WITH severe features**



Hypertension in Pregnancy Updated Definitions

Preeclampsia

Abnormal blood pressure as described in gestational hypertension plus proteinuria

- Greater than 300 mg total protein in a 24 hour collection
- Random urine protein (mg/dL) to creatinine (mg/dL) ratio of 0.3
- 1+ protein on urine dipstick if above quantifiable measures not available

Severe features for gestational hypertension and preeclampsia

- Systolic blood pressure greater than 160 mm Hg or diastolic blood pressure greater than 110 mm Hg (check blood pressure within 15 minutes to confirm since persistent elevation greater than 160 mm Hg or 110 mm Hg is a hypertensive emergency)
- CNS symptoms (generalized tonic clonic seizure, headache or visual disturbances)
- Pulmonary edema
- Thrombocytopenia (Platelet count less than 100,000/microliter)
- Elevation serum transaminases more than 2 times over baseline or ALT greater than 70
- Serum creatinine level greater than 1.1 mg/dL or doubling of serum creatinine
- HELLP syndrome

Classification of Hypertension in Pregnancy

Diagnosis of Preeclampsia WITH Severe Features Atypical Presentation

Patients presenting with vague symptoms of:

- Headache
- Abdominal pain
- Shortness of breath
- Generalized swelling
- Complaints of “I just don’t feel right”

**should be evaluated for
atypical presentation of preeclampsia or “severe features”**

Classification of Hypertension in Pregnancy

Updated Definitions

Chronic (Preexisting) Hypertension

Abnormal blood pressure predating pregnancy or before 20 weeks gestation

- Hypertension that predated the pregnancy
- Hypertension that develops before 20 weeks gestation and first trimester blood pressures are not known

Gestational Hypertension

Abnormal blood pressure first developing in pregnancy

- Hypertension that develops after 20 weeks gestation in a woman with previously normal blood pressure
- At least two measurements taken 4 or more hours apart
- If hypertension occurs before 20 weeks gestation and first trimester blood pressure measurements are normal, then consider early onset gestational hypertension
- Rule out preeclampsia

Classification of Hypertension in Pregnancy

Updated Definitions

Superimposed preeclampsia

Chronic hypertension with the development of preeclampsia

- Sudden increase in blood pressure that was previously controlled requiring escalation of blood pressure medication
- New onset proteinuria or sudden increase in proteinuria
- Development of any of the criteria listed under “severe features”

Postpartum Hypertension

New onset condition OR Secondary to persistent hypertension

- BP increases again 3-6 days postpartum
- If symptoms of preeclampsia or eclampsia, including stroke, develop evaluate for superimposed preeclampsia
- Can develop up to 4-6 weeks postpartum

Establishing the Diagnosis of Preeclampsia

Establishing the Diagnosis of Preeclampsia

Identifying Severe Range Hypertension

Missed vital sign “triggers” occurred in 60% of preeclampsia deaths

- Other missed “triggers” included: proteinuria, headache, epigastric pain, deteriorating fetal status, altered mental status

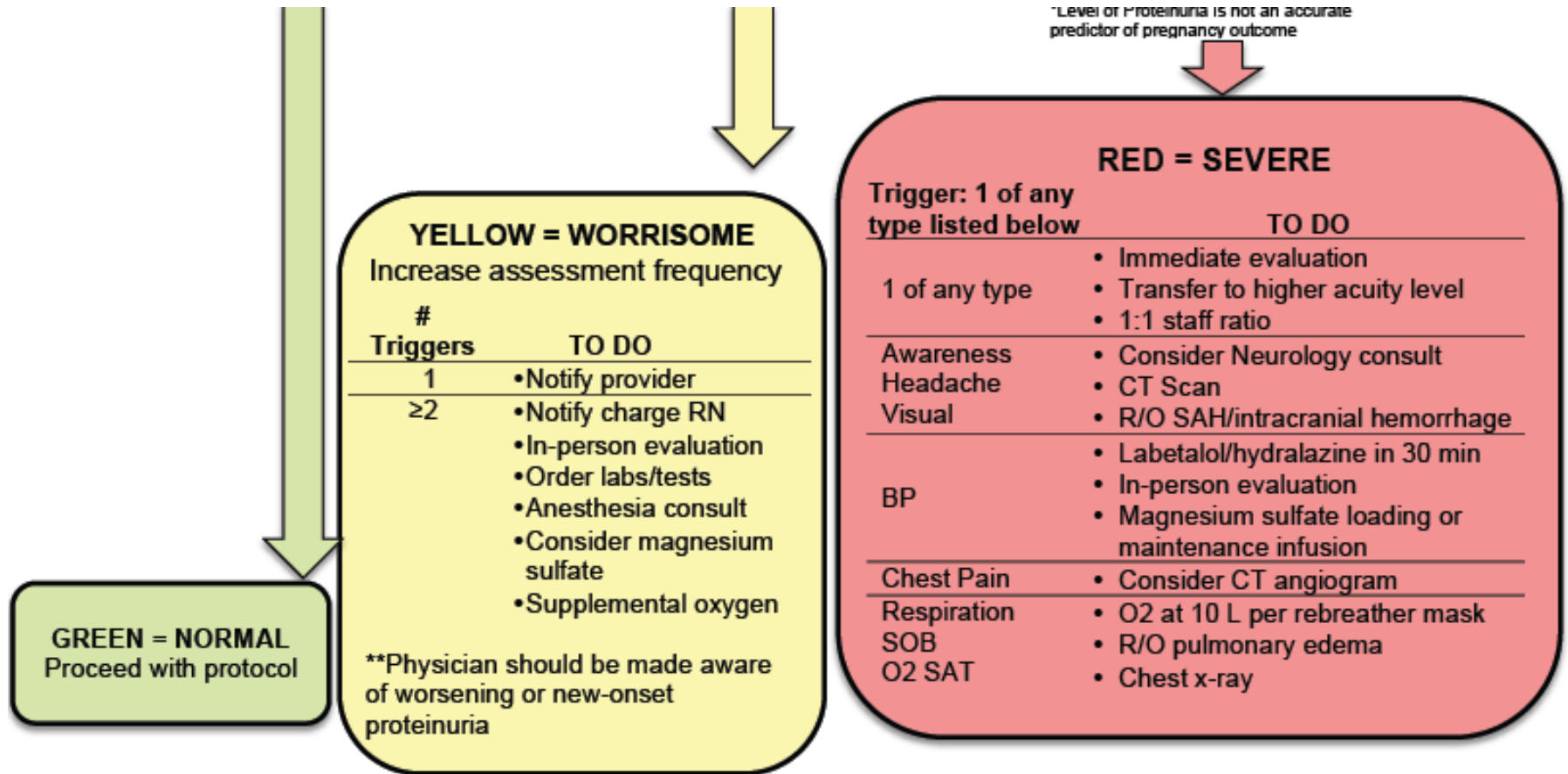
Opportunities for identifying Signs/Symptoms:

- Develop a process for both the recognition and appropriate response in the event of a patient’s deteriorating condition
- Written criteria describing early warning signs and intervention strategies – ideally build these into the EMR (ie. Preeclampsia Early Recognition Tool (PERT))
- Protocols and drills for recognizing, response and treatment
 - Severe Hypertension
 - Eclampsia, seizure prophylaxis, and magnesium sulfate overdose
 - Postpartum presentation of severe hypertension/preeclampsia

Preeclampsia Early Recognition Tool

ASSESS	NORMAL (GREEN)	WORRISOME (YELLOW)	SEVERE (RED)
Awareness	Alert/oriented	<ul style="list-style-type: none"> •Agitated/confused •Drowsy •Difficulty speaking 	<ul style="list-style-type: none"> •Unresponsive
Headache	None	<ul style="list-style-type: none"> •Mild headache •Nausea, vomiting 	<ul style="list-style-type: none"> •Unrelieved headache
Vision	None	<ul style="list-style-type: none"> •Blurred or impaired 	<ul style="list-style-type: none"> •Temporary blindness
Systolic BP (mm HG)	100-139	140-159	≥160
Diastolic BP (mm HG)	50-89	90-105	≥105
HR	61-110	111-129	≥130
Respiration	11-24	25-30	<10 or >30
SOB	Absent	Present	Present
O2 Sat (%)	≥95	91-94	≤90
Pain: Abdomen or Chest	None	<ul style="list-style-type: none"> •Nausea, vomiting •Chest pain •Abdominal pain 	<ul style="list-style-type: none"> •Nausea, vomiting •Chest pain •Abdominal pain
Fetal Signs	<ul style="list-style-type: none"> •Category I •Reactive NST 	<ul style="list-style-type: none"> •Category II •IUGR •Non-reactive NST 	<ul style="list-style-type: none"> •Category III
Urine Output (ml/hr)	≥50	30-49	≤30 (in 2 hrs)
Proteinuria (Level of proteinuria is not an accurate predictor of pregnancy outcome)	Trace	<ul style="list-style-type: none"> •≥ +1** •≥300mg/24 hours 	
Platelets	>100	50-100	<50
AST/ALT	<70	>70	>70
Creatinine	<0.8	0.9-1.1	>1.2
Magnesium Sulfate Toxicity	<ul style="list-style-type: none"> •DTR +1 •Respiration 16-20 	<ul style="list-style-type: none"> •Depression of patellar reflexes 	<ul style="list-style-type: none"> •Respiration <12

Clinical Signs to Watch for:



Establishing the Diagnosis of Preeclampsia

Proteinuria

≥300 mg during a 24 hour urine collection (or this amount extrapolated from a timed collection)

OR

Protein/creatinine ratio ≥0.3 mg/dL

Urine dipstick of 1+ has many false positive and false negatives

- This qualitative method should only be used when quantitative methods are not available



Establishing the Diagnosis of Preeclampsia

Diagnostic Criteria have Changed

- Edema is no longer a diagnostic criteria
- Massive proteinuria (> 5 grams) is no longer a severe criteria
- Proteinuria is not absolutely required for the diagnosis of preeclampsia

No single test reliably predicts preeclampsia



Establishing the Diagnosis of Preeclampsia

Laboratory Evaluation

Initial lab studies should include:

- CBC with platelet count
- AST, ALT, LDH
- Creatinine, Bilirubin, Uric acid

For women with **acute abdominal pain**, add:

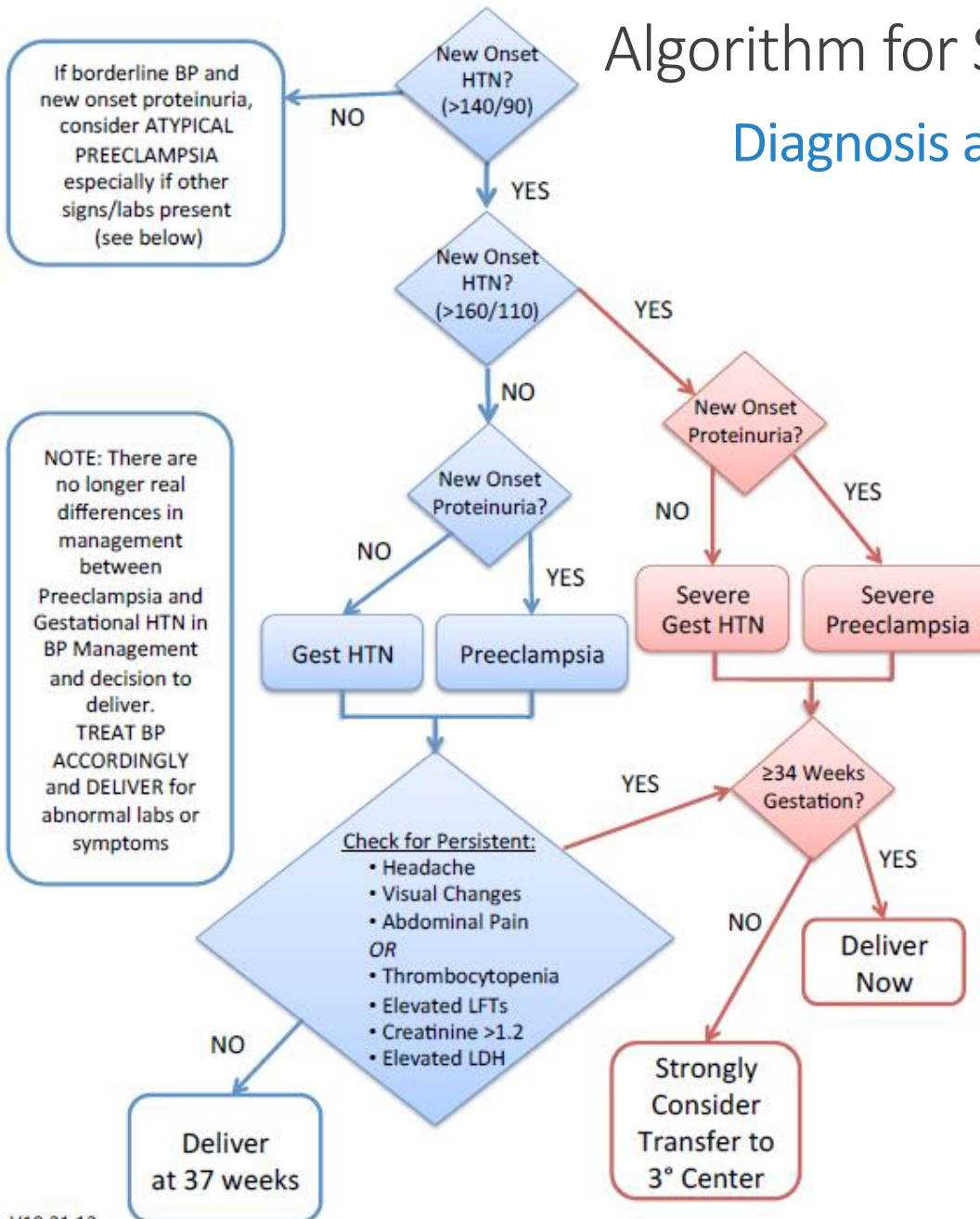
- Serum amylase and lipase

For women with suspected **Acute Fatty Liver**

- Glucose and ammonia



Algorithm for Suspected Preeclampsia Diagnosis and Management



Improving health care response to preeclampsia: A California quality improvement toolkit. California Maternal Quality Collaborative Toolkit to Transform Maternity Care. November 2013.

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4. Druzin ML, Shields LE, Peterson NL, Cape V. Improving health care response to preeclampsia: A California quality improvement toolkit. (California Maternal Quality Collaborative Toolkit to Transform Maternity Care. Developed under contract #11-10006 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by CMQCC; November 2013; Revised May 2014.
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Team Talks

- Dr. Soti Markuly – Northwest Community Healthcare

Northwest Community Healthcare

- *489 bed hospital with main campus in Arlington Heights, Illinois. Non-profit independent facility with additional outpatient sites and immediate care centers.*
- *Level III Perinatal services*
- *2800 births annually*
- *249 NICU admissions in 2015*
- *44 bed OB postpartum/antepartum/gyne*
- *24/7 OB Hospitalist and OB anesthesiologist coverage.*
- *ED: Comprehensive Level II Trauma with 75, 000 visits annually*

Hypertension Team Wave 1

Team members:

Team consists of OB Hospitalist, ED physician, Nursing Managers, Clinical Educators (OB & ED), & Staff Nurses.

Team Chair: Dr. S. Markuly member of advisory workgroup

Team meets every other month.

Birth Certificate Registrar and Pharmacy consulted on as needed basis.

Jan/Feb: Team formation and Initial Data Collection

- Reviewed data form & began retrospective audits
- Initial challenges in identifying cases
- Utilized: hospitalist, L & D logs, Postpartum charge board and pharmacy report.

March:

- Project & Information presented at OB department meeting
- BP accuracy education

May:

- Team members attended Face to Face meeting in Springfield.
- Team lead continued communication with OB providers to increase awareness (letter)

Sample of letter provided to OB department members.

Dear Colleague:

Northwest Community Hospital is a participating hospital in the Illinois Perinatal Quality Collaborative Maternal Hypertension Initiative aiming to reduce maternal morbidity associated with severe hypertension by 20%. Severe hypertension is defined as a systolic BP greater than or equal to 160 and/or diastolic BP greater than or equal to 110, sustained for 15 minutes. This includes both pregnant and postpartum patients evaluated in L&D, Postpartum, and the Emergency Department.

When these patients present, it is imperative they be identified, assessed and treated in a timely manner. The American College of Obstetricians and Gynecologists Committee Opinion number 623, Feb 2015 addresses the emergent treatment of acute-onset of severe hypertension during the pregnancy and postpartum.

June:/July/August:

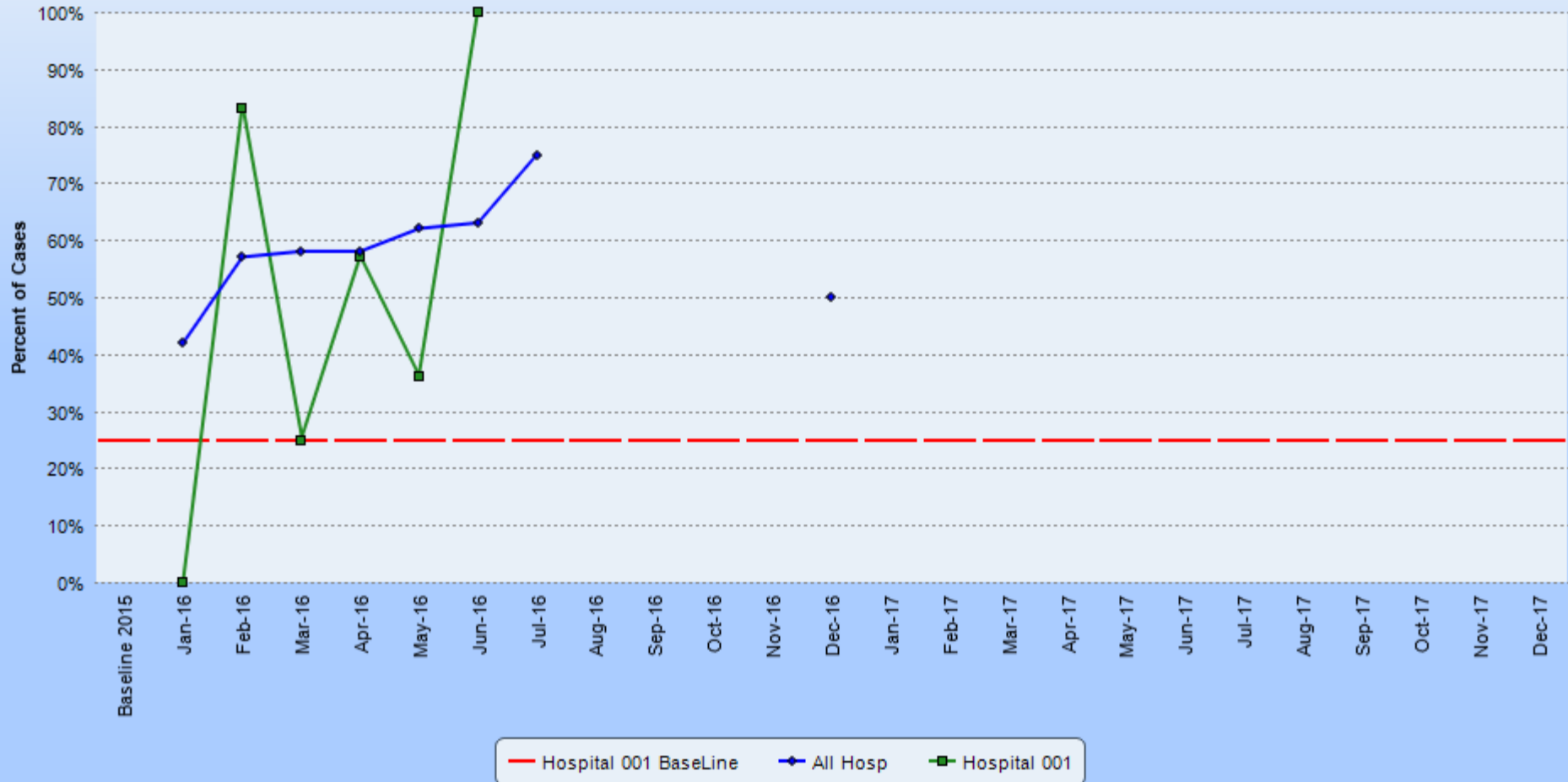
- **Standardizing Patient Education Handouts**
- **Nursing Staff Education & Updates at Unit based Meetings**
- **Incorporating Severe hypertension in current OB debrief tool**
- **Presentation by OB hospitalist at ED provider meeting.**

Next Steps: Opportunities

- Incorporate Hypertension events in OB Rapid Response simulations.
- Develop standardized order set.

Baseline Data for New Onset Treated within 60 minutes

ILPQC: Maternal Hypertension Initiative
Percent of Cases with New Onset Severe Hypertension Treated within 60 Minutes
Hospital [] & Select Comparisons, 2016 - 2017



Team Talks – HTN Initiative



- Teams assigned an OB Teams Call – look for email from Kate
 - August
 - St. Anthony Hospital
 - HSHS St. Elizabeth
 - September
 - Advocate Sherman
 - Norwegian American
 - October
 - St. John's
 - Silver Cross
- Generate discussion and learning through sharing
 - Good foundation for storyboard/poster presentations!
- Present 5-10 mins. on current QI work, including:
 - Implementation of the data form
 - Process for identifying opportunities for improvement
 - Organization of your team meetings
 - PDSAs testing strategies to
 - Reduce time to treatment
 - Incorporate debriefs
 - Implement changes to patient education processes

ILPQC 4th Annual Conference

11/3/16 Tentative Agenda



8:00-8:45	Welcome – Ann Ask Dir. Shah to give welcome
8:45-10:15	Panel – Bill Sappenfield (FPQC), Mike Marcotte (OPQC), Munish Gupta (MA) <ul style="list-style-type: none">• 25 minutes each, 15 minutes for questions• Focus on 2 initiatives each (brief overview of all initiatives, deep dive into 2 initiatives)<ul style="list-style-type: none">○ Bill – HTN, Golden Hour, Hemorrhage○ Mike – 17OHP, NAS, ANS○ Munish – NAS (maternal and NICU side), QI with Hemorrhage/HTN
10:15-10:30	Break
10:30-11:10	Surviving a Perinatal Crisis: The Patient Perspective – Eleni Tsigas
11:10-12:00	Keynote on Maternal Morbidity – Mary D’Alton
12:00-1:30	Lunch & Poster Session
1:30-2:15	How to Use Quality Improvement Measurement in Hospital QI Efforts – Munish Gupta
2:15-3:00	Reduction of Primary Cesarean – Julie Vasher
3:00 – 3:15	Break
3:15 – 5:00	Breakouts <ul style="list-style-type: none">• Hot Topics in Obstetrics• Hot Topics in Neonatal• Patient & Family Engagement
5:00 – 5:15	Wrap-up & Evaluation

ILPQC 4th Annual Conference:

OB Breakout Tentative Schedule



- HTN Successes & Challenges, Goals & Strategies for 2017 (1 hour)
 - Review where we are with HTN initiative
 - Show data for HTN on variables we need to work on
 - Results from hospital team survey sent out before meeting
 - Goals for 2017
 - How to utilize QI to move forward, example PDSA cycles
 - Q&A
- What's next? Talks on future topics of interest (30 minutes)
 - 5 minutes each for 17OHP, NAS, Primary C-Section, Hemorrhage, 10 for LARC at delivery
 - 17OHP (Mike), LARC (Kai Tao?, Amy Picklesimer?), Maternal NAS (Mike), Primary C-Section (Julie), Hemorrhage 2.0 (Mary, Julie)
- Questions and Voting (15 minutes)

ILPQC 4th Annual Conference: Poster Session



- Attendees to submit perinatal quality improvement abstracts in one of three categories:
 - Obstetrics
 - Neonatal
 - Patient & Family Engagement
- Abstracts in each category will be blindly reviewed for excellence on predetermined criteria by a panel of reviewers
- All abstracts on IL perinatal QI project activities will be accepted
- Top abstracts will be recognized in the program and on the day of the event

Patient/Family Advisors



- Patient and family advisors help advance QI efforts by providing the vitally important patient perspective
- Patient and family advisors are best recruited from physician and staff recommendations
- Please identify potential patient advisors for your team!
- Invite patient/family team member to attend ILPQC Annual Conference on November 3rd
- One Pager is posted to front page of ILPQC website!

Next Steps

- Submit AIM Baseline Survey
- Submit “ILPQC AIM Quarterly Measures” in REDCap
- Submit baseline data - July 31st
- Submit July maternal hypertension data - August 15th
- Complete DUA
- Next call is Monday, August 22nd, 12:30 – 1:30 pm
- Email info@ilpqc.org with any questions!

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



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