



Obstetrics Breakout Session: Severe Maternal Hypertension Safety Bundle

2019 Texas Collaborative for Healthy Mothers and Babies Summit

January 29-30, 2019

Why we do this work



Severe Maternal Hypertension Preeclampsia:

4-10% US pregnancies

1/3 of severe obstetric complications

9% of maternal deaths in the United States

IUGR, oligohydramnios, placental abruption, NICU admission, stillbirth, neonatal death 6% of preterm births, and 19% of medically-indicated induced preterm births

Why we do this work

The New Hork Times https://nyti.ms/2cShjiS



HEALTH



By SABRINA TAVERNISE SEPT. 21, 2016

The Washington Post

Wonkblog

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By Christopher Ing



lost mother





December 7, 2017 - 7:51 PM ET

RENEE MONTAGNE







- Primary cause of maternal death is hemorrhagic stroke caused by untreated severe hypertension
- National guidelines recommend timely treatment of severe hypertension < 60 min to reduce maternal stroke and severe maternal morbidity, endorsed by ACOG
- Alliance for Innovation on Maternal Health (AIM)
 Severe Hypertension in Pregnancy Maternal Safety
 Bundle

ILPQC Maternal Hypertension Initiative

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

Approach: 4 key goals

- 1. Reduce time to treatment
- 2. Improve postpartum patient education
- 3. Improve postpartum patient follow up
- 4. Improve provider & RN debrief
- 110 hospital teams May 2016 kick off to December 2017
- 106 Hospitals submitted data for over 17,000 women who experienced severe maternal HTN across the initiative
- Sustainability started January 2018
- 86 teams have submitted sustainability data





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 preexisting hypertension by 20%

Key Drivers

<u>Interventions</u>

GET READY

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

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

RECOGNIZE

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

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

RESPOND

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

- ☐ Execute protocols for <u>appropriate medical management</u> in 30 to 60 minutes
- ☐ Implement a system to provide patient-centered <u>discharge education materials</u> on severe maternal hypertension
- ☐ Implement protocols to ensure patient <u>follow-up within 10 days</u> for all women with severe hypertension and 72 hours for all women on medications

CHANGE SYSTEMS

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

- ☐ Establish a system to perform <u>regular debriefs</u> after all new onset severe maternal hypertension cases
- ☐ Establish a process in your hospital to perform <u>multidisciplinary systems-level reviews</u> 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)



Project Aims

By December 2017, for all women with confirmed severe maternal HTN across participating hospitals:	Goal
Increase the proportion of women treated for severe HTN in < 60 minutes	≥ 80%
Increase the proportion of women receiving preeclampsia education at discharge	≥ 80%
Increase the proportion of women with follow-up appointments scheduled within 10 day of discharge	≥ 80%
Increase the proportion of cases with provider / nurse debriefs	≥ 50%
Reduce the rate of severe maternal morbidity (SMM)	↓20%

How do we improve care?



- Early recognition of hypertension and correct diagnosis during and after pregnancy
- Reduce time to treatment of severe range blood pressure, 160/110(105)
- Provide patient education and appropriately timed follow up
- Implementation of evidence based protocols for treatment and management of severe HTN / preeclampsia / eclampsia

Key Clinical Pearl: 160/110 vs. 160/105



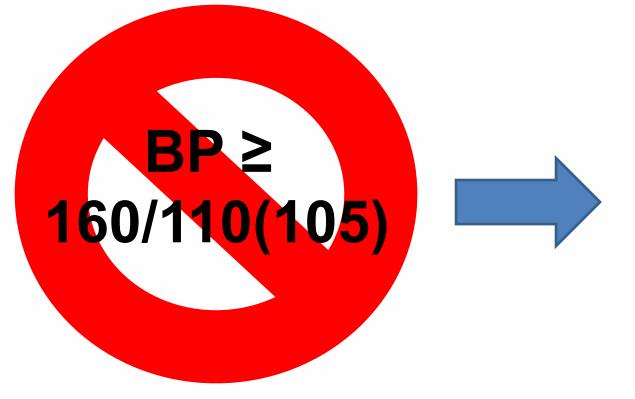
Controlling blood pressure is the optimal intervention to prevent deaths due to stroke in women with preeclampsia.

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









Need To Treat*

*BP persistent 15 minutes, activate treatment algorithm with IV therapy ASAP, < 30-60 minutes

Quality Improvement Focus ILCPC



- Provider / staff education and standardized BP measurement
- Rapid access to medications
- IV treatment of BP's ≥ 160mmHg systolic or ≥ 110(105) mmHg diastolic within 30-60 min
- Standardize treatment algorithms / order sets
- Provider / nurse debrief time to treatment
- Early postpartum follow-up
- Standardized postpartum patient education

Quality Improvement Strategy



ILPQC facilitated:

- Development of hospital-based QI teams by April 2016
- Collaborative learning through 4 in-person meetings,
 21 monthly webinars, and 15 QI topic calls with teams
- Rapid-response data system for teams to compare data across time and to other hospitals
- QI support through a toolkit, network meetings, and QI coaching calls to individual hospital teams
- Regular communications including twice-monthly enewsletters to teams and website with resources





Hospital teams facilitated:

- Representatives from each team at twice yearly in-person ILPQC meetings
- Monthly participation in ILPQC webinars
- Collection and submission of monthly QI data and quarterly structure measures to ILPQC Data System
- Monthly QI team meetings to review data and develop and implement QI strategies with Plan Do Study Act (PDSA) cycles

Severe Hypertension Treatment ILC PQC Algorithm SBP > 155 and/or DBP > 105 Illinois Perinatal Quality Collaborative **Provider Notified IV Access Blood Pressure Triggers IV Anti-Hypertension FHR monitoring** SBP \geq 160 and/or DBP \geq 110 Meds Repeat in 15 minutes. **Labs per PIH Order Set First Line Medications Notify Provider and Proceed Pulse Oximeter Seizure Prophylaxis IV Labetalol IV Hydralazine** 20 mg (over 2 min) **5 or 10mg** (over 1-2 min) Per physician's order **Magnesium Sulfate** Repeat BP in 10 min If elevated, administer IV Labetalol 40 mg Repeat BP in 20 min Bolus Dose: 4gm over 20 minutes If elevated, administer Maintenance Dose: 2gm per hour IV Hydralazine 10 mg Repeat BP in 10-15 min If elevated, administer Repeat BP in 20 min IV Labetalol 80 mg If elevated, administer IV Hydralazine 10 mg PO Nifedipine If no IV access Initial Dose: 10 mg Repeat BP in 20 min Repeat BP in 20 min May repeat dose at 20 minute If elevated, intervals for a maximum of If elevated, IV **IV** Hydralazine 5 doses. pre algorithm Labetalol 20 mg anesthesia consult pre algorithm anesthesia consult

Data Collection



- Process and outcome measures collected by ongoing monthly chart review by hospital teams
- Inclusion criteria
 - All first cases of severe maternal HTN during pregnancy through 6 weeks postpartum in participating hospitals
 - Severe Maternal HTN defined as BP ≥ 160/110 persistent for ≥ 15 minutes
- Timeline
 - Baseline: October December 2015
 - Initiative Launch May 2016
 - Monthly data collection through December 2017
 - Monthly compliance data collection ongoing

Key Measures



- Outcome: Severe Maternal Morbidity
- Process: Time to treatment, Patient discharge education, Patient follow up visit< 10 days, Debrief
- Balancing: Hypotension, Fetal heart rate
- Structure:
 - Facility-wide protocols for timely identification and treatment of severe maternal hypertension
 - Provider /nurse education on HTN protocols
 - Rapid access to IV medications
 - System plan for escalation of care
 - Facility-wide protocols for patient education





Hospital Teams collect data through chart audit and real time data logs

Hospital Teams enter monthly outcome, balancing and process and quarterly structure measures into REDCap

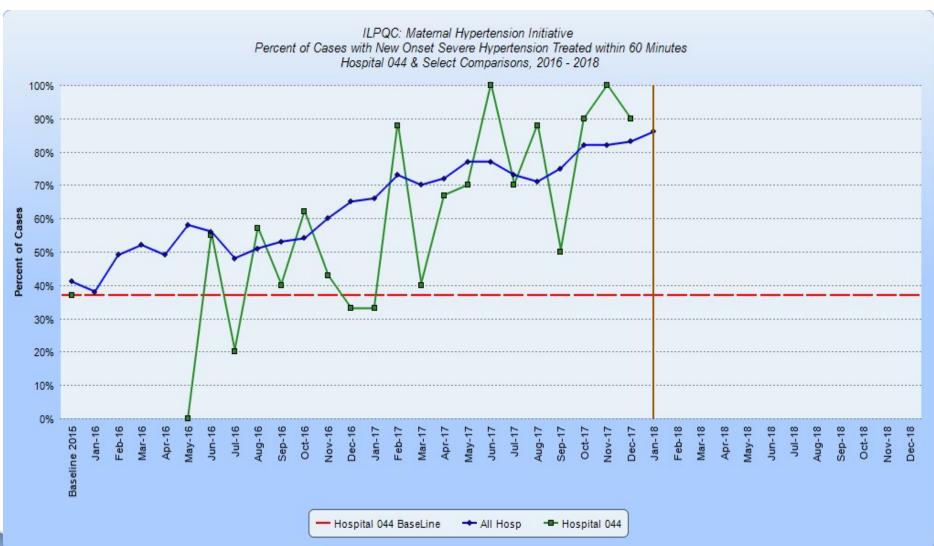
Hospital Teams immediately access rapid response web based reports to compare data across time and to other IL hospitals

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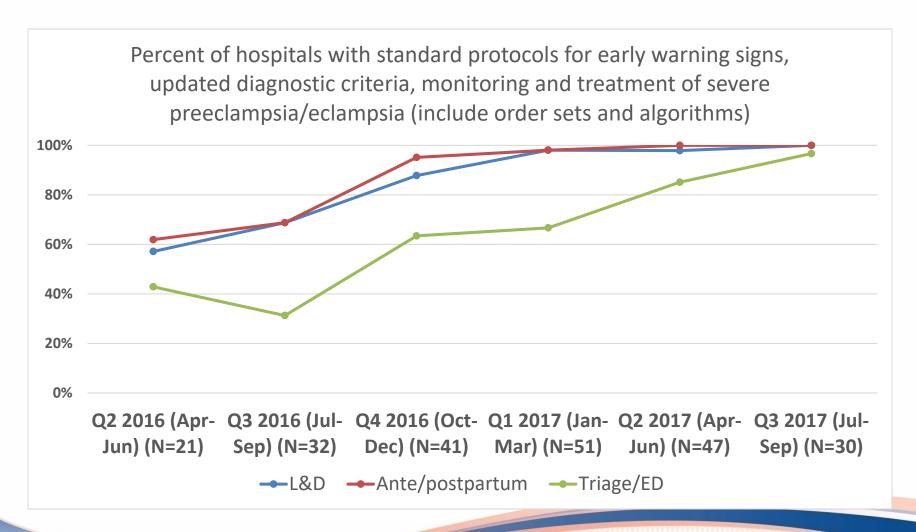


ILPQC Data System





Structure Measure: Standard Policies / Protocols Across Units



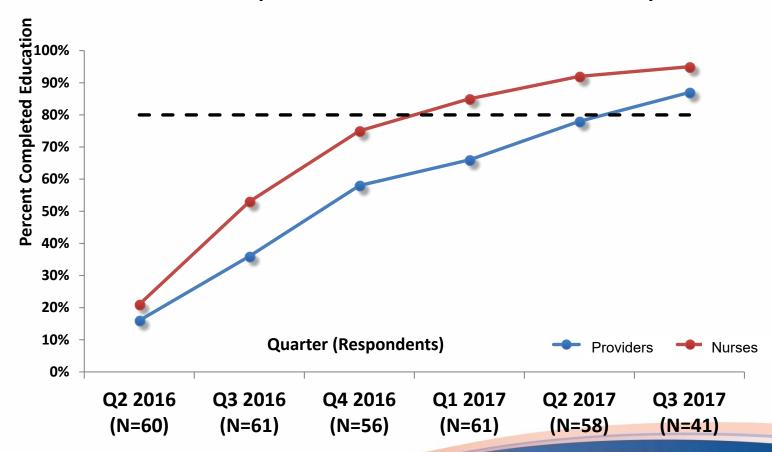
Illinois Perinatal

Quality Collaborative

Structure Measure: Provider & Nurse Education



Culumative percent of OB providers and nurses completed (within the last 2 years) implementation education on the Severe HTN/Preeclampsia bundle elments and unit-standard protocol



Maternal Hypertension Data: Time to Treatment

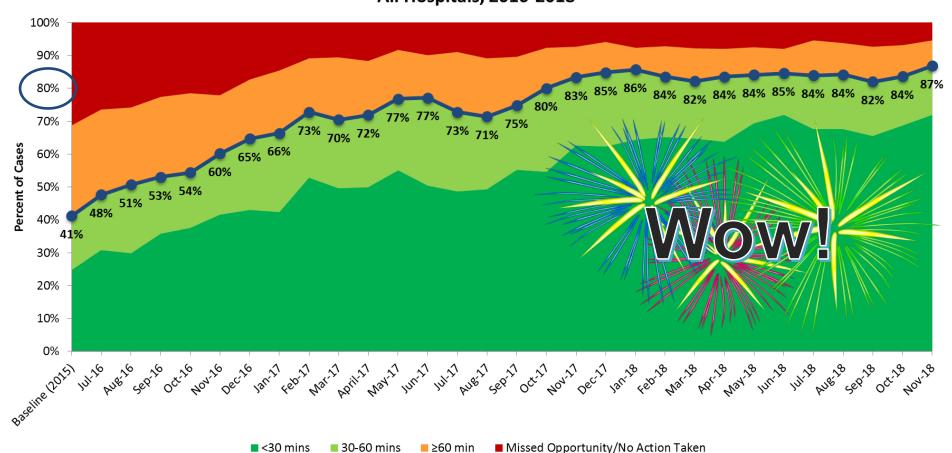


ILPQC: Maternal Hypertension Initiative

Percent of Cases with New Onset Severe Hypertension Treated in <30, 30-60, ≥60 minutes or

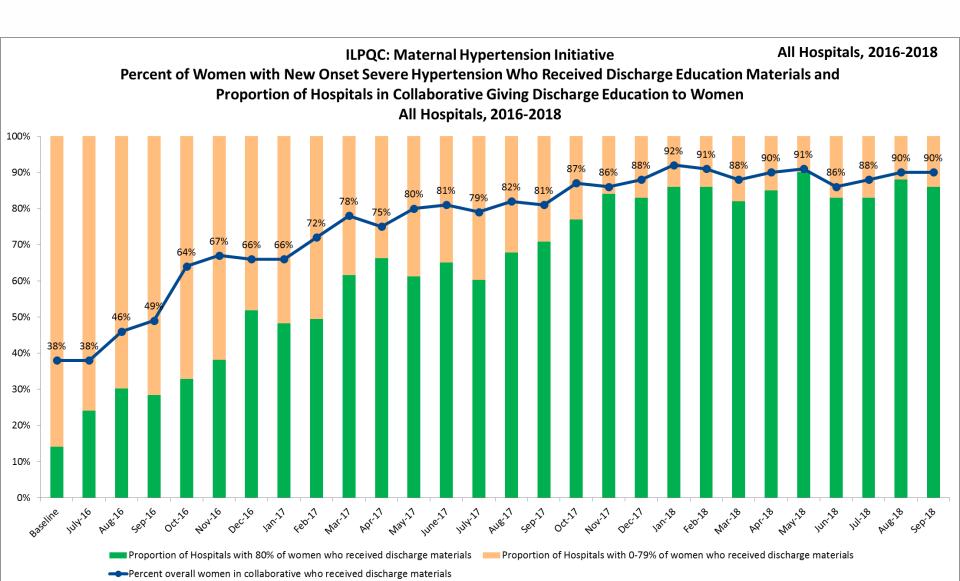
Not Treated

All Hospitals, 2016-2018



Maternal Hypertension Data: Patient Education

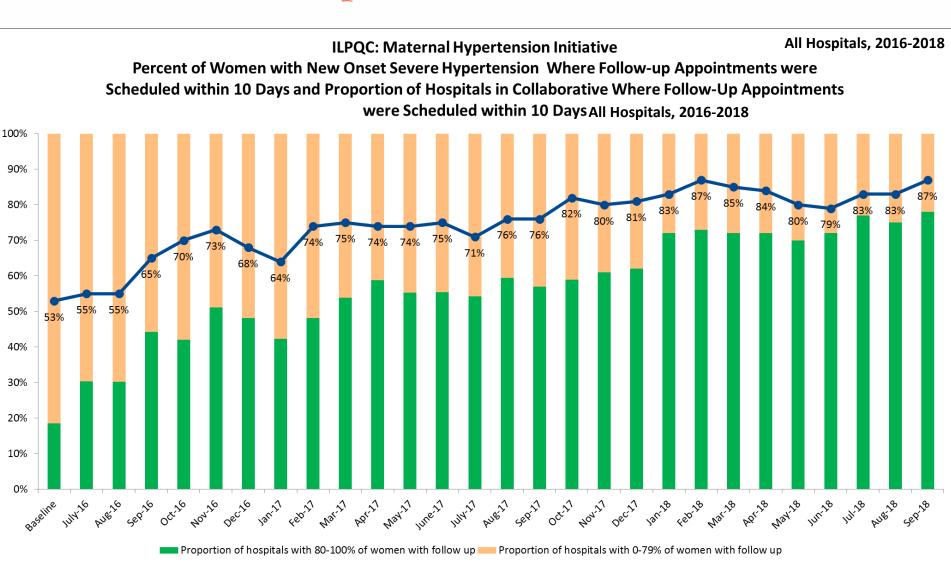




Maternal Hypertension Data: Patient Follow-up

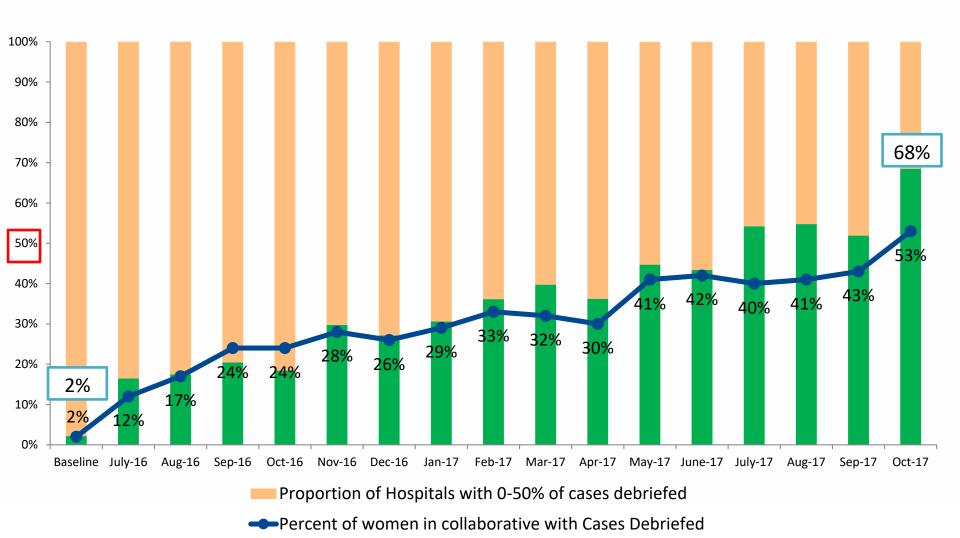
Percent overall women in collaborative with follow up





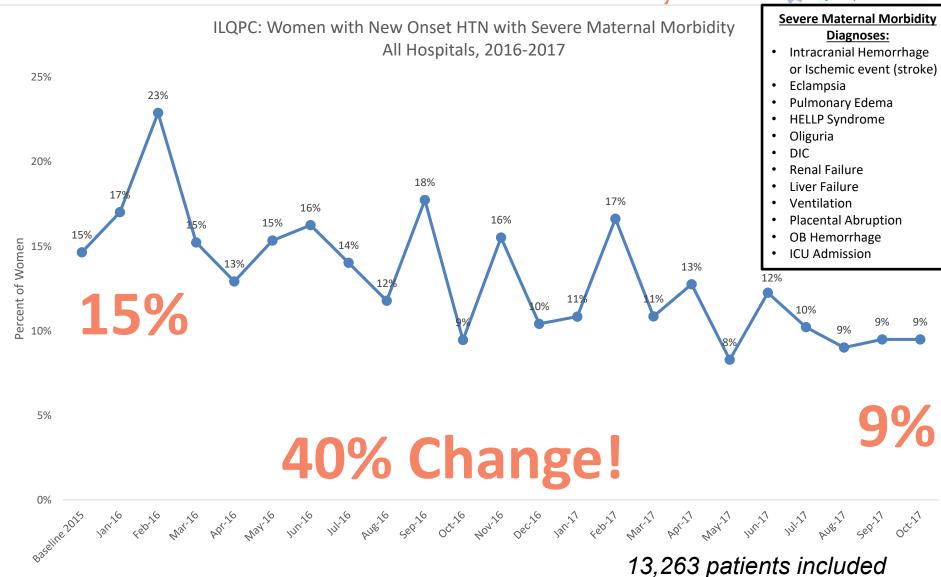
Severe Maternal Hypertension Time To Treatment Debriefed





Maternal Hypertension Outcome Data: Severe Maternal Morbidity

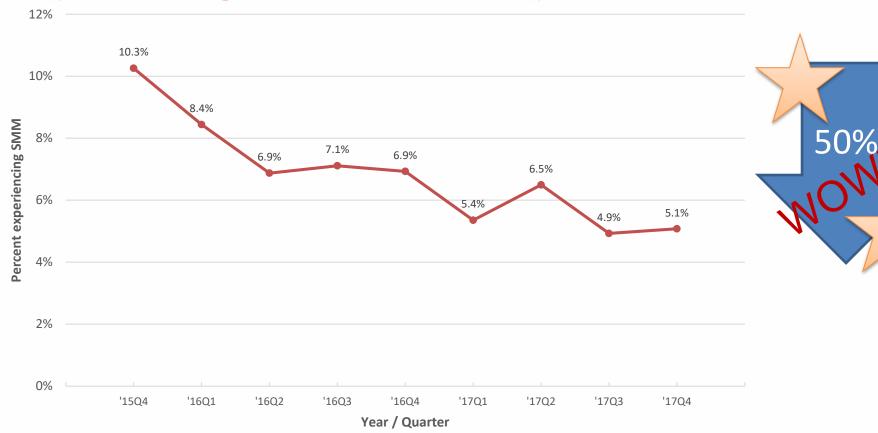




All Maternal Outcomes

Severe Maternal Morbidity Rate Deliveries with Hypertension, Hospital Discharge Data, All Illinois Hospitals





Between 2015-Q4 and 2017-Q4, the SMM rate among women experiencing hypertension at delivery was cut in half.

Building HTN Sustainability IL PQC **Post-Initiative:**



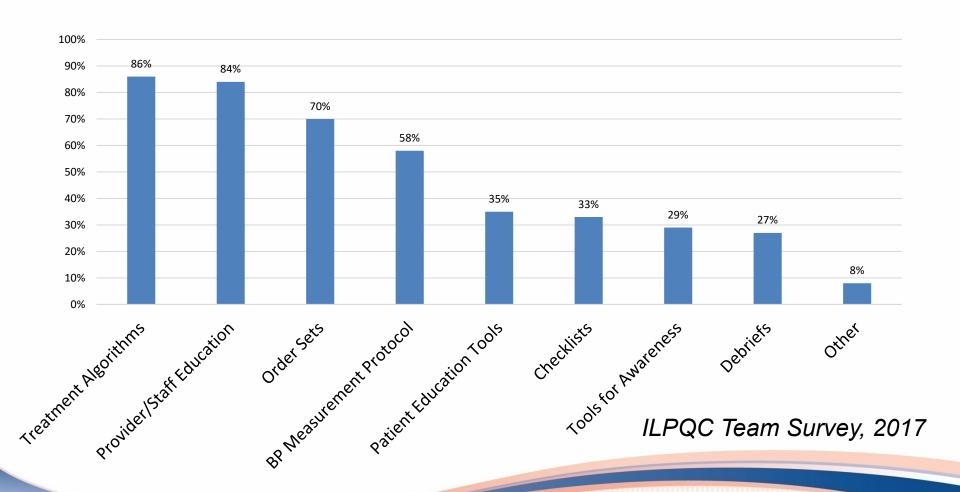
All teams submit a Severe HTN Sustainability Plan

- Compliance tracking for all cases severe HTN in ILPQC Data System, plan for monitoring & response
 - Time to treatment severe HTN under an hour
 - Magnesium provided
 - Early follow up for BP check within 7-10 days
 - Patient education at discharge
- Ongoing education for providers and nurses (drills, simulations, e-modules)
- Education plan for new hires

Reducing Time To Treatment ILE PQC Elements of Maternal Hyperters 1



Elements of Maternal Hypertensive Bundle Most Effective in Reducing Time to **Treatment**



HTN Goals in 2019



- Every hospital maintain Time to Treatment above goal – benchmark and review data
- Maintain sustainability plan
 - Continue compliance monitoring
 - New hire education
 - Continued education
- Review missed opportunities with providers/staff
- ILPQC will maintain RedCap Data Reports
- Propose 2 HTN calls in 2019
- Continue to support discussions at Perinatal Network meetings

Questions?



Email: info@ilpqc.org

Website: www.ilpqc.org



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