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CALIFORNIA MATERNAL QUALITY CARE COLLABORATIVE

Improving Care for Preeclampsia: Designing a Quality Collaborative

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Maternal Mortality and Severe Morbidity

Approximate distributions, compiled from multiple studies

Cause	Mortality (1-2 per 10,000)	ICU Admit (1-2 per 1,000)	Severe Morbid (1-2 per 100)
VTE and AFE	15%	5%	2%
Infection	10%	5%	5%
Hemorrhage	15%	30%	45%
Preeclampsia	15%	30%	30%
Cardiac Disease	25%	20%	10%

“Preventability” of Maternal Mortality

Cause of Death	North Carolina “Preventable”	California “Good or strong chance to alter the outcome”	United Kingdom “Substandard care that had a major contribution”
Hemorrhage	93%	70%	44%
Preeclampsia	60%	60%	64%
Sepsis / Infection	43%	50%	46%
DVT / VTE	17%	50%	33%
Cardiomyopathy	22%	29%	25%
Amniotic Fluid Embolism	0%	0%	15%

QI “Ops”: Preeclampsia

- Examples from California Pregnancy Associated Mortality Review (CA-PAMR):
  - Missed triggers: high BP (systolic and diastolic), pain, altered mental status, O2 saturation, fetal distress
  - Underutilization of Magnesium SO4 and anti-hypertensive medications
  - Difficulties getting physician to the bedside, and obtaining consultations
  - “Location of care” issues involving Postpartum, ED and PACU

Reduce Maternal Mortality and SMM (CA-PAMR)

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- Hemorrhage Taskforce (2009)
- Hemorrhage QI Toolkit (2010)
- Multi-hospital QI Collaborative(s) (2010-11)
  - Test the “tools” and implementation strategies
- State-wide Implementation (2013-2014)

- Preeclampsia Taskforce (2012)
- Preeclampsia QI Toolkit (2013)
- Multi-hospital QI Collaborative (2013-2014)

Collaborative Essentials…

- Pick important topic, ideally has a national emphasis
- Multi-disciplinary design of teaching points
- Measures (outcome and process)
- Data collection methods and QI
- Round up supporting organizations
- What collaborative model will you use?

Measure Types

- Outcome—reduction of morbidities (e.g. rates or “time since…”)
- Process—frequency of care process being encouraged (as tightly linked to an outcome as possible)
- Balancing—Identify unintended consequences
- Structural—attributes to change in the facility or medical structure (e.g. policy, coverage model, staffing, equipment)

Measure Caveats

- Measures are critical to driving change and creating success, but…
- Keep them limited
- Make them important
- Pay careful attention to collection burden

A California Toolkit to Transform Maternity Care

Improving Health Care Response to Preeclampsia

THIS COLLABORATIVE PROJECT WAS DEVELOPED BY:

THE PREECLAMPSIA TASK FORCE
CALIFORNIA MATERNAL QUALITY CARE COLLABORATIVE
MATERNAL, CHILD AND ADOLESCENT HEALTH DIVISION; CENTER FOR FAMILY HEALTH
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

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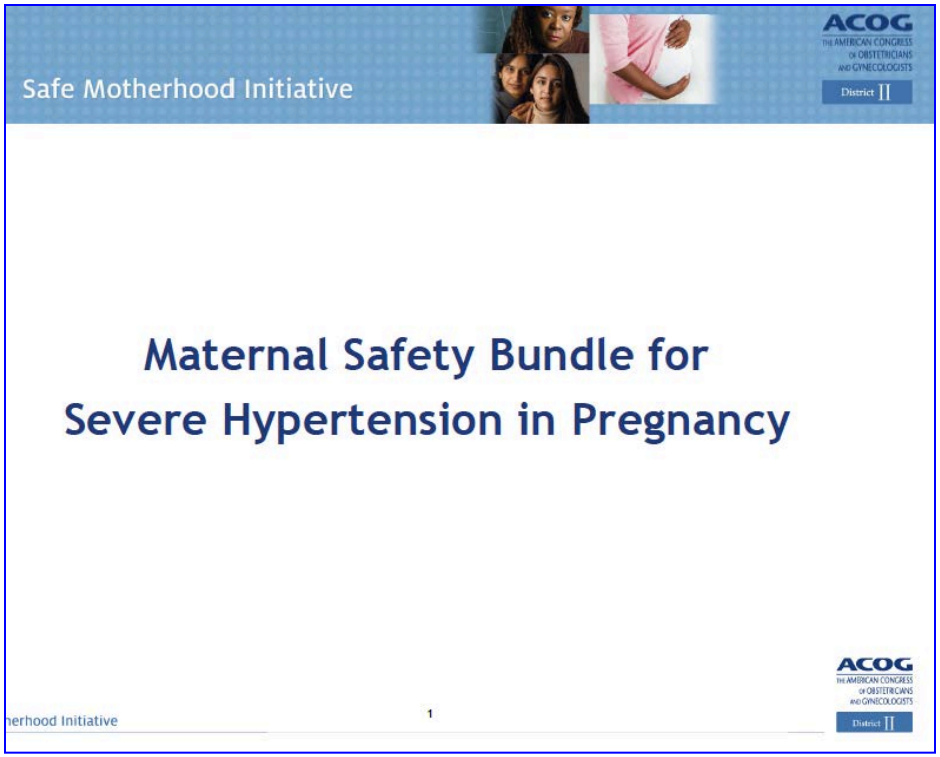
California Department of PublicHealth

MATERNAL, CHILD ADOLESCENT HEALTH PROGRAM
Center for Family Health

www.CMQCC.org



ACOG District II Website
(thru ACOG website)

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Executive Summary: Hypertension in pregnancy

American College of Obstetricians and Gynecologists,

Obstet Gynecol 2013;122:1122-31

Toolkit Contents

- Teaching materials
- Practical guides to implementation
- “Postable” algorithms, guides, protocols
- Sample policies, procedures
- Sample order sets
- Sample simulation and drills
- Sample debrief form
- Clinical “Pearls”

Teaching Slides: 4-Step Program to Improve Preeclampsia Outcomes

- Make the Right Diagnosis (new criteria)
- Treat the Damn BP!
- Deliver not too early, and not too late
- Early postpartum F/U for everyone who is NOT a “simple case” (formerly-known-as “mild”)

"Treat the Damn Blood Pressure!"

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

Over the last decade, the UK has focused QI efforts on aggressive treatment of both systolic and diastolic blood pressure and has demonstrated a reduction in deaths.

How Do Women Die Of Preeclampsia?

CA-PAMR Final Cause of Death Among Preeclampsia Cases, 2002-2004 (n=25)

Final Cause of Death	Number	%	Rate/100,000
Stroke	16	64.0%	1.0
Hemorrhagic	*14*	*(87.5%)*	
Thrombotic	*2*	*(12.5%)*	
Hepatic (liver) Failure	4	16.0%	.25
Cardiac Failure	2	8.0%	
Hemorrhage/DIC	1	4.0%	
Multi-organ failure	1	4.0%	
ARDS	1	4.0%	

Preeclampsia Mortality Rates in California and UK

Cause of Death among Preeclampsia Cases	**CA-PAMR (2002-04)** Rate/100,000 Live Births	**UK CMACE (2003-05)** Rate/100,000 Live Births
Stroke	1.0	.47
Pulmonary/Respiratory	.06	.00
Hepatic	.25	.19
OVERALL	1.6	.66

*The overall mortality rate for preeclampsia in California is **greater than 2 times** that of the UK, largely due to differences in deaths caused by stroke.*

Preventing Stroke from Preeclampsia

Blood Pressure Comparisons: Baseline and Pre-stroke

Measure	Pregnancy Baseline (mm Hg)	Pre-stroke (mm Hg)
Mean systolic BP	110.9 ± 10.7 (n=25)	175.4 ± 9.7 (n=24)
Systolic BP range	90-136	159-198
Systolic BP % ≥ 160	0	95.8 (n=27/28)
Mean diastolic BP	67.4 ± 6.5 (n=25)	98.0 ± 9.0 (n=24)
Diastolic BP range	58-80	81-113
Diastolic BP % ≥ 110	0	12.5 (n=3)
Diastolic BP 5 ≥ 105	0	20.8 (n=5)

Adapted from Martin JN, Thigpen BD, Moore RC, Rose CH, Cushman J, May. Stroke and Severe Preeclampsia and Eclampsia: A Paradigm Shift Focusing on Systolic Blood Pressure, OG 2005;105-246.

CMQCC Preeclampsia Quality Collaborative (26 Hospitals, 2013-2014)

- **Goal:** Reduce preeclampsia maternal morbidity
- **Aim 1:** Reduce the rate of severe morbidities in women with severe preeclampsia, eclampsia or preeclampsia superimposed on pre-existing hypertension by 50% by October 31, 2014
- **Aim 2:** Reduce the percentage of women (with severe preeclampsia, eclampsia or preeclampsia superimposed on pre-existing hypertension) with prolonged postpartum lengths of stay by 25% by October 31, 2014
- **Aim 3:** Achieve 100% on required one-time only Deliverables and progress (as specified) on all quantifiable Process Measures by October 31, 2014

CMQCC Preeclampsia Quality Collaborative (26 Hospitals, 2013-2014)

- Outcome measures:
  - Prolonged Postpartum LOS (≥4d vag; ≥6d CS)
  - CDC Severe Maternal Morbidity (ICD9 codes typical of an ICU admission)
- Process measures:
  - **Severe HTN treated in under 60 min**
  - Debriefs of all severe HTN cases
  - Outpatient F/U of all severe HTN women within 72hrs
- Balancing measures:
  - Relative low blood pressure in the 60min after treatment
  - Fetal Heart Rate change of category

Models for Quality Collaboratives-I

- IHI (Institute for Healthcare Improvement)
  - Leadership via expert panel
  - Best with a medium number of hospitals (20-30)
  - Formal agreement on aims and commitment
  - 2-3 in-person meetings of all hospital leaders to share ideas and pep-talks
  - Monthly group check-in phone calls to report progress
  - Monthly reporting of metrics (large number)
  - Volunteer (or pay) to join (therefore selective)
- Proven effectiveness, but expensive for all parties

Models for Quality Collaboratives-II

- HEN (Hospital Engagement Network)
  - Program-based leaders, run thru Quality Dept
  - Can engage many hospitals (20-80+)
  - One site visit (if lucky)
  - Webinars on related topics
  - Periodic individual check-in calls to report progress
  - Periodic reporting of metrics (limited number)
  - Mixed incentives to join (therefore mixed enthusiasm)
- Less expensive, popular, variable success

Models for Quality Collaboratives-III

- "Mentor" Model
  - Formal needs assessment
  - Paired (MD/RN) consultants work with a small group of hospitals (6-8)
  - One site visit with Grand Rounds and review of needs assessment
  - Monthly group check-in phone calls to report progress
  - Monthly reporting of limited metrics (2-4)
  - Multiple paths to join
- Hybrid method, Seems practical and exciting, but less documented results

Barriers and Strategies Analysis

- **Identify Barriers**

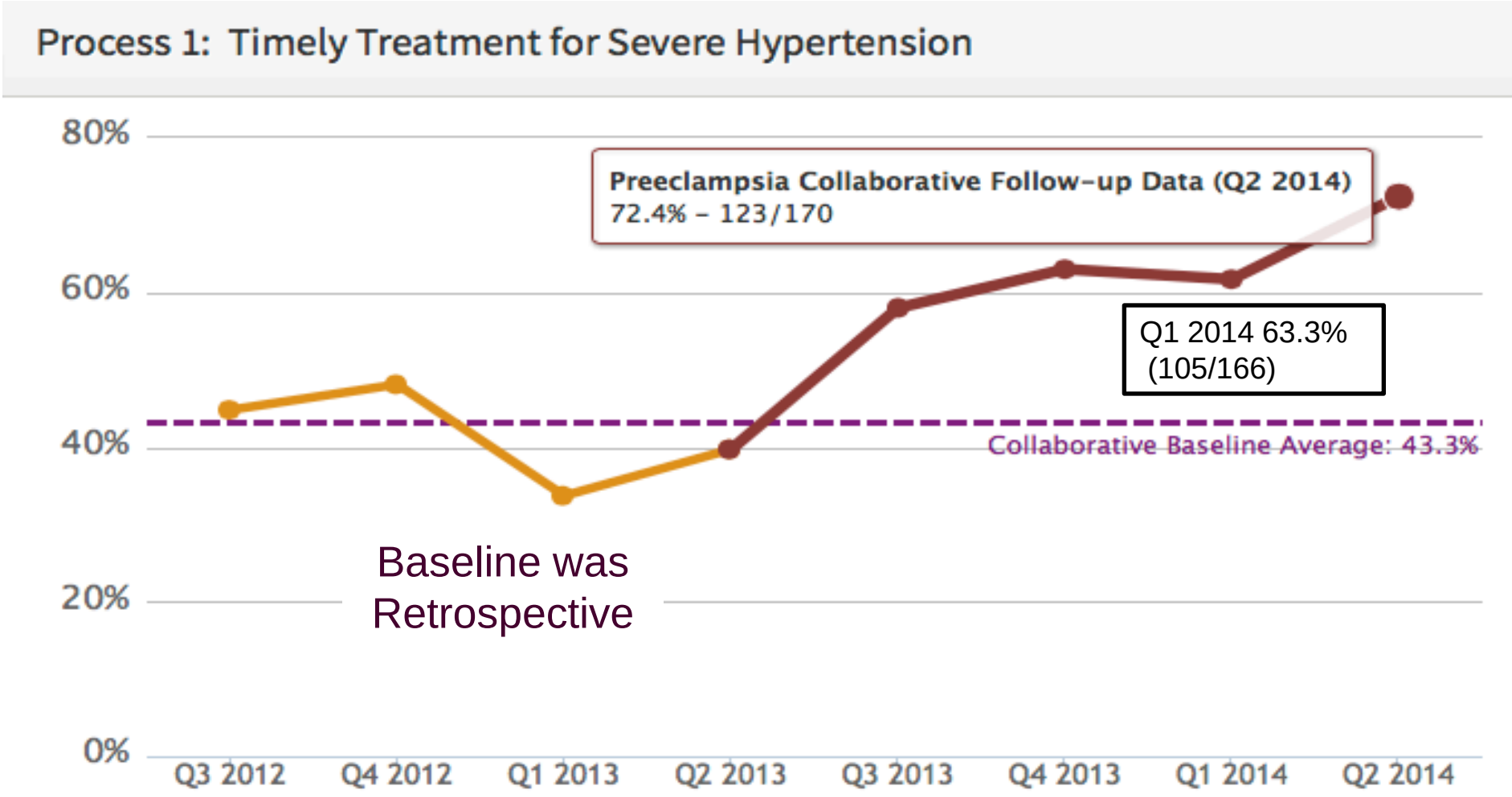
BP stabilized before meds given
No knowledge of BP parameters
Competing priorities
Unable to access meds
RN reluctant to give IV meds
Magnesium sulfate given instead
MD not available
Fear of hypotension
Unknown

PDSA Cycle

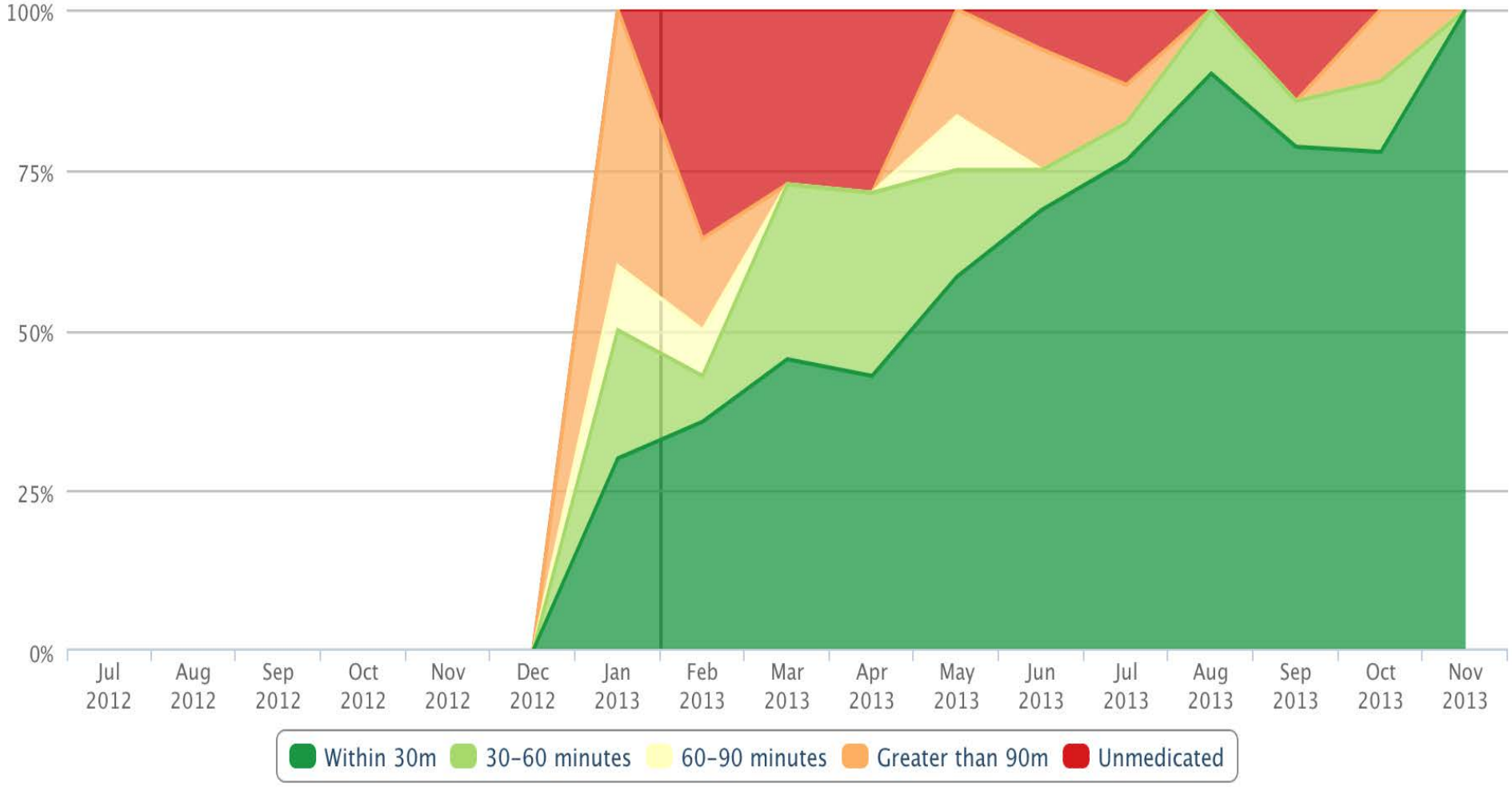
- **Local Teams brainstorm and implement solutions (QI Tactics)**
- **Data monitoring to gauge progress**

Bingham D, Main EK. Effective implementation strategies and tactics for leading change on maternity units. J Perinat Neonatal Nurs. 2010 Jan-Mar;24(1):32-42.

Timely Treatment: within 60 minutes

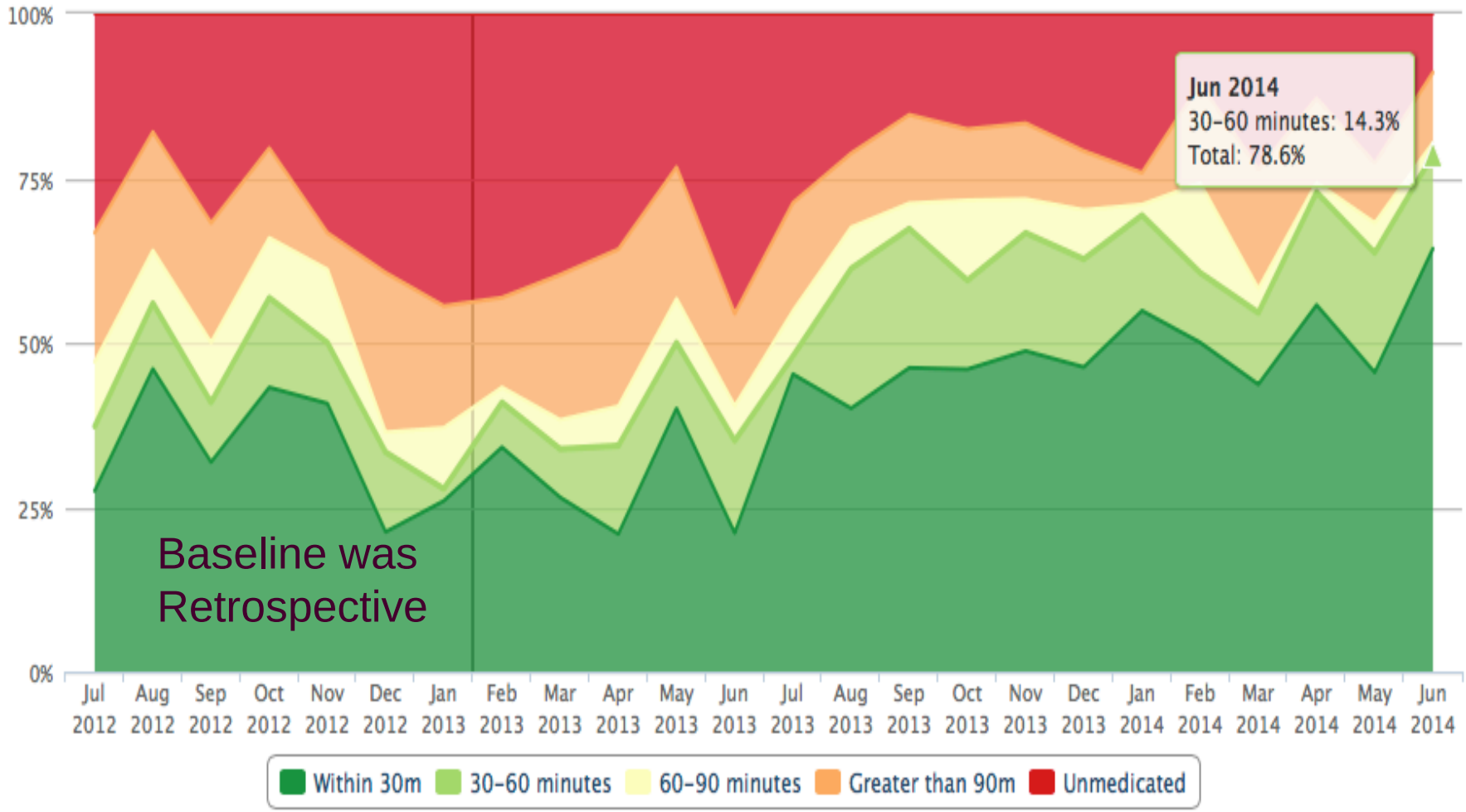


Timing for Treatment of Gravidas with sBP≥160 or dBP≥110



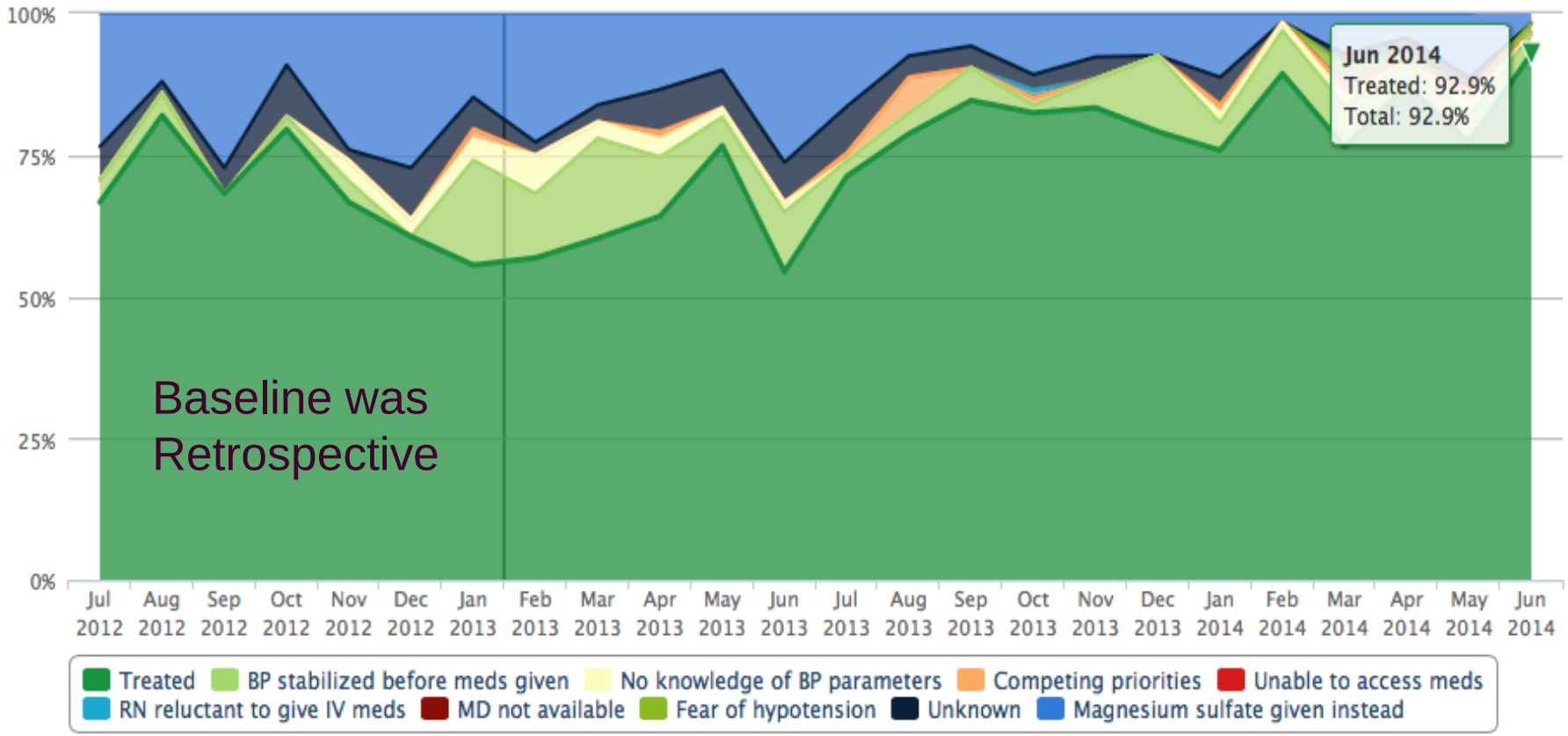
Sample hospital from CMQCC Preeclampsia Collaborative 2013

Preeclampsia: Collaborative Medication Summary



Preeclampsia: Reasons Not Treated

Numbers represent overall totals from each hospital for months marked as complete.



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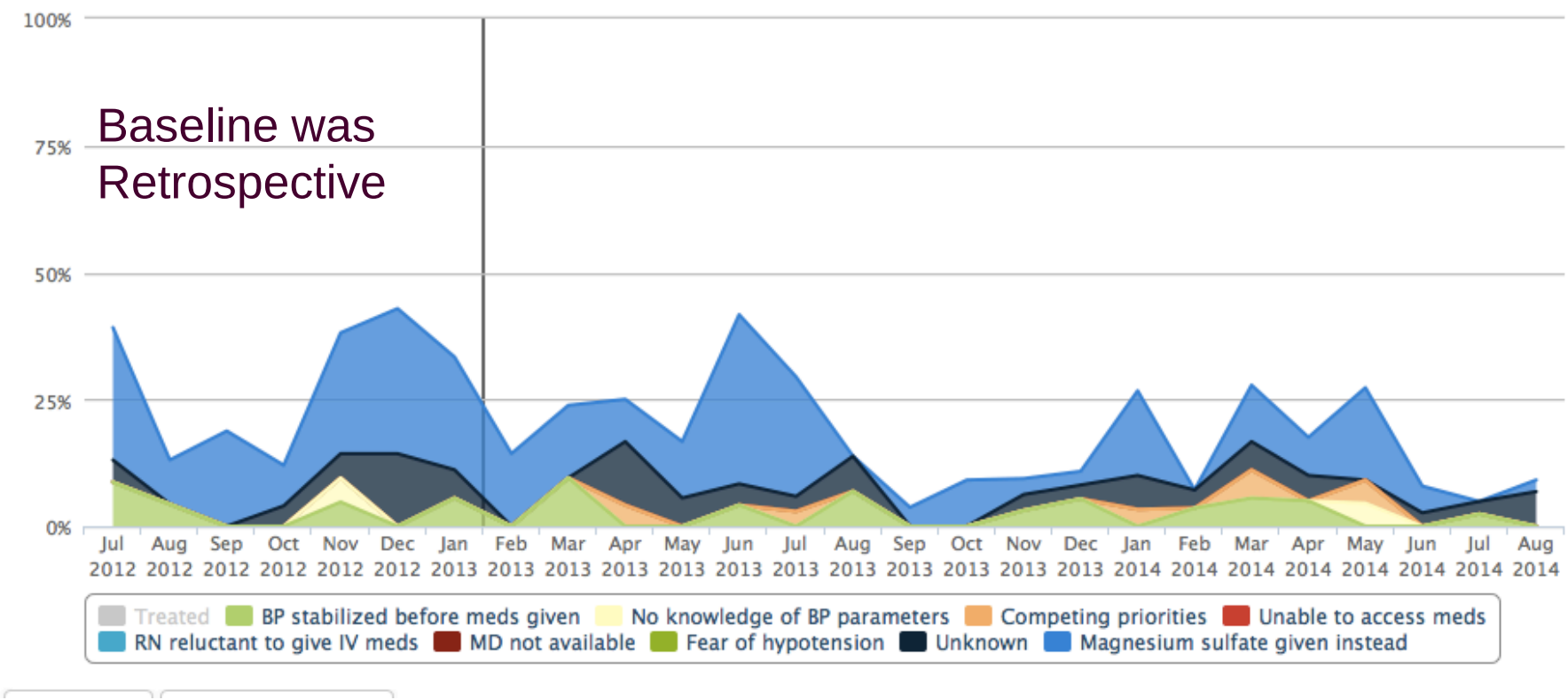
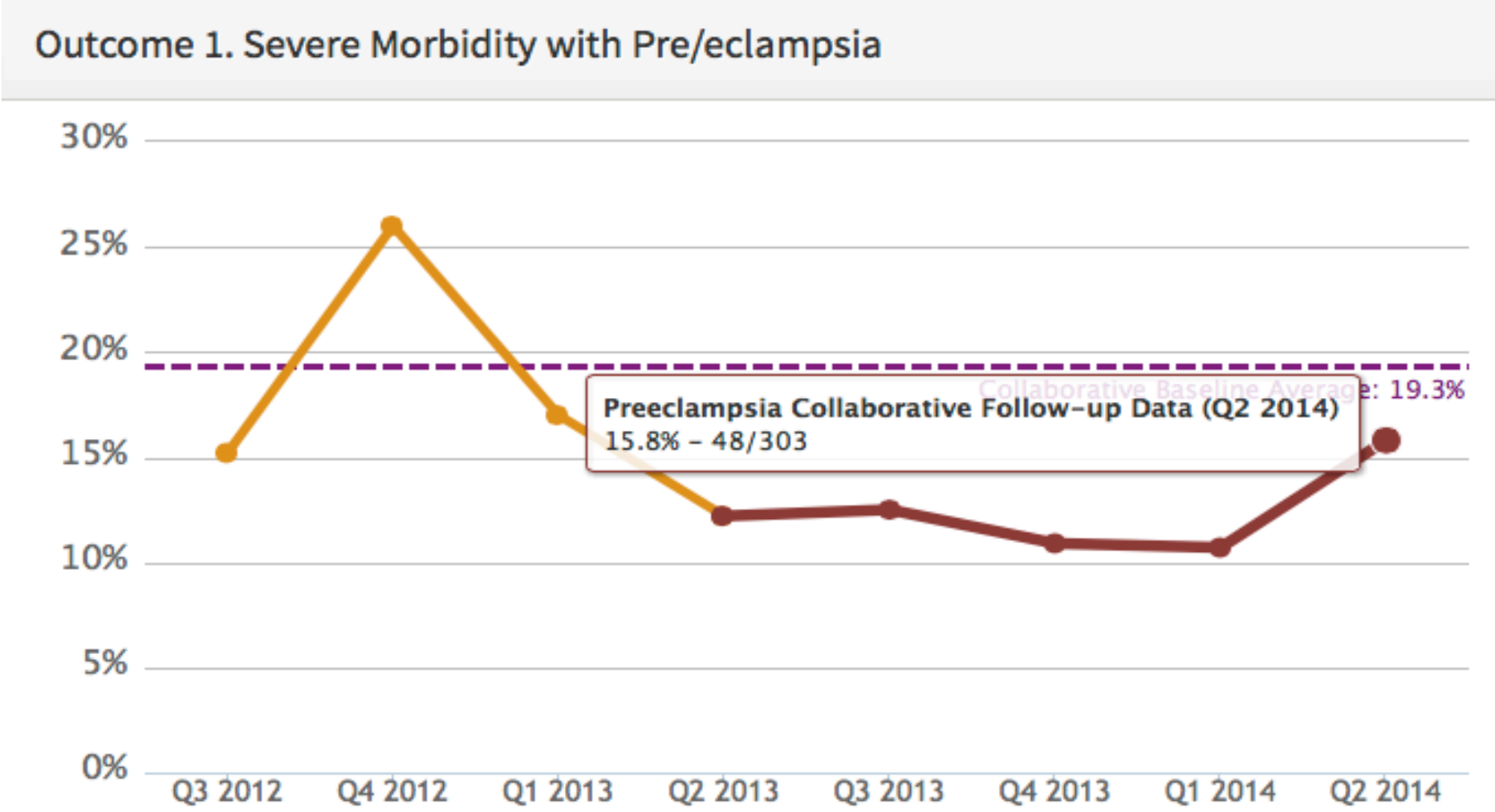


Severe Morbidity (including hemorrhage/transfusions)



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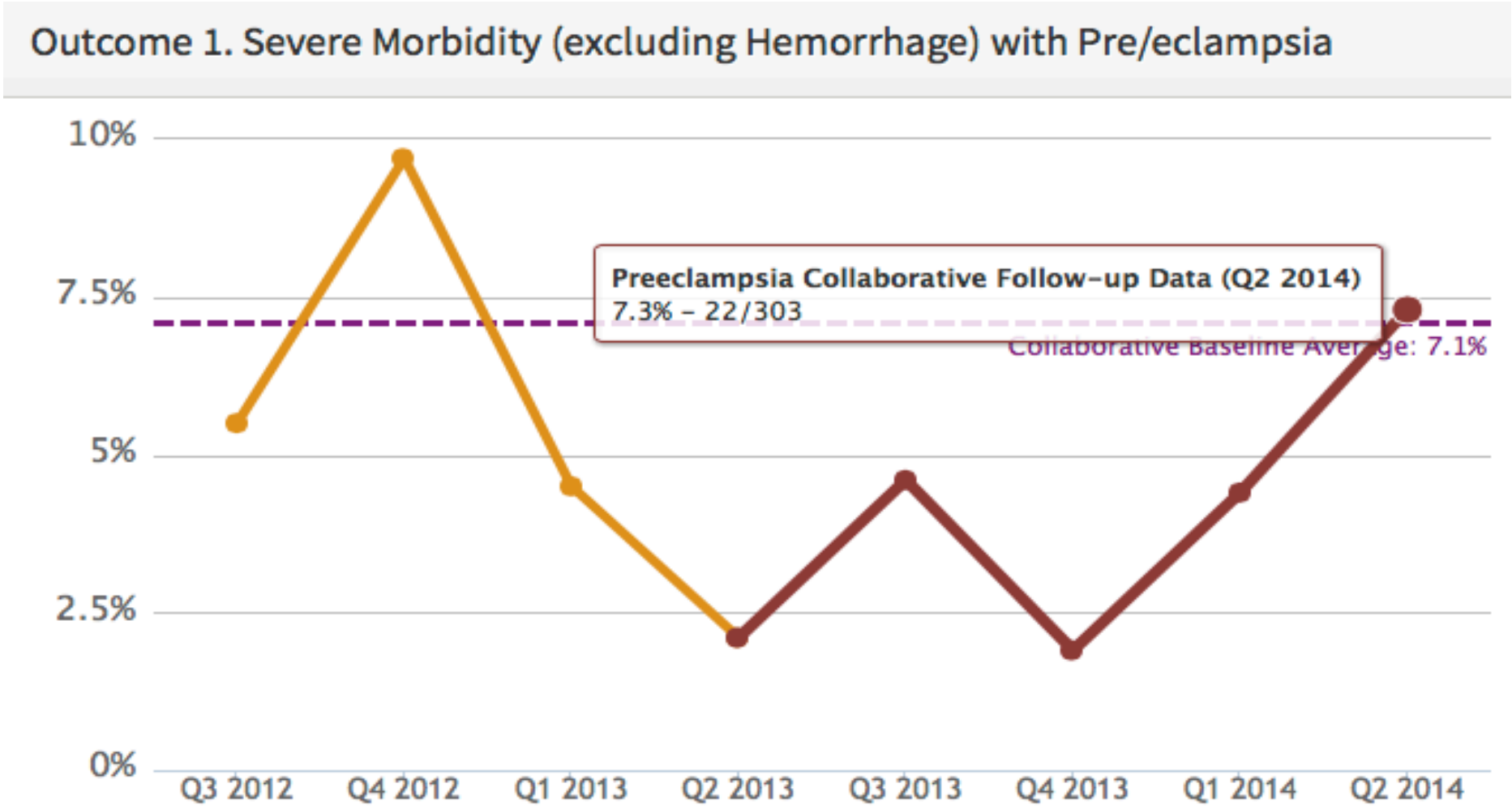
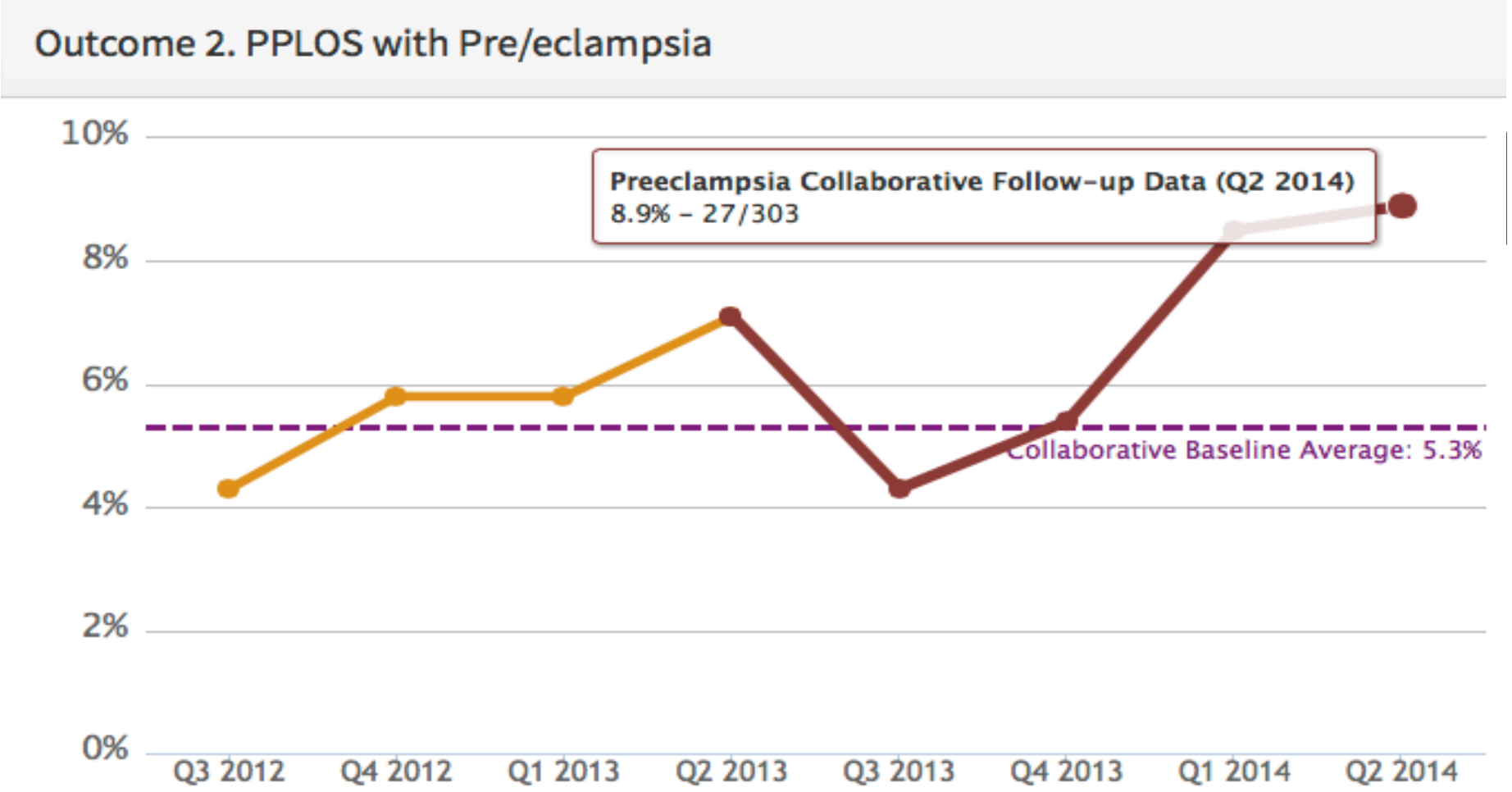
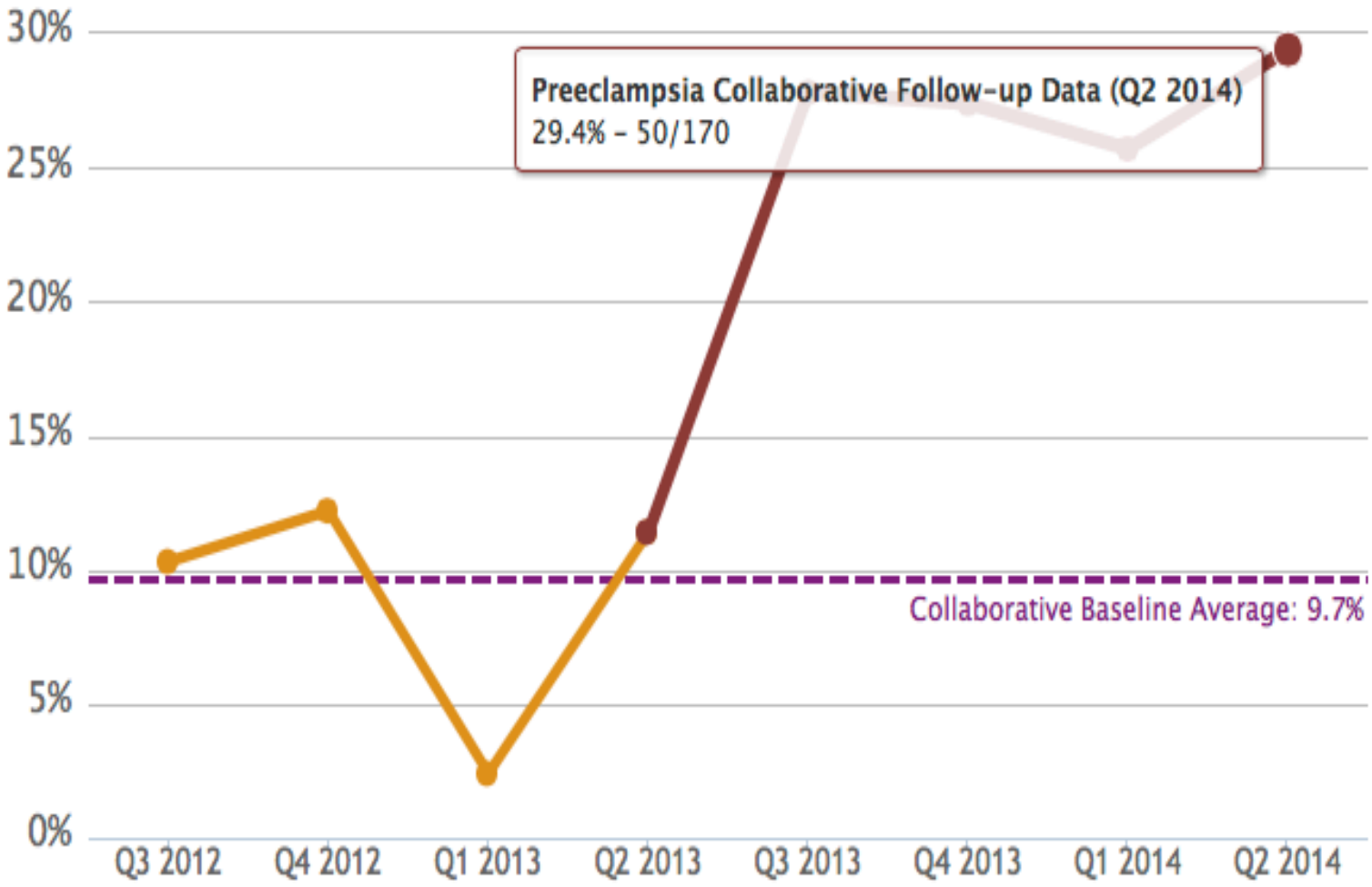


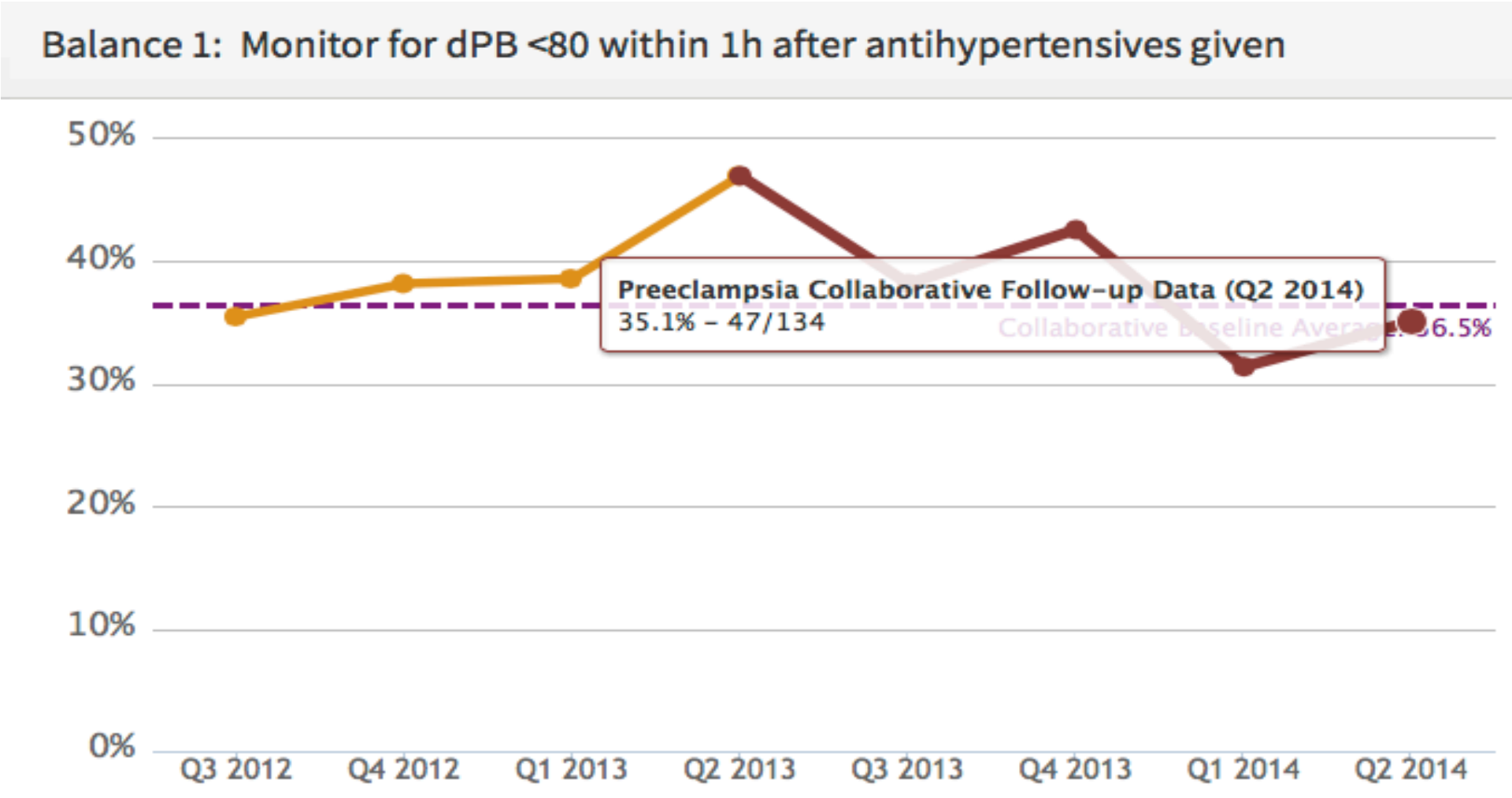
Prolonged Postpartum LOS



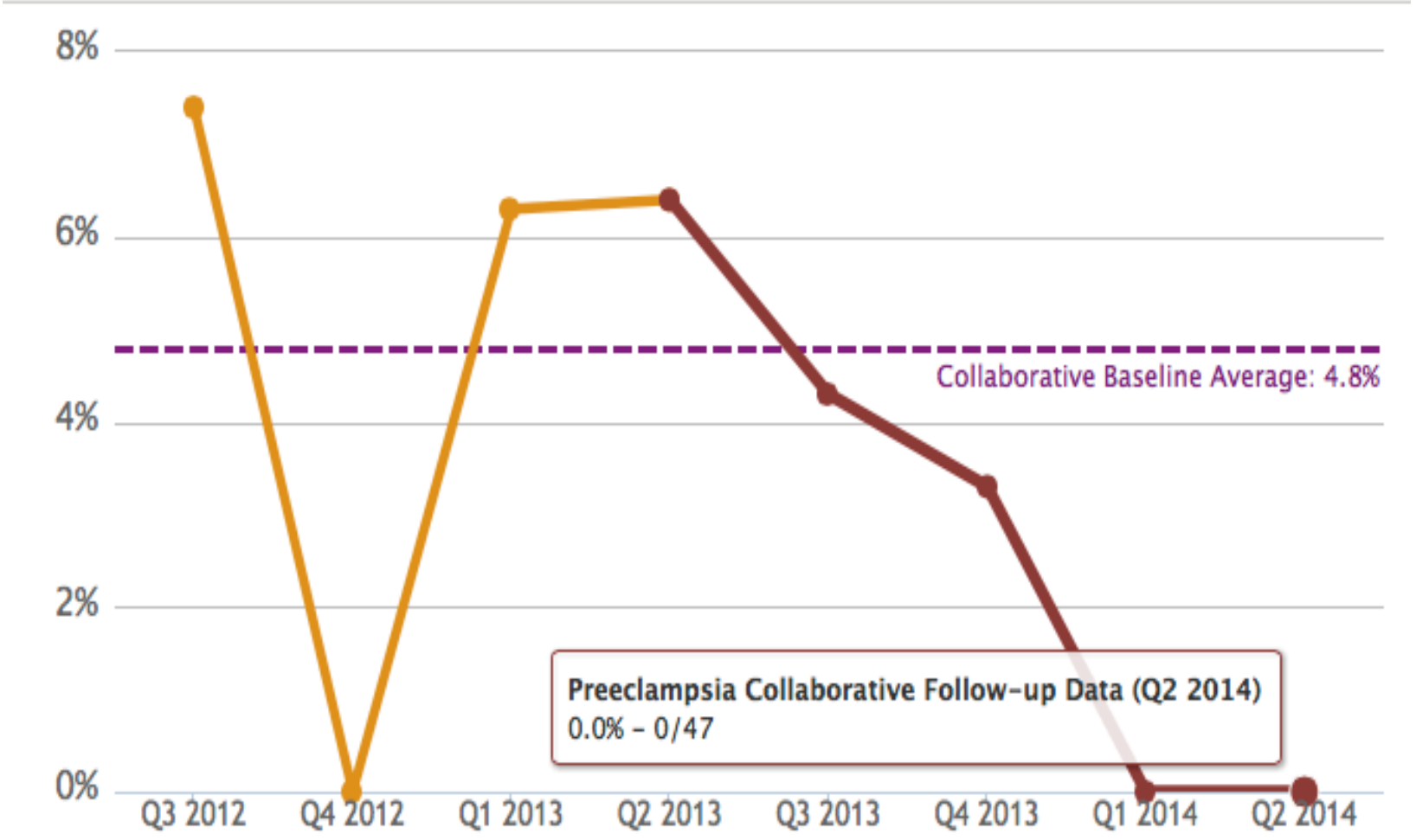
Process 2: Debrief Severe Hypertension



Monitor for diastolic BP <80 within 1 hour after treatment



Balance 2: FHR Category Change After Treatment



Patient Education Materials

This and many other patient education materials in English and Spanish can be ordered from www.preeclampsia.org/market-place

CMQCC Preeclampsia Quality Collaborative: Preliminary Lessons

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  - Postpartum LOS not the best measure
- Process measures:
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  - Debriefs of all severe HTN cases
  - Might consider Mag SO4 for all sever Preeclampsia if that is an issue in your area
- Balancing measures:
  - Very instructive, useful for future if there is resistance to treatment for fear of hypotension

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DRAFT: National Safety Bundle for Hypertension in Pregnancy

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
safe health care for every woman

Readiness: (every unit)

- Adopt standard diagnostic criteria, monitoring and treatment for severe preeclampsia/eclampsia (include order sets and algorithms).
- Unit team education, reinforced by regular unit-based drills
- Process for timely triaging of pregnant and postpartum women with hypertension including ED and outpatient areas.
- Rapid access to medications used for severe hypertension/eclampsia:
- System plan for escalation, obtaining appropriate consultation and maternal transport, as needed.

Recognition: (every patient)

- Adoption of a standard protocol for the measurement and assessment of BP and urine protein for all pregnant and postpartum women.
- Implementation of standard response to maternal early warning criteria •
- Implementation of facility-wide standards for educating women

DRAFT: National Safety Bundle for Hypertension in Pregnancy

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
safe health care for every woman

Response: (all severe hypertension/preeclampsia)

- Facility-wide standard protocols with checklists for management and treatment of:
  - -Severe hypertension
  - -Eclampsia, seizure prophylaxis, and magnesium over-dosage
  - -Postpartum emergency department and outpatient presentation of -severe hypertension/ preeclampsia
  - -Support plan for patients, families and staff for ICU admissions and serious complications of severe hypertension

Reporting/Systems Learning

- Implementations of a huddle for high risk cases and post-event team debrief
- Review all severe hypertension/eclampsia/ICU cases for systems issues
- Monitor outcomes and process metrics –

Thank You!

Visit: CMQCC.org