Barrier Analysis: Using QI Methodology to Decrease Recurrent Preterm Birth:

Lessons from an Urban Safety Net Hospital

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Boston University School of Medicine

Through collaborative use of improvement science methods, reduce preterm births & improve perinatal and preterm newborn outcomes in Ohio as quickly as possible.
Learning Objectives

• Discuss how models of implementation science can be applied to preterm birth prevention
• Model how a barrier analysis of allows adaptive change mechanisms to increase success in 17OHP
• Share specific interventions potentially adaptable to your sites
Barriers to receipt of 17OHPC/ Sources of care disparities

Patient-level factors
- Beliefs and preferences
- Race/ethnicity, culture, family
- Education and resources
- Biology

Clinical encounter
- Provider communication
- Cultural competence

Provider factors
- Knowledge and attitudes
- Competing demands
- Implicit/explicit biases

Health system factors
- Health services organization, financing, delivery
- Health care organizational culture, QI

Structural factors
- Poverty/wealth
- Unemployment
- Stability of housing
- Food security
- Racism

Adapted from Kilbourne et al, AJPH 2006
Health Belief Model

- Perceived susceptibility to the problem
- Perceived consequences of the problem
- Perceived benefits of the action
- Perceived barriers to action
- Perceived threat
- Outcome expectations
- Self efficacy
Theory of Planned Behavior

- Attitudes toward the behavior
- Subjective norms
- Perceived behavioral control

Behavioral intention

- Actual behavioral control

Behavior
• New England’s Largest Safety Net hospital
• 50% Families have an income < $20,000 (Federal Poverty Level)
• 30% non English Speaking
• 68% Speak language other than English at home
• We deliver 70% of Black and Latina women in the City of Boston
Identification of the problem

• Root cause analysis of “missed” identification of women at risk of recurrent preterm birth
• Identified a number of factors in our system leading to failure to identify women with prior preterm birth
• Identify processes and the necessity to identify and measure ability to impact interventions
• Most significant barrier was lack of patient awareness, education and empowerment
Barrier Analysis

Rapid assessment tool used to identify behavioral determinants associated with a particular behavior so that more effective behavior change messages and support activities can be developed.
Process of Barrier Analysis

IDENTIFY DO-ER’s and NON DO-ER’s
Process of Barrier Analysis

IDENTIFY DO-ER’s and NON DO-ER’s

IDENTIFY DETERMINANTS
Why people do or not do the behavior

Steps in Barrier Analysis
AIM:

The underlying goal of this project is to decrease health disparities in infant mortality and preterm birth and to diminish the number of preterm deliveries.

90% of women at Boston Medical Center (BMC) with a prior spontaneous preterm delivery (SPTD) will have counseling for progesterone and serial cervical ultrasounds in a subsequent pregnancy by January 2015.
- Lack of knowledge
- No self advocacy
- Language barrier

- Type
- Knowledge
- Site

- Discharge
- EHR communication

17 OHP

Prior authorization
- Late presentation

Patients

Providers

Records
Patients

Barrier

• Lack of knowledge of preterm birth
• No information that their history is a risk factor for preterm birth
• No history of self advocacy
• 64% non English speaking
• Perception of divine will

Intervention

• Campaign to standardize identification and counseling of patients at index spontaneous preterm birth
Counseling and Documentation at Index SPTD

- Education campaign for faculty & residents
- SPTD pts on MFM pp service
- Stickers & Emails
- Posting protocol
Providers

**Barriers**

- Patients see a variety of physician and non-physician providers
- Providers are unaware of history of preterm birth
- Providers are unaware of SMFM/ACOG recommendations

**Interventions**

- Series of educational events at grand rounds
- Reminders at workstations
- Transfer of patients with SPTD to MFM pp service
- Enhanced Partnership with Community Health Centers and Boston Public Health Commission
Challenges of Obtaining 17OHP

Barriers

• Myriad sites and providers trying to obtain 17 OHP
• Providers unaware of process of obtaining 17OHP
• Prior Authorizations needed for publically & privately insured patients with different forms
• Women who present after 20wks cannot obtain 17OHP

Interventions

• Centralized resource for process of prior authorizations
• Centralize pharmacy so med available
• Increased the number of women identified before 20 wks candidates for
Initial Process Map for 17OHP Receipt by patients with prior Spontaneous PTD

- Patient Calls for appt
  - 1-2 weeks
  - Intake by CNM

- MFM Consult ID 17OHP candidate
  - 1-2 weeks
  - Identify hx PTD

- Order 17OHP Schedule cx US
  - Few days
  - Insurance and timing ID’d

- Approval of Med Notify patient
  - 1-4 weeks
  - Prior Authorization

- Order sent to pt choice pharmacy
  - 1-14 days
  - Pharmacy does/doesn’t get med

- Pt. brings med and receives
  - 1-7 days
  - Pt. picks up 17OHP

Total Delay from 1st call for appointment to receiving 17 OHP commonly 8-12wks
Initial Process Map for 17OHP Receipt by patients with prior Spontaneous PTD

Patient Calls for appt
1-2 weeks

MFM Consult ID 17OHP candidate
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Identify hx PTD
Few days

Identify 17OHP
1-4 weeks

Schedule ex US

Insurance and timing ID'd

Prior Authorization
1-14 days

Approval of Med Notify patient

Order sent to pt choice pharmacy
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Pt. brings med and receives
1-7 days

Pt. picks up 17OHP

Total Delay from 1st call for appointment to receiving 17OHP commonly 8-12wks
Amended Process Map for 17OHP Receipt by patients with prior Spontaneous PTD

At intake call ask: have you ever delivered a baby >3wks before your due date?

Pt identified at Fetal Survey with hx of SPTD Order 17OHP

Few days

1 week

Few days

Pt. picks up 17OHP receives

At 1st PN intake visit AND call MFM PA if hx of cerclage or previable loss

Apppt for 1st PN

Insurance and timing ID'd Prior Authorization

Approval of Med Order at BMC pharmacy Notify patient

MFM Consult ID 17OHP candidate Schedule cx US

Pt identified at Fetal Survey with hx of SPTD Order 17OHP

Decreased delay from 1st call for appointment to receiving 17OHP to 7-10 days
Barriers

• Patients not identified by providers as having SPTD
• Discharge summaries did not include mention of spontaneous preterm delivery
• Many sites with different EHR’s
• Our system changed EHRs twice in the last two years

Interventions

• Smart texts developed for problem lists and discharge summary
• “Preterm delivery” needs to be unlinked from pregnancy episode
• EPIC transformation increased communication across health system
**Preterm delivery, delivered**

This patient has had a spontaneous preterm delivery. She has been counseled that she is at risk for recurrence. The following have been recommended: prolonged interpregnancy interval, MFM consult, serial cervical US and 17OHP progesterone for the prevention of recurrent preterm birth.
Lessons Learned: Unsuccessful Interventions

• Grand rounds/Resident lectures
• Jodi sings a preterm labor song
• Processes excluding patients
• Failing to prioritize preterm birth as an obstetric RISK event
• Trying to communicate priorities without data
Lessons Learned: Successful Interventions

- Counseling at delivery of index pregnancy
- Experiential counseling of patients by residents
- Focused identification of patients
- Streamlined processes
- Assigning 17O Hp Resource RN
- EMPOWERED Patients are ready for 17O Hp
- Audit and feedback of providers
- Partnership with local DPH & CHC’s

Thera Wilson RN
17OHP Prior Auth Queen
BMC Initiative to Prevent Recurrent Preterm Birth

Identify Women with a History of Spontaneous Preterm Birth < 37 weeks

MFM Consult
Cervical US until 30wks
17 OH Progesterone 16-36wks

"Spontaneous" delivery NOT due to preeclampsia or IUGR
Call 414-2000 to book ATU appts

Consult can be done in ATU
17OHP needs a prior authorization

Cervix <2.5cm <24wks
Cervical Cerclage

Cervix <2.5cm >24wks
Betamethasone

Protocol as per SMFM, ACOG and Boston Public Health Commission guidelines
% of Women with Hx of SPTD & Serial Cervical US, and Progesterone Counseling

- **Goal**
  - Faculty Resident education campaign
  - Median
  - MFM ATU Patient Screening
  - Added partnership with BPHC and CHC education and newsletter

**% Preterm Births**

- Jan-Feb 2013: 29
- Sep-Oct 2013: 17
- Jan-Feb 2014: 21
- Sep-Oct 2014: 15.7
- Jan-Feb 2015: 8
Boston Medical Center Projected Annual Cost Savings By Recurrent Preterm Birth Averted

- **180 Patients/year**
- **29% BMC Preterm delivery rate**
- **52 BMC patents delivered prematurely**
- **72% reduction in Preterm delivery**

38 BMC preterm births averted

$2,470,000 Cost Savings/Year

Cost of preterm delivery in Massachusetts ~$65,000

March of Dimes Peristats 2014
Boston Public Health Commission: Decline in Black Infant Mortality

Progress attributed to citywide partnerships to improve black women’s health

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DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
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Friday, October 10, 2014

**Infant Mortality Rates by Race/Ethnicity by Year**

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Evidence Based Quality Improvement:

Classification of professional interventions from EPOC

- DISTRIBUTION OF EDUCATIONAL MATERIALS
- EDUCATIONAL MEETINGS
- LOCAL CONSENSUS PROCESSES
- LOCAL OPINION LEADERS
- PATIENT MEDIATED INTERVENTIONS; NEW INFORMATION FROM PATIENT COLLECTED INFORMATION
- AUDIT AND FEEDBACK
- REMINDERS (PROMPTS)
- MARKETING
- MASS MEDIA

EPOC TAXONOMY: Cochrane Effective Practice and Organization of Care
Evidence Based Quality Improvement: What are Effective WAYS to implement guidelines?

- Passive dissemination (emailing article) largely ineffective
- Reminders and educational dissemination mostly effective
- Multifaceted interventions are most effective

Rates of Unintended Pregnancy in the US

State Unintended Pregnancy Rates
Unintended pregnancy rates varied widely in 2010.

- 32–40
- 41–47
- 48–54
- 55–62


www.guttmacher.org

Guttmacher Institute 2014
Rates of Unintended Pregnancy in OHIO

- Unintended pregnancies have an increased risk of preterm birth
  Shah OR 1.58 (CI 1.1-1.6)
  Orr OR 1.82 (CI 1.1-3.2)
- Ohio’s unintended pregnancy rate is 49 per 1,000 overall
  112 per 1,000 for women below FPL
- 109,000 pregnancies: 65,000 births
- Leading to a Preterm Birth Rate of 25% and 16,350 preterm births/year

A reduction in Ohio’s unintended pregnancy rate to 40 per 1000 would lead to 3,270 fewer preterm births

Cost savings of $98 million dollars


Guttmacher Institute Ohio Fact Sheet 2015
Next Steps/Challenges:

- Boston Medical Center: Pilot Implementation of a Community Liaison “Prematurity Navigator”
- Implementation of Universal Cervical Length Screening
- Massachusetts PQC:
  - Template for Rapid Site Resource Identification
  - Projects to Increase Data Accuracy of Progesterone Use/Access in Appropriate Populations
  - Unlinking of Contraceptive Implants with Delivery Bundle
Thank you