North Carolina Strategies for Preterm Birth Prevention: Alignment with National Priorities

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Objectives

- Provide overview of some national initiatives focused on preterm birth prevention
  - March of Dimes prematurity Campaign
  - Society for Maternal Fetal Medicine prematurity bundle
  - Maternal Child Health Bureau: CoIIN prevention of preterm birth project

- Strategy, accomplishments and resources of CCNC Pregnancy Medical Home program

- Opportunities to build on our strengths
Prematurity Campaign Roadmap
Preterm birth rates

*2014 data based on obstetric estimate (OE) of gestational age; all previous years based on last menstrual period (LMP).
Preterm is less than 37 weeks gestation.
Sources: National Center for Health Statistics, 1990-2013 final and 2014 preliminary natality data.
Fighting for the Next Generation

We owe it to the next generations of U.S. babies to prevent the “preventable” preterm births

- We must fully implement what we already know
- We need to translate discovery research to increase the preventable PTBs
March of Dimes Roadmap Interventions, 2016

- Reduce non-medically indicated deliveries <39 weeks
- Increase use of progesterone for women with a history of prior preterm birth
- Reduce tobacco use among pregnant women
- Encourage women to space pregnancies at least 18 months apart
- Increase use of low-dose aspirin to prevent preeclampsia
- Advance interventions for women diagnosed with a short cervix
- Reduce multiple births conceived through Assisted Reproductive Technology
Roadmap: Target 15 States and Puerto Rico

Phase I: 6 states/territories in 2017
- Alabama, Louisiana, Mississippi, Puerto Rico - Highest rates.
- Florida, Texas - Most populous high rate states.

Phase II: 10 additional states with births >100,000

*March of Dimes*
Next Steps

✓ Planning is underway to activate the Roadmap in 16 high burden and high volume states and territory beginning in 2017

✓ March of Dimes will continue to focus on prevention of prematurity by
  - Implementing what is known
  - Translating discovery research into new interventions
Preterm Birth Bundle:
Set of evidenced based practices, when implemented, are designed to achieve best outcomes
- Singletons w/o prior SPTB
- Bacteruria
- Smoking
- Medical complications
- Singleton with prior PTB
- Preterm Labor
- Preterm premature rupture of membranes
- Antenatal steroid
- Delivery issues
- Pre- and Interconception care
CoIIN: Collaborative Innovation Network to Reduce Infant Mortality

By July 2016, reduce prevalence of preterm and early term singleton births. States will:

1. Decrease non-medically indicated births between 37 0/7 weeks of gestation through 38 6/7 weeks of gestation by 20%

2. Increase the percent of pregnant women on Medicaid with a previous preterm birth who receive progesterone to 40%

3. Achieve or maintain equity in utilization of progesterone by race/ethnicity
North Carolina Births, 2003 - 2014

- Emergency Medicaid
- Non-Emergency Medicaid
- Other Payer

Funding for this project is provided in part by The Duke Endowment
Race/ethnicity of North Carolina births funded by Medicaid attributed to PMH practices

July 2013 to June 2015

- non-Hispanic White (41,194)
- non-Hispanic Black (28,336)
- Hispanic (5,902)
- non-Hispanic Asian/Pacific Islander (1,750)
- non-Hispanic Native American/Alaskan Native (1,576)
- Unknown race/ethnicity (891)

*does not include emergency Medicaid
Preterm Births: Disparity Ratio of North Carolina births funded by Medicaid attributed to PMH practices, July 2013 to June 2015

<table>
<thead>
<tr>
<th></th>
<th>Non-Hispanic White</th>
<th>Non-Hispanic Black</th>
<th>Hispanic</th>
<th>Non-Hispanic Asian/Pacific Islander*</th>
<th>Non-Hispanic Native American/Alaskan Native*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disparity ratio: preterm birth &lt; 28 weeks</td>
<td>1.0 (n= 266)</td>
<td>1.97 (n=361)</td>
<td>1.10 (n=42)*</td>
<td>0.71 (n=8)*</td>
<td>1.96 (n=20)*</td>
</tr>
<tr>
<td>Disparity ratio: preterm births 28 to &lt;37 weeks</td>
<td>1.0 (n=3,571)</td>
<td>1.22 (n=2,999)</td>
<td>0.90 (n=460)</td>
<td>0.79 (n=120)</td>
<td>0.96 (n=131)</td>
</tr>
</tbody>
</table>

*rates are based on small numbers and should be interpreted with caution
NC PMH Preterm Birth Prevention Strategy

• Statewide network of maternity care providers
  • Alignment of incentives with clinical priorities
• Population-based, standardized risk screening
  • Incorporation of evidence-based screening tools
• Community-based care management
  • Integration with prenatal care team
• Informatics
  • Data at the state, network and practice/county level
• Local clinical leadership
  • Dissemination and application of best practice management of preterm birth risk factors
AccessCare
David Stamilio, Mark Picton, Steve Lies, Brandon Locklear*

Community Care of Western North Carolina
Arthur Ollendorff, MD
MAHEC Women’s

Community Care of the Lower Cape Fear
Lydia Wright, MD
Wilmington Maternal-Fetal Medicine

Carolina Collaborative Community Care
Paul Sparzak, DO
Cape Fear Valley OB/GYN

Community Care of Wake/Johnston Counties
Cathi Weatherly-Jones, MD
Wake County Human Services

CC Partners of Greater Mecklenburg
Frank Harrison, MD, Carolinas Medical Center
John Allbert, MD, Novant Health

Carolina Community Health Partnership
Dawn Herring, MD
Shelby Women’s Care

Community Care Plan of Eastern Carolina
James DeVente, MD, PhD
East Carolina University

Community Health Partners
Velma Taormina, MD
Gaston County Health Department

Northern Piedmont Community Care
Phillip Heine, MD
Duke Maternal-Fetal Medicine

Northwest Community Care Network
Harold Pollard, MD, Lyndhurst OB/GYN
Jeffrey Denney, MD, Wake Forest University

Partnership for Community Care
Jill Wagner, MD, Pinewest OB/GYN
Ugonna Anyanwu, MD, Women’s Hospital – Cone Health

Community Care of the Sandhills
John Byron, MD
Southern Pines Women’s Health Center

Community Care of Southern Piedmont
Russell Suda, MD
Cabarrus Health Alliance

CCNC Central Office
Kate Menard, MD, MPH
UNC Maternal-Fetal Medicine

*Dr. Stamilio – UNC Maternal-Fetal Medicine
Dr. Picton – Caldwell County Health Department
Dr. Lies – Wayne Women’s Care
Dr. Locklear – Southeastern Women’s Healthcare
Performance Expectations:

- Use of standardized preterm birth risk screening tool
- No elective deliveries <39 weeks
- Provide 17p to prevent recurrent preterm birth
- Maintain primary term, singleton, vertex c-section rate <16%
- Postpartum visit with standardized depression screen, reproductive life planning, transition to primary care
- Collaboration with pregnancy care manager(s)
- Participation with local CCNC network
Risk Screening

• 77% of PMH patients are screened
  o >40,000 screens annually

• 70% of patients have at least one risk factor:
  o Tobacco use during pregnancy – 37.8%
  o Chronic disease – 22.0%
  o Previous preterm birth – 6.8%
  o Drug/alcohol use – 6.7%
  o Hospital admission/ED use – 5.8%
Receipt of pregnancy care management:

- 87% of high-risk pregnancies
- >50% of all Medicaid pregnancies
  - 17,000 women in care management at any moment

RNs and social workers from local health departments, embedded in OB practices, provide:

- Assessment
- Education
- Advocacy
- Referral
- Monitoring
Pregnancy Care Management

Increase proportion of pregnant Medicaid patients served in almost every county, with services now focused on those at greatest risk.
Primary cesarean delivery among term, singleton, vertex Medicaid pregnancies

- October 2010 - September 2011: 16.03%
- October 2011 - September 2012: 15.81%
- October 2012 - September 2013: 15.97%
- October 2013 - September 2014: 15.05%
- October 2014 - September 2015: 14.77%
Informatics

Unintended (Mistimed or Unwanted) Pregnancy Among PMH Patients

- Apr to Jun 2012: 52.4%
- Jul to Sep 2012: 51.7%
- Oct to Dec 2012: 52.7%
- Jan to Mar 2013: 52.4%
- Apr to Jun 2013: 50.5%
- Jul to Sep 2013: 51.2%
- Oct to Dec 2013: 50.6%
- Jan to Mar 2014: 50.3%
- Apr to Jun 2014: 49.0%
- Jul to Sep 2014: 48.7%
- Oct to Dec 2014: 49.5%
- Jan to Mar 2015: 49.9%
- Apr to Jun 2015: 48.3%
- Jul to Sep 2015: 46.6%

Funding for this project is provided in part by The Duke Endowment
Clinical Leadership

PMH Care Pathways establish statewide, evidence-based best practices.

PMH Care Pathways

Clinical pathways are developed through the Pregnancy Medical Home Program to promote evidence-based, best practice care statewide. PMH Care Pathways are developed by the OB physician leadership of all 14 CCNC networks through a collaborative process. Pathways will be revised periodically to incorporate emerging evidence.

If you are a Pregnancy Medical Home provider with questions or comments about a PMH Care Pathway, or want to suggest a topic for future pathway development, please contact your local CCNC network OB team. For general information about the PMH program, contact Program Manager Kate Berrien.

- Hypertensive Disorders of Pregnancy
  - Updated March 2014 (originally published August 2012)

- Induction of Labor in Nulliparous Patients
  - February 2013

- Perinatal Tobacco Use
  - January 2015

- Postpartum Care and the Transition to Well Woman Care
  - February 2015
Progesterone Treatment and Cervical Length Screening

CLEAR
Cervical Length Education and Review

The CLEAR program consists of the following:

Lectures
The lectures listed below are available on-line and e-handouts may be downloaded as Adobe PDF or PowerPoint.

- Lecture 1: Why Measure Cervical Length
- Lecture 2: How to measure Cervical Length
- Lecture 3: The CLEAR Program
- Lecture 4: Translating Knowledge into Clinical Practice

Web-based Examination
The CLEAR program includes a web-based examination.

CLEAR ACCEPTED BY ABOG FOR MOC CATEGORY IV
We are happy to report that successful completion of the CLEAR web course education, examination and image requirements has been accepted by the American Board of Obstetrics and Gynecology (ABOG) for Maintenance of Certification (MOC) Part IV: Improvement in Medical Practice.

Cervical Measurement Image Criteria
- Transvaginal image
- Field of view is optimized for measurement
- Anterior Wall + Posterior Wall
- Maternal Bladder Empty
- Internal OS Seen
- External OS Seen
- Cervix Canal Visible Throughout
- Cervical Placenta Present
- Cervix Mobility Considered

The Perinatal Quality Foundation convened a joint educational task force in November 2011. The goal of the task force was to develop consensus education that presented a widely available format the standard criteria for ultrasonographic cervical measurements during pregnancy.

The Cervical Length Education and Review CLEAR program is a product of task force discussions.

FMH CARE PATHWAY: PROGESTERONE TREATMENT AND CERVICAL LENGTH SCREENING

Funding for this project is provided in part by The Duke Endowment.
Appendix A. Low-Dose Aspirin for the Prevention of Morbidity and Mortality from Preeclampsia
# Management of Obesity in Pregnancy

<table>
<thead>
<tr>
<th>Timing</th>
<th>BMI 30-40</th>
<th>BMI &gt;40</th>
<th>Prior Bariatric Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preconception</strong></td>
<td>• Weight loss to normal BMI</td>
<td>• Weight loss to normal BMI</td>
<td>• Document operative type</td>
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<tr>
<td></td>
<td>• Review perinatal risks</td>
<td>• Review perinatal risks</td>
<td>• 400 mcg - 1 mg folic acid</td>
</tr>
<tr>
<td></td>
<td>• 400 mcg - 1 mg of folic acid</td>
<td>• 400 mcg - 1 mg of folic acid</td>
<td>• Advise delaying pregnancy 18 months following bariatric surgery</td>
</tr>
<tr>
<td></td>
<td>• Sleep apnea screening</td>
<td>• Sleep apnea screening</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Refer for sleep study if positive</td>
<td>- Refer for sleep study if positive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Metabolic syndrome screening</td>
<td>• Metabolic syndrome screening</td>
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<tr>
<td></td>
<td>- Diabetes/hypothyroid</td>
<td>• Diabetes/Hypothyroid</td>
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<tr>
<td></td>
<td>- Lipids</td>
<td>- Lipids</td>
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<td></td>
<td>- Hypertension</td>
<td>- Hypertension</td>
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<td></td>
<td>- NASH syndrome</td>
<td>- NASH syndrome</td>
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<tr>
<td></td>
<td>• Nutritional consultation</td>
<td>• Nutritional consultation</td>
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<tr>
<td></td>
<td></td>
<td>• Consider HROB/MFM referral for BMI &gt; 50</td>
<td></td>
</tr>
<tr>
<td><strong>1st trimester</strong></td>
<td>• Gestational diabetes screening</td>
<td>• Gestational diabetes screening</td>
<td>• Review operative report</td>
</tr>
<tr>
<td></td>
<td>• CMP, TSH, Hgb A1c &amp; Urine p/c ratio</td>
<td>• CMP, TSH, Hgb A1c, Urine p/c ratio</td>
<td>• 400 mcg - 1 mg folic acid</td>
</tr>
<tr>
<td></td>
<td>• 400 mcg - 1 mg folic acid</td>
<td>• 400 mcg - 1 mg folic acid</td>
<td>• Nutritional consult</td>
</tr>
<tr>
<td></td>
<td>• Nutritional consultation</td>
<td>• Nutrition consultation</td>
<td>• Review additional vitamin supplementation</td>
</tr>
<tr>
<td></td>
<td>• Gestational weight gain goal 11-20 lbs per IOM</td>
<td>• Gestational weight gain goal 11-20 lbs per IOM</td>
<td>• Surgical consult for GI symptoms or lap band adjustment</td>
</tr>
<tr>
<td></td>
<td>• Discuss perinatal risks</td>
<td>• Discuss perinatal risks</td>
<td>• Screen for: “dumping syndrome” before glucola*</td>
</tr>
<tr>
<td></td>
<td>• 1st trimester dating US</td>
<td>• 1st trimester dating US</td>
<td>• HgbA1c (screen for type 2 diabetes)</td>
</tr>
<tr>
<td></td>
<td>• Sleep apnea screening</td>
<td>• Sleep apnea screening</td>
<td>• CBC, iron, ferritin, RBC folate, vitamin D, calcium, vitamin B12 level</td>
</tr>
<tr>
<td></td>
<td>- Refer for sleep study if positive</td>
<td>- Refer for sleep study if positive</td>
<td>• Drug levels as needed</td>
</tr>
<tr>
<td></td>
<td>• 81 mg ASA beginning at 12-16 weeks with additional risk factor</td>
<td>• 81 mg ASA beginning at 11-14 weeks</td>
<td>• ASA 81 mg ASA ok with Roux en Y</td>
</tr>
</tbody>
</table>
Tobacco Use Reported at Entry to Prenatal Care

- From July 2013 to June 2015, an average of 38.7% of PMH-attributed Medicaid births used tobacco at the time the patient became pregnant as identified on the PMH risk screening form.

- Approximately 20% of women with PMH-attributed Medicaid births continue to smoke throughout pregnancy.

- Average PMH-attributed Medicaid births tobacco use by race/ethnicity identified on the PMH risk screening form from July 2013 to June 2015:

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Tobacco Use Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>46.71%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>33.96%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>12.04%</td>
</tr>
<tr>
<td>Non-Hispanic Asian/Pacific Islander*</td>
<td>8.98%</td>
</tr>
<tr>
<td>Non-Hispanic Native American/Alaskan Native*</td>
<td>45.67%</td>
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</table>

*rates are based on small numbers and should be interpreted with caution.
Substance Use in Pregnancy

It is unknown to what extent this rate is increasing due to increase in prevalence rather than increase in provider identification through better use of the risk screening form over time.

Provider-identified maternal current/recent drug or alcohol use among PMH risk screening forms

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<tbody>
<tr>
<td>Percentage</td>
<td>5.0%</td>
<td>5.5%</td>
<td>5.8%</td>
<td>5.6%</td>
<td>6.0%</td>
<td>6.2%</td>
<td>6.1%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>
Application of PMH Model: Postpartum Care

• 2016 statewide PMH quality improvement project
• Person-centered goal: increase the number of women who receive postpartum care and transition to well woman care
• Evidence-based: pregnancy spacing, chronic disease management, behavioral health, breastfeeding
• Data-driven: use of PMH data structure to promote practice- and population-level quality improvement
• Use of PMH infrastructure to drive innovation:
  o 45 sites across NC representing all practice types
  o CCNC network OB team supports practice
Reproductive Life Planning: Access to choice of contraception

PMH-attributed Medicaid births where pregnancy was unintended among PMH risk screening forms

<table>
<thead>
<tr>
<th>Period</th>
<th>Non-Hispanic White</th>
<th>Non-Hispanic Black</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul to Sep 2013</td>
<td></td>
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<td>Oct to Dec 2013</td>
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<td>Jan to Mar 2014</td>
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<td>Apr to Jun 2014</td>
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<td>Jan to Mar 2015</td>
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<tr>
<td>Apr to Jun 2015</td>
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</table>
Multifetal Gestation

1.23% of pregnancies of PMH-attributed population from July 2013 to June 2015 based on the birth certificate.
First Trimester Prenatal Care

PMH-Attributed Births with First Trimester Prenatal Care

- Apr to Jun 2012: 63.6%
- Jul to Sep 2012: 63.5%
- Oct to Dec 2012: 63.6%
- Jan to Mar 2013: 64.4%
- Apr to Jun 2013: 62.7%
- Jul to Sep 2013: 65.2%
- Oct to Dec 2013: 64.2%
- Jan to Mar 2014: 61.8%
- Apr to Jun 2014: 61.5%
- Jul to Sep 2014: 57.5%
- Oct to Dec 2014: 60.6%
- Jan to Mar 2015: 61.5%
- Apr to Jun 2015: 61.5%
**Provider participation:** 380 practices participate in the PMH program, representing >1,700 providers and more than 90% of maternity care provided to Medicaid patients.
Opportunities for NC

- Early access to prenatal care
  - Enable early risk screening
  - Appropriate use if aspirin, progesterone, smoking cessation, management of chronic disease
- Preconception and Interconception care
  - Improve preconception wellness, pregnancy intendedness, birth spacing
- Address health equity
  - Study outcomes and provision of care by race and ethnicity
  - Provide additional resources for those with greatest need
- When preterm birth is inevitable
  - Strengthen system for risk appropriate care