Improving Health Equity and Reducing Preterm Birth through Group Prenatal Care

June 9, 2017

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Vice President, MCH Innovation
Objectives

- Discuss March of Dimes goal of reducing premature birth
- Demonstrate March of Dimes work in health equity promotion
- Discuss evidence behind group prenatal care
- Learn about Supportive Pregnancy Care
March of Dimes mission
to improve the health of babies by preventing premature birth, birth defects, and infant mortality

In particular, March of Dimes has set goals to reduce the preterm birth rate in the U.S. to 8.1% by 2020, and to 5.5% by 2030.
March of Dimes Prematurity
Strategic Map for Mobilizing Support: 2016-2020

A. Increase Effective Use of Evidence-Informed Clinical and Public Health Practice
B. Expand Discovery and Accelerate Translation and Innovation
C. Align Multi-level Support to Improve Health Equity
D. Develop and Implement Messaging, Policy & Practice Strategies
E. Secure the Funding and Resources Required for Success
F. Emphasize the Health of Women and Adolescents
G. Engage Families, Communities and Other Strategic Partners Across Sectors Through a Collaborative Infrastructure
H. Optimize the Use of Data and Evaluation to Drive Learning and Success

Achieve Equity and Demonstrated Improvements in Preterm Birth
Preterm birth rates

*2015 data are preliminary.
LMP=gestational age based on date of mother’s last menstrual period
OE=gestational age based on obstetric estimate.
2020 and 2030 goals based on OE gestational age.
Preterm is less than 37 weeks gestation.
Prepared by March of Dimes Perinatal Data Center, June 2016.

2003, 12.3%:
March of Dimes launches National Prematurity Campaign
If the US preterm birth rate had not increased from 2014 to 2015…

• Approximately **2,000 fewer babies** would have been born preterm.

• **More than $100 million** in medical and societal costs could have been avoided.

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*2015 data are preliminary.
Gestational age based on obstetric estimate.
Preterm is less than 37 weeks gestation.
Costs per infant include all employer payments for newborn medical care during the first year of life.
Source: National Center for Health Statistics, 2014 final and 2015 preliminary natality data. Institute of Medicine, CostS of Preterm Birth.
Prepared by March of Dimes Perinatal Data Center, June 2016.
PRETERM BIRTH RATES AND GRADERS BY STATE

Gestational age is based on obstetric estimate.
Source: National Center for Health Statistics, 2015 natality data.
marchofdimes.org/reportcard
Preterm birth rates by race and ethnicity

Figure 4. Preterm birth rates, by race and Hispanic origin of mother: United States, 2007–2014

What’s working to decrease rates of preterm birth?

Quality improvement efforts aimed at eliminating early elective deliveries

Smoking cessation

**Group prenatal care**

Progesterone shots to reduce preterm birth recurrence

Low-dose aspirin prophylaxis to reduce pre-eclampsia

Optimizing interpregnancy intervals

Cerclage for short cervix

Reduction in teen pregnancy

Reduction in higher order multiple gestations
What is Group Prenatal Care?

Care is delivered in a group, including all elements of prenatal care and education.

Group size varies but optimal size is approximately 8-12 women with a due date in the same month.

Initial intake is in an individual visit before entry into a group (~10-12 weeks):
- Nursing and medical history obtained
- Physical assessment and electronic medical record completed
- Lab work drawn

First group usually meets between 12-16 weeks:
- Women measure their own weight and blood pressure
- Individual physical assessment done within the group space by the provider
Approach

Ten two-hour sessions cover all elements of prenatal care as outlined by ACOG.

Group is run with a facilitated leadership style.

Groups are often co-facilitated by:
- Physician, Certified Nurse Midwife, resident physician
- Nurse, health educator, medical assistant, community health worker

Sessions focus on issues of pregnancy, labor and delivery, infant care, and post-partum maternal care.
Traditional prenatal care

- Lab work
- Preparation for labor & delivery
- Nutritional counseling
- Mental health & other social work support
- Preparation for breastfeeding & infant care
- Clinical care
- Oral health
Group prenatal care

Self-care and empowerment

Clinical care

Prenatal, childbirth, breastfeeding, infant care education

Mutual support
Benefits of Bundling Prenatal Care

**CONSUMERS**
- More time
- “1-stop shopping”
- Learning/skills
- Community norms
- Support/cohesion
- Better outcomes

**PROVIDERS**
- Continuity
- Comprehensive
- Improve patient flow, efficiency
- Better outcomes

**OVERALL**
- Motivation for healthy pregnancy
- Integrate prevention and treatment
- Sustainable
- Financial Benefits
Group Prenatal Care Programs

Models developed by clinics or systems

New model: 
March of Dimes 
Supportive Pregnancy Care
We have two goals

Sustainability

Scalability
Evidence behind Group Prenatal Care
Group Prenatal Care and Perinatal Outcomes
A Randomized Controlled Trial

Jeannette R. Ickovics, PhD, Trace S. Kershaw, PhD, Claire Westdahl, CNM, MPH,
Urania Magriples, MD, Zohar Massey, Heather Reynolds, CNM, MSN,
and Sharon Schindler Rising, CNM, MSN

(Obstet Gynecol 2007;110:330-9)

Multisite randomized controlled trial
Atlanta, GA (n=546) and New Haven, CT (n= 503)
Young women ages 14-25 years presenting for prenatal care
653 participated in group prenatal care (intervention)
394 participated in individual care (control)

Preterm Delivery

Note: All analyses controlled for study site, factors different by study condition despite randomization (race, prior preterm delivery, prenatal distress) and clinical factors associated with birth outcomes (smoking, prior miscarriage/stillbirth).

Per 1,000 women in group, 40 preterm deliveries averted; 60 per 1,000 for African American women

OBSTETRICS

The effect of CenteringPregnancy group prenatal care on preterm birth in a low-income population

Amy H. Picklesimer, MD, MSPH; Deborah Billings, PhD; Nathan Hale, PhD; Dawn Blackhurst, DrPH; Sarah Covington-Kolb, MSPH, MSW

OBJECTIVE: The purpose of this study was to evaluate the impact of group prenatal care on rates of preterm birth.

STUDY DESIGN: We conducted a retrospective cohort study of 316 women in group prenatal care that was compared with 3767 women in traditional prenatal care. Women self-selected participation in group care.

RESULTS: Risk factors for preterm birth were similar for group prenatal care vs traditional prenatal care: smoking (16.9% vs 20%; P = .17), sexually transmitted diseases (15.8% vs 13.7%; P = .29), and previous preterm birth (3.2% vs 5.4%; P = .08). Preterm delivery (<37 weeks' gestation) was lower in group care than traditional care (7.9% vs 12.7%; P = .01), as was delivery at <32 weeks' gestation (1.3% vs 3.1%; P = .03). Adjusted odds ratio for preterm birth for participants in group care was 0.53 (95% confidence interval, 0.34–0.81). The racial disparity in preterm birth for black women, relative to white and Hispanic women, was diminished for the women in group care.

CONCLUSION: Among low-risk women, participation in group care improves the rate of preterm birth compared with traditional care, especially among black women. Randomized studies are needed to eliminate selection bias.

Key words: CenteringPregnancy, disparity, prenatal care, preterm birth

### Table 3. Pregnancy and Psychosocial Outcomes, by Study Condition

<table>
<thead>
<tr>
<th></th>
<th>Group Prenatal Care (n=623)</th>
<th>Individual Prenatal Care (n=370)</th>
<th>Statistic</th>
<th>P</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth outcomes and prenatal care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preterm birth</td>
<td>9.8</td>
<td>13.8</td>
<td>$\chi^2=4.01$</td>
<td>.045</td>
<td>0.67 (0.44–0.98)</td>
</tr>
<tr>
<td>Gestational age (wk, mean±SD)</td>
<td>39.1±2.8</td>
<td>38.9±2.5</td>
<td>$F=0.70$</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>Low birth weight (less than 2,500 g)</td>
<td>11.3</td>
<td>10.7</td>
<td>$\chi^2=0.03$</td>
<td>.90</td>
<td>0.98 (0.64–1.50)</td>
</tr>
<tr>
<td>Birth weight (g, mean±SD)</td>
<td>3,160.6±626.3</td>
<td>3,111.8±636.8</td>
<td>$F=1.40$</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>Small for gestational age</td>
<td>14.3</td>
<td>15.1</td>
<td>$\chi^2=0.67$</td>
<td>.42</td>
<td>0.86 (0.59–1.24)</td>
</tr>
<tr>
<td>Fetal demise</td>
<td>1.3</td>
<td>2.2</td>
<td>$\chi^2=1.34$</td>
<td>.25</td>
<td>0.55 (0.20–1.50)</td>
</tr>
<tr>
<td>Less than adequate PNC (based on Kotelchuck Index)</td>
<td>26.6</td>
<td>33.0</td>
<td>$\chi^2=6.49$</td>
<td>.01</td>
<td>0.68 (0.50–0.91)</td>
</tr>
<tr>
<td>Neonatal outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apgar, 5 minutes [mean±SD (median)]</td>
<td>8.8±1.1 (9)</td>
<td>8.8±1.0 (9)</td>
<td>$F=0.60$</td>
<td>.44</td>
<td></td>
</tr>
<tr>
<td>Admitted to NICU</td>
<td>8.5</td>
<td>7.8</td>
<td>$\chi^2=0.07$</td>
<td>.80</td>
<td>1.06 (0.66–1.72)</td>
</tr>
<tr>
<td>Breastfeeding initiation*</td>
<td>66.5</td>
<td>54.6</td>
<td>$\chi^2=12.5$</td>
<td>.001</td>
<td>1.73 (1.28–2.35)</td>
</tr>
<tr>
<td>Psychosocial outcomes (mean±SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal knowledge</td>
<td>41.1±7.3</td>
<td>38.5±6.8</td>
<td>$F=27.08$</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Prenatal distress</td>
<td>12.43±7.0</td>
<td>12.93±7.1</td>
<td>$F=1.96$</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>Readiness for labor and delivery</td>
<td>76.2±30.6</td>
<td>68.6±33.2</td>
<td>$F=12.77$</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Readiness for infant care</td>
<td>90.0±21.9</td>
<td>86.9±26.0</td>
<td>$F=3.68$</td>
<td>.056</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with prenatal care</td>
<td>113.3±13.3</td>
<td>108.4±14.4</td>
<td>$F=27.16$</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

OR, odds ratio; CI, confidence interval; SD, standard deviation; PNC, prenatal care; NICU, neonatal intensive care unit.
Data are expressed as percentages except where otherwise indicated.
All analyses controlled for factors that were different by study condition ($P<.10$) despite randomization (race, age, prenatal distress, history of preterm birth) and clinical risk factors strongly associated with birth outcomes (smoking, prior miscarriage, or stillbirth). Analyses for continuous variables were conducted with analysis of covariance, and analyses for dichotomous variables were conducted with logistic regression with covariates.

* At 6-month postpartum interview (n=783).

Pregnancy as a Window of Opportunity for HIV Prevention: Effects of an HIV Intervention Delivered Within Prenatal Care

Trace S. Kershaw, PhD, Urania Magriples, MD, Claire Westdahl, CNM, MPH, Sharon Schindler Rising, CNM, MSN, and Jeannette Ickovics, PhD
Rapid Repeat Pregnancy: 6 Months Post Partum

OR = 0.49 (.27-.91), p=.02

14 Community Health Centers/Hospitals
New York City
Young women ages 14-21 years presenting for prenatal care
495 participated in group prenatal care (intervention)
489 participated in individual care (control)
FIGURE 1
Weight change over time by intervention condition and obese group status
A, Weight change over time as predicted by intervention condition. B, Weight change over time as predicted by intervention condition × obese group status.

Weight change by intervention group and prenatal distress

** Group prenatal care appears to protect against weight gain and post partum weight retention, especially in women with higher prenatal distress.
Magriples et al. AJOG 2015.
Qualitative research - interviews with women and providers
Carried out in Calgary, Alberta, Canada
Group prenatal care was implemented to address high rates of adverse perinatal outcomes in certain regions of the city
Getting more in one place at one time

“Usually at the doctor’s office you have to wait ... like an hour ... so this is only two hours and you’re done ... it’s not so much more time that I’m spending, but I’m gaining more than just a doctor’s visit.”

(31 year old first-time mother)

“If I were to just go to the doctor, I wouldn’t think to ask about something that hasn’t happened.
... you get people who aren’t afraid to ask questions, so it makes you feel more comfortable.”

(27 year old first-time mother)

Not Feeling Alone in the Experience

It helped me to “feel normal .... like I’m not the only one.

It helped a lot to talk to people and ... oh you have this happen too? Or you feel this way too? So ... to identify with ... the people there. It was very good for me.”

(31 year old first-time mother)
In Summary: Group Prenatal Care...

Evidence-based intervention

Data supports:

• Reduction in preterm birth & rapid repeat pregnancy
• Improved psychosocial outcomes including readiness for labor & delivery
• Greater satisfaction with care
• Appropriate weight gain

May act through enhanced interaction with provider, increased social support and empowerment
Group Prenatal Care Compared With Traditional Prenatal Care

A Systematic Review and Meta-analysis

 Ebony B. Carter, MD, MPH, Lorene A. Temming, MD, Jennifer Akin, BA, Susan Fowler, MLIS, George A. Macones, MD, MSCI, Graham A. Colditz, MD, DrPH, and Methodius G. Tuuli, MD, MPH

OBJECTIVE: To estimate the effect of group prenatal care on perinatal outcomes with 93%, pooled RR 0.87, 95% confidence interval [CI] 0.81–0.94 compared with 8.7% traditional care, pooled RR 0.92, 95% CI 0.73–1.16. There were no significant differences in neonatal intensive care unit admission or breastfeeding initiation.

DATA SOURCES: PubMed, EMBASE, and Allied Health Systematic Reviews, the Database of Abstracts of Reviews of Effects, the Cochrane Central Register of Controlled Trials, and ClinicalTrials.gov.

METHODS OF STUDY SELECTION: We searched electronic databases for randomized controlled trials and observational studies comparing group care with traditional prenatal care. The primary outcome was preterm birth. Secondary outcomes were low birth weight, neonatal

CONCLUSION: Available data suggest that women who participate in group care have similar rates of preterm birth, neonatal intensive care unit admission, and breastfeeding. (Obstet Gynecol 2016;128:551–61)
4 Randomized Control Trials and 10 Observational studies included in the meta-analysis:

• Observational studies are at high risk for selection bias & confounding

• Results suggest improved preterm birth rates in African American women participating in group care

• No evidence that group prenatal care causes harm

• Group prenatal care warrants further study

Cost Savings of Group Prenatal Care
Group Prenatal Care – Sample Savings Opportunity

Group prenatal care has the potential to produce significant savings particularly for those groups with significant lifestyle risks. Below are preliminary savings estimates derived from generally available employer and government health care program data:

<table>
<thead>
<tr>
<th>Savings Category</th>
<th>Savings per Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary: Reduced NICU Days</td>
<td>$835</td>
</tr>
<tr>
<td>Secondary:</td>
<td></td>
</tr>
<tr>
<td>Reduced C-Sections</td>
<td>$ 45</td>
</tr>
<tr>
<td>Avoided 1st year of life costs</td>
<td>$ 15</td>
</tr>
<tr>
<td>Reduced STI</td>
<td>$  5</td>
</tr>
<tr>
<td>Reduced repeat pregnancy</td>
<td>$ 45</td>
</tr>
<tr>
<td>Improvements to well baby care</td>
<td>$ 35</td>
</tr>
<tr>
<td>Incremental Physician Visits (cost)</td>
<td>$( 90)</td>
</tr>
<tr>
<td>Total Net Savings</td>
<td>$890</td>
</tr>
</tbody>
</table>

Savings Achieved With Better Outcomes by Medicaid Prenatal Participation in Centering

Sarah Gareau, DrPH
Tammy Cummings, PhD
Elizabeth Crouch, PhD
Amy Picklesimer, MD, MSPH
Ana Lòpez-DeFede, PhD

April 2016
## Costs of Adverse Birth Outcomes

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>Cost Per Infant†</th>
<th>Cost Per Infant†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Three Year Average of Charges</td>
<td>Cost-to-Charge Ratio Applied</td>
</tr>
<tr>
<td>Very Low/ Low Birth Weight</td>
<td>Mean</td>
<td>$118,635</td>
</tr>
<tr>
<td>Prematurity With Major Problems</td>
<td>Mean</td>
<td>$84,811</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>$54,297</td>
</tr>
<tr>
<td>Prematurity Without Major Problems</td>
<td>Mean</td>
<td>$20,955</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>$5274</td>
</tr>
<tr>
<td>NICU Visit</td>
<td>Mean</td>
<td></td>
</tr>
</tbody>
</table>

* NICU Cost per Infant was calculated directly from claims data, thus no cost-to-charge ratio need be applied.

† Cost per Infant dollar amounts were rounded to whole numbers.
For every 30 patients who are treated with Centering, there is $69,779 in cost savings due to the prevention of poor birth outcomes:

- one NICU visit ($25,253)
- one preterm birth ($8,935)
- one very low to low birth weight baby, ($35,591)
Cost Analysis

NOTES FROM THE FIELD

Group Prenatal Care: A Financial Perspective

Rebecca A. Rowley¹ · Lindsay E. Phillips² · Lisa O’Dell³ · Racha El Hussein⁴ · Sarah Carpino⁴ · Scott Hartman²

Published online: 31 July 2015
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Abstract

Introduction Multiple studies have demonstrated improved perinatal outcomes for group prenatal care (GPC) when compared to traditional prenatal care. Benefits of GPC include lower rates of prematurity and low birth weight, fewer cesarean deliveries, improved breastfeeding outcomes and improved maternal satisfaction with care. However, the groups with various numbers of participants based on numerous variables, including patient population, payor mix, patient show rates, staffing mix, supply usage and overhead costs. The model was developed for use in an urban underserved practice.

Results Adjusted revenue per pregnancy in this model was found to be $989.93 for traditional care and $1080.69
Introducing

March of Dimes
Supportive
Pregnancy Care
Conceptual framework for model

Fosters HEALTH LITERACY and HEALTH EQUITY

- Social determinants of health
- Cultural relevance
- Medical factors
- Flexible
- Can be customized

By addressing

And is an approach that is
Program Assets
Implementation Guide
Module Outlines for Sessions

SUPPORTIVE pregnancy care SESSIONS
Pilot Study
Supportive Pregnancy Care Pilots in Tennessee

• Funded by UnitedHealth Group and State of Tennessee, Department of Health
• Evaluation by Peabody Research Institute at Vanderbilt University
• Pilot runs November 2016 – June 2018
• First groups of women started in February
<table>
<thead>
<tr>
<th>Partner</th>
<th>Location</th>
<th>Site Setting</th>
<th>Population Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherokee Health Systems</td>
<td>Knoxville</td>
<td>FQHC, urban, medical home with fully integrated behavioral health</td>
<td>31% Caucasian, 32% private insurance, 48% Medicaid, 20% uninsured</td>
</tr>
<tr>
<td>Cherokee Health Systems</td>
<td>Talbott</td>
<td>FQHC, rural</td>
<td>95% Hispanic and non-English speaking Predominantly Medicaid</td>
</tr>
<tr>
<td>Hollywood Primary Healthcare/Regional One</td>
<td>Memphis</td>
<td>Safety net clinic</td>
<td>78% African-American, 10% multiracial, 7% Caucasian, 95% Medicaid</td>
</tr>
<tr>
<td>Meharry Medical College</td>
<td>Nashville</td>
<td>HBCU, urban, safety net hospital</td>
<td>Vast majority of patients is African-American or Hispanic</td>
</tr>
<tr>
<td>State of Franklin Healthcare Associates</td>
<td>Johnson City/Tri-Cities</td>
<td>Physician-owned private practice</td>
<td>97% white, 55% private insurance, 45% Medicaid</td>
</tr>
<tr>
<td>UT Knoxville</td>
<td>Knoxville</td>
<td>Teaching hospital, urban</td>
<td>14% private insurance, 83% Medicaid</td>
</tr>
<tr>
<td>Vanderbilt University Medical Center</td>
<td>Nashville</td>
<td>Teaching Hospital, urban</td>
<td>Majority of patients are privately insured or covered under VU employee insurance, 37% Medicaid</td>
</tr>
</tbody>
</table>
Data Analysis Overview

Conduct a mediation analysis testing the hypothesized relationships depicted in the following figure:

- **Attitude/Knowledge Outcomes**
  - Patient Empowerment
  - Self-Efficacy
  - Health Literacy

- **MOD Supportive Pregnancy Care**

- **Health Outcomes**
  - Higher Birth Weight
  - Greater Gestational Age
Research and Evaluation
Overview

From the pilot sites PRI will identify treatment and comparison groups.

Treatment Group
- Women who participate in Supportive Pregnancy Care.
- Women can “self-select” into treatment. Participating health care providers may refer any eligible patient to the treatment group.

Comparison Group
- Women who participate in traditional (i.e., individual) prenatal care at one of the pilot sites.
- PRI will use propensity score matching to identify a sample of women who are “matched” to the women in the treatment group.

PRI will conduct power analysis to determine sample sizes needed for minimal detectable effect sizes for key outcomes of interest.
Conclusion

Equality doesn’t mean Equity
Group Prenatal Care Short Film