

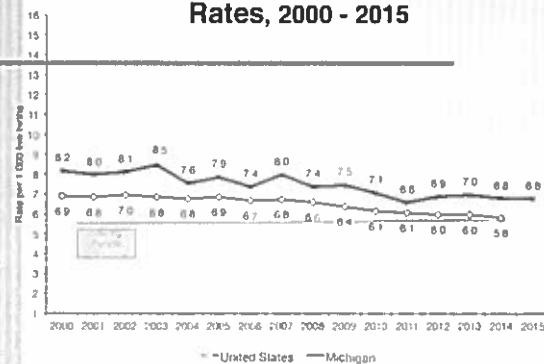
Understanding the complexity of why babies die
and efforts underway to reduce the rate

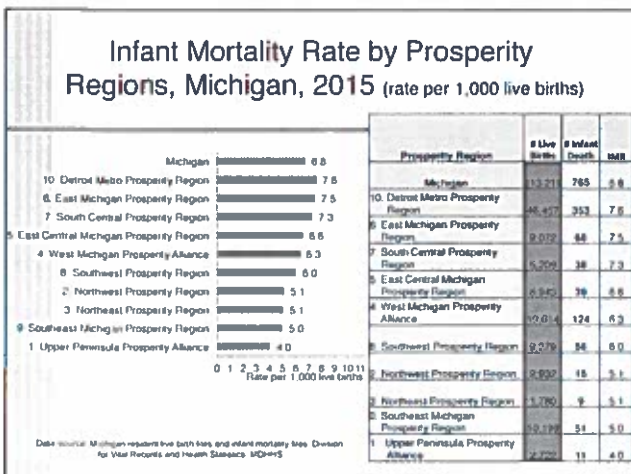
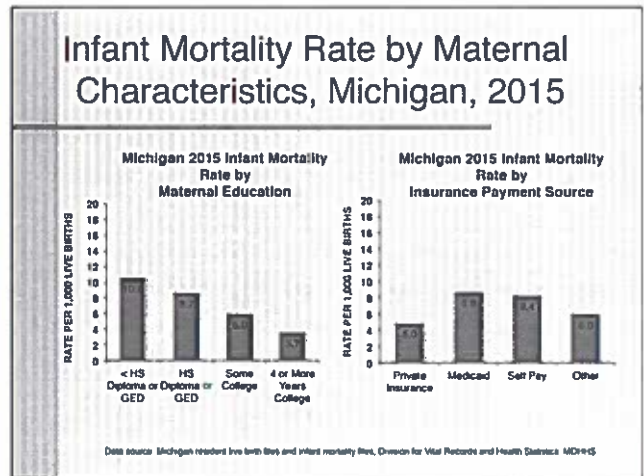
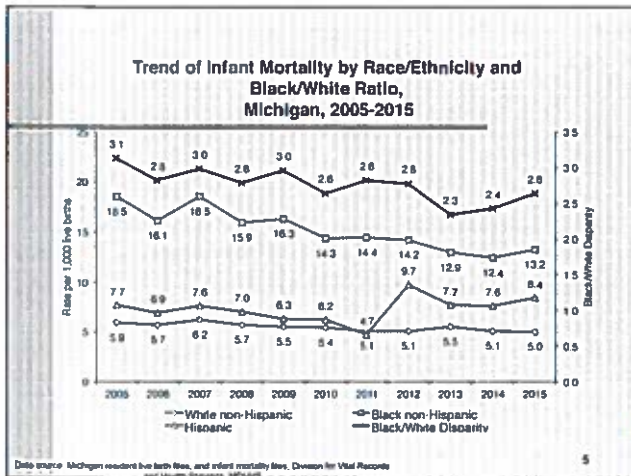
House Health Policy Committee
May 17, 2017

Sonia Hassan, MD, Associate Dean for Maternal, Perinatal and Child Health,
Wayne State University; Director, Center for Advanced Obstetrical Care & Research,
Perinatology Research Branch
Amy Zaagman, Executive Director, Michigan Council for Maternal & Child Health

- A baby that dies before age one year
- Expressed as a rate per 1,000 live births a year
 - Neonatal deaths - within first 28 days
 - Post neonatal deaths - 28 days to 1 year of life
- Does not include fetal deaths
 - Important measure: perinatal mortality rate from 28 weeks gestation - 7 days of age
- Maternal mortality in Michigan

- Disproportionately babies of color
 - African-American rate is 3 times that of whites
- Infants/mothers low-income
- Unintended pregnancies
- Low or very low birthweight babies
- Poor preconception health of mother
- Lack of prenatal care





Maternal Health / Prematurity

- **Preconception Health**
 - Unhealthy behaviors, STD screening, birth intervals, addressing chronic disease
- **Unintended pregnancy**
 - Access to pregnancy prevention and related services
- **Preventing premature birth**
 - Efforts to maintain healthy pregnancy to 39 weeks
- **Perinatal Regionalization**
 - A system of care that ensures pregnant women and newborns access to the best level of care for their clinical needs

Maternal Care

- Prenatal Health Care
 - Smoking, drug use, chronic disease
 - Access to services, dental, nutrition
 - Depression screening, vitamins
- Obstetric Care
 - Access, Medicaid rates
 - High risk referral
- Education

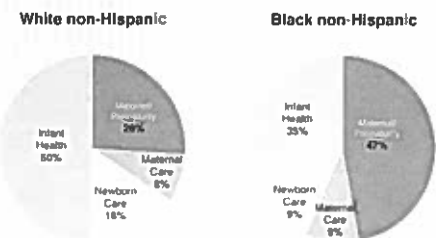
Newborn Care

- Perinatal Management/Regionalization
 - Ensuring deliveries happen at most appropriate facility
- Neonatal Care
- Pediatric Surgery/specialty care
- Newborn screening and follow-up

Infant Health

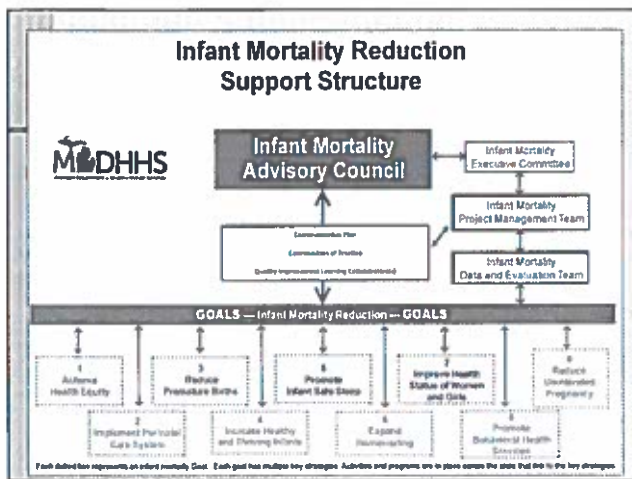
- Safe Sleep
- Breastfeeding
- Injury Prevention
- Home environment
- Access to care
 - Follow-up for NICU graduates
 - Medical home
 - Immunizations (for baby & those in contact)

Michigan Feto-Infant Excess Mortality Rate* by Maternal Race/Ethnicity: 2013-2015 (rate per 1,000 live births)



* Using Michigan reference: White non-Hispanic, 20-40 years old and (>13 years education or intending to use private insurance at delivery)

Data source: Michigan resident live birth files, infant mortality files and fetal death files. Division for Vital Records and Health Statistics, MDH&HS



Regional Quality Improvement Projects

- Southeast Michigan Perinatal Quality Improvement Coalition (Region 10)
- West Michigan Perinatal Alliance (Region 4)
- Perinatal Regional Collaborative Network (Regions 2 & 3)
- Initial phases (Region 8)

A map of Michigan is shown, divided into 10 numbered regions. The regions are: 1 (Northwest), 2 (West-Central), 3 (Central), 4 (West), 5 (East-Central), 6 (East), 7 (South-Central), 8 (South), 9 (Southwest), and 10 (North). The regions are color-coded: 1 (light blue), 2 (light green), 3 (light yellow), 4 (light orange), 5 (light purple), 6 (light pink), 7 (light brown), 8 (light grey), 9 (light blue), and 10 (light green).

Preterm neonate

A photograph of a preterm neonate lying in a medical bed, connected to various medical tubes and monitors. The neonate is wearing a nasal cannula and has a small tube in its mouth. The background is a clinical setting with medical equipment.

Preterm birth is the leading cause of infant mortality

The Annual Societal Economic Burden Associated with Preterm Birth in the United States

In excess of \$26.2 billion in 2005

Preterm birth results in...

- Respiratory distress syndrome
- Chronic lung disease
- Bowel injury/inflammation
- Long-term mental disabilities
- Cerebral palsy

Bull World Health Organ 2010;88:31-38

Prediction and Prevention Of Preterm Birth



Center for Advanced Obstetrical Care and Research

— Where Research and Hope Meet —

Center for Advanced Obstetrical Care and Research

- Early enrollment of patients at risk
- Patient Care (DMC and WSU MDs)
 - Comprehensive biophysical assessment:
 - Ultrasound, Doppler, Echocardiography
 - Comprehensive assessment of outcome
- Education and Social Support
- Research Mission of the Perinatology Research Branch

NIH in Michigan for Mothers and Children

Creation of the Perinatology Research Branch

- **Public Health Service Act**
- **NIH Revitalization Act of 1993**

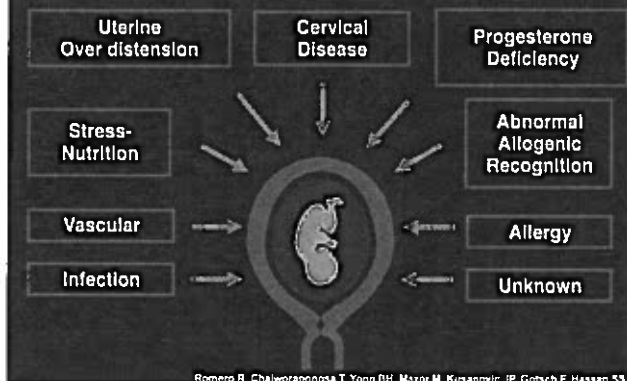
**Michigan Campus of the
Intramural Program of NICHD
Since 2002
Created to address
Infant Mortality**

Mission

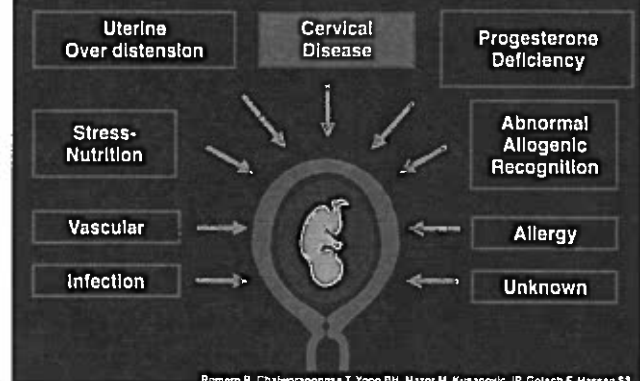
Perinatology Research Branch

1. **To conduct clinical and basic research in perinatal medicine and related disciplines**
2. **To provide research training for physicians, scientists, and other health care professionals whose aim is to improve the health care of mothers and their children**

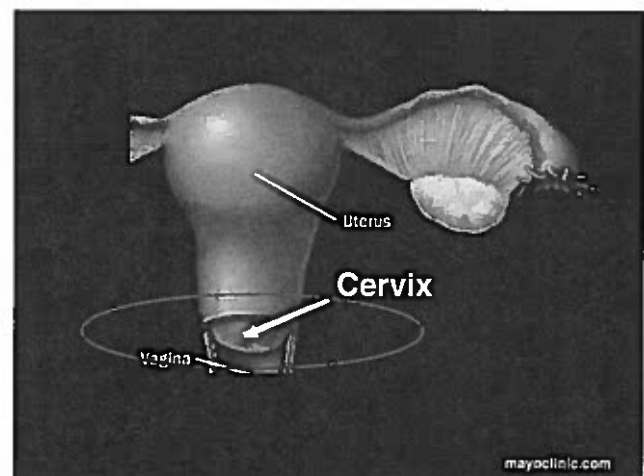
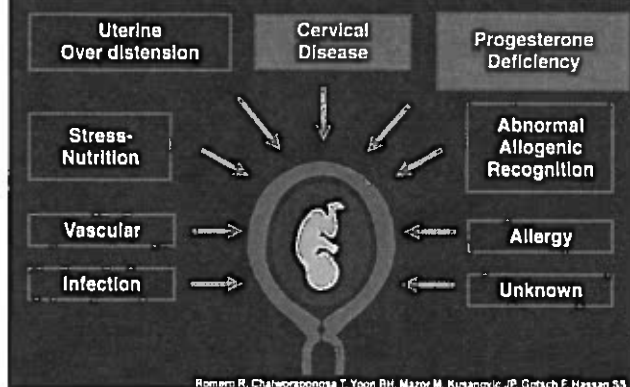
The Preterm Labor Syndrome

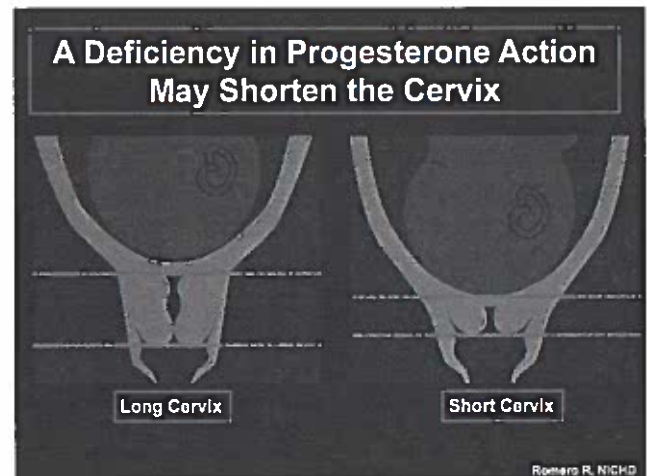
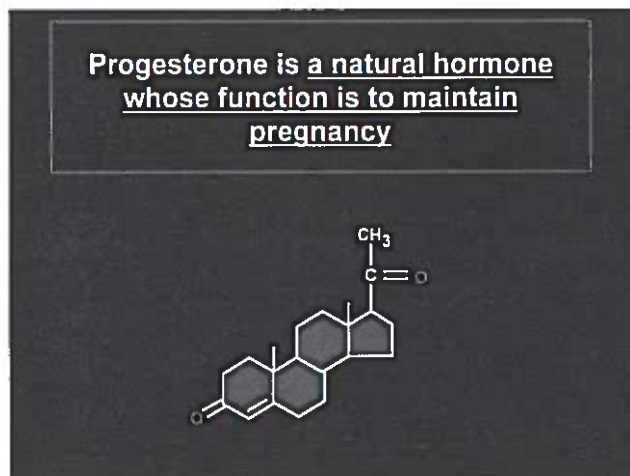
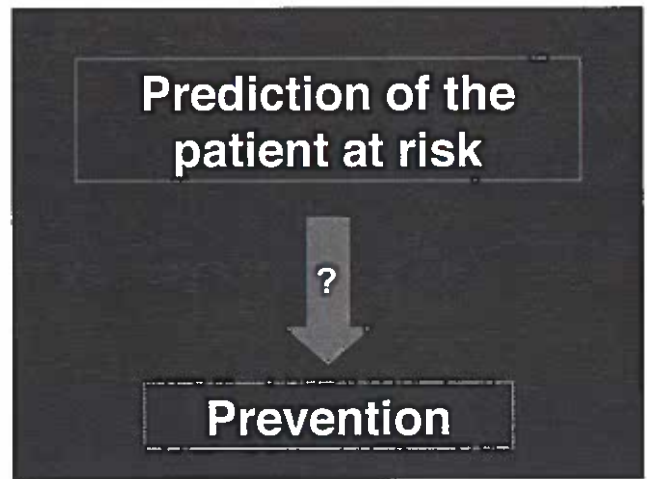


The Preterm Labor Syndrome



The Preterm Labor Syndrome





PREGNANT Trial **Vaginal Progesterone Bioadhesive Gel (Prochleva)®** **Extending Gestation A New Therapy for Short Cervix**

Ultrasound Obstet Gynecol 2011; 36: 18-31
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/ulug.9017

Vaginal progesterone reduces the rate of preterm birth in women with a sonographic short cervix: a multicenter, randomized, double-blind, placebo-controlled trial

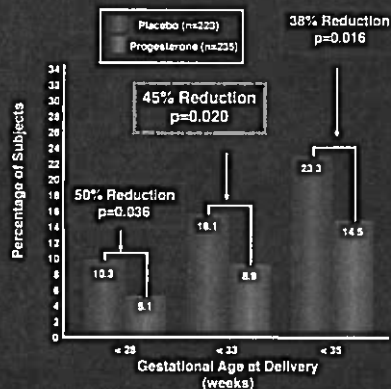
S. S. HASSAN^{1,2}, R. ROMERO^{1,3,4}, D. VIDYADHARI¹, S. FUSEY⁵, J. K. BAXTER⁶, M. KHANDELWAL⁵, J. VIJAYARAGHAVAN⁷, Y. TRIVEDI¹⁰, P. SOMA-PILLAY¹¹, P. SAMBAREY¹², A. DAYAL¹³, V. POTAPOV¹⁴, J. O'BRIEN^{15,16}, V. ASTAKHOV¹⁷, O. YUZKO¹⁸, W. KINZLER¹⁹, B. DATTEL²⁰, H. SEHDEV¹¹, L. MAZHEKA²², D. MANCHULENKO²³, M. T. GERVAZI¹⁴, L. SULLIVAN²⁴, A. CONDE-AGUDELO¹, J. A. PHILLIPS²⁵ and G. W. CREASY²⁷, for the PREGNANT Trial

Hassan SS, Romero R, Vidyadhar D, et al. Ultrasound Obstet Gynecol. 2011 Jul;36(1):18-31

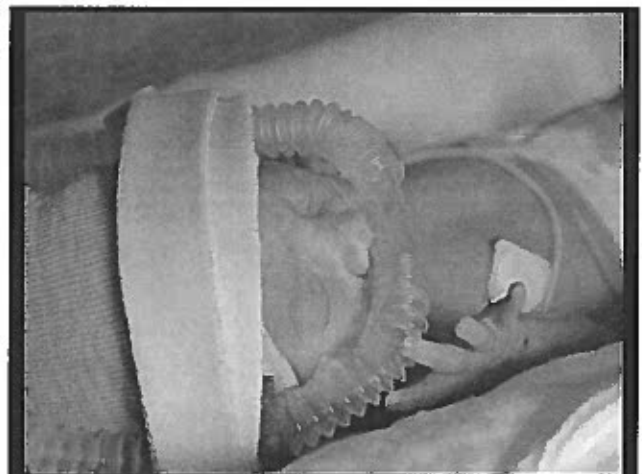
International Trial: **44 Centers Worldwide (37 University Centers)**



Gestational Age at Delivery



Hassan SS, Romero R, Vidyadhar D, et al. Ultrasound Obstet Gynecol. 2011 Jul;36(1):18-31

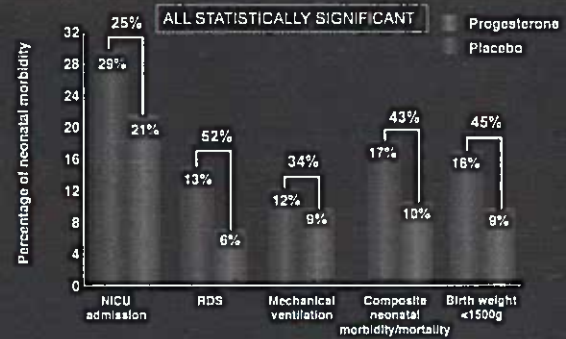


Progesterone reduced the rate of Respiratory Distress Syndrome by 61%

placebo 7.6% vs. progesterone 3% vs. $p=0.03$

Hassan SS, Romero R, Vidyadhari D, et al. *Ultrasound Obstet Gynecol*. 2011 Jul;38(1):18-31

Effect of Vaginal Progesterone on Neonatal Outcomes



What are the Implications for the Health Care System?

Cost-Effectiveness Analysis

126 The impact of cervical length on the cost-effectiveness of vaginal progesterone as a preterm birth intervention
 Jessica Page¹, Jenna Emerson¹, Alison Cahill², Allison Allen¹, Jessica Fowler¹, Leonardo Pereira¹, Aaron Caughey¹
¹Oregon Health & Science University, Obstetrics & Gynecology, Portland, OR, ²Washington University in St. Louis, Obstetrics & Gynecology, St. Louis, MO

Am J Obstet Gynecol Vol. 208 No. 1 January, 2013 p. S66 - Supplement

Obstet Gynecol 2013; 121: 12-17
 Published online 23 May 2013 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1016/j.obgyn.2013.05.011

Universal cervical-length screening to prevent preterm birth: a cost-effectiveness analysis

E.J. WERNER, C.S. HAN, C. NEUFELDER, C.S. BOHMSHILJA, C. COPEL, L.E. HUNAI, and S.J. HUNG

Department of Obstetrics, Gynecology & Population Sciences, School of Maternal Fetal Medicine, Yale University School of Medicine, New Haven, CT 06510

Werner EJ et al., *Ultrasound Obstet Gynecol*. 2011 Jul;38(1):32-7

Cost-Effectiveness Analysis

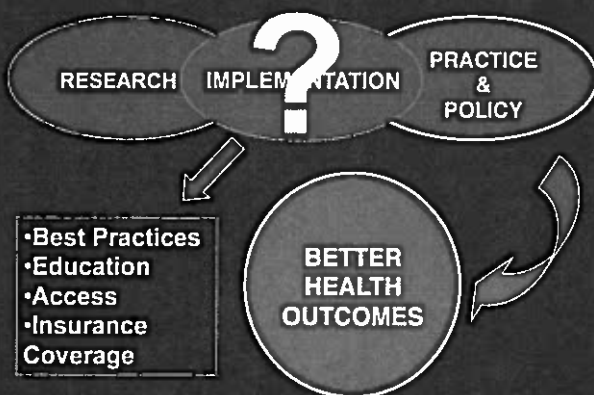
Save \$19 million for every
100,000 women screened

Save \$500 - \$750 million
per year
for US healthcare system

Werner EF et al. Ultrasound Obstet Gynecol. 2011 Jul;38(1):32-7

Can We Implement This
Strategy?

Can We Change Healthcare
Policy?



Preterm birth is the leading
cause of infant mortality

Wayne State University/PRB 2015

Mayor Michael Duggan
Detroit's Plan to Reduce Preterm Birth



<http://blogless.org/blog/>



Mayor Duggan's Plan to Reduce Preterm Birth



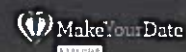
MakeYourDate

DETROIT

#MakeYourDateDetroit

Why this program?

- There are evidence-based strategies to prevent preterm birth that are not fully implemented!
- No Access
- Examples
 - Cervical length screening
 - Prenatal care
 - Home visiting
 - Medication
 - Ultrasound



MAKE YOUR DATE

- Evidence based strategies for the prevention of preterm birth
- Access to insurance, prenatal care
- Classes, Group Prenatal Care
- Website and hotline
- Messaging Campaign
- City-Wide Patient Involvement
- Policy, Data

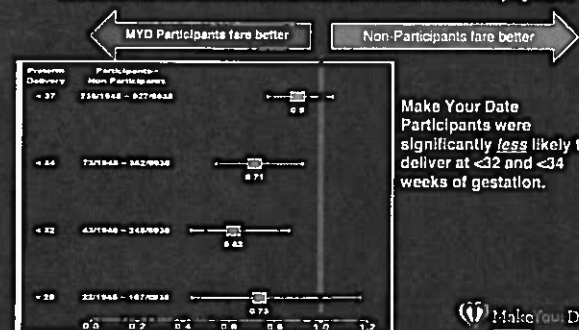


Is Make Your Date participation associated with better pregnancy outcomes?

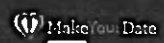


Make Your Date Participants vs. Non-Participants Hutzel Hospital, 2014-2015

Confidence intervals that do not cross the blue reference line are statistically significant



Make Your Date Participants were significantly *less* likely to deliver at <32 and <34 weeks of gestation.



**Preliminary Results:
Make Your Date's Impact**

- In three years, *Make Your Date* has had a positive impact on preterm birth
- The Preterm Birth rate for *Make Your Date* Participants is lower than Detroit's rate and those not in the program at Hutzel Hospital
- Coalition established and Infrastructure



ENDORSED BY



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