

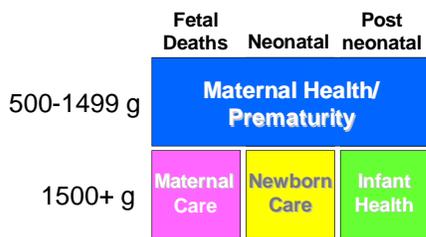
Fetal-Infant Mortality Review (FIMR) Project

CFHS Consortium Meeting
May 29, 2013

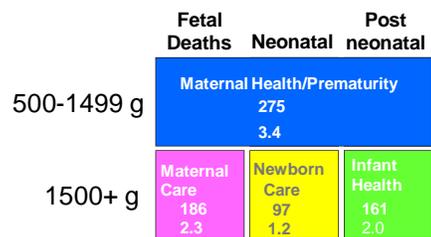
What is FIMR?

- A Fetal and Infant Mortality Review (FIMR) Project is a county- or statewide effort to better understand the issues associated with fetal and infant mortality and morbidity and to develop strategies that improve perinatal systems of care.

Map Feto-Infant Mortality

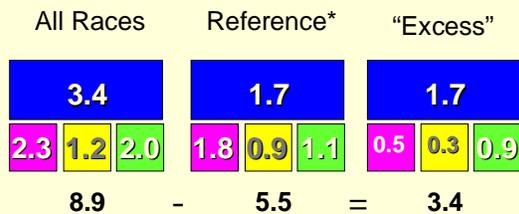


Map Feto-Infant Mortality Region V, 1998-2000



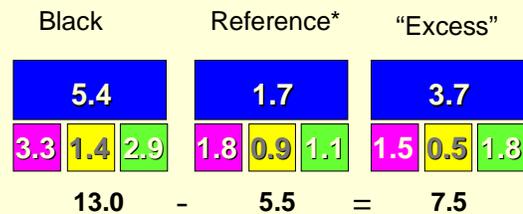
Total Feto-Infant Deaths 719
Live Births plus Fetal Deaths 80855
Feto-Infant Mortality Rate 8.9

Excess Feto-Infant Mortality Region V 1998-2000



* Reference group = non-Hispanic white women greater than 19 years of age with more than 12 years of education

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Excess Fetal Mortality

- When compared to a reference group with good pregnancy outcomes, the Northeast Ohio region has significant excess fetal mortality
- Disparity by race exists for fetal mortality such that black women experience late pregnancy loss more often than white women

Goals of the Project

- Overall: To improve the outcome of pregnancy
- Specific: To decrease late pregnancy fetal demise

Project Objectives

- Improve the quality of the information reported on the fetal death certificate
- Identify trends in the causes of fetal mortality
- Increase awareness among perinatal health care providers about the issues surrounding late pregnancy fetal demise

Project Activities

- Review fetal deaths >1500 grams at MetroHealth Medical Center
- Compare fetal death certificates to medical records
- Assess data quality
- Create model for monitoring fetal deaths

Project Activities (continued)

- Provide community education about late pregnancy fetal demise
- Propose future directions
 - Conduct fetal death chart reviews at other large local hospitals
 - Establish local/regional fetal death reviews
 - Coordinate with existing child death review
 - Establish state-wide fetal death review

2005-2006 Activities

- Institutional Review Board (IRB) approval
- National data base data collection forms chosen and data collection folders assembled
- Chart review of 92 charts from 1997-2006

Results: Subject Characteristics

- Mean age (years): 26.8 (historical 26.1)
- Race:
 - White 39% (42)
 - Black 49% (42)
 - Other 12% (34)
- Marital Status:
 - Married 32% (34)
 - Single 61% (68)
 - Other 7% (1)

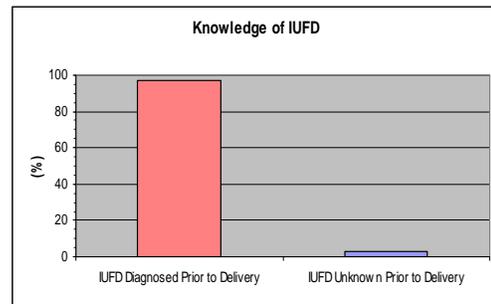
Results: Subject Characteristics (continued)

- Gravity:
 - 1: 22%
 - 2-3: 39%
 - 4-5: 20%
 - >6: 19%
- Mean Gestational Age at First Prenatal Visit (weeks): 15.3
- Mean Gestational Age at IUFD (weeks): 35.1

Results: Subject Characteristics (continued)

- Insurance coverage:
 - Private 10% (34)
 - Medicaid 75% (68)
 - Self 11%
 - Other 4%
- Smoking: 43%
- Alcohol/Drugs: 35%
- No smoking/alcohol/drugs: 46%

Results

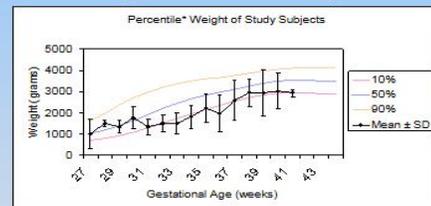


Autopsy/Cause of Fetal Death

	n = 92	Percent
Autopsy Not Available	33	36%
Autopsy Available	59	64%

Cause of Fetal Death	n	Percent
Placental Insufficiency	7	8%
Placental Abruptio	21	23%
Congenital Anomalies	16	17%
Chorioamnionitis/Infections	11	12%
Cord Accidents	10	11%
Undetermined	27	29%

Figure 4: Classification of Fetal Weight by Gestational Age



BMI Statistical Analysis: 2 Groups

	Historical (n)	Study (n)
BMI < 25, % (n)	65.4 (157)	40.3 (29)
BMI ≥ 25, % (n)**	34.6 (83)	59.7 (43)
BMI Mean ± SD*	24.4 ± 5.6	28.5 ± 7.8

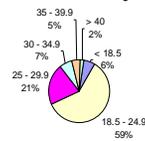
Statistically Significant

* student t test $P < 0.0001$, control vs. IUFD

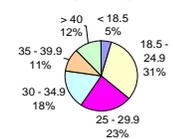
**OR 2.80 (1.63 - 4.82)

BMI

Historical Subjects



Study Subjects



Possible Determinants of Unexplained Fetal Deaths

- Inadequate prenatal care
- Maternal obesity
- Parity of three or more
- Low socio-economic status
- Cord loops
- Advanced maternal age
- Huang DY et al, 2000

Cnattingius S et al, NEJM, 1998

- Swedish retrospective cohort study
- 167,750 singleton pregnancies, 466 stillbirths
- Compared to lean women (<20 BMI), women with a higher BMI had an increased risk (OR, 95% CI) of stillbirth:
 - normal: 2.2 (1.2-4.1);
 - overweight 3.2 (1.6-6.2);
 - obese 4.3 (2-9.3)
- Increasing parity limited risk to obese only

Kristensen J et al, BJOG, 2005

- Danish prospective cohort study
- 24,505 singleton pregnancies; 112 stillbirths
- Classified by pre-pregnancy BMI (<18.5; 18.5-24.9; 25-29.9; ≥30)
- Conclusion: Maternal obesity (BMI ≥30) more than doubled risk of stillbirth (OR 2.8; 95% CI 1.5-5.3) compared to women with normal weight
- More stillbirths causes by unexplained intrauterine death and fetoplacental dysfunction among obese compared to normal weight women

Nohr EA et al, Obstet Gynecol, 2005

- Danish prospective cohort study
- 54,505 singleton pregnancies; 155 stillbirths
- Classified by pre-pregnancy BMI
- Compared to normal weight women, risk of fetal death [as adjusted hazard ratio (95% CI)] was higher among obese women. Overweight women also experienced higher risk after 28 weeks
- Conclusion: Risk of fetal death increases with advancing gestational age

Nohr EA et al (cont)

- ▣ Adjusted hazard ratio (95% CI) among obese women:
 - <week 14: 0.8 (0.5-1.4),
 - weeks 14-19: 1.6 (1-2.5),
 - weeks 20-27: 1.9 (1.1-1.3),
 - weeks 28-36: 2.1 (1-4.4),
 - weeks 37-39: 3.5 (1.9-6.4),
 - ≥40weeks: 4.6 (1.6-13.4)