The Maryland Patient Safety Center Perinatal Collaborative: Background Information II

Maryland Department of Health and Mental Hygiene
Family Health Administration
March 15, 2007

Maternal and infant health in Maryland – The Issues

- Public health perspective –
  - Maternal-infant health status indicators in Maryland are poor.
- Clinical perspective –
  - Preventable medical errors are a national problem.
- Public policy perspective –
  - The unresolved malpractice liability crisis impacts access to care.

2

Maternal and infant health in Maryland – The Options

- Public health perspective –
  - Develop a collaborative public/private partnership to improve perinatal outcomes in Maryland.
- Clinical perspective –
  - Establish a patient safety center perinatal collaborative initiative that links performance improvement processes with outcomes.
- Public policy perspective –
  - Persuade policy makers of the utility of linking a perinatal collaborative quality improvement process with liability premium relief.

3

Maternal and infant health in Maryland – The Next Steps (1)

- Public health perspective –
  - Maryland Perinatal System Standards in place and being used by DHMH and MIEMSS.
  - DHMH Standard 12.5 – The hospital shall participate in the collaborative collection and assessment of data with DHMH and MIEMSS for the purpose of improving perinatal outcomes.
  - MIEMSS Annual Perinatal Indicator Report – Maternal-neonatal transport centers will be required to provide perinatal data.

4

Maternal and infant health in Maryland – The Next Steps (2)

- Clinical perspective –
  - Adopt and track quality perinatal indicators (such as the Adverse Outcome Index, Weighted Adverse Outcome Score, and Severity Index) to benchmark ongoing care.
  - Encourage hospitals and providers to undertake the necessary processes (including teamwork training or skills training) to improve their perinatal outcomes.

5

Possible perinatal data elements to be followed for performance improvement purposes

Adverse Outcome Index

- Maternal death
- Neonatal death > 2500 grams
- Uterine rupture
- Maternal admission to ICU
- Birth trauma
- Return to O.R./L&D
- Admission to NICU > 2500 grams
- Apgar < 7 at 5 minutes
- Blood transfusion
- 3rd/4th degree perineal tear

MD AAP Fetus & Newborn

- Admission temperature to the NICU
- Nosocomial infections – blood stream infections
- Immunization documentation in the discharge/transfer summary
- Pneumothoraces
- Intra-ventricular hemorrhage

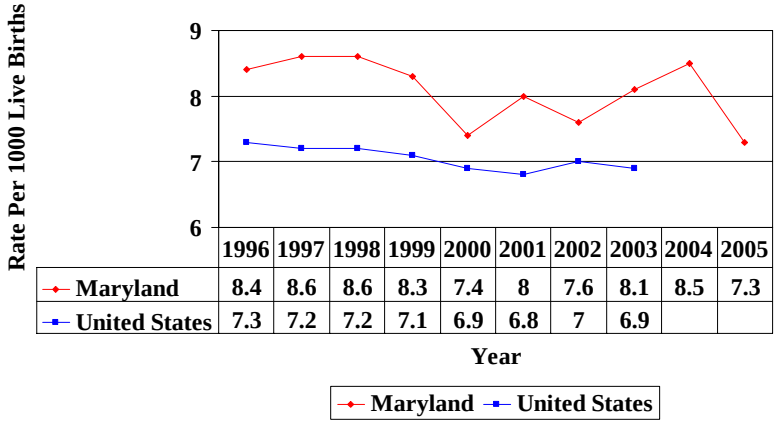
6

Maternal and infant health in Maryland – The Next Steps (3)

- Public policy perspective –
  - Present a statewide patient safety/quality improvement process that
    - Involves most/all MD hospitals with perinatal services
    - Tracks standardized quality perinatal indicators
    - Demonstrates improvement in perinatal outcomes over time
  - Persuade policy makers –
    - That linking this quality improvement process with liability premium relief will result in improved access to care and improved perinatal health outcomes.
    - Involve hospitals, provider groups, health insurers, medical liability insurers, employers, government, and the public.

7

Infant Mortality Rate, Maryland & U.S., 1996-2005

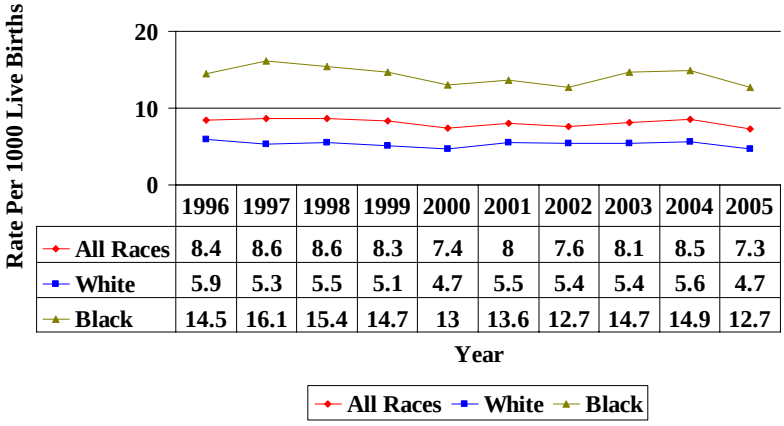


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Maryland	8.4	8.6	8.6	8.3	7.4	8	7.6	8.1	8.5	7.3
United States	7.3	7.2	7.2	7.1	6.9	6.8	7	6.9		

Source: Maryland Vital Statistics 2005 Report

8

Infant Mortality Rate by Race, Maryland, 1996-2005

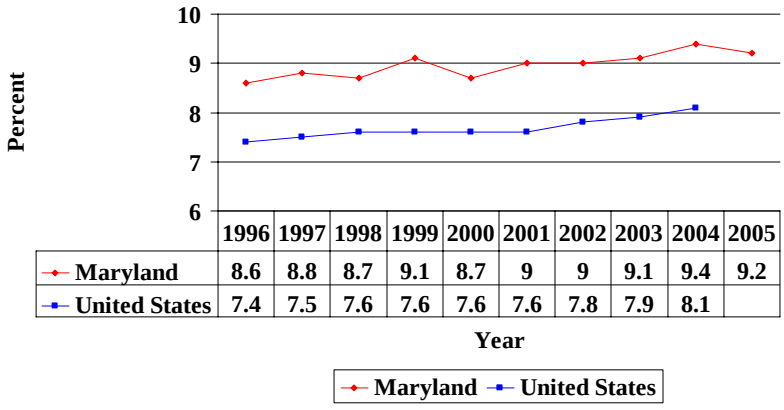


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
All Races	8.4	8.6	8.6	8.3	7.4	8	7.6	8.1	8.5	7.3
White	5.9	5.3	5.5	5.1	4.7	5.5	5.4	5.4	5.6	4.7
Black	14.5	16.1	15.4	14.7	13	13.6	12.7	14.7	14.9	12.7

Source: Maryland Vital Statistics 2005 Report

9

% LBW Infants, Maryland & U.S., 1996-2005

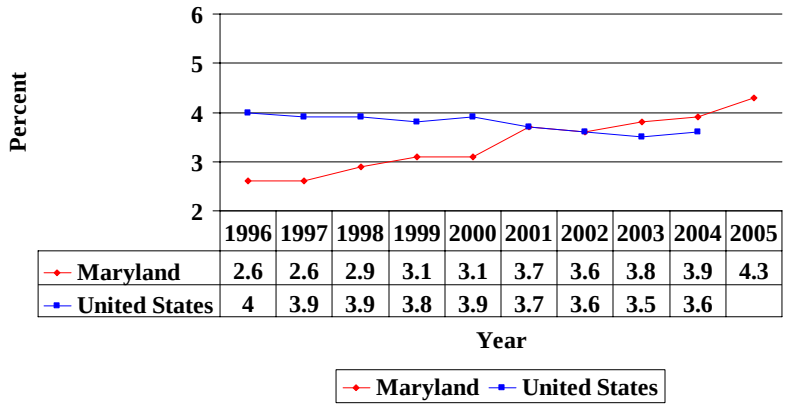


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Maryland	8.6	8.8	8.7	9.1	8.7	9	9	9.1	9.4	9.2
United States	7.4	7.5	7.6	7.6	7.6	7.6	7.8	7.9	8.1	

Source: Maryland Vital Statistics 2005 Report

10

% No Prenatal Care, Maryland & U.S., 1996-2005

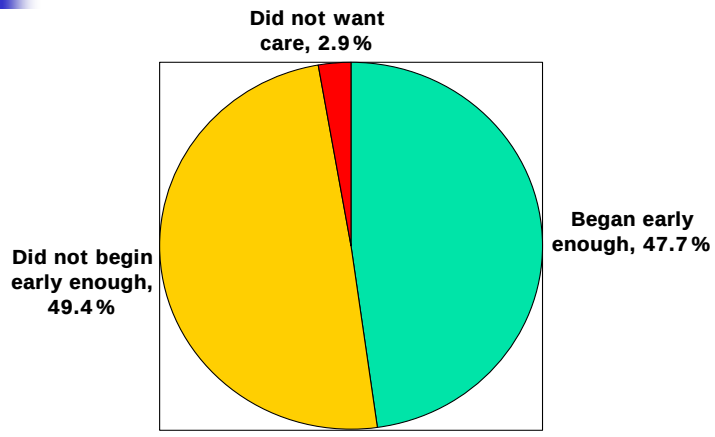


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Maryland	2.6	2.6	2.9	3.1	3.1	3.7	3.6	3.8	3.9	4.3
United States	4	3.9	3.9	3.8	3.9	3.7	3.6	3.5	3.6	

Source: Maryland Vital Statistics 2005 Report

11

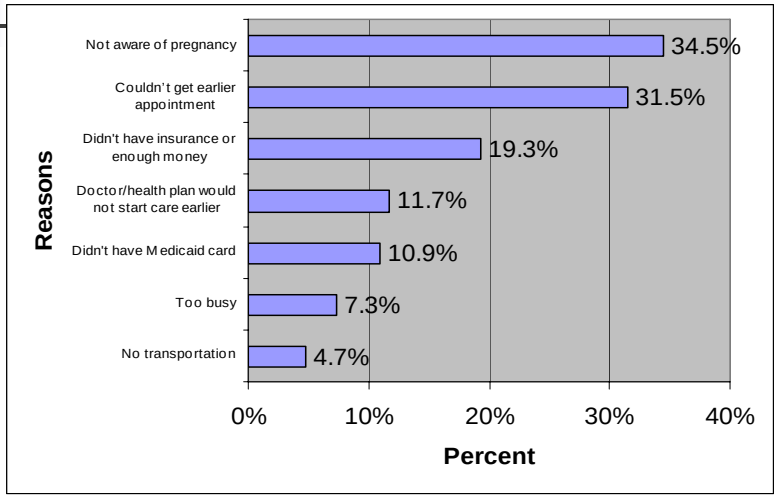
Prenatal care as early as desired



Source: Maryland PRAMS Report, 2001-2003 Births

12

Reasons for late prenatal care



Source: Maryland PRAMS Report, 2001-2003 Births

13

Infant Mortality Prevention: Leading Causes in Maryland

- Pre-term/low birthweight births (24%)
- Congenital anomalies (14%)
- Sudden infant death syndrome/SIDS (10%)
- Problems related to maternal complications of pregnancy (8%)
- Respiratory distress syndrome (4%)
- Bacterial sepsis of newborn (3%)
- Newborn affected by complications of placenta, cord and membranes (3%)

Source: Maryland Vital Statistics 2005 Report

14

Infant Mortality Prevention: Strategies

- Family Planning/Preconception Care
- Prenatal Care
- Healthy Behaviors
  - Good nutrition/WIC
  - Smoking cessation
  - Avoidance of alcohol and illicit drugs
- Perinatal Regionalization
  - Approach for centralizing specialty care for critically ill neonates – first designed in the 1970's
  - Studies showed a twofold improvement in outcome for LBW infants when born in Level III vs Level I facilities

15

Infant Mortality Prevention: History

- 1900-1950: Rates declined from 100/1,000 to 29/1,000 (due to improved nutrition, sanitation, public health measures)
- 1950-1970: Rates plateaued at 20/1,000
- 1971: AMA House of Delegates laid groundwork for perinatal regionalization
- 1972: March of Dimes formed the Committee on Perinatal Health (COPH)

16

Infant Mortality Prevention: History

- 1976: COPH issued *Toward Improving the Outcome of Pregnancy* (TIOP I) that defined perinatal regionalization
- 1985: RWJ Foundation Report on Perinatal Regionalization (McCormick et al) showed
  - Neonatal mortality rates declined by 18%
  - Developmental delay rates declined by 15%
  - Process of regionalization works: risk assessment, referral/transport systems, high risk consultation, outreach education

17

Infant Mortality Prevention: History

- 1993: COPH reconvened and issued *Toward Improving the Outcome of Pregnancy* (TIOP II)
  - Focus on preconception/prenatal care, intrapartum/neonatal care, data, financing
- 2002: *Guidelines for Perinatal Care, 5th Edition* issued by ACOG/AAP
  - "Focus on reproductive awareness, regionally based prenatal care services, and the philosophy of the March Dimes publication (TIOP II)."

18

Infant Mortality Prevention: Maryland's History

- 1984: "The Maryland Advisory Committee on Perinatal Care rejected the tri-level of care concept of regionalization for Maryland. Since this system is not used, there is no information on which hospitals would be placed in each level; further there is no agency authorized to make such designations. Regionalization of OB services should occur, however, and further attempts are necessary." Maryland State Health Plan, 1984

19

Infant Mortality Prevention: Maryland's History

- 1989: Fetus and Newborn Committee of MD AAP developed guidelines, "A New Classification Scheme for Nurseries in Maryland"
  - Only 61% of VLBW births occurred at Level III facilities
  - Only 11 of 39 hospitals met their designated requirements

20

Infant Mortality Prevention: Maryland's History

- 1994: Maryland's Proposal for a Regionalized Perinatal System of Care
- 1995: Partnership formed - DHMH, MHA, & Commission on Infant Mortality Prevention
- 1995: Secretary's Perinatal Clinical Advisory Committee issued, "Maryland Guidelines for Perinatal Care"
- 1995: Birth and death certificates linked for the 1st time in Maryland and hospital-specific, birthweight-specific neonatal mortality rates issued

21

Infant Mortality Prevention: Maryland's History

- 1995: Goals of the Maryland Perinatal Health Initiative set forth:
  - Level I, II, III, & IV hospitals should adhere to the perinatal standards – and designations should be verified through on-site visits
  - # of VLBW births in Level I & II hospitals must be reduced
  - VLBW-specific neonatal mortality rates in Level III & IV hospitals must be reduced

22

Infant Mortality Prevention: Maryland's History

- 1995: Crenshaw Perinatal Health Initiative established that provided community-based funding for high risk perinatal consultation, referral/transport protocols, FIMR, data collection/analysis, provider/public education
- 1995-1998: Voluntary site visits of Level I & II perinatal facilities completed
- 1997-Present: MIEMSS incorporates Level III & IV *Standards* into regulations, for maternal-neonatal transport purposes

23

Infant Mortality Prevention: Maryland's History

- 1998-Present: MHCC incorporates *Standards* into State Health Plan NICU Services & Obstetric Services
- 2004: Maryland Perinatal System Standards revised
- 2006: Babies Born Healthy initiative focuses on prevention, quality improvement and perinatal data surveillance (including funding for the MPSC Perinatal Collaborative)

24

Perinatal Health Efforts: Summary of Component Parts

- High Touch Approach
  - Regional grants for community organizations
  - Provider education (e.g., high risk consultation)
  - Community awareness (e.g., fetal and infant mortality reviews)
- High Tech Approach
  - Perinatal standards setting/hospital site visits
  - Maternal-neonatal transport
  - Perinatal data surveillance/quality improvement

25

Perinatal Health Efforts: Maryland Outcomes

- Infant mortality rate declined by 13%
  - Over the past 10 years – 8.4/1000 in 1996 vs. 7.3/1000 in 2005
- Neonatal mortality rate declined by 8%
  - Over the past 10 years – 5.8/1000 in 1996 vs. 5.3/1000 in 2005
- Postneonatal mortality rate declined by 23%
  - Over the past 10 years – 2.6/1000 in 1996 vs. 2.0/1000 in 2005

26

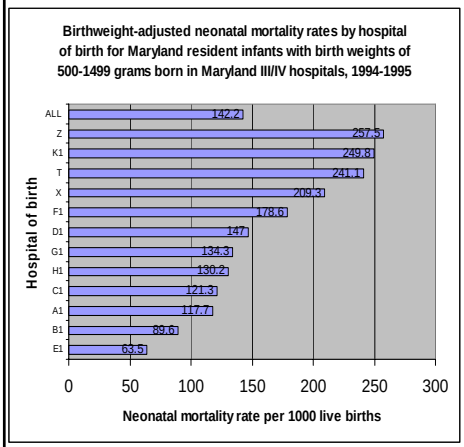
Perinatal Health Efforts: Maryland Outcomes

- Hospital-specific, VLBW-specific neonatal mortality rates have also improved:
  - 16% improvement for all hospitals
    - 148/1000 in 1994-1995 vs. 124/1000 in 2003-2004
  - 15% improvement for Level III hospitals (adjusted):
    - 142/1000 in 1994-1995 vs. 120/1000 in 2003-2004
  - Fewer Level III/IV hospitals now have adjusted NMR's greater than 200/1000
    - 4 in 1994-1995 vs. 1 in 2003-2004

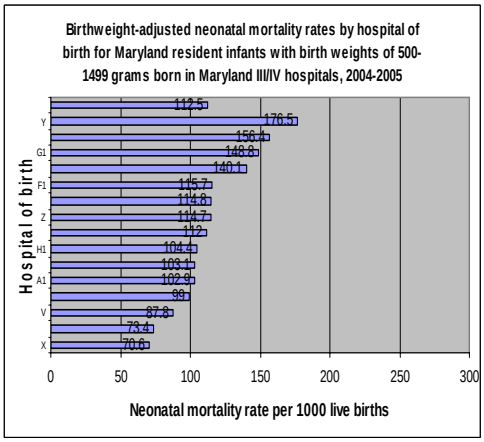
27

Birth Weight-Adjusted Neonatal Mortality Rates By Maryland Level III/IV Hospital

1994-1995



2004-2005



28

What are the lessons learned?

- **The process works**
  - Processes associated with the *Maryland Perinatal System Standards* effort work:
    - sharing of information and expertise
    - consensus building
    - focus on risk assessment/referral/transport systems
    - heightened community awareness

29

What are the lessons learned?

- ***Standards* currently focus more on organizational and process issues**
  - Policies and protocols
  - Obstetric, nursery & other unit capabilities
  - Professional staffing
  - Equipment and medications
  - Continuing education processes
- ***Rather than outcome issues***
  - Mortality rates
  - Intermediate outcome data
  - Service volume

30

What are the next steps?

- ***Maryland Perinatal Standards specify***
  - 3 levels of care – for 33 Maryland hospitals
    - Levels I –9 hospitals
    - Level II – 9 hospitals
    - Level III A,B,C – 15 hospitals
  - 13 categories of interest
    - (1) organization, (2) OB unit, (3) nursery unit, (4) OB personnel, (5) pediatric personnel, (6) other personnel, (7) lab, (8) diagnostic imaging, (9) equipment, (10) medications, (11) education programs, (12) performance improvement, (13) polices/protocols
  - The Next Step – Performance Improvement
    - Standard 12.5 – The hospital shall participate in the collaborative collection and assessment of data with DHMH and MIEMSS for the purpose of improving perinatal outcomes.

31