Perinatal Regionalization:
A Report to the Secretary’s Advisory Committee on Infant Mortality

Joann Petrini, PhD, MPH
SACIM Member
Director, Clinical Research, Danbury Hospital, CT
Associate Professor, Obstetrics and Gynecology, University of Vermont College of Medicine

July 9, 2014
<table>
<thead>
<tr>
<th>Birth</th>
<th>Newborn/neonatal</th>
<th>Postneonatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth in quality, risk appropriate facility</td>
<td>Well-child care based on Bright Futures</td>
<td>Intergenerational screening &amp; treatment for mental health</td>
</tr>
<tr>
<td>NICU quality &amp; safety</td>
<td>Immunization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diagnostic &amp; treatment services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Education on child development and parenting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Injury &amp; SIDS prevention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protection from violence, home and community safety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality early care and education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Newborn screening with appropriate follow up</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and support for breastfeeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking cessation yielding smoke free environment for infant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence-based home visiting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Better health for women

- Women's Clinical Preventive Services
- Family Planning & Reproductive Life Plan
- Well-woman visits & Pre/interconception Care

Better infant & child health outcomes

- Reduced infant mortality
- Improved survival for low birth weight & preterm infants
- Reduced infant & child morbidity
- Optimized health & developmental outcomes
Perinatal Regionalization

- A system of designating where infants are born/transferred based on the amount and type of care needed at birth.

- To provide risk appropriate and cost efficient care / to achieve the best possible outcomes.

- Toward Improving the Outcome of Pregnancy I and II.

- Definition of levels of care/ AAP policy statement (2012).

- National performance measure: At least 90% of VLBW infants born in a facility for high-risk neonatal care.
Collaborative Improvement and Innovation Network (COIIN) in Infant Mortality

- Partnership among federal, national and state organizations to reduce infant mortality
  - HRSA, ASTHO, AMCHP, CDC, CityMatCH, CMS, MOD, NGA, NPP

- Began in 13 southern states in January 2012 as a spin-off of the ASTHO President’s Challenge
  - AL, AR, FL, GA, KY, LA, MS, NC, NM, OK, SC, TN, TX

- Expanding nationally through a HRSA/MCHB contract with NICHD

Source: Gloor, PA. Swarm Creativity: Competitive Advantage through Collaborative Innovation Networks, 2006
Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
U.S. Variation in Infant Mortality by States:
An Opportunity for Quality Improvement

Source: CDC/NCHS; National Vital Statistics System. Infant Mortality Rate by States, 2010

Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
Excess Infant Mortality among S.E. States, 2007-2009


Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
Strategies for Infant Mortality Reduction: U.S. Regions IV and VI

- Prevention of Elective Deliveries < 39 weeks
  - Reduce by 33%

- SIDS/SUID Risk Reduction
  - Increase safe sleep practices by 5%

- Perinatal Regionalization
  - Increase mothers delivering at appropriate facilities by 20%

- Smoking Cessation in Pregnancy
  - Reduce by 3%

- Preconception and Interconception Care
  - Change Medicaid policy and procedures in at least 5-8 states

Source: ASTHO President’s Challenge: www.astho.org
Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
Reducing Infant Mortality: Provision of Risk-Appropriate Care

- Meta-analysis of 30 years of data on perinatal regionalization (104,944 VLBW infants)

- Odds of death at non-level II facilities
  - Infants weighing ≤1,500g
    OR 1.62 (95% CI 1.44-1.83)
  - Infants weighing ≤1000g
    OR 1.64 (95% CI 1.14-2.36)
  - Infants born ≤32 weeks
    OR 1.55 (95% CI 1.21, 1.98)

- In the U.S., VLBW infants are not delivered in 90% of Level III facilities

Source: Lasswell SM, Barfield WD, Rochat RW. Perinatal regionalization for very low-birth weight and very preterm infants: a meta-analysis. JAMA 2010 Sept 1;304(9)VLBW: very low birth weight

Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
% VLBW Infants Born at Level 3 Hospitals in [State], Compared to Other Region IV and VI States

Region IV

Region VI

Data source: State Vital Statistics Death and Birth File from the CoIIN Dashboard
Slide courtesy of CAPT Wanda D. Barfield, MD, MPH, FAAP
There are opportunities for States to:

- Use clear and consistent evidence, particularly for high-risk newborns, that delivery at the appropriate level of care can decrease infant deaths.
- Develop a process and system of designating perinatal levels of care in the state’s maternity hospitals – using the 2012 AAP guidelines.
- Develop and implement referral and transport policies and mechanisms to ensure that every mother and newborn receive risk appropriate care.