Clinical Challenges in IPHIS Data Abstraction and Meaningful Use of the Ohio Public Health Data Warehouse

March 19, 2015
Cradle Cincinnati
Cincinnati, Ohio
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
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<tbody>
<tr>
<td>8:00 AM</td>
<td>Welcome</td>
<td>Beth White, MSN, CNS QI Consultant</td>
</tr>
<tr>
<td>8:05 AM</td>
<td>Cradle Cincinnati: Working to Improve Maternal-Infant Health</td>
<td>Eric Hall PhD, Perinatal Institute, Ass’t Prof. CCHMC Jennifer Mooney, PhD, Dir. Reproductive Health and Wellness, CHD</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>Birth Registry Accuracy: A Clinician’s Perspective</td>
<td>Michael Marcotte, MD OPQC OB Faculty MFM TriHealth</td>
</tr>
<tr>
<td>9:15 AM</td>
<td>Key Variables: Data Abstraction Quality</td>
<td>Beth White &amp; Anna Starr, BS ODH Genetics</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Break</td>
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<tr>
<td>10:10 AM</td>
<td>The Ohio Public Health Data Warehouse</td>
<td>John Paulson, MS ODH Statistician</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Reaching and Sustaining an Accurate Birth Registry: All Teach/All Learn</td>
<td>John Paulson &amp; Beth White</td>
</tr>
<tr>
<td>11:25 AM</td>
<td>Written Evaluation/Safe Travels!</td>
<td>All</td>
</tr>
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</table>
Our Hosts:
Cradle Cincinnati and CCHMC
Introduction to the Work of Cradle Cincinnati

Dr. Eric Hall
Dr. Jennifer Mooney
Our Vision

• Every child born in Hamilton County will reach his or her 1st birthday
• The journey to a healthy first birthday involves
  • Preconception health
  • Pregnancy health
  • Infant health
Cradle Cincinnati

• Collective Impact Collaborative
  • Partnerships
    • Cincinnati Children’s Hospital
    • Maternity hospitals
    • Government leaders and health departments
    • Non-profit organizations
    • Philanthropic groups
    • Educators
    • Faith leaders
  • Shared responsibility
What is an “Infant Mortality Rate”?

- Deaths per 1,000 live births in a specific geographic location
- “Live birth” in Ohio includes any baby who is born and either:
  - has a pulse OR takes a breath OR shows movement of voluntary muscles
- Counted until first birthday
- Counted at mom’s home address
How We Use Data

- Produce data-driven reports of maternal and infant health
- Identify focus areas for improvement
- Establish baselines
- Measure progress toward goals
- Evaluate effectiveness of interventions
Data-Driven Reports

Our Families, Our Future
The outlook of maternal and infant health in Cincinnati and Hamilton County

THE COST OF PRETERM BIRTH

Hamilton County's preterm birth rate is markedly higher than that of Ohio or the nation. In addition to significant human costs, such as higher rates of infant mortality, there are also economic costs, including healthcare, education, and potential future earnings.

www.cradlecincinnati.org
Focusing on the Three “S’s”

- Smoking
- Spacing
- Sleep
Data Accuracy

• Why birth registry accuracy is important
  • Gestational age dating -> Preterm birth
  • Date of last live birth -> Birth spacing
  • Number of cigarettes smoked -> Smoking status
  • Maternal residence -> Assigned county
Identifying Baselines

- Using 2011 Vital Statistics Data
  - Preterm <37 weeks 13.7%
  - Spacing <18 months 34.8% (non-first time moms)
  - Spacing <12 months 19.2% (non-first time moms)
  - Smoking during 2nd or 3rd trimester: 12.8%
Setting Goals

- **Spacing <18 months, 34.8% -> 29.8%**
  - Matches the Healthy People 2020 Goal
- **Spacing <12 months, 19.2% -> 16.4%**
  - Equal percentage reduction
- **Smoking, 12.8% -> 10.2%**
  - 20% reduction from baseline
# Measuring Progress

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2020 Goal</th>
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<tr>
<td>Spacing &lt;18 months</td>
<td>34.8</td>
<td>33.1</td>
<td>32.7</td>
<td>32.6</td>
<td>29.8</td>
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<tr>
<td>Spacing &lt;12 months</td>
<td>19.2</td>
<td>18.0</td>
<td>18.7</td>
<td>17.6</td>
<td>16.4</td>
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<tr>
<td>Smoking (2\textsuperscript{nd} or 3\textsuperscript{rd} Trimester)</td>
<td>12.8</td>
<td>10.8</td>
<td>10.4</td>
<td>10.2</td>
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</table>
Data Sources and Partnerships

- Partnership with Fetal and Infant Mortality Review (FIMR)
  - Traditionally a “case by case” review of factors related to infant/fetal death through vital stats records and medical charts.
  - Data driven approach
  - Real time data for infant death
  - Structured maternal interview
  - HCPH and CHD
Infant Mortality Database

• Birth Summaries, Death Certificates, Fetal Certificate of Death
• Cross verified with HCPH and ODH monthly
  • Fetal > Infant
• Birth summaries provide a wealth of information on perinatal maternal health
• Accuracy is critical – interpretation of missing data on birth summaries is challenging (e.g., 7/7/7777 vs. nothing vs. incorrect date)
Cause of Death Analysis

• “Real time” analysis of the various CODs for Hamilton County
  • Sense whether there is a spike in sleep related deaths, various congenital anomalies, induced preterm birth, etc.
  • Intervene in real time

• Clinical interpretation of death certificates/birth summaries
<table>
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<tr>
<th>Category</th>
<th>2010</th>
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<th>2012</th>
<th>2013</th>
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<td>Adenovirus Infection Pulmonary Edema Liver Failure</td>
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<td>Angiosarcoma (IV)</td>
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<td>Anoxic Encephalopathy</td>
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<td>Aspiration</td>
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COD Initial 2011-2014

- CONGENITAL ANOMALY
- PRETERM BIRTH
- SUID
SECONDARY COD - PRETERM BIRTH

- **Induced**: 63 in 2011, 55 in 2012, 55 in 2013, 47 in 2014
- **Spontaneous**: 6 in 2011, 1 in 2012, 1 in 2013, 5 in 2014
- **Missing**: 1 in 2011, 1 in 2012, 9 in 2013, 3 in 2014

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<td>DIAPHRAGMATIC HERNIA</td>
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<td>N.O.S.</td>
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<td>RENAL</td>
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<td>TRISOMY 13</td>
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<td>TRISOMY 18</td>
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<td>TRISOMY 21</td>
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<td>TRISOMY 9</td>
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<td>CARDIAC</td>
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<td>DANDY WALKER MALFORMATION</td>
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<td>TRISOMY 18</td>
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<tr>
<td>TRISOMY 21</td>
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</tbody>
</table>
Thank You

Eric Hall: eric.hall@cchmc.org
Jennifer Mooney: jennifer.mooney@cincinnati-oh.gov

facebook.com/cradlecincinnati
@cradlecincy
Birth Registry Accuracy

A Clinician’s Viewpoint
Michael P. Marcotte, MD
OPQC Clinical Advisor
OPQC

It takes a village...
OPQC Mission

Through collaborative use of improvement science methods, reduce preterm births & improve perinatal and preterm newborn outcomes in Ohio as quickly as possible.

*Obstetric and Neonatal Focus*
Thank You

Jay D. Iams MD
Obstetrics Lead
Ohio Perinatal Quality Collaborative

Emeritus Frederick P. Zuspan Professor of Obstetrics & Gynecology
The Ohio State University Wexner Medical Center

Michael A. Krew, MD, FACOG
Aultman Maternal Fetal Medicine
Canton, Ohio
Clinical Professor of Obstetrics and Gynecology
Northeast Ohio Medical University.
CDC Request for Proposals (RFP) May 2014
Support new perinatal quality collaboratives and support current grantees (CA, NY, OH) to serve as mentors

“CA, NY, OH are ..... recognized leaders in perinatal quality improvement, as demonstrated by their contributions to the medical literature, partnerships with multiple state-based and national organizations and agencies, and development of various toolkits and other resources”.
Birth Registry or Birth Certificate?
“Of all the advances made in medicine during the recent decades, no step has been more fraught with benefit to the common weal than the birth of the science of public health. The first step in this direction, and one that was essential to its development, was the institution of what is know as vital statistics, i.e. an efficient official registration of births and deaths...”
“the reasons for the inadequacy of birth returns assigned by registration officials in 64 states or city areas show that in no less than 41 the inadequacy is attributed to the “negligence.” “failure,” ’indifference,” etc., of physicians… “no difficulty from midwives…” Occasionally a reason is given for the laxity of physicians such as an objection to do clerical work for nothing, or the fact the physician withholds the report in order to obtain the name and ultimately forgets all together.”
“he, the physician, should surely not grudge some little trouble in the interests of scientific medicine itself, to aid in the development of so important a part of medical science”
Key Changes

- 1900s
  - Date and address of birth, plurality, mother’s age and race, paternal name, previous live births

- 1949
  - Birth weight and length of pregnancy added

- 1968
  - Dating based on LMP, prenatal care, parental education

- 1979
  - Mother’s marital status (dropped “legitimate”), APGAR score, terminations (spontaneous or induced)

Brumberg. J of Perinatology 2012
Key Changes

• 1989
  • Maternal medical risk factors
  • Clinical estimate of gestational age
  • Mother’s race used for tabulation
  • Hispanic origin
  • Smoking and alcohol
  • Methods and complications of delivery and OB procedures
  • First use of checklists

Brumberg. J of Perinatology 2012
Key Changes

• 2003
  • More details on smoking (trimester), obesity (weight gain and height),
  • Infertility (fertility treatments or ART)
  • Nutrition (use of WIC programs, breastfeeding at discharge)
  • Maternal morbidities (e.g. transfusion and ruptured uterus)
  • Infections (but not HIV)
  • Obstetric estimate of gestational age.

Brumberg. J of Perinatology 2012
“The focus of healthcare for women and infants over the next century depends on the quality of the data collected by those who fill out the birth certificates.”
IPHIS

- Integrated
- Perinatal
- Health
- Information
- System
Ohio IMR Ranking in US

- 46\textsuperscript{th} overall
- 44\textsuperscript{th} white
- 50\textsuperscript{th} black
- Black rate more than twice white rate
Health Data

- Medical Record
  - Patient Care

- Administrative: ICD, DRG, etc.
  - Billing

- Birth Registry
  - Public Health
NICHQ: COIIN

- Improve safe sleep practices
- Reduce smoking before, during and/or after pregnancy
- Pre-/Inter-conception Care: Promote optimal women’s health before, after and in between pregnancies, during postpartum visits and adolescent well visits
- Social Determinants of Health: Incorporate evidence-based policies/programs and place-based strategies to improve social determinants of health and equity in birth outcomes
- Prevention of Preterm and Early Term Births
- Risk-appropriate Perinatal Care: Increase the delivery of higher risk infants and mothers at appropriate level
IHI Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Act

Plan

Study

Do
IHI Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Act  Plan

Study  Do
Basics

• All states collect the same data using the same definitions for the birth registry but each state may add additional variables.

• Not all states use 2003 revision
  • 90% of births under 2003 revision as of 1/1/2013 (41 states and D.C.)
  • 2013 final national birth data released Jan. 2015
OPQC = Population Health

105 (of 107) Maternity Hospitals

54 (of 54) Level II and III Nurseries

Pilot: 25 Outpatient OB Clinics
The Ohio Perinatal Quality Collaborative

**Obstetrics**
- 39-Week Scheduled Deliveries without medical indication
- Steroids for women at risk for preterm birth (24\(^{0/7}\) - 33 \(^{6/7}\))
  - Done → Transition to BC Surveillance
- Increase Birth Data Accuracy & Online modules
- Spread to all maternity hospitals in Ohio

**Progesterone to Reduce Preterm Birth Risk**

**Neonatal**
- Blood Stream Infections: High reliability of line maintenance bundle
- Use of human milk in infants 22-29 weeks GA
- OCHA NAS in 6 CH’s
- Neonatal Abstinence
OPQC OB 39 week Project

20 Charter Hospitals
49% of Ohio Births
39-Weeks Charter Project
Kick-off: September 2008

15 Pilot Sites
17% of Ohio Births
39-Weeks Pilot Dissemination and Birth Certificate Accuracy Project
Kick-off: March 2012

~80 Remaining Maternity Hospitals
32% of Ohio Births
39-Weeks Dissemination and Birth Certificate Accuracy Project
Kick-off:
Wave 1: February 2013
Wave 2: May 2013
Wave 3: July 2013
OPQC and ODH: Vital Statistics Partnership

2008:
- Reduce <39 week scheduled deliveries without medical indication in 20 largest Ohio hospitals
- Hand collected data and IPHIS data used for QI

2012: Spread the project to 15 additional hospitals
- Only IPHIS data used for QI

2013: Disseminated project to 70 Ohio hospitals
- Only IPHIS data used for QI
A statewide initiative to reduce inappropriate scheduled births at 36°F/7 – 38°F/7 weeks’ gestation

The Ohio Perinatal Quality Collaborative Writing Committee

AJOG 2010

20 hospitals = 47% of Ohio births
18,384 births between 36°F – 38°F
4780 (26%) scheduled
13,604 (74%) unscheduled

Project ran 9-1-08 → 11-30-09
EED Inductions

Births induced at 37-38 weeks with no apparent medical indication for early delivery, by month, 2006-2014
Aggregate of Ohio maternity hospitals

Source: Ohio Department of Health, Vital Statistics

- Monthly Percent
- Baseline Average Percent
- Control Limits
Rates of labor induction without medical indication are overestimated when derived from birth certificate data

Jennifer L. Bailit, MD, MPH; for the Ohio Perinatal Quality Collaborative

**FIGURE**
Rates of nonmedically indicated induction of labor that were calculated by birth certificate data vs chart abstracted data

% deliveries

- Birth Certificate data
- Chart abstracted data

p < .01

OPQC: Decreasing births < 39 weeks gestation without medical indication and **improving birth registry accuracy project**

**Aim**

In 9 months, improve birth registry accuracy so that focused variables** will be transmitted accurately in 95% of records

(** Pre-pregnancy and Gestational Diabetes; Pre-pregnancy and Gestational hypertension; Induction of Labor; ANCS; OB estimate of GA)**

**Key Drivers**

- Strong communication between clinical team and birth data staff
- Trained clinical and birth data teams
- Audit Process for data verification
- Appreciation of the Importance of the Birth Registry information
- IPHIS (BR) fields include essential and specific information/definitions
- Identification and spread of best practices for data entry and verification

**Interventions**

- Identify a key clinical contact for birth data team
- Identify all sources of birth data
- Identify process for flow of data into the birth registry (IPHIS) system
- Ensure birth data team has access to necessary clinical data

- Utilize ODH and OPQC online education modules for training of birth data and nursing staff
- Ensure clear understanding of birth registry variables
- Ensure clear understanding by birth data team of medical terminology related to birth registry variables

- Coaching/reinforcement by OPQC and state quality coordinators

- Use medical record to IPHIS quality review feedback to identify gaps
- Continuous monitoring of Birth Registry data reports

- Clarify IPHIS definitions and instructions

- Group and individual webinars and 1:1 support by state quality coordinators to identify key changes

Revised: 1.31.13
Project Details: Wave 1, 2013

Monthly Action Period Calls from 12 noon - 1pm
- May 20th  Kick Off Webinar/Action Period Call
- June 17th and individual hospital call
- July 22nd and individual hospital call
- August – individual hospital call and August 26 Learning Session in Columbus
- September 23rd
- October 21st
- November 18th
- December 16th
# Bakers Dozen

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<td>Prenatal</td>
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<tr>
<td>2. Pregnancy Risk Factors: pre-pregnancy and gestational diabetes</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>3. Pregnancy Risk Factors: pre-pregnancy and gestational hypertension</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>4. History of prior preterm birth</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>5. Induction of Labor</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>6. Augmentation of Labor</td>
<td>Labor &amp; Delivery</td>
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<tr>
<td>7. Antenatal corticosteroids (ANCS)</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>8. Antibiotics received by the mother during delivery</td>
<td>Labor &amp; Delivery</td>
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<tr>
<td>9. Birth weight</td>
<td>Newborn</td>
</tr>
<tr>
<td>10. Obstetrical estimate of gestational age</td>
<td>Newborn</td>
</tr>
<tr>
<td>11. Abnormal conditions of the newborn:</td>
<td>Newborn</td>
</tr>
<tr>
<td>Assisted ventilation after delivery and NICU admission</td>
<td>Newborn</td>
</tr>
<tr>
<td>12. Congenital abnormalities of the Newborn</td>
<td>Newborn</td>
</tr>
<tr>
<td>13. Breast feeding at discharge</td>
<td>Newborn</td>
</tr>
<tr>
<td>Variable</td>
<td>IPHIS Tab</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1. Total number of Prenatal visits</td>
<td>Prenatal</td>
</tr>
<tr>
<td>2. Pregnancy Risk Factors: pre-pregnancy and gestational diabetes</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>3. Pregnancy Risk Factors: pre-pregnancy and gestational hypertension</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>4. History of prior preterm birth</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>5. Induction of Labor</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>6. Augmentation of Labor</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>7. Antenatal corticosteroids (ANCS)</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>8. Antibiotics received by the mother during delivery</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>9. Birth weight</td>
<td>Newborn</td>
</tr>
<tr>
<td>10. Obstetrical estimate of gestational age</td>
<td>Newborn</td>
</tr>
<tr>
<td>11. Abnormal conditions of the newborn:</td>
<td>Newborn</td>
</tr>
<tr>
<td>Assisted ventilation after delivery and NICU admission</td>
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</tr>
<tr>
<td>12. Congenital abnormalities of the Newborn</td>
<td>Newborn</td>
</tr>
<tr>
<td>13. Breast feeding at discharge</td>
<td>Newborn</td>
</tr>
</tbody>
</table>
BEST Obstetric ESTIMATE of Gestational Age

- The foundation of almost all data used in Vital record
- Almost always determined by prenatal data
- Want to use the EDD that the OB provider has determined before birth
  - Use LMP unless earliest US provides more accurate estimate*
  - The first day of the last menstrual period minus three months plus 7 days (Naegele’s rule)
  - Accuracy is +/- 14 days
BEST Obstetric ESTIMATE of Gestational Age

- ACOG/AIUM/SMFM committee opinion number 611, October 2014

### Table 1. Guidelines for Redating Based on Ultrasonography

<table>
<thead>
<tr>
<th>Gestational Age Range*</th>
<th>Method of Measurement</th>
<th>Discrepancy Between Ultrasound Dating and LMP Dating That Supports Redating</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤13 6/7 wk</td>
<td>CRL</td>
<td>More than 5 d More than 7 d</td>
</tr>
<tr>
<td>• ≤ 8 6/7 wk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 9 0/7 wk to 13 6/7 wk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 0/7 wk to 15 6/7 wk</td>
<td>BPD, HC, AC, FL</td>
<td>More than 7 d</td>
</tr>
<tr>
<td>16 0/7 wk to 21 6/7 wk</td>
<td>BPD, HC, AC, FL</td>
<td>More than 10 d</td>
</tr>
<tr>
<td>22 0/7 wk to 27 6/7 wk</td>
<td>BPD, HC, AC, FL</td>
<td>More than 14 d</td>
</tr>
<tr>
<td>≥28 0/7 wk and beyond</td>
<td>BPD, HC, AC, FL</td>
<td>More than 21 d</td>
</tr>
</tbody>
</table>

Abbreviations: AC, abdominal circumference; BPD, biparietal diameter; CRL, crown-rump length; FL, femur length; HC, head circumference; LMP, last menstrual period.

*Based on LMP

†Because of the risk of redating a small fetus that may be growth restricted, management decisions based on third-trimester ultrasonography alone are especially problematic and need to be guided by careful consideration of the entire clinical picture and close surveillance.
BEST Obstetric ESTIMATE of Gestational Age

• What is the role of the OB provider and nursing staff?
• To use evidence based data to determine the best Ob estimate of GA
• To clearly design the inpatient and outpatient medical record to accurately and reliably display the best OB estimate of EDD and GA
BEST Obstetric ESTIMATE of Gestational Age

• What is the role of the birth registry staff?

• To use the OB providers best estimate of EDD and GA at the delivery of infant

• Feedback to clinical leadership when this is not clearly or accurately detailed in the Medical record
The OPQC 39 Week Initiative  
2008 - 2010

• The Aggregate Rate of Scheduled Births that Lack a Documented Medical Indication was Reduced from > 15% to 5.40%

• How do we sustain & improve our gains?
  • Regular Monitoring of Data
  • Make the Data Public
  • Educate New Staff to Roles & Responsibilities
    • IPHIS Training for New Birth Registry Staff
  • Investigate Discrepancies in Your Data
  • Review “Fall-Out” Charts Quarterly
Distribution of Ohio Births, by Gestational age and Month
January 2006 to December 2014

Since OPQC inception, 46,350 expected births <39 weeks have shifted to ≥39 weeks.

Baseline averages were calculated from the initial 24 months, January 2006 to December 2007.
Percent distribution of Ohio births <39 weeks gestation, by month
January 2006 to September 2014

Baseline averages were calculated from the initial 24 months, January 2006 to December 2007.
What We Learned

• Some IPHIS variables were not well understood by birth registry abstractors
• Some variables were not easy to find and abstract from the medical record
• Some IPHIS variables were not clearly defined
• Some important medical indications for <39 week scheduled deliveries were not found in IPHIS
• You were frustrated with IPHIS and OPQC’s idea to use IPHIS as the QI data source
You spoke: We listened!

- Each of 300+ IPHIS variables & their definitions were reviewed by a panel of OB and Vital Statistics experts.
- The National Center for Health Statistics was consulted.
- The Result:
  - 12 new variables
  - 3 existing variables clarified
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy/Ultrasound Dating</td>
<td>The Gestational Age at which the first ultrasound in the current pregnancy was obtained</td>
</tr>
<tr>
<td>Previous Cesarean Delivery</td>
<td>Previous delivery by extracting the fetus, placenta, and membranes through an incision in the mother’s abdominal and uterine walls Do NOT count current pregnancy delivery</td>
</tr>
<tr>
<td>Intrauterine Growth Restriction (IUGR)</td>
<td>Fetus with an estimated fetal weight less than the 10th percentile for gestational age as determined by prenatal ultrasound</td>
</tr>
<tr>
<td>Renal (Kidney) Disease</td>
<td>Maternal medical condition that involves her kidneys</td>
</tr>
<tr>
<td>Cholestasis</td>
<td>Reversible maternal liver condition of late pregnancy associated with increased bile in the blood stream and intense itching of skin</td>
</tr>
<tr>
<td>Blood Group Allo-Immunization</td>
<td>Maternal antibody formation that may lead to fetal red blood cell destruction and fetal anemia</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prior Non-Pregnant Surgery</td>
<td>A previous surgery performed outside pregnancy that increases the risk of uterine rupture in current pregnancy</td>
</tr>
<tr>
<td>HIV</td>
<td>Maternal infection with HIV virus that causes Acquired Immunodeficiency Syndrome (AIDS)</td>
</tr>
<tr>
<td>Progesterone</td>
<td>Was progesterone or “progestin” or “progestogen” treatment ( in any formulation ) prescribed or received after the 1st trimester?</td>
</tr>
<tr>
<td>Obstetric Estimate of gestational age</td>
<td>This estimate of gestation should be in completed weeks and days only and determined by all prenatal factors and assessments such as ultrasound (not the neonatal exam)</td>
</tr>
<tr>
<td>Exclusive breast milk feeding through entire stay</td>
<td>Is the infant being breast fed or receiving human milk at discharge? Breast fed is the action of breast feeding or pumping (or expressing) human milk.</td>
</tr>
<tr>
<td>Congenital Cardiac Screening/Pulse Oximetry</td>
<td>Has the infant been screened for a critical congenital heart defect, through the use of a physiologic test prior to discharge?</td>
</tr>
</tbody>
</table>
Clarification:
3 additional IPHIS variables

• Risk Factors e.) hypertension, gestational: **Changed to**: hypertension, gestational (includes pre-eclampsia)

• Risk Factors o.) hydramnios / oligohydramnios: **Changed to**: polyhydramnios (excessive amniotic fluid) / oligohydramnios (reduced amniotic fluid)
Clarification:
3 additional IPHIS variables

- “Unknown” option has been removed:
  - On the Pregnancy tab from Risk, Infections and Obstetric Procedures sections
  - On Labor & Delivery tab from Characteristics of Labor and Delivery section and Maternal Morbidity section
  - On the Newborn tab from Abnormal Conditions and Congenital Anomalies sections
Facility Worksheet and
Guide to Completing the Facility Worksheet

- Revised to reflect IPHIS changes
- ODH/Vital Statistics
  http://vitalsupport.odh.ohio.gov
Antenatal Corticosteroids

ANCS Project
ANCS Baseline Ohio

- Ohio Birth Certificate: 66%
- Vermont Oxford Hospitals: 80 - 84%

Births 24 0/7 – 34 0/7 weeks
ANNCS Retrospective Chart Review

- 15 Hospitals from 8/5/10 - 1/6/11
- 473 deliveries: 24 0/7 – 34 0/7 weeks gestation
  - 19 inadequate data
  - 5 fetal death before admission
  - 2 lethal anomalies
  - 1 delivered before arrival
- 446 deliveries analyzed
  - 399 (89.5%) received at least one dose
  - 47 (10.5%) received none
    - 50% delivered within 2 hours
    - 65% within 4 hours
Abstractor Challenges

- Variation in location of ANCS documentation
  - Outpatient chart
  - Inpatient chart
  - Referring hospital chart
- ANCS nomenclature
  - Generic
  - Brand names
  - Unique abbreviations
Prospective ANCS

• 19 of 20 OPQC Charter members 11/11 – 6/13
• Monthly webinars
• Hand collected data
Global Aim: Assure that all infants born between 24 0/7 and 33 6/7 weeks’ gestation receive appropriate antenatal corticosteroid treatment to reduce perinatal morbidity and mortality.

SMART AIM
To increase the percentage of infants born in Ohio at 24 0/7 to 33 6/7 weeks’ gestation who receive pre-delivery ANCS to > 90%, by June 2013

Key Drivers

Documentation System

Identification of Appropriate ANCS Candidate

Identification of Appropriate Time for ANCS Administration

Optimal and Efficient Administration of ANCS

Awareness of Benefits and Risks

Interventions

- Create an integrated system of recording ANCS administration among prenatal care sites and delivery sites encompassing all levels and acuity of care.
- Standardize birth certificate documentation of ANCS administration

- CHOOSE an ANCS Strategy or Guideline for your site

- Promote consistent use of common algorithm of ANCS administration for Betamethasone & Dexamethasone
  - Practitioners
    - Prescribing
    - Care Giving/Administering
  - Hospitals
    - Link to maternal transfer & tocolysis
  - Pharmacies
  - Distributors
  - Pharmaceutical Manufacturers

- Promote public awareness of benefits of ANCS
- Education of parents & non-perinatal providers
- Link to maternal transfer & tocolysis
- General risks and benefits
## CSI: Corticosteroid Investigation

<table>
<thead>
<tr>
<th># of patients who did not get ANCS</th>
<th>170 (April through March)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of patients with “CSI”</td>
<td>149</td>
</tr>
<tr>
<td>Reasons for not receiving ANCS prior to delivery</td>
<td></td>
</tr>
<tr>
<td>108 = Short Interval from Presentation to Delivery</td>
<td></td>
</tr>
<tr>
<td>2 = ANCS not given at referring hospital</td>
<td></td>
</tr>
<tr>
<td>15 = Admit Dx not expected to deliver but condition rapidly changed</td>
<td></td>
</tr>
<tr>
<td>6 = Not ordered, or ordered but not given (Systems Failure)</td>
<td></td>
</tr>
<tr>
<td>7 = Infant delivered at 32-34 wks and mom with PROM</td>
<td></td>
</tr>
<tr>
<td>8 = Prenatal Dx of lethal anomaly</td>
<td></td>
</tr>
<tr>
<td>3 = ANCS held for Medical reasons</td>
<td></td>
</tr>
<tr>
<td># of patients with missing Information</td>
<td>21</td>
</tr>
</tbody>
</table>
IPHIS (Birth Certificate) Data

Births at 24-33 completed weeks receiving any antenatal steroids, by quarter,
Aggregate results for 19 OPQC charter sites

Source: Ohio Department of Health, Vital Statistics

Quarterly Percent
Baseline Average Percent
Control Limits
Births at 24-33 completed weeks receiving any antenatal steroids, by quarter
Ohio
Source: Ohio Department of Health birth certificate file..

January 2010: Hospital Compare launched
January 2012: OPQC ANCS project begins

Chart 19 aggregate
Pilot 15 aggregate
Remainder
Ohio
Goal
ANCS Toolkit Outline

- Created by the Ohio Perinatal Quality Collaborative (OPQC)

- Developed to share successful changes and helpful tools to support hospitals improve/maintain their ANCS rates.

- Provides resources to help:
  - Establish an ANCS documentation system
  - Improve identification of eligible mothers
  - Administer ANCS in a timely and efficient manner
  - Ensure everyone involved is aware of risks & benefits of ANCS
Current OB Focus: Progesterone

- Medicaid data analysis
- Solicitation of statewide barriers to progesterone via OPQC web-site
- Support materials
  - Patient Education
  - Provider Education
Progesterone

- 17 hydroxyprogesterone caproate (17OHP)
  - History of previous SPTB
  - 250 mg IM weekly starting at 16 weeks

- Progesterone vaginal suppositories (VP)
  - Short cervix by transvaginal ultrasound performed 18 – 24 weeks
  - Several acceptable preparations used daily
Progesterone Candidates

• History of spontaneous premature birth
  • Recurrence risk up to 50%

• Short Cervix
  • 25% risk of premature delivery

• 35 – 45% risk reduction with progesterone
Changes to Improve Documentation

- Standardizing reporting within medical records
- Giving birth registry staff access to all pertinent sections
- Education birth registry staff on medical terminology
- Increasing communication between clinical staff and birth registry staff
- Auditing birth registry data for accuracy
- Introduce birth registry staff to nurses, APNs and physicians
Resources

- www.opqc.net
- ANCS Tool Kit
- IPHIS (Birth Certificate) Video Modules
- Key Driver Diagrams
Steal shamelessly
Share seamlessly
Key Variables
Data Abstraction Quality

OB estimate of Gestational Age
Progesterone
Exclusive Breast Feeding
Congenital Cardiac Disease Screening

Beth White, MSN, CNS
Anna Starr, BS
The Birth Registry: Ohio’s QI Tool

OK. I get it. The birth registry is important.

The more important question is: How can a person keep all 365 variables straight?
### Unplanned operating room procedure following delivery

Any transfer of the mother back to a surgical area for an operative procedure that was not planned before the admission for delivery.

Excludes postpartum tubal ligations.

<table>
<thead>
<tr>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>•</th>
<th>•</th>
<th>•</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician Operative Note</td>
<td>Physician Progress Note</td>
<td>Physician Order</td>
<td>Repair of laceration</td>
<td>Repair of laparotomy</td>
<td>Drainage of purulent/septic material</td>
</tr>
</tbody>
</table>

**They Don’t Make Sense?**
Memorize these!

- vitalsupport.odh.ohio.gov


And...Please Use Them!
Keep Resources Within Reach

- Revised Guide to Completing the Facility Worksheet for Live Birth
- Revised Facility Worksheet

They Still Don’t Make Sense?
Memorize these!

- vitalsupport.odh.ohio.gov


And...Please Use Them!
Take Ongoing Training Seriously

• **Attend webinars**
• **Availability of webinar and workshop slides on OPQC.net**
• **5 IPHIS Self Study Modules**
• **IPHIS to Patient Medical Record Worksheet**
13 KEY IPHIS VARIABLES

While it is important that you know the definitions of all of the Integrated Perinatal Health Information System (IPHIS) variables, there are 13 very important ones that are essential to understanding the health status of the Ohio population of pregnant women and their newborns. The accuracy of following 13 variables is paramount and can help improve health outcomes for women and babies.
Reference materials that may be printed for multiple Users

OPQC.net

2014 ADDITIONAL

IPHIS VARIABLES

Twelve new additional variables have been added to Ohio’s IPHIS Database. Each is listed below with the corresponding tab and tips for accurate data entry. Enhanced clarification of a number of key existing variables is also described. These variables are important to an understanding of prenatal health and will assist us in improving health outcomes for women and babies in Ohio.
Ref: Reference materials that may be printed for multiple Users
OPQC.net

**Doing More to Reduce Preterm Birth**
Sharper Focus on Preterm Birth Key to Lowering Ohio’s High Infant Mortality Rate

Did you know that preterm birth is the root cause of more than one third of infant deaths?

Nationally, Ohio ranks near the bottom for Caucasian, African-American, and overall infant mortality in the United States. Looking more closely, African-American infant mortality is much higher than white infant mortality, indicating that racial disparities impact infant death in Ohio.

Preterm, or premature, birth is the #1 cause of newborn death in Ohio.

Early preterm births (before 32 weeks) account for more than 70% of neonatal deaths, totaling 500 neonatal deaths annually.

**How Can You Help?**
Here are the steps you can take to address one of Ohio’s biggest public health challenges.

The Ohio Perinatal Quality Collaborative (OPQC)—a statewide, multi-stakeholder network that has worked to improve perinatal health in Ohio since 2007—aims to reduce the rate of preterm births in Ohio by 10 percent by July 1, 2018 with its Progesterone Project.

![Graph showing mortality rate per 1,000 live births](graph.png)

Mortality rate per 1,000 live births
- Non-Hispanic black
- Non-Hispanic white

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate</td>
<td>17.5</td>
<td>16.2</td>
</tr>
</tbody>
</table>

The project aims to increase the use of effective treatments to help reduce preterm birth among women at highest risk.

OPQC
Ohio Perinatal Quality Collaborative

ODH
Ohio Department of Health
To protect and improve the health of all Ohioans
Obstetric Estimate of Gestational Age (updated)

**DEFINITION**

This estimate of gestation should be in completed weeks and days only and determined by all prenatal factors and assessments such as ultrasound (not the neonatal exam).
Obstetric Estimate of Gestational Age (updated)

- IPHIS tab: Newborn

**Tips for entry**

- Enter the obstetric estimate of the infant’s gestation in completed weeks in the weeks box and additional completed days in the days box (0 to 6)
- If only the completed weeks are known or if gestational age given in weeks and a “+” then leave days box blank
- If the days box is left blank, record only the number of fully completed weeks.

**Do not round up or round down**
Births induced at 37-38 weeks with no apparent medical indication for early delivery, by month, 2006-2014
Aggregate of Ohio maternity hospitals

Source: Ohio Department of Health, Vital Statistics
DEFINITION:
The gestational age at which the first ultrasound in the current pregnancy was obtained.
Pregnancy/Ultrasound Dating

- IPHIS tab: Prenatal

**Tips for entry**

- Use gestational age at the time of the first ultrasound
- Choose one of the following:
  - Ultrasound BEFORE/ = \( \geq 20 \) weeks gestation
  - Ultrasound AFTER \( 20 \) weeks gestation
  - Unknown OR no Ultrasound performed
Progesterone

**DEFINITION**

Was progesterone or “progestin” or “progestogen” treatment (in any formulation) prescribed or received after the 1st trimester?
Progesterone

• IPHIS tab: Pregnancy

**Tips for entry**

• Look for: 17-OHPC, 17-P, 17-alpha-hydroxy-progesterone caproate, Makena®, vaginal progesterone suppositories or gel or capsules, Prometrium®, Prochoice®, Crinone®

• Was cervical ultrasound to measure cervical length performed?
Ohio Births Before 32 Weeks

Ohio Birth Registry 2012-2014
All Ohio Hospitals

1.51% < 32 Weeks
Hand Collected = 9.8% < 32 Weeks

OPQC Participating Hospitals

Ohio Birth Registry 2012-2014

2.64% < 32 Weeks
Ohio Births Before 37 Weeks

Ohio Birth Registry 2012-2014
All Ohio Hospitals

Ohio Birth Registry 2012-2014
OPQC Participating Hospitals

OPQC Progesterone Project
All OH Hospitals
Aggregate
Percent Birth Before 37 Weeks Gestation
ODH Birth Registry

Hand Collected @ OPQC sites = 12.3%

8.5% < 37 Weeks
11.3% < 37 Weeks
Welcome to the new IPHIS Breastfeeding variable

Definitions, Tips and Relevance

Developed by Lydia Furman MD
Objectives

• Discuss the relevance of the breastfeeding IPHIS variable
• Define the IPHIS breastfeeding variable
• Identify how to accurately abstract the IPHIS breastfeeding variable
• Discuss how to regularly check the quality of your hospital’s IPHIS data entries
A Brief Technical Assistance Document

- Developed by working groups of the Ohio Chronic Disease Collaborative (OCDC) [www.healthy.ohio.gov/CDPlan](http://www.healthy.ohio.gov/CDPlan)
  - In support of OCDC Objective 1.14: “By 2018, increase the percent of babies who are breastfed while in the hospital.”
  - Partners and Objective Leads are listed on line.
  - Sign up and join us as a partner at: [https://www.surveymonkey.com/s/OCDC](https://www.surveymonkey.com/s/OCDC)
  - The new statewide Breastfeeding Designation Program is one of the key strategy initiatives for this Objective, and
  - “Ohio First Steps for Healthy Babies” is available at [http://www.odh.ohio.gov/OhioFirstSteps](http://www.odh.ohio.gov/OhioFirstSteps), with contact information listed.
Exclusive Breast Milk Feeding through Entire Stay

DEFINITION

- Is the infant being breast fed or receiving human milk at discharge? Breast fed is the action of breast feeding or pumping (or expressing) human milk.
Exclusive Breast Milk Feeding through Entire Stay

IPHIS tab: Newborn

Tips for entry

• Is the infant exclusively breastfed? It is NOT simply the mother’s intent to breast feed.
• If infant IS receiving breast milk, is he or she being exclusively breastfed with no infant formula supplementation?
Ohio First Steps for Healthy Babies

Why Join?

Recognizing Ohio Hospitals for Taking the First Steps Toward Breastfeeding Excellence
Relevance

“Exclusive breastfeeding” is step #6 of the Baby Friendly Hospital Initiative (BFHI) Ten Steps: “Give newborn infants no food or drink other than breast milk, unless medically indicated.”

- “Ohio First Steps for Healthy Babies”, a new free joint designation program from the Ohio Department of Health and the Ohio Hospital Association, includes step #6 in its designation progress
- CDC’s required mPINC (maternity practices in infant care) survey asks about exclusive breastfeeding This new variable gives hospitals a chance to accurately assess their progress, apply for designations, set goals, and market their achievements
The Baby-Friendly Hospital Initiative

Hospitals and maternity units set a powerful example for new mothers. The Baby-Friendly Hospital Initiative (BFHI), launched in 1991, is an effort by UNICEF and the World Health Organization to ensure that all maternities, whether free standing or in a hospital, become centers of breastfeeding support.

A maternity facility can be designated ‘baby-friendly’ when it does not accept free or low-cost breastmilk substitutes, feeding bottles or teats, and has implemented 10 specific steps to support successful breastfeeding.

The process is currently controlled by national breastfeeding authorities, using Global Criteria that can be applied to maternity care in every country. Implementation guides for the BFHI have been developed by UNICEF and WHO.

FHI Part II provides the Global Criteria and outlines how to transform hospital practices. Part IV and Part VI help to verify the ending of free and low-cost supplies of breastmilk substitutes. Additional BFHI Parts, including questionnaires used by external teams to assess facilities before Baby-Friendly designation, may be requested when appropriate from the breastfeeding authority of each country.

Please see the following list of Baby Friendly Hospitals on a country by country basis. In areas where hospitals have achieved baby-friendly status, more mothers are breastfeeding their infants, and child health improves as a consequence.

Since the BFHI began, more than 15,000 facilities in 134 countries have been awarded Baby-Friendly status. In many areas where hospitals have been...
Breastfeeding and Supplementation

Consider these 3 questions:

1- Was the baby eligible to exclusively breastfeed (no contraindications and baby never admitted to the SCN/NICU)?
   ___yes   _____no

2- Did the baby receive any formula or other liquids except those medically indicated? (Response is no only if there is no further supplementation beyond that which is medically indicated. Infant should revert to exclusive breastfeeding once immediate medical concern is addressed and this should be documented.)
   ___yes   _____no

3- Did the mother exclusively breastfeed?
   ___yes   _____no
Question #1 - Was the baby eligible to exclusively breastfeed?

- “Eligibility criteria for exclusive breastfeeding and exclusive breastmilk feeding
- Includes all liveborn newborns discharged from the hospital, with the exception of those who:
  - were discharged from the hospital while in NICU,
  - were diagnosed with galactosemia during the hospital stay,
  - were fed parenterally during the hospital,
  - experienced death,
  - had a length of stay >120 days,
  - were enrolled in clinical trials, or who
  - had a Documented Reason for Not Exclusively Feeding Breast Milk.”

  based on the definition in Joint Commission’s Perinatal Care Core Measure Set #PC-05)
**"NQF-ENDORSED VOLUNTARY CONSSENSUS STANDARDS FOR HOSPITAL CARE"**

Measure Information Form

**Measure Set**: Perinatal Care (PC)

**Set Measure ID**: PC-05

<table>
<thead>
<tr>
<th>Set Measure ID</th>
<th>Performance Measure Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC-05a</td>
<td>Exclusive Breast Milk Feeding Considering Mother's Choice</td>
</tr>
</tbody>
</table>

**Performance Measure Name**: Exclusive Breast Milk Feeding

**Description**:

- PC-05 Exclusive breast milk feeding during the newborn's entire hospitalization
- PC-05a Exclusive breast milk feeding during the newborn's entire hospitalization considering mother's choice

The measure is reported as an overall rate which includes all newborns that were exclusively fed breast milk during the entire hospitalization, and a second rate, a subset of the first, which includes only those newborns that were exclusively fed breast milk during the entire hospitalization excluding those whose mothers chose not to breast feed.

**Definition**: Exclusive breast milk feeding for the first 6 months of age.
Question #2 - Did the baby receive any formula or other liquids except those medically indicated?

• What are maternal reasons for temporary use of breast milk substitutes?
  • Maternal HIV (in US and developed countries- only permanent reason)
  • Severe illness that prevents the mother from caring for her infant, like sepsis or hemorrhage
  • Maternal active herpes lesions on the breast (HSV-1 lesions)
  • Maternal medications such as Iodine-131, heavily sedating psychoactive drugs, and cytotoxic chemotherapeutic agents
  • Note most commonly used maternal medications DO NOT contraindicate breastfeeding, or have medically equivalent substitutes [http://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm](http://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm)
Question #3 – Did the mother exclusively breastfeed?

- Joint Commission definition

  “Exclusive breast milk feeding is defined as a newborn receiving only breast milk and no other liquids or solids except for drops or syrups consisting of vitamins, minerals, or medicines.”

  Breast milk feeding **only** must be documented for the entire hospital stay, and is **still considered exclusive** if:
  
  - Fortifier is added to the breast milk
  - Breast milk is fed at breast, by bottle, syringe or other method
  - Donor breast milk is fed to the infant
  - Sweet-Ease® or a similar 24% sucrose and water solution is given to the baby specifically for pain relief during a procedure
Where to Look

• Use the Infant chart NOT the maternal chart
• Use actual recordings of infant intake and breastfeeding events, *not* provider summaries or medical orders
• Collaborate with your extraction team to find the “best” location in the record, meaning
  • Most accurate- where direct care providers chart
  • Most reliable- record of what was given, *not* what was ordered
• *Then use the same method with each chart*
Summary

• Start on the DAY OF DISCHARGE
  • If the infant is eligible (question #1), and
  • “If the reply to the initial question “Is infant being breast fed at discharge” is YES,
  • then move on to the new question/variable regarding whether or not breast milk is used exclusively.
  • If the infant IS receiving breast milk, is he or she being exclusively breastfed with no infant formula supplementation?”
    • Except as medically indicated (question #2 in slides above)
Exclusive Breastfeeding IPHIS variable

Is the baby being breastfed at discharge?

- YES
  - Baby in NICU or transferred
    - Answer UNKNOWN and STOP
  - Answer YES

- NO
  - Answer NO and STOP
  - Is the baby being exclusively breastfed? (check infant feeding record)
    - YES
      - Answer YES
    - NO
      - Answer NO
Exclusive Breastfeeding PC-05 variable

Is the baby being breast fed at discharge?

- NO
  - Stop! Exclusive BF SECTION DOES NOT APPLY

- YES
  - CHECK INFANT FEEDING RECORD TO VERIFY; ANSWER YES IF BABY MEETS EXCLUSIVE BF CRITERIA
  - Answer NO in Exclusive BF section

Does the baby have an acceptable reason for not exclusively breast feeding?

- NO
  - Answer NO in Exclusive BF section

- YES
  - Answer YES if baby meets exclusive BF criteria
Self Evaluation

• Knowing how we are doing with exclusive breastfeeding is a focused and critical new mandate that gives information hospitals can use for improvement and marketing

• IPHIS to Patient Medical Record Checklist is an easy and proven effective tool for self evaluation
How to Make Comparisons

- BFHI-USA recommends: “The facility should compare its annual rate of supplementation of breastfed babies to that rate reported by the CDC’s National Immunization Survey data for the geographic-specific region in which the facility is located.”

- The relevant resource is: [http://www.cdc.gov/breastfeeding/data/nis_data/index.htm](http://www.cdc.gov/breastfeeding/data/nis_data/index.htm)

- And the breastfeeding report card from CDC is at: [http://www.cdc.gov/breastfeeding/data/reportcard.htm](http://www.cdc.gov/breastfeeding/data/reportcard.htm)

- And the CDC mPINC survey (maternity practices in infant care) [http://www.cdc.gov/breastfeeding/data/mpinc/scoring.htm](http://www.cdc.gov/breastfeeding/data/mpinc/scoring.htm)
Implementing Newborn Screening for Critical Congenital Heart Disease in Ohio

IPHIS/OPQC Regional Workshops
March-April, 2015
Congenital Cardiac Screening/Pulse Oximetry

**DEFINITION**

Has the infant been screened for a critical congenital heart defect, through the use of a physiologic test prior to discharge?
Congenital Cardiac Screening/Pulse Oximetry

- IPHIS tab: CCHD

**Tips for entry**

- Look in the newborn record for results of pulse oximetry reading
  - May document up to 3 screenings if initial failure
- Only nationally recommended screening methods that detect critical congenital heart defects at least as accurately as pulse oximetry may be used.
Newborn Screening (NBS) for Critical Congenital Heart Disease (CCHD)

- 2011: NBS for CCHD was added to the national Recommended Uniform Screening Panel: provides evidence base for states to add to their state-mandated newborn screening programs.

- Heart defects account for 5% of all infant deaths in Ohio and nearly 25% of infant deaths due to birth defects. (Ohio vital records, 1999-2010)

7 CCHDs are evidenced-based to be effectively screened by pulse oximetry in the newborn period:

- Hypoplastic Left Heart Syndrome
- Pulmonary Atresia
- Tetrology of Fallot
- Total Anomalous Pulmonary Venous Return
- Transposition of the Great Arteries
- Triscupid Atresia
- Truncus Arteriosus

(These require cardiac surgery or catheterization early in life)
NBS for CCHD in Ohio: Birth Hospital Requirements

• Designate a CCHD NBS Coordinator and notify ODH of individual’s name/contact information
• Ensure parents/guardians given notice of screening
• Screen each newborn prior to discharge
  – Exemptions: 1) baby transferred before screening; 2) known Dx of CCHD; 3) parent objection; 4) discharged home on oxygen; 5) technical problem w/screening equipment; 6) Other-write in
• Conduct screening by pulse oximetry using AAP screening algorithm
• Communicate results to parents/guardian and attending physician
• Report results to ODH via IPHIS CCHD tab
• Refer newborns w/abnormal screening results
Screening Protocol

(Strategies for Implementing Screening for Critical Congenital Heart Disease Kemper, Mahle, et al Pediatrics 2011;128;e1259; originally published online October 10, 2011; DOI: 10.1542/peds.2011-1317)

- If pulse ox sat rate is \(\geq 95\%\) and difference between right hand and either foot is \(\leq 3\%\) INFANT HAS PASSED SCREENING.

- If pulse ox sat rate is \(< 90\%\) in right hand or either foot INFANT HAS FAILED THE SCREENING AND SHOULD RECEIVE IMMEDIATE EVALUATION AND/OR PED CARDIOLOGY REFERRAL.
Screening Protocol, cont.

• If pulse ox sat rate is between 90-95% in both right hand and either foot, or has difference of >3% between hand and foot **THE PULSE OXIMETRY SCREENING SHOULD BE REPEATED IN 1 HOUR.**

• If 2\textsuperscript{nd} pulse ox sat rate is between 90-95% in both right hand and either foot, or has difference of >3% between hand and foot **THE PULSE OXIMETRY SCREENING SHOULD BE REPEATED IN 1 HOUR.**

• If 3\textsuperscript{rd} pulse ox sat rate is between 90-95% in both right hand and either foot, or has difference of >3% between hand and foot **THE INFANT HAS FAILED THE SCREENING AND SHOULD RECEIVE IMMEDIATE EVALUATION AND/OR PED CARDIOLOGY REFERRAL.**
Screening Data:
DOB 11/01/14 – 11/30/14
(Births to Ohio resident women)

• 10,541 births
• 7,255 babies reported screened at birth hospital
• 201 babies reported not screened b/c transferred
• 38 babies reported not screened for the other exempted reasons

• **TOTAL:** 71% of births reported as either screened or not screened for one of the exempted reasons
Additional data from November, 2014

• 34 birth hospitals (2,087 births) had no data in the CCHD tab – ODH will be following up with them and monitoring their CCHD data

• 154 screening report forms submitted to ODH by NICUs and children’s hospitals (ODH in process of reconciling these screening results with the 201 babies reported as transferred)
A+ PERFORMERS!!
Hospitals with 100% of births w/data in CCHD tab – 11/2014

<table>
<thead>
<tr>
<th>Hospital Name</th>
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<tbody>
<tr>
<td>CHRIST HOSPITAL</td>
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<tr>
<td>EAST OHIO REGIONAL HOSPITAL</td>
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<td>HENRY COUNTY HOSPITAL</td>
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<td>MERCY MEDICAL CENTER</td>
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<tr>
<td>UNION HOSPITAL</td>
</tr>
<tr>
<td>WOOD COUNTY HOSPITAL</td>
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</table>
CCHD Reporting Pearls

• No need to screen or report until the baby is ready to be discharged. We receive a number of reports that the baby not screened because they are still in-house.

• Please report pulse ox saturation percentages in whole numbers. 98.9% should be reported as 99%. We are getting some 3 digit percentages, e.g. 978% for 97.8%.

• Thank you for noting if the baby is deceased in the Other category for Reason Not Screened – Very Helpful!
Public Health Utilization of the Data

• Track outcomes of babies with CCHDs through other ODH systems – BCMH, Birth Defects Surveillance, Help Me Grow.

• Over time determine trends in mortality rates for 7 CCHDs.

• Monitor the screening protocol.
Questions?

Anna Starr
Bureau of Maternal and Child Health

Anna.Starr@odh.ohio.gov
614-995-5333

ODH CCHD webpage:
Ohio Public Health Data Warehouse

Access and Use

John Paulson, MS
Ohio Department of Health Statistician
What is Ohio VS birth data used for?

• Legal document

• Public health assessment
  • Low birth weight
  • Teen birth rates

• Health care assessment
  • Late term inductions
  • C-section rate

• Uploaded into national birth data set
Ohio Public Health Information Warehouse
Why we built it

- Our partners needed timely data delivered on demand (no wait)
- We needed to automate statistical file processing/delivery (free up staff time)
- We needed a stable single portal through which to disseminate health statistics
Features of Ohio’s Public Health Information Data Warehouse

• Public version (no authorization required)

• Secure version (requires user-specific authorization by data steward, and adherence to disclosure limitation policies)
Ohio Public Health Information Warehouse
Data Sourcing

Hospitals key births and Corrections in IPHIS

Electronic Birth registration system

Warehouse staging area (nightly copy)

Built for data submission by many users, but not so great for analysis

Built for analysis

Users obtain reports, charts, maps and data sets here
The Ohio Public Health Information Warehouse application stores large volumes of public health data to support on-going activities such as surveillance, investigations, assessments, grant writing, and evaluations. The application improves the efficiency and quality of ODH's dissemination practices, facilitates the availability of "raw data extracts" and creates timely decision support and analytic tools (i.e., geo-spatial, etc.).

Citation:
Please use the following citation in any publication or release which uses or references data from the Warehouse: "These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations, or conclusions."

Data Sets:
Two types of data sets are available. Downloads are open-format data sets presented in CSV, XML, or other downloadable formats. Interactive data sets can be manipulated on the web. You may search by keyword, category, data source and date published. New data sets are being added regularly.

Select one or more filter criteria (optional) or browse the list of data feeds below. Choosing more than one filter criteria will result in an "AND" operator being applied to the search terms.
Data sets currently offered in secure warehouse

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<th>Name</th>
<th>Type</th>
<th>Category</th>
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<td>Vital Statistics</td>
<td>BRFSS</td>
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<td>BRFSS</td>
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Ohio Public Health Information Warehouse

1.3 million birth records

Functionality offered

Ohio Resident Live Births (2006-Present)
Category: Birth Data
Latest Update: 2/2/2015
Description: Ohio Resident Live Births (2006-present)
Contact Email: John.Paulson@odh.ohio.gov

<table>
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<tr>
<th>Birth Year</th>
<th>Birth Month</th>
<th>Residence County</th>
<th>Sex</th>
<th>Mother’s Race Category</th>
<th>Mother’s Ethnicity</th>
<th>Mothers Education</th>
<th>Mother’s Age</th>
<th>Mother’s Age Group</th>
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<td>30 to 34</td>
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<td>30 to 34</td>
<td>3980g</td>
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So far in 2015, this query returns 133 births with mother’s age of 15-17 years.

Datafeed: https://odhgateway.odh.ohio.gov/EDWS/Feeds/Birthv1/BirthData/OhioLiveBirths?$filter=(BirthYear eq 2015) and (MothersAgeGroupCode eq '2')

Use filters to narrow down data

Download CSV file
## Ohio Resident Live Births (2006-Present)

### Category:
Birth Data

### Latest Update:
12/1/2011

### Description:
Ohio Resident Live Births (2006-present)

### Data Steward:
John Paulson (John.Paulson@odh.ohio.gov)

### Data Feed URL:
https://odhgatewayst.odh.ohio.gov/EDWS/Feeds/Birth/v1/BirthData/OhioLiveBirths

### Table:

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<th>Birth Month</th>
<th>Residence County</th>
<th>Sex</th>
<th>Mother's Race Category</th>
<th>Mother's Ethnicity</th>
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Download Tab in Warehouse

Ohio Resident Live Births (2006-Present)
Category: Birth Data
Latest Update: 2/2/2015
Description: Ohio Resident Live Births (2006-present)
Contact Email: John.Paulson@odh.ohio.gov

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<tr>
<td>Birth Statistical File - 2009</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2010</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2011</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2012</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2013 (Preliminary)</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2014 (Preliminary)</td>
<td>Download</td>
<td></td>
</tr>
<tr>
<td>Birth Statistical File - 2015 (Preliminary)</td>
<td>Download</td>
<td></td>
</tr>
</tbody>
</table>

10 annual birth download files offered
Asterisk indicates data are preliminary.
Example of birth data use: Ohio Perinatal Quality Collaborative

Births induced at 37-38 weeks with no apparent medical indication for early delivery, by month, 2006-2014
Aggregate of Ohio maternity hospitals

Source: Ohio Department of Health, Vital Statistics

- Monthly Percent
- Baseline Average Percent
- Control Limits
INFANT MORTALITY: November 2014

DEATHS
9 babies died

SLEEP-RELATED
1 was a sleep-related infant death
11%

MORTALITY RATE
The infant mortality rate was 5.9 infant deaths per 1,000 live births, which is similar to the HP 2020 goal of <6.0

BIRTHS
1,518 babies were born, of which...
11.2% were Preterm births
8.3% were Low birth weight births

GENDER
The infant death Male to Female ratio was...
2.0 males to 1 female

RACE
56% of Infant Deaths were to Non-Hispanic Blacks (NHB), which is higher than the percentage of births to NHBS (26%)

AGE
78% died before reaching 28 days of age (Neonatal)
22% died between the ages of 28 days and 1 year (Post-Neonatal)

ABOUT THE DATA

Used by permission of Columbus Public Health
A data warehouse containing three primary datasets:

- Births From IPHIS
- Deaths From EDRS
- Fetal Deaths Keyed from paper

Plus “added value” modules based on these three primary sources:

- Infant Mortality, traditional method
- Infant Mortality, linked birth/death method
- Perinatal mortality
ODH Vital Statistics Efforts to Improve Birth Data

• Dashboard

• Query back to hospitals

• Improve IPHIS (to not allow errors)
3,405 Validation Errors

1. Date of First Prenatal Care Visit vs Date of Birth (Infant)
2. Risk Factors—Previous Preterm Births vs Previous Live Births
3. Plurality vs Number of Live Born
4. Number of Live Born
5. Risk Factors—Infertility Treatment vs Fertility Enhancing Drugs vs Asst Rep Technology
6. Mother’s State of Birth
7. Risk Factors - Number Previous Cesareans vs Total Birth Order

** Error percentage of total records queried has exceeded application parameter percentage (10%) and is suppressed from detail.

42 Verification Errors

1. Mother’s Prepregnancy Weight is unlikely
2. Previous Live Births Now Living is unlikely
3. Birthweight is unlikely
4. Is Infant Living at Time of Report? vs Apgar Score at 5 Minutes vs Birthweight is unlikely
5. Mother’s Weight Gain is unlikely
We are tracking these NCHS errors over time
(You have your report in your folder)

<table>
<thead>
<tr>
<th>Error_Group</th>
<th>Error Message</th>
<th>2 FEB</th>
<th>3 MAR</th>
<th>4 APR</th>
<th>5 MAY</th>
<th>6 JUN</th>
<th>7 JUL</th>
<th>8 AUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL ERRORS</td>
<td>AAA TOTAL ERRORS</td>
<td>179</td>
<td>1809</td>
<td>1869</td>
<td>2059</td>
<td>1082</td>
<td>1273</td>
<td>1458</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>AAA TOTAL VALIDATIONS</td>
<td>72</td>
<td>388</td>
<td>302</td>
<td>336</td>
<td>378</td>
<td>421</td>
<td>482</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>Birthweight</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>Congenital Anomalies of the Newborn--Hypospadias vs Sex</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>County of Occurrence</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>Date of First Prenatal Care Visit vs Date of Birth (Infant)</td>
<td>16</td>
<td>29</td>
<td>42</td>
<td>52</td>
<td>75</td>
<td>93</td>
<td>112</td>
</tr>
<tr>
<td>VALIDATION</td>
<td>Date of First Prenatal Care Visit--Year</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
## NCHS error report back to Ohio VS

<table>
<thead>
<tr>
<th>Cert. No.</th>
<th>Over 30 days</th>
<th>First name</th>
<th>Last name</th>
<th>Birth date</th>
<th>Mother med. record no.</th>
<th>Child med. record no.</th>
<th>Error type</th>
<th>Error descr.</th>
<th>Error value</th>
</tr>
</thead>
<tbody>
<tr>
<td>000668</td>
<td>*</td>
<td>MARQUELLE</td>
<td>SMITH</td>
<td>01/04/2014</td>
<td>980263057</td>
<td>980264019</td>
<td>Computed Gestation in Months is unlikely</td>
<td>name</td>
<td></td>
</tr>
<tr>
<td>000668</td>
<td>*</td>
<td>MARQUELLE</td>
<td>SMITH</td>
<td>01/04/2014</td>
<td>980263057</td>
<td>980264019</td>
<td>Date Last Normal Menses Began</td>
<td>detail 12/30/2012</td>
<td></td>
</tr>
<tr>
<td>000668</td>
<td>*</td>
<td>MARQUELLE</td>
<td>SMITH</td>
<td>01/04/2014</td>
<td>980263057</td>
<td>980264019</td>
<td>Date of Birth (Infant)</td>
<td>detail 01/04/2014</td>
<td></td>
</tr>
<tr>
<td>000668</td>
<td>*</td>
<td>MARQUELLE</td>
<td>SMITH</td>
<td>01/04/2014</td>
<td>980263057</td>
<td>980264019</td>
<td>Computed Gestation in Months</td>
<td>detail 13</td>
<td></td>
</tr>
<tr>
<td>001471</td>
<td>*</td>
<td>LUGENIA</td>
<td>ALLEN</td>
<td>01/08/2014</td>
<td>907600643</td>
<td>980264792</td>
<td>Mother's Prepregnancy Weight is unlikely</td>
<td>name</td>
<td></td>
</tr>
<tr>
<td>001471</td>
<td>*</td>
<td>LUGENIA</td>
<td>ALLEN</td>
<td>01/08/2014</td>
<td>907600643</td>
<td>980264792</td>
<td>Mother's Prepregnancy Weight--Edit Flag</td>
<td>detail 0</td>
<td></td>
</tr>
<tr>
<td>001471</td>
<td>*</td>
<td>LUGENIA</td>
<td>ALLEN</td>
<td>01/08/2014</td>
<td>907600643</td>
<td>980264792</td>
<td>Mother's Prepregnancy Weight</td>
<td>detail 052</td>
<td></td>
</tr>
<tr>
<td>002378</td>
<td>*</td>
<td>ARYIANNA</td>
<td>DIXON-</td>
<td>01/10/2014</td>
<td>970289354</td>
<td>980265858</td>
<td>Mother's Weight Gain is unlikely</td>
<td>name</td>
<td></td>
</tr>
<tr>
<td>002378</td>
<td>*</td>
<td>ARYIANNA</td>
<td>DIXON-</td>
<td>01/10/2014</td>
<td>970289354</td>
<td>980265858</td>
<td>Mother's Weight Gain</td>
<td>detail -94</td>
<td></td>
</tr>
<tr>
<td>002378</td>
<td>*</td>
<td>ARYIANNA</td>
<td>DIXON-</td>
<td>01/10/2014</td>
<td>970289354</td>
<td>980265858</td>
<td>Mother's Prepregnancy Weight</td>
<td>detail 209</td>
<td></td>
</tr>
<tr>
<td>002378</td>
<td>*</td>
<td>ARYIANNA</td>
<td>DIXON-</td>
<td>01/10/2014</td>
<td>970289354</td>
<td>980265858</td>
<td>Mother's Weight at Delivery</td>
<td>detail 115</td>
<td></td>
</tr>
</tbody>
</table>
Plan for 2015

• Beginning with 2015 data year we will send a weekly error message to all hospitals with errors

• Shirley Boghrat, Ike Mgbatogu, and Greta Odom will each be handling 1 of 3 regions

• Corrections/explanations to be sent to them
What is an “error”?  
(Birth weight example)

• **True errors**
  • When reported data differs from truth
    • Actual weight of 3254g is reported as 2354g

• **Validation error** (impossible value reported)
  • BC says mother had a previous C-section, but she reports no previous pregnancies

• **Verification error** (unlikely values)
  • Mother’s weight gain unlikely (pre-pregnancy weight of 250 lbs and delivery weight of 180 lbs)

• **Excessive unknown values pattern**
These are the hospitals in attendance that I analyzed in next slide

<table>
<thead>
<tr>
<th>Hospital Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairview Hospital Cleveland Clinic</td>
</tr>
<tr>
<td>Firelands Regional Medical Center</td>
</tr>
<tr>
<td>Fisher Titus Medical Center</td>
</tr>
<tr>
<td>Flower Hospital</td>
</tr>
<tr>
<td>Mercy Regional Medical Center</td>
</tr>
<tr>
<td>Mercy St Charles Hospital</td>
</tr>
<tr>
<td>Mercy St Vincent Medical Center</td>
</tr>
<tr>
<td>Mercy Tiffin Hospital</td>
</tr>
<tr>
<td>ProMedica Memorial Hospital</td>
</tr>
<tr>
<td>ProMedica Toledo Hospital</td>
</tr>
<tr>
<td>Southwest General Health Center</td>
</tr>
<tr>
<td>St. John Medical Center</td>
</tr>
<tr>
<td>The Bellevue Hospital</td>
</tr>
</tbody>
</table>
How do gathered hospitals rank on 2014 birth statistics?

- 13 hospitals

- Total births: 16,104 (11.5% of Ohio births)

- Hospital total births range from 273 to 4,618
  - 4 over 1,000 births
  - 5 between 500-999
  - 4 under 500

- Among 120 or so birth facilities in Ohio, and ranking gathered hospitals by number of missing values on key variables:
  - 5 in worst quartile
  - 3 in second
  - 4 in third
  - 1 in best quartile (with fewest missing values)
## Missing values reports
(you have these in your packet)

- Number of births in IPHIS to date: 2474
- Percent of Ohio births in IPHIS: 1.8
- Hospital's rank among hospitals: 16

### Missing Value Statistics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>No. missing</th>
<th>Percent missing</th>
<th>OH-wide median</th>
<th>US States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Pren. visit dt</td>
<td>227</td>
<td>9.2%</td>
<td>3.4%</td>
<td>4.56</td>
</tr>
<tr>
<td>Number visits</td>
<td>234</td>
<td>9.5%</td>
<td>4.7%</td>
<td>2.24</td>
</tr>
<tr>
<td>Mom ht/wt</td>
<td>540</td>
<td>21.8%</td>
<td>6.7%</td>
<td>1.34</td>
</tr>
<tr>
<td>WIC status</td>
<td>39</td>
<td>1.6%</td>
<td>0.8%</td>
<td>1.51</td>
</tr>
<tr>
<td>Prev. pregnancies</td>
<td>3</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.16</td>
</tr>
<tr>
<td>Payor status</td>
<td>61</td>
<td>2.5%</td>
<td>1.1%</td>
<td>0.53</td>
</tr>
<tr>
<td>Last menses date</td>
<td>15</td>
<td>0.6%</td>
<td>8.5%</td>
<td>10.64</td>
</tr>
<tr>
<td>Presentation</td>
<td>2</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.12</td>
</tr>
<tr>
<td>Infant breast fed</td>
<td>31</td>
<td>1.3%</td>
<td>3.5%</td>
<td>1.18</td>
</tr>
</tbody>
</table>
Lower portion of your missing reports

- **Summary statistics**
- Total missing values in this hospital: 1152
- Total missing percentage in this hospital: 5.20%
- Missing values per birth in this hospital: 0.47
- **Rank:**
  - 1 = most missing
  - 117 = least missing: 16
Why we created the dashboard

• NCHS documents many Ohio problems
• Utility of some variables compromised by inadequate quality
• VS desired an automated tool to
  • report data quality issues to hospitals
  • point VS staff to most important areas for improvement
# Main contents of the Dashboard --tabular

## Ohio VS Data Improvement Dashboard

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total births</th>
<th>Total errors</th>
<th>Ohio standard</th>
<th>Error rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother's birth country or state unknown</td>
<td>16440</td>
<td>99</td>
<td>0.30%</td>
<td>0.60%</td>
</tr>
<tr>
<td>Mother's Hispanic status unknown</td>
<td>16440</td>
<td>66</td>
<td>0.22%</td>
<td>0.40%</td>
</tr>
<tr>
<td>Mother's race unknown</td>
<td>16440</td>
<td>45</td>
<td>0.17%</td>
<td>0.27%</td>
</tr>
<tr>
<td>Pre-pregnancy or delivery weight unknown/unlikely</td>
<td>16440</td>
<td>685</td>
<td>6.48%</td>
<td>4.17%</td>
</tr>
<tr>
<td>Payment source unknown</td>
<td>16440</td>
<td>129</td>
<td>0.53%</td>
<td>0.78%</td>
</tr>
<tr>
<td>Date of first prenatal visit unknown</td>
<td>16440</td>
<td>445</td>
<td>1.84%</td>
<td>2.71%</td>
</tr>
<tr>
<td>Number of prenatal visits unknown</td>
<td>16440</td>
<td>216</td>
<td>1.70%</td>
<td>1.07%</td>
</tr>
</tbody>
</table>
Dashboard data sourcing

Hospital corrections occur in the source
Data quality indicator sources

- Validation and verification errors
- Excessive unknowns
- Other data quality items of special interest
Statistics shown in reports

- Birth count
- Error count
- Error rate (%)
- Error share (% errors within Ohio, within peer group)
- Font color denotes rates above a threshold
Thresholds

• Indicator thresholds define problem cases and font color
• One cut-point per indicator (not peer group specific)
• In general we used the 75\textsuperscript{th} percentile in error rates among hospitals as the cut-point
Hospital and Vital Statistics
User Types

• **Hospital users see** *(for top 12 indicators)*
  - own hospital’s statistics
  - peer group statistics
  - statewide statistics
  - listing of certificates with errors

• **Vital Statistics users see**
  - All of above *(for all hospitals and peer groups)*
  - 12 more indicators
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total births</th>
<th>Total errors</th>
<th>Ohio standard</th>
<th>Error rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother's birth country or state unknown</td>
<td>19269</td>
<td>130</td>
<td>0.30%</td>
<td>0.67%</td>
</tr>
<tr>
<td>Mother's Hispanic status unknown</td>
<td>19269</td>
<td>63</td>
<td>0.22%</td>
<td>0.33%</td>
</tr>
<tr>
<td>Mother's race unknown</td>
<td>19269</td>
<td>79</td>
<td>0.17%</td>
<td>0.41%</td>
</tr>
<tr>
<td>Pre-pregnancy or delivery weight unknown/likely</td>
<td>19269</td>
<td>653</td>
<td>6.48%</td>
<td>3.39%</td>
</tr>
<tr>
<td>Payment source unknown</td>
<td>19269</td>
<td>114</td>
<td>0.53%</td>
<td>0.59%</td>
</tr>
<tr>
<td>Date of first prenatal visit unknown</td>
<td>19269</td>
<td>366</td>
<td>1.84%</td>
<td>1.90%</td>
</tr>
<tr>
<td>Number of prenatal visits unknown</td>
<td>19269</td>
<td>277</td>
<td>1.78%</td>
<td>1.44%</td>
</tr>
<tr>
<td>Prenatal care dates and visits Inconsistent</td>
<td>19269</td>
<td>24</td>
<td>0.16%</td>
<td>0.12%</td>
</tr>
<tr>
<td>Menstrual cycle date unknown</td>
<td>19269</td>
<td>1631</td>
<td>11.76%</td>
<td>8.46%</td>
</tr>
<tr>
<td>Computed gestation unlikely</td>
<td>19269</td>
<td>70</td>
<td>0.36%</td>
<td>0.36%</td>
</tr>
<tr>
<td>Computed gestation, plurality, and birthweight unlikely</td>
<td>19269</td>
<td>84</td>
<td>0.57%</td>
<td>0.44%</td>
</tr>
<tr>
<td>Previous preterm births inconsistent</td>
<td>19269</td>
<td>2</td>
<td>0.07%</td>
<td>0.01%</td>
</tr>
<tr>
<td>Mother's date of birth unknown</td>
<td>19269</td>
<td>1</td>
<td>0.01%</td>
<td>0.01%</td>
</tr>
<tr>
<td>Mother's height unknown/invalid</td>
<td>19269</td>
<td>95</td>
<td>0.37%</td>
<td>0.49%</td>
</tr>
<tr>
<td>Mother's education unknown</td>
<td>19269</td>
<td>113</td>
<td>0.35%</td>
<td>0.59%</td>
</tr>
<tr>
<td>Mother's WIC status unknown</td>
<td>19269</td>
<td>110</td>
<td>0.76%</td>
<td>0.57%</td>
</tr>
<tr>
<td>Mother's weight gain unlikely</td>
<td>19269</td>
<td>6</td>
<td>0.23%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Mother's smoking status unknown</td>
<td>19269</td>
<td>45</td>
<td>0.17%</td>
<td>0.23%</td>
</tr>
<tr>
<td>Delivery paid by other government</td>
<td>19269</td>
<td>371</td>
<td>0.87%</td>
<td>1.93%</td>
</tr>
<tr>
<td>Date of last prenatal visit unknown</td>
<td>19269</td>
<td>301</td>
<td>2.43%</td>
<td>1.56%</td>
</tr>
<tr>
<td>First prenatal visit date and birth date inconsistent</td>
<td>19269</td>
<td>1</td>
<td>0.10%</td>
<td>0.01%</td>
</tr>
<tr>
<td>Plurality, set order and number live born inconsistent</td>
<td>19269</td>
<td>4</td>
<td>0.01%</td>
<td>0.02%</td>
</tr>
</tbody>
</table>
When user clicks on the indicator row, the peer group statistics are shown

Peer groups based on birth count in 2013: 10 large hospitals, 22 medium, 85 small

Delivered by other government error report

<table>
<thead>
<tr>
<th>Record Details</th>
<th>Hospital Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statewide</td>
</tr>
<tr>
<td>State file number</td>
<td>18827</td>
</tr>
<tr>
<td>Mother's medical record number</td>
<td>472</td>
</tr>
<tr>
<td># of errors in record</td>
<td>2.51%</td>
</tr>
<tr>
<td>Pay Code</td>
<td>Total births</td>
</tr>
<tr>
<td>Payment source</td>
<td>Error total</td>
</tr>
<tr>
<td></td>
<td>Error rate</td>
</tr>
<tr>
<td></td>
<td>% peer group error</td>
</tr>
<tr>
<td></td>
<td>% Ohio errors</td>
</tr>
<tr>
<td>Large</td>
<td>6120</td>
</tr>
<tr>
<td></td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>2.48%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>32.20%</td>
</tr>
<tr>
<td>Medium</td>
<td>6022</td>
</tr>
<tr>
<td></td>
<td>269</td>
</tr>
<tr>
<td></td>
<td>4.47%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>56.99%</td>
</tr>
<tr>
<td>Small</td>
<td>6582</td>
</tr>
<tr>
<td></td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>0.77%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>10.81%</td>
</tr>
</tbody>
</table>
Click on peer group to get hospital-level statistics

<table>
<thead>
<tr>
<th>Hospital name</th>
<th>Record Details</th>
<th>Total births</th>
<th>Error total</th>
<th>Error rate</th>
<th>% peer group error</th>
<th>% Ohio errors</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>18827</td>
<td>472</td>
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<td></td>
<td>100%</td>
</tr>
<tr>
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<td></td>
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<td>152</td>
<td>2.48%</td>
<td>100.0%</td>
<td>32.20%</td>
</tr>
<tr>
<td>MEDIUM</td>
<td></td>
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<td>56.99%</td>
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<tr>
<td></td>
<td></td>
<td>384</td>
<td>162</td>
<td>42.19%</td>
<td>60.22%</td>
<td>34.32%</td>
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<tr>
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<td>6</td>
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<td>2.23%</td>
<td>1.27%</td>
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<td>354</td>
<td>93</td>
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<td>34.57%</td>
<td>19.70%</td>
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<td>400</td>
<td>1</td>
<td>0.25%</td>
<td>0.37%</td>
<td>0.21%</td>
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<td></td>
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<td>225</td>
<td>1</td>
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<td>0.37%</td>
<td>0.21%</td>
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<td>0.85%</td>
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<tr>
<td></td>
<td></td>
<td>238</td>
<td>1</td>
<td>0.42%</td>
<td>0.37%</td>
<td>0.21%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>303</td>
<td>1</td>
<td>0.33%</td>
<td>0.37%</td>
<td>0.21%</td>
</tr>
<tr>
<td>SMALL</td>
<td></td>
<td>6582</td>
<td>51</td>
<td>0.77%</td>
<td>100.0%</td>
<td>10.81%</td>
</tr>
</tbody>
</table>
Click on the hospital to see the line listing of certificates with problems

<table>
<thead>
<tr>
<th>Hospital name</th>
<th>Record Details</th>
<th>Total births</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State file number</td>
<td>Mother's medical record number</td>
</tr>
<tr>
<td>Statewide</td>
<td>18827</td>
<td></td>
</tr>
<tr>
<td>LARGE</td>
<td>6120</td>
<td></td>
</tr>
<tr>
<td>MEDIUM</td>
<td>6022</td>
<td></td>
</tr>
<tr>
<td></td>
<td>384</td>
<td></td>
</tr>
</tbody>
</table>

| PaySourceOtherGovernment;          | 2014033594 | 784727 | 1 | 6 | B. OTHER GOVERNMENT |
| PaySourceOtherGovernment;          | 2014034135 | 1076006 | 1 | 6 | B. OTHER GOVERNMENT |
| PaySourceOtherGovernment;          | 2014034104 | 1284419 | 1 | 6 | B. OTHER GOVERNMENT |
| PaySourceOtherGovernment;          | 2014034086 | 1265746 | 1 | 6 | B. OTHER GOVERNMENT |
| PaySourceOtherGovernment;          | 2014033219 | 370069  | 1 | 6 | B. OTHER GOVERNMENT |
### Computed gestation, plurality, and birth weight unlikely

<table>
<thead>
<tr>
<th>Hospital name</th>
<th>State file number</th>
<th>Mother's medical record number</th>
<th>Menses date</th>
<th>Gestation</th>
<th>Birth weight grams</th>
<th>Plurality</th>
<th># of errors in record</th>
<th>Total births</th>
<th>Error total</th>
<th>Error rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51942</td>
<td>185</td>
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<tr>
<td>LARGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>17314</td>
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<td>83</td>
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<td>1091</td>
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<td>0.37%</td>
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- 2014038213  895476  11/19/2013  144  3816  01  1
- 2014049249  116088  11/18/2013  164  4213  01  1
- 2014025925  844531  09/01/2013  191  3266  01  1
- 2014034559  1187386  11/12/2013  142  2885  01  1
- 2014036557  897634  11/13/2013  143  2854  01  1
- 2014047655  1188736  11/14/2013  142  2885  01  1
- 2014034559  1187386  11/12/2013  142  2885  01  1

**OPQC**
Ohio Perinatal Quality Collaborative

**ODH**
Ohio Department of Health
User can sort the rows by a columns’ values

In this case bringing cases with most errors to top

<table>
<thead>
<tr>
<th>Date</th>
<th>ID</th>
<th>Delivery Date</th>
<th>Gest. Weight</th>
<th>Birth Weight</th>
<th>Length</th>
<th>Consistency</th>
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<td>2014051155</td>
<td>1073508</td>
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<td>3470</td>
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</tr>
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<td>2014019290</td>
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<td>165</td>
<td>3795</td>
<td>01</td>
<td>2</td>
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<td>2014001160</td>
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<td>07/22/2013</td>
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<td></td>
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<td></td>
</tr>
<tr>
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<td>08/08/2013</td>
<td>147</td>
<td>3030</td>
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<td></td>
</tr>
<tr>
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<td>07/10/2013</td>
<td>177</td>
<td>3575</td>
<td>01</td>
<td>1</td>
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<tr>
<td></td>
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<td></td>
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</tr>
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<td>07/16/2013</td>
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### Mother's date of first prenatal visit error report

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<th>Hospital name</th>
<th>State file number</th>
<th>Mother's medical record number</th>
<th># of errors in record</th>
<th>Date of first visit</th>
<th>Total births</th>
<th>Error total</th>
<th>Error rate</th>
<th>% peer group error</th>
<th>% Ohio errors</th>
</tr>
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<tbody>
<tr>
<td>Statewide</td>
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<td></td>
<td></td>
<td>51942</td>
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<td>100.0%</td>
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<td>40.30%</td>
<td>28.54%</td>
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<td></td>
<td></td>
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<td>21.38%</td>
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<td></td>
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<td>1518</td>
<td>154</td>
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<td>17.68%</td>
<td>12.52%</td>
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<td></td>
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<td></td>
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<td>1689</td>
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<td>5.05%</td>
<td>3.58%</td>
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<td>1622</td>
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<td>3.50%</td>
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<td>2237</td>
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<td>0.58%</td>
<td>1.49%</td>
<td>1.06%</td>
</tr>
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<td></td>
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<td>1423</td>
<td>2</td>
<td>0.14%</td>
<td>0.23%</td>
<td>0.16%</td>
</tr>
<tr>
<td>MEDIUM</td>
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<td>1560</td>
<td>1</td>
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<td>0.11%</td>
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<td>16655</td>
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<td>100.0%</td>
<td>18.78%</td>
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<td>17677</td>
<td>128</td>
<td>0.72%</td>
<td>100.0%</td>
<td>10.41%</td>
</tr>
</tbody>
</table>

Ohio Standard Error Rate: 1.84%
Hospital User Display Features

• Show error rate and how it compares to other hospitals
• Show proportion of errors the hospital is responsible for statewide and within a peer group
• Use color to direct attention to problems
• Provide a line listing of certificates with problems
Hospital is known from the local login process

Date range defaults to the current year

Hospital can choose a specific data range for the report as needed
Tabular report shown in bar chart

Hospital with a handful of problems
Hospital with two handfuls of problems

- Mother's birth country or state unknown: 0.11%
- Mother's Hispanic status unknown: 0.29%
- Mother's race unknown: 0.17%
- Pre-pregnancy or delivery weight unknown/likely: 0.45%
- Payment source unknown: 0.33%
- Date of first prenatal visit unknown: 1.04%
- Number of prenatal visits unknown: 1.76%
- Prenatal care dates and visits inconsistent: 0.15%
- Menses date unknown: 1.15%
- Computed gestation unlikely: 0.16%
- Computed gestation, plurality, and birthweight unlikely: 0.25%
- Previous preterm births inconsistent: 0.15%
- Mother's weight gain unlikely: 0.15%
- Mother's smoking status unknown: 0.17%
- Date of last prenatal visit unknown: 2.43%

Above standard: 13.23%
Below standard: 6.48%
Equal to standard: 25.02%
Ohio standard: 21.87%

OPQC
Ohio Perinatal Quality Collaborative
ODH
Ohio Department of Health
Questions?

- John Paulson
- Ohio Department of Health
- Bureau of Vital Statistics
- John.paulson@odh.ohio.gov
- 614-644-8507
Reaching and Sustaining

Periodic Evaluation and Planning to Test

John Paulson
Beth White
The Institute for Health Care Improvement (IHI) survey

• Effective organizations were asked: Why do you believe you have maintained performance levels?

• Top 3 responses:
  • Ongoing measurement
  • Leadership involvement
  • Continued use of improvement methods (Continuous quality improvement)
Ongoing Data Measurement

• Use periodic and regular audits to
  • Verify standard of care practices are being followed
  • Make CDC suggested comparisons for exclusive breast milk feeding
  • Purposeful use of the IPHIS to Patient Medical Record Checklist
**IPHIS to Patient Medical Record Checklist**

Hospital: ____________________ Month: ____________

<table>
<thead>
<tr>
<th>IPHIS</th>
<th>Variable</th>
<th>Chart 1</th>
<th>Chart 2</th>
<th>Chart 3</th>
<th>Chart 4</th>
<th>Chart 5</th>
<th>Total Y</th>
<th>Total N</th>
<th>Total Y+N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>OB Estimate of Gestational Age</td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y+N</td>
</tr>
<tr>
<td>Prenatal</td>
<td>Gestational Age at First Ultrasound</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal</td>
<td>Progesterone</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor &amp; Delivery</td>
<td>Congenital Cardiac Screening/Pulse Oximetry</td>
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<td></td>
</tr>
<tr>
<td>Newborn tab: Newborn</td>
<td>Breast feeding at discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Continue on to page 2; chart reviews 6 -10
Regularly Spread the Word

• Keep leaders informed and accountable for sustaining attention to improvement efforts
• Hard to overemphasize the importance of this
The Model for Improvement

What are we trying to accomplish? **AIM**

How will we know that a change is an improvement? **MEASURES**

What changes can we make that will result in improvement? **IDEAS**

---

The Improvement Guide
Associates in Process Improvement
All Teach/All Learn

*It is a test if:*

- You don’t have to wait for committee approval
- A prediction about your expected outcome is made *before* you test
- Useful data are collected for *each* test
- Multiple tests can be run simultaneously
- Multiple stakeholders are involved (patients, ultrasound)
- Eager volunteers “Early Adopters” are actively recruited to implement the test
- Tests are customized for your site
- Tests are simple, easy to understand and clear to implement

From: Michael Krew, MD
1/26/15
OPQC Learning Session
Because when everything is considered...

- This is why IPHIS accuracy is so important
OPQC, ODH and Your Hospital: Working together to improve outcomes for women and newborns in Ohio

Evaluation Time!

Please take a few minutes to complete the paper evaluation in your folder.

We appreciate your feedback!
Safe Travels

Thank You

BON VOYAGE!

© Ross Geddes
Resources

https://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria
http://apps.who.int/iris/bitstream/10665/69938/1/WHO_FCH_CAH_09.01_eng.pdf?ua=1
http://www.cdc.gov/breastfeeding/data/nis_data/index.htm
http://www.cdc.gov/breastfeeding/data/nis_data/index.htm
http://www.cdc.gov/breastfeeding/data/reportcard.htm
http://www.cdc.gov/breastfeeding/data/mpinc/scoring.htm
http://progressive.powerstream.net/008/00153/OPQC_Mod4_03252014/OPQC_Mod4_03252014.html
Resources

http://www.unicef.org/programme/breastfeeding/baby.htm
https://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria
http://www.odh.ohio.gov/OhioFirstSteps
http://www.cdc.gov/breastfeeding/data/mpinc/scoring.htm
https://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria
Resources

• OPQC website: www.opqc.net
• OPQC email: opqc@cchmc.org