

Preliminary Results - Birth Data Quality Study in Kansas

As part of the ongoing data quality efforts, the Bureau of Epidemiology and Public Health Informatics was awarded a Centers for Disease Control and Prevention grant, “Validating Data found in Linked 2003 Version of Vital Records and Hospital Discharge Data for Quality Improvement in the States”. This grant was designed to assess the accuracy of data in a linked birth certificate/hospital discharge database for selected medical conditions and pregnancy complications. Medical records, considered the gold standard, were abstracted to contrast with the linked birth-hospital discharge information.

Data results indicate a lower percentage of study events in the linked birth certificate and hospital discharge data when compared with the medical record - the events aren’t being captured. Also, more events were captured with the hospital discharge data compared to the birth certificate data (Table 1).

Table 1. Percent of Records in the Study Group where the Mother had the Medical Condition or Procedure by Data Source, Kansas, Data Year 2011 (n=3,472).

Medical Condition/procedure	Medical Record "Yes"	Birth Certificate and Hospital Discharge "Yes"	Birth Certificate "No" Hospital Discharge "Yes"	Birth Certificate "Yes" Hospital Discharge "No"
Gestational Diabetes	29.0%	18.6%	11.3%	3.4%
Pre-gestational diabetes	7.5%	4.5%	3.7%	1.0%
Gestational Hypertension	28.6%	13.2%	15.8%	5.6%
Pre-pregnancy Hypertension	17.6%	6.0%	10.6%	3.3%
Induction	61.5%	35.4%	14.9%	11.8%

The data results will be used for quality improvement activities including:

- webinars for physicians, hospital administrators, nurses, and birth clerks, and
- designing future studies to better understand and address birth certificate data quality issues related to completeness and accuracy.

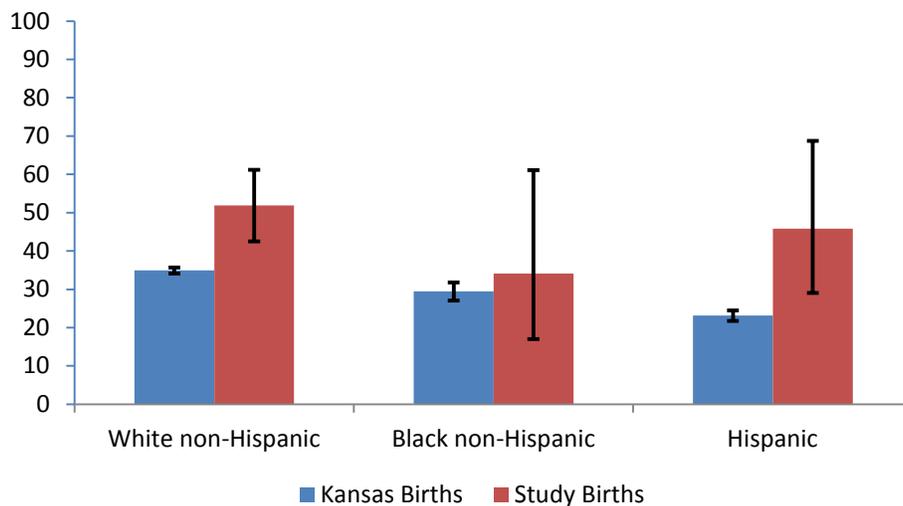
The positive predictive value (PPV) shows the proportion of births in the birth certificate or hospital discharge data among the study population where the mother has the condition /procedure according to the medical records (Table 2).

Table 2. PPV by Condition/Procedure among the Study Group by Data Source, Kansas, Data Year 2011 (n=3,472).

Medical Condition/Procedure	Birth Certificate	Hospital Discharge*
Pre-pregnancy diabetes	86.8%	92.6%
Gestational diabetes	75.6%	79.4%
Pre-pregnancy hypertension	76.8%	86.8%
Gestational hypertension	73.8%	86.6%
Induction	95.9%	96.1%

The data from this data study can be used to monitor birth conditions represented by the study group, though the results are biased; sampling was based on the conditions of interest. (Figure 1).

Figure 1. Percentage of Mothers Receiving Adequate plus Prenatal Care Among all Kansas Births Compared to Study Births with Pre-pregnancy Diabetes or Hypertension, Data Year 2011.



Mothers with pre-gestational diabetes or pre-gestational hypertension (birth certificate data) had a higher percent of adequate plus prenatal care than all live births as a whole. The percent is significantly higher among white non-Hispanic and Hispanic mothers. The lack of significant difference among black non-Hispanic mothers may be due to low numbers.

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