

Ensuring High Quality Birth Certificate Data in the e-Health Era



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Background

- Birth certificate clerks from hospital Health Information Management departments manually abstract maternal and child information from clinical records to report birth certificates to public health vital statistics agencies.
- Electronic Health Records present the opportunity to replace manual data abstraction with automated means for collecting birth certificate information.
- The National Center for Health Statistics led efforts to develop and test new standards for automated birth reporting, resulting in an Integrating the Healthcare Enterprise (IHE) profile known as Birth and Fetal Death Reporting Enhanced (BFDR-E).
- BFDR-E has been tested, but never used in an operational setting.
- The BFDR-E produces a Labor and Delivery Summary that should be useful for summarizing the clinical information required for birth certificate reporting.

Objectives

- Evaluate the quality of birth certificate data elements extracted from an EHR using the BFDR-E profile
- Explore the impact of EHRs and automated extraction methods on public health quality monitoring procedures

Acknowledgements

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- UUHC/EPIC team that created the birth extracts
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Methods

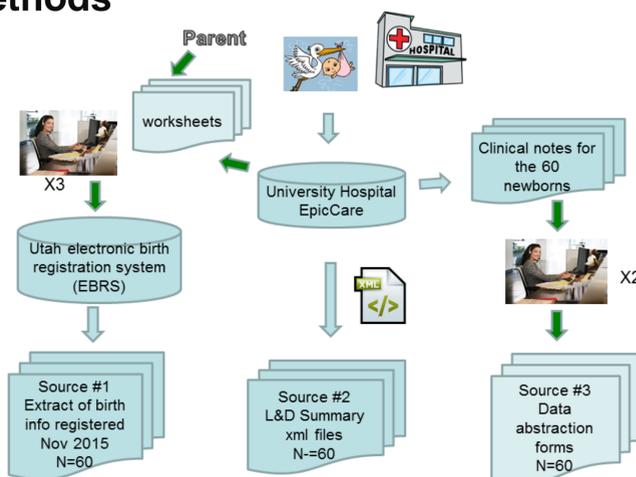


Fig 1. Information abstraction methods

- Randomly selected 60 Utah birth certificates, for babies born in November, 2015 who are Utah residents, not deceased, and born at University of Utah Medical Center (UUHC), Salt Lake.
- Source #1: Extracted data from the Utah Electronic Birth Registration System. This data was originally generated by 3 UUHC birth clerks reporting birth certificates
- Source #2: Implemented the BFDR-E profile in Epic (UUHC's EHR). We then generated xml-based Labor and Delivery Summaries (L&DS) using the EPIC BFDR-E profile interface
- Source #3: Two UDOH vital records subject matter experts independently manually abstracted data from clinical notes printed by the UUHC HIM department for the 60 births. Differences were adjudicated.
- Compared findings generated from the three sources and explored reasons for differences.

Results

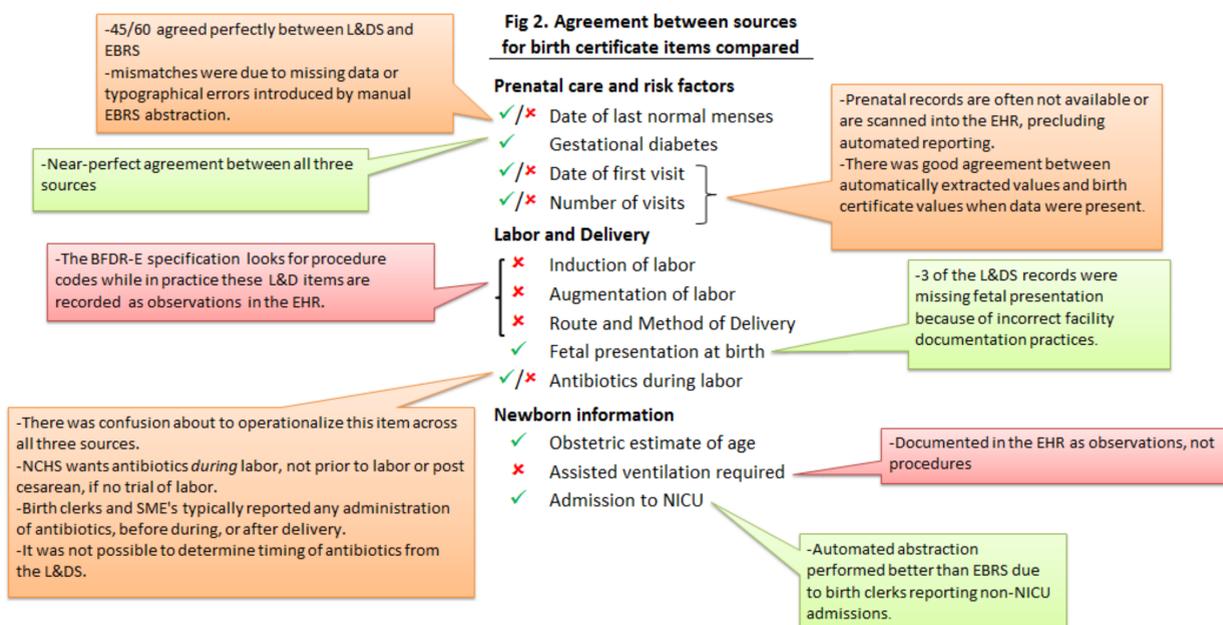


Fig 2. Agreement between sources for birth certificate items compared

- Health department subject matter experts were hindered by limited access to EHR information and no access to 'external' prenatal records, limiting their ability to serve as a "reference standard" for truth.
- A mismatch between 'what the BFDR-E specification is looking for' and 'how clinical information is documented in practice' caused missing data in the L&D summary.
- A mismatch between 'NCHS definitions' and 'how information is manually abstracted by the birth clerks and the research team' (i.e., an Operationalization problem) accounted for numerous mismatches in the 'Antibiotics during labor' data.

Conclusions

- Automated capture of birth certificate information from EHR's is feasible but the BFDR-E specification needs to be refined to reflect operational realities observed across EHR systems and facilities.
- Health Department reviewers do not have adequate access to the complete EHR or experience with multiple EHR systems to adequately audit data quality.
- Automated capture of prenatal items is feasible for patients receiving care in the health system, but data from external prenatal care records is not computable as scanned documents. Thus, manual review is required until core data is available as structured and coded information.

Recommendations and Next Steps

- Revise the BFDR-E specification to include observations as well as procedures for relevant items such as route of delivery, induction, and augmentation of labor.
- Clarify NCHS birth certificate guidance and revise the BFDR-E specification as needed to better operationalize items, such as number of prenatal visits and antibiotics during pregnancy.
- Expand this analysis to include all items on the birth certificate and a greater number of facilities in different jurisdictions, and that use a variety of EHR vendors.
- Develop strategies for jurisdictions to conduct ongoing quality assurance of birth certificate data that is captured by BFDR-E, and to provide feedback to vendors

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