HL7 Child Health Working Group

Neonatal Care Report CDA Update

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Background & Rationale

- collaborative of 26 children’s hospital Neonatal ICUs
- multidisciplinary initiative, started in 2006
- limited knowledge about best practices & outcomes for the unique population of infants in tertiary NICUs:
  - complex & uncommon neonatal diseases
    - preterm infants with co-morbidities/complications
    - ill term infants requiring emergent intervention
      - e.g., ECMO, surgery, dialysis
    - congenital anomalies
    - genetic & metabolic syndromes
- typically referred for surgical and other subspecialty care
Aims of the Initiative:

- To evaluate & optimize the tertiary neonatal intensive care provided at children’s hospitals
  - determine variations in care
  - evaluate efficacy of current practices
  - promote safety & facilitate research efforts
  - spearhead benchmarking & quality improvement initiatives
  - ultimately improve clinical outcomes
CHNC Partnership with Child Health Corporation of America (CHCA)

- In 2008, CHNC partnered with CHCA
- Developed a comprehensive clinical database:
  **Children’s Hospitals Neonatal Database (CHND)**

**Establishment of a Core Data Set**

- In 2009, CHNC/CHCA completes specifications for a core data set of about 700 defined data fields
  - Employed existing definitions, standards when available
    - VON, CPQCC, CDC/NHSN
- June 2010, database launch
Messaging a Subset of Data

Employing HL7 standards to facilitate electronic extraction
- HL7 Clinical Document Architecture (CDA) Release 2

Selection of Subset of Data Elements for the NCR
- unambiguous data fields, well established standards
- present in majority of centers (varied stages of EHR development)

Demographic data
- Name, MRN, Maternal Zip

Birth Data
- Birth weight
- Gestational Age
- Apgar scores (1, 5, prolonged)

Admission/Discharge Information
- Dates
- Measurements (weights, head circ.)

Acuity Scoring
- severity of illness assessment
- derived from existing mortality models:
  - Pediatric Risk of Mortality: PRISM-III
  - Pediatric Index of Mortality: PIM-II
  - Clinical Risk Index for Babies: CRIB-II
  - Score for Neonatal Acute Physiology: SNAPPE II
- Predominantly laboratory and physiologic data
- Scored at several intervals
  - 1st 12 hours, Day 3, Day 7 of admission
Generation of the Neonatal Care Report (NCR)

- Locally (self) generated

- Vendor generated
Strategies for (Supplemental) Data Collection

- E-Gate (ADT)
- Meditech (Labs)
- SQL database

REMOTE DATABASE

- REDCap
- NCR CDA

TEMPLATED FORMS

- Epic
- Clarity Systems

Current Steps

• Piloting proof-of-concept at certain hospitals (CHOP, others?)

• Encouraging current CHND centers to:
  1. Aim to include discrete fields in EHR build (when possible)
     • for current abstraction & future extraction
  2. Explore options with local IT re: ADT feeds
  3. Use standards when available
     • Interface terminologies (e.g., Intelligent Medical Objects)
     • SNOMED CT, LOINC, etc..
Future Directions

• Lobby respective EHR vendors for development of the NCR
  • Consider expanding NCR to include all VON fields
    • applicable to many more centers
    • VON fields used as base for many state registries
      • California (CPQCC), North Carolina, Ohio, etc…

• Encourage use of other CDA examples
  • HITECH (meaningful use) inclusion of CCD
  • Use of NHSN/CDC Reporting of HAI CDA