Why Bar Code Human Milk in the NICU and Newborn Nurseries?

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Introduction

Breast milk and human donor milk errors in hospitals pose health risks for infants and can cause significant stress for parents, resulting in trust issues with health care providers. The literature cites documented ranges of reported milk errors at 0.07%-0.14% per 1000 feedings.[1] Since 2006 at BWH, there were 3 reported errors of wrong milk administration and 4 near misses. In 2011 the Brigham and Women's Hospital (BWH) implemented a newborn electronic medication administration record with bar code scanning. A request was made from leadership and staff to incorporate a process for bar code scanning all human milk in order to provide the same safety checks and balances as medications. A core team of staff nurses, physicians, nutritionists, lactation consultants, pharmacists and information technology staff partnered to design the new process and build the application.

Methods

Patient care units that participated in the process included a 46-bed, level 3 NICU and 3 well baby nurseries that include 75 beds. In all areas human milk preparation and administration is a manual process done by nursing staff. All nurseries participate in the human milk donor program. The core project team analyzed potential causes of milk errors to understand areas that required improvement. Identified issues included: a complex process, nurse cares for siblings of multiples, milk preparation not done in central area, high frequency task perceived as low acuity, multiple distractions, multitasking care and illegible hand written labels. A workflow analysis revealed many complex steps in preparation and administration that were not standardized among nurses. The team built consensus on one new workflow as well as:

- Containing all milk prep to a central area
- Consensus on quantity of milk to prepare in order to avoid waste
- Defined expiration date of prepared milk
- Updated milk labels
- Standardized the process for placement of infant ID tag

Results

The new workflow has been standardized for safer administration of human milk. Highlights of the workflow changes include:

- Consistent manual verification of mother's ID prior to distributing milk labels
- RN creates computer generated labels
  - Master milk label at time of milk preparation & Infant specific label at the time of feeding
- Access infant identification tag:
  - Readable and able to be scanned & Two bar codes, glucose and med/human milk administration
- Eliminated 2nd RN check for verifying correct infant and milk when bar code scanned

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Number of documented feedings	31,785
Scanning compliance	99.2%
Number/percentage documented near misses of wrong milk administrations * Top reason documented for not scanning milk	1436/0.04% Bar code on label unreadable

Discussion

The team is still faced with some challenges that continued to be worked on:

- Hardware Challenges: Infection Control, Balancing space with lots of equipment, Workflow disruption, Limited battery life requiring frequent changes, environmental safety
- Workflow challenges: Visual check of milk labels required at time labels dispensed to parents & time milk brought into NICU by parents, Wasting of Human Milk: When is it expired?, Patient ID tags and compliance with policy

References

1. Zeilhofer, UB, et al.: The Role of Critical Incident Monitoring in Detection and Prevention of Human Breast Milk Confusions, Eur J Pediatrics 168: 1277-1279, Oct 2009.