

Navigating the NICU:

Implementing CLSI guidelines in Hawai`i



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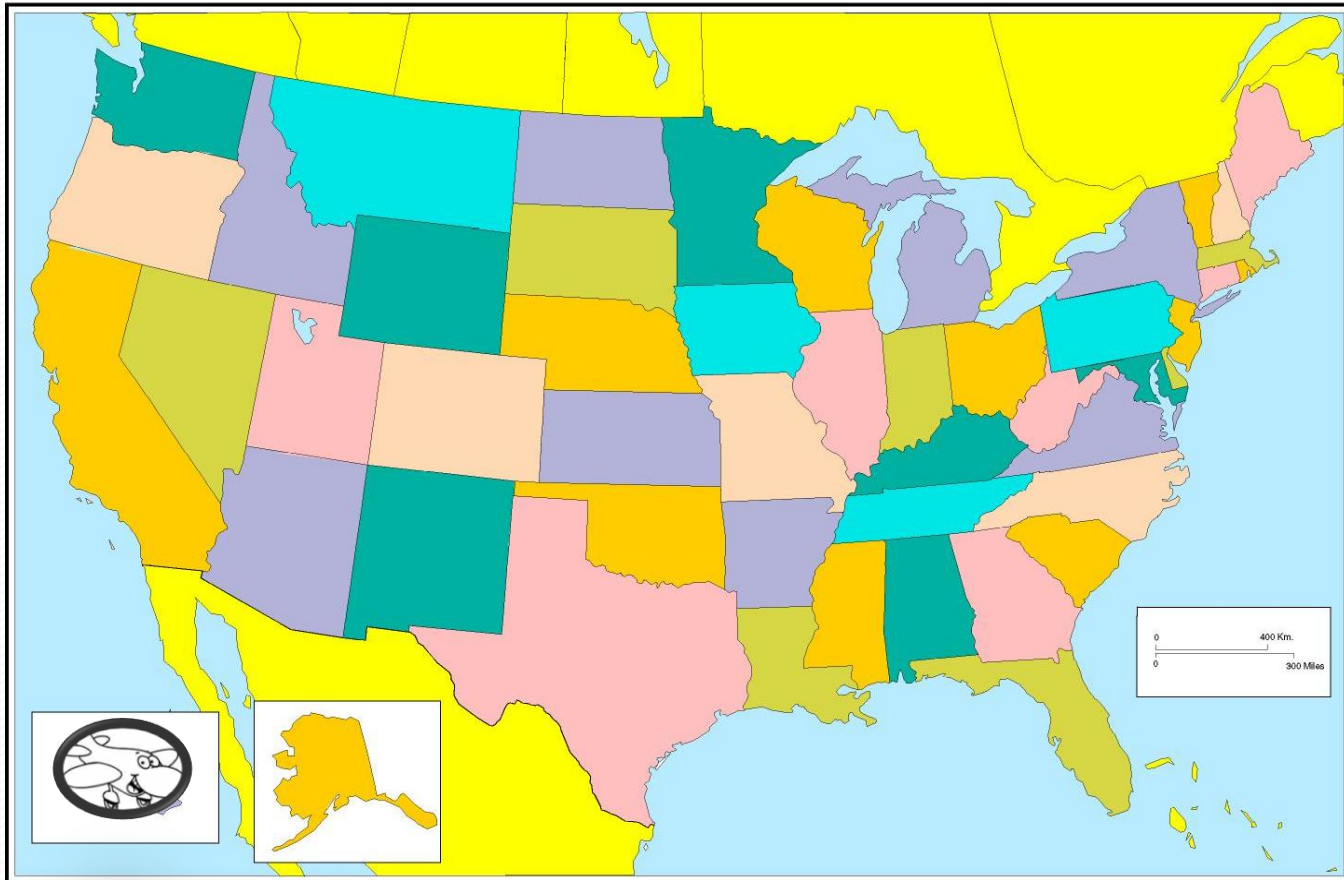
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Special thanks to Sarah Scollon



Presenter Disclosure

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

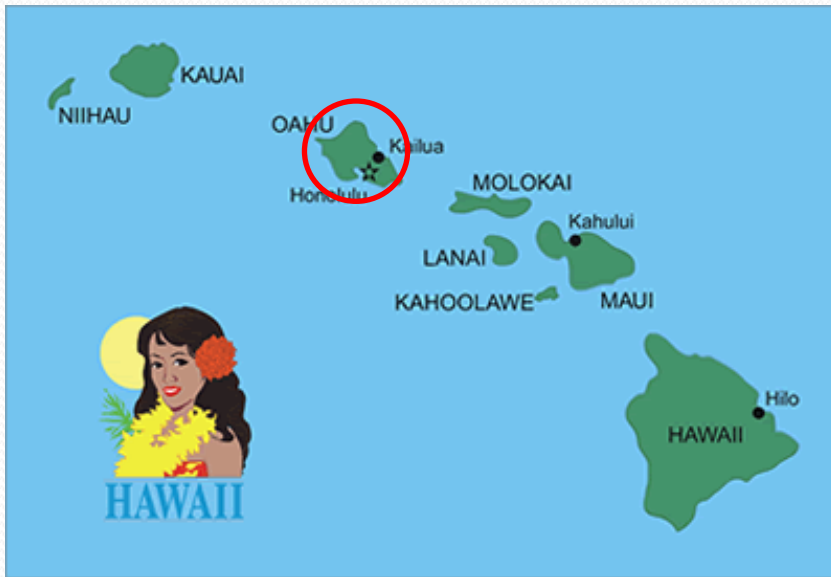


Background

CLSI recommended collection times:

- 1.) at time of admission in NICU
- 2.) at 48-72 hours following admission
- 3.) at day of life 28 or time of discharge; whichever comes first

Hawai'i NICU's

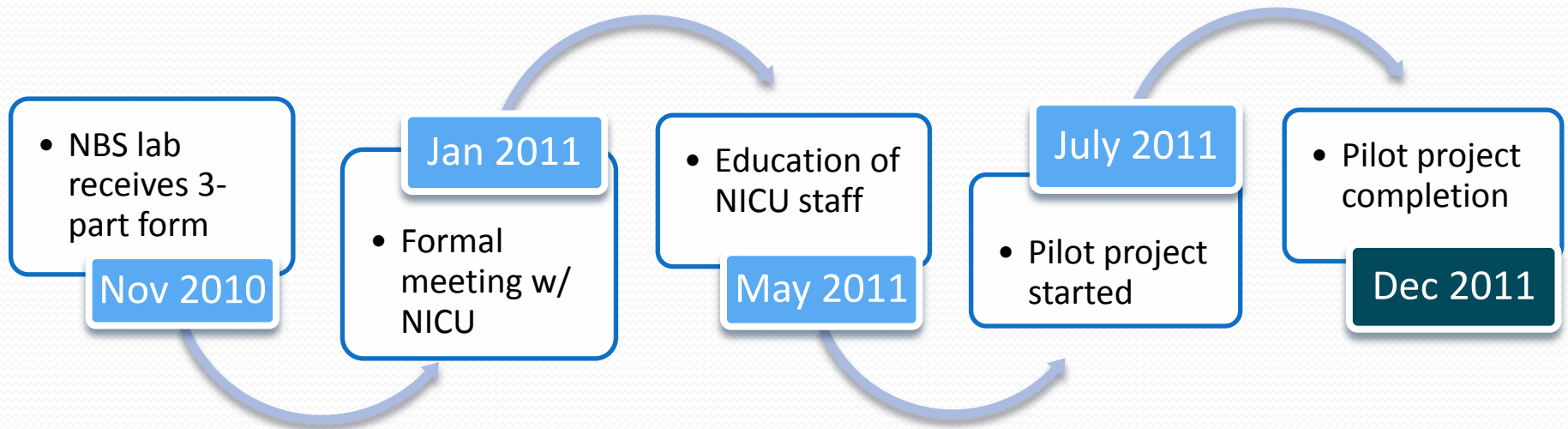


~ 18,000 births / year

- Kapi'olani Medical Center
 - 30 bed – level II nursery
 - 20 bed – level III NICU
- Tripler Army Medical Center
 - 16 bed – level III NICU
- Kaiser Permanente - Moanalua
 - Level III NICU
- Queen's Medical Center
 - 6 bed – level II NICU

Implementation process

- NICU leaders across Hawai'i were brought together
 - Began April 2010
 - Agreed that Kapi'olani Medical Center should pilot project



HI * 1 1 0 6 3 0 0 1 5 1 *

Baby's Last Name _____ Baby's First Name _____ Send Report to PCPNIC: _____ CODE _____

() Single Birth, () Multiple Birth A B C D E F Circle One Address/Telephone Number _____

Sex: M F Other: _____

Food Source: Last 24 Hours: Breast Formula NPO Other Check all that apply
 Lactose Intolerance Allergy Other

Infant Factors: Steroid Treatment Other _____
 Last RBC/CLS & Transfused Date: / / OR None

Other Drugs: _____

Mother Factors: Steroid Treatment HELLP Syndrome
 Fetal Liver of Pregnancy

Hosp. or Hosp. CODE/Submitter ID and Address: _____

KAPIOLANI NICU
1400 PULASKI AVENUE
H10026

Specimen taken by _____

Mother's Last Name _____ Baby's Race: White Black Asian Amer. Indian Other _____
 Mother's First Name _____

Mother's Address Number & Street _____ City _____ State _____ Zip Code _____

Home / Work Phone _____ Res. cont. Y N

- Fill out a return form on birth.
 - The post-off barcode is for your use.
 - Tear off blue copy.

HI * 2 1 0 6 3 0 0 1 5 1 *

Baby's Last Name _____ Baby's First Name _____ Send Report to PCPNIC: _____ CODE _____

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Sex: M F Other: _____

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 - The post-off barcode is for your use.
 - Tear off blue copy.

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Three Part Newborn Screening for Preterm, Low Birth Weight and Sick Newborns: Pilot Project

What?

Three-part dried blood spot NICU newborn screening pilot project at KMCWC.

Why?

National call to examine the effectiveness of utilizing the three part newborn screening system in Neonatal Intensive Care Units. Given its expertise, Kapiolani Medical Center for Women and Children has been chosen as the pilot site for Hawai'i.

- The physiological states associated with preterm, low birth weight (LBW), and sick newborns, and the treatments that they receive, directly affect the reliability of results for many conditions screened in dried blood spot and hearing screening programs.
- Difficulty already exists in determining the best collection time for samples with multiple conditions being tested for, some requiring collection in the first 24-48 hours and some requiring days or weeks for analytes to elevate.
- Of all abnormal NBS specimens, 10% to 40% belong to infants in the special care baby units (SCBUs).
*Study data (not specific to Hawai'i)

Goals of the new procedures:

1. Ensure rapid, consistent, and complete blood spot screening, including appropriate follow-up to ensure early diagnosis and treatment for preterm, LBW, or sick newborns affected with a screened condition.
2. Minimize the risk of a missed or delayed diagnosis and treatment for all screened conditions.
3. Optimize the timing and minimize the number of blood spot specimen collections.
4. Define essential elements of quality assurance relevant to this guideline.
5. Provide education on the effects of SCBU treatments on newborn blood spot screening.
6. Identify areas needing further research.



When?

The pilot project is aimed to launch mid - May 2011

How?

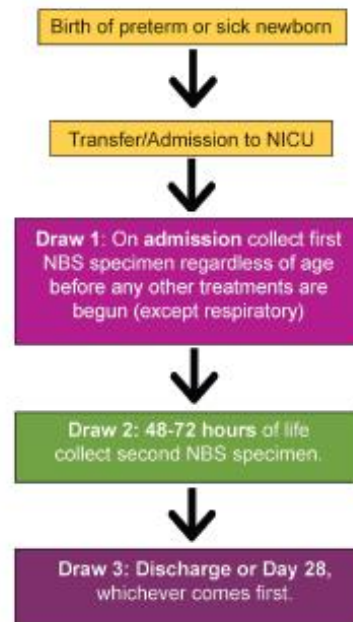
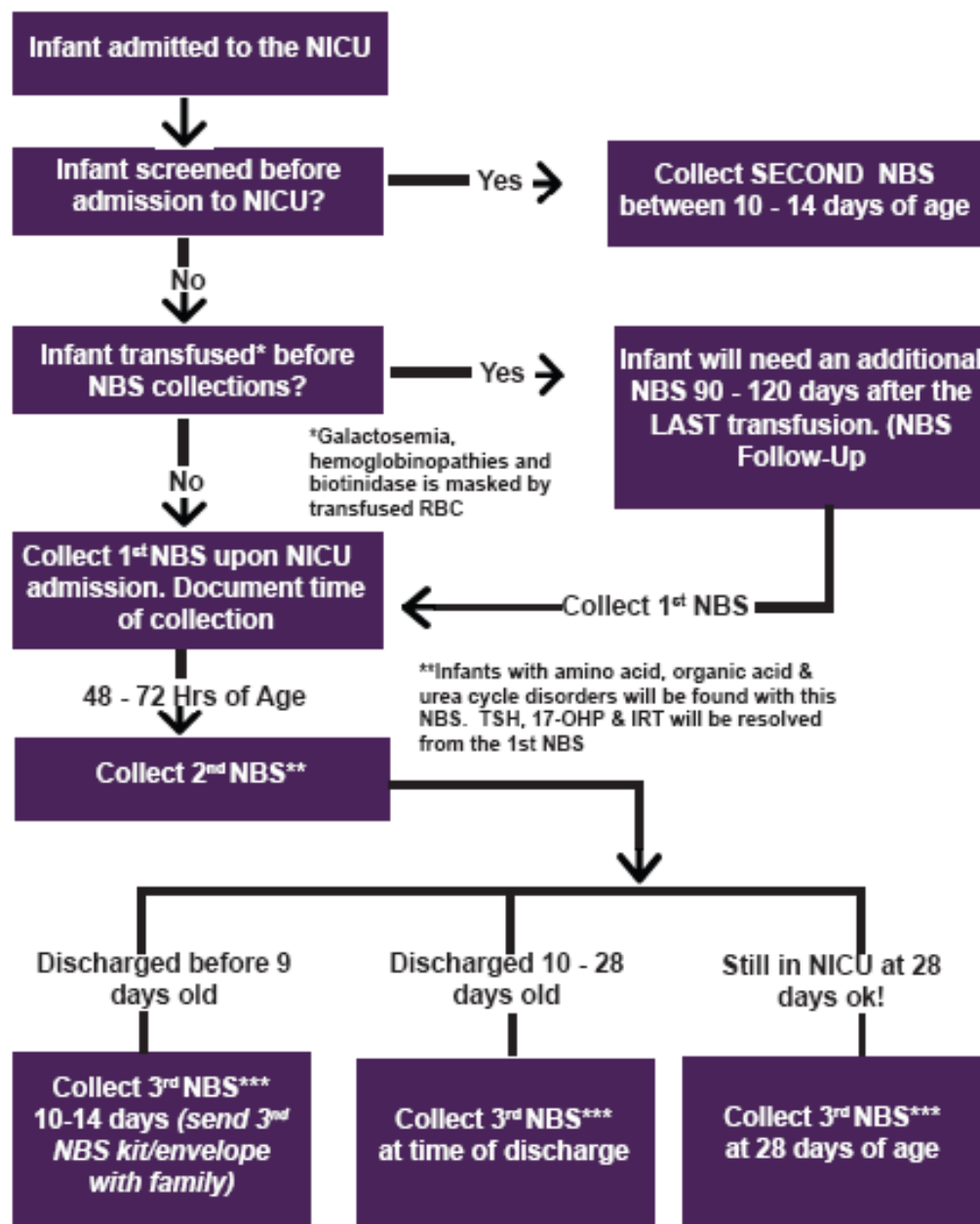


Figure 1: NBS Algorithm for NICU / SCN Infants

(adapted from NWRNBS Flowchart)



Adapted from the NW Regional NBS Program

Obstacles

- Convincing NICU staff of value
 - Although apprehensive at first, possible benefits outweighed the inconvenience
- NICU Education
 - Creation of materials
 - Scheduling
 - Scheduling set education sessions were ineffective
 - Instead held 9 floating information sessions over 3 weeks
 - Arranged both day and night sessions to cover all NICU shifts

Obstacles

- Practicality of sample collection times
 - Each NICU operates within their own protocols
 - Hawai'i uses:
 - 1.) at admission to NICU
 - 2.) at day of life 2 (33-57 hrs)
 - 3.) if baby discharge after day of life 11 (sample drawn in NICU), or;
if baby discharged between day of life 3-10 (sample kit sent home with family to be drawn on day 28)
- Communication with families (3rd sample)

Preliminary Data

MONTH	NBS cases	SCREEN POSITIVE cases
JULY	51	8
AUGUST	75	18
SEPTEMBER	75	13

Preliminary Data

- True positive cases: 3
 - 1 – Hemoglobin E disease
 - 1 – Hemoglobin E trait
 - 1 – Hemoglobin S trait (sickle cell)
- “Didn’t necessarily cut down the number of screen positives. However, the cases are getting resolved more quickly.”

Conclusions

- The data collection and analysis are still pending
 - Uncertain if we're actually reducing false positive or negative rates
- As expected, the workload has increased
 - However, the cost-benefit hasn't been established
- NICUs are very self-sustained
 - Implementing guidelines may require individual modifications
 - Lessons learned can be used as broad model for other NICUs
- Modification of NICU treatments may also help

Acknowledgements

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- NICU staff from Kaiser Permanente - Moanalua



Thank you