POCT benefits baby and clinicians

There are clear advantages to routine point-of-care testing (POCT) in the NICU.

Patient-side testing in the NICU offers many benefits—the most important of which is responding quickly to your tiniest and most vulnerable patients.

Results can be obtained within 1 minute of sample loading.[9]

Single or multiple analytes can be tested.[9]

Response time is a critical factor that affects the overall time of treatment.

Consequences of a prolonged response time are worse in preterm infants.[13]

A tiny amount of blood is needed.[6]

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POCT

POINT OF CARE TESTING UNIVERSITY

Educational support provided by Siemens Healthineers.

eBook

Point of Care

Patient-Side NICU Testing

POCT

Neonatal care is *critical*

According to the World Health Organization, a newborn infant, or neonate, is a child under 28 days of age. During the first 28 days of life, a child is at highest risk of dying.[1]

Transitioning from a fetus to a newborn is the most complex physiologic adaptation that occurs in humans. Every organ system is involved and often there is a need for medical assistance.[2]

Neonates have immature organ systems, different airway and lung mechanics, and a higher basal metabolic requirement for oxygen.[3]

Early signs of clinical deterioration are often nonspecific, making a diagnosis challenging.[4] Blood analysis is integral to monitoring Neonatal Intensive Care Unit (NICU) patients.

Point-of-care bedside blood analyzers have been shown to reduce red blood cell transfusions in low birth weight infants.[5-6]

Blood drawn for laboratory testing should not exceed 5% of the total blood volume per draw.[7] A 10 ml blood sample drawn with standard tubes may represent as much as 10% of the total blood volume in a preterm neonate.[7]

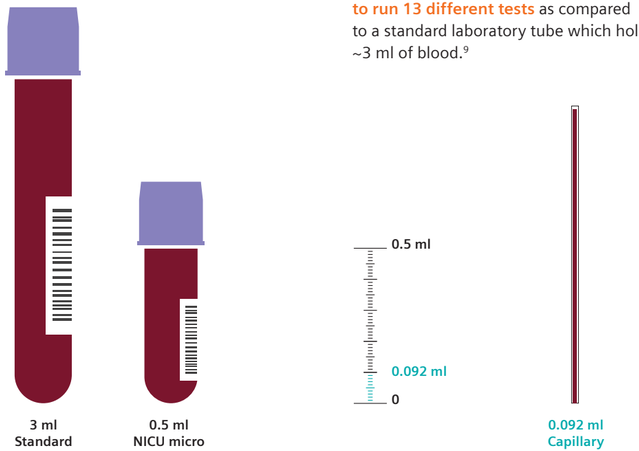
Babies have precious little blood

In term and preterm neonates, the total blood volume ranges from 80 to 115 ml/kg.[7]

Studies have shown that reduced fetal hemoglobin levels are related to increased neonatal morbidity rates.

Too much blood sampling can cause endogenous blood loss and has been associated with the development of bronchopulmonary dysplasia.[8]

Modern handheld point-of-care analyzers need **as little as 92 µl or 0.092 ml to run 13 different tests** as compared to a standard laboratory tube which holds ~3 ml of blood.[9]



NICU respiratory care guidelines

Capillary blood sampling provides an alternative to arterial blood sampling, and compared with a percutaneous arterial puncture, is less technically challenging with fewer risks of harm.[10-11]

The AARC Clinical Practice Guidelines provides specific recommendations regarding capillary sampling for blood gas assessment in neonatal patients.[10]

Premature infants benefit from rapid point-of-care blood analysis

Underdeveloped immune system leads to higher risk of infections. Capillary testing reduces the need to access central lines and blood lactate measurements can indicate infection.[12]

Underdeveloped digestive tract and liver should be monitored for hyperbilirubinemia, metabolic acidosis, and hypoglycemia.[12]

Underdeveloped lungs may need ventilator support and frequent blood gas measurements for inconsistent breathing and respiratory distress syndrome.[12]

Underdeveloped kidneys need careful monitoring for potassium, other electrolytes, and possible acidosis.[12]