

LIMITATIONS OF CURRENT SCREENING GUIDELINES FOR NEONATAL HYPOGLYCEMIA



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INTRODUCTION

- Congenital hyperinsulinism (HI) is the leading cause of hypoglycemia in newborns.
- In HI, uncontrolled insulin production leads to severe hypoglycemia with a high risk of neurological damage.
- The first step in diagnosing HI is a blood glucose test, however there is currently no universal newborn screening for HI.
- Clinical guidelines focus on screening neonates with at least one risk factor for hypoglycemia: preterm, small or large for gestational age, or infant of diabetic mother.
- **The aim of this retrospective study was to review self-/caregiver-reported risk factors at birth in individuals who were ultimately diagnosed with HI and compare the neurodevelopmental outcomes between individuals screened for hypoglycemia and those who were not.**

METHODS



The HI Global Registry (HIGR) is the only international patient-powered registry for people with HI.



People with HI or their caregivers consented to participate in HIGR



N = 180
Had a confirmed diagnosis of HI and completed the required surveys

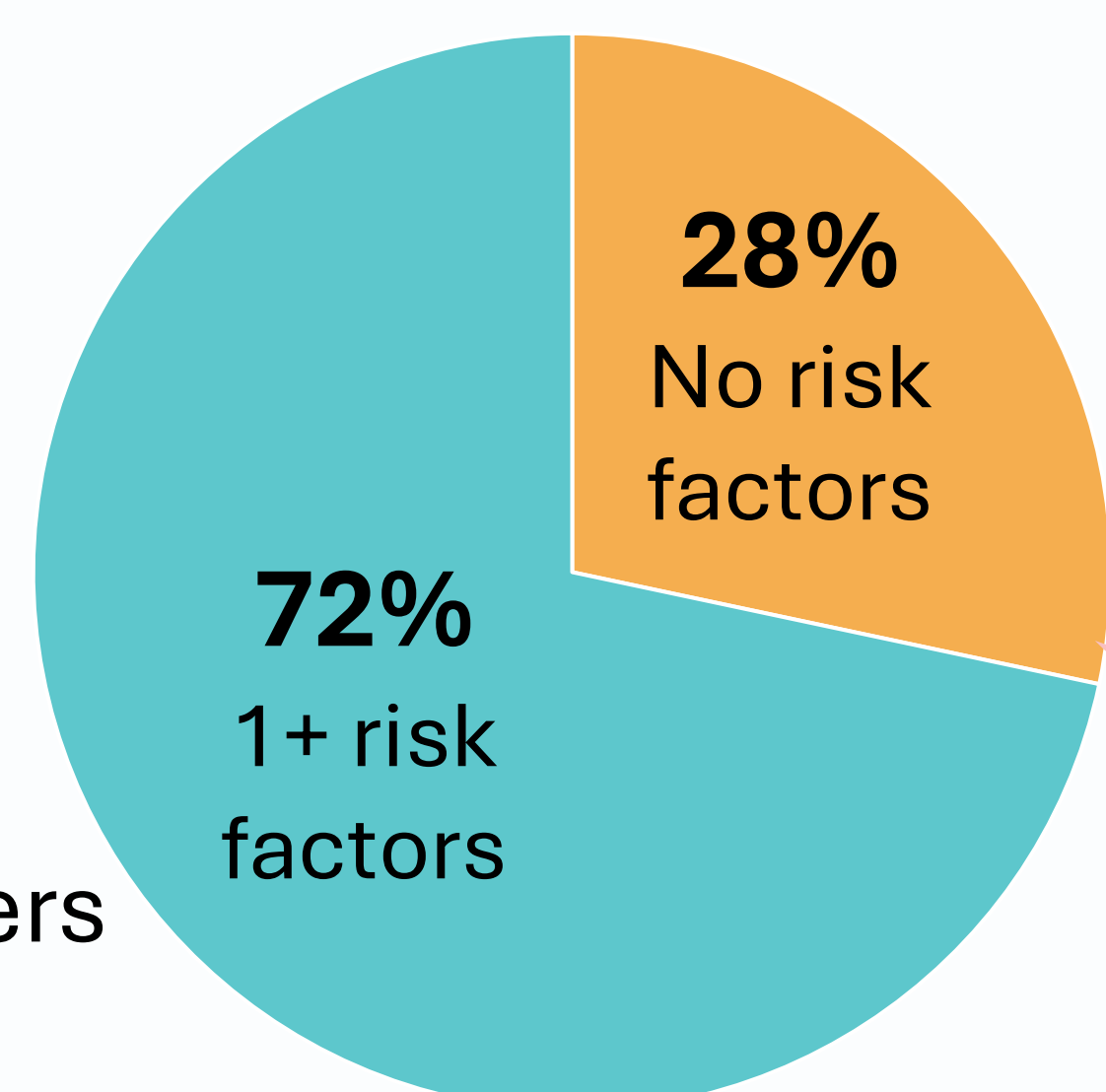


Categorical data reported using descriptive statistics

RESULTS

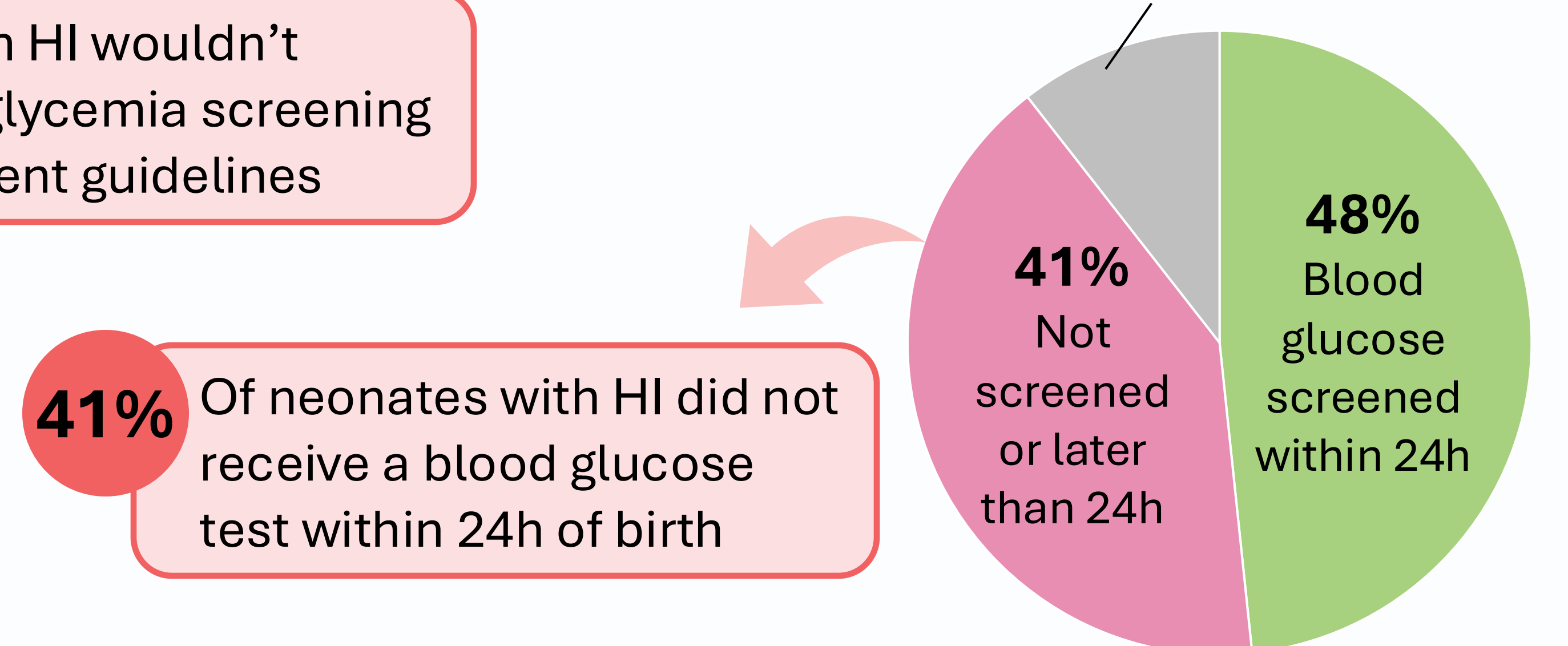
Risk Factors for Hypoglycemia

- Preterm (< 37 weeks)
- Small for gestational age (< 10th percentile)
- Large for gestational age (> 90th percentile)
- Infants of diabetic mothers



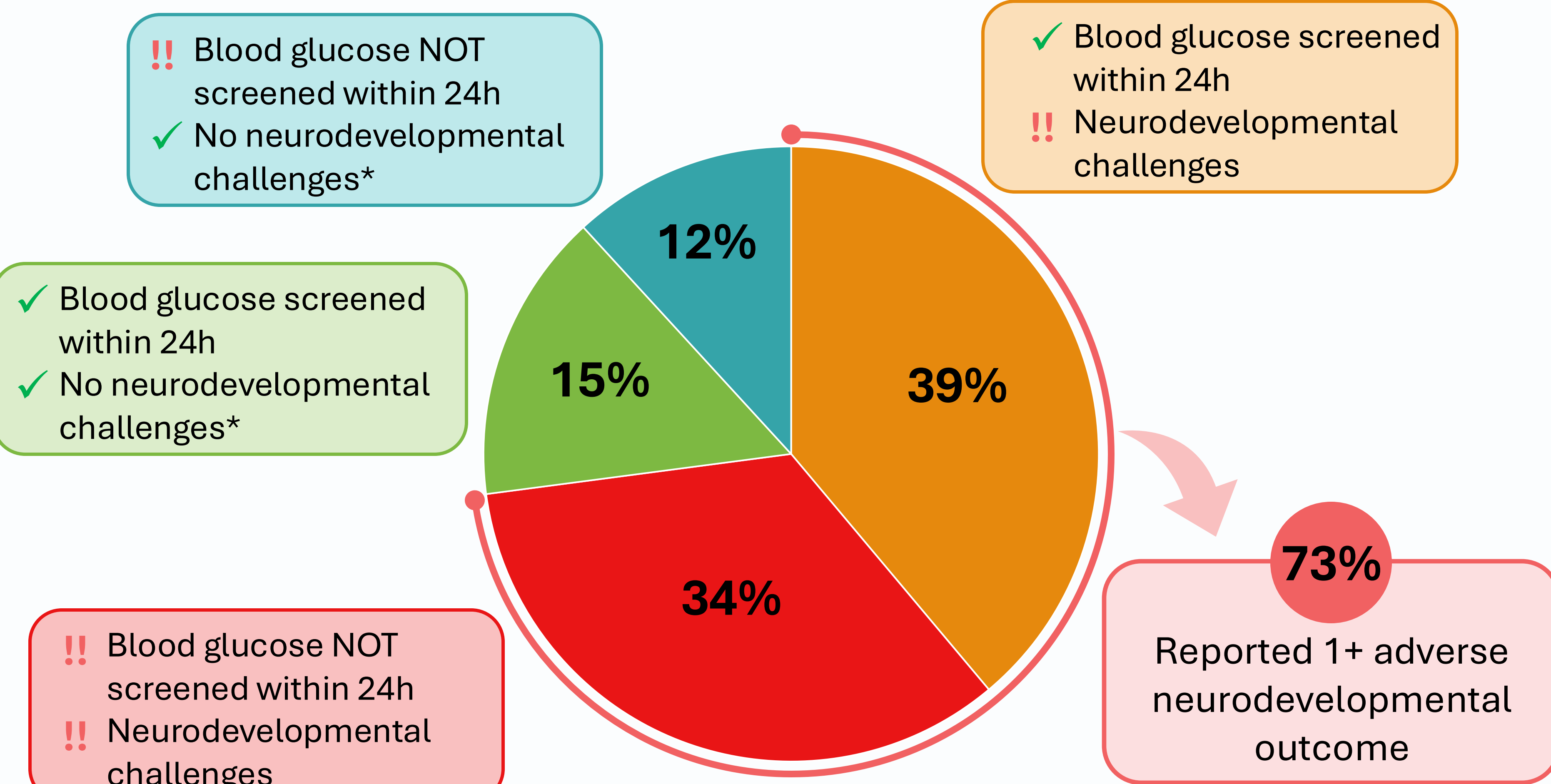
28% Of neonates with HI wouldn't qualify for hypoglycemia screening under most current guidelines

Blood Glucose Test within 24h of Birth



41% Of neonates with HI did not receive a blood glucose test within 24h of birth

Neurodevelopmental Outcomes



73% Reported 1+ adverse neurodevelopmental outcome

* Participants age 3 years or younger excluded – too young to assess many neurodevelopmental challenges

CONCLUSIONS

- This data highlights the limitations of current screening practices, which do not identify all neonates with HI.
- Furthermore, screening alone is not sufficient to prevent neurological damage, as shown by 39% of participants with neurological damage despite receiving a blood glucose test within 24h of birth. Fast, appropriate management to limit hypoglycemia is also critical.
- Adverse neurodevelopmental outcomes are common in HI, and could be caused by undiagnosed prolonged hypoglycemia.
- Neurodevelopmental outcomes could be improved with universal neonatal glucose screening and proper medical and/or surgical management of HI.

A healthy brain depends on normal blood glucose.

NEWBORN VITAL SIGNS

Temperature: **Normal**
Heartbeat: **Normal**
Breathing rate: **Normal**
Blood pressure: **Normal**
Oxygen saturation: **Normal**
Blood glucose: **LOW**

It's vital to check and manage blood glucose in newborns.

Prolonged hypoglycemia is one of the most common causes of preventable irreversible brain damage.



GLUCOSE IS A VITAL SIGN

"In hospital maternity wards and pediatricians' offices, glucose is a vital sign that must not be ignored."

Diva De Leon-Crutchlow, MD, director of Children's Hospital of Philadelphia's Hyperinsulinism Center and Chief of the Division of Endocrinology at CHOP.

Learn more about this campaign



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Learn more about HIGR!

