The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series

V Evidence obtained from systematic reviews of descriptive and qualitative studies

VI Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed.).* Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines* (2009). Australian Government: NHMRC. http://www.nhmrc.gov.au/_files_nhmrc/file/guidelines/evidence_statement_form.pdf

OCEBM Levels of Evidence Working Group Oxford (2011).*The Oxford 2011 Levels of Evidence*. Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=1025

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Reference *(include title, author, journal title, year of publication, volume and issue, pages)*	Evidence level (I-VII)	Key findings, outcomes or recommendations
Hawdon J.M, Definition of neonatal hypoglycemia: time for a rethink? Published online first: May 3 2013, Arch Dis Child Fetal Neonatal Ed, doi: 10.1136/archdischild-2012-303422	VI	• **At risk groups include babies with hyperinsulinism (e.g., after poor control of maternal diabetes in pregnancy), those with intra-uterine growth restriction, preterm babies and those with other pathologies such as infection or inborn errors of metabolism.** • **Untreated, the low blood glucose levels in the absence of alternative fuels to glucose will cause clinical signs and, in extreme cases, brain injury.** • **Suggested blood glucose thresholds for intervention are:** **- Any single value < 1.0 mmol/l** **- Baby with abnormal clinical signs and single value < 2.5 mmols/l** **- Baby at risk of impaired metabolic adaption but without physical signs < 2.0 mmols/l and remaining < 2.0 mmols/l at next measurement.**
Adamkin D.H and Committee on Fetus and Newborn(March 2011) Clinical report – Postnatal Glucose Homeostasis in late-preterm and term infants, Pediatrics, Volume 127, Number 3.	VI	• **Neonatal hypoglycemia occurs most commonly in infants who are small for gestational age, infants born to mothers who have diabetes, and late preterm infants.** • **Clinical signs of neonatal hypoglycemia are not specific and include a wide range of local or generalized manifestations that are common in sick neonates. These signs include jitteriness, cyanosis, seizures, apneic episodes, tachypnea, weak or high pitched cry, floppiness or lethargy, poor feeding and eye rolling.** • **Recognizing infants at risk of disturbances in postnatal glucose homeostasis and providing a margin of safety by early measures to prevent (feeding) and treat (feeding and intravenous glucose infusion) low concentrations are primary goals.**

Deshpande S, Ward Platt M, The investigation and management of neonatal hypoglycemia, , Seminars in Fetal and Neonatal Medicine (2005) 10, 351-361	V	• **Since signs of common neonatal illness are also shared by those with hypoglycemia, and since many neonatal illnesses can lead to hypoglycemia, it is good practice to include estimation of blood glucose concentration in the investigations of any infant who is clinically unwell.** • **Neonatal glucose concentrations correlate closely with glucose infusion rates, the strategy for increasing blood glucose concentrations in neonates therefore involves increased provision of glucose.** • **The use of a glucose 'minibolus' 2mls/kg of 10% dextrose has been shown to be effective in rapidly correcting neonatal hypoglycemia. A minibolus should always be followed by an increase in the rate of glucose infusions. Foe infants who are able to tolerate enteral feeds increasing the volume of milk should be the first strategy.** • **For any baby with abnormal clinical signs, management should be directed towards maintaining blood glucose concentrations above 2.5 mmols/l.**
Hawdon J.M, (2011) Investigation, prevention and management of Neonatal Hypoglycemia (impaired postnatal metabolic adaption), Paediatrics and Child Health, 22:4	VII	• **Babies at risk of hypoglycemia: Small for gestational age (< 2nd centile), clinically wasted infants, infants of diabetic mothers where antenatal glucose control was suboptimal and/or if baby is macrosomic, post mature infants if wasted, perinatal hypoxia-ischemia, severe rhesus disease, preterm infants (<37/40), congenital heart disease, infection, hypothermia, fluid restriction and maternal beta blocker.** • **Neurological signs of neonatal hypoglycemia: Abnormal tone, decreased activity, lethargic/reduced level of consciousness, abnormal cry and seizures.**
Faustino E.V.S, Hirshberg E.L, Bogue C.W, (January 2012) Hypoglycemia in Critically ill children, Journal of Diabetes Science and Technology, Volume 6, Issue 1	V	• **Hypoglycemia in critically ill neonates and children is typically asymptomatic and oftentimes detected in routine testing. Thus, routine screening is suggested for patients at high risk of developing hypoglycemia.**