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Standardised parenteral nutrition formulations for Neonates in Australia

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Statement of the Problem: The first consensus standardised Neonatal Parenteral Nutrition (PN) formulations were implemented in many Neonatal units in Australia in 2012. The second consensus update involving 49 units from Australia, New Zealand, Singapore, Malaysia and India occurred in 2017. The third and latest consensus update was conducted in January to May 2022 with the release of new formulations in June 2022.

Methodology & Theoretical Orientation: The latest consensus process occurred between January and May 2022. Consensus process included reconvening of the consensus group, systematic review of available evidence for each parenteral nutrient, translation of the evidence into pragmatic consensus formulations that cater for majority of clinical scenarios in NICUs. Physicochemical compatibility and stability of updated formulations were checked and confirmed compliant by a compounding pharmaceutical facility (Baxter Pharmaceuticals Pty Ltd).

Findings: The 2017 consensus aminoacid/dextrose formulations were updated. Formulations are developed to provide a minimum 2.0 g/kg/day and maximum 4 g/kg/day of amino acids at prescribed fluid rates of 60 mL/kg/day on day 1 to a maximum of 135 mL/kg/day as maintenance fluid volume. Latest formulations have improved Calcium (Ca) and Phosphate (P) content in these formulations. Ca and P contents in the formulations are increased and Ca:P ratios are optimized to 0.8:1 in the first 48 hours of life and 1:1 after the first 48 hours of life. Copper was added as trace element along with iodine and selenium to the formulations.

Conclusion & Significance: The 2022 PN formulations and guidelines developed by the Neonatal Parenteral Nutrition Consensus Group offer up-to-date evidence based PN to the NICU population. These practice guidelines do not account for every clinical situation, particularly for infants that are acutely unwell or unstable. The professional judgement of the health professional in these individual cases must take precedence.

Recent publications

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Biography

Srinivas Bolisetty is the Medical Director and Senior Neonatologist at the Royal Hospital for Women, Sydney. His passion is in developing evidence-based guidelines through active collaboration with clinicians in the Australasian region. He chairs the Australasian Neonatal Parenteral Nutrition Consensus Group. He also chairs the Australasian Neonatal Medications Formulary group (www.anmfonline.org). He is also the New South Wales clinical lead for the NICU for COVID19 Council. He is fondly known among his peers as the king of consensus for his leadership and coordination skills in achieving consensus and developing network to region wide clinical guidelines. He is not only a full-time clinician but also an active clinical researcher with a number of publications in international journals.

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