

Development of a Standardized Pediatric Parenteral Nutrition for the First Days of Life of a Term or Preterm Newborn

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Introduction

Parenteral nutrition (PN), composed of about 50 different ingredients, represents a complex and high-risk fabrication. PN is crucial for survival and neurodevelopment as well as the postnatal growth.

Medication errors are often related to PN and may include **prescription, transcription, preparation and administration errors**. Therefore, medication errors can result in **growth retardation, developmental disturbances and infections**.

Objectives

- **Reduce the risk of medication errors** and their potential impact on vulnerable patients by **providing a standardized neonatal PN** for the first days of life.
- **Improve the safety and quality** of the nutritional treatment of newborn term or preterm infants with a **ready-to-use PN available 24/7** on wards.

Material and methods

Development of a neonatal PN conforming to the needs of the two involved neonatal services by a multidisciplinary working group

Used references: The ESPGHAN guidelines of 2005 and 2018.
A standardized PN solution used at the HUG

"Formula hospitalis" development of an industrial production of double-chamber bags.

Results and discussion

Characteristics:

- Volume: 250 mL
- Osmolarity: <900 mOsm/L
- Peripheral venous access
- Double-chamber bag
- Indication: first days of life

Goals:

- Implementation in March 2019 at the CHUV
- Use of 80 bags/month
- Reduction of on-ward PN preparations by 80%

Stability:

- 18-24 months
- Storage at room temperature
- Oxygen absorbers to reduce degradation reactions by oxidation

Conclusions

The high-quality, ready-to-use neonatal PN with a 24/7 availability saves time for caregivers and increases the patient safety.



Composition	250 mL	
Amino acids	79 mL	31.4 g/L
Glucose	} 171 mL	100.1 g/L
Sodium		20 mmol/L
Calcium		11 mmol/L
Phosphate		8.6 mmol/L
Chloride		10 mmol/L
Non-protein energy		400 kcal/L
Total energy		525 kcal/L
Osmolarity		883 mOsm/L

