

A close-up photograph of a woman with blonde hair, seen in profile, gently holding a newborn baby. The baby is wearing a blue and white striped hat and has medical equipment attached to its face. The background is a blurred hospital room with medical equipment and other people in white coats.

Baxter

**A TRIPLE-CHAMBER PARENTERAL
NUTRITION SOLUTION WAS
ASSOCIATED WITH IMPROVED
PROTEIN INTAKE IN VERY LOW
BIRTHWEIGHT (VLBW) INFANTS**

A study to evaluate the actual parenteral nutrition of VLBW infants admitted to the Helsinki Children's Hospital NICU during 2005–2013 and to compare the nutritional intakes with current recommendations.

Immeli L, et al. *Acta Paediatr.* 2020

OVERVIEW

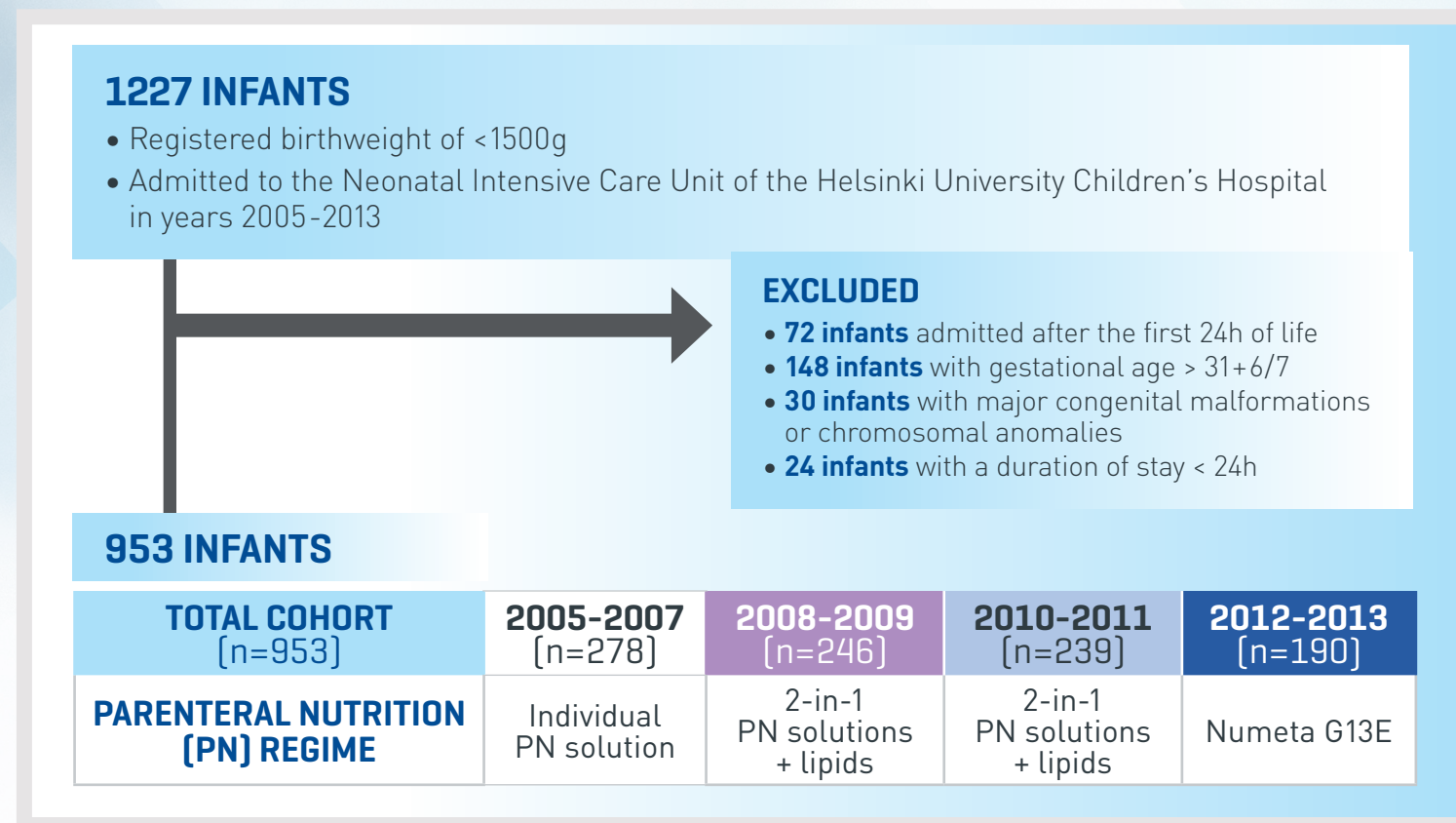
STUDY AIM

To test the hypothesis that using a commercial, triple chamber PN solution (Numeta G13E) would improve protein intake in very low birth weight (VLBW) infants (less than 1500g) admitted to the neonatal intensive care unit (NICU) by comparing actual nutritional intakes during 2005-2013 with 2018 ESPGHAN/ESPEN/ESPR/CSPEN guidelines.

STUDY METHOD

A retrospective cohort study comprised of 953 VLBW infants born between 2005-2013 and admitted to the NICU at a gestational age (GA) of less than 32+0/7 weeks or with a birthweight less than 1501g and admitted to the neonatal care unit according to their year of birth at Helsinki Children's Hospital, Finland. The infants were divided into four subgroups according their birth year and PN regime. Parenteral nutrition was started immediately after birth. Nutrient intakes were obtained from computerised medication administration records.

FLOWCHART OF THE STUDY COHORT



STUDY RESULTS

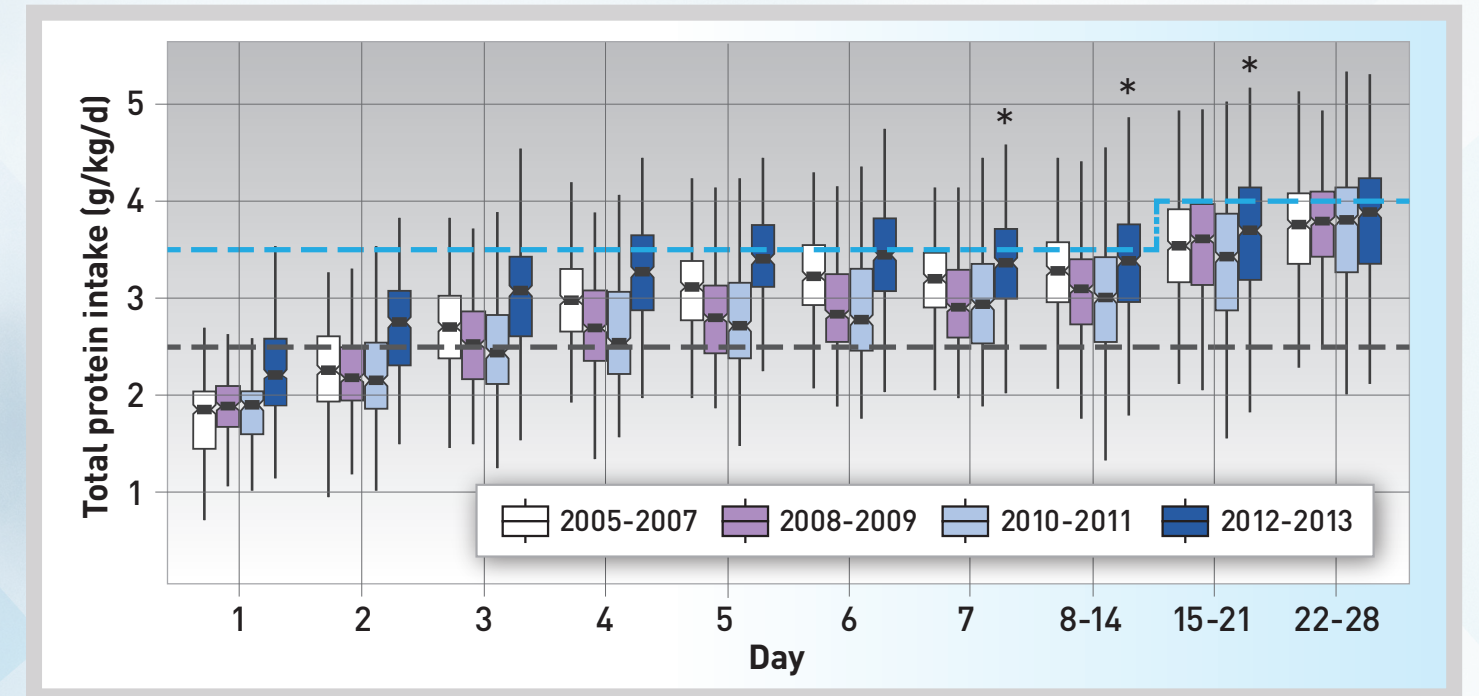
Infants in the **Numeta G13E group** had the **highest median energy intake** (90kcal/kg/d) during the **first week**. They also had **higher median protein intakes** in weeks one, two and three (3.1, 3.4 and 3.7g/kg/d) than infants born in 2005-2011 ($p < 0.05$). See Figure 1.

In 2012-2013, when **Numeta G13E** was used, infants were **more likely to reach the target parenteral protein intake of 3.5g/kg/d**, and reach it **3-7 days earlier**, compared with infants who received individual PN or standard two-in-one PN solutions in 2005-2011 ($p < 0.0001$). See Figure 2.

STUDY RESULTS

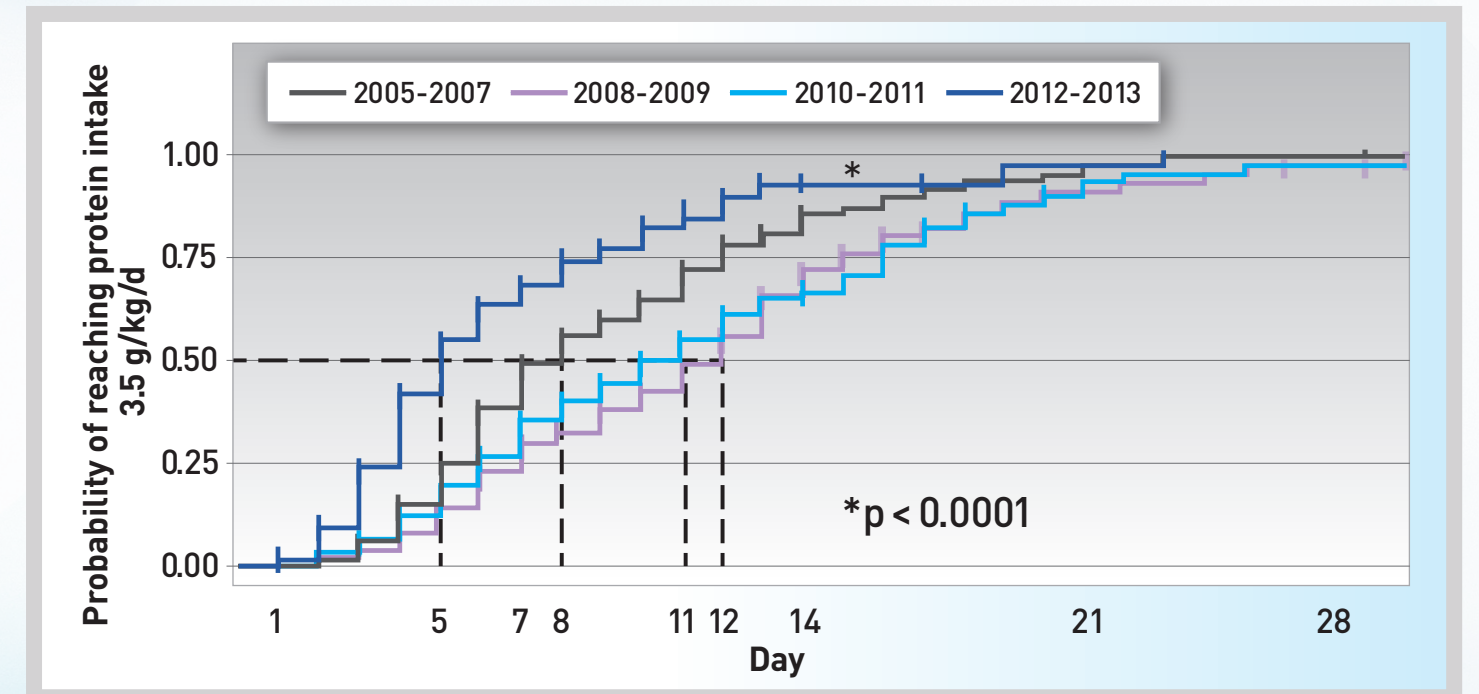
Only infants born in 2012-2013 subgroup (Numeta G13E) reached 2018 ESPGHAN/ESPEN/ESPR/CSPEN guidelines protein target on day two, whereas infants born in 2005-2011 reached protein target on either day three or day four.

FIGURE 1.



Infants born in 2012-2013 subgroup (Numeta G13E) reached the target parenteral protein intake on the fifth day of life (median), which was three to seven days earlier than infants born in 2005-2011.

FIGURE 2.



STUDY CONCLUSIONS

- The **median protein** intake of VLBW infants **improved** during the time when commercially available triple-chamber PN solutions (**Numeta G13E**) were used instead of standard two-in-one PN solutions or individual PN solutions.
- The **recommended nutrient intakes for VLBW infants could be achieved** by combining computerised PN prescriptions and the use of multi-chamber PN solutions.

STUDY POINTS TO CONSIDER

- The early protein intake of 953 VLBW infants improved during the period when a triple-chamber parenteral nutrition (Numeta G13E) was used.
- Infants that received Numeta G13E (2012-2013 subgroup) had a higher median protein intake during the first three postnatal weeks compared with infants born in 2005–2011.
- The target parenteral protein intake of 3.5g/kg/d was more likely to be reached when using Numeta G13E (2012-2013 subgroup) and 3-7 days earlier than in individual and two-in-one PN solutions (2005-2011 subgroups).

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