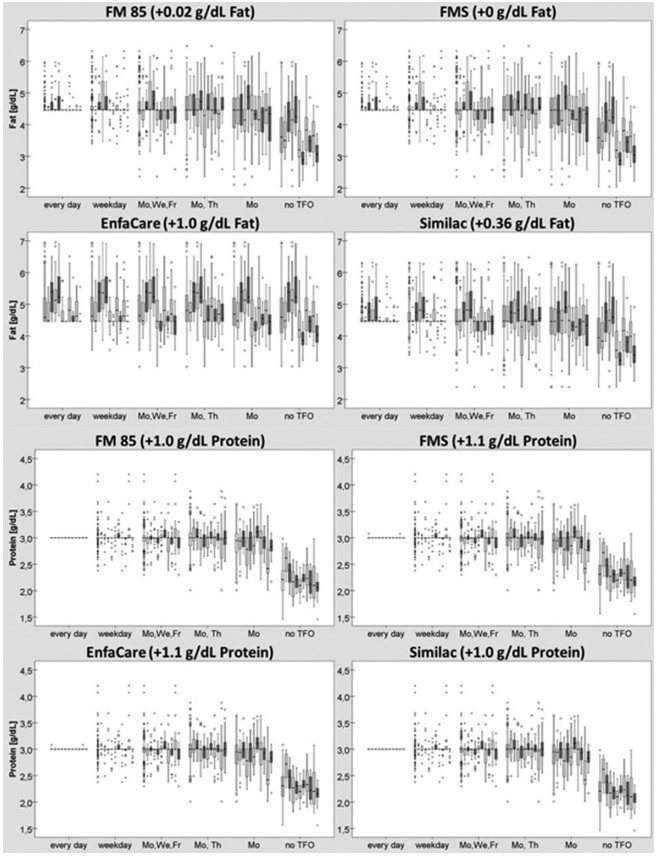

Abstract O-122 Figure 1

Background TFO of breast milk (BM) overcomes the uncertainty of macronutrient intake in fixed dose fortification (FDF) resulting from natural variation in breast milk and improves growth of VLBW infants.
Objective To study variation of macronutrient intake and energy ratios when TFO is done using four different milk fortifiers and based on various frequencies of milk measurements.
Study design Ten infants, GA: 26.1 ± 1.3 wks, BW: 890 ± 210 g. Daily measurements (n = 210) of native BM's fat, protein (NIR milk analyzer), and lactose (UPLC-MS/MS) levels provided the basis for model calculation to add fat, protein and carbohydrates using modular products after FDF with either FM85, FMS, Enfamil, or Similac to meet ESPGHAN recommendations. BM measurement frequencies were 7/wk, 5/wk, 3/wk, 2/wk, 1/wk, and 0/wk (only FDF).
Results Measurement 2/wk increased mean macronutrient intake and day-to-day variation was not higher compared to native BM. Day-to-day variation decreased with increasing frequency of milk analysis (Fig). After adding FDF mean carbohydrate level already exceeded in 3 fortifiers and median fat level in 1 fortifier leading to higher calorie intake than target levels.

TFO 7/wk achieved macronutrient levels close to target when routine fortifier was composed with 1.1 g protein/dL (no fat, no CHO) whereas for measurements 1–2/wk, it was achieved with composition of fat 0.4g/dL, protein 1.2g/dL and carbohydrate 1.1g/dL.
Conclusions Measurements of macronutrient 1–2/wks might provide a reasonable balance between workload and clinical outcome. Due to different composition of fortifiers, either target values for macronutrients or composition of fortifier for use with TFO needs to be reconsidered in order to achieve recommended intake.

O-123 INTAKES OF MICRONUTRIENTS IS ASSOCIATED WITH EARLY GROWTH IN EXTREMELY PRETERM INFANTS – A POPULATION-BASED STUDY

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Background Extremely preterm infants have high nutrient requirements due to limited stores of nutrients and rapid postnatal growth. However, many infants experience suboptimal growth. It is still unclear to what extent micronutrient intakes affect growth during early postnatal life in these infants.
Aim To describe micronutrient intakes and explore possible associations with growth during the first 70 days of life in extremely preterm infants.
Methods Retrospective population-based study including extremely preterm infants (<27 weeks) born in Sweden during 2004–2007. Detailed nutritional and growth data were derived from hospital records.
Results Included infants (n = 531), had a mean gestational age of 25 weeks+2 days and a mean birth weight of 765 g. Intakes of calcium, phosphorus magnesium, zinc, copper, iodine, vitamin D and folate were lower than estimated requirements while intakes of iron, vitamin K and several water-soluble vitamins were higher than estimated requirements. High iron intakes were explained by blood transfusions. Taking macronutrient intakes and severity of illness into account, folate intakes were positively correlated with weight (p = 0.001) and length gain (p = 0.003) and iron intake was negatively associated with length gain (p = 0.006) during the first 70 days of life.
Conclusions Intakes of many micronutrients were insufficient. Even when considering macronutrient intakes and severity of illness, several micronutrients were independent predictors of early growth. Low intakes of folate were associated with poor weight and length gain and high iron intakes were associated with poor length and head circumference growth. Optimised early micronutrient intakes may improve early growth in extremely preterm infants.

O-124 HUMAN MILK CREAM ENHANCES GROWTH WHEN SUPPLEMENTING STANDARD FORTIFICATION OF AN EXCLUSIVE HUMAN MILK-BASED DIET IN VLBW INFANTS

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10.1136/archdischild-2014-307384.191

Background The use of an exclusively human milk (HM)-based diet lowers the incidence of NEC, however concerns exist regarding adequate growth. Frequently, donor and maternal HM have a low caloric content. A HM cream -derived supplement can increase the caloric density of an exclusive HM-based diet.
Objective Determine if premature infants fed an exclusive HM-based diet and a HM cream-derived supplement (Cream) would have equal growth compared to infants fed a standard feeding regimen (Control).

Methods In a prospective randomised study, infants with BW 750–1250 grams (g) were assigned to a dietary group. All infants received mother's own milk or donor HM, with donor HM-derived fortifier. Cream group also received a HM-derived cream supplement if the HM tested < 20 kcal/oz (infrared HM analyzer). F/U continued until 36 weeks PMA. Primary outcomes included growth velocities and incidences of NEC and sepsis. Non-inferiority was established if the lower bound of weight velocity exceeded -3 g/kg/day.

Results There were no differences in demographics exceptrace (p = 0.02). Theone-sided 95% lower bound of the confidence interval for the difference in meanvelocity (cream-control) was 0.38 g/kg/day.

Abstract O-124 Table 1 Comparison of growth velocities

Parameter	Cream group n = 39 *(mean ±SD)*	Control group n = 39 *(mean ±SD)*	p-value (two sample t-test with unequal variances)
Length velocity (cm/wk)	1.03 ± 0.33	0.83 ± 0.41	0.02
Head circumference (cm/wk)	0.90 ± 0.19	0.84 ± 0.22	0.21
Weight velocity (g/kg/day)	14.0 ± 2.5	12.4 ± 3.9	0.03
Weight velocity from regained BW (g/kg/day)	15.7 ± 2.5	13.7 ± 4.0	0.02

Conclusions Cream group infants had better weight and length velocity. HM cream-derived supplement should be considered as a supplement to an exclusive HM-based diet.

The Bengt Robertson Award

O-125 MESENCHYMAL STEM – OR STROMAL CELLS FROM THE DEVELOPING HUMAN LUNG ARE PERTURBED BY HYPEROXIA

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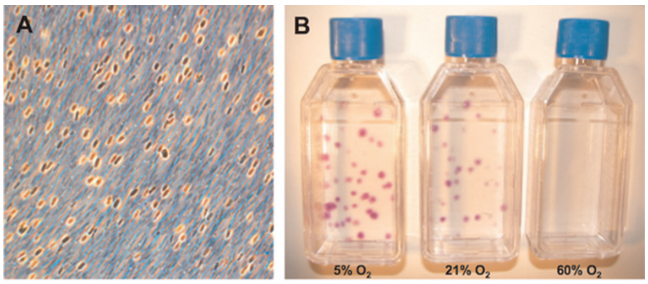
Exposure of the immature lung to oxygen concentrations higher that the ones in utero – relative (room air) or absolute hyperoxia - represents a major risk factor for the development of broncho-pulmonary dysplasia (BPD) in preterm infants. Here, we isolated resident $CD146^{pos.}/GD\text{-}2^{neg.}$ mesenchymal stem- or stromal cells (MSCs) from human fetal lungs at the canalicular stage of development (16th–18th week of gestation) to obtain new insights into their behaviour in conditions reflecting normal (5% O_2) and oxygen disrupted (21% and 60% O_2) lung development. We compared them to potentially therapeutic MSCs isolated from the umbilical cord stroma.

First, we were able to show that the mesenchyme of the fetal lung is abundant in MSCs, suggesting an important role of these cells in lung development. Single-cell plating of lung MSCs in physiological hypoxic and ambient oxygen atmospheres revealed profound reductions of colony-forming ability and colony size in normoxic conditions. Furthermore, when exposed to absolute hyperoxic (60% O_2) atmospheres, MSCs lost ability to form colonies, reduced expression of stem cell-restricted proteins like



Abstract O-125 Figure 1 Proliferation and Colony-formation of human fetal lung MSCs depends on oxygen tension

Oct-4 and Sox2, proliferated and switched cytokine secretion profiles towards a pro-fibrotic, pro-inflammatory phenotype. Alterations in the composition of the extracellular matrix were observed. Conversely, MSCs from the umbilical cord secreted high amounts of anti-fibrotic and lung-protecting proteins like PGE2 and stanniocalcin-1.

We conclude that the physiological function of resident lung MSCs is affected by relative and absolute hyperoxia, suggesting a key role of these cells in the immature lung responding to extra-uterine oxygen conditions.

Support (Bengt-Robertson-Award): Charles-Christopher Roehr.

End-of-life and Quality of Life

O-126 PARENTS' EXPERIENCE OF FOLLOW-UP CONVERSATIONS IN THE PAEDIATRIC INTENSIVE CARE UNIT (PICU) AFTER DEATH OF A CHILD

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Background Approximately 4% of the children admitted to the PICU at Odense University Hospital, Denmark, dies every year. Parents are invited routinely for a multidisciplinary follow-up conversation in the PICU 4–8 weeks after the child's death. There are no previous studies on parents' experiences of these follow-ups in Denmark.

Aim To identify parents' experience of the follow-up conversation and to investigate whether it is adequate for the needs of parents for a follow-up after their child's death in the PICU.

Methods Semi-structured interviews with 6 pairs of parents 2–12 weeks after the follow-up conversation. The interviews were held in their own homes on the parents' request. Data was analysed using Malteruds' qualitative approach.

Results The analysis revealed the following themes: The way back to the PICU

Certainty and clarity

Close and known relationships

Completion of the stay in the PICU

Conclusions The parents were experiencing nervousness before the follow-up conversation, but were all pleased to have participated in these follow-ups. It was meaningful to the parents that the follow-up conversation was interdisciplinary, since it was possible to get answers to questions both about treatment and care. It was important that the staff involved in the follow-up conversation was the same that had been present through the hospitalisation and at the time of death of the child. It was very important that parents were invited to the follow-up conversation. Parents experienced the follow-up conversation as being a