

CONFERENCE PROGRAM
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UNIVERSIDAD COMPLUTENSE MADRID

Personalized Human milk bank development
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Preterm milk compared to Term milk

- Are there any difference in macro or micronutrients between "preterm" milk or "term" milk?:
 - Yes
 - No
 - Only during the first few days
 - Yes but of no importance

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A systematic review and meta-analysis of the nutrient content of preterm and term breast milk

True protein Grams/100 ml

Figure 4 True Protein content distribution of preterm and term breast milk in by postnatal age over the first 12 weeks of lactation, weighted mean and 95% reference interval. Preterm milk — Term milk — : mean +/- 2 standard deviations.

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Human Milk Oligosaccharides in the Milk of Mothers Delivering Term versus Preterm Infants

- HMOs containing -1,2-linked fucose were reduced in concentration in preterm milk during the first month of lactation.
- The concentrations of a number of sialylated oligosaccharides were also different in preterm milk, in particular 30-sialyllactose concentrations were elevated.
- At equivalent postmenstrual age, the concentrations of a number of HMOs were significantly different in preterm compared to term milk

Sean Austin et al. Nutrients 2019, 11, 1282; doi:10.3390/nu11061282

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Donated preterm mother’s milk for preterm infants?

- Milk produced by mothers who deliver prematurely is well known to be higher in protein
 - Agostoni C, J Pediatric Gastroenterol Nutr 2010, 50(1):85–91.
 - Committee N, Canadian Paediatric Society. Can Med Assoc J 1995, 152(11):1765–1785.
- Milk composition changes with postnatal age; protein content decreases over weeks after birth.
 - Saarela T, Acta Paediatr 2005, 94(9):1176–1181.

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Donated preterm mother’s milk for preterm infants?

- Is it feasible to create a “preterm milk bank”?:
 - It is a good idea but not feasible today
 - Only possible in theory
 - Yes, it is
 - Standard milk bank is easier to work

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Personalized Nutrition Department

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- Donor milk from premature deliveries moms to premature infants
- Matched by gestational and postnatal age

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Personalized Nutrition Unit
Donor milk, not pooled

- Gestational age
 - < 28 weeks
 - 28 - 32 weeks
 - 32 - 37 and + weeks
- Postnatal age
 - Colostrum (0-5 days)
 - Transition (6-20 days)
 - Mature
 - M1: 21-58 days
 - M2: 59-135 days
 - M3: 136-540 days

Continuous traceability of the milk
If ever needed can be returned to the own NB


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Donors selection

- Only In-Hospital mothers with their own newborn hospitalized
- Interview
- Informed consent
- Standard inclusive criteria
- Teaching about milk extraction, manipulation and transport
- ID



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Milk processing

Microbiological est before and after pasteurization Macronutrient content before personalized fortification if needed

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Donors/Receptors

Donors	Receptors
2018: 101	2018: 199
2019: 156	2019: 301
14 from 2018	107<32 week's

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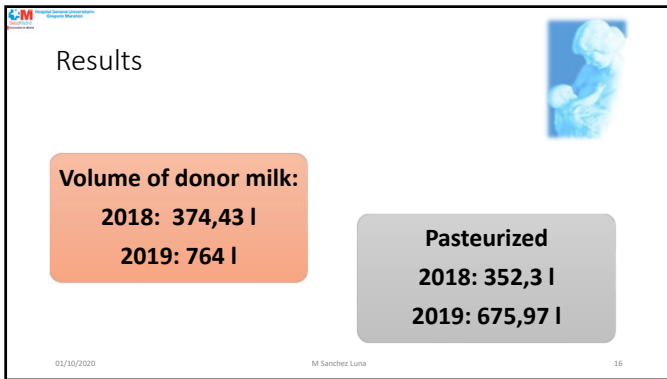
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Donors in 2019

- 142 new donors
 - < 28 week's: 23 (11 <26 week's)
 - 28-32 week's: 20
 - 32-37 week's: 33
 - >37 week's: 66


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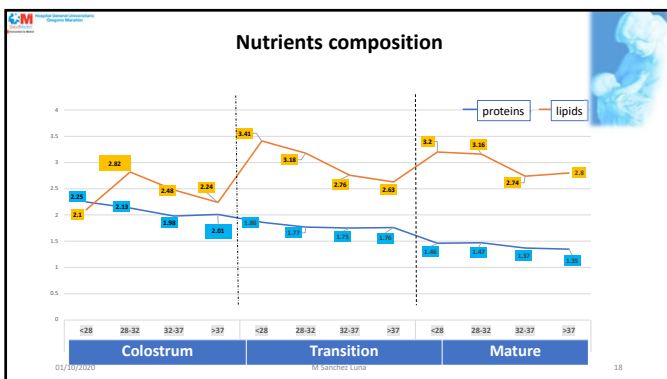
Pasteurized milk by GA and postnatal age March 2018- 2019



GA weeks	Colostrum liters	Transition liters	Mature liters
<28 w	4,98	29,89	192,04
28-32 w	6,18	64,62	88,43
32-37 w	13,87	81,87	51,03
>37 w	15,30	67,68	87,37
Total	38,30	215,71	401,9

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Firts year results.

IMPACT ON NOSOCOMIAL INFECTION: CATHETER-RELATED BACTEREMIA

Year	2013	2014	2015	2016	2017	2018
Cases/1000 days of cat	23.7	20.7	15.57	15.69	14.69	9.58



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Peresonalized milk bank

- M Carmen Sanchez Gomez de Orgaz
 - Sylvia Caballero
 - Marisa Garcia Serrano
 - Henar Muñoz
- Neonatology Department



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