

The background of the slide is a photograph of a person's hands gently holding a newborn baby. The image is overlaid with a semi-transparent purple filter. The text is white and bold, centered on the slide.

# **NICU Care - adapted to infant and parents need**

**Pediatric Nursing Association of Europe**  
25th of May 2022

Bente Silnes Tandberg RN, MScN, PHD

NORWAY, Vestre Viken Hospital Trust / Lovisenberg University College

**UN.  
Convention on the  
Rights of the Child:  
United Nations  
Human Rights  
Office of the High  
Commissioner.  
1989.**

**<https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>**



# Closeness & Separation

- Well-known adverse effects of separation
- Impact on epigenetics
- Toxic stress
- Infant-parent dyad is affected
- Positive stimulation buffer

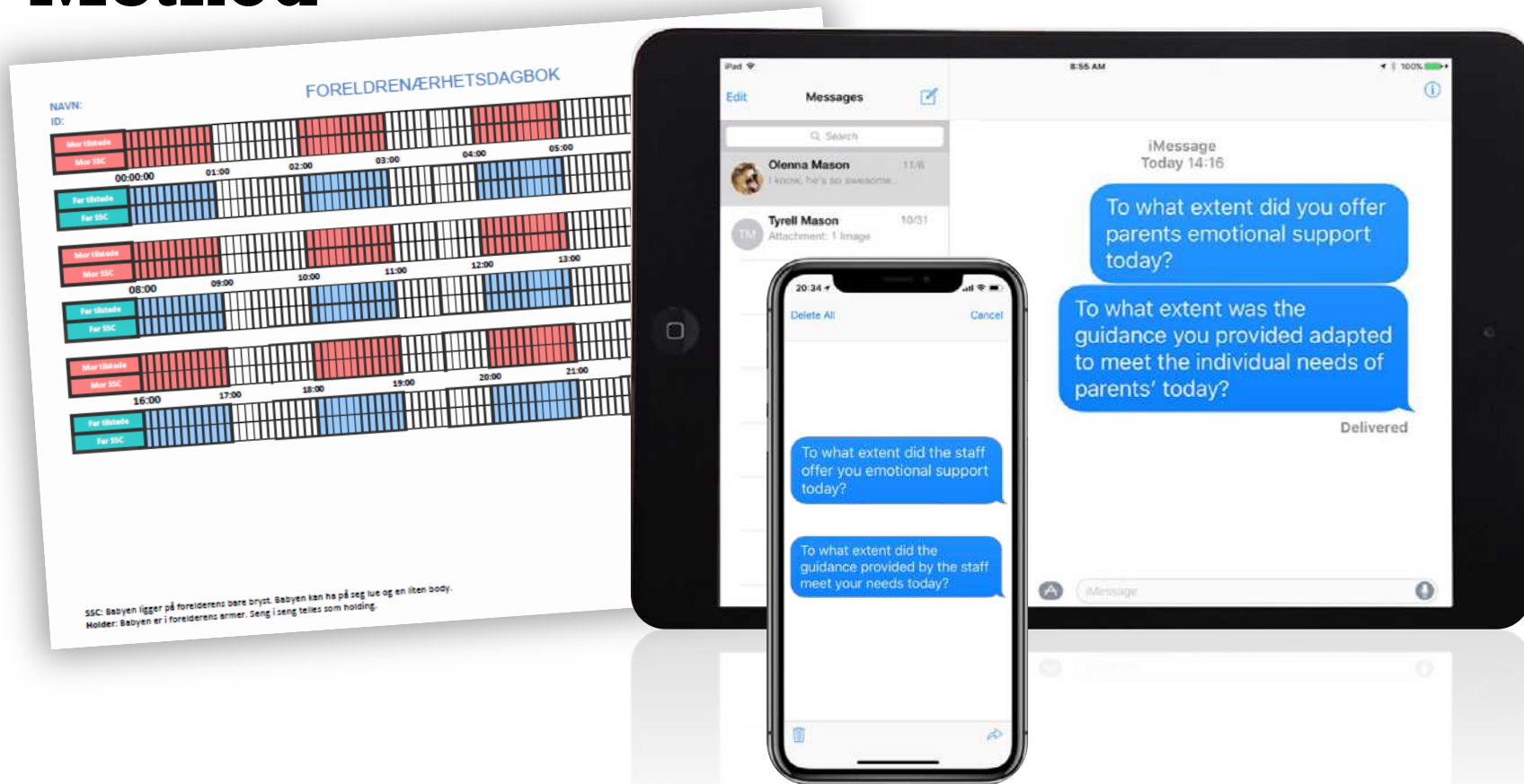
(Belsky & de Haan, 2011, Bergman 2019, Lean et al., 2018, Montirosso & Provenzi, 2015, Mooney-Leber & Brummelte, 2017, Pineda et al. 2018, Shonkoff & Garner, 2012, Volpe, 2019, Vinall et al. 2014)

A newborn baby is lying in a bed, covered with a light-colored blanket. A hand is gently resting on the baby's chest. The image has a soft, pinkish-purple tint.

# **SCENE RESEARCH GROUP**

**Separation and Closeness  
Experiences in the Neonatal  
Environment (SCENE)**

# Method



# SCENE

## 328 parents of preterm infants in 11 NICUs in Finland, Estonia, Sweden, Norway, Italy and Spain

- Parents' presence 3.3 to 22.3 hrs per day
- SSC 0.3 to 6.6 hrs per day
- Longer SSC was associated with singletons and highly educated mothers
- The opportunity to **stay overnight** is the most important factor supporting parent-infant closeness
- Wide variation on the quality of FCC
- The weakest aspects of FCC; emotional support, parents' participation in decision-making and fathers' participation in infant care

RAISKILA, Simo, et al. Parents' presence and parent-infant closeness in 11 neonatal intensive care units in six European countries vary between and within the countries. *Acta Paediatrica*, 2017, 106.6: 878-888.

Raiskila, S. et al. B. Parent and nurse perceptions on the quality of family-centred care in 11 European NICUs. *Aust. Crit. Care* 2016, 29, 201-209.





# Comparing Single Family Room and Open Bay

**SFR**



**OB**





**SFR** – Single  
Family Room

**OB** – Open Bay  
unit

## Variable



**SFR unit (n=35)**



**OB unit (n=42)**

**p-value<sup>1</sup>**

### Parents

Mothers' age, years, mean(SD)	31 (7)	32 (6)	0.38
Fathers' age, years, mean (SD)	36 (10)	34 (7)	0.45
Single mother, n (%)	0 (0)	1 (2)	0.66

### Norwegian first language, n (%)

Mothers	28 (80)	39 (93)	0.21
Fathers	30 (86)	39 (93)	0.30

### Education level, n (%)

#### Mothers:

Elementary	4 (13)	0 (0)	.015
High school	10 (33)	10 (30)	
College/university	15 (50)	23 (70)	

#### Fathers:

Elementary	3 (10)	0 (0)	.012
High school	15 (50)	12 (38)	
College/university	12 (40)	20 (63)	

<sup>1</sup> Two-sample *t*-test or Pearson's chi-square tests.





I

**SFR** – Single  
Family Room

**OB** – Open bay

## Variable



**SFR unit** (n=35)



**OB unit** (n=42)

**p-value<sup>1</sup>**

### Infant:

Delivered by cesarean section, n (%)	25 (71)	20 (48)	0.04
Primipara, n (%)	8 (23)	11 (34)	0.64
Male sex, n (%)	19 (54)	15 (36)	0.11
Twins, n (%)	10 (29)	18 (43)	0.30
Small for gestational age <sup>2</sup> , n (%)	7 (20)	10 (24)	0.69
Gestational age, weeks+days; mean (min, max)	30.5 (28.2, 32.0)	30.1 (28.1, 31.6)	0.03
PMA <sup>3</sup> at discharge, days, mean (SD)	252 (9)	255 (14)	0.34
Length of stay, days, mean (SD)	37 (11)	45 (18)	0.16
BPD, n (%)	0 (0)	2 (5)	0.20
Mechanical ventilation, n (%)	0 (0)	9 (22)	0.01
Ventilation, days, mean (SD)	0 (0)	0.3 (0.7)	0.01
Skin-breaking procedures <sup>4</sup> , mean (SD)	10(3)	20 (9)	0.01
Septicemia, n (%)	0 (0)	1 (2)	0.36

<sup>1</sup> Two-sample *t*-test or Pearson's chi-square tests

<sup>2</sup> Postmenstrual age

<sup>3</sup> Below the 10 th percentile

<sup>4</sup> Heel lance/arterial/venous punctures



## Parent-Infant Closeness, Parents' Participation, and Nursing Support in Single-Family Room and Open Bay

Bente Silnes Tandberg, MNSc, RN; Kathrine Froy Frosli, PhD, MSc; Renée Flacking, Hege Grundt, RN; Lissi Lehtonen, M/D, PhD; Atle Moen, MD, PhD

### ABSTRACT

This was a prospective survey study, comparing parent-infant closeness, parents' perceptions of nursing support, and participation in medical rounds in single-family room

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Bente Silnes Tandberg acknowledges the research presented in this article, which she has read and wrote the paper. Kathrine Froy Frosli, advised about and contributed practically to data collection and participated in discussion of results and interpretation. She also critically read and assisted in formulating the manuscript. Renée Flacking, contributed to designing and developing the project and actively participated in data analysis and writing of this paper. Hege Grundt, managed inclusion and data collection in Bergen, initially read the manuscript, and participated in discussion of the results. Lissi Lehtonen, initiated and developed the SCULM multicenter collaboration and the study design and actively contributed to analysis and writing of the paper. Atle Moen took an active part in designing this project, including the data, and actively participated in discussion of the results. All authors read and approved the final manuscript.

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Each author has indicated that he or she has met the journal's requirements for authorship.

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### RESEARCH ARTICLE

# Parent psychological wellbeing in a single-family room versus an open bay neonatal intensive care unit

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**Abstract:** Parental psychological wellbeing is an important outcome in neonatal intensive care. The aim of this study was to compare parent psychological wellbeing in a single-family room (SFR) and an open bay neonatal intensive care unit (OBNICU).

**Methods:** A prospective survey study was conducted in two neonatal intensive care units. Parents in the SFR and OBNICU were asked to complete a questionnaire about their psychological wellbeing, participation in medical rounds, and nursing support.

**Results:** The SFR parents had significantly higher scores on the Parental Psychological Wellbeing Scale (PPWS) than the OBNICU parents ( $P < .001$ ). The SFR parents also had significantly higher scores on the Parental Participation in Medical Rounds Scale (PPMR) than the OBNICU parents ( $P < .001$ ). The SFR parents also had significantly higher scores on the Nursing Support Scale (NSS) than the OBNICU parents ( $P < .001$ ).

**Conclusion:** Parents in the SFR had significantly higher scores on the PPWS, PPMR, and NSS than the OBNICU parents. This suggests that the SFR environment is more supportive for parents than the OBNICU environment.

**Keywords:** Parental psychological wellbeing, single-family room, open bay neonatal intensive care unit, neonatal intensive care unit (NICU).

Tandberg, B.S.; Frosli, K.F.; Flacking, R.; Grundt, H.; Lehtonen, L.; Moen, A. Parent-Infant Closeness, Parents' Participation, and Nursing Support in Single-Family Room and Open Bay NICUs. *J. Perinat. Neonat. Nurs.* 2018, 32, E22–E32.

TANDBERG, Bente Silnes, et al. Parent-Infant Closeness, parents' participation, and nursing support in Single-Family room and open Bay NICUs.



# Increased score among parents in SFR

Participation in  
doctors round



Emotional support

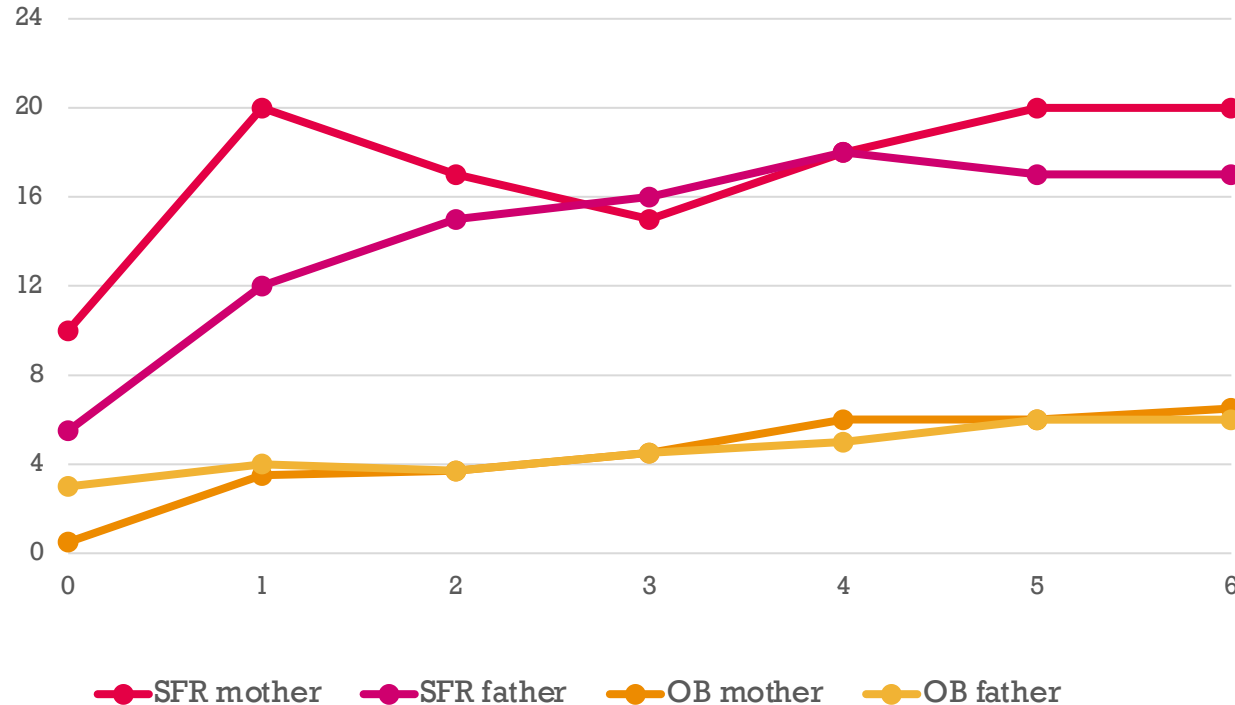


Question	SFR unit		P within unit	OB unit		P within unit	 P between unit	 P between unit
	Mothers Median [Q1, Q3]	Fathers Median [Q1, Q3]		Mothers Median [Q1, Q3]	Fathers Median [Q1, Q3]			
<b>Q7:</b> To what extent did you participate in discussions during the doctor's round/doctor's visit?	5.5 [4.7, 6.1]	5.0 [4.2, 5.9]	.27	2.0 [2.0, 4.1]	2.8 [1.9, 4.3]	.46	<.001	.01
<b>Q9:</b> To what extent did the staff offer you emotional support today?	6.0 [5.0, 6.3]	7.0 [5.9, 7.0]	.27	5 [4.2, 4.1]	4.5 [3.2, 5.3]	.33	.05	<.001

# Parental Presence – first week



12 hr/day



**SFR**

87%



93%



**OB**

0%

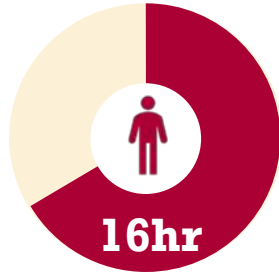
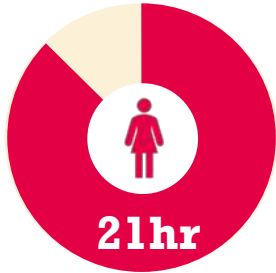


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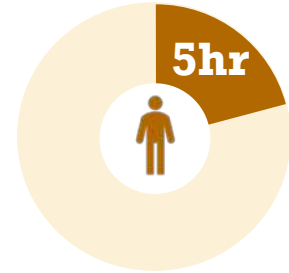
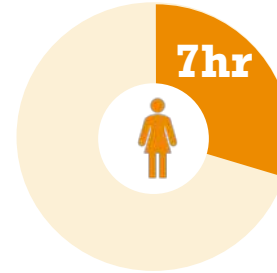


# Mean Parental Presence

## Single family room

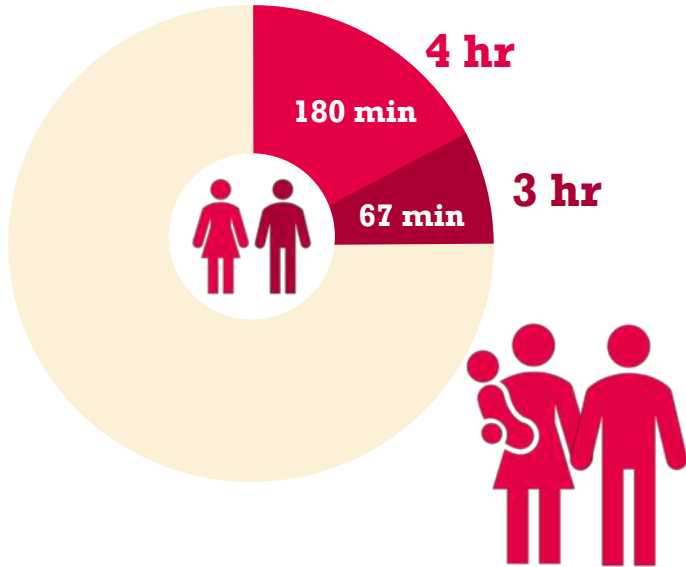


## Open Bay Unit

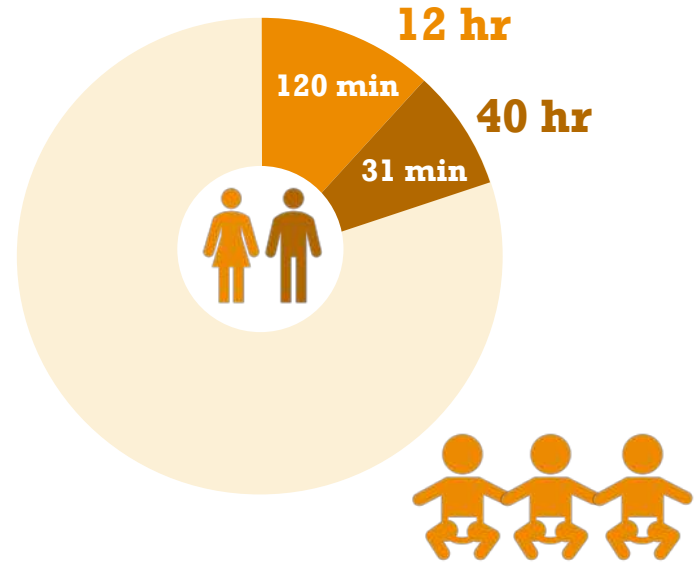


# Skin to skin contact

## Single family room



## Open Bay Unit



1

## **Depression:**

- The Edinburgh Postnatal Depression Scale (EPDS)

2

## **Anxiety:**

- State and trait anxiety index short Y-form (STAI-SF)

3

## **Stress:**

- The Parent stress scale: NICU (PSS:NICU)
- The Parenting Stress Index – short form (PSI-SF)

4

## **Attachment:**

- Maternal Postnatal Attachment Scale (MPAS)



# Results

Table 2. Repeated measurements of depression, anxiety, stress and attachment examined in linear mixed model.

	Mother				Father			
	Estimate*	SE	95% CI	p-value	Estimate*	SE	95% CI	p-value
<b>The Edinburgh Depression Scale (EPDS)</b>	-1.9	0.9	[-3.6, 0.1]	0.03	-0.5	0.9	[-2.3, 1.3]	0.58
<b>The State-Trait-Anxiety – Inventory Short Form Y (STAI )</b>	-3.0	2.3	[-7.7, 1.6]	0.20	-2.6	2.2	[-7.1, 1.9]	0.30
<b>The Parent Stressor Scale: neonatal intensive care unit questionnaire (PSS: NICU )</b>								
Sights and sounds of the environment and Infant appearance	-5.0	2.2	[-9.4, -0.6]	0.03	-5.3	2.1	[-9.5, -1.1]	0.01
Parental role alteration	-5.2	1.8	[-8.7, -1.7]	0.004	-7.2	1.5	[-10.3,-4.2]	0.000
<b>The Parenting Stress Index – short form PSI</b>	2.8	4.5	[-6.2,11.8]	0.55	-0.5	5.4	[-11.2, 10.3]	0.93
<b>Maternal Postnatal Attachment Scale (MPAS)</b>	-1.7	1.0	[-3.6, 0.3]	0.09	-0.5	1.2	[-3.0, 2.0]	0.68

# Depressed mothers – 2 weeks of hospitalization

**52%**

OB unit

Fathers

**11%**

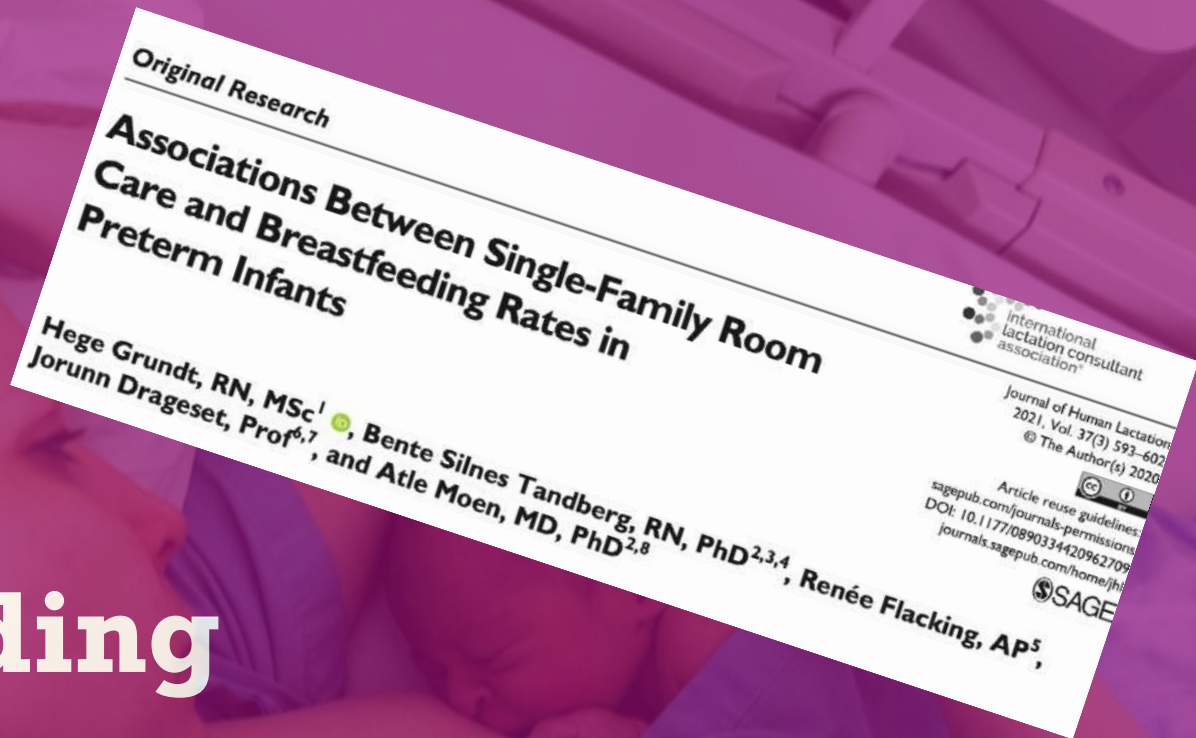
**14%**

SFR unit

Fathers

**4%**

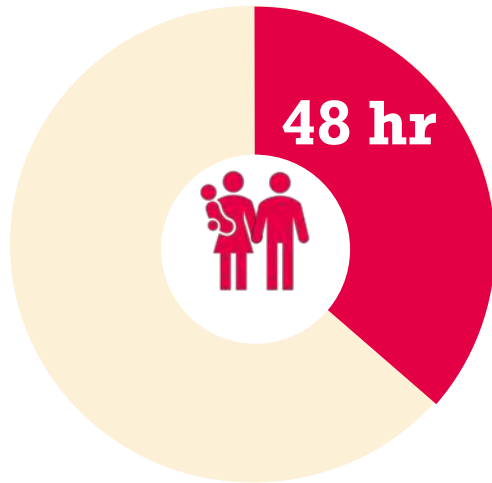
# Breastfeeding



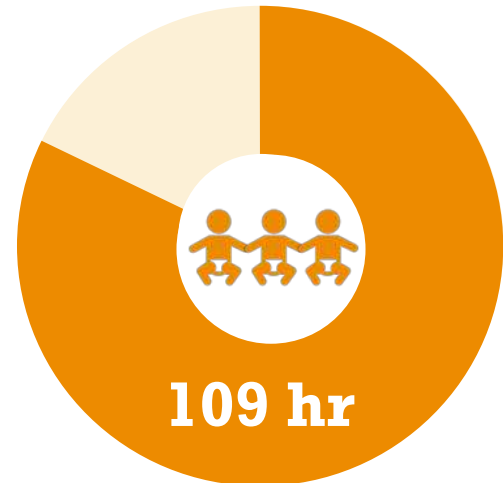
Grundt, H.; Tandberg, B.S.; Flacking, R.; Drageset, J.; Moen, A. Associations between single-family room care and breastfeeding rates in preterm infants. *J. Hum. Lact.* 2021, 37, 593–602. [CrossRef]

# First BF attempt

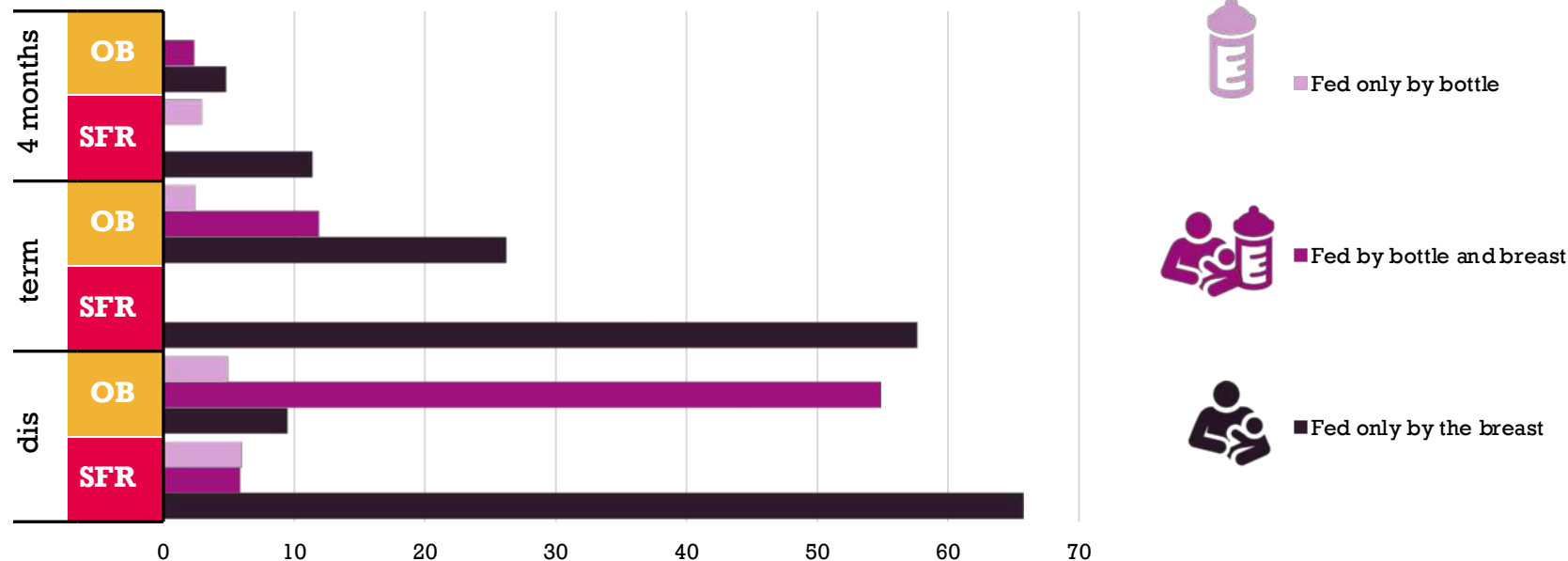
**SFR**



**OB**



# Breastfeeding



Variables	Godness if fit				95% CI b		p-value
	N	QICC	B	EXP (B)	Lower Bound	Upper Bound	
Volumes of mother milk produced	64		101.8		-72.0	275.8	.25
The extent to which infants received mothers milk	64			-.5	-1.3	.3	.04
Exclusively direct breastfeeding	64	180.3		6.8	2.4	19.1	.001

# Singel Family Room design contributes to;

- Continues presence of parents if the social structures allow it
- Early and increased SSC
- More involved parents during doctors round and more emotional support from nursing staff
- Less depression among mothers
- Less stress for both parents during hospitalization
- More exclusive breastfeeding



## SUPPORTED BY







**10 years with SFR**

**1**

**Both parents can and do, if they are given permission!**

**Continuous parental presence protects the infant**



**10 years with SFR**

**2**

**New ways of working structure is necessary**

**10 years with SFR:**

**3**

**The staff need to develop their  
communication skills  
AND they need SUPPORT**



Article

## Ten Years of Neonatal Intensive Care Adaption to the Infants' Needs: Implementation of a Family-Centered Care Model with Single-Family Rooms in Norway

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# Other important references about SFR and NICU

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van Veenendaal, N.R.; van Kempen, A.A.; Franck, L.S.; O'Brien, K.; Limpens, J.; van der Lee, J.H.; van Goudoever, J.B.; van der Schoor, S.R. Hospitalising preterm infants in single family rooms versus open bay units: A systematic review and meta-analysis of impact on parents. *EClinicalMedicine* **2020**, 23, 100388. [CrossRef]

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AND TO YOU FOR LISTENING!

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