MOTHER'S OWN BREAST MILK IS A SOURCE OF *MECA*-POSITIVE *STAPHYLOCOCCUS EPIDERMIDIS*

Hiie Soeorg[1], Tuuli Metsvaht[2], Imbi Eelmäe[2], Sirli Treumuth[1], Mirjam Merila[3], Mari-Liis Ilmoja[4], Irja Lutsar[1]

[1]Department of Microbiology, University of Tartu, Tartu, Estonia
[2]Pediatric Intensive Care Unit, Tartu University Hospital, Tartu, Estonia
[3]Department of Neonatology, Children's Clinic, Tartu University Hospital, Tartu, Estonia
[4]Pediatric Intensive Care Unit, Tallinn Children's Hospital, Tallinn, Estonia

DISCLOSURE

x	No, nothing to disclose
	Yes, please specify:

Company Name	*Honoraria/ Expenses*	*Consulting/ Advisory Board*	*Funded Research*	*Royalties/ Patent*	*Stock Options*	*Ownership/ Equity Position*	*Employee*	*Other (please specify)*

BACKGROUND

Staphylococcus epidermidis causing late-onset sepsis in preterm neonates

- 87-100% are *mecA*-positive (MRSE) (Salgueiro et al. 2017, Soeorg et al. 2017)
- colonize gut prior to the onset of infection (Soeorg et al. 2013)

Breast milk (BM) of mothers of preterm neonates

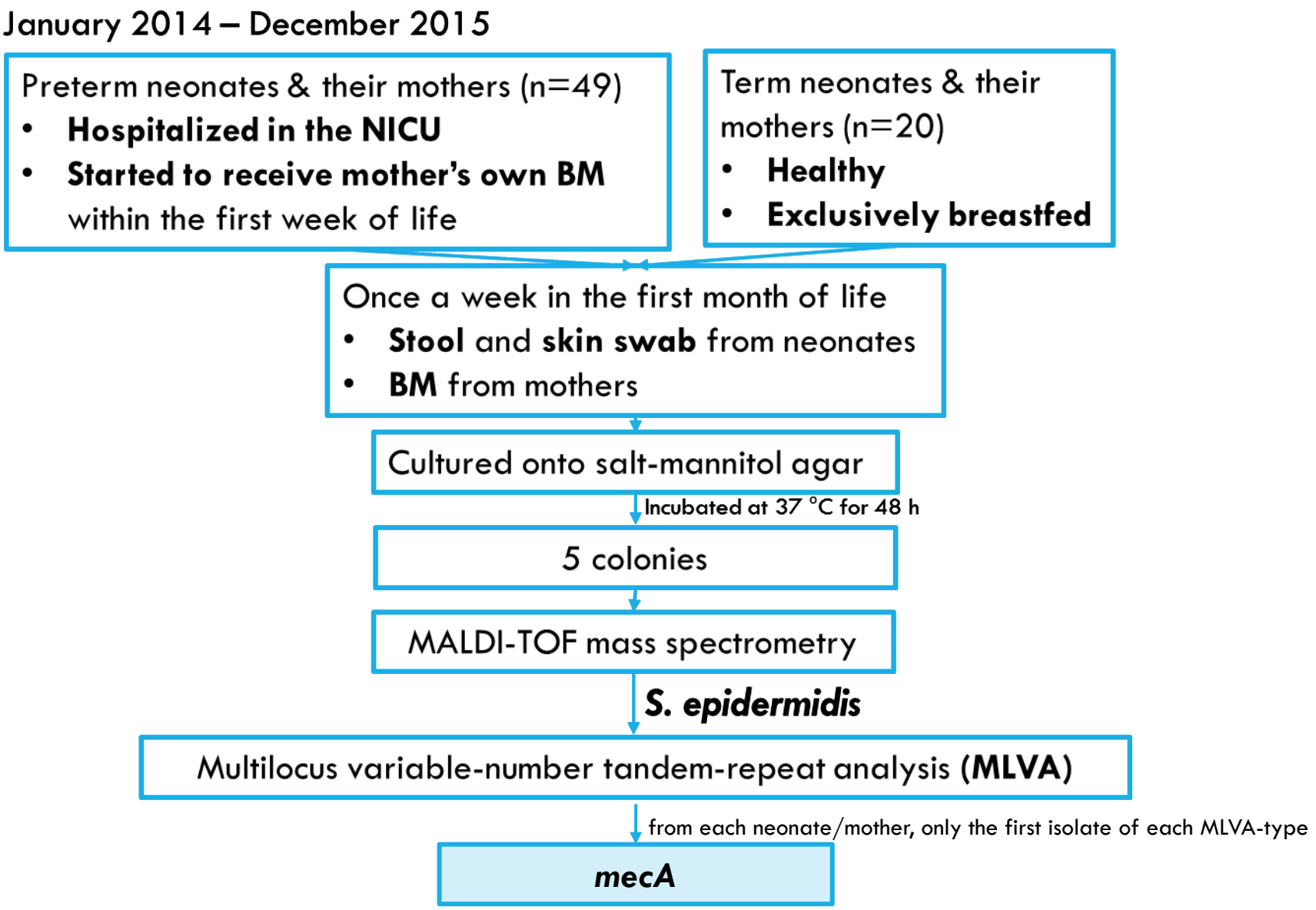
- Source of gut-colonizing *S. epidermidis* for neonates
- More commonly colonized with MRSE than in mothers of term neonates (78% vs 15%) (Soeorg et al. 2017)

AIM

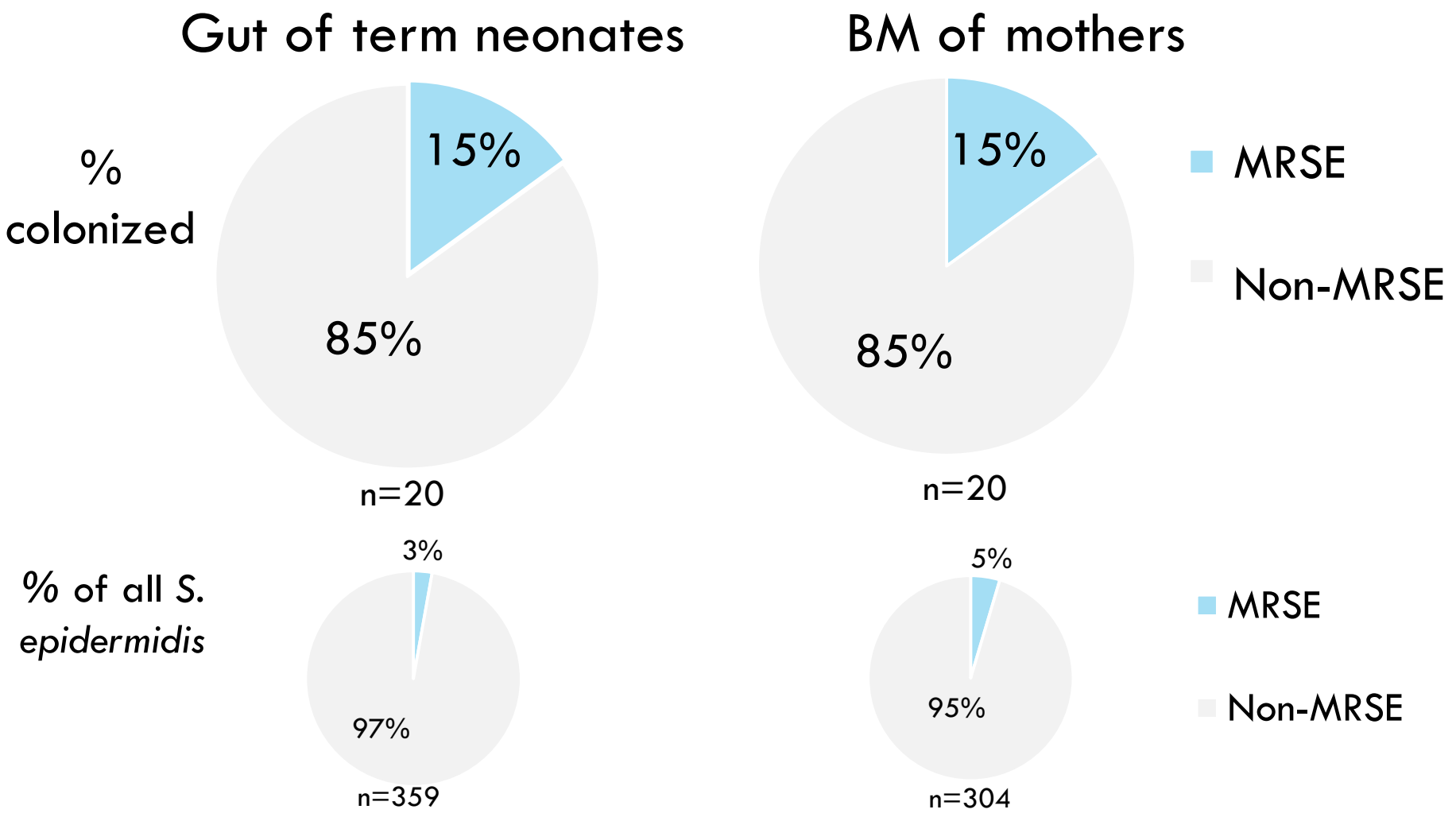
To find out the role of own mother's BM in colonization of gut of neonates with MRSE we aimed to determine genetic relatedness between MRSE colonizing mother's BM and those colonizing gut of neonates.

BM – breast milk
MRSE – *mecA*-positive *S. epidermidis*

MATERIALS & METHODS



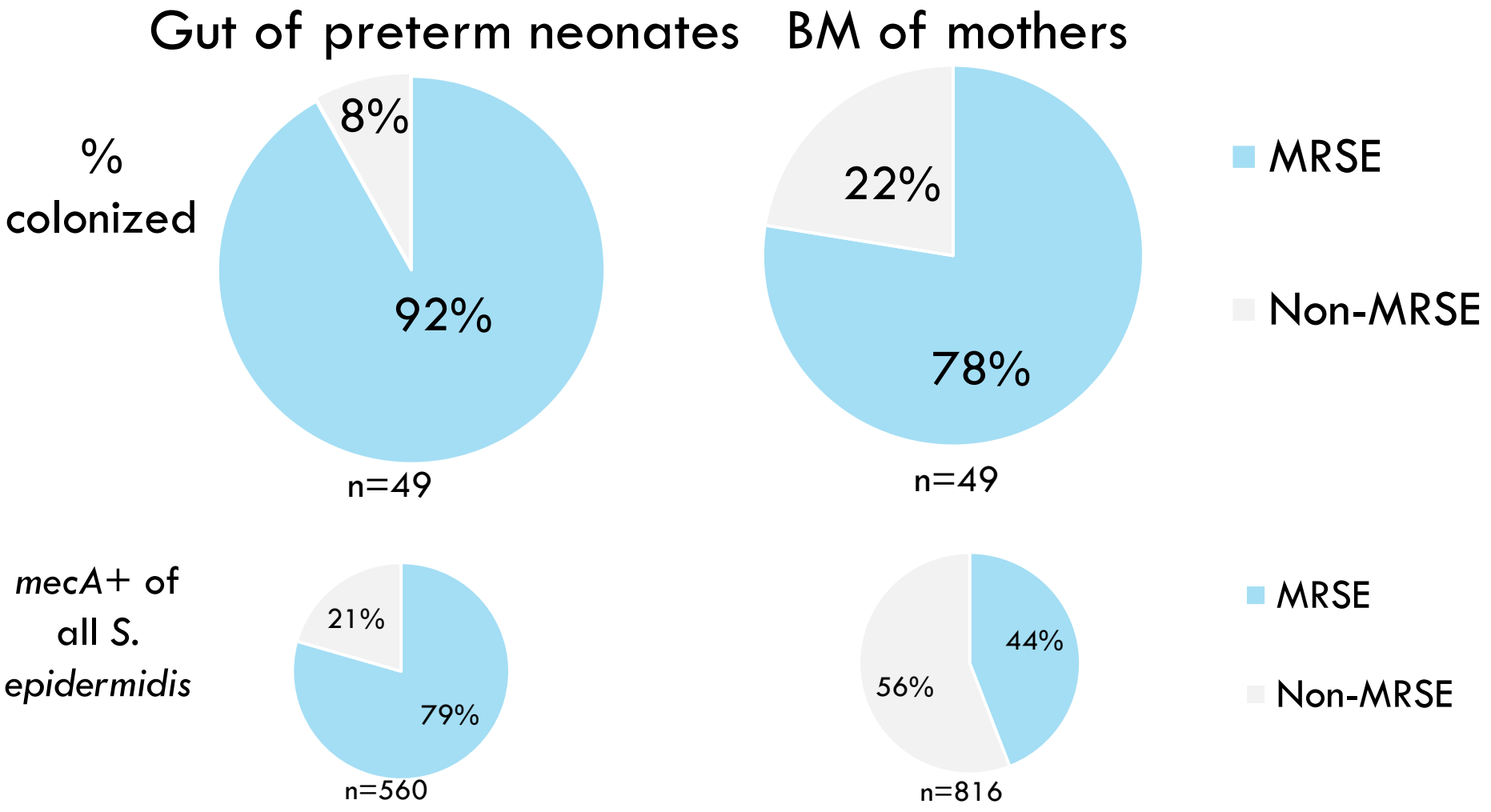
MRSE IN TERM NEONATES & MOTHERS



No genetically similar MRSE strains in neonates and mothers

BM – breast milk
MRSE – *mecA*-positive *S. epidermidis*

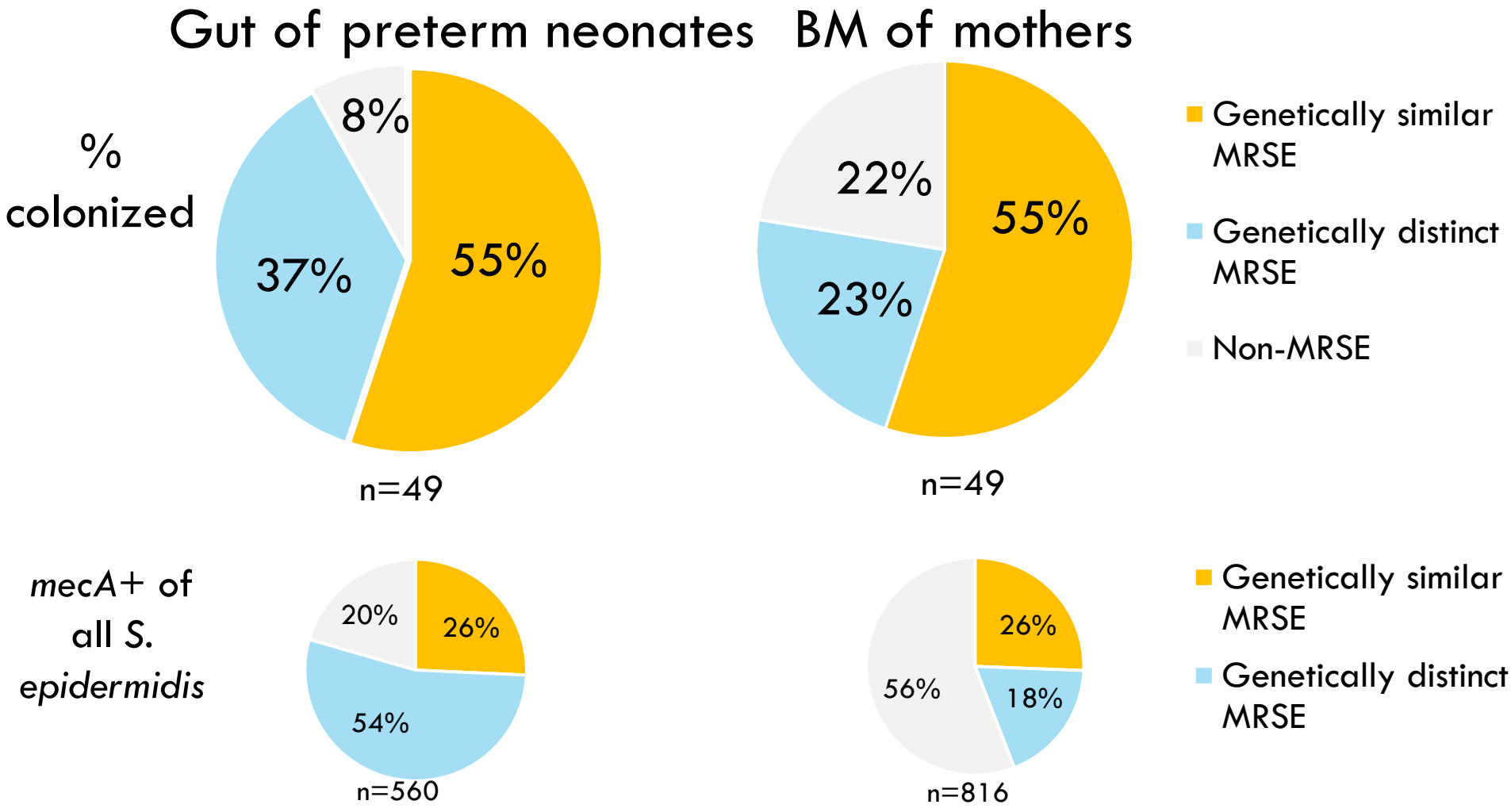
MRSE IN PRETERM NEONATES & MOTHERS



BM – breast milk

MRSE – *mecA*-positive *S. epidermidis*

GENETICALLY SIMILAR MRSE IN PRETERM NEONATES & MOTHERS



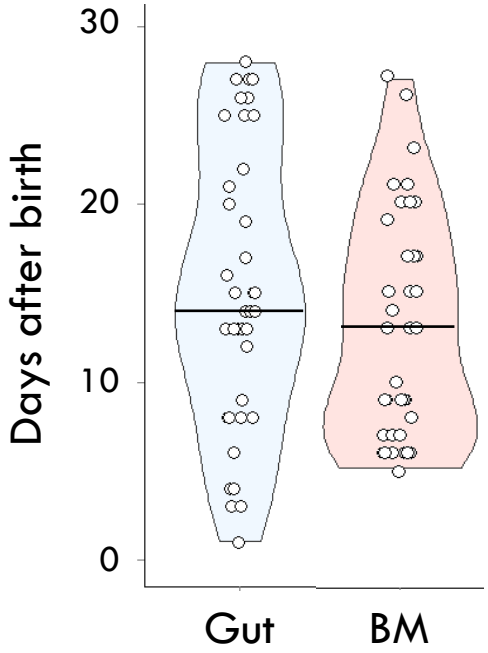
BM – breast milk

MRSE – *mecA*-positive *S. epidermidis*

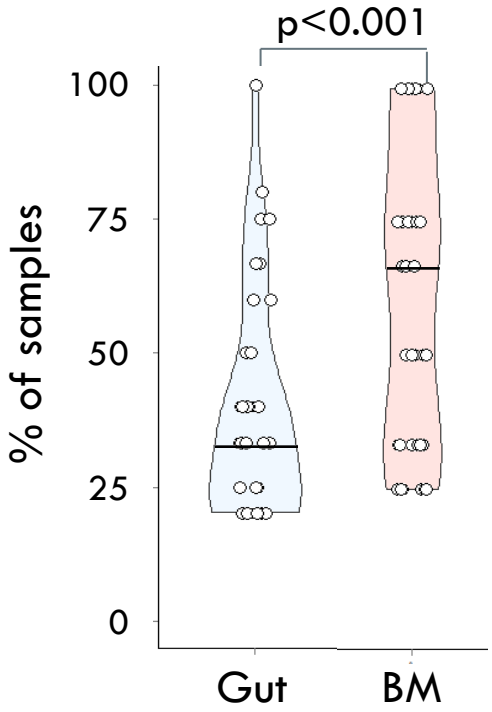
TIME AND % OF SAMPLES COLONIZED WITH GENETICALLY SIMILAR MRSE

In preterm neonates and their mothers genetically similar MRSE strains (n=39) colonized …

… gut & BM at similar time



… larger % of BM samples



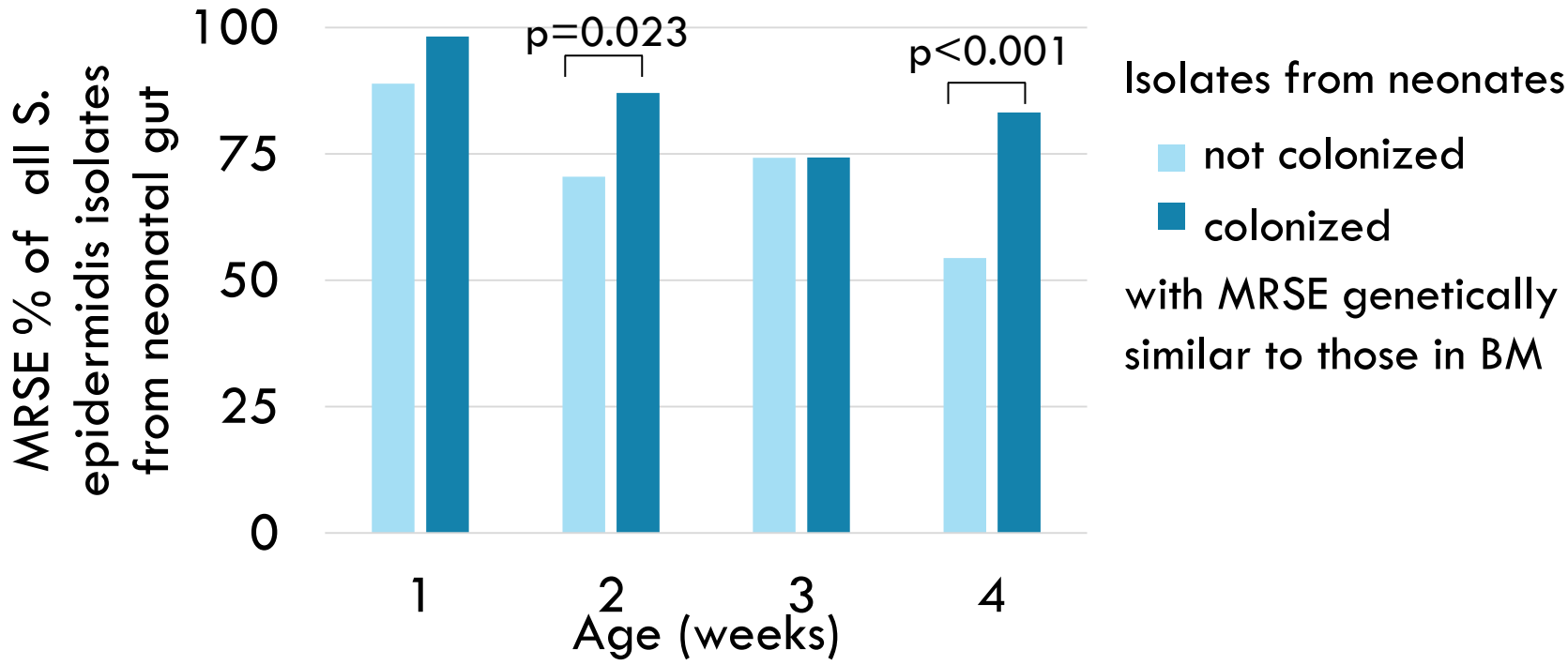
Dot shows one MRSE strain.

BM – breast milk

MRSE – *mecA*-positive *S. epidermidis*

% OF MRSE AMONG GUT-COLONIZING *S. EPIDERMIDIS*

In preterm neonates colonized with MRSE genetically similar to those in BM MRSE was more abundant.



BM – breast milk

MRSE – *mecA*-positive *S. epidermidis*

GUT- AND BM-COLONIZING STRAINS CAUSING LATE-ONSET SEPSIS

S. epidermidis (n=4)

- All were MRSE
- Gut, but not BM colonization prior to the onset

Neonate no.	Genetically similar strain in … prior to the onset of late-onset sepsis	
	… gut …	… BM …
1	**Yes**	**No**
2	**Yes**	**No**
3	**No**	**No**
4	**No**	**No**

BM – breast milk
MRSE – *mecA*-positive *S. epidermidis*

CONCLUSIONS

In healthy term neonates and their mothers

- MRSE is infrequent

In preterm neonates and their mothers

- MRSE is frequent & more abundant in neonates colonized with MRSE strains genetically similar to those in BM
- BM has a potential role in MRSE colonization of gut of preterm neonates

ACKNOWLEDGEMENTS

This study was supported by Estonian Research Council (IUT34-24), European Regional Development Fund (Project SFOS WP1-NeuroAIDS), Archimedes Foundation (Project No. 3.2.1001.11-0032), NeoVanc and the European Society for Paediatric Infectious Diseases (ESPID Small Grant Award).