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Management of mother's own milk for very preterm infants in tertiary-level neonatal units in the Ile-de-France region in France

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Dear Editor:

Breastfeeding rates among very preterm infants at discharge from hospital are low in the French Ile-de-France region (24%) when compared to those in other European regions where rates varied from 19% to 70%.¹ Variations in practices related to the management of breast milk in European neonatal units may explain some of these differences. We sought to describe procedures for management of mother's own milk for infants born very preterm in the Ile-de-France region and to assess how these relate to existing French regulations and guidelines.

Two regulations and one guideline related to the use of mother's own milk for preterm or hospitalized infants were in force during the study period (2009-2010)²⁻⁴. **The content of these texts differs with respect to their target populations, time recommended for breast milk storage and recommendations for preventing infection transmission.** One regulation specifically regulates breast milk administration in the neonatal unit,² and allows the use of fresh breast milk without bacteriological test if milk is stored for less than 12 hours. The two other target human milk banks³ or handling and storage of milk bottles in hospitals, childcare centers and homes.⁴ They recommended the storage of fresh breast milk up to a maximum of 48 hours,^{3,4} performance of bacteriological tests the first time infants receive their mothers' own milk in the neonatal unit and use of mother's own pasteurized milk or donor milk if maternal serology is positive for human cytomegalovirus (HCMV).⁴

Data on neonatal unit practices came from semi-structured face-to-face interviews with the health care professional designated by the head of unit as the person with the most knowledge about breastfeeding, in eight tertiary-level neonatal units in 2009-2010. These units accounted for approximately half of the very preterm admissions in the 17 tertiary-level neonatal units in the region. Units were purposely chosen to ensure geographical variability (Paris and suburbs), diverse socio-cultural characteristics of the mothers (origin and social class) and variation of breastfeeding rates at discharge from the neonatal unit (high,

medium or low).¹ No unit refused to participate in the study. Interviewees were two lactation consultants, two nurses in charge of the pasteurization unit, two head nurses, two nurses and one pediatrician. Written summaries were made of all interviews. We extracted information about the procedures for mother's own milk management: type of milk (fresh, frozen-thawed or pasteurized), storage time, bacteriological analysis, restrictions on the use of breast milk and availability of written protocols. This study was exempt of ethical approval according to French regulations.

Table 1 shows wide variability in procedures implemented by the units. Half used only pasteurized milk (mother's own or donor milk) before infants reached 32 weeks and no unit used frozen-thawed milk. All units required maternal HCMV serology before giving fresh milk for very preterm infants and used pasteurized milk if the mother had a positive HCMV serology, although limits for use of pasteurized milk were not the same. The majority of the units performed systematic and regular bacteriological analyses of fresh milk, but at different frequencies. Two units performed bacteriological analysis only if the mother or the infant presented signs of infection. Maximum storage time for fresh milk varied from 12 to 48 hours between units. Seven units authorized breast milk expression at home or at the neonatal unit, but one unit used fresh breast milk only if the mother expressed her milk on-site. Four units had an on-site facility, in the hospital or the neonatal unit, for pasteurizing breast milk. Two units had a written protocol for the use of breast milk for infants born before 32 weeks at the moment of the study and the latest versions dated from August 2008 and April 2009.

This study contributes to the growing literature showing wide variations in the procedures for managing mother's own milk in European neonatal units.⁵⁻⁷ Variations in practices among neonatal units in Ile-de-France may be due to the fact that the guidelines did not always give the same recommendations, as for instance, for storage time for refrigerated fresh milk. These differences also relate to units' interpretation of regulations and guidelines. Most units implemented more restrictive practices related to fresh breast milk management, such as milk

pasteurization, regular bacteriological analysis and non-use of frozen-thawed breast milk, than required by current guidelines.

The units' more conservative approach could have different explanations. Units might prefer to apply the principle of precaution because of concern about risks associated with infection transmission through breast milk. Indeed, evidence is not clear on bacteriological analysis for the use of breast milk from the mother to her own infant and the optimal time for milk storage. It could be an indication of the lack of updated knowledge of health care professionals on research about breast milk use and the latest recommendations published in France. It might also reflect the absence of active breastfeeding promotion policies in these units. Few units in our study had lactation consultants or written protocols for the use of breast milk for very preterm infants.

The impact of these practices on breastfeeding for preterm and hospitalized infants requires further study. Transfers between units are common for very preterm infants and significant changes in the procedures between units might constitute a barrier to successful lactation and breastfeeding. Indeed, inconsistencies in the information given by health care professionals to mothers might affect their capacity to express or breastfeed in the hospital. More restrictive practices might also have a negative impact because of delays linked to the pasteurization of milk and of costs related to the need for special equipment and trained staff. Including data about how these practices affect maternal motivation seems also important. This study also raises more general questions about adherence to recommendations and highlights the need for strategies for dissemination and implementation of regulations and guidelines and regular evaluation of clinical practices.

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Author's contribution:

MB and MD performed the literature review, developed the interview guide, conducted interviews and wrote the first draft of the paper. BB, PB, VP, JZ contributed to the development of the interview guide and the manuscript. All authors participated in revisions and approved the final manuscript.

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Table 1. Use of mother's own milk for infants born very preterm in tertiary-level neonatal units in Ile-de-France (2009-2010)

	Number of units (n=8)
Used only pasteurized human milk before 32 weeks post-menstrual age	4
Used frozen-thawed milk before 32 weeks post-menstrual age	0
Infant's age for first fresh mother's own milk feed if HCMV serology is negative	
Before 32 weeks	4
32 weeks	2
34 weeks	2
Infant's age for first fresh mother's own milk feed if HCMV serology is positive	
30 weeks	1
32 weeks	4
34 weeks	3
Performed systematic bacteriological test of fresh mother's own milk	
No systematic bacteriology ^c	2
For first feed, then once a week	5
For first feed, then every 2 weeks	1
Storage time in units using fresh mother's own milk before 32 weeks	
<12hours	1
<24hours ^a	2
<48hours ^b	1
Place allowed for breast milk expression	
Neonatal unit and home	7
Neonatal unit only	1
Human milk bank location for mother's own milk pasteurization	
On-site human milk bank or on-site pasteurization unit	4
Human milk bank outside the hospital	4
Written protocol for breast milk management	
Yes	2
No	6

HCMV: human cytomegalovirus

a: One unit stored milk for less than 12 hours if diagnosis of any intestinal morbidity (necrotising enterocolitis, gastroschisis, etc)

b: For infants between 30 and 32 weeks

c: Performed only if infection suspected