Research Overview: The Storage of Breastmilk

The benefits of breastfeeding and the negatives of formula feeding are becoming increasingly apparent through research based evidence. Importantly, this evidence is being communicated to pregnant women, mothers and healthcare professionals. As a result breastfeeding rates in the US have recorded modest increases as reported by the CDC in its latest ‘Breastfeeding Report Card – United States 2010’. Currently, 75% of mothers start breastfeeding, however, research indicates many stop shortly thereafter with exclusive breastfeeding rates at three months at only 33%.

There are many barriers to increased breastfeeding duration in the US, however, separation of the mother from her baby, for whatever reason, stands out as one of the more significant obstacles to overcome. At times of separation, expressed breastmilk is the preferred feeding option for babies (WHO, 2003). Indeed, the act of expressing breastmilk provides distinct benefits for both mother and baby. With regard to the mother, the regular and adequate removal of milk from the breast (in the absence of the infant) supports the ‘supply and demand’ relationship between milk synthesis and removal (Daly et al, 1993) allowing for the continuation of lactation (Win et al, 2006) so that breastfeeding may last as long as the mother and baby mutually wish. For the baby, the known benefits of breastmilk over formula are well documented and new research continues to unearth more benefits at a rapid pace.

For the mother expressing and collecting her breastmilk there are extra challenges. Regardless of the setting (home or hospital) her milk will need to be collected and stored prior to being fed to her baby. This raises the question of optimal storage conditions for breastmilk. While there has been a significant amount of research attempting to optimize storage conditions for cow’s milk, much less work has been done for breastmilk. With respect to milk storage two main questions continually arise, those of bacterial contamination and degradation of milk components. In this edition we have sourced three noteworthy, peer-reviewed research publications all addressing these issues and have summarized the key points for each one.

- Academy of Breastfeeding Medicine, Clinical protocol #8: Human milk storage information for home use for full-term infants (2010).

In reviewing these three articles we cover the biochemistry and breastmilk storage scenarios in both hospital and home.
References:


Research Overview: The Storage of Breastmilk

Mothers often refer to breastmilk as ‘liquid gold,’ therefore for mothers who express breastmilk, storage is of a key concern -- regardless of their environment (home or hospital). In the next few pages please find summaries of two key research articles as well as the clinical protocols for milk storage from the Academy of Breastfeeding Medicine (ABM). These data provide an up-to-date view of the evidence supporting the development of optimal breastmilk storage conditions and provide you with key talking points.

Key points to note are:

• Bactericidal activity in refrigerated human milk declines in the first 2-3 days of storage; however, the sequestration of bacteria seems to increase at this time. Both activities provide protection to the breastmilk fed infant.

• Human milk has unique properties specifically tailored to human infants.

• Human milk stored in a NICU refrigerator for 96 hours maintains its overall integrity and is safe for infant consumption.

• Fresh milk refrigerated for 4 days compares favorably to frozen or donor milk.

• The ABM guidelines are for full-term infants, not preterm or hospitalized infants.

• Cleanliness of milk expression, storage and handling are emphasized as it affects the numbers and types of bacteria in expressed milk. Milk that has higher bacteria counts will have a shorter shelf life.

• The ABM is very specific about this protocol serving as a guideline, not “an exclusive course of treatment” or standard of care.

• The CDC cites the ABM guidelines for human milk storage on their website.