

Stories of Success: The Use of Donor Milk Is Increasing in North America

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Abstract

Donor milk has been used to successfully treat a number of medical conditions in infants. This article highlights 3 such success stories describing the use of human milk in cases of velocardiofacial syndrome, very-low-birth weight, and failure to thrive. In 2002, more than 300 infants and young children and 15 adults received donor milk from 6 milk banks in the United States and 1 milk bank in Canada. Donor milk is often used to ensure optimal outcomes in full term or preterm infants until their own mother's milk volume is sufficient to meet their needs. However, human milk may be a lifesaving therapy for infants and young children with unusual medical conditions. *J Hum Lact.* 20(1):75-77.

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“Donor milk saved her life. I don't know what we would have done without it. It was a godsend,” commented the mother of 2-year-old **Lyla**.

Lyla was born after 39 weeks of gestation with velocardiofacial syndrome (the deletion of chromosome 22), which is characterized by deformities of the mouth, heart defects, increased susceptibility to infection due to hypoplasia of the thymus, a low white blood cell count, hypoparathyroidism, hypocalcemia, and mental retardation or developmental delays.

Because of her oral cavity anomalies, Lyla was unable to breastfeed, and her mother pumped and bottle-fed her with a special nipple. She began having seizures on day 5, as the many facets of the syndrome

began to exhibit themselves, leading to frequent hospitalizations. Although Lyla was at least partially fed her mother's pumped milk, her mother's milk supply diminished. Numerous formulas were tried, but Lyla reacted badly to all of them (gastrointestinal distress, vomiting, crying, bloody stools) and lost weight.

Donor milk was introduced at 5 weeks. Lyla's mother's comment was, “Once she took the donor milk, we were amazed at her ability to feed and how everything improved.” At 3 months, she was taking 36 oz of donor milk per day. That had decreased to 24 oz/d by 6 months. Solid foods were slowly introduced starting at 8 months. Lyla developed eczema when solid foods were added to her diet, and a peanut allergy was confirmed. By 17 months, she could tolerate sufficient foods that she could be weaned from donor milk.

At 2 years old, Lyla weighs 20 lb and is happy and playful, according to her mother. She cannot speak because of the oral anomalies, but she can sign 50 words and has extensive receptive language. Her progress continues to surpass medical predictions and expectations. Lyla's immune system is largely nonexistent because of the hypoplasia of the thymus, and she has had numerous colds but never an ear infection. Although her motor development is delayed, she is now able to crawl and walk some, exceeding medical predictions.

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Donor milk provided Lyla with nourishment and immunologic protection (most of the immunoglobulin A [IgA] in human milk survives both freezing and heat processing) and possibly assisted in optimizing her development by supplying essential fatty acids necessary for neurological development and function.

Grace was the first of triplets. She was born spontaneously after 28 weeks of gestation while her mother was hospitalized on bed rest to prevent preterm labor. At birth, Grace was small for her gestational age at 670 g. Her mother carried Grace's siblings to 35 weeks 4 days and began pumping after they were born. Grace was fed donor milk until her siblings were born and her mother could begin pumping milk. She remained hospitalized longer than her siblings because of her more difficult start. The milk bank provided preterm donor milk until she reached 34 weeks of age, at which time she was switched to term donor milk. At 8 weeks of age, she was up to almost 4 lb and was taking 2 to 3 oz per feeding.

Shea is typical of recipients who receive donor milk because of "feeding intolerance." Although born at full term, she spent most of her first 6 months of life in and out of the hospital, labeled with such diagnoses as a failure to thrive, gastroesophageal reflux, malabsorption syndrome, and formula intolerance. Shea had bowel rotation surgery at 7 weeks, but it did not completely eradicate her symptoms. Numerous formulas, including specialized formulas, were tried, but she did not tolerate any of them and continued to fail to thrive. At 6 months of age, Shea was given a trial of donor human milk. According to her physician, since that time, "breast milk has prevented episodes of abdominal distention, weight loss, and repeated hospitalizations."

At this writing, Shea is 18 months old. She is still on donor milk, and it is unclear how long she will require it. Although the introduction of solid foods was started at 6 months, she still tolerates very few foods, and human milk remains her primary source of nutrition. Her case is unusual because she has required so much milk. By 18 months, she had consumed 8244 oz. (See fig. 1)

These 3 babies were among the more dramatic cases of donor milk use in North America in 2002, but more than 300 infants and young children and 15 adults received donor milk from 6 milk banks in the United States and 1 in Canada that year. The needs for donor milk included supplementing a mother's own milk for a premature infant until the mother's milk supply was fully established, providing human milk as therapy for infants after surgery, and providing milk for healthy



Figure 1. Although Shea had a very difficult start and still required donor milk at 18 months, she is now walking and continues to meet developmental milestones.

adopted infants whose parents wanted to ensure optimal starts. Some mothers are unable to establish sufficient milk supplies for their babies, especially in cases of multiples; other mothers must temporarily stop breastfeeding because of medications. Many babies with general feeding intolerance respond well to donor milk when their mothers' own is not available. Although there are not generally recognized diagnoses for which human milk is required, the picture that emerges when one reviews the diagnoses given as reasons for requiring donor milk reflects the many species-specific properties of human milk (see Table 1). Also, because donor milk is recognized as the optimal or, in some cases, the only option for treatment, the requests for milk are increasing. In the first 9 months of 2003, there were almost as many donor milk recipients as in all of 2002.

Donor milk may be used to ensure optimal outcomes, as in the case of full-term or preterm infants given donor milk until their own mothers' milk volume is sufficient for them. Similarly, it can be used for healthy adopted infants. However, it is often a lifesaving therapy for premature infants or for term infants or young children with unusual medical conditions. The species specificity of human milk is nutritionally optimal for infant growth and development, and human milk is the least stressful to the gut of a vulnerable preterm infant.¹ At the same time, human hormones, growth factors, and immune factors² in human milk enhance its therapeutic value. These components of human milk are largely unaffected by the donor milk banking process.

Table 1. Uses of Donor Milk in North America, 2002

Adopted babies/babies of surrogate pregnancies
Cystic fibrosis
Drug/alcohol exposure during gestation
Formula intolerance, failure to thrive
Healthy babies
History of allergies
Premature
Allergies
Formula intolerance
Preventive for family history of allergies
Chromosomal anomalies
Congenital anomalies
Failure to thrive
Older child with feeding problems
Premature infants
Gastrointestinal problems
Chronic diarrhea
Hirschsprung's disease
Necrotizing enterocolitis
Short gut syndrome
Immune deficiency
Inborn errors of metabolism
Multiples
Maternal problems
Contraindicated medications
Low milk supply
Serious illness
Postoperative therapy
Cardiac repair
Cleft lip/palate repair
Intestinal repair
Prematurity
Failure to thrive
Multiples (mothers could not pump enough)
Adults
Cancer
Dialysis
Immune deficiency
Irritable bowel syndrome
Research

Because human milk is the richest source of IgA available, it has been successfully used for immunologically deficient adults³ as well as infants and children. On the basis of very preliminary research showing that human milk induces cell apoptosis in certain cancer cells,⁴ there is also growing interest in using donor milk for cancer therapy. However, there is currently no evidence that donor milk provides more than improved

nutrition and immunologic boosts to the patients who have tried it.

When considering number of ounces dispensed, the small number of infants and children with special needs and adults with immunologic deficiencies or cancer consume the largest volume of donor milk, but preterm infants and those who need small supplements until their own mothers' milk supply is established continue to constitute the largest number of recipients.

At this time, 1 donor milk bank is meeting the needs of all of Canada, and the 6 milk banks in the United States continue to collaborate to meet the needs of all the recipients in the United States. Although there have been times in recent years, because of the extreme generosity of breastfeeding mothers, that the milk banks have even turned away prospective donors, a steady supply of new donors is vital to the success of the banks. As more physicians find donor milk to be the best or only option when their patients need to be supplemented, and as more parents request donor milk when mother's own supply is temporarily not sufficient or is not available, milk banks will continue to have increased milk volume needs. Therefore, milk banks do encourage the continued referral of donors because the need for milk changes, the demand has been generally increasing, and donors become ineligible to donate as their own babies wean or reach the age of 1 year. For more information regarding donor milk banking in North America, parents and health care professionals can visit the Human Milk Banking Association of North America's Website at <http://www.hmbana.org>.

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