

*No. 1 choice
of hospitals
& mothers*

Symphony Preemie⁺
Significantly more milk in less time

✓ The combined use of the Preemie⁺ 1.0 Program and the Standard 2.0 Program makes more milk available when it is needed most by the premature infant ✓ Dr. Paula Meier



Symphony® Preemie+

Because Every Drop Counts

Better Health Outcomes

In the NICU the need for the protective benefits of human milk is perhaps more evident than anywhere else. Premature infants need every drop to help them grow and overcome serious morbidities. Consider these important benefits of human milk:

Colostrum Provides Greater Protection

- Preterm colostrum is unique. It has higher concentrations of anti-infectives, anti-inflammatories, growth factors and other protective substances than does term colostrum or mature preterm milk.¹⁻¹⁰

Protective Bacteria are Passed Directly to the Infant

- Human milk feedings yield a greater concentration of protective bacteria in the infant's intestinal tract than does commercial formula. In fact, one study showed that protective bacteria from the mother's gastrointestinal tract "translocate" to her breastmilk where they are passed directly to the infant.¹¹⁻¹⁷

Higher Suppression of Inflammatory Process in the Intestinal Tract

- These protective bacteria, along with other human milk substances, help suppress inflammatory processes that originate in the infant's intestinal tract. Inflammation can act locally and predispose the infant to necrotizing enterocolitis (NEC). Inflammation can also spread to distal organs, increasing the risk of chronic lung disease (CLD), retinopathy of prematurity (ROP) and adverse neurodevelopmental outcome.¹¹⁻¹⁷

Better Neuro-developmental Outcomes and Reduced Risk of Rehospitalization

- Higher amounts of human milk over the NICU stay are linked to better neurodevelopmental outcome and a lower risk of rehospitalization in extremely low birth weight (ELBW; < 1000g) infants at 18 and 30 months of corrected age in a dose-response manner.²⁵⁻²⁷

Lower Risks of NEC, Late Onset Sepsis, and Enteral Feed Intolerance

- Other studies suggest that higher amounts of human milk during the early NICU stay lower the risks for NEC, late onset sepsis and enteral feed intolerance in a dose-response manner.^{21-24, 30, 34}

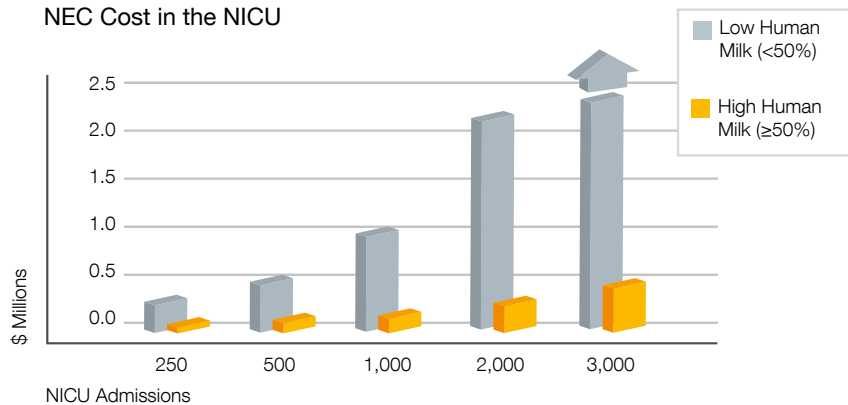
More Human Milk Translates to Better Health Outcomes and Lower Costs *

Higher doses of human milk can help NICU professionals achieve better outcomes for their vulnerable patients. In fact, research shows a clear dose-response effect between dose of human milk and reduction in risk for several disabling morbidities. This reduction in risk potentially translates into lower health care costs.

Reduction in the Risk for Necrotizing Enterocolitis

NEC affects 7% of very low birth weight (VLBW) infants. Sisk et al reported a six fold reduction in the risk of developing NEC for VLBW infants that received $\geq 50\%$ human milk compared to those that received $< 50\%$ human milk, over the first 14 days post birth. The protective nature of the high doses of human milk for even this short time period translated into a shorter hospital stay (42 days vs. 54 days). Medically managed NEC increases cost by \$73,000. If surgery is required, additional charges total \$186,000.^{20, 21, 28, 31}

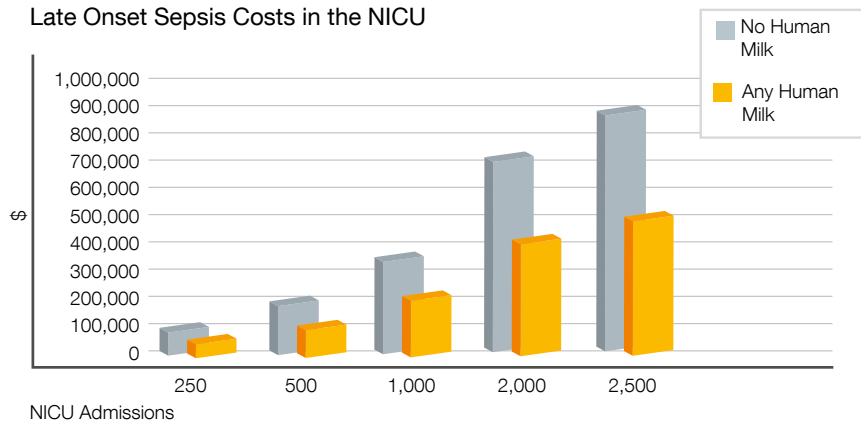
NEC Cost in the NICU



Reduction in the Risk for Late Onset Sepsis

Late onset sepsis affects 22% of VLBW infants and many have multiple episodes. Each episode increases the cost of NICU care by an average of \$9,200 and increases the length of stay by 4 to 7 days. Human milk feedings significantly reduce the risk of late onset sepsis in VLBW infants by as much as 40%, according to one study. This reduced risk may translate into lower health care expenditures.²⁹⁻³¹

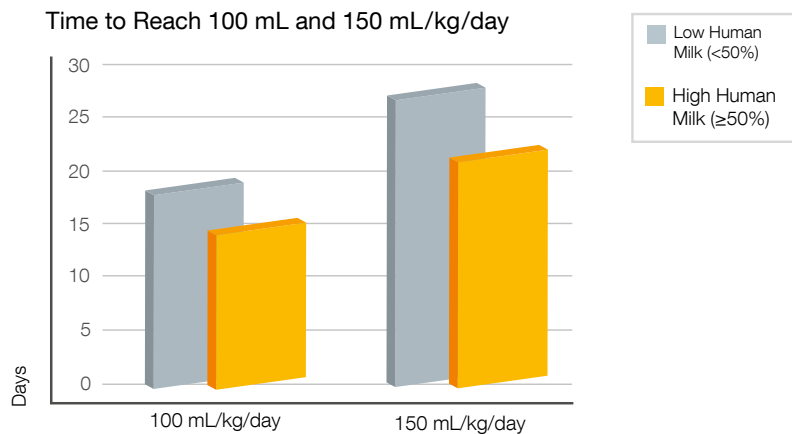
Late Onset Sepsis Costs in the NICU



*This data reflects the US market and can vary in different countries

Reduction in the Risk for Enteral Feed Intolerance

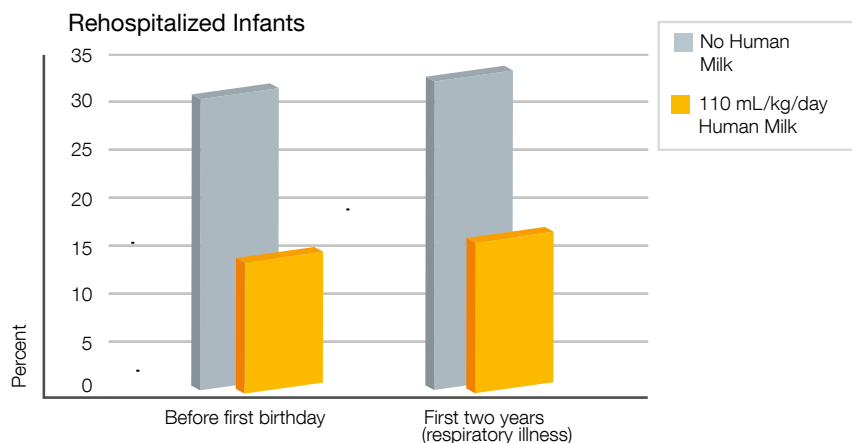
Enteral Feed Intolerance (EFI) compromises growth and exposes the VLBW infant to prolonged total parenteral nutrition (TPN). TPN is associated with multiple complications and increases NICU costs by as much as \$500 to \$1,000 per day. Full enteral feeds of 150 mL/kg/day occur 5 days earlier and enteral feeds of 100 mL/kg/day occur 4.5 days earlier for VLBW infants that receive $\geq 50\%$ human milk.³⁴



Reduction in the Risk of Infant Rehospitalization

Rehospitalization after NICU discharge is a rising concern for U.S. health care institutions. When comparing ELBW infants fed no human milk vs. those fed 110 mL/kg/day, rehospitalization rates before the first birthday were 30.2% vs. 12.7% and rehospitalization rates due to respiratory illness in the first 2 years were 31.7% vs. 16.4%.

For every 10 mL/kg/day increase in breastmilk ingestion during the NICU stay, the likelihood of rehospitalization decreased 5–6%.^{26, 27}



Getting Enough Milk is a Challenge

Most NICU professionals understand the value of human milk, but also understand that it can be a challenge to get enough. Many mothers are unable to provide an adequate volume of milk especially during the first few weeks post-birth when high doses of milk are most protective against morbidities.



In 2001 Medela introduced the Symphony® breastpump which contained the original 2-Phase Expression® Technology designed to mimic a baby's natural nursing rhythm.

Stimulation Phase (phase 1):
fast and light to start milk flowing.

Expression Phase (phase 2):
slower with more vacuum to express more milk gently and efficiently.

The Symphony breastpump was designed with the flexibility to be upgraded as new research is released. The program card can simply be exchanged.

Medela's Standard 2.0 program has shown to be very successful in helping mothers get human milk to their babies. Research shows that NICU mothers found it to be efficient, effective, comfortable and convenient compared to a single phase breastpump.¹⁹

While these results are impressive, Medela and Rush University Medical Center Chicago US (RUMC) believed that they could do even more for mothers of premature infants.

Meeting the Challenge

The Medela Symphony breastpump was designed to simulate the nutritive sucking pattern of a healthy infant during established lactation. However in the first few days after birth, the maternal milk supply is limited. During this time, infants suck more irregularly with rapid sucks and longer pauses.

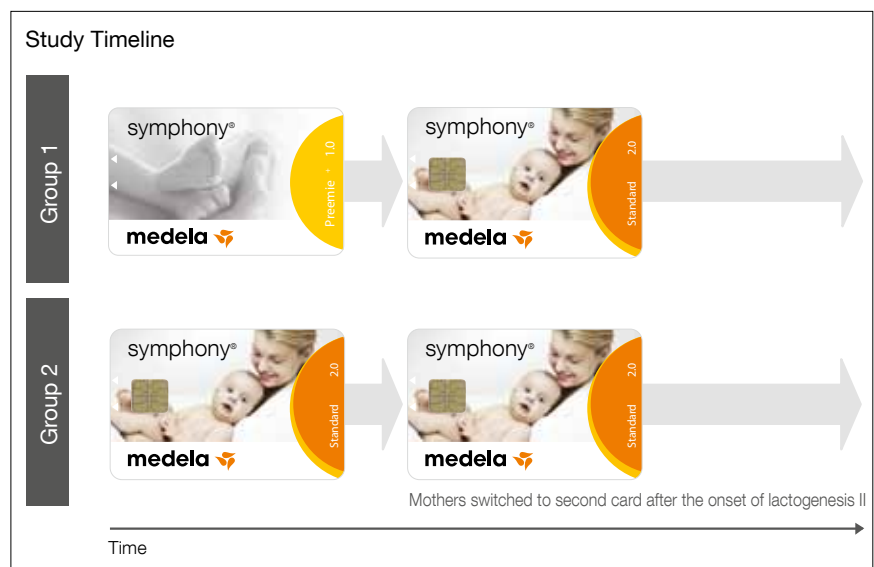
Medela and the Rush University Medical Center (RUMC) team hypothesized that this sucking pattern may be a critical "first step" in establishing an adequate milk volume. Pump-dependent mothers without an infant to suck in this manner do not receive this very different stimulation to the breasts.

This prompted the team to further research this hypothesis through investigation and evaluation of numerous pumping patterns which closely replicated the newborn infant. This research led to a blinded clinical trial.



Blinded Randomized Clinical Study Leads to Groundbreaking Results

Paula Meier and her team conducted a blinded randomized clinical trial of 105 breastpump dependent mothers of premature infants. All mothers used two separate cards in the Symphony® Breastpump. The first card was used from the time of birth until the onset of lactogenesis II (the milk coming in). Then the research team switched this card with a second card for the remainder of the study.



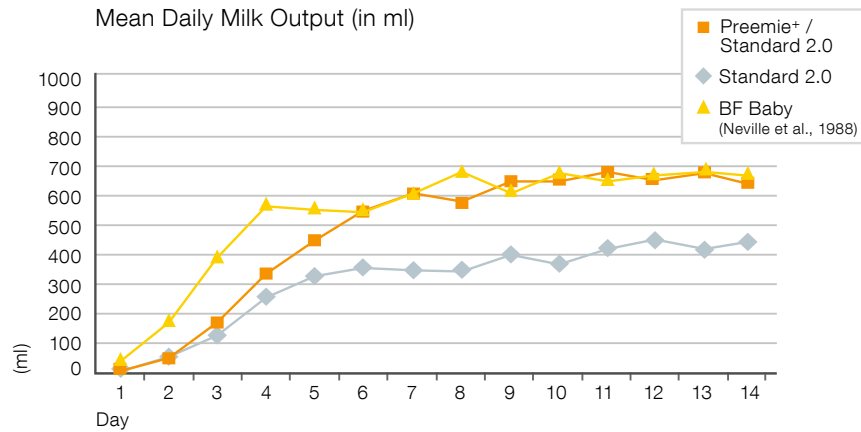
For one group of mothers, Premie+ 1.0 was the first program used. Another group of mothers used the Standard 2.0 card first. Both of these groups used the Standard 2.0 program for the second card.

And thanks to this landmark research we now know that Premie+ 1.0 followed by the Standard 2.0 program can indeed help mothers of premature infants achieve the same amount of milk as the mother of a healthy full term newborn in as little as just six short days.

Meier/RUMC Clinical Trial Results Prove that Premie+ is More Effective and Efficient

Mothers Produce Significantly More Milk

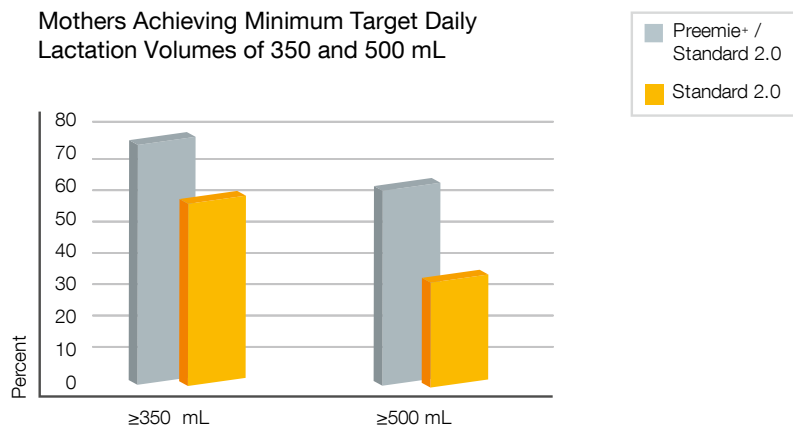
Premie+ helps more mothers make enough milk to feed exclusive human milk at the time of NICU discharge.



Mothers' milk output with the Premie+ program card was significantly greater than the Standard 2.0 alone, reaching the same volume as term mothers by day 6 and matching the output levels through the remainder of the 14 day period.³³

More Mothers Attain Minimum Target Volumes

Mothers Achieving Minimum Target Daily Lactation Volumes of 350 and 500 mL

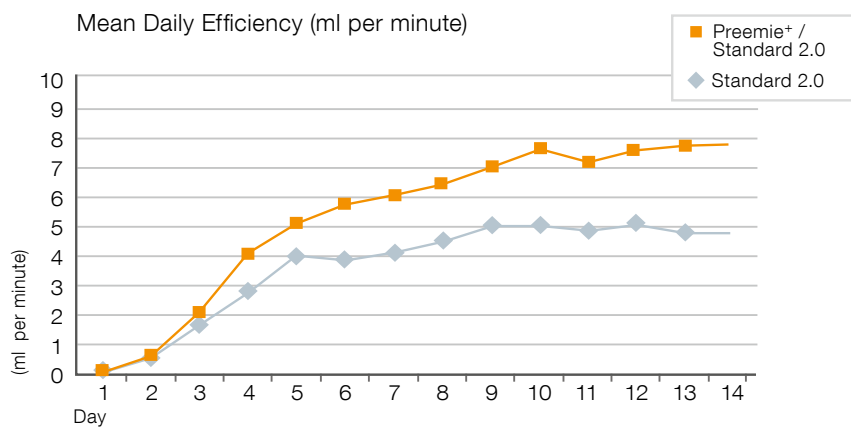


The Premie+ program card compared to the Standard 2.0 indicates that:

- 71% of mothers achieved 350mL/day, enough milk volume to feed human milk exclusively to a 2 kg infant (based on 150–170ml/kg).
- 36% more mothers achieved the minimum milk output target of ≥ 350 mL/day.
- More than twice the number of mothers achieved milk output target of 500 mL/day compared to the Symphony® Standard 2.0 alone.³²

Mothers Produce More Milk in Less Time

Mothers pumped fewer minutes per day and still removed more milk.



Compared to the Standard 2.0, the daily efficiency of milk output per minute was significantly greater with the Preemie+ program card, and allowed mothers in the study, on average, to pump 124 fewer minutes during the first 14 days.

The first days post-birth represent a critical period for the breastpump dependent mother of a premature infant to establish her lactation. Milk volume in the early days of lactation is predictive of milk volume at 6 weeks post birth for the mother. For baby to receive only human milk in the NICU, a mother needs to produce a minimum of 350–500 mL/day.³²

Of course, mothers should be encouraged and supported in establishing as an abundant milk supply as they can (≥ 750 ml/day). This will provide a potential reserve against any decrease in milk yield that may be experienced later in lactation.³⁵

The Evidence is Overwhelming



Medela has combined each of these programs into one easy to use card.

The trial showed that the combination of the Premie+ 1.0 program and the Standard 2.0 program produced significantly more milk in less time compared to the Symphony Standard 2.0 alone:

- By day 4, pumping was 50% more efficient (mL per minutes of milk flow).
- By day 5, mothers achieved 43% more milk output.
- By day 6, mothers achieved as much milk as mothers of exclusively breastfeeding term infants (530 mL).
- By day 7, mothers achieved 67% more milk output.
- By day 10, mothers achieved 71% more milk output.
- By day 14, 36% more mothers achieved the minimum milk output target of \geq 350 mL/day post birth – a sufficient amount to exclusively feed human milk to their premature infant in the NICU.
- More than twice the number of mothers achieved the milk output target of 500 mL/day.
- On average mothers pumped 124 fewer minutes during the first 14 days.

Translating Evidence into Best Practice

Medela has combined both the Premie+ 1.0 program and the Standard 2.0 program onto one easy to use Premie+ program card. This allows mothers of premature infants to use one pump to initiate and maintain her milk supply.

Educational Programs

Medela is offering multiple education offerings that teach about the research behind human milk including the most recent findings of the Premie+ card.

These powerful tools will help teach your NICU professionals how to establish and implement best practices to help your facility translate the evidence about pumping and feeding human milk into achieving better outcomes for your patients.

Talk with your Medela sales representative today to determine which education program or products best suit the needs of your staff.

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Local contact

International Sales

Medela AG, Medical Technology
Lättichstrasse 4b
6341 Baar
Switzerland
Phone +41 (0)41 769 51 51
Fax +41 (0)41 769 51 00
ism@medela.ch
www.medela.com

Australia

Medela Pty Ltd, Medical Technology
3 Arco Lane, Heatherton
Vic 3202
Australia
Phone +61 (0) 3 9552 8600
Fax +61 (0) 3 9552 8699
contact@medela.com.au
www.medela.com.au

Canada

Medela Inc.
4160 Sladeview Crescent Unit # 8
Mississauga, Ontario
Canada, L5L 0A1
Phone +1 905 608 7272
Fax +1 905 608 8720
info@medela.ca
www.medela.ca

China

Medela (Beijing)
Medical Technology Co., Ltd.
Unit M, 4F, No 1068 Wuzhong Road,
Minhang District
Shanghai 201103 / China
Phone +86 21 62368102
Fax +86 21 62368103
info@medela.cn
www.medela.cn

France

Medela France Sarl
14, rue de la Butte Cordière
91154 Etampes cedex
France
Phone +33 (0)1 69 16 10 30
Fax +33 (0)1 69 16 10 32
info@medela.fr
www.medela.fr

Germany

Medela Medizintechnik
GmbH & Co. Handels KG
Postfach 1148
85378 Eching / Germany
Phone +49 (0)89 31 97 59-0
Fax +49 (0)89 31 97 59 99
info@medela.de
www.medela.de

Italy

Medela Italia Srl
Via Turrini, 19 - Loc. Bargellino
40012 Calderara di Reno (BO)
Italy
Phone +39 051 72 76 88
Fax +39 051 72 76 89
info@medela.it
www.medela.it

Japan

Medela K.K.
KDX Kiba Building 3F
5-12-8, Kiba, Koto-ku,
Tokyo 135-0042 Japan
Phone +81 3 3820-5187
Fax +81 3 3820-5181
info@medela.jp
www.medela.jp

Netherlands & Belgium

(per November 11, 2010)
Medela Benelux BV
Uilenwaard 31
5236 WB Empel
Netherlands
Phone +31 73 690 40 40
Fax +31 73 690 40 44
info@medela.nl
info@medela.be
www.medela.nl
www.medela.be

Poland

Medela Poland Sp. z o.o.
(per 1. Oktober 2010)
03-684 Warszawa
Ul. Lewinowska 8
Phone +48 22 864 38 65
Fax +48 22 865 12 50
biuro@medela.pl
www.medela.pl

Russia

OOO Medela
Vavilova str. 97, entrance 3
117335 Moscow
Russia
Phone +7 (495) 980 6194
Fax +7 (495) 980 6194
info@medela-russia.ru
www.medela-russia.ru

Spain & Portugal

Productos Medicinales Medela, S.L.
c/ Manuel Fernández Márquez, 49
08918 Badalona (Barcelona)
Spain
Phone +34 93 320 59 69
Fax +34 93 320 55 31
info@medela.es
info@medela.pt
www.medela.es
www.medela.pt

Sweden

Medela Medical AB
Box 7266
187 14 Täby
Sweden
Phone +46 (0)8 630 09 40
Fax +46 (0)8 630 09 48
info@medela.se
www.medela.se

Switzerland

Medela AG, Medical Technology
Lättichstrasse 4b
6341 Baar
Switzerland
Phone +41 (0)848 633 352
Fax +41 (0)41 769 51 00
contact@medela.ch
www.medela.ch

United Kingdom

Medela UK Ltd.
Huntsman Drive
Northbank Industrial Park
Irlam, Manchester M44 5EG / UK
Phone +44 870 950 5994
Fax +44 870 389 2233
info@medela.co.uk
www.medela.co.uk

USA

Medela Inc.
P.O. Box 660
1101 Corporate Drive
McHenry, IL 60050 / USA
Phone +1 877 735 1626
Fax +1 815 363 2487
suction@medela.com
www.medelasuction.com