

Foreword

What Flows Through Us: Rethinking Breastfeeding as Product and Process

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It is a pleasure to offer a few comments to introduce this collection of papers on breastmilk, or human milk, as I prefer to call it. (After all, we don't call cows' milk udder milk—why stress the container over the species?) I have been interested in human milk since the 1970s, as an anthropologist, feminist, and advocate for breastfeeding. In the years since I first published on the subject of breastfeeding, my ideas have constantly changed as a result of increased contact with mothers in different parts of the world, new research, and my continuing attempts to bring the interpretation of breastfeeding into play with broader concepts in the social sciences.

In 1989, I argued that the interpretation of breastfeeding often involved a shift from a process to a product interpretation. “Process models emphasize the continuity between pregnancy, birth, and the process of lactation. The adoption of the biomedical model with its accumulated scientific evidence about the nutrient content of breastmilk and breastmilk substitutes is a product-oriented model” (Van Esterik 1989: 5). The product model is compatible not only with biomedical control of infant feeding, but also with the commoditization of food, and encourages the comparison of different kinds of milks and other infant foods. A key point that I saw only later with increased attention to milk banks, HIV infections, and feminist performance art (cf. Van Esterik 2010, 2008a) is that human milk is incommensurable, a singular product with unique properties that are still being uncovered. How do you compare products that are in essence not comparable? Human milk, like all kinds of mammalian milk, “reflects 200 million years of symbiotic co-evolution between producer and consumer” (Hinde and German 2012: 2219).

If, in my earlier work, I had referred to the process of breastfeeding instead of the process of lactation as part of the continuity of care, perhaps I would

have seen how deeply product and process are intertwined—how they are two inseparable sides of the same coin, intertwined like the two sides of a Mobius strip. We simply cannot separate the product component from the process component. The product and the process gradually turn an infant into a flourishing Thai, Lao, Mexican, Italian, American, or Somali person. We might call the first six months of “person making” that occur in particular locations the social womb.¹ This social womb is where the nurturing that turns the infant into a social and cultural being occurs. The embodied co-dependence of the breastfeeding mother and infant intensifies this “personing” process, assisted by physiological products such as hormones. Of course, millions of infants have become functioning persons without the help of human milk.

Process language is better at capturing the embodied nature of nurturing experiences like breastfeeding; the complex symbiotic relation between mother and infant has communication and co-regulation functions that extend far beyond nutrition. In the ethnographic literature, human milk is rarely thought about outside the maternal nursing relationship, with some exceptions, such as using human milk as a cure for eye diseases, or stories in the early 1980s of young men diagnosed with HIV who tried to use human milk to treat their symptoms. In 2012, researchers found that the milk of women with higher than median-level concentrations of the milk sugars, oligosaccharides containing immunologically bioactive components, reduced the risk of HIV transmission to their infants (Bode et al. 2012). The following year, 2013, researchers at Duke University isolated a protein in human milk, tenascin-C, that appears to disable the HIV-infected cells (Fouda et al. 2013 or www.dukehealth.org). One cannot help wondering if perhaps those gay men in New York knew something that scientists would not discover for another 30 years. At least they were open to the possibility that human milk could treat rather than cause HIV. And for that reason they attended to human milk outside the maternal breastfeeding relationship.

The papers in this book present new ways of dealing with human milk out of the breast and address the challenges this brings to national and international policy-making. They demonstrate what follows from acknowledging the entanglement of product and process. Why does this matter? Does the distinction between product and process, exclusive breastfeeding and mixed feeding, humanized or human milk matter to people other than epidemiologists and researchers? Does it matter to mothers or only to academic researchers?

Recent attacks on breastfeeding advocacy, scientific research, and on aspects of breastfeeding *per se* by Wolf (2010),² Barston (2012), and

Williams (2012a) are widely cited in the media. Breastfeeding advocates have been known to circle the wagons and shoot inward, leaving those with different opinions wounded, and the public less able to appreciate the advantages of breastfeeding. As Tara Moss argued on her blog (2013):

On breastfeeding, for example, the evidence is in ... yet every opinion piece that begins with “I support breastfeeding, but”, and then goes on to list reasons why women shouldn’t breastfeed, or why breastfeeding doesn’t have any “real” benefits, or why breastfeeding will be an awful experience for you (because it was for the writer), undermines decades of research, important health messages and hard facts.

Wolf in particular argues that medical research does not prove that “breast is best,” and that confounding variables make it difficult to isolate the protective powers of breastmilk, stating that many publications in the best medical journals conclude that breastfeeding has no medical benefits (Wolf 2010: 84–5). This is patently untrue, but is a position that circulates widely in North American popular culture. This backlash comes at a time when important new properties of human milk are just being discovered. Wolf does make a useful methodological point here. But it is not that confounding demonstrates that human milk has no advantages over artificial milk products, but rather that it is near impossible to separate the effects of the product, human milk, from the process of breastfeeding. When we read in the literature that human milk has known health benefits for the infant’s gut or brain, how can we know whether the benefit was due to the process of breastfeeding rather than the product, human milk, or indeed the context in which infants were fed? In studies that compare infants fed human milk with those fed infant formula, we cannot always know if the difference is product or process related unless one experimental group is bottle-fed with expressed human milk. It is possible to imagine experimental conditions where such a comparison could be made, but they would not be ethical because of the known advantages of human milk over all commercial replacements. Now that we know that even premature, sick, and HIV-positive infants thrive on human milk, it may be possible to observe the effects of the product, human milk apart from the process of breastfeeding, as some of the papers in this volume demonstrate. It is worth asking how often product replaces process in research studies. Since breastfeeding makes mothers and infants more interdependent, perhaps this intensifies the “personing” process, which might accelerate brain development quite apart from what human milk does nutritionally. More importantly, “Formula-feeding is by definition the experiment” (Weisinger

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2012: 7); infants who are not breastfed are always the experimental group, while breastfed infants are controls, whether the researcher acknowledges this in the research design or not.

More interesting than the false claims that human milk is over-rated are the gaps in the literatures where human milk and breastfeeding should be found. Why has human milk and breastfeeding been erased from all the important discussions taking place around childhood obesity, diabetes, autism, allergies, and breast cancer? In an interview entitled “Just what’s inside those breasts?” on NPR (National Public Radio) online, discussing her book on the history of breasts, Florence Williams (2012b) points out:

We know far more about red wine than we know about human breast milk. But the things they’re discovering are sort of amazing. We used to think that breast milk was just a food and that it was filled with fats and proteins and vitamins and that formula companies were successfully able to mimic this. But we now know that there are substances in breast milk that exist almost at the same levels that are not digestible by infants. So what are they doing there? It turns out they’re digestible by beneficial bacteria. So over millions of years, the mother has been creating a substance that will recruit useful bacteria into her infant’s gut, and this sets her infant up for life. So as much as breast milk is a food, we also now understand that it’s also a medicine. (Williams 2012b)

Recently I was listening to a scientific presentation on the wonders of stem cell research and the potential miracles offered by these live cells. I mentioned to my colleague that there are living cells in human milk, but that no one seemed very impressed by the fact that living cells pass from mother to infant and survive in the intestinal tract of infants for several months until the infant gut is fully populated, or as long as new cells keep coming in from the mother (Mannel et al. 2008: 304). The Human Microbiome project, for example, did not consider human milk. Until recently, stem cell research ignored the research potential of pluripotent stem cells in human milk, but that situation is changing rapidly.

Foieni Hassiotou and her Australian colleagues (Hassiotou et al. 2013) published research that has argued that “breastmilk is a novel source of stem cells with multi-lineage differentiation potential.” Interviewed for a discussion on “Stopping Multiple Sclerosis” by the University of Cambridge’s *The Naked Scientist*, she said:

So we’ve been examining stem cells in human milk. We find them in all the milk samples that we’ve analysed so far, which is hundreds and hundreds of them.

What we think is happening is that some of these stem cells come from the mother's breast tissue and some come from the mother's blood. So the question is, how they get into the milk, and what they do as soon as they are ingested by the baby ... From an immunological perspective, you do see a lot of things happening in the breast-fed babies, beneficial things that would not see them in formula-fed babies—for example, breast-fed babies don't really get allergies,³ whereas formula-fed babies do. Breast-fed babies are protected from infections, so there are benefits, and these that can be facilitated through biochemical factors, molecules in the milk, but also by the cells—immune cells, but also, maybe, the stem cells, so that's what we're trying to find out. (Hassiotou 2013)

In addition, at Lund University, Sweden, Professor Catharina Svanborg and her research team have been working on a substance discovered in human milk known as HAMLET (Human Alpha-lactalbumin Made LEthal to Tumour cells), which has been shown to kill cancer cells (Gustafsson et al. 2009; Ho 2013). Although human milk has been used by a number of cancer patients for a number of years, the clinical trials associated with HAMLET are now showing great promise.

Although pasteurization kills many of the bioactive components of human milk, it leaves behind a product infinitely better than commercial formulas. Some living cells in human milk could be destroyed by freezing, boiling, and heat treatments, but human milk is still better than any alternative. It took thousands of generations to develop the perfect food for newborn humans (and the perfect food for newborn calves, for that matter), and we cannot reduce the importance of what a newborn human infant is fed to a lifestyle choice mothers make at birth and soon forget. The implications of these feeding decisions reach into adulthood and even to future generations.

Only recently has there been attention paid to the constituent properties of human milk outside of the maternal breastfeeding relationship. Often this interest is driven by the need to improve the composition of commercial human milk substitutes. Every component of human milk plays some medicinal role in addition to a nutritional role in the development of a human infant. While human milk as medicine cannot solve all health problems, we are reminded of the errors of thinking that separates food from medicine as two distinct categories, a mistake driven by Cartesian dualistic thinking that complementary medicine is working hard to correct. This tension between food and medicine, between the product that heals and poisons (cf. Derrida 1981), is fueled by the fact that so much can flow through human milk, including chemotherapy drugs, PCBs, HIV, TB, leprosy, the spirits of the ancestors, viral fragments of mother's diseases—but not necessarily the

diseases themselves (just the fragments that leave traces that can act like vaccinations, protecting newborns from the diseases their mothers carry).

Recent research, including some of the discussions in this volume, suggests that we should be looking for new ways to think about human milk and breastfeeding. Historically, there have always been substitutes for maternal nursing, but these alternative strategies were not always passed from generation to generation because the outcomes were not good. In the past, most attempts to provide alternatives to human milk failed. In the last few decades, more at-risk infants who never received any human milk survive because they were given modern infant formula in a hygienic setting. While there is no artificial substitute for blood, infant formula was developed as an acceptable substitute for human milk. From that innovative product development in the late 1800s came the slow creep to the modern assumption that the two products are comparable and equivalent.

Can we say that infant formula is analogous to human milk or that bottle feeding is analogous to breastfeeding? There is no suitable analogy that reveals the full complexity and power of the product or the process. But that has not stopped us from making more or less suitable analogies for the product—wine, blood, semen, urine, yogurt, liquid gold. What would happen if human milk were really treated like liquid gold? What accommodations would be made for it and for its producers? We can begin to see the power of analogies and metaphors by comparing the use of a term like liquid gold to phrases that treat human milk as analogous to urine, and breastfeeding as a process analogous to urination, to be accomplished in the world's bathrooms. These indignities are further reinforced by signs that direct nursing mothers to bathrooms with baby facilities. Ironically, many of the public bathrooms are identified by pictures of feeding bottles, not nursing mothers.

While there are many analogies used to describe the product, human milk, it is harder to find analogies for the process of breastfeeding that do not simply rename the process. El Guindi (2012) distinguishes sucking from suckling, stressing that the latter is a deliberate act between a woman and an infant to accomplish something. This process has nothing to do with the product itself, but everything to do with re-categorizing kin (El Guindi 2012: 10). In the case of milk siblingship, the relation between the one act of suckling to establish an incest taboo and continuous acts of maternal nurture are culturally structured and complex.

One naturopathic doctor finds breastfeeding scary, a “sobering issue.” After lauding the benefits of breastfeeding, she stresses the down-loading of “our inventory of environmental chemicals” into our babies, noting that if women could cleanse themselves of toxins before conceiving, “Subsequent

generations would not accumulate the toxins from the previous generation” (Kaur 2003: 21). She advises women to express as much milk as possible between nursings in the first few months and discard it, pump and dump after each feed. Pump and dump is an increasingly common way to talk about the process of ridding the maternal body of excess milk as well as environmental toxins. But although the phrase is common in American public culture, perhaps because of its pleasing rhyme, it contradicts the idea that human milk is a precious gift, a resource that should never be wasted.

Pump and dump is also an insult to the women who produce this incredible product and pass it to infants through the process of breastfeeding or through other means. Assisted by helpful devices such as supplementary feeders or breast pumps, human milk reaches infants in need. This fact of contemporary practice creates another slippery slope, as new mothers are targeted by advertising messages from stores such as Babies R Us, urging them to purchase “breastfeeding essentials” (cf. Sobonya 2013). Mothers may then accumulate consumer goods in anticipation of future breastfeeding problems. How does pumping change women’s perceptions of the product, human milk, and the process of breastfeeding? Practices implicated in milk banking and milk sharing will no doubt stimulate research to answer these questions. What we learn from these papers is that mothers are bricoleurs who seek all possible ways to maximize infant survival.

These papers also draw attention to the power of human milk to connect people across time and space, revealing some of the range of social solutions to the predicable and unpredictable problems of life with an infant, including the provision of human milk from someone other than the mother; these strategies include the use of donor milk banks, community milk banks, relatives, and neighbors who provide a casual, comfort feed to bridge the occasional gap between feeds; the more formal wet-nursing relations of past and present; the regular shared feeding among friends; surrogate feeding in emergency situations such as medical crises, war, and natural disasters that leave infants without their mother’s milk; and milk siblingship that sets up a complex kinship relationship between families.

Less well explored are the linkages created through time, as human milk flows from one generation to the next. How is this important information exchanged? Through inheritance systems that link grandmothers to granddaughters? Or through taste regimes that socialize infants to their future food traditions?

Human milk is unlike the new range of “silver bullets” designed to “solve” the problem of infant and child malnutrition by providing highly processed baby foods and ready-to-use therapeutic foods (RUTF) such as Plumpy’Nut. These

products emerge from the new public–private partnerships between industry, UN agencies and large NGOs that implement child feeding programs. Rather than seek silver bullets, the papers here demonstrate the complexity of the problem of how to feed and nurture a newborn. There are no simple solutions offered here, no technical solutions to replace nurture. In fact conditions that fully support mothers and infants often challenge gender hierarchies and basic capitalist principles. There are few problems in the modern world more difficult to address than gender hierarchies and economic inequities.

Even these “silver bullets” cannot save every child. Nor can human milk. But the papers emphasize the importance of finding ways to increase access to human milk, not access to a commercial alternative to human milk. The more we know about the product, human milk, the more we can contribute to making infant formula safer, if not safe. It is important not to confuse commercial efforts to make infant formula safer with marketing claims about humanizing cows’ milk or suggestions that human milk and infant formulas are in any way equivalent.

Few women choose to use infant formula because they think the product is better than human milk; they choose it because they think—or people close to them think—that it is better than *their* milk. Why do they think there are problems with their milk? Because they know or suspect that their diet is inadequate; because they are tired or emotionally stressed and these conditions will damage the milk; because they want to have sex, or because they have been coerced into having sex; because they cannot follow customs or rituals that will protect their milk. These are not conditions that can be changed by lectures that tell women “breast is best.” And they cannot be addressed through global health policies that ignore the conditions in which women nurture their children.

Do we expect too much of the modern maternal body? How plastic is it? A woman who sits all day in an office in front of a computer is then supposed to be able to give her body over to breastfeeding? How can women shift from CEO or factory worker to earth mother in an hour? Perhaps we need to rethink how maternal bodies need to be reshaped in order to be successful at breastfeeding? Is the transition from worker to breastfeeding mother easier for a rice farmer than a dentist? These questions suggest that we need a better understanding of how women integrate their reproductive and productive lives, paying particular attention to the quality of life of the breastfeeding mother.

To paraphrase Lévi-Strauss, human milk is good to think. Ignored, attacked, undervalued, traded, sold, over- or under-regulated, or made into ice cream,⁴ human milk is the foundation of mammalian life and at the

heart of human nurture. Solving the problem of universal access to human milk requires supporting and valuing the providers of that milk. Policies and practices that accomplish these objectives might go a long way to addressing other problems of the modern world.