Of all human food, breast milk is now the most contaminated. Were alternatives to these toxics? Toxics out of their food supply? Especially if we knew, in fact, that mothers' bodies become even more concentrated in the milk their breasts produce. To be specific, it's about 10 to 100 times more contaminated with dioxins than the next highest level of stuff on the human food chain, which are animal-derived fats in dairy, meat, eggs, and fish. This is why a breast-fed infant receives its so-called "safe" lifetime limit of dioxin in the first six months of drinking breast milk. Study after study also shows that the concentration of carcinogens in human breast milk declines steadily as nursing continues. Thus the protective effect of breast feeding on the mother appears to be a direct result of downloading a lifelong burden of carcinogens from her breasts into the tiny body of her infant.

When it comes to the production, use, and disposal of PVC [polyvinyl chloride plastic], the breasts of breast-feeding mothers are the tailpipe. Representatives from the vinyl industry emphasize how common a material PVC is, and they are correct. It is found in medical products, toys, food packaging, and vinyl siding. What they don't say is that sooner or later all of these products are tossed into the trash, and here in New England, we tend to shovel our trash into incinerators. Incinerators are de facto laboratories for dioxin manufacture, and PVC is the main ingredient in this process. The dioxin created by the burning of PVC drifts from the stacks of these incinerators, attaches to dust particles in the atmosphere, and eventually sifts down to Earth as either dry deposition or in rain drops. This deposition then coats crops and other plants, which are eaten by cows, chickens, and hogs. Or, alternatively, it's released into rivers and lakes and insinuates itself into the flesh of fish. As a breast-feeding mother, I take these molecules into my body and distill them in my breast tissue. This is done through a process through which fat globules from throughout my whole body are mobilized and carried into the breast lobes, where, under the direction of a pituitary hormone called prolactin, they are made into human milk. Then, under the direction of another pituitary hormone called oxytocin, this milk springs from the glandular tissues of the breast. As this milk flows down long tubules into the nipple, which is a kind of sieve, and into the back of the throat of the breast-feeding infant. My daughter.

So, this, then, is the connection. This milk, my milk, contains dioxins from old vinyl siding, discarded window blinds, junked toys, and used I.V. bags. Plastic parts of buildings that were burned down are raining down on us, as are the by-products of their destruction. Incinerators, attaches to dust particles in the atmosphere, and eventually sifts down to Earth as either dry deposition or in rain drops. This deposition then coats crops and other plants, which are eaten by cows, chickens, and hogs. Or, alternatively, it's released into rivers and lakes and insinuates itself into the flesh of fish. As a breast-feeding mother, I take these molecules into my body and distill them in my breast tissue. This is done through a process through which fat globules from throughout my whole body are mobilized and carried into the breast lobes, where, under the direction of a pituitary hormone called prolactin, they are made into human milk. Then, under the direction of another pituitary hormone called oxytocin, this milk springs from the glandular tissues of the breast. As this milk flows down long tubules into the nipple, which is a kind of sieve, and into the back of the throat of the breast-feeding infant. My daughter.

Let me tell you something else I've learned about breast feeding. It's an ecstatic experience. The same hormone (oxytocin) that allows milk to flow from the back of the chest wall into the nipple also controls female orgasm. This so-called let-down reflex makes the breast feel very warm and full and fuzzy, as if it were a shaken-up Coke bottle. That's not unpleasant. Moreover, the mouths of infants -- their gums, tongues, and palates -- are perfectly designed to receive this milk. A newborn's mouth and a woman's nipple are like partners in a tango. The most expensive breast pump -- and I have a $500 one -- can only extract about half of the volume that a newborn receives. A newborn's mouth and a woman's nipple are like partners in a tango. I say this to remind us all what is at stake. If we would die or kill for our children, wouldn't we do anything within our power to keep toxics out of their food supply? Especially if we knew, in fact, there were alternatives to these toxics?

Of all human food, breast milk is now the most contaminated. Because it is one rung up on the food chain higher than the foods we adults eat, the trace amounts of toxic residues carried into mothers' bodies become even more concentrated in the milk their breasts produce. To be specific, it's about 10 to 100 times more contaminated with dioxins than the next highest level of stuff on the human food chain, which are animal-derived fats in dairy, meat, eggs, and fish. This is why a breast-fed infant receives its so-called "safe" lifetime limit of dioxin in the first six months of drinking breast milk. Study after study also shows that the concentration of carcinogens in human breast milk declines steadily as nursing continues. Thus the protective effect of breast feeding on the mother appears to be a direct result of downloading a lifelong burden of carcinogens from her breasts into the tiny body of her infant.

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infants have fewer bouts of infectious diseases than bottle-fed babies. In fact, the milk produced in the first few days after birth is almost all immunological in function. This early milk is not white at all but clear and sticky and is called colostrum. Then, from colostrum you move to what's called transitional milk, which is very fatty and looks like liquid butter. Presumably then, transitional milk is even more contaminated than mature milk, which comes in at about two weeks post-partum. Interestingly, breast milk is so completely digested that the feces of breast-fed babies doesn't even smell bad. It has the odor of warm yogurt and the color of French mustard. By contrast, the excretions of babies fed on formula are notoriously unpleasant.

What is the price for the many benefits of breast milk? We don't yet know. However, one recent Dutch study found that schoolchildren who were breast fed as babies had three times the level of PCBs in their blood as compared to children who had been exclusively formula fed. PCBs are probably carcinogens. Why should there be any price for breast feeding? It should be a zero-risk activity.

If there was ever a need to invoke the Precautionary Principle --the idea that we must protect human life from possible toxic danger well in advance of scientific proof about that danger --it is here, deep inside the chest walls of nursing mothers where capillaries carry fat globules into the milk-producing lobes of the mammary gland. Not only do we know little about the long-term health effects of dioxin and PCB exposure in newborns, we haven't even identified all the thousands of constituent elements in breast milk that these contaminants might act on. For example, in 1997 researchers described 130 different sugars unique to human milk. Called oligosaccharides, these sugars are not digested but function instead to protect the infant from infection by binding tightly to intestinal pathogens. Additionally, they appear to serve as a source of sialic acid, which is essential to brain development.

Most recently, Swedish researchers discovered powerful anti-cancer proteins in breast milk. Activated by stomach acids, they appear to enhance cell suicide in defective cells, which is one way our own bodies protect us from developing cancer.[3]

So, this is my conclusion. Breast feeding is a sacred act. It is a holy thing. To talk about breast feeding versus bottle feeding, to weigh the known risks of infectious diseases against the possible risks of childhood or adult cancers is an obscene argument. Those of us who are advocates for women and children and those of us who are parents of any kind need to become advocates for uncontaminated breast milk. A woman's body is the first environment. If there are toxic materials from PVC in the breasts of women, then it becomes our moral imperative to solve the problem. If alternatives to PVC exist, then it becomes morally imperative that we embrace the alternatives and make them a reality.


[2] Sandra Steingraber, poet, writer, biologist, and cancer survivor, lives in Ithaca, N.Y.


Descriptor terms: breast milk; food safety; dioxin; pvc; chlorine; plastics; precautionary principle; science and environmental health network; sehn; book reviews;