

Study shows buying breast milk online is likely to cause illness in infants

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Researchers at Nationwide Children's Hospital bought and tested 100 breast milk samples online and found that 75 percent was contaminated with high levels of disease-causing bacteria. Credit: Nationwide Children's Hospital

Results from a study led by researchers at Nationwide Children's Hospital found more than three-fourths of breast milk samples

purchased over the Internet contained bacteria that can cause illness, and frequently exhibited signs of poor collection, storage or shipping practices.

The study, published online today and in the November issue of *Pediatrics*, is the first to examine the safety of selling [breast milk](#) to others over the Internet, a trend that has become more frequent in the past several years. It is unknown exactly how common purchasing breast milk online is, but an earlier study cited 13,000 postings were placed on U.S. milk sharing websites in 2011.

The research team from the Center for Biobehavioral Health at The Research Institute at Nationwide Children's Hospital purchased breast milk listed for sale on public websites and then analyzed it in the lab. The research was completed in collaboration with Cincinnati Children's Hospital Medical Center and The Ohio State University.

"We were surprised so many samples had such high bacterial counts and even fecal contamination in the milk, most likely from poor hand hygiene. We were also surprised a few samples contained salmonella," said Sarah A. Keim, PhD, principal investigator in the Center for Biobehavioral Health. "Other harmful bacteria may have come from the use of either unclean containers or unsanitary breast milk pump parts."

Individuals posted classified ads on websites describing the breast milk they wanted to sell or why they were seeking breast milk. Researchers responded to ads from sellers who did not ask about the infant receiving milk and who did not require a phone call before a transaction was made.



Buying and selling breast milk online is growing in popularity, but a new study spotlights serious safety concerns. Researchers at Nationwide Children's Hospital bought and tested 100 samples online and found that 75 percent was contaminated with high levels of disease-causing bacteria. Credit: Nationwide Children's Hospital

Researchers analyzed 101 samples bought online and compared the findings to 20 samples obtained from a milk bank. In the U.S., twelve non-profit milk banks follow the Human Milk Banking Association of North America guidelines and provide pasteurized milk from carefully screened donors to fragile and sick infants. Because the milk banks pasteurize their milk, harmful bacteria are killed before the milk reaches an infant, unlike milk purchased online. Even before pasteurization, the milk bank samples were less likely to contain several types of bacteria and had lower bacterial growth in many instances.

Shipping practices also played a role in the levels of bacteria in the milk purchased online. The longer the shipping time, the more contaminated the milk. Nineteen percent of sellers did not include dry ice or another cooling method, and the temperature of the milk was outside of recommended range for storage. Researchers found particularly high levels of one or more types of bacteria in 17 percent of the samples.

Information provided by sellers in their classified ads online, such as "I eat an organic diet" or "great quality" had no direct implication on the safety of the breast milk. However, sellers often did not include information about the use of hygienic milk handling or storage practices, screening for diseases transmissible by milk, or limiting or abstaining from legal or illegal drugs.

"Major milk-sharing websites post a lot of guidance about milk collection, storage, shipping and provider screening. However, results from this study showed sellers do not often follow this advice because hygiene and shipping practices were often compromised," said Dr. Keim, also a faculty member at The Ohio State University College of Medicine. "Based on our research, it is not safe to buy breast milk online, and the Food and Drug Administration recommends against sharing milk obtained in that way. Recipients are not able to determine for sure if the milk has been tampered with, or contains harmful drugs or pharmaceuticals, or if the information the provider supplied about their health was truthful."

According to Dr. Keim, it is difficult to know if a particular infant would be sickened by consuming any given bottle of milk, but the types of bacteria found in the online samples contained bacteria that could cause illnesses known to be linked to contaminated breast milk.

Milk banks are a safer alternative for breast milk for sick babies if the mother cannot provide milk because donors receive proper instructions

and the milk is pasteurized, limiting the risk of bacterial illness, said Dr. Keim. Human breast milk can help strengthen the immune system and has been shown to protect against severe illnesses like necrotizing enterocolitis, a potentially deadly condition affecting thousands of infants each year.

Dr. Keim said women who have extra milk should consider donating it to a milk bank where the milk can be handled properly and they will ensure it goes to a baby who badly needs it, rather than selling it. Milk sold online and contaminated with [bacteria](#) that causes illness can be particularly harmful for premature infants or those with weakened immune systems, who are already particularly susceptible to infection.

"Our research results may not apply to situations where milk is shared among friends or relatives or donated rather than sold—the potential risks of those situations are less well understood," said Dr. Keim. Moms pumping for their own child should sanitize the parts of the breast pump that come into contact with the milk, use clean containers and wash their hands before pumping and handling milk. Also, keep milk cold and feed it to the baby soon.

"Our goal is to identify infant feeding practices that optimize child and maternal health. In addition to lactation consultants who are available at hospitals and clinics, there are community-based lactation consultants and peer-support organizations where women can help each other," said Dr. Keim. "We will continue to study breastfeeding in the context of contemporary society since where and how infants are fed is rapidly changing."

Provided by Nationwide Children's Hospital

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