

## Dangers of Informal Milk Sharing

Barbara Carr, MD, FAAP  
Medical Director Heart of America Mothers' Milk Bank  
Medical Director Saint Luke's Hospital of Kansas City NICU

## So what's the big deal?

- Women have been sharing for centuries
- What's changed?

- Infection risks
- Medication risks
- Motivation concerns

## American Academy of Pediatrics

- "Given the documented short- and long-term medical and neurodevelopmental advantages of breastfeeding, infant nutrition should be considered a public health issue and not only a lifestyle choice."
- does not condone informal milk sharing
- in the NICU: "If mother's own milk is unavailable despite significant lactation support, pasteurized donor milk should be used. Quality control of pasteurized donor milk is important and should be monitored."

## La Leche League Intl

- Does not condone the practice of informal milk sharing
- "When a mother contacts a Leader seeking donated human milk, the Leader shall respond with information and support. This shall include information about induced lactation and/or relactation. The Leader shall also suggest the mother dialogue with an appropriate, licensed health care provider and contact a licensed human milk bank or other regulated and medically supervised human milk collection center in her country. The Leader shall inform any mother interested in using donated human milk for her baby, whether on an occasional or on a long term basis, of the documented benefits and risks connected with this form of infant feeding"

## Food and Drug Administration

- FDA recommends against feeding your baby breast milk acquired directly from individuals or through the Internet
- When human milk is obtained directly from individuals or through the Internet, the donor is unlikely to have been adequately screened for infectious disease or contamination risk. In addition, it is not likely that the human milk has been collected, processed, tested or stored in a way that reduces possible safety risks to the baby.
- FDA recommends that if, after consultation with a healthcare provider, you decide to feed a baby with human milk from a source other than the baby's mother, you should only use milk from a source that has screened its milk donors and taken other precautions to ensure the safety of its milk.
- There are human milk banks that take voluntary steps to screen milk donors, and safely collect, process, handle, test, and store the milk. In a few states, there are required safety standards for such milk banks. FDA has not been involved in establishing these voluntary guidelines or state standards.

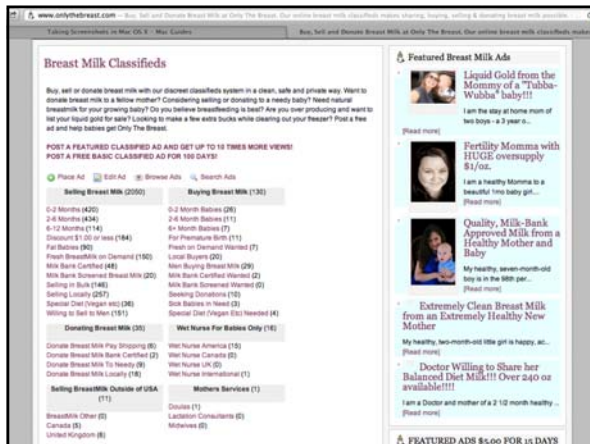
[www.fda.gov](http://www.fda.gov)

## Motivation

- selling vs donating

## Milk for Sale

- becoming more prominent
- selling \$1.50 to \$2.50 per oz
- online forums exist to support buying/selling milk as well as referrals to milk banks.



- Own infant at risk?
- adulterated milk?
- honesty about medication or illicit drug use, infection risk factors?

## Legal implications

- Illegal in some states
- Legal liability
  - may exist if adulterated milk is sold
  - criminal liability may exist at state and federal level if a mother has known communicable disease and sells her milk
  - Unlikely to act as a deterrent as hard to prove and usually milk is gone

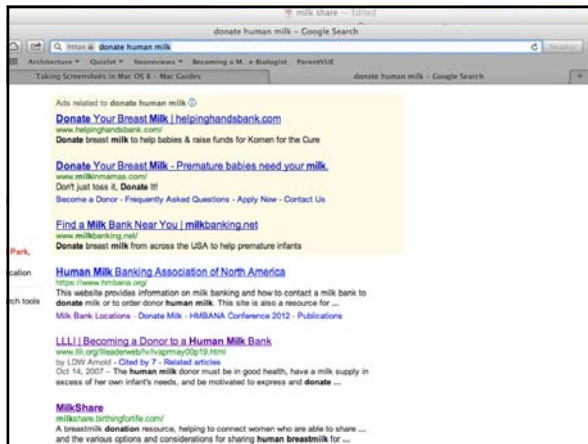
## Let's not forget Uncle Sam

- Women may be at risk for tax evasion/fraud if they do not pay taxes on income received
- This may ultimately be the area where the legal system becomes involved

# For those that choose to donate and not sell

- legal implications with informal sharing?
- Online forum vs Milk Bank

# For profit vs Non profit





- Donated or sold other concerns exist

### Safety concerns of posting online and delivering milk

- "within 2 days I had 10 men requesting milk"
- "one man said his wife had just died...but when I asked for proof he never called back"
- pick up arrangements

what may be in the  
milk that you hadn't  
bargained for?

## tobacco

- 29% of the population smokes
- Nicotine has neuropsychological and behavioral effects
- present in breastmilk
  - decreased growth
  - infantile colic
  - nicotine withdrawal
- safety of nicotine gum not determined

## marijuana

- Animal studies suggest structural changes in brain cells
- some evidence for DNA and RNA metabolism alteration
- how was milk cared for?

## alcohol

- appears quickly in fore and hind milk at levels  $\geq$  blood
- developmental delay
- care/storage of milk in question

## illicit drug use

- PCP
- cocaine
- heroin
- amphetamine/methamphetamine
- other

## Medications and supplements

- may be acceptable for someone's own child but not for yours

## Herbals

- mother's milk tea
  - contains fenugreek
- comfrey leaves
  - associated with venoocclusive disease/hepatotoxicity

## prescription medication

- blood pressure meds
- antidepressants
- pain medications

## Infection risks

- HIV
- Hepatitis B/C
- Syphilis
- HTLV
- bacterial
- Other unknown?

## cytomegalovirus

- Adults asymptomatic 90% of the time
- Reactivation of latent virus can occur
- Acquired disease in infants
  - pneumonia
  - thrombocytopenia
  - overwhelming infection
  - greatest risk is for the preterm infant

## HIV

- mother may be completely asymptomatic
- incubation period may be as long as 28 months
- can pass in breastmilk
- unlikely to become infected following single breastmilk exposure
- antibodies also passed
- maternal testing from perinatal period may be outdated

## Hepatitis B

- Accounts for 40-45% of acute hepatitis cases in the US (300,000 new cases per year)
- 1 million carriers
- 1/3 are completely asymptomatic
- incubation period is 2-4 months



## Hepatitis B

- Anorexia, nausea, vomiting, weakness, abdominal pain, jaundice, wt loss
- Chronic liver failure, cirrhosis, active hepatitis, hepatocellular carcinoma
- Infants frequently asymptomatic early on

## Hepatitis B

- Highest risk of transmission is when mother has high titers of HBeAg
- HBIG and Hep B vaccine are protective to mother's own child if given day 1
- Hep B vaccine-3 shot series over first 6mos of life
- Breastfeeding is not considered contraindicated for mother's own child

## Hepatitis C

- Estimated 3 million infected in the US
- Incubation period is 30-60days
- 75% are asymptomatic
- chronic liver disease in 75-85% with occasional fulminant liver failure
  - may not see for 10-20 years
- blood transmission-risk with cracked/bleeding nipples
- infected infants may become viremic and progress to chronic hepatitis

## Syphilis

- Three stages:
  - Primary stage
    - mother may be completely asymptomatic
    - incubation period is 10-90days
  - Secondary stage
    - 4-10 weeks later; disseminated bloodstream infection
    - generalized rash-may be missed
  - Tertiary Stage
    - CNS involvement

## Human T cell Lymphotropic Virus (HTLV)

- Currently not a major illness in the US
  - high rates in Japan
  - however is endemic in IV drug users and their sexual partners
  - Type 1 more worrisome than type II
- mother may be completely asymptomatic-30% transmission rate
- incubation period is decades
- Adult leukemia, myelopathy or inflammatory disorder
- HTLV-1-associated myelopathy/tropical spastic paraparesis (HAM/TSP)
- Type II-chronic pneumonia, neurologic disorders, transmission rate through BF is unknown

## Transmission Rates of Viral Contaminants

Viral Contaminant	Transmission Rate to Breast-fed Infant	Screening Capability
Cytomegalovirus (CMV)	38-76% (1,2,3)	yes
Human immunodeficiency virus (HIV)	14-42% (4,5)	yes
Human T-lymphotropic virus type-I (HTLV-I)	10.6-25% (6)	yes
Human T-lymphotropic virus type-II (HTLV-II)	Claims of transmission, but data are inadequate regarding rate (7a) (8a) (9)	yes
Hepatitis B (HBV)	negligible to <4% (10,11)	yes
Hepatitis C (HCV)	negligible to 1% (12,13,14)	yes
Bovine spongiform encephalopathy (BSE)	Infinitesimal (15)	no
West Nile virus (WNV)	None (16)	yes

a= HIV present in 71% of breast milk samples but the transmissibility is negligible to <4%.  
b= 20-29% of viremic mothers have detectable virus in their breast milk but vertical transmission is negligible to 1%.

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## take home points

- women may be completely asymptomatic for extended time periods and donating milk during this time
- prenatal screening may be outdated
- women may not wish to share medical history, lifestyle or other risk factors with close friends/family

## Bacterial contaminants in human milk

- Salmonella
- Listeria
- E. coli
- Campylobacter
- Yersinia
- Tuberculosis
- Staph aureus
- Bacillus
- yeast

## Complications for the infant

- Gastrointestinal disease
- nausea
- vomiting
- diarrhea
- dehydration
- hospitalization

## Staph aureus and Bacillus

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- Staph aureus
  - produces a heat stable endotoxin
  - killed by pasteurization but the endotoxin remains intact
  - Nausea, vomiting, diarrhea etc
- Bacillus
  - produces endospores resistant to pasteurization
  - associated with mastitis
  - spores release endotoxin upon germination resulting in nausea, vomiting, diarrhea etc

## What about home pasteurization/flash heating

- may kill Group B strep, S aureus and E coli;
- others including bacillus may not be affected
- still have heat stable endotoxin and spore risks

## How does HIMBANA screen potential donors

- initial screen
- extended screen
- physician approval
- blood work

## initial screen

- Reviews general health history
- medication use
- tobacco use
- transfusion history
- if they pass the initial screen the extended screen is sent out

## extended screen

- greater detail regarding medical history, pregnancy and health of the child
- lifestyle issues
- travel history
- medication history

## physician/healthcare provider approval

- Both mother and infant's physician asked to recommend her as a suitable donor

“so it's all a question of relative risk”

how many of you would  
allow your child to receive a  
blood transfusion on blood  
that had not been tested?

## Infection risks

- 3.3% of donors test positive for HIV, Syphilis, Hepatitis B or C, or HTLV
- similar to blood/tissue banking statistics
- disease rate 1.48% for blood/tissue banking
- data not avail for HMBANA banks as follow up testing is done via primary physician
- Bacterial risk is 1.6/1000

What's the better  
answer?



## What's the better answer?

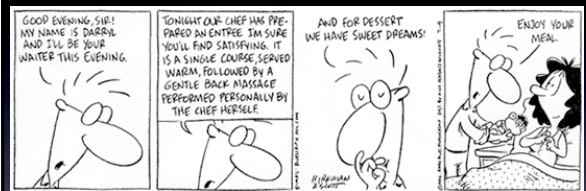
- encourage and support breastfeeding as the healthiest choice
- educate about what "healthiest" really means
- do not condemn those who cannot or choose not to breastfeed
- encourage those who can share to donate

## What's the better answer?

- public policies that promote and support breastfeeding
- increased support/development of milk banks to increase a safer and more affordable supply

## business case for breastfeeding

- [www.womenshealth.gov](http://www.womenshealth.gov)
- Packet of tools for human resource department, management, employees
- discusses the benefits-health savings, employee loyalty/incr productivity



Thank you

[barbara\\_carr@pediatrx.com](mailto:barbara_carr@pediatrx.com)