

Infant Feeding in Emergencies and Natural Disasters



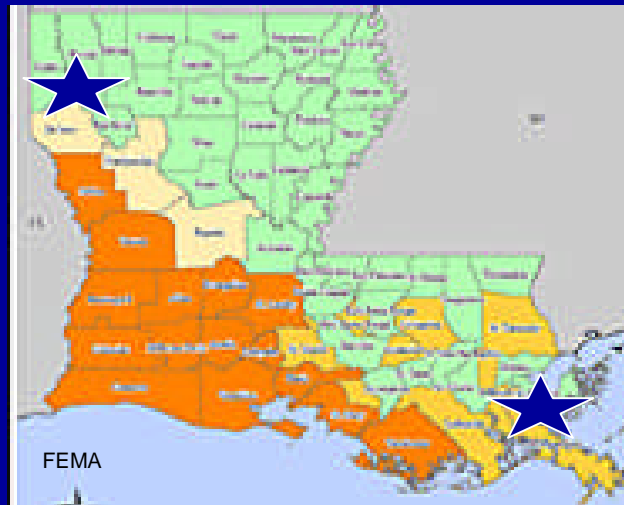
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Faculty Disclosure Information

In the past 12 months, I have had no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.

I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.

The Devastation

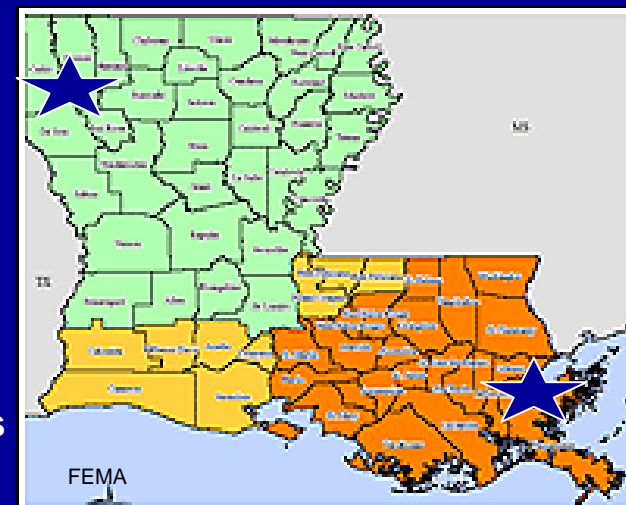


**Hurricane Rita Sept 24
declared disaster
parishes (counties)**

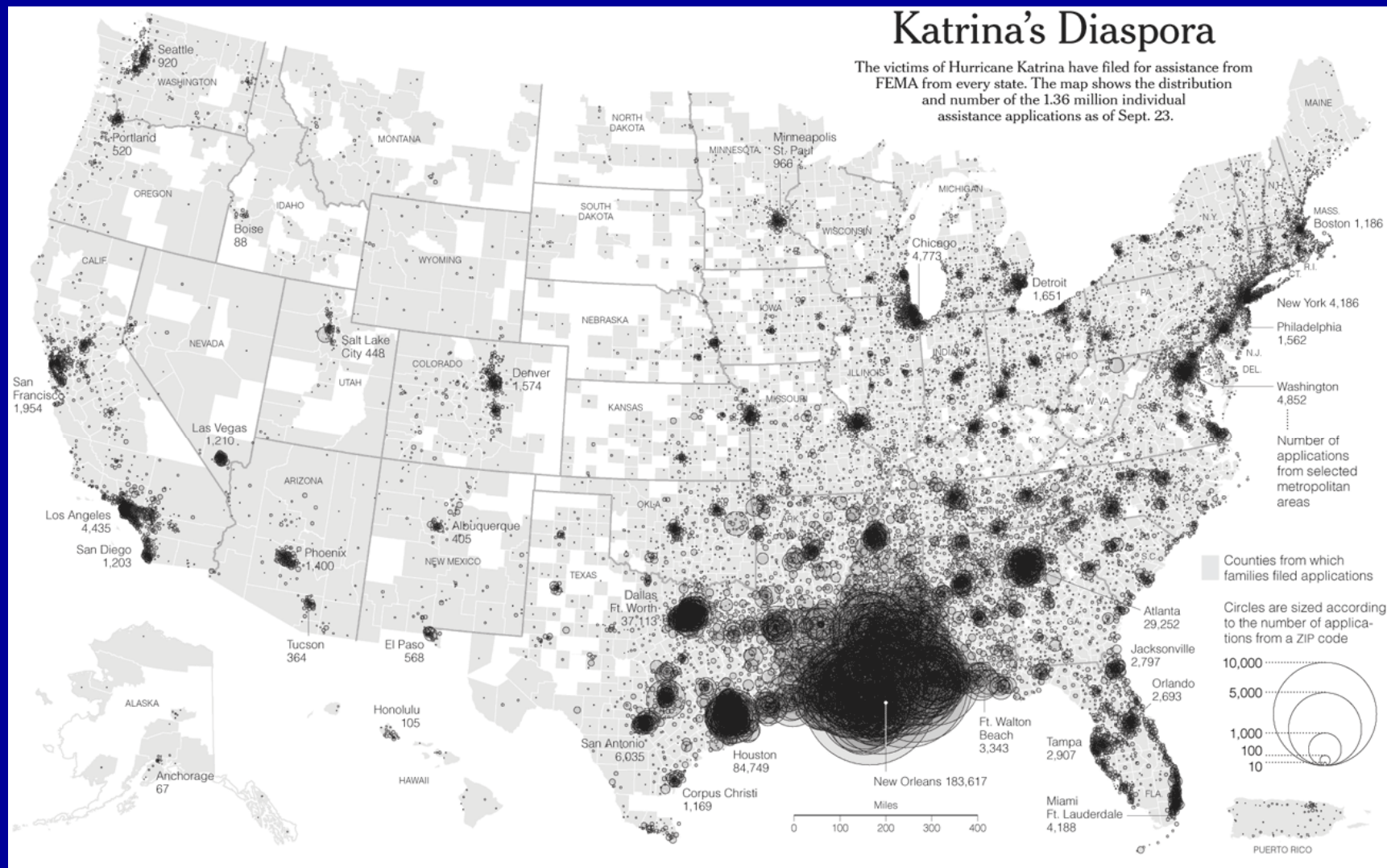
Shreveport

330 miles

New Orleans



**Hurricane Katrina Aug 29
declared disaster
parishes (counties)**



• The New York Times October 2, 2005

"We put them on a plane, the plane took off and the next plane would pull up. And no plane went in the same direction. Some of these people didn't just move once. They moved four or five times."

- Red Cross spokeswoman Renita Hosler

The Planes and Buses Left...

- ~1/3 of Louisiana's population was displaced
 - **1,300,000 people!**
 - 300,000 households
- >100,000 evacuees were still in shelters more than 1 month later
- More than 1 million people moved throughout U.S. during initial evacuation
 - Some moved up to 7-8 times!
- Shreveport took in 25,000



Help



4 Red Cross shelters opened in Shreveport and Bossier City for Hurricane Katrina; down to just one shelter 3 days before Rita

**4 Red Cross shelters opened for Hurricane Rita
3 new ones plus one existing shelter that was still open for Katrina evacuees**

1,300 Katrina evacuees from the Cajundome in Lafayette were transported by bus to shelters in Shreveport for Rita

In Louisiana alone, 956,226 Hurricane Katrina evacuees were registered with FEMA for housing assistance 4 weeks after Katrina struck.

Another 90,435 people were displaced by Hurricane Rita.

Some of the Local Shelters...

Fragmented Care

Bossier City

- Bossier Civic Center
- Martin Luther King Jr. Recreation Center at Hooter Park
- **Century-Tel Center**

Shreveport

- Broadmoor Baptist Church
- Caddo Animal Control (for pets)
- Camp Forbing
- **Hirsch Memorial Coliseum**
- **LSU-Shreveport: One University Place**
- Morningstar Baptist Church
- New Zion Missionary Baptist Church
- North Shreve Baptist Church
- Pinecroft Baptist Church
- Providence Baptist Church
- **Southern University in Shreveport**
- The Waterford
- Expo Hall
- Centenary College

Elsewhere in Caddo Parish

- Camp Bethany
- Ida Town Hall

Surrounding parishes (≤70 miles)

- Calvary Baptist Church, Many
- Camp Harris, Claiborne-Webster line
- Caney Conference Center, Minden
- Clara Springs Baptist Encampment, Pleasant Hill
- First Baptist Church, Robeline
- First United Methodist Church, Many
- Lake Bistineau State Park, Doyline
- Minden City Hall
- Moore's Chapel Baptist Church, Mansfield
- Northwestern State University, Natchitoches
- Red River High School, Coushatta
- Ruston Civic Center
- Southside Baptist Church, Mansfield
- Springhill Civic Center
- St. Joseph Catholic Church, Zwolle

East Texas (≤100 miles)

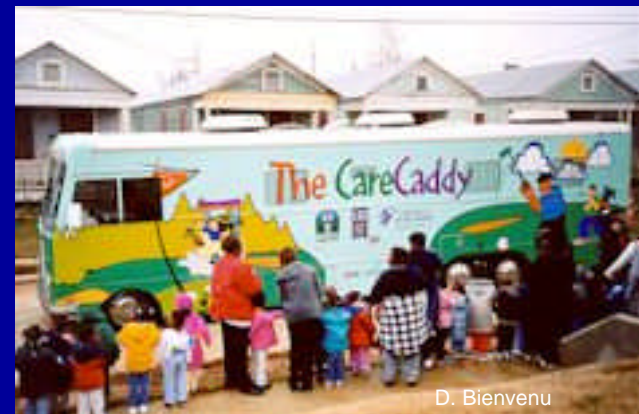
- American Red Cross, Texarkana, TX
- L. Simon Recreation Center, Nacogdoches, TX
- Maude Cobb Activity Center, Longview, TX
- Panola Charter School, Panola, TX

The Real Katrina and Rita Tragedy...

Almost **no** breastfeeding moms were found...

The Real Failures...

- Information was not readily available to help in the support of optimal infant nutrition.
- Rescue workers had not been trained in breastfeeding support and management.



D. Bienvenu

In a Disaster...

In a disaster, you need:

Food

Water

Shelter

Clothing

Medicine

What is the best
food for babies?



Breastfeeding and the Use of Human Milk

PEDIATRICS Vol. 115 No. 2 February 2005, pp. 496-506

**...exclusive breastfeeding for the
*first 6 months...***

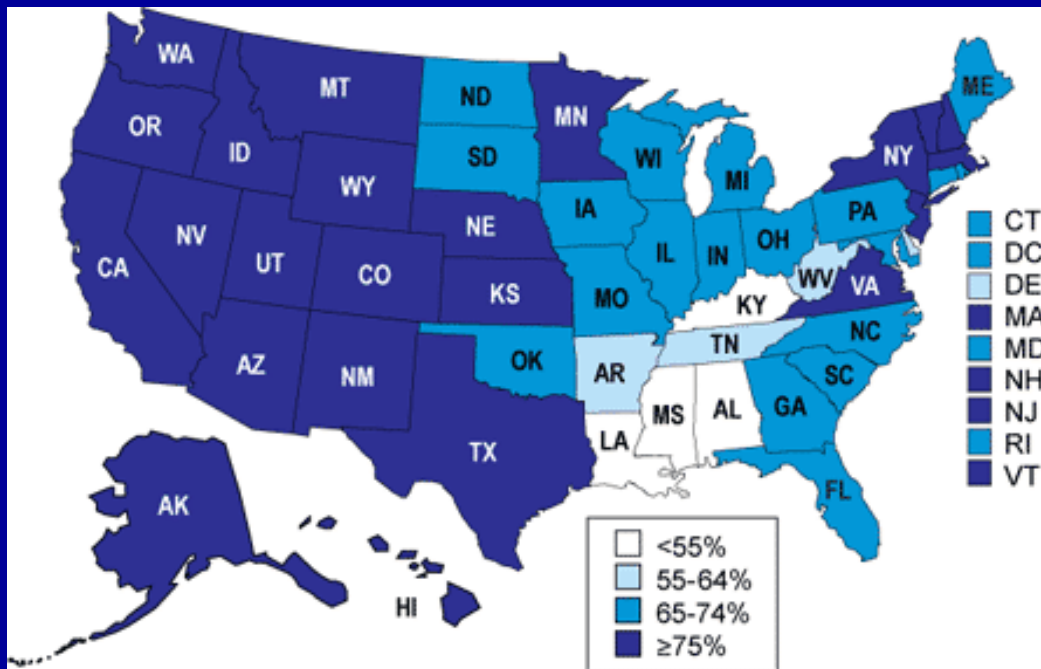
AAP, ACOG, AAFP, ABM, WHO, UNICEF, and many others

WHY???

Advantages include health, nutritional, immunologic, developmental, psychologic, social, economic, and environmental benefits:

- **species-specific**
- **decreased infections**
- **decreased SIDS, DM, leukemia, obesity, asthma**
- **increased child spacing**
- **health benefits for mother (DMT2, breast ca, ovarian ca)**
- **increased bonding**
- **decreased health care costs**
- **decreased work-absenteeism**
- **decreased waste**
- **decreased energy demands for formula production**

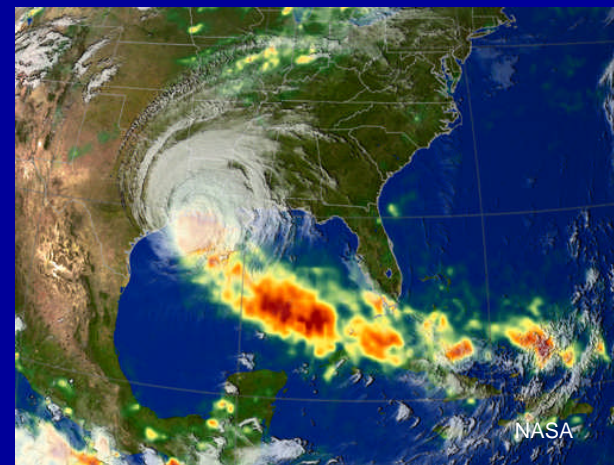
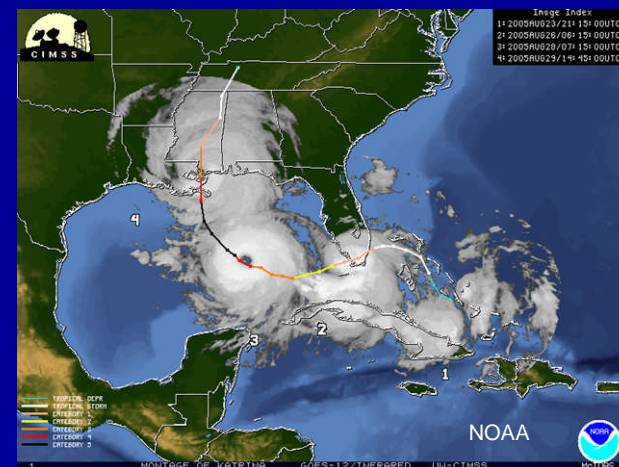
Where the Storms Made Landfall



Ever Breastfed

2005 National Immunization Survey,

http://cdc.gov/breastfeeding/data/NIS_data/images/map_1_2005.gif



In the U.S.... Who Breastfeeds and Who Doesn't ?

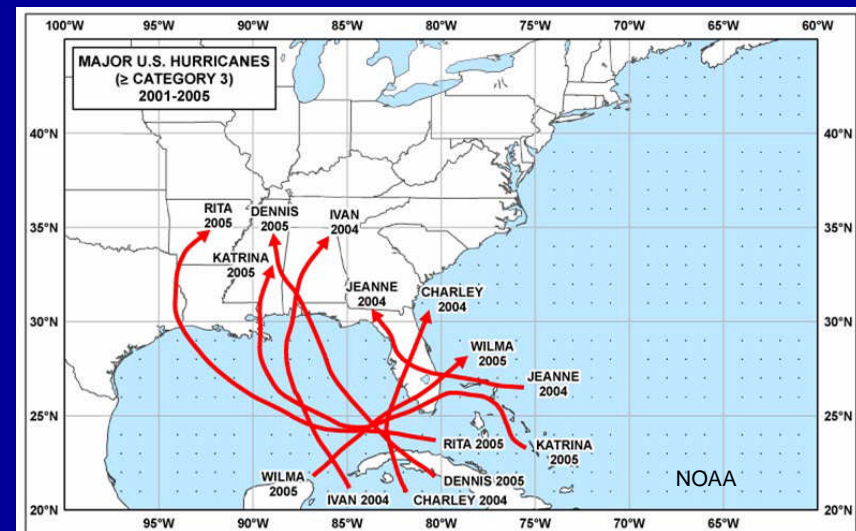
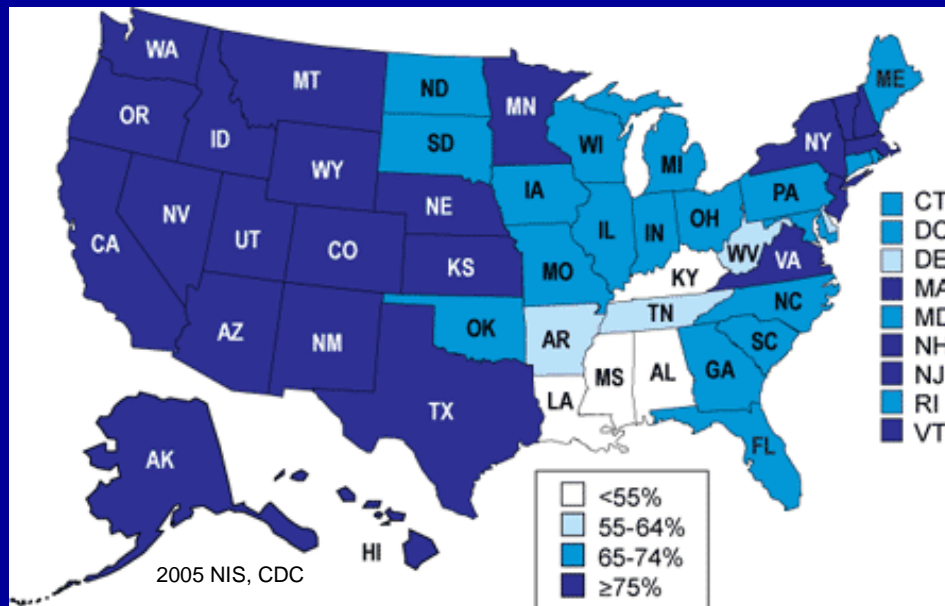
More likely to breastfeed:

**white
upper-middle income
married/ live-in
companions
higher educational level
does not receive WIC
not born or raised in the
U.S.**

Less likely to breastfeed:

**non-hispanic blacks
lower income
single
lower educational level
WIC recipient
born and/or raised in
the U.S.**

Our Challenge...



**There is a vital need to support
breastfeeding, especially in the early
days of an emergency**

**...death rates among <5 yr generally higher than for
any other age group...**

and

**non-breastfed infants up to 20 times more likely to
die**

What Did SOBr* Do To Help?

- Contact with CBCs from Section on Breastfeeding
- Information sharing from many members of the Section on Breastfeeding Leadership Team, Academy of Breastfeeding Medicine Colleagues, La Leche League, International Lactation Consultants Assoc., U.S. Breastfeeding Comm.
- Help from our International colleagues: Emergency Nutrition Network (ENN), UNICEF, WHO



*AAP Section on Breastfeeding

Perspectives From a Private Pediatric Practice

Mitchell Gruich, Jr. MD, FAAP

Pediatrics, Volume 117, Number 5, May 2006



October 2006 AAP NCE

Peds-21:Pediatric Issues in Disaster Preparedness

Program and Faculty

The **Peds-21** session and reception at the 2006 AAP NCE was titled "Disaster Preparedness, Response & Recovery for Children & Pediatricians."

Resources

Pediatricians & Disaster Preparedness Policy Statement & Technical Report

AAP Mississippi Chapter plan, "A Disaster Preparedness Plan for Pediatricians," at *Pediatrics*. May 2006;117(suppl)l(5):1-112.

Children, Terrorism, and Disasters Web site

Breastfeeding was not discussed.

Section on Breastfeeding Goes Into Action!

With the assistance of AAP Breastfeeding Initiative Manager, Lauren Barone, a subcommittee was formed to decide how to better prepare our CBCs in **ADVANCE** of the next disaster.

After much review of the available literature and resources...
the **AAP Fact Sheet** was born!

Chapter
Breastfeeding
Coordinators



Infant Nutrition During a Disaster Breastfeeding and Other Options

<http://www.aap.org/breastfeeding/files/pdf/InfantNutritionDisaster.pdf>

INFANT NUTRITION DURING A DISASTER BREASTFEEDING AND OTHER OPTIONS

IN AN EMERGENCY

- There may be no clean drinking water.
- There may be no sterile environment.
- It may be impossible to ensure cleaning and sterilization of feeding utensils.

PEDIATRICIANS CAN TAKE ACTION TO SUPPORT BREASTFEEDING DURING A DISASTER

1. Keep families together.
2. Create safe havens for pregnant and breastfeeding mothers. These havens should provide security, counseling, water, and food. Pediatricians can contribute using offices, hospitals, or other shelters.
3. Assure mothers that human milk can contribute significant nutrition in the absence of safe complementary foods for the first year of life and beyond.
4. Advocate for optimal feeding options for orphaned infants, including HIV-negative donor human milk.
5. Assist new mothers to initiate breastfeeding within 1 hour of birth, promote exclusive breastfeeding for 6 months*, and encourage breastfeeding for at least 1 year or longer.
6. Provide support for breastfeeding through assessment of the infant's hydration and nutritional status.
7. In situations where human milk is not available, recommend ready-to-feed formula. Powdered formula is the last resort. Use concentrated or powdered formula only if bottled or boiled water is available.
8. Lactating women may be immunized as recommended for adults and adolescents to protect against measles, mumps, rubella, tetanus, diphtheria, pertussis, influenza, *Streptococcus pneumoniae*, *Neisseria meningitidis*, hepatitis A, hepatitis B, varicella, and inactivated polio.
9. Refer to www.cdc.gov for further information about precautions for lactating women involving specific diseases and treatments.
10. Advocate for breastfeeding promotion, protection, and support with relief agencies and workers. Infant feeding practices and resources should be assessed, coordinated, and monitored throughout the disaster.



THE CLEANEST, SAFEST FOOD FOR AN INFANT IS HUMAN MILK.

- Human milk is nutritionally perfect.
- It is readily available without dependence on supplies.
- It is protective against infectious diseases, especially diarrhea and respiratory illnesses.
- It is the right temperature and helps to prevent hypothermia.
- The release of hormones during breastfeeding relieves maternal stress and anxiety.

DISADVANTAGES OF FORMULA USE DURING A DISASTER

- It may not be available.
- It may become contaminated.
- Errors in formula preparation may occur.
- Water that is mixed with powdered or concentrated formula may be contaminated.
- There may be no method to sterilize the formula, bottles, or nipples.
- If there is no electricity, opened prepared formula cannot be preserved in the refrigerator.

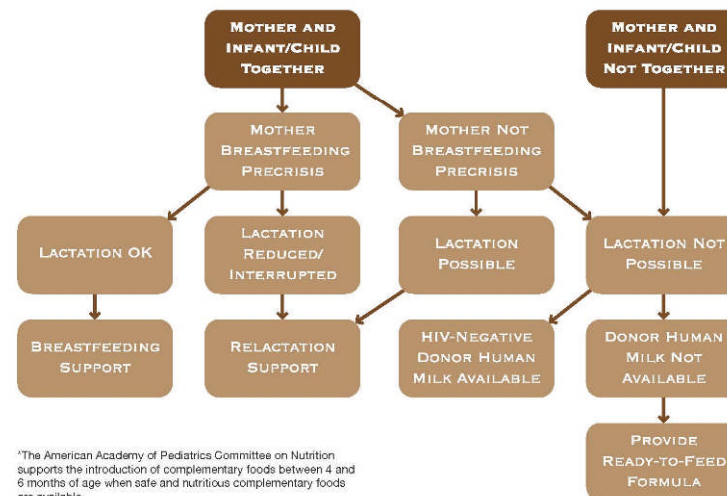
KEY STRATEGY: INCREASING THE CURRENT RATE OF BREASTFEEDING IN THE UNITED STATES IS FUNDAMENTAL TO OPTIMIZE INFANT NUTRITION, ESPECIALLY WHEN DISASTER STRIKES.

BREASTFEEDING FACTS

1. With appropriate support and guidance, stress does not cause milk to dry up.
2. Malnourished women can breastfeed.
3. Optimal human milk supply is maintained by infant demand.
4. For some mothers and babies, once breastfeeding has stopped, it may be resumed successfully.
 - a. Encourage skin-to-skin contact and frequent suckling (every 2 hours).
5. Supply increases gradually over days to weeks and supplementation should decrease accordingly.
6. Careful assessment of the infant's nutritional and hydration status is critical.
7. A full milk supply is established more rapidly with the younger infant.
8. Mothers need encouragement during this process.

FOR MORE INFORMATION ON INFANT FEEDING DURING A DISASTER AND RELACTATION TECHNIQUE, PLEASE VISIT ANNEX VIII, INFANT FEEDING IN EMERGENCIES: POLICY, STRATEGY & PRACTICE, AVAILABLE AT WWW.ENN.ONLINE.NET/.

INFANT FEEDING DURING DISASTERS



*The American Academy of Pediatrics Committee on Nutrition supports the introduction of complementary foods between 4 and 6 months of age when safe and nutritious complementary foods are available.

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The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.



FEMA



FEMA



FEMA



FEMA

**HELP
US,
PLEASE!**



FEMA



EPA



OSHA

In An Emergency...

Where is the clean drinking water?

Where is the sterile environment?

Can you clean and sterilize feeding utensils?



Breast Milk: Cleanest, Safest Food

Nutritionally perfect
Readily available
Protective against
infectious diseases
Right temperature
Oxytocin release during
breastfeeding
promotes sense of
well-being, relieving
maternal stress and
anxiety



Disadvantages of Formula Use: It May Not Be Available

Rescue may not come for days
Long hours may be spent in traffic
jams.

Cars run out of gas.

Gas stations run out of gas.

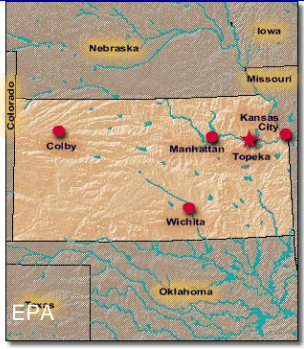
Stores are closed because
employees are also evacuating.

Evacuees frequently arrive with few or
no belongings, little or no money,
no available transportation to get
needed supplies.

There may be no uniformity to supplies
contributed.



Disadvantages of Formula Use: It May Not Be Available



When an entire town
is wiped out, how
close is the nearest
help?

How do you get there?

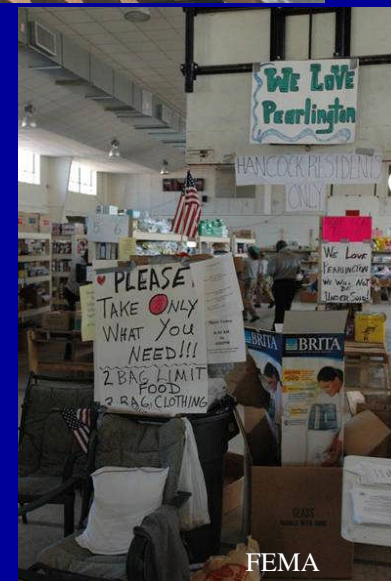


Disadvantages of Formula Use: Logistics of Preparation

Supplies available to clean and sterilize utensils?

Cold storage available, i.e. electricity and refrigerators, ice, etc?

Language or literacy barriers for instructions for formula preparation or storage?



Disadvantages of Formula

Different formulations/preparations?

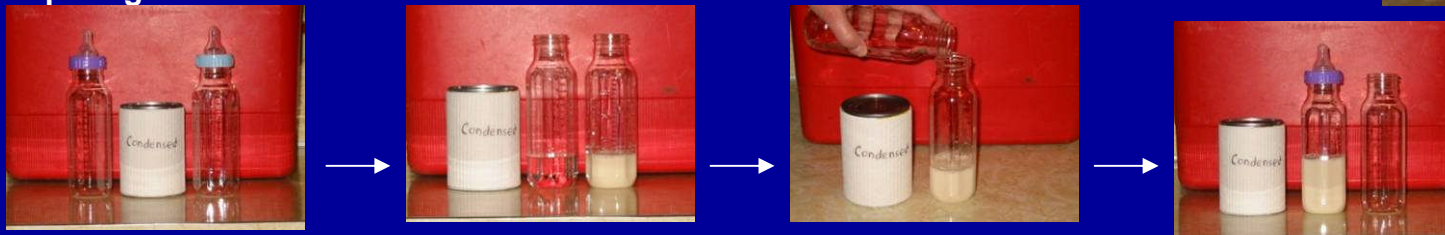
Supplies available to prepare, measure, store it?



Preparing ready-to-feed

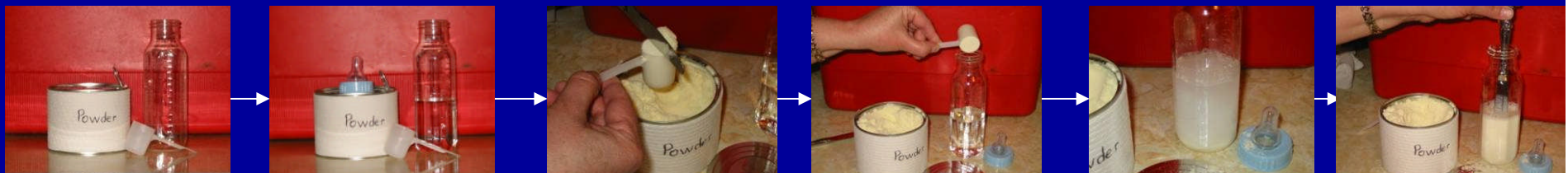


Preparing concentrate



Ready-to-feed;
concentrate;
powder

Preparing powder



Summary of Disadvantages of Formula Use

- It may become contaminated.
- Errors in formula preparation may occur.
- Water that is mixed with powdered or concentrated formula may be contaminated.
- There may be no method to sterilize the formula, bottles, or nipples.
- Without electricity, open prepared formula cannot be preserved safely.



What Can Pediatricians Do?

Pediatricians Can Act!
The 10 Steps

1. Advocate Breastfeeding with Relief Agencies

- Disaster Medical Assistance Team (DMAT) www.dmat.org
- Federal Emergency Management Agency (FEMA) www.fema.gov
- United Way www.unitedway.org
- Red Cross (National and Local) www.redcross.org
- Salvation Army (National and Local) www.salvationarmyusa.org
- Shelters (Government, church or privately run)
- WIC Coordinators www.fns.usda.gov/wic/
- Hospital OB and pediatric wards; nurseries; pediatric, OB and FP clinics; ERs
- Local AAP Chapter <http://www.aap.org/member/chapters/chapserv.htm>
- State and local health departments
- Samaritan's Purse www.samaritanspurse.org
- Catholic Relief Services www.crs.org
- LLLI and the local LLL chapter www.llli.org
- International Lactation Consultants (ILCA) www.ilca.org

2. Keep Families Together



3. Create Safe Havens

Create safe havens to keep families together from the start



FEMA

4. Reassure and 5. Advocate

Assure mothers that human milk contributes significant nutrition for the first year of life and beyond.

Advocate for optimal feeding options for orphaned infants, including HIV negative donor milk.



6. Assist and Encourage

Assist new mothers to breastfeed within the first hour, and promote exclusive breastfeeding for the first 6 months of life.

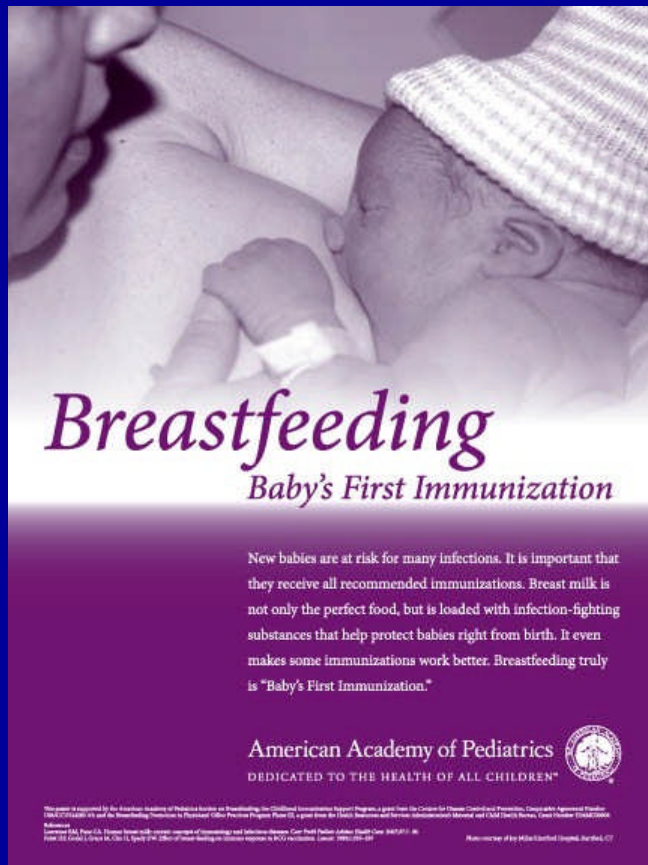


7. Provide Support

Provide support for breastfeeding through assessment of hydration and nutritional status.



8. Breastfeeding and Vaccinations



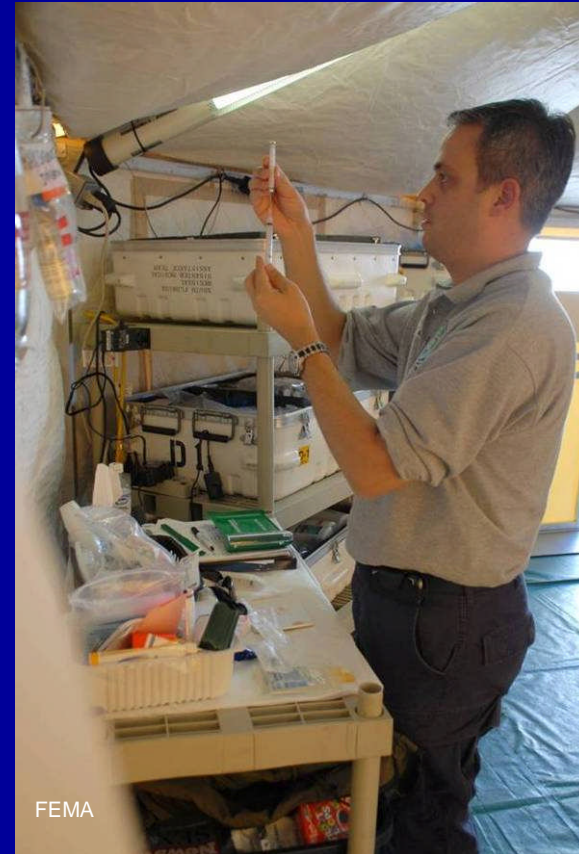
Vaccinations may be necessary for evacuees

All routine vaccinations may be safely given to lactating women

Order posters at lactation@aap.org

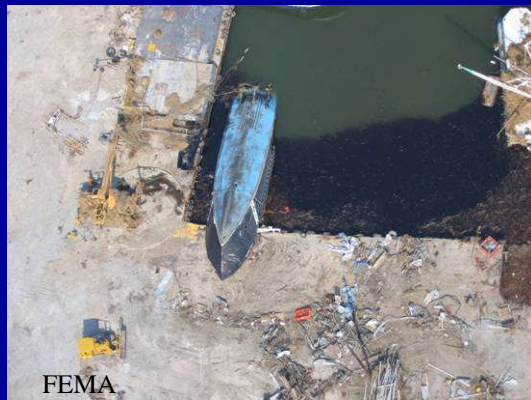
9. Breastfeeding and Specific Diseases

www.cdc.gov for specific disease and treatment information as concerns lactating women



10. If Formula *IS* Necessary...

- Ready-to-feed is **THE** formula of choice!
- Use concentrated or powder formula **only** if bottled or boiled water is available.



Remember the Facts

- A stressed mother still can produce milk
- A malnourished mother can effectively nurse her child
- Infant demand increases milk supply
- Relactation may be useful
 - Frequent suckling necessary
 - Decrease supplementation accordingly
 - Works best with younger infants
 - Encourage moms !



Relactation*

- **Usual indications for relactation:**
 - recent weaning or still occasionally nursing
 - easier if infant <6 months but possible in infant up to 12 months if previously breastfed
- **Necessary conditions for relactation**
 - highly motivated mother
 - stimulation of the breasts essential
 - ongoing support

*Emergency Nutrition Network (ENN) website provides detailed information about relactation

Starting Relactation

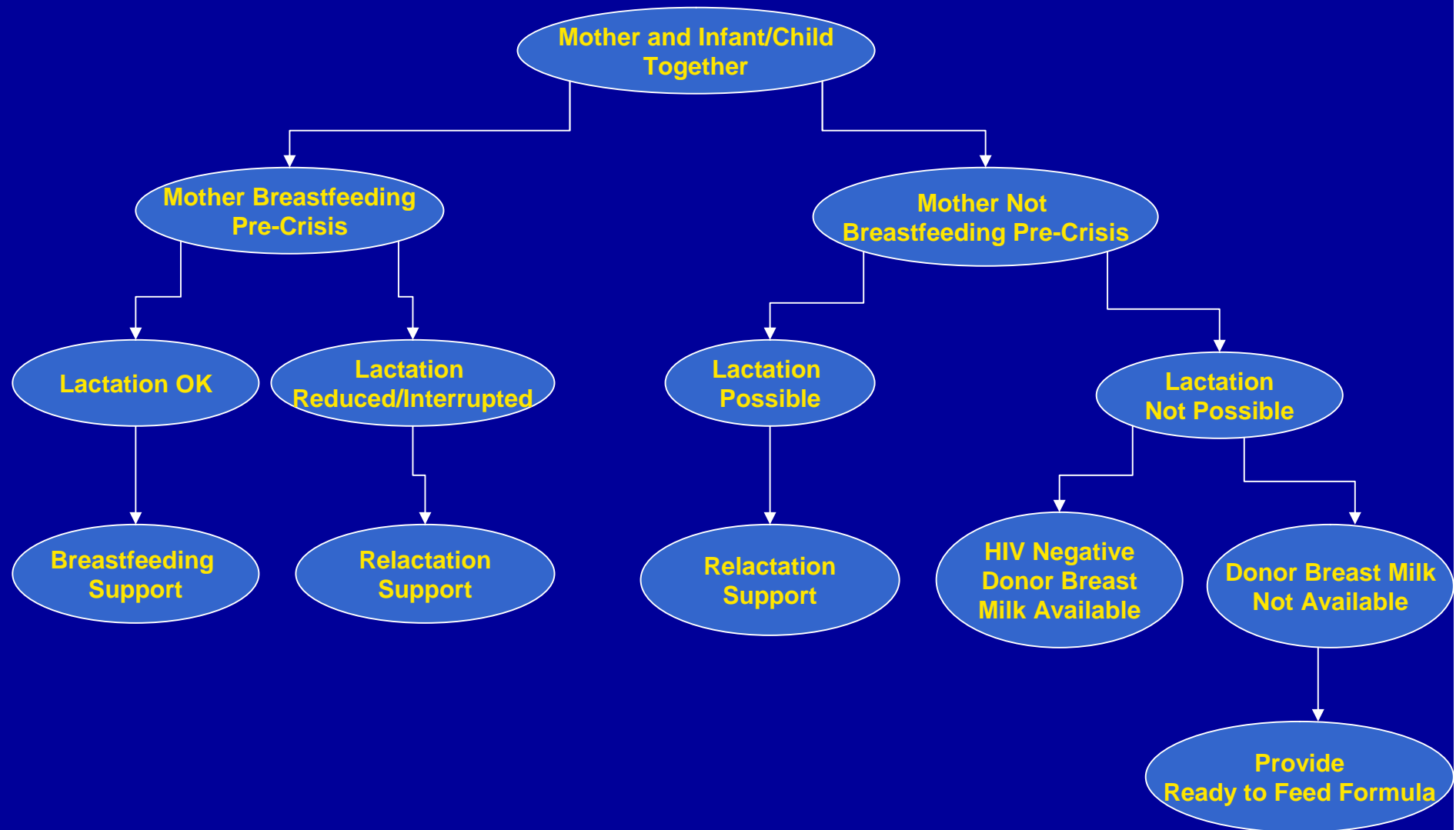
- Provide encouragement and support
 - daily at first
- Infants who have previously breastfed may suckle at the breast even before much milk is produced.
 - offer the breast whenever the infant shows interest
- Giving milk supplements
 - the drop and drip technique
 - breastfeeding supplementer technique
- Lactogogues rarely necessary

Starting Relactation (cont.)

- **Monitor infant's weight and activity level**
- **Signs of milk production**
 - breast changes
 - less supplement consumed
 - infant does not take second breast
 - stool changes
- **Reduce the supplement as necessary and as indicated**
 - want to encourage longer and more frequent breastfeeds
 - don't reduce so much that baby becomes too hungry or too lethargic to feed properly

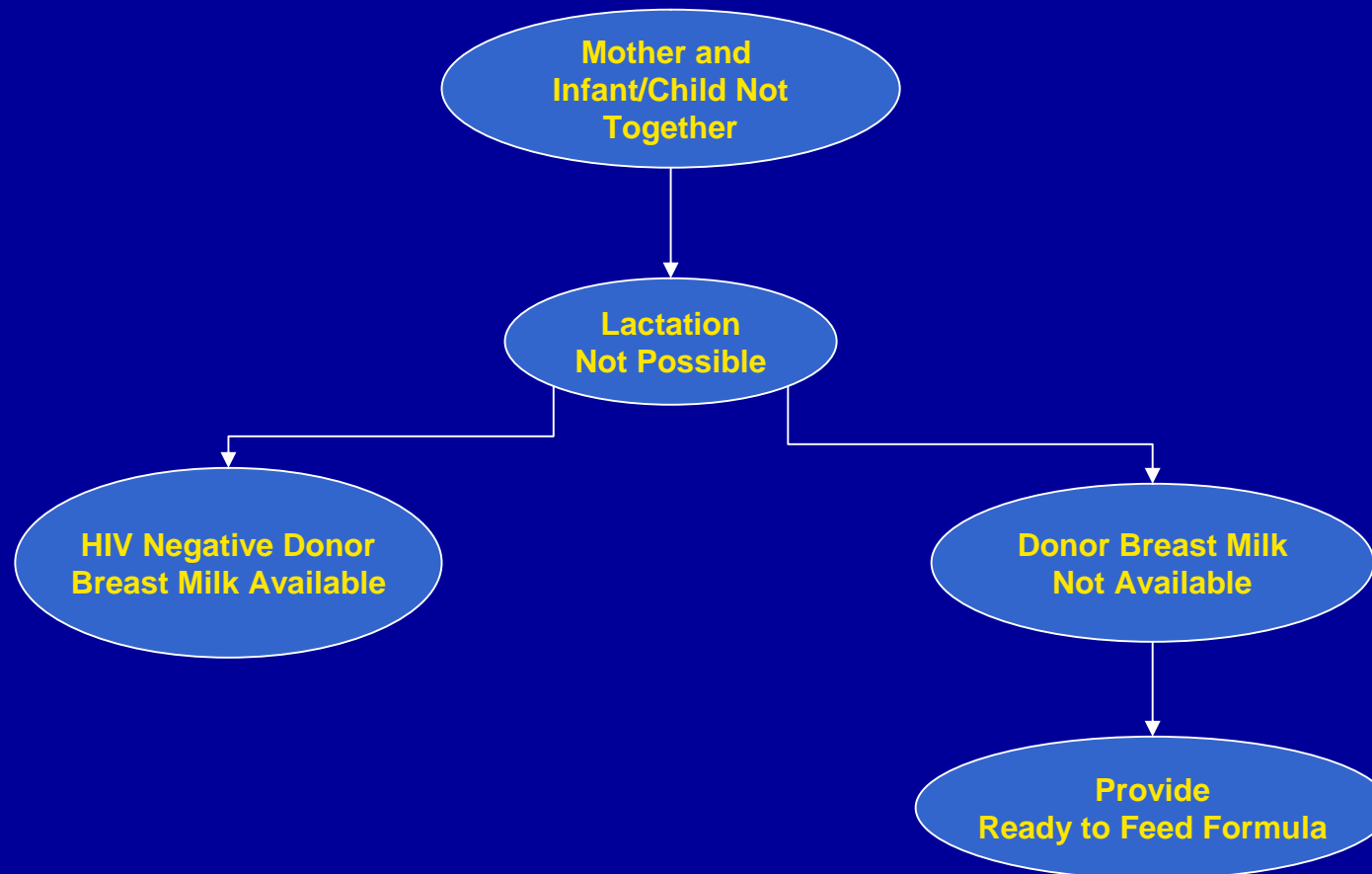
Infant Feeding During Disasters

Flowchart Part I



Infant Feeding During Disasters

Flowchart Part II



Increasing the current rate of breastfeeding in the United States is fundamental to optimizing infant nutrition when disaster strikes.



“ When the baby is born, it wants many things: among others air and food, mostly food. Maternal milk is the only safe nutriment for the little stranger.”

Abraham Jacobi M.D.

JAMA 58(2) 1735-1744, June 8, 1912

**Babies were born to
be breastfed.**

References

- “Infant Nutrition During a Disaster: Breastfeeding and Other Options” AAP Fact Sheet 2007
- “Breastfeeding and the Use of Human Milk” Pediatrics Vol. 115 No.2 February 2005, pp.496-506
- “A Disaster Preparedness Plan for Pediatricians,” Pediatrics. May 2006;Vol. 117(suppl)l(5):1-112.
- “Breastfeeding Among U.S. Children Born 1999-2005”. CDC National Immunization Survey,
http://www.cdc.gov/breastfeeding/data/NIS_data
- Module 2 Infant Feeding in Emergencies for health and nutrition workers in emergency situations Version 1.1 December 2007. ENN, IBFAN-GIFA, Fondation Terre des hommes, Action Contre la Faim, CARE USA, Linkages, UNICEF, UNHCR, WHO and WFP.
<http://www.ennonline.net/ife/module2/index.html>

<http://emergency.cdc.gov/>