FIMR

Making Healthy Communities Happen

A PUBLICATION OF THE NATIONAL FETAL AND INFANT MORTALITY REVIEW PROGRAM

Spring 2006

SPECIAL EDITION

Louisiana Hurricanes and FIMR

inside

In 2001, the Louisiana Fetal and Infant Mortality Reduction Initiative (FIMRI) was formed to address high rates (10.3/1000) of infant mortality and develop effective programs to reduce mortality and improve pregnancy outcomes. A key component of this initiative is the Louisiana Fetal and Infant Mortality Review (FIMR) network, a state-wide coalition comprising nine regional FIMR teams whose geography covers the 64 Louisiana parishes or counties. Well before the hurricanes of 2005, FIMR had already galvanized Louisiana MCH communities to address the health issues of the MCH population.

Louisiana FIMR Made A Difference!

In the aftermath of the two hurricanes, Katrina and Rita, 30 of the 64 Louisiana parishes were declared federal disaster areas. The city of New Orleans and the state of Louisiana were changed forever.

However, after the hurricanes, the Louisiana FIMR network held together and continued to operate on behalf of the community. In particu-

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NATIONAL NFIMR FETAL-INFANT MORTALITY REVIEW PROGRAM

FIMR Faces From Alexandria and Baton Rouge, Louisiana

The Alexandria Community Experience

by Annelle Tanner, FIMR Coordinator

The Alexandria regional Fetal and Infant Mortality Review program started reviewing cases and identifying risk factors contributing to fetal and infant deaths parish-wide in September 2003. Alexandria is located in the central, rural part of the state, about 200 miles northwest of New Orleans. Over the past two years, this team has become identified as the community Perinatal Forum where issues are addressed without private or political agendas (such as those that might be relevant to a particular hospital, provider, community agency, or organization).

Even as hurricane evacuees were fleeing westward from a flooded New Orleans, Rita was heading our way less than one month after Katrina. When she hit, multitudes of Katrina evacuees moved inland to our Central Louisiana area. Our community, usually home to 50,000, was now providing shelter to and feeding an estimated additional 10,000, a 20% increase in population within one week. There was no time for infrastructure expansion to accommodate such a rapid influx. Much heavier traffic, crowded restaurants, slower internet, empty store shelves (milk, bread, diapers, underwear, etc.) became a way of life. Additionally, Rita caused considerable damage locally, with debris in yards and on roadways and loss of electricity for several days.

Because the Alexandria FIMR Coalition was well-established and trusted as a resource for perinatal issues in the community, it was a natural "fit" to address the serious concerns of emergency relief efforts as they related to pregnant women and infants in our community. A Coalition meeting convened healthcare providers and agencies that provideing services for pregnant women in our region to discuss services provided and identify additional needs of pregnant women who had evacuated to our area. All delivering hospitals as well as representative private providers from these hospitals were in attendance. Nurses, social workers, physicians—obstetricians, pediatricians, neonatologists, physicians from the local family practice residency training program—joined social service agencies (Volunteers of America, Shepherd Center, March of Dimes, The Rapides Foundation, United Way, faith-based groups who were sheltering hundreds of evacuees, and other groups including the relatively new Parish Nursing Society).

The Alexandria area FIMR prepared a resource guide for agencies that were established specifically for hurricane relief. This guide, accompanied by a marked map of our communities, gave newcomers directions to sites for necessary relief.

The March of Dimes' office prepared a brightly-colored brochure on hurricane relief tips and resources for Katrina evacuees that we distributed around the area. The MCH Partners for Healthy Babies' toll-free help line (1-800-251-BABY) offered contact information for providers who accepted Medicaid, locations for obtaining WIC supplies, information on other free or low-cost supplies for infants and pregnant women displaced by the storms, along with a friendly, sympathetic voice for pregnant or newly-delivered women. The helpline staff collaborated with MCH state staff, often daily, to identify needs statewide and to intervene in supplying these needs.

Working with the state MCH Epidemiology program, we developed a consumer assessment tool to identify changes in access to healthcare for pregnant women resulting from storm displacement. In a separate assessment tool, we asked providers how their practice had been impacted since the hurricanes hit the state. Responses varied according to time lapsed since evacuation—recovery phases tended to follow Maslow's hierarchy of needs with physical safety needs of food and shelter comprising initial relief efforts, followed by mental health concerns.

We learned that our community saw a 7.6% increase in the number

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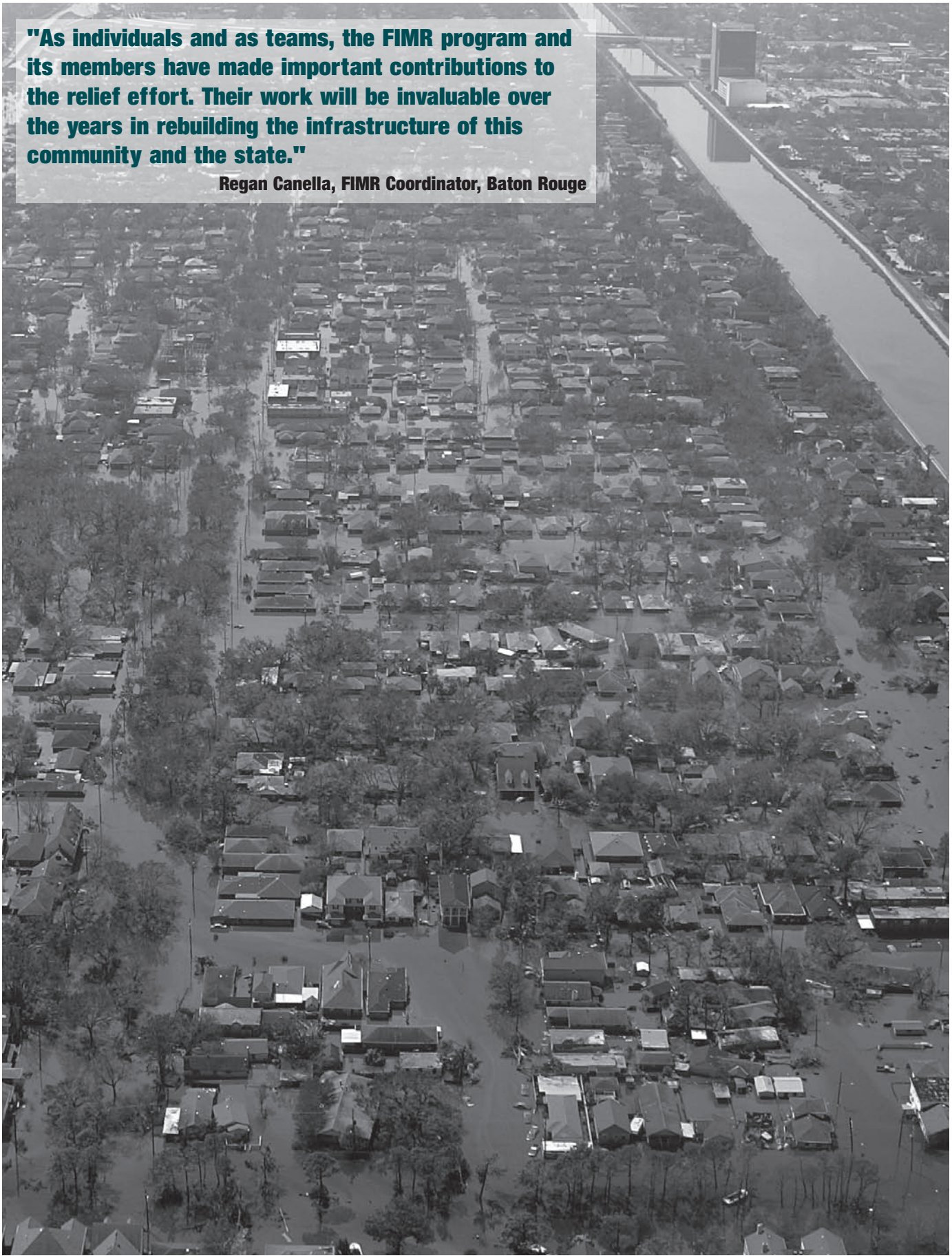
NFIMR is a collaborative effort between the American College of Obstetricians and Gynecologists (ACOG) and the federal Maternal and Child Health Bureau. Supported by Project #2U08MC00136-15 from the Maternal and Child Health Bureau (Title V, Social Security Act), Health Resources and Services Administration, Department of Health and Human Services.

Director: Kathleen Buckley, MSN,CNM

Designer: Blue House



"As individuals and as teams, the FIMR program and its members have made important contributions to the relief effort. Their work will be invaluable over the years in rebuilding the infrastructure of this community and the state."

Regan Canella, FIMR Coordinator, Baton Rouge

Continued from page 2

of deliveries in the month following Hurricane Katrina's hit on New Orleans when compared to the same time frame the previous year. Similarly, the two neonatal intensive care units experienced a 16.7% increase in daily average census of NICU beds.

Unlike our counterparts in the larger city of Baton Rouge, who had many more deliveries to displaced women, we found there was not a compelling need for a shelter designated for pregnant or newly-delivered women and their families. Local hospital labor and delivery units were finding protected environments (other than shelters with hundreds of evacuees sharing sleeping and bathing activities in one large room) for their displaced postpartum women and their families. They were also finding infant supplies—either from the United Way/Salvation Army/Red Cross Distribution Center or from private donors. Participants in the Consortium offered information about additional resources for hospitals and other agencies that were providing a variety of services to the displaced pregnant women and their families.

The Alexandria area FIMR group has become synonymous with a community-wide network of organizations providing services to pregnant women as well as working toward the health of all women of childbearing age. We still have additional evacuees in our midst, and our hospitals are still delivering babies for them, but many are beginning to return home or closer to home. Our FIMR will continue to assess needs of women new to the area due to the hurricanes, particularly acknowledging the normal stress of pregnancy which is now intensified by unplanned and unwelcome change in living environment.

For more information, contact Annelle Tanner at Northwestern State University College of Nursing 2710 Marye Street Alexandria, LA 71301

The Baton Rouge Community Experience

by Ragan Canella, FIMR Coordinator

The Baton Rouge Regional Fetal and Infant Mortality Review program is based in Family Road of Greater Baton Rouge where it is part of the federally funded Healthy Start Program. The Greater Baton Rouge area FIMR Program began in 2002.

Since the Baton Rouge FIMR Program began, we have had very positive experiences. There is a strong commitment from physicians and the larger medical community to address the concerns and impact of fetal/infant deaths in Baton Rouge. We have also been able to strengthen the relationship between hospitals, community organizations and government entities by using a team approach to work on the psychosocial and medical issues brought forth by the CRT. The CRT has been able to increase their knowledge on the risk markers and behaviors that can lead to death and have identified community resources to assist grieving mothers and their family members. Both teams are more knowledgeable of support groups and counseling that are available to the families they serve; they have a better understanding of what a family experiences with a loss. Also, the CRT and CAT are working together to address the Perinatal Local Health System Action Plan by developing universal tools regarding the FIMR process for the region/state and organizing educational campaigns on risk reduction behaviors for the community.

As hurricane Katrina approached, the Baton Rouge population more than doubled almost over night to over one million. There was no time for infrastructure expansion to accommodate this incredible change. Over 50 shelters, including Public Health-Special Needs, Red Cross, and church shelters were opened. Public Health nurses and staff were deployed to Special Needs Shelters. Communication by telephone became a huge challenge; stores became empty of food, ice and other basic necessities; travel time that normally took 30 minutes took over an hour. Then with the devastation of Rita following, additional help and assistance was needed.

As the state capital, Baton Rouge was the headquarters for state emergency operations post-storm and began massive efforts to provide relief alongside federal and state agencies. Many agencies such as Capital Area United Way and Family Road of Greater Baton Rouge began providing a leading voice and service coordination in the area, along with organizations including the Baton Rouge Area Foundation, Capital Area United Way, Office of Public Health, Capital Area Human Services District and over 100 other agencies.

Many of the individuals affiliated with these separate organizations were already active partners and members of Baton Rouge FIMR Network and were actively involved in relief efforts. The Medical Chair of the Baton Rouge FIMR par-

ticipated in and coordinated the helicopter evacuations of the New Orleans NICU babies to Woman's Hospital in Baton Rouge. A FIMR Community Action Team member from the Baton Rouge March of Dimes coordinated the reuniting of the helicopter evacuated babies with their birth mothers.

Due to the increase in the number of deliveries, the city created shelters specific to pregnant and parenting mothers with newborns and special needs infants . Once pregnancy shelters began to close, these women had to be transitioned to larger shelters. However, we had to grapple with some unsolvable problems at these larger shelters. For example, there was a decrease in the supply of powdered formula and mothers had no place to refrigerate the ready to feed formula once it was opened. There was no sterile water to clean baby bottles and women were having to wash the bottles in the same sinks as they were washing clothes and taking baths.

In addition to the shelters, many residents who had relatives from New Orleans were housing up to 20–30 people in their homes. Family Road knew that evacuees had to be reached in shelters and communities. Due to the need of case management services for evacuees in the area, Family Road was awarded a grant through Baton Rouge Area Foundation and Merci Corp. to provide case management services to evacuees. Family Road is also collaborating with Louisiana Family Recovery Corps (LFRC) to provide case management to displaced residents in the two trailer parks being developed in the Baton Rouge area. FIMR CRT and CAT members continue to advise and collaborate on these efforts.

A Maternal Child Health subcommittee of the Greater Baton Rouge Katrina Relief Network was developed to provide focus on this special population. An MCH matrix was also developed. This subcommittee's purpose was to explore and identify significant issues in the perinatal health system that have the capacity to impact positive birth outcomes and included all of the members of the CRT and CAT, as well as others at the state and federal level. These monthly meetings now have been folded back into the FIMR-CAT, continuing to improve perinatal health services and access and to address ongoing MCH needs in the Baton Rouge area.

FIMR team members also volunteered to collect data about the needs of the evacuees. They found mental health disturbances ranging from an increase in sleep disturbances; symptoms of depression and anxiety; regressive and aggressive behaviors in children; and social withdrawal to emotional withdrawal and isolation. The area hospital team members reported on altered trends including a 30% increase in the number of deliveries; a 10% increase in the number of infants admitted to the NICU; an increase in the number of preterm births; mothers with no prenatal care; an increase in the number of women with STD's, HIV and AIDS; and an increase in the number of fetal and infant deaths.

As individuals and as teams, the FIMR program and its members have made important contributions to the relief effort. Their work will be invaluable over the years in rebuilding the infrastructure of this community and the state.

For more information contact Ragan Canella at Family Road of Greater Baton Rouge 323 E. Airport Ave, Baton Rouge, LA 70806

FIMR Faces is a new editorial addition to *FIMR: Making Healthy Communities Happen.* To submit you articles on the challenges and joys of working with FIMR, please send your 500-word document to:
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Email: sfoster@acog.org

If you haven't already, please sign up for NFIMR's listserv! It is as simple as

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Also, please check the online PDF file, "Directory of State and Community FIMR Programs" under Resources. If your information needs to be updated or if you are a new FIMR coordinator and need to be added to the directory, promptly email changes to Sharon Foster, associate program manager, at sfoster@acog.org. Thanks!

The Gender Divide and Disasters: An Editorial

For many years, it was thought that natural disasters affected men and women equally. It is only recently that public policy has focused on the unique risks of girls and women during disasters. According to Afaf Meleis, a noted nursing researcher *"Gender makes women more socially, culturally, and biologically susceptible to higher risk for morbidity and mortality."*

Al Gasseer et al and Seaman and McGuire have outlined some of the many issues that affect women's mental and physical health in third world countries following disasters and wars. Given the Hurricane Katrina experience, perhaps these issues may be relevant to women in the US as well, including but not limited to the following:

- Loss of family, community and faith-based support due to displacement places enormous stress on women. These women may be isolated and without social capital that they may have depended on for much of their lifetime.
- Being thrust into the role of single head of the household can place women in situations without any funds or other assets to cope. As a last resort to save the family, women may be forced to offer sex in exchange for food, shelter or protection.
- If capacity to maintain civil order is diminished during a disaster, rape, gender based violence and gender based exploitation become common place. Seaman and McGuire state *"Violence against women is so much a part of modern…crises, and women are so silent about it and silenced by it, that it is easy to lose a sense of outrage and to forget that it is a gross human rights violation"*
- Sexually transmitted diseases including HIV/AIDS can spread rapidly.
- Mental health problems abound due to the experiences of the natural disaster and its aftermath. Women are known to be more vulnerable than men to mental health issues resulting from disaster situations. Studies have shown that post disaster, women tend to have higher rates of post traumatic stress disorder, anxiety and depression.
- Maternal morbidity and mortality tend to be higher during disasters because women's access obstetric care is diminished or absent. Pregnant and lactating women are more vulnerable to gastro-intestinal dysentery resulting from poor water and lack of sanitation facilities.
- Increased risk for maternal morbidity and mortality may also be a consequence of the higher incidence of spontaneous abortion that may occur after disaster.
- Lack of reproductive health services results in unwanted pregnancies.
- Malnutrition, including iron and/or folic acid anemia, is more common among women. Being malnourished makes it physically and emotionally harder to deal with the many overwhelming challenges women in disasters must face. Also, many times in disasters, the woman, as caretaker, is the last to eat after all of those she is responsible for: the children, grandparents, husband and other relatives.
- Exposure to environmental hazards during and after disasters may adversely affect pregnant or lactating women and may contribute to birth defects or developmental disabilities in the fetus.

"Gender makes women more socially, culturally, and biologically susceptible to higher risk for morbidity and mortality."

Afaf Meleis

Infant Health In Disasters

Infants are extremely vulnerable to negative changes in their environment following natural disaster. Cause-specific rates of infant mortality due to low birthweight, intrauterine growth retardation, stillbirth, birth defects, Sudden Infant Death Syndrome, child abuse, malnutrition, hypothermia and unintentional injury are all increased post disaster. Infant deaths due to diarrhea are especially common in disaster areas where clean water and proper sanitation are lacking.

Seaman and Maguire report that the environment in post disaster shelters or camps can be lethal to infants and small children: *"High concentrations of people with low immunization rates and high levels of pre-existing disease and without sanitation or adequate food are optimal conditions for* (infant) *disease transmission through food, water, personnel contact and vectors"*

What Can Be Done Next

We are beginning to see that the future looks bleak for many women of New Orleans and the Gulf Coast. They are especially vulnerable to post hurricane economic insecurity because of poverty and single parent status, according to a study by the Institute for Women's Policy Research (IWPR). The report documented that female headed families with children under the age of 18 make up 56% in the city

of New Orleans versus 25.2% in the nation. Median incomes for full-time working black women are also low: $19,951 in the city of New Orleans, $20,798 in the broader New Orleans metropolitan area and $21,552 in Beaumont-Port Arthur. While these statistics paint a grim picture of the recovery potential for these Gulf Coast families, IWPR suggests that meeting a few basic needs—living wages, job training, and affordable childcare—may make a significant difference. Perhaps the most important IWPR caveat is that to produce successful redevelopment these women must be fully involved in planning the rebuilding of their homes and communities.

We also may need to better prepare MCH response procedures for the next hurricane season, the next natural disaster or the next act of terrorism. Being aware of the gender divide and planning ahead of time to address some of the most obvious women's issues might make a major difference in outcomes. Some suggestions include the following:

- Pregnant women and women with infants should receive information about their unique risks before a natural disaster occurs. Providers and local officials should encourage then to evacuate, if possible.
- In areas prone to natural disaster, consider the use of a consumer hand held prenatal record to supplement maternal medical records. (See the Contra Costa County, California FIMR web site to download a copy of their hand held record http://www.cchealth.org/services/infant_mortality/)
- A state and local priority status should be given to evacuation of pregnant women and women and their infants before and immediately after the disasters occur.
- Pregnant women and women with infants who are separated from their family and other support systems should be identified soon after disasters and linked to social service for protection and assistance.
- Stockpiles of infant formula and clean water should be immediately available to affected areas. Sterile delivery packs and other targeted MCH supplies should be at the ready for use in disaster areas.
- Law enforcement officials should have a priority to protect women from sexual violence in the disaster aftermath.
- Family planning contraceptives should be available to all women who request them in the disaster area and emergency contraceptives should be an option provided to those women who have been raped.
- Medical response units should include obstetric and pediatric providers.

The Institute for Women's Policy Research (IWPR). Women of the Gulf Coast Key to Rebuilding After Katrina and Rita. October 2005. Online at www.iwpr.org

Al Gasseer N, Dresden E, Keeney GB, Warren N. Status of Women and Infants in Complex Humanitarian Emergencies. JMWH 2004; 49(4.1):7-13.

Meleis AI. Safe womanhood is not safe motherhood: policy implications. Health Care Women Int. 2005;26(6):464-71.

Seaman J, Maguire S. ABC of conflict and disaster. The special needs of children and women. BMJ 2005;331(7507):34-6.

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lar, the two FIMR parishes of Alexandria and Baton Rouge had solid MCH FIMR networks among the MCH public health offices, health care providers, social service agencies, and community advocates.

In turn, these two MCH FIMR networks became the foundation for these local parishes MCH response to the disaster

In these two communities, state and local public health officials say they believe that the local FIMR programs made a major difference in disaster response by providing a ready made, comprehensive network for information, planning and action so that:

- Community leaders and advocates were able to plan to meet the basic needs for local families and plan for the care of evacuees from other communities.
- MCH providers and institutions could jointly respond to the mental and physical health for local women, infants and families and plan together for the transfer and care of hospitalized pregnant women and infants from disaster zones.
- Individual FIMR team members took the lead in providing services to the community and the state.

Kathleen Buckley, NFIMR Director, said "FIMR programs nationwide should be proud of the team solidarity and MCH disaster response shown by the FIMR programs in Baton Rouge and Alexandria. Also special kudos go to FIMR coordinators Ragan Canella of Baton Rouge and Annelle Tanner of Alexandria." (In-depth interviews with the FIMR coordinators from Baton Rouge and Alexandria are included in the FIMR Faces section of this newsletter.)

Today, many of the areas devastated by the hurricanes are still in shambles. The public health infrastructure is inundated, but functioning. However, state officials say one thing is certain. The Louisiana FIMR network and state-wide partners have proved their value and effectiveness in the aftermath of hurricanes Katrina and Rita.

These FIMRs remain ready to pursue the promise of improving the health of Louisiana women and children. The state Title V Program Director, Dr. Joan Wightkin, said "Louisiana will continue to use the FIMR process to gather information obtained through our ongoing needs assessment process and take local action to improve the health and well being of women, infants and families. The FIMR process is important to our state now more than ever."

NB: This article is a synopsis of a 4000 word description of the Louisiana FIMR's role in Hurricanes Katrina and Rita. This document is posted at www.acog.org/goto/nfimr and we encourage you to read it. The authors are *Lyn Kieltyka, PhD, Annelle Tanner, EdD, RN, Ragan Canella, Mary Craig, MSN, MS*. The authors acknowledge expertise and support from: The Title V Program Director Joan Wightkin, DrPH, and Rodney Wise, MD, FACOG, Maternity Program Medical Director, Louisiana Office of Public Health.

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Resources

United States MCH Disaster Resources

American Academy Of Pediatrics

Family Readiness Kit: Preparing to Handle Disasters
www.aap.org/family/frk/frkit.htm

AAP Offers Advice on Communicating with Children About Disasters
www.aap.org/advocacy/releases/disastercomm.htm

AAP Responds to Questions About Smallpox and Anthrax
www.aap.org/advocacy/releases/smlpoxanthrax.htm

Committee on Pediatric Emergency Medicine and Task Force on Terrorism. The Pediatrician and Disaster Preparedness
http://pediatrics.aappublications.org/cgi/content/full/117/2/e340

American Red Cross

Children and Disasters
http://www.redcross.org/services/disaster/0,1082,0_602_,00.html

Centers for Disease Control and Prevention

Critical needs in caring for pregnant women during times of disasters for non-obstetric health care providers
http://www.bt.cdc.gov/disasters/pregnantdisasterhcp.asp

Hurricanes—Effects on Pregnant Women
http://www.cdc.gov/ncbddd/hurricanes/women.htm

Federal Emergency Management Agency

Disaster Plan for Families
Emergency Preparedness Checklist
Disaster Preparedness Coloring Book for Kids
Community and Family Preparedness Publications

These fact sheets are available on the Web at *http://www.fema.gov/library/prepandprev.shtm#plan*

The National Women's Health Information Center

Disaster or Emergency Preparedness Plan for Women
http://www.4woman.gov/tools/disaster.htm

UCLA Center for Public Health and Disasters

Head Start Disaster Preparedness Workbook
http://www.cphd.ucla.edu/index.htm

International MCH Disaster Resources*

Amnesty International

Focus on human rights, including protection from violence against women.
http://www.amnesty.org/

Pan American Health Organization (PAHO): Disasters and Humanitarian Assistance

Fact Sheet of the Program on Women, Health and Development: Gender and Natural Disasters
Recommendations for the Care of Children in Emergencies
Recommendations for Prenatal Care and Delivery Care in Emergencies
http://www.paho.org/English/PED/

Reproductive Health for Refugees Consortium

A consortium of service, research, and advocacy agencies is focused on improving quality of reproductive health services for refugees and displaced persons. Resources include reports, field tools, technical documents and policy papers focused on reproductive health and women's health.

Emergency Obstetric Care: Critical Need among Populations Affected by Armed Conflict.
http://www.rhrc.org/resources

UNICEF Office of Emergency Programmes (EMOPS)

Focus on the basic needs and human rights of women and children.

Guiding Principles on Internal Development
The Impact of War on Children
http://www.unicef.org/emerg/

United Nations High Commissioner for Refugees

Handbook for Emergencies
How To Guide-Safe Motherhood (Refuge care)
Refugee Reproductive Health Needs Assessment Field Tools
Reproductive Health in Refugee Situations: An Inter-Agency Field Manual
Guidelines on the Protection of Refugee Women
http://www.unhcr.org/

Women's Commission for Refugee Women and Children

The Gender Dimensions of Internal Displacement
Annotated Bibliography on Gender and Internally Displaced Women
http://www.womenscommision.org

World Health Organization: Emergency and Humanitarian Action

Emergency Contraception: A Guide for Service Delivery

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Resources

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Emergency Health Library Kit List
Handbook for Emergency Field Operations
Minimum Initial Service Package for Reproductive Health in Crisis Situations
Recommendations for Contraceptive Care in Emergencies
Recommendations for Prenatal Care and Delivery Care in Emergencies
Recommendations for the Prevention and Control of Sexually Transmitted Diseases in Emergencies
Reproductive Health Services During Conflict and Displacement
Essential Newborn Care
Essentials for Emergencies
WHO Fact Sheets on Violence Against Women
http://www.who.int/disaster

*International resources adapted from Kenney, GB. Resources for providing care for women and infants in disasters and low resource settings. JMWH. Volume 49, No 4, Supplement 1 pp 42–45.

Number and Poverty Rate for Children in Hurricane Katrina Flooded or Damaged Area

	Total	Poor	Percent Poor
Age 0-4	46,025	15,079	32.8%
Age 5-17	134,077	39,567	29.5
Total Under 18	180,102	54,646	30.3

Source: Estimates prepared by the Congressional Research Service (CRS) with assistance from the Library of Congress Congressional Cartography Program based on analysis of FEMA flood and damage assessments and U.S. Census 2000 Summary File 4 (SF4) data files.

Moss WJ, Ramakrishnan M, Storms D, Henderson Siegle A, Wiess WM, Lejnev I and Muhe L. Child health in complex emergencies. Bulletin of the World Health Organization. 2006 Volume 84, pp 58–64

Coordinated and effective interventions are critical for relief efforts to be successful in addressing the health needs of children in situations of armed conflict, population displacement, and/or food insecurity. The authors reviewed published literature and surveyed international relief organizations engaged in child health activities in complex emergencies. The purpose was to identify research needs and improve guidelines for the care of children. The authors found that much of the literature details the burden of disease and the causes of morbidity and mortality; few interventional studies have been published. Surveys of international relief organizations showed that most use World Health Organization (WHO), United Nations Children's Fund (UNICEF), and ministry of health guidelines designed for use in stable situations. Organizations were least likely to have formal guidelines on the management of asphyxia, prematurity, and infection in neonates; diagnosis and management of children with human immunodeficiency virus (HIV) infection; active case-finding and treatment of tuberculosis; pediatric trauma; and the diagnosis and management of mental-health problems in children. Guidelines often are not adapted to the different types of health-care workers who provide care in complex emergencies. The authors urge that evidence-based, locally adapted guidelines for the care of children in complex emergencies should be adopted by ministries of health, supported by WHO and UNICEF, and disseminated to international relief organizations to ensure appropriate, effective, and uniform care.

Meleis AI. Safe motherhood is not safe: policy implications. Health Care for Women International. Volume 26 pp 464–471

The author says that the world continues to be an unsafe place for women and girls. Although natural disasters and man-made disasters make the world unsafe for all people, she reports that the gender divide further compromises safety of women. In addi-

in the literature

tion for being at risk for violence, rape, trafficking and abuse, women's injury and mortality increase because of the limited definition of the nature and type of work that they do and the conditions that expose them to infections such as HIV, the pregnancy and birthing cycles and because of the inadequacy and inaccessibility of health care. The author outlines several actions to improve safe outcomes using a framework guided by the focus on understanding women's situations dealing with stigma, exploitation and oppression.

Keenan HT, Marshall SW, Nocera MA, Runyan DK. Increased incidence of inflicted traumatic brain injury in children after a natural disaster. Am J Prev Med. 2004 Apr;26(3):189-93.

The authors hypothesized that a large-scale natural disaster (North Carolina's Hurricane Floyd) would increase the incidence of inflicted traumatic brain injury (TBI) in young children. They used an ecologic study design to compare regions affected to those regions unaffected by the disaster. Cases of inflicted TBI resulting in admission to an intensive care unit or death from September 1998 through December 2001 in North Carolina were ascertained.

The authors found that inflicted TBI in the most affected counties increased in the 6 months post-disaster in comparison to the same region pre-disaster as did non-inflicted TBI. No corresponding increased incidence was observed in counties less affected or unaffected by the disaster. The rate of inflicted injuries returned to baseline in the severely affected counties 6 months post-hurricane; however, the rate of non-inflicted injuries appeared to remain elevated for the ENTIRE post-hurricane study period.

The authors conclude that families are vulnerable both to an elevated risk of inflicted and non-inflicted child TBI following a disaster. The risk for non-inflicted child TBI seems to last much longer than inflicted child TBI. The authors say that this information may be useful in future disaster planning.

Al Gasseer N, Dresden E, Keeney, GB, Warren N. Status of Women and Infants in Complex Humanitarian Emergencies. Journal of Midwifery and Women's Health. Volume 49, No 4 Suppl. July/August 2004, pp 7–13

The authors report that women and children bear the greatest burden in the midst of war and long term disasters. Complex humanitarian emergencies are characterized by social disruption, population displacement, collapse of the public health infrastructure and food shortages. The authors say that humanitarian assistance in disasters requires particular attention to the common issues in women and children. Special risks for women and children are described.

Laplante DP, Barr RG, Brunet A, Galbaud du Fort G, Meaney ML, Saucier JF, Zelazo PR, King S. Stress during pregnancy affects general intellectual and language functioning in human toddlers. Pediatr Res. 2004 Sep;56(3):400-10.

The authors set out to study the effects of a natural disaster (January 1998 ice storm in Quebec, Canada) to determine the effect of the objective severity of pregnant women's stress exposure on general intellectual and language development of their children. They analyzed Bayley Mental Development Index (MDI) scores and parent-reported language abilities of 58 toddlers of mothers who were exposed to varying levels of prenatal stress during the disaster.. The analyses indicated that the level of prenatal stress exposure accounted for an additional 11.4% and 12.1% of the variance in the toddlers' Bayley MDI and productive language abilities and uniquely accounted for 17.3% of the variance of their receptive language abilities. The level of prenatal stress exposure accounted for a significant proportion of the variance in the three dependent variables above and beyond that already accounted for by non-ice storm-related factors

The authors conclude that the more severe the level of prenatal stress exposure, the poorer the toddlers' abilities. They say that they suspect that high levels of prenatal stress exposure, particularly early in the pregnancy, may negatively affect the brain development of the fetus, reflected in the lower general intellectual and language abilities in the toddlers.

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