Effectively Meeting the Needs of Vulnerable Populations: Best Practices Regarding Maternal and Infant Health Throughout the Four Phases of the Disaster Cycle

Poster Showcase
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Abstract
Pregnant individuals, lactating persons, new mothers, and infants represent vulnerable populations that require special consideration and time-sensitive care in emergencies, disasters, and pandemics. This poster will review and examine maternal and infant health best practices throughout all four phases of the disaster cycle, incorporating the current scientific literature related to infant feeding in emergencies and healthcare continuity during and post-disaster. The information presented is critical for emergency management professionals’ awareness to ensure that their organizational capacities meet the specific needs of mothers and infants throughout the disaster response, recovery, mitigation, and preparedness phases. A future research agenda will be outlined to further assess and better understand maternal and infant health needs and to better anticipate, identify, and meet the needs of these vulnerable groups.

Research Question
What best practices have been identified within the existing literature regarding maternal and infant health throughout all phases of the disaster cycle?

Methodology

Keywords:
maternal health; infant feeding; disasters; evacuation; response; recovery; mitigation; recovery; women’s health

Database:
Google Scholar; University of Delaware DELCAT Discovery Search Engine; Government Websites

Number of Articles: 54 in total

Analysis:
After reviewing each resource in its entirety and deriving its identified best practices, we organized those best practices under four categories: mitigation, preparedness, response, and recovery.

Inclusion Criteria:
Discussion of maternal and infant health in the context of disasters pertaining to emergency management or related disciplines

Exclusion Criteria:
Published before the year 2000, duplicates, not from the viewpoint of targeted disciplines

Results

The Disaster Cycle

Preparedness
Pregnant and lactating individuals have special medical needs, and thus these needs must be specifically addressed in pre-disaster and early response phases (CDC, n.d.; U.S. Health and Human Services, n.d.). Emergency managers should plan for disaster response supplies, support space for pregnant and lactating families within their shelter plans (DeYoung, Fraser, Gerber-Chavez, 2021). Through our analysis of the literature surrounding preparedness measures concerning these vulnerable populations, we have identified the following best practices:

- Understand that birthing persons and infants may be exposed to harmful chemicals as a result of a disaster. Plan to reference reliable resources such as MotherToBaby (1-866-626-8888) and the National Poison Control Center (at 1-800-222-1222) to provide critical information about exposure and its effects on these populations (MotherToBaby, n.d.).
- Emergency managers should instruct their communities to develop emergency plans in close collaboration with local health systems, which should teach them how to screen for breastfeeding, and related interventions (Yoshida, 2002).
- Emergency managers must plan for communication, outreach, and other critical materials to be available in multiple languages and accessible to all populations including those who are deaf, ESL, and other populations with unique needs (DeYoung, Chavez, Bravo, Park, 2018). For example, emergency managers should plan to provide instructions outlining how to safely prepare infant formula. These instructions should be both accessible and available in multiple languages.
- Pregnant and lactating individuals have special medical needs, and thus these needs must be specifically addressed in pre-disaster and early response phases (CDC, n.d.; U.S. Health and Human Services, n.d.).
- To provide preparedness resources for childbirthing individuals including prenatal classes, which should touch on themes like proper nutrition, breastfeeding, and safety interventions (Yoshida, 2002).
- Emergency managers must maintain a comprehensive list of contact names and phone numbers of breastfeeding counselors or healthcare providers who can provide immediate support if needed (MotherToBaby, n.d.).
- Emergency managers must understand that breastfeeding is the safest way to feed a baby or infant during a disaster, as it prevents dehydration, facilitates bonding between the caregiver and infant, and reduces the risk of infection (DeYoung, Fraser, Gerber-Chavez, 2021).
- For example, formulas sold for infants and children should continue to be used ready-to-use formula, if possible.
- Emergency managers must ensure that bottled water is available to prepare concentrated infant formulas for infants and babies, but if not available, ensure that water is boiled for 1 minute and then cooled before preparing formula (DeYoung, Fraser, Gerber-Chavez, 2021).
- Ensure that sanitizing supplies are present within designated breastfeeding spaces to properly sanitize infant bottles (DeYoung, Fraser, Gerber-Chavez, 2021).
- Shelters should be equipped with back-up power capabilities, to avoid spoiled breastmilk and other items that become spoiled and unusable, which would lead to food insecurity for young children (DeYoung, Fraser, Gerber-Chavez, 2021).
- Provide necessary resources, such as National Highway Traffic Safety Administration infant and toddler restraints and portable cribs/bassinets, to ensure safe transportation and sleep of babies and infants (CDC, n.d.; U.S. Health and Human Services, n.d.).

Recovery
Within the recovery process, numerous complications can arise that can substantially affect maternal and infant health. These complications include stillbirth, premature infants, low-birth-weight, hemorrhage, and retinal detachment (Mayers, 2019). Additionally, pregnant and postpartum women may experience physical and mental health complications in the post-disaster community (Mediate and Shah, 2021).

- Emergency managers must understand that individuals who are most vulnerable to disasters may also be more vulnerable to poor pregnancy outcomes, and therefore require greater assistance and access to necessary resources during recovery (Chen, 2015; DeYoung et al., 2015).
- During and following a disaster, the loss of support systems, stress from displacement, loss of lactation support, loss of privacy, and the perception of decreased milk supply can hinder an individual’s ability to breastfeed (DeYoung and Mangum, 2021). Emergency managers must work to provide and/or connect individuals with critical services, programs, and resources in order to adequately support and meet needs of lactating mothers.
- Generally, women are more vulnerable to developing post-disaster mental disorders than men, with some evidence also indicating that mothers are more vulnerable than non-mothers (Havelka et al., 2010). Furthermore, research indicates that maternal and infant health are significantly more influential on children’s development than the disaster incident itself (Havelka et al., 2010).
- It is imperative that emergency managers work in conjunction with mental health professionals who can provide critical services to these vulnerable populations throughout the recovery process.

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Response
Pregnant individuals and infants possess unique health concerns following disasters (Elliott, 2007). Within the response phase, these vulnerable populations face increased threats including lack of access to clean water for washing and drinking, lack of access to safe food, increased exposure to toxins, interruption of critical healthcare, crowded conditions within shelters, and deprivation to health-related infrastructure (Elliott, 2007). Through our analysis of the literature surrounding response measures concerning these vulnerable populations, we have identified the following best practices:

- Understand and promote that breastfeeding is the safest way to feed a baby or infant during a disaster, as it prevents dehydration, facilitates bonding between the caregiver and infant, and reduces the risk of infection (DeYoung, Fraser, Gerber-Chavez, 2021).

Future Research
How can emergency management practices more accurately anticipate and provide the level of resources/services needed by vulnerable populations such as pregnant individuals, lactating persons, new mothers, and infants within shelter settings?

What policies can be implemented or supported at the local, state, and/or federal level that would provide additional resources and funding to support maternal and infant health-focused initiatives?

How can emergency management practices most effectively leverage relationships with nonprofits, health organizations, and other partners to better support maternal and infant health throughout the disaster cycle?

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Conclusion
Continuous and purposeful work must be executed throughout all four phases of the disaster cycle, in an effort to effectively meet the unique needs possessed by pregnant individuals, lactating persons, new mothers, and infants.

The best practices presented within this poster can serve as a guidance mechanism for emergency managers and related professionals, as they work to implement maternal and infant health-sensitive protocols and practices within their plans and operations. Simple activities, such as posting signage like The Universal Breastfeeding symbol (seen below), within shelter and congregate settings can have meaningful impacts, by helping to create a less stigmatized, and more comfortable environment for lactating families. However, this collection of identified best practices is not definitive; as emergency managers and related professionals must ceaselessly work to meet the needs of these vulnerable populations through supportive and relevant measures, especially in regard to long-term recovery.

The Universal Breastfeeding symbol depicts both nursing and the breast pump, which is recognized as being the most common form of milk expression (Universal Breastfeeding Symbol, n.d.).

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