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 properly 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.

Objective

This poster aims to review and determine best practices regarding maternal and infant health within the mitigation, preparedness, response, and recovery phases of the disaster cycle. These identified best practices will help to inform emergency managers and related professionals on how to best meet the needs of these vulnerable populations.

(MothertoBaby, n.d.)

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

Databases: 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/or 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

Mitigation

Climate change will continue to worsen the effects and magnitude of disasters on birthing and postpartum individuals, infants, and children (Mediate and Shah, 2021). Additionally, climate change forcibly impacts maternal, neonatal, and child health through malnutrition, environmental risks, and infectious diseases (MAKE MOTHERS MATTER, 2021). These impacts are especially exacerbated among low-income populations (Mediate and Shah, 2021). Through our analysis of the literature surrounding mitigation measures concerning these vulnerable populations, we have identified the following to be best practices:

- Design and execute educational programs to educate all populations, but especially birthing and postpartum individuals, about climate change along with possible mitigation and adaptation strategies (MAKE MOTHERS MATTER, 2021).
- Create relationships across disciplines, especially between public health and emergency management, to minimize negative spillover effects of health disasters on maternal and child health (EI-Shal, 2021).
- Support the passing of the Protecting Moms and Babies Against Climate Change Act, introduced to the U.S. Senate in February 2021, which would support maternal health in the face of climate change by investing in key organizations and federal programs, while simultaneously identifying climate-risk zones for pregnant persons (Congress, n.d.).
- Ensure that emergency managers are included within climate resilience plans and participate within that planning process (Mediate and Shah, 2021).
- When approaching adaptation policies, include birthing, postpartum, and women's advocacy organizations during the decision-making process, to ensure that it addresses the needs of mothers and children while not exacerbating inequalities and vulnerabilities experienced by these groups (MAKE MOTHERS MATTER, 2021).

Preparedness

Pregnant and lactating individuals have special medical needs, and thus these needs must be specifically addressed within the planning process (CDC, n.d.; U.S. Health and Human Services, n.d.). Emergency managers should plan for designated supplies, support, and 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 to be 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 (1-866-626-6847) or 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 those within their communities to develop an emergency kit that includes medications and vitamins, food and water, baby care and safety supplies, post-partum and menstrual supplies, and other critical care items in the event of an emergency (CDC, n.d.; U.S. Health and Human Services, n.d.).
- Work to provide preparedness resources for childbearing individuals, including prenatal classes, which should touch on themes like proper nutrition, breastfeeding, and safety interventions (Yoshida, 2021).
- Emergency managers must plan for communication, outreach, and other critical materials to be available in multiple languages and be accessible to all populations including those who are deaf, ESL, and other populations with unique needs (DeYoung, Chase, Branco, 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.

The Disaster Cycle

Response

Pregnant individuals and infants possess unique health concerns following disasters (Callaghan, 2007). Within the response phase, these vulnerable populations face increased threats including lack of access to clean water for bathing and drinking, lack of access to safe food, increased exposure to toxins, interruption of critical healthcare, crowded conditions within shelters, and disruption to health-related infrastructure (Callaghan, 2007). Through our analysis of the literature surrounding response measures concerning these vulnerable populations, we have identified the following to be 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).
  - However, formula-fed babies and infants should continue to use ready-to-feed formula, if possible.
- Emergency managers must ensure that bottled water is available to prepare concentrated formula 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 stored breastmilk and other items from becoming 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 (NHTSA) approved car seats 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 weights, hemorrhage, and retained placentas (Meyers, 2019). Additionally, pregnant and lactating individuals living in post-disaster communities lead stressful lives years after the event (Giarratano et al., 2019). Furthermore, pregnant individuals indicated that poor social support during long term recovery was associated with high levels of depression, post-traumatic stress, anxiety, and stress (Giarratano et al., 2019). Through our analysis of the literature surrounding recovery measures concerning these vulnerable populations, we have identified the following to be best practices:

- 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 (Harville et al., 2015).
- During and following a disaster, the loss of support systems, stress from displacement, loss of lactation support, lack of privacy, and the perception of decreased milk supplies 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 the needs of lactating families.
- 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 (Harville et al., 2010). Furthermore, research indicates that maternal mental health after a disaster may be more influential on children's development than the disaster incident itself (Harville 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.

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 means, 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.).

Future Research

How can emergency management entities 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?

How can emergency managers and related professionals better support maternal and infant health needs throughout long-term recovery?

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 entities most effectively leverage relationships with nonprofits, health organizations, and other partners to best support maternal and infant health throughout the disaster cycle?

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