



Development of the Maternal and Child Health (MCH) Handbook in Shelby County, Tennessee, USA

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Abstract

The Maternal and Child (MCH) Handbook offers proven tools worldwide to empower women and their families to access better MCH services. To develop a two-way toolkit for use in the United States, researchers conducted this study in Shelby County, Tennessee, USA, which has some of the highest rates of maternal and infant mortality in the nation. The 2024 published maternal mortality rate for the United States was 22.3/100,000 live births; the rate for African American women was 49.5 deaths/100,000 live births (Hoyert, 2024). The 2024 United States infant mortality rate was 5.5 deaths per 1,000 live births, while the Shelby County, Tennessee, infant mortality rate was 8.8 deaths per 1,000 live births, with significant health disparities (TDH, 2023). Dr. Shafi Bhuiyan et al. at the University of Memphis School of Public Health conducted focus groups and key informant interviews with mothers, fathers, public health leaders, and medical providers to learn about maternal and infant needs in the community. Based on these insights, the Uof M's SPH developed a culturally tailored maternal and child health (MCH) tool to empower families to take charge of their health and advocate for their healthcare needs. This multidisciplinary approach, integrating healthcare and public health supports, holds great potential for improving Shelby County's maternal and infant rates. The Maternal and Child Health Handbook will serve as a two-way communication tool to facilitate effective dialogue between families and their healthcare providers, optimizing positive health outcomes.

Key Words: Maternal and child health, MCH handbook, Community health, prenatal and postnatal care, Shelby County

Introduction and importance of MCH Services

Maternal and child health (MCH) is a crucial aspect of public health, centered on ensuring the well-being of mothers, infants, and children. The quality of MCH is not only a reflection of a society's overall health but also an important indicator of its future health and development (Morioka et al., 2022; Theall & Johnson, 2017). Despite progress in this area, significant disparities persist, particularly in low- and middle-income countries (LMICs), where limited access to healthcare and environmental challenges continue to hinder improvements (Nambiar et al., 2023). To address these challenges, initiatives such as the Maternal and Child Health (MCH) Handbook have been introduced to ensure continuous care and better health outcomes for mothers and children (Kuramata et al., 2022). Maternal and child health is foundational for a healthy population, influencing health outcomes across generations. Studies have shown that maternal education

and socioeconomic status are strongly correlated with child health, with higher education levels linked to improved child health (Lawrence et al., 2020). Inequities in MCH services often worsen existing disparities, particularly among marginalized groups such as the urban poor and homeless populations (Nambiar et al., 2023). Enhancing maternal and child health not only reduces mortality rates but also contributes to economic growth by fostering a healthier and more productive future workforce (Morioka et al., 2022).

History and Evolution of the MCH Handbook

The Maternal and Child Health (MCH) Handbook, a vital instrument in promoting the health of mothers and children, was first developed in Japan during the 1940s. Its creation was driven by the need to provide continuous care for mothers and children, particularly after the disruptions caused by World War II. The initiative was part of Japan's broader public health efforts to address rising concerns over maternal and infant mortality and included information on rationed goods during wartime (Morioka et al., 2022). In 1940, Japan faced an alarmingly high infant mortality rate, which was approximately 90 deaths per live birth (Ministry of Health, Labour and Welfare, n.d.). The focus was initially on maternal health and newborn care. Over time, the handbook evolved to incorporate essential health information, such as vaccination schedules, growth monitoring, and breastfeeding recommendations, enabling mothers to take an active role in managing their children's health. By the 1960s, the MCH Handbook had become an integral part of Japan's Maternal and Child Health Act, which aimed to standardize maternal and child healthcare services nationwide (Morioka et al., 2022). In 2007, Japan's infant mortality rate had decreased to 2.6 per 1,000 live births (World Bank Group, n.d.). The handbook served as a key communication tool between healthcare providers and families. By the 2000s, the MCH Handbook model had been adopted by several countries outside Japan, including Cambodia, Indonesia, and Angola, where it was tailored to local needs (Kuramata et al., 2022). The international dissemination of the MCH Handbook has been linked to enhanced access to maternal healthcare, increased maternal-child health literacy, and improved health outcomes in these regions.

The MCH Handbook in Shelby County, Tennessee, U.S.A.

The 2024 published maternal mortality rate for the United States was 22.3/100,000 live births; the rate for African American women was 49.5 deaths/100,000 live births (Hoyert, 2024). The 2024 United States infant mortality rate is 5.5 deaths per 1,000 live births, and the Tennessee rate is 6.61 deaths per 1,000 live births (Ely et al., 2022). The Shelby County, Tennessee, infant mortality rate is 8.8 deaths per 1,000 live births (TDH, 2023). Due to the success of the MCH Handbook in other parts of the world, our research team sought to implement the book in Shelby County, and the United States to help promote MCH services to ensure continuum of care, improved help-seeking attitudes, effective communication and strengthening health literacy to empower mothers and their families. Past research has shown that the handbook is associated with increased healthcare service utilization, including higher attendance rates for prenatal visits and a higher proportion of institutional deliveries (Kuramata et al., 2022). Additionally, the handbook's educational content empowers mothers by providing crucial information on child health, vaccination schedules, and nutrition, thereby improving

early childhood development and reducing infant mortality (Morioka et al., 2022). In Tennessee, the MCH Handbook is being implemented as part of the state's public health strategy to improve maternal care, addressing gaps in healthcare access and information sharing. This initiative is started with cohort testing in Shelby County, Tennessee, which includes the state's second-largest city, Memphis, TN. Memphis, TN, also has a high proportion of African American women who could benefit from the potential success of the MCH Handbook being used in this region of the state. In past years, the Shelby County Health Department disseminated a book titled, "The Happy Birthday Baby Book", which has been out of print for many years. The book was similar to the MCH Handbook but included fewer features for families to use as a health guide.

Handbook Development in Shelby County, TN

The research team began with the model of the Japanese version of the MCH Handbook, which included twenty (20) pages comprised of information on registration, maternal care, deliveries, child health checkups, and food rations (Nakamura, 2016). The design of the previous Happy Birthday Baby Book format was also incorporated to include color-coded pages for different life stages and health events, along with location resource information.

A group of approximately twenty (20) public health leaders, researchers, policymakers, academics, and medical professionals met virtually to learn about the project in detail and provide input on what should be included in the MCH Handbook. Members were excited about the project and readily shared their thoughts on what providers wanted to communicate to patients and their families concerning maternity and child healthcare. The first draft of the MCH Handbook was created by incorporating the healthcare education suggested by the key informant group and shared with the community insight group.

The community insight group (n = 14) consisted of community members, including fathers, mothers, young couples, and faith leaders. The community insight group provided valuable feedback on the potential acceptance of the MCH Handbook, the need for more information for fathers, the overall design, and their understanding of the information. A second draft of the MCH Handbook was created based on the thoughts and concerns of the community insight group and shared with colleagues at the University of Memphis before the final editing of the 2025 MCH Handbook.

The Maternal and Child Handbook was revised and tailored to meet the needs, culture, resources, and demands of residents in Shelby County, TN.

MCH Handbook Content Development Study Results

1) Key Informant Interview [KII]

Some of the recommendations and concerns for the Handbook were: inclusion of immunization schedule, myth busters against vaccine hesitancy, birth spacing, Tennessee breastfeeding hotline, day care, use prenatal as the language instead of antenatal, information on lead exposure and its effect on children, Mid-South Food Bank resource information, mental health services, clinic sites, formatting to multiple languages (Spanish / Arabic), digital formats, coupons, and stated benefits of using MCH handbook for families. [Table 1]

Key discussion points from KII		
	Theme	Subtheme
1	Tennessee State Health and Nutrition support programs	Tennessee Breastfeeding Hotline Mid-South Food Bank TEIS (Tennessee Early Intervention System) services
2	Tailored Messaging	Multiple language copy options MythBusters language for Vaccine Hesitancy Use of the term “prenatal” instead of “Antenatal”
3	Educational materials	Mention of the benefits of the MCH handbook to mothers, fathers, and other family members
4	Information for timely action	Immunization schedule Satellite clinic sites Birth spacing Lead exposures
5	Community resource Integration or Extended MCH support resources	Day care Juvenile court Mental health resources

2) Community consultation meeting [Table 2]

Key recommendations from the Community consultation		
	Content	Details
1	Lactation	Initiation of lactation, how to adequately produce the milk, and Tips to help the baby latch to the nipples
2	Child immunization	Inclusion of Varicella in the immunization schedule Rota virus dosage correction
3	Danger signs	Correction of the duration of danger signs, inclusion of signs of asphyxia, and various allergies
4	Postnatal depression causes, prevention, and management	Various triggers for postnatal depression, financial burden, and unplanned C-section
5	Information on mothers and their medical history	Information on substance abuse, OB/GN, prenatal care, lactation, and postnatal care
6	Role of family and fathers	Fathers' and families' role in supporting pregnant and postpartum mothers, for example, accompanying them to the health facility, supporting in feeding and cleaning the baby after childbirth, etc.

3) Faculty and Stakeholder Consultations

The accepted recommendations from the community consultation, key informant interviews, and stakeholder consultations include information related to lactation, child immunization schedule corrections, danger signs, postnatal depression, and medical history. [Table 3]

Content/ theme	Details	Source
Birth plan	The birth plan and procedures, such as arranging an emergency fund, selecting healthcare providers and facilities, and Identifying Blood donors, were included in a table form to help soon-to-be parents navigate childbirth easily.	University faculties (Stakeholder Consultation)

Role of husbands and grandparents	Husbands and grandparents' role in taking care of mothers' physical, mental, and emotional support during pregnancy and postpartum.	Community members (Focus Group Discussion)
Allergies	Prevention and care needs	Health care providers
Postnatal depression	Postpartum depression in mothers Duration, type of support needed	Community members and faculty (FGD and Stakeholder consultation)
Health Department resources	Maternal and child health ongoing support program: <ul style="list-style-type: none"> • Car seat program, • Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) • Tennessee State Breastfeeding Hotline 	Shelby County Health Department (key informant interview, Consultation meeting)
Development milestones	A pictorial with explanations showing infant growth over the first five years, and what we should expect by the end of each developmental milestone.	Health care providers
Stigma and misinformation reducing phrases and terms	Mainly three areas: Autism, vaccines, and Down syndrome. “Autism is not caused by Vaccines, parenting styles, or anything that the mother did during pregnancy.” “Down syndrome happens by chance due to genetics during pregnancy and not because of anything the mother did or did not do.”	Health care providers

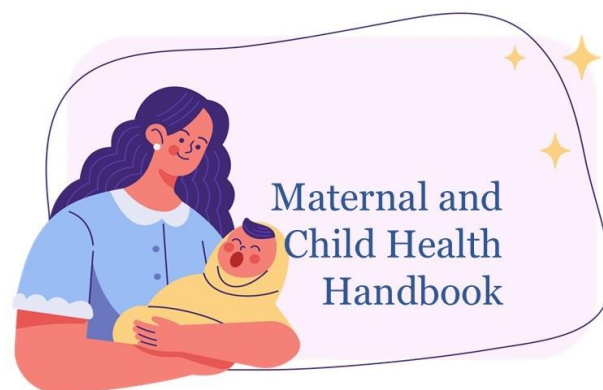
Summary of Shelby County MCH Handbook Content

This study aimed to develop a culturally tailored Maternal and Child (MCH) Handbook for Shelby County, Tennessee. The effort was driven by the region's high maternal and infant mortality rates, particularly affecting African American populations. Building on the success of similar handbooks used internationally, the project team aimed to develop a locally relevant version that could improve health outcomes.

Using the MCH Handbook includes essential information like maternal care, childbirth records, and child checkups as a foundation, the researchers gathered input from healthcare providers, community leaders, university faculty, and families. This collaboration led to a handbook that addressed both clinical and social needs, such as breastfeeding guidance, immunization schedules, mental health support, and local health services.

Community feedback promoted the inclusion of sections for fathers, a pictorial development tracker, and myth-busting messages to reduce stigma around issues like vaccines, autism, and genetic conditions. The final design emphasized accessibility. Offering the handbook in multiple languages and formats.

Overall, the handbook was developed as a practical, culturally appropriate tool to improve communication, support informed decision-making, and strengthen maternal and child health across Shelby County.



Parents' Names:

Child's Name:

Address:

Contact no:

In collaboration with



School of Public Health



Public Health
Prevent. Promote. Protect.
Shelby County Health Department

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Discussion

The Maternal and Child Health (MCH) Handbook has played a pivotal role in advancing maternal and child health services globally, with notable implementations in countries such as Japan (Morioka et al., 2022).

As early as 1948, Japan published the MCH Handbook, becoming the first country to institutionalize it. With its ability to provide a thorough record of mother and child health history, encompassing prenatal, delivery, postnatal care, and child growth, it eventually became an essential part of Japan's MCH practice. Encouraging a national reduction in child and maternal mortality because of early intervention and regular record keeping (Morioka et al., 2022). Promoting parental education and community-based care via policy integration and government assistance, such as the 2016 and 2019 amendments to the Maternal and Child Health Act.

Three pilot provinces in Angola adopted a culturally specific MCH Handbook with assistance from Japan's JICA. First, a collaborative strategy that incorporates strong stakeholder engagement from the start and localized content design (Kuramata et al., 2022). The second is the incorporation of health education into regular service delivery, with a focus on underserved and rural communities. Finally, there has been evidence of a rise in the use of MCH services and the ownership of home-based health data, particularly among less literate women. These applications demonstrate the value of the MCH Handbook in strengthening health system integration at the institutional and community levels, promoting continuity of care, and enhancing health-seeking behavior.

The Maternal and Child Health (MCH) Handbook of Brazil is an essential component of the nation's health system, emphasizing maternal and child health. It was formed as a component of the nation's larger plan to enhance maternal and child health results. The project was formally incorporated into Brazil's Unified Health System (SUS) in the late 1990s (Ministry of Health, 1994). This personal health record facilitates ongoing care for expectant mothers and children, allowing healthcare professionals to track their health throughout pregnancy, delivery, and early childhood, thereby enhancing the quality of care and health results. Brazil's MCH Handbook's essential elements included individual Health Records, such as pregnancy details, antenatal and medical appointments, childbirth data, postpartum details, postpartum support, child development, and vaccinations, alongside growth milestones, fostering continuous care, public health impact, and governmental support.

The Shelby County Maternal and Child Health (MCH) Handbook is expected to present numerous important innovations in comparison to earlier MCH handbooks, drawing from effective examples seen in other areas. These advancements may result in improved healthcare services and maternal-child outcomes in Tennessee.

Integration of Health Records: Earlier MCH handbooks often relied on various, disjointed health records (such as prenatal cards, vaccination records, and growth charts), which could lead to confusion or underutilization (Nambiar et al., 2023). In contrast, the MCH manual for Shelby County consolidates all maternal and child health records into one document, streamlining the process and fostering uniformity throughout various phases of care (Kuramata et al., 2022). This integration is advantageous as it enables simple monitoring of health indicators, enhancing the utilization and continuity of maternal and child health services.

Emphasize Health Education: Earlier MCH books were largely utilized for documentation, providing minimal room for health education and advice. The revised MCH handbook for Shelby County, however, is expected to focus more on health education, featuring clearer, more comprehensive sections on subjects such as prenatal care, indicators of complications, and baby care (Mahoney et al., 2021). These modifications guarantee that mothers and families receive comprehensive information regarding optimal prenatal care, postnatal health, and infant care, which could result in healthier pregnancies and enhanced child development.

Engagement with Community and Healthcare Providers: A significant innovation in the MCH Handbook for Shelby County is its emphasis on community participation and the training of healthcare providers, similar to practices seen in countries such as Angola. This method involves participatory workshops to collect input from mothers, healthcare professionals, and local stakeholders (Kuramata et al., 2022). This guarantees that the handbook addresses the requirements of the community it supports and that healthcare professionals are more prepared to utilize it efficiently. This model is expected to aid Tennessee by increasing healthcare access and advancing the education of local healthcare professionals, which will ultimately result in improved maternal and child health outcomes.

Flexibility and Adaptability: A further novel aspect of the MCH handbook for Shelby County is its capacity for adaptation. Drawing from experiences in different areas like Angola, this model is crafted to be adaptable, permitting modifications according to practical application and continual input from healthcare professionals and the families they assist (Kuramata et al., 2022). This flexibility is essential for tackling local health issues, like those encountered in Tennessee's rural and urban areas, and for guaranteeing that the program can change according to new health trends or the community needs.

These attributes, along with a focus on enhancing healthcare accessibility, training healthcare professionals, and equipping families with practical health information, building on the already adaptable nature of previous MCH handbooks in many countries. They possess the ability to enhance the MCH Handbook for Shelby County by enhancing continuity of care, increasing health literacy, and boosting family involvement in their health management.

The Shelby County Maternal and Child Health (MCH) Handbook showcases a robust, cooperative initiative that emphasized the importance of community feedback. By conducting key informant interviews, focus group discussions, and consulting with healthcare professionals and university faculty, the handbook was comprehensively modified to align with the cultural values, unique needs, and resources accessible to the local communities. Community engagement was crucial in influencing the content. Parents, particularly mothers and fathers of small children, stressed the importance of having explicit instructions on breastfeeding methods, identifying concerning symptoms in babies, and tackling the emotional and psychological difficulties associated with postpartum depression. The involvement of fathers and other relatives was especially significant, emphasizing their supportive functions in caregiving, like assisting with infant care and joining mothers at medical visits.

A highly useful addition was the birth planning segment, which provides expecting parents with organized advice on getting ready for delivery, such as selecting a healthcare provider, organizing

transportation, and locating possible blood donors. This proactive strategy enhances readiness and lowers anxiety regarding childbirth.

Furthermore, a fresh visual resource on developmental milestones assists parents in monitoring their child's advancement from birth to five years old. The healthcare provider suggested phrasing to address stigma and incorrect information related to autism, vaccinations, and Down syndrome. These explanations assist in alleviating parental guilt and strengthen an evidence-based comprehension.

In general, the MCH Handbook functions both as an educational resource and as a source of empowerment. The handbook aids informed decision making and fosters better health results for mothers and children throughout Shelby County by integrating feedback from the individuals it is designed to assist.

Conclusion

The MCH Handbook serves as an educational tool and a means of empowerment by providing a standardized and comprehensive tool that integrates health records and education. By incorporating feedback from those it is intended to serve, the handbook supports informed decision-making and promotes healthier outcomes for mothers and children across Shelby County, TN, USA. Addressing healthcare access inequalities and promoting the MCH Handbook will contribute significantly to achieving better health outcomes for mothers and children (Morioka et al., 2022; Nambiar et al., 2023) not only in Shelby County, but in counties and areas similar demographically, both domestically and internationally. We recommend the use of the MCH Handbook with culturally appropriate content as an effective strategy to support the well-being of mothers and children, ensuring continuity of care and leaving no one behind.

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