

# **MATERNAL AND CHILD HEALTH: A BASIC PART OF PUBLIC HEALTH**

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## **Summary**

While many of the concerns and technologies relevant to maternal and child health can be traced to ancient times, MCH only emerged late in the 19<sup>th</sup> century with the advances in microbiology, improvements in food safety - particularly milk pasteurization - and the improved training of midwives and doctors. Deaths associated with child birth and in infancy were so common that societies developed cultural coping strategies or traditional practices by which to explain, avoid or accommodate them. Childhood immunizations emerged rapidly with the advances in microbiology, largely in response to the infectious diseases affecting children and adults in the industrialized world. And, while “maternal” in name, MCH programs were functionally child health in orientation, content and impact. The separation of government-provided preventive health services from the hospital based medical care systems represented an obstacle both for maternal health and in overcoming the high levels of malnutrition and infectious diseases among children. Another major obstacle in the developing world, heightened by the limitations of financial and human resources, was the tension between disease-specific control strategies, family planning/”population control” programs and health system development as part of a larger development strategy. WHO and UNICEF advocacy of primary health care since the late 1970s provided a policy framework, momentum, and, by applying management science principles, the means for strengthening MCH, including family planning. A second major policy foundation for MCH comes from the

international human rights instruments relevant to women, children and families. MCH has evolved to become the programmatic expression of our understanding of the reproductive and developmental health sciences as they apply to women, children and families. A global assessment of MCH by WHO has concluded that the rational way for governments to meet the health needs of women and children is through district-based systems for primary health care with networks of health centers, family practices or equivalent decentralized structures, backed up by referral hospitals.

## **1. Introduction**

As maternal and child health (MCH) has evolved it represents the programmatic expression of our understanding of the reproductive and developmental sciences. Similarly, the greater understanding derived from social, economic and political sciences has provided us with more effective and relevant means and strategies by which the global goal for MCH are more likely to be locally adapted and implemented in very different circumstances. Maternal and child health includes the broad meaning of health promotion and preventive, curative and rehabilitative health care for mothers and children. It thus “includes such areas as maternal health, family planning, child health, school health, handicapped children, adolescence, and the health aspects of care of children in special settings such as daycare.” (WHO 1976). Historically, it reflects the cultural and institutional structures that have emerged from empirical and scientific knowledge, the development of technologies, and the changing economic, social and political circumstances as they affect the lives, health and well-being of women, children and families. The first stage of the care of mothers and children has been community and family based in all societies. As MCH has evolved, it has reflected the constitution of the World Health Organization (WHO), namely, that “in order to achieve its objective, the functions of the Organization shall be ... to promote maternal and child health and welfare and to foster the ability to live harmoniously in a changing total environment...”. With its disparate origins, MCH has become a family-centered, life-cycle and developmental approach to meeting the health needs of women and children, internationally legitimized and codified in several international human rights conventions and instruments.

## **2. The Historical Context**

### **2.1. In Ancient Times and Traditional Societies**

Traditional practices in the care of women and children have emerged in all societies through a process of observation and a cultural codification of procedures and rituals that conform to the different aspirations and expectations of families and communities. Based on our current knowledge such practices can be viewed as: a) physiologically sound and culturally important; b) with neither harmful nor beneficial medical implications, but culturally desirable; or, c) hazardous to health of the mother or infant. The inverse also occurs, namely the rejection of important practices reflecting normal physiological functions that are culturally perceived as harmful, such as the wide spread rejection of colostrum, the sticky, thick, yellowish lacteal liquid produced toward the end of pregnancy and during the first few days after delivery, which is rich in antimicrobial and growth stimulating substances, yet considered dangerous to the infant

in many cultures. Female genital mutilation (FGM) is an example of a purely harmful traditional practice. Mistakenly thought to be religiously sanctioned, it is widespread, with many forms, harmful in its execution and dangerous in its long-term consequences (WHO 1996).

Traditional health care practices emerged within a wider set of cultural beliefs of causality attributed to such factors as the characteristics of specific foods, personal behavior or external forces. At times, a number of traditional practices have been subsequently shown to be superior to the modern equivalent. For example, delivering women in a squatting, kneeling or standing position, facilitates an easier labor through the combination of the downward pressure of the abdominal contents on the uterus and a more widely open pelvic outlet is more effective than having a woman lying in the lithotomy position, so widely favored in industrialized countries and exported to the health services of developing countries.

Dietary restrictions and prescriptions are common, and are often rationalized in terms of a wider set of cultural beliefs, the specific perceived needs of the future child, or the immediate concerns of pregnancy and delivery. For, example, many cultures classify foods or practices in terms of being hot or cold, not infrequently restricting one of these categories during pregnancy or breastfeeding. In some settings pregnant women are forbidden to eat specific foods in order to avoid neonatal jaundice or, aware of the difficulty of delivering a large baby, women avoided certain foods or limited the amount of food they ate. In northwest Pakistan, dried cow dung, being perceived as conveying heat and strength, had been used as if was talcum powder, thus increasing the risk of neonatal tetanus (Mull et al 1990). Ensuring a warm environment for delivery, and warm water for bathing, or the use of oils and wrappings post-partum is the norm in most cultures. At times, however, recognizing its effects, newborns were intentionally placed in a cold environment, as among the ancient Greeks, and among some groups in Nepal where women deliver unassisted out-doors in what appears to be part of the “selective” process for accepting “strong” infants and rejecting the weak.

The empirical and scientific foundations of MCH can be traced in part to Soranus of Ephesus (98-138 CE), a Greek physician who practiced in Rome. In his book *Gynecology* (also referred to as *On Midwifery and Diseases of Women*), he described the qualities of the ideal midwife; emphasized and provided a clinically relevant rationale for the psychological and physical needs of the parturient woman, signs of imminent labor and delivery and the management of labor; and elaborated on the essential care of the newborn, including the need for cleansing with warm water, resuscitation, the cleansing of the eyes with olive oil to wash off the thickest moisture – a sign of *ophthalmia neonatorum* which was a major cause of blindness in children, and the many aspects of breastfeeding and infant feeding (Raju 2002). Despite Soranus’s insights, including the suggested contraceptive use of pessaries made of wool and drenched in fatty substances or other mixtures as an alternative to abortion procedures advocated and wide-spread at the time, throughout much of the middle ages gynecology and obstetrics were neglected as a result of widespread prejudices and superstition with respect to the nature and position of women.

Maternal and neonatal, infant and young child deaths were so common that many

societies adopted beliefs to explain and/or practices to accommodate such adverse events. These range from attributing these deaths to spirits and/or the failure to follow certain norms of behavior, care, or culturally defined obligations. For example, since the welcoming and naming of a newborn has profound significance for the family and the community, infant's early death may have so adversely reflect on the family that many cultures would accommodate to the very high risk of neonatal or infant death by delaying the naming ceremony until such culturally defined time when most infants were expected to survive. This would range from as early as a week or ten days to as long as a year. It is possible that the contemporary vestiges of these practices are found in the timing religious rituals associated with baptism and circumcision. Soranus described the criteria for "accepting" a strong, healthy newborn or "rejecting" weak infants which represented a cultural adaptation in ancient Greece and Rome, and which is still found in the application of gender preference in areas in Asia and elsewhere.

## **2.2. MCH in an Era of Scientific Discovery and Social Concerns**

The elements of MCH only began to re-emerge in a few countries at the end of 18th century from very distinct and separate concerns for the health of women and children, and with new technologies and discoveries in microbiology. What is now accepted as maternal health care emerged with concerns in Sweden with the quality of midwifery, while child health owes its origins, in part, to the child welfare movement and its concerns for orphans, street children and child labor, and in part to the discoveries in microbiology and milk pasteurization.

Based on analysis of historical records and archeological studies of grave sites, easily one percent of all births ended in the death of a mother. In Sweden, one out of 29 women died as a result of childbirth before they reached the age of 50, with similarly or even higher levels being noted in rural Germany, England and France (Högberg & Wall 1986). Infant mortality rates were at least as high as 200 to 250/1000 live births in Italy and Norway (Hogan & Keertzer 1987). These levels of maternal and infant mortality are still currently found among the least developed communities and countries. Early in the 18<sup>th</sup> century, William Smellie brought obstetrics into the orbit of legitimate medicine, using a leather mannequin to demonstrate to his students the different positions of the fetus, and instructing them in the use of obstetrical forceps which, although introduced in obstetric care by the Chamberlen family around 1650, were a closely guarded secret for many years.

Swedish authorities, having noted in 1751 that of the 651 women dying in childbirth, at least 400 could have been prevented by having more midwives, started a campaign to increase the numbers and improve the training of physicians and midwives; founded the first lying-in hospital in 1775; improved the skills of home deliveries by midwives in 1829 when they were licensed to use forceps and other obstetric instruments; and introduced antiseptic techniques in the lying-in hospitals in the late 1870s, and required it, by law, for midwives in rural districts in 1881. During this period non-septic maternal mortality was reduced from 414 to 122 per 100,000 live births as the proportion of deliveries of rural midwife deaths rose from 30% to 70%. From 1881 to 1900, it was estimated that 96% of potential septic deaths were prevented (Högberg et al 1986). Yet it had taken more than 20 years since Semmelweis' published his documentation of the

effectiveness of simple hand-washing techniques before the medical community adopted the procedure in the control of puerperal sepsis.

Historically, before the 19<sup>th</sup> century in the absence of any explicit concern, preventive efforts or effective therapies, the levels and changes in neonatal, infant and child mortality were largely a function of: the costs and availability of essential foods, and prevailing weaning practices; the factors and patterns of epidemics or endemic seasonal outbreaks of diarrheal diseases, pneumonia and specific infectious diseases such as measles, pertussis and diphtheria; or associated with such factors as fertility patterns, housing conditions and crowding, or population movements. The concern for child health can be traced to both political and military, for a healthy adult population and concerns within the emerging child welfare movement, in response to the abuses of child labor, abandoned and orphaned children as an outgrowth of the industrial revolution, rural to urban migration, and in North America the large scale immigration. The “tipping point” of concern in North America, and the industrializing areas of Europe appears to have been the observation in the 19<sup>th</sup> century that the steady slow decline or stable levels of infant and young child mortality suddenly increased to high levels at a younger age among the large numbers of women with children who had recently entered the urban labor market, and who because of their hours and circumstances of work, could no longer breastfeed their infants and young children. In one Italian town, while the overall infant mortality rate had fallen to 100/1,000 live births in 1900, among women working in the emerging textile factories in 1903- unable to breastfeed and providing animal milk to their infants - it was 682/1,000 live births (Hogan & Keertzer 1987). Hitherto, aside from the neonatal period, infant and young child mortality peaked several months beyond the period of exclusive breastfeeding when the caloric and nutritional value of the weaning food and sanitary conditions greatly increased the risks of infectious diseases and malnutrition, the major factors in infant and young child mortality.

With Pasteur’s demonstration in the 1860s that the level of pathogenic micro-organism could be reduced by heating liquids, such as milk, to less than boiling for a relatively short time without affecting the quality, or causing the proteins to curdle, an apparently safe and nutritious alternative to breast-milk became available. The development of commercial pasteurization machines in the mid 1890s enabled local health and welfare authorities in England, France, Germany and North America to organize milk distribution centers. These subsequently expanded to serve as sources of health education in the care of infants and children, nutrition monitoring, and when they became available, childhood immunization. In the early 1900s, when antenatal care was added to the milk distribution centers it was largely intended to address the nutritional needs of women in relation to infant feeding and to provide expectant and newly delivered women with guidance in the nutritional and health needs of their infants.

MCH was initially seen only as a public health component of health services which included screening for other conditions which were then provided by medical or other services. Increasingly, women were delivered in hospital obstetric services. It was assumed that prenatal monitoring would be an effective means of reducing the maternal and infant mortality and morbidity associated with pregnancy and delivery. Despite the introduction of antisepsis in the 1880s, and caesarean section for obstructed labor by the 1900s, there was virtually no impact on maternal mortality in the first third of the 20<sup>th</sup>

century in either England or the United States, while the maternal mortality rate in Sweden during this period was one-half to one-third those in the England and America, a feat largely achieved by up-grading, supervising and increasing the number of well-trained midwives. Contrary to the tendency to attribute the “excess” maternal mortality to “poverty”, during the 1920s and 1930s, the national maternal mortality rate in England and Wales showed a “reversed social class relationship,” largely explained by the greater “safety” of deliveries by midwife versus doctor, with the maternal mortality among home-deliveries of 2.8/1000 deliveries for the midwives and 6.9/1,000 for the doctors (Loudon 1986)

As early as 1000 BCE, the ancient Egyptians used a linen sheath for protection against sexually transmitted disease, while the Chinese are known to have used oiled silk paper. Their usefulness in preventing pregnancy was recognized in the 1700s. The process of vulcanization of rubber invented by Goodyear and Hancock in 1843, and latex manufacturing processes improved sufficiently in the 1930s to produce single-use reliable and inexpensive condoms, prophylactic use against sexually transmitted diseases and/or for contraception. Despite their difference in backgrounds Margaret Sanger (1916) in the United States and Marie Stopes (1921) in Great Britain, in an era of activism for women’s suffrage, agitated for and launched the first family planning clinics in their respective countries. Sanger’s clinic, which was shut-down after 10 days, challenged federal and some state laws, particularly the Comstock Law of 1873, which outlawed as obscene the dissemination of contraceptive information and devices. Both saw family planning in terms of improving the health of women, and the right of women to control their own fertility. But, it was not until the latter half of the 20<sup>th</sup> century that a range of safe, effective and acceptable modern contraceptives were developed and became widely available.

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