



MDG 5

Improve

Maternal Health

Ever since the Safe Motherhood Initiative was launched by the World Health Organization (WHO) in 1987, with the aim of reducing the unacceptably high levels of maternal mortality evidenced in many developing countries, there has been heightened national and international concern to improve maternal health—MDG 5. This goal, which evolved out of the Programme of Action of the 1994 United Nations International Conference on Population and Development (ICPD), and subsequently the Fourth World Conference on Women in Beijing in 1995, has led to a much sharper focus on providing increased access to public health interventions that result in better maternal health.

Malaysia has experienced dramatic improvements in health in general, and maternal and child health in particular, throughout the post-Independence era. Well before the Safe Motherhood Initiative, the reported maternal mortality ratio (MMR) had halved between 1957 and 1970, when it fell from around 280 to 141 per 100,000 live births. By 1990 it was below 20 per 100,000 live births—a level close to that of most advanced countries. Subsequently, the MMR has remained around this low level, such that maternal deaths have become relatively rare events: less than two in every 10,000 deliveries.

Malaysia's remarkable experience in reducing maternal mortality reflects a comprehensive strategic approach to improving maternal health. The six key elements of this approach are as follows: (i) improve access to, and quality of care of, maternal health services, including family planning, by expanding health care facilities in rural and urban areas; (ii) invest in upgrading the quality of essential obstetric care in district hospitals, with a focus on emergency obstetric care services; (iii) streamline and improve the efficiency of referral and feedback systems to prevent delays in service delivery; (iv) increase the professional skills of trained delivery attendants to manage pregnancy and delivery complications; (v) implement a monitoring system with periodical reviews of the system of investigation, including reporting of maternal deaths through a confidential enquiry system; and (vi) work closely with communities to remove social and cultural constraints and improve acceptability of modern maternal health services.

This chapter begins by reviewing trends and differences in indicators of maternal health in Malaysia (Box 5.1). It next considers the policies, strategies, and programmes that were implemented to improve maternal health, including a summary of the insights gained in implementing a flexible approach which encouraged local initiatives that are sensitive to the socio-cultural, religious, and traditional environment of women and the community. The chapter concludes with some pointers on future challenges.

Box 5.1 INDICATORS FOR MONITORING MATERNAL HEALTH

Two indicators are recommended for monitoring progress towards MDG5 to improve maternal health and its related target of reducing by three quarters, between 1990 and 2015, the maternal mortality ratio (MMR). These are the MMR and the proportion of births attended by skilled health personnel.

The MMR is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration of pregnancy, per 100,000 births. Such deaths are affected by various factors, especially general health status, nutrition, education, and all

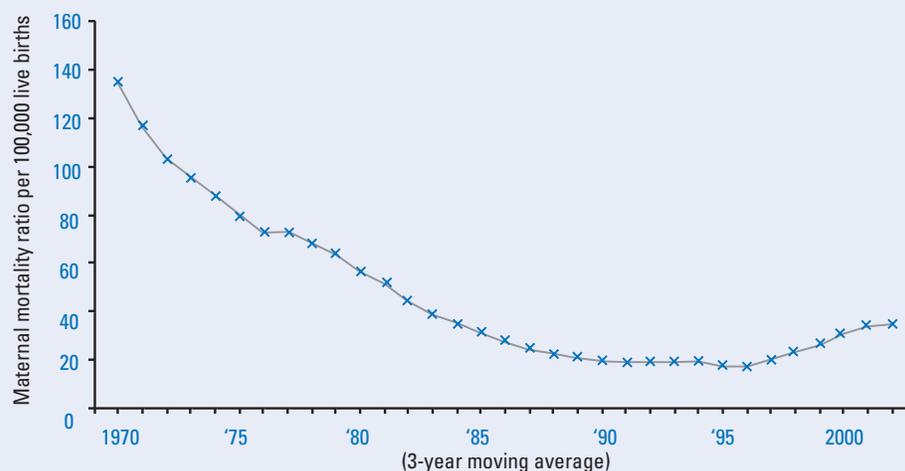
obstetrics services and care, during pregnancy and childbirth.

The *proportion of births attended by skilled health personnel* is the percentage of deliveries attended by personnel trained to give the necessary supervision, care, and advice to women during pregnancy, labour, and the post-partum period; to conduct deliveries on their own; and to care for newborns. Skilled health personnel include only those who are properly trained and who have appropriate equipment and drugs. This indicator focuses on access to professional care during pregnancy and childbirth, particularly for the management of complications. It has a strong inverse relationship with the MMR.

Trends in maternal mortality

Malaysia has demonstrated progress in its steady and sustained decline in maternal mortality (Figure 5.1). A steep decline occurred in the MMR in the decade between 1970 and 1980 when it fell from 141 to 56 per 100,000 live births, a decline of 40 per cent. The rapid decline continued throughout the 1980s such that by 1990 the MMR was just 19 per 100,000 births.

Among several factors that were responsible for this dramatic decline in the MMR include (i) the national commitment to improve maternal health which enabled the MOH to obtain adequate allocation of resources; (ii) access to professional care during pregnancies and childbirth; and (iii) increasing access to quality family planning services and information. During the 1990s the MMR has hovered around this low level, except for a temporary rise in 1998 and 1999. This increase was due to adjustments in the recorded numbers of maternal deaths to take account of cause-of-death misclassifications. Further declines in the MMR will be slow as indirect causes of maternal mortality are more complex to manage and will need support of other disciplines for specialized skills, multidisciplinary case management, and prevention of pregnancies of known high-risk factors.

Figure 5.1 Maternal Mortality Ratios, Malaysia, 1970–2002

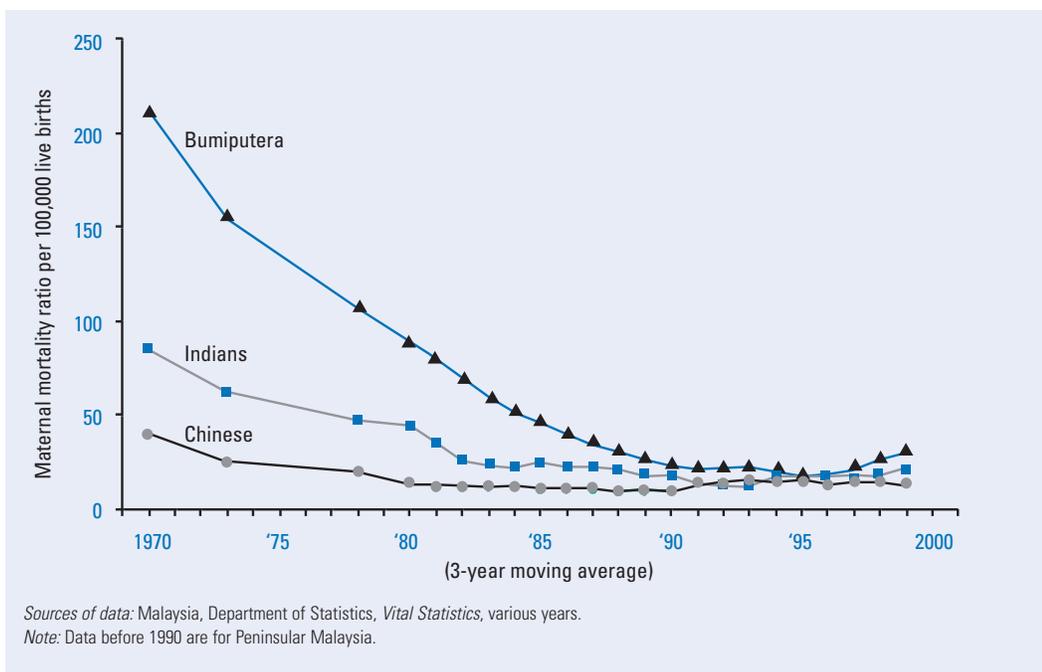
Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, 2000g, 2001c, and 2003e.

Note: Since 1998 numbers of maternal deaths have been adjusted to take account of cause of death misclassifications—see text below.

Ethnic and state differentials

Since the initiation of the Confidential Enquiry into Maternal Deaths (CEMD) in 1991, with active case detection of maternal mortality, the number of maternal deaths as recorded through the vital registration system has been shown to be an underestimate. From 1998 onwards, the decision was taken to publish only data on maternal deaths that also include those identified through the CEMD.

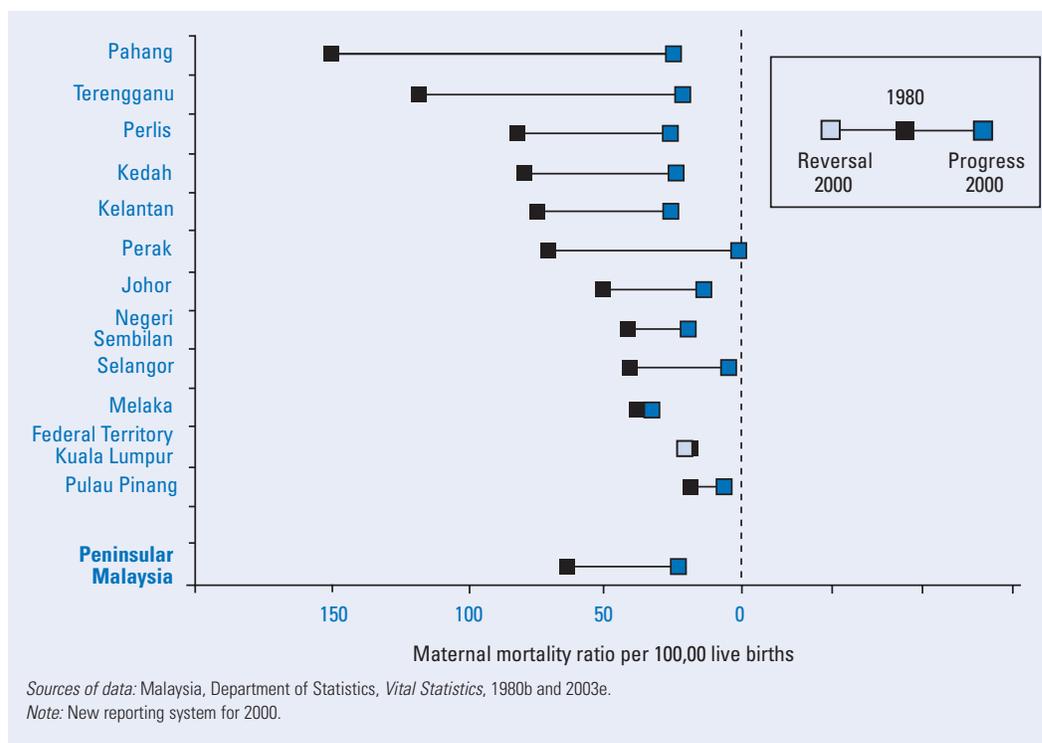
A conspicuous feature of the pattern of maternal mortality at the beginning of the 1970s was the marked disparities in the MMR levels of the different ethnic communities. Thus in 1970, the *Bumiputera* MMR, at 211 per 100,000 births, was more than five times higher than that of the Chinese, at 49 per 100,000 births, and nearly two and a half times that of the Indians, at 100 per 100,000 births (Figure 5.2). At that time, the *Bumiputera* were a much more rural community, the vast majority of whom were living below the poverty line with limited access to maternal health services. Most of their births were delivered at home without the benefit of skilled birth attendants. Conversely, the Chinese, being more affluent and more urbanized, had much more ready access to hospitals and medical centres. Since the 1970s, as the factors leading to the high level of MMR among the *Bumiputera* have been ameliorated, the ethnic differentials have narrowed but the more urbanized Chinese, with significantly higher levels of contraceptive use and lower levels of fertility, still have MMR levels that are less than half those of the *Bumiputera*.

Figure 5.2 Maternal Mortality Ratios by Ethnic Group, Malaysia, 1970–2000

Substantial reductions in maternal mortality in the immediate post-Independence period up to the 1980s were mainly attributed to overall socio-economic development, especially improved access to health-care services. The early development of the rural health infrastructure through a three-tier system of midwife clinics, health subcentres, and main centres brought basic maternal and child health care services to the rural community. The building of hospitals in the lesser developed state capitals and districts, together with the establishment of nursing and midwifery training schools, also helped in providing for professional midwifery and maternal care to the rural population. Efforts made by health personnel to mobilize and educate rural families and the community on services available at health centres; the need for prenatal care, delivery, and postnatal care by government-trained midwives; and better hygiene and nutrition were factors that contributed to utilization of modern health care and maternal mortality decline.

Not surprisingly, in the 1970s and 1980s, maternal mortality was highest in the most rural states and lowest in those that were most urbanized. However, over the two decades between 1980 and 2000, there were major improvements in all states and a significant narrowing of state differentials. Thus, the MMR in the predominantly rural east coast states of Pahang and Terengganu fell from 151 and 118 per 100,000 live births in 1980, to just 24 and 21 per 100,000 live births in 2000—much the same level as for Peninsular Malaysia (Figure 5.3).

Figure 5.3 Changes in Maternal Mortality Ratios by State, Peninsular Malaysia, 1980–2000



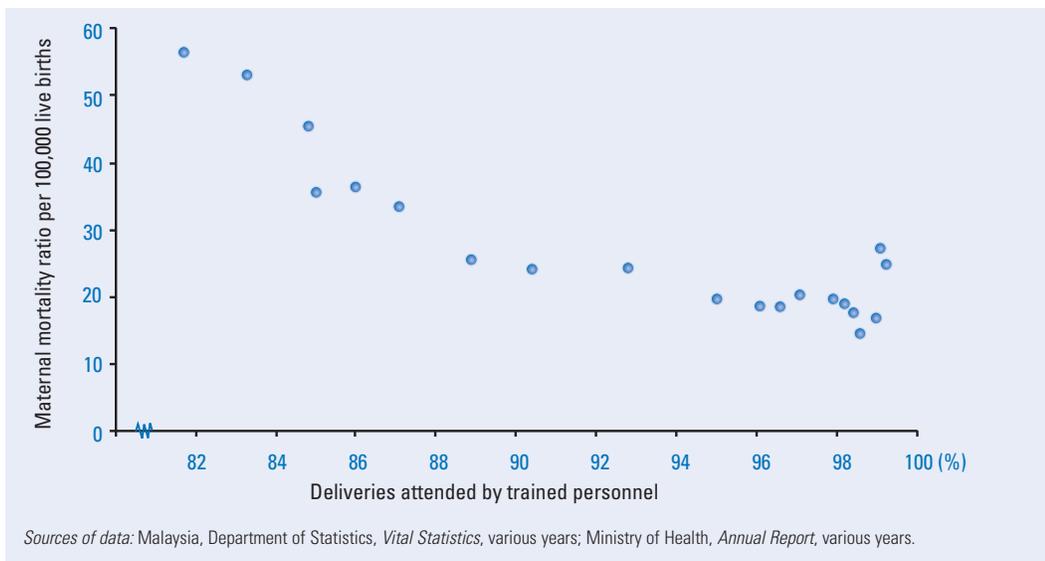
Births attended by skilled health personnel

Access to professional care during pregnancy and childbirth, particularly for the management of complications, is strongly associated with MMR levels. In Malaysia, as the proportion of births attended by trained health personnel increased markedly during the 1980s, the MMR decreased sharply (Figure 5.4). However, by the late 1980s, when the proportion of births attended by skilled health attendants had already reached above 90 per cent, the rate of decline in the MMR moderated. A key strategic element in Malaysia's approach towards reducing MMR levels has been to increase the professional midwifery skills of birth attendants so that all women have access to high-quality delivery care, while simultaneously strengthening national health systems, particularly in rural areas.

The rapid development and upgrading of health-care services over the past three decades, including the establishment of nursing and midwifery schools, led to both an increase in the number of trained health personnel and improved midwifery and obstetric skills through postgraduate (midwifery) and in-service training as well as family planning. The proportion of births attended by skilled health personnel increased significantly from 20 per cent in 1970, to 96.1 per cent in 1990 and to 99.2 per cent in 2000. The training of Traditional Birth Attendants (TBAs) as partners in health care with government-trained

midwives, and the utilization of TBAs to promote the use of health facilities to women for antenatal care and delivery, was another factor that led to an increase in the proportion of deliveries attended by trained personnel.

Figure 5.4 Maternal Mortality Ratio and Deliveries Attended by Trained Health Personnel, Peninsular Malaysia, 1980–2000



In the mid-1980s and 1990s, Malaysian women were encouraged to deliver in hospitals, especially those with pregnancy complications, who were assigned red and yellow colour codes during prenatal assessment. This shift to institutional deliveries, in urban and rural areas, resulted in the need for the establishment of low-risk delivery centres in urban and peri-urban areas and alternate birthing centres in rural areas to prevent overcrowding of hospitals. These alternate birthing centres were organized to provide a supportive environment for safe delivery and management of pregnancy and delivery complications to reduce maternal deaths.

The proportion of births delivered in hospitals, clinics, and maternity homes is shown to have risen sharply such that in 2000, the figure was above 97 per cent in Peninsular Malaysia and Sarawak, and 74 per cent in Sabah (Table 5.1). The quality of nursing and midwifery curriculum, training, and practice is regularly reviewed and governed by the Board of Nurses and Board of Midwives. Malaysia has utilized nurses and midwives as the main providers of the maternal and child health (MCH) programme, with regulatory standards and practices ensuring quality maternal care. Expectant mothers were advised about the importance of skilled attendance for delivery and discouraged from the traditional custom of delivering at home with the support of TBAs.

Table 5.1 Institutional Deliveries of Births, Malaysia, 1985, 1990, and 2000

Place of Delivery	1985	1990	2000
Peninsular Malaysia			
Government hospitals and clinics	151,140	222,441	304,589
Private hospitals/ Maternity homes	23,743	57,916	85,889
TOTAL*	175,208	280,566	390,587
As % of all deliveries	53.6	75.5	97.5
Home deliveries (%)	46.4	24.5	2.5
Sabah			
Government hospitals and clinics	22,643	34,831	43,906
Private hospitals/ Maternity homes	1,462	1,981	1,642
TOTAL*	24,105	36,936	45,579
As % of all deliveries	53.8	61.6	73.8
Home deliveries (%)	46.2	38.4	26.2
Sarawak			
Government hospitals and clinics	24,362	37,616	39,707
Private hospitals/Maternity homes	1,816	2,778	4,749
TOTAL*	26,178	40,394	44,456
As % of all deliveries	67.1	90.3	97.7
Home deliveries (%)	32.9	9.7	2.3
Malaysia			
Government hospitals and clinics	198,145	294,888	388,202
Private hospitals/Maternity homes	27,021	62,675	92,280
TOTAL*	225,491	357,896	480,622
As % of all deliveries	54.9	75.2	94.6
Home deliveries (%)	45.1	24.8	5.4

Sources of data: Malaysia, Ministry of Health, *Annual Report*, 1985, 1990, and 2000.

* Includes other places such as estates.

Enabling environment

Family planning and maternal health

Increasing access to quality family planning services and information has been an important factor in improving maternal health in Malaysia. It has, for example, been a factor in lowering fertility levels among women at the youngest and oldest childbearing ages, as well as among those of high parity—groups known to have relatively higher risks of maternal mortality.

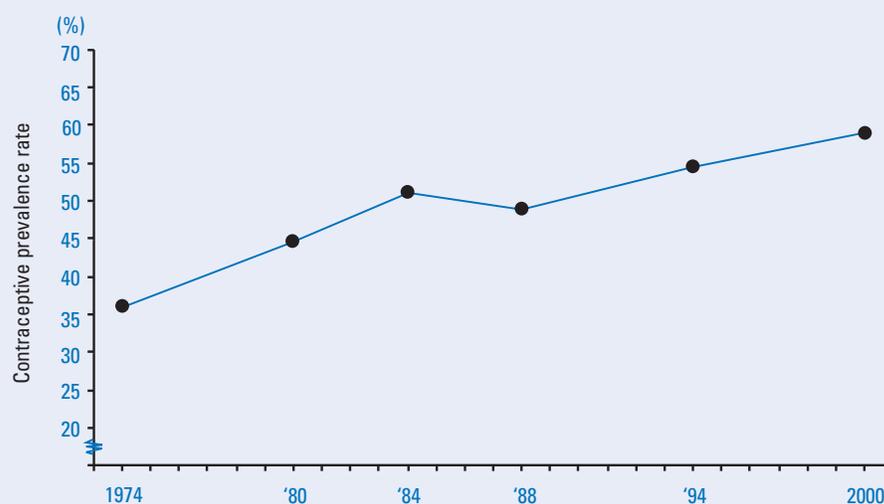
Pioneer efforts for organized family planning activities were first initiated by civil society through the state Family Planning Associations (FPAs), the first of which was established in Selangor in 1953, followed by those in three other states. The formation of the Federation of Family Planning Associations, Malaysia (FFPAM) in 1958, facilitated the

formation of FPAs in all other states in Malaysia. In 1966, the Family Planning Act was enacted leading to the establishment of a National Family Planning Board, renamed as the National Population and Family Development Board in 1988, to oversee a national programme in family planning. The National Family Planning Programme (NFPP), which was implemented as an integral component of the First Outline Perspective Plan (OPP1), 1971–90, has been guided by economic, social, and health reasons. Family planning services, based on voluntary acceptance, were initially actively promoted, thereby enabling couples to decide responsibly and freely the number and spacing of their children.

Over time, the NFPP has undergone several phases of development, involving expansion of approaches used, areas covered, and agencies involved in the support and provision of family planning information and services. Since 1971, family planning services have been progressively integrated into the Rural Health Services run by the Ministry of Health (MOH). The purpose of integration was to ensure that family planning could be provided under the total family health programme, which was more acceptable to the predominantly Bumiputera rural population. The integration of family planning into Rural Health Services helped overcome many inherent socio-cultural and religious barriers. Currently, all rural health facilities provide family planning services as part of an integrated MCH/FP programme.

The NFPP has reached almost all eligible couples for family planning services and information, education, and communication-related activities, through a network of service outlets run by the MOH, NPFDB, and FFPAM, and the private sector, with support provided by the United Nations Population Fund (UNFPA). Contraceptive prevalence rates (CPR) have increased progressively and have had a marked impact on levels of childbearing. The CPR, which was just 8 per cent in 1966, rose from 37 per cent in 1974, to 52 per cent in 1984, reaching around 58 per cent in 2000 (Figure 5.5). During these three decades, the total fertility rate per woman fell from 4.9 in 1970, to 3.3 in 1990 and to 3.0 in 2000.

There is scope for further improving maternal health by expanding access to reproductive health services and information to all who need them, especially the poorer communities. Furthermore, because gender relations affect reproductive health, men will need to take greater responsibility for their own sexual behaviour as well as respect and support their partners' right and health. Especially in the context of rising levels of HIV/AIDS, the reproductive health needs of adolescents and youths require particular attention. This requires gender-sensitive education and information programmes at various levels.

Figure 5.5 Estimated Contraceptive Prevalence Rates, Malaysia, 1974–2000

Sources of data: Data for 1974, 1984, and 1988: Malaysia, National Population and Family Development Board, 1994; data for 1994: Malaysia, National Population and Family Development Board, 1999.

Note: Data for 2000 estimated.

Government commitment

The national commitment to improve maternal health was implemented by the MOH with adequate allocation of resources, including financial, manpower, and physical infrastructure. This has nurtured sustained commitment from health professionals leading to improved maternal health. One key factor that has enabled the MOH to gain and sustain government support was through the use and sharing of data on high maternal mortality with key decision makers at all levels and at appropriate times to influence attitudes and to obtain support for new policies.

Sustained commitment to human resources

Malaysia's commitment to continuous improvement and strengthening of maternal and child health care is evident from the growth and upgrading of the health infrastructure, manpower, and logistic support, including communication and transport facilities. The MOH has provided sufficient numbers and categories of human resources, according to service norms and standards, to upgrade the skills and proficiency of birth attendants, especially with regard to the management of obstetric emergencies and pregnancy complications. Training in communication skills and supportive supervision with in-service training of doctors in obstetrics, paediatrics, and anaesthetic skills before district hospital postings are factors that have led to better maternal health care. Attention has been given to staff welfare and well-being. Staff in rural postings are provided with staff quarters, while vehicle loans are available to all staff, including motorcycle loans for community nurses and midwives. These have enabled the retention and motivation of trained and skilled personnel, especially those at primary-level facilities. In the mid-1980s, the

government reviewed the civil service salary structure whereby specific categories of health personnel, including doctors, nurses and midwives were classified as critical personnel and given a 'critical allowance'.

Partnership initiatives

One initiative, supported by WHO and UNICEF (United Nations Children's Fund), was the 'Primary Health Care' approach to reach out to underserved and unserved groups in remote areas, and to socially excluded groups, such as the poor, the indigenous, and the estate population. Specific strategies for these hard-to-reach groups were carried out through mobile teams and village health workers, with basic health care provided, including antenatal care, delivery, postnatal care, and family planning. UNICEF and WHO, through the Alma Ata Declaration for Primary Health Care in 1978, supported these outreach strategies, while the World Bank and UNFPA helped support better health facilities (separate MCH/FP block) and training of MCH personnel (doctors, nurses, and midwives) in specialized areas of maternal and child health and health education.

Other supportive factors

Planning and implementation of health policies and programmes in Malaysia has been multi-agency and multisectoral with coordination by the Economic Planning Unit (EPU). Health policies and strategies within national developmental plans have been based on a broad stakeholder consultation, that includes NGOs and relevant communities. An integrated approach has enabled synergies among sectoral programmes, such as the prevention of diseases, provision of water and environmental sanitation, and better nutrition, to benefit the overall health status.

The conscious effort to promote the advancement of women in formal and informal education, skills training, and micro-credit facilities, has empowered women to make decisions regarding their personal and family matters, including health care and use of health facilities.

The support from professional health associations and medical schools has facilitated the incorporation of new policies and technology into the medical and nursing curricula and in-service training, while the growth of the private health sector has afforded women more choices for maternal care and delivery.

Programmes

Development of a comprehensive and systematic health delivery system

Malaysia's investments in its health delivery system have been systematic and based on community needs with the aim of ensuring that basic health services are available, accessible, and affordable to all. The development of basic health infrastructure through the rural health service programme during the 1960s and 1970s, with links to district hospitals, provided for the availability of basic health care to the rural population of which

maternal and child health care was the major component. The conversion of the three-tier to the two-tier system in the mid-1970s improved availability and coverage, increased accessibility to a broader range of health services, including curative care, and improved quality of MCH services provided by higher trained personnel at the first level of contact. The conversion of the midwife to the community nurse from 1975 illustrates this.

Subsequent upgrading of the health delivery system from the 1980s includes measures such as creating separate blocks for maternal and child health services; upgrading human resources; expanding the scope of maternal and child health services, with specific strategies to reduce maternal mortality; building nucleus concept district hospitals; implementing flexible referrals and availability for emergency obstetric care; increasing accessibility to remote areas and underserved population groups through outreach services; developing the Health Management Information System and Quality Assurance programmes to improve data collection and utilization; and monitoring and upgrading quality of care.

Malaysia has progressed in the 1990s with further upgrading of physical infrastructure of health centres, *klinik desa* (rural health clinics), and district hospitals to allow for wider coverage in urban and rural areas; expanding the scope of services in curative and diagnostic aspects; and development of new programmes for health promotion for all women, the elderly, and adolescents. In the 1990s, low-risk maternity centres were established in urban areas in response to women's preference for institutional delivery, as a result of efforts to provide safe deliveries closer to communities.

Skilled birth attendants and professionalization of midwifery

Access to skilled birth attendance is one of the most important interventions for reducing maternal mortality. This relates both to the availability of sufficient numbers of skilled health personnel, as well as the availability of an enabling environment, such as provision of adequate drugs, supplies, transportation, referral facilities, and supportive management and supervision.

Professional midwifery, with the training and registration of midwives, began in the pre-Independence era. The establishment of midwifery schools and the subsequent upgrading of midwives to community nurses has been a vital factor in the steady increase in 'safe deliveries'. This has been further strengthened by support and supervision of the community nurse by a trained nurse/midwife and public health nurse at the health centre, who attended to referrals. Improved proficiency of midwifery skills and management of pregnancy and delivery complications through updating training curricula, in-service training, standardization of service protocols for management of major causes of maternal mortality, and allowing midwives and nurses to undertake lifesaving emergency procedures strengthened the capacity and capability of nurses and midwives to serve as effective frontline health professionals.

Underutilization of primary health care facilities was overcome by removing traditional social and cultural barriers, personal beliefs, and preferences of the communities through extensive efforts in health education in clinics, at home, in the villages, and among

influential persons in the community to improve 'acceptability' of services. Formerly in Malaysia, pregnancy and delivery were markedly affected by traditional and socio-cultural practices, beliefs, and taboos. Studies on preferences for place of delivery provided data for improvements to in-service training and to the managerial and organizational aspects of services. Reducing waiting time, improving patient flow, timely referrals, and appropriate management of pregnant women with complications, as well as providing more friendly client-oriented services, were among the measures undertaken.

Partnerships between TBAs and skilled birth attendants

Whether countries should invest in training TBAs or whether professional midwives and community nurses should replace TBAs is a controversial topic. Malaysia adopted both options. Realizing that TBAs were actively conducting deliveries in the 1960s and 1970s and that the majority of maternal deaths were among women who delivered at home with TBAs, the MOH began to register TBAs in 1974 and provided training on hygiene. In the late 1960s, the Family Planning Board had enrolled TBAs as community motivators and distributors for family planning products, such as pills and condoms. The continuing popularity of TBAs and the underutilization of peripheral health facilities (midwife clinics and community clinics) called for strategizing of efforts to provide for home deliveries by skilled birth attendants. A study on the practices of, and preferences for, TBAs, as well as reasons for underutilization of government midwives, was undertaken in 1984/5, and the findings were used to draw up a strategy for a more effective utilization of TBAs. This entailed serving the personal needs of the mother and family; mobilizing community and family support for pregnant women to utilize midwife clinics for antenatal care; avoiding harmful traditional practices carried out during pregnancy and delivery; and supporting government midwives during home deliveries and accompanying women to hospitals when referred for pregnancy checks or delivery.

TBAs were also taught to recognize the danger signs of pregnancy and delivery, to inform women and families on the colour coding system, and to encourage them to come to clinics monthly for updates and social visits. They were also allowed to carry on harmless traditional practices, such as reciting prayers and postnatal massage. Conversely, government midwives were given in-service updates on the colour coding management guidelines, management of complications of pregnancy and delivery, emergency procedures for maternal and newborn survival, and techniques to improve their communication, cordiality, and friendliness with TBAs, families, and the community. This partnership strategy was successful, as evidenced by the rapid decline of deliveries conducted by TBAs, the rise in hospital deliveries, and the acceptance of TBAs by professional midwives and nurses. By 2000, just 4,500 out of the 530,000 deliveries were carried out with the assistance of TBAs, compared with 20,000 of the 501,000 births in 1985.

Risk approach in maternal health care

Maternal death investigations in the mid-1970s revealed that the majority of deaths occurred at home, and involved delivery by TBAs, and that more than 80 per cent were

due to delay in seeking professional help and to improper management of deliveries resulting in post-partum haemorrhage, eclampsia, trauma/injury, and infection. Poor acceptance of government midwives, especially in traditional *Bumiputera* communities, and lack of competence in lifesaving skills to deal with emergency situations and serious complications of pregnancy and delivery were major constraints. Hence from 1979, Malaysia took steps to work on maternal mortality reduction strategies systematically through the 'Risk Approach', which began as a partnership initiative with WHO.

Krian district in Perak, the district with the highest reported maternal mortality in Peninsular Malaysia in 1979, was chosen as the 'field laboratory'. Baseline studies were carried out to identify the causes and contributory factors of maternal deaths cutting across individual and personal factors, health services, and community factors, to obtain reasons for delays. Based on the findings, a detailed problem analysis and prioritization of problems where interventions could be of most help was done. This was followed by the formulation of appropriate intervention strategies.

In order to plan for a more organized and effective management of prenatal care, a system was devised, listing the most commonly occurring risk factors underlying the identified problems. This evolved into a colour coding system for prenatal assessment which defined the level of care and category of health personnel required for each pregnancy. Cut-off points were determined for triggering off action and service protocols drawn up for management of major causes of mortality. Doctors, nurses, and midwives or community nurses from hospital and community health facilities were provided in-service training to improve their midwifery life skills while a more systematic and flexible referral system was put into practice to avoid delays in referrals and to cater for cases of complications and emergencies.

Community education and advocacy were strong elements of this approach as it was recognized that pregnancy and delivery are inextricably linked to the socio-cultural and traditional environment of the family and community. These included: (i) focused health education to women and their families to seek early care and to recognize the danger signs of pregnancy and delivery; (ii) appointing women who had undergone serious pregnancy or delivery complications as community motivators; (iii) mobilization of community resources for emergency transport; (iv) home help and financial assistance for needy families; and (v) advocacy by influential persons in the community, including district and village religious leaders.

A National Seminar on Risk Approach in 1987 resulted in many of the strategies being adopted into the national programme. The 'Risk Approach' in maternal health in the Malaysian context thus became a system designed for the early identification, appropriate management, and timely referral of pregnant women according to their assigned colour codes. This colour coding system devised for prenatal risk assessment is done in full recognition of the fact that all pregnant women are at risk, that it is not possible to accurately predict risk, and that predicting risk does not necessarily lead to the desired outcome. In the Malaysian context, however, this system is designed to 'activate' care for pregnant women, especially those with pregnancy complications and to maintain an alert system for preventing and avoiding possible causes of maternal mortality that may arise,

especially from delays. The Risk Approach hence aims to give care to all pregnant women but more to those in need. It was further augmented through insights gained from the methodology arising out of WHO's District Team Problem-Solving Approach (Box 5.2).

Box 5.2 DISTRICT TEAM PROBLEM-SOLVING APPROACH

Before the 1980s, collaboration between the hospital and health units had been unsatisfactory. Hospital staff did not think that they were part of the maternal mortality problem, because most deaths occurred at home and health units (community clinics and health centres) were blamed for not taking appropriate action. As more women were referred to hospitals and deaths were occurring in the hospitals as well, the staff had to acknowledge that they too had some deficiencies.

In 1989, WHO approached Malaysia to test the methodology for the District Team Problem-Solving (DTPS) Approach. This methodology was aimed at promoting better collaboration between the health and hospital units, and to foster a culture of teamwork in implementing the 'risk approach' strategies. District teams from hospital and community health units were formed and actions were taken based on problems faced by the district. The team approach first started with reassessing the situation of maternal deaths following each death, through the 'road to death approach', to identify problems and avoidable factors.

Five districts which had some of the highest MMRs were selected and a workshop for members of the hospital and health

units (at the national, state, and district levels) was held to train the team members on this new approach. These teams underwent systematic steps using their case profiles of maternal deaths:

- situational analysis
- problem statement and analysis
- problem analysis
- solutions identification and prioritization
- interventions design, and
- development of an action plan with monitoring indicators.

The teams then returned to their districts and implemented their action plans for nine months to a year after which they then came together again to review their progress and challenges and to refine their plans. This process provided a forum for the hospital and health staff to meet as a team and to discuss common problems and solutions. The teams also became more aware of the factors that influenced maternal deaths, some of which had not been adequately addressed.

About 30 districts in Malaysia have since used this approach and have reported better teamwork and collaboration between the health and hospital units.

Quality Assurance Programme

In the mid-1980s, the MOH began to work on the quality of care, as part of the Quality Assurance Programme and Quality Management System by tracking indicators of quality of care (outcomes) at the national level. These indicators were selected to identify priority areas of health care and services to track their progress, to standardize care, and to identify outliers which may need more targeted efforts for improvements. Although the system was aimed primarily at improving the quality of health care and not maternal mortality per se, they contributed indirectly to improving services provided to pregnant women. Selection of quality indicators was a two-step process of first identifying the indicators and then determining the standard for the indicators. Standards of care were then developed to enable investigation of any outliers. For example, if a district had an incidence rate of eclampsia of 25 per 10,000 total deliveries, which is above the selected standard, an investigation process of all eclampsia cases would have to be done, comparing them to the standards of care and patient factors to determine where the problem lies and what actions need to be taken. This reinforces the remedial or corrective

action, as outcomes of confidential enquiries of maternal deaths are linked to this system.

In the early 1990s, the government introduced a Total Quality Management (TQM) system. The MOH expanded its quality assurance programme to incorporate the key principles of TQM, including developing a mission and vision statement, emphasizing accountability (hands-on approach) for performance, fostering positive provider attitudes, improving client satisfaction, supporting continuous improvement, creating core values (teamwork, professionalism, and a caring attitude), and developing a client charter.

In 1999, the set of national indicators was expanded to include process indicators to enable programme managers to intervene at an earlier point in time to prevent an unwanted outcome. All states have developed a supervisory checklist for these indicators. The process indicators are used as a guide to facilitate feedback and programme refinement. Monitoring and use of the indicators for improving quality of care is done through approaches which include creating functional district planning teams; conducting training to enhance the health staff's ability to review the data in a non-judgmental manner; facilitating the development of local action plans to solve their own problems; and instituting confidential enquiry at the district, state, and national level.

Confidential Enquiry into Maternal Deaths (CEMD)

In order to obtain a profile of the causes and contributory factors of maternal deaths, a system of investigation of maternal deaths was instituted in the mid-1970s. Deaths among women who delivered at home and in government hospitals were investigated by midwives and nurses through a maternal death investigation format and the findings were discussed by the district health officer and the state MCH Committee. However, this information was not gathered systematically and in a uniform manner and the data collected were often not used to make programmatic decisions.

As a result in 1991, the CEMD system was introduced. A National Technical Committee, consisting of obstetricians and gynaecologists, anaesthesiologists, paediatricians, pharmacists, and nurses, was established to provide leadership, along with the support of state and district committees. The CEMD process is designed to ensure a timely examination of every maternal death; use an integrated approach that looks at both social and medical causes; review the roles of all personnel involved in the care of the woman; identify preventable factors present in the management of the cases and the constraints encountered; and identify measures to be taken at all levels to address deficiencies in standards of care. The names of patients and service providers are kept confidential, and the CEMD system is seen as a learning process and not a fault-finding or punitive process.

Some of the challenges of implementing the CEMD have included identifying the most important cause of death (both medical and social causes), particularly when death certificates are given by the police for home deliveries; approval for post-mortems which are not culturally acceptable to enhance clinical diagnosis; and getting adequate numbers of trained staff to conduct investigations, particularly in private hospitals.

In 1996, a Knowledge, Attitudes, and Practice Survey indicated that health managers had utilized the CEMD findings to improve the quality of care. For example, 68 per cent of

public facilities and 72 per cent of private institutions changed their practices to enhance communication and transport more effectively through the referral system (Table 5.2). As a consequence of the CEMD findings, an incremental budget was provided for establishing alternative birthing centres and improving facilities in existing health centres; improving communication to facilitate referral and retrieval of obstetric emergencies; conducting national and state training; and improving work processes, including the use of partogram for home deliveries, the maintenance of home-based maternal health records, and the development of clinical protocols. Furthermore, in the early 1990s, many of the maternal deaths that occurred in private facilities were due to insufficient trained staff, or lack of access to blood supply. After reviewing the death audits, the public and private hospitals reached an agreement for private hospitals to move emergency maternal cases to government hospitals. This agreement allowed the private sector to maintain its client base and income while ensuring proper care for patients.

Table 5.2 Service Changes Made by Government and Private Facilities Due to CEMD Findings, Malaysia, 1996

Category of Change	Government Facilities (%)	Private Facilities (%)	Action Taken
Change in practices	68	72	Improved communications, telephones, transport
Training	67	–	Training to address remedial problems
Changes in protocols	61	77	Adjusted in clinical protocols to better fit the local situation
Staffing	44	–	More staff added
Infrastructure	40	68	Equipment upgraded
Budget	30	–	Budget increased to support activities

Insights gained

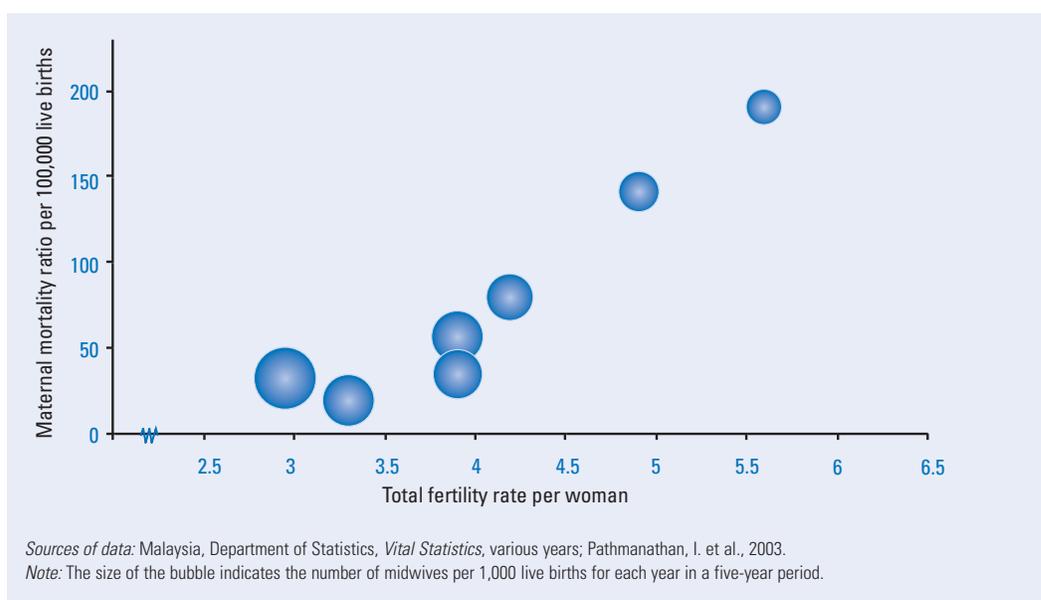
Maternal mortality declined dramatically in post-Independence Malaysia through the formulation of coordinated and targeted strategies that have been implemented in a phased manner with sustained professional commitment at national, state, and district levels. Malaysia has utilized a flexible approach, encouraging local initiatives that are sensitive to the socio-cultural, religious, and traditional environment of women and the community.

An integrated approach

This integration of maternal health into the overall health system, rather than as a vertical programme, has helped to ensure continuity and allowed it to remain high on the national health agenda. The contributory factors of maternal mortality extend beyond health and health-care factors and hence maternal health benefits from multisectoral synergies.

Improved individual welfare and quality of life, as a result of poverty eradication and education programmes, as well as the empowerment of women, have been factors in improving maternal health and lowering maternal mortality in Malaysia. For example, as the total fertility rate decreased over time, the maternal mortality ratio also decreased. During the same period, the increase in the number of midwives per 1,000 live births was also related to the decline in MMR levels (Figure 5.6).

Figure 5.6 As Total Fertility Rates Decrease and the Number of Midwives per 1,000 Live Births Rises, the Maternal Mortality Ratios Decline, Peninsular Malaysia, 1965–2000



Malaysia adopted a systems approach in the design of its maternal mortality reduction strategies for Safe Motherhood. The systems approach was implemented in a phased and continuous manner. This approach has enabled a combination of several reinforcing interventions which have led to changes in policy, clinical practice, community mobilization and education, organizational management, and capacity building. These changes have benefited the whole health system, which in turn provided gains to maternal health.

Enabling skilled attendance at birth at the community level

The initial programme approach for increasing skilled attendance at birth focused on the community level, rather than on institutional deliveries at hospitals. A primary focus was on the poor and underserved rural areas. As a result, public sector investments were made at the community clinics and health centres in order to bring a comprehensive range of services that were provided for the most part without charge, closer to the

community. Upgrading the skills of the community nurses was a key strategy, particularly in conducting home deliveries.

From the mid-1980s, the programme emphasis shifted to a more selective approach. Efforts were made to promote institutional deliveries for pregnant women with identified high-risk factors so that they could access emergency obstetric care, and to prevent delays in referrals and transportation. As a result, institutional deliveries rose dramatically to 95 per cent in 2000, compared with 55 per cent in 1985 (Table 5.1).

The health facilities, particularly community clinics, developed close relationships with the community. These facilities involved community groups and individuals, religious leaders, and key decision makers to mobilize community awareness and support, especially for women and families in need. Mobilizing TBAs and community motivators has enhanced awareness that appropriate measures taken can prevent maternal death.

Innovative programme approaches

Continual improvements to enhance quality through innovation underpins Malaysia's programme success in maternal health. Innovation is supported by regular reviews of progress and refinements of interventions as needed through the processes of quality assurance and confidential enquiry. Maternal deaths are openly discussed in a non-judgmental environment and remedial action taken to address weaknesses. To improve client friendliness, emphasis is also given to enhancing clinical and communication skills. The strong commitment of health professionals, who took ownership of the problems, has contributed to sustaining a quality monitoring system.

Regular monitoring of factors affecting maternal health takes place through the Health Management Information System. At the national and state levels, trend analysis is conducted twice a year through the CEMD to review progress and to make necessary adjustments. In addition, each district has specific indicators for quality that are being tracked and supplemented with ad hoc and special studies.

Future challenges

Sustaining maternal mortality at Malaysia's current low level, and reducing it even further, requires strong commitment, human and financial resources, and innovative programme strategies. Every pregnancy faces risk, thus necessitating continuous alertness and responsiveness on the part of the health system. Continued monitoring of maternal deaths, coupled with improvements in access and quality of care, is essential to further reduce maternal mortality. The shift from direct to indirect causes of maternal deaths requires greater involvement of multidisciplinary professionals and sectors (including NGOs, and religious leaders) to address these more complex factors of maternal mortality.

Malaysia's success in reducing maternal mortality has been the result of a synergy of a wide range of policies, strategies, and programmes. These have addressed the crucial

determinants of maternal mortality, from access to services through socio-economic, cultural, educational, gender, and poverty dimensions. The ability to sustain multi-agency support and to keep maternal health high on the policy agenda will require continued advocacy.

Target groups

Addressing ethnic group disparities in maternal mortality levels is a continuing challenge for health policy-makers. Increased efforts are required to reduce the level of the MMRs of the *Bumiputera* and Indians to that of the Chinese.

Similarly, the high MMR level of migrant women is a continuing challenge. In 2000, some 42 per cent of maternal deaths were to non-Malaysian women. Migrants, especially those lacking proper documentation, often have limited access to maternal health services. Unwanted pregnancies, especially among migrants, have resulted in attempts to abort pregnancies through medication or traditional means, self-conducted deliveries with no prenatal care, and abandonment of newborns. There is a need to target those in need with a full range of reproductive services and information, and there is also a responsibility to provide for pregnancy and delivery care for migrants and other high-risk vulnerable women in a humane and acceptable manner.

Implications of delivery trends

Over time, preferences have changed markedly from home to institutional deliveries in government and private health facilities. There is a need for establishing more alternative birthing centres, whether as separate facilities, or as an expanded concept of health centres, to provide for safe deliveries closer to communities and to prevent overcrowding of maternity wards/units of hospitals. These facilities will need to deliver the full range of maternal and perinatal services, including family planning, management of abortion complications, and counselling. They should be staffed by skilled professionals, be adequately equipped for basic essential obstetric care, and have provision for referrals.

A comprehensive maternal and newborn services package

The close relationship between maternal and newborn health calls for the development of a comprehensive maternal and newborn package of services for continuity of care and the facilitation of appropriate interventions for the survival of women and their newborns. Health professionals, such as midwives, nurses, and doctors, must be equipped with the knowledge and skills for emergency care of newborns, and all health facilities should be provided with the necessary equipment and drugs.

Enhancing informed decision making

The rise in educational levels of Malaysian women, together with their improved socio-economic status, has empowered them to make their own decisions and choices regarding health care, delivery, and family planning. Hence the health sector has to be prepared to meet clients' expectations and provide them with information necessary for

informed decision making. The initiatives of the 1990s in strengthening primary care, training specialist doctors for family planning, and promoting telehealth and telemedicine applications were efforts geared towards the preparation of an informed and knowledgeable society. Good use of information and communications technology, and sharing of its benefits with others, can lead to changes in health-seeking behaviour and healthier lifestyles.

Improving maternal health indicators

Maternal deaths have become relatively rare events in Malaysia. However, there is a need to ensure the quality, accuracy, and reconciliation of data obtained from the civil registration system, including conciliation of the data with those from CEMD. For analytical purposes, it would be helpful for both the adjusted and unadjusted annual maternal death figures to be made readily available. Moreover, regular and detailed reporting of contraceptive prevalence rates, including by method of contraception used and population subgroups, would provide a more comprehensive profile of maternal health.

