



MDG 4

Reduce Child Mortality

Malaysia's infant and child mortality rates have declined dramatically over the past three and a half decades since 1970—even in that year, levels were much lower than those currently prevailing in most of South Asia and sub-Saharan Africa. Current infant and child mortality rates, at 6.2 and 8.6 respectively per 1,000 live births in 2002, are now comparable to those of highly developed countries (Box 4.1).

The improvement of child health and the reduction of child mortality have been national development goals ever since the First Malaysia Plan, and the policy vision of good health has been supported by a range of programmatic interventions. Medical advances, including vaccines and oral rehydration for the treatment of diarrhoea, have been made widely accessible, even in rural areas, through the country's primary health care system. These advances, together with progressively increased access to clean water, improved sanitation, and better child nutrition have been the key determinants. The impact of these factors has been reinforced by other public sector programmes to reduce poverty, increase literacy, and provide modern infrastructure, especially in rural areas.

In Malaysia, health sector programmes have been integrated with other sectoral programmes, in particular, rural development, infrastructure, water and sanitation, housing and agriculture. National development programmes have in turn been enhanced by the development of rural health services that have provided ever greater access to basic child health care. An extensive network of health centres and clinics was supported by trained midwives and other health workers, and delivered through an integrated maternal and child health (MCH) programme. The availability of child health services as an integral part of the MCH and rural health services, including the components of control of communicable diseases, immunization and treatment of diseases, provides for a broad package of interventions, both preventive and curative, that are essential for child health and child mortality reductions.

Trends in infant and child mortality

There has been a huge reduction in child mortality over the past three and a half decades. Malaysia's under-5 mortality rate (U5MR) declined from 57 to 17 per 1,000 live births between 1970 and 1990 and to 9 in 2000 (Table 4.1 and Figure 4.1). This represents a reduction of 85 per cent in three decades. The reduction in infant mortality over the corresponding period was of much the same magnitude.

The MDG target for child mortality is to reduce the level by two-thirds between 1990 and 2015. In Malaysia, the U5MR fell by just under one half between 1990 and 2000 (Table 4.1). Malaysia has thus achieved the low levels of most highly developed countries, and is highly likely to achieve the MDG targets well before 2015.

Box 4.1 INDICATORS FOR MONITORING INFANT AND CHILD MORTALITY

In addition to measuring children's well-being, child health and mortality indicators are key to assessments of a country's overall development. Both the under-5 mortality rate (U5MR) and the infant mortality rate (IMR), two of the three MDG indicators, are sensitive outcome indicators of the development process. Almost all deaths in childhood now occur before the age of 5, and the probability of dying by age 5 is a comparable index across population subgroups.

The *infant mortality* rate is defined here as the number of infants dying before reaching their first birthday per 1,000 live births in a given year. Infant mortality is an important component of under-5 child mortality. Not only does this indicator reflect health conditions, but also and critically, it is a robust and sensitive measure of the social, economic, and environmental conditions in which children (and others) live. One reason for this is that the post-neonatal contribution to infant mortality, that is, deaths after the first

28 days of life, is almost entirely due to exogenous socio-economic and environmental factors.

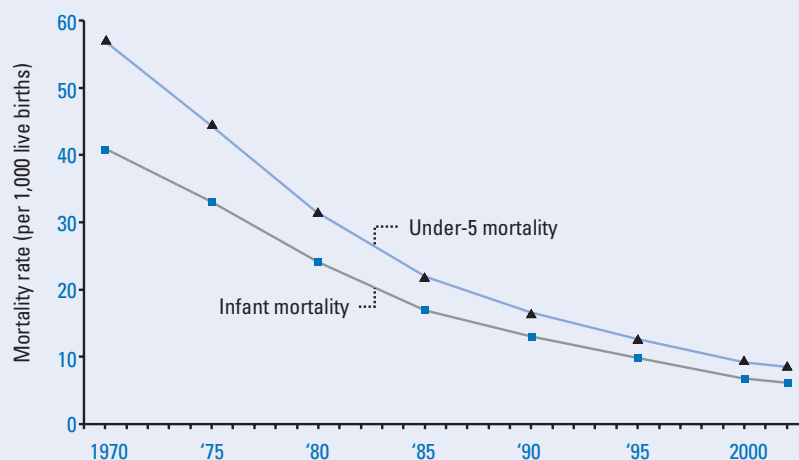
The under-5 mortality rate is the probability (expressed as a rate per 1,000 live births) of a child dying before reaching its fifth birthday. As an indicator, it provides similar insights into a broad range of development factors, and has the added advantage in that it captures almost all mortality of children below age 15.

The *proportion of 1-year-old children immunized against measles*, the third indicator used to monitor the MDG of reducing child mortality, is the percentage of children under 1 year of age who have received at least one dose of measles vaccine. This indicator provides a measure of the coverage and the quality of the child health-care system. Immunization is an essential component for reducing child mortality. Among the vaccine-preventable infectious diseases of childhood, measles is the leading cause of child mortality.

Table 4.1 Infant Mortality and Under-5 Mortality Rates, Malaysia, 1970–2002 (per 1,000 live births)

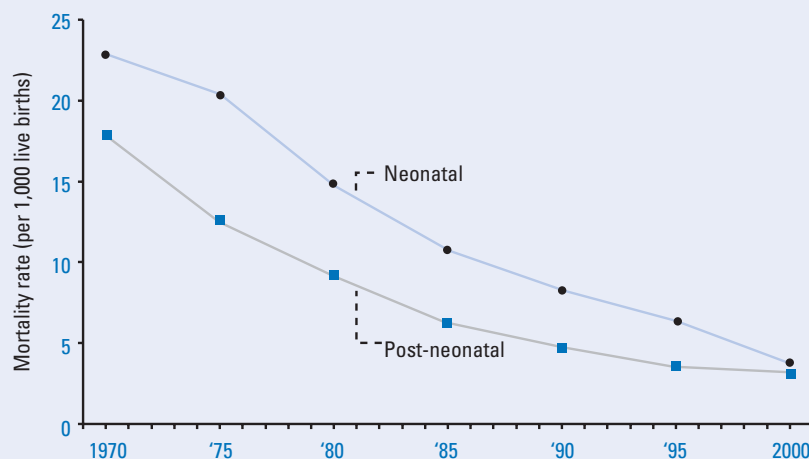
Year	Infant mortality rate	Under-5 mortality rate	Under-5 mortality (1970 = 100)	Infant mortality (1970 = 100)
1970	40.8	57.1	100	100
1980	24.0	31.4	55	59
1990	13.0	16.6	29	32
2000	6.8	9.4	16	17
2002	6.2	8.6	15	15

Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, various years.

Figure 4.1 Infant and Child Mortality Rates, Malaysia, 1970–2002

Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, various years.

The trends in infant mortality reflect the combined influences of neonatal mortality (deaths of babies in the first 28 days of life) and post-neonatal mortality (deaths after the first 28 days of life). Neonatal deaths stem from a different cause of death pattern than do post-neonatal deaths. The former are closely related to maternal health during pregnancy and to circumstances of birth delivery (place of delivery and whether or not the baby is delivered by a skilled birth attendant). The latter are due largely to socio-economic and environmental factors that lead to the spread of infectious diseases and other poverty-related deaths. In Malaysia, there have been substantial reductions in both of these components of infant mortality, although reductions have been somewhat greater for the neonatal component. Currently, both neonatal and post-neonatal mortality account for roughly the same proportion of infant deaths (Figure 4.2).

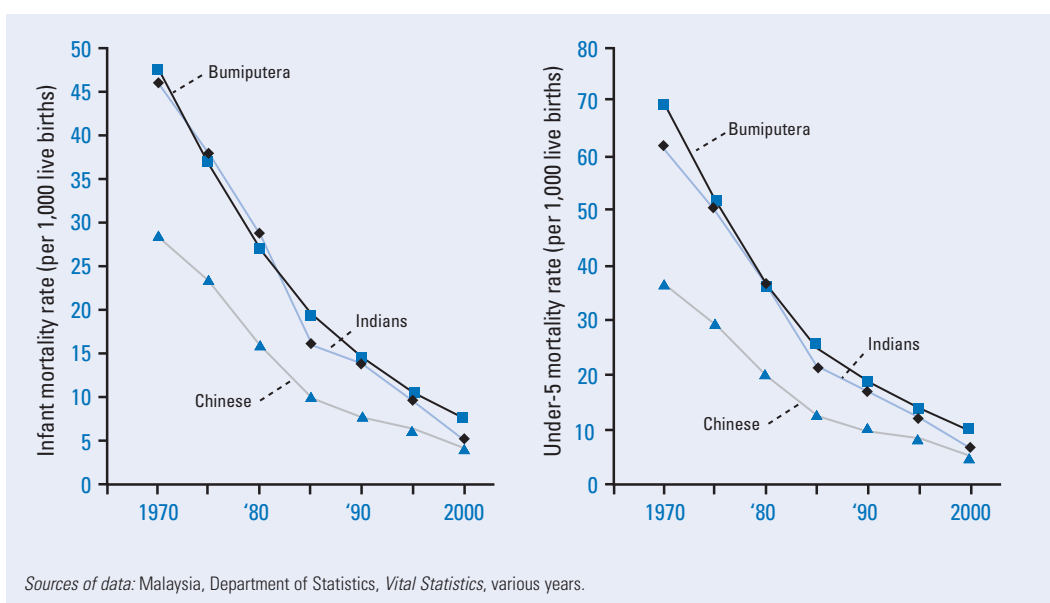
Figure 4.2 Post-neonatal and Neonatal Mortality Rates, Malaysia, 1970–2000

Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, various years.

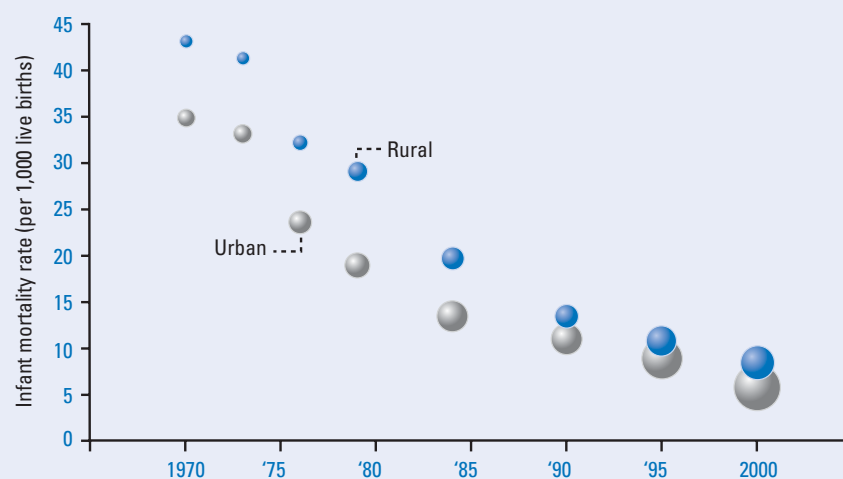
Ethnic and urban-rural differentials

In 1970, there were marked ethnic differentials in child mortality in Malaysia. Thus the level of child mortality of the *Bumiputera* and Indians, at 69.1 and 61.5 per 1,000 live births respectively, compared with a level of 36.6 for the Chinese. These differentials reflected the fact that compared with the other communities, the Chinese were much more concentrated in urban areas, which offered better medical services, and were much less likely to be living in conditions and situations of poverty. However, over the three decades since 1970, there have been spectacular reductions in child mortality for each ethnic group (Figure 4.3). By 2000, ethnic inequities in child mortality had narrowed appreciably.

Figure 4.3 Infant and Child Mortality Rates by Ethnic Group, Malaysia, 1970–2000



The spread of health improvements and broad development to both urban and rural areas is reflected in their respective trends in infant mortality (Figure 4.4). Sharp declines have occurred in both urban and rural infant mortality levels over the period 1970–2000 and absolute differentials have narrowed appreciably.

Figure 4.4 Infant Mortality Rates by Urban and Rural Areas, Malaysia, 1970–2000

Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, various years; Malaysia, Economic Planning Unit, five-year plans, various years.
 Note: The size of the bubble for urban and rural areas indicates mean household income for each year.

Spatial differentials

The spatial pattern of differentials in child mortality in Malaysia relates closely to differentials in levels of development by state; that is, infant mortality rates (IMRs) and U5MRs are lowest for the west coast states and highest for the east coast states (Table 4.2).

Table 4.2 Under-5 Mortality Rates by State, Malaysia, 1970–2000 (per 1,000 live births)

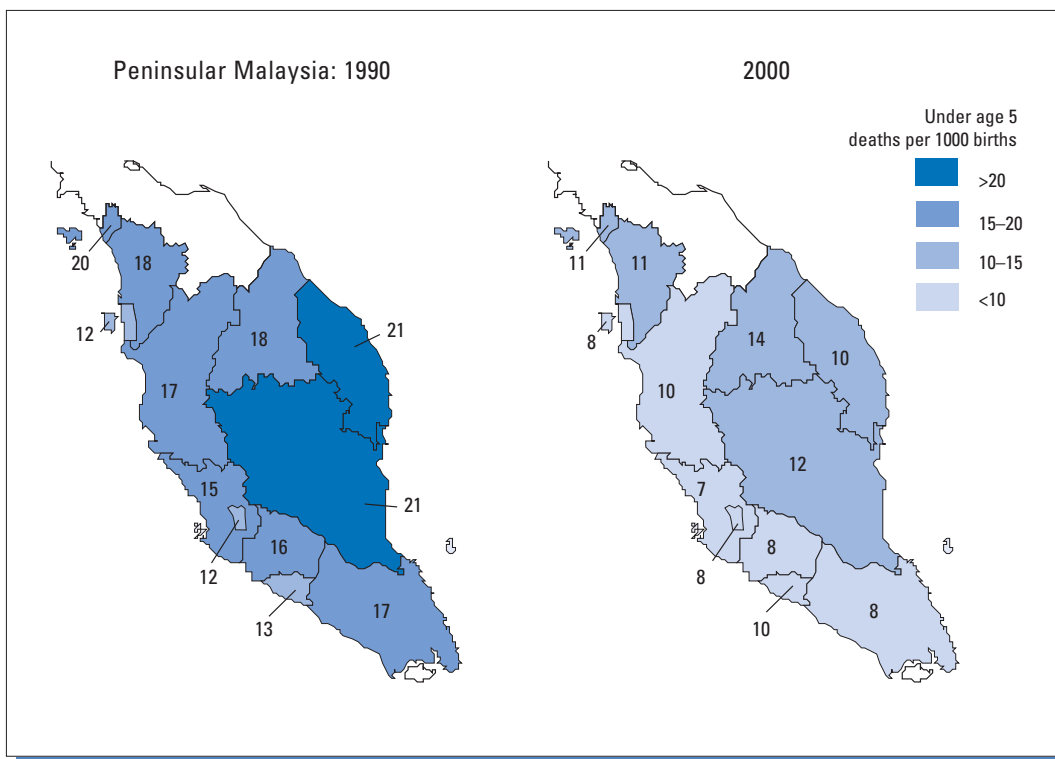
State	1970	1980	1990	2000
Selangor	39	25	15	7.0
Pulau Pinang	47	26	12	7.6
Perlis	47	32	20	11.2
Johor	50	31	17	8.2
Melaka	55	25	13	9.7
Negeri Sembilan	55	29	16	7.7
Kedah	60	38	18	11.4
Perak	60	33	17	9.6
Pahang	64	36	21	11.8
Kelantan	87	41	18	14.4
Terengganu	88	42	21	10.2
Federal Territory Kuala Lumpur	–	16	12	8.2
Malaysia*	57	31	17	9.4

Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, various years.

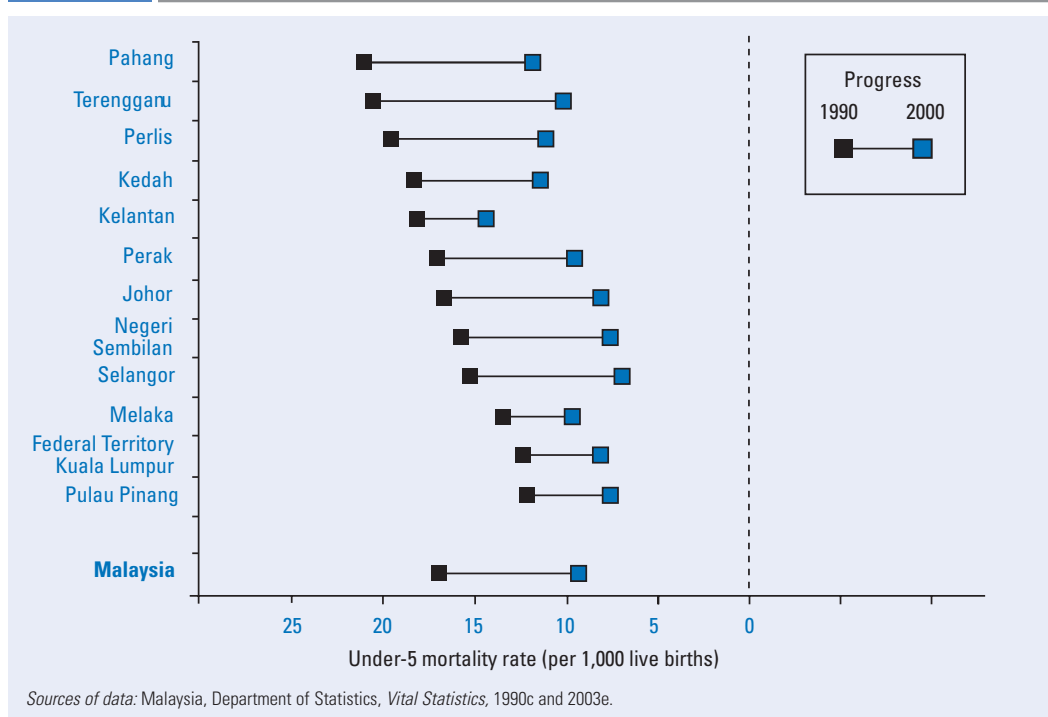
* Because of data problems, no separate estimates are given for Sabah and Sarawak.

However, while spatial differentials in child mortality still persist, all states have benefited from improvements in health services and development programmes. The pattern of improvements over the decade 1990–2000 shows that of the states in Peninsular Malaysia, absolute change was least for states with already low levels in 1990, such as Melaka, Kuala Lumpur, and Pulau Pinang (Map 4.1 and Figure 4.5). Those states with moderate levels in 1990, such as Johor, Negeri Sembilan, and Selangor, had the largest declines. In 2000, Selangor became the state with the lowest level of under-5 mortality with just 7 deaths for every 1,000 births. Child mortality is also around this level in the states of Pulau Pinang, Negeri Sembilan, Johor, and Kuala Lumpur. The north-eastern state of Kelantan stands out as having one of the highest levels of child mortality in 1990 and it made very small gains over the next decade (Figure 4.5). Its child mortality level at 14.4 in 2000 is more than double that of Selangor.

Map 4.1 Child Mortality Rates by State, Peninsular Malaysia, 1990 and 2000



Sources of data: Malaysia, Department of Statistics, *Vital Statistics*, 1990c and 2003e.

Figure 4.5 Child Mortality Rates by State, Malaysia, 1990 and 2000

Evolution of measures to reduce child mortality

The 1970s was the era where testing of the concept of an integrated multi-agency approach was put in to practice through projects such as the Applied Food and Nutrition Programme (AFNP), School Health Programme, and integration of family planning into maternal child health (MCH) services. These initiatives were subsequently integrated into rural health and rural development programmes.

The establishment of the MCH and Health Education Unit of the MOH in 1971, with maternal and child nutrition as one of the major service components, facilitated the implementation of programmes to reduce childhood malnutrition. It was also recognized that improving nutrition status and correcting pregnancy anaemia improved infant survival and prevented low birth weight babies.

The organizational and clinical aspects of the MCH services, which emphasized tools for child growth monitoring, regularizing the immunization schedules for children, and providing for nutrition education in clinics and villages, contributed to reducing child mortality. The first national advocacy campaign for breastfeeding in 1976 was another factor which improved infant survival in the decades to follow.

IMRs and U5MRs declined progressively as urban health facilities, such as hospitals, maternal and child health clinics, and dispensaries, were converted into 'infant relief and welfare centres' which provided health care for infants, and treatment and prevention of serious childhood diseases, such as tuberculosis, anaemia, parasitic and diarrhoeal as well

as nutrition deficiency diseases. Food and vitamin supplements, rolled oats, and powdered milk were distributed to needy infants and children to improve their health and nutritional status which contributed to the decline in infant and child mortality.

The government's pro-poor policies in the 1980s contributed to further reducing infant and child mortality equity gaps. The inclusion of health programmes, particularly MCH, water, sanitation, and control of communicable diseases, complemented the package of services for the poor under the Development Programme for the Hardcore Poor (PPRT).

The Nutrition Rehabilitation Programme, which was specifically undertaken as a pro-poor strategy for treatment of malnourished children under age 5, was another catalyst to improve the overall nutrition status of young children.

Health personnel were retrained in these strategies and efforts were made to reach children in the unserved, underserved, and isolated areas. It was aimed at intensifying coverage of services and giving priority to districts and communities with higher child mortality rates in efforts to reduce state and district disparities. Children under age 5 continued to receive vitamin supplements, and malnourished children, food baskets as a means of improving their nutritional and health status.

The 1990s saw the Convention on the Rights of the Child (1989) and the Declaration of the World Summit for Children (1990) as important driving forces behind the continued priority and increased emphasis on the well-being of children under age 5. Malaysia's First National Plan of Action for Children (1990–2000) led the way for further child development and protection strategies.

With the introduction of Health Information System, Quality Assurance Programme, Perinatal Surveillance, and Action Plan for HIV/AIDS, Malaysia is well placed to further reduce its IMR and U5MR, deaths arising from emerging problems such as home and road traffic accidents, rape, incest, other forms of violence, and HIV, transmitted from mother to children. Other programmes include developments in ICT applications and the upgrading of rural and urban health centres to full-fledged primary care centres offering integrated management of childhood diseases as well as training doctors as Family Medicine Practitioners.

Measles immunization

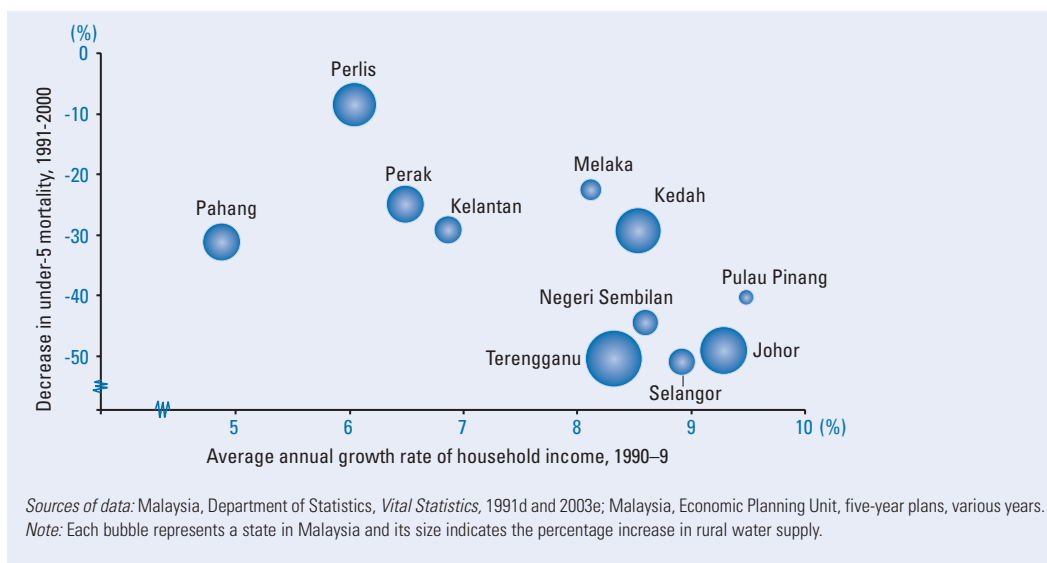
Measles immunization for infants was made a national programme from 1986, as part of the expanded programme of immunization (EPI) for children, following a trial on measles vaccines and its programme implications, conducted by the MOH and supported by the Institute for Medical Research (IMR). Measles vaccine is provided free of charge through government health facilities and is given within a standard immunization schedule specifically to reduce deaths from measles complication of pneumonia in children. Public awareness programmes were necessary in the initial stages for community acceptance of the vaccines, as measles is conceived as a normal childhood infection. The coverage of measles immunization in infants since the start of the national programme in 1986 increased from 70 per cent in 1990 to 88.4 per cent in 2000. This coverage is expected to improve further with the revision of the immunization schedule to provide for MMR vaccine (measles, mumps, and rubella) for infants introduced in 2002.

Enabling environment

Many factors have contributed to reducing child mortality in Malaysia. Declines in infant mortality are due not only to health sector interventions, but also to socio-economic development, including improved education and the empowerment of women through, *inter alia*, the provision of reproductive health services. Women are the main or primary caregivers for children and the family, and thus it is important to improve the knowledge and skills of women in monitoring the growth and development of their children, preventing communicable diseases and malnutrition, and immunizing and giving their children timely professional medical care. The health professionals have displayed high commitment and dedication over the decades with conscious attempts to upgrade health services. In addition, sufficient budgetary allocations were provided to improve infrastructure and ensure programme sustainability.

Broadly, two main groups of factors tend to have a large impact on child mortality. These are, first, general development and growth factors, and second, health intervention programmes. In Figure 4.6, household income has been used to represent the former set of factors, and increases in rural water supply are used to represent the second. The larger the growth in household income, and the larger the increases in rural water supply, the larger is the decline in child mortality.

Figure 4.6 The Larger the Growth in Household Income and Increases in Rural Water Supply, the Larger the Decline in Under-5 Mortality, Malaysia, 1990 and 2000



Multisectoral collaboration and synergies

In addition to macro socio-economic policies which have a bearing on the status of children and women in Malaysia, supportive policies, legislation, and programmes of other agencies and NGOs have supported the call for the survival and health of children, and the protection of their rights, safety, and well-being. These are contained primarily in the policies of the MOH and supported by the Ministries of Education, Women, Family and Community Development, Agriculture and Agro-Based Industries, Human Resources, and Natural Resources and Environment. NGOs and professional bodies play an important role in providing for specialized services and care for children with special needs, as well as raising public awareness about the importance of protecting children's lives.

The role of the Departments of National Unity, Social Welfare, KEMAS, and the private sector in providing for pre-school education for children around the ages of 3–5 has also been supportive. These institutions are provided with facilities to undertake programmes on monitoring children's growth, nutritional education, and supplementary feeding, with the MOH providing the necessary technical and professional support for pre-school health services.

Partnerships with international agencies

Cooperation and partnership with international organizations, in particular in the health sector—World Health Organization (WHO), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), and the World Bank—in supporting health and educational programmes for women and children, have facilitated the government in guiding its policies and direction based on country-specific needs and priorities. The partnership of the government with international agencies, particularly UNICEF and WHO in the case of child health and nutrition, during the early years of programme development in the 1970s and 1980, has been catalytic. Malaysia capitalized on UNICEF's call for Action for Children, International Conventions, and child survival strategy priorities, to raise awareness and advocacy for child health and survival. WHO technologies and guidance have been utilized in national capacity building and in the formulation of child health policy and programme guidelines, especially for immunization and prevention of communicable diseases. Both UNICEF and WHO have provided technical support, as well as small grants, for innovations and operational research. In addition, UNFPA has supported Malaysia's efforts to integrate Family Planning into MCH and Health Education promotion, through training and programme development assistance, while the World Bank has provided loans for upgrading rural health infrastructure.

Malaysia participated at international conventions organized by UNICEF at the highest level to monitor progress of the mid- and end-decade goals for children by countries. Hence, Malaysia has kept abreast of the latest development information and knowledge on programmes and priorities for children, and has shared its experiences on child and maternal survival with countries in Asia and the Pacific.

Participation

In conjunction with the International Year of the Child in 1979, the MCH Unit of the MOH advocated for Child Survival Strategies. New strategies were introduced with budgetary allocations, while existing strategies were streamlined. Strategies were thus formulated for oral rehydration therapy, expanded programme of immunization (measles and tetanus toxoid for pregnant mothers), screening of newborns, and the National Nutrition Surveillance System. Improved growth monitoring charts were devised which also served as a health education tool for nutrition. Emphasis was given to breastfeeding and management of diarrhoea diseases.

Malaysia was a party to the World Declaration on Child Survival, Protection, and Development in July 1991 and ratified the Convention of the Rights of the Child in 1995. This reflected the government's commitment to children and was instrumental in galvanizing the commitment and efforts of the public and private sectors, as well as NGOs, and the community at large. The convening of wide stakeholder consultations, comprising government agencies, the private sector, academicians, professional bodies, NGOs, and individuals, coordinated at the central level by the Economic Planning Unit (EPU) of the Prime Minister's Department, gave the necessary drive to the formulation of a comprehensive policy framework for children based on an integrated intersectoral approach with multi-agency participation.

A National Plan of Action for Child Survival, Protection and Development with the theme 'Caring for the Children of Malaysia' was launched. It described Malaysia's policies, priorities, and actions in promoting the best interests of the child over the period 1991–2000.

Budget allocations

The government's increasing commitment to improving health in general, and child health in particular, can be gauged by the relatively high level of the development budget spent on health (Table 4.3). A sizeable proportion of this budget has consistently been allocated to improving rural health services, especially MCH services. These services have been provided free, or at very low cost, to ensure that they are accessible to the poor.

Table 4.3 Development Budget Expenditure on Health, Malaysia, 1970–2003

	1970	1980	1990	2000	2003
% of budget for health	2.8	1.1	4.3	4.6	6.8

Sources of data: Malaysia, Ministry of Finance, various years.

Programmes

Child mortality reduction through poverty-reducing programmes

The Malaysian government took a proactive stance in promoting health as an essential component to integrate its rural development strategies and programmes, with prevention of communicable diseases, including malaria and tuberculosis, clean water and sanitation, maternal and child health, and nutrition and health education as major health elements.

These elements have also been integrated into national anti-poverty and pro-poor strategies (see Chapter 1). Nutrition education in health clinics and in the community, monitoring of children's growth, management of childhood diarrhoea with oral rehydration therapy (ORT), provision of nutrient and food supplements, and treatment of anaemia in women are some of the interventions implemented to reduce poverty-related child mortality. The lessons learned from the 1970s and 1980s of the AFNP were utilized to maximize health interventions in the planning of poverty-reduction strategies for the hard-core poor from the late 1980s. Priority was given to reducing malnutrition and nutritional deficiencies among young children and women of reproductive age. Nutrition surveillance of children under age 5 and rehabilitation of malnourished children with the provision of food supplements are direct outcomes of the effort to integrate poverty and nutrition rehabilitation.

Health care system development

Malaysia's Child Health Services have been developed as an integral component of maternal and child health to provide for the continuum of care between the mother and the child with the objective of optimizing the utilization of facilities, manpower, and other resources, and providing for a multiplicity of services at each clinic visit. The development of the health care system, in particular the rural health infrastructure, from the 1970s and through successive national five-year development plans, led to child health services being made available at health centres and health subcentres, which are staffed with staff nurses and trained assistant nurses (nurse auxiliaries).

Upgrading of health facilities (health centres) in the 1980s, with separate blocks for women and children, provided for a more woman- and child-friendly environment which eased overcrowding caused by the high MCH case load, and patients seeking outpatient as well as dental care. The revision of norms and staffing patterns of MCH clinics provided for the increase in posting of staff nurses and auxiliaries with conscious efforts to place more appropriately trained personnel at health centres. Staff nurses were replaced in health centres by postgraduate nurses/midwives. This enabled a more comprehensive range of child health services to be provided and supervised by health sisters (nurse supervisors), with medical officers attending to referrals and emergencies. The utilization of nursing manpower in the provision of child health services has been a strong enabling factor in sustaining service delivery, expanding coverage, and reaching out to underserved communities.

Bringing child care closer to communities

Starting from the mid-1970s, the upgrading of the rural health system from a three-tier to a two-tier system of full-fledged health centres and community clinics provided for expansion of coverage of child health care to the rural population and access to a wider range of services (Table 4.4). Through this two-tier system, midwife clinics were upgraded to health clinics in terms of a bigger space to accommodate the new child health services while the existing midwives underwent retraining to equip themselves for their new role as community nurses. This midwife to community nurse conversion programme paved the way for the creation of a new category of auxiliary nurses, and eventually replaced single-purpose midwives and assistant nurses at health facilities.

Community nurses have been equipped with training and skills in basic health care—newborn screening and care, immunization, growth monitoring, treatment of common ailments of childhood, such as oral rehydration for diarrhoea; and providing mothers and families with child health education, including breastfeeding and nutrition. This has been one of the major factors in bringing child health services nearer to homes and communities, and increasing service utilization and acceptability. Providing mothers with a supportive environment to carry out their roles effectively and efficiently, that is with adequate equipment, drugs, supplies and living quarters, as well as supervision by nurses, is one of the key enabling factors.

Table 4.4 Structure of Primary Health Care, Malaysia

	Level of Service	Staff	Services
Three-tier system (1956–66)	Main health centre (1:50,000 population)	Doctor and dental officer	Priority outpatient care and dental care
	Health sub-centre (1:10,000)	Medical assistants and staff nurses	Outpatient screening and MCH care
	Midwife clinics (1:2,000)	Midwife	Home delivery and home visiting
Two-tier system (1966–present)	Health centre (1:20,000)	Doctor, dental officer, medical assistants, and public health nurses	Outpatient care, MCH care, environmental health, food quality demonstration, health education, family planning, and dispensary
	Community clinics (1:4,000)	Community nurse, midwife, or midwives	MCH care, home delivery, home-visiting, minor ailments, and family planning

Comprehensive package of child health services with MCH programme

Child health services have been carefully developed since 1970, with the establishment of the MCH and Health Education Units in the MOH. These units have been responsible for establishing service norms, standards, and procedures, as well as the delegation of roles and responsibilities of manpower for service delivery. The integrated maternal and child health programme approach aimed to synergize efforts to reduce child mortality. Leading causes of child mortality were identified, and strategies for action formulated that included a package of priority services for reducing infant mortality.

These measures were in line with WHO and UNICEF child health priorities in the 1970s and 1980s that focused on growth monitoring, ORT, breastfeeding, immunization, and child nutrition. In the later part of the 1980s and 1990s, strategies were expanded to include an expanded programme of immunization (EPI), management of acute respiratory infections (ARI), integrated management of childhood diseases, and management of specific nutrition deficiency diseases (iron, vitamin A, and iodine).

The implementation of these child survival strategies over the past two decades led to a significant reduction in post-neonatal mortality. Declines in perinatal and neonatal mortality were initially less marked. These are more complex to manage, particularly perinatal deaths that are closely associated with maternal factors, the condition of the mother during pregnancy, and factors surrounding delivery and immediately after delivery. Strategies were hence planned from the mid-1980s onwards to address the urgent and major causes of perinatal deaths, especially from birth injuries, asphyxia, and low birth weight.

Growth monitoring

Monitoring of growth and development of young children provides for a systematic assessment of health and nutrition status and for early action or intervention. Focused and participatory discussions to ascertain slow, or no, weight gain provide the entry point for health education and advice on simple life-saving measures, such as breastfeeding, balanced diets, and oral rehydration for diarrhoea, as well as the opportunity for instituting early management of impending problems and referrals. Growth Curve Charts, introduced in the mid-1970s with further improvements in the 1980s, and made available as home-based child health cards in the 1990s, have been a vital tool for the introduction and acceptance of child survival strategies, including prevention and management of chronic malnutrition, thus facilitating efforts to reduce infant and child mortality.

Oral rehydration therapy (ORT)

Diarrhoeal diseases were one of the leading causes of child mortality in Malaysia up to the 1980s. Through various child health programmes, concerted efforts were made to prevent and reduce diarrhoea-related diseases through advice on breastfeeding, hygiene and cleanliness, food safety, clean water, and sanitation. Recognizing that child deaths as a result of dehydration due to diarrhoeal diseases could be averted with the introduction of ORT, Malaysia became one of the first countries to test its use in the mid-

1980s with the support of WHO/UNICEF. Subsequently with the support of paediatricians and training of doctors, nurses, and community nurses on ORT, it became a basic programme for child health care and reduction of mortality. Oral rehydration salts are manufactured locally in Malaysia in accordance with WHO specifications. Guidelines for clinical management are available for doctors and nurses to ensure their correct usage for rehydration and to overcome any constraints or barriers to their use. Deaths from diarrhoeal dehydration have been reduced significantly since the beginning of the 1990s with the introduction of oral therapy combined with education on the need for early introduction of solids for such children.

Promotion of breastfeeding and code of ethics for infant formula products

The MOH embarked on a national Breastfeeding Campaign in 1976 to promote a culture of breastfeeding, especially to prevent declines in breastfeeding practice. Women and families, in both urban and rural areas, were provided information and educated on the benefits and advantages of breastfeeding, prevention of diarrhoeal diseases from contaminated milk bottles and water, and cleanliness and hygiene. Health education and awareness campaigns were conducted in communities and clinics, as well as through the media. With the introduction of the Baby Friendly Initiative by UNICEF and WHO in the late 1980s, Malaysia extended the promotion of breastfeeding to hospitals. Nurses and doctors actively advocated breastfeeding, discontinued the routine practice of giving bottle feeds to newborns, and made possible the rooming in of mothers and newborns. In addition, a Code of Ethics for Marketing and Distribution of Infant Formula Products was drawn up. First introduced in 1979 as a voluntary code among health professionals and the milk industry, the code has undergone several revisions to improve cooperation among them and to maintain voluntary compliance based on ethics for child health and survival. Difficult decisions were made: for example, the stopping of free milk formulae supplies to hospitals and the distribution of free samples to mothers and health personnel. Malaysia has continued to sustain the Baby Friendly Initiative, which has evolved to Hospital Friendly Initiatives, with certification given to public and private hospitals. Greater involvement of NGOs and women's support groups on breastfeeding continues to raise awareness and practice among rural and urban women.

Nutrition surveillance and nutrition rehabilitation programme for children

In line with the government's thrust to eradicate poverty and to improve the quality of life and health, and in order to plan for more targeted nutrition interventions to reduce poverty-related malnutrition, the MOH undertook a Nutrition Surveillance exercise from 1986 to 1987. Weights and heights of children under 7 were obtained in clinics and community sessions. Clinical examinations for signs and symptoms of chronic malnutrition and nutritional deficiencies were recorded and details of such children kept.

The nutritional surveillance exercise resulted in data on results for age of children, incidence of low birth weight, and incidence of malnutrition of children below age 7. A

report encompassing the major contributory factors and causes of malnutrition also identified 12,000 children under age 5 who needed urgent nutrition and health rehabilitation. With an initial special grant of RM12 million, a Nutrition Rehabilitation Strategy was drawn up, which included the monthly provision of food and nutrient supplements, popularly known as the 'Food Basket' programme. Beneficiaries (children) of this programme were also given regular follow-up checks with basic health care, and their physical and mental development was monitored. This programme, implemented since 1989, is currently made available as part of the nutrition intervention programmes of the MOH.

Acute Respiratory Infection (ARI)

Recognizing that ARI is a leading cause of morbidity and ranks among the six highest causes of death in children under age 5, especially from pneumonia complications, a National ARI Programme was introduced in 1991. The objective was to improve case management of ARI and reduce the resulting mortality. ARI and many other communicable diseases are to a large extent dependent on the health and nutrition status of the child, as well as their immunization status. The total health status of the child was considered and holistic care provided, including immunization and nutrition. This improved case management of current infections led to improvements in the child's overall health status.

The concept of integrated management of childhood illness (IMCI) was implemented in the 1990s by the MOH, with the support of WHO/UNICEF, to further reduce child mortality. IMCI is an integrated approach to child health that focuses on the well-being of the whole child. It aims to reduce death, illness, and disability and to promote improved growth and development among children under 5 years of age.

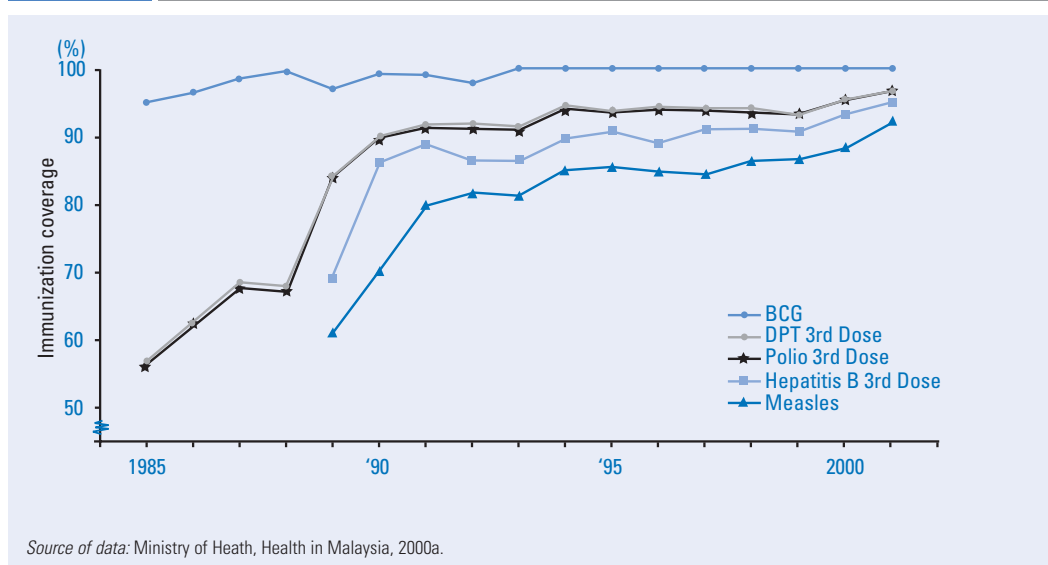
Expanded programme of immunization (EPI)

Malaysia introduced child immunization programmes in a phased and sustainable manner, thus integrating them into existing child health services. With every vaccine introduced, health personnel were trained, a plan of action was drawn up for targeting coverage and purchase of vaccines, and the community was informed and educated on the need for, and benefits of, the vaccine. The programme began with DPT (Triple Antigen) and BCG in the 1960s and expanded to include polio vaccine in 1974, tetanus toxoid for pregnant women in the mid-1970s, measles vaccine in the mid-1980s, rubella for school children in 1987, and Hepatitis B for newborns in 1989. During the 1980s, support for immunization was intensified with public education campaigns and involvement of NGOs and service organizations and participation by the private health sector. The MOH, in partnership with UNICEF, strengthened and improved the storage and distribution systems for vaccines, conducted in-service training for health personnel, and justified sufficient budgetary allocations for purchase of the new vaccines and for widening coverage in low-coverage areas.

From 1990, the expanded programme of immunization was intensified at all levels—national, state, and district—to achieve the goal of universal child immunization.

By 1993, BCG vaccination coverage of infants reached 100 per cent (Figure 4.7). Efforts were also geared to achieving the mid-decade goal of the World Plan of Action for Children for the elimination of neonatal tetanus. Coverage of pregnant women with tetanus toxoid was strengthened and deliveries by trained health personnel increased to eliminate neonatal tetanus from unclean deliveries. The coverage of immunization through routine child health service delivery has been sustained at about 90 per cent in the early years of the new millennium.

Figure 4.7 Immunization Coverage of Infants, Malaysia, 1985–2001



Insights gained

Commitment to long-term investment

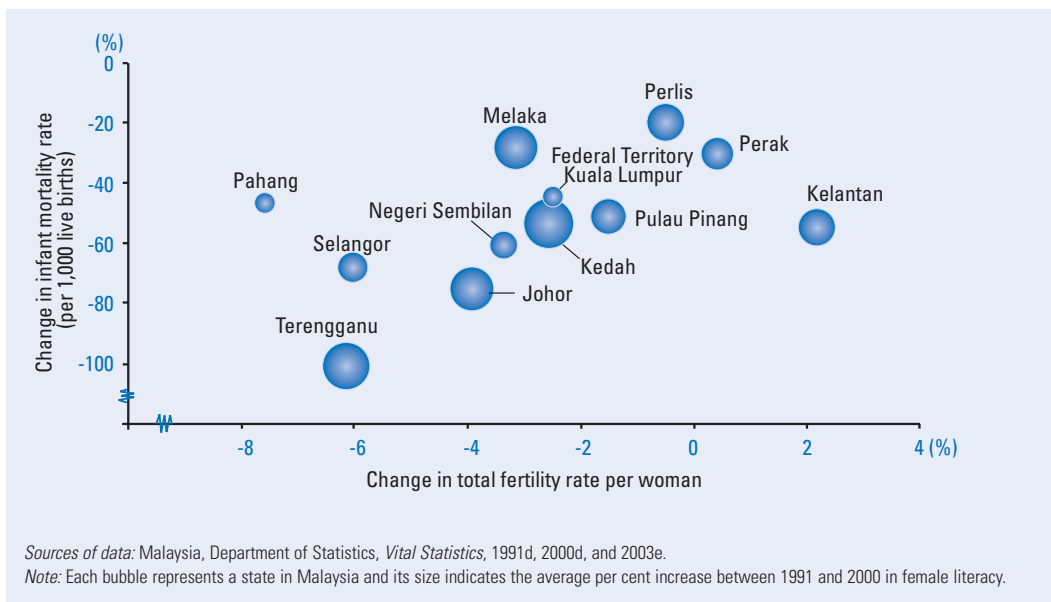
Reductions in child mortality require long-term investments. Continued efforts in all aspects of health-service delivery are essential to ensure health personnel have the necessary training and skills, and access to appropriate drugs, supplies, equipment, referrals, and other support.

Malaysia has invested in upgrading pre-service training of auxiliary nurses, midwives, and community nurses with skills in giving immunization, growth monitoring, treatment of minor childhood ailments, and basic newborn care. This has enabled basic childcare to be made available at the peripheral level nearest to families and communities—a service which was not available prior to the mid-1970s. Similarly, investments have been made in providing postgraduate public health training to nurses and midwives to enable them to provide a higher level of service for children as well as to supervise nurses.

Ensuring universal primary health care coverage and the enrolment of all girls and boys in school, coupled with targeted nutritional programmes for the poor, has reduced infant and child mortality. Investments in maternal education have affected nutritional status and led to full use of the available health-care services. This has been reinforced by better educated mothers, who typically take care of the health and nutrition of their children, having greater awareness of the importance of health-care services and making more demands for them.

Improved education (see Chapter 2), coupled with higher female labour force participation, has led to changes in demographic behaviour that have been conducive to lowering child mortality. In particular, Malaysian women now marry at much later ages than in the past, and have fewer and less closely spaced births. The Malaysian evidence shows that the larger the decline in fertility (total fertility rate), the larger the decline in infant mortality, taking into account increases in female literacy (Figure 4.8).

Figure 4.8 The Larger the Decline in Fertility Levels and Increases in Female Literacy, the Larger the Decline in Infant Mortality, 1991 and 2000



Systematic implementation

Malaysia's approach to reducing child mortality has been done in a purposeful and systematic manner. Initially, this involved identifying specific strategies to effectively reduce a major cause of infant or child mortality, and subsequently implementing them within the existing health system. This was done utilizing the available human resources, who were provided with specific training and support. The first approach adopted was to implement the child survival strategies which would lead to a reduction of post-neonatal deaths—from immunizable diseases (diphtheria, whooping cough, tuberculosis, polio and later on measles), and from diarrhoea diseases for which oral rehydration and breastfeeding are life savers. At the same time, concerted efforts were made to reduce childhood malnutrition and nutrition-deficiency diseases, for which a multisectoral integrated approach was utilized. This was followed by strategies to reduce specific nutritional deficiencies, such as iodine and iron deficiency.

Future challenges

Sustaining reductions in child mortality

In the context of relatively low levels of infant and child mortality, strong advocacy must be continued to keep issues of child health on the national agenda. The primary focus needs to be on further reductions of perinatal and neonatal mortality, while trying to eliminate the remaining post-neonatal deaths. The former requires increased collaboration and teamwork between obstetric and paediatric units and more sophisticated technology and equipment for intensive newborn care. Further reductions in perinatal mortality will require greater budgetary and other resources. Improved use needs to be made of data from the prenatal audits, linking them to improving the care of women, particularly during delivery.

Increased efforts in intersectoral participation and collaboration are required at all levels, especially in strengthening linkages between poverty reduction, child malnutrition, and infection. Health personnel have to review their strategies to cover hard-to-reach disadvantaged target groups. Identification of poor and underserved households needs to be made.

Reducing inequities

Though infant and under-5 child mortality rates have declined markedly, some sharp disparities still exist among states and the major ethnic groups. These differentials reflect differences in the levels of development, coupled with differentials in access to health services between urban and rural areas. Reducing the disparities remains a challenge. Equity in access to services is dependent on the availability of health infrastructure; trained and skilled manpower; adequate vehicles, equipment, drugs, and logistic support; and above all, financial resources. Even more complex will be issues of access related to

socio-cultural, religious, and traditional constraints that require sensitive and more client-oriented and friendly approaches.

International migration

The effects of in-migration, and the influx of foreign workers and their families to Malaysia, on health patterns, need to be carefully monitored. Migrants, often coming from neighbouring countries with less developed health systems, may bring with them diseases that can easily spread to children, such as tuberculosis and malaria. In addition, birth deliveries conducted by unskilled birth attendants run the risk of increasing infant (and maternal) mortality among migrant communities. The issue of providing health services and programmes to targeted groups including migrant communities, especially in the relatively higher mortality states of Sabah and Sarawak, needs to be addressed.

Financial resources and health care costs

Malaysians currently enjoy public sector health care, which is heavily subsidized, especially for government servants, and almost free for those with limited means. With the rapid growth of the private health sector, particularly in urban areas, people have been able to exercise their choice of health care. Only those who can afford, or are covered by health insurance schemes, utilize the private sector. Rising expectations and the greater demand for specialist services, even for primary care, will lead to increased costs for, and a heavier burden on, the public health sector. For the future, the private sector needs to consider cost-sharing schemes, or models for a shared responsibility for health care. Some private hospitals have already begun to collaborate in national initiatives, such as the Hospital Baby Friendly Initiative. Cost-sharing mechanisms can also be implemented for a win-win situation. A start was made with the Hepatitis B immunization for newborns and such schemes can be explored for other services.

Improving the quality of care

Further upgrading of health centres and district hospitals from the 1990s in terms of physical infrastructure; diagnostic and laboratory facilities; equipment; drugs and supplies, as well as transportation and telecommunication facilities in health clinics, will improve the quality of services at the primary level. Monitoring through the Health Management Information Systems and specific mechanisms, such as perinatal audits and the quality assurance programme, will provide for refinements of strategies to further reduce perinatal and neonatal mortality and nutritional deficiencies.

Improving child mortality statistics for Sabah and Sarawak

While civil registration statistics for Peninsular Malaysia are complete and reliable, those for the more sparsely populated states of Sabah and Sarawak, especially of child deaths, are incomplete. Despite the fact that civil registration of births and deaths is compulsory, deaths of Malaysians occurring outside of the urban and semi-urban areas are incompletely reported.

There is a need for more systematic and sustained reporting in the states of Sabah and Sarawak, especially for the indigenous communities whose levels of mortality are likely to be the highest in Malaysia. Regular household surveys should be conducted to determine the levels of under-reporting of deaths in civil registration, and to estimate infant and child mortality rates and their correlates. Furthermore, there is also a need to implement measures to ensure the complete coverage of vital events in these two states.