

# Reducing child mortality in India in the new millennium

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Globally, child mortality rates have been halved over the last few decades, a developmental success story. Nevertheless, progress has been uneven and in recent years mortality rates have increased in some countries. The present study documents the slowing decline in infant mortality rates in India; a departure from the longer-term trends. The major causes of childhood mortality are also reviewed and strategic options for the different states of India are proposed that take into account current mortality rates and the level of progress in individual states. The slowing decline in childhood mortality rates in India calls for new approaches that go beyond disease-, programme- and sector-specific approaches.

**Keywords:** infant mortality, trends; child, preschool; infant, low birth weight; infant, premature; health services; child health services, utilization; child nutrition disorders, prevention and control; maternal health services, utilization.

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## Introduction

In 1998, about 2.5 million under-5-year-olds died in India, the highest total of any country (1). India's health goals for the year 2000 included reducing: the national mortality rate for children under 5 years of age to less than 100 per 1000 live births; the infant mortality rate to less than 60 per 1000 live births; and the perinatal mortality rate to less than 85 per 1000 live births. Between the mid-1980s and early 1990s, significant progress was made toward these goals and national targets appeared to be within reach, despite large disparities in mortality levels, rates of decline and child health determinants among the various Indian states. However, recent data indicate that the decline in child mortality rates is slowing. In this study we examine, inter alia, the trend in infant mortality rates since 1981. The data support the hypothesis that the decline in child mortality rates is slowing, and we suggest factors that could be important when formulating child health policy in India over the next decade.

## Has the decline in childhood mortality rates slowed in India?

Several indicators of childhood mortality are used to measure levels and trends, including the neonatal and

postneonatal mortality rates, the infant mortality rate, the child mortality rate, and the under-5 mortality rate. Over the 15-year period before the 1992–93 National Family Health Survey (NFHS), all measures of childhood mortality declined in India at rates slightly greater than the average for other low-income countries, excluding China (2). Fig. 1 summarizes the decline of several childhood mortality indicators measured in the NFHS. The decline in the under-5 mortality rate in India was comparable with those of 20 other countries with Demographic and Health Surveys (DHS) data (3). A comparison of the under-5 rate for India with seven DHS countries is given in Fig. 2.

Another source of infant mortality data is the Indian Sample Registration System (SRS), whose annual estimates are consistent with those of the NFHS (4). The SRS was started in a few states in 1965, with coverage extended to all states in 1970, and tracks births through the use of continuous enumeration and biannual surveys. Infant mortality rates and child deaths are published annually, but not child mortality rates. The continuous registration and survey results are matched and verified in the field to minimize duplication and omission. At the national level, the results are generally believed to be quite accurate. Improvements in the accuracy of the data are likely to have occurred in some states over time, which may underestimate the pace of decline; but this is not likely to affect the estimation of national trends. A 1980 survey into omissions of vital events found that death rates were underestimated by about 3% nationally; by 1985, this had improved to 2.5%.

We have compared SRS estimates of the annual infant mortality rate for the most recent 5-year period (1993–97) with retrospective data going back to 1981 (Fig. 3). Throughout this interval the rate of decline in

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the infant mortality rate tended to stagnate for brief periods, and was often followed by a subsequent rapid decline. During the most recent 5-year period, however, the marked reduction in the rate of decline has been sustained, and the observed estimates (with 95% confidence intervals) are now significantly above the 1981–93 trend line. Based on the longer-term trend, the predicted value for the 1997 infant mortality rate was 63.5 per 1000 live births, whereas the observed rate was 71 per 1000 live births. In terms of numbers, this means that about 200 000 more infants died in 1997 than would have been the case had the longer-term trend continued.

As infant and child mortality rates fall, further gains become more difficult to achieve. However, childhood mortality rates in India are still at elevated levels, and the observed reduction in the decline is not readily explainable. The failure to reduce infant mortality during this period means that India will not achieve its year 2000 health goals.

### Why is the decline in child mortality rates slowing?

#### Determinants of child mortality in India

Child mortality trends, differentials, and determinants in India have been the subject of many studies (5–15). One of the studies attempted to account for the pace of decline in the infant mortality rate over the period 1968–78 and provided a framework for analysing factors that contributed to it (5). These included proximate factors (such as nonmedical factors and medical care during the antenatal period, care at birth, and preventive and curative care in the postnatal period); maternal factors (age, parity, and birth intervals); and household- and community-level factors (water, sanitation and housing). Then, as now, opinions differed as to the relative importance of socioeconomic development and health services in reducing the infant mortality rate. The study concluded that a substantial decline in infant mortality rate is possible without significant improvement in economic development, even though the relative importance of various determinants could not be assessed. It made a case for increased access to a minimum package of essential services that would significantly reduce high infant mortality rates: reproductive health services; perinatal care; improved breastfeeding practices; immunization; home-based treatment of diarrhoea; and timely introduction of supplementary foods. Several other studies laid out intervention strategies and directions based on similar analyses and assumptions (9, 16–19).

#### Income as a determinant of child mortality

The infant mortality rate often serves as a key development indicator, reflecting the combined effects of economic development, technological change, including health interventions, and the sociocultural environment. Several studies have

Fig. 1. Trends in childhood mortality indicators (data from 1992–93 National Family Health Survey)

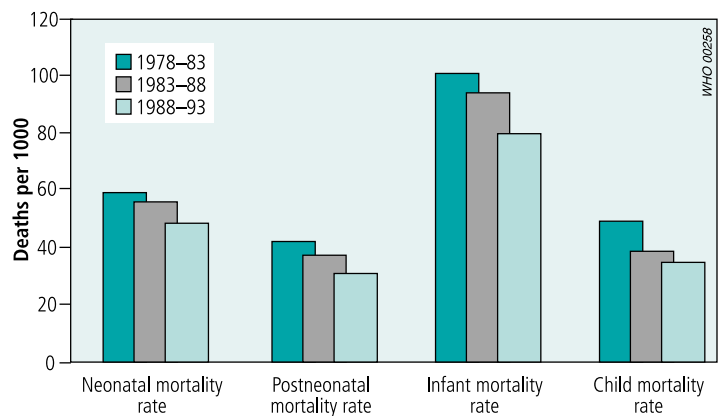


Fig. 2. Trends in under-five mortality, selected DHS countries

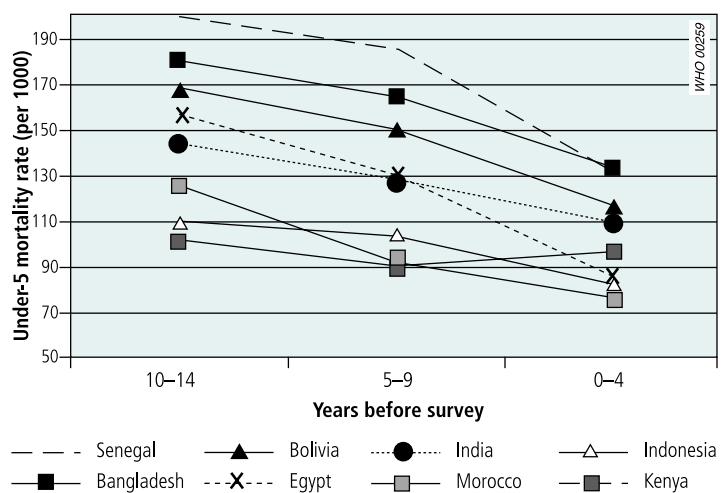
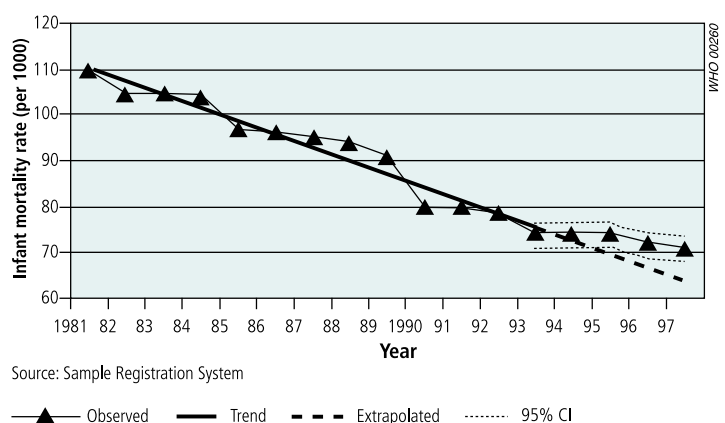


Fig. 3. Trends in infant mortality rate, 1981–97



attempted to evaluate the impact of individual determinants on this rate. For example, studies of infant mortality rate and child mortality trends in Kerala showed that socioeconomic factors explained only a small percentage of the differentials in the rate at the household level (6, 7). The role of other

socioeconomic determinants, such as availability of flush or pit toilets, clean cooking utensils, fuel and ownership of household goods have been examined in a 1998 NFHS report (20).

A recent World Bank report supported the previously documented inverse relationship between per capita income and infant mortality rate in India (15). However, even though increases in income have reduced the infant mortality rate, the income effect is stronger on total fertility rates; and non-income factors play an even more significant role than income in lowering the infant mortality rate. For example, the effect of technological progress on the decline in infant mortality rate was estimated at 20% over the period 1975–90, the greatest effect occurring in 1985–90. However, public health expenditures did not significantly lower the rate. The World Bank report noted that although the poorest states in India performed worst in terms of both infant mortality and total fertility rates, the richest states did not perform best. The best state performers in India had relatively low per capita income levels, but achieved relatively good results for those levels. The percentage difference between the expected infant mortality rate for a given level of income and time and the actual rate gives the “relative performance rate.”

As shown in Table 1, over the period 1980–90 the rate of decline of the infant mortality rate in Indian states varied significantly, as did their relative performance, and under-5 mortality levels in 1992. To fully explain the profile for each state, additional information on programme inputs and recent trends is needed. As with countries in demographic and epidemiological transition, some states in India are finding it difficult to prevent or reverse a slowdown in the decline of the under-5 mortality and infant mortality rates. The decline in infant mortality rate may be slowing because current child survival interventions are more effective at reducing high under-5 mortality rates when there is a relatively large proportion of postneonatal mortality, than when postneonatal mortality is already low and when neonatal mortality plays an increasingly important role. Another possible reason is that the coverage rates of preventive and curative child health services are declining or levelling off.

### **Child health programmes and child mortality reduction**

Table 2 summarizes the available data on selected child health programme indicators in India, grouped by states with similar under-5 mortality rates. The data indicate a positive relationship between reduced under-5 mortality rates and key child health interventions, such as oral rehydration therapy, care seeking for acute respiratory infections, and immunization rates. Data from various sources (multi-indicator cluster surveys (MICS) and (NFHS) show that non-income factors also played a significant role in lowering infant mortality and under-5 mortality

rates in recent years. However, the data do not permit directly attributing mortality declines to maternal and child health programmes.

### **Determinants of perinatal and neonatal mortality**

Although concerted global and national efforts have been made to improve child mortality, especially in the postneonatal phase, less attention has been given to determinants of perinatal and neonatal mortality. Neonatal mortality has gradually increased as a percentage of total child mortality, because of a faster decline in the postneonatal mortality rate (Registrar General India, 1972–95). The SRS and NFHS data referred to above show a similar pattern. As expected, the decline in perinatal mortality rates also lags behind the overall decline in child mortality. Although problems in the perinatal and neonatal phases have been reported in India (21–32), little progress has been made towards implementing large-scale solutions to these problems. Effective interventions to address risk factors are available (such as essential newborn care) and their implementation could result in a rapid reduction in perinatal and neonatal mortality rates (23, 33–35).

### **Maternal determinants**

Perinatal mortality studies point to the link between the health of the mother and the birth outcomes. The high perinatal mortality rates in India reflect the poor status of women, including poor nutritional status (malnutrition and anaemia), low rates of literacy, lack of autonomy and early marriage and childbirth. In addition, low rates of antenatal care, low utilization of obstetric and other health services and large numbers of deliveries by untrained personnel result in poor maternal health and poor birth outcomes, such as low birth weight and prematurity (36, 38–43). Furthermore, the effects of maternal characteristics are not limited to the perinatal period. As Table 3 shows, the under-5 mortality rate also differs significantly by maternal background characteristics. Improving female education (20) and nutrition, and increasing the use of health services during pregnancy and delivery, are all important for reducing childhood mortality rates.

### **Gender differentials**

Gender disparities in health and education are higher in South Asia, including India, than anywhere else in the world, and have been the subject of many studies (36, 38–43). For example, a girl in India is 30–50% more likely to die between her first and fifth birthdays than is a boy; thus, eliminating gender gaps in mortality rates would significantly reduce infant and child mortality overall. One reason for gender differences in child mortality is a preference for sons, and after the first month of life other factors come into play, including environmental and behavioural factors, such as care-seeking practices. Girls are often brought to health facilities in more advanced stages of illness than boys, are taken to less qualified doctors when they are

ill, and less money is spent on medicines for them than for boys (39). A recent analysis confirmed that girls are less likely to receive treatment than boys (42), and a study conducted in Punjab showed that during the first two years of life (the peak years for child mortality), expenditure on health care was 2.3-times higher for sons than for daughters (44).

### Nutritional determinants

Malnutrition is a factor in an estimated 54% of all childhood deaths globally (41). Despite significant progress, more than half of all under-4-year-olds in India are still moderately or severely malnourished, 30% of newborns are significantly underweight, and 60% of Indian women are anaemic (46). Malnutrition has been identified as the main factor retarding improvements in human development and hindering further reductions in infant mortality in India (47). Also, despite differences in sociocultural practices and lifestyles between states, nutritional deficiencies underlie child and infant mortality throughout India. Furthermore, in most urban and rural locations the proportion of malnourished children among scheduled castes and tribes is consistently higher than the average (46).

The major nutritional disorders are deficiencies of iron, vitamin A and iodine. Micronutrient deficiencies influence child survival and the health and development of surviving children, including cognitive development. Although potentially cost-effective and affordable interventions are available, existing food supplementation and micronutrient programmes in India have not achieved significant reductions in nutritional deficiencies at state or national levels, a factor contributing to the slowing decline of childhood mortality rates. The problems that beset micronutrient programmes include shortages in supplies, logistical difficulties and the lack of community motivation and education (47). These shortcomings need to be addressed in order for these programmes to be scaled up and sustained.

Low birth weight is a key predictor of malnutrition and an important determinant of child mortality. National efforts have been made to collect representative estimates of birth weights from institutional and community deliveries, but the findings vary greatly. In a study of fifteen centres across India, the National Neonatology Forum found a prevalence of low birth weight of 33%, of which 32% were premature births. The 1992–93 NFHS found that small birth size — a proxy for birth weight — carries a risk of infant death 2.5-times higher than the risk for average or large birth size. Low birth weight has also been identified as a factor in the retardation of motor, adaptive, social and language development, as well as in the susceptibility of adults to diseases. One of the most detrimental outcomes of low birth weight is growth retardation in young girls, which perpetuates a vicious cycle of female malnutrition through adulthood and into the next generation (48).

Table 1. Decline in infant mortality rate (IMR), infant mortality rate relative performance, and under-5 mortality (U5M) rate for selected Indian states<sup>a</sup>

| State       | Decline in IMR, 1980–90 (%) <sup>b</sup> | Relative performance of IMR (%) <sup>c</sup> | U5M rate in 1992 (per 1000) |
|-------------|--|--|-----------------------------|
| Kerala      | 45                                       | 103  | 32                          |
| Karnataka   | 38                                       | 22   | 87                          |
| Tamil Nadu  | 32                                       | 7  | 86                          |
| Haryana     | 27                                       | – 16   | 98                          |
| Bihar       | 20                                       | 5  | 127                         |
| West Bengal | 19                                       | 5  | 99                          |
| Orissa      | 19                                       | – 34   | 131                         |
| Punjab      | 18                                       | – 5  | 68                          |
| Assam       | 7  | – 11   | 142                         |
| Gujarat     | 7  | – 23   | 104                         |
| Rajasthan   | 2  | – 16   | 102                         |

<sup>a</sup> Only those states for which data were available on all three indicators are shown.

<sup>b</sup> See Fig. 1.

<sup>c</sup> Percentage difference between the expected infant mortality rate for a given level of income and time period and the actual rate.

Table 2. Selected child health programme indicators, 1992–93 (by clusters of states according to under-5 mortality (U5M) levels)<sup>a</sup>

| Cluster of states  | U5M range (per 1000) | Median EPI rates <sup>b</sup>    | Median ORT use rates <sup>c</sup> | Median ARI rates <sup>d</sup> |
|--|----------------------|----------------------------------|-----------------------------------|-------------------------------|
| <b>All India</b>   | 109.3                | 35.4                             | 30.6                              | 66.3                          |
| Assam, Orissa, Uttar Pradesh, Bihar, Gujarat, Rajasthan          | >100                 | 20.2<br>(10.7–49.8) <sup>e</sup> | 22.9<br>(20–41)                   | 62.3<br>(54.3–73.3)           |
| Maharashtra, West Bengal, Haryana, Karnataka, Tamil Nadu, Punjab | 100–50               | 57.7<br>(34.2–64.9)              | 33.3<br>(19.5–74.7)               | 73.3<br>(67.4–88.1)           |
| Goa, Kerala  | <50                  | 64.6<br>(54.4–74.9)              | 39.6<br>(37.8–41.4)               | 81.8<br>(81.3–82.3)           |

<sup>a</sup> Source: NFHS, 1992–93.

<sup>b</sup> EPI rates = % of children fully immunized using Expanded Programme on Immunization schedule.

<sup>c</sup> ORT use rates = % of children with diarrhoea given oral rehydration therapy or recommended use of home fluid.

<sup>d</sup> ARI rates = % of children with cough and fast breathing taken to health facility/provider.

<sup>e</sup> Figures in parentheses are the ranges.

## Conclusions

Infant and child mortality in India have declined substantially over the past 15–20 years. According to SRS and NFHS data, infant mortality declined by 35% over the past 15 years and under-five mortality by 25% between 1978–83 and 1988–93. The available data indicate that non-income factors, such as maternal and child health interventions, have played a significant role in lowering both infant mortality and under-5 mortality rates in India, although the data do not



Table 3. **Childhood mortality rates by maternal characteristic<sup>a</sup>**

|  | IMR <sup>b</sup><br>(per 1000) | CMR <sup>c</sup><br>(per 1000) | U5M rate <sup>d</sup><br>(per 1000) |
|--|--------------------------------|--------------------------------|-------------------------------------|
| <b>Mother's educational level</b>        |                                |                                |                                     |
| Illiterate                               | 101                            | 44                             | 141                                 |
| Literate, did not complete middle school | 63                             | 23                             | 84                                  |
| Middle school completed                  | 56                             | 9                              | 65                                  |
| High school and above                    | 37                             | 6                              | 43                                  |
| <b>Medical maternity care</b>            |                                |                                |                                     |
| No antenatal care                        | 97                             | 54                             | 146                                 |
| Either antenatal or delivery care        | 64                             | 23                             | 85                                  |
| Both antenatal and delivery care         | 44                             | 13                             | 57                                  |
| <b>Place of delivery</b>                 |                                |                                |                                     |
| Public health facility                   | 59                             | 19                             | 77                                  |
| Private health facility                  | 39                             | 4                              | 42                                  |
| Home                                     | 78                             | 40                             | 114                                 |
| <b>Mother's age at birth (years)</b>     |                                |                                |                                     |
| <20                                      | 107                            | 38                             | 141                                 |
| 20–29                                    | 76                             | 35                             | 108                                 |
| 30–39                                    | 91                             | 34                             | 122                                 |
| 40–49                                    | 112                            | 58                             | 163                                 |
| <b>Previous birth interval (months)</b>  |                                |                                |                                     |
| < 24                                     | 130                            | 55                             | 178                                 |
| 24–47                                    | 68                             | 35                             | 3                                   |
| >48                                      | 42                             | 16                             | 57                                  |
| <b>Birth order</b>                       |                                |                                |                                     |
| 1  | 93                             | 26                             | 117                                 |
| 2  | 77                             | 32                             | 106                                 |
| 3  | 72                             | 37                             | 107                                 |
| 6  | 98                             | 40                             | 134                                 |
| 7  | 120                            | 54                             | 168                                 |

<sup>a</sup> Source: NFHS, 1992–93.

<sup>b</sup> IMR = Infant mortality rate.

<sup>c</sup> CMR = Child mortality rate (the probability of dying between first and fifth birthday).

<sup>d</sup> U5M rate = Under-five mortality rate (the probability of dying before the fifth birthday).

permit directly attributing the mortality decline to programme efforts. Furthermore, the decline in child mortality in urban areas has been slower than in rural areas, and as a result urban–rural mortality differentials have become smaller. Under-five mortality has declined because of reductions in the neonatal, postneonatal and child mortality rates. Proportionately, postneonatal mortality has declined more than neonatal mortality, increasing the relative importance of perinatal and neonatal mortality.

This successful record now appears to be in jeopardy. In the past, periods of 2–3 years of slower declines in the infant mortality rate have been preceded and followed by years of very rapid declines. However, the current period of slower decline has lasted 4 years, during which time the rate has dropped by only 3 per 1000 live births. As a result, the infant mortality rate is increasingly departing from the longer-term trend observed in India since 1981, indicating a period of stagnation (Fig. 3). Factors contributing to this slowing decline include the lower

#### Box 1. Policy options for stratified state child health policies in India

##### States with high under-5 mortality/infant mortality rates and slow rates of decline need to:

- Address priority maternal and child health problems by strengthening health systems (e.g. by improving the availability of drugs, monitoring and surveillance).
- Prioritize the essential elements of child health and nutrition services (e.g. by strengthening immunization programmes and other preventive measures; and integrate approaches to clinical management of acute respiratory infections, malnutrition, diarrhoea and other major causes of childhood illness).
- Develop and expand community participation in the prevention and treatment of childhood illnesses (e.g. by strengthening care-seeking, compliance and preventive behaviours at the household level).

##### States that have reached lower levels of under-5 mortality/infant mortality rates but are experiencing a slowdown in reduction in these rates, need to:

- Sustain all of the programmes outlined above.
- Emphasize improved referral services (including obstetric emergencies).<sup>a</sup>
- Emphasize effective strategies for reducing perinatal/neonatal mortality (including strategies for comprehensive reproductive health services and for improving women's nutritional status, and newborn care).<sup>a</sup>
- Implement early child development programmes.

##### States with a large proportion of urban poor need to:

- Include policy options for innovative approaches to health services delivery (e.g. use private providers and NGOs to increase access to quality services).

<sup>a</sup> Where maternal mortality rates are high, attention needs to be paid to reproductive health services, regardless of the level of childhood mortality rates.

social, cultural and health status of women in India. Thus, improving female education and nutrition, as well as increasing the use of health services during pregnancy and delivery, would lower child mortality. The level of child morbidity and mortality is higher for girls aged 1 month to 5 years than for boys, and girls receive less health care; eliminating gender differences in mortality rates would significantly reduce infant and child mortality overall. Malnutrition among Indian children is also very prevalent and contributes to mortality from many causes.

The slowing decline in India's child mortality rate calls for new approaches to the problem of child mortality. Future child health policies should build on past lessons from child health programmes in India, sustain the achievements that have already been made, enhance quality and efficiency and address specific gaps in neonatal care. These goals can be accomplished as discussed below.

First, a new strategic framework for childhood illness, health and development is needed. The government of India needs to reassess the country's current child mortality reduction goals and proceed with integrated approaches for child health and

nutrition. Existing child health programmes and strategies, including initiatives for the eradication and elimination of vaccine-preventable childhood diseases, and specific health and nutrition interventions, need to be examined in the context of a child health framework that goes beyond disease-, programme- and sector-specific approaches.

Second, a better understanding of the main determinants of the health and nutrition cycle for mothers and children — the life cycle — is central to developing more effective strategies for child survival, health and development. Socioeconomic, environmental, behavioural, health and nutritional determinants influence this cycle; the challenges over the next 10 years will be to jointly address the most important determinants and gaps in the cycle with affordable, cost-effective and culturally appropriate interventions. These should take into account both demand and supply factors, and involve local communities in identifying needs and priorities.

Third, because of state differences in infant and child mortality levels and performance in India,

stratified child health policies are needed that take into account state-specific epidemiological and demographic patterns and key determinants, as shown in Box 1. ■

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## Résumé

### Réduire la mortalité infanto-juvénile en Inde au troisième millénaire

En Inde, la mortalité infanto-juvénile a beaucoup diminué au cours des 15 à 20 dernières années. Selon les données de l'Indian Sample Registration System et de la National Family Health Survey, la mortalité a baissé de 35 % chez les nourrissons au cours des 15 dernières années et de 25 % chez les moins de 5 ans entre 1978-1983 et 1988-1993. Les renseignements disponibles indiquent que des facteurs autres que les revenus, comme les interventions en santé maternelle et infantile, ont joué un rôle important dans cette baisse, même si aucune donnée ne permet d'attribuer directement la diminution de la mortalité aux actions des programmes. De plus, la baisse a été plus lente en zone urbaine qu'en zone rurale, ce qui a réduit la différence entre les taux de mortalité en ville et à la campagne. La mortalité des moins de 5 ans a diminué à cause de la réduction des taux de mortalité néonatale, postnéonatale et de l'enfant. En proportion, la mortalité postnéonatale a enregistré une baisse plus grande que la mortalité néonatale, faisant augmenter ainsi l'importance relative de la mortalité néo- et périnatale.

Il semble à présent que ces bons résultats soient remis en cause. Dans le passé, les périodes (2 à 3 ans) de baisse plus lente étaient précédées puis suivies d'années de baisse très rapide ; or la période actuelle de baisse plus lente dure depuis quatre ans, avec une diminution des taux de mortalité infanto-juvénile de seulement 3 pour 1 000 naissances vivantes. On peut donc observer que ce taux s'écarte de plus en plus de la tendance à long terme qui se maintenait depuis 1981, signe d'une véritable stagnation. Les facteurs contribuant à ce ralentissement de la baisse sont liés au niveau social, culturel et sanitaire inférieur des femmes en Inde. Par exemple, les taux de morbidité et de mortalité sont plus élevés chez les filles entre 1 mois et 5 ans que chez les garçons, et elles

reçoivent moins de soins. Par conséquent, c'est en supprimant les différences entre les sexes, c'est-à-dire en améliorant l'éducation et l'alimentation des filles et aussi en encourageant les femmes enceintes à recourir davantage aux services de santé pendant leur grossesse et lors de l'accouchement, que l'on pourrait faire encore baisser la mortalité infanto-juvénile. La malnutrition chez les enfants est également largement prévalente et contribue à accroître la mortalité imputable à de nombreuses autres causes.

De nouvelles approches sont nécessaires pour contrer le ralentissement de la baisse des taux de mortalité infanto-juvénile en Inde. En matière de santé de l'enfant, les politiques devront s'appuyer sur l'expérience des programmes dans ce domaine, maintenir les résultats obtenus, renforcer la qualité et l'efficacité et combler les lacunes propres aux soins néonataux. Pour y parvenir, trois étapes seront nécessaires.

Premièrement, un cadre stratégique pour les maladies, la santé et le développement de l'enfant s'impose. Le Gouvernement indien doit réévaluer les objectifs actuels en matière de réduction de la mortalité infanto-juvénile et agir en adoptant des approches intégrées au niveau de la santé et de la nutrition de l'enfant. Les programmes et stratégies existantes, y compris les initiatives pour l'éradication et l'élimination des maladies de l'enfance évitables par la vaccination, de même que les interventions en matière de santé et de nutrition, doivent s'inscrire dans le cadre plus général de la santé infanto-juvénile, qui dépasse les approches particulières adoptées pour des maladies, des programmes ou des secteurs.

Deuxièmement, il importe de mieux comprendre les principaux déterminants du cycle de la santé et de la nutrition pour les mères et les enfants afin d'élaborer des

estrategias más eficaces visando la supervivencia, la salud y el desarrollo del niño. Estos determinantes son de naturaleza socio-económica, ambiental, comportamental, sanitaria y nutricional. Durante las próximas décadas, la dificultad para los actores de la salud y el desarrollo del niño consistirá en tratar conjuntamente los principales determinantes y las lagunas de este ciclo mediante intervenciones viables, de un buen costo/eficacia y culturalmente adaptadas. Estas intervenciones deberán tener en cuenta la

oferta y la demanda, todo en asociando a las comunidades locales a la definición de las necesidades y prioridades.

Terceramente, teniendo en cuenta las diferencias que existen entre los países en cuanto a las tasas de mortalidad infantil y los resultados obtenidos, se deberán adoptar políticas de salud infantil estratificadas para tener en cuenta los esquemas epidemiológicos y demográficos así como los factores clave propios de cada país.

## Resumen

### Reducción de la mortalidad infantil en la India en el nuevo milenio

La mortalidad de lactantes y de niños pequeños en la India ha disminuido sustancialmente durante los últimos 15-20 años. Según demuestran los datos del Sistema de Registro de Muestras (SRS) y de la Encuesta Nacional de Salud Familiar (NFHS) de la India, la mortalidad de lactantes ha descendido un 35% durante los últimos 15 años, y la mortalidad de menores de 5 años cayó un 25% entre 1978-1983 y 1988-1993. Los datos disponibles indican que factores distintos de los ingresos, como las intervenciones de salud materno-infantil, han contribuido de forma significativa a la disminución de la mortalidad de lactantes y de menores de 5 años en la India, si bien los datos no permiten atribuir directamente esa disminución a actividades programáticas. Además, la reducción de la mortalidad de niños pequeños en las áreas urbanas ha sido más lenta que en las zonas rurales, y en consecuencia el diferencial de mortalidad urbano-rural es más pequeño. La mortalidad de menores de 5 años ha descendido debido a la reducción de las tasas neonatales, posneonatales y de la niñez. Proporcionalmente la mortalidad posneonatal ha disminuido más que la neonatal, aumentando así la importancia relativa de la mortalidad perinatal y neonatal.

Estos progresos parecen ahora peligrar. En el pasado, los periodos de 2-3 años de aminoración de la reducción de la tasa de mortalidad de lactantes se han visto precedidos y seguidos de años de disminuciones muy rápidas. Sin embargo, el periodo actual de atenuación de la disminución dura ya 4 años, durante los cuales la tasa de mortalidad de lactantes se ha reducido en sólo 3 por 1000 nacidos vivos. Como resultado, la tasa se está desviando cada vez más de la tendencia a largo plazo mantenida desde 1981, lo que refleja un verdadero estancamiento. Entre los factores responsables de esa desaceleración cabe citar el menor estatus social, cultural y sanitario de la mujer en la India. Por ejemplo, la morbilidad y la mortalidad es mayor entre las niñas de 1 mes a 5 años que entre los niños, y las primeras reciben menos atención de salud. Por consiguiente, la eliminación de las diferencias entre los sexos mediante la mejora de la educación y la nutrición de las mujeres y de su acceso a los servicios de salud durante el embarazo y el parto reduciría aún más la mortalidad en la niñez. La malnutrición es también muy frecuente entre los niños de la India, y contribuye a la mortalidad por muchas causas.

La menor disminución de la tasa de mortalidad infantil observada en la India es un problema que exige nuevos enfoques. Las futuras políticas de salud infantil deberán aprovechar las enseñanzas sacadas en el pasado de los programas de salud infantil aplicados en el país, mantener los logros conseguidos, fomentar la calidad y la eficiencia, y abordar deficiencias concretas de la atención neonatal. Estas metas pueden alcanzarse del siguiente modo:

Primero, hace falta un marco estratégico para abordar la salud y el desarrollo del niño. El Gobierno de la India ha de reevaluar las actuales metas del país en lo que atañe a la reducción de la mortalidad en la niñez, y abordar con enfoques integrados la salud y la nutrición infantiles. Los actuales programas y estrategias de salud infantil, incluidas las iniciativas de erradicación y eliminación de las enfermedades infantiles prevenibles mediante vacunación, así como determinadas intervenciones de salud y nutrición, deben ser examinados en el contexto de un marco de salud infantil que trascienda los enfoques específicos por enfermedades, programas o sectores.

Segundo, la profundización en el conocimiento de los principales determinantes del ciclo de salud y nutrición de las madres y sus hijos es fundamental para formular estrategias más eficaces para la supervivencia, la salud y el desarrollo del niño. Los determinantes socioeconómicos, ambientales, conductuales, sanitarios y nutricionales influyen en ese ciclo; para la comunidad que se ocupará de la salud y el desarrollo del niño durante la próxima década, el reto consistirá en abordar conjuntamente los determinantes y las deficiencias más importantes de ese ciclo mediante intervenciones asequibles, eficaces en función de los costos y culturalmente idóneas. Esas intervenciones deberán tener en cuenta factores tanto de la demanda como de la oferta, y hacer participar a las comunidades locales en la identificación de las necesidades y prioridades.

Tercero, considerando las diferencias entre Estados en lo relativo a los niveles de mortalidad de lactantes y de niños pequeños y al desempeño en ese sentido, se necesitan políticas de salud infantil estratificadas que reparen en las características epidemiológicas y demográficas y los determinantes más importantes de cada Estado.

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