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NGO Efforts to Prevent Maternal and Infant Mortality in India *

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In recent years there has been a growth of Non-Government Organisations (NGOs) in India. NGOs have been successful in reaching the poor and reducing mortality and fertility. As innovators and experimenters, NGOs have the potential to help operationalize the reproductive amid child health (RCH) Programme. The author discusses strategies for reducing material and infant mortality drawing from past NGO experience. Issues related to the safe motherhood programme are raised. Attention is drawn to the problem of stagnating maternal mortality. Issues related to adolescent sexuality and fertility and sexually transmitted diseases in women and children are discussed. The author urges the government to form new partnerships with NGOs. NGOs should also develop new coalitions and allies to address emerging challenges.

The non-government sector in India

A growing interest among government and donors in health and development initiatives of the non-government sector reflect to a considerable degree, a growing disenchantment with the public system. A vigorous non-government sector, as is present in India, is indicative of the acknowledgement on the part of government that some social functions are outside its legitimate control. Over the years, NGOs have performed several functions to foster pluralism in India.

In the field of health, there has been a significant growth of NGOs in the country over the past two decades. The 1970s witnessed the emergence of a new breed of NGOs -- several of whom took on the challenge of translating the concepts of equity, social justice, community participation, and integrated development, embodied within the primary health care concept. Through community-based, people-oriented programmes targeted to the poor, NGOs were able to demonstrate the feasibility and effectiveness of alternative health care models that were successful in reaching the unreached and serving the unserved (Pachauri, 1994).

The 1980s were characterized by three significant changes in the NGO sector: First, since it had become abundantly clear that fundamental changes in attitudes, values, social structures -- and perhaps political thinking itself were necessary to address questions of social change, empowerment, conscientization, and participation became important NGO strategies. Second, a growing constituency of women's NGOs began to incorporate the gender factor along with class, caste and economic concerns in their grassroots initiatives by combining twin strategies of struggle and development to address the problems of poor women. And third, professionalization of the NGO sector in this period resulted in the development of intermediary organizations that began to undertake several support functions including training, advocacy, research, publication and documentation. There has since been a growing professionalization of voluntarism.

Through these processes, the NGO sector built up a body of knowledge and practice on how to identify the poorest in the community and how to involve them in the process of development. Through innovative training and communication strategies, NGOs demonstrated that illiteracy need not hinder the successful involvement of people in solving their own problems and that women are not only important clients for health and Family Planning programmes, but are also an important resource for development (Sundar, 1994).

The successful experience of NGOs in reducing mortality and fertility resulted in their, developing credibility with government, and NGO leaders began to increasingly interact with policy-makers. NG0s began to assume a higher profile in policy advocacy. In recent years, and particularly since the Seventh Five-Year Plan period, the government has increasingly consulted NGOs in policy formulation. But while NGOs demonstrate several strengths, they also suffer from many weaknesses. NGOs have high motivation and social commitment, sensitivity to the poor, flexibility, and innovativeness -- attributes that have enabled them to develop programmes that are more responsive to the needs of the communities they serve and are, therefore, better accepted and more effective. But their impact is limited and scattered because of the scale of their operations and they have problems of weak management, inadequate technical inputs, isolation, limited professional interaction and financial insecurity (Pachauri, 1994).

As the government moves forward to operationalize the Reproductive and Child Health Programme in India, the need to work in partnership with NGOs will enhance. New modalities for working as allies must, therefore, be developed by government, NGOs, and donors. NGOs have the responsibility, as innovators and experimenters, to field test new strategies -- an urgent need for operationalizing reproductive health services. Maternal and child health services form an integral part of reproductive health

programmes. In the past, several NGOs have focussed their efforts on designing services targetted to women and children.

The experience of some selected NGOs was documented by the author to derive lessons for wider application (Pachauri, 1994). The essence of the NGO approach has been to mobilize, empower, and conscientize people. Through their community-based programmes, NGOs have important lessons to offer, particularly about how to identify the poorest in the community and how to involve their participation in the process of development. The following are some crosscutting themes that characterize successful NGO initiatives:

- NG0s are flexible and responsive to the needs of the communities they serve, particularly needs as perceived by the people.

- An explicit effort is made to listen to and learn from the people, especially women whose voices are otherwise not heard.

- Grassroot workers from the community are used as change agents and are trained to provide services to the unserved.

- A strong thrust of NGO programmes is on empowering women both as users and providers of health services.

- There is a special focus on generating a demand for services, improving service quality and designing services to address user's needs (Pachauri, 1993).

While examining the achievements of government and NGOs in reducing maternal and child mortality, Ghosh identified lack of access to health care by poor women and children as a key factor. She states:

"In contrast to government programmes, NGOs have implemented health delivery strategies that specifically aim to reach the poor and to stimulate a demand for services. Personnel who deliver these services have played an important role. NGOs have recruited field workers from within the community and have made special efforts to involve women. Training of workers has been geared to problem solving. They have been well supported and supervised and have been accountable to the programme as

well as to the community. NGOs have also instituted effective community-based monitoring and surveillance systems to estimate workloads, enable planning of realistic schedules for workers, facilitate monitoring of programme coverage and utilization, and provide outcome indicators to reflect programme impact."

Ghosh attributes success of NGOs implementing maternal and child health services to the three-tiered approach that they have effectively implemented. First level of care is provided by village workers, generally by women who can best deal with health problems of women and children. Second level care is usually provided through mobile health teams that visit villages at fixed schedules. At the third level, in most cases, there is a base hospital where critical problems encountered at the first and second levels are referred and attended to. This strategy lends itself to continuing education, supervision and monitoring and ensures equitable access to health care (Ghosh, 1994).

Health Status of Women and Children
Poverty underlies the poor health status of most of the Indian population, and women represent a disproportionate share of the poor. Women's relatively low status (particularly in the north) and the risk associated with reproduction exacerbate what is already an unfavourable overall health situation.
Since the turn of the century, India's sex ratio has become increasingly favourable to males. This is in contrast to the situation in most countries, where the survival chances of females have improved with increasing economic growth and declining overall mortality. In India, excess female mortality persists up to the age of 30-a symptom of a bias against females. But there are wide disparities in fertility and mortality among states and within states, between rural and urban areas.
Although young child mortality has declined significantly over the past two decades, over 30 percent of all deaths in India occur among children under 5, and despite their innate biological advantages, more girls than boys die. During the past decade the gap between the mortality rates of young boys and girls even widened.
Maternal mortality in India, estimated at 437 maternal deaths per 100,000 live births, results primarily from infection, haemorrhage, eclampsia, obstructed labour, abortion, and anaemia. Lack of appropriate care during pregnancy and childbirth and especially the inadequacy of services for detecting and managing complications, explains most of the maternal deaths.
Reliable data on mortality and morbidity in pregnancy are scarce, and for female morbidity in general, they are almost non-existent. The limited studies available report

high morbidity and malnutrition among girls and women. Emerging evidence indicates that the prevalence of reproductive tract infections is considerably higher than previous figures suggested and that the spread of HIV/AIDS is a concern. Iron-deficiency anaemia is widespread among Indian girls and women and affects 50 to 90 percent of pregnant women.

Female mortality and morbidity rates are linked to overall fertility levels--in India, 3.4 children per woman. Childbirth closely follows marriage, which tends to occur at young ages: 30 percent of Indian females between 15 and 19 are married. Childbearing during adolescence poses significantly greater health risks than it does during the peak reproductive years and contributes to high rates of population growth. Indian women also tend to have closely spaced pregnancies. Some 37 percent of births occur within two years of the previous birth, endangering both the health of the mother and the survival of the infant and older siblings (World Bank, 1996).

Source: World Bank (1996). Improving Women's Health in India: Development in Practice. World Bank, Washington, D.C.

Health status of women and children

The box summarizes the key features of the current health status of women and children in India. While infant mortality has declined, significant regional and inter-state differentials persist. Maternal mortality, on the other hand, continues to be uniformally high since interventions for saying women's lives when threatened by problems during pregnancy and delivery have yet to be seriously implemented. Strategies to address the heavy load of reproductive morbidity among women have, so far, received little or no attention. Gender disparities resulting in low status of women have manifested in adverse sex ratios and have seriously impacted on morbidity and mortality; women continue to bear a heavy burden of ill health in India.

Programmes to reduce maternal mortality

Although Maternal and Child Health (MCH) services form an integral part of the government's Family Welfare Programme, so far efforts have focussed primarily on improving child survival. Maternal health has suffered from relative neglect in this programme. There is, therefore, an urgent need to strengthen maternity care services. The government's relatively recent initiative, the Child Survival Safe Motherhood (CSSM) Programme, an effort to redress this neglect, should receive strong emphasis.

The principal objective of the safe motherhood programme is to prevent maternal deaths. Maternal mortality, a neglected tragedy, affects women who are doubly disadvantaged by both poverty and gender. The causes of maternal mortality are deeply rooted in the adverse social, cultural, political and economic environment of society and especially the environment that society creates for women (Starrs, Anne, 1987). Poor health is a reflection of the disadvantage and discrimination that women suffer from birth through childhood, adolescent and adult life. Therefore, these deep-rooted causes must be addressed through broad-based policies that aim to improve women's health and improve women's status.

In recent years, a growing constituency of NGOs and women activists in India has begun to draw attention to the importance of women's empowerment and reproductive rights for improving reproductive health. They believe that women's voices must be heard by policy planners and that women's views, which have so far been missing in policy debate, must be incorporated within policies and programmes that are designed for them. They demand that women's confidence and ability to make reproductive health decisions should be enhanced and that women's health and reproductive needs should shape the health and Family planning services that they receive (Pachauri, 1994a).

The safe motherhood programme has a three-fold focus: (1) to strengthen community-based maternal health care; (2) to organize referral facilities for the treatment of complicated deliveries; and (3) to institute an alarm and transport system to promptly transfer women who need emergency care to a referral facility for effective treatment.

A major thrust of the programme is to strengthen first level referral facilities to handle obstetric emergencies. The assumption is that the care women receive during labour and delivery often determines whether they live or die. By some estimates, better care during labour and delivery could prevent 50 to 80 percent of maternal deaths (Rodriguez et al., 1985; Walker et al., 1986). Since facilities to handle obstetric emergencies are not accessible to the rural poor, an important first step is to identify institutions within reach and to strengthen them so that they can effectively provide essential obstetric functions (WHO, 1986).

The safe motherhood programme is based on the premise that emergency medical care must be the centrepiece of any plan to ensure that women can give birth safely. The assumption is that primary health care alone is not the solution for preventing maternal mortality in the developing world. Without widespread access to emergency medical care to treat the most common life-threatening obstetric complications, no amount of

primary health care will substantially improve a woman's chance of safely giving birth (Freedman and Maine, 1993). Although the majority of the women give birth without any serious problems, as many as 10 percent of women whose pregnancies appear normal, develop serious complications during labour and delivery (Mountquin et al, 1987). These women need to be moved quickly to health care facilities that are equipped to manage these complications.

If specialized health services are to become a major plank for promoting safe motherhood, it is important to examine past experience with the health care system in India. During the past 40 years, even though the government has successfully established a country-wide network of health services, the vast majority of deliveries in India are still conducted at home by Traditional Birth Attendants (TBAs). As recently as in 1992-93, no more than 16 percent of all rural births were conducted in institutions and as many as two-thirds were delivered by TBAs (International Institute of Population Studies, 1994).

Therefore, there are serious questions regarding the feasibility and desirability of providing institutional care for all deliveries: First, birth is considered a normal event that does not require institutional care in most cases; many women prefer to give birth at home in familiar surroundings. Second, normal deliveries can be safely conducted at home by TBAs provided that they are trained. And finally, in the foreseeable future at least, India is not likely to be in a position to afford institutional care for all births even if this was considered a desirable goal. It can, therefore be assumed that in the years to come, traditional systems will continue to dominate the rural scene in India (Pachauri, 1993).

Therefore, the strategy should be to effectively integrate traditional and modern health care systems so that maternal mortality can be prevented. Integrating systems with vastly different ideologies and cultures is clearly a difficult task. Effective integration requires that health care providers from both systems learn to work together as partners and colleagues. The role of NGOs is crucial in this endeavour. Most government TBA training programmes have had limited success. These programmes have attempted to improve the level of knowledge and skills of the TBA but have done little to bridge the wide socio-cultural gap between traditional and modern practitioners. On the other hand, several micro-level projects, especially in the NGO sector, have shown that when this gulf between the TBA and the formal health system is bridged, TBA training programmes can be much more effective (Raleigh, 1994, Sohoni, 1994).

The role of Family Planning and Safe Abortion Services to promote Safe Motherhood

Expanding family planning services is an important strategy for decreasing pregnancy-related mortality and morbidity. The maternal mortality rate could be reduced significantly by decreasing the number of pregnancies, by spacing births and by delaying the age at first pregnancy. Estimates show that if all women who state that they want no more children were able to avoid future pregnancies, there would be a substantial decline in maternal mortality (Maine et al., 1987).

However, even with vigorous Family Planning programmes, there will always be some unwanted pregnancies, and therefore, a demand for abortion. High levels of maternal mortality associated with clandestine, unsafe abortions can be prevented by enhancing women's access to safe abortion services. The conceptual link between Family Planning and abortion is fundamental. Effective contraception is an important means of preventing unwanted pregnancy and so preempting the need for abortion but in the absence of safe contraceptive backup women will continue to be forced to employ unsafe means for terminating unwanted pregnancies with attendant high maternal mortality and morbidity.

Although unsafe induced abortion is the greatest single cause of mortality for women it is also the most preventable. Of all the major causes of maternal death, those that lead to abortion deaths are the best understood. Women need not die or suffer medical consequences from abortions because abortions do not kill women; it is, rather, unsafely performed abortions, which kill (Maine 1991).

While abortion was legalized in India twenty years ago, it has remained a neglected problem by both government and NGOs. Access to safe abortion services for poor, women, especially in rural areas, remains problematic. NGOs, and especially women's groups, should strengthen and stimulate policy advocacy work to bring this neglected area on the public policy agenda.

Programmes to improve child survival

The child survival programme in India has received considerable attention since the 1980s. Both government and NGOs have been engaged in efforts to improve child survival. While there have been significant declines in infant mortality, the Infant Mortality Rate (IMR), varies significantly between urban and rural areas as well as between regions and states. In areas where significant mortality reductions have been

achieved, further declines in IMR will only occur if additional reproductive health interventions are implemented. So far efforts have primarily been directed at reducing post-neonatal mortality by controlling immunizable and diarrhoeal diseases, and more recently, on managing acute respiratory infections.

Perinatal and neonatal mortality constitutes a significant proportion, 50-60 percent of all infant mortality. Prematurity and growth retardation, important causes of death in the first month of life (the neonatal period), are inextricably related to the health of the mother. Therefore, interventions for improving maternal health must be implemented in order to reduce neonatal and perinatal deaths. Maternal infection and malnutrition which have a synergistic impact on pregnancy outcome are, important risk factors. Almost every Reproductive Tract Infection (RTI) has been associated with prematurity and/or growth retardation (Wasserheit, 1989). Therefore, services for their diagnosis and treatment present a relatively cost- effective intervention for reducing neonatal mortality particularly in areas with high levels of RTIs.

A working group convened by the World Health Organization to examine cost-effective interventions for reducing maternal and infant infectious morbidity concluded that five cost-effective interventions are available, of which the first four concern infectious morbidity related to RTIs. These are prophylaxis against gonococcal ophthalmia neonatorum (eye infections in the newborn), prenatal screening and treatment for maternal syphilis, training of traditional birth attendants, hepatitis B immunization of infants, and immunization of mothers with tetanus toxoid to prevent neonatal tetanus (WHO, 1992).

Maternal malnutrition is an important determinant of pregnancy outcome. Anemia, a major cause of maternal and perinatal mortality, antedates pregnancy, gets aggravated during pregnancy, and the repeated succession of rapid pregnancies and lactation perpetuate the problem. Studies show that women continually bear an enormous burden of anemia. In a WHO study for instance, the mean hemoglobin level reported for all ages and parity groups in India was 7.5 gms/dl or less (Omran and Stanley, 1976). While, the anemia prophylaxis programme in India has targetted women only during pregnancy, waiting to treat anemia until pregnancy, when haemoglobin drops physiologically, ensures that more women will have more severe anemia. Anemia continues to be widely prevalent because nothing is done to improve the nutrition of the young girl, the growing adolescent, the married woman before her first pregnancy, between pregnancies and after pregnancy (Winikoff, 1988). To prevent anaemia, programmes for nutrition education and micronutrient supplements such as iron and folic acid, should be targeted to all women in the reproductive age group and also to adolescent girls.

Programmes for adolescents

Thus far, the Indian adolescent has been bypassed by all health programmes. Health programmes for the adolescent girl have special significance because services targeted to the adolescent girl would not only affect her health, but would also have long-term intergenerational effects by reducing the risk of low birth weight and minimizing subsequent child mortality risks (Gopalan, 1989 and Srikantia, 1989). In most developing countries, while the needs of children and pregnant women are acknowledged in national strategies and programmes, the unique health needs of the critical population 10-19 years of age are usually overlooked or expected to be integrated with services for children or adults. In India, neither services nor research have focussed on the adolescent's health and information needs. In a country in which adolescents 10-19 years of age represent almost one quarter of the population, the consequences of this neglect take on enormous proportions (Jejeebhoy, 1994).

There are several notable features of adolescent fertility in India. First, almost all adolescent fertility occurs within marriage. Second, fertility among adolescents is high, contributing to a significant proportion of overall fertility in the country. Research results suggest that one in ten adolescents, irrespective of marital status, and one in four married adolescents 15-19 years of age are already mothers. In 1981 there were over 13 million currently married adolescent girls and as a result of early marriage and social pressures on early childbearing, there were over three million adolescent mothers in the country. Third, although there are signs of declining adolescent fertility rates, fertility declines among adolescents appears to be more gradual than among older women. Fourth, despite declining adolescent fertility rates, the absolute numbers of adolescent mothers in India continue to increase as a result of population growth. And fifth, complications of pregnancy are systematically higher among adolescents than among adult women (Jejeebhoy, 1994). Therefore, adolescents are an important target population for reproductive health programmes.

In India, programme experience with reaching adolescents is limited. Some NGO programmes have attempted to redress this gap. For example, NGOs working with women have in some cases included programmes for adolescent girls. With the advent of AIDS, several NGOs have begun to implement programmes HIV/AIDS education and sexuality for youth (Ford Foundation, 1994).

Programmes to reduce the impact of HIV/AIDS and STDs in women and children

Since AIDS and STDs can seriously affect the health of the mother and the newborn child, their diagnosis and management during pregnancy is particularly important. Sexually transmitted infections can result in infertility, chronic pelvic inflammatory disease and ectopic pregnancy and can adversely affect child survival by causing pre-term delivery of low birth weight, immature infants. The special risk of HIV in women, particularly during pregnancy, the increasing number of HIV infections resulting from mother to child transmission, the rising numbers of AIDS affected children, and the fact that the AIDS virus can be transmitted through breast milk, are problems that have serious implications for maternal health and child survival.

During the past few years, 30 to 50 percent of AIDS cases globally have been women in the reproductive age group (Hira et al. 1989). AIDS has become one of the leading causes of death in women 15 to 44 years of age in the United States (Chu, Buehler and Berkelman 1990, CDC 1991). Recent research in developing countries shows that sexually active women under 20 have higher risks of HIV infection than older women or younger men; one possible reason could be that the reproductive tract of teenage girls is not as developed and leaves them more susceptible to sexually transmitted infections. Their thinner vaginal mucous membranes are a less efficient barrier to HIV (UNDP, 1993). In developing countries, women are infected on an average 5 to 10 years earlier than men because cultural, economic and physical characteristics place teenage girls at greater risk. The initial presenting symptom of many HIV positive women is an RTI such as vaginal candidiasis (Kelly and Holman 1993).

Reported rates of perinatal transmission for HIV range between 15 and 50 percent (Hira et al. 1989; Ryder et al., 1989; Goedert et al. 1989). Models of child survival show that if the HIV infection rate in prenatal women is 10 percent or 20 percent (a situation common in the large cities of East Africa), the under 5 mortality rate will rise to 118 per 1000 or to 136 per 1000, respectively thereby negating the hardwon gains of child survival programmes over the past decades (Chin, 1990). Data relating to the effect of HIV infection on pregnancy is controversial (Braddick, Kreiss and Embree 1990; Muenz et al 1991): adverse pregnancy outcome has been reported in African countries. Thus, prematurity, low birth weight, intrauterine and intrapartum foetal deaths were more common in HIV seropositive mothers than in seronegative mothers from Zambia, Nairobi and Rwanda *(Ryder et al. 1989; Braddick et al. 1990). Such adverse pregnancy outcome has been attributed to the larger proportion of cases with advanced disease and factors such as inadequate antenatal care, and poor access to treatment (Joshi, 1993).

HIV has been isolated from the fluid as well as the cellular histiocytic component of breast milk (Mofenson, Stratton and Willoughby, 1992) and recent studies have documented HIV transmission through breast milk (Zeigler et al. 1985; Van de Perre et al. 1991). These findings have significant public health implications, particularly for MCH programmes.

NGOs have been on the forefront of action to prevent HIV -- trying to address the multiple medical, social, legal, ethical and policy dimensions of the problem NGOs are working with sex workers, their clients, drug abusers, youth, migrant workers, industrial workers and women. In the years ahead, the impact of AIDS will intensify and the ways in which society responds will affect its spread. Large scale community-based responses will be needed to address a range of sensitive issues such as sexuality, gender roles and family relationships. And since in the foreseeable future, changing sexual behaviour is the only available intervention for its prevention and control, organizations that are close to the people and can work most efficiently with populations that are specially vulnerable, will have an important role to play. As the demands on NGOs and community organizations escalate and these agencies begin to take on a major share of the responsibility for the prevention and control of AIDS and other sexually transmitted diseases (STDs), government and donors will need to develop new partnerships to jointly address the serious social, economic and health consequences of the AIDS crisis (Pachauri, 1993).

Concluding comments

At present, India is in the midst of an epidemiological and health transition wherein diseases of affluence and new environmental and behavioural threats are being added to the already heavy burden of morbidity due to communicable diseases and malnutrition. Multiple factors are involved in India's health transition, including the aging of the population; urbanization and migration; changing lifestyles; and the impact of health interventions.

To respond to these changing needs, NGOs are emerging as an increasingly visible force in the health scene in India. They are increasing in numbers and are taking on additional activities beyond their traditional areas of involvement. In the years ahead, the frontiers of voluntary action are likely to change with changing health needs, unfolding new dimensions of voluntarism. There will be increasing demands on NGOs to become more sophisticated and professionalized. Therefore, a high priority should be to strengthen their institutional capacities so that they can he more effective in their multiple roles in addressing new challenges. For example, the recent shift in policy

toward democratic decentralization in India, with a promise of transfer of power and delegation of authority to districts and panchayats, will provide new opportunities for NGOs to work for the democratization of institutions at the district and village levels. These initiatives require that NGOs develop new allies within the system and form coalitions to broaden the base of political, economic and social participation (Pachauri, 1994).

So far, government and NGOs, have for the most part, operated on parallel tracks even while pursuing common goals. Over time, the relationships between the government, donors, and NGOs have been continually evolving and undergoing qualitative changes. While the tensions and conflicts between them are not easily resolved, a growing interdependence of these institutions in their efforts to address the multiplicity of emerging health and development challenges will require much greater interaction and exchange to find solutions to problems of common concern. With the implementation of a reproductive health approach there is an urgent need to identify new institutional mechanisms to facilitate greater collaboration between government, donors, and NGOs -- mechanisms that can allay concerns about co-opting NGOs and undermining their spirit of voluntarism.

Partnerships must be evolved based on trust as well as on a realistic understanding of the strengths and shortcomings of the government and non-government sectors. In the past far-sighted and well conceptualized policies of government have often been fraught with weak implementation. The government should recognize its limitations and make a concerted effort to forge alliances with a range of institutions including the corporate sector, educational and research institutions, NGOs, panchayats, and most importantly with the people, to achieve its goals. There should be a strong focus to decentralize and devolve power to the people so that their participation is sought in all efforts to improve their quality to life. The involvement of NGOs as partners to achieve these ambitious goals is inescapable. There is an urgent need for government and NGOs to develop modalities for working harmoniously.

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Maternal mortality declined by 38 per cent between 2000 and 2017 Maternal mortality refers to deaths due to complications from pregnancy or childbirth. From 2000 to 2017, the global maternal mortality ratio declined by 38 per cent â€“ from 342 deaths to 211 deaths per 100,000 live births, according to UN inter-agency estimates. This translates into an average annual rate of reduction of 2.9 per cent.Â Infant and young child feeding. Iodine. Vitamin A.Â Most maternal deaths can be prevented if births are attended by skilled health personnel â€“ doctors, nurses or midwives â€“ who are regularly supervised, have the proper equipment and supplies, and can refer women in a timely manner to emergency obstetric care when complications are diagnosed.

This infant mortality effect is an order of magnitude larger than most previous econometric estimates of the impacts of hot days, which have primarily been generated from developed country samples.Â Mean infant mortality in our overall DHS sample is an order of magnitude larger (77 deaths per thousand infants) than all-age mortality in the US and Europe today (8 to 10 deaths per thousand population). Table A1 also shows that these (survey-derived) infant mortality rates tend to be highest in countries with the weakest capacity to generate demographic data (assessed by Mathers et al., 2005).Â 2017. â€œHeat Exposure and Maternal Health in the Face of Climate Change.â€ International Journal of Environmental Research and Public Health, 14(8): 853. In the 1990s, India had the highest infant mortality rate in the world. In 1997, the Indian government introduced the Reproductive and Child Health (RCH) programme to reduce infant, child and maternal mortality. Three years later, India signed the Millennium Declaration adopted at the UN General Assembly, which had as its fourth goal reducing child mortality. The government launched several further initiatives since, with some success, but progress has varied significantly across the country. The challenge. In 1990, over 2.3 million infants died in India before reaching one year of age, the la The annual changes of the infant and neonatal mortality rates are shown in figure 1 for 1965-85. In these 20 years, the rates have decreased year by year, and the declining trend was remarkable. In 1985, the infant and neonatal. mortality rates were 5.5 and 3.4 per 1,000 live births, respectively. Figure 2 shows the perinatal mortality rate (calculated per 1,000 1ive births). in 1985 by motherâ€™s age.Â No pan of this handbook may be copied or reproduced without permissionâ€™of 30 ICFP. I. ,. Preface for English version. Infant and child mortality in India: Levels, Trends and Determinants. New Delhi, India: India country office; 2012. Google Scholar.Â Maternal Education and the Utilization of Maternal and Child Health Services in India. In: National Family Health Survey Subject Reports. 1997. p. 5. Google Scholar. Singh R, Tripathi V. Maternal factors contributing to under-five mortality at birth order 1 to 5 in India: a comprehensive multivariate study. Springerplus. 2013;2:284. India has made extensive efforts to reduce maternal mortality and to increase access to reproductive health care and in some regions much progress has been achieved.During pregnancy, additional energy is required for the growth and maintenance of the fetus, the placenta, and maternal tissues. Maternal micronutrient deficiency predisposes a mother to poor health, including infection, preeclampsia/eclampsia, and adverse pregnancy outcomes such as premature birth and intrauterine growth retardation.Â changes in the health system, maternal and child mortality levels remain unacceptably high which. continue to hinder national potential to improve life expectancy at a faster rate. The maternal and.