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India Issues in Women's Health

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This report was designed to provide an overview of women's health in India and serve as background for dialogue concerning the Bank's assistance in population and reproductive health. The Green Cover report (1993) was prepared by Frances Plunkett, Population Specialist (SA1PH, previously SA2PH), based on discussions with knowledgeable individuals in and out of Government, an extensive literature review, and three background papers authored by Meera Chatterjee, Saramma Mathai, and Marcia Griffiths, Wilma Lynn and Susan Brems. The report was subsequently revised by Anne Tinker, Senior Health Specialist (HDD), based on discussions with the Government of India, a considerable volume of new data (including the National Family Health Survey), and a continuing evolution of the GOI's policy and programs. Richard Skolnik, Division Chief, supervised the report; Indra Pathmanathan, Public Health Specialist, and Catherine Fogle, Population Specialist (SA2PH), provided peer review; and Aruna Chandran, Kirrin Gill, Nandini Ooman, Edna Jonas, and Ruth Utz assisted in the report's preparation.

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EXECUTIVE SUMMARY

1. This document presents an analysis of the main factors influencing women's health in India. It identifies reasonable strategies in light of the health burden and the cost-effectiveness and productivity gains of interventions, within the context of previous and current initiatives. It concludes that focused efforts to improve women's health will result in substantial benefits in terms of human welfare and poverty alleviation, as well as sustainable economic growth.

The Dimensions of Female Mortality and Morbidity

2. While India has made considerable progress in development during recent decades, improvements in women's health, particularly in the north, lag behind gains in other areas. Despite their innate biological advantage, more girls than boys die under the age of 5, and excess female mortality persists up to the age of 30. Overall, the population sex ratio has become increasingly adverse to females. Despite this, as is the case in virtually all countries, overall death rates for females are lower than for males.

3. *General morbidity levels among Indian women* are reported to be high. Emerging evidence suggests that the prevalence of reproductive tract infections is considerably higher than generally recognized, and that HIV/AIDS is spreading at an alarming rate. Nutritional deficiency and iron-deficiency anemia are generally widespread among Indian girls and women. Many women do not realize their full physical growth potential, and are, therefore, at risk of obstetric difficulties and/or delivering low birthweight babies. This perpetuates a vicious cycle: a female child who survives will be disadvantaged from the start and may never escape undernourishment, with consequent detrimental effects on her own general development and reproductive capacities.

4. *Maternal mortality* in India is estimated at 420 maternal deaths per 100,000 live births. This implies that about 15 percent of all deaths among reproductive aged women are pregnancy related. The major medical causes of maternal death are sepsis, hemorrhage, eclampsia, and obstructed labor. The lack of appropriate care during pregnancy and childbirth, especially adequate detection and management of complications, is a major contributor to maternal mortality. According to Sample Registration System (SRS) estimates, illegal abortion is one of the five major causes of maternal deaths. Since the Medical Termination of Pregnancy Act was passed in 1971, the reported number of legal procedures has reached about 600,000 annually. However, the estimated number of illegal procedures, mostly conducted under unsafe conditions, may be at least twice, and possibly, 10 times the number of legal ones.

5. High maternal mortality levels in India are linked to high rates of *maternal morbidity*, which in turn, result in good measure from high prevalence of poor nutritional status and anemia among pregnant women. The caloric and protein intake of most Indian women during pregnancy and lactation averages as much as 25-35 percent below requirements, a situation which is likely to have serious adverse consequences for their health. Anemia during pregnancy increases the risk of maternal morbidity and is a major contributor to maternal mortality. Poor maternal nutrition is also a leading cause of low birthweight babies.

6. Maternal mortality and morbidity are closely linked to *fertility*, since no woman is at risk of maternal death or illness unless she becomes pregnant. The total fertility rate in India is 3.4 children per woman. Childbirth closely follows marriage, which occurs early; over 30 percent of women ages 15-19 are married. Early childbearing not only causes more rapid population momentum but also poses significantly more health risks than in the mid-reproductive years.

7. *Pronounced regional variation* is reflected in demographic indicators, including fertility, mortality and literacy. Substantially unfavorable levels for these indicators in the northern states of Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan reflect well-known socio-demographic contrasts between the so-called 'Hindi belt' and the rest of India. In contrast, the southern state of Kerala has achieved nearly developed-country levels for all of these indicators.

8. *The poor health of Indian women* is a national and individual concern because it affects the next generation through its impact on children as well as productivity at the household level and in the informal and formal sectors of the economy. Improving women's health is also economically efficient, since, within the health sector, interventions to improve women's reproductive health are among the most cost-effective interventions available.

The Sociocultural Context of Health

9. Poverty underlies the poor health status of most of the Indian population. Additionally, sociocultural factors, as well as risks associated with reproduction, help explain the relatively disadvantaged status of women's health. The status of women, particularly in north India, contributes to the unfavorable demographic indicators. Traditional north Indian society is patrilineal. Since daughters require a dowry and leave their natal households after marriage, female children are seen as a liability. Girls are married as young adolescents into households outside their natal villages, their physical movements are controlled, and their contacts with natal kin are limited. In terms of exposure to and interaction with the outside world, as well as their ability to make decisions and control resources, north Indian women are more disadvantaged than women in other regions of India.

10. The *unfavorable situation of women* in India has consequences that include discrimination in allocation of and access to resources such as health care and food, limited education of females and early marriage. In its most extreme form, son preference results in female infanticide and, more recently, sex-selective abortion. This preference is readily apparent in the relative neglect of female children compared to male children.

11. The *nutritional disadvantages* experienced by Indian girls and women in the intra-household allocation of food and the provision of health care are well documented. Typically, adult men and male children are fed first, followed by older women. Given the nutritional demands of childbearing and lactation, this puts women of childbearing age at particular risk. Similarly, male children and adults tend to receive earlier, more and higher quality health care than do females. Expenditure on female health problems also tends to be less, consistent with the general pattern of relatively lower investments in females.

12. Female disadvantage in India is also evident in terms of *education*. According to the 1991 census, only 39 percent of Indian females above age 7 were literate, as opposed to 64 percent of males. The situation was particularly bad in some of the northern states where female literacy was 21-26 percent. However, school enrollment rates for girls show a promising upward trend. Increasing education levels and improvements in health status are closely linked. The more educated a woman is, the more likely she is to want and be able to obtain modern preventive and curative health care, including contraception and immunization; schooling for her children of both sexes and delayed marriage of her daughters.

13. Among girls, *age at marriage* has traditionally been low but is gradually rising. However, particularly in north India, it is still early enough to cut short educational possibilities. Early marriage also exposes girls to the risk of pregnancy before their physical development is complete. This increases the probability of maternal and infant morbidity and mortality.

14. Beginning in childhood, most rural women fulfill multiple *productive functions*, in addition to their reproductive roles and household tasks. Women from most landowning households must carry out extensive unpaid tasks. In landless families, the income of women from agricultural or domestic labor is often the chief support of the household. The strenuous physical labor that women perform, in addition to constrained household resources and men's preferential access to food, contributes to malnutrition among Indian women. Productive responsibilities are hardest on childbearing women. Typically women must work until late in their pregnancies without special provision for rest or food and resume work before they have fully recovered. This results in a cycle of maternal depletion that undermines women's abilities to carry out both productive and reproductive responsibilities.

15. **Health Beliefs.** Allopathic (western) medicine has been added to the traditional text-based medical systems also current in India and the variety of local health practitioners who are patronized. A widespread set of traditional beliefs concerning the nature of health and the causes of diseases underlie the utilization of various systems and practitioners. For example, supernatural intervention or divine retribution may be seen as the cause of several diseases, including measles, tetanus, severe diarrhea, and severe malnutrition. The possibility of complications from 'evil eye' or supernatural interference is considered to be greatest during pregnancy, at the time of childbirth and during the first year of life.

16. In India, *pregnancy* is not generally considered to be a condition that requires medical attention, even in the event of complications. Only a woman who becomes seriously ill can give up her normal work routine. This places pregnant women at increased risk of pregnancy-related morbidity and mortality. Certain attitudes about pregnancy jeopardize women's (and their offsprings') health. For example, certain foods are avoided and a pregnant woman's diet is further limited by beliefs concerning the detrimental effects of overeating during pregnancy.

17. In rural areas the great majority of women give birth at home, assisted by older household women and traditional birth attendants (dais). The traditionally perceived association of 'pollution' with childbirth often leads to unsanitary deliveries. This can result in high rates of sepsis, as well as neonatal tetanus in the absence of proper immunization.

18. The importance of traditional beliefs concerning health and illness has never been adequately considered by the modern medical services. In a number of areas essential to women's health, traditional beliefs are in conflict with modern medicine. Illustrative examples include beliefs about the role of supernatural forces in causing certain diseases; perception that allopathic medicines such as iron and folic acid (IFA) tablets and oral contraceptives are strong and, therefore, dangerous; and concerns about the safety of invasive procedures such as IUD insertion and surgical abortion. Traditional beliefs regarding the safety of mother and child are, in fact, largely responsible for what may appear to outside observers to be casualness about pregnancy as well as the failure to adequately prepare for a birth or to appropriately respond to complications. Such local perceptions and beliefs complicate modern treatment of health problems and may make it difficult for health workers to provide services.

Health Services and their Utilization

19. **Government Services.** Public sector services to meet the health and nutritional needs of Indian women are provided through the Family Welfare Program (FWP) of the Ministry of Health and Family Welfare and the Integrated Child Development Services (ICDS) Program of the Ministry of Human Resources Development. The public **Family Welfare Program** provides services to about one half

of the population, and is the primary source of preventive care in India. The FWP has achieved considerable progress in mortality and fertility reduction since its inception in 1951. The program comprises family planning and maternal-child health (MCH) services, which are organized on a subcenter outreach basis. Auxiliary nurse-midwives (ANMs) are deployed to cover a population of 5,000. Cases that an ANM is unable to handle must be referred to primary or community health centers or to hospitals. However, women may also go directly to a primary or community health center or a hospital without a referral.

20. Although there is a consensus among observers and the Ministry about program difficulties, the Ministry has found it hard to modify the way in which the Family Welfare Program is implemented at state and local levels. To improve the program's ability to meet the health needs of Indian women, the following resource and organizational issues need to be addressed: inadequate allocation of resources to the northern states; limited availability of temporary contraceptive methods and other reproductive health services; poor integration among family planning, reproductive and child health services; lack of prioritization of field work routines; gaps in the knowledge and skills of staff; weak links between subcenters and referral institutions; and insufficient and/or ineffective information, education and communication (IEC) efforts.

21. India took an important step in shifting the FWP toward a reproductive health approach when it initiated the **Child Survival and Safe Motherhood Program (CSSM)** in August 1992. The child survival component of the program has made good progress, particularly in immunization coverage. The safe motherhood component has been slower in reaching its objectives, because it requires significant expansion of previous program activities in the area of maternal care and because its implementation requires some physical upgrading of first referral units, training of staff and procurement of equipment not usually found below the district hospital level.

22. The objectives of the **Integrated Child Development Services Program** include improvement of the nutritional and health status of children under 6 as well as that of pregnant and lactating women and enhancement of the capacity of mothers to look after the health and nutritional needs of their children. Delivery of the package of ICDS services, which includes nutritional supplementation, is the responsibility of anganwadi workers, each of whom cover a population of about 1,000. ICDS currently covers about 40 percent of the development blocks in India.

23. The quality of health care for girls and women under the ICDS is particularly affected by the following issues: insufficient training of staff in aspects of the program affecting women; failure to target individual malnourished children, which has especially unfavorable consequences for young females, and low coverage of the supplementary feeding component for malnourished pregnant and lactating women.

24. **Private Sector Services.** The private sector, both allopathic and traditional, is the principal source of curative care in India, and with government support could play a more instrumental and effective role in strengthening reproductive and child health. Currently, the modern private for-profit health sector is largely concentrated in urban areas. In rural areas a wide range of private health care providers are found, from fully qualified medical practitioners to local healers. Most of the illness burden resulting from the high incidence of infant and child sickness and the pervasive morbidity characteristic of rural India is addressed by a variety of traditional and local practitioners, as discussed above.

25. In many instances NGO programs that provide family planning, health and related services for women have been quite effective. NGOs' successes can be attributed to program flexibility combined with skill in interpersonal communication and eliciting community support and/or participation. NGO strategies often cut across sectors to provide a wide range of services, of which health may be only one. Some NGO efforts to organize women and tackle problems of women's status directly have been remarkably successful. However, in rural areas, NGO services are only available to a small proportion of the population.

26. **Health Care Utilization and Coverage.** Utilization of health care in rural India is eclectic: individuals are likely to resort to different practitioners at different times, depending on the condition as well as the age and gender of the patient. Private allopathic physicians are considered to be superior to government doctors since value is expected in return for payment, the paid practitioner is likely to be more polite and concerned and their hours are generally more flexible. Many government services are well utilized. However, there are several areas of dissatisfaction, including: unofficial payments for nominally free services and drugs; rude and improper behavior on the part of health staff; absence of staff; lack of supplies and drugs; and long waiting time to see a doctor.

27. While there is an 82 percent coverage rate for tetanus toxoid immunization of pregnant women, almost half of all pregnant women receive no *antenatal checkup*, and far fewer receive the three antenatal contacts which are recommended as a minimum. Problems exist on both the programmatic and demand sides. Programs have not been successful in informing the public of the need for antenatal care. Therefore, many women are still unaware that female health workers based at subcenters provide antenatal care. In addition, many pregnant women and their families do not perceive the need for medical attention during pregnancy.

28. The *anemia prophylaxis program* that provides iron and folate acid tablets to all pregnant women is a key component of antenatal care. However, the prophylaxis scheme has met with bottlenecks at the field level. According to the latest survey, only about 60 percent of mothers have been receiving tablets and promotion and monitoring to ensure client compliance have been weak. In an attempt to address these problems, the

Child Survival and Safe Motherhood Program is taking measures to correct problems with supply, logistics and monitoring of compliance. Coverage levels are reported to be improving in a number of states, although they remain low in states with high maternal mortality.

29. Levels of institutional *childbirth* or delivery assisted by a trained provider are low; overall, only one quarter of deliveries occur in health facilities. Among the noninstitutional births, over 40 percent are attended by untrained persons, usually older female household members. As with antenatal care, households have traditionally not perceived a need for outside assistance. The cost of nominally free government services is also a constraint to the utilization of services. However, the recent large scale training of traditional birth attendants is expected to lead to more hygienic delivery practices and to improved detection and referral of complications, thereby reducing deaths due to infection and other complications.

30. In order to obtain a rapid and significant reduction in maternal mortality, hospital facilities will need to be upgraded at the level of first referral units so that they can provide effective treatment of obstetric complications and emergency care. A functioning system depends on early detection of complications and accessible and acceptable referral facilities, particularly since the most life-threatening complications develop with little warning and need immediate attention. This highlights the importance of adequate transport for women experiencing emergency complications. Community planning and involvement may be the most cost-effective way to develop transportation schemes.

31. Use of modern methods of *contraception* has risen from about 10 percent in 1970 to 40 percent in 1993. Contraceptive prevalence varies from 53 percent in Maharashtra to 20 percent in Uttar Pradesh and Bihar. The most striking aspect of contraceptive use in India is the predominance of sterilization, which makes up more than 85 percent of the total use of modern contraceptive methods. Lack of knowledge about and access to contraceptive methods other than sterilization reflects the historical emphasis on sterilization in the FWP. Increasing contraceptive choice, particularly methods for delaying and spacing pregnancies, should become a higher priority.

32. Despite the legalization of *medical termination of pregnancy* (MTP), many women continue to resort to unsafe (illegal) abortion procedures. Several factors contribute to this, including the limited number of health providers and facilities that offer MTP and the perception that clinical procedures are invasive, and therefore, dangerous. The financial difficulties involved in obtaining legal abortion services, whether from a government or private facility, also make local, unsafe alternatives more common in rural areas.

Improving the Health Status of Indian women

Overview

33. The Government needs to develop a strategy on the appropriate balance between the public and private sectors for improving women's health status. Within this evolving strategy, the public sector will continue to play a crucial role in the financing and provision of essential services for women, because some of these services have characteristics of public goods and, more particularly, several provide positive externalities. In the absence of public financing, provision of these essential services for women would in many cases be below the socially optimum level. Furthermore, equity considerations argue for continued provision of subsidized services to poor women. However, not all health services - including those that are publicly funded - need to be provided by the state. The challenge for Government is to maximize the reach and breadth of reproductive health services provided by the private sector, as well as to improve their quality, through appropriate incentives and regulatory arrangements. Mechanisms need to be explored to encourage a shift from the current private sector focus on curative care to a broader approach which includes promotion and prevention.

34. Progress made under the Government program needs to be continued and expanded. Priority efforts need to be made in the following key areas:

- (a) Expansion and strengthening of the Safe Motherhood Program comprising improved antenatal services and obstetric care, including management of obstetric complications and increased emphasis on strengthening the referral system;
- (b) Provision of quality family planning services, with greater emphasis on temporary contraceptive methods, as well as expansion of their availability and acceptability through social marketing;
- (c) Expansion of services for the prevention, diagnosis and treatment of reproductive tract infections and sexually transmitted diseases, including HIV/AIDS;
- (d) Provision of appropriate technical and communication skills training for staff;
- (e) Public education to increase knowledge about reproduction, contraception, safe sex, safe motherhood practices, and HIV/AIDS prevention; and
- (f) Utilization of operational research to improve the quality and availability of services.

35. Consistent improvements in women's health in the medium and longer term will require changes in the disadvantaged status of Indian women that underlies existing difficulties. There is general agreement that to this end interventions to improve women's educational levels and to delay marriage and childbearing, as well as increase women's access to earning and employment opportunities, should receive priority support.

36. In order to achieve both shorter and longer term objectives, the Government of India will have to make a national commitment of considerable strength and duration.

Specific Approaches to Service Provision

37. **Provision of Services.** In order to strengthen the Family Welfare Program policies should be modified in the following areas: broadening of population policy to give due weight to factors other than family planning that affect fertility and reproductive health; allocating resources so that the north-south gap is bridged; modifying the current reliance on sterilization in favor of temporary methods; and expanding contraceptive choices and availability.

38. To improve existing **Family Welfare services** measures in the following areas are required: strengthening and integrating family planning, reproductive health and MCH services; organizing fieldwork routines so they are based on priority activities and clients; providing in-service training; improving the training for and supervision of traditional birth attendants; and supporting interventions that promote improved health and nutritional status among girls.

39. In addition, strengthening and expanding the following key services should be a priority: antenatal care and attended delivery; anemia prophylaxis; modern temporary contraceptive methods; and medical termination of pregnancy. The reduction of maternal mortality requires expanding and increasing the effectiveness of essential obstetric care by addressing four major program gaps: inadequate early detection of complications; weak linkages between communities, subcenters and referral facilities; inadequate capacity of referral facilities; and the lack of emergency transport.

40. Additional health services for women are required to reduce non-pregnancy related morbidity. For example, to deal with the widespread problem of reproductive tract infections, it will be necessary to make their diagnosis and treatment an integral part of Family Welfare services. HIV/AIDS prevention efforts must also be integrated into the existing health programs.

41. In order to strengthen the ability of the **ICDS Program** to provide services for women and girls, measures in the following areas are required: in-service training relating to services for women; development of strategies to ensure that nutritional

supplementation reaches malnourished and micronutrient-deficient young females, in particular, as well as pregnant and lactating women; and expansion of the program to include services for adolescent girls.

42. ***Cooperation and coordination between FWP and ICDS***, particularly between field workers, is crucial to improving the effectiveness and provision of services because of the substantial overlap in target beneficiaries and the complementarity of services provided. Measures to assure this cooperation include: joint planning; coordination of work routines; joint supervision; joint training; and coordination of formal training curricula.

43. **Demand for Services.** Since exposure to the mass media in rural areas, particularly for women, will remain limited for the foreseeable future, female field workers who are in daily contact with women and their families are a key channel of health communication. Programs should, therefore, give priority to communication skills training for field workers. This training should address workers' own attitudes and beliefs and promote two-way communication between workers and clients. Another important way to increase the use of services is to involve women and communities in their planning and implementation.

44. The need for increased communication efforts in the following areas is especially acute: safe motherhood, particularly about the danger signs of problem pregnancies; the use of safe medical termination of pregnancy rather than traditional unsafe practices; modern methods of temporary contraception; awareness of HIV/AIDS prevention; male support for and involvement in reproductive health; appropriate diagnosis and treatment of gynecological problems; cultural constraints to acceptance of modern contraceptive methods, such as oral contraceptives and vasectomy; and promotion of equitable treatment of girls and women.

45. **NGO Involvement.** Government support of NGO involvement is particularly important for intersectoral projects that include women's health components which would not be implementable within the public sector. Since NGOs have been successful in communicating with clients and mobilizing community support that facilitates effective delivery of services, NGO staff should be involved to the extent possible in the training of government workers. Additionally, since public sector family welfare services are weakest in urban areas where NGO and for-profit private sector activity are concentrated, ways to facilitate greater cooperation between the Government, NGOs and the private for-profit sector in urban areas need to be developed.

46. **Action Research in Support of Women's Health.** Given the difficulties of introducing changes in large, well-established programs, action (operational) research to develop, test and/or modify program strategies and activities take on an important role, particularly where an existing approach is not working. The phased introduction of improvements in the Safe Motherhood referral system in a small number of districts should serve as action research that can guide subsequent expansion of the program. These efforts should include expanded community participation. In addition, there is a need for action research in support of women's health in the following areas: safe motherhood messages; anemia prophylaxis; reduction of unsafe abortion practices; management of sexually transmitted diseases; increased use of temporary contraceptive methods; transportation for obstetric emergencies; nutritional supplementation for pregnant and lactating women; and adherence to appropriate guidelines for assuring quality of care.

I. INTRODUCTION AND FRAMEWORK

1.1 India has made considerable socioeconomic progress in the decades since Independence, as demonstrated by improvements in general indicators such as life expectancy, infant mortality and literacy. However, indicators of women's health, particularly in the north, are lagging behind progress in other areas. The population sex ratio continues to be adverse to females and is becoming more so; excess female mortality in the younger and childbearing ages persists; and maternal mortality in rural India is among the highest in the world. The objective of this study, therefore, is to highlight the particular reproductive and socioeconomic factors which affect the health of Indian women and to identify steps which can be taken to assure the equitable impact of further health improvements resulting in benefits for women, their families and the nation as a whole.

1.2 The health of Indian women is one of a number of linked gender-related concerns that manifest themselves in demographic, nutritional, educational, and other indicators. It is increasingly clear that these indicators are innately tied to the status of women within the context of poverty. In traditional Indian society, as in many other male-dominated agrarian societies, women, especially younger women, are disadvantaged. They are typically married as young adolescents, dominated by in-laws and husbands, restricted in their physical movements, and without control over property, money or household resources. Because of dowry obligations, they are regarded as a net loss to their natal families and their labor, whether productive or reproductive, is socially devalued. This inherently inequitable social system is perpetuated through a process of socialization that rationalizes and internalizes female disadvantage.

1.3 Women's disadvantage is apparent in factors which contribute to illness and reduce access to health care, including contraception. Women typically have unequal access to food, despite obligations to engage in strenuous physical labor; not even pregnancy provides an entitlement to additional food or rest. In addition to being undernourished in terms of protein and calories, a high proportion of Indian women are also anemic, leaving them vulnerable to a variety of illnesses which decreases their capacity to work, thereby exacerbating the vicious cycle of high fertility and maternal depletion. Economic and/or social factors prevent women from deciding when they or their children need health care and from obtaining it. In such circumstances, it is inevitably female infants and young children, especially if there is an older sister in the household, who are most disadvantaged, as mortality statistics confirm.

1.4 Gender issues are confounded with the consequences of poverty: if women are generally disadvantaged, the situation of poor women is likely to be worse. It is the poor women left as heads of households, as the result of widowhood or desertion, who constitute many of the 'poorest of the poor'.

1.5 The poor health status of Indian women has substantial consequences for other family members, household economies, and the larger economy as well as for women themselves. The most obvious effects arise from high female mortality rates

during childbearing years. The mortality rates of infants who lose their mothers are many times higher than average, and the direct and indirect consequences for older children are nearly as serious. The household consequences of pervasive female ill-health are also profound. A woman's health and nutritional status affects the birthweight and viability of her newborn child, her capacity to nurse and care for the child, and her ability to provide food and care to other children and family members. Moreover, in rural households dependent on women's labor, whether on family lands or as wage labor, a woman's health, as it affects her ability to work, directly and immediately impacts the welfare of the entire household. Poor urban households tend to be even more dependent on women's wage labor.

1.6 The development process, which has brought far-reaching demographic, social and economic change to India since independence, has not been as effective in improving the status of women. Ironically, development has sometimes had a negative impact on women, particularly rural women working in agriculture.

1.7 There is broad agreement that fundamental changes in the status of Indian women will require an increase in their educational level as well as expanded access to earning and employment opportunities. It would be unrealistic, however, to anticipate short-term health effects from such efforts. Given the dimensions and consequences of the health problems of Indian women, there is an urgent need for measures that result in improvements as rapidly as possible. This objective can be achieved most immediately and directly through strengthening and expanding existing health and related services, both public and private. This should be complemented by effective communication efforts aimed at increasing demand for services, supporting women's ability to utilize services, and promoting other measures that allow women to improve their own and their children's health.

1.8 Using this framework, the study proceeds as follows:

- (a) Chapter II uses available demographic and epidemiological data to identify dimensions and causes of female mortality and morbidity in India.
- (b) Chapter III summarizes, first, the implications of the Indian sociocultural context, particularly the status of women in traditional Indian society, for the health of Indian girls and women, and second, traditional beliefs and practices associated with pregnancy, childbirth and illness, as well as systems of medicine used by the variety of traditional practitioners who continue to provide much of the health care in rural India.
- (c) Chapter IV reviews existing public and private sector services available to meet the health needs of Indian women, as well as the coverage and utilization of those services.

- (d) Chapter V outlines measures which could strengthen existing services and the demand for them, identifies additional services that would be required to improve women's health status, and indicates action research needed to develop and test new approaches.

1.9 This study gives priority to the northern 'Hindi-belt' states of Bihar, Uttar Pradesh, Rajasthan, and Madhya Pradesh. The unfavorable demographic differentials between these states, which account for almost 40 percent of India's population, and the rest of India are well documented. To achieve more rapid overall progress in improving women's health status, and to narrow the gap between the northern states and the rest of India, it will be necessary to identify the particular demand and supply constraints in the northern states, and the approaches and resources required to address them.

1.10 This study's recommendations are oriented to the needs of women in rural, rather than urban, areas. The health status of urban slum women poses as many problems as that of their rural counterparts, and are of particular concern since urban slum populations are growing more rapidly than rural populations. However, the availability of public and private health facilities and services is far more extensive in urban areas, and after having been neglected in past years, family welfare outreach in cities is now being strengthened systematically. In addition, in cities and towns physical access to services and emergency transportation does not present the major difficulties that it does in rural India. These factors are responsible for substantially lower urban mortality levels, although morbidity differentials are not likely to be as great. To the extent that the urban and rural situations differ, this study emphasizes the latter.

1.11 The broadest consideration of women's health issues is based on a life cycle approach, starting at birth and taking into account the cumulative effects of previous health status as each successive life stage is reached. However, given the extent of excess female mortality through the prime childbearing ages and high levels of maternal mortality in India, the study gives primary emphasis to women's reproductive health, as well as to some of the factors underlying excess female mortality at early ages. Other important concerns, such as the need to improve the nutritional status and health knowledge of adolescent girls before they marry and begin their childbearing careers and the health of older women who have completed their families, are given less attention than would be required in a comprehensive consideration of women's health issues. Household and occupational health issues for women are also noted, but measures required to address them, which would go much beyond the capacities of the health services, are not discussed.

1.12 This study does not deal specifically with financing issues, although at this time of financial stringency in India, recurrent cost and sustainability issues are becoming increasingly important in the health and family welfare sectors. A separate study specifically dealing with health financing has recently been undertaken by the Population and Human Resources Operations Division of the South Asia Country Department II. It

is also generally acknowledged that many of the constraints affecting the provision of public sector health and nutrition services for women are not financial. The government's current emphasis on more efficient and effective use of existing physical and human resources is amply justified. This study, therefore, focuses on the measures necessary to address existing policy and implementation constraints, and thereby, achieve improvements in the quality, acceptability and utilization of services which will translate into improved health for Indian women.

1.13 This study focuses mainly on the public health sector, while recognizing its deficiencies and the difficulty of steering a large bureaucracy in new directions. Even though both the private voluntary and for-profit sectors have played increasing roles in recent years, and their importance is well recognized by government and donor agencies alike, the provision of family planning, preventive health, and nutrition services to the great majority of India's vast rural population, including the female half, will of necessity remain a public sector responsibility for the foreseeable future.

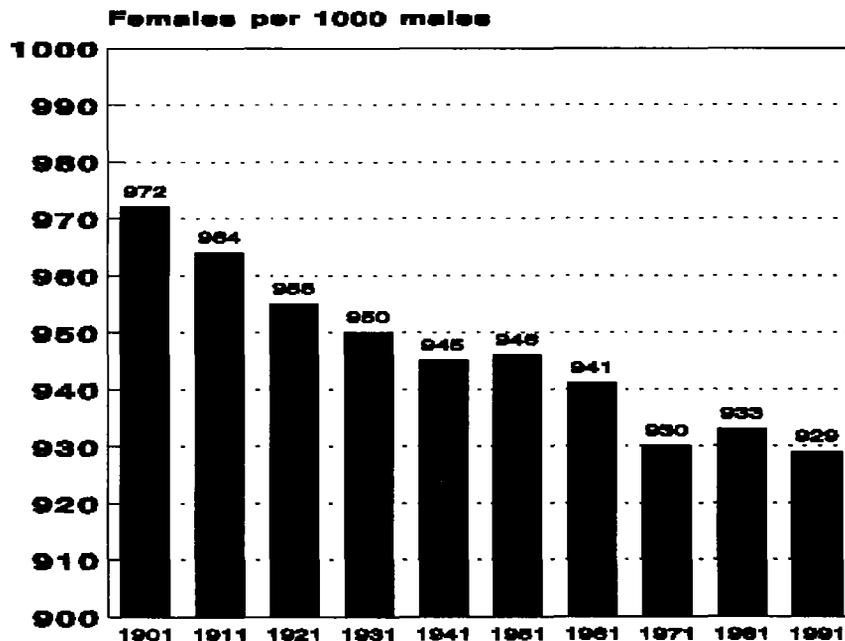
1.14 The study's emphasis on those aspects of services specifically relevant to women and the consequent recommendations made in the concluding chapter serve, in many instances, to reinforce the appropriateness and importance of conclusions that have also been reached from other perspectives--there is general agreement in the fairly extensive literature on India's Family Welfare and nutrition programs concerning issues and new approaches. In sum, the focus on health is an essential component of the larger effort to improve women's productivity and enhance their contribution to India's social and economic progress.

II. THE DIMENSIONS OF FEMALE MORTALITY AND MORBIDITY

2.1 For reasons that are not well understood, human females have a natural biological advantage over males. In low-mortality western populations, male death rates are higher than corresponding female rates at every age. Consequently, life expectancy at birth for females is higher than for males, and there are more females than males in the total population.¹

2.2 By contrast, India is one of the world's few countries where males significantly outnumber females²: according to the 1991 census, for every 1,000 males there were only 929 females. What is more, since the beginning of the century the sex ratio of the population, calculated from the decennial census, has become progressively more masculine (Fig. 2.1).

Figure 2.1 Population Sex Ratio, India: 1901-1991



Source: RGI 1991b

2.3 One way to estimate the extent of female disadvantage is to compare the actual sex ratio to a sex ratio that would be expected in the absence of gender discrimination. A number is then calculated to represent the number of girls and women

who died as a result of past and present discrimination, often called "missing women." The current estimate is that there are 35 million "missing women" in India; although estimates have ranged from 23 to 42 million (Coale 1991; Klasen 1994).

2.4 In earlier decades, India's peculiar sex ratio was generally attributed to relative undercounting of females in the census, differential migration and/or singularities of the sex ratio at birth in India. Only with the work of Visaria (1971) was it conclusively demonstrated that India's masculine sex ratio could not be ascribed to any of these factors and in fact reflected social causes characteristic of Indian society. As mortality levels in India have declined overall since 1921 (Dyson 1987), the increasing masculinity of the sex ratio suggests that women have been progressively less able to achieve mortality gains relative to their male counterparts.

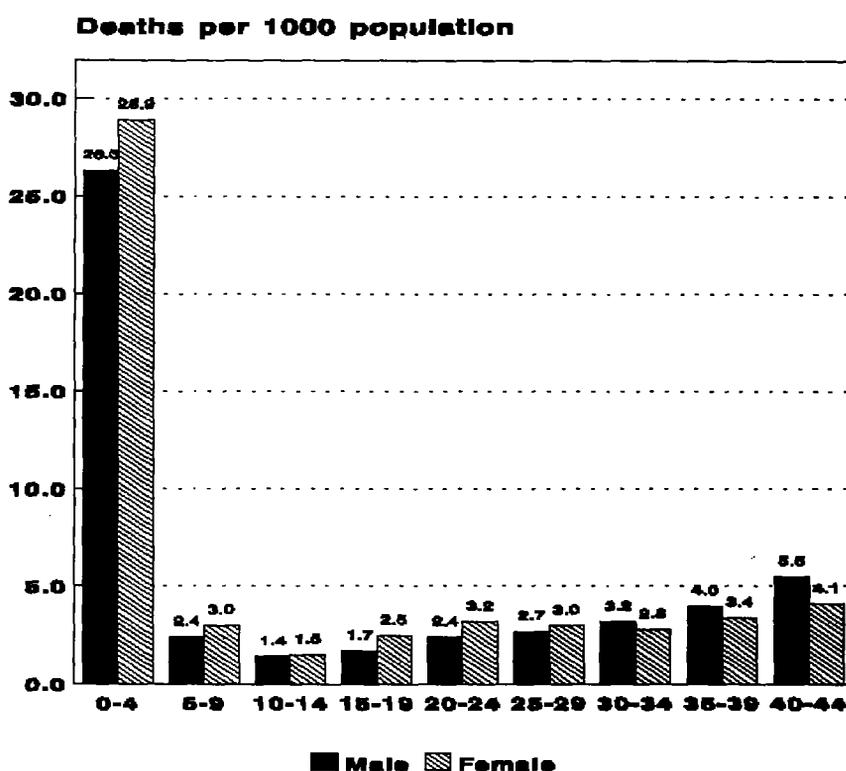
2.5 The direct demographic cause of India's female-deficient sex ratio can be readily identified. Contrary to the current experience of most other populations, including developing countries of Africa, Latin America and southeast Asia, female death rates in India for all age groups from birth through ages 25-29 are higher than male rates (Table 2.1, Fig. 2.2).³ Excess female mortality is not unique to India or for that matter to south Asia. It was probably characteristic of traditional peasant societies from the Mediterranean across Asia to China before twentieth-century socioeconomic changes transformed mortality levels (Harriss 1989a; Amin and Pebley 1987). However, the severity and the persistence of excess female mortality in parts of south Asia indicate that the social causes underlying the demographic phenomena are likely to be deep-seated and difficult to address. Discrimination is also appearing in new forms with advancing technology, such as the increasing practice of sex-selective abortion, which could have an additional impact on the overall sex ratio.

Mortality Patterns and Differentials

2.6 Regional, residential and age differentials in mortality are reviewed in the following paragraphs. Marked regional variation, the persistence of excess female mortality at young and childbearing ages and the worsening of male/female mortality ratios at ages 0-4 in a number of states emerge as key issues that must be addressed if female health status is to be improved.

2.7 **Region.** Pronounced regional variation is one of India's most prominent demographic characteristics. Mortality, fertility, illiteracy, and other demographic indicators are considerably higher in the northern states⁴ of Uttar Pradesh (U.P.), Bihar, Madhya Pradesh (M.P.), and Rajasthan than in the rest of India, reflecting underlying sociocultural contrasts between the so called 'Hindi belt' and the rest of India. On the other hand, the southern state of Kerala has achieved nearly developed-country levels for all of these. Measures of mortality provide good examples of north-south demographic differentials. In 1992, the crude death rate for U.P. was almost twice that for Kerala, 13 per thousand vs. 6 (Table 2.2), and similarly, life expectancy at birth for both sexes was

Figure 2.2 Age-Sex-Specific Death Rates, India: 1989-1991

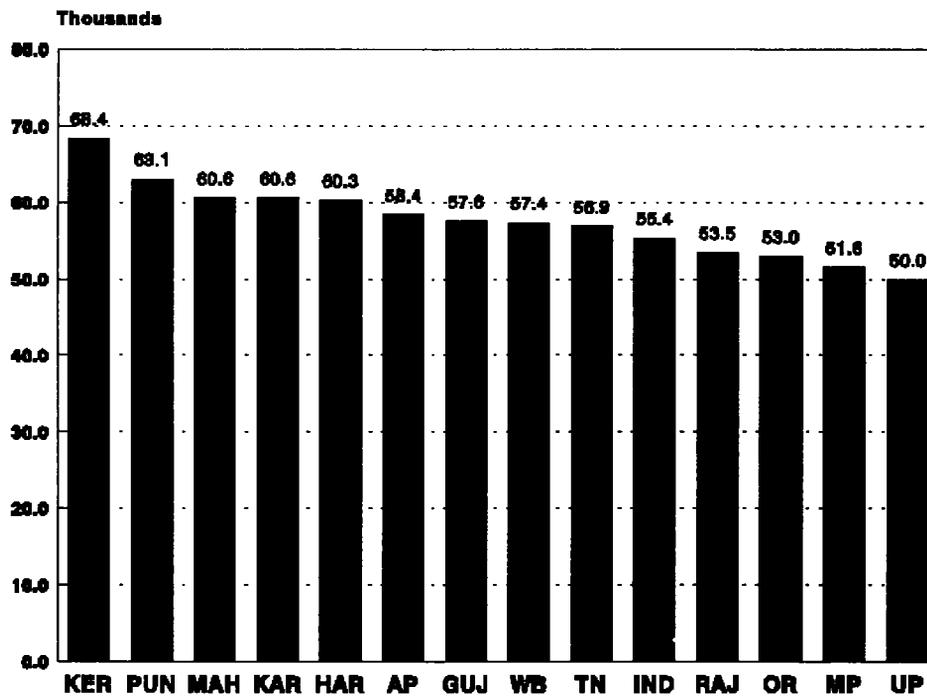


Source: RGI 1994

50 years in U.P. in 1981-1985, and 68 years in Kerala, or almost 20 years longer than in U.P. (Fig. 2.3 and Table 2.3). Regional differentials among females for the basic demographic indicators follow essentially the same pattern as the differentials for both sexes combined. The disparity in demographic and health indicators between the northern states and the rest of India, and the factors which underlie it, should be a major consideration in the planning of interventions intended to meet women's health needs (para. 5.8).

2.8 **Urban-rural residence.** As is the general experience of developing countries in recent decades, mortality is lower in urban than in rural areas of India. Urban death rates are lower than corresponding rural rates at every age, and from 1989-1991 the urban crude death rate for females was 7 per thousand vs. a corresponding rural rate of 11 (Table 2.1).

Figure 2.3 Expectation of Life at Birth, India and Major States: 1981-1985



Source: RGI 1989

2.9 **Age.** It is in terms of mortality at certain ages, rather than region or residence that female disadvantage in India is most apparent. Over the last several decades, Indian women have evidently been able to achieve relatively greater gains in life expectancy than have men. As a basis for comparison, the average life expectancies of men and women in the developing world are 62 and 63, and in the developed world 73 and 80, respectively (World Bank 1993). RGI life tables (Table 2.4) show that while male life expectancy was higher than female life expectancy in 1970-1975 (51 years for males vs. 49 for females), by 1981-1985 life expectancy had 'crossed over' to a slightly higher female figure (55 years for males vs. 56 for females). However, although this favorable trend is encouraging for women who survive to older ages, women under the age of 30 do not equally benefit from this advantage. The infant, child and prime childbearing age groups (ages 0-30) are at greatest mortality risk, relative to older women. The specific situations of female infants and children and women of childbearing age are discussed in more detail below.

2.10 **Mortality at Younger Ages.** The overall pattern of female mortality relative to male mortality at younger ages is shown in Fig. 2.2. The female mortality rate in 1989-1991 was in excess of the male mortality rate by 10 percent at ages 0-4 (28.9 vs.

26.3, respectively). This differential rose to 25 percent excess female mortality vs. male mortality at ages 5-9 (3.0 v.s 2.4, respectively) and declined to almost equal levels at ages 10-14. Higher excess female mortality at ages 5-9, compared to ages 0-4, presumably reflects the effect of higher male neonatal mortality in lowering the 0-4 ratio. The ratio at ages 10-14 is expected, since girls in the latter age group have survived the worst hazards of childhood but have not yet had to face the risks of childbearing.

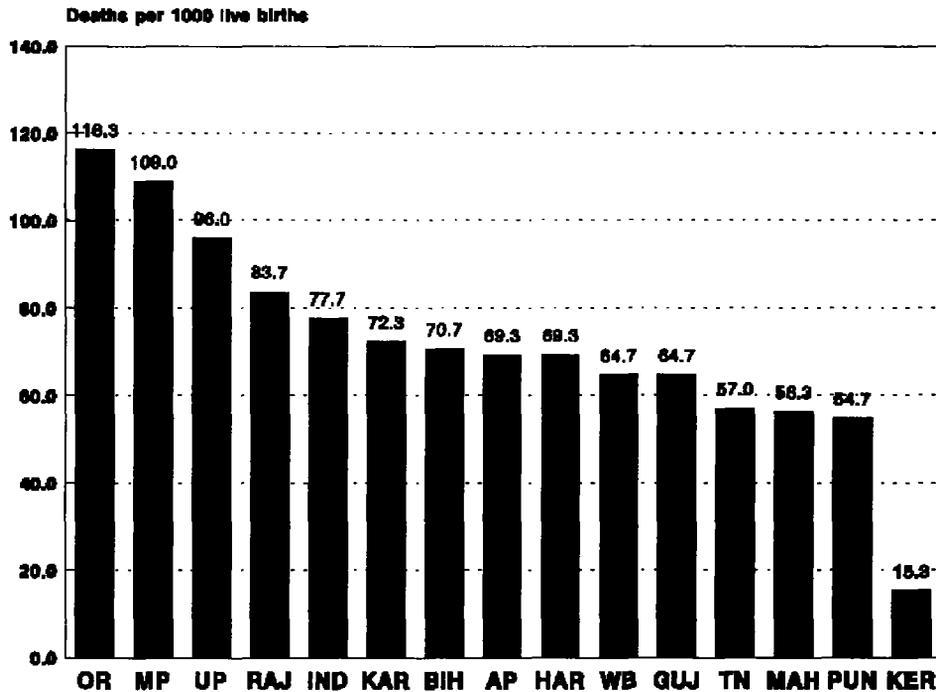
2.11 Infant and young child mortality are among the most sensitive indicators of the health status of a population. Over the last two decades, infant and young child (0-4) mortality rates in India have declined significantly. RGI estimates indicate a fall in the infant mortality rate (IMR) from over 139 deaths per 1,000 births in 1972 to 74 in 1993 (Table 2.5), and a similar decline in the young child death rate from 57 to 27 deaths per 1,000 population age 0-4 (Table 2.6). State differentials are considerable (Table 2.7, Fig. 2.4). In 1992, Orissa and Madhya Pradesh still had IMRs over 100, while Kerala's rate of 17 was far lower than that of any other state. Young child death rates follow a similar pattern.

2.12 Given the female biological mortality advantage, the expectation is that male infant mortality rates will be higher than female. However, in India overall, the two rates are currently about equal (Table 2.8). The expected female advantage appears most clearly in Kerala. The most recent figures available (1992) show that only in the northern states of Uttar Pradesh, Rajasthan, Punjab, and Haryana, are female infant mortality rates still significantly higher than male rates (Table 2.7).

2.13 Infant mortality rates mask a basic difference between neonatal (deaths within 28 days of birth) and post-neonatal mortality. Neonatal mortality is due largely to causes such as neonatal tetanus, prematurity and congenital conditions that are not gender-specific. Post-neonatal mortality deaths, on the other hand, are by and large caused by infectious diseases whose incidence and severity are affected by immunization, health care and other controllable factors such as nutritional status. Consequently, differential treatment of male and female children (para. 3.13) will be reflected in excess female post-neonatal mortality, while the natural female advantage can be expected to appear in neonatal rates. To examine gender differences in infant mortality, therefore, it is necessary to consider neonatal and post-neonatal mortality separately. RGI does not publish neonatal and post-neonatal mortality rates by sex. However, the gender disparity between neonatal and post-neonatal mortality has been documented for a number of rural and urban study populations in north and south India; in these early studies (1965-84) male/female neonatal mortality ratios were more than one but post-neonatal ratios ranged from 0.53 to 0.80 (Table 2.9).

2.14 A comparison between male and female mortality at young ages can be obtained by examining the sex-specific death rates for ages 0-4, where the natural female neonatal advantage has less weight than it does for infant mortality (Table 2.10). The

Figure 2.4 Infant Mortality Rates, India and Major States: 1991-1993



Source: RGI 1994

extent of female disadvantage at these young ages becomes evident in state figures (Table 2.11). Only in the states of Kerala, Karnataka, Andhra Pradesh, and Maharashtra were 0-4 mortality rates higher for males than for females, as is characteristic of ratios worldwide. The recent Population Research Centre (PRC) and IIPS (1994) report on Uttar Pradesh described a more serious disadvantage for young girls than previous reports. The survey found that during the post-neonatal period, 124 girls die for every 100 boys. The most significant differential was found between the ages of 1 and 5, where 170 girls die for every 100 boys. If the nationwide 0-4 male mortality levels are taken as an index of the level of child mortality that can be achieved under existing circumstances in India, then it is clear that excess female deaths at these ages — more than 100,000 a year — must be attributed to gender discrimination.

2.15 Even more significant than the current female disadvantage in young child mortality rates are recent relative mortality trends for this age group. Until about 1983, female rates were declining relatively faster than were male rates. However, since then, despite continued mortality decline for both sexes, the gap in mortality rates for this age group increased rather than decreased; in other words, female disadvantage became greater, rather than the reverse. For India overall, from 1982-1984 to 1991-1992, the male/female mortality ratio for the 0-4 age group declined from 0.93 to 0.88.

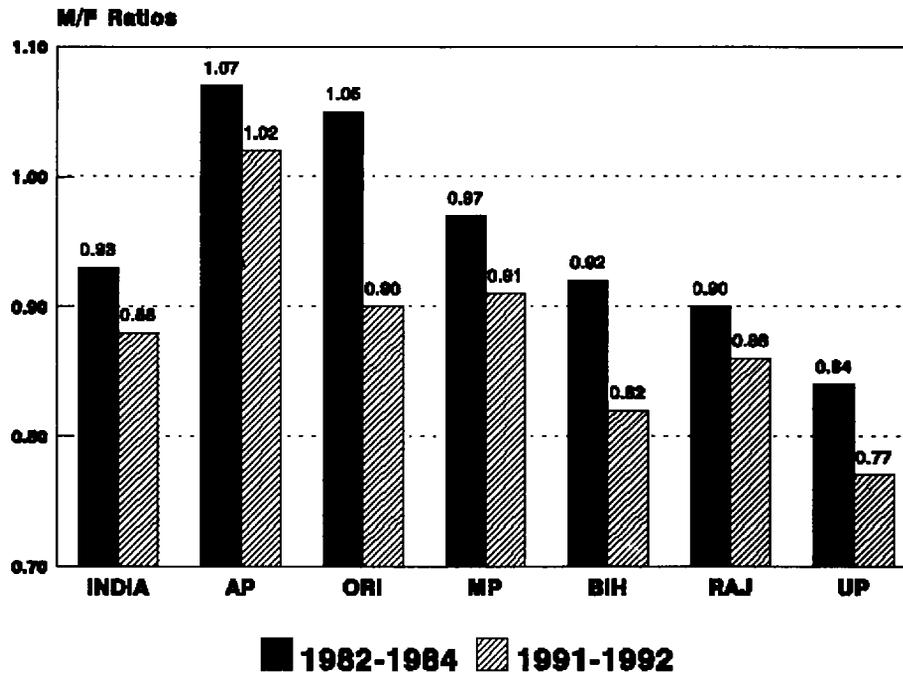
2.16 The unfavorable trend in the M/F young child mortality ratio is most evident in 6 of 14 major states, in the south as well as in the north (Table 2.12, Fig. 2.5). The gap has widened the most in Orissa, Bihar and Uttar Pradesh between 1982-1992.

2.17 The reasons why the gap between male and female young child mortality did not continue to narrow after the early 1980s are not clear. The same trends are also seen in the ratio of male/female infant mortality rates since the early 1980s (Table 2.8), in spite of both neonatal and post-neonatal mortality rate declines overall (Table 2.13). Evidence from a small-scale study (Das Gupta 1987) suggests that the occurrence of increasing female mortality disadvantage at young ages in Punjab is linked to a strong son preference combined with declining fertility (para. 3.13). The implications of recent increases in female mortality disadvantage at younger ages are quite serious.

2.18 Despite recent declines in young child mortality, 34.5 percent of all deaths in India occur among children under 5. Further reductions in child mortality, therefore, are critical to improvements in life expectancy. For example, between 1941 and 1970, reductions in infant and child mortality in India accounted for 40 percent of the increase in life expectancy, compared with contributions of 14 percent, 27 percent and less than 20 percent for the age groups of 5-14, 15-44 and 45 years and above, respectively (Ruczicka 1984). An effective way to improve overall life expectancy in India, and at the same time improve the sex ratio, would be to reduce current levels of excess female young child mortality.

2.19 **Mortality in the Childbearing Years.** With the advent of the childbearing years, excess female mortality in India rises steeply (Table 2.1; Fig. 2.2). In percentage terms, excess female mortality in India is higher in the childbearing years than at younger ages. Female mortality in 1989-1991 exceeded male mortality by one-third at ages 20-24, the years of highest fertility. After the bulk of childbearing has been completed and fewer women are at risk from maternal causes, the biological advantage of those women who have survived becomes evident. By 1989-1991 mortality 'crossed over' after ages 25-29, with male death rates remaining higher than female rates for the rest of the life span.

Figure 2.5 M/F Ratios, Young Child (0-4) Mortality Rates, India and Selected States: 1982-1984 - 1991-1992



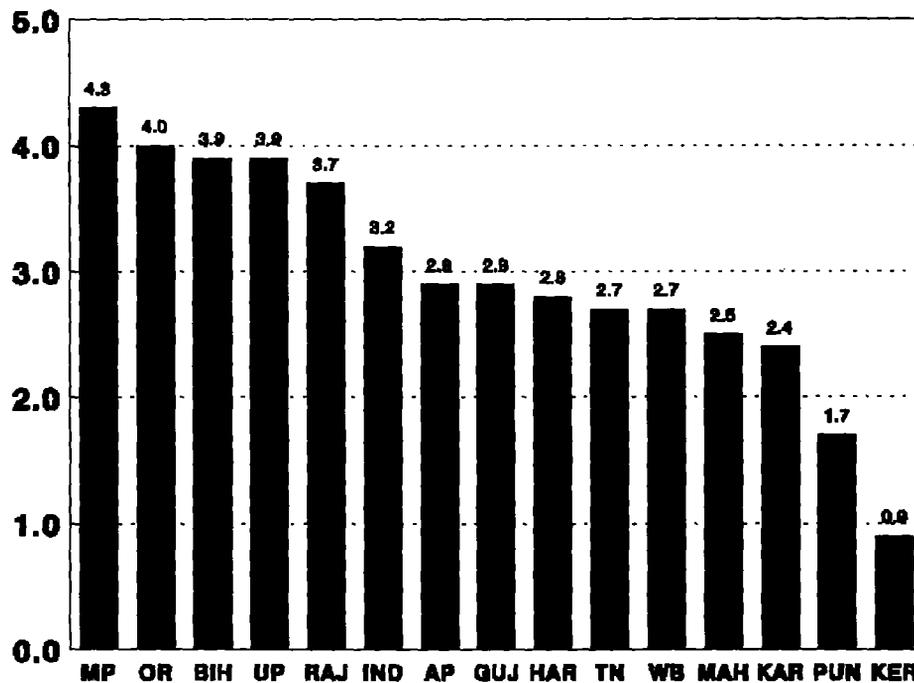
Source: RGI 1994

2.20 Regional variations in mortality during the childbearing ages are substantial. At ages 20-24, when childbearing is greatest, female death rates in 1990-1992 varied from 0.9 per 1,000 female population in Kerala to 4 per 1,000 in Madhya Pradesh (Table 2.14, Fig. 2.6). With the exception of Kerala and Punjab, the male/female death rate ratios at these ages indicated excess female mortality for all the states, with the northern states having the least favorable ratios. The pattern is more favorable to females in urban areas, where excess female mortality in the childbearing years persists only through ages 20-24 (Table 2.1).

2.21 **The 'Cross-Over' Transition.** Demographic experience in India and elsewhere, suggests that as overall mortality levels decline, excess female mortality begins to disappear. This trend has been most clearly documented for Sri Lanka, where excess female mortality in the early 1950s was similar to the current Indian pattern. With declining mortality it is now completely eliminated. As might be expected, excess

female mortality disappeared first at ages 10-14 and the later childbearing ages, then at the young and prime childbearing ages (Langford 1984). In India, trends in the ratios of age-sex-specific death rates over the last two decades, as well as urban trends, all suggest that a similar transition is underway, although slowly and unevenly. Overall, excess female mortality is unmistakably declining in the childbearing ages (Fig. 2.7).

Figure 2.6 Female Death Rates, Ages 20-24, India and Major States: 1990-1992

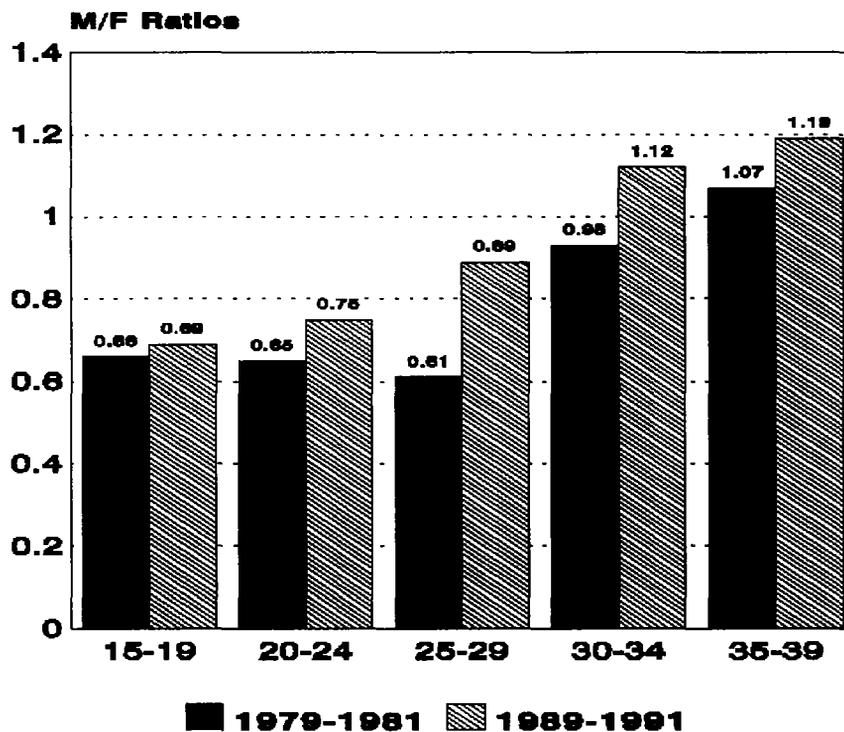


Source: RGI 1994

However, in the northern states current levels of female mortality are so high that large improvements will be needed before ratios reach more desired levels. As noted above (paras. 2.15-2.16), trends for ages 0-4 are currently in the opposite direction. It can be expected that excess female mortality will gradually diminish, persisting longest in the young child and prime childbearing ages and the northern states (Dyson 1987).

However, if the transition is to be hastened, and particularly if declines in 0-4 male/female mortality ratios are to be reversed, it will be necessary for health, nutrition and other social sector programs to specifically target those groups and those regions currently at highest risk (paras. 5.8, 5.16).

Figure 2.7 M/F Mortality Ratios In the Childbearing Years, India: 1979-1991



Source: RGI 1994

Causes of Death

2.22 Data on broad causes of death in rural India are available from a sample survey of deaths carried out by the Sample Registration System in rural areas, lay reporting and incomplete records of medically certified deaths in urban areas. The RGI rural data for 1989 are summarized in Tables 2.15 and 2.16 and urban data for 1984 in

Table 2.17. These data are admittedly subject to substantial misreporting and may present a picture that has somewhat changed. However, they do shed some light on the particular problems of women's health. The rural data indicate that, leaving aside maternal deaths, deaths 'peculiar to infancy', and 'old-age deaths', about 30 percent of deaths are attributable to respiratory causes and 16 percent to circulatory disorders, the two leading causes of death. The other major causes, including accidents, account for around 10 percent of deaths each. Within each age group, the pattern does not differ markedly between males and females, except, of course, for maternal deaths in the childbearing years. About 12 percent of deaths among women in the childbearing ages (15-44) are ascribed to maternal causes, a figure much lower than that derived from demographic sources or community-based studies (para. 2.27). Figures for the percent of total deaths due to maternal causes (Table 2.18) indicate that the percentage is six times higher in the highest state, Orissa, than in one of the lowest states, Punjab. The percentages in the northern states are much higher than those in the southern states.

2.23 More specific causes of death are available from the urban medical certification of death data (Table 2.17). The pattern is not essentially different from that indicated by the rural data. At ages 5-14, more females than males appear to die of respiratory illnesses, while the reverse is true after the age of 25, perhaps due to a higher incidence of tuberculosis in men. Tuberculosis is the single most important communicable disease among both adult men and women, accounting for some 6 percent of all deaths reported by the rural survey and over 10 percent of medically certified deaths in urban areas. Although circulatory disorders account for similar proportions of male and female deaths, adult male deaths are more specifically attributed to heart attacks and female deaths to anemia. The principal discernible difference in cause of death between rural and urban areas is that a higher proportion of urban than rural women are likely to die from injuries and accidents than their male counterparts, between the ages of 5-44.

2.24 Causes of death appear to vary slightly by region. For example, coughs and disorders of the respiratory system account for a higher proportion of deaths in the northern states of Gujarat, Haryana, Madhya Pradesh, Rajasthan, Uttar Pradesh, and West Bengal, compared with the southern states of Andhra Pradesh, Karnataka, Tamil Nadu, and Kerala as well as Orissa. The extent to which this can be ascribed to climatic differences is unclear. However, since these deaths account for the largest portion of non-old-age deaths among females in high-mortality states, it may be that increased attention to respiratory infections in these areas could make a significant contribution to the reduction of female mortality and morbidity.

Maternal Mortality

2.25 Our understanding of maternal mortality⁵ in India--levels, causes, patterns--is at best incomplete and unsatisfactory. In contrast to infant mortality, for which RGI estimates are available, there is no adequate system to regularly collect for maternal

mortality data.⁶ Yet even on the basis of the existing inadequate data, it is clear that maternal mortality in India is quite high. It is estimated that, although India has only about 15 percent of the world's population, at least 25 percent of the world's maternal deaths occur in India.

2.26 Levels. The recent National Family Health Survey estimated a maternal mortality ratio (maternal deaths per 100,000 live births) of 420 per 100,000 for 1990-1991 for India. This is lower than the earlier, community based estimates, which were derived from quite small numbers of maternal deaths in limited areas. Although the data are not adequate to support firm conclusions, one would expect a declining maternal mortality rate and ratio, given declining birth rates among higher risk younger and older women.

2.27 Assuming current Indian fertility and mortality levels, a maternal mortality ratio of 420 per 100,000 implies a maternal mortality rate (number of maternal deaths per 100,000 women of childbearing age) of about 55. This level of maternal mortality also implies that about 15 percent of all deaths among women in the childbearing ages were maternal deaths. By comparison, maternal mortality ratios in Europe are on the order of 10 per 100,000 live births. Due to the greater likelihood that she will become pregnant, combined with the greater likelihood that she will die of maternity-related causes once pregnant, the average Indian woman is almost 100 times more likely to die of a maternity-related cause than her counterpart in developed countries.

2.28 Causes of maternal mortality. Information from the RGI, hospital records and community-based data show that over 80 percent of maternal deaths are due to six major causes: anemia, hemorrhage, eclampsia, obstructed labor, sepsis, and unsafe abortion. The causes for maternal deaths, including 'abortion', are summarized in Table 2.19. The hospital and community-based data are not strictly comparable and, as noted above, the RGI rural survey data are not considered to be particularly reliable. Nevertheless, given their diverse origins, the data are fairly consistent, and the community-based field studies carried out in Andhra Pradesh (Bhatia 1988) and Karnataka (Reddy 1992) agree reasonably well. These data indicate that sepsis and hemorrhage were the leading causes of maternal death, responsible together for 33-44 percent of maternal deaths. The other major direct causes of maternal death were eclampsia and obstructed labor. About one quarter of deaths were from indirect causes, the ones specified being acute anemia, hepatitis and heart disease. Thus, maternal mortality in India follows a similar pattern to that in other parts of the developing world.

2.29 The studies cited reported that about 5-17 percent of deaths were the result of 'abortion', which refers to either induced or spontaneous abortion (miscarriage). The Andhra Pradesh and Karnataka studies indicated that about two thirds of 'abortion' deaths involved induced abortions and the other one third, miscarriages. According to the Andhra Pradesh study, roughly one half of 'abortion' deaths were due to hemorrhage and the other one half to sepsis.

2.30 Hospital-based studies report hemorrhage, abortion, eclampsia, and anemia as the most important causes of maternal deaths in hospitals, claiming up to three quarters of the lives lost (e.g., Sengupta and Gode 1987; Damania et al. 1988; Devi and Singh 1987; Balmur et al. 1983; Jindal et al. 1990).

2.31 The findings of the Andhra Pradesh study (Bhatia 1988), a WHO-sponsored retrospective field study of deaths among females of reproductive age carried out in Anantapur district of Andhra Pradesh in 1984-1985, merit particular attention because of the study's comprehensive design and careful execution. The study estimated that about 36 percent of all deaths among females aged 15-49 in the reference period were due to maternal causes and that these maternal deaths represented a maternal mortality ratio of 800 per 100,000 live births and a maternal mortality rate of 120 per 100,000 female population aged 15-49. This maternal mortality ratio is the highest of the available estimates for India and provides evidence of the high levels of maternal mortality in parts of India during the last decade, even in the south.

2.32 Of the maternal deaths for which detailed information was available, about two thirds were due to direct obstetric causes (Table 2.19). Sepsis accounted for a larger proportion, and hemorrhage a smaller proportion of deaths than in the other studies cited. However, the pattern is basically similar, including the high level of anemia as an indirect cause of maternal death. Some 10 percent of deaths were due to 'abortions', about two-thirds of which were induced in order to terminate unwanted pregnancies. In the case of almost one quarter of the deaths, family members were not aware of the seriousness of the woman's condition and, therefore, took no action to obtain assistance, while in another 4 percent of cases family members reported that they were aware that something was wrong but did not attempt to call a health worker or doctor.

2.33 For each case of a maternal death, the study randomly identified a woman in the same urban area or village who gave birth during the reference period and survived as a 'control case'. A comparison of the women who died and the associated control cases sheds additional light on the characteristics of those women who died and the causes of their deaths (Table 2.20). In terms of overall socioeconomic status, the two groups were similar. There were no major differences in antenatal care; in both groups, the percentage registered for antenatal care was 40-50, and the mean number of antenatal visits was actually slightly higher for mortality cases.

2.34 On the other hand, in terms of age, pregnancy history, predisposing conditions and family composition the differences between the groups were striking. As might be expected, significantly greater percentages of mortality cases had poor obstetric histories, predisposing health conditions and danger signs during the pregnancy. Although the mean number of pregnancies was slightly higher among the women who died, the mean number of living children was lower, indicating greater child loss. The women who survived had both more living children and more living sons than those who died (2.9 vs. 2.4 and 1.4 vs. 0.9, respectively). In fact, 55 percent of the women who

died did not have a living male child, as compared to 25 percent among the control group. That women with poor obstetric histories but without sons persisted despite the risks of further efforts to have children, would seem to be a clear reflection of the pressure on Indian women to bear sons (para. 3.5).

2.35 After examination of available information, expert opinion was that approximately 72 percent of the total deaths were preventable. Of the deaths which were preventable 32 percent could have been averted with proper antenatal care, while 69 percent of the deaths could have been averted with proper referral care. Other studies have also indicated that most maternal deaths in India, as in developing countries generally, are preventable (Rajaram 1989; Krishna 1989; Rao 1980). A summary of the measures identified in the Andhra Pradesh study as likely to have prevented deaths points out the interventions that are required to achieve reductions in current high levels of maternal mortality in India (Table 2.21). Adequate antenatal care, including treatment of anemia, would have prevented almost one third of the deaths; while two-thirds required appropriate care at a referral facility.

2.36 Of particular significance are the findings concerning the location of women at the time of their deaths. (Fig. 2.8)

Figure 2.8 Location at Time of Death

	Percent (Andhra Pradesh)
Died at home	41
Died at a health facility/hospital	50
Died in transit	9

Bhatia 1988

The figures indicate that about half of the women who died from maternal causes were transported to a PHC or hospital and died there. This raises a concern about the quality of facility-based care, as well as the timeliness of referral of complications and whether and how quickly women who are referred are able to get to referral facilities. There is no way to estimate the number of women who died at home because transport was unavailable or unaffordable. These findings emphasize the importance of prompt emergency referral and transport and effective management in reducing maternal mortality (para. 5.33).

2.37 **Abortion**⁷. Induced abortion was legalized in India in 1971 with the enactment of the Medical Termination of Pregnancy (MTP) Act. The Ministry of Health and Family Welfare subsequently undertook a systematic effort to train doctors, provide equipment and approve facilities where procedures could be carried out. The number of legal abortions in India rose rapidly after 1972, but in recent years, for reasons that are not well understood (paras. 4.30-4.32), has leveled off at about 600,000 annually (MOHFW 1992). Many legal private-sector abortions are probably not reported. Illegal abortion includes a spectrum of practices, from modern surgical procedures carried out by unapproved private practitioners to a variety of folk methods (para. 3.56). The levels of illegal abortion and associated mortality are not known with any certainty. In a hospital study cited above (Rao 1988), sepsis due to abortion was the single highest cause of death, responsible for 26 percent of 'direct' obstetric deaths and 18 percent of death from all causes. In the Andhra Pradesh and Karnataka community-based studies (Bhatia 1988; Reddy 1992), illegal induced abortions were estimated to be responsible for about 6 percent and 3 percent of total maternal deaths, respectively.

2.38 The Indian Council of Medical Research carried out a study of induced abortion in the five states of Uttar Pradesh, Rajasthan, Orissa, Haryana, and Tamil Nadu in 1983-1985 (ICMR 1989b). It indicated that for the five states combined, 6 per 1,000 pregnancies ended in a legal abortion and 13 per 1,000, or somewhat more than twice the legal rate, ended in an illegal abortion (Table 2.22). If this relationship holds for subsequent years and for the rest of India as well, the reported level of about 600,000 legal abortions in 1990 would imply a total of about 1.3 million illegal abortions annually for all of India. For the five states combined, only about 55 percent of the abortions were carried out in the first trimester, and of these only about one quarter were provided by doctors (government or private) or other health staff. A recent report supported by the Ford Foundation argues that previous research seriously underestimated the magnitude of illegal abortion and that nearly 7 million induced abortions may occur annually. This suggests that for every legal abortion, 10 more are being performed under illegal conditions. The study also estimates that abortion-related deaths are significantly higher than previously reported and account for about 15 percent of all maternal deaths (Chhabra and Nuna 1994). Extending the provision of MTP services by trained doctors in proper facilities should result in the reduction of maternal mortality associated with unsafe abortion (para. 5.23). Comprehensive family planning services, including a contraceptive choice component, should indirectly reduce maternal mortality associated with unsafe abortion by preventing unwanted pregnancies.

Maternal Morbidity

2.39 While it is reasonable to expect that the morbidity profile of pregnant women will differ significantly from that of non-pregnant women, it is not adequate to infer the incidence and pattern of morbidity during pregnancy from studies of the causes of maternal deaths. During pregnancy a woman may suffer from non-life-threatening conditions which hamper her ability to function or have long-term implications for her

post-pregnancy health and well being. She may suffer diseases common among adults in India such as tuberculosis or malaria, or develop uterine prolapse or obstetric fistulae as a result of pregnancy. Based on estimates of maternal morbidity for developing countries, at least 40 percent of pregnant women in India have a serious illness and 15 percent of women develop life-threatening complications during their pregnancies. The proportion would be even higher if women who had miscarriages and stillbirths were included. Unfortunately, there are no recent community-based studies of maternal morbidity in India. Most studies focus on the nutritional status of pregnant women, particularly anemia, while a few have investigated specific conditions such as syphilis (e.g., Upe et al. 1979).

2.40 The findings of a prospective study of 349 pregnancies in 281 women in Rajasthan, even though they relate to 1974-1980, are therefore, worth presenting in some detail. The incidence of illness correlated strongly with parity, increasing from 14 percent among primiparas to 30 percent among second paras and up to 58 percent among women of fifth or higher parity. The incidence and severity of anemia have also been found to increase with parity (ICMR 1974). Maternal morbidity in this study was comprised of: complications due to pregnancy, childbirth and puerperium, of which post-abortion complications was the single leading category (29 percent); pyrexia of unknown origin (26 percent); infectious and parasitic diseases (11 percent); respiratory diseases (8 percent); and skin diseases (8 percent).

2.41 **Nutritional status during pregnancy.** The generally poor nutritional status of Indian girls and women (paras. 2.56-2.59) is a vicious cycle that has particularly devastating consequences for pregnant and lactating women and their infants. Malnourished women are more likely to give birth to low birthweight babies, and if the underweight baby is a female who survives, she, in turn, is likely to continue to be undernourished throughout her childhood and adolescence, with consequent detrimental effects on her reproductive and lactating capacities, not to mention her overall development.

2.42 The caloric and protein intake of Indian women during pregnancy and lactation, particularly those of lower socioeconomic status, is likely to be grossly inadequate. A pregnant woman's initial low nutritional status is frequently aggravated by failure to supplement her diet to meet the additional nutritional demands of pregnancy (paras. 3.48-3.49). The direct consequences are inadequate weight gain during pregnancy and delivery of low birthweight babies. In a study of pregnant women in U.P., average weight gain over the entire pregnancy averaged 6.9 kg, ranging from 6.3 kg among the poorest group to 7.7 kg among the best off (Bhardwaj et al. 1990). Other studies have reported similar figures (Tripathy et al. 1987). By comparison with the average Indian weight gain of about 7 kg., the average in Thailand and the Philippines is close to 9 kg (Krasovec and Anderson 1991) and in developed countries about 12 kg.

2.43 **Anemia during pregnancy.** Anemia in pregnancy, which is characteristic of many developing countries, increases the risk of maternal morbidity and mortality and is also associated with low birthweight babies and poor lactational capacity. International data indicate that some 40 percent of severely anemic women are at heightened risk of heart failure and fatal hemorrhage during childbirth. Maternal causes of death data for India (Table 2.19) also indicate that severe anemia is a major underlying cause of maternal death.

2.44 While anemia is prevalent in Indian women of reproductive age it is even more acute in pregnant women, due to higher iron requirements which increase about five-fold during pregnancy (Hallberg 1988). A variety of studies have shown that a high percentage of pregnant women in India are anemic, particularly in the last trimester. One study in rural districts of Gujarat and Maharashtra (Christian et al. 1989) found that about 90 percent of pregnant women had hemoglobin levels below 11 g/dl and were anemic by WHO standards. Other studies have found similar levels of anemia in pregnant women (K.N. Agarwal 1984; Raman 1988; D.K. Agarwal et al. 1987; Raman 1980; Sheshadari et al. 1989).

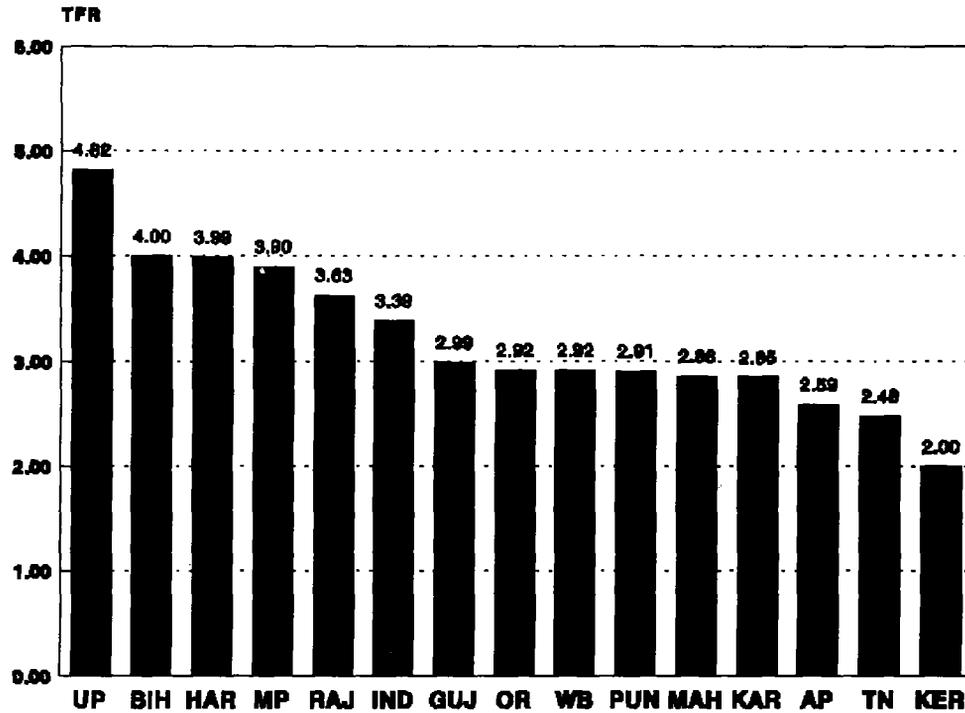
Links between Fertility and Maternal Mortality and Morbidity

2.45 Discussion of maternal mortality and morbidity is incomplete without consideration of the underlying cause, namely fertility--no woman is at risk of maternal death or illness unless she first becomes pregnant. Childbearing poses particularly high risks for women when it is too early, too closely spaced, too late, and/or too frequent.

2.46 In most developing countries, fertility decline has taken place first and most rapidly at higher parities and older ages as couples begin to terminate childbearing deliberately after the birth of a certain number of children. India is a case in point. Marital fertility at ages 35-49 has fallen by more than half over the last two decades; in both rural and urban areas, women age 35 and above now contribute only 10 percent or less to total fertility. A reduction in higher parity births in India is also indicated by the decline in the fertility of married women from an average of about 6 children in 1970 to the most recently estimated total fertility rate (TFR) of 3.4 children per woman. Fertility levels vary widely among the states, with the highest TFR, 4.8 in Uttar Pradesh (Fig. 2.9, Table 2.23).

2.47 The risk of too-early pregnancy is also declining because the age at which women marry is rising. (In India, exposure to the risk of pregnancy is almost entirely limited to married women, so that the risk of childbearing by adolescent girls is governed by the age at which girls are married.) In 1972, 41 percent of women were married at ages 15-19. Mean age at marriage for women⁸ has been rising steadily for several decades, and from 1971 to 1981 increased from 17.2 to 18.3 years. Relatively speaking,

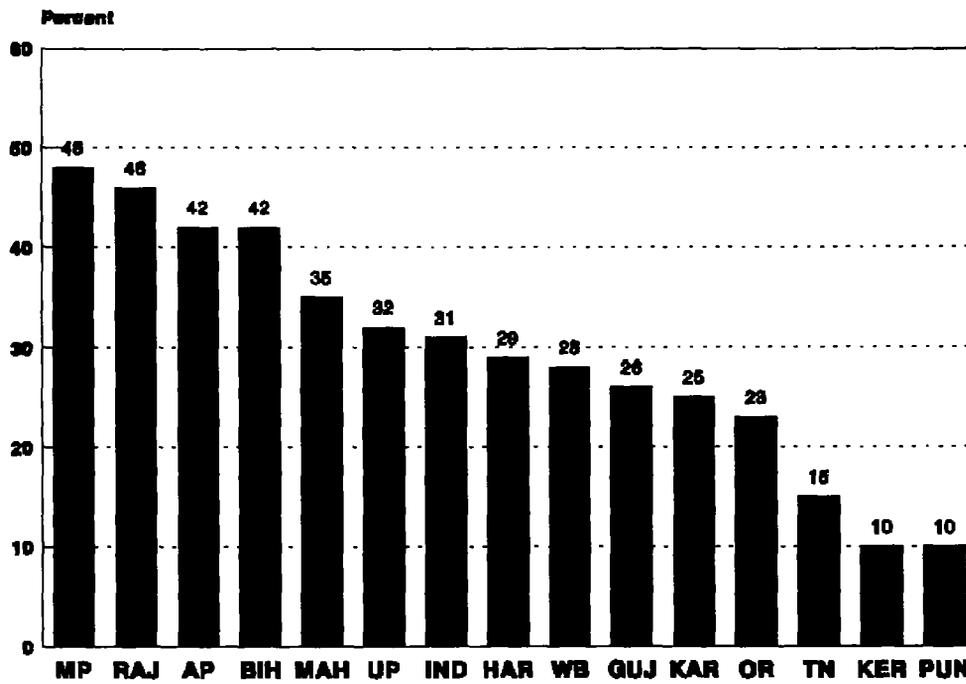
Figure 2.9 Fertility Rates, India and Major States: 1992-1993



Source: IIPS 1994

however, female age at marriage in India is still low. The proportion of currently married women ages 15-19 in 1991, by state is shown in Table 2.24 and Fig. 2.10. As expected, the northern states had higher percentages married, and in Rajasthan, Madhya Pradesh, Bihar, and Andhra Pradesh, the proportion of girls 15-19 who were married was still over 40 percent.

Figure 2.10 Percent Currently Married Women, Ages 15-19, India and Major States: 1991



Source: RGI 1994

2.48 Spacing of births is determined by a combination of factors related to breastfeeding, nutritional status and exposure to the risk of conception, for all of which data are limited. Although there is insufficient evidence to show that short birth intervals increase the risk of maternal mortality, many researchers have hypothesized this association (Govindasamy et al. 1993). Short birth intervals do, however, have a clearly demonstrated association with increased rates of infant mortality and low birthweight. The importance of ensuring birth intervals of at least three years underscores the need for increased use of temporary contraceptive methods (paras. 5.20-5.22), since shorter intervals may pose a danger to the health of the mother and the survival of both the infant and older sibling(s).

2.49 Although maternal mortality data are not comparable to the fertility and mortality data available for India, in general, both maternal mortality rates and ratios across regions reflect the differentials evident in the fertility data. Maternal mortality

rates are higher in high-fertility states because women are having more births. Maternal mortality is also higher in these states because more births are to high-risk mothers at young ages and older ages/high parity (as well as reflect poorer obstetric care). The continuing fertility decline results in declines in both maternal mortality rates and ratios, although the impact on rates is substantially greater than on ratios (Fortney 1987).

2.50 The proportion of women falling into low age, high age and high parity maternal risk categories is declining, and will continue to decline as fertility falls and the age at which women marry rises. However, the extent of childbirth at early ages, higher parity and later ages in some states continues to pose significant and avoidable maternal risks for Indian women as well as for their infants. Accelerated efforts to increase age at marriage and to reduce the number of high-parity births can more rapidly reduce the numbers of women at risk from these causes.

Other Female Morbidity

2.51 If our knowledge of mortality and morbidity in pregnancy is inadequate and incomplete, for female morbidity generally it is almost non-existent. Most data on non-pregnancy-related morbidity among women are from hospitals, clinics, or selective or focused studies, and thus, do not provide information on morbidity rates in the population overall. The sections that follow deal, first, with diseases and conditions that are not gender-specific, and second, with those problems that are entirely or primarily confined to women.

2.52 **Infectious and Other Diseases.** The micro studies that are available generally paint a picture of high morbidity and malnutrition among girls and women (e.g., Chidambaram et al. 1986; Rao et al. 1973). Among children, a higher proportion of female morbidity is likely to be due to those diseases that are also major causes of death, such as respiratory infections (Devadas and Kamalanathan 1985) or diarrheal diseases (Cohen 1987; Pettigrew 1987). Several disorders emerge as widely prevalent among non-pregnant women: iron deficiency anemia; parasitic infestations; respiratory infections, including pulmonary tuberculosis and reproductive and urinary tract infections. In addition, some diseases, e.g., malaria, leprosy, filaria, are endemic in certain areas.

2.53 The few studies that compare the health among women and men in the same household report a higher prevalence of illness among women (Duggal and Amin 1989; Jesudason and Chatterjee 1979). However, a gender difference in the incidence of disease has not been found, leading some researchers to suggest that higher female morbidity is the result of less medical attention given to female illnesses (para. 3.19).

2.54 Both the gaps in the data and the higher disease burden of females are well illustrated by an examination of data on malaria in India (Chatterjee 1991). These data consist largely of numbers of cases detected and deaths reported by primary health centers (PHCs) on the basis of the number of blood smear examinations. Although these

data are gathered for the purposes of malaria surveillance, they are not random. For passive case detection, blood smears are usually collected from patients visiting PHCs, among whom women are under-represented. For active case detection, outreach workers (usually male multipurpose workers) contact women in their homes, so that women are possibly, but not necessarily, over-represented. Some studies of the PHC data that give breakdowns by age and gender are available (Tewari et al. 1984). When slide positivity rates are computed, they are found to be higher among females than males (Ohlin 1984). Two interpretations of these findings are possible: (a) that malaria prevalence is indeed higher among females than males; or (b) that women who actually have malaria are more likely than men to come to PHCs, presumably because women would be brought to a PHC when illness is more advanced and they or their family members are more convinced of the need for treatment. In either case, the need for the health services to give increased attention to women's illnesses--in terms of data collection as well as patient identification and treatment--is clear.

2.55 **Nutritional Deficiency.** Protein-energy malnutrition is widespread among Indian girls, boys and women. This is documented in a variety of studies from all areas of the country, and both rural and urban populations (e.g., Basu 1989b; Srikantia 1989a; Gopalan 1985; Ghosh 1985; NNMB 1980a and 1980b). Poor nutritional status is already evident among females during infancy; it persists through childhood and tends to increase with age. For example, in a study of two Delhi slum populations, Basu found that only 50-65 percent of female infants below the age of 1 year were either normal or mildly malnourished, while for 5-9 year-old female children the percentage of normal and mildly malnourished fell still further, to about 30-55 percent (Table 2.25).

2.56 Anthropometric data also show that many women do not realize their full growth potential (NNMB 1980a and 1980b). For example, between 12 percent and 33 percent of 20-24 year-old women in surveyed states had heights below 145 cm, and between 15 percent and 29 percent weighed less than 38 kg. Below this height or weight women are at risk of obstetric difficulties and/or of delivering low birthweight babies. The percentages of younger women who are of low weight or height are higher because they may not have completed their adolescent growth spurt. Most women in north India become pregnant before reaching full maturity. This conveys considerable risk to mother and child.

2.57 The data on the relative nutritional levels of males vs. females, as indicated by various anthropometric measures, are more ambiguous than might be expected, given the strong indications of inequalities in food intake (paras. 3.14-3.16). A number of studies have found that malnutrition is more frequent and/or more serious in female children (Das Gupta 1987; Kielmann et al. 1978; Chen et al. 1981; Levinson 1974). However, it should be noted that the data available from the National Nutrition Monitoring Board (1980a and 1980b) did not, by and large, indicate that the nutritional status of female children was significantly worse than that of males. Other recent studies also have not reported a female disadvantage (Basu 1990; Srikantia 1989).

2.58 The National Nutritional Monitoring Board surveys (NNMB 1980a and 1980b) have documented low intakes of vitamin A and iron among girl children and adolescents. Vitamin A deficiency, which has been firmly linked to high mortality and morbidity in children, is also likely to be an underlying cause of high levels of respiratory and genito-urinary tract infections in women. With the onset of menarche, young girls are susceptible to anemia if dietary iron intakes fail to compensate for blood loss. Other studies also have established iron and calcium deficiencies among female children, adolescent girls and adult women (Harriss 1986). Iron deficiency anemia, in particular, is a major health problem of Indian women from an early age, and its widespread prevalence in India is well established. A nation-wide study found that over 95 percent of 6-14 year-old girls in the east (Calcutta) were anemic, around 65 percent in the south central area (Hyderabad), 57 percent in the northern areas (New Delhi), and about 20 percent in the south (Madras) (Table 2.26). The prevalence of anemia among women aged 15-24 and 25-44 years followed similar patterns and levels. The implications of anemia in pregnancy and its contribution to maternal death are discussed above (para. 2.43). Anemia also increases susceptibility to diseases such as tuberculosis and reduces energy for daily activities, whether household chores and child care or agricultural labor. A severely anemic individual is taxed by most physical activity, including walking at an ordinary pace.

2.59 **Gynecological Problems.** Of those health problems that are largely or entirely confined to women, the most obvious are gynecological disorders. Nationwide prevalence estimates are not available. The reproductive health problems of women have been studied at the community level even less than has general morbidity, due to the difficulties in diagnosing gynecological problems at a field level. A few population-based studies, influenced by clinical experience, have focused only on specific disorders, e.g., cervical or uterine cancer (Wahi et al. 1972; Garud et al. 1983; Mali et al. 1968), or vaginal discharges and genital infections (Bali and Bhujwala 1969). A study of women in two villages in Maharashtra (Bang et al. 1989) provides data on the prevalence of gynecological diseases, although the study was carried out in a tribal area, and therefore, may not be typical of rural Maharashtra, let alone of India generally. Some 55 percent of the women studied had 'gynecological complaints', the most prevalent was related to problems with menstruation, vaginal discharge or burning on urination. In addition, many complained of two non-specific but related symptoms, low back pain and lower abdominal pain. On clinical examination, astonishingly high levels of disease were identified: 92 percent of the women were found to have one or more gynecological or sexually transmitted diseases, with an average of 3.6 diseases per woman. Notably, almost all women who reported symptoms were found to have a gynecological disorder, but so did 85 percent of those who were symptom free. Half of this morbidity resulted from infections of the genital tract. The prevalence of disease found in the study is shown in Table 2.27. The most frequent specific problems were bacterial vaginitis (62 percent), cervicitis (49 percent) and dysmenorrhea (58 percent). Some 7 percent of the women had primary or secondary infertility, and 11 percent were infected with syphilis.

2.60 Of the women studied, only 8 percent had ever had a gynecological examination or treatment, an indication of both the women's failure to recognize their need for treatment and/or their inability to obtain it, as well as an apparent lack of awareness of the magnitude of the problem. There is a paucity of women doctors able to detect or treat gynecological problems among rural women who are particularly reluctant to approach male doctors about gynecological or sexual disorders. Female nurses and paramedical field staff are not trained to deal with these problems, contributing to the almost total absence of care. Laboratory capacity for diagnosis and treatment is scarce.

2.61 A disease burden, to the extent indicated by this study, inevitably results in a host of complications for the women: difficulties in occupational and domestic work (chronic backache was reported by over 30 percent); fetal wastage (miscarriages and stillbirths); infections of their newborns, which are acquired in the birth canal; sterility; sexual disorders; anxiety; and stress. In addition, the study indicated a significant association between use of contraception and subsequent gynecological problems, such as menstrual and cervical disorders and pelvic inflammatory disease. The fact that a woman's ability to contracept can be jeopardized by pre-existing gynecological disorders that are exacerbated by the use of contraceptives links women's general health problems to maternal health and underlines the importance of improving the ability of the health services to meet women's reproductive health needs beyond those associated with pregnancy and delivery (para. 5.26). HIV/AIDS is a rapidly emerging problem which will significantly affect the health of Indian women and require increasingly greater attention by the health system.

2.62 *Back pain*, a symptom regarded as 'non-specific' by the medical profession, has been called 'the feminine affliction' and traced to a variety of conditions and underlying causes (Shatrugana et al. 1990). The authors based their analysis on a study of women hospitalized for fractures. The majority of fractures were related to osteoporosis, a condition resulting from calcium and related nutritional deficiencies and associated with menopause. While most of the fractures among women over 40 were the result of minor trauma or occurred 'just during walking,' among younger women 18-39, most occurred as a result of work-related accidents. The authors concluded that several factors contributed to these problems: (a) the upbringing of young girls, which requires the adoption of postures that are detrimental to bone integrity; (b) early and continuous nutritional deprivation among women; (c) early and repeated pregnancies and years of lactation; and (d) engagement in work which entails poor posture, is high risk and/or is also low-paying and does not allow women to improve their diets.

2.63 **Occupational Health Problems.** Little information is available on the occupational health problems of women because the great majority are employed in the unorganized sector in a large variety of occupations. The majority of poor rural women work as agricultural laborers, which exposes them to specific health difficulties. Long hours spent standing in water while weeding and transplanting rice, essentially a female occupation, increases susceptibility to vaginal infections, infectious and parasitic diseases,

insect bites, arthritis, and rheumatism. Back pain and osteoarthritic complaints are also common among women undertaking harvesting tasks and other stoop agricultural labor. Most agricultural and vending tasks, as well as domestic tasks, such as fuelwood and water collection, involve carrying heavy headloads which can cause spinal problems.

2.64 Cooking, an almost exclusively female occupation that takes up a substantial portion of most women's time, is particularly hazardous to Indian women because of cultural constraints which require that kitchens be located indoors. Kitchens are rarely adequately vented, so that women are commonly exposed to levels of smoke particles and pollutants which are hazardous to health. Concentrations of such pollutants averaging one hundred times the level deemed acceptable by the WHO were measured in rural kitchens in one study (Smith et al. 1983). Wood smoke causes lung problems which, in turn, place a strain on the heart. The incidence of this problem was found to be the same among men and women by a 15-year hospital-based survey. However, its etiology was traced to tobacco smoking among men, in contrast to kitchen smoke inhalation among women. The age of onset of the disease was lower among women, and nearly all the women affected were from low-income groups. As noted above, respiratory diseases are a leading cause of death among women and girls over 5 years of age. There is also evidence linking impaired fetal development, low birthweight, and perinatal death to maternal exposure to pollutants, particularly in the presence of anemia, an almost universal condition among Indian women.

2.65 The health hazards of some additional occupations can be illustrated briefly. For example, women working in the carpet industry suffer from ankyloses and chronic postural defects which may result in difficult pregnancies or even subsequent sterility. Workers who roll bidis (indigenous cigarettes) are exposed to tobacco dust and are susceptible to problems such as tuberculosis, asthma, allergies, backaches, and rheumatic complaints. In coir, jute and cashew-nut processing, cotton and tea plucking, rubber tapping, and the textile industry, exposure to toxic chemicals and physical stress is substantial. Workers in the garment and embroidery industries complain of chronic back pain and eye problems due to poor physical and lighting conditions in the work environment (Chatterjee 1987; Ghosal and Chakraborti 1987). All of these problems can be further aggravated by malnutrition, anemia, frequent childbearing, and/or long working hours.

2.66 **Social Health Issues.** Indian women are exposed to crimes such as rape, burning and beating at unusually high rates. Although these problems almost certainly contribute to 'accidents and injuries' being the leading causes of death among women aged 15-34 (Table 2.16), specific data on their incidence and resultant morbidity are conspicuously absent. Whether accidental or intentional, burns are a major cause of hospital admissions in urban hospitals (Karkal 1985). High rates of alcoholism among men, common among poor populations in tribal, rural and urban India, can also be seen as a woman's health problem because of the link between alcohol consumption and domestic violence.

III. THE HEALTH CONTEXT

A. THE SOCIOCULTURAL CONTEXT

3.1 In India, where families live in poverty and where health infrastructure is poor, males as well as females suffer. However, there are particular risks that women face because of their reproductive biology, and maternal mortality rates in India are among the world's highest. Furthermore, age and gender specific mortality rates indicate that girls and women under 30 years of age are additionally disadvantaged by sociocultural factors. Significant disparities exist between the north and south. In much of southern India, impressive progress has been made in improving education and health for the population overall, particularly for women. However, the female mortality disadvantage relative to males not only persists but is worsening in some northern states. For this reason, and because the northern states comprise a major portion of India's population, the discussion that follows focuses on north India.

The Status of Women

3.2 In traditional societies, personal and household circumstances as well as access to key social resources are structured, to a great extent, by family, kin and marriage relationships. These can vary greatly--in fact, the kinship systems of Hindu north India, Hindu south India and Muslim India represent three quite different types of systems. What is common to all of these systems is that they define gender in social terms. That is, what is considered to be the proper role, function and behavior of women, and who controls their productive and reproductive capacities, are integral aspects of larger social systems.

3.3 The position of women (their 'status') in these systems can be assessed in terms of two related sets of criteria (Basu 1989a; Dyson and Moore 1983). First, the possibilities available to women are conditioned by their exposure to and interaction with the outside world. Second, the situation of women is further determined by their capacity to make decisions both inside and outside their households (what has been termed their 'autonomy'), which includes their ability to (a) control their own physical movements; (b) acquire, retain and dispose of earnings and/or property; (c) control to some extent their reproductive careers (e.g., the choice of a husband and use of contraception); and (d) associate with their natal kin.

3.4 In the light of these criteria, the position of north Indian women is notably poor. Traditional Hindu society in rural north India, is hierarchical, patrilineal, patrilocal, and strongly male dominated. The implications of this for women can be seen in terms of marriage. Ideally, for north Indian Hindus marriage within socially acceptable (i.e., caste) boundaries requires a woman be married to someone to whom she is not related on either her father's or her mother's side, and who lives outside her natal village. Marriages are alliances in which young women and men have no say. Wife-

givers are socially and ritually inferior to wife-takers, necessitating the provision of dowry. Conversely, because girls will require a dowry when they are married and thereafter will be lost to their natal families, female children are generally considered more of a burden to their parents than sons.

3.5 Thus, north Indian Hindu brides entering their husbands' households are strangers in a strange place⁹. They are controlled by older females in the household and their behavior reflects on the honor of their husbands and the larger patrilineal group. Restrictions on their personal movements often amount to their seclusion ('purdah'). Additionally, emotional ties between spouses are considered to constitute a potential threat to the solidarity of the patrilineal group. Hence, the northern system is associated with the segregation of the sexes in general and with limited communication between spouses in particular, a circumstance that has direct consequences for the adoption of family planning and other 'modern' health behavior. And, as is typical of such cultural traditions, the norms are internalized by those who are disadvantaged by them. That is, a young Indian bride is socialized to believe that her own wishes and interests are subordinate to those of her husband and his family. In such circumstances, a newly married young woman's primary duty, and virtually her only means of improving her position in the hierarchy of her husband's household, is to bear sons.

3.6 The traditional circumstances of women in north India are brought into clearer focus by comparison with the situation in south India. In south India, the preferred customary marriage of a daughter is to her mother's brother (i.e., to her maternal uncle), or failing that, to her mother's brother's son (i.e., her cross-cousin). Even if the preferred kinsman or woman is not available, others nominally standing in desired relationships will be given preference. Such marriages would be unthinkable in north India. The consequences of these contrasting marriage systems for women are substantial.

3.7 In south India, since men are likely to marry women to whom they are related, either actually or nominally, the strict north Indian distinction between patrilineal and marital relatives is not found. Men are as likely to have social, economic and/or political ties with other men to whom they are related by marriage as by descent, and women are likely to be married into familiar households near to their natal homes. There is no ritual or social distinction between the families of the bride and bridegroom as there is in the north. Marriages have typically been characterized by bride price rather than dowry, although any large marriage exchange among close relatives is considered inappropriate. Since no premium is put on controlling their physical movements, women are much more likely to retain close relationships to their natal kin, and affective ties between spouses are culturally accepted.

3.8 It should be noted that over the last several decades marriage patterns in south India have changed significantly and rapidly. In consequence of a set of social, economic and demographic changes, the number of marriages among close relatives is

declining and bride price has given way to a dowry system akin to that in the north (Caldwell et al. 1988)¹⁰. There is no doubt that the rise of a dowry system has made daughters in south India a more expensive and less desirable proposition than they were a generation ago. Nevertheless, so long as the underlying ethic of marriage in the south remains the reinforcement of existing kin ties, the relatively favorable situation of south Indian women is unlikely to be threatened.

3.9 The question of what underlies the contrasting north-south cultural contexts and their consequences for the status of women has been the subject of much speculation. It is clear that they pre-date the Muslim presence in India, and in fact, are often considered to be a reflection of the older contrast between the Dravidian south and the Aryan north. Schultz (1982), Miller (1981), and Bardhan (1974) have all stressed the economic basis, noting that the north-south contrast in the status of women corresponds to greater dependence on female agricultural labor in the rice-growing south than in the wheat-growing north. But while it is possible to construct analytically useful models by disaggregating various components and also incorporating a historical basis, in practice, the regional cultural contrasts can be considered to exist independently of regional socioeconomic differentials.

3.10 A study of two groups of rural migrants from the north and the south of India (U.P. and Tamil Nadu) living in similar circumstances in a resettlement area in Delhi, thus providing a classic natural experiment, allowed Basu (1990; 1989a; 1989b) to examine differences in the position of women in the two regional cultures and the effects on health status. In terms of the criteria set out above (para. 3.3), the contrasts were along expected lines. Some 64 percent of the Tamil women were employed outside their homes, as opposed to only 6 percent of the women from U.P. The author remarks that this difference should be interpreted as a cultural rather than a socioeconomic distinction. Household incomes in the two groups were actually quite similar. It was not that employment gave the Tamil women more control over their lives; rather, their ability to seek employment was itself an indicator of their relatively greater control. The greater autonomy of the Tamil woman was reflected generally--not just among the employed women--in their much higher level of interaction with the outside world in their day-to-day lives. In terms of health care, such exposure to and interaction with the world beyond their households led not only to increased knowledge about the nature and availability of health services, but also to increased confidence in seeking out service providers. The demographic variables for the two populations also differed along expected lines. Both fertility and mortality levels were higher in the U.P. population, and further, at ages 0-4 female mortality was higher than corresponding male mortality for the U.P. population, but the reverse was true for the Tamil Nadu group.

The Consequences of Female Disadvantage

3.11 The unfavorable status of women in India has several consequences that directly and indirectly affect the health status of women and their female children. These include strong son preference, discrimination in allocation of resources, such as food and health care, limited education of females and early marriage for girls.

3.12 **Son preference.** In a situation where female children are regarded as a net cost to the family, and where male children are considered assets for their potential contribution to family productivity, as well as the wealth that their brides will bring, a strong son preference is inevitable. In its most extreme form, son preference results in female infanticide and, more recently, sex-selective abortion. Data indicating the extent of these phenomena are lacking. However, female infanticide has been documented in both north and south India. George et al. (1992) reported that in 12 study villages in South Arcot district of Tamil Nadu, female infanticide was practiced in six. The reasons why some villages did not practice infanticide while others did are not certain.¹¹ In those villages where it did occur, 10 percent of newborn girls were not allowed to survive. Medical techniques such as amniocentesis and ultrasound are increasingly being used for determining the sex of a fetus, although the extent of resulting sex-selective abortion is unknown. Statistics on births from Haryana suggest that since about 1980 the sex ratio at birth in that state, especially in rural areas, has become more masculine (UNFPA 1991). The Government of India has indicated its strong opposition to antenatal sex determination. The Antenatal Diagnostic Techniques (Regulation and Prevention of Misuse) Act was passed in 1994 to make such tests a legal offence. However, implementation of this act has proven difficult.

3.13 Female infanticide and sex-selective abortion, however, are extreme measures. Son preference is most readily apparent in the differential treatment of female children, in terms of feeding and medical care. In a study in Ludhiana district of Punjab, Das Gupta (1987) found that for first-born children ages 0-4, the male/female mortality ratio was along expected lines, that is, male death rates were higher than female. However, for higher birth orders the ratios were dramatically reversed. For second-order births, female death rates were higher than male, and with each successive birth order the male/female ratio declined further. Mortality levels for second-born girls, when the first child was a girl, were significantly higher than in the case of a first-born male.

3.14 **Food Intake.** Gender differences in food intake first become apparent for breastfeeding. A female child is likely to be breastfed less often, for shorter periods and for an overall shorter duration than her male siblings (Ghosh 1987; McNeill 1984; Kumar 1983; Khan et al. 1989; Das et al. 1982; Levinson 1974). One result of shorter breastfeeding durations for female infants is shorter intervals to the next birth following a female, as compared to a male birth. This differential has, in fact, been reported for all states (RGI 1988b). At least to some extent, shorter breastfeeding of females is an indirect effect of son preference. If women are particularly anxious to have a male child

after the birth of a female child, they may deliberately try to become pregnant again as soon as possible, thus cutting short the time that the female child is breastfed. Conversely, after the birth of a male child women may consciously seek to avoid another pregnancy in order to give maximum attention to the new son (Khan et al. 1989).

3.15 In recent years, increasing attention has been given to the disadvantage suffered by girls in the intra-household allocation of food. Although rates of malnutrition are high and weaning practices poor overall, ethnographic literature suggests that girls are fed less well than boys in northern India (Miller 1981). Studies in Uttar Pradesh (Khan et al. 1989), Punjab (Das Gupta 1987), Andhra Pradesh (Bidinger et al. 1986), and Tamil Nadu (Devadas and Kamalanathan 1985) all indicate discrimination against female children in feeding, as does a review of household surveys of dietary intake in south Asia (Harriss 1986), which also found less equity in the north than in the south of India. It was found that, as might be expected, higher total intake of calories by males included more higher quality, prestige foods such as fats, milk and sugar. The intractability of the problem across socioeconomic levels is indicated by a study of two villages in West Bengal (Sen and Sengupta 1983). In both villages girls were more frequently and severely malnourished than boys, especially in landless households. Following land reforms in one village, the percentage of the population owning land increased and under-nourishment among 0-5 year olds decreased. However, the gains were made by males: the nutritional status of boys in the village improved while that of the girls showed no change.

3.16 The malnutrition among a significant proportion of adult Indian women (paras. 2.56-2.57) can be attributed primarily to inadequate food intake. Even in households where, theoretically, there is adequate food, maldistribution of food within the household may adversely affect the nutritional status of the women. Typically, adult men and male children are fed first. Women eat only after the men have finished, and a young wife will then give food to her mother-in-law, with whatever is left having to suffice for herself and her female children (Jeffery et al. 1989; Caldwell et al. 1989). (Differential feeding may be as much a matter of poor communication as of deliberate practice, since men are normally unaware of how much the women eat). Given the nutritional demands of childbearing and lactation, this puts women at particular nutritional risk during their childbearing years (paras. 2.41-2.42). Even when food is in sufficient quantity, Indian women continue to be at risk of malnourishment due to the poor nutritive quality of available food and inadequate iron absorption.

3.17 **Health Care.** There is considerable evidence that male children receive earlier, more and higher quality health care than female children. In an early study in Ludhiana district of Punjab it was found that children who were below the age of 3, female or low caste had less and lower quality medical care than others. Two decades later, Das Gupta (1987) found that in the same area, female children's disadvantage in terms of medical care persisted. A hospital study in Ludhiana concluded that three out of four girls who were ill enough to require hospitalization were not given this care because

of gender bias (Booth and Verma 1992). Caldwell et al. (1983) found that in rural Karnataka twice as many boys as girls were being brought to the primary health center (PHC).

3.18 In a study in rural western U.P., Khan et al. (1989) reported that over a one-week period roughly three times as many boys as girls were brought to the PHC. In fact, it is increasingly recognized that in accounting for gender differentials in young child mortality, differences in health care may be more significant than differences in nutritional status (Basu 1989b). The recent PRC and IIPS state-level report for Uttar Pradesh (1994) confirms earlier findings. More male children were fully vaccinated, and male children received preferential treatment for acute respiratory infections and fever. There was no evidence of discriminatory nutrition practices, however.

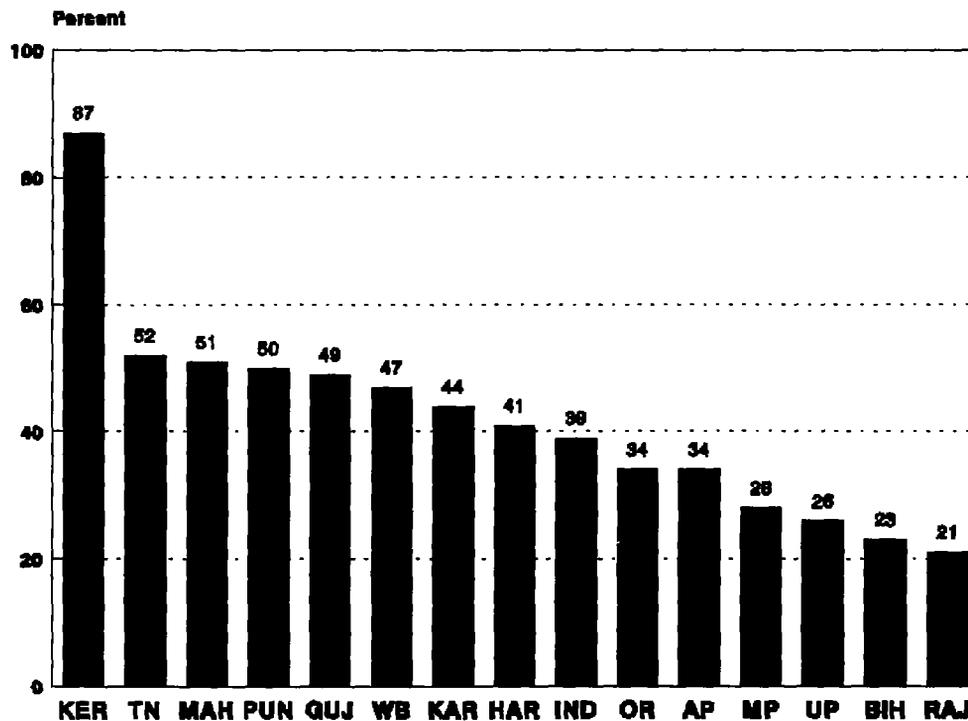
3.19 The disadvantage of female children, with respect to health care, is also true of adult women. In household surveys, more female than male illness is typically reported (e.g., Khan et al. 1989). This is especially striking since female morbidity is likely to be under-reported for several reasons: women respondents may be reluctant to reveal illnesses to interviewers; may purposely downplay them to avoid disrupting domestic duties or, consistent with their socialization, may not wish to imply that they are asking for medical care. Community-based studies make it clear that higher morbidity rates among women are due, in part, to lower rates of medical treatment for females than for males (Kielmann et al. 1983; Dandekar 1975). This is supported by records of lower female attendance at hospitals and health centers (e.g., Khan et al. 1989; Murthy 1982). Community-based studies also revealed that a high proportion of women received no treatment, and among those who did, self-care, home remedies and traditional medical care are the most common. In contrast, men are more likely to receive modern medical care, including institutional care and higher quality care (Das et al. 1982; Miller 1981).

3.20 The timing of treatment is also critical and is usually later for females than males, even in the case of life-threatening conditions (Kielmann et al. 1983). That women sought medical help only at advanced stages of illness, which greatly reduced their chances of survival, is corroborated by hospital data which showed that case fatality was higher among female patients admitted (e.g., Kynch and Sen 1983). Even the major diseases common to men and women resulted in higher female mortality because, though they may be easily recognized, they were treated less frequently, later and less effectively in women than in men. Additionally, expenditure on female health problems was less than for males (Das Gupta 1987).

3.21 **Education.** Female disadvantage in India is clearly evident in terms of education. The educational situation of Indian women is most clearly indicated by their literacy levels. Most Indian women are illiterate, and most Indian illiterates are female. Data from the 1991 census indicate that 39 percent of Indian women above age 7 were literate, as opposed to 64 percent of males. Of the 324 million illiterates enumerated in India in 1991, 197 million, or 61 percent, were girls and women. Although substantial

progress has been achieved since Independence, when less than 8 percent of females in India were literate, it has not been rapid enough to keep pace with population growth: there were 16 million more illiterate females in 1991 than in 1981. Among the states, female literacy ranged from only 21-26 percent in U.P., Bihar and Rajasthan to slightly over 50 percent in Maharashtra and Tamil Nadu; Kerala, with almost 90 percent female literacy in 1991, stands apart (Fig. 3.1). By contrast, male literacy was above 50 percent in all states (Table 3.1). The central and state governments recently initiated efforts to bridge the gap between the educational levels of men and women. For example, the National Literacy Mission has been successful in a number of districts and literacy levels, especially among women, have increased dramatically.

Figure 3.1 Female Literacy Rates, India and Major States: 1991

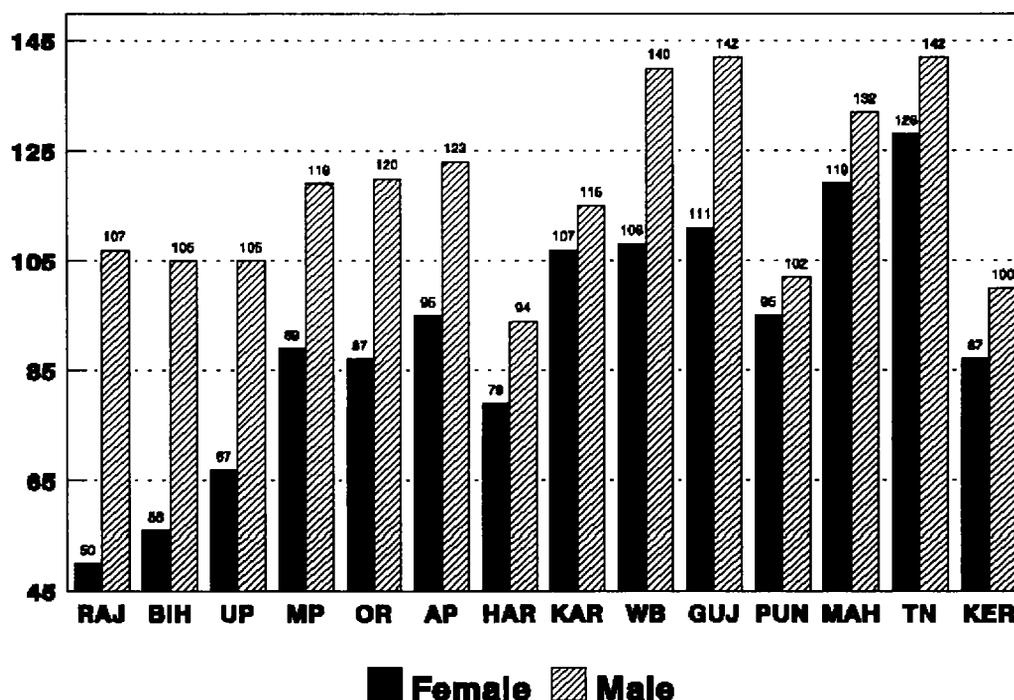


Source: RGI 1991b

3.22 Underlying the high levels of female illiteracy in India are low rates for the enrollment and retention of girls in school (Fig. 3.2). However, these rates show a promising upward trend. Gross enrollment ratios in primary education increased from 82 percent for boys and 33 percent for girls in 1981 to 116 and 88 percent, respectively, in

1991. From 1981-1991, reports suggest that primary female enrollments have grown at 3.7 percent annually, while those for boys grew at 2.5 percent. Due to incomplete enrollments and high dropout rates, about 60 percent of all boys and 40 percent of all girls complete the first five years of primary school. In the nine northern states, where 63 percent of the population lives, only about 28 percent of girls finish the first five years of school. In India as a whole, about 46 percent of boys and 28 percent of girls in the appropriate age group progress to upper primary school (WB 1994b).

Figure 3.2 Primary Gross Enrollment Ratios by Gender, Major Indian States: 1991



Source: GOI, Department of Education, 1993

3.23 Whether or not a girl will be enrolled in school, and once enrolled, how long she will be allowed to continue, is linked to socioeconomic status. In rural India, girls from families with little or no land and with limited resources, e.g., families of agricultural laborers, are less likely to be enrolled in school and more likely to be withdrawn sooner. In urban areas, girls most at risk of not attending school are from slum families whose adult members work in a variety of poorly paid, low-status occupations or in the unorganized or informal sectors. In both urban and rural India, the

elementary school participation rates of girls from scheduled castes and tribes also tend to be comparatively low (Kurrien 1990). No matter what primary school enrollment levels may be, girls from almost all sections of Indian society are likely to be withdrawn from school before they have completed their secondary education.

3.24 Studies indicate that the importance of educating young girls is quite well accepted in India (Kurrien 1990). Although most Indian primary schools, particularly in rural areas, are seriously deficient in many respects, there is general agreement that the wide discrepancy between attitudes and actual practice can be attributed primarily to a number of key socioeconomic factors, rather than to the problems of the schools themselves. These are (a) high direct costs of education, especially for poor households; (b) the need for girls' labor at home (i.e., the high opportunity cost of educating girls); (c) the low expected returns to households from investing in daughters' education, given their loss to the household after marriage; and (d) social concerns over the exposure of older girls to non-kin males. Such concerns are responsible for the abrupt withdrawal of so many girls from school at menarche, even though they may be only weeks or days from completing a given school year or course (Caldwell 1989).

3.25 The importance of the links between increasing education levels, particularly in north India, and improvements in the health status of Indian women and their female children cannot be overemphasized. Studies in developing countries generally, and India in particular (e.g., RGI 1988), have consistently documented a strong relationship between mother's education and child survival; that is, the more educated the mother, the more likely that her child will survive. The mechanisms responsible for this association are reasonably clear. The more educated a woman is, the more likely it is that her husband and/or in-laws allow her to decide whether and when to seek health care for her children, or for that matter, herself; the sooner she is likely to seek care and the more likely it is that care is modern rather than traditional. Furthermore, the evidence indicates that more educated mothers are more likely to continue with recommended treatment and to return to the nurse or doctor if the problem persists, rather than trying alternative treatment.

3.26 Caldwell et al. (1989) argue that these changes arise, not directly from 'health education' acquired in school (although the potential for such education as a source of change is obviously great), but rather from the broader 'empowerment' effect that schooling can convey. School attendance is the first step in a process of familiarization with the outside, modern world. Women who have had such exposure are better prepared to move beyond the traditional confines of household and village and to see themselves as able and entitled to cope with the world. The more educated a woman is, the more likely she is to want and be able to obtain contraceptive services, modern preventive and curative health care, immunizations, schooling for her children of both sexes, and delayed marriage of her daughters.¹²

3.27 Early marriage. Traditionally, marriages concerned families rather than individuals and were arranged when the principals were still children. The beginning of cohabitation ('effective marriage') was marked by a separate ceremony held at a later date. The absence of any consideration of individual wishes in arranging marriages applies to males as well as females. However, early marriage has particular implications for girls because of traditional pressures to ensure that they are married by the time they reach puberty or very soon thereafter. The age at marriage for girls in India has been steadily rising (para. 2.47), but particularly in the north, it is still early enough to cut short educational possibilities for girls--there is a high correlation between age at marriage and educational level (Chatterjee 1991). Early marriage is also likely to have adverse physical consequences for adolescent girls by prematurely exposing them to the risk of pregnancy. If girls whose nutritional status is poor become pregnant in their teens, before they have attained full stature and their pelvises are fully developed, the resulting cephalopelvic disproportion makes the possibility of obstructed labor, a major cause of maternal death, far more likely. The incidence of other complications of pregnancy, including fistulas and toxemia, are more common in adolescent girls (Mathai 1991; Chatterjee 1991).

3.28 Physical and resource constraints. The physical restrictions on women's movements, combined with their limited access to household financial resources, severely constrain their ability to seek health care for themselves and their children. The seclusion of north Indian women results in a reluctance to have women and girls examined by an outsider such as a doctor, particularly if, as is usually the case, he is a male (Basu 1990; Jeffery et al. 1989). Further, a woman who wishes to obtain health care, whether from a local traditional practitioner, the district hospital or some intermediate source of care, is not free to do so independently. She must obtain permission from her husband or in-laws, she must be escorted by a male family member if travel outside the village is required, and she must acquire the money to pay for services and/or drugs. Such physical and financial constraints underlie the basis for outreach activities by the government's Family Welfare Program (para. 4.2). They also add a difficult but crucial dimension to the 'demand' side of the service delivery equation.

The Productive Dimension

3.29 In addition to their reproductive roles, almost all rural women fulfill very heavy productive functions in their adult lives, and in many cases, even as children. The two are closely linked and cannot be considered independently of each other (Jeffery et al. 1989; Chatterjee 1990). Traditionally, north Indian women are expected to keep to their homes and courtyards and the household activities that are carried out there. Men, by contrast, work and earn livelihoods in the outside world of fields and bazaar (what is termed the 'inside-outside dichotomy' in WB 1991a). The ability to withdraw women from outside work is one of the most important symbols of economic and social status in rural north Indian society. In practice, however, only the richest landowning families can afford to do without the productive labor of their women outside the house. In more

modest landowning households, women typically work on family lands during the peak agricultural seasons and do other outside work involving care of animals and provision of fodder and fuel. In landless families, the income of women from agricultural or domestic labor is often the chief support of the household.

3.30 Ironically, the development of agriculture (the Green Revolution) in recent decades has not necessarily ameliorated the productive burden that falls on women. Although there are some trade-offs--hand pumps, fodder choppers, mechanized mills and so forth have eased some of women's tasks--the workloads of women in most landowning agricultural households have probably increased. Scrub land previously used for grazing is increasingly being cultivated, and more land is being devoted to field rather than fodder crops, so that obtaining fodder for household animals, which is women's work, is both more necessary and increasingly time-consuming. Time and labor required for crop-processing of wheat and rice has grown significantly, while decreasing availability of fire wood has meant that women must spend larger amounts of time making dung-cakes. On the whole, increased agricultural productivity has not been accompanied by much mechanization of related housework. On the other hand, when field labor is mechanized it becomes men's rather than women's work, thereby depriving laboring women of a source of income (WB 1991; Chatterjee 1991; Jeffery et al. 1989).

3.31 The extensive and often strenuous physical labor that women must perform, combined with preferential access to food by men, accounts in good measure for the reported extent of malnutrition among Indian women. One study estimated that when women's physical activity, including both field and domestic labor, was taken into account, women had a higher daily calorie expenditure than men in the same households (Batliwala 1982).

3.32 Productive responsibilities are hardest on younger women in their childbearing years. Typically, women work until late in their pregnancies, without any special provision for rest or additional food (paras. 3.48-3.50), and resume work before they have fully recovered. This can result in a cycle of maternal depletion that can have devastating consequences for a woman's health and undermine her ability to carry out her responsibilities, whether productive or reproductive. A woman whose physical reserves are already depleted by earlier childbearing, lactation, endemic anemia, and her continuing productive burden has no reserves for an additional pregnancy. Continued physical activity until late in pregnancy and lack of adequate rest contribute to excessive rates of still birth, premature birth and intrauterine growth retardation as well as depletion of the mother's health (Khan et al. 1982; ICMR 1977).

The Poverty Dimension

3.33 The contrast between regional cultural norms in India provides one approach to analyzing the status of women and its consequences for women's health. However, within, and to some extent across regions, socioeconomic differentials are the clearest

determinants of women's health status. Especially for a poor woman dependent on wage labor, health status is the key to a vicious cycle from which she is never entirely able to escape. Her health determines how productive she is able to be, yet how much she earns through her productive activity is a major determinant of how much she and her family are able to eat, thus directly affecting her health status. The health of these women is, therefore, critical to the well being of their households and the survival of their young children.

3.34 In poor households, pressures on young girls to earn begin at an early age. This may take the form of working alongside laborer parents, or in certain localities, participating in home-based industry such as carpet-weaving or bidi (cigarette) rolling. By the time they are young adolescents, these girls are often working long adult hours, placing on them considerable energy demands that are unlikely to be adequately met in nutritional terms. The nutritional deprivation of these girls in the early stages of their lives, thus, lays the basis for subsequent births of underweight babies to malnourished women of low stature (para. 2.41). Poverty increases the chances that a woman will be of low stature which, in itself, makes the birth of low birthweight babies more likely. A study of these relationships showed that the incidence of low birthweight was 36 percent among babies born to poor women who were short, compared to 24 percent among those born to poor women over 145 cm and 15 percent among babies of women who were better off and taller (Ghosh et al. 1982).

3.35 Since women's agricultural work tends to be seasonal, poor households dependent on women's earnings from this kind of labor are particularly vulnerable to seasonal fluctuations in the availability of food, and consequently, nutritional status. Pregnant and lactating women are particularly affected, often losing weight during seasons of the most severe deprivation. Infants are suddenly weaned at such times, with detrimental effects on their health, although this may relieve the pressure on the mother to some extent.

3.36 The dependence of poor households on women's labor has, apparently, contradictory consequences for differential mortality, and also raises questions about conventional criteria for judging the status of women. First, there is considerable evidence that at the lowest socioeconomic levels female children receive more equitable treatment than they do at higher levels. Basu (1989b), for example, found that in the U.P. population she studied, the lower groups (whether defined by income or caste) were much more even-handed in providing medical treatment than those who were better off. Such a widening of gender differentials at higher socioeconomic levels has also been noted for mortality (Miller 1981) and, in some cases, nutritional status (Sen and Sengupta 1983)¹³. More equitable treatment of female children at lower socioeconomic levels appears to reflect their potential as income earners even at fairly young ages. At higher levels female children are considered a net drain on family resources (para. 3.4), thus, providing a motive for more favorable treatment of male children.

3.37 Second, women's ability to obtain paid employment outside the home is usually regarded as an important improvement over the situation of women who are restricted to their homes or, at most, to unpaid family labor outside the home. However, in rural north India the opposite is the case. Women engage in agricultural and other casual labor for reasons of dire economic necessity, and were family circumstances to improve to the point that the women could give up such employment, it would be considered by all concerned to be a major achievement. This is true not only for symbolic reasons of status, but also because in this hierarchic, male-dominated society poor women may be vulnerable to sexual victimization by their high-caste male employers (Sharma 1985).

3.38 Another aspect to the relationship between poverty and women's status concerns the tribal populations that are concentrated in remote hilly areas of India. In terms of their physical freedom and their ability to control resources, the position of women in tribal societies is typically better than it is in Hindu society. However, for geographical and social reasons, tribal areas are the most impoverished and the worst served in India.

B. HEALTH IN THE SOCIOCULTURAL CONTEXT

3.39 The pluralism characteristic of so many aspects of Indian society and culture is evident in beliefs about health, illness and healing and extends to the ways in which the various types of medical systems are used. There are several traditional text-based medical systems current in India that belong to the literate, high cultural traditions, to which allopathic (western) medicine has now been added. But in addition, there is a bewildering variety of local health practitioners of various sorts who are also patronized.

Traditional Systems of Medicine

3.40 Ayurveda, the classical Hindu system, is based on formal medical treatises which describe the etiology, classification, pathology, diagnosis, prognosis, and treatment of various diseases, and the manner in which the treatments function. The texts also describe the logic and philosophy behind the medical system, providing details of human anatomy, fetal development, the female reproductive organs, normal and abnormal deliveries, diseases of children, etc. Various categories of doctors specializing in different medical subjects, nursing care, daily habits and customs are described. The ayurvedic materia medica consists of plant products, mineral substances and animal products. Ayurvedic medicines include distillates, products of fermentation, powders, tablets, pills, etc. Based on empirical observation and experience, ayurvedic medicine is concerned with preserving and promoting 'total' health. A variant of ayurvedic medicine, Siddha, is practiced in Tamil Nadu. It places greater emphasis on the use of minerals and metals than Ayurveda, particularly on mercury-based preparations, which are believed to contain special healing properties (Basharn 1971). Ayurvedic medicine has changed a great deal during this century. There are established training colleges

which concentrate on medicines and aspects of treatment similar to those of allopathic medicine.

3.41 The other indigenous system of medicine, Unani, was brought to India by the Muslims, who are its chief practitioners. The system is built on the ancient Greek humoral doctrines and the medical concepts of Hippocrates and Galen. Alterations in the state of a person's 'humours' are the basis for diagnosis. Unani medicine excludes surgery and its practice is handed down through families of hakims. Homeopathy, which has taken root particularly in Bengal, is actually western in origin. Its fundamental concept is to create resistance to disease by administering small doses of disease-producing agents, following the maxim, 'like cured by like'.

Beliefs Concerning the Causes of Illness

3.42 Underlying utilization of the various systems and practitioners available in India are a set of wide-spread beliefs concerning the nature of health and the causes of different types of diseases. Simpler physical problems are believed to arise from physiological imbalance caused by the wrong kind of diet or way of life. Imbalance due to diet is based on the division of foods into categories termed 'hot' and 'cold'. Although there is some regional variation concerning to which category, or to what degree, a given food belongs, the fundamental dichotomy and the archetypical examples are India-wide. Milk, curd, most greens and most fruits are considered to be 'cooling', while meat, chilies, other spices, and alcohol are thought to be 'heating'. Although cold foods tend to be more beneficial, a balance of the two sorts of food is important: for example, too much spice may lead to fever, while an excess of cold foods can give rise to influenza. These food categories and beliefs about their physiological implications play a major role in attitudes about appropriate antenatal and postnatal diet and care for pregnant women and new mothers (paras. 3.48; 3.55). Illness is also thought to arise from improper behavior. Headaches are ascribed to immoderate behavior, while excessive sexual indulgence will inevitably weaken a man and can lead to a range of diseases, including tuberculosis. Practitioners also have beliefs about certain illnesses which affect the way in which they treat them. Beliefs in the community as well as practitioners' beliefs need to be taken into account for all IEC health programs.

3.43 In many ways, traditional Indian views about diet and behavior are not inconsistent with modern medicine and can be accommodated by a flexible practitioner concerned about the ultimate success of treatment, rather than the 'correctness' of one or another belief or system. However, the supernatural causation traditionally assigned to a group of diseases, including smallpox, chicken pox, measles, typhoid fever, and plague, is at odds with the understandings of the allopathic system. These diseases are believed to be caused by local female deities¹⁴, often as the result of their accidental or even capricious invasion of individuals. Epidemics are understood as a sign of displeasure with the whole community for immoral behavior or neglect of regular worship. The appropriate response involves propitiation of the deities to persuade them to leave

afflicted individuals, and medical treatment is avoided because a displeased goddess might react by killing those afflicted. It is not widely understood that smallpox has been eradicated, because the disease is confused with chicken pox, and in any event goddesses may be quiescent for long periods but they do not die. Basu (1990) reported that when a minor epidemic of chicken pox occurred in the resettlement area of Delhi that she studied, the outbreak was regarded as a divine visitation, and by and large no outside help was sought, even to ward off secondary infections.

3.44 Another range of disorders, including leprosy and skin disorders, are believed to be a conscious form of divine retribution. As an illness becomes more protracted or severe, it is likely that understanding of the cause will shift from the capricious act of a deity to intended divine punishment. In terms of mortality, this is most significant in the case of serious childhood disorders such as extended diarrhea and consequent severe dehydration and a whole complex of nutritional disorders whose visible symptom is a distended abdomen. At first, diarrhea can be dealt with as an imbalance of hot and cold food in the diet or some similar error, and children can be treated with home remedies or even brought to the health center. But if the problem continues to worsen, it is then likely to be recognized as one of the group resulting from divine retribution, and efforts to effect a cure shift to ritual means.

3.45 The possibility of committing transgressions against the supernatural world are considered to be much greater during pregnancy, at the time of childbirth, and during the first year of life than at any other time in the life cycle. Infants are particularly susceptible to spirit invasion, which explains much of the apparent low level of infant care. Both a casualness about the conditions of birth and a lack of intensive care during infancy denote, in fact, a high degree of concern. Any obvious trouble about the child or any precautions against sickness might invite the jealousy of supernatural beings that could result in the death of the child. There is also a danger, especially to children, from the 'evil eye,' a concept found across much of Africa, the Middle East and South Asia. The evil eye can cause sickness or death, usually when its owner feels jealousy or greed. This is a major reason for doing little about a pregnancy and making few preparations for a birth or arrangements for postnatal care.

Beliefs and Practices Related to Pregnancy and Childbirth

3.46 Within the general context of beliefs related to health and illness, beliefs and practices concerning pregnancy and childbirth are of particular relevance to the status of women's health. The summaries given below¹⁵ relate particularly to north India; south Indian customs are somewhat different (Wadley 1980).

3.47 **Pregnancy.** The primary role of every Indian wife is to bear her husband's children. In some communities (e.g., in south India) the advent of a pregnancy, especially a first pregnancy, is celebrated, but in the north, pregnancy requires that a woman observes rules of modesty, particularly with regard to her natal family, since her

pregnant condition makes evident her sexuality. A woman, therefore, does not announce a pregnancy before it becomes obvious, nor is it publicly noted or celebrated. One result of these attitudes is that in parts of U.P. and Bihar it is not considered proper for a woman to visit her natal home once she is unmistakably pregnant nor to give birth in any place other than in her husband's household¹⁶. Therefore, a first pregnancy marks a definitive break between a young wife and her natal family at a time of inevitable stress.

3.48 Women are not considered to be the 'proprietors' of the products of conception, their role being to nourish their husbands' offspring. Women, therefore, have limited control over their own pregnancies, paralleling their inability to control their productive work (para. 3.29). Nevertheless, it is recognized that a woman's condition can affect the outcome of her pregnancy, and some changes in her diet and work are considered desirable. Pregnancy is believed to be a 'heated' condition, which is held responsible for the nausea, vomiting and indigestion characteristic of early pregnancy. 'Hot' foods are, therefore, contraindicated throughout pregnancy, while cooling and strength-giving foods such as some fruits, rice and milk products are considered beneficial. However, a pregnant woman in rural north India usually has no direct way to obtain special food that is not normally available in the household. The diet of a pregnant woman is conditional on what her mother-in-law and husband permit, and she would normally hesitate to ask for anything extra or special for fear of being thought shameless. Moreover, the idea of special provision for a pregnant women is not understood, so that even if a husband brought something from outside, it would have to be shared with the rest of the household. A pregnant woman's diet is further constrained by beliefs concerning the undesirable results of overeating during pregnancy, either because of the fear that a large baby will result in a difficult labor or because of an opposite fear that excessive consumption of food will reduce the space available to the fetus and result in a small, weak baby (Jeffery et al. 1989; Nichter 1989).

3.49 In any event, a special or larger diet for pregnant women is by and large an abstract discussion. Most rural households survive near the margin and the question of anything special or extra does not arise. Pregnant women are fortunate if they are able to eat their fill of grain and milk products because these are available in the household. In sum, few women eat any differently when they are pregnant than they ordinarily do. Consequently, the calorie gap among pregnant women may average 500-600 calories per day (i.e., 25-35 percent of requirements), which along with pre-existing undernourishment results in a high incidence of maternal depletion and low birthweight babies, putting both mother and child at risk.

3.50 Although it is generally recognized that rest is desirable during pregnancy, this consideration is outweighed by the household necessity that a woman fulfill her responsibilities without disrupting other women's work--a reflection of the low levels of everyday cooperation among women in rural north India. Pregnant women, therefore, normally go about their usual tasks throughout their pregnancies, often until the onset of labor. Depending on the status and situation of the household, this typically means not

only household work, such as cooking and childcare, but also laborious tasks such as carrying water and headloads of wood or fodder and agricultural work. An indication of the extent and strenuousness of activities by a sample of pregnant women in a western U.P. village is given in Table 3.2. Rest is a luxury, and only a woman who becomes seriously ill can give up a normal work routine.

3.51 Pregnancy is often not considered to be a condition that requires medical care. This has important implications for the provision of antenatal care and for intervention when the need is clearly indicated. Even in cases where a woman has had difficulties with previous pregnancies or there are signs of an incipient miscarriage, usually only home remedies are used. Outside medical treatment for problems, let alone routine antenatal care, is not traditionally sought, for a number of reasons. First, a decision to seek help does not rest with a pregnant woman herself; the need for medical care must be conceded by a woman's mother-in-law and husband. Second, there is considerable fear that treatment may be more harmful than the malady. Such fears commonly result in resistance and delay in seeking medical intervention when a pregnant woman becomes ill. Third, seeking medical care is inhibited by practical and financial considerations. Travel outside the village requires time and cash as well as the willingness of a woman's household to arrange for a chaperon. The referral system is not linked to the subcenter level, so that even if a local health worker recommends treatment at an outside facility no introduction is provided. In addition, the financial implications, even for nominally free government services, can be substantial, possibly overwhelming, for poor households.

3.52 **Childbirth.** About 55 percent of deliveries in urban areas are now institutional, and in major cities with well established health systems, such as Bombay and Madras, the level rises to over 90 percent. However, in rural areas only about 18 percent of deliveries are institutional (IIPS 1994). The great majority of women deliver at home, and most of these births are still conducted by older women of the household, or by traditional birth attendants (dais). While the specific role and practices of dais differ across regions, in much of north India the dai is largely seen as an assistant in dealing with a polluting process, rather than someone with specialized or expert knowledge. The occupation is sometimes handed down from mother to daughter, although in general, women become active dais only when forced to do so by economic necessity, which explains why many dais are widows.

3.53 The pollution associated with childbirth means that only old clothes, rags, bed clothes, and cots are used, with serious implications for the hygiene of the delivery. Experienced older women are often knowledgeable about the progress of a delivery with regard to labor pains, the progress of labor, fetal movements and presentation. However, only a dai will examine the parturient woman internally to assess cervical dilation and the baby's transit. After delivery, the dai cuts the cord using a sharp instrument which may not be sterile. The dai's main role is to clean up during and after the delivery. She is additionally responsible for delivering the placenta and removing the waste, dirty linen,

etc., from the place of delivery, and helping to bathe the postpartum woman. The unsanitary circumstances of such deliveries, including cord cutting, can result in high rates of puerperal sepsis and neonatal tetanus. Although dais recognize many life-threatening conditions, they are not at all equipped to deal with them. In fact, they often refuse to be associated with deliveries they suspect may involve difficulties and advise the family to take the woman to the nearest medical facility.

3.54 The Puerperium. The birth of an infant is followed by 40 days of confinement during which mother and child are secluded. The vulnerability of the infant and the polluted state of the mother are the prevailing themes during the postpartum period. While postpartum isolation is understood as a means of protection from evil spirits, it does provide a period of relative rest for the postpartum woman. Few women receive any form of postpartum health care, other than abdominal massages by the dai. The pollution context inhibits women from seeking medical help for other illnesses that may develop postpartum. Local practitioners may be consulted if a mother fails to lactate or if her bleeding is excessive, but few other conditions are likely to be given much notice.

3.55 After the delivery, depending on the organization of the household, the puerperal woman may be excused from her normal chores. In particular, she does not do the cooking in the household during the period of postpartum pollution. However, the luxury of real rest is rare, particularly for women with other children. The new mother eats separately and must avoid certain 'cold' foods. In contrast with attitudes towards nutrition during pregnancy, after the delivery the new mother is supposed to receive extra and nourishing foods to help establish and maintain lactation. However, the energy demands of lactation are inevitably difficult for basically undernourished women to meet, and while traditional prolonged breastfeeding may be beneficial to infants and toddlers, it places the mothers at nutritional risk.

3.56 Abortion. There is no general objection to induced abortion among Hindus, particularly before the time when 'life' is considered to enter the fetus, at about three months' gestation. Surgical abortion, however, is not considered appropriate before this point, so that women who want to obtain an abortion early in their pregnancies are more likely to try to do so locally. Induced abortion outside the government system runs the gamut from modern surgical procedures carried out by doctors in private clinics to folk methods used by local dais. A variety of methods are used by traditional practitioners and women themselves, including oral abortifacients such as ergot obtained from pharmacists, injections, herbs and other substances used internally, and massage (ICMR 1989b; Jeffery et al. 1989).

3.57 Many Muslims, on the other hand, express strong religious objections to induced abortion. Ironically, however, the lower use of contraception among Muslims means that more Muslim women have to contend with unwanted high-parity pregnancies and may, therefore, be forced to consider abortion as an option (Jeffery et al. 1989).

3.58 **Infertility.** Since women derive status essentially from bearing children, infertility, which is held to be the responsibility of the wife, is a major disaster for a woman. Wives are often abandoned or sent back to their parents' homes for failure to conceive or to produce sons. There are inevitably a wide variety of traditional remedies that can be obtained for infertility as well as ritual prescriptions.

IV. HEALTH SERVICES AND THEIR UTILIZATION

A. GOVERNMENT SERVICES

4.1 Public sector services intended to meet the health and nutritional needs of Indian women and girls are provided through the Health and Family Welfare Programs of the Ministry of Health and Family Welfare (MOHFW) and the Integrated Child Development Services (ICDS) Program of the Department of Women and Child Development in the Ministry of Human Resources Development. MOHFW programs have been analyzed in considerable detail, and ICDS has also been extensively studied (MOHFW 1994a, WB 1989). This section, therefore, only briefly summarizes the key features of the concerned programs. Program issues particularly related to the health and nutritional status of women and young female children and related recommendations are discussed in Chapter V.

Family Welfare Program

4.2 Both of the programs concerned most directly with women's health, maternal and child health (MCH) and the family planning programs, come under MOHFW's Department of Family Welfare. The National Family Welfare Program was established in 1951 and has helped achieve the notable fertility and infant mortality reductions that have occurred over the past 40 years. The Child Survival and Safe Motherhood (CSSM) Program was launched in 1992 with the objective of accelerating improvements in the health status of women and children (Annex 4).

4.3 The linchpin of the rural Family Welfare Program is the female multipurpose worker who staffs a subcenter and covers a population of approximately 5,000 on an outreach basis. These workers are usually referred to by their technical qualification of auxiliary nurse-midwife (ANM). ANMs are responsible for providing the range of family planning and MCH services, including immunization, antenatal and postpartum care, child care, performing deliveries, conveying family planning information, identifying potential sterilization acceptors, supplying contraceptives, and inserting IUDs. The ANM is required to refer cases she is unable to handle to a primary health center (PHC), community health center (CHC) or district hospital. Details of program coverage and staffing are given in Annex 1.

4.4 There is substantial agreement among observers of the Indian Family Welfare Program concerning the program's difficulties. In January 1992, MOHFW issued an 'Action Plan for Revamping the Family Welfare Program in India' that touched on almost all of these. However, although the important issues have been well identified for at least a decade, the Ministry has found it difficult to modify the way in which the program is actually implemented at state and local levels. Recent steps have been taken, including those through the CSSM project to upgrade facilities; improve training; strengthen links with communities and NGOs; and expand information, education and communication (IEC).

Integrated Child Development Services Program

4.5 The Integrated Child Development Services (ICDS) Program, India's national child development and nutrition program, is under the Department of Women and Child Development of the Ministry of Human Resources Development and the various state Departments of Human Resources or Social Welfare. The objectives of the ICDS Program include improvement of the nutritional and health status of children under 6 as well as that of pregnant and lactating women, and enhancement of the capacity of mothers to look after the health and nutritional needs of their children through nutrition and health education. These and related child development objectives are to be achieved through delivery of a package of services, including supplementary nutrition, immunization, health check-ups, referral services, nutrition and health education, and non-formal pre-school education. Health services such as immunization are to be delivered at ICDS centers by health workers. The Family Welfare and ICDS Programs are complementary in the services they provide and both focus on women and children.

4.6 The administrative unit for ICDS is a community development block (about 100,000 population), a tribal development block (about 50,000 population) or a slum population of about 100,000. Services are delivered through anganwadi (AW) centers, staffed by female anganwadi workers (AWWs) that serve a population of about 1,000. The anganwadi worker, who is recruited locally, is the key to the functioning of ICDS. AWWs are considered to be part-time volunteers and receive an honorarium rather than a salary. They are responsible for organizing pre-school activities and supplementary feeding for children at the AW, health and nutrition education for mothers, house visits as needed, eliciting community support, and assisting health workers with immunization and other services. Additional details concerning the ICDS Program are given in Annex 2.

4.7 ICDS currently covers about 40 percent of the development blocks in India, although not all villages in a given block are included in the program. Under the Eighth Five Year Plan (1992-1997), the program is to be expanded to include the blocks that are not currently covered, although it is doubtful whether this goal can be achieved.

B. PRIVATE SECTOR SERVICES

Non-Governmental Organizations

4.8 There are more than 30,000 registered non-governmental organizations (NGOs) (also called private voluntary organizations) of greatly varying size and orientation in India. The majority of these are located in the southern states as well as in Maharashtra and Gujarat. Most large NGOs have their operational base in urban areas. In general, experience has been that NGOs involved in providing family planning, health and related services for women have been effective in many instances. NGO achievements can be attributed to program flexibility combined with skill in interpersonal

communication. For example, urban slum women may not give preventive health or family planning measures much priority since food, housing, water, and employment must usually take precedence. NGO strategies in slum areas, therefore, often include a range of activities, particularly nutritional supplementation and income generation. Some NGO efforts to organize women and to tackle problems of women's status directly have been remarkably successful (Murthy 1991; Ford Foundation 1988-1990).

The Modern Private Sector

4.9 There is very little systematic evidence available on the development of modern private sector health care in either urban or rural India, although it is certainly substantial, particularly in urban areas. Interpretation of available information is complicated by problems of defining whether a given physician is actually 'in practice'. Jesani and Anantaram have examined the growth in the number of qualified physicians, hospital beds and 'dispensaries' (outpatient facilities) over the last several decades (Table 4.1). Such growth in the private sector would not have occurred if there were not a demand for private health care. For all systems of medicine, they estimate that less than 15 percent of qualified doctors and about 40 percent of those with paramedical qualifications are likely to be in government services, suggesting the probable extent of the private sector. Further insights into the role of the private sector from utilization data are discussed below (paras. 4.13-4.17).

Traditional and Local Practitioners

4.10 Particularly in rural areas, in addition to government and private practitioners of the formal systems of medicine, a range of other persons who play healing roles are found. These include local authorities on healing and herbs; priests and saints; those who cast horoscopes or have other astrological knowledge; and midwives. Individuals typically are likely to resort at one time or another to many, if not most, of the types of systems and practitioners available to them, depending on the nature and seriousness of the condition as well as the age and gender of the sufferer.¹⁷

4.11 In general, faith in allopathic medicine (or at least allopathic drugs) tends to be greater than in its practitioners. There is a general reluctance to consult strangers concerning health problems, and local practitioners have an advantage in this respect, since they are likely to be part of local society and, thus, known to family decision-makers. People are also well aware that allopathic doctors tend to concentrate on an illness as such, while traditional practitioners also deal with the social etiology of a condition and its social consequences. Moreover, they will devote time and attention to their patients--for example, Kakar (1988) reported three to four times as much time as allopathic practitioners. In addition, the procedures of modern medicine often fail to conform to traditional expectations. Patients do not expect to give a history of their complaints to a practitioner because they assume that as a healer he will know what they are. By similar reasoning, traditional healers always specify the amount of time that

recovery will take. Such healers are usually willing to accept deferred payment. They do not assume the formal attitude of modern practitioners, which tends to frighten poor, usually illiterate, villagers.

4.12 The illness burden in rural India that results from a high incidence of infant and child death and pervasive morbidity is enormous. Kakar (1988), for example, found that over 80 percent of interviewees or their family members in rural Haryana had experienced one or more symptoms in the two-week period prior to the interview. It is not surprising, therefore, that locally available traditional practitioners are called upon to handle much of this morbidity, although the exact extent of their use remains unknown and unrecorded. In the rural Haryana block (population of approximately 135,000 in 1985) studied by Kakar (1988), in addition to government doctors, private allopathic physicians, and other unlicensed allopathic practitioners such as pharmacists, there were some 64 registered traditional medical practitioners who had full-time practices. Of these, only nine were fully institutionally qualified and 45 had no institutional qualifications whatsoever. Eleven of them restricted themselves solely to the practice of traditional systems; the others combined traditional approaches with allopathy to some extent. Some preferred to be known as specialists for certain types of diseases, particularly those of children and women. In addition, there were as many as 600 folk practitioners and local healers of various descriptions. Another survey of 'rural doctors' found that 27 percent practiced allopathy exclusively, but 61 percent reported use of more than one system of medicine. Among these practitioners, only 38 percent had some type of medical qualifications or registration (3 percent were MBBS) and only 49 percent had attended college (Vishwanathan and Rohde 1990). Studies from other parts of India confirm the number and variety of private health practitioners and modes of practice that are found (e.g., Nichter 1989 for south Karnataka; ICMR 1988a for Bihar, Gujarat and Kerala).

C. HEALTH CARE UTILIZATION AND COVERAGE

Utilization of Public vs. Private Sector Services

4.13 The choice of health care by patients and their families is also pluralistic. Over three fourths of those interviewed by Kakar (1988) reported that they routinely sought treatment from various kinds of traditional/local practitioners for at least some kinds of ailments, and the findings by Duggal and Amin (1989) for rural Maharashtra were similar. In general, the more serious and/or incapacitating the illness is considered, the more likely it was that allopathic treatment would be sought. There was also a correlation between socio-economic status and use of allopathy, which probably primarily reflects educational level. A larger proportion of those of higher status recognized the symptoms of common diseases, and such people were also more likely to seek allopathic attention for them. Educational levels also very likely underlie the finding that younger persons were more likely than their elders to utilize modern health care (Kakar 1988).

4.14 Data on the frequency of use of the various kinds of practitioners and systems are limited and may be misleading. For example, many small-scale survey results (e.g., CDRT 1989 for Bihar) probably overstate the use of allopathic practitioners as a result of bias in the way the questions are framed and asked. The ICMR study (1988a) in Bihar, Gujarat and Kerala, when asking about the source of treatment utilized for persons who were ill during the preceding three months, recorded public and private allopathic, traditional and home treatment options, but made no attempt to note use of local practitioners. Yet, community-based studies document that the use of local practitioners is extensive.

4.15 The high level of use of traditional and local practitioners suggests that they are more accessible to women and children and the poor as well as culturally more acceptable. However, studies of the services by these practitioners all indicate that the quality of services provided was in many cases questionable and, all too often, clearly harmful. Some 70 percent of all treated illness episodes recorded in a Maharashtra study were treated with injections (Duggal and Amin 1989). Vishwanath and Rohde (1990) reported that 'rural doctors' treated 40 percent of diarrhea episodes by injection but used oral rehydration in only 6 percent. And in Haryana, 65 percent of cases treated by 'traditional practitioners' received only allopathic drugs, many of which were inappropriate and even potentially harmful for treatment of the diagnosed condition (Kakar 1988). Unfortunately, the corollary of these findings is that the poor and uneducated, whose needs are greatest, are the least likely to seek qualified allopathic care or to make use of the government health care system.

4.16 Virtually every field study on the use of medical care in India has concluded that private allopathic practitioners are considered to be superior to government doctors (Basu 1990). The extent of the preference for the private sector for curative services is seen in Table 4.2, which gives data from studies in U.P., Andhra Pradesh, Bihar, and Gujarat. These indicate that in the first three of these states, individuals who were ill in the preceding three months overwhelmingly sought treatment from private practitioners, the percentages ranging from 63 percent to 81 percent.

4.17 The positive reasons for general preference of the private sector are readily apparent. It is assumed that nothing worthwhile or valuable will be available without cost, so that paid medical services must, therefore, be of higher quality than government services. Additionally, a practitioner offering paid services can be expected to be more polite and attentive and to devote more care and concern to the patient. As regards the deficiencies of the government services, studies are consistent in reporting that the major reasons for dissatisfaction with them include the costs of payments to staff and for drugs, although services and supplies are nominally free; costs of travel and difficulties in reaching distant facilities; rude and improper behavior on the part of health staff; absence of staff; lack of supplies and drugs; and long waits to see a doctor. (The average waiting time in the study was 97 minutes in Bihar, 39 minutes in Gujarat and only 10 minutes in Kerala.) Results for U.P., A.P., Bihar, and Gujarat are summarized in Table 4.3. It is

noteworthy that use of the government system is much greater in Gujarat, and also that costs of obtaining services (although not of travel) have evidently been kept within bounds in that state, since this item was least frequently mentioned as a problem with the services.

Coverage of Health Services for Women

4.18 Data on aspects of health service coverage are derived from the National Sample Survey and the Sample Registration System as well as smaller scale studies and surveys. The National Health Survey also provides invaluable demographic and service utilization information at both the national and state levels.

4.19 **Antenatal Care.** Although one of the major responsibilities of the Family Welfare Program is to provide antenatal care (ANC) to pregnant women, ANC coverage levels are still relatively low. National Family Health Survey (IIPS) data for 1992-1993 (Table 4.4) indicate that 41 percent and 77 percent of women received an antenatal check-up from a doctor or another health professional in rural and urban areas, respectively. The range among the states was substantial, from 23 percent in Rajasthan to 97 percent in Kerala. Only 21 percent of women in India received a home visit from a health worker during pregnancy. Although the percent of women who receive home visits by a health worker during pregnancy is greater in rural India (24 percent) than in urban India (10 percent), frequency and coverage of home visits need to be increased for rural women who do not have easy access to health centers. Another problem is that prenatal contact is frequently not made until a fairly late date, often far into the third trimester. Such late attention substantially decreases the usefulness of ANC, particularly the chances that potential high-risk pregnancies can be identified early enough to take appropriate measures.

4.20 Table 4.5 gives a summary of tetanus toxoid vaccine coverage in 1992-1993. Overall, 61 percent of women received tetanus toxoid vaccinations during pregnancy. Coverage is the lowest in Rajasthan (35 percent) and Bihar (37 percent). Although the CSSM Program has made efforts to improve ANC services in terms of immunization coverage, efforts are still required in other areas. The program needs to train TBAs and other field level workers to recognize, manage and refer the complications of pregnancy; detect and treat conditions such as malaria and TB; and provide counseling on hygiene, nutrition and family planning.

4.21 The question of why levels of antenatal care are so low in rural India needs to be considered from both supply and demand perspectives. On the program side, surveys indicate significant numbers of women who say that they are unaware of the location of the nearest subcenter or other facility and/or that they are unaware that female health workers based at such facilities provide antenatal care. This lack of awareness is obviously associated with survey findings that the proportion of pregnant women contacted by field workers is low. On the demand side, when women who had recently

had a birth but had not received any antenatal care were asked the reason why, the surveys overwhelmingly record answers such as 'did not feel the need' and 'not customary' (e.g., MODE 1990). These results reinforce the finding of community-based studies that there is no perceived need for antenatal care because pregnancy is not normally considered to be a condition that requires the attention of health workers (para. 3.51).

4.22 **Anemia Prophylaxis.** Table 4.6 shows that only 51 percent of pregnant women received IFA (Iron and Folic Acid) tablets in 1992-1993. Although coverage was above 50 percent in most states, it was substantially lower in Rajasthan (29 percent), Uttar Pradesh (30 percent), Assam (40 percent), and Bihar (21 percent). An evaluation of the anemia prophylaxis program carried out in 11 states illustrates the major problems (MOHFW and UNICEF 1989). The study found that only 12 percent of target women reported that they were actually offered the tablets. Of women offered tablets, 4 percent refused them. Of women who received tablets, 60 percent dropped out. Almost 80 percent of dropouts were due to non-supply of the tablets. It is obvious that the supply and distribution problems were severe and that solving them would increase coverage--the dropout rate would fall substantially, and moreover field workers would undoubtedly be more willing to offer tablets if they were confident that resupply would not be a problem.

4.23 It cannot be concluded from the study that the program's difficulties are limited to logistics. First, beliefs about tablets being strong and potentially dangerous, particularly for pregnant women (para. 3.51), may cause reluctance by field workers to distribute tablets to women. Second, even though tablets may be distributed, women may not actually take them. Third, the report compared the hemoglobin levels of pregnant women who were receiving supplementation with those who were not and found no difference in the mean hemoglobin levels of the two populations. It was observed that mean hemoglobin concentration increased significantly with increase in consumption of tablets until 30-60 tablets had been consumed, after which the hemoglobin level stabilized, in spite of continued intake of tablets. But since the stabilized value of around 9.2 g/dl was much below the value of 11 g/dl considered minimally acceptable, the impact of the supplementation in reducing anemia, even in the absence of supply and compliance problems, was questionable. The study indicated that about 88 percent of pregnant women with and without supplementation were below the minimally acceptable level, indicating the need for prophylactic supplementation.

4.24 **Delivery.** About one quarter (26 percent) of deliveries in India occur in a public or private institution (Table 4.7). The majority of deliveries (74 percent) are conducted outside of a health facility and are largely attended by TBAs (35 percent) and other persons (30 percent) such as female family members or neighbors. The proportion of deliveries attended by doctors is particularly low in states like Rajasthan (11 percent), regardless of the place of delivery. A significant proportion of obstetric emergency procedures require the provision of blood transfusion, which is not available on a timely basis in the rural areas due to the absence of blood banks and the presence of mandatory

testing requirements. These data demonstrate the need for better health facilities and additional training for health staff and TBAs. Particularly critical are adequate transport and referral facilities to handle pregnancy complications on a 24-hour basis, since those which are the most life-threatening, such as hemorrhage and obstructed labor, cannot be anticipated.

4.25 An Operations Research Group report (ORG 1990) shows that even if trained health staff and good health facilities exist, many women "believe in traditional systems of delivery" and "feel no need to seek outside assistance". Furthermore, women do not want to incur extra costs for a delivery in an institution when they can conduct it at home with minimal expenditure. This demonstrates the need for an IEC component for women along with upgrading health facilities and training personnel.

4.26 **Postpartum Coverage.** Levels of postpartum coverage are even lower than those for antenatal coverage (Mathai 1989). The same factors that constrain the coverage of antenatal care and institutional delivery also affect postpartum care, which is made all the more difficult because of traditional practices of seclusion following a birth (para. 3.54). Even among ANMs, the idea of postpartum care is not well understood, and postpartum visits are more likely to concern family planning or immunization of the child than the health of the mother.

4.27 **Family Planning.** Use of modern contraceptive methods in India has risen from about 10 percent in 1970 to almost 40 percent in 1992-1993. According to the National Family Health Survey (NFHS) carried out in 1992-1993 (IIPS 1994), prevalence by method was as follows:

Figure 4.1 Prevalence of Methods of Contraception: 1992-1993

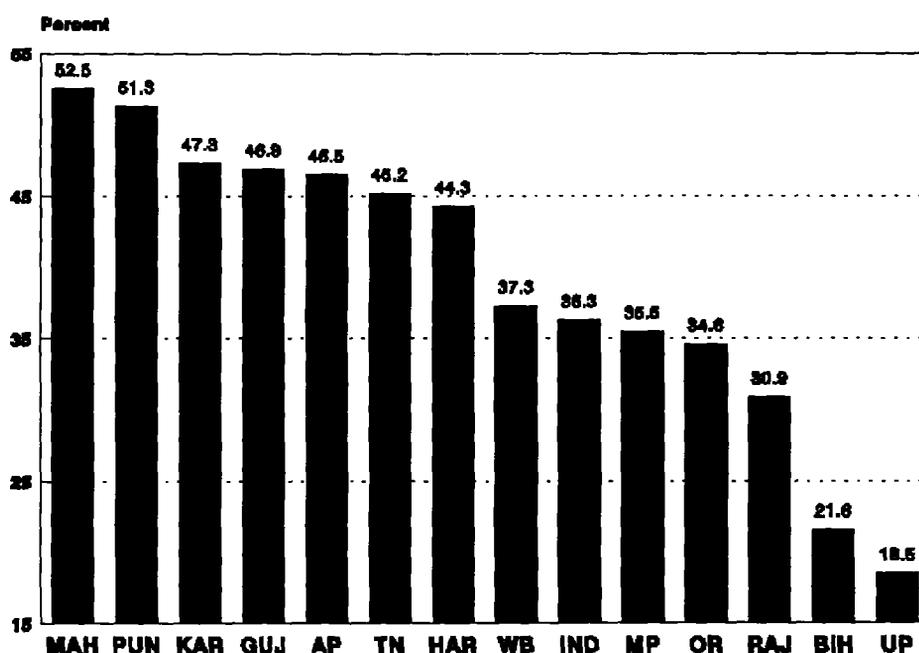
Method	Total Prevalence (percent)	Prevalence of Modern Methods (percent)
IUD	1.9	5
Condoms	2.4	7
Orals	1.2	3
Sterilization	30.7	85
Total, modern methods	36.3	100
Other methods	4.3	
Total, all methods	40.6	

Source: IIPS 1994

4.28 As these figures demonstrate, the most striking aspect of contraceptive use in India is the predominance of sterilization, while use of reversible contraceptive methods has barely begun¹⁸. Female sterilization accounts for 27 percent of the 31 percent prevalence of sterilization. Program reasons for this are discussed below (para. 5.20). Demand side reasons are equally important. While knowledge of female sterilization is almost universal, the NFHS indicated that knowledge of IUDs or oral contraceptives among married women of childbearing age was only 61 percent and 66 percent, respectively (Table 4.8). State variation in contraceptive prevalence for modern methods was substantial, ranging from 53 percent in Maharashtra to about 20 percent in U.P. and Bihar (Fig. 4.2).

4.29 Successive surveys by the Operations Research Group from 1970 to 1988 indicate that unmet need, defined as the percent of respondents at risk of pregnancy who report that they do not want additional children but are not practicing contraception,

Figure 4.2 Current Contraceptive Prevalence Rates, Modern Methods, India and Major States: 1992-1993



Source: IIPS 1994

declined. The 1988 survey (ORG 1990) reported that unmet need was about 19 percent of all eligible couples (compared to 40 percent in 1970); half of these couples also indicated that they had agreed to be sterilized soon. Of the remainder, the largest numbers indicated that they did not want to be sterilized because of fears associated with the operation. State estimates of unmet need ranged from about 10 percent in Punjab and Maharashtra to about 26 percent in U.P. (Table 4.9). The NFHS estimated that unmet need in India was 31 percent in 1992 (IPPS 1994). While the comparability of the data sources may be questionable, both demonstrate a significant unmet need.

4.30 **Medical Termination of Pregnancy.** After the legalization of induced abortion in India in 1971 (para. 2.37), MOHFW undertook a systematic effort to train doctors, provide equipment and approve facilities where procedures could be carried out. The number of approved institutions increased steadily and by 1990 there were more than 6,000. However, for reasons that are not well understood, the number of procedures carried out in approved facilities has remained almost constant, at somewhat below 600,000, since 1985 (MOHFW 1989). On the other hand, although data are limited, the incidence of illegal procedures appears to be increasing and is at least twice, and possibly, 10 times the level of legal procedures. Indigenous practitioners, particularly dais, perform more abortions than qualified personnel in public and private sectors combined (para. 2.38).

4.31 The 1983-1985 ICMR study of induced abortion (ICMR 1989) and a recent study (Chhabra and Nuna 1994) investigated why the incidence of illegal abortion was so high when the procedure was available at government facilities. The answers suggested by the studies involve several interrelated factors. One is that distribution of approved facilities and registered practitioners varies widely between and within states, with an enormous gap in availability of trained physicians at the PHC level. For example, in Maharashtra, while there is one approved institution for 8,000 couples, in Bihar there is only one for 132,000 couples. There is also some lack of awareness that termination of pregnancy is available at government facilities, although this appears to be declining. In addition, women may prefer private services because they perceive better treatment from private doctors or because of cultural factors. To a large extent, the choice of private over public facilities is another instance of the general preference for private services as well as women's reluctance to be examined and treated by male doctors (para. 3.28). In the case of abortion, there is added reluctance to use a public facility because of fear of violation of confidentiality.

4.32 The studies also shed some light on the choice between modern abortion and traditional methods. The first consideration is that modern abortion, whether public or private, is expensive. As noted above, in-patient procedures carried out at public facilities, although nominally free, are rarely so in practice, and abortion is no exception. Second, time and travel considerations make use of local alternatives more feasible as well as less expensive. Third, modern procedures are held to be inherently dangerous,

and are considered more hazardous and violating than accomplishing the same end through non-clinical means (Jeffery et al. 1989).

4.33 The worldwide shift from sharp curettage to vacuum aspiration technique for treatment of incomplete abortion and termination of pregnancy during the first trimester has improved the cost-effectiveness, safety and accessibility of the procedure. This shift has been underway since the 1980s in India, although there have been lags in the provision of equipment, and private doctors are still predominantly using the traditional technique. Furthermore, in many countries, vacuum aspiration is safely practiced by trained paramedics, particularly where physicians are in short supply. The MTP Act, however, restricts the procedure to registered medical practitioners. If appropriately trained paramedical staff were authorized to perform menstrual regulation or early termination of pregnancy in India, this would undoubtedly save many women from complications and death caused by unsafe practices performed by unqualified practitioners or by women themselves.

V. IMPROVING THE HEALTH STATUS OF INDIAN WOMEN

5.1 If the status of women, including the condition of their health, is to be improved, a strong and sustained political commitment on the part of government is needed before specific strategies and interventions can be profitably considered. As part of its strategy, the government must seek a balance between the public and private sectors. Within this strategy, the public sector would continue to play a crucial role in financing and providing essential services for women, because some of these services have characteristics of public goods and, more particularly, several provide positive externalities.¹⁹ In the absence of public financing, provision of these essential services for women would in many cases be below the socially optimum level. Furthermore, equity considerations argue for continued provision of subsidized services to poor women. However, not all health services - including those that are public funded - need to be provided by the state. The challenge for Government is to maximize the reach and breadth of reproductive health services provided by the private sector, as well as to improve their quality, through appropriate incentives and regulatory arrangements. Mechanisms need to be explored to encourage a shift from the current private sector focus on curative care to a broader approach which includes promotion and prevention.²⁰

5.2 This concluding chapter identifies a set of issues related, directly and indirectly, to improvements in the health of Indian women and girls. The discussion of these issues together with linked options and/or recommendations is intended to provide a basis for further consideration of the issues and possible priorities for further Bank assistance. As indicated in Chapter 1, the focus of this paper is on the achievement of improvements in women's health in India through public and private health and related services. The potential impact of longer term improvements in educational status and the expansion of employment opportunities for women on health status is evident. In the shorter term, significant improvements in the health of Indian girls and women will result first from the strengthening and expansion of services. These incremental investments are justifiable on the basis of reduced disease burden, known cost-effectiveness of the interventions and their beneficial effects on productivity.

5.3 The factors that constrain women's utilization of health services include lack of knowledge, motivation, ability to pay, social status,²¹ and availability and quality of services. Of these, availability and quality of care are supply side concerns. Knowledge, ability to pay, motivation, and social status all directly influence the demand for services, underlining the importance of demand strategies.

5.4 The first section below deals with the provision of services, that is, with improvement of existing as well as additional public sector services. The second section takes a community-based perspective to discuss increasing the demand for modern services, whether from the public or private sectors. The third section reviews priorities for action research in support of measures identified in the first two sections as well as additional research that would also make significant contributions to improving the health of Indian women.

5.5 For analytical and planning purposes, this distinction between supply and demand factors is useful. However, it is important to recognize that in the final analysis, the division between the 'supply' of services and the 'demand' for them is artificial. Successful family welfare, health and nutrition projects, whether NGO efforts or part of the public sector or a combination, have proved many times over that high quality services provided by workers who have the confidence of the communities in which they work generate their own demand (Murthy 1991; Griffiths et al. 1991; Ford Foundation 1988-1990). This has been demonstrated not only for small-scale projects, but just as clearly, by the positive results of the World Bank-supported large-scale Tamil Nadu nutrition and West Bengal family welfare projects.²²

A. PROVISION OF SERVICES

5.6 Since the publication in 1974 of the Government of India's Report on the Status of Women first brought to general public attention the adverse circumstances of women in India, the Government of India has taken a number of significant steps in support of women. These include the establishment of the Department of Women and Child Development in 1986 and the announcement of a safe motherhood strategy at the Lahore Safe Motherhood Conference in 1990. The safe motherhood commitment has been followed up with the inclusion in the Eighth Five Year Plan (1992-1997) of a Safe Motherhood Program that, with UNICEF and World Bank support, will expand and strengthen maternal health services throughout the country by the end of the plan period. The Government of India has also expressed its strong support for the Cairo Program of Action (1994), which calls for a client-centered approach to reproductive health and family planning. To further its support for women and, specifically, to provide the necessary basis for the Safe Motherhood effort, the Government of India needs to implement a number of policy and implementation measures to strengthen the Family Welfare and ICDS Programs. These are identified in the following sections.

Family Welfare Program

5.7 The Family Welfare Program is specifically responsible for providing family planning and health services to women and children (paras. 4.2-4.4). This section covers issues concerning the Family Welfare Program in three general areas: policy, improvement of existing services, and provision of additional services. Two major areas where additional services are required to meet women's health needs are identified: the largely unrecognized but quite serious incidence of non-pregnant female morbidity and the extremely high maternal mortality rates presently found in India.

Policy

5.8 **Regional Resource Allocation.** For reasons of equity and administrative convenience, central support of the state Family Welfare Programs is calculated in terms of population norms. However, the underlying sociocultural constraints (Chapter III), the

demographic and epidemiological evidence (Chapter II), and the experience of program implementation (Chapter IV) all make it apparent that accelerated progress in the northern states that will reduce north-south fertility, mortality and service differentials will require provision of supplemental resources to the northern states. Special efforts to meet physical and staff norms, increase facility coverage and improve the quality of services in a sustainable way are all indicated. Similarly, communications efforts aimed at increasing demand for services should also be concentrated in the north, while sustaining the favorable trends in the south.

5.9 Program Targets and Monitoring. The Family Planning Program's focus on female sterilization, since the early 1980s, has been quite effective demographically, but has hindered greater use of temporary contraceptive methods. The Ministry is well aware of this problem, and for some years Ministry policy statements have emphasized the importance of temporary contraceptive methods and MCH services. However, the program's target and monitoring systems, which together drive the program's sterilization focus, have proved difficult to modify. The progress of the Family Welfare Program, as one of the key national development programs, is reviewed on a monthly basis at the Cabinet level. At present, sterilization and immunization achievement targets are monitored, thus, indicating in a highly visible and influential fashion which aspects of the program are considered to have priority. This emphasis is transmitted from Delhi to the state programs and on down to the local level. Efforts by the Population Commission to replace sterilization and immunization achievement targets need to be more fully implemented. Additional resources will be needed to ensure the quality and continuity of MCH services, and new indicators of program performance will need to be agreed upon.

Improvement of Existing Services

5.10 India's rural health infrastructure, including the subcenter outreach system (paras. 4.2-4.3), is in place. However, it is well documented (e.g., Satia and Jejeebhoy 1991; WB 1994c; WB 1995) that the system is, in many respects, quite ineffective: it does not consistently deliver services of acceptable quality, worker productivity is low, and, consequently, coverage levels of key services are also low (paras. 4.18-4.32). It is unrealistic to expect that additional health programs for women, in particular the Safe Motherhood initiative, will have any substantial impact unless the functioning of the Family Welfare and health programs on which they will be based are strengthened and the quality of services improved. The following paragraphs identify issues concerning program management and the delivery of key services. These are linked to a series of options and/or recommendations for the strengthening of existing services.

5.11 Integration of Family Planning and Maternal-Child Health Services. Integration of the family planning and MCH programs was mandated in the mid-1970s, but integrated planning or delivery of services has not been achieved. Instead, focus has gradually shifted from family planning to a general effort to improve maternal and child health. A division of labor evolved, whereby sterilizations were concentrated in the

winter months of December-March, leaving the rest of the year relatively free for other activities, principally immunization. This division should be eliminated and family planning services should be planned and implemented as part of an integrated cycle of maternal and associated child care that begins with the identification of pregnancy and continues through child care and family planning counseling after the delivery.

5.12 Prioritization and Work Routines. The introduction of the Safe Motherhood Program as well as expansion of child survival interventions under the Eighth Plan places additional responsibilities on field works, underlining the importance of work routines that significantly increase worker productivity. To accomplish this, work rules that direct ANMs to visit every household should be replaced with rationalized work routines based on priority activities and clients.

5.13 In-service Training. Recent Family Welfare training needs assessments have consistently indicated serious gaps in the technical knowledge and skills of program staff. This underlines the importance of in-service training capacity, including the competency of trainers and the availability of quality training materials. A major reason for the current low use of temporary family planning methods (paras. 4.27-4.28) is that ANMs do not possess the requisite technical skills and knowledge. In addition, the introduction of the Safe Motherhood effort will require special training in maternal care requirements, particularly handling of obstetric emergencies (paras. 5.31-5.32). The training system is also the key to conveying to all levels of staff appropriate new or improved techniques or technology that can improve the quality of care. In addition, the technical competence of staff needs to be periodically assessed to ensure that the training system is achieving its goals and that workers, in fact, are technically able to carry out the tasks assigned to them.

5.14 Traditional Birth Attendants. There is widespread agreement that in rural areas where facilities are difficult to reach, an essential element in improving the coverage of antenatal services, and especially the proportion of deliveries attended by a trained person, is improved training of traditional birth attendants (dais). Because such a large percentage of deliveries in rural India takes place at home, a situation that is likely to change only slowly, a program to train dais was first introduced in India more than a decade ago. The program aimed at training dais to adopt clean delivery practices. However, the results were not very encouraging (Chatterjee 1991). Due to inadequate training and/or the pressures from older female household members, trained dais did not utilize the procedures they had been taught. The training was not followed up, and kits initially provided at the conclusion of the training were not systematically replenished. There were also difficulties in providing the small payment which was to be given for each delivery attended. Significantly, it appears that there was no general recognition in the community that certain dais had received training and, therefore, could advantageously be called for deliveries (Jeffery et al. 1988). This stemmed in part from dais' unwillingness to be identified with the family planning program--another indication of the importance of changing the program's image (para. 5.9).

5.15 MCH projects sponsored by the Indian Council of Medical Research (Murthy 1991) and the results of the pilot introduction of an intensified training for dais (ITPD) in 11 districts (Mathai 1991) indicates that if properly selected, trained, motivated, and supervised, dais can, in fact, be effective in providing and/or promoting antenatal care, attended delivery and family planning counseling following delivery. The essential points in successful dai training include proper selection, consistent follow-up of initial training, motivation, and supervision. Details of ITPD are given in Annex 3. The intensified training program for dais should be focused particularly on the northern states where antenatal and delivery coverage are lowest. Greater emphasis should be placed on training dais to detect and refer problem pregnancies and obstetric complications, which are beyond their capacity to handle.

5.16 **Protection of At-Risk Young Females.** The data on mortality, morbidity, nutritional status and service coverage presented in Chapters II and III all indicate that young females are particularly at risk. Data indicating that in recent years male infant mortality has declined more rapidly than female infant mortality (Fig. 2.6) suggest that, in some respects, this situation may be deteriorating. Family welfare and ICDS field workers are in a unique position to identify young at-risk females and to intervene directly to provide health care and nutritional supplementation as well as indirectly through advocacy and advice to mothers and other household members. However, the increasingly unfavorable situation of young females is likely to be masked by continuing overall declines in infant and young child mortality. Additionally, intervention for at-risk young females is difficult in situations where their status is particularly low. Nevertheless, unless program workers take an active role it is unlikely that current disturbing trends can be reversed. ANMs and anganwadi workers (AWWs) need to be alerted to the dimensions and implications of mortality trends for young females and to be given support in effectively intervening when the need arises.

5.17 **Antenatal Care and Attended Delivery.** As noted above, existing antenatal coverage levels are low and the quality of services is poor (paras. 4.19-4.21). The first step in improving antenatal coverage is the early identification of pregnant women.

5.18 However, even if antenatal services are available and a pregnancy is known, the prevalent belief that pregnancy and childbirth do not normally require medical attention (para. 3.51) may hinder utilization of services, and in particular, may prevent or delay the identification of problem pregnancies and obstetric complications. The idea of 'pregnancy entitlement', that is, that for the sake of her own health and that of her baby, a pregnant woman needs rest, extra food and medical attention for illness whether or not it appears to be related to her pregnancy, is virtually unknown. Similarly, improving the low proportion of attended deliveries requires not only the availability of appropriately trained health providers, but also the conviction on the part of the pregnant woman's household that trained assistance is necessary, both for routine deliveries and in the event of unanticipated complications. Conveying safe motherhood messages concerning the benefits of antenatal care, 'pregnancy entitlement', early identification of high-risk

pregnancies, trained attendance at delivery and emergency obstetric care, therefore, is essential to reduction of maternal mortality and morbidity. The pregnant woman herself and her household, particularly her mother-in-law and other older women, are the principal target audience. In addition, as many health care provider and community audiences as possible should be included in Safe Motherhood communications efforts. The attitudes of male field workers (male multipurpose workers and CHVs) as well as traditional and local medical practitioners could also prove to be influential.

5.19 Anemia Prophylaxis. A special comment on the provision of anemia prophylaxis is required here. The prevalence of iron-deficiency anemia among women in India is very high (para. 2.59), and moreover, anemia constitutes a major cause, directly and indirectly, of maternal mortality and morbidity (paras. 2.28; 2.43-2.44). However, the present program to address anemia through the distribution of IFA tablets to pregnant and lactating women needs to be strengthened. According to the NFHS, only 51 percent of mothers received IFA tablets (paras. 4.22-4.24). This is due to poor logistics of distribution as well as problems of compliance. Suggested approaches to the problem include increasing the IFA dosage; simultaneous deworming treatment in areas where worm infestation is known to be severe enough to negate the effects of supplementation; addressing other causes known to counteract the effect of supplementation, such as malaria; and in extreme cases, intravenous supplementation for women diagnosed as very severely anemic. The extent to which any of these approaches would be effective and/or practical in Indian circumstances is not presently known. Given the importance of anemia prophylaxis to women, particularly pregnant women, and given the current lack of knowledge as to how a prophylaxis program could most effectively be implemented, anemia prophylaxis should be a priority area of operational research in women's health. Possible alternative approaches to delivery include community-based distribution and commercial distribution through traditional practitioners. Various packaging alternatives could also be explored. Fortification of foods with iron also deserves consideration.

5.20 Temporary Contraceptive Methods. India's family planning program cannot be considered to have fully achieved its objectives until the full range of contraceptive choices is available and Indian women are permitted to control their fertility through spacing of their pregnancies and/or termination of childbearing. However, official estimates of the prevalence of temporary contraceptive methods in India are inflated; in fact, prevalence of IUDs and oral contraceptives was very probably less than 2 percent for either method in 1992-1993 (para. 4.27). Two major difficulties have constrained more rapid increases in the use of temporary contraception in India. First, it has been widely observed that workers' attitudes are extremely influential in determining choice of a family planning method. There is ample evidence that ANMs have not encouraged greater use of temporary methods, not only because of target pressures, but also because they are not confident of their technical ability to deal with side effects or other potential difficulties. Second, it is known that the level of contraceptive use is linked to the availability of methods. At present, only three temporary contraceptive methods are available through the Indian family planning program: IUDs, oral contraceptives and condoms.

5.21 Achieving sustained increases in acceptance and continued use of temporary contraceptive methods, therefore, requires a number of approaches, including modification of program targets, improving the clinical and counseling knowledge and skills of program staff, dealing with cultural constraints to acceptance of IUDs and oral contraceptives, increasing availability of oral contraceptives and condoms through social marketing and commercial channels, and expanding the contraceptive method mix, as well as good follow-up services for acceptors. The role of modified targets in supporting greater use of temporary methods and the need to provide adequate technical training to staff are discussed above (paras. 5.9, 5.13), and the problem of cultural constraints is discussed below (para. 5.47). In addition, wide-spread suspicions concerning the safety of oral contraceptives among the Indian medical profession need to be addressed.

5.22 Expansion of the contraceptive method mix in India faces particular difficulties. Injections are culturally well accepted in India, and it is generally agreed that if an injectable contraceptive were to be introduced it would find ready acceptance. However, proposals to make injectable contraceptives and, more recently, Norplant available through the government family planning program aroused the opposition of India's feminist movement. The recent approval of Depovera for use as an injectable contraceptive by the U.S. Food and Drug Administration, after many years of delay, may be of some assistance in this regard. A special effort, drawing on the considerable technical expertise available to MOHFW, to bring activists into a dialogue concerning the role of contraception in women's welfare is, therefore, called for.

5.23 **Medical Termination of Pregnancy.** The reasons for leveling off in the numbers of MTP procedures carried out in recent years and the high levels of illegal and unsafe locally performed abortion, despite the availability of legal surgical procedures, are not well understood. Nevertheless, it is clear, in general, that MTP procedures are in competition with local, more convenient, less expensive alternatives that are also believed to be less dangerous for women. The diversity of the constraints involved (paras. 4.30-4.32) suggests that to increase the number of MTP procedures conducted at public sector facilities requires an increase in the number of approved facilities and improvement in the quality of services provided. Delegation of authority and training a wider range of health providers to deliver MTP services in the first trimester will also increase access to safe services, particularly in rural areas. Further, these measures need to be supported by an educational effort to promote modern surgical abortion. The high levels of abortion underscore the need for expanded availability of contraceptives, so that unwanted pregnancies can be more effectively avoided.

Provision of Additional Services

5.24 Existing health services are inadequate to meet identified needs in the key areas of non-pregnancy-related morbidity and maternal mortality.

5.25 Non-Pregnancy-Related Morbidity. At present, both the Family Welfare and ICDS Programs include services for pregnant and, to some extent, lactating women. Neither of them addresses women's special health needs beyond those directly associated with pregnancy and childbearing. Although data on non-pregnancy-related morbidity are limited, the existing evidence is sufficient to indicate that women's needs in this area are extensive, and the prevalence of reproductive tract infections (RTIs) and other gynecological disorders is certainly high (paras. 2.60-2.62). However, since such ailments are commonly ignored unless they become disabling, neither diagnosis nor treatment is generally sought. Non-pregnancy-related gynecological morbidity is particularly difficult to deal with because it is so common that women have no sense of its importance or urgency. The emergence of HIV/AIDS makes it even more important that sexually transmitted infections are prevented and treated. Additionally, gynecological ailments may be unrelated to childbearing or may affect women who have completed their childbearing careers. Nevertheless, reproductive morbidity is directly linked to fertility, particularly to secondary sterility and infant health and, therefore, is of direct concern to the Family Welfare Program.

5.26 The incorporation of the diagnosis and treatment of non-pregnancy-related female morbidity into Family Welfare services will require orientation and training of health staff, upgrading laboratory diagnostic capabilities and substantial public education efforts. At the field level, ANMs need to be trained to recognize gynecological problems and to distinguish between those which they are able to treat and those which should be referred (Mathai 1991). Pregnant women should be routinely tested for syphilis, and syndromic treatment tested on a pilot basis. In association with Safe Motherhood training, PHC doctors with no background in the field should also be trained to diagnose and treat basic gynecological problems. The greatest challenge, however, will be to develop IEC approaches that, working through ANMs, other program staff and any available community channels, would encourage women to recognize symptoms of gynecological problems and to seek treatment. Given the high incidence of nonpregnancy-related gynecologic morbidity, the development of approaches to make diagnosis and treatment of such conditions an integral part of family welfare services should become a priority area of operational research in women's health.

5.27 Existing referral health facilities are presently unable to meet the needs of pregnant women, especially those with complicated pregnancies, or to cope with obstetrical emergencies at the time of delivery. There are three major gaps underlying present inability to provide essential obstetric care: absence of links between subcenters and referral facilities; lack of equipment and trained staff at referral facilities and lack of emergency transport. To achieve a significant impact on maternal mortality, all three of these constraints must be addressed.

5.28 *First*, rural health facilities are not at present linked in such a way that patients can be readily referred and information concerning diagnosis and treatment subsequently conveyed back. The Family Welfare field workers who are responsible for

identifying and referring high-risk and emergency maternity cases have little, if any, standing in the health system to which they must refer their patients. In circumstances, such as in India, where an individual's treatment is highly dependent on social status and the ability to claim a patron, a field worker's inability to ensure proper treatment for a patient, even if she physically accompanies her patient to the referral facility, makes her reluctant to involve herself in referral. The pregnant woman and her family, especially if they are of low status and impoverished, are also likely to be hesitant to attempt the use of referral facilities unless the need is dire. Delays of this sort are compounded by failure to recognize the seriousness of potential emergencies.

5.29 The development of a referral system in which patients, identified by Family Welfare or ICDS field workers, can be readily referred to an appropriate facility where proper treatment can routinely be expected is a long-term undertaking. From the perspective of maternal care, the best approach may be an educational effort that gives safe motherhood a specific identity and emphasizes both the tragedy and preventability of maternal death. A system of referral and forms to identify cases and provide feedback to the subcenter level might also be helpful. In implementing the Safe Motherhood Program in initial districts, it will be important to identify and deal with referral difficulties and to draw on this experience as the program is expanded.

5.30 *Second*, the facilities which constitute the referral chain (PHCs, CHCs and taluka/district hospitals) in many cases do not have the equipment, facilities and/or trained staff to deal with obstetric emergencies. In particular, the PHC, which at a minimum should be able to stabilize emergency obstetric cases that must be transferred to other facilities, is usually incapable of fulfilling this role.

5.31 The improvement of physical infrastructure and equipping and staffing of referral facilities is being directly addressed by the Safe Motherhood Program. Past experience indicates that if they are given adequate resources under the Eighth Five Year Plan so they can provide services such as major surgery or blood transfusions, the physical targets are likely to be achieved. The recruitment and retention of specialists at CHC and rural hospital locations, on the other hand, present difficult problems. To ensure adequate staffing for provision of essential obstetric care at referral facilities, an expanded program for training specialists within the government services is needed. Training of existing staff to perform specialist functions would be an additional option to consider.

5.32 *Third*, there are no systematic arrangements for transport of emergency cases from rural areas to referral facilities. There is no immediate or obvious general solution for the problem of emergency transport, and the best strategy in different regions or localities may vary greatly depending on resources, distances, geography, etc. One proposed approach is to draw on the increasing number of motorized vehicles, including three-wheeled vehicles and tractors, now available in rural India. While the loan of vehicles, even for emergency purposes, is not feasible, it might be possible to obtain

local transport for obstetric emergencies if reimbursement for use of the vehicle and fuel were available. Operational research projects to assess the practicality, effectiveness and cost of measures and financing options should be undertaken, e.g., establishing emergency transport funds at referral facilities as well as any other proposed alternatives for the purpose. If the emergency transport fund or other approaches are judged to be effective and replicable, they should be implemented and expanded as rapidly as possible.

Integrated Child Development Services Program

5.33 The ICDS Program has many of the same kinds of difficulties that are apparent in the Family Welfare and other social sector programs in India. Supervision is often weak, and in-service training, as in the Family Welfare Program, requires strengthening. ICDS evaluation studies have indicated that the components of the program relating to women tend to be neglected in favor of services for children. In particular, coverage of pregnant and lactating women under the supplemental feeding component of ICDS is generally quite low.

5.34 **In-Service Training.** The poor record of the women's components of ICDS suggests that AWWs require special refresher training relating to services for women. AWWs need to understand the essential package of antenatal services (Annex 5), even if they themselves do not perform the tests and procedures, and to be comfortable with priority messages concerning the importance of antenatal care, diet, rest, and attended delivery that they are asked to deliver to pregnant women. A project carried out in Gujarat and Maharashtra indicated that after completing an in-service training program emphasizing both technical and communication aspects of their duties, AWWs accepted that educating women was part of their job and had enough confidence in their skills to be effective (Griffiths et al. 1991).

5.35 **Nutritional Supplementation for Women.** Nutritional supplementation for pregnant and lactating women is potentially one of the most significant contributions that ICDS can make to improving women's health in India. However, supplementary feeding for adult women has proved far more difficult than for children, both in terms of the social appropriateness of women accepting food and the identification of a food that would be readily consumed. There may also be substantial regional variations in what sort of adult supplementation would be most acceptable. Given the prevalence of malnutrition among Indian women and the serious consequences for mother and child of inadequate weight gain during pregnancy, the development of successful approaches to providing nutritional supplementation to malnourished pregnant and lactating women should be a priority area of operational research in women's health. The type of supplement, its composition and delivery alternatives all need to be explored.

5.36 **Nutritional Supplementation for Children.** Since its inception, ICDS has been expanded gradually, with priority given to disadvantaged areas. Within areas covered by the program, malnourished children are, in principle, targeted for

supplementary feeding. However, in practice, this does not happen. The result has been low coverage of children under 3 years of age. A much higher percentage of 3-6 year olds receive food than do children in the more vulnerable under-3 age group, in part because younger children cannot come to the anganwadi by themselves. A study in two Gujarat and Maharashtra districts indicated that supplementary nutrition failed to reach nearly half of the severely malnourished under-3 year olds (M.S. University 1989). Since a disproportionate share of such children are, in most instances, female, the failure of ICDS to target individual malnourished children has unfavorable consequences for young females. Targeting of individual malnourished children, especially females, for supplementary feeding to compensate for the household disadvantage suffered by female children, particularly those of higher birth order, is recommended.

5.37 Adolescent Girls. The importance of improving the health knowledge and nutritional status of adolescent girls before they marry and begin their childbearing careers is increasingly recognized (Gopalan 1984). ICDS has begun to consider ways to reach girls of this age and to link them with anganwadi activities. A scheme currently being tried in some ICDS blocks involves selection of three girls to assist the AWW for two days a week and to act as a link between the AWW and village households; the girls also receive a daily food supplement similar to those for pregnant and lactating women. If the pilot phase of the scheme proves worthwhile, both coverage and scope should be expanded. However, the number of adolescent girls who can be included under ICDS will be limited. Other channels for reaching adolescent girls, including schools, also need to be explored.

Coordination of Services

5.38 The substantial overlap in both target beneficiaries and services provided under the Family Welfare and the ICDS Programs has already been noted (para. 4.5). In terms of maternal health, the common objectives of the two programs include identification of pregnant women and high-risk pregnancies, tetanus toxoid immunization, antenatal and postpartum care, and provision of anemia prophylaxis for pregnant and lactating women. The inter-relationship between illness and nutritional status highlights the importance of health services to achievement of the nutritional goals of ICDS.

5.39 According to current norms, the ANM must cover a population of approximately 5,000, which at current fertility levels means from 150 to 180 births a year, or about one birth every other day. Moreover, in most cases the subcenter area includes several villages, only one of which can have a resident ANM. Given her maternal care case load and other extensive responsibilities, as well as difficult logistics, the ANM needs to draw on a locally resident 'team' to develop community links and provide adequate coverage of services. This team should include, in the first instance, anganwadi workers in ICDS blocks, trained dais, female community health volunteers (CHVs), if they are available, and the subcenter assistant.

5.40 The anganwadi worker has the advantages that she is resident and working in her own community, is responsible for covering only about one fifth of the population assigned to an ANM and is in daily contact with village mothers at the anganwadi or through home visits. Consequently, she is in a better position than the ANM, particularly if the ANM is not resident in the village, to learn about newly pregnant women or to identify young female children whose growth may be faltering or whose illnesses are not being treated. Close contact between the two workers also greatly enhances the chances that when an AWW recognizes a case that requires attention beyond her capacity, such as a high-risk pregnancy, and brings it to the attention of the ANM, appropriate treatment and/or referral will be provided. Similarly, an AWW can carry out activities within her technical competence, such as the distribution of IFA tablets and monitoring of compliance, that would otherwise fall to the ANM, thus, permitting the ANM to make more profitable use of her time. An indication of how the tasks involved in providing services for women could be shared among such a team is given in Table 5.1.

5.41 Thus, increased cooperation and coordination between the Family Welfare and ICDS Programs, and specifically between ANMs and AWWs at the field level, is crucial to improvements in the efficiency, effectiveness and coverage of services to meet the health needs of Indian women and their children, especially young females. Family Welfare-ICDS cooperation in the field has improved in recent years, in large measure due to the involvement of staff from both programs in the universal immunization program (UIP). ICDS has taken a number of steps to improve linkages with the health system (Annex 2). Coordinated government orders issued in February 1991 by the concerned ministries that formed areas of coordination are an important step because they demonstrate to staff of both programs that cooperation is considered to be a serious concern at the highest levels. However, modifying existing field practices often requires more than formal orders. For this reason, measures to improve Family Welfare-ICDS cooperation have been suggested in the following five areas: joint planning; coordinated work routines; joint supervision; informal joint training; and coordination of formal training curricula (WB 1991b).

B. DEMAND FOR SERVICES

Information, Education and Communication

5.42 The importance of promoting demand for services is recognized in both the Family Welfare and ICDS Programs, primarily through support of information, education and communication (IEC) components. However, IEC tends to be dominated by the mass media and relatively less attention is given to interpersonal communication. At a time when television is spreading rapidly in India, there is no question as to the importance of television and other mass media. When effective, these means of communication can have a significant impact and serve an invaluable validation function. However, exposure to these media in rural India will remain limited for the foreseeable

future. This is especially true for rural women, because the combination of restricted physical mobility and illiteracy constrains their exposure to the outside world to a large extent (para. 3.26). In such circumstances, the female field workers who are in daily contact with women are a key channel of health communication. IEC strategies to reach women should give appropriate emphasis to interpersonal communication, and both the Family Welfare and ICDS Programs should give high priority to communication training for field workers.

5.43 The central role of communication in improving the quality and coverage of health services for women is demonstrated in the recommendations for strengthening of the Family Welfare and ICDS Programs given above. The need for IEC strategies IEC training for field workers in the following areas is specifically noted:

- working with households where the status of girls is particularly low (para. 5.16);
- communicating about the benefits of antenatal care, 'pregnancy entitlement' and trained attendance at delivery (para. 5.18);
- overcoming cultural constraints to acceptance of IUDs, oral contraceptives and vasectomy (para. 5.21);
- conducting an ongoing dialogue with feminist activists concerning the role of contraception, such as the use of injectables, in women's welfare (para 5.22);
- informing women about the health risks associated traditional methods of abortion, and recommending, instead, safe, legal practices (para. 5.23);
- teaching women and their families to recognize symptoms of gynecological problems and the importance of seeking medical attention (para. 5.26); and
- developing a specific identity for safe motherhood that emphasizes the tragedy and preventability of maternal death (para. 5.30).

5.44 IEC efforts in these and related areas must be essentially local in nature. The discussion of the sociocultural context of health in India (Chapter III) indicates, generally, the beliefs, customs and social circumstances that communications efforts need to take into account. However, regional and local variations must always be expected. This strongly supports a division of labor between central and state IEC units based on maximum decentralization of IEC planning and materials development. Given the size of India's states, many of which are larger than most of the world's countries, even state-

level generalizations may well prove to be unreliable. On the other hand, the central ministries concerned could provide an invaluable 'clearing house' function by documenting the strategies, contents and results of various communications efforts from various parts of India.

5.45 A general framework for development of IEC strategies and programs is given in Annex 6. Two aspects of communication training for field workers deserving special consideration because of their significant potential contributions to IEC effectiveness, are discussed below. The first concerns workers' own attitudes and beliefs, and the second is based on the importance of two-way communication.

5.46 Field workers will be able to function more effectively when their own beliefs are discussed in an open-minded fashion, and if necessary, reconciled with the messages they are to communicate. They also need training in how to deal with situations where advice they wish to give conflicts with the views of their clients and/or other household members.

5.47 A second, related health communication problem for field workers concerns the one-way direction of communication. The goal of 'communication' that is taught to field workers is to convey their modern and correct knowledge to the village community, in other words to 'educate' the women who are their clients. Under present norms, health workers are not expected to interact with local women to elicit their ideas about their situation or needs. The need for two-way communication between field workers and local women is clearly demonstrated by field workers' repeated references to the 'illiteracy' and 'superstitious beliefs' of villagers when they are asked why acceptance of family planning and modern health behavior is so slow.²³

5.48 Communication can also be understood as a two-way process that involves participants learning from each other. Workers know that the services they provide have the potential to improve the health of women and children in the community. The women know why services may be unacceptable, dangerous or unavailable. When knowledge from both sides is shared and a common ground reached, increased demand for, and improved effectiveness of, services results. Enabling workers to acquire the requisite orientation and skills is a formidable challenge; it is difficult enough to train workers to be effective communicators in the more usual, didactic sense. However, there has been some experience in moving towards two-way communication, and this approach should continue to be explored. This approach is discussed further in the section on NGOs below.

Non-Governmental Organizations

5.49 The Ministry of Health and Family Welfare has recently taken steps to expand support for NGO participation in the Family Welfare Program. The potential role of NGOs needs to be viewed with considerable flexibility. The particular comparative

advantage of NGOs is that they are able to design and implement projects whose objectives and components cut across sectors--for example, a woman's development project might include nutritional supplementation, adult literacy, environment sanitation, and income generation schemes as well as health and family welfare services. Given the complications of interdepartmental coordination, a given government department would find it difficult, at best, to carry out such a project. It is, therefore, recommended that MOHFW collaborate with other sectors in intersectoral projects that include, but are not limited to, women's health components.

5.50 NGO inputs into the training of government staff should be exploited to the fullest extent possible. NGOs have invaluable field experience in the successful delivery of services, particularly in communicating with clients. Therefore, efforts should be made to utilize NGO staff and experience in the training of government workers.

5.51 A promising example of the potential for NGO contributions to training is the participatory approach to rural development called 'Participatory Rural Appraisal' (PRA) (Heaver 1991) that several NGOs are adapting for use in the health and nutrition sectors. PRA, which has been applied in a wide range of sectors and several dozen countries in recent years, aims at promoting local participation in identification and resolution of local problems. PRA is an example of a development and empowerment approach that can be successfully implemented by an effective NGO with dedicated workers and good local rapport, but is unlikely to be replicable in a public sector context. However, it is possible that NGO staff with successful PRA experience and, in particular, with the two-way communication skills that PRA emphasizes, could incorporate training in these skills into in-service training for government workers. Such skills could greatly enhance field workers' abilities to elicit local perceptions of health and nutrition problems and priorities as well as local views about health services and practitioners. They could also provide workers with alternative techniques for targeting high-risk individuals and groups and identifying non-users of services.

5.52 The urban Family Welfare Program is probably the weakest part of the current public sector Family Welfare effort. At the same time, NGOs are much more active in urban than in rural areas. The Ministry needs to explore how the complementarity between weak urban public-sector programs and the NGO urban presence could be exploited most effectively. The Ministry's coordinating body for NGOs could be asked to take the lead in synthesizing urban NGO experiences and make this information available to both urban Family Welfare Programs and the NGOs themselves. The experience of the Fifth World Bank-supported Population Project in Madras, where more than a dozen NGOs are actively participating in program implementation, needs to be assessed and the lessons learned shared with other municipalities in India.

Community Participation

5.53 Both the Family Welfare and ICDS Programs are often faulted for their failure to elicit community participation. Community support can greatly facilitate aspects of these programs such as, secure residence for female workers, identification of target and high-risk clients and mobilization of community resources to assist in achieving a variety of service coverage and educational goals. It is well understood that one of the most significant comparative advantages that NGOs have in implementing social projects is precisely their ability to mobilize community support. The World Bank-supported Tamil Nadu Nutrition Project (1980-88) included a component devoted to organizing a women's group in each village that would assist with project activities, including nutrition education demonstrations and the monthly weighing of children. While it is not entirely clear how many of these women's groups functioned as intended, where they were active they made a valuable contribution to the successful implementation of the project.

5.54 The World Bank-assisted ICDS projects in Andhra Pradesh, Orissa, Madhya Pradesh, and Bihar also include provisions for utilizing or activating women's organizations (mahila mandals). These were theoretically organized years ago in all Indian villages but are largely moribund, especially in north India. Active mahila mandals will be given financial support under the project and assistance in organizing activities such as income generating schemes for the benefit of their members. The effort to organize community participation in support of ICDS through mahila mandals should be carefully monitored. If successful and replicable, its wider introduction through ICDS in other states should be supported.

5.55 Other community involvement efforts such as the mahila swasthya sanghs (MSSs) (women's health societies) recently organized under the Family Welfare Program also have great potential as channels for communication of women's health and safe motherhood messages and as a means of enlisting community support for expanded coverage of key services. Early observations suggest that NGO experience and IEC expertise should be utilized to strengthen MSSs and increase their effectiveness.

C. ACTION RESEARCH IN SUPPORT OF WOMEN'S HEALTH

5.56 India has taken major steps in the provision of health and nutrition services through the establishment of the Family Welfare and ICDS Programs and is currently moving ahead to strengthen the services particularly intended for women through the implementation of the Safe Motherhood Program. The discussion above identifies a number of key constraints that need to be addressed to assure that the programs function more effectively and provide better quality services. However, introducing changes in such large, well-established programs, particularly given India's federal system under which implementation responsibility lies with the various states, is inevitably a cumbersome task. Under existing organizational, procedural and resource constraints, planners and managers may not have a sense of the changes that might be desirable or,

even if identified, how they could be introduced successfully. This section, therefore, focuses on the use of action research as a basis for investigating alternatives.

5.57 The term 'action (or operational) research' can be used to cover a variety of kinds of research, both more and less formal. The scale of the research projects can also vary greatly. What all such projects have in common is an action component, that is, they are used to introduce, test and/or modify program strategies and activities. Action research is also frequently used to evaluate alternatives or options within existing programs. This approach has been neglected in social programs in India. Program alternatives tend to be identified with NGO projects, which are assumed to be non-replicable by the public sector. Yet, it is only by investigating alternatives on a smaller scale, within public sector constraints, that guidelines for larger scale introductions and modifications can be obtained. Particularly in cases where an existing approach is clearly not working and there is no consensus as to a viable alternative (e.g., anemia prophylaxis), some form of action research is needed to test and compare options. Action research is particularly important for IEC, where the institutional framework, technical capacity and organizational support are all weak.

5.58 In most cases, neither the central nor the state governments have the capacity to carry out studies of this sort without assistance. There are, however, ample private sector and NGO organizations in India with the required expertise and resources to carry out the kinds of action research indicated below.

5.59 The phased introduction of the Safe Motherhood Program in a small number of districts during the initial year of the program, in effect, should function as action research. Experience in the initial districts can serve to identify bottlenecks and constraints and provide a basis for assessing program effectiveness. The importance of careful monitoring of implementation and results in the initial Safe Motherhood districts cannot be overemphasized. Such monitoring is essential to the introduction of needed modifications in program organization, inputs or implementation before the program is expanded and changes become difficult. High-quality monitoring studies and utilization of their results would greatly enhance the chances that the program will be able to achieve its objectives.

5.60 The following list summarizes the recommendations for operational research in service delivery and IEC made in this chapter.

- (a) *Safe motherhood messages.* Approaches and potential audiences for safe motherhood messages concerning the benefits of antenatal care, 'pregnancy entitlement' and trained delivery attendance should be explored. In addition to the pregnant woman herself and her household members, as many health care provider and community audiences as possible should be included (para. 5.18).

- (b) *Anemia prophylaxis.* Given the extent and seriousness of anemia among women, particularly pregnant women, as well as the current lack of knowledge as to how a prophylaxis program could most effectively be implemented, a number of alternatives need to be evaluated. Supply, compliance, effectiveness, and deparasitization aspects should all be considered in developing testable alternatives (para. 5.23).
- (c) *Increased use of temporary contraceptive methods.* Use of link workers, modification of program targets and locally based communications approaches to deal with cultural constraints to acceptance of IUDs, oral contraceptives, and vasectomy all need to be developed. Relevant NGO experience should be incorporated (paras. 5.21-5.22).
- (d) *Substitution of medical termination of pregnancy (MTP) for traditional and/or local abortion techniques.* Means of promoting awareness of MTP and addressing fears of the invasive nature of modern procedures should be developed and assessed (para. 5.20).
- (e) *Diagnosis, treatment and referral of gynecological problems.* Training of Family Welfare field workers to recognize non-pregnancy-related gynecological problems, treat women locally, if possible, and refer when appropriate, needs to be introduced and evaluated as a priority intervention (paras. 5.25-26).
- (f) *Transportation for obstetric emergencies.* Establishment of an emergency transport fund at referral facilities for reimbursement of locally provided emergency transport as well as other alternatives for providing such transport need to be tested for practicality, effectiveness and cost (para. 5.33).
- (g) *Nutritional supplementation for malnourished pregnant and lactating women.* Alternative strategies for achieving this goal through the ICDS Program should to be developed and compared (para. 5.36).
- (h) *Quality of care.* Research in this area should focus on adherence to defined norms of equipment and staff and specified processes of care, as well as outcomes of care and the inclusion of clients' perspectives.

5.61 In addition to operational research projects covering these areas, pilot efforts under the ICDS Program which include adolescent girls (para. 5.38) and support community participation (para. 5.56) should be evaluated. If successful and replicable, their wider introduction should be supported.

FOOTNOTES

1. In all human populations it is observed that more males are born than females, but more males die; that is, male death rates are higher than female death rates at every age. In low-mortality populations, the balance of these two factors results in higher numbers of males through age 50 or so, due to the initial male numerical advantage. After that age, however, the biological female advantage increasingly asserts itself, and the relatively larger numbers of females at older ages result in more females than males in the total population.
2. According to the most recent UN figures, most of the south Asian countries and China have female/male population ratios of 0.92-0.94. All others are higher, for example Sri Lanka 1.0; Indonesia 1.01; Nigeria 1.02; and Japan 1.04. (See UN 1994)
3. The figures in Table 1 and much of the other demographic data in this paper are taken from Sample Registration System (SRS) estimates published by the Office of the Registrar General, India (RGI). The RGI is India's national ongoing dual record system, instituted more than two decades ago to provide estimates of vital rates, given the unreliable recording of vital events, particularly in rural areas. RGI now provides a set of demographic estimates over the last two decades that is probably unique in the developing world. However, particularly with regard to age-sex-specific death rates, the RGI estimates exhibit inexplicable variations from year to year and in the age pattern of mortality and the sex ratios in any given year. Wherever possible, therefore, the RGI death rates used in this paper are based on three-year moving averages rather than the published annual rates. This smoothing procedure helps to some extent, but even using three-year average rates the variations are still substantial, and for many age groups it is difficult to detect whether or not there has been a decline in mortality over time. Rates for the second half of the 1970s are generally higher than corresponding rates for the first half, but this is almost certainly a reflection of improved reporting, rather than a rise in mortality.
4. The phrase 'northern states' is used here to mean specifically the states of Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan. 'The BIMARU states' (an acronym) and 'the large northern states' are also used in the literature to refer to these four states.

5. Maternal mortality refers to the death of a woman during pregnancy or within forty-two days of termination of pregnancy from any cause related to or aggravated by pregnancy. The maternal mortality ratio measures the risk women face of dying once pregnant (maternal deaths per 100,000 live births). The maternal mortality rate (maternal deaths per 100,000 women aged 15-49) reflects the maternal mortality ratio and the fertility rate.
6. Estimation of maternal mortality rates in a country like India is problematic because of incomplete registration of deaths, particularly in rural areas.
7. In the Indian literature, the term 'abortion' is used to include both spontaneous abortion (miscarriage) and induced abortion. To avoid possible confusion, in this study 'abortion' refers to induced abortion, and spontaneous abortion is referred to as miscarriage.
8. The figure of 41 percent married at ages 15-19 in 1972 is calculated from the RGI fertility survey carried out in 1972. However, the 1971 census found that 55 percent of women aged 15-19 were married. Census figures for the proportion of women married at ages 15-19 are consistently higher than those calculated from RGI data, presumably because the ongoing RGI enumeration is better able to distinguish between those girls who have been formally married and those subsequently sent to live with their husbands. RGI counts only the latter as married, since the former are not yet exposed to the risk of pregnancy. (Bhat)
9. In the Muslim marriage system, preferred marriage is with close relatives on the male side and there is no requirement for residential distance between families. Thus, Muslim marriages resemble south Indian marriages in that the spouses may be closely related and the families resident in the same village, so that the couple and their families are well known to each other prior to the marriage. Interestingly enough, however, these features do not appear to result in improved status for Muslim women in north India vis-a-vis their Hindu counterparts (Jeffery et al. 1989). The explanation, at least in part, may stem from the fact that, in contrast to the southern system, both northern Hindu and Muslim systems are strongly patrilineal and patrilocal.
10. Caldwell et al. (1983) report that their informants in rural southern Karnataka gave two reasons for the rise of dowry: the

current surplus of marriageable girls compared to the number the potential husbands looking for wives and the desire to find educated husbands with urban jobs. Epstein (1973), observing the beginning of dowry in the same area a generation earlier, ascribed it to a desire on the part of the upwardly mobile to adopt Brahmin customs (i.e., 'Sanskritization') as well as the need to substitute dowry for bride price for an educated girl who could not be asked to perform the agricultural labor typically expected of rural women. Caldwell et al., however, were not given either of these explanations. There is no doubt that the relatively high fertility levels of recent decades, combined with a typical gap of about seven years between the ages of bride and bridegroom, has in fact created a marriage squeeze for women, that is, the families of more potential brides must seek husbands among fewer potential bridegrooms. This will change as more recent declining fertility makes itself felt in the relative numbers of marriageable young men and women and will ease dowry pressures, to some extent, in both the north and south. In addition, as Caldwell et al. point out, bride price and dowry are both reflections of traditional marriage systems based on alliance and exchange among families, made by the older generation without consulting the younger, and stand in contrast to a more modern system in which the marriage partners are older and also have some say in the arrangements.

11. George et al. (1992) reported that the six villages where female infanticide occurred were populated primarily by a middle cultivator caste (Gounder) and that all but 1 of 18 cases of infanticide took place in households of this caste. There were no cases of infanticide among Harijan families. Only one of the cases involved a first-born daughter; in all the others the family had at least one other female child at the time and usually two. The villages in which the female infanticides occurred were more remote and had less educated populations than the villages with no cases of infanticide. They were located in hilly and more remote areas than the other villages. Of the six villages where female infanticide occurred, only two had bus service, while all but one of the other six villages had bus service.
12. The strong statistical associations found between the educational levels of women on the one hand and fertility and child survival on the other should not lead to overly optimistic expectations about the short or even medium-term results of improved enrollment and retention of girls in school in north India. In the

first instance, the data indicate that there is a secondary education threshold effect that limits the impact of primary education. In addition, it is necessary to make a distinction between specific progress in fertility reduction and child survival on the one hand and more general improvements in the status of women on the other. In the sociocultural context of north India, the former are undoubtedly easier to achieve than more fundamental changes in the status of women involving, for instance, women's ability to control their own physical movements as well as to acquire, retain and dispose of earnings and/or property (see para. 3.3).

13. The evidence concerning nutritional and mortality gender differentials by socioeconomic status is by no means clear cut, particularly when the possibility of change over recent decades is also considered. Two older studies carried out in rural Punjab both found that the most serious male-female nutritional differences occurred among the lowest income groups (Kielmann et al. 1978; Levinson 1974). A more recent Tamil Nadu study reported socioeconomic differentials in breastfeeding durations and dietary intake, with the female children of poorer families suffering the most severe deprivation (Devadas and Kamalanathan 1985). It is possible that differences between nutritional and mortality differentials may be explained by the different weights of economic and social factors in malnutrition and mortality. It may be that where resources (e.g., food) are limited, females will receive a lesser share than males, resulting in measurable differences in their nutritional status. However, since poor families consider their female children to have a positive economic value, they may try to prevent deprivation from reaching the point where it leads to death. On the other hand, for social and economic reasons, better-off families may neglect their female children in other ways than inequitable feeding (Chatterjee 1990). Basu's study, among others, suggests that it is discrimination in terms of medical care rather than feeding that is responsible for socioeconomic gender mortality differentials among young children. Miller (1981) has suggested that with increasing dowry pressures, mortality differentials are, if anything, likely to become more unfavorable to female children of higher socioeconomic status. However, this is not borne out by two recent micro studies in western U.P., both of which reported young child mortality ratios increasingly favorable to female children of better-off families over recent decades (Jeffery et al. 1989; Wadley 1989).

14. Survey evidence regarding the widespread belief that smallpox and related diseases are divinely caused is given for three states (Bihar, Gujarat and Kerala) in ICMR 1988a, Table 10.
15. This section is based primarily on Griffiths et al. (1991); Jeffery et al. (1989); Khan et al. (1989); and Nichter (1989).
16. In much of India, including Punjab, eastern India and south India, quite the opposite is true; that is, for her first delivery a young wife will return to her parent's house and only later in her childbearing career remain at her marital home throughout pregnancy and delivery. The area where the custom of delivering at the husband's home prevails probably includes U.P. north of the Ganges and Bihar, but this is not known with any certainty.
17. It is useful to distinguish between practitioners of the formal traditional systems, i.e., 'traditional practitioners,' and local healers who may know little of the formal systems and may not practice 'medicine' in any conventional sense. All of these, plus all allopathic practitioners, whether or not they are fully qualified, can be termed 'private practitioners,' although the latter term is often used to mean 'qualified private allopathic physicians.' In discussing the 'private sector' in the delivery of health services in India, it is necessary to be clear as to which meaning is intended.
18. The ORG and IIPS survey figures confirmed what was already clear from internal evidence, namely that MOHFW estimates of prevalence of temporary methods are substantially too high. The sterilization figures, however, match quite well in most cases.
19. Any national package of interventions designed on the basis of cost-effectiveness and the disease burden would include family planning, maternity care and STD/AIDS prevention and control. Examples of essential services which include characteristics of public goods include the following: (a) information, education and communication (IEC) about available services and desirable health practices; (b) immunization at high levels of coverage; and (c) disease surveillance and vital registration systems.
20. Private sector (both) non-profit and fee-for-service involvement in preventive and promotive activities can come about through training and subsidies for private practitioners in essential

women's health services; commercial sales and social marketing (i.e., making condoms, iron tablets, etc. available through pharmacies and other retail outlets); and employment-related service provision or insurance mechanisms, including mandating inclusion of key preventive services in insurance policies.

21. This is termed 'permission' by Chatterjee (1989).
22. It is worthwhile noting that both of these projects have substantial training components and also have developed rationalized work routines for field workers.
23. Often, when field workers are questioned about their low levels of performance in the field, they report 'ignorance' and 'illiteracy' of local women as the cause. It is imperative for field workers to be trained so that their communication skills are strengthened and they are able to communicate health messages more effectively. A better communication strategy allows for a two-way process so that health workers also listen to women, rather than dismissing local beliefs.

Family Welfare Program

1. India's Family Welfare Program has developed gradually since the national family planning program was launched in 1952--the first such national program in the developing world. Progress during the 1950s was limited to some research and surveys, setting up of institutes to train population analysts and family planning workers, and establishment of a small number of rural and urban clinics. The 1960s saw an increase in facilities for sterilization, the first sterilization camps in rural areas, and enlistment of auxiliary nurse-midwives (ANMs) who were attached to rural health facilities and took a 'cafeteria' of family planning methods to potential acceptors on an outreach basis.

2. A full-fledged Department of Family Planning was set up in the Ministry of Health and annual targets for field workers were initiated in 1966. In the latter half of the decade, a major IUD campaign and a social marketing program for condoms were introduced. The IUD effort was initially successful, but quickly floundered because of the lack of adequate follow-up care. The social marketing program was moderately successful and still continues. A hospital postpartum program also achieved good results, but its impact was and is limited because the great majority of rural deliveries take place at home.

3. In the early 1970s, the program turned to a focus on sterilization and also began the conversion of the several types of local family planning and health workers, male and female, to 'multipurpose' workers responsible for delivery of a single set of basic family planning, maternal-child health and public health services. During the Emergency Period (1975-77), family planning became a major priority, the most visible consequence of which was a dramatic increase in the number of sterilizations. These results, however, were accomplished, in some cases, by exertion of pressure by overzealous workers. This became an issue in the elections of March 1977 and resulted in a change of government. However, the new Government did not dismantle the family planning program. Instead, the integration of voluntarily family planning with other primary health care services was emphasized, the integrated program was designated 'family welfare' and the name of the Ministry correspondingly changed to the 'Ministry of Health and Family Welfare'. The early 1980s saw the introduction of better technologies for female sterilization using the methods of laparoscopy and mini-lap. This led to a swing from about 80 percent vasectomy in the early 1970s to 80 percent tubal ligation 10 years later.

4. Under the Seventh Five Year Plan (1985-90), a three-tiered rural health infrastructure became the norm. Family Welfare subcenters now cover a population of 5,000 (3,000 in particularly undeveloped, tribal or hilly areas) and are staffed by one

male and one female multipurpose worker. Primary health centers (PHCs), covering a population of 30,000, are staffed by a medical officer and associated facility staff as well as field supervisors, at a ratio of about one supervisor per five multipurpose workers. Staff at community health centers, which cover a population of about 100,000, or the area of a community development block, includes specialists in pediatrics, surgery, and obstetrics/gynecology. Targeted levels of subcenter coverage have, by and large, been achieved, although PHC coverage has not yet reached the 30,000 goal. With the goal of making the program more flexible and effective, the system of targets and incentives for adoption of sterilization and the IUD were modified in early 1992. In addition, emphasis was placed on expanding the coverage of younger couples and improving the quality and choice and availability of temporary contraceptive methods. However, progress in improving the contraceptive mix has been slow.

5. Five contraceptive methods are currently available through the family planning program: male and female sterilization; IUDs; oral contraceptives; and condoms. Basic MCH services include antenatal and postpartum care, delivery by either the ANM or a trained traditional birth attendant (dai) and immunization. Under the universal immunization program (UIP) introduced in 1985, infants under 1 year of age receive BCG, DPT, polio and measles immunizations, with diphtheria and tetanus boosters for older children. Tetanus toxoid (TT) immunization of pregnant women is also included.

6. Under the Eighth Five Year Plan (1992-1997), GOI will strengthen child health services by expanding UIP, oral rehydration therapy (ORT) for treatment of diarrhea, treatment of acute respiratory infections, vitamin A prophylaxis against blindness, and newborn care. Maternal services will be strengthened and expanded under the Safe Motherhood Program to include improved antenatal and postpartum care, anemia prophylaxis, recognition and referral of high risk pregnancies, improved training of dais, availability of essential obstetrical care, and care for emergencies.

Integrated Child Development Services Program

1. The Integrated Child Development Services (ICDS) Program, India's national child development and nutrition program, was developed by the Ministry of Social Welfare with UNICEF assistance in the mid-1970s. The Government of India finances the program with the exception of the costs for supplementary feeding which are borne by the states.

2. The objectives of the program are to:

- (a) improve the nutritional and health status of children under 6 years of age as well as that of pregnant and lactating women, thereby reducing the incidence of mortality, morbidity and malnutrition;
- (b) lay the foundation for proper psychological, physical and social development of children;
- (c) enhance the capability of mothers to look after the normal health and nutritional needs of the children through nutrition and health education; and
- (d) achieve effective cooperation among departments concerned with the promotion of child development.

Organization

3. The ICDS Program is designed to deliver a package of services, including supplementary nutrition, immunization, health check-ups, referral services, nutrition and health education, and non-formal pre-school education. The administrative unit for ICDS is a community development block (population of about 100,000), a tribal development block (50,000 population) or a slum population of about 100,000, each of which is headed by a Child Development Project Officer (CDPO). Services are delivered through anganwadi (AW) centers, staffed by female anganwadi workers (AWWs) that serve a population of about 1,000 (700 in tribal areas). AWWs are supervised by female supervisors (mukhya sevikas) at a ratio of 1 to 20 in rural/urban areas and 1 to 17 in tribal areas. Immunization, health check-ups and other health services are also delivered at Awws by health staff.

4. The key to the functioning of ICDS is the anganwadi worker, the local woman in charge of the AW. AWWs are considered to be part-time volunteers and receive an honorarium rather than a salary. AWWs are selected locally and receive three months' initial training. They are responsible for organizing pre-school activities at the AW for about 40 children ages 3-4; arranging supplementary feeding for children 6 months to 5 years and pregnant and lactating women, health and nutrition education for mothers, house visits as needed, eliciting community support, and assisting health staff with immunization and other family welfare services.

Services

5. Supplementary nutrition. Children below 6 years of age and pregnant and nursing women from low-income families are entitled to supplementary feeding at the anganwadi. The type of food supplement varies, but locally available food is preferred. Severely malnourished children should receive double the standard supplement.

6. Immunization. The AWW, in collaboration with the female health worker, is responsible for organizing immunization for children under 1 year of age and tetanus and diphtheria booster doses for older children through the Universal Program of Immunization (UIP).

7. Other health services. With the cooperation of AWWs, health staff provide MCH services to children and pregnant women including, antenatal and postpartum care; anemia prophylaxis; vitamin A supplementation; deworming; and treatment for prevalent diseases such as diarrhea, respiratory infections and skin and eye diseases. The AWW refers serious and high-risk cases to the health system and follows up to ensure that necessary services have been provided. She also receives a medicine kit to provide simple care to AW beneficiaries.

8. Non-formal pre-school education. The AWW holds sessions for pre-school children ages 3-5 which are aimed at laying a foundation for proper physical, psychological, cognitive, and social development program content and methods. Using flexible program content and methods, the emphasis is on the use of locally produced materials and toys.

9. Nutrition and health education. This is intended for all women of childbearing age and aims at effectively communicating selected basic health and nutrition messages which enhance the mother's competence in looking after her child's health and nutritional status. Specially organized courses and campaigns, home visits by AWWs, cooking demonstrations, media and other available communication

means are all utilized. ICDS also envisions the involvement of local groups such as mahila mandals (women's groups) in educational efforts.

10. ICDS has taken a number of steps to improve linkages with the health system. Coordinating committees have been established at block, district and state levels; health staff have been appointed as technical advisers to ICDS at all these levels; and joint supervision is planned. Coordinated government orders were issued in February 1991 by the concerned ministries formalizing areas of coordination.

Intensified Training of Dais Program (ITDP)

1. Recognizing the importance of providing training to traditional birth attendants (dais) and drawing on the experience of previous dai training programs, the Ministry of Health and Family Welfare developed and initiated an Intensified Training of Dais Program (ITDP). ITDP was implemented on a pilot basis in 11 districts by SWACH, a private voluntary organization with considerable MCH experience. Under the Child Survival and Safe Motherhood Project, it is being expanded in a phased manner to cover all rural districts.

2. Under ITDP, priority is given to women who are already functioning as traditional birth attendants (TBAs). ITDP is based on a strategy of providing essential skills, combined with ongoing contact after the initial training. (It is particularly in the latter regard that previous programs have been deficient.) Essential skills include aseptic delivery, early identification of pregnancy, immunization of pregnant women with tetanus toxoid, anemia prophylaxis, and recognition and referral of problem pregnancies and for complications during labor and after delivery. TBAs are supplied with safe delivery kits and newborn weighing scales.

3. TBAs receive six days of residential training at rural institutions. Training is competency based and includes: aseptic delivery, resuscitation of newborns, checking for completeness of placenta, putting the baby on the breast if the placenta is delayed, information about when referral is necessary, use of the pre-sterilized cord care kit, use of the newborn weighing scale, and use of the home-based and reporting cards.

4. Following their initial training, the TBAs receive follow-up training (incremental skills development) at the subcenter. It was planned that this training would include early identification of pregnancy, antenatal care, checking for pallor and edema, abdominal examination, screening for high risk, warning signs, referral, information about the importance of a minimum of three antenatal visits to the subcenter/female multipurpose worker, tetanus toxoid immunization, anemia prophylaxis through IFA tablets, the importance of proper diet and adequate rest, routine postpartum care, care of the newborn, family planning, child health topics, etc. Clear instruction on when a patient requires referral will be emphasized.

Safe Motherhood Program

1. The Child Survival and Safe Motherhood (CSSM) Program was launched in August, 1992, with the objective of improving the health status of women and children and reducing maternal, infant and child mortality rates. The CSSM Program is directed at achieving the nine goals of the National Health Policy of 1983 which are related to maternal and child health by the year 2000. These maternal health goals include reduction of the maternal mortality ratio to 200 maternal deaths per 100,000 live births, coverage of 100 percent of pregnant women with tetanus toxoid immunization and antenatal care, and attendance by trained personnel at 100 percent of deliveries.
2. The Program was designed to address the major causes of morbidity and mortality in women and children which are preventable by readily available and cost-effective interventions. While many of these interventions are ongoing under the Maternal and Child Health (MCH) Program, under the CSSM they are being integrated, expanded and improved through the supply of additional equipment, regular supply of essential drugs and retraining of medical and paramedical personnel. New areas of emphasis include: treatment of acute respiratory infections (ARI); newborn care and strengthening of emergency obstetric services.
3. The essential components of maternal care which are to be strengthened and expanded under the Program are:
 - Early registration of pregnancy
 - A minimum of three antenatal check-ups
 - Universal coverage with TT vaccine
 - Universal coverage with IFA tablets
 - Advice on adequate food and rest
 - Early detection and referral of maternal complications
 - Deliveries attended by trained personnel
 - Institutional deliveries for women with poor obstetric history and risk factors
 - Management of obstetric emergencies
 - Birth spacing
4. The Government of India has prepared guidelines and training materials, provides essential supplies, equipment, kits, and cash assistance, and coordinates and supervises the program. The state governments are responsible for implementation of the program and supervision of the services. The Government of India was initially to

provide support to six state governments to strengthen first level referral facilities for emergency obstetric care in 219 districts [Figure 4.1 (Annex)]. The states of Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh, where maternal mortality rates are higher than the national average, are being given higher priority to establish first referral units (FRUs) in the rural areas. The Child Survival and Safe Motherhood Program is to be operational in all districts of the country by 1996-1997.

5. In the states of Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh, where maternal mortality rates are particularly high, additional inputs are being provided to establish First Referral Units (FRUs) in the rural areas for the management of obstetric complications. The states have been requested to place gynecologists, pediatricians and female paramedical staff in vacant posts on a priority basis, especially those whose salaries will be reimbursed by the GOI, and to include drugs essential for managing obstetric complications on their approved drug lists. The states have also been asked to organize skill-based training of medical officers from the institutions identified for strengthening as FRUs in the management of obstetric emergencies, if it is not possible to fill the vacancies with specialists. Training of nursing personnel and laboratory technicians of the FRUs is also supported by the GOI.

STATEWISE PHASING OF NEW DISTRICTS SAFE MOTHERHOOD					
STATE	NUMBER OF DISTRICTS				
	'92-93	'93-94	'94-95	'95-96	'96-97
Andra Pradesh	1	—	—	—	—
Assam	0	2	5	7	9
Bihar	2	6	10	10	14
Karnataka	1	—	—	—	—
Madhya Pradesh	4	6	9	13	13
Maharashtra	—	1	—	—	—
Orissa	3	3	2	2	3
Rajasthan	4	6	6	5	6
Tamil Nadu	2	—	—	—	—
Uttar Pradesh	3	8	19	11	22
West Bengal	1	—	—	—	—
Total	21	32	51	48	67

Source: MOHFW 1994B

6. Nationally, three out of four deliveries are domiciliary. The proportion of deliveries attended by untrained personnel continues to be high, especially in the rural areas of some large states. Crash training of traditional birth attendants is being conducted with the aim of training/re-training nearly 800,000 dais by the end of 1996, so that basic maternity services are available to all women and newborn care is improved. The six-day training of the dais will be 'hands-on' in small batches of five and six and take place in institutions with 50 or more deliveries per month. The training material has been printed in regional languages.

7. Progress with the Safe Motherhood component has been slower than that with the Child Survival component. Coverage of antenatal and postpartum care services, as well as MTP services, is very low in the large, northern states and needs to be expanded and improved in quality in order to reduce maternal mortality and morbidity and improve infant outcomes. Linkages of the household and community with the referral system also need to be strengthened.

8. A particularly difficult challenge, and one which must be met if the maternal mortality goal is to be achieved, is providing prompt and effective treatment for obstetric complications, many of which occur during labor and delivery without warning. Many facilities do not have sanctioned posts of specialists, adequate operation theaters, or blood pre-tested for HIV for transfusion. It has also proven difficult, given the living conditions, to deploy female medical officers to some of the most underserved rural areas.

Antenatal Services to be Provided by Female Health Workers

The basic package of antenatal services to be provided by the ANM includes the following:

- Information/tests**
 - identification of expected date of delivery
 - anemia detection
 - blood pressure
 - determination of fundal height
 - fetal heart rate/detection of fetal movements
 - screening for the following maternal risks¹
 - short height
 - poor obstetric history
 - bleeding

- Preventive measures**
 - tetanus toxoid immunization
 - provision of IFA tablets

- Advice**
 - increased intake and types of food that should be eaten
 - increased rest
 - importance of aseptic delivery
 - attendance of labor and delivery by trained personnel

The ability of the system to provide adequate antenatal care cannot be considered adequate until all ANMs:

- a. are technically competent and capable of providing all components of adequate care;
- b. have the facilities and equipment necessary to provide adequate care;

1. There is a growing body of evidence that elaborate risk assessment techniques that have been developed are counterproductive, because the calculations involved tend to become an end in themselves and distract attention from the primary need to observe and examine the pregnant woman and give appropriate advice and treatment. What is more, risk assessment is not a good predictor of maternal mortality: most of the women who die would not be classified as belonging to high-risk categories. However, this in no way invalidates the well-known indicators of maternal risk which the ANM should use as a guide to identify potential problem pregnancies and deliveries to which she needs to give special attention.

- c. have and utilize a recordkeeping system for natal care that includes the recording of all relevant information, such as expected date of delivery, results of tests, services provided, risk status, outcome of delivery, etc.²
- d. are supported by an effective referral system.

2. There are a number of types of recording systems currently in use, all of which have their proponents. The various state programs typically depend on register systems. Evidence from a variety of projects indicates that card systems can be extremely effective, and efforts to introduce such systems on a larger scale in several states are currently underway. Two points should be noted in this connection. First, the type of recording system in use is secondary in importance to ensuring that the system functions effectively for workers rather than burdening them. Second, even if a card system is in use, in order to be able to assess the coverage levels workers are achieving, it is important that they have complete lists of all married women of childbearing age (target couples) which also indicate which of them are currently pregnant. Subcenter records have been successfully computerized in an experimental project in Gujarat, but it is unlikely that this can be replicated on a large scale in the foreseeable future.

Guidelines for Development of Information, Education and Communication Strategies

Extensive experience in social communication in all parts of the world indicates that careful qualitative (also called formative) research invariably underlies successful communication strategies (Griffiths et al). This is a community-centered approach that recognizes that if demand is to be effectively created or enhanced, communication must be consonant with the perspectives of the community. In addition to conveying knowledge, which is the first prerequisite, this approach takes the next step and aims at behavior change. To accomplish change, the constraints that impede the acceptance of new behaviors or the modification of existing ones are first identified, followed by the development of approaches specifically designed to address these constraints. The key characteristics include:

- (a) use of both mass and interpersonal media;
- (b) development of traditional art forms and field publicity;
- (c) field testing of all new concepts and materials by qualified communications professionals;
- (d) preparation of materials for different media (audio, video, print etc.) tailored for specific audiences and themes, with local variations as appropriate, which are produced locally;
- (e) special campaigns and sequential introduction of themes as opposed to blanket promotion of all activities;
- (f) IEC messages which associate Family Welfare with planned parenthood;
- (g) extensive training in the use of the IEC materials;
- (h) built-in provision for monitoring and feedback to permit modifications as required; and
- (i) measures to enhance the status of those conveying messages (e.g. ANMs, AWWs);

- (j) focus on IEC for males to promote use of condoms and vasectomy; and
- (k) regular refresher training of IEC staff to improve motivation and managerial skills.

TABLE 2.1: Age-Specific Death Rates by Sex and Residence, India: 1989-1991

	COMBINED			RURAL			URBAN		
	Male 89-91	Female 89-91	M/F 89-91	Male 89-91	Female 89-91	M/F 89-91	Male 89-91	Female 89-91	M/F 89-91
0-4	26.3	28.9	0.91	28.9	32.1	0.90	15.6	16.4	0.95
5-9	2.4	3.0	0.82	2.7	3.4	0.81	1.4	1.5	0.94
10-14	1.4	1.5	0.94	1.5	1.8	0.87	0.9	0.9	1.01
15-19	1.7	2.5	0.69	1.8	2.8	0.64	1.4	1.5	0.94
20-24	2.4	3.2	0.75	2.6	3.5	0.74	1.8	2.2	0.83
25-29	2.7	3.0	0.89	2.9	3.3	0.86	2.3	2.0	1.16
30-34	3.2	2.8	1.12	3.3	3.2	1.04	2.5	1.7	1.53
35-39	4.0	3.4	1.19	4.3	3.7	1.14	3.4	2.4	1.47
40-44	5.5	4.1	1.34	5.9	4.6	1.28	5.1	3.1	1.67
45-49	9.0	5.9	1.53	9.3	6.2	1.50	8.3	4.9	1.76
50-54	13.3	9.0	1.47	13.4	9.4	1.43	12.6	7.7	1.64
55-59	20.7	14.0	1.48	20.6	14.2	1.45	21.0	13.2	1.62
60-64	31.6	23.2	1.36	31.7	23.8	1.33	31.0	20.9	1.49
65-69	47.1	37.6	1.25	47.4	38.5	1.23	46.0	33.9	1.36
70+	94.2	81.1	1.16	95.3	82.4	1.16	90.0	76.1	1.19
All	10.0	9.8	1.02	10.8	10.7	1.01	7.5	6.6	1.13

Source: RGI, years as indicated

TABLE 2.2: Crude Death Rates by Sex, India and Major States: 1992

	Both Sexes	Male	Female	M/F
INDIA	10.1	10.0	10.2	0.98
Andhra Pradesh	9.2	9.6	8.9	1.07
Bihar	10.9	10.0	11.9	0.84
Gujarat	9.2	9.3	9.0	1.03
Haryana	8.7	8.8	8.6	1.02
Karnataka	8.5	9.3	7.7	1.21
Kerala	6.3	7.5	5.2	1.44
Madhya Pradesh	12.9	12.3	13.5	0.91
Maharashtra	7.9	7.9	8.0	0.98
Orissa	11.7	11.4	11.9	0.95
Punjab	8.2	8.9	7.4	1.20
Rajasthan	10.5	10.2	10.9	0.93
Tamil Nadu	8.4	8.9	7.9	1.13
Uttar Pradesh	12.8	11.9	14.0	0.85
West Bengal	8.4	8.8	8.0	1.10

Source: RGI 1994

TABLE 2.3: Expectation of Life at Birth by Sex, India and Major States: 1981-1985

	Male	Female	M/F
INDIA	55.4	55.7	0.99
Kerala	65.4	71.5	0.91
Punjab	62.6	63.6	0.98
Maharashtra	59.6	62.1	0.96
Karnataka	59.7	62.0	0.96
Andhra Pradesh	57.2	59.8	0.96
Gujarat	55.5	59.3	0.94
Haryana	61.5	59.0	1.04
West Bengal	56.8	58.0	0.98
Tamil Nadu	56.5	57.4	0.98
Rajasthan	53.3	53.8	0.99
Orissa	53.1	53.0	1.00
Madhya Pradesh	65.4	51.9	1.26
Bihar	54.2	51.5	1.05
Uttar Pradesh	51.4	48.5	1.06

Source: RGI 1989

TABLE 2.4: Expectation of Life at Birth by Sex, India: 1970-1975, 1976-1980 and 1981-1985

	Male	Change	Female	Change	M/F
Combined					
1970-75	50.5		49.0		1.03
1976-80	52.5	2.0	52.1	3.1	1.01
1981-85	55.4	2.9	55.7	3.6	0.99
Rural					
1970-75	48.9		47.1		1.04
1976-80	51.0	2.1	50.3	3.2	1.01
1981-85	54.0	3.0	53.6	3.3	1.01
Urban					
1970-75	58.8		59.2		0.99
1976-80	59.6	0.8	60.8	1.6	0.98
1981-85	61.6	2.0	64.1	3.3	0.96

Source: RGI, years as indicated

TABLE 2.5: Infant Mortality Rates by Residence, India: 1972-1993

	COMBINED	RURAL	URBAN
1972	139	150	85
1973	134	143	89
1974	126	136	74
1975	140	151	84
1976	129	139	80
1977	130	140	81
1978	126	136	71
1979	120	130	72
1980	114	124	65
1981	110	119	62
1982	105	114	65
1983	105	114	66
1984	104	113	66
1985	97	107	59
1986	96	105	62
1987	95	104	61
1988	94	102	62
1989	91	98	58
1990	80	86	50
1991	80	87	53
1992	79	85	53
1993*	74	82	45

* provisional

Source: RGI, years as indicated

TABLE 2.6: Young Child (0-4) Death Rates by Residence, India: 1972-1992

	COMBINED	RURAL	URBAN
1972	57.3	62.7	32.3
1973	52.3	56.8	31.4
1974	50.0	54.8	27.3
1975	55.0	60.3	31.7
1976	51.0	55.2	29.7
1977	50.9	56.1	27.1
1978	48.3	53.2	26.3
1979	45.7	50.6	23.9
1980	41.8	46.1	22.2
1981	41.2	45.5	20.4
1982	39.1	43.9	20.9
1983	37.6	41.8	21.4
1984	41.2	46.2	23.2
1985	38.4	43.3	20.7
1986	36.6	40.8	20.9
1987	35.2	39.7	18.2
1988	33.3	35.7	18.7
1989	29.9	33.2	16.9
1990	26.3	29.1	15.1
1991	26.5	29.1	16.0
1992	26.5	29.1	15.6

Source: RGI, years as indicated

TABLE 2.7: Infant Mortality Rates by Sex, India and Major States: 1992

	BOTH SEXES	MALE	FEMALE	M/F
INDIA	79	79	80	0.99
Andhra Pradesh	71	73	68	1.07
Bihar	73	71	74	0.96
Gujarat	67	66	69	0.96
Haryana	75	73	78	0.94
Himachal Pradesh	67	67	66	1.01
Karnataka	73	77	67	1.15
Kerala	17	21	12	1.75
Madhya Pradesh	104	109	98	1.11
Maharashtra	59	61	57	1.07
Orissa	115	114	116	0.98
Punjab	56	54	60	0.90
Rajasthan	90	88	92	0.96
Tamil Nadu	58	58	59	0.98
Uttar Pradesh	98	92	105	0.88
West Bengal	65	67	62	1.08

Source: RGI 1994

TABLE 2.8: Infant Mortality Rates by Sex, India: 1972-1992

	BOTH SEXES	MALE	FEMALE	M/F
1972	139	132	148	0.89
1974	126	132	135	0.98
1976	129	124	134	0.93
1979	120	119	121	0.98
1980	114	113	115	0.98
1981	110	110	111	0.99
1982	105	106	104	1.02
1983	105	105	105	1.00
1984	104	104	104	1.00
1985	97	96	98	0.98
1986	96	96	97	0.99
1987	95	95	96	0.99
1988	94	94	93	1.02
1989	91	91	90	1.02
1990	80	78	81	0.96
1991	80	81	80	1.01
1992	79	79	80	0.99

Source: RGI, years as indicated

TABLE 2.9: Neonatal and Post-Neonatal Mortality by Sex, India: Various Dates

	Narangwal 1970-73 (Punjab, rural)			Gandhigram 1971-74 (Punjab, rural)			K.V. Kuppam 1982-84 (Tamil Nadu, rural)			Delhi 1969-82 (urban)			Selected Dists. 1965-1984			Khanna 1965-84 (Punjab, rural)		
	1			2			3			4			5			6		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
NNMR	55.1	65.0	0.85	68	69	0.99	32	32	1.00	24.0	18.1	1.33	61.3	46.5	1.32	50.7	43.0	1.18
PNNMR	34.6	55.1	0.63	40	50	0.80	35	56	0.63	21.6	27.1	0.80	35.0	53.1	0.66	27.1	51.3	0.53
IMR	89.7	120.1	0.75	108	119	0.91	67	88	0.76	46.9	46.2	1.02	96.4	101.6	0.95	77.8	94.3	0.83

Note: NNMR Neonatal Mortality Rate
PNNMR Post-Neonatal Mortality Rate
IMR Infant Mortality Rate

Sources: 1. Kielmann et al. 1978
2. Ramanujan 1987
3. Able 1987
4. Ghosh et al. 1982
5. Kishor 1983
6. Das Gupta 1987

TABLE 2.10: Young Child (0-4) Death Rates by Sex, India: 1972-1992

	Male (0-4)	Female (0-4)	M/F
1972	58.5	67.2	0.87
1973	53.1	60.8	0.87
1974	51.5	58.5	0.88
1975	57.2	63.5	0.90
1976	49.6	51.9	0.96
1977	47.5	54.5	0.87
1978	44.7	52.1	0.86
1979	43.8	47.7	0.92
1980	40.1	43.5	0.92
1981	39.2	43.3	0.91
1982	37.9	40.5	0.94
1983	36.5	38.7	0.94
1984	39.5	43.0	0.92
1985	36.6	40.4	0.91
1986	34.7	38.6	0.90
1987	33.6	36.8	0.91
1988	31.8	34.9	0.91
1989	28.5	31.4	0.91
1990	24.8	27.9	0.89
1991	25.6	27.5	0.93
1992	24.9	28.2	0.88

Source: RGI, years as indicated

TABLE 2.11: Young Child (0-4) Death Rates by Sex, India and Major States: 1992

	BOTH SEXES	MALE	FEMALES	M/F
	91-92	91-92	91-92	91-92
INDIA	26.5	24.9	28.2	0.88
Madhya Pradesh	38.5	36.8	40.3	0.91
Uttar Pradesh	37.8	33.1	43.1	0.77
Orissa	33.4	31.7	35.2	0.90
Rajasthan	33.6	31.2	36.3	0.86
Bihar	26.8	24.2	29.6	0.82
Gujarat	23.7	22.8	24.7	0.92
Haryana	22.8	21.1	24.8	0.85
Karnataka	21.7	22.6	20.7	1.09
Andhra Pradesh	20.0	20.2	19.8	1.02
West Bengal	18.4	18.4	18.4	1.00
Punjab	17.4	16.5	18.3	0.90
Tamil Nadu	15.3	15.0	15.7	0.96
Maharashtra	15.9	16.0	15.9	1.01
Kerala	3.9	5.0	2.7	1.85

Source: RGI 1994

TABLE 2.12: Young Child (0-4) Mortality Rates, India and Major States: 1982-1984 and 1991-1992

	1982-1984		1991-1992		1982-1984	1991-1992
	Male	Female	Male	Female	M/F	M/F
INDIA	38.0	40.7	24.9	28.2	0.93	0.88
Andhra Pradesh	28.6	26.7	20.2	19.8	1.07	1.02
Bihar	42.2	45.7	24.2	29.6	0.92	0.82
Gujarat	38.1	40.0	22.8	24.7	0.95	0.92
Haryana	27.4	34.0	21.1	24.8	0.81	0.85
Karnataka	26.5	24.0	22.6	20.7	1.10	1.09
Kerala	11.5	9.6	5.0	2.7	1.20	1.85
Madhya Pradesh	26.0	52.4	36.8	40.3	0.97	0.91
Maharashtra	26.0	26.2	16.0	15.9	0.99	1.01
Orissa	46.2	44.2	31.7	35.2	1.05	0.90
Punjab	21.7	26.1	16.5	18.3	0.83	0.90
Rajasthan	43.7	48.7	31.2	36.3	0.90	0.86
Tamil Nadu	29.9	31.9	15.0	15.7	0.94	0.96
Uttar Pradesh	52.8	62.5	33.1	43.1	0.84	0.77
West Bengal	31.5	32.6	18.4	18.4	0.97	1.00

Source: RGI, years as indicated

**TABLE 2.13: Neonatal and Post-Neonatal Mortality Rates,
India: 1972-1992**

	Neonatal Mortality Rate	Post-Neonatal Mortality Rate	Percent NNMR
1972	71.6	68.2	51
1973	68.2	66.2	51
1974	70.1	55.8	56
1975	78.3	62.1	56
1976	77.0	52.0	60
1977	80.2	49.8	62
1978	77.4	49.6	61
1979	77.4	52.0	60
1980	75.5	48.3	61
1981	69.9	40.5	63
1982	66.7	38.1	64
1983	67.2	37.7	64
1984	65.8	38.2	63
1985	60.1	37.1	62
1986	59.8	36.6	62
1987	57.7	37.7	60
1988	56.8	37.7	60
1989	56.4	34.5	62
1990	52.5	27.2	66
1991	51.1	29.2	64
1992	50.0	29.0	63

Source: RGI, years as indicated

TABLE 2.14: Death Rates by Sex, Ages 20-24, India and Major States: 1990-1992

	Male 90-92	Female 90-92	M/F 90-92
INDIA	2.4	3.2	0.75
Andhra Pradesh	2.9	2.9	1.00
Bihar	2.5	3.9	0.63
Gujarat	1.9	2.9	0.67
Haryana	2.1	2.8	0.76
Karnataka	2.2	2.4	0.92
Kerala	1.4	0.9	1.46
Madhya Pradesh	2.7	4.3	0.62
Maharashtra	1.7	2.5	0.70
Orissa	3.0	4.0	0.76
Punjab	4.0	1.7	2.37
Rajasthan	2.2	3.7	0.59
Tamil Nadu	2.7	2.7	1.00
Uttar Pradesh	2.6	3.9	0.66
West Bengal	2.1	2.7	0.76

Source: RGI 1994

TABLE 2.15: Percentage Distribution of Deaths by Age & Sex Within Major Cause-Groups, Rural India: 1989

	0-1		1-4		5-14		15-24		23-34		35-44		45-54		55+		All Ages		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Accidents/Injuries	2	2	4	8	12	14	21	28	20	20	15	9	11	7	14	11	100	100	
Fevers	11	12	17	22	11	11	6	9	6	8	8	6	10	7	31	25	100	100	
Digestive Disorders	7	8	16	28	11	10	8	8	10	7	10	8	12	7	26	23	100	100	
Respiratory Disorders	13	18	7	14	3	5	3	4	4	7	8	8	13	9	48	36	100	100	
Disorders of CNS	4	5	7	7	7	8	6	5	4	8	6	4	9	9	58	54	100	100	
Circulatory Disorders	4	4	4	9	1	3	4	7	6	10	10	8	17	11	54	49	100	100	
Other Symptoms	4	4	6	10	6	7	6	8	7	11	11	9	15	17	43	33	100	100	
Peculiar to Infancy	100	100															100	100	
Childbirth & Pregnancy								36		48		17						100	
Old Age																100	100	100	100
TOTAL	15	16	5	9	4	5	4	6	5	7	7	5	9	6	50	47	100	100	

Source: RGI 1991a, Table 2

TABLE 2.16: Distribution of Deaths by Cause, Age and Sex, Rural India: 1989

	TOTAL		0-1		1-4		5-14		15-24		23-34		35-44		45-54		55+	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(percent)																	
Accidents/Injuries	12	10	3	3	6	6	24	18	39	34	32	22	19	12	10	8	4	3
Fevers	10	13	14	16	21	21	19	20	10	14	8	11	8	11	8	9	7	10
Digestive Disorders	9	11	8	9	18	22	17	15	11	11	12	8	10	12	8	8	6	8
Respiratory Disorders	32	29	55	55	29	29	15	21	13	14	19	21	28	29	32	27	37	31
Disorders of CNS	7	7	4	4	6	3	8	8	6	4	4	6	4	4	5	7	10	12
Circulatory Disorders	17	16	8	7	9	10	4	6	10	12	15	16	17	17	23	18	23	23
Other Symptoms	12	13	7	6	10	10	12	12	12	12	12	15	14	15	14	23	13	13
TOTAL	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: RGI 1991a, Table 1

TABLE 2.17: Percentage Distribution of Causes of Death by Age and Sex, Urban India: 1984

		0-1	1-4	5-14	15-24	25-44	45-64	65+	ANS	ALL
		(Percent)								
Infec. & Parasit. Diseases	M	19.9	42.4	33.9	30.1	28.3	19.0	12.0	18.5	22.0
	F	20.1	45.1	32.2	22.7	25.2	17.0	9.5	17.2	21.2
Neoplasms	M	0.03	0.4	1.6	2.3	3.1	8.1	7.1	4.1	4.3
	F	0.02	0.3	1.1	1.0	3.3	16.8	6.9	1.3	4.1
Endoc, Metab, Nut & Immun Disords.	M	4.2	8.0	0.8	0.4	1.1	2.7	3.2	3.3	2.9
	F	4.9	9.6	0.7	0.5	0.8	3.1	3.7	2.9	3.3
Dis. of Blood & M Kid-forming organs	M	0.5	2.0	4.1	3.8	2.9	3.2	1.7	2.5	2.3
	F	0.6	2.3	5.4	4.3	4.4	4.5	2.4	4.2	3.1
Mental Disorders	M	-	0.02	0.1	0.0	0.2	0.1	0.1	-	0.1
	F	-	0.02	2.3	5.4	4.3	4.4	4.5	2.4	3.1
Dis of Nervous & Sensory sys	M	3.8	11.9	13.6	5.9	3.3	2.2	1.6	5.2	4.0
	F	4.0	10.0	12.9	4.0	3.4	2.2	1.6	4.4	4.0
Dis of Circulat. System	M	1.4	2.8	7.1	9.3	15.3	34.5	41.3	25.1	22.0
	F	1.2	2.4	7.0	7.8	15.4	33.5	41.1	21.7	19.0
Dis of Gast-Int. System	M	1.4	3.8	5.3	6.1	9.9	8.7	4.0	6.3	6.5
	F	1.1	2.9	4.3	4.4	6.1	4.6	2.5	3.9	3.4
Dis of Gen-Urin. System	M	0.3	1.1	1.9	1.7	1.8	2.1	1.6	1.6	1.6
	F	0.2	0.7	1.9	1.5	1.9	1.7	1.3	1.3	1.3
Complics of Preg. Ch'birth & Puerp.	M	-	-	-	-	-	-	-	-	-
	F	-	-	0.3	10.8	7.7	0.2	0.0	0.1	0.1
Dis of Skin & Sub-cur Tissue	M	0.1	0.2	0.2	0.4	0.1	0.3	0.1	-	0.1
	F	0.1	0.2	0.2	0.4	0.2	0.2	0.1	0.0	0.2
Dis of Musc-Skel. & Connect. Tissue	M	0.1	0.2	0.2	0.4	0.1	0.3	0.1	-	0.1
	F	-	-	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Congenital Anomalies	M	4.1	0.9	0.4	0.1	0.0	0.9	0.2	0.4	0.8
	F	3.6	0.6	0.3	0.03	0.9	0.9	0.9	3.2	0.8
Conditions orig. In perinatal per.	M	44.4	-	-	-	-	-	-	-	7.8
	F	41.5	-	-	-	-	-	-	-	-
Symptoms & undef. conditions	M	3.5	6.1	9.0	8.7	7.9	5.5	13.4	14.7	7.9
	F	3.7	5.4	7.7	8.8	8.8	6.3	17.2	20.7	9.3
Injury & Poisoning	M	1.3	5.6	13.0	26.0	20.4	6.7	3.2	10.6	8.6
	F	1.2	5.0	14.2	29.5	17.6	6.0	3.3	7.1	9.1

Source: RGI 1987

TABLE 2.18: Percent of Total Deaths Due to Maternal Causes, India and Major States (Rural): 1989

INDIA	0.9
Orissa	1.8
Rajasthan	1.7
Madhya Pradesh	1.4
Uttar Pradesh	1.4
Andrah Pradesh	0.9
Bihar	0.9
Gujarat	0.7
Maharashtra	0.7
Haryana	0.6
Tamil Nadu	0.6
Karnataka	0.5
Punjab	0.3

Note: Neither West Bengal nor Kerala appears in the table because there were no maternal deaths in the sample in either state.

Source: RGI 1991a, Statement VI.

TABLE 2.19: Causes of Maternal Deaths: 1978-1991

	India Rural 1991	Anatpur a Rural & Urban	India Urban 1985	Selected Hospital 1978-1981	ICMR 1983-84	Karnatak a 1989
	1	2	3	4	5	6
<u>Direct Obstetric Causes</u>	(Percent)					
Hemorrhage	19.5	7.4	15.2	17.3	12.8	19.7
Abortion	10.8	11.9	16.9	15.1	--	4.5
Spontaneous						1.5
Induced						3.0
Sepsis	12.7	25.0	--	17.2	17.3	24.3
Obstructed Labor/ Ruptured uterus	11.6	5.3	3.3	5.0	--	--
Toxemia	8.8	9.2	13.0	10.7	12.0	15.2
Other direct causes	16.7	9.1	36.3	11.5	8.3	10.6
<u>Indirect Obstetric Causes</u>						
Anemia	19.9	9.2	--	7.8	--	--
Hepatitis/Heart disease	--	9.8	--	15.4	22.5	--
Other indirect causes	--	14.1	15.1	--	--	--

Sources: 1. RGI 1991b
 2. Bhatia 1988
 3. RGI 1989
 4. Rao 1988
 5. ICMR 1988b
 6. Reddy et al. 1991

TABLE 2.20: Comparison of Maternal Death and Control Cases from the Andhra Pradesh Maternal Mortality Study: 1984-1985

	Cases of Maternal Death	Control Cases
Percentage of SC/ST	13.6	4.5
Percentage of literate women	27.3	18.2
Percentage of literate husbands	72.8	59.1
Mean socio-economic status score	6.5	6.6
Percentage of women 15-19	13.6	6.5
Percentage of women 20-34	68.2	93.5
Percentage of women 35-44	18.2	0.0
Percentage of women first pregnancy	27.3	4.5*
Percentage of women seventh or higher pregnancy	4.5	0.0*
Percentage of women first birth	26.3	9.0
Mean number of pregnancies	3.6	3.3
Mean number of live births	3.1	3.2
Mean number of living children	2.4	2.9
Mean number of living sons	0.9	1.4*
Mean number of complicated pregnancies	0.7	0.5
Mean number of still births	0.2	0.1
Percentage with predisposing health conditions	50.0	18.2*
Mean number of pre-existing health conditions	0.6	0.2*
Percentage with danger signals during pregnancy	59.1	9.1*
Percentage registered for antenatal care	40.9	50.0
Mean number of antenatal visits	1.14	1.09

* Statistically significant difference at .05 level

Source: Bhatia 1988, Table 66

**TABLE 2.21: Measures Identified for Prevention of Maternal Deaths,
Andhra Pradesh Study**

Recommended Measure	No. of Cases	Percent of Preventable Deaths	Percent of Total Maternal Deaths
ANTENATAL CARE			
Treatment of anemia during pregnancy	26	12.8	9.2
Proper early ante-natal care	18	8.9	6.3
Treatment of hepatitis during pregnancy	7	3.4	2.5
Avoidance of pregnancy through family planning and/or treatment of hypertension	7	3.4	2.5
TT immunization	6	3.0	2.1
TOTAL	64	31.5	22.5
REFERRAL CARE			
Control of infection through broad spectrum antibiotics	44	21.7	15.5
Early hospitalization and proper treatment	42	20.7	14.8
Institutional delivery	18	8.9	6.3
Blood transfusion	18	8.9	6.3
Control of dehydration through fluids	10	4.9	3.5
Early caesarian section	7	3.4	2.5
TOTAL	139	68.5	34.2
TOTAL PREVENTABLE MATERNAL DEATHS (excluding induced abortion deaths)	203	100.0	71.5

Note: Of maternal deaths for which detailed information was available, 221 (78%) were judged to have been either definitely or probably preventable. Of these, 18 induced abortion deaths (6% of total maternal deaths) could have been prevented had an MTP procedure been carried out by a qualified doctor.

Source: Bhatia 1988

TABLE 2.22: Pregnancy Outcome Indices, Five States: 1986

	Total	U.P.	Rajasthan	Orissa	Haryana	Tamil Nadu
Total population covered	62,616	11,744	13,886	13,286	10,727	12,973
No. of currently married women	11,887	2,245	2,629	2,382	2,043	2,588
Total pregnancies reported	46,285	8,495	10,024	9,605	7,656	10,505
Pregnancies with known outcome						
Live births	41,192	7,424	8,681	8,772	6,840	9,474
Premature births	1,010	249	335	131	- 95	200
Still-births	609	122	101	100	88	198
Spontaneous abortions	1,944 (42.0)	471 (55.4)	344 (34.3)	388 (40.4)	359 (47.0)	382 (36.4)
Induced abortions	885 (19.0)	32 (3.8)	463 (16.6)	110 (11.6)	145 (19.3)	135 (13.0)
(a) Legal	279 (6.1)	12 (1.4)	137 (13.8)	43 (4.5)	27 (3.6)	63 (6.1)
(b) Illegal	606 (13.3)	20 (2.4)	326 (32.8)	67 (7.1)	118 (15.7)	72 (6.9)

Note: Figures in parenthesis indicate the rates per thousand pregnancies.

Source: ICMR 1989b

**TABLE 2.23: Total Fertility Rates, Women Ages 15-49,
India and Major States: 1992-1993**

	TFR
INDIA	3.39
Bihar	4.00
Uttar Pradesh	4.82
Madhya Pradesh	3.90
Rajasthan	3.63
Haryana	3.99
Punjab	2.91
Karnataka	2.85
Orissa	2.92
West Bengal	2.92
Gujarat	2.99
Maharashtra	2.86
Andhra Pradesh	2.59
Tamil Nadu	2.48
Kerala	2.00

Source: IIPS 1994

**TABLE 2.24: Percent Currently Married, Women Ages 15-19,
India and Major States: 1991**

	Percent Currently Married (ages 15-19)
INDIA	31
Madhya Pradesh	48
Rajasthan	46
Andhra Pradesh	42
Bihar	42
Maharashtra	35
Uttar Pradesh	32
Haryana	29
West Bengal	28
Gujarat	26
Karnataka	25
Orissa	23
Tamil Nadu	15
Kerala	10
Punjab	10

Source: RGI 1993

**TABLE 2.25: Nutritional Status of Female Children,
Two Delhi Slum Populations: 1985-1986**

Age group in months	Normal/mild malnutrition	Moderate malnutrition	Severe malnutrition
WEIGHT FOR AGE CRITERION			
Uttar Pradesh			
0-11	50.0	38.0	12.0
12-23	33.3	59.5	7.1
24-59	43.2	49.3	7.4
60-119	56.2	43.8	0.0
Tamil Nadu			
0-11	56.2	43.8	0.0
12-23	30.8	51.3	18.0
24-59	44.5	42.6	12.9
60-119	28.8	60.3	11.0
WEIGHT FOR AGE CRITERION			
Uttar Pradesh			
0-11	60.5	27.9	11.6
12-23	51.2	41.5	7.3
24-59	63.8	33.3	2.8
60-119	53.4	42.9	3.7
Tamil Nadu			
0-11	65.5	27.6	6.9
12-23	56.8	37.8	5.4
24-59	62.9	33.0	4.1
60-119	54.3	40.6	5.1

Source: Basu 1989b, Tables 5, 6

**TABLE 2.26: Prevalence of Anemia Among Girls by Age,
Major Cities of India**

	Age Group (years)	
	1-5 M+F	6-14 F
	(percent)	
Hyderabad	65.5	66.7
Calcutta	94.4	95.3
Madras	23.2	18.3
New Delhi	57.1	73.3

Source: ICMR 1982

TABLE 2.27: Gynecological and Sexual Diseases (n=650)

Diagnosis	No.	Percent
Primary amenorrhea	7	1.07
Secondary amenorrhea	22	4.70
Functional uterine hemorrhage	6	1.29*
Oligomenorrhea/hypomenorrhea	105	22.44*
Polymenorrhea	4	0.85*
Menorrhagia	71	15.17*
Dysmenorrhea	269	57.48*
Irregular periods	60	12.82*
Primary sterility	20	3.07
Secondary sterility	24	3.69
Frigidity	57	12.34†
Dyspareunia	43	9.31†
Vaginismus	47	10.17†
Senile vaginitis	20	10.99‡
Trichomonas vaginitis	78	13.98§
Candida vaginitis	190	34.05§
Bacterial vaginitis	347	62.19§
Vaginitis of unknown origin	23	4.12§
Cervical erosion	255	45.70§
Cervicitis	272	48.74§
Endocervicitis	67	12.01§
Pelvic inflammatory disease	157	24.15
Ovarian cyst	6	0.92
Cystic ovary	15	2.30
Cervical dysplasia	7	1.07
Cervical metaplasia	8	1.23
Cervical polyp	10	1.53
Syphilis	68	10.50
Leucorrhea	22	3.38
Leucoplakia of vulva	4	0.61
Gonorrhea	2	0.30
Cystocele	3	0.46
Vulvitis	2	0.30
Fibroid uterus	1	0.15
Other gynecological diseases	52	8.00

*Out of 468 menstruating, † out of 462 living with husbands; ‡ out of 182 over 40 yrs; § out of 558 ever married.

Source: Bang & Bang, 1989

TABLE 3.1: Literacy Rates by Sex, India and Major States: 1991

	Literacy Rate*	
	FEMALES	MALES
INDIA	39	64
Kerala	87	94
Tamil Nadu	53	75
Maharashtra	51	75
Punjab	50	64
Gujarat	49	73
West Bengal	47	67
Karnataka	44	67
Haryana	41	68
Orissa	34	62
Andhra Pradesh	34	56
Madhya Pradesh	28	57
Uttar Pradesh	26	55
Bihar	23	53
Rajasthan	21	55

*Age 7 and above

Source: RGI 1991b, Statement 15

TABLE 3.2: Time Use Data of Five Pregnant Women on a Normal Day

Activity	Time spent in hours				
	Woman A (3 months pregnant)	Woman B (4 months pregnant)	Woman C (7 months pregnant)	Woman D (8 months pregnant)	Woman E (8 months pregnant)
Working for wage/salary (unskilled)	10.0	-	-	-	5.3
Travelling time to go to workplace	-	-	-	-	2.0
Handicrafts	-	-	-	2.0	-
Cooking and serving food	2.2	2.3	2.0	3.0	4.2
Fetching water	0.5	3.0	2.0	1.3	1.0
Other household work (washing clothes, cleaning, dusting, etc.)	1.3	2.0	3.0	2.3	2.2
Animal Husbandry	-	3.0	2.0	3.0	-
Self care, rest, gossiping, taking food, etc.	2.0	3.0	3.0	2.0	2.2
Making cowdung cakes	-	0.3	-	-	-
Child care	-	-	1.0	2.3	-
Grinding grain	-	3.0	2.3	4.0	-
Sleeping	7.3	7.0	7.0	5.0	6.5

Note: Only time for primary activities is included.

Source: Khan et al. 1989, Table 7

TABLE 4.1: Increases in Medical Personnel and Facilities, India: 1964-1988

	Qualified Physicians						
	Doctors (All Systems)	Allopaths		Hospital Beds		Dispensaries	
		Public	Private	Public	Private	Public	Private
1964		39,687	60,502				
1974	607,909			211,335	57,550		
1979		69,137	166,494	331,233	115,372		
1981	665,340			334,049	132,628	13,205	2,115
1986	763,437	88,105	242,650	411,255	144,009		
1988						13,916	13,579

Source: Jesani and Anantharam 1989, Appendix I, pages i, iv, x, xii.

**TABLE 4.2: Utilization of Health Services for Illness Within the Preceding Three Months,
Four States of India**

	BIHAR	GUJARAT	U.P.	A.P.
Government	24.4	53.8	6.2	20.2
Private	62.9	27.0	80.8	69.5
None/Home Treatment	12.7	19.2	13.0	10.3

Sources: Bihar, Gujarat ICMR 1988a, Table 16
U.P. ORG 1990, Table 7.2
A.P. ORG 1990, Table 7.2

**TABLE 4.3: Reasons for Dissatisfaction With Government Health Services:
Four States of India**

	BIHAR	GUJARAT	U.P.	A.P.
High costs of staff/drugs	63	4	62	23
Travel costs/distance	50	91	28	5
Rude staff behavior	36	19	21	54
Lack of supplies/drugs/facilities	35	60	62	23
Long waits	7	11	8	11
Absence of staff	13	5		

Note: Percentages may exceed 100 because of multiple answers.

Sources: Bihar, Gujarat ICMR 1988a
A.P. ORG 1989a
U.P. ORG 1989b

TABLE 4.4: Coverage of Antenatal Care, India and Major States: 1992-1993

STATE	Percent received antenatal check-up from Dr. ¹ or other health professional ²	Percent received home visit from health worker during pregnancy
INDIA	RURAL: 41.1 URBAN: 76.8 TOTAL: 49.2	RURAL: 24.3 URBAN: 9.8 TOTAL: 21.0
North		
Delhi	79.7	3.5
Haryana	67.0	11.9
Himachal Pradesh	73.6	10.4
Jammu Region of J & K	78.0	2.2
Punjab	85.9	7.8
Rajasthan	23.1	11.5
Central		
Madhya Pradesh	36.3	19.7
Uttar Pradesh	30.2	16.5
East		
Bihar	26.4	11.1
Orissa	38.4	30.5
West Bengal	68.4	13.7
North-East		
Arunachal Pradesh	47.4	2.7
Assam	46.5	6.7
Manipur	61.9	2.7
Meghalaya	49.7	2.3
Mizoram	85.6	13.7
Nagaland	37.3	5.6
Tripura	62.7	4.4
West		
Goa	93.5	16.0
Gujarat	50.0	36.6
Maharashtra	69.4	23.3
South		
Andhra Pradesh	65.6	41.0
Karnataka	64.8	41.9
Kerala	96.6	26.5
Tamil Nadu	78.2	40.4

¹ Allopathic doctor

² Ayurvedic or homeopathic doctor, nurse/midwife or other health professional

Source: IIPS 1994

**TABLE 4.5: Antenatal Care - Tetanus Toxoid Coverage,
India and Selected States: 1992-1993**

	Percent received tetanus toxoid vaccine
INDIA	61.1
North	
Delhi	81.1
Haryana	70.2
Himachal Pradesh	71.0
Jammu Region of J & K	78.0
Punjab	86.7
Rajasthan	34.7
Central	
Madhya Pradesh	51.3
Uttar Pradesh	44.3
East	
Assam	43.9
Bihar	37.0
Orissa	63.0
West Bengal	77.7
West	
Goa	92.8
Gujarat	69.9
Maharashtra	81.6
South	
Andhra Pradesh	81.2
Karnataka	76.5
Kerala	94.1
Tamil Nadu	93.6

Source: IIPS 1994

**TABLE 4.6: Anemia Prophylaxis Coverage,
India and Selected States: 1992-1993**

	Percent received iron and folic acid tablets
INDIA	50.5
North	
Delhi	74.7
Haryana	60.1
Himachal Pradesh	71.9
Jammu Region of J & K	70.8
Punjab	73.9
Rajasthan	29.3
Central	
Madhya Pradesh	44.2
Uttar Pradesh	29.6
East	
Assam	39.5
Bihar	21.4
Orissa	49.9
West Bengal	56.3
West	
Goa	89.3
Gujarat	69.3
Maharashtra	70.6
South	
Andhra Pradesh	76.1
Karnataka	74.8
Kerala	91.0
Tamil Nadu	84.0

Source: IIPS 1994

TABLE 4.7: Place of Delivery and Delivery Attendance, India and Selected States: 1992-1993

	<u>Delivered in institution</u>					<u>Not delivered in institution</u>			
	<u>Public</u>		<u>Private</u>		<u>Total</u>	<u>Doctor</u>	<u>Other health prof.</u>	<u>TBA</u>	<u>Other</u>
	<u>Doctor</u>	<u>Other</u>	<u>Doctor</u>	<u>Other</u>					
INDIA	9.8	4.9	9.4	1.5	25.6	2.4	6.7	35.1	30.2
North									
Delhi	23.0	1.4	19.4	0.6	44.4	3.3	5.5	38.4	8.3
Haryana	6.4	2.8	6.3	1.2	16.7	4.7	9.2	66.2	3.1
Himachal Pradesh	8.2	6.3	1.3	0.3	16.1	2.7	7.2	54.8	19.3
Jammu Region of J & K	14.4	2.3	4.6	0.3	21.7	3.7	5.7	59.3	9.6
Punjab	7.1	2.7	11.9	3.1	24.8	4.1	19.5	49.6	2.1
Rajasthan	6.9	2.6	1.7	0.3	11.6	2.6	8.1	40.5	37.2
Central									
Madhya Pradesh	8.6	3.4	3.2	0.8	16.0	2.2	12.3	29.8	39.7
Uttar Pradesh	5.3	1.7	3.7	0.6	11.3	0.9	5.3	33.3	49.1
East									
Bihar	4.4	1.4	5.5	0.8	12.1	2.8	4.3	58.2	22.6
Orissa	9.2	2.9	1.8	0.3	14.2	2.0	4.9	37.3	41.7
West Bengal	13.7	12.6	4.6	0.7	31.5	1.8	0.5	36.2	30.0
North-East									
Arunachal Pradesh	13.1	5.9	0.8	0.0	19.8	1.3	0.6	16.3	62.0
Assam	5.9	2.0	2.6	0.6	11.1	2.7	4.3	21.0	60.9
Manipur	21.7	0.2	0.7	0.0	22.6	3.4	13.9	39.0	21.1
Meghalaya	12.3	8.2	5.2	4.0	29.7	0.9	7.4	21.9	40.1
Mizoram	17.8	26.3	3.0	1.5	48.7	0.4	12.8	25.4	12.6
Nagaland	2.2	3.3	0.5	0.2	6.1	2.3	13.9	11.1	66.5
Tripura	18.0	11.3	0.9	0.0	30.2	1.3	1.6	48.6	18.2
West									
Goa	31.1	10.8	42.0	3.2	87.1	0.8	1.0	4.5	6.7
Gujarat	9.5	5.7	16.3	4.1	35.7	2.8	4.7	44.9	11.9
Maharashtra	13.4	9.4	18.0	3.4	44.1	2.4	7.4	19.9	26.1
South									
Andhra Pradesh	11.4	2.3	17.9	1.3	33.0	7.1	10.1	33.8	16.1
Karnataka	13.9	7.8	13.6	2.3	37.6	3.0	10.8	21.8	26.8
Kerala	33.8	5.2	46.4	3.1	88.4	0.2	1.6	8.3	1.4
Tamil Nadu	17.8	15.9	24.3	5.6	63.6	0.5	7.9	21.2	6.8

TBA: Traditional birth attendant
Source: IIPS 1994

TABLE 4.8: Awareness of Contraceptive Methods Among Currently Married Women of Reproductive Age, India: 1992-1993

Any Method	96
Any Modern Method	96
Any Modern Temporary Method	76
Pill	66
IUD	61
Injection	19
Condom	58
Female Sterilization	95
Male Sterilization	85
Any Traditional Method	39
Periodic Abstinence	35
Withdrawal	20
Other Methods	4

Source: IIPS 1994

TABLE 4.9 Unmet Need for Family Planning,* India and Major States: 1988

India	Rural	Urban	Combined
Uttar Pradesh	26.4	23.4	25.9
Rajasthan	23.9	16.1	22.3
Bihar	21.6	22.1	21.7
Karnataka	19.2	22.1	20.1
Madhya Pradesh	18.5	19.4	18.7
West Bengal	21.5	9.3	18.2
Tamil Nadu	17.7	13.5	16.2
Andhra Pradesh	14.1	18.1	15.2
Orissa	12.5	8.9	12.0
Gujarat	11.6	11.6	11.6
Haryana	11.7	9.1	11.1
Maharashtra	9.7	11.9	10.6
Punjab	11.4	8.2	10.4

* Defined as the percentage of couples not desiring additional children and not practicing family planning.

Source: ORG 1990, Table 8.2

TABLE 5.1: Allocation of Tasks for Maternal Services

Task	MPWF	TBA	VHG	AWW
Antenatal Checks				
- Identification of Pregnancy	-	Yes	-	Yes
- ANC exam	Yes	Assist	-	Assist
- Identification/referral of obstetric complications	Yes	Assist	-	Assist
Anemia Control				
- Identification/referral of severe cases	Yes	Assist	Assist	Yes
- Nutrition education	Yes	Assist	-	Yes
- Distribution of IFA	Yes	Yes	-	Yes
- Follow up	Yes	Assist	-	Yes
Delivery				
- Encourage institutional deliveries where infrastructure exists	Yes	Yes	Yes	Yes
- Assist with institutional delivery	Yes	Yes	-	-
- Assist at home delivery	-	Yes	-	-
Family Planning				
- Education/motivation	Yes	Assist	Yes	Yes
- Supply of contraceptives	Yes	-	Yes	Yes

Source: WB 1991b, Annex 18

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