



Barriers to Safe Motherhood in Nigeria

Akinrinola Bankole, Gilda Sedgh, Friday Okonofua, Collins Imarhiagbe, Rubina Hussain and Deirdre Wulf

HIGHLIGHTS

- Nigeria has one of the highest maternal mortality ratios in the world: 1,100 maternal deaths for every 100,000 live births.
- Although patterns vary by region, high-risk births persist in Nigeria. In both 1990 and 2003, two-thirds of all births were high risk because of the mother's age, parity or spacing of births.
- More than 40% of women giving birth do not receive prenatal care from a trained health care provider. This proportion did not improve during the 13-year period. It is above average in the North East and North West regions.
- The proportion of women receiving health care from a trained provider at delivery has increased somewhat—from 30% in 1990 to 37% in 2003. Even so, it is still low and less than that in some other West African countries.
- Increasing urbanization and education coupled with a drop in the proportion of women who are married have led to declines in fertility desires and childbearing. However, the desire for a smaller family appears to be outpacing reductions in fertility. This is evident in the increasing proportion of births that are unplanned, which largely reflects a low level of contraceptive use in Nigeria.
- The Nigerian government has adopted several policies aimed at reducing maternal mortality by 75% by 2015. However, they lack effective implementation, largely because of the very low level of government spending on health care. Most programming on safe motherhood has been initiated by nongovernmental organizations working with funding from international donors.
- Some recent programs and policies have the potential to improve the quality of maternal health care in Nigeria. To achieve this goal, the Nigerian government must make a commitment to provide adequate resources—trained providers, up-to-date equipment and, most importantly, sufficient funding—to end the many needless deaths associated with childbearing among Nigerian women.



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Introduction

Nigeria, the most populous country in Africa, has one of the highest maternal mortality ratios in the world.¹ Newly revised estimates of the World Health Organization (WHO) indicate that there are 1,100 maternal deaths for every 100,000 live births in the country^{2(Annex 5)} and that a woman's lifetime chance of dying during pregnancy, childbirth or the postpartum period is one in 18.^{2(Annex 3)} WHO further estimates that every year, 59,000 Nigerian women die in childbirth—the second highest number in the world (after India).^{2(Annex 3)} In fact, only seven other countries in Sub-Saharan Africa* have higher maternal mortality ratios.

Unsafe abortion is a major contributor to maternal mortality. A study finds that more than 3,000 Nigerian women being treated in hospitals for complications from such procedures die each year; however, since many women having unsafe abortions die before reaching a facility, the true number of such deaths is likely to be much higher.³ According to WHO, 13% of maternal deaths in 2003 in West Africa, of which Nigeria is the largest country, were due to unsafe abortion.⁴

Taken together, these findings are disappointing. In 2000, Nigeria and 146 other members of the United Nations agreed on eight Millennium Development Goals (MDGs) to improve the health and socioeconomic well-being of the people in their countries in the 21st century. The fifth goal, MDG 5, calls for the reduction of maternal deaths by 75% by the year 2015.

Most of the half million maternal deaths in the world each year occur in developing countries. The major direct causes of maternal death in these countries are severe bleeding (hemorrhage, which accounts for 25% of the deaths), infections (15%), unsafe abortions (13%), eclampsia (12%) and obstructed labor and other direct causes (16%).^{5(pp. 62–64)} Maternal deaths from indirect causes account for the remaining 20% of deaths. These deaths result from diseases (present before or during pregnancy) such as malaria, anemia, hepatitis, heart diseases and HIV/AIDS that are not complications of pregnancy, but that complicate pregnancy or are aggravated by it.

In addition, at the global level, approximately 20 million of the 136 million women who give birth each year experience pregnancy-related illnesses after childbirth. Recovery from organ failure, uterine rupture, fistulas and other severe complications, and the sequelae of poorly repaired episiotomies or perineal tears, can have lasting health consequences, such as urinary incontinence, uterine prolapse and pain.⁵ If untreated, some of these postdelivery complications can lead to chronic ill-health or maternal deaths. A study of deliveries occurring in the 1990s in the state of Kano in northern Nigeria found a very high maternal mortality ratio (2,420 deaths per 100,000 live births).⁶ Eclampsia, rupture of the uterus and anemia were responsible for about half of these deaths.

This report, which is based mainly on data from two national surveys complemented with data from other sources (see Data Sources), examines trends over a 13-year period (1990–2003) in selected factors that are directly and indirectly related to maternal mortality in Nigeria—the educational and social status of women of childbearing age, average family size, patterns of contraceptive use and unmet need for family planning, levels of unintended childbearing and proportions of births that constitute a high risk to mothers and their infants. The report also looks at the use of health services by Nigerian women during pregnancy and childbirth, as well as recent estimates of levels and sources of overall health care expenditures in Nigeria. In addition, it examines the policies and programs that affect maternal health in the country.

This report could help policymakers and program planners understand the factors associated with the very high levels of maternal morbidity and mortality in Nigeria. The expectation is that the report might catalyze change and inform the development and introduction of strategies and programs to end the many needless deaths and complications associated with pregnancy and childbearing among Nigerian women.

*Angola, Chad, Liberia, Niger, Rwanda, Sierra Leone and Somalia.

Data Sources

This report is largely based on data from the 1990 and 2003 Nigeria Demographic and Health Surveys (NDHS)^{7,8}; unless otherwise indicated, the data given here are derived from these surveys. The first survey was undertaken by the Federal Office of Statistics, Nigeria, and Macro International Inc., United States; the second was conducted by the National Population Commission, Nigeria, and Macro International Inc. These surveys are part of a worldwide project designed to collect and disseminate data on fertility, family planning, maternal and child health, and HIV/AIDS, and are sponsored mainly by the U.S. Agency for International Development. The samples were nationally representative and large enough to permit estimates for the country's current six geopolitical regions. The surveys were conducted using similar methodologies, and most of the variables were standardized across the surveys, making it possible to compare their findings. The 1990 survey interviewed 8,781 women aged 15–49, and the 2003 survey interviewed 7,620 women this age. Data from the intervening 1999 NDHS were not included because the quality of several of the measures has been questioned.

We used the standard DHS measure to calculate the proportion of women having unmet need for effective contraceptives, defined as modern contraceptives.* Thus, this proportion included women who were not using any method and women who were using traditional methods, which are less effective than modern ones. Because never-married women were not asked about their future fertility desire in 1990, we calculated unmet need for women who were not married using the approach of Westoff and Bankole.⁹ In place of the information on future fertility desire, we used the proportion of pregnancies to currently pregnant or amenorrheic women, which they reported as intended compared with mistimed or never-wanted pregnancies. Because the sample of such women is usually small, we used the regional average for countries in West Africa (32%).

In addition to analyzing NDHS data, we reviewed a number of published and unpublished reports, including publications of both the government and nongovernmental organizations (NGOs) in the country. For the most part, the policy, program and funding sections of this report are derived largely from these sources. We also had informal discussions with colleagues in and outside of the government who work in the area of reproductive health to obtain their views on the existing programs, policies and funding situation, including their adequacy and implementation.

* The pill, IUD, injectables, spermicide, barrier methods, and male and female sterilization.

A Snapshot of Nigeria and Nigerian Women's Characteristics

With an estimated 140 million inhabitants, Nigeria is the most populous country in Sub-Saharan Africa.^{10,11(p. 42)} Poverty is widespread: Nine out of 10 Nigerians live on less than US\$2 a day.¹² The population is growing at a rate of 3.2% a year—a pace that places an enormous burden on Nigeria's efforts to raise standards of living, health and education for its citizens.

Nigeria is extremely diverse in several respects

Topographically, the country ranges from marshes and rain forests in the South, to arid savannas in the North. Nigerians belong to roughly 250 ethnic groups, speak 380 languages and dialects, live in six geopolitical regions, and ascribe to a wide range of traditional political institutions, cultural practices and religions. The South is more economically advanced than the North. And whereas the South is largely Christian, the North is predominantly Muslim.

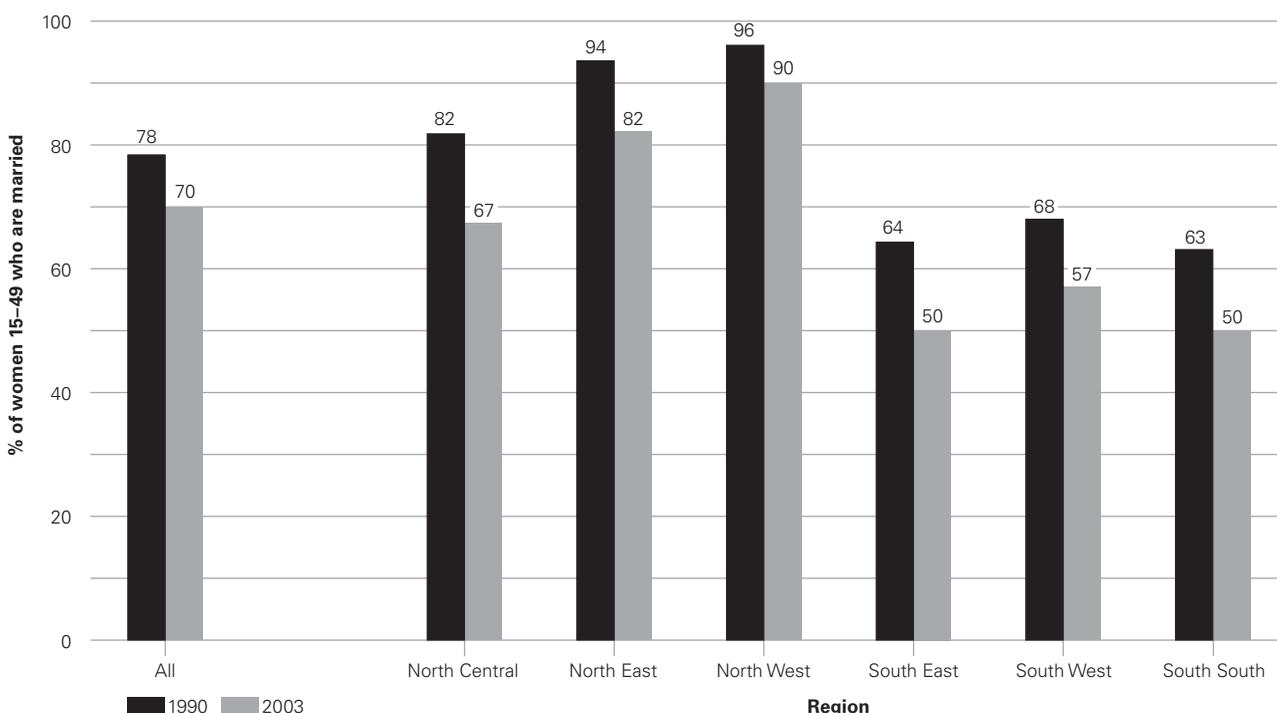
Six in 10 women of childbearing age live in the country's three northern regions (North Central, North East

and North West).^{8,11} The states in these regions operate under civil law that incorporates some form of Sharia, a set of Islamic laws and norms governing religious, political, economic and social affairs, as well as personal conduct. The states in the three southern regions (South East, South West and South South) operate under secular laws. In economic, religious and geographic terms, Nigeria might therefore be viewed as two distinct states within a single country. Differing cultural, economic and social influences in the North and the South are likely to contribute to varying patterns of childbearing and differing levels of maternal and reproductive health in the two parts of the country.

Most Nigerian women of childbearing age live in rural areas and are married

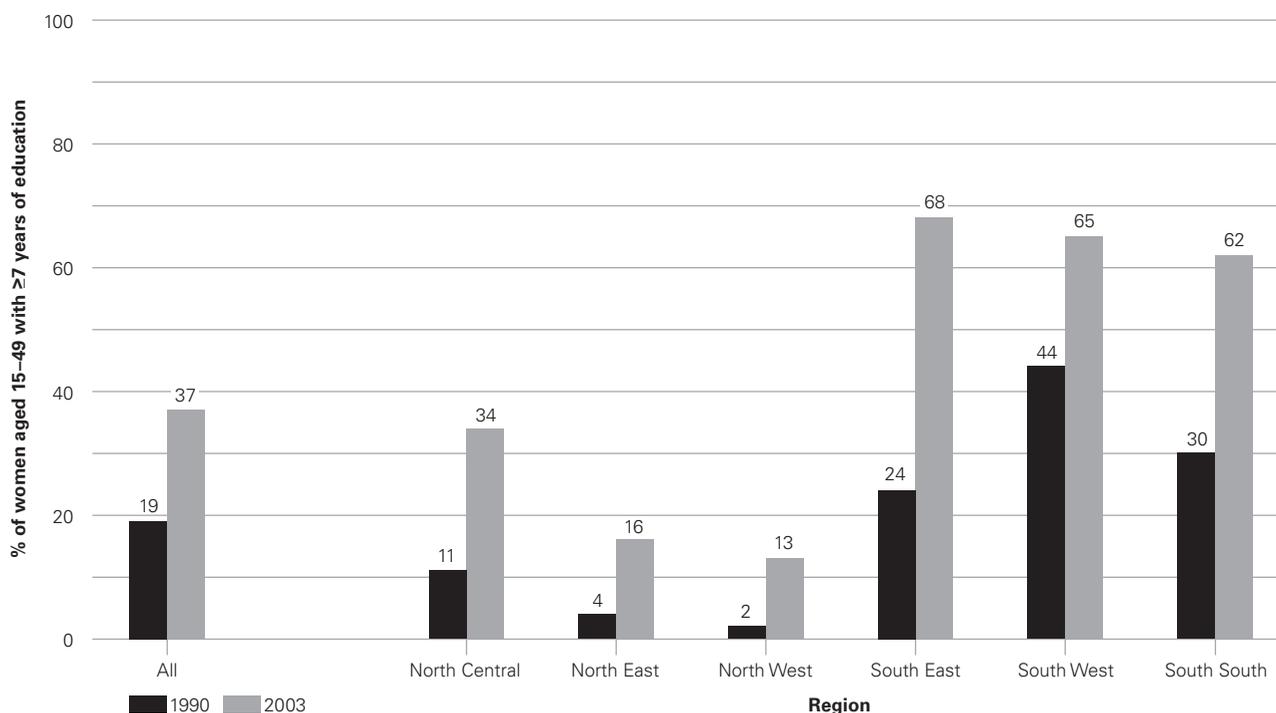
Nigeria is a predominantly rural country, although urbanization is on the increase. The proportion of women aged 15–49 years living in urban areas increased from 25% in 1990 to 34% in 2003. This proportion more than doubled

FIGURE 1. The proportion of women of childbearing age who are married has declined.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

FIGURE 2. Only a small minority of women of childbearing age in the northern regions have had any secondary schooling.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

(from 12% to 25%) in the North Central region, partly because the country's federal capital was moved from Lagos, in the South West region, to Abuja, in the former region, in 1991. If one assumes that maternal health services are more easily available in urban versus rural areas, this development should have, in principle, reduced maternal morbidity and mortality to some extent. Whether this has occurred in practice deserves investigation.

In a possibly related trend, as the proportion of women living in urban areas has grown, the proportion who are married* has fallen. This decline may reflect the fact that women are marrying later, on average, or that urban women experience less social pressure to follow the traditional paths of marriage and childbearing. When fewer women are married at any point in time, fewer are also likely to be pregnant. (In Nigeria, pregnancy outside of marriage is far less common than pregnancy within marriage.) Women might also be initiating childbearing at older ages, which is safer. Therefore, a decline in early marriage rates should also theoretically lead to a decline in maternal morbidity and mortality.

Between 1990 and 2003, the overall proportion of women aged 15–49 who were married fell from 78%

* Includes married women and women living with a man in an informal union.

to 70% (Figure 1, page 5). In the latter year, marriage remained far more prevalent among women living in the North West region (where 90% were married) and North East region (82%) than among their counterparts living in the other four regions (50–67%).

As urbanization has increased, so too has women's educational attainment

By 2003, 37% of women aged 15–49 years had received some secondary schooling (seven or more years of education), up sharply from 19% in 1990 (Figure 2). However, there was a wide gap in educational attainment between women living in the North and in the South. In the three northern regions, merely 13–34% of women had been educated beyond primary school by 2003, compared with 62–68% in the three southern regions. Many international studies show that more educated women are better able to understand the importance of obtaining prenatal care and are more likely to know where to obtain such care.^{13,14} Given these associations, one might expect that in the North Central region, where the proportion of women of reproductive age with some secondary education has tripled, other things being equal, the proportion of women receiving pregnancy-related health care has increased.

Reproductive Behavior and Implications For Maternal Health

Data on reproductive behavior among Nigerian women present a mixed picture, showing improvements in some factors affecting maternal morbidity and mortality, but not in others during a recent 13-year period. In addition, patterns and trends vary from region to region. These findings suggest that efforts to improve maternal health in Nigeria will require attention to both specific behaviors and regional differences.

Average family size, though still high, is declining in some areas of Nigeria

In 1990, the total fertility rate nationally was 6.0 children per woman, whereas by 2003, this number had declined slightly to 5.7 (Figure 3). There was little to no decrease in the South South and North East regions, and a small increase in the North West region. In sharp contrast, in

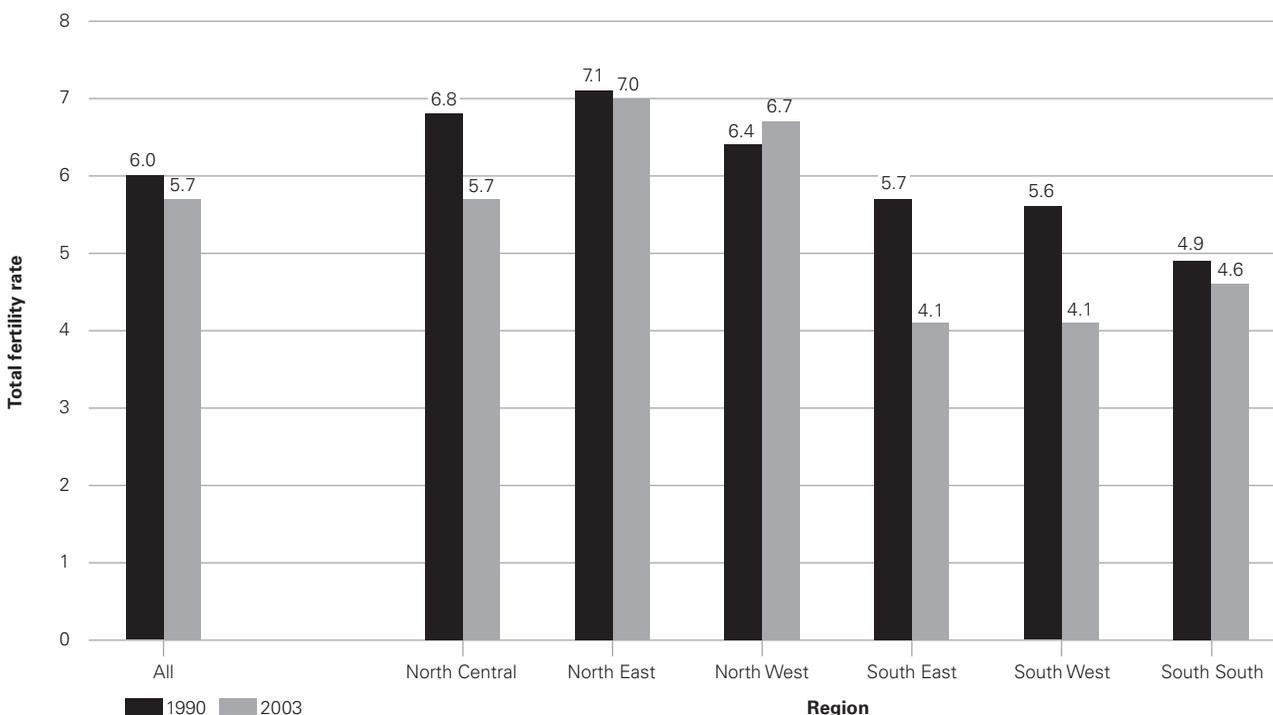
the other three regions, average family size fell by at least one child during the same period.

Improvements in maternal health are often associated with declines in fertility, as women are exposed less often to the risks of childbearing, and as the toll on their health from frequent childbearing is reduced. Overall, increasing urbanization, improvements in education and a small drop in average family size might be expected to contribute to better maternal health in Nigeria.

Contraceptive use is very low among married Nigerian women of childbearing age

Although the level of contraceptive use among married women aged 15–49 doubled between 1990 and 2003, from 6% of to 12%, the overall level was still low. Furthermore, almost half of this use involved traditional

FIGURE 3. Average family size has decreased somewhat, but the change has not been uniform across the country.



Note: Total fertility rate is the average number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates of a given year for all age-groups.

Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

methods, which are less effective than modern ones (see Appendix Table 1). Use of modern contraceptives among married women in 2003 was much higher in the South West region than in any other part of the country (21%, compared with 12% in the South Central and South East regions, 9% in the North Central region and about 2% in the North East and North West regions).

By comparison, contraceptive use was considerably more prevalent among same-aged sexually active women who were not married: In this group, the proportion using any method rose from 38% to 47% between 1990 and 2003. Moreover, the level of use of modern methods almost tripled during that period (from 12% to 33%), while that of traditional methods declined (from 26% to 14%)—a trend that has probably given sexually active unmarried women using contraception more effective control over their fertility than their married peers. By 2003, the level of use of modern methods among sexually active unmarried women of childbearing age was highest in the South West region (53%), moderate in the North Central and South South regions (32–35%) and lowest in the North East region (10%).

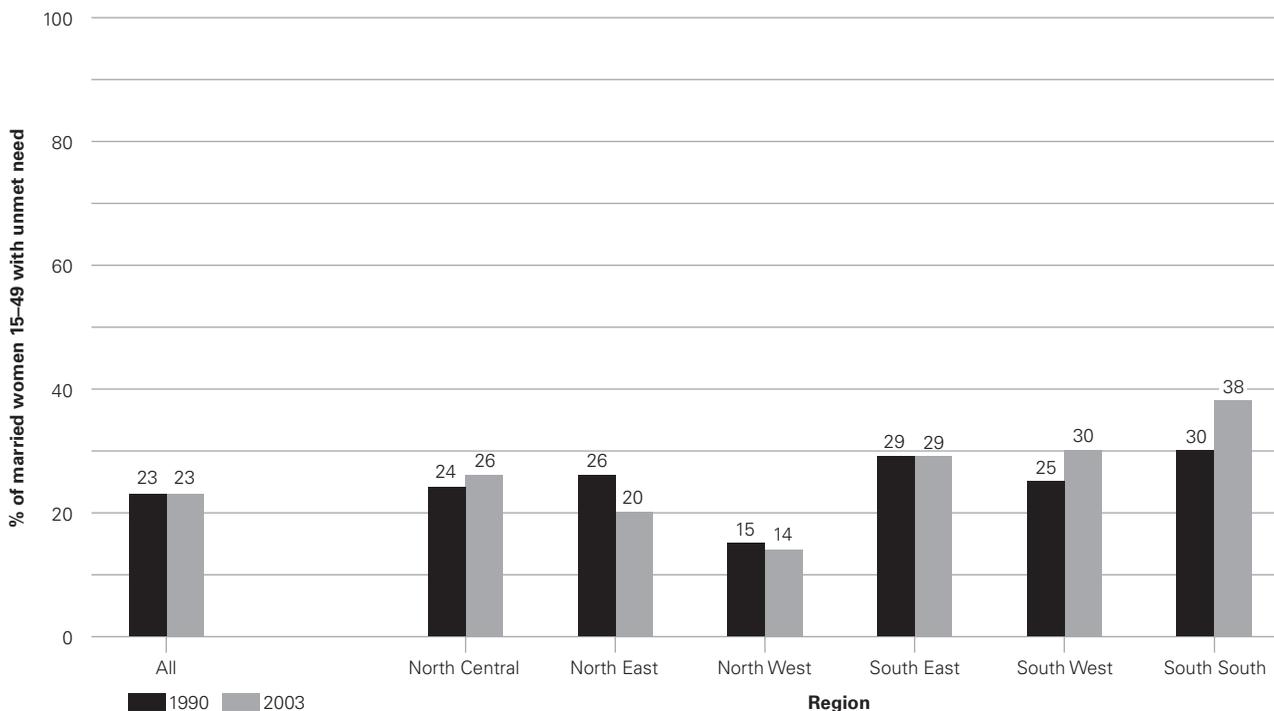
Unmet need for effective contraception is greater among sexually active women who are not married

Given that society places a high value on having children, one might assume that most married Nigerian women of childbearing age do not routinely use contraception because they want to be pregnant. This is not the case, however. In 2003, more than half of married women wanted to either delay having a child or more children (34%) or stop childbearing altogether (18%).⁸

Among married women aged 15–49 who do not want a child in the near future or ever, the proportion not using modern contraceptives did not decline between 1990 and 2003, remaining at 23% (Figure 4). This measure is known as unmet need for effective contraception. In the latter year, the level of unmet need among married women differed by region, ranging from about one in 10 in the North West to about four in 10 in the South South.

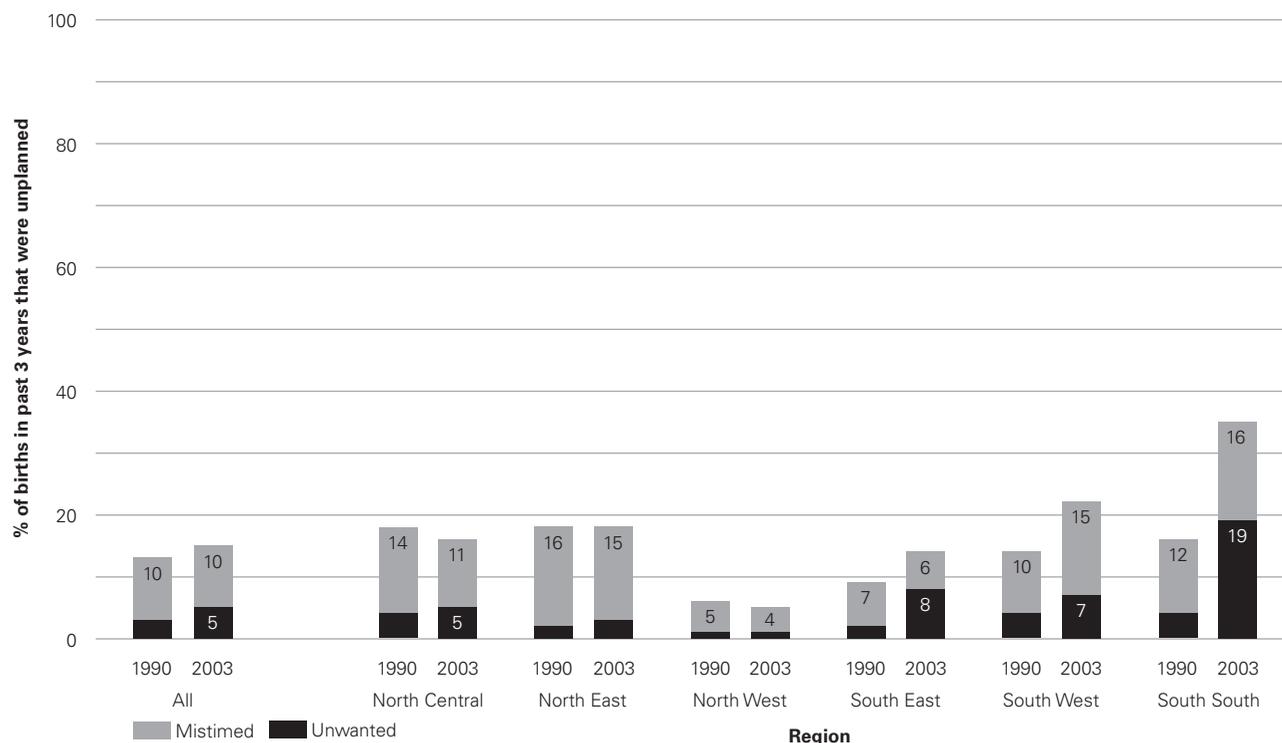
By comparison, sexually active unmarried women of the same age had a considerably higher level of unmet need. At the national level, the proportion of this group who did not want a child soon or ever, but were not using a modern method did not change during the 13-year period (54% in 1990 and 55% in 2003). By 2003, two-thirds of sexually active unmarried women in the South East and North East regions and more than half of those in

FIGURE 4. Married women's unmet need for modern contraceptives has increased in two of the southern regions.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

FIGURE 5. The level of unplanned births has increased in the southern regions.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

the North Central and South South regions had an unmet need for effective contraception. These high levels can be attributed to the fact that although effective contraceptive use is more prevalent among these women than among their married peers, the level of use is still not sufficient to counteract the probability that almost all of them do not want to become pregnant. While the proportion of unmarried women who had unmet need increased in the North Central and South East regions, the reverse was the case in the South West and South South regions.

Unplanned pregnancies and childbearing are increasingly common

Social and economic development is often accompanied by the desire for smaller families. However, this trend, which can have significant benefits for maternal health, may also have negative effects. For example, if women's access to and use of effective contraceptives do not keep pace with these changing family-size aspirations, couples may have more children than they want, or have a child before they planned to do so. Many women with unplanned and unwanted pregnancies may try to

end them, thus risking the serious complications and death associated with clandestine abortions performed by unqualified practitioners or by qualified ones working under substandard medical conditions. Data recently collected among Nigerian women aged 15–49 suggest that one in seven have tried to have an abortion and one in 10 have actually done so; in all, an estimated 760,000 induced abortions occur among this age-group annually.¹⁵

Even as some Nigerian women are having slightly fewer children than in the past, the proportion of births in the past three years that were unplanned—meaning either mistimed or unwanted*—rose between 1990 and 2003, from 12% to almost 16% overall (Figure 5). In the country's three northern regions, there was virtually no change in unplanned births; in contrast, in the three southern regions, the level rose substantially (by 55–57% in the South East and South West regions, and by more than 100% in the South South region). This difference reflects the higher desire for smaller family size (though accompanied by a low level of contraceptive use) among couples in the South compared with the North.

Most unplanned childbearing consists of mistimed births, but the proportion accounted for by unwanted births has increased, particularly in the South South region. In that region, 24% of unplanned births were unwanted in 1990, compared with 55% by 2003. This

* Mistimed births are those occurring earlier than women intended. Unwanted births are those occurring when women did not want a birth or any more births.

development must be monitored and addressed because of its implications for maternal health and survival. For example, some evidence suggests that women who do not want to be pregnant are less likely than those who do to seek prenatal care.¹⁶⁻¹⁸

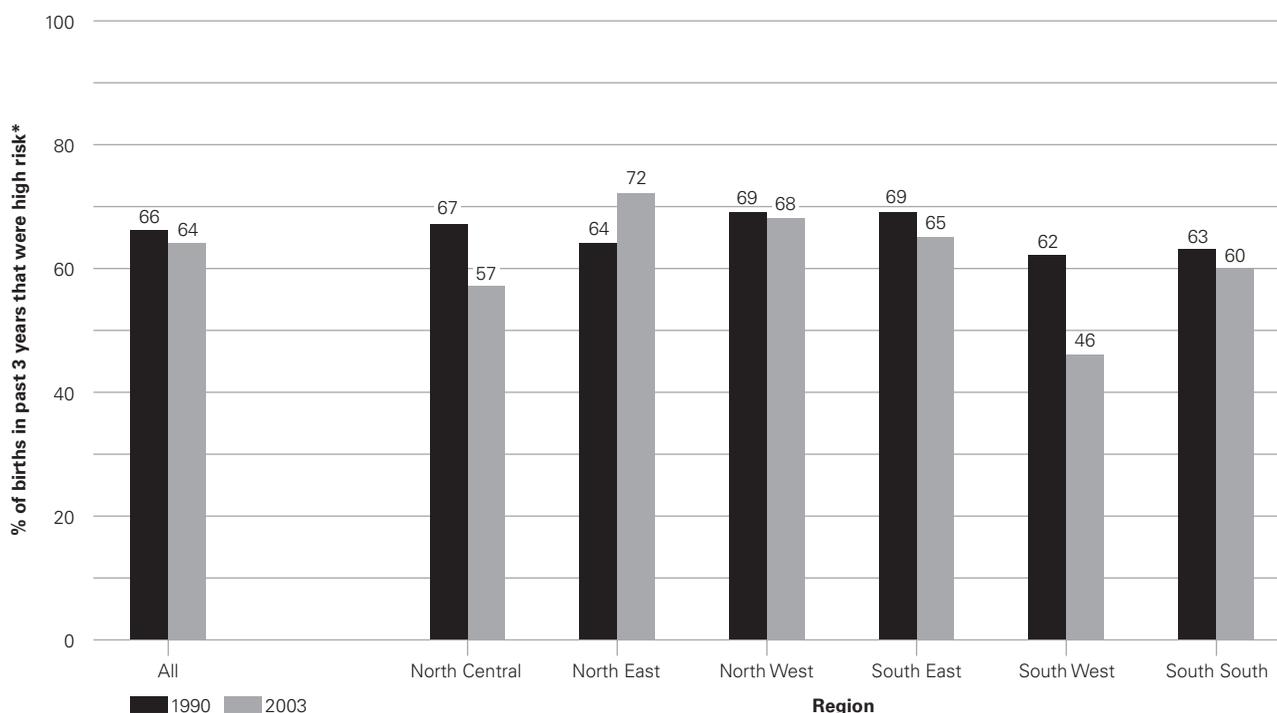
High-risk births persist

In developing countries, especially those with inadequate health services, births to certain women can carry a high risk of complications for the mother and the child.¹⁹ These women include those who are very young (younger than 18 years of age in general, but younger than 15 years of age in particular), who are aged 35 or older, who have already had many births or whose pregnancies are closely spaced. For example, a study based on data collected in Niger, Nigeria and Tanzania in the 1990s showed that early childbearing was associated with prolonged/obstructed labor.²⁰ It was estimated that the proportion of women experiencing this complication would be reduced by 11–13% if the risks associated with young maternal age at first birth were eliminated by delaying childbearing until physical maturity. According to the same study, the annual incidence of obstetric fistulas in Nigeria was 2.11 per 1,000 births, and 28% of the cases occurred in women younger than 20 years old.

Overall, there has been little or no apparent improvement in levels of high-risk pregnancy related to maternal age. In Nigeria, in both 1990 and 2003, about 8% of all recent births (i.e., those in the past three years) were to women younger than the age of 18, and 16–17% were to women aged 35 and older. However, these patterns and trends varied from region to region. High-risk births due to the mother’s very young age were more common in the North East and the North West regions and were much less common in the South East and South West regions. In 2003, in the South East and South West regions, 2–4% of all births occurred to women younger than 18, compared with 10–12% in the North East and North West regions. This is partly due to the earlier age at marriage of women in the northern regions relative to their southern counterparts. By comparison, the proportion of recent births to women aged 35 years or older was very similar across all regions except the South East, where the level in 2003 (24%) was notably higher than that in the other regions (16–19%).

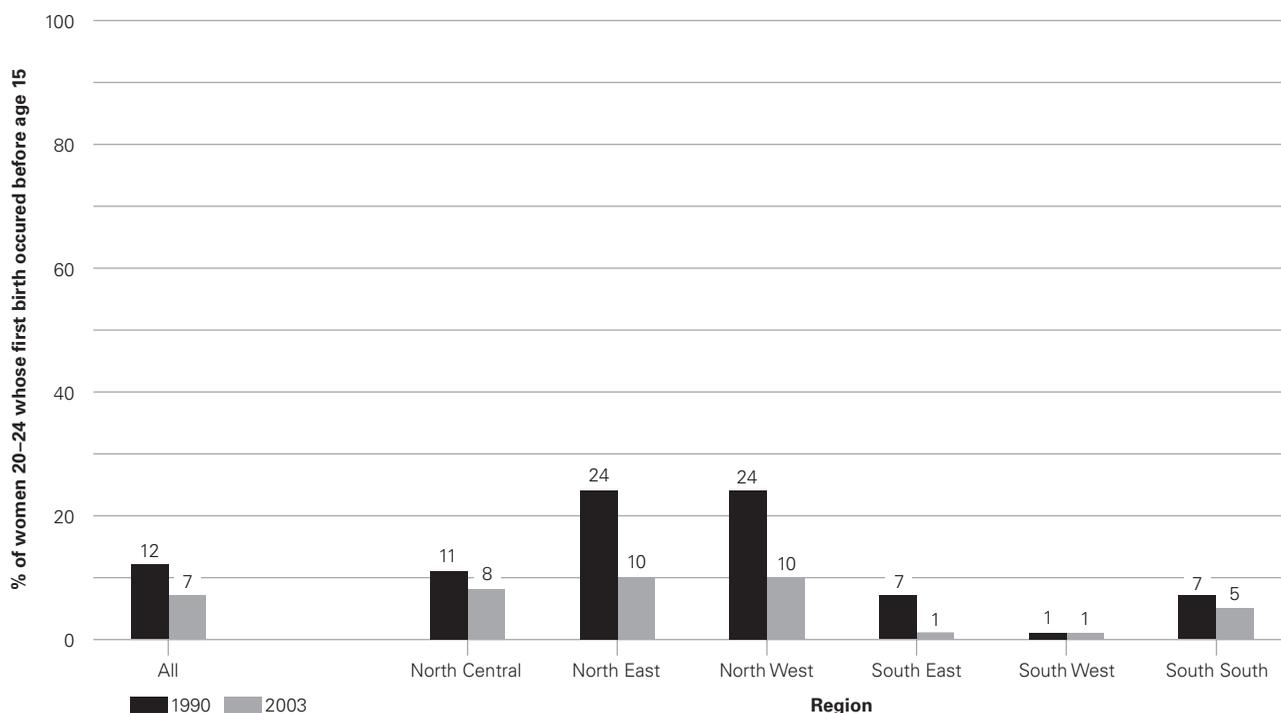
A short interval between one birth and the next is also linked to poor outcomes for mothers and infants alike.²¹ By 2003, in Nigeria as a whole, 20% of all recent births took place within two years of the woman’s previous birth,

FIGURE 6. In both 1990 and 2003, two-thirds of recent births to Nigerian women were high risk.



*Births occurring to women younger than age 18, women aged 35 or older, women whose last birth occurred less than two years earlier and women who already had four or more children. *Source:* Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

FIGURE 7. Very early childbearing has declined throughout Nigeria.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

a slight drop since 1990, when the proportion was 23%. However, in the South East region, 35% of births were that closely spaced, compared with only 12% in the South West. This was a surprising difference, given that in 2003, the total fertility rate was identical in these two regions—4.1 children per woman.

A smaller proportion of recent births in the South West than of those in the South East were to women who already had at least four children (36% vs. 46%). It would be interesting to investigate whether levels of maternal and child mortality differ between these two otherwise demographically similar southern regions.

Overall, combining all four risk factors, two-thirds of recent births in both 1990 and 2003 in Nigeria involved risks associated with the woman’s age, parity or birth spacing (Figure 6). This very high proportion is probably one of the many factors contributing to the high level of maternal mortality in Nigeria. Small decreases in the prevalence of two of the factors (high parity and short birth intervals) were offset by small increases in the prevalence of the other two, resulting in little overall change in the combined measure of high-risk births.

In 2003, the South West region had the lowest overall proportion of high-risk births (46%) followed by the North Central region (57%). Both of these regions experienced substantial declines in high-risk births since 1990. In

contrast, other regions (North West, South East and South South regions) experienced little change, and the North East region even had a notable increase in the proportion of high-risk births (from 64% to 72%), a cause for concern.

However, the proportion of women becoming mothers during adolescence is declining

In 1990, 35% of women aged 20–24 years first gave birth when they were younger than 18 years; by 2003, this proportion had dropped to 28%. Similarly, the proportion whose first birth occurred before age 15—which entails even higher levels of risk—fell from 12% to 7% (Figure 7). However, the proportion of women experiencing early childbearing was higher in some regions than in others. In the North East and North West regions in 1990, almost one in four 20–24-year-old women had their first birth before age 15. But in the South West region, in both years, fewer than 1% of comparable women had their first birth at that very young age.

Pregnancy during early adolescence is risky, and the younger the woman, the higher the risk. Women younger than age 15 are twice as likely to die in childbirth as women in their 20s.²² Obstructed labor, one of the leading causes of maternal death, is a common risk for young women who have underdeveloped pelvises or who are

seriously malnourished. In addition, when not properly attended to, this complication frequently leads to obstetric fistula. Hence, delaying adolescent women's first pregnancy is a critical strategy for reducing both the occurrence of obstetric fistulas and maternal death.

Yet, in parts of the North, young women often start childbearing soon after marriage. In 2003, in the North East and North West regions, about half of women aged 20–24 had their first birth before their 18th birthday (see Appendix Table 1). In both regions, the median age at marriage among 20–24-year-old women is 16.⁸ This suggests that young women in these parts of the country indeed experience great childbearing pressures. The level of early childbearing was somewhat lower in the country as a whole, but still, three in 10 births to women aged 20–24 years in the past three years were to women who had not yet turned 18.

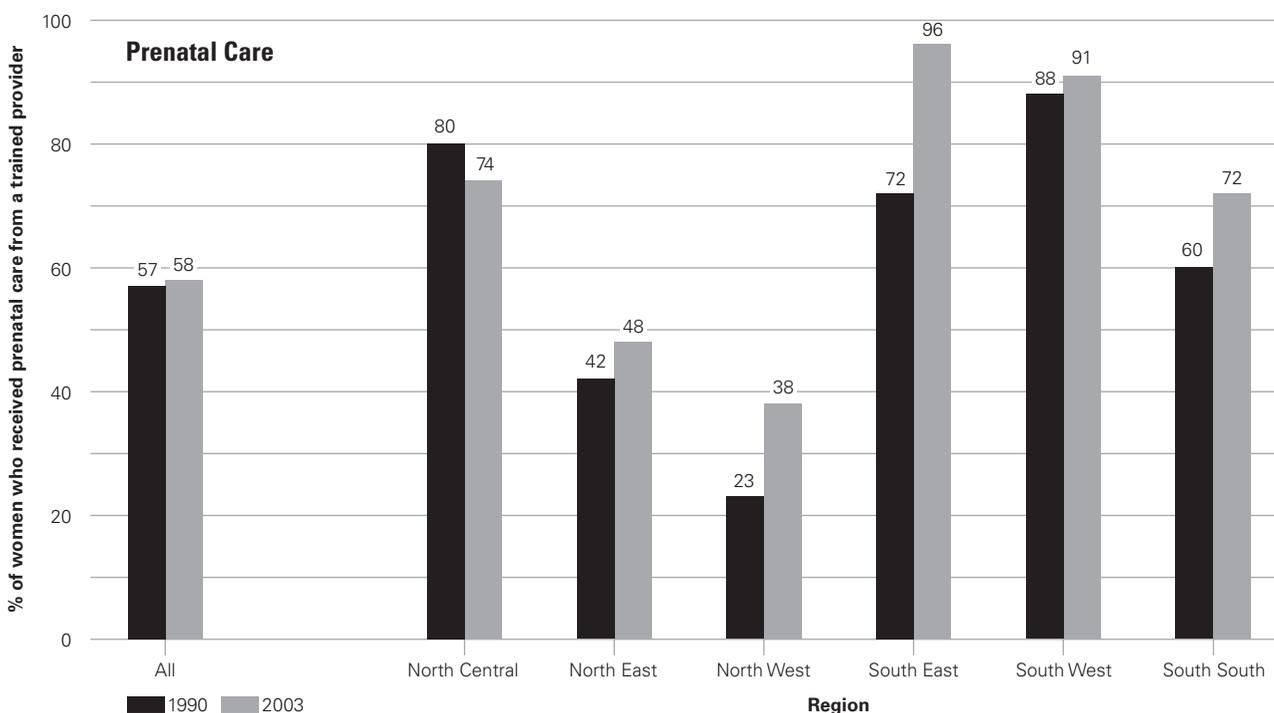
Levels of prenatal care vary by region and have improved little in 13 years

Perhaps even more than women's age or parity, or the timing of their last birth, women's access to and use of prenatal care during pregnancy can affect their health and the safety of their delivery. In both 1990 and 2003, 57–58% of

women giving birth in the previous three years received prenatal care from a trained health care provider (a doctor, nurse or trained midwife), indicating no overall change in this measure—even as some of the demographic factors with a potential to increase receipt of maternal health care improved slightly (Figure 8). However, the regional picture is mixed. The South East recorded a substantial increase in the level of prenatal care (by 24 percentage points), while the North West and South South regions had slight improvements (by 12–15 percentage points). In the North Central region, the proportion of women obtaining such care actually declined slightly, and in the North East and South West regions, it remained basically unchanged.

In 2003, differences across regions were great: Fewer than half of pregnant women in the North East and North West regions received any prenatal care, whereas more than 90% of their peers in the South East and South West regions did. In the North Central and South South regions, the level was intermediate (72–74%). Although receipt of any prenatal care represents a minimal standard of health care during pregnancy, it provides some indication of levels of overall access to or use of professional pregnancy-related care.

FIGURE 8. Improvements in prenatal and delivery care have been uneven.



Notes: Among women aged 15–49 who gave birth in the past three years. A trained provider is a doctor, nurse or trained midwife.

Provision of professional care at the time of delivery has increased, but remains very low

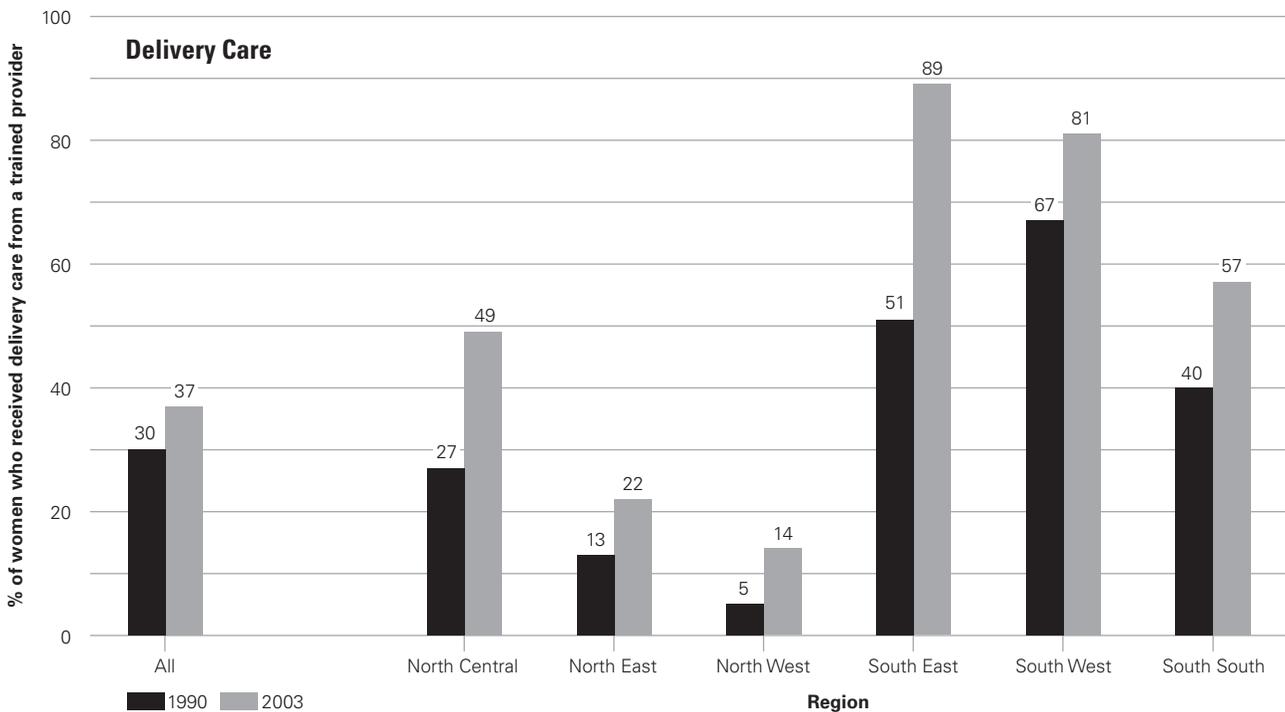
One of the most critical factors determining the survival and health of both women and their infants is the care they receive at the time of delivery. In Nigeria overall, the proportion of women giving birth in the past three years who received health care from a trained provider at delivery rose from 30% in 1990 to 37% in 2003 (Figure 8). This more recent level is still very low, and lower than the comparable statistic in Liberia (as measured in 2000), Malawi (2001), Mozambique (1997), Senegal (2000) and the Democratic Republic of the Congo (2001).⁵(Table 8) The regions with the highest level of delivery care from a doctor, nurse or trained midwife in 2003 were the South East and the South West (81–89%). The 13-year improvement in this measure was most dramatic in the South East region, where the value increased from 51% to 89%. It would be instructive to find out how that large increase was achieved, as this could inform future initiatives.

Many women lack the autonomy to make decisions about their own health care

One factor that contributes to women’s ability to obtain maternal health care during pregnancy and delivery is their ability to decide of their own accord to seek health care

generally. In 2003 in Nigeria, only one in four women of childbearing age said that they were involved in making decisions about their own health care; moreover, the proportion was generally similar regardless of whether women were married (Appendix Table 1). The level of such autonomy was below average in the North East and North West regions (12–13%) and above average in the South West and South East regions (40–49%).

The South West and South East regions are, indeed, the most urban in the country and the ones with by far the highest proportions of women receiving prenatal and delivery care. Perhaps living in a big city, to some degree, helps empower Nigerian women in their ability to obtain reproductive health care services. At the same time, maternal health care services are also likely to be more accessible in and around large cities such as Lagos. Access is a prerequisite for obtaining care, whether or not women can make their own decisions to seek this care or need permission or approval from family members. Doubtless, both factors help to explain the much higher levels of receipt of pregnancy-related care from trained professionals in these two regions.



Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

Policies to Reduce Maternal Morbidity And Mortality

As a response to the high level of maternal mortality in Nigeria, since 2000, the Nigerian government has introduced a variety of national health and development policies that aim to reduce maternal mortality by 75% by 2015.²³

Nigeria has a number of established laws and policies addressing maternal health

The International Safe Motherhood Initiative was launched in Nairobi, Kenya, in 1987. Thereafter, Nigeria officially adopted the conference's call to reduce maternal mortality in the country by 50% by the year 2000. Unfortunately, apart from the development of a maternal and child health policy in 1994, between 1988 and 1999, no other substantial policies or programs were specifically developed to address maternal deaths in the country. The National Health Policy and Strategy to Achieve Health for All Nigerians (National Health Policy)—developed in 1988 and reviewed in 1998—noted that health is an “essential component of social and economic development as well as being an instrument of social justice and national security.”²⁴ The policy emphasized primary health care as the key to developing the health care delivery system in Nigeria.

The emergence of democratic governance in the country in 1999, coupled with the inclusion of maternal mortality reduction as one of the targets of the MDGs in 2000, reactivated the development of policies and programs for reducing maternal deaths. Between 1998 and the present, evolving policies related to maternal mortality, such as the following, have been put in place:

- The National Policy on Population for Development, Unity, Progress and Self Reliance, developed by the National Population Commission in 1998, included the promotion of maternal health, especially among vulnerable groups such as adolescents.
- The National Economic Empowerment Development Strategy (NEEDS),²⁵ developed at the onset of the new democratic administration in 1999, was aimed at reducing the level of poverty in Nigeria. However, it had an overarching national framework for social change that explicitly listed maternal mortality reduction as an objective. SEEDS and LEEDS, the state and local government versions of this strategy, were designed to ensure that the benefits of the strategy were widespread and expanded to subnational levels.
- The National Reproductive Health Policy was developed by the Ministry of Health in July 2001.²⁶ Its aim was to “achieve quality reproductive and sexual health for all Nigerians.” Apart from seeking to promote *all* components of reproductive health, the policy also specifically aimed to “reduce maternal morbidity and mortality due to pregnancy and childbirth by 50% between 2001 and 2006.”
- The National Reproductive Health Strategic Framework, developed by the Ministry of Health in 2002, contained goals to reduce maternal mortality.²⁷
- The National Guidelines for Women's Health²⁸ were developed by the government of Nigeria in 2002, with support from the United Nations Children's Fund (UNICEF). The guidelines provided for the establishment of women-friendly services at all levels of the health care system.
- The Health Sector Reform policy, developed by the Minister of Health in 2003, had the objective of improving the functioning of Nigeria's health system as a way to reduce maternal mortality in the country.²⁹ This policy was a response to a 2002 WHO study that ranked Nigeria 187th out of 192 countries in terms of the performance of its health systems. The policy included the strengthening of antenatal care and emergency obstetrics services in order to reduce delays that result in maternal mortality in Nigeria. In addition, the policy invoked the MDGs as a basis for a commitment to reducing maternal mortality.³⁰
- A National Strategic Plan for Reproductive Health Commodity Security³¹ was developed in October 2003 to develop a strategy to secure the supply of reproductive health commodities and to reduce maternal morbidity and mortality in Nigeria.
- A revision of the government's National Policy on Population for Sustainable Development³² in 2004 explicitly called for a 75% reduction of the maternal mortality rate by the year 2015.
- The National Family Planning/Reproductive Health Policy Guidelines and Standards of Practice³³ were developed in August 2004 by the Federal Government, with support from the United States Agency for International Development (USAID). The guidelines had the objective of improving the quality of reproductive health and family

planning. Maternal mortality reduction was included among other specific indicators of reproductive health.

- A National Strategic Framework and Plan for Vesico-Vaginal Fistula (VVF) Eradication in Nigeria³⁴ was developed by the federal government in 2005, in collaboration with the United Nations Population Fund (UNFPA). The goal of this plan was to improve the quality of life of women by eliminating obstetric fistulas. The specific objectives included an 80% reduction of the incidence of obstetric fistulas and a 300% increase in health care services to repair them between 2005 and 2010.
- A National Health Promotion Policy³⁵ was developed by the Ministry of Health in 2006 with the specific purpose of expanding and elaborating on the health promotion component of the National Health Policy. The new policy was built on the tripartite components of health education, service improvement and advocacy, all of which directly and indirectly help reduce maternal mortality.
- An Integrated Maternal, Newborn and Child Health (IMNCH) Strategy³⁶ was developed in 2007 by the Ministry of Health. Its goal was to build synergy among the many programs designed to reduce maternal, neonatal and child mortality in Nigeria. The strategy, which was designed to ensure a continuum of care from pregnancy through the postnatal, newborn and childhood periods for mothers and children, is the policy currently being implemented at all levels of the health care system in Nigeria.

Some legislative proposals to improve maternal outcomes have met resistance

In 2006, the Nigerian National Assembly threw out a bill for the Establishment of a Reproductive Health Agency because antiabortion lobbyists perceived that the bill was designed to legalize abortion in the country. A bill to restrict the legal age of marriage in Nigeria was also defeated at the National Assembly in 2005, as a result of religious sentiments. Similarly, a bill to domesticate the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) was abandoned because of pressure from antagonists who believed it was a ploy to legalize abortion in Nigeria.

Before it was passed by the Senate in May 2008, the National Health Bill, which aims to ensure women's access to essential reproductive and maternal health services, was stalled on the floor of the National Assembly for about two and a half years. Various reproductive health advocates across the country were concerned that the passage of the bill had been delayed for that long.

Other, related policies that could directly or indirectly reduce maternal morbidity and mortality in Nigeria include (1) the National Breastfeeding Policy of 1994, (2) the National Adolescent Health Policy of 1995, (3) the National Policy on HIV/STIs Control of 1997 and (4) the National Policy on the Elimination of Female Genital Mutilation of 1998. In addition, Edo State in the South South region has developed a policy that mandates registration of maternal deaths. However, this policy has not yet been replicated at the national level.

The failure of existing policies to improve maternal outcomes can be traced to inadequate implementation

Although this long list of policies suggests that the government recognizes the need to reduce maternal mortality in Nigeria, the political will to transform these policies into action is largely absent. Evidence suggests that the lack of much improvement in this outcome despite these policies is due to inadequate implementation. For example, one study has cited the lack of concrete and targeted support by the government for family planning as possibly a major reason why the National Health Policy released in 1988 failed to meet most of its targets.³⁷ As the authors observe, the policy expected to "extend the coverage of family planning service to 50 per cent of women of child bearing age by 1995 and 80 per cent by year 2000."^{38(p. 15)} But contraceptive use by these dates certainly fell short of the targets. A recent study noted that the Nigerian health system as a whole suffers from multiple problems, such as poor service quality, including unfriendly staff attitudes toward patients, inadequate skills, decaying infrastructure and chronic shortages of essential drugs and supplies (the well-known "out-of-stock syndrome").³⁹

Programs to Reduce Maternal Morbidity And Mortality

Actual health care programs and services to reduce maternal mortality in Nigeria have not been commensurate with the many policies introduced since 1998. Before 2000, programming toward this goal was limited to the development of maternal and child health services with an emphasis on primary health care. However, it soon became evident that this approach often led to greater emphasis on child health than on maternal health. Similarly, although providing primary health care does increase women's access to basic obstetric services, it does not necessarily reduce maternal mortality.

Trained providers are critical to safe motherhood efforts

Research shows that the single most important intervention for safe motherhood is ensuring that a trained provider with midwifery skills is present at every birth, that transport is available to referral services and that quality emergency obstetric care is available.⁴⁰ Regrettably, before 2000, very little attention was paid either to making skilled birth attendants available or to improving emergency obstetric care in the country. Because more than 60% of births in the country are attended by untrained providers (typically traditional birth attendants), several interventions have focused on retraining this group. Unfortunately, this strategy has had little impact on maternal mortality because no measures were taken to sustain the knowledge gained by the traditional birth attendants or to link them to the conventional health care system.

An assessment of the incidence of obstetric fistulas in Nigeria and of existing barriers to appropriate treatment made a number of program recommendations.⁴¹ These could well apply to the broader range of maternal health care services in Nigeria. The recommendations include providing free or subsidized treatment; increasing the training of all levels of medical staff providing maternal health services; improving the education of birth attendants so that they can better help women in labor; motivating such paraprofessionals to work in remote regions; establishing emergency delivery sites that also serve as counseling centers for both contraception and HIV awareness and prevention; launching public awareness campaigns on issues surrounding safe deliveries; and promoting lengthier education and more vocational training for

girls and women. Achieving all of these recommendations is out of the question in the short run, yet efforts must be made in several of these areas as starting points, if maternal morbidity and mortality are to be lowered. There are some signs that the government is more open than it has ever been to such approaches.

In 2001, WHO launched the Making Pregnancy Safer (MPS) initiative in Nigeria. The aim was to improve health facilities and thereby ensure quality care and capacity for emergency obstetric care at all levels of the health care system.

The MPS initiative entails the following:

- building capacity and providing health equipment to enable health care providers to offer quality services and emergency obstetric care;
- introducing a referral system to link secondary health care facilities offering comprehensive obstetric care (including surgical intervention and safe blood transfusion) with primary health care facilities; and
- offering primary-level health referral support to other primary health care facilities, maternity centers and health posts, all within the same local government area.

Unfortunately, this initiative has been implemented in only seven out of the country's 36 states, and then, only by two local governments within each state, one urban and one rural, and it has not been sustained over time.

In 2001, a stakeholders' advocacy initiative—the West African First Ladies summit—held in Bamako, Mali, was launched to work toward significantly reducing maternal mortality by 2010 in the countries involved. A major outcome of this meeting was the inauguration of the Women and Children-Friendly Health Services (WCFHS) program, which included maternal and child health advocacy activities at the national, zonal, state and local government levels. The intervention was aimed at strengthening health facilities in public hospitals and at capacity building for health care providers in health care centers at all levels of the country.

Also in 2001, the Ministry of Health established a multisectoral National Safe Motherhood Committee. However, because of a lack of funding, this committee has not been able to implement any successful programs. In 2004, for the first time, the Ministry secured a budget for reproductive health with specific funding for safe

motherhood. In 2005, the Ministry of Health launched a birth preparedness plan. And in 2006, the Minister of Health publicly championed the cause, with emphasis on the integrated Maternal, Newborn and Child Health Strategy. At meetings of the National Council of Health, the issue of reducing maternal mortality was featured prominently on the agenda.

The inclusion of maternal health promotion in the MDGs has helped to prioritize safe motherhood by the Nigerian state. In response to the international consensus, the government established a Presidential Commission on the attainment of these goals. It also established an MDG office headed by a Senior Special Assistant within the Presidency.

In 2005, the Nigerian government with the support of WHO adopted a roadmap to attain the MDGs pertaining to maternal and child health. In addition, the health sector reform program invoked the MDGs as a basis for a commitment to reducing maternal mortality nationally. A Presidential Task Force on Maternal Mortality, established in 2005, pledged to ensure the realization of the fifth MDG by 2015.⁴² As evidence of the increasing commitment to improving maternal outcomes in Nigeria, the president in 2006 appointed a special adviser on Maternal and Child Health to build synergy at national and subnational levels for reducing maternal and child mortality. The adviser has worked with various arms of the government at all levels to promote the adoption of evidence-based interventions toward this goal.

Unsafe abortion is a major problem in Nigeria and accounts for an estimated 20% of all maternal mortality. A series of interventions have been initiated in the country to reduce the burden of unsafe abortion, but these have done little to curtail the problem. In response to this need, the Post-Abortion Care Network (PACnet) was formed in 1997. In addition, as part of efforts to ensure the provision of high-quality integrated reproductive health services at all levels of the health care delivery system in Nigeria, the Ministry of Health in collaboration with PACnet and Ipas has developed fact sheets on postabortion care, including issues related to reproductive health rights.

Recently, the Integrated Maternal Newborn and Child Health (IMNCH) strategy was developed to meet the target date for attaining the MDGs. In particular, this strategy was designed to provide a new way of thinking and to promote an integrated approach to reducing maternal, newborn and child mortality in Nigeria. It was designed to be implemented in three phases of increasing interventions and costs at the federal, state and local

levels. The intervention packages would be delivered in an integrated manner through existing health services offered at community-level health facilities.

NGOs play a major role in safe motherhood efforts

Most programming on safe motherhood in Nigeria has been carried out by NGOs working with funding from international donors. The Society of Gynaecology and Obstetrics of Nigeria (SOGON) now holds an annual conference during which the issue of safe motherhood receives prominence. In 2003, the organization received funding from The John D. and Catherine T. MacArthur Foundation to conduct training and advocacy in six states. The International Federation of Obstetricians and Gynecologists (FIGO) also recently provided funding to SOGON to launch a North-South collaborative project aimed at reducing maternal mortality in three states. The Nigerian Partnership for Safe Motherhood (NPSM) has been established to link the various organizations advocating for safe motherhood.

The Campaign Against Unwanted Pregnancy (CAUP) and Ipas have spearheaded efforts to make the sensitive issue of safe abortion a subject of public discussion, and to improve the quality of postabortion care in Nigeria. The National Council of Women's Societies (NCWS), the umbrella group for all women's groups in the country, has called for free maternal health services to all women of reproductive age and for the reform of existing laws on abortion. SOGON is also beginning a project in 2008 with funding from FIGO to conduct a countrywide project to reduce the burden of unsafe abortion.

The Association for Reproductive and Family Health (ARFH) and the Women's Health and Action Research Centre (WHARC) are currently being supported by the Packard Foundation to build the capacity of private practitioners in northern Nigeria in the provision of quality reproductive health services, including services related to the reduction of maternal mortality. Similar efforts to reduce maternal mortality in Nigeria are being supported by USAID, through such programs as the ENHANSE,⁴³ COMPASS⁴³ and VISION⁴⁴ projects.*

The MacArthur Foundation recently provided funding to Pathfinder International to promote the use and dissemination in Nigeria of an antishock garment, a new device for reducing mortality among pregnant women who experience severe bleeding. The WHARC also recently began a project to promote the use of misoprostol for the prevention and treatment of postpartum hemorrhage in two states of Nigeria, with funding provided by Ventures Strategies International.

*ENHANSE: Enabling HIV/AIDS and TB and Social Sector Environment; COMPASS: Community Participation for Action in the Social Section.

Funding of Services to Reduce Maternal Morbidity and Mortality

Adequate funding for maternal health care services in Nigeria would be essential to achieving the objectives of the previously discussed policies and programs. However, evidence suggests that funds dedicated to safe motherhood are minimal, and that the private sector and donors—not the government—are the major sources.

Spending on health care is very low in Nigeria, and private expenditures account for the largest share

According to a World Bank report, in 1987, health expenditures made up just 0.8% of the national budget in Nigeria—compared with the 2.5% spent that year, on average, by governments across Sub-Saharan African nations.⁴⁵ A report released by WHO in 2005 provides similar information for developing countries and shows that the picture for Nigeria is particularly dismal (Table 1). Not only has total spending on health care fallen somewhat, but government spending amounts to merely one-seventh of private-sector spending.

TABLE 1. Per capita spending on health care services in Nigeria (international dollars) by source, 1998 and 2000

Source	Per capita expenditure on health care	
	1998	2000
Government sector	4	5
Private sector	43	38
Total	47	43

Note: The international dollar is a hypothetical unit of currency based on the U.S. dollar that has the same purchasing power across countries.

Source: reference 5 (Table 6).

It is hard to imagine how any real improvements in the provision of effective, skilled maternal health care in Nigeria can be attained while per capita spending levels are so low and the government's share is so minimal. Moreover, the review of policies described earlier in this report indicates that no public health funds have been specifically allocated to programs to reduce maternal mortality in Nigeria. Funds spent on such programs are often those allocated to reproductive health generally.

In 2004, for the first time, the federal government provided a line item allocation for reproductive health, a portion of which was directed to safe motherhood. However, the total amount released for safe motherhood was about US\$800,000—hardly enough to deal with a crisis of national scope. In 2007, the total health budget of Nigeria amounted to 122.4 billion naira (about US\$1 billion), with reproductive health accounting for only 0.5% (about US\$5 million) of the entire budget.⁴⁶ This portion of the budget was increased only because a presidential adviser conducted intense advocacy on the need to provide more resources for safe motherhood. However, only a minuscule proportion of this budget was specifically allocated to reducing maternal mortality.

After the Paris Club and related organizations offered debt relief to Nigeria in 2006, the federal government allocated substantial portions of the newly available funds to the social sector, including HIV/AIDS and safe motherhood programming. Several arms of the government received considerable sums of money in an attempt to develop a multisectoral response to these issues. Unfortunately, a sizable proportion of those funds was returned unspent because various sectors lacked capacity to implement the needed programs. Interestingly, although the Ministry of Health received about 20 billion naira (US\$200 million) from the debt relief funds, there is little evidence that specific programming on safe motherhood actually took place during this period.

A low level of commitment has been a barrier to reducing maternal mortality

Competing demands and related decisions by policymakers have played a major role in the funding available for improving maternal outcomes. For example, safe motherhood faces competition for scarce health resources with other sexual and reproductive health needs, particularly HIV/AIDS. In its first term in office, President Obasanjo's administration gave HIV/AIDS programming priority, raising levels of government funding for the disease and urging states and local governments as well as donor agencies and NGOs to do the same. In addition, funding allocated to maternal health in each of the 36 states and Federal

Capital Territory (FCT) and 774 local government councils appears to hinge on the decisions of the policymakers at those levels.

In recent times, political commitment and support for reducing maternal mortality has increased markedly in all of the states and in the FCT as a result of the president's advocacy for a policy of free maternal and child health services. In March 2007, he publicly declared support for free treatment for pregnant women at all health facilities in Nigeria. Although this policy has not yet been implemented at the national level, up to 20 of the country's 36 states and the FCT are beginning to offer some maternal health services free of charge.^{47,48}

Donors have played a major role in safe motherhood efforts

Fortunately, donors providing funds to the Nigerian health sector, including the U.K. Department for International Development (DFID), United Nations agencies and the World Bank, have increased their financing of programs for safe motherhood, thereby improving the likelihood that

progress will be made in reducing maternal mortality. DFID is funding the Partnership for Transforming Health Systems (PATHS), a seven-year project focusing on safe motherhood that aims to strengthen the Nigerian health system at the state level. In addition, DFID has launched a £100 million, five-year project to support the efforts of United Nations agencies in Nigeria in achieving the health-related MDGs, including the goal of reducing maternal mortality.

In its most recent country strategic plan, USAID has pledged more than US\$10 million to safe motherhood initiatives in Nigeria. The United Nations agencies—in particular WHO, UNICEF and UNFPA—are supporting such initiatives in the country as well. The World Bank has approved several loans for governance and health sector reforms that make financing available to state governments; some of this financing is being applied specifically to achieving the MDGs and, in particular, reducing maternal mortality. Finally, international foundations, including the MacArthur Foundation, the Packard Foundation and Ventures Strategies, have all supported NGOs and civil society leaders in their efforts to reduce maternal mortality.

Discussion and Recommendations

The high maternal mortality rate in Nigeria is a major health concern at the highest levels of government.^{49,50} Many of the same factors that contribute to poor levels of maternal health care access in Nigeria (especially widespread poverty,⁵¹ rural residence and low levels of female education in some parts of the country) are also linked to the conditions that contribute to elevated levels of high-risk pregnancy: cultural expectations of very early marriage and motherhood; lack of access to contraceptive services; and women's powerlessness to seek reproductive health care for themselves. In addition, high levels of unwanted pregnancy—a direct outcome of low levels of use of effective contraceptives—are undoubtedly resulting in high levels of unsafe abortion, a major factor contributing to the number of Nigerian women dying each year from causes related to pregnancy and childbearing. Addressing the issue of maternal mortality in Nigeria, therefore, will require attention in all of these interrelated areas of women's lives.

Reducing maternal deaths and complications will depend on identifying and improving the services that are critical to the reproductive health of adult and adolescent Nigerian women. These include high-quality and accessible family planning services for women who want to space their next birth or have no more children, antenatal care, emergency obstetric care, intrapartum care, adequate postpartum care for mothers and infants, and services related to STIs and HIV/AIDS.

This report's assessment of levels of and trends in many of the related demographic and social indicators of maternal health in Nigeria suggests that progress since 1990 has been slow and uneven. Clearly, women in the South East and South West have fared better than those in other parts of the country, on average. This is evident in the regional differences in educational attainment and average family size, the proportion of births occurring to very young women and the levels of receipt of prenatal care and professional care at delivery. Nevertheless, successes in lowering maternal mortality have been limited, despite increasing urbanization and considerable gains in adolescent women's educational attainment throughout the country—two additional indicators of development.

The fact that many women do not have the autonomy to make decisions about their use of health services

suggests that traditional cultural values persist in much of the country and may perhaps hinder use of resources as they become available. If Nigerian men play such an important role in determining their female relatives' use of health care, involving men and educating them about the issue of high maternal mortality should be made a focus of community-based educational programs. For instance, a study in the South West region found that educational interventions focused on men improved the likelihood that couples would decide to seek emergency obstetric care when it was needed.⁵² At the same time, improvements in women's educational attainment and increases in the proportion who are not married suggest that social and cultural changes that allow women greater autonomy are already taking place in Nigerian society.

Despite Nigeria's commitment to improving reproductive health and to achieving the MDG of reducing maternal mortality by 75% by the year 2015, maternal morbidity and mortality remain persistently high. A wide range of policies and programs have been developed in the country since the 1990s with the objective of reducing these outcomes. There can be no doubt, therefore, that, in principle, there is increasing commitment and political will to achieve this goal. However, major challenges still remain:

- Laws and policies related to critically important problems that affect safe motherhood, such as early marriage, unsafe abortion and women's reproductive rights, are still lacking. For example, the National Assembly failed to approve domestication of CEDAW.
- Funding for maternal health-related programs is still largely inadequate. Most well-conceived policies and programs are donor driven, with no substantial funding coming from the public sector.
- Skilled birth attendants are in short supply in Nigeria. Roughly 60% of births are attended by unskilled birth attendants, while up to 50% of practitioners with skills work in the private sector. To date, maternity services provided by the private sector have not been audited, and there has been little attempt to link them to the formal public health sector.
- Programs to deliver high-quality maternal and child health services are both limited and uncoordinated at various levels of government.

- Political commitment and support for issues related to maternal and child health are lacking at the subnational levels, especially at the local government level. Local government councils have given little support to primary health care facilities, which provide an entry into maternity services in Nigeria for most women.
- Lack of understanding and misleading information about the importance of the issue impede enactment of relevant legislation. For example, the bill to establish a reproductive health agency failed to pass because it was perceived to be a disguise for abortion reform legislation.

As part of a national effort to address these challenges, the executive arm of the government made Nigeria's high maternal mortality rate a subject of one of its retreats in 2007.³¹ However, a recent assessment arrived at the following sobering conclusion:

While a window has opened, political priority for safe motherhood remains nascent. Three problems persist. First, the network of safe motherhood champions in government and civil society has yet to come together as a cohesive and powerful agent of change pushing the political and social systems to action. Second, the Nigerian government provides minimal financial resources for maternal mortality reduction. Third, with only a few exceptions, state and local governments pay virtually no attention to the issue.⁵³

Reducing maternal mortality in Nigeria will require integrated efforts and commitments

There is indeed currently a window of opportunity for Nigeria to join the rest of the world in the effort to meet the target of MDG 5. Efforts to ensure that this opportunity is not missed must include a multipronged approach to improve women's health and reduce maternal mortality in the country.⁵⁴ Although appropriate policies are a step in the right direction, further actions must be taken to implement those policies and to ensure that all the disparate program efforts to increase safe motherhood are integrated and monitored at the central level.

A major impediment to improving policies and programs to reduce maternal mortality in Nigeria is the lack of continuity in the government. Every new policy seems to lapse with the exit of the commissioner, the governor or the minister who was in power or who initiated the program. It is essential to put in place mechanisms that will ensure continuity of health policies at the federal, state and local government levels.

Despite much lofty policy formulation, the serious lack of commitment to implementing these proposals can be seen in the gross underbudgeting of the health sector over the years. It is thanks only to the efforts and funding of NGOs and international donors that maternal mortality in Nigeria has not deteriorated even further. It is only through their efforts that awareness of the magnitude of the problem has been maintained and kept in constant focus.

The number of skilled birth attendants in Nigeria is certainly not sufficient, and the situation is aggravated by the fact that those who are available are concentrated in urban centers, where only about 40% of the population lives. Better results could be achieved through better distribution of this manpower, by providing incentives to promote work in rural areas.

The Nigerian government must be willing to commit adequate resources, particularly financial resources, to meet the needs of the health system. This system must be significantly overhauled to promote proper coordination among the three levels of government—federal, state and local—both to reduce bureaucratic bottlenecks and wastage of resources, and to ensure availability of the trained providers, up-to-date equipment and supplies needed to provide appropriate contraceptive, prenatal and obstetric services. Improved capacity and resources will be essential to reducing high-risk and unintended pregnancies and making pregnancy and delivery safer. The lack of credible data on maternal and perinatal outcomes is a serious barrier to effective advocacy and programming. Therefore, crucial ancillary efforts needed to support Nigeria's safe motherhood services include the establishment of a system to register births and maternal deaths, and a national-level effort to investigate the causes of all maternal deaths in the country.

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APPENDIX TABLE 1. Selected social and demographic measures, and measures of maternal morbidity and mortality among women in Nigeria, by region, 1990 and 2003

Measure	All		Region	
	1990	2003	North Central	2003
SOCIAL AND DEMOGRAPHIC CHARACTERISTICS				
Female population aged 15–49				
No. of women	21,012	30,949	3,693	4,551
% distribution of women	100.0	100.0	17.6	14.7
% who live in urban areas	24.9	34.5	11.7	25.1
% currently married*	78.4	70.0	81.8	67.3
% with ≥7 years of education	18.9	37.0	11.1	34.1
% involved in decisions about own health care	na	24.5	na	21.3
Married*	na	23.3	na	23.3
Unmarried	na	27.3	na	17.2
FERTILITY CONTROL				
Total fertility rate	6.0	5.7	6.8	5.7
% of births in past 3 years that were:				
Unplanned	12.3	15.7	18.4	16.2
Unwanted	2.5	5.4	4.4	5.0
Mistimed	9.8	10.3	14.0	11.1
CONTRACEPTIVE USE				
% of married* women 15–49 using:				
Any method	6.0	12.6	4.7	13.3
Traditional method	2.6	5.7	0.9	4.1
Modern method†	3.4	6.8	3.8	8.9
% of sexually active‡ unmarried women 15–49 using:				
Any method	37.8	46.6	20.0	36.5
Traditional method	25.5	14.1	6.3	4.7
Modern method†	12.1	32.5	13.8	31.8
UNMET NEED FOR CONTRACEPTION				
% of women 15–49 with an unmet need for modern method‡				
Married*	22.9	22.7	23.5	25.9
Sexually active‡ unmarried	53.7	54.5	45.9	63.5
HIGH-RISK BIRTHS				
% of women aged 20–24 who had a birth:				
Before age 15	12.1	6.6	10.8	8.2
Before age 18	34.9	28.0	34.3	18.9
% of births in past 3 years to women:				
Aged <18	7.5	8.1	5.6	4.7
Aged ≥35	16.3	17.2	18.4	16.5
% who had a previous birth within 2 years	22.6	19.8	19.2	16.6
% who already had ≥4 births**	51.5	48.8	54.1	44.0
% of births with any of above 4 high-risk factors	66.4	63.9	67.2	56.6
PREGNANCY HEALTH IN PAST 3 YEARS				
% who received care from a trained provider††				
Prenatal	56.9	58.1	80.1	73.7
Delivery	30.1	36.6	27.3	49.4
% who had a cesarean delivery at last birth	2.2	1.8	2.9	1.5
% who had received ≥2 tetanus shots	40.4	39.6	45.8	45.2
INVOLVEMENT IN OWN HEALTH CARE DECISIONS				
% for whom decisions are made by:				
Woman alone	na	15.7	na	18.6
Woman and husband/partner	na	7.6	na	2.5
Woman and other person	na	1.1	na	0.3
Husband/partner alone	na	52.0	na	46.4
Someone else	na	21.7	na	30.2
Decision made was not applicable	na	1.8	na	2.1
COMPLICATIONS AT BIRTH				
% who had a complication‡‡ at last birth				
na	na	42.1	na	41.6
% having complications at last birth who received delivery care from:				
Trained provider††	na	39.9	na	40.4
Untrained provider	na	43.3	na	42.7
% whose last birth was complicated by:				
Prolonged labor	na	27.6	na	25.2
Excessive bleeding	na	20.3	na	18.4
High fever with vaginal discharge	na	13.1	na	14.5
Convulsions not caused by fever	na	3.2	na	2.3

* Includes married women and women living with a man in an informal union.

† The pill, IUD, injectables, spermicide, barrier methods, and male and female sterilization.

‡ Reported having intercourse in the three months before the survey.

§ Values not tabulated because N<25.

** Among women who had a birth in the past three years, birth order 4 or higher.

†† A doctor, nurse or trained midwife.

‡‡ Prolonged labor, excessive bleeding, high fever with vaginal discharge, and convulsions not caused by fever.

APPENDIX TABLE 2. Unweighted Ns for selected social and demographic measures, and measures of maternal morbidity and mortality among women in Nigeria, by region, 1990 and 2003

Measure	Total no. of women (unweighted Ns)			
	All		North Central	
	1990	2003	1990	2003
SOCIAL AND DEMOGRAPHIC CHARACTERISTICS				
Female population aged 15–49				
No. of women	21,012	30,949	3,693	4,551
% who live in urban areas	8,781	7,620	1,153	1,256
% currently married	8,781	7,620	1,153	1,256
% with ≥7 years of education	8,781	7,620	1,153	1,256
% involved in decisions about own health care				
Married	na	5,157	na	848
Unmarried	na	2,463	na	408
FERTILITY CONTROL				
Total fertility rate	8,781	7,620	1,153	1,256
% of births in past 3 years that were unplanned, unwanted or mistimed	4,847	3,764	719	642
CONTRACEPTIVE USE				
% of married women 15–49 using any, traditional or modern method	6,694	5,157	902	848
% of sexually active unmarried women 15–49 using any, traditional or modern method	668	583	79	96
UNMET NEED FOR CONTRACEPTION				
% of women 15–49 with an unmet need for modern methods				
Married	6,691	5,155	901	848
Sexually active unmarried	667	583	79	96
HIGH-RISK BIRTHS				
% of women 20–24 who had a birth before age 15 and before age 18	1,682	1,464	208	261
% of births in past 3 years to women <18 and ≥35	4,847	3,764	719	642
% who had a previous birth within 2 years	4,145	3,142	638	537
% who already had ≥4 births	4,847	3,764	719	642
% of births with any of above 4 high-risk factors	4,847	3,764	719	642
PREGNANCY HEALTH IN PAST 3 YEARS				
% who received care from a trained provider	4,076	3,156	589	534
% who had a cesarean delivery at last birth	4,076	3,156	589	534
% who had received ≥2 tetanus shots	4,076	3,156	589	534
INVOLVEMENT IN OWN HEALTH CARE DECISIONS				
% for whom decisions are made by various parties	na	7,620	na	1,256
COMPLICATIONS AT BIRTH				
% who had a complication at last birth	na	3,156	na	534
% having complications at last birth who received delivery care from:				
Trained provider	na	1,230	na	268
Untrained provider	na	1,926	na	266
% whose last birth was complicated by various factors	na	3,156	na	534

Notes: Values are the unweighted Ns serving as the denominators for the corresponding categories in Table 1. na=not available.

Source: Special tabulations of the 1990 and 2003 Nigeria Demographic and Health Surveys.

Total no. of women (unweighted Ns)									
North East		North West		South East		South West		South South	
1990	2003	1990	2003	1990	2003	1990	2003	1990	2003
1,836	5,555	5,278	8,508	3,040	2,992	3,535	3,892	3,630	5,450
747	1,413	2,266	1,791	1,228	1,081	2,390	1,141	997	938
747	1,413	2,266	1,791	1,228	1,081	2,390	1,141	997	938
747	1,413	2,266	1,791	1,228	1,081	2,390	1,141	997	938
na	1,133	na	1,556	na	509	na	644	na	467
na	280	na	235	na	572	na	497	na	471
747	1,413	2,266	1,791	1,228	1,081	2,390	1,141	997	938
477	902	1,510	1,142	605	322	1,090	392	446	364
692	1,133	2,160	1,556	773	509	1,550	467	619	644
7	46	14	31	84	113	320	111	164	186
692	1,133	2,160	1,554	773	509	1,546	644	619	467
7	46	14	31	84	113	319	111	164	186
157	242	392	325	219	220	528	228	178	188
477	902	1,510	1,142	605	322	1,090	392	446	364
393	784	1,299	961	520	269	905	307	390	284
477	902	1,510	1,142	605	322	1,090	392	446	364
477	902	1,510	1,142	605	322	1,090	392	446	364
411	754	1,273	962	503	269	925	340	375	297
411	754	1,273	962	503	269	925	340	375	297
411	754	1,273	962	503	269	925	340	375	297
na	1,413	na	1,791	na	1,081	na	1,141	na	938
na	754	na	962	na	269	na	340	na	297
na	164	na	152	na	211	na	262	na	173
na	590	na	810	na	58	na	78	na	124
na	754	na	962	na	269	na	340	na	297



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