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MINISTRY OF HEALTH

Saving Newborn Lives in Nigeria:

SITUATION ANALYSIS AND ACTION PLAN FOR NEWBORN HEALTH

in the context of the Integrated Maternal, Newborn and Child Health Strategy

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Acronyms

ACSD	Accelerated Child Survival and Development
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral therapy
BCC	Behaviour Change Communication
BCG	Bacille Calmette-Guérin vaccine for tuberculosis
CDC	Community Development Committee
CIMCI	Community Integrated Management of Childhood Illness
DPT	Diphtheria, Pertussis and Tetanus vaccine
EmOC	Emergency Obstetric Care
EPI	Expanded Programme on Immunisation
FGC	Female Genital Cutting
FMOH	Federal Ministry of Health
GDP	Gross Domestic Product
GNI	Gross National Income
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information Systems
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IMNCH	Integrated Maternal, Newborn and Child Health Strategy
IPTp	Intermittent Preventive Treatment for malaria in Pregnancy
ITN	Insecticide Treated Net
KMC	Kangaroo Mother Care
LSS	Life Saving Skills training
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MMR	Maternal Mortality Rate
NANNM	National Association of Nigerian Nurses and Midwives
NARHS	National AIDS Reproductive Health Survey
NDHS	Nigeria Demographic and Health Survey
NHIS	National Health Insurance Scheme
NISONM	Nigerian Society of Neonatal Medicine
NMR	Neonatal Mortality Rate
OPV	Oral Polio Vaccine
PAN	Paediatric Association of Nigeria
PMTCT	Prevention of Mother-to-Child Transmission of HIV/AIDS
PMNCH	Partnership for Maternal, Newborn and Child Health
SOGON	Society of Obstetricians and Gynaecologists of Nigeria
TBA	Traditional Birth Attendant
TT2+	Two or more doses of Tetanus Toxoid vaccine
U5MR	Under-Five Mortality Ratio
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Foreword

The first 28 days of life, referred to as the neonatal period, is a critical period for the survival of the child. In Nigeria, approximately one quarter of the estimated one million children who die before the age of five years do so in this neonatal period. Every day in Nigeria, about 700 babies die, the highest number of newborn deaths in Africa, and the third highest globally.

Hitherto, care of the newborn is an aspect of child survival that has received limited attention. The situation is tragic especially as most of these babies are dying due to mainly preventable causes such as birth asphyxia, infections and prematurity. The present circumstance informs that if we do not re-strategize to arrest the current trend and substantially reduce neonatal mortality, Nigeria will not attain Millennium Development Goal 4 for child survival.

It is against this background that the Federal Ministry of Health (FMOH) has put together the Integrated Maternal Newborn and Child Health (IMNCH) strategy to help revitalize MNCH in Nigeria. Presently, in partnership with ACCESS and Saving Newborn Lives/Save the Children, USA this *Situation Analysis and Action Plan for Newborn Health in Nigeria* has been articulated in order to help identify strategic opportunities to save newborn lives in Nigeria within the context of the IMNCH strategy.

The issue of neonatal mortality continues to be a cog in the wheel of national development. Hence, there is a need to adopt focused strategies which are evidence-based and reflect best practices for the accelerated reduction of neonatal morbidity and mortality in Nigeria. This document entails a well conceptualized review framework that will enable government to monitor neonatal morbidity and mortality in Nigeria, and to adjust programme implementation appropriately.

Finally, I wish to express my appreciation to ACCESS and Saving Newborn Lives/Save the Children, USA and other agencies (UNICEF, WHO, UNFPA) for collaborating closely with the FMOH in this initiative. Accelerated success will require the sustained commitment of all of us at different levels of government, development agencies, non governmental organizations, the private sector and health professionals, as all babies deserve a healthy start in life.

Professor Babatunde Osotimehin
Honorable Minister of Health
Federal Ministry of Health

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Saving Newborn Lives in Nigeria

SITUATION ANALYSIS AND ACTION PLAN FOR NEWBORN HEALTH

in the context of the Integrated Maternal, Newborn and Child Health Strategy

Executive Summary

The Federal Ministry of Health of Nigeria (FMOH) recently reviewed the situation of maternal, newborn and child health (MNCH) in Nigeria and developed an Integrated Maternal, Newborn and Child Health (IMNCH) Strategy to address gaps in care.[3] Roll-out of the IMNCH Strategy has begun at zonal, state and local government authority levels. The IMNCH strategy provides opportunities to integrate services and programmes, overcoming competing interests in the implementation of evidence-based interventions for MNCH. The IMNCH Strategy has helped to bring recognition of the massive burden of newborn deaths in Nigeria, but there is recognition that compared to maternal and child health, there is less consensus on the priority actions to reduce newborn deaths.

The main objective of this report is to provide a more comprehensive understanding of newborn survival and health in Nigeria, analyse the data of relevance by state and present concrete steps to accelerate action to save newborn lives in Nigeria in the context of the IMNCH strategy.

Jonathan Hubschman/Save the Children

Saving Nigeria's Newborns: Key Findings and Recommendations

1. **Nigeria's newborns are dying in huge numbers** – 284,000 each year, 778 a day. There has been no measureable reduction in the average national neonatal mortality rate in the last decade. There is wide variation in mortality between states, between urban and rural areas and a huge difference for the poorest families who have more than twice the risk as the richest Nigerian families.

2. **Most of these young lives could be saved with existing interventions** – recent analyses suggest that up to 193,000, or 68 percent of these newborn deaths could be prevented if essential interventions possible through existing health packages reached all Nigerian women and newborns. Healthy home practices and community-based care, possible even in hard to access areas could save over 90,000 babies a year. Almost 23,000 babies die each year just from neonatal tetanus.

3. **The key interventions to save newborn lives are mostly possible through the existing health system but coverage is extremely low** – even much lower than most other African countries, for example for tetanus toxoid (51%), skilled attendance during childbirth (44%) and early breastfeeding (30%).

4. **The policies are mostly in place and the cost is affordable** – the key gap is connecting to action in each state and implementing services, and considering innovations to reach higher coverage and quality of care, e.g. delegation of newborn health tasks to extension workers and other cadres and new strategies to bridge care in the community and health facilities.

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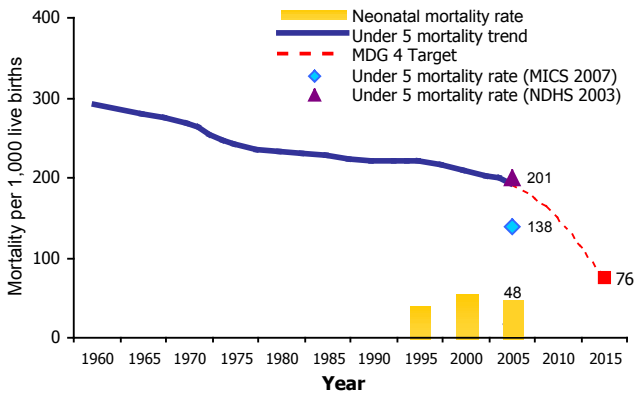
Full report with references and detailed data sources available on www.savethechildren.org/savenewborns

Nigeria's newborns

Nigeria has prioritised maternal survival as outlined by the fifth Millennium Development Goal (MDG) for maternal health. After several years of advocacy and action, the number of maternal deaths in Nigeria still ranks second highest in the world. The estimated national maternal mortality ratio (MMR) in Nigeria is 800 per 100,000 live births, resulting in 47,000 maternal deaths each year. For every woman who dies of maternal causes, at least six newborns die and a further four babies are stillborn.

Figure 1: Nigeria's progress towards MDG 4 for child survival



Source: see report for data and references

Recent progress has been made towards reducing child mortality but Nigeria is currently off track for MDG 4 for child survival. Nigeria has achieved only an average of 1.2 percent reduction in under-five mortality per year since 1990 yet needs to achieve an annual reduction rate of 10 percent from now until 2015 to meet MDG 4 for child survival. Given that its population is the largest in Africa, Nigeria's failure to make inroads regarding the MDGs significantly influences Sub-Saharan Africa's achievement of these goals as a whole and contributes disproportionately to global childhood mortality. About 5.9 million babies are born every year in Nigeria, and over one million of these children die before the age of five years.

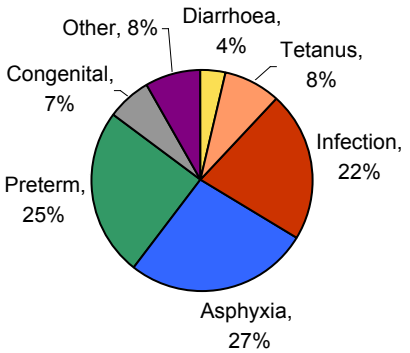
There has been no measureable progress made in reducing neonatal mortality in Nigeria over the past decade. Approximately one quarter (24 percent) of all under-five child deaths occur in the neonatal period, or the first month of life. In Nigeria alone, 284,000 newborns die every year – 778 deaths each day. Many of these deaths occur at home and are therefore unseen and uncounted in official statistics. The majority of newborn deaths occur within the first week of life, reflecting the inextricable link between newborn survival and the quality of maternal care.

- One in every four child deaths in Nigeria is a newborn (first month of life)
- Each year 284,000 Nigerian newborns die
- MDG 4 in Nigeria cannot be met without more attention to newborn survival

Why do Nigerian newborns die?

Despite the grim statistics, most of these newborn deaths are preventable. Birth asphyxia (27 percent), complications of preterm birth (25 percent), severe infections (23 percent) and tetanus (8 percent) are the leading causes of death. Existing knowledge, technology and improving the quality and coverage of essential services can reduce neonatal mortality and save thousands of Nigerian newborn lives, without intensive care.

Figure 2: Estimated causes of newborn deaths in Nigeria



Source: see report for data and references

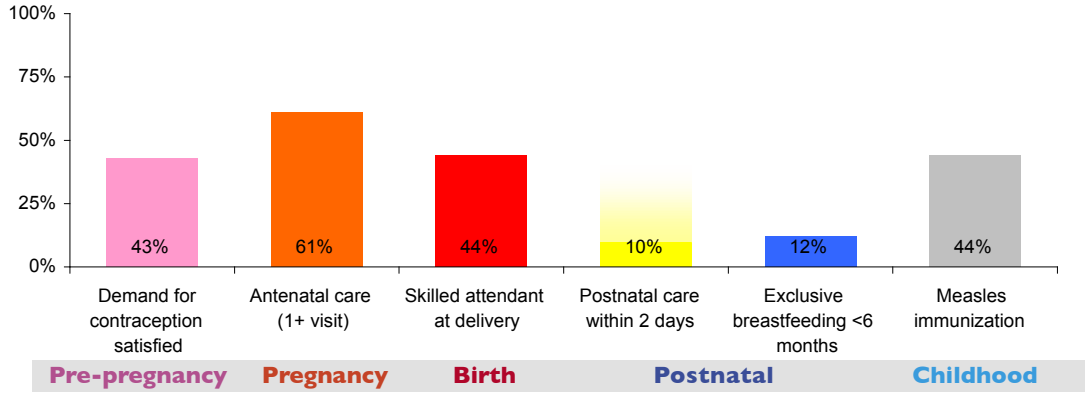
- Three causes of death (birth asphyxia, preterm birth complications and infections) account for three quarters of newborn deaths in Nigeria.
- Most of these deaths could be prevented by healthy practices and simple case management
- Each year almost 23,000 Nigerian newborns still die of tetanus which is eminently preventable with feasible, low cost immunisation of women.

Status of newborn care in Nigeria

The state of Nigeria's newborns reflects the inadequacy and inaccessibility of the country's overall health services. WHO has ranked Nigeria's health system functioning 187th out of 191 countries. The FMOH articulated this concern in the IMNCH strategy and seeks to promote maternal, newborn and child health throughout the continuum of care. This continuum connects care before pregnancy, and throughout pregnancy, childbirth, postnatal and child health services.

In Nigeria, almost all key packages along the continuum of care have coverage of less than 50 percent, apart from one visit of antenatal care (Figure 3). Generally coverage is higher for outreach services such as antenatal care, than for skilled attendance or case management of childhood illness. Antenatal care coverage is not much below the average for Africa, but immunisation coverage is much lower. For example, across African countries the average DPT3 immunisation coverage is 72 percent, yet in Nigeria coverage is just 49 percent. Encouragingly, new household survey data are pointing to 10 percent increase in coverage of skill attendance between 2003 and 2007, though national averages hide wide variations between states, urban and rural populations and between the rich and the poor. For example, three states in Nigeria have skilled attendance coverage over 90 percent, yet there are seven states where less than 10 percent of women give birth with a skilled attendant present.

Figure 3: Coverage along the continuum of care in Nigeria for maternal, newborn and child health



Source: see report for data and references

Before pregnancy

- The National Policy on Health and Development of Adolescents and Young People, provides supportive policy but limited progress has been achieved. This is reflected by low female secondary school attendance (33 percent); the fact that 15 percent of girls are married before age 15; a total fertility rate of 5.5 and very low usage of modern contraceptives (9 percent).
- There is an inadequate emphasis on adolescent nutrition. Furthermore, the implementation of adolescent female school-age immunisations such as tetanus toxoid (TT) is not routine.
- Many socio-cultural practices pose significant reproductive health challenges, particularly including female genital cutting, which has a prevalence rate as high as 57 percent in some areas of the country.

During pregnancy

- Sixty-one percent of Nigerian women attend at least one antenatal care ANC visit with a skilled care provider, providing an opportunity to deliver key interventions for mother and baby. Rural and poor women are least likely to attend ANC and attendance varies greatly by state.
- The content of ANC visits does not reflect a focused ANC (FANC) package of interventions. Only 47 percent of mothers receive the recommended two or more doses of TT (TT2+) with figures as low as seven percent in Zamfara state. Just over half of women attending ANC are counselled on danger signs during pregnancy. Malaria prevention interventions are extremely rare during ANC, as just one percent of mothers receive Intermittent Preventive Treatment during pregnancy (IPTp) for malaria as a part of their antenatal visits. Only one percent of pregnant women sleep under an insecticide treated bed net (ITN).
- Overall, less than half of mothers make four or more ANC visits, and fewer make their first ANC visit during the first three months of pregnancy.

During childbirth

- About 60 percent of births in Nigeria take place at home. The proportion of home births is as high as 89 percent in the North West and 82 percent in the North East zones of the country.
- About 44 percent of deliveries are with a skilled birth attendants– doctors, nurse/midwives or auxiliary midwives. Traditional Birth Attendants (TBA) attend 20 percent of births. Over 30 percent of women give birth with just a relative or no attendant present at all.
- Even for women who do give birth in a health facility, the quality of care is often low. The knowledge, availability and use of partographs is limited in health facilities. Basic requirements are often lacking such as a power supply, water, equipment and drugs. Although 24-hour service is available in most tertiary and secondary health facilities, very few primary health centres in the country offer round-the-clock services.
- While 33 percent of the nation's private facilities meet Emergency Obstetric Care (EmOC) standards, only 4 percent of public health facilities meet the criteria – most in wealthier, urban areas. Fewer than 2 percent of women nationally deliver by caesarean section, pointing to an unmet need for emergency services.
- Emergency care for newborns is even more lacking. Few health workers (10 percent of midwives) are trained in neonatal resuscitation, and fewer trained in the immediate care of premature babies. Care of premature or low birth weight babies is limited to the few tertiary and secondary health facilities that have incubators.

Postnatal

- Very little data are available about the coverage and quality of routine postnatal care for mothers and newborns in Nigeria, but limited data show a lack of services.
- One quarter of women who give birth outside a health facility receive postnatal care within the first two days of birth, but the content and provider of this visit is unknown.
- Just 20 percent of mothers receive a vitamin A dose within two months of giving birth.
- Nigeria has one of the poorest exclusive breastfeeding rates in Africa. Only 32 percent of newborns are breastfed within one hour of birth; recent data show that the percentage of infants exclusively breastfed has decreased from 17 percent according to the 2003 Nigeria Demographic and Health Survey (NDHS) to 12 percent according to the 2007 Multiple Indicator Cluster Survey (MICS).
- The rate of children who are fully immunised by one year of age has dropped from 13 percent to 11 percent between 2003 and 2007.

Case management for neonatal illness

- Since neonatal care is relatively new, survey data have not been routinely collected and information is lacking. The coverage of case management of childhood illness in Nigeria is low and data in other countries shows that fewer babies are brought out of the home for care.
- Neonatal sepsis case management is one of the highest impact interventions in any country and is achievable at primary or even at community level where access to the health system is problematic. Severe cases should be referred for facility care.
- Specialised neonatal care is required in all referral centres, but currently it is largely restricted to teaching hospitals in Nigeria. Improving facility level care of newborns in Nigeria is crucial and is an achievable goal.

Jonathan Hubschman/Save the Children

Newborn health policies and programmes

Despite various revisions of Nigerian health policy, health sector reforms and numerous strategies and guidelines, Nigeria still fails to deliver adequate healthcare to most of its women and children. A major contributing factor is the autonomy of each level of the health system, leading to largely uncoordinated supervision and a lack of accountability and monitoring at each level.

To harmonise relevant policies and forge a way forward for MNCH, in 2007 the FMOH launched the IMNCH Strategy. The strategy intends to reorient the health system to ensure the delivery of essential interventions that provide a continuum of care for women, neonates and children. The challenge now is implementation. The new National Health Bill recently passed by the legislature aims to streamline responsibilities among the different levels of care and enhance health care funding, especially at the primary health care (PHC) level.

Inadequate funding at all levels hampers the performance of the Nigerian health care system. The current government budgetary allocation for health of 3.5 percent is still far below the target set in the Abuja Declaration of 2001. The bulk of health funding is borne by households through out-of-pocket payments for health care, which contributes up to 63 percent of total health expenditure. The high cost of care, particularly in the case of obstetric emergency, is one of the most important barriers to healthcare use in Nigeria. There is no national policy on free services for maternal and child care although some states are trying to provide free maternal, newborn and child health services.

The Nigerian health system is relatively rich in human resources compared to many other African countries with 2 healthcare professionals per 1000 population, close to the WHO benchmark of 2.5 per 1000. However large numbers of doctors, nurses and other qualified medical practitioners leave the country due to low remuneration, poor service conditions and minimal opportunities for staff development. Additionally, there is often an inequitable distribution of staff and the necessary skills mix to offer maternal, newborn and child health services. The existing cadre of Community Health Extension Workers (CHEWs) have limited responsibilities in community-based maternal and newborn health and innovative use of this cadre for MNCH is an important operations research agenda.

KANO PROCESS

In parallel with this national Situation analysis, a state level process has been undertaken in Kano, highlighting one of Nigeria's 36 states where high rates of maternal, newborn and child mortality have caught the attention of state government. The response in Kano has been positive with conducive political will and a commitment of funds and the engagement of partners to introduce Safe Motherhood, Emergency Obstetric Care, the Prevention of Mother-to-Child Transmission (PMTCT) and Integrated Management of Childhood Illness (IMCI) as parallel programmes. The State is now in process of rolling out the IMNCH Strategy and this will link with the newborn health situation and planning process already underway.

The Kano State case study reports:

- Population coverage of outreach services is low, for example DPT3 immunisation is only 6%.
- State investment predominantly involves the tertiary and secondary levels of health services, rather than PHC
- Newborn health is considerably constrained by low coverage of ANC services (35%) and low availability of focused ANC services with evidence-based interventions, including blood pressure measurement, malaria prevention and PMTCT
- Inadequate knowledge and practice of birth preparedness
- Low use of skilled attendance at childbirth
- Very low availability and use of postnatal care services

For more details see the Kano State profile in Chapter 5 of this report.
Kano State case study report will be linked to the IMNCH planning in Kano State

Healthy newborns will change Nigeria's future

		Evidence based interventions to save newborn lives
Packages along the MNCH continuum of care	Before pregnancy	• Education with equal opportunities for girls • Nutrition promotion especially girls and adolescents • Prevention of female genital mutilation • Prevention and management of HIV and sexually transmitted infections (STI) • Family planning
	During pregnancy	• Focused ANC including – Tetanus toxoid immunisation – Screening and management of syphilis/STIs – Management of pre-eclampsia – Intermittent preventive treatment IPTp and Insecticide treated nets (ITN) for malaria – Prevention of mother-to-child transmission of HIV • Birth and emergency preparedness at home
	Childbirth care	• Skilled attendance at birth • Emergency obstetric care • Companion of the woman's choice at birth • Emergency loan and transport schemes • Where the is no skilled attendant, support for clean childbirth and essential newborn care (drying, warming, hygiene and exclusive breastfeeding)
	Postnatal care (PNC)	• Routine PNC visits for mother and baby especially first two days after birth • Extra care for small babies or babies with other problems (e.g. mothers with HIV/AIDS) • Promotion of adequate nutrition for the mother • Family planning
	Case management of preterm babies and ill newborns (eg IMCI)	• Management and care of small babies including Kangaroo Mother Care (KMC) • Emergency newborn care for illness especially sepsis at first level of the health system (eg IMCI) • Facility based care for newborns with serious illness including severe infections, neonatal encephalopathy, preterm birth complication , jaundice, and congenital abnormalities
Cross-cutting programmes	Nutrition and breastfeeding promotion	• Nutrition promotion especially in girls and adolescents, including folic acid • Maternal nutrition support during pregnancy and lactation • Early and exclusive breastfeeding for babies
	Prevention of mother-to-child transmission of HIV (PMTCT)	• Preventing STI/HIV in girls and women and avoiding unintended pregnancy amongst women who are HIV infected • PMTCT of HIV through antiretroviral therapy and safer infant feeding practices
	Malaria control	• IPTp and ITN
	Immunisation	• Tetanus toxoid vaccination for pregnant women • Immunizations of infants with BCG, Polio and Hepatitis B

Priority opportunities in Nigeria
to save newborn lives

- Promote delay of first pregnancy until after 18 years and each pregnancy spaced at least 24 months after the last birth
- Prevent and manage HIV and STIs especially among adolescent girls
- Social mobilisation and legal support to address female genital mutilation

- Undertake tetanus toxoid campaigns especially in the Northern states to advance elimination of neonatal tetanus
- Increase the coverage and quality of ANC ensuring women receive four visits and all the evidence based interventions that are part of focused ANC
- Promote improved care of women in the home and look for opportunities to actively involve women and communities in analysing and solving problems such as high work load during pregnancy

- Increase coverage with skilled birth attendants and ensure that all skilled birth attendants are competent in essential newborn care and resuscitation
- When scaling up emergency obstetric care, include essential newborn care and resuscitation
- Promote birth and emergency preparedness at home and better linkages between home and facility (Emergency loan and transport schemes, etc)

- Develop a global consensus regarding a PNC package for mothers, newborns
- Undertake operations research in Africa to test models to provide PNC including at community level in order to accelerate scaling up

- Adapt IMCI case management algorithms to address newborn illness and implement this at scale at primary healthcare level
- If it is not possible to provide case management for neonatal illness at scale through existing service delivery (e.g. IMCI is low coverage) consider other mechanisms to bring care close to families (e.g. community based treatment of neonatal sepsis)
- Ensure hospitals can provide care of preterm babies including KMC and support for feeding preterm babies

- Review and strengthen policy and programmes to support early and exclusive breastfeeding, adapting the Global Strategy for Infant and Young Child Feeding
- Address anemia in pregnancy through iron and folate supplementation, hookworm treatment and malaria prevention

- Increase coverage of PMTCT and improve integration of PMTCT especially with antenatal and postnatal care
- Use opportunities for strengthening HIV programmes to strengthen MNCH services (e.g. laboratory and supplies)

- Increase coverage of ITN and IPTp during pregnancy
- Use opportunities for strengthening malaria programmes to strengthen MNCH services (e.g. laboratory, supplies and social mobilisation)

- Accelerate the elimination of maternal and neonatal tetanus
- Use opportunities for strengthening immunisation programmes to strengthen MNCH services (e.g. social mobilisation, linked interventions, and monitoring)

Recommended actions to strengthen MNCH services and save newborn lives

Ensure leadership, appropriate funding and accountability

- Allocate 15 percent of government resources to health in order to meet the Abuja commitment.
- Review implementation of the National Health Insurance Scheme (NHIS) to identify gaps and scale-up services to offer community level insurance.
- Free MNCH services are essential to improve access to care for mothers and newborns.
- Coordinate funding from development partners for effective MNCH delivery. Programs should be mapped in order to avoid duplication and to increase synergies.
- Strengthen the national working group for MNCH (e.g. national PMNCH) including professional associations, non-governmental organizations (NGOs), civil society and development partners.
- Consider appointing a national desk officer for newborn health in FMOH – this has been effective in accelerating progress for newborn care in Tanzania.

Orient policies, guidelines and services to include newborn care interventions

- Accelerate roll-out of the IMNCH strategy at state-level, including programme management, supply logistics and data tracking.
- Support development, review, dissemination and implementation of newborn care standards, to be adapted and used at state level.
- Review current health policies to ensure that high impact neonatal interventions are included, especially around emergency obstetric care (adding essential newborn care and neonatal resuscitation) and IMCI (neonatal sepsis case management).
- Target early postnatal care through clear policy directives to reach women and their newborns at home or close to home in the crucial fist days of life.
- Develop a national Kangaroo Mother Care (KMC) guidelines to enable consistent implementation and KMC training guides used in several states can be adapted for wider use. The FMOH should institutionalise modalities for neonatal resuscitation training and KMC and other key neonatal care interventions.

Effectively plan and implement, including human resources, equipment and supplies

- Prioritise the implementation of the highest impact and most feasible interventions using a clear process. Priorities and phasing of implementation will differ by state and can be linked to the IMNCH planning process in each state (see Kano state planning process example).
- Review essential drugs and supplies lists and identify key bottlenecks in drugs and supplies logistics systems.
- Systematically increase the numbers and capacity of staff especially in underserved areas and consider more delegation of tasks, e.g. train midwives to do caesarean sections. Since increasing the number of skilled birth attendants is the cornerstone for improved maternal and newborn health, more training establishments, curriculum reviews and modalities to increase enrolment should be established.
- Strengthen processes for effective supervision at all levels of the health care system - federal, state and local government authority (LGA) - using standardised reporting formats. Interventions to strengthen human resources at all levels should be explored.
- Review the role of CHEWs in maternal and newborn health and build capacity of these crucial outreach workers.
- Develop behaviour change communication messages and use media effectively to discourage harmful practices, create awareness about newborn care and inform about danger signs.

Track progress and use the data to improve programmes

- Implement a system to increase coverage of the birth and death registration policy.
- Ensure that all implementation plans include a core set of newborn care indicators, as part of MNCH indicators.
- Involve development partners, agencies and professional associations in developing a monitoring and evaluation framework and indicator tools, data management and monitoring delivery on commitments.
- Review tools for routine auditing of maternal and neonatal deaths, and provide support for adaptation and use at LGA and state levels within the context of the IMNCH strategy.
- Conduct operational research on how to scale-up MNCH interventions along the continuum of care. Such research should also provide evidence for costing, strategic planning, capacity building and operations management.

Accountable leadership at all levels of government and civil society is crucial for effective MNCH planning and action to reduce needless newborn deaths in Nigeria.

Babafunke Fagbemi, courtesy of Photoshare

Chapter 1: Current State of Nigeria's Newborns

Nigeria is the most populous country in Africa with approximately 140 million people, and the tenth largest country in the world.[1] Nigeria's health status indicators are worse than most low and medium-income countries. Nigeria ranks 155th out of 177 countries in terms of health status according to the United Nations Development Programme (UNDP)[2] and in 2000, the World Health Organization ranked the performance of Nigeria's healthcare system 187th among 191 countries.[3] While we have made some progress toward reducing child mortality, the country is still off track for Millennium Development Goal (MDG) 4 for child survival and 5 for maternal health.

Liz Gilbert/David and Lucile Packard Foundation, courtesy of Photoshare

Each year in Nigeria almost 1.2 million children die before their fifth birthday, but until recently it has not been noted that one quarter of these – 284,000 – die in the first month of life as neonatal deaths. Reducing these deaths is a crucial step to advancing Nigeria's progress towards MDG 4. In addition, many of the solutions for newborn deaths link closely to reducing the estimated 47,000 maternal deaths in Nigeria each year. (Table 1.1)

Table 1.1: Numbers of deaths of Nigerian mothers, babies and children

Population	144,720,000
Annual births	5,909,000
Neonatal Mortality Rate (2003)	48
Annual number of neonatal deaths	284,000
Under-5 Mortality Rate (2003)	201
Annual number of under-5 deaths	1,188,000
Percent of under-five deaths that are neonatal	24%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	47,000

Source: [1,4-6]

To address this urgent issue, the Federal Ministry of Health (FMOH) and partners, in alliance with the Global Health Partnership for Maternal Newborn and Child Health have developed the Integrated Maternal, Newborn and Child Health (IMNCH) strategy. The strategy urges states to accelerate actions that will ensure universal coverage of MNCH interventions. The IMNCH strategy moves away from the current, fragmented implementation structure for maternal and child health services. Instead, it focuses on integrated services that can accelerate coverage of effective MNCH interventions. The strategy aims to pull together an evidence-based maternal, newborn and child health framework in a practical continuum in order to achieve MDGs 4 and 5.[7]

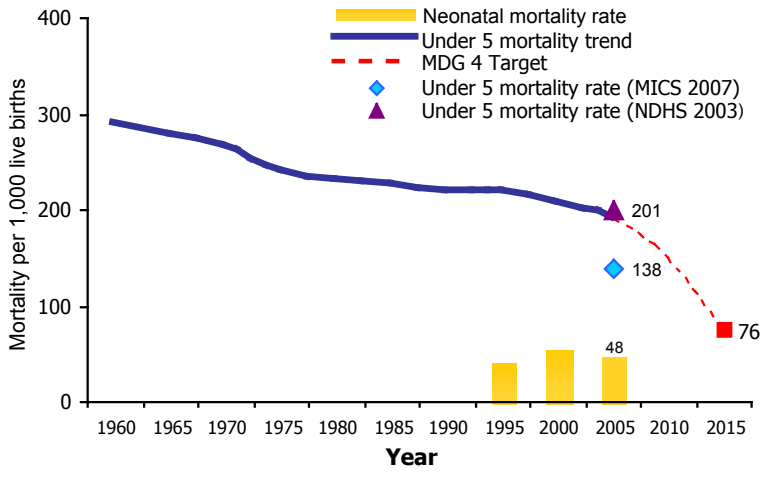
Historically, maternal and child health packages in Nigeria addressed the mother and the child separately and did not address the special need for newborn care. In the absence of a comprehensive analysis on newborn health issues, the challenges facing newborns and possible opportunities to save newborn lives now may be missed. This situation analysis aims to provide a more comprehensive understanding of the state of newborn health in Nigeria. It provides a foundation for the systematic development and implementation of evidence-based interventions to improve newborn health in the overall context of the IMNCH strategy.

Nigeria's Commitment to Millennium Development Goals 4 and 5

The international community, including Nigeria, endorsed the eight MDGs in 2000. The goals present an historic commitment to eradicate extreme poverty and improve the health of the world's poorest people by 2015. Nigeria's failure to make progress towards meeting the MDGs contributed to the 2007 United Nations mid-term progress report to conclude that "the [MDGs] are very unlikely to be achieved in Sub-Saharan Africa."[8]

Meeting MDG 5 for maternal survival requires a 75 percent reduction in maternal mortality from an estimated 1,000 maternal deaths per 100,000 live births at baseline in 1990 to 250 per 100,000 live births by 2015.[7] For Nigeria to meet MDG 4, the country must attain a two-thirds reduction in the under-five mortality rate (U5MR) from 230 deaths per 1,000 live births in 1990 to 76 by 2015. Nigeria has only reduced under-five mortality by an average of 1.2 percent per year since 1990 yet needs to achieve an annual reduction rate of 10 percent from now until 2015 to meet MDG 4.[9] There has been no measureable progress made towards reducing neonatal mortality in the past decade. (Figure 1.1)

Figure 1.1: Rate of progress towards MDG 4 in Nigeria



Source: [4,5]

The 2003 Nigeria Demographic and Health Survey (NDHS) reported an U5MR of 201 deaths per 1,000 live births and the recent 2007 Multiple Indicator Cluster Survey (MICS) estimates U5MR at 138 deaths per 1,000 live births, suggesting a considerable decline.[4,5] Wide geographic variation was seen with U5MR ranging from 106 per 1,000 in the South West zone to 166 per 1,000 in the North West zone.[5] Neonatal causes of death account for an estimated 24 percent of the estimated 1.2 million children who die annually in Nigeria under the age of five. Malaria (24 percent), pneumonia (20 percent), diarrhoeal diseases (16 percent) and measles (6 percent) are other direct contributors to the death of children under five.[7]

While a neonatal mortality rate (NMR) estimate for 2007 is unavailable, experts assume that it has not declined as much as the U5MR. This is because an increase in preventive programmes for child health, such as the National Programme on Immunisation and previous Integrated Management of Childhood Illness (IMCI) protocols, which reduce post-neonatal deaths but do not target deaths in the first four weeks of life.

Health and Survival of Nigeria's Newborns

Globally each year 130 million babies are born, yet nearly four million die within the first four weeks of life. An additional 3.2 million are stillborn.[10] Only one percent of these deaths occur in high-income countries where the average NMR is between 2 to 4 deaths per 1,000 live births. Ninety-nine percent of neonatal deaths take place in developing countries.[1]

In Nigeria, vital registration of births is generally low. MICS 2007 reports birth registration of 23 percent nationally.[5] Even fewer deaths are registered, especially neonatal deaths which mainly occur at home. The majority of Nigeria's newborns who die do so without any record, often totally uncounted. There are few estimates of neonatal mortality at a national level and all are dependent on retrospective household surveys such as the NDHS. The

most recent national NMR estimate is 48 per 1,000 live births from NDHS 2003.[4] Retrospective surveys and can result in undercounting neonatal deaths by as much as 10 to 30 percent.[10] Mothers are less likely to report a neonatal death if a baby dies in the first hours or days after birth or is very small.[11]

Nigeria ranks the highest in Africa in terms of the number of neonatal deaths and the third highest worldwide. Nigeria contributes about eight percent of the world's annual neonatal deaths (Table 1.2).

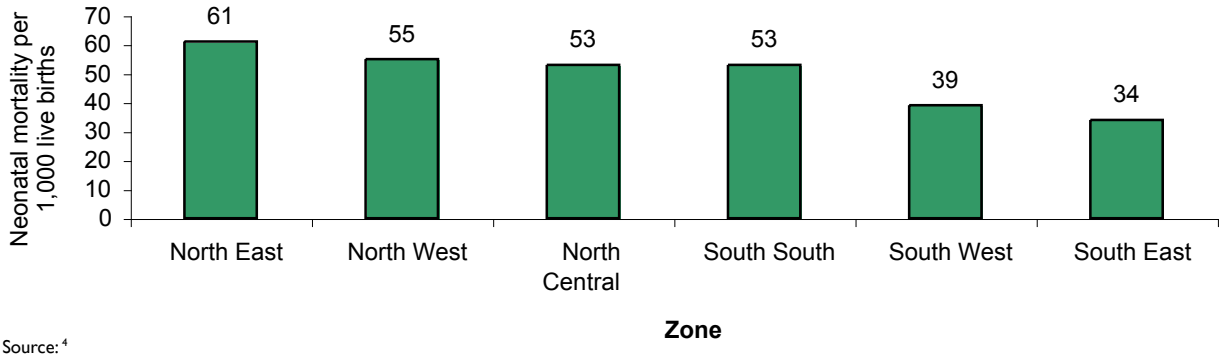
Table 1.2: Countries with the highest numbers of neonatal deaths worldwide

	Country	Neonatal mortality rate	Number of neonatal deaths annually	Percentage of global neonatal deaths
1	India	39	1,004,100	27%
2	China	18	317,000	9%
3	Nigeria	48	284,000	8%
4	Pakistan	54	255,000	7%
5	Bangladesh	36	136,000	4%
6	Democratic Republic of the Congo	47	131,000	4%
7	Ethiopia	39	119,000	3%
8	Afghanistan	60	84,000	2%
9	Indonesia	17	75,000	2%
10	Iraq	63	61,000	2%

Source: [12]

There are wide regional variations in the distribution of neonatal mortality, which mirror zone-based disparities in other health outcomes. According to NDHS 2003, the highest neonatal mortality rates were observed in the North East (61 per 1,000 live births) and North West zones (55 per 1,000 live births) (Figure 1.2).[4] In contrast, the South East and South West zones have an NMR of 34 and 39, respectively. While these rates are almost half of the NMR in Northern Nigeria, these are still higher than other African countries with much lower gross national income (GNI) per capita – for example, Malawi has an estimated NMR of 31 per 1,000 live births but a GNI of US$170 per capita compared to Nigeria at US$640 per capita. Nigeria's northern zones have the highest recorded NMR in Africa and almost the highest in the world, comparing to Afghanistan at 60 per 1,000 live births.

Figure 1.2: Neonatal mortality rates by zone, ten year rates



Source: [4]

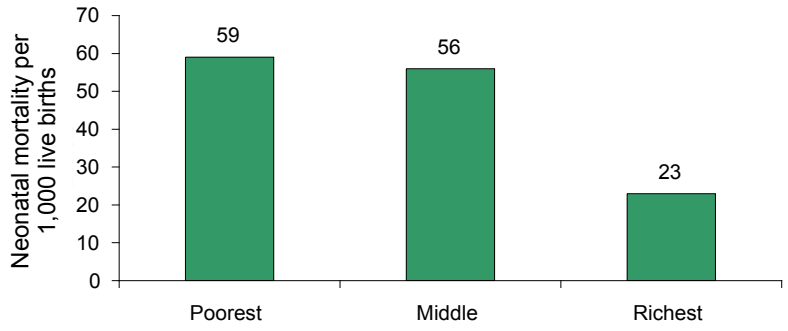
Poverty and newborn survival

As with many health outcomes, mothers and newborns in poor families are at an increased risk of illness, have poorer nutrition, and face more challenges in accessing timely, high quality care compared to wealthier families. Most poor women in Nigeria live rural areas. Access to quality and affordable health services and other basic amenities is limited. These including access to safe drinking water and improved sanitation facilities. Economic opportunities that may alleviate these challenges to health remain limited for many citizens.[7]

In 2007, Nigeria had the twelfth highest oil production in the world. Despite this and a wealth of other natural resources, Nigeria ranks as the thirteenth poorest country in the world. According to the World Bank, two out of every three Nigerians live below the extreme poverty level (less than $1 USD per day) and 90 percent of Nigerians live on less than $2 USD per day.[2]

An analysis of African countries with economic status index data showed that the largest disparity in NMR was seen in Nigeria. The richest quintile demonstrated an NMR of 23 per 1,000 live births, while the poorest quintile had an NMR of 59.[4] (Figure 1.3) This represents a gap of 156 percent. If all of Nigeria experienced the same NMR as the richest quintile, nearly 150,000 fewer babies would die each year.

Figure 1.3: Neonatal mortality and household wealth, ten year rates



Source: [4]

There is also a large gap in NMR between urban (37 per 1,000 births) and rural communities (60 per 1,000 births).[4] The few health facilities that are situated in rural areas are often poorly equipped, poorly staffed, inaccessible due to distance and poor road networks, and cannot adequately address maternal and newborn health needs. Although most Nigerian health facilities are located in urban areas, neonatal mortality among the urban poor poses another challenge. As urbanization increases, more people move to cities and strain health care service provision. Many urban poor, especially those who live in slums, consequently face neonatal mortality statistics comparable to those who live in rural areas.

Stillbirths in Nigeria

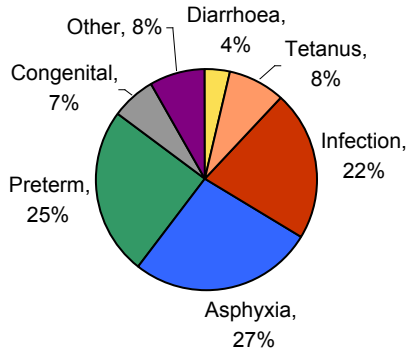
Stillbirths are still largely uncounted in Nigeria. The Health Management Information System (HMIS) do not have reliable stillbirth indicators. This dearth of information highlights the challenges that must be addressed in order to provide effective care and recognise the rights of these babies. The World Health Organization (WHO) stillbirth rate estimate for the year 2000 is 30 per 1,000 total births for Nigeria, resulting in an estimated 183,000 stillborn babies each year.[13]

One hospital-based study on the pattern of stillbirth in Ibadan showed a stillbirth rate of 37 per 1,000 births, with 65 percent of fresh stillbirths having no visible congenital malformations.[14] Facility-based studies have shown that almost two-thirds of intrapartum stillbirths could be avoided with better obstetric care and reducing delays at home and in getting to the hospital.[15]

Why do Nigerian newborns die?

Facility-based data alone over-represents complicated obstetric cases and so deaths due to severe preterm birth and asphyxiated newborns tend to be a higher proportion than for population-based data. Infections such as neonatal sepsis or tetanus are missed in facility-based data because these deaths often occur at home, after discharge from the hospital or health centre and/or among lower income families with inadequate access to health facilities. For this reason, the data used here are estimates for the year 2006 based on multinomial regression used to model the proportion of deaths due to each cause as developed by WHO and UNICEF with the Child Health Epidemiology Reference Group.[10, 11, 16] According to the best estimates, the major causes of newborn death in Nigeria are birth asphyxia (26 percent), complications of preterm birth (25 percent), severe infections (22 percent). Neonatal tetanus still accounts for 8 percent of neonatal deaths. (Figure 1.4)

Figure 1.4: Estimated causes of newborn death in Nigeria



Source: [11, 16]

Birth asphyxia

Birth asphyxia or intrapartum-related neonatal deaths remain a major cause of newborn death and disability in Nigeria. National estimates report asphyxia as the most common cause of neonatal mortality, constituting more than one quarter of all cases. For each asphyxia-related newborn death, many more babies are left with permanent disabilities. A study from a tertiary centre in Nigeria found a neonatal encephalopathy incidence of 26.5 per 1,000 live births, with nearly half of the cases categorised as severe.[17] Almost all babies who survive severe neonatal encephalopathy are expected to have impairment.[18]

Underlying factors that contribute to birth asphyxia include the classical list of the "three delays" that also apply to maternal deaths and stillbirths:[19]

1. Delay in recognition of complications and especially in seeking care for obstructed labour,
2. Delay in accessing secondary and tertiary centres for appropriate care: and
3. Delay in receiving timely appropriate care once at the facility, due to inadequate numbers of staff, lack of equipment and supplies, inadequate preparedness to respond to obstetric emergencies, or lack of skills or equipment for resuscitation.[20]

Only 44 per cent of deliveries are attended by skilled birth attendants and most Nigerian health facilities lack partographs for monitoring the progress of labour.[21]

Preterm birth

Preterm birth is a major direct cause of neonatal death accounting for an estimated 25% of neonatal deaths in Nigeria. Up to 80 percent of neonatal deaths are among preterm babies as this is a major risk factor for other causes of death, especially infections.[11] Nationally, it is estimated that 14 percent of Nigerian babies are born with low birth weight (LBW), weighing less than 2,500 grams,[1] and in Nigeria most LBW babies are preterm. The NDHS 2003 reports that the NMR for births categorised as small or very small was 67 per 1,000 live births, compared to 42 among average or larger babies.[4]

Although it is difficult to prevent preterm births, major reductions in neonatal deaths are achievable by targeting preterm babies and improving simple care. High technology care is not always necessary. A number of simple, evidence-based interventions such as adequate hygiene, thermal care and breastfeeding can be practiced at home. Kangaroo Mother Care (KMC), which involves ongoing skin-to-skin contact between mother and baby, infection prevention and breastfeeding, has been proven to be at least as effective as incubator care and is feasible in all secondary level facilities and above in Nigeria.[22]

Infections

Neonatal infection is the third most common cause of newborn deaths. Major neonatal infections include sepsis, pneumonia and meningitis. Deaths from infection may be easily prevented through hygienic birth and newborn care practices, and the early recognition and appropriate management of the infections. However, these inexpensive interventions still fail to reach many of Nigeria's mothers and newborns.

Neonatal tetanus

Despite the fact that tetanus is preventable and has been eradicated in many countries, it is still prevalent in Nigeria. Tetanus has been reduced as a cause of death in Nigeria but still accounts for 8 percent of neonatal deaths or almost 23,000 deaths a year. Elimination of neonatal tetanus involves relatively simple interventions such as immunisation during pregnancy, hygienic conditions during childbirth and appropriate cord care. Given the cost-effectiveness and feasibility of tetanus immunisation for pregnant women and the investment in increasing immunisation coverage in Nigeria, this is an immediate opportunity to save newborn lives in Nigeria.

Other causes: neonatal jaundice

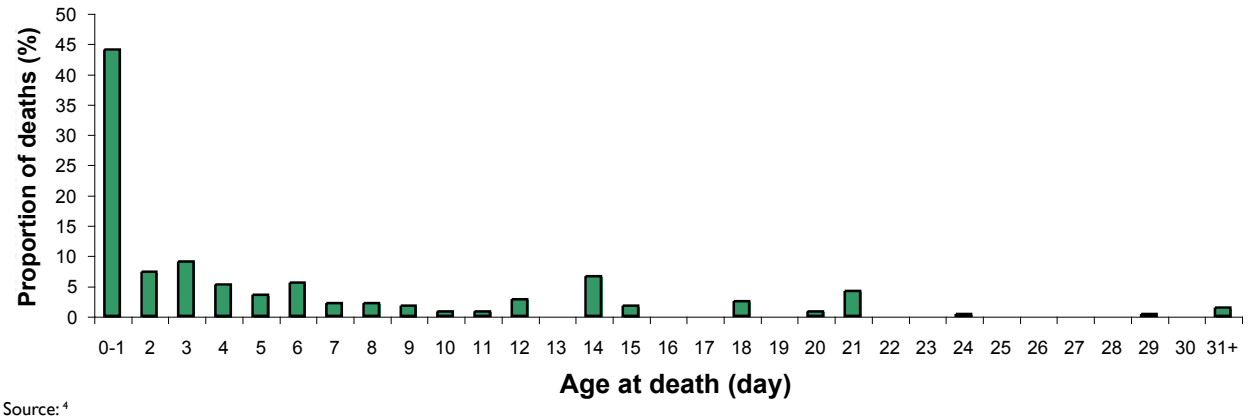
Even though it is not identified as a major cause of death, neonatal jaundice remains an important cause of preventable brain damage, physical and mental handicap and early death among infants in Nigeria. While there are no national figures on neonatal jaundice in Nigeria, paediatric emergency room admission data in a Lagos tertiary centre showed that 23 percent of admitted newborns who died had had neonatal jaundice.[23] The high prevalence of G6PD enzyme deficiency in Nigeria is believed to contribute to this problem.[24]

Neonatal jaundice is thought to be under-reported in verbal autopsy data since caregivers often do not detect jaundice. Under-diagnosis is further compounded by the fact that most uncomplicated deliveries are discharged within 24 to 48 hours of birth when the features of neonatal jaundice have not yet appeared. In many situations, health care professionals do not know how to manage this condition, and infants consequently develop kernicterus, which causes brain damage.

When do newborns die?

Studies have shown that birth and the first day of life are the riskiest times for both the mother and baby. A child is about 500 times more likely to die in the first day of life than at one month of age.[1] Up to half of all newborn deaths are known to occur on the first day of life.[10] The NDHS 2003 confirms this with 44 percent of newborn deaths in Nigeria occurred on day 0-1, while 74 percent of neonatal deaths occurred during the first week of life. (Figure 1.5)

Figure 1.5: Distribution of newborn deaths by day of life

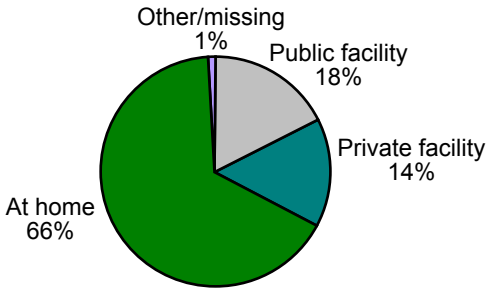


Source: [4]

Where do newborns die?

More than half of African babies who die do so at home. The place where mothers give birth, which usually indicates whether the birth is attended by skilled birth attendants, is strongly associated with the place of death and also with levels of maternal and neonatal mortality. According to the 2003 NDHS, approximately 66 percent of births occur at home, while only 34 percent take place in a health facility.[4] Of these health facility deliveries, approximately half take place in private sector facilities, and the other half in public sector facilities (Figure 1.6). Rates of facility deliveries are higher for women in urban centres (54 percent), mothers who have greater than a secondary level education (88 percent) and those in the highest wealth quintile (80 percent).[4]

Figure 1.6: Distribution of births in Nigeria by place of birth



Source: [4]

Newborn Survival and Maternal Health

A mother's health is inextricably linked to the health of her newborn. Maternal mortality is not just a health problem – it has far-reaching medical, social and economic implications for the newborn, family, community and the world at large. When mothers are malnourished, or receive inadequate antenatal care and care during childbirth, they and their babies face a higher risk of disease and premature death.

A staggering 47,000 Nigerian women die each year giving birth for every maternal death at least six newborns die and a further 4 babies are stillborn.[7] Nigeria's maternal mortality ratio (MMR) is estimated to be 800 deaths per 100,000 live births.[25] As maternal deaths in Nigeria are not systematically registered there is a wide range of estimates of maternal mortality ratio. One modelled estimate for 2005 quotes a higher MMR of 1100 with uncertainty bounds of 440-2000.[26] While some uncertainty surrounds the exact estimate, these figures are much too high compared to industrialised countries, where the average MMR is 8 deaths per 100,000 live births.[1]

There are a number of maternal health champions in Nigeria but a lack of reliable data disaggregated by state which has contributed to a situation in which most state governors and local government heads are unaware of problems in their own areas and avoid acting on maternal mortality.[27] One 2006 analysis of political priority for maternal health in Nigeria describes an open policy window for safe motherhood after decades of neglect.[28] Since the analysis, this policy window has broadened to include maternal, newborn and child health.

Two-thirds of maternal deaths in Nigeria occur during childbirth, closely linked to an estimated 55,000 intrapartum stillbirths each year in Nigeria. For every woman that dies during pregnancy or childbirth, around thirty women are estimated to suffer short and long-term disabilities, such as fistula, anaemia, pelvic infection, malnutrition and depression, all of which can lead to reduced economic productivity. Nigeria accounts for 40 percent of the global burden of obstetric fistula with an estimated 800,000 sufferers.[29]

In developing countries, a mother's death in childbirth means almost certain death for her newborn. Those who survive infancy often face serious challenges to their growth, development and long-term survival. Studies have shown that children who lose their mothers during childbirth have a 66 percent higher risk of death than those whose mothers survive.[20] Newborn death rates are highest in regions where maternal death rates are highest.

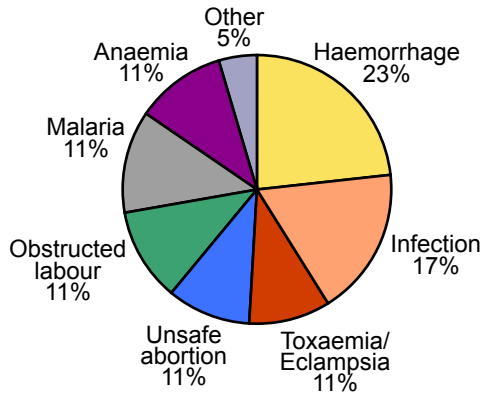
Nigeria's high neonatal mortality rate reflects a vicious cycle common in many low-resource settings. Pregnant

mothers are often poor, malnourished, overworked and may still be recovering from a previous pregnancy. One FMOH Safe Motherhood Survey concluded that "the pregnant women rarely ate a balanced diet because of the high level of poverty facing them."[30] Other maternal conditions that directly or indirectly impact newborn health include illiteracy, gender inequality, high fertility, teenage pregnancy, early marriages and other harmful traditional practices such as female genital cutting.

Causes of maternal mortality

The main causes of maternal mortality in Nigeria are: haemorrhage (23 percent); infection (17 percent); unsafe abortion (11 percent); obstructed labour (11 percent); toxaemia/ eclampsia/hypertension (11 percent); malaria (11 percent) and anaemia (11 percent). Other causes, including HIV/AIDS, contribute to about 5 percent of maternal deaths (Figure 1.7).[7] In the SOGON facility-based survey, eclampsia was the most commonly reported cause of maternal mortality.[21] This finding may reflect the inability of women with postpartum haemorrhage to access a health facility in a timely manner, which leads to their deaths at home. Consequently, this is often excluded as a major cause of death according to hospital data.

Figure 1.7: Estimated causes of maternal mortality in Nigeria



Source: [7]

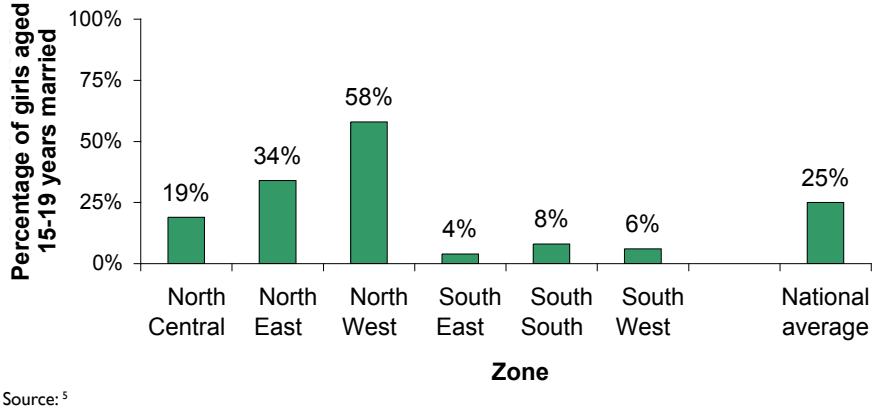
Maternal age

Higher maternal and neonatal mortality rates have been observed among mothers who deliver at high and low extremes of maternal age. This is particularly true for women under 20 years and those over 40, as they are more prone to complications during pregnancy and childbirth that affect both them and their babies.

The NMR for babies born to mothers less than 20 years old was 58 per 1,000 live births, compared to 48 per 1,000 live births in mothers 20-29 years.[4] In Nigeria, 25 percent of teenage women aged 15-19 have already begun to bear children. Teenage pregnancy varies according to several factors, including whether the mother lives in a rural versus urban area, the level of the mother's education, and the geographical zone. In the North West and North East, approximately 45 percent of girls ages 15-19 years have had at least one child. This compares to only 5 percent of girls in the same age group in the South West and 6 percent in the South East.[4]

Early marriage often leads to children being born to women who are still themselves children. The recent MICS 2007 indicates that 15 percent of women are married before 15 years of age; nearly 40 percent are married before the age of 18.[5] (Figure 1.8)

Figure 1.8: Percentage of girls aged 15-19 years who are married, by zone

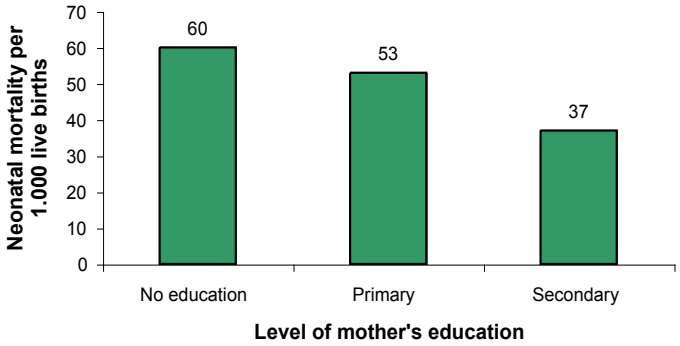


Source: [5]

Education for girls and women

A woman's education is one of the most important determinants of neonatal mortality; mortality levels decline as the mother's education increases. The NDHS 2003 showed almost a two-fold difference in neonatal mortality between women with no education (NMR of 60) and women with secondary education and above (NMR of 37).[4] (Figure 1.9) The higher a woman's level of education, the more likely it is that she will marry later, use contraception, utilise health services, recognise danger signs in the newborn and play a greater role in reproductive health decision-making.

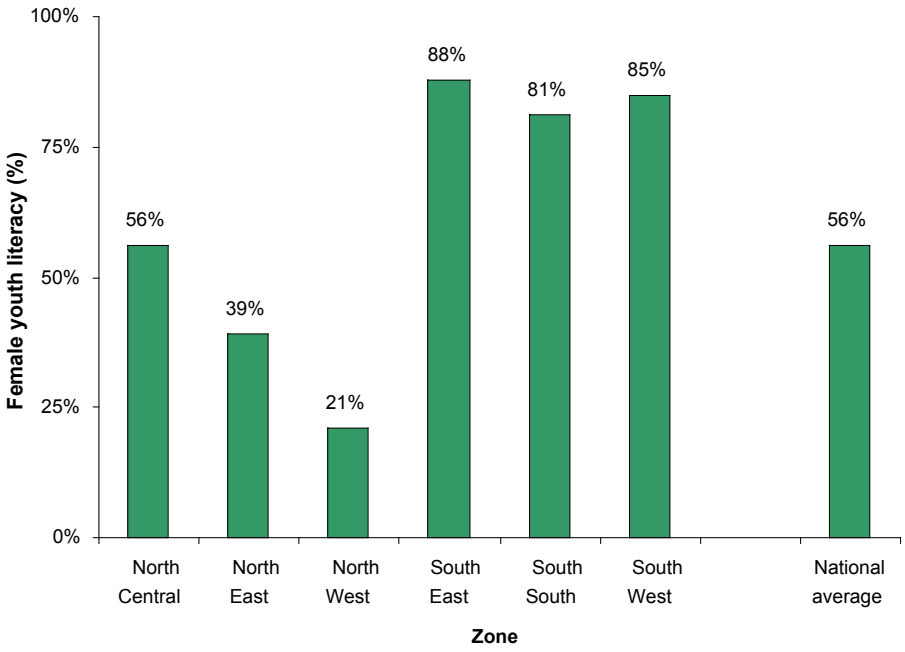
Figure 1.9: Neonatal mortality rate by mother's level of education



Source: [4]

The National Bureau of Statistics reported an adult female literacy of 57 percent, compared to 75 percent among males.[31] However, these rates vary widely: there are lower literacy rates in the rural areas and in the northern part of the country. Recent MICS data reflect a national literacy rate of 56 percent among female youth between 15 and 24 years of age. Of these, only 21 percent are literate in the North West and 39 percent are literate in the North East. These data are compared to higher literacy rates in the South East (88 percent) and South West (85 percent).[5] (Figure 1.10)

Figure 1.10: Female literacy among 15-24 year olds, by zone



Source: [4]

Gender issues

Intertwined with low levels of education, the process of household decision-making in regard to health presents another underlying factor that contributes to neonatal mortality. Control of finances and the decision-making authority often lies with the husband or other male relatives. Studies have shown that "many women have lost their lives and that of their babies in pregnancy-related conditions, while awaiting a decision to be taken by such gatekeepers."[7]

Constraints placed on women's movement outside the home sometimes limit their access to health facilities. This contributes to low levels of antenatal attendance, low rates of birth in health facilities, low attendance of postnatal services, poor newborn immunisation, inadequate child care practices and poor healthcare-seeking behaviour. This is especially true in the northern parts of the country.

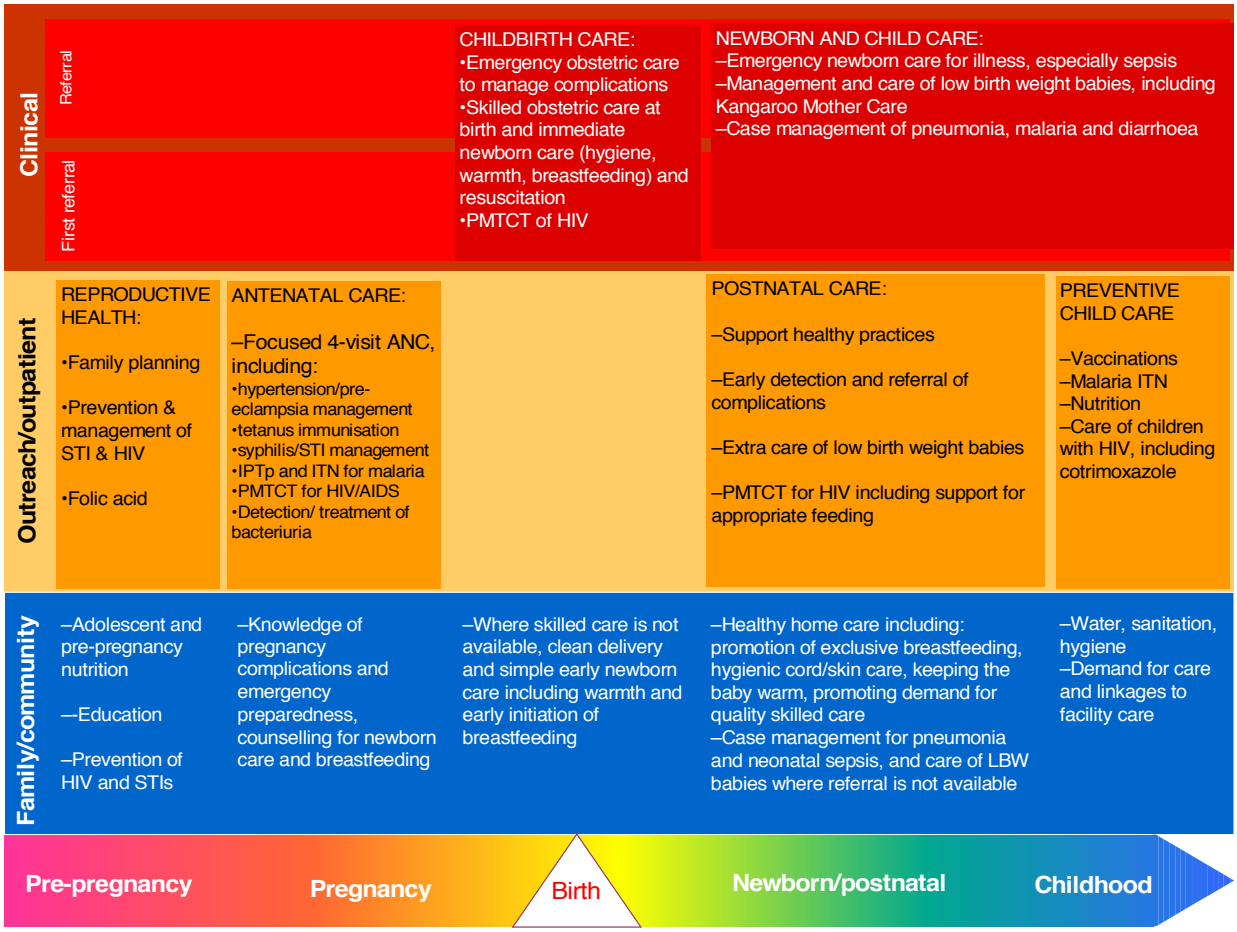
Chapter 2: Status of Newborn Care in Nigeria

An effective continuum of care connects essential maternal, newborn and child health packages through the pre-pregnancy, pregnancy, childbirth and postnatal periods into childhood and adolescence. This builds upon natural linkages of care for mother and baby throughout the life cycle and by integrating service delivery from the home with the first level facility and with the hospital.[32]

Jonathan Hubschman/Save the Children

Recognising the importance of this continuum of care, the FMOH built upon this framework in the IMNCH strategy.[7] (Figure 2.1) There are a number of evidence-based interventions to reduce newborn death and disability that can be integrated within health packages already present within the Nigerian health system. More newborn lives can be saved in a cost-effective manner by increasing the coverage of these existing packages and at the same time adding key high impact interventions to save newborn lives.

Figure 2.1: Interventions to reduce newborn deaths within the continuum of care



Source: [11]

However, several challenges threaten the success of a seamless continuum for maternal, newborn and child health. These may include apparent competition between advocates for mother or for child; the difficulties of effectively linking homes (where most births still occur in Nigeria) with effective and timely care especially at birth and in the

crucial early postnatal period; and the challenges of reaching both high coverage and high quality of care. The rest of this chapter will examine each of the main packages in the continuum of care in turn, the current status, the opportunities and the challenges for MNCH generally and more specifically with regard to saving newborn lives.

Care before Pregnancy

Newborn health is closely linked to the nutrition, education and health services that women and girls receive prior to their first pregnancy. When girls are undervalued, undereducated and malnourished and become pregnant too early, there is a negative effect on the newborn. Young Nigerians (aged 10-24 years) comprise about one third of the population. There has been an increasing recognition of the need to respond effectively to their development challenges and reproductive health needs.[33]

Nutrition

Good nutrition in early childhood and throughout adolescence is essential for the challenges of pregnancy and lactation. It is an important predictor of pregnancy outcomes for both the mother and newborn. To address the developmental, nutritional and reproductive challenges of young Nigerians, the FMOH developed the National Policy on Health and Development of Adolescents and Young People in Nigeria in conjunction with the WHO. This policy identifies major areas of adolescent health care needs and describes broad strategies for intervention in the areas of sexual behaviour, reproductive health and nutrition.[33] The nutritional objectives of the policy include skill-based nutrition education and iron/folic acid supplements for young people in supervised settings, such as school and the workplace. Supplements are recommended weekly for non-pregnant teens and daily throughout pregnancy for pregnant teens. Currently, there are no national data on the implementation of adolescent iron and folate supplementation, nor are there data on a sustained free school meal programme.

Female education

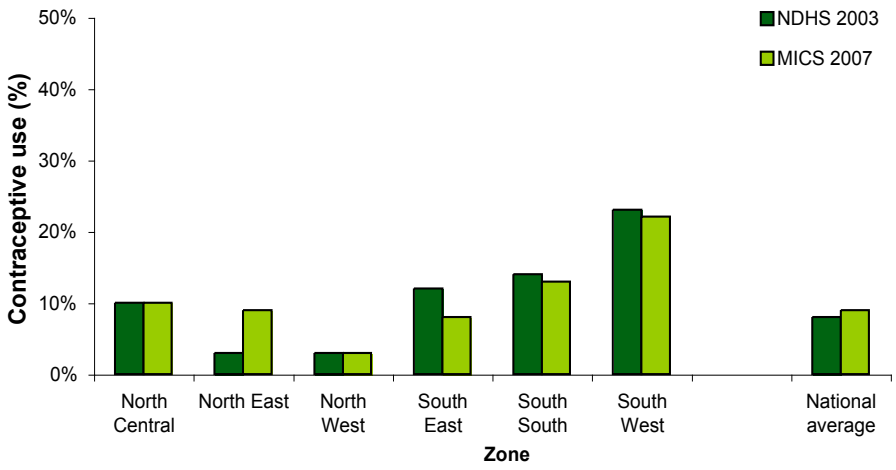
Zone-based data on female literacy have shown a strong relationship between the level of female education and neonatal mortality. One strategic framework for Nigeria's youth includes the re-conceptualisation of the school health curriculum by the FMOH and Ministry of Education.[33] Some states in the northern part of the country have instituted free education for females, but the increase in access is yet to be determined.

Family planning

Effective family planning reduces mortality among mothers and children.[34] It also plays a pivotal role in the delay of first pregnancy, child spacing and the prevention of sexually transmitted infections (STI), including the human immunodeficiency virus (HIV). Delaying age at first pregnancy requires adequate adolescent reproductive health information, including family planning, to all adolescents or young adults (15-24 years), preferably prior to marriage.

Nigeria has a high total fertility rate of 5.5.[1] Nigeria also has a high rate of early marriages and a low rate of modern contraceptive use. Less than 10 percent of married women report use of modern contraceptives, with no measureable increase in coverage between 2003 and 2007.[4,5] (Figure 2.2) In general, women in the southern regions of Nigeria have a higher rate of contraceptive use compared to women in the northern regions.

Figure 2.2: Modern contraceptive use among married or in union women, by zone



Source: [4,5]

HIV/AIDS and other STI

Women of reproductive age now comprise over 55 percent of HIV-infected adults in Africa.[35] The overwhelming burden of HIV/AIDS is carried by women and babies as well as families, society, and the health system. Whereas the national HIV prevalence rate is 3.9 percent,[1] national surveys show that the national HIV prevalence rate in Nigeria is highest in the 20-24 year age group (5.6 percent), while the 15-19 year age group had only a slightly lower prevalence rate (5.2 percent).[36] Prevalence has risen rapidly in this group.

Other STI, such as syphilis and gonorrhoea, also affect the newborn. These STI are generally under-reported, mostly because these infections are asymptomatic. Those inflicted may also fear the stigma of disclosure. Adolescents have a particularly high risk. Reproductive health counselling is therefore critical for adolescent girls. At present, family life education is integrated into Nigeria's school health curriculum. Although youth-friendly centres are included in the policy and are being implemented in a few states and organisations, coverage of life management education remains low.

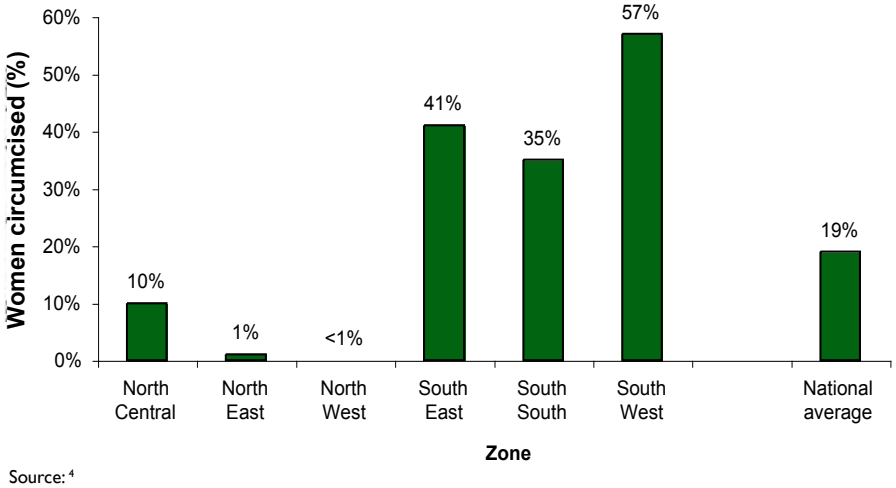
Immunisations

Tetanus has a very high case fatality rate among infected newborns. It contributes to approximately 8 percent of newborn deaths in Nigeria – 23,000 deaths a year that are eminently preventable. Five lifetime doses of the TT vaccine ensure protection throughout the reproductive years. Immunisation campaigns target all women of childbearing age, including school-age girls. However, implementation for school age children is ineffective and there is a lack of awareness among the target population. The rubella vaccine has been recommended for the same age group in order to prevent congenital rubella syndrome, but there are no available data that the immunisation programme has begun to reach its target population of adolescent girls. The FMOH strategic framework for adolescent health does not comment on immunisations for this age group.[37]

Female Genital Cutting (FGC)

A number of socio-cultural practices pose reproductive health challenges and have significant implications for the health of mothers and their newborns. These include female genital cutting/female circumcision, which has short-term complications such as bleeding and infection, as well as long-term effects, such as obstructed labour and recent studies have shown the practice can lead to increased neonatal mortality.[38] According to the NDHS 2003, 75 percent of female circumcision occurs by the age of one year.[4] The person who performs the circumcision is usually a traditional circumciser (61 percent). Nurse/midwives perform up to 24 percent of procedures, traditional birth attendants (TBA) assist in 10 percent of cases and doctors assist in two percent of cases.[4] FGC prevalence rates vary throughout the country, with the highest recorded prevalence rates found in the South West (57 percent) and the lowest rates apparently in the North West (<1 percent). (Figure 2.3) Although the FMOH has a policy against FGC these measures are not enforced and some state governments continue to condone the procedure.

Figure 2.3: Prevalence of female genital cutting, by zone



Source: [4]

Care during Pregnancy

The care and assistance that women receive during pregnancy affects maternal and neonatal morbidity and mortality. If a woman is unable to access adequate antenatal care, she cannot benefit from essential preventive care. She may suffer from delays in detecting pregnancy-related complications, which places her and her newborn at risk. Forty percent of women nationwide do not access antenatal care (ANC) from a skilled provider at any time during their pregnancy.[4] In the past five years, no measureable progress on ANC attendance has been recorded nationally.[4, 5]

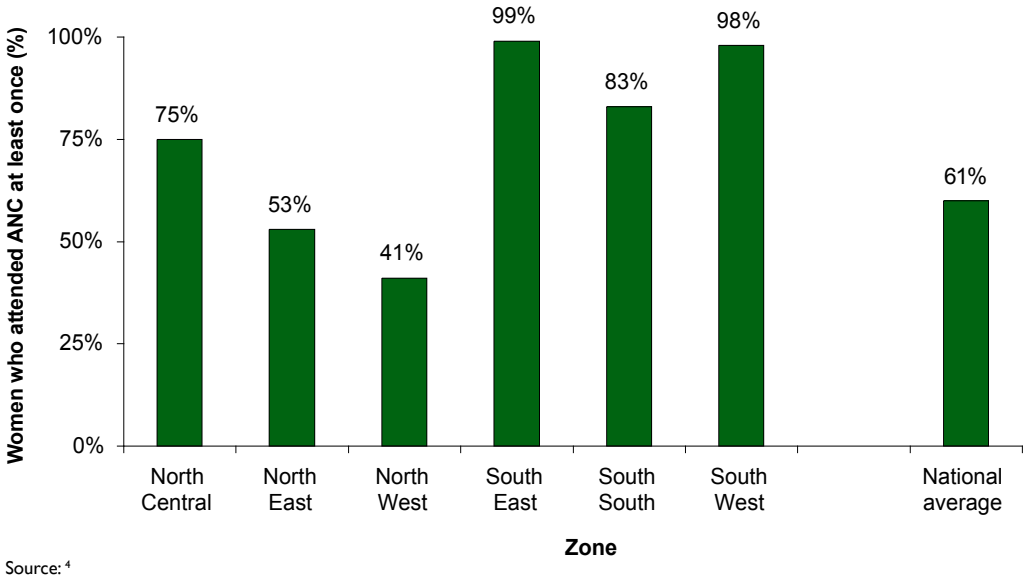
Emmanuel Esaba Akpo, courtesy of Photoshare

The proportion of women who attended ANC at least once in Nigeria is lower than the African average, and far lower than other countries with similar resources. Some African countries have managed to obtain more than 90 percent coverage of ANC; including Ghana, the Gambia, Malawi, Rwanda, Tanzania, Uganda and Zambia.[11]

Variation in ANC attendance within the country

There are marked variations in ANC attendance across different geographical zones. While about 99 percent of women in the South East and 98 percent in the South West attend ANC at least once, only 53 percent in the North East and 41 percent in the North West attend ANC (Figure 2.4). Urban women are three times more likely to receive ANC than rural women.[4]

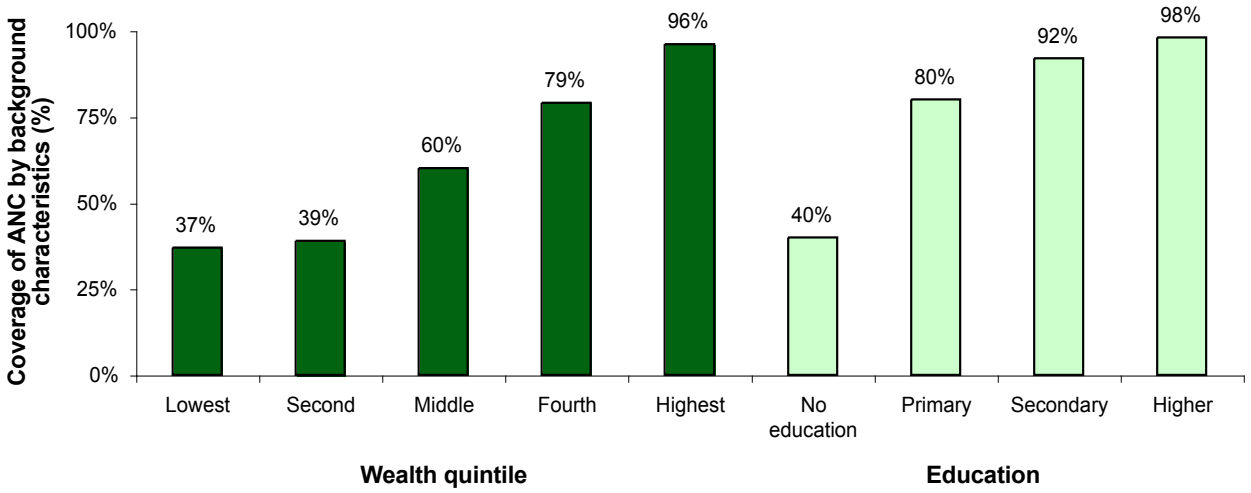
Figure 2.4: Percentage of women who attended ANC with a skilled provider at least once, by zone



Source: [4]

There is a positive relationship between the household wealth index and women's utilisation of ANC. About 63 percent of mothers from the poorest households do not receive ANC, compared to only 4 percent of mothers in the highest quintile. Similarly, there is a direct relationship between a woman's level of education and attendance of ANC. Approximately 60 percent of mothers with no education did not receive ANC, compared to only 2 percent of mothers with higher levels of education. (Figure 2.5)

Figure 2.5: Proportion of women attending ANC by wealth quintile and level of education

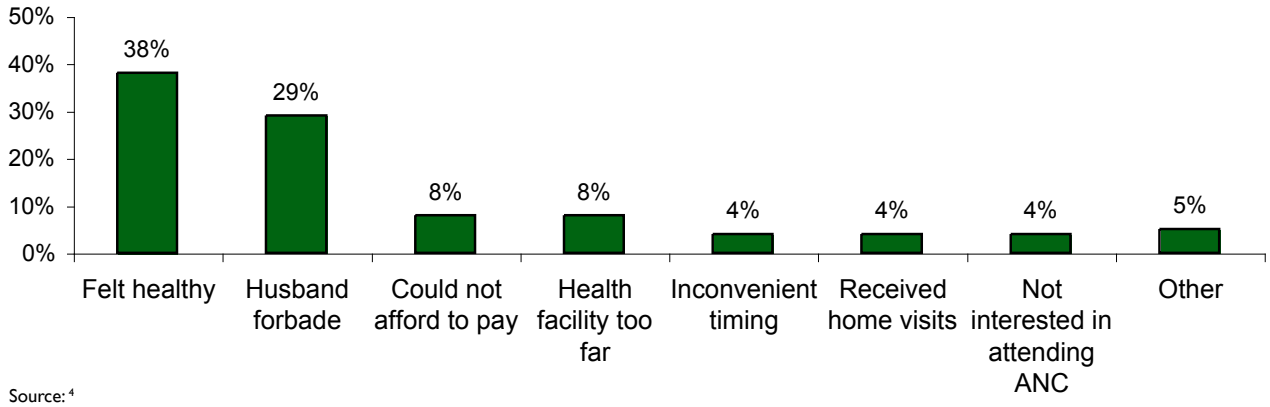


Source: [4]

Reasons for not attending ANC

The FMOH Safe Motherhood Survey provides some reasons why women do not attend ANC during pregnancy.[30] (Figure 2.6) The most common reasons for not attending ANC are women's perceptions that they were in good health (38 percent), followed by spouses forbidding or disapproving of the use of ANC (29 percent).

Figure 2.6: Reasons for not attending ANC



Source: [4]

Number of ANC visits

Women are advised to attend at least four antenatal visits, during which they should receive evidence-based examinations and screenings. These services are offered through a package referred to as focused ANC. The purpose of focused ANC is to provide better care for pregnant women with a goal-oriented approach, which emphasises content rather than the sheer number of ANC visits. Overall, 47 percent of Nigerian mothers made four or more ANC visits, with significant disparities between urban and rural mothers. Seventy–one percent of urban women made four or more ANC visits compared to only 38 percent of rural women.

Focused Antenatal Care

A recent multi-country randomised control trial led by the WHO and a systematic review showed that essential interventions can be provided over four visits at specified intervals, at least for healthy women with no underlying medical problems.[39, 40] This evidence has prompted WHO to define a new model of ANC based on four goal-oriented visits.[41] This model has been further defined by what is done in each visit, and is often called focused antenatal care. The optimum number of ANC visits for limited resource settings depends not only on effectiveness, but also on costs and other barriers to ANC access and supply.

The goals of focused ANC are to promote maternal and newborn health and survival through:

- early detection and treatment of problems and complications
- addressing complications and diseases such as HIV/AIDS and malaria
- birth preparedness and complication readiness
- basic health promotion through sound nutrition and preventive measures

Timing of first ANC visit

It is important that women attend ANC visits at the early stages of pregnancy in order to benefit from interventions that require early or repeat visits. Among all women who receive ANC in Nigeria, only 17 percent make their first ANC visit during the first three months of pregnancy.[4] One survey of safe motherhood in northern Nigeria found that more than half (53 percent) of the women who attend ANC have their first visit from the sixth month of pregnancy.[42] Culturally, it is common for Nigerian woman not to disclose their pregnancy early for fear of evil spirits.[43]

Content of ANC visits

According to the NDHS 2003 survey, 82 percent of Nigerian mothers who attended ANC visits have their weight measured, 81 percent have their blood pressure taken and 65 percent have their blood sample taken. Sixty-four percent have their urine sample taken, 58 percent receive iron tablets, and 55 percent are informed of signs of pregnancy complications.[4] While over half of women obtain a height measurement, this is not a predictor of a woman's health during pregnancy. Time is spent on this measurement at the expense of more important components of ANC. Blood testing is also incomplete, as it only detects levels of haemoglobin and does not routinely include tests for syphilis screening.

Malaria prevention

Malaria is a major public health concern in Nigeria. Children under the age of five and pregnant mothers are most vulnerable. During pregnancy, a woman's natural immunity is reduced; pregnant mothers are consequently four times more likely to suffer complications from malaria than non-pregnant women are. Though not a major direct cause of neonatal deaths, malaria can lead to pregnancy loss and stillbirth, low birth weight.[44]

Liz Gilbert/David and Lucile Packard Foundation, courtesy of Photoshare

It has been FMOH policy since 2001 that all pregnant women should receive intermittent preventive treatment for malaria during pregnancy (IPTp), which includes two single-dose treatments for malaria using Fansidar. These doses are administered at least one month apart during the second and/or third trimester. All pregnant women and children under five are also required to sleep under insecticide treated nets (ITN). According to the NDHS 2003, just two percent of households surveyed own at least one ITN, while only one percent of pregnant women sleep under an ITN.[4] (Table 2.1)

Only one percent of mothers receive IPTp during antenatal visits, though 20 percent take some form of anti-malarial medication to treat malaria during pregnancy. The most commonly used drugs are less optimal for pregnant women to prevent malaria infection, including chemoprophylactic drugs like daraprim/metaprim (58 percent), chloroquine (39 percent), Halfan (two percent) and herbs (four percent). Of those women who take IPTp, 12 percent of use SP/Fansidar.[4] (Table 2.1)

Table 2.1: IPTp and ITN use, by zone

Zone	Pregnant women who slept under an ITN the night before the study (%)	Women who received IPTp during ANC visit (%)
North Central	1.6%	0.7%
North East	1.7%	0.9%
North West	1.1%	1.2%
South East	1.5%	0.2%
South South	1.5%	1.3%
South West	0.0%	1.1%
National average	1.3%	1.0%

Source: [4]

Tetanus Toxoid immunisation

Although many African countries have made progress toward the eradication of neonatal tetanus in the last decade, Nigeria is among the few countries listed by the World Health Organisation (WHO) that have made minimal strides toward the same goal.[45] Nationwide, only about 40 percent of mothers receive two or more doses of tetanus toxoid (TT2+) during pregnancy.[4] (Table 2.2) This compares to some relatively poorer African countries, such as the Gambia, which has TT2+ coverage as high as 95 percent.[11] Benin and Malawi are among those countries which have achieved certified elimination of neonatal tetanus.[46]

During a community survey component of IMCI on key family and community practices, mothers offered several reasons for not receiving TT in their last pregnancy.[47] These include not being aware (42 percent), the unavailability of the injection (23 percent) and a feeling that it was not necessary (17 percent). Only seven percent of survey respondents had completed the regimen.

Table 2.2: Tetanus toxoid immunisation during pregnancy

	No injection	2 or more injections
Residence		
Urban	25%	61%
Rural	57%	32%
Zone		
North Central	33%	45%
North East	56%	31%
North West	73%	20%
South East	7%	77%
South South	27%	62%
South West	9%	74%
Education		
No education	70%	20%
Primary	53%	53%
Secondary	16%	66%
Higher	5%	82%
Wealth quintile		
Lowest	70%	19%
Second	69%	23%
Middle	50%	37%
Fourth	27%	56%
Highest	10%	76%
National average	***47%***	***40%***

Source: [4]

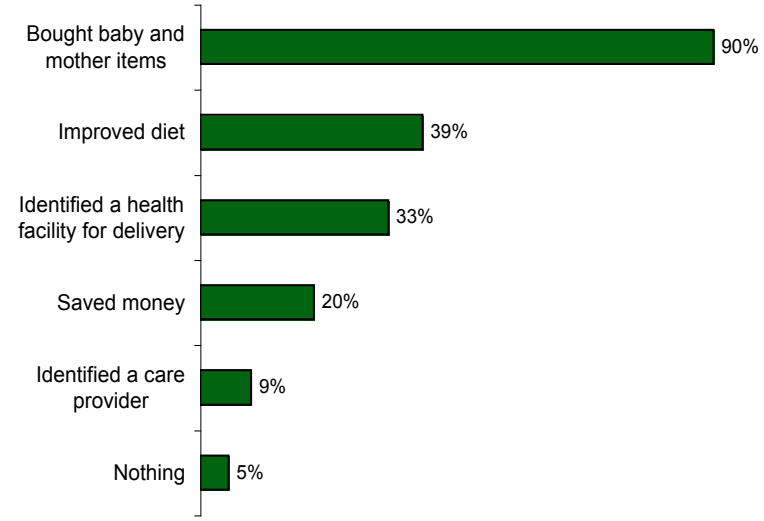
Prevention of mother-to-child transmission of HIV (PMTCT)

HIV is becoming the leading cause of death for women in some African settings. Pregnant women with HIV are at an increased risk of intrapartum and postpartum complications. Yet counselling and testing for HIV is low and has not been a routine component of ANC in practice. According to MICS 2007 data, only 16 percent of women are tested for HIV and receive their results, resulting in a huge missed opportunity for PMTCT.[5] Only 7 percent of HIV-infected pregnant women receive antiretroviral (ARV) drugs.[35]

Birth preparedness

Birth preparedness is one of the evidence-based interventions in the focused ANC package and FMOH key household community-IMCI practice.[47] It is also stated as a key intervention in the IMNCH strategy.[7] Many pregnant women and their families do not take the recommended steps to prepare for childbirth. A recent survey in northern Nigeria showed that 47 percent of women are unaware of birth preparedness and less than one percent identify the need for a skilled provider to attend the birth.[42] According to the FMOH Safe Motherhood Survey, only 32 percent of women identify a health facility for birth, 20 percent save money for birth and only 9 percent identify a care provider whose service can be sought (Figure 2.7). There are no data on the identification of a means of transport.[30]

Figure 2.7: Birth preparedness activities during pregnancy



Source: [30]

The support given to pregnant women by their partners/spouses is crucial to successfully prepare for childbirth. Just over 14 percent of survey respondents state that their spouses or partners offer no support during pregnancy.[47]

A national baseline survey on positive and harmful traditional practices that affect women in Nigeria reports that 19 percent of household heads claim to beat their wives. In some states, the reported rates of violence against women are as high as 30-50 percent.[48]

Childbirth Care

The period during labour, birth and the few hours after birth is critical in the continuum of care, as this period has the highest risk of death and disability for both mothers and newborns. Delays in seeking care are common in Nigeria. Risks associated with pregnancy and childbirth, such as fistula, are exacerbated by the lack of access to facilities and a "culture of silence" during labour. The failure to take appropriate, timely action can lead to life-threatening consequences of obstructed labour and haemorrhage.[48]

Place of birth

The NDHS 2003 reports that 66 percent of deliveries take place at home, while 33 percent take place in a health facility. However, use of a health facility during birth varies according to geographical zone and has increased slightly from 2003 to 2007.[4,5] (Table 2.3)

Liz Gilbert/David and Lucile Packard Foundation, courtesy of Photoshare

Table 2.3: Place of birth in 2003 and 2007, by zone

	NDHS 2003				MICS 2007
	Home	Health facility			Health facility
		Public facility	*Private facility*	*Total facility*	
North Central	55%	27%	18%	45%	42%
North East	82%	15%	3%	18%	45%
North West	89%	9%	2%	11%	9%
South East	13%	20%	64%	84%	75%
South South	45%	30%	24%	54%	51%
South West	21%	34%	44%	78%	68%
National average	***66%***	***18%***	***14%***	***32%***	***41%***

Source: [4,5]

According to a study on maternal health in northern Nigeria, up to 81 percent of births are supervised by personnel with no formal training in obstetric and neonatal care.[49] Similarly, results from the ACCESS baseline survey on safe motherhood in the same region shows that 80 percent of women delivered their last child at home.[42] Women list several reasons for not delivering in a health care facility. These include that their husband/family say it is unnecessary (34 percent). Women also listed having no time to go, the facility being too far or too expensive as reasons for giving birth at home.[42]

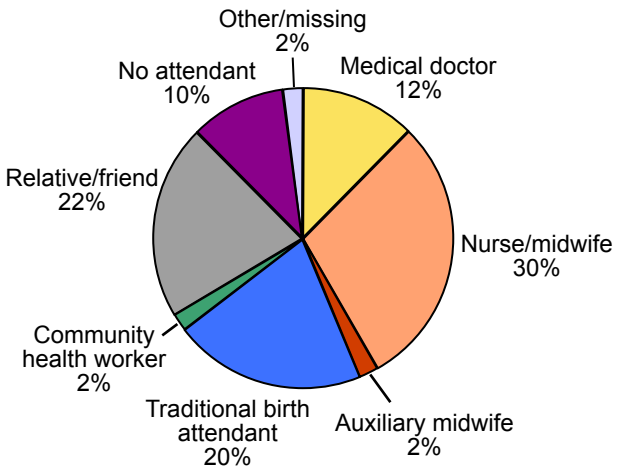
The NDHS 2003 and MICS 2007 do not specify which deliveries occur in faith-based maternity homes/churches. These facilities may not have skilled attendants. Deliveries at churches and other faith-based establishments (non-mission hospitals or clinics) that are not registered for medical purposes seem to be increasingly common in Nigeria. The FMOH Safe Motherhood Survey states that up to 9 percent of mothers from Akwa-Ibom state and 7 percent from Ebonyi state deliver in faith-based maternity homes.[30]

Skilled attendants

The level of assistance that a woman receives during childbirth is a strong determinant of the overall outcome for her and her newborn. The presence of a skilled attendant during birth is therefore imperative. The term "skilled attendant" refers to caregivers with midwifery skills, including doctors, nurses and midwives (this definition excludes TBA).[50] A skilled attendant should ensure that appropriate care is provided, including effective management of basic obstetric and newborn emergencies, drying the baby immediately after birth, keeping the baby warm and beginning immediate breastfeeding. Most of these behaviours are simple but can save lives. Some countries have trained volunteer health workers to assist in birth when there is no skilled attendant.[51]

The MICS 2007 shows a promising increase in the number of deliveries that take place with a skilled attendant – doctor, nurse/midwife or auxiliary midwife – (44 percent),[5] compared to 35 percent in NDHS 2003.[4] This improvement, however, has not been sustained in all parts of the country. TBAs attend 20 percent, while relatives attend 22 percent of all births. A significant proportion of women (10 percent) give birth by themselves with no assistance from anyone. (Figure 2.8)

Figure 2.8: Distribution of birth attendants in Nigeria



Source: [5]

Use of partograph to monitor labour

A partograph is a simple chart that assists health workers to detect and respond to labour-related problems. Research has shown that the use of a partograph to manage labour improves maternal and newborn survival and reduces the need for additional interventions, such as caesarean section.[52] However, the partograph is not commonly used at all levels of care. During an FMOH survey, a health worker stated "we don't know what a partograph is. We have not seen it, we have only heard of it."[21] There are no national data on the availability and utilisation of partographs in health facilities.

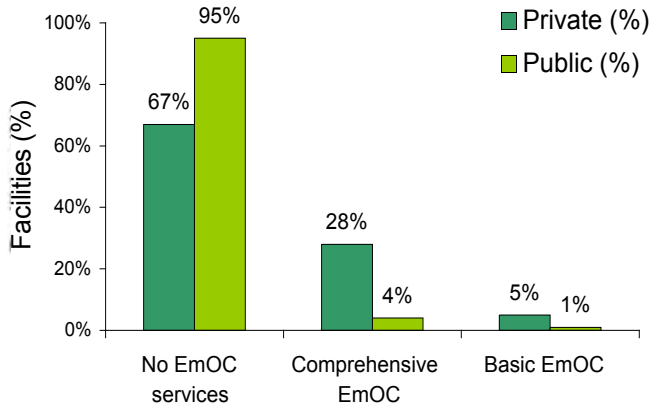
Emergency Obstetric Care (EmOC)

Globally, 15 percent of all pregnant women develop obstetric complications, most of which are unpredictable. Services for emergency care must therefore be available in order to prevent maternal and/or neonatal death and disability. Certain critical services, or signal functions, should be included in the effective treatment of obstetric complications and to provide a basis for training, assessing and equipping EmOC services. Neonatal resuscitation has been incorporated at the global level as an additional signal function for both basic and comprehensive EmOC, but this service is not reflected in the policies of many African countries.

A Basic EmOC facility can administer parenteral antibiotics, oxytocics and anticonvulsants. They can perform manual removal of the placenta and retained products and perform assisted childbirth. A Comprehensive EmOC facility, in contrast, can perform all BEmOC functions in addition to performing surgery (e.g. caesarean section) and safe blood transfusions. The Nigerian BEmOC standard includes two additional signal functions in the guideline: 24-hour service coverage and a minimum of four midwives per facility.[21]

WHO also recommends four BEmOC facilities and one CEmOC facility per 500,000 people. According to the FMOH/UNFPA EmOC survey, only Lagos state meets the standard of four BEmOC facilities per 500,000 people combining both public and private health care providers. Seven states meet the standard of one CEmOC per 500,000 people considering public facilities alone.[21] In all states surveyed, a higher proportion of private facilities meet EmOC standard compared to public health facilities, but both fell below the recommended EmOC levels.[21] (Figure 2.9)

Figure 2.9: Private and Public facilities with BEOC and CEOC in Nigeria



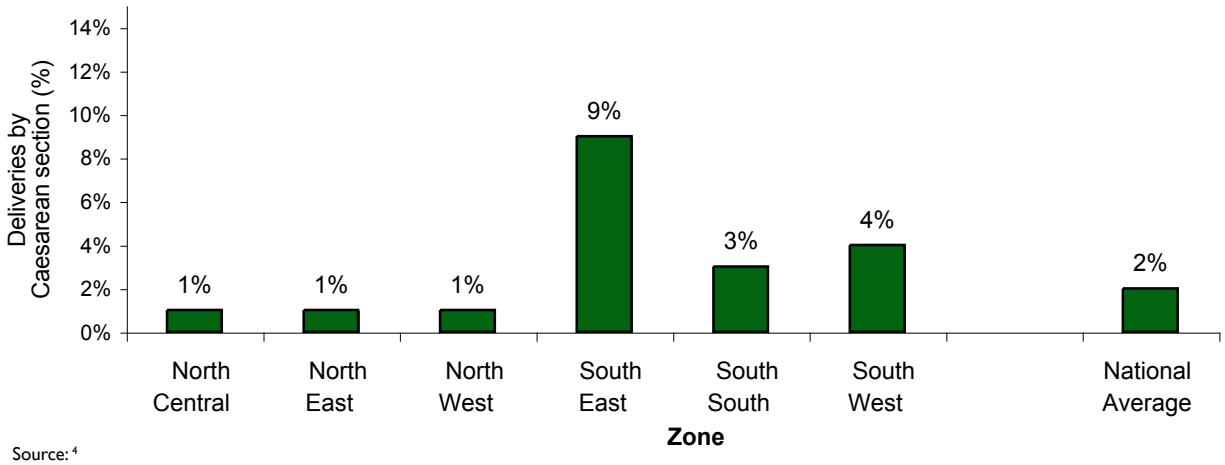
Source: [21]

Caesarean section deliveries

The estimated proportion of women who will need a caesarean section is between five and 15 percent. The prevalence of women who give birth by caesarean section can serve as an indicator whether EmOC facilities meet women's needs when they present with obstetric emergencies. It also indicates whether these facilities provide life- saving obstetric services.[21]

The NDHS 2003 reports that caesarean sections do not meet this basic threshold; less than two percent of babies are delivered using this procedure.[4] (Figure 2.10) The rate is higher among women with higher education and among women in the southern regions where access to tertiary facilities may be better. These figures indicate that a high proportion of Nigerian women may experience life-threatening complications and not receive necessary EmOC.

Figure 2.10: Caesarean section rates, by zone



Source: [4]

Human resources for EmOC services

Many facilities in Nigeria do not meet the national staffing standard for BEmOC. While all tertiary facilities in the 12 surveyed states provide 24-hour coverage, only 90 percent of secondary facilities provide the same service.[21] Not only is there is almost no 24-hour coverage in primary health care facilities, which are often the closest facilities for pregnant women, but many do not have a single qualified midwife. One survey found that in all of Nigeria, only one PHC facility (in Lagos state) met the national BEmOC standard of a minimum of four midwives per facility with 24-hour service coverage.[21] Maternal and neonatal mortality statistics consequently remain poor, especially among rural populations that receive the majority of their services at PHC facilities. This presents a major challenge to effective EmOC service provision.

Basic infrastructure for Emergency Obstetric Care

Many health facilities generally lack adequate material resources, as well as basic infrastructure like water and electricity. This has a significant impact on health facilities' ability to offer quality obstetric care. As one primary health care worker in the EmOC survey stated, "There is a lack of drugs and equipment, no suction machine, no water, no power supply. We deliver babies [by the light of] lanterns and candles and also do vaginal exams with them as well."[21] The same EmOC survey shows that 21 percent of secondary health facilities have no ability to take blood pressure measurement in their labour wards.

Neonatal resuscitation

As the need for neonatal resuscitation is often unpredictable, all birth attendants should be competent in basic resuscitation skills. If facility births were scaled up to 90 percent by 2015, neonatal resuscitation alone could save more than 19,000 lives per year.[53] Essential equipment for resuscitation, such as a bag and mask, should be available at all health facilities. Oxygen is not necessary for the majority of babies requiring resuscitation at birth. The FMOH EmOC survey does not report on the availability of neonatal resuscitation equipment in any of the health centres.[21]

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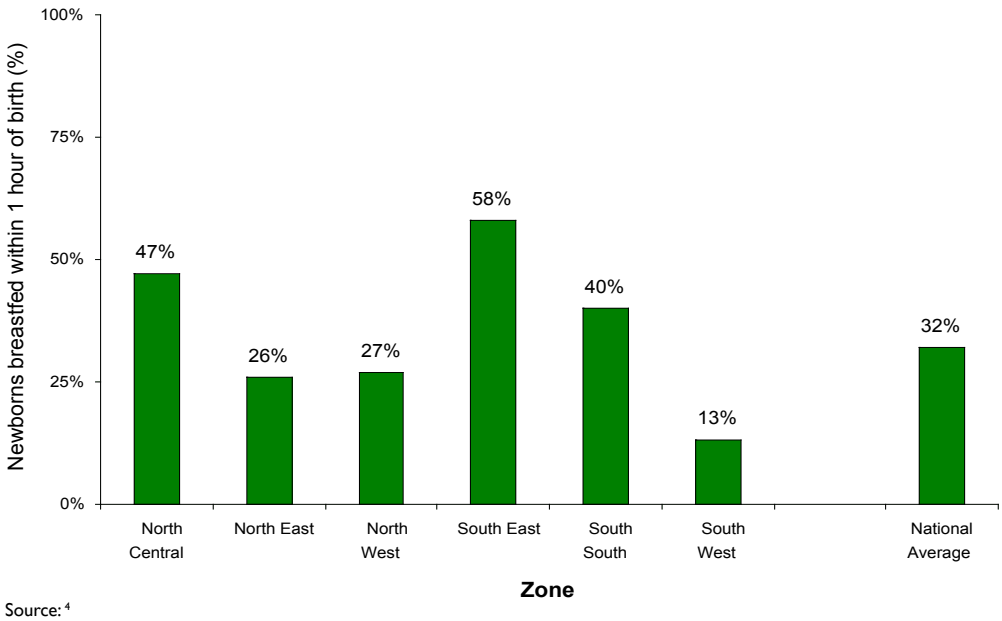
There are life-saving skills courses in Nigeria that update skills for safe childbirth among different cadres of health workers and some of these include neonatal resuscitation. The Expanded Life Saving Skills (LSS) Initiative is available for non-specialist physicians, the regular LSS training is aimed at midwives, while Community Health Extension Workers (CHEWs) engage in the Modified LSS training. These trainings are limited to the public sector and are donor funded. Thus far, the proportion of trained staff is low: only 10 percent of non-specialist physicians, 10 percent of midwives and 5 percent of CHEWs have been trained in these essential skills.

Neonatal resuscitation trainings are conducted in some tertiary facilities. In addition to technical assistance, training mannequins and teaching aids, ambuventilation kits were provided to 30 percent of Nigerian tertiary institutions. Plans for wider coverage are in progress. Recently, the Paediatric Association of Nigeria formally adopted the programme to continue follow-up trainings which are a necessary input to maintain competence.

Immediate newborn care

Immediate care for all newborns should include drying the newly delivered baby; sterile cord clamping and hygienic care; placing the baby in skin-to-skin contact with the mother; early and exclusive breastfeeding and routine eye care. Despite the fact that these interventions are prioritised in the IMNCH strategy, there are limited national data on most these life-saving newborn interventions. Immediate breastfeeding practices are less than optimal: just 32 percent of babies are given breast milk within one hour of birth and less than two-thirds (63 percent) are given breast milk within 24 hours of birth.[4] (Figure 2.11)

Figure 2.11: Percentage of newborns breastfed within 1 hour of birth



Source: [4]

Pre-lactealfeeding is common; more than two-thirds of mothers gave their baby something to drink other than breast milk in the first three days after birth.[4] Unfortunately, this practice adversely affects breastfeeding and is especially harmful to HIV-exposed babies. Liquids given to babies include plain water, glucose water, gripe water, formula milk, honey, koranic washings and "zamzam"— spring water from Zamzam spring in Makkah.[47] One FMOH survey showed that of those mothers who did not give colostrum to their babies, more than three quarters believed that it was harmful milk.[30]

Postnatal Care

Postnatal care (PNC) refers to routine and emergency care provided in the period after birth until six weeks of age. Studies have identified the first week of life, indeed the first two days, as the most crucial period for postnatal care services.[54, 55] This is a critical time to reach both mother and newborn with a package of preventive and health promotion interventions, as well as linking to case management for illnesses. Lack of care during this period may result in death or disability, as well as missed opportunities to promote healthy behaviours that affect women, newborn and children. A package of PNC interventions reaching 90 percent of babies and their mothers, and linking to curative care could prevent an estimated 27 percent of newborn deaths.[11]

Postnatal care is lacking in many countries and has only recently been highlighted as the lowest coverage gap in the continuum of care.[56] There are a number of approaches for delivering postnatal care; most combining home visits with health facility follow up. Home visits with health systems strengthening and been effective and feasible in settings with weak health systems and high neonatal mortality.[54, 55] More frequent postnatal visits with strong links to referral care are required for sick, small or high-risk newborns.

Routine postnatal care and healthy practices

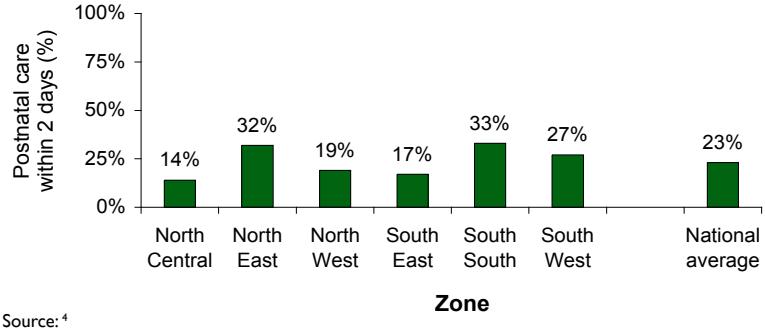
Routine PNC provides an opportunity for mothers to receive support to engage in healthy behaviours, such as breastfeeding and appropriate cord care. Mothers can also receive information on family planning, recognition of danger signs in both themselves and their newborn, routine newborn immunisations and encouragement to register the child's birth. Nigeria's NMR could be reduced by up to 20 percent by 2015 by increasing coverage of preventive and health promotive postnatal care alone to 90 percent of women and newborns.[i] Effective routine postnatal care both improves preventive practices (exclusive breastfeeding, hygiene, warmth) which save lives especially for sick, small and at-risk newborns, and also helps early identification of danger signs.

Nigeria has low routine PNC coverage, which results in a major gap along the continuum of care. The global recommendation is for the first routine PNC assessment is recommended during the first 24 to 48 hours after birth. Another visit is recommended again within two to three days following birth, within six to seven days and again when the baby reaches six weeks of age.[11]

Current FMOH policy states that all recently delivered women and their newborns should receive PNC from a skilled provider at one and six weeks after childbirth. Despite the fact that most maternal and newborn deaths occur within the first week of birth, most health care providers only emphasise the six-week postnatal visit. As a result, only mothers and newborns who survive the critical first few days of the postnatal period receive any care at all. According to the NDHS 2003, only 23 percent of mothers who give birth outside a health facility receive a first postnatal check within the first two days of birth. (Figure 2.12) More than 70 percent of mothers who give birth at home do not see any health care provider during the postnatal period at all.[4]

There is no explicit policy in Nigeria concerning who provides postnatal care. Clearly with over half of births at home, and the long distances to return to the facility even for those born in hospital, reaching all mothers and newborns in the crucial first days of life is going to require innovation. An urgent need for operations research relates to the feasibility of visits from community health workers for home births, similar to other countries in Africa and Asia.

Figure 2.12: Postnatal care within 2 days for home births, by zone



Source: [4]

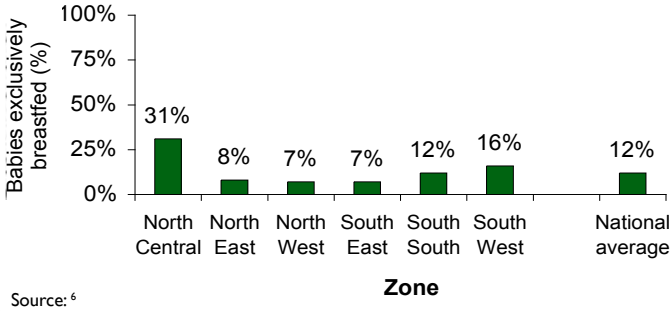
Cord care

WHO recommends that nothing should be applied to the umbilical cord after it is cut.[57] Nigerian protocol states that after securing the cord with a tight string, one should clean the cord with methylated spirit/warm saline and expose, then keep the cord clean and dry. There are no national data on cord care practices at health facilities or households. However, a survey in northern Nigeria reports that 63 percent of respondents know how to practice clean cord care.[42]

Exclusive breastfeeding

Breastfeeding is a universal practice in Nigeria; up to 97 percent of babies are breastfed some time during the neonatal period. However, optimal breastfeeding practices are limited and the rate of exclusive breastfeeding remains among the lowest in Africa. NDHS 2003 data show that only 17 percent of infants less than six months of age are exclusively breastfed, and just 12 percent in MICS 2007.[4, 5] (Figure 2.13)

Figure 2.13: Percentage of babies less than 6 months exclusively breastfed



Source: [6]

Vitamin A supplementation for mothers

The FMOH recommends that all mothers receive a dose of 200,000 IU of vitamin A orally six weeks after birth.[58] Vitamin A ensures healthy vision, maintains epithelial cellular integrity and boosts the mother and newborn's immune system when administered to the mother after birth. The NDHS 2003 shows that on average, less than 20 percent of mothers receive a vitamin A dose within two months of giving birth.[4]

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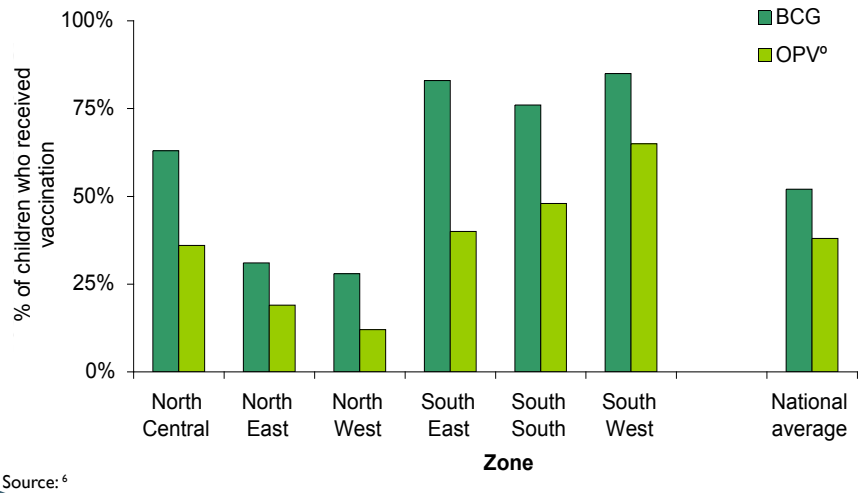
Immunisation

International comparative data show that Nigeria's immunisation coverage for children is among the lowest in the world. The country misses many opportunities to provide adequate immunisation to newborns. In 2003, only 13 percent of Nigerian children aged 12-23 months receive all of the standard vaccinations.[4] There appears to have been no improvement over time: MICS 2007 data show that only 11 percent of infants are fully immunised by 12 months; approximately 38 percent of children aged 12-23 months have had no vaccinations at all.[6]

Only 51 percent of Nigerian children receive the Bacille Calmette-Guerin (BCG) vaccination by 12 months of age.[6] The BCG vaccine is meant to be given at birth, but due to the scarcity of the vaccine, babies are pooled and given appointments for group immunisation. At present, one BCG vial administers 20 doses. Similarly, among the babies who receive the first oral polio vaccine dose (OPV^0), the FMOH Safe Motherhood Survey shows that only 33 percent receive it at birth.[30] Immunisation coverage varies widely by zone. (Figure 2.14)

Figure 2.14: Children 12-23 months who received BCG and OPV0 by zones



Source: [6]

Recognition of newborn danger signs and care-seeking

While national data on illness recognition and care-seeking behaviour for newborns is lacking, interviews with health care providers indicate that mothers tend to recognise danger signs at a late stage, which causes critical delays in care-seeking and case management. A new algorithm has been tested By WHO and partners including Save the Children in a multi-centre evaluation to identify severe infection and other illness in infants less than 2 months who are brought to health facilities.[59] (Table 2.4) More research is needed on screening newborns for illness in the community during routine home visits.

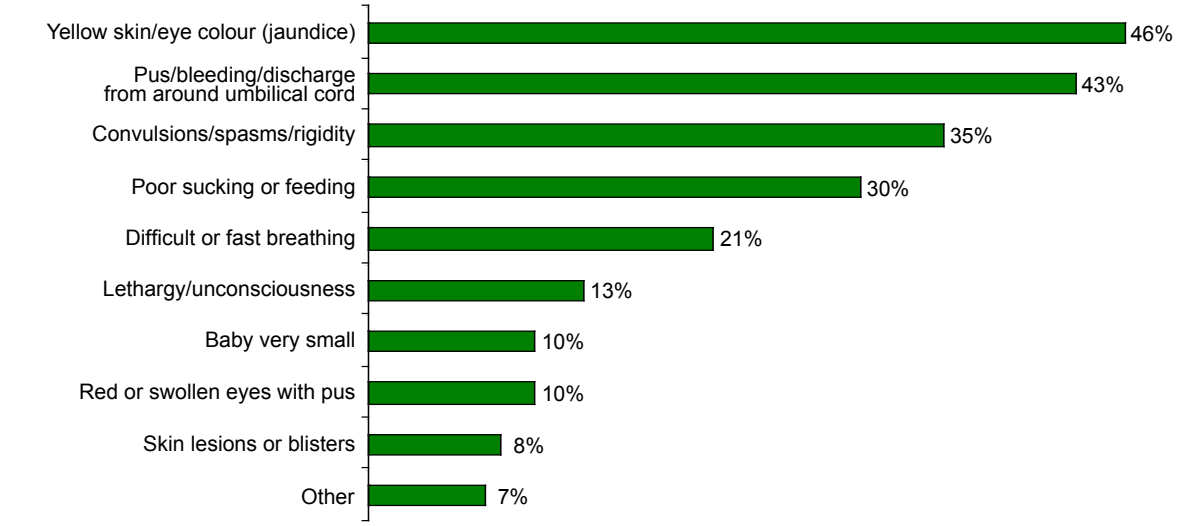
Table 2.4: Signs predicting severe illness in the first two months of life

1.	History of difficulty feeding
2.	History of convulsions
3.	Movement only when stimulated
4.	Respiratory rate of 60 breaths per minute or more
5.	Severe chest indrawing
6.	Temperature of 37.5°C or more
7.	Temperature below 35.5°C

Source: [59]

A northern Nigeria survey found that the mothers have insufficient knowledge of warning signs regarding their newborn, and they do not necessarily correlate with the findings outlined in Table 2.4. The most common danger signs known by mothers included yellow skin/jaundice (46 percent), bleeding or discharge from around the cord (43 percent) and convulsions (35 percent). Only 30 percent of mothers identified inadequate sucking or feeding as a danger sign, while just 10 percent identified a baby's small size as a danger sign. (Figure 2.15) Knowledge was generally lower among illiterate mothers and families living in rural areas.[42]

Figure 2.15: Knowledge of newborn danger signs among mothers

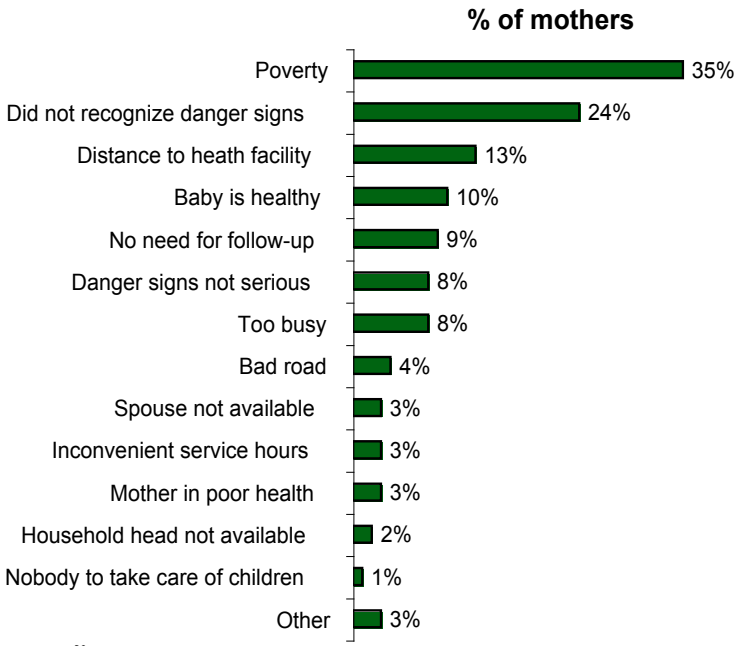


Source: [42]

Care-seeking practices

According to NDHS 2003, 24 percent of children under six months of age with symptoms of respiratory infection were taken to a health facility for treatment.[4] However, a 2005 FMOH survey shows slightly more promising results; 44 percent of mothers whose babies have a fever or cough in the first week of life seek advice or treatment from government health facilities, while 10 percent go to private health facilities. Women who choose not seek care or treatment for their newborn do so for several reasons (Figure 2.16). Poverty is seen as a major impediment to accessing care for one third of women.[30]

Figure 2.16: Reasons for not seeking care if their child had fever or cough



Source: [30]

Care for the Sick Newborn

Extra care for small babies

Only an estimated 14 percent of Nigerian newborns are low birth weight, yet these babies account for the majority of newborn deaths. Kangaroo Mother Care (KMC) is a feasible and low cost approach for managing LBW babies, has been shown to reduce mortality and serious morbidity in preterm babies and is being successfully implemented in several African countries.

Kangaroo Mother Care in Nigeria

Existing methods of caring for small babies

Incubators are widely used in developed countries for the care of very small and premature babies. However, because of their high cost, many hospitals in Nigeria do not have incubators. Where incubators are available, often they do not work due to power cuts or missing parts. The number of babies needing to use the incubator often exceeds the number of available incubators. In addition, the prolonged stay in hospital associated with incubator care is often very costly for most families, and contributes to overcrowding of the already small space in neonatal units.

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Alternative method: Kangaroo Mother Care

As soon as the small baby is stable and has no complications, Kangaroo Mother Care (KMC) is initiated. KMC involves provision of warmth through skin-to-skin contact of the mother and baby's bodies. The baby is undressed except for a cap on the head, nappy and socks, and is placed upright between the mother's breasts with its head turned to one side. The baby is then tied to the mother's chest with a cloth and covered with the mother's clothes. If the mother is not available, the father or any adult can provide skin-to-skin care. Once the baby is gaining weight and caregivers have learned to provide KMC, they are discharged from the hospital and are seen for follow up clinic visits.

Advantages of Kangaroo Mother Care

KMC is safe, cheap and affordable for most mothers. KMC is effective for keeping the baby warm and also enables early breastfeeding, protection from infections, early stimulation, love and bonding of the parents to the newborn baby. There is no special ward required and KMC can be practiced within the existing postnatal ward. KMC reduces the amount of hospital space required to manage newborns, and often reduces the average length of stay in the hospital.

Kangaroo Mother Care can save lives in Nigeria

KMC was first introduced to Nigeria in the late 1990s through a resident paediatrician at the University of Lagos Teaching Hospital. Following a month-long training in Bogotá, Colombia, the first study on skin-to skin care for Nigerian newborns was conducted in 2001. The results of this study were presented at the 2002 Paediatric Association of Nigeria (PAN) conference and published in the Nigeria Journal of Paediatrics. A training workshop was held with doctors and nurses from sixteen teaching hospitals across the country. In 2007, ACCESS supported the introduction of KMC in two general hospitals in Kano and Zamfara states. As part of the process, ACCESS worked with the FMOH to adapt a KMC training manual, which could be used by health institutions across the country to train staff on KMC.

KMC practice has continued at various levels but it has not been systematically rolled out since there has not been a plan to expand services beyond the existing KMC centres. No national KMC policy, service guidelines or routine data collection system exists. KMC was included in the Infant and Young Child Feeding Guidelines, the National Child Health Policy, and Key Strategies for CIMCI, but it was overlooked in the IMNCH strategy. This is despite the fact that reaching all preterm babies in Nigeria with KMC alone by 2015 would save over 19,000 lives per year.[53]

Case management of newborn illness

IMCI coverage in facilities is at just one percent. Very few health workers are trained and using IMCI, despite strong commitment from government and development partners. While the government has recently adapted current IMCI clinical guidelines and algorithms to include newborn care in the first seven days of life, it is clear that reaching the majority of newborns with effective case management for neonatal sepsis will require other delivery channels in addition to IMCI at least in the short term.

According to MICS 2007, 57 percent of children under one year with suspected pneumonia were given antibiotics.[5] While the data do not specifically reference newborns, it is likely that treatment is even lower during the first four weeks of life. Linking neonatal case management to child case management close to home, for example with CHEWs may provide an effective way to reach more newborns and children with this care – possibly the highest impact package.

Case Management of Newborn and Child Illness

IMCI implementation in Nigeria began in 1999 with plans to roll-out to all PHC facilities.[60] IMCI recommended drugs are included in Nigeria's Essential Drug List Currently 33 out of 36 states have adopted IMCI, though the level of coverage of both pre-service and in-service IMCI training varies. By the end of 2006, only eight nursing schools were teaching IMCI despite its inclusion in the nursing curriculum, but WHO has supported an additional 14 schools to build institutional capacity for IMCI training.[61]

The IMCI algorithms have recently been adapted to include care during the first week of life. If facility-level case management for serious neonatal illness was improved to reach 90 percent of all babies by 2015, over 56,000 lives could be saved per year.[53] This can be achieved at district hospital level by the institution of a newborn care "corner" or ward, using standard protocols for care of sepsis, preterm babies, jaundice and neonatal encephalopathy and ensuring staff are competent and basic equipment and drugs are available. The expectations are outlined in the WHO *Managing Newborn Problems* guide.[62] At referral level, a newborn care unit must be ready to receive babies requiring a higher level of care, as outlined in the WHO *Pocket Book of Hospital Care for Children*.[63]

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Chapter 3: Newborn Health Policies and Programmes

Health System Structure

The Nigerian health care system provides tertiary, secondary and primary level care, each with varying degrees of capacity and oversight roles:

Tertiary level services are highly specialised and focused mainly on curative care, teaching and research. The FMOH is responsible for policy formulation, technical assistance and service provision through tertiary and teaching hospitals.

Secondary level services are administered by the state government and provided at comprehensive health centres and general hospitals. Services overseen by the State Ministry of Health (SMOH) include curative care, radiological, diagnostic, referral and emergency medical and surgical services. Comprehensive EmOC services are provided at this level. The SMOH provides support and supervision at this level.

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Primary level services include basic care including ANC, birth and PNC, health education, simple laboratory tests and preventive interventions. In addition, BEmOC services are provided at this level. The Local Government Authority (LGA) is responsible for managing the most health service delivery at the primary level; the SMOH is expected to support and supervise.

The LGA is the major health implementation unit in Nigeria. There are 774 LGAs in Nigeria, each subdivided into 7 to 15 wards. The community or village level forms the support structure for the implementation of PHC services. The 1988 National Health Policy made provisions for the creation of PHC management and technical committees at the LGA level, which coordinate the Ward Development Committees (WDC) and the Community/Village Development Committees (CDC). However, an FMOH survey in 2001 showed that only 27 percent of PHC committees were functional.[7]

A challenge arises from the fact that each level of the health care system is autonomous. The tertiary, secondary and primary levels are therefore not accountable to each other. The coordination, supervision, regulation and monitoring of stipulated responsibilities are not well outlined. Often, the different tiers of government duplicate their efforts and confuse their respective roles.

In addition to facilities owned and operated by the federal, state and local tiers of government, there are numerous private health care facilities. These include for-profit private sector institutions, not-for-profit private facilities, mission hospitals and facilities run by community-based organisations and other NGOs. The private sector accounts for 72 percent of secondary level health care facilities.[7] These facilities are located mainly in the southern regions. They typically operate with only one doctor and are often poorly supervised and coordinated. There is a lack of national data on the number of missionary and faith-based organisations, for-profit private health facilities, not-for-profit private facilities and NGOs involved in health service delivery.

Although reproductive health services are offered at all health system levels (tertiary, secondary and primary), their inequitable distribution has a negative impact upon the quality of reproductive health care. This may also have a detrimental effect on health-seeking behaviour due to unequal access to reproductive health counselling and additional services (e.g. modern contraceptives).

There are four types of primary level health facilities in the country. These include PHC centres (65 percent), dispensaries (18 percent), health posts (14 percent) and maternity centres (3 percent). PHC centres are expected to provide essential services, including birth, to about 10,000 persons depending on the availability of qualified staff. Most centres do not have a skilled health care provider. Health posts and dispensaries are smaller units and usually do not offer birth services.

A 2002 FMOH survey of reproductive health resources and services showed that of the 13,215 primary health facilities in Nigeria, 65 percent are in the three northern zones (8,591). Southern zones have more tertiary and secondary level health facilities. The majority of health facilities in the North East and North West are dispensaries and health posts, which reflects a low level of accessible care.[64] (Table 3.1)

Table 3.1: Distribution of primary level health facilities by zone

Zone	Dispensaries	Health Posts	Maternity Centres	Primary Health Care Centres	Total
North Central	215	191	20	2,246	2,672
North East	805	302	228	1,044	2,379
North West	1,278	670	7	1,585	3,540
South East	45	236	24	866	1,171
South South	11	1,617	20	1,345	1,543
South West	36	306	57	1,511	1,910
Total	2,390	1,872	356	8,597	13,215

Source: [64]

The proportion of reproductive health services offered in primary level health facilities vary. Fifty percent of all primary level health facilities provide ANC services, 43 percent provide childbirth services and 43 percent provide postnatal services with some variation between geographical zones.[64] (Table 3.2) Compared to facilities in the north, PHC facilities in the southern zones have better qualified staff and facilities to provide antenatal, childbirth and postnatal services. The overall availability of reproductive health services, especially those related to childbirth, is low nationwide.

Table 3.2: Maternal and newborn services in primary level health facilities

Zone	Total facilities	ANC services	Childbirth services	PNC services
North Central	2,672	52%	51%	42%
North East	2,379	32%	28%	28%
North West	3,540	35%	18%	29%
South East	1,171	60%	61%	54%
South South	1,543	71%	66%	66%
South West	1,910	69%	66%	63%
Total	13,215	50%	43%	43%

Source: [64]

Access to health services

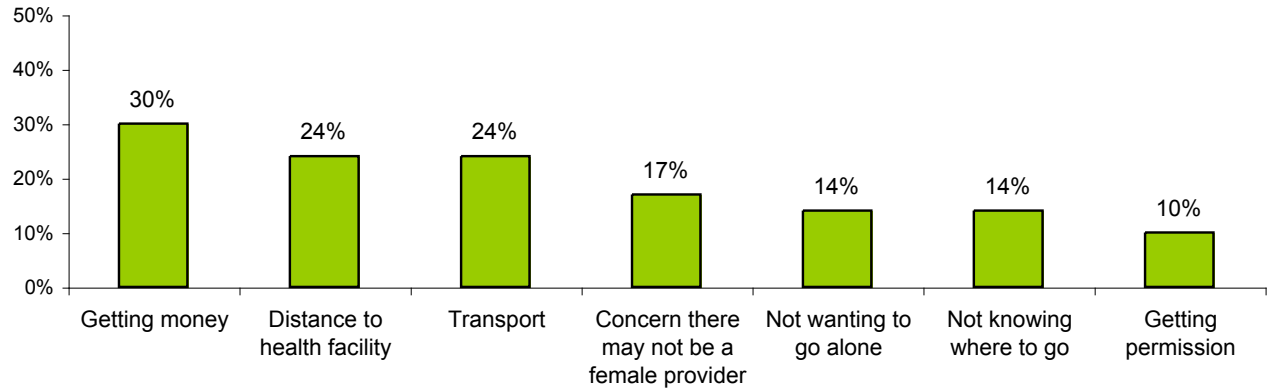
Access to health care services, including antenatal care, childbirth and postnatal care, is determined by a variety of factors. These include the availability of health care services within a certain distance, affordability, perceptions of quality, people's level of education, attitudes regarding gender.

Approximately 71 percent of Nigerians have access to a PHC facility located within a 5km radius of their homes. However, many of these PHC centres are not functional due to frequent stock-outs, a lack of equipment, essential supplies and qualified staff.[7]

The NDHS 2003 showed that poverty was the main perceived barrier to accessing health services among women (30 percent). Nearly 20 percent of women expressed concern that there may not be a female provider in the health facility, while one in ten women said that getting permission to go to a health facility was a problem.[4] (Figure 3.1)

An FMOH/UNFPA reproductive health survey found that poor transportation, negative attitudes among health workers, the high cost of drugs and services, frequent shortages of drugs, supplies and staff and long wait times also contributed to poor access and utilisation of public sector health facilities.[21]

Figure 3.1: Barriers to accessing care reported by Nigerian families



Source: [4]

Policies and Guidelines for Newborn Health

Nigeria demonstrates a great degree of positive political will toward MNCH that must be sustained. For example, the First Lady of the Federation was recently made the "National Goodwill Ambassador" for MNCH; she encouraged the wives of all 36 state governors to promote MNCH in their states. Nigeria also has a number of existing policies and related guidelines to improve MNCH. However, despite numerous policies, frameworks and guidelines, Nigeria has still failed to deliver healthcare to the majority of its women and children.

National Health Policy

In 1988, Nigeria developed its first National Health Policy, which adopted a PHC approach for its health care delivery system. The goal of the National Health Policy was to increase the proportion of Nigerians with access to adequate and affordable health care and establish a health care support system adaptable to local needs and technology.

The Revised National Health Policy in 2004 was formulated within the context of the health strategy of the New Partnership for Africa's Development (NEPAD), the MDGs, and the National Economic Empowerment and Development Strategy (NEEDS). The Revised National Health Policy's overall objective is to strengthen the national health system such that it [is] able to provide efficient, effective, accessible and affordable health services that will improve the health status of Nigerians through the achievement of the health-related MDGs. This policy lists several national health interventions that are supported by additional policies.

Health Sector Reform Programme, 2004

The Health Sector Reform Programme established a framework for improving service delivery, including its goals, targets and priority interventions. Although some MNCH indicators (e.g. the proportion of pregnant women attended to by skilled attendants at birth; the number of BEmOC and CEmOC facilities available per 500,000 people) were included under monitoring and evaluation, newborns were not mentioned in the document. The document also failed to include neonatal mortality as an indicator.

National Reproductive Health Policy and Strategy, 2001

This policy is set within the framework of the National Health Policy, which upholds PHC as the key to health development in Nigeria. Its overall goal is to create an enabling environment for appropriate action, and provide the necessary impetus and guidance to national and local initiatives in all areas of reproductive health. One of the specific objectives of this policy is to reduce perinatal and neonatal morbidity and mortality by 30 percent, with targets to reduce LBW and neonatal tetanus, increase exclusive breastfeeding and PMTCT.

Ward Minimum Health Care Package (WMHCP), 2001

This package includes a set of PHC interventions and services that address health and health-related problems. It aims to enable substantial health gains at a low cost to the government and its partners. Currently, this package serves as a measure of progress for most health interventions at the PHC level. Neonatal care components of the WMHCP involve skilled care at childbirth, cord care, early breastfeeding and temperature management. It also consists of resuscitation and management of neonatal infections through referral and outreach services. Community-based care of LBW infants is also included.[65]

National HIV/AIDS and PMTCT Policy and Strategic Plan 2003

This policy and strategic plan aim to control the spread of HIV in Nigeria. They aim to provide equitable care and support for those infected by HIV, and to mitigate its impact to the point where it is no longer of public health, social and economic concern such that all Nigerians will be able to achieve socially and economically productive lives free of the disease and its effects. One of its targets is to halve mother-to-child transmission of HIV by the 2010.

National Child Health Policy, 2006

This policy is implemented within the framework of the National Health Policy, Health Sector Reforms and other policies relevant to child health. Its overall goal is to ensure the survival and healthy growth and development of the Nigerian child, including newborns, under-five and school age children. One of the policy objectives is to reduce the neonatal mortality rate by half of the 1990 rate by 2015, and provide emergency obstetric care, immediate newborn care, including resuscitation at all levels, and emergency newborn care for illness. However, neonatal mortality was not included in the framework's monitoring indicators. This policy also outlines child healthcare financing and supports the acceleration of the National Health Insurance Scheme (NHIS) and the establishment of community-based health insurance schemes to remove financial barriers to uptake of health services for children.

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Policy on the Health and Development of Adolescents and Young People in Nigeria, 2007

The goal of this policy is to promote optimal health and development among adolescents and other young people in Nigeria. Targets to be achieved by 2015 include a reduction in the incidence of unwanted pregnancies among young females by 50 percent, a 50 percent reduction in the rate of marriage among young people less than 18 years old, and the reduction in the maternal mortality ratio among young women by 75 percent.

Accelerated Child Survival and Development (ACSD): Strategic Framework & Plan of Action, 2006-2010.

The main goal of the ACSD plan is to produce healthy children who will achieve their optimal potential in all areas. The document specifically aims to reduce neonatal morbidity and mortality by 30 percent by 2010.

The Roadmap for Accelerating the Achievement of MDGs Related to Maternal and Newborn Health, 2006

Nigeria is one of many African countries that developed its own roadmap to accelerate the reduction of maternal and newborn mortality and achieve the MDGs. The roadmap specifies strategies, priority interventions and services required to achieve these objectives. It outlines several neonatal indicators for the purpose of monitoring and evaluation, including neonatal and early neonatal mortality, as well as determinants of neonatal deaths, facilities with functional newborn resuscitation and postnatal care attendance rates. The roadmap also includes follow-up actions and an implementation framework with benchmarks and a log frame.

The Integrated Maternal, Newborn and Child Health Strategy

To synchronise the many strategies and policies of relevance to MNCH, the FMOH developed the Integrated Maternal, Newborn and Child Health Strategy in March 2007. It is currently being expanded throughout the country. The National Health Bill was passed by the Senate in May 2008, but has not yet been published in the gazette. The bill aims to improve the coordination and framework for accountability at all levels of the health system and augment the implementation of the IMNCH strategy.

The IMNCH strategy intends to remove competing interests for mothers and children and provides opportunities to integrate the implementation of evidence-based interventions for MNCH. Implementation involves the reorientation of the health system to ensure the delivery of essential interventions, which provide a continuum of care for women, neonates and children.

IMNCH Strategy Implementation Plan

The IMNCH strategy has a three-phase implementation plan with defined targets for reduction of neonatal mortality:

Phase I: 2007-2009
- Immediate removal of major bottlenecks.
- Delivery of intervention packages.
- Reduction of neonatal mortality by 33 percent by 2009.

Phase II: 2010-2012
- Implementation reinforced at all service delivery modes.
- Reduction of neonatal mortality by 44 percent by 2012.

Phase III: 2013-2015
- Achieve 80 percent effective coverage of clinical interventions at basic health care facilities and 70 percent at first and secondary referral care facilities.
- Reduction of neonatal mortality by 57 percent by 2015.

Modes of delivery of IMNCH interventions

The priority areas of interventions in the IMNCH strategy are organised into three service delivery modes:

1. **Family/community oriented services:** These are services that do not require a skilled health worker, but can be delivered on a daily basis by community health/nutrition promoters with periodic supervision from more skilled health staff. Family neonatal care includes clean birth, cord care, early breastfeeding, temperature management and care of LBW babies.

2. **Population oriented outreach and schedulable services:** These are services that require health staff with clinical skills (e.g. midwives/CHEWs and other paramedical staff) and can be delivered

either through outreach or within health facilities on a scheduled programme (e.g. ANC and routine immunisations).

3. **Individual oriented clinical care services:** These services require skilled health workers (preferably registered nurses/midwives or physicians) who are available on a permanent basis for skilled birth care, neonatal resuscitation, management of neonatal infections at the PHC level, clinical management of neonatal jaundice and universal emergency neonatal care at the first referral level.

Assessment of newborn health packages and interventions identified by the IMNCH strategy

Pre-pregnancy Care: The IMNCH strategy makes a case for repositioning family planning to address missed opportunities in meeting the contraceptive needs of both men and women, particularly adolescents.

Focused Antenatal Care: Increasing patient uptake and access to ANC services, particularly in rural areas is a priority action. Other ANC interventions included in the strategy are tetanus immunisation, deworming, detection and treatment of asymptomatic bacteruria, the detection and management of syphilis, the prevention and treatment of iron deficiency, IPTp and ITNs for malaria, antenatal steroids for preterm labour and magnesium sulphate for pre-eclampsia.

Intrapartum Care: Priority interventions for effective intrapartum care include skilled birth attendants, supportive care and pain relief, monitoring the progress of labour with partograph, active management of the third stage of labour and postpartum care of the mother and newborn resuscitation. Priority interventions for EmOC include training doctors and nurses/midwives in LSS and providing equipment, supplies and drugs required for obstetric emergencies.

Postnatal Care:

For the mother - Priority interventions to reduce morbidity and mortality during the immediate postpartum period include support for breast-feeding and general monitoring of the mother's well-being; infection prevention and control; rooming-in; PMTCT; malaria prevention; counselling on danger signs, emergency preparedness and follow-up; immunisation, and proper cord and eye care.

For the newborn – Priority interventions include immediate care such as thermal protection, cord care and the initiation of exclusive breast-feeding within one hour. The well-being of both mother and newborn is to be monitored and carefully assessed in order to detect, prevent and manage complications. The strategy also details the IMCI adaptation process to include newborn care within the first week of life and includes the detection of complications (e.g. difficulty feeding, breathing difficulty, infection, jaundice, complications of prematurity, birth injury and other malformations), immunisations, the administration of vitamin K, advice on danger signs and the identification and management of LBW babies.

Limitations of the IMNCH strategy

While the IMNCH strategy addresses neonatal interventions more than existing policy documents, key interventions are missing. Improved adolescent nutrition and immunisation is not discussed in the context of appropriate care before pregnancy. Another gap is the neonatal component of EmOC which is not clearly outlined in the strategy, e.g. essential newborn care and resuscitation. Details of simple immediate newborn care interventions such as immediate drying and wrapping of the newborn, cord care and eye care are not specified in the strategy, though some of these are incorporated in the CIMCI.[47] KMC is notably absent from the IMNCH strategy despite its mention in Child Health Policy 2006 and CIMCI.

Community-based newborn care delivery strategies are not clearly defined in the strategy. Although community-based newborn care, such as routine home visits or treatment of neonatal sepsis, has been successfully implemented in other countries,[54, 66] such interventions are not discussed in the strategy.

Standard protocol requires that the states invite the FMOH to facilitate the rollout of the IMNCH strategy.

Without invitation from the states, the FMOH cannot initiate rollout activities. Since each state has different levels of health care delivery, the IMNCH stipulates that each state should develop its own state-specific IMNCH rollout plan of action. To date, 23 states out of 36 and the Federal Capital Territory (FCT) have requested implementation; the FMOH has made preliminary visits to rollout the strategy in 18 states.

Health Care Financing

The poor performance of Nigeria's health system can be primarily attributed to poor management. After many years of neglect, the health system fails to deliver even the most basic health services with even immunisation coverage among the lowest in the world.

The bulk of the nation's resources come from oil revenues, which are deposited into the federation account. This is shared among federal, state and local governments according to an allocation formula. However, transfers to the state and local governments are not earmarked, meaning that the federal government does not outline and enforce how state and local governments spend their allocated funds. They are not required to provide budget and expenditure reports to the federal government. The federal government is consequently unable to monitor the expenditure of funds allocated for secondary and primary health services.

Local and state governments also demonstrate a critical lack of accountability, as local governments allocate resources with little influence and oversight from the state. Statutorily, however, the state government could exercise a greater supervisory role since the constitution sees the local government as an integral component of the state. This loose budgetary arrangement, combined with poor coordination between the levels of government, has limited integration of the health system.[7] In order for the IMNCH strategy to succeed, and for the millions of needless deaths to be reduced, the lack of accountability in regard to both health expenditure and the relationship between state and local government must be improved.

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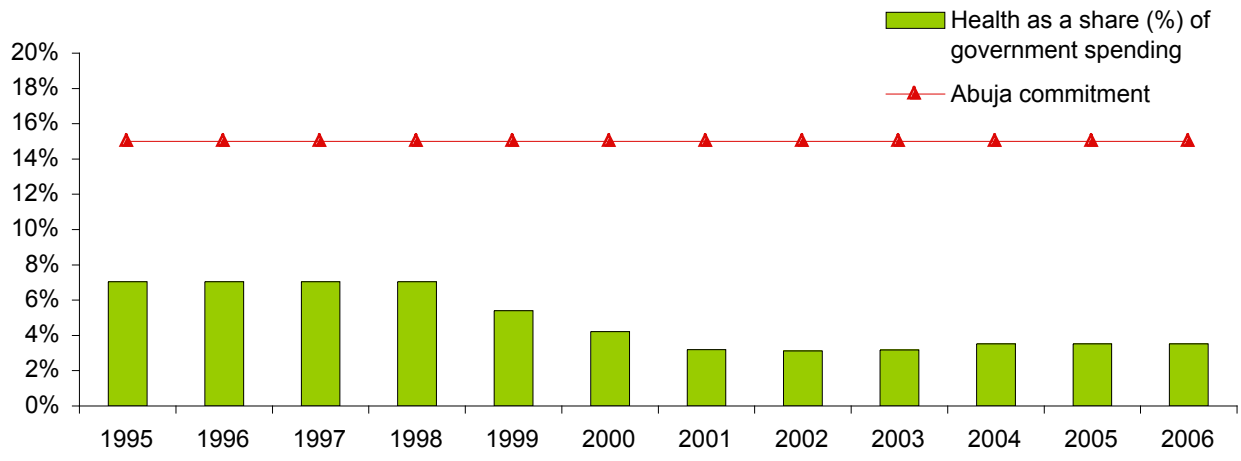
The new National Health Bill, which was passed by the legislature, will help streamline the responsibilities of the different levels of care and enhance health care financing, especially at the PHC level. The bill proposed that two percent of the national budget should contribute towards a PHC Fund, which will finance MNCH and other PHC activities through the National Primary Health Care Development Agency (NPHCDA). The bill states that the management and accountability of this fund should be completely transparent. However, two different versions of the Bill have been passed by the Senate and House of Representatives. The versions must be harmonised before the President signs it in to law.

Budget allocation and financing for newborn health

The percentage of the federal budget allocated to health has actually decreased between 1996 and 2006 from 7.1 percent to 3.5 percent.[67] (Figure 3.2) This remains far below the 15 percent that was agreed upon by African Union members including Nigeria in the Abuja Declaration of 2001. The allocation of funding for health is lower than many other resource-poor African nations.

Nigeria's total health expenditure (THE) is 4.1 percent of the gross domestic product (GDP) and has not changed dramatically over the past ten years. Many resource-poor countries in sub-Saharan Africa have larger THE as a ratio of their GDP, including Rwanda (5.0 percent); Kenya (5.3 percent); Zambia (6.2 percent); Tanzania (6.8 percent); Malawi (7.2 percent) and South Africa (7.5 percent).[11] Given the lack of financial investment into the health care system, it is unsurprising that Nigeria's health care facilities, particularly in the public sector, are understaffed and are dotted with dilapidated, decayed, outdated and broken-down infrastructure and equipment.

Figure 3.2: Nigerian government spending on health and the Abuja commitment



Source: [67]

National Health Accounts also reveal that the bulk of Nigeria's health spending is on curative care, which utilises 74 percent of THE. Preventive care is a distant second, consuming only 1 percent of THE in 2002.[67] However, health expenditure data are not broken down according to the type of services rendered and spending is not broken down into patient sub-groups. It is therefore impossible to determine the proportion of THE spent on child or newborn health according to the available data.

The new National Primary Health Care Development Fund

Clause 10 of the new National Health Bill enacts a new fund known as the National Primary Health Care Development Fund. This includes funds from national and international sources. Money from the fund will be used in the following ways:

- 50 percent of the fund will be used to provide basic minimum packages of health services to all citizens in PHC facilities through the National Health Insurance Scheme (NHIS)
- 25 percent of the fund will be used to provide essential drugs for primary healthcare
- 15 percent of the fund will be used to provide and maintain facilities, equipment and transport for primary healthcare
- 10 percent of the fund will be used to develop human resources for PHC

The National Primary Health Care Development Agency is the distributing body through State Primary Health Care Boards for use by LGA.

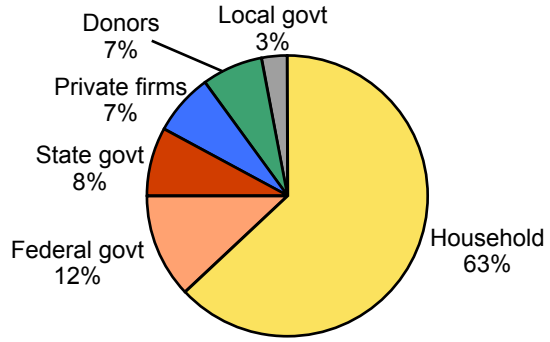
Funding sources for health

The National Health Account estimates that the bulk of health funding is provided by households through out-of-pocket payments for health care. (Figure 3.3) In 2006, out-of-pocket spending on health contributed 63 percent of THE.[67] Although the previous federal government announced free medical services for pregnant women and children under the age of five, this measure did not have any monetary or legislative support and was not successfully implemented. Many states currently exempt fees for this vulnerable group in state hospitals, but do not exempt fees in federal or local government hospitals.

Although the federal, state and local governments assume overall responsibility for funding health services at their respective levels, donor agencies at the federal and state levels also fund health programmes. In 2006, donors spent US$7.50 per live birth on maternal and newborn health in Nigeria.[68] While the total development assistance allocated to Nigeria is the highest in Africa, overseas development spending per live birth is low compared to other African countries such as Senegal and Malawi which received US$28.10 US$32.60 respectively for maternal and newborn health per live birth.[68]

According to the FMOH, donor support for the health sector has increased in the past five years, but represents a tiny contribution compared to countries like Malawi where the donor component of health financing is reported to be more than 60 percent of the total budget. The funds that are available are often poorly managed; the effectiveness of these programmes is therefore limited due to frequent duplication of programmes, political interference and poor coordination across the federal, state and local governments.

Figure 3.3: Sources of health care funding



Source: [67]

The National Health Insurance Scheme (NHIS) and newborn health

Nigerians often have to pay for services out-of-pocket at the point of service delivery. This limits access for the vast majority of people who need care, and is a major challenge towards accessing health care. The NHIS intends to reduce out-of-pocket spending for health care and thereby increase utilisation of health services. Implementation of the scheme began formally in 2005. The NHIS currently covers only federal civil servants.

Contributions are based on income under the NHIS. The employee contributes 5 percent of his or her basic salary per month to the scheme, while the employer contributes 10 percent. However, with such a large informal sector and high unemployment, many families do not qualify for coverage under this scheme. The NHIS does not include a specific package for the newborn, but if either parent is registered, the NHIS covers a maximum of four biological children.

Some states, such as Kwara and Lagos, have begun a community-based health insurance scheme as a pilot programme. These schemes are funded by international agencies. With the support of the Millennium Fund, community-based schemes work through the NHIS to include six states: Sokoto, Gombe, Niger, Oyo, Imo and Bayelsa.

Human Resources for Newborn Health

Ensuring availability and retention of competent human resources to provide healthcare in vulnerable regions is a major challenge. The Nigerian health system suffers from a lack of skilled personnel, as large numbers of doctors, nurses and other qualified medical personnel have left the country due to poor remuneration and service conditions, minimal opportunities for staff development and a general lack of basic amenities like electricity, water, housing, roads, schools and security.

The Human Resource for Health Policy identifies some issues regarding global changes in health trends, shifts in health needs and demands, declining resources, and changes in global economic, political and technological situations. The uneven distribution of competent health professionals limits access to life-saving services. Various countries have tried to address this problem by establishing different categories of "non-physician clinicians" with no significant differences in post-operative outcome in morbidity or mortality.[69-71]

Facility-based health care providers

Nigeria is among the countries with the most health care professionals in Africa, alongside Egypt and South Africa. There are approximately 39,000 doctors, 125,000 nurses and 89,000 midwives registered in the country.[72] (Table 3.3) These figures translate to two physicians, nurses and midwives per 1,000 population, which is above many countries in sub-Saharan Africa and closer to the WHO-benchmark of 2.5 deemed necessary to meet adequate coverage levels for MNCH.[73] These figures include health workers in both the private and public health sectors, and may also include health professionals who are not practicing in Nigeria or not practicing healthcare at all.

Table 3.3: Distribution of health workers

Staff Type	Number of staff	No. per 100,000 population
Doctors	39,210	30
Nurses	124,629	100
Midwives	88,796	68
Community health practitioners	117,568	19
Dentists	2,773	2
Pharmacists	12,072	11
Medical lab scientists	12,860	12
Health record officers	820	0.66
Physiotherapists	769	0.62
Environmental health officers	3441	3

Source: [72]

Mismatches in reproductive health services requirements and manpower have a negative effect on MNCH service delivery. The 2002 FMOH Reproductive Health Resources and Services Survey shows that approximately 58 percent of all health facilities that offer ANC and delivery services work without any midwives, while in as many as 17 percent of cases, there is neither a midwife nor a CHEW.[64] Yet some midwives are working in health centres that do not offer pregnancy care services. According to the FMOH, "about 77 percent of the primary level health facilities that offer ANC and delivery services operate with under-trained health personnel. Only about 20 percent of the facilities that offer ANC and delivery services work with at least one midwife."[64]

Community-based health care providers

At the community and village level, health clinics and health posts should be served by CHEWs who work in the community 80 percent of the time and 20 percent of the time in a health facility. Volunteer village health workers (VVHW) who are members of the community should be selected and trained to provide care within the WDC and CDC. These are also means of strengthening health care through community participation and ownership.

Although these are the ideal recommendations, community-based care is not commonly practiced. In most rural areas, it is rare to find doctors and midwives in primary facilities. CHEWs are not in the communities as instructed, but rather prefer to be in the health facilities. Most communities have yet to develop effective CDCs and WDCs.

The federal government attempted to bridge the gap and ensure equity in the distribution and deployment of adequate numbers of trained and well remunerated staff at the community levels. Working through the Nursing and Midwifery Council, the federal government recently reintroduced basic midwifery training: each midwife serves a mandatory one year community service after qualification before becoming certified. While this process moves forward, the FMOH and Senior Special Advisor to the President on the MDGs plan to begin a Midwifery Service Scheme, which for two years beginning in October 2008. About 2,900 midwives will be recruited in the first phase, and about 4,800 are expected to be recruited in 2009 for deployment across the country.

Chapter 4: Recommendations for the Improvement of Newborn Health

The development and launch of the IMNCH strategy offers an important opportunity to increase the availability and accessibility of life-saving services in health facilities and communities at large. Through increasing coverage and quality of existing newborn health programmes and packages, Nigeria has the capacity and strategy in place to save the lives of up to 193,000 newborns and potentially to meet MDG 4.[11] Many policies and reform programmes already exist but implementation has been haphazard. Neonatal mortality can be effectively reduced by strengthening newborn care within existing programmes and according to existing maternal and child health policies and protocols. Based on the opportunities, gaps and challenges identified by this situation analysis, actions are identified for various actors at the different levels of the health system.

Information and Research Gaps for Newborn Health

- High quality, frequent population-based birth and death data, including causes of neonatal death.
- Innovative solutions for improving newborn health record-keeping and use of data in health facilities, including neonatal morbidity/mortality audits.
- Burden of disability among children who survive the newborn period, but who do not reach their full potential due to incident or illness during the first month of life.
- Formative research around community perceptions and practices around childbirth and newborn care in order to inform behaviour change communication messages.
- Testing evidence-based practices and systems to define a home-based newborn care package, including defining the role of CHEWs and VVHWs in providing antenatal and postnatal care.
- Practical methods of screening and managing of preterm/low birth weight babies at community level.

Actions for Development Partners and Civil Society

1. Increase funding for MNCH and support effective coordination mechanisms

- Work with the FMOH to coordinate funding from development partners to ensure MNCH programmes have sufficient funding
- Negotiate at national, state and LGA levels for newborn-specific budgeting and spending.

2. Coordinate activities to address key gaps and reduce overlap

- Work closely with the FMOH to close gaps between the federal government, private sector, professional associations and development partners. A national Partnership for MNCH, launched in March 2007, has already begun to address this issue.

3. Monitor and evaluate activities and share results

- Development partners, agencies and professional associations should be involved in monitoring and evaluation frameworks, developing indicator tools, and monitoring delivery on the government's commitments. They should provide additional assistance with data management and reporting.

Strategies to Improve Newborn Care by Level of Service Delivery

Community and household level

- Implement community identification and management of neonatal infection as appropriate with strict supervision and channels for immediate referral
- Roles and responsibilities of CHEWs and community resource persons should be categorised and clearly delineated.
- Provide community resource persons with refresher skills training on danger signs for mothers and newborns, early identification and care of the sick and small babies, and support for immediate referral to the nearest PHC facility for additional care.
- Develop and implement a coordinated behaviour change communication (BCC) strategy to promote simple essential newborn care practices at community level through women's groups, religious organisations and other community mobilisation structures.
- Institute a CDC and WDC in each community as defined in the Minimum Health Care Package and provide training on newborn care issues for committee members.

Behaviour Change Communication

Nigeria has multiple BCC campaigns at state-level though most have been around immunisation or gender issues. There have been no large-scale newborn-specific campaigns that target healthy behaviours for health promotion such as breastfeeding, warmth and hygiene or recognition of maternal and newborn danger signs.

- A BCC strategy should involve the use of the national media (e.g. radio, television, newspapers) as well as local community groups to create awareness and sensitise the general population to newborn care and harmful practices.
- Messages should use simple language, local dialects and visual media materials for maximum comprehension.
- BCC should include information on delays to accessing maternal and neonatal healthcare, the early identification of danger signs and the importance of prompt referral.
- Campaigns should highlight positive deviance in addition to addressing the various factors that prevent mothers from attending ANC, delivering in the health facilities and seeking early postnatal care for themselves and their newborn.
- BCC strategies should engage both male and female policy makers, religious and traditional leaders and at community, household and individual levels.
- Communities are an integral part of BCC campaigns for MNCH.

Health facility level

Focused antenatal care	• Ensure goal-oriented, 4-visit Focused Antenatal Care (FANC) • ANC should be available on a daily basis in all health facilities, instead of only once-a-week • Ensure FANC training materials are available to state and LGA decision makers as well as health facilities • Ensure that health care personnel receive adequate and frequent training on FANC • Ensure necessary equipment and laboratory tests are available in health facilities providing ANC
Intrapartum care	• Ensure sufficient human resources to provide a skilled birth attendant for each birth • Ensure "Mama kits" and midwifery kits are readily available for all deliveries • Provide and enforce correct usage of partographs during labour • Support the Midwifery Special Scheme with financial backing • Reinforce the training of CHEWs on Modified Life Saving Skills • Incorporate and monitor neonatal resuscitation as an EmOC signal functions for basic and comprehensive EmOC facilities. • Increase neonatal resuscitation training for doctors and nurse/midwives and cascade training down to states and LGAs. • Increase the number of midwifery schools to at least two per state • Orient health care workers in simple immediate newborn care practices including immediately drying the newborn and placing the baby skin-to-skin with the mother and early initiation of breastfeeding
Postnatal care	• Medical and nursing curriculum on postnatal care should be standardised to encourage routine, early PNC visits • Review delivery strategies for PNC and ensure mechanism for reaching mothers and babies within 24 hours of childbirth • Update national protocol to include the timing and optimum number of PNC visits for facility and home deliveries, as well as for at-risk newborns • Postnatal health education should emphasise healthy home behaviours such as exclusive breastfeeding as well as postnatal danger signs for mother and newborn and family planning
Extra care for sick newborns	• Define extra and emergency care for sick newborns at national, state and LGA levels should be well defined, emphasizing KMC for preterm/LBW babies and early identification and treatment of neonatal sepsis and pneumonia. • Incorporate KMC within the IMNCH strategy and support tertiary centres to integrate KMC into their neonatal special care units while facilitating the roll-out of KMC at all levels of care. • Ensure essential drug lists at all levels include necessary drugs for newborn care based on national newborn care protocol (e.g. gentamicin and penicillin for neonatal infections) • Develop and maintain an essential supplies list for newborn care at various levels
Referral systems	• Engage in community mobilisation to develop effective referral and community transport system • Encourage birth preparedness to limit delays as much as possible in case of emergency • Provide ambulances and their maintenance to hospitals • Enable two- way communication between the community, PHC facilities and referral centres through the use of mobile phones • Facilitate pre-payment schemes for transportation to a referral facility through mothers' clubs or other community mechanisms • Ensure functional triage systems are in place to minimise delays once the health facility is reached • Enforce 24-hour availability of maternity services at all health facilities

Actions at Federal, State and Local Levels

	Federal actions	State actions	LGA actions
Ensure appropriate funding and accountability	• Redouble efforts to meet the Abuja commitment to allocate 15 percent of total government spending to health. • Follow the lead of other African nations and enforce a national guideline on free MNCH services. All states should receive adequate incentive and support to adapt and implement the guidelines locally. • Support the Midwifery Services Scheme to recruit and deploy midwives to communities nationwide, with an emphasis on the northern states. • Review and address critical gaps in National Health Insurance Scheme (NHIS) including continuing expansion at the community level and scale-up to reach women, children and newborns in remote areas. • Strengthen national level working group for MNCH comprised of FMOH, development partners, civil society including professional associations	• Ensure appropriate MNCH funding by including a state-level budget line item for newborn health and enabling prompt release of funds. • Work with the FMOH to secure the funding necessary to implement policies related to free MNCH services. • Encourage public-private partnerships to enable state governments to pay fees associated with emergency referrals from a primary health clinic or state hospital. • Consider paying a stipend to TBAs for each appropriate referral that they make to a health facility	• Allocate sufficient funding to provide necessary resources to improve quality of care at health facilities for ANC, birth and PNC services. • Include newborn-specific line items in health budgets, matching budget allocation to the high burden of mortality and morbidity.
Orient policies, guidelines and services to include newborn interventions	• Harmonise the National Health Bill in order for it to be signed into law and gazetted. • Revise policy to ensure community-based MNCH delivery approaches are clearly defined. • Update policy to include PNC by skilled provider at within 2 days for babies delivered at home and at one week for babies and their mothers. • Review CIMCI training modules for harmonisation and incorporate relevant aspects of the UNICEF and ACCESS community-based newborn care training. 1. Encourage KMC implementation by developing national guidelines for adaptation at state and LGA level. 2. Disseminate and train staff at all maternity facilities on the National Emergency Obstetric and Newborn Care Performance Standards. 3. Develop standardised training materials, job aids and treatment protocols, including newborn care materials (e.g. KMC, danger signs of newborn illness and neonatal resuscitation).	• Engage in state-level IMNCH roll out and implementation. • Update the Minimum Health Care package to include basic neonatal resuscitation, immediate and exclusive breastfeeding promotion, KMC for preterm/LBW babies, eye care, cord care, community treatment of neonatal infections and the use of Vitamin K.	• Strengthen PHC services through the National Primary Health Care Development Agency, as proposed in the National Health Bill. • Ensure provision of BEmOC as part of PHC and ensure that at least four midwives are trained in newborn care and resuscitation and are available for 24-hour coverage. • Review the roles of community health officers/CHEWs who can work at the community/facility level to treat asphyxia, LBW and infections. The minimum package of services should be available at the community level. • Synchronise training curricula and materials for community level health workers. • Implement and supervise community-based management of sepsis including identification and treatment of sick newborns.

	Federal actions	State actions	LGA actions
Effectively plan and implement	• Increase efforts to accelerate IMNCH strategy roll-out in more states and at all levels of government. • Consider appointing a neonatal desk officer or another official with expertise in neonatal health in order to accelerate implementation. • Build political will for newborn health within state and local government. • Support mobilisation of professional associations, NGOs, and civil society at the national level to ensure policies are translated into action. • Advocate for appropriate operational research for community management of newborn health. • Increase involvement with the Paediatric Association of Nigeria/ Nigerian Society of Neonatal Medicine with the National Partnership for MNCH Core technical committees. • Improve both monetary and non-financial remuneration and conditions of service for all medical personnel in order to reduce the loss of qualified healthcare workers. • Strengthen the role of CHEWs through reviewing the training curriculum, clarifying their job description and ensuring adequate supervisory structures are in place. • Support and scale-up the Midwifery Community Service, which is being coordinated by the Nursing and Midwifery Council, in order to reach more mothers and newborns. • Provide more training institutions for midwives, especially in the few northern states where no training institutions currently exist.	• Facilitate the establishment of State Technical Committees within the PMNCH, with an aim to roll-out IMNCH strategy priorities throughout the state, including tertiary and general hospitals and private health facilities. • Conduct a local newborn health situation analysis and support LGAs in addressing gaps and missed opportunities identified. • Recruit doctors and nurses at the state level to be paid through LGA funds and prioritise establishing a minimum of two midwifery schools in each state. • Ensure well-defined structures for effective training, continuous medical education and continuous reviews of training curricula. • Adapt standards for emergency obstetric to include resuscitation and management of neonatal encephalopathy • Adapt national standards for newborn care to ensure provision of KMC and case management of sepsis.	• Ensure that health facilities have functional equipment, essential drugs for newborn care, and basic infrastructure, including water and a regular supply of electricity. • Empower mothers to care for their newborns through ANC, ITN vouchers, "mama kits" and family planning vouchers after birth. LGAs should also provide mobile ANC services, especially in remote areas, to encourage mothers to access care. • Institute an effective two-way referral system including transport for EmOC and emergency newborn care. • Provide technical assistance to communities to organise emergency transport and payment systems. • Institute training for midwives and CHEWs in order to meet critical human resource needs in each community. • Deploy personnel equitably throughout LGAs according to population needs. Each PHC facility should have enough skilled attendants to ensure adequate 24-hour coverage.
Improve monitoring and evaluation	• Ensure implementation plans include measurable indicators and targets for newborn care. • Standardise forms used for supervision, monitoring and evaluation through the FMOH Health Management Information System (HMIS) and other mechanisms • Improve the coordination and effectiveness of the HMIS framework at national, state and local government levels, including strengthening the link between the HMIS, the National Population Commission and health facilities. • Increase coverage of the national birth and death registration policy. • Review tools for national notification of maternal deaths and routine auditing of neonatal deaths, and adapt and reinforce their use at the national, state and local government levels. • Integrate the audit process for maternal and newborn morbidity and mortality under the IMNCH strategy.	• Include neonatal mortality rates and targets in state level monitoring systems. • Review client/patient forms and registers through HMIS in order to ensure the capture of data required for monitoring and evaluating newborn care. • Support the implementation of facility-based maternal and neonatal mortality audits.	• Ensure service statistics are registered daily at each facility, collated monthly and sent to the LGA. • Compile facility HMIS data and share with the state and federal HMIS. Newborn health and service indicators should be clearly noted and tracked • Transition to electronic data collection and management to enable sharing, analyses and tracking trends over time.

Chapter 5: State Newborn Health Data Profiles

Data can be powerful if used in the proper context and presented in a way that makes sense to the audience. The following state profiles can be used to strengthen policy, assess programmes, and rationally allocate resources and mobilise additional commitment, particularly for state-level roll-out of the IMNCH strategy.

Jonathan Hubschman/Save the Children

Profile Notes and Data Sources

Births and deaths: Total population and annual births, 2006.[1, 6] Zonal neonatal and under-five mortality rates from 2003[4] are applied to each state. Since state-level estimates are not available, the estimated national maternal mortality ratio from 1999[25] is used in each state profile. Numbers of neonatal, under-five and maternal deaths are calculated using the mortality rate and annual births by state.

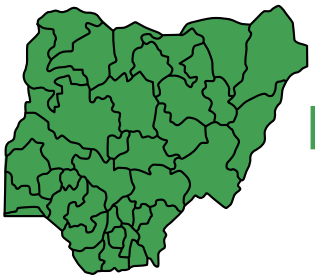
Rate of progress: Neonatal and under-five mortality rates, 1960-2006.[1,4,61] The MDG 4 target reflects a two-thirds reduction from the 1990 under-five mortality rate.[9]

Estimated causes of neonatal death: The zonal estimate for neonatal causes of death is used in each state profile. This zonal estimate is based on multinomial regression used to model the proportion of deaths due to seven programmatically relevant causes of death as developed by WHO and UNICEF with the Child Health Epidemiology Reference Group.[10, 11, 16] Due to rounding, percentages may add up to more than 100. See page 20 of this report for more information on these estimates.

Coverage along the continuum of care: Demand for contraception satisfied, antenatal care (at least one visit from a skilled provider), skilled attendant at childbirth, exclusive breastfeeding among infants less than six months, and measles vaccination refer to state-level data from 2007.[5] Postnatal care within two days for home births refers to zonal data from 2003[4] applied to each state. No data are available on postnatal care for births that occur at a health facility.

Health systems, policy and finance:
Caesarean section rate are zonal data from 2003[4] applied to each state. Knowledge of PMTCT (modes of transmission and prevention), low birth weight prevalence, births registered, are state-level data from 2007.[5] State-level data on care seeking for childhood pneumonia are included only where more than 25 observations were reported in MICS. Very little state-level data are available in the public domain pertaining to the adult HIV prevalence rate; number of hospitals and health centres; number of health workers per 1,000 population; percentage of public health facilities meeting basic and comprehensive EmOC standards; percentage of LGA with health workers trained in IMCI; total spending on health per capita (USD); and government spending on health per capita (USD). These cells are left blank for states to fill in when information is available and also to highlight the dearth of crucial information for health systems planning. Some national data are available for these indicators and used in the Nigeria profile.[1, 7, 21, 67, 72, 74]

Missed opportunities:
At least one antenatal care visit from a skilled provider, two or more doses of tetanus toxoid during pregnancy, blood sample taken, voluntary counselling and testing for HIV, skilled attendant at childbirth, breastfeeding within one hour of birth and exclusive breastfeeding among infants less than 6 months, one and three doses of DPT and all vaccinations (BCG, measles, and three doses each of DPT and polio vaccines), refer to state-level data from 2007.[5] Informed of signs of pregnancy complications,[4] intermittent preventive treatment for malaria (two doses of SP/Fansidar received during antenatal care)[4] and any breastfeeding refer to zonal data from 2003[4] applied to each state.

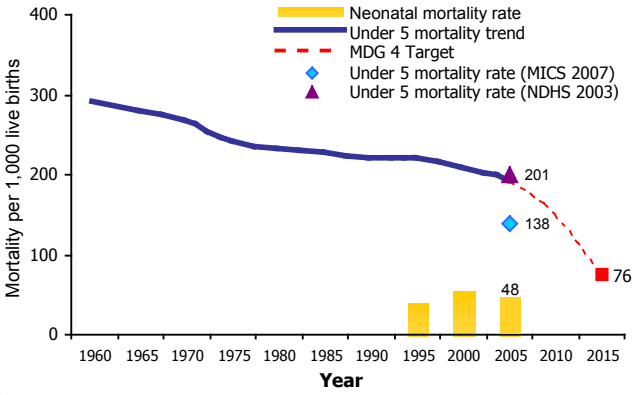


NIGERIA

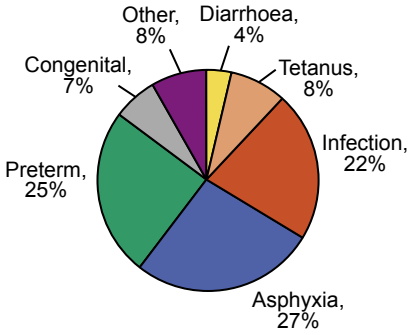
BIRTHS AND DEATHS

Population	144,720,000
Annual births	5,909,000
Neonatal Mortality Rate (2003)	48
Annual number of neonatal deaths	284,000
Under-5 Mortality Rate (2003)	201
Annual number of under-5 deaths	1,188,000
Percent of under-five deaths that are neonatal	24%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	47,000

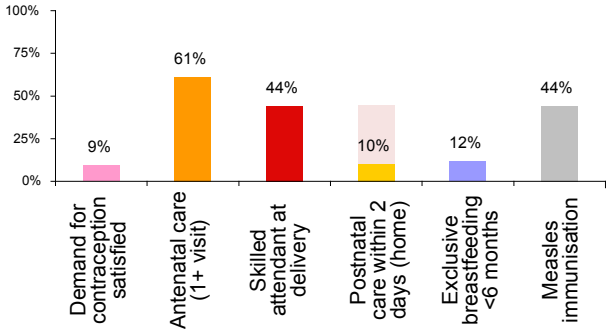
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (National)



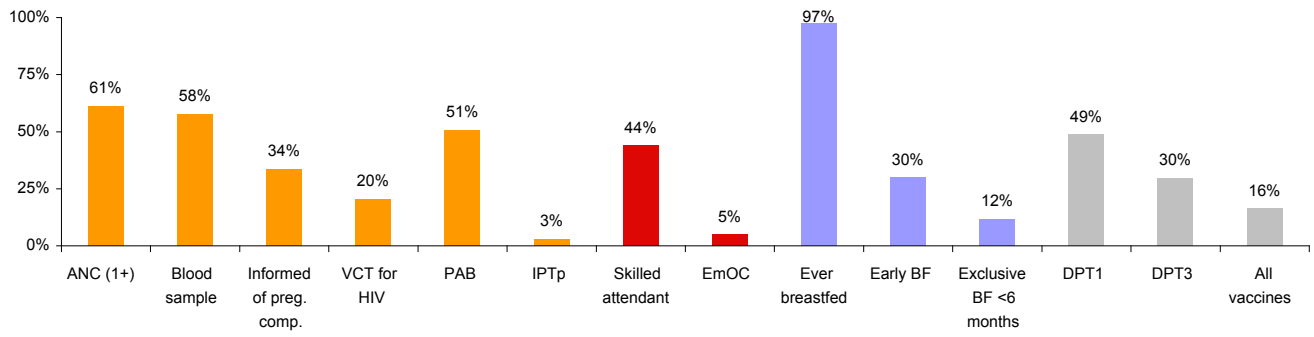
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	3.9	Number of public hospitals; health centres	904; 13,703
Knowledge of PMTCT (%)	62	Health workers per 1,000 population	2
Caesarean section rate (%) (zone)	2	Public facilities meeting EmOC criteria: basic; comprehensive (%)	1.2; 3.9
Births registered (%)	23	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	14	Total spending on health per capita (USD)	32
Appropriate care seeking for pneumonia (%)	41	Government spending on health per capita (USD)	10

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

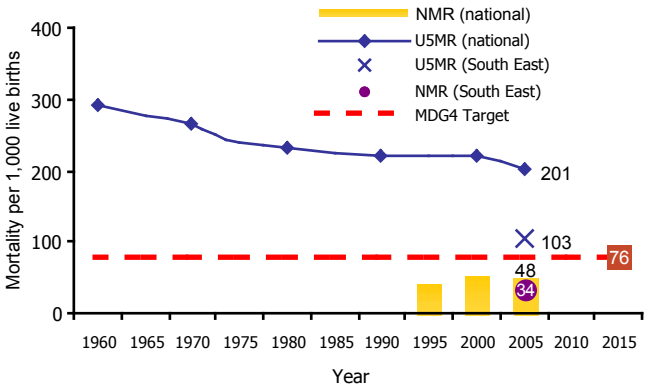


Abia State

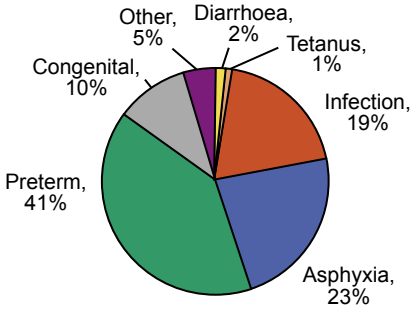
BIRTHS AND DEATHS

Population	2,834,000
Annual births	113,000
Neonatal Mortality Rate (2003)	34
Annual number of neonatal deaths	4,000
Under-5 Mortality Rate (2003)	103
Annual number of under-5 deaths	12,000
Percent of under-five deaths that are neonatal	33%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



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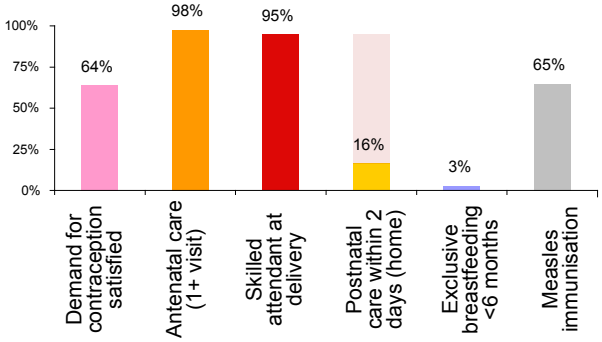
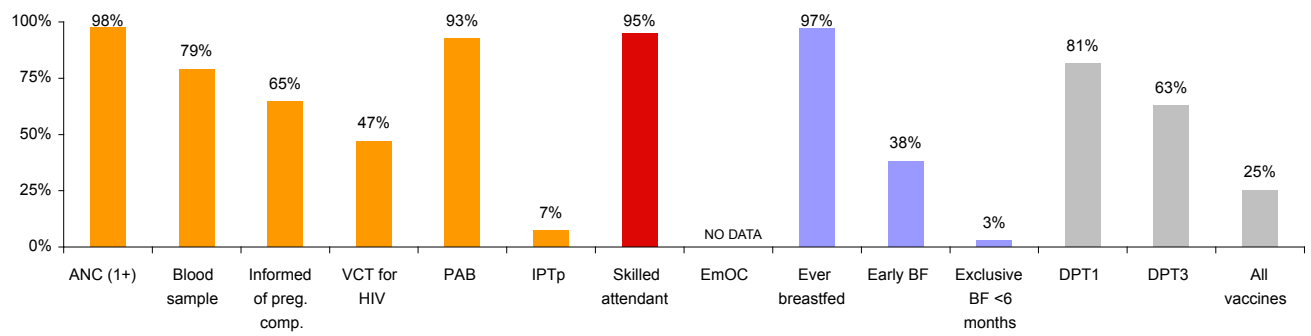
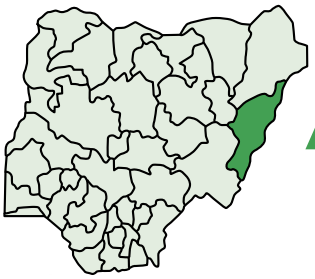


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	80	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	8.6	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	43	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



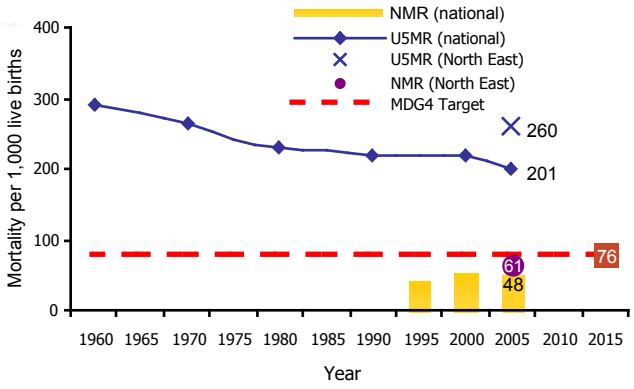


Adamawa State

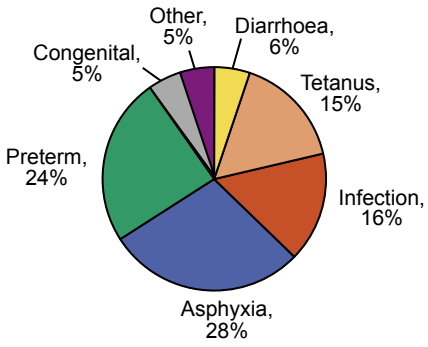
BIRTHS AND DEATHS

Population	3,168,000
Annual births	127,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	8,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	33,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

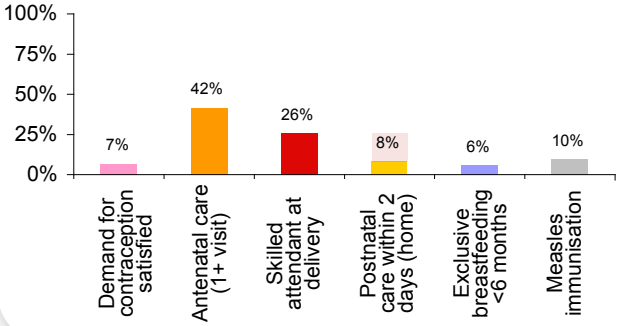
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



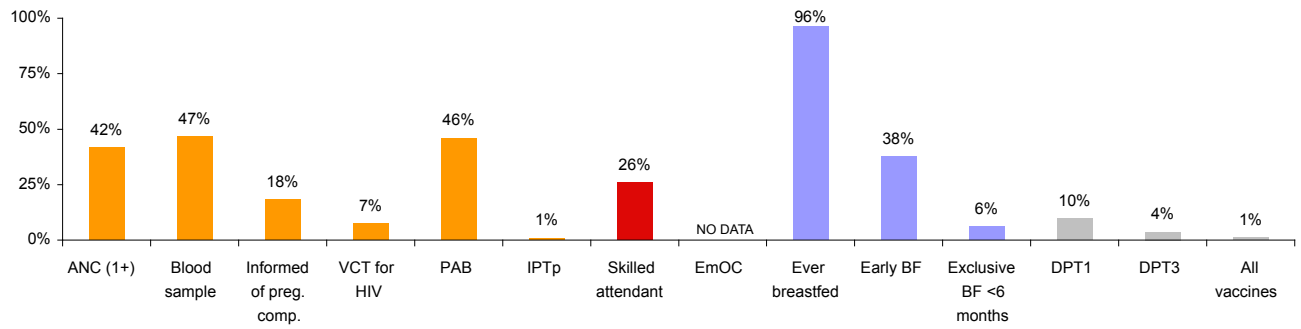
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	32	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	35	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	17	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

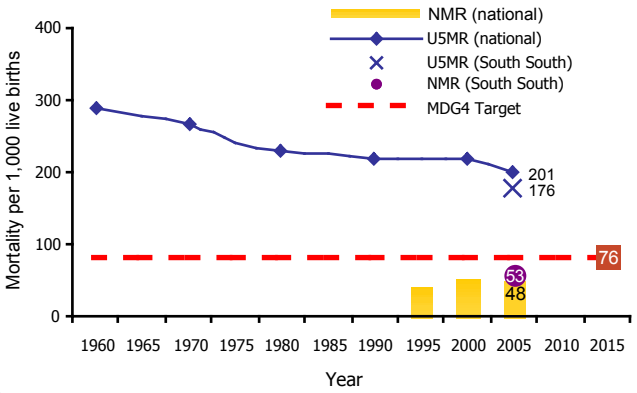


Akwa-Ibom State

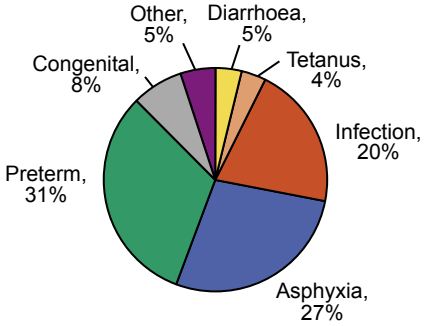
BIRTHS AND DEATHS

Population	3,920,000
Annual births	157,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	8,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	28,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

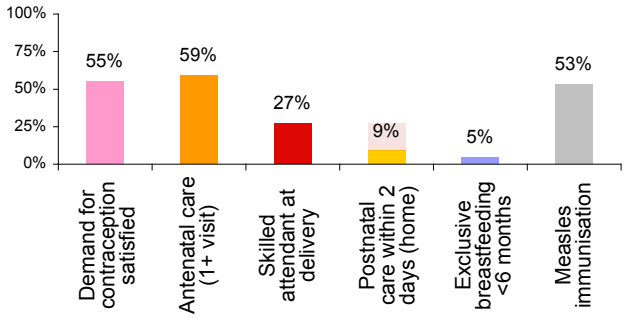
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



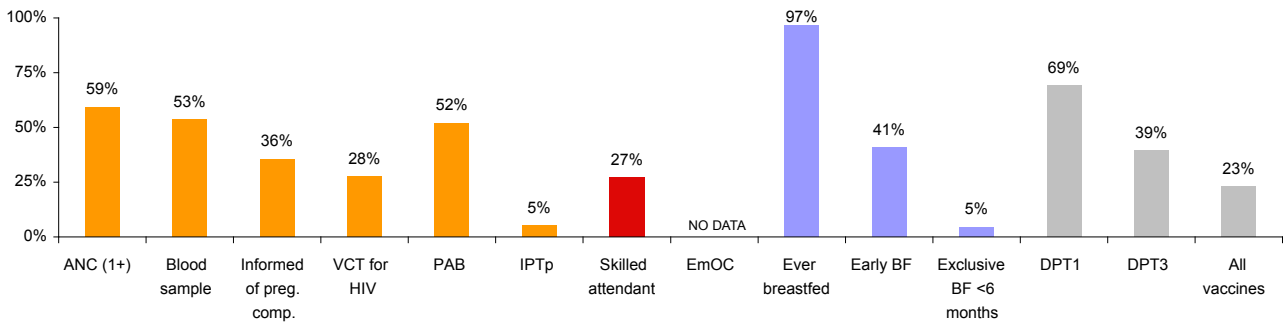
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	93	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	15	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

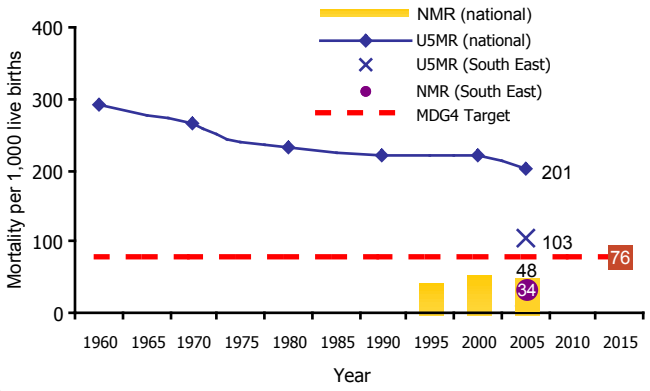


Anambra State

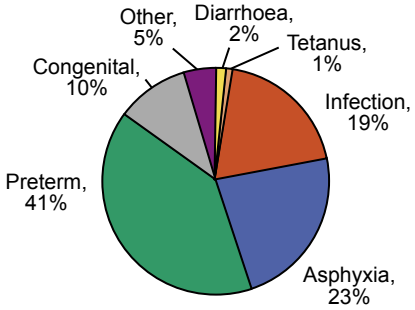
BIRTHS AND DEATHS

Population	4,182,000
Annual births	167,000
Neonatal Mortality Rate (2003)	34
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	103
Annual number of under-5 deaths	17,000
Percent of under-five deaths that are neonatal	33%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

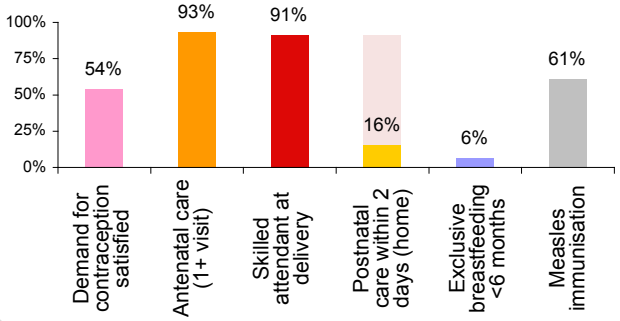
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



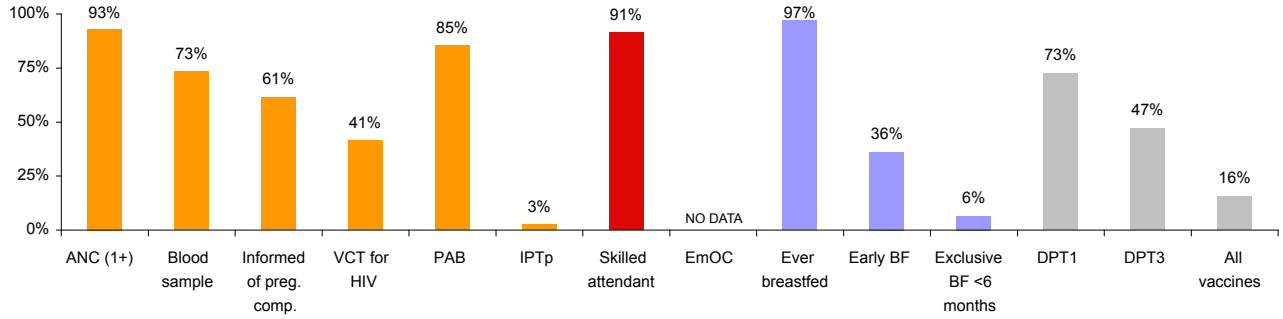
COVERAGE ALONG THE CONTINUUM OF CARE

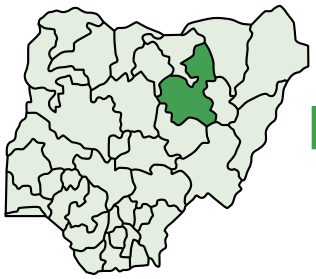


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	64	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	8.6	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	43	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	14	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



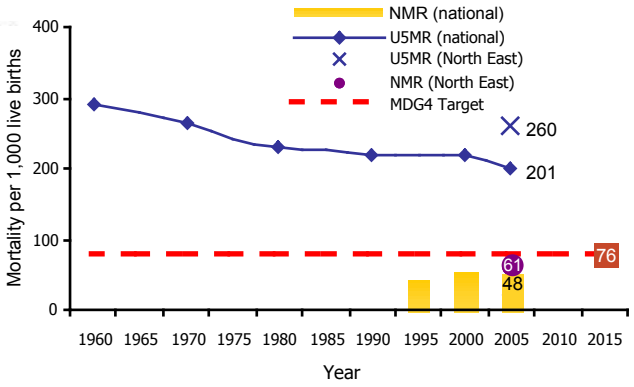


Bauchi State

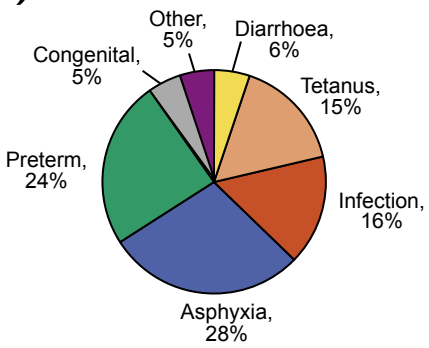
BIRTHS AND DEATHS

Population	4,676,000
Annual births	187,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	11,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	49,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

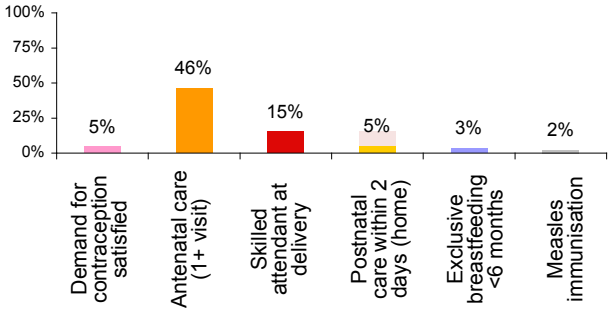
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



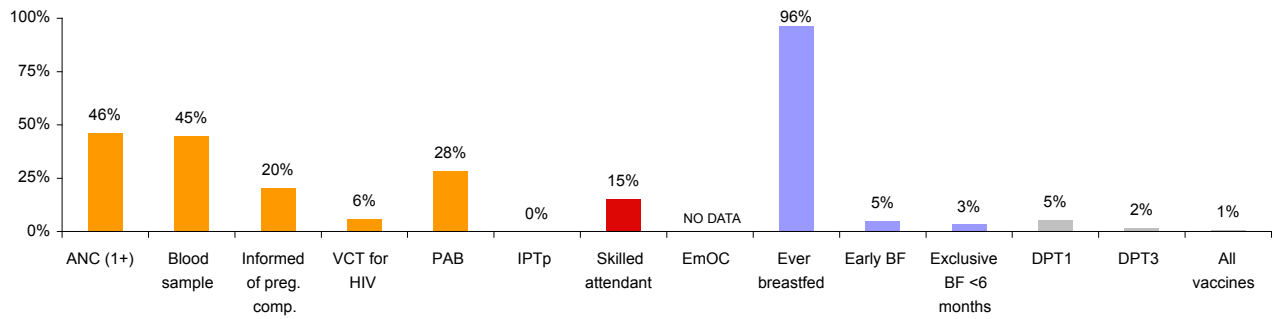
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	25	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	23	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	19	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

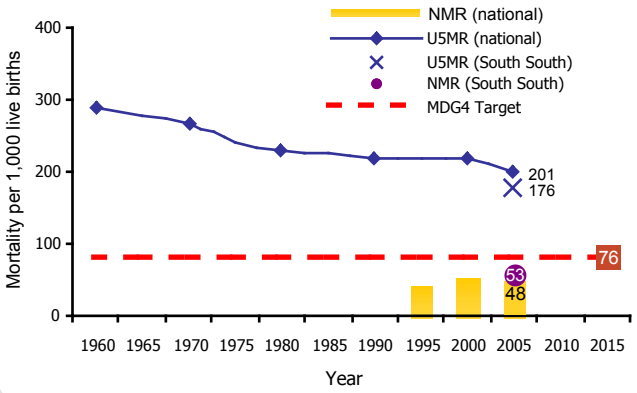


Bayelsa State

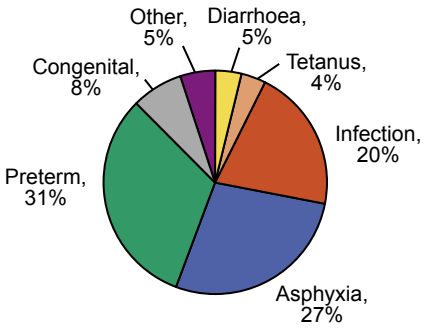
BIRTHS AND DEATHS

Population	1,703,000
Annual births	68,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	4,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	12,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

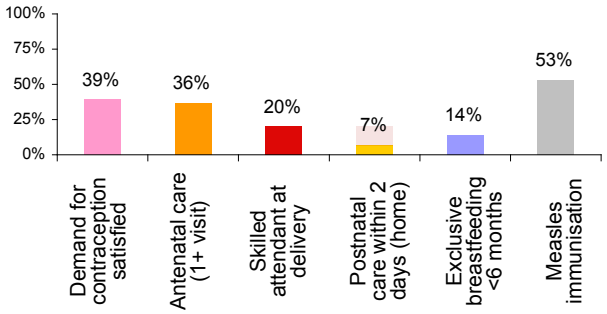
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



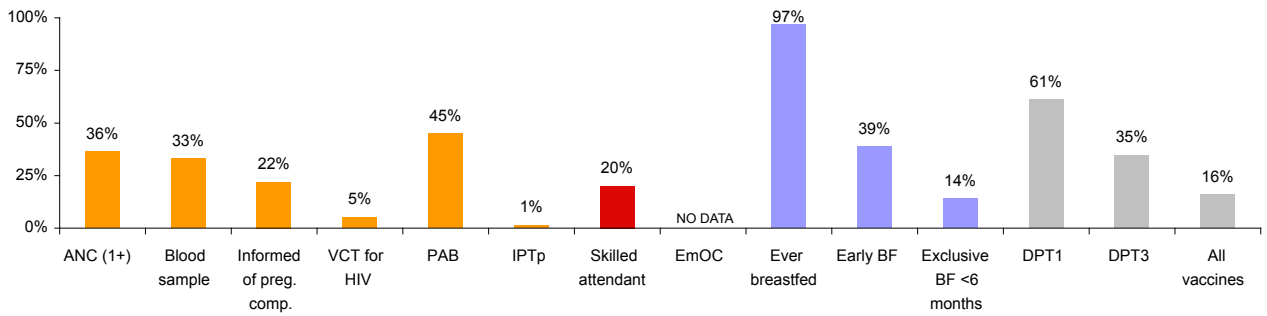
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	61	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	6	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	13	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

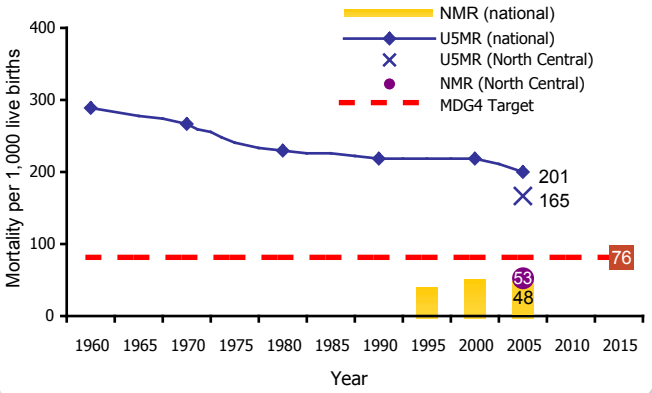


Benue State

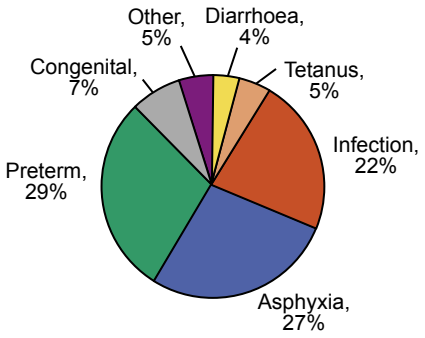
BIRTHS AND DEATHS

Population	4,219,000
Annual births	169,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	9,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	28,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

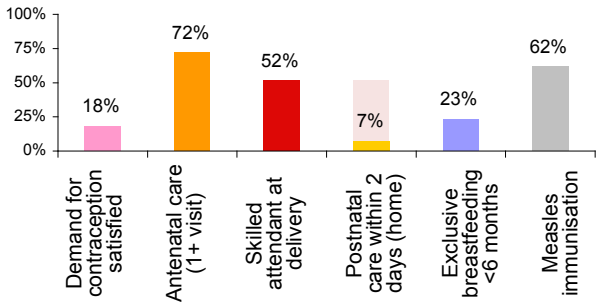
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



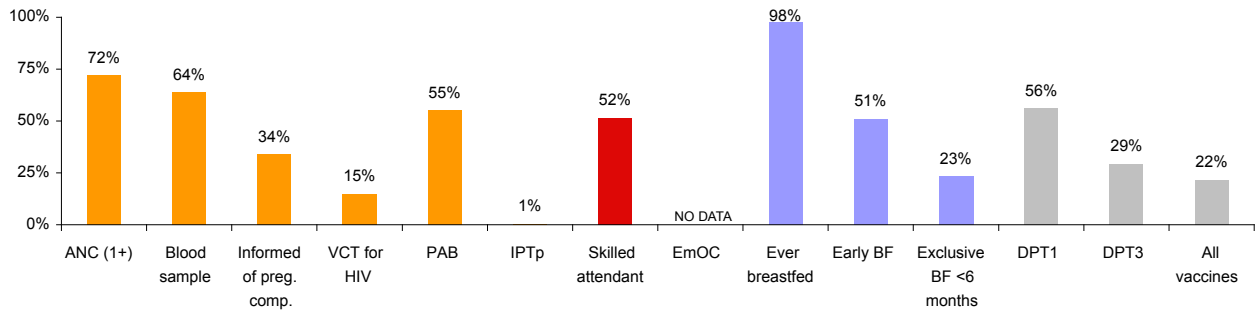
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	84	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	9	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

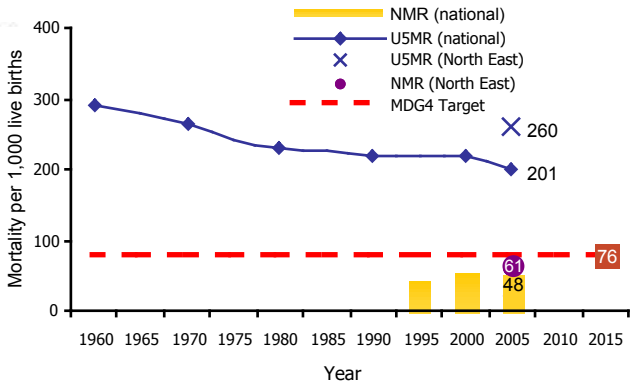


Borno State

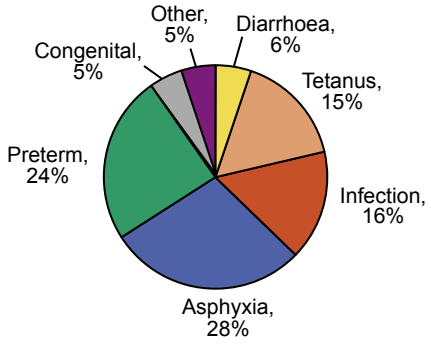
BIRTHS AND DEATHS

Population	4,151,000
Annual births	166,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	10,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	43,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

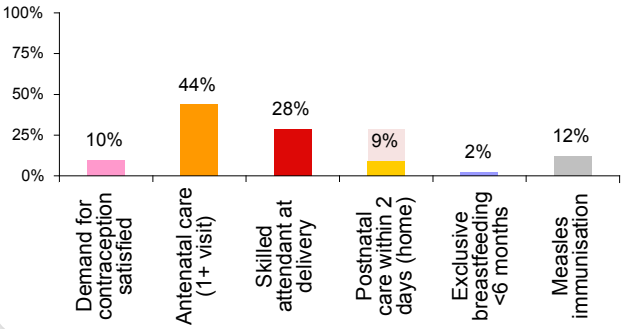
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



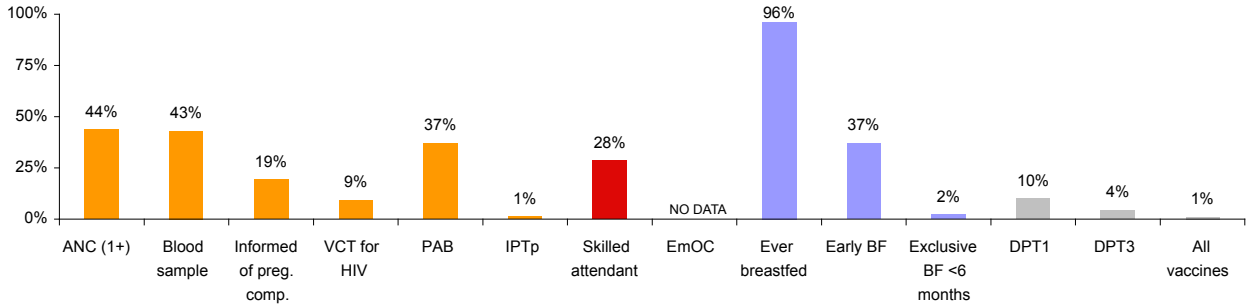
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	27	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	21	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	17	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

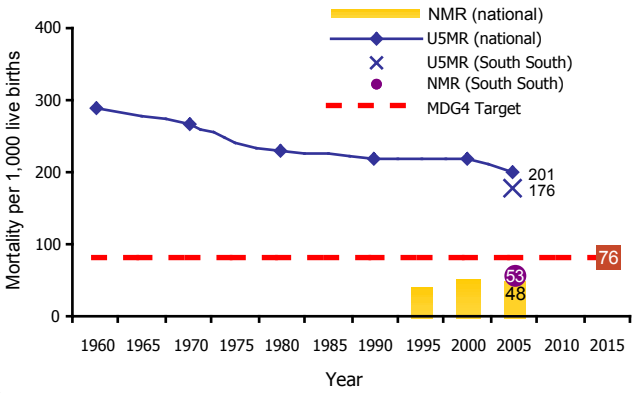


Cross River State

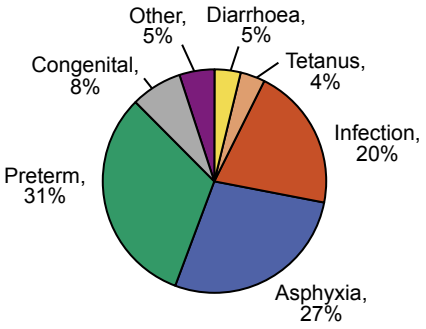
BIRTHS AND DEATHS

Population	2,889,000
Annual births	116,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	20,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

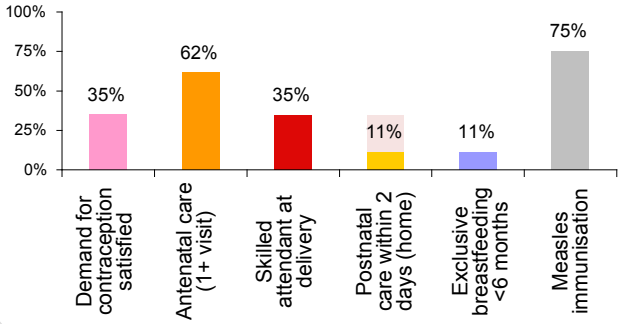
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



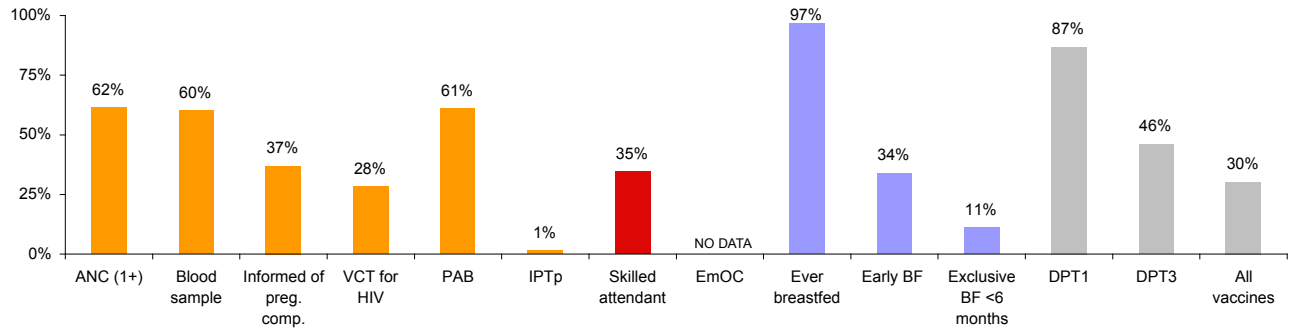
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	80	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	27	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

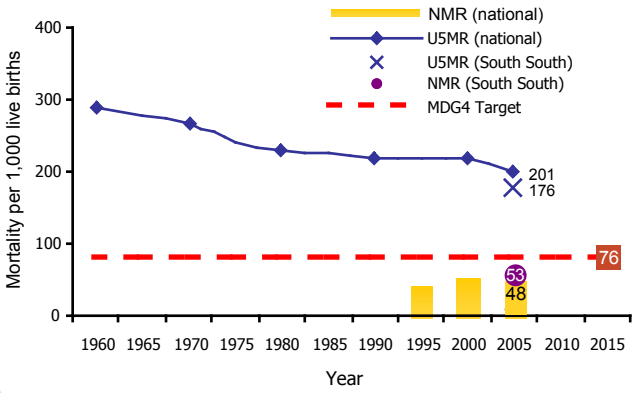


Delta State

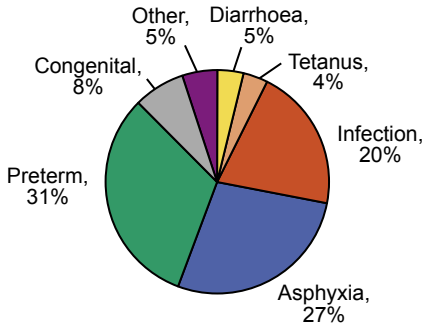
BIRTHS AND DEATHS

Population	4,098,000
Annual births	164,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	9,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	29,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

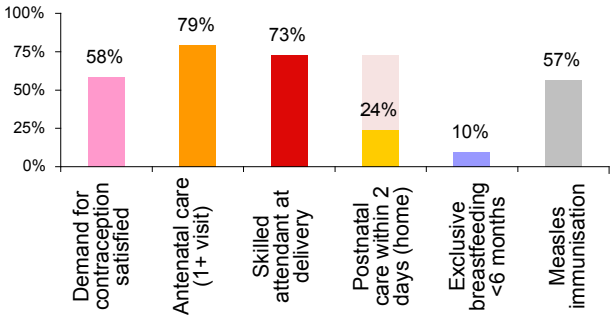
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



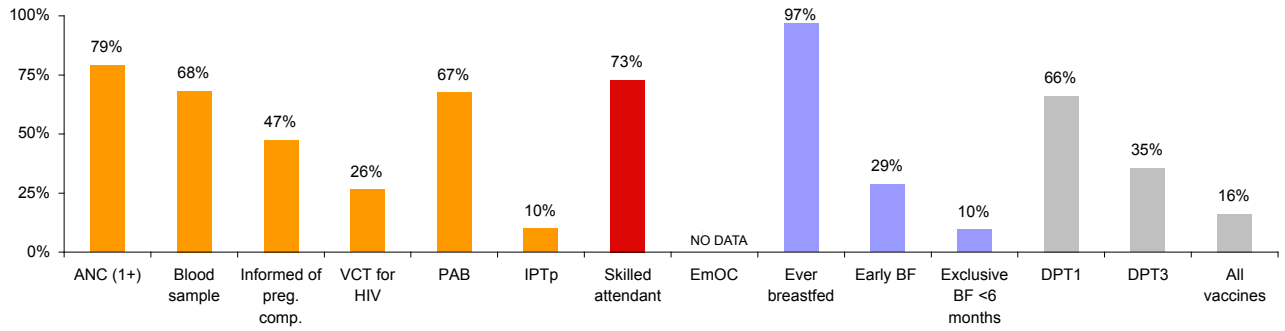
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	67	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	16	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

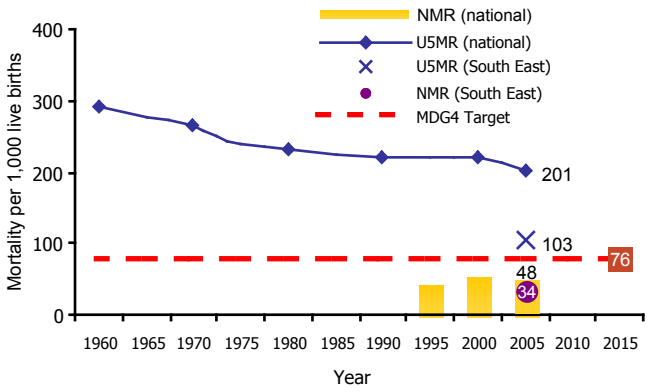


Ebonyi State

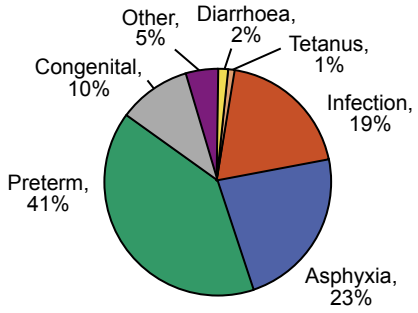
BIRTHS AND DEATHS

Population	2,174,000
Annual births	87,000
Neonatal Mortality Rate (2003)	34
Annual number of neonatal deaths	3,000
Under-5 Mortality Rate (2003)	103
Annual number of under-5 deaths	9,000
Percent of under-five deaths that are neonatal	33%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

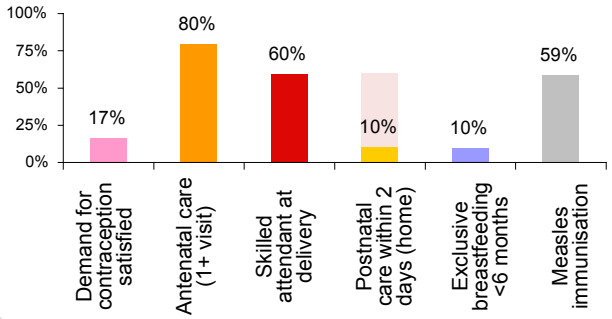
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



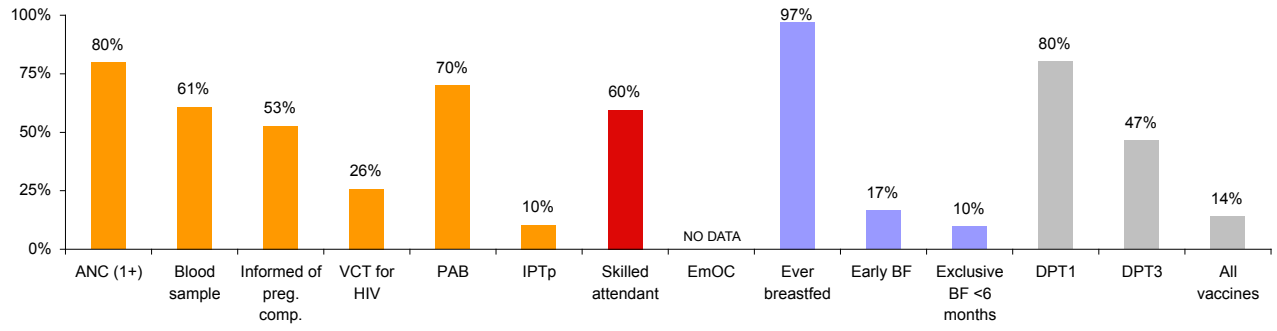
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	62	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	8.6	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	16	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	16	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

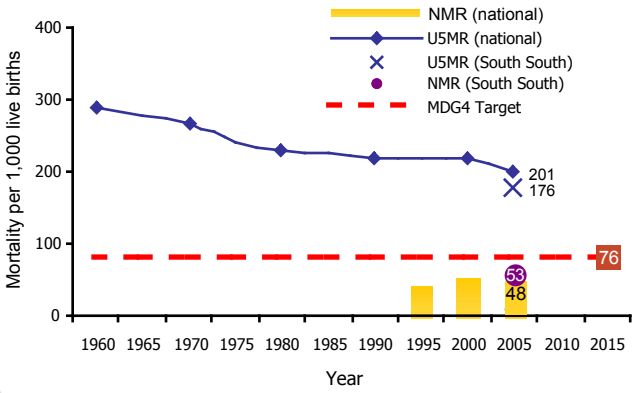


Edo State

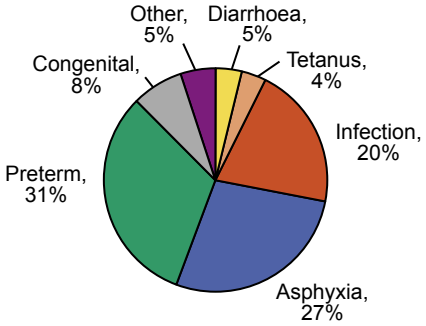
BIRTHS AND DEATHS

Population	3,218,000
Annual births	129,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	7,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	23,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

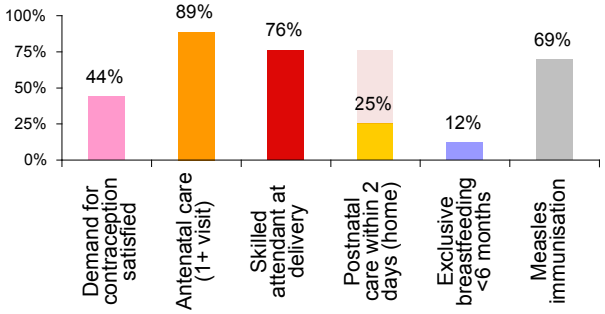
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



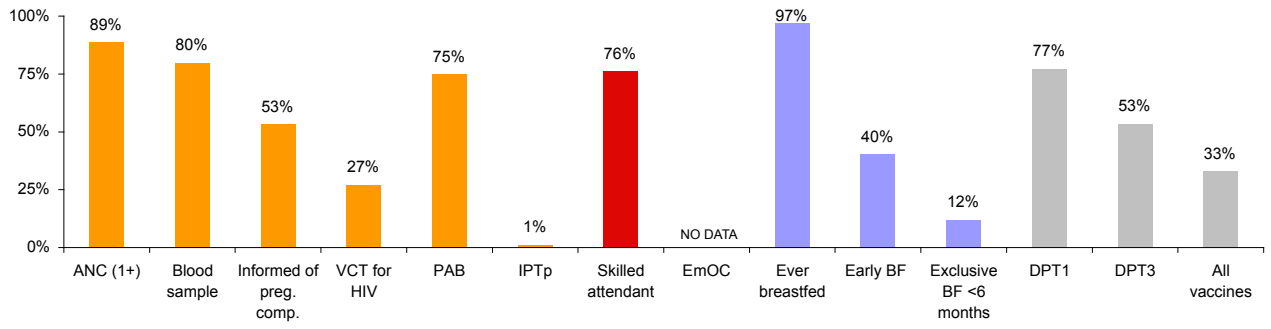
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	75	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	31	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	11	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

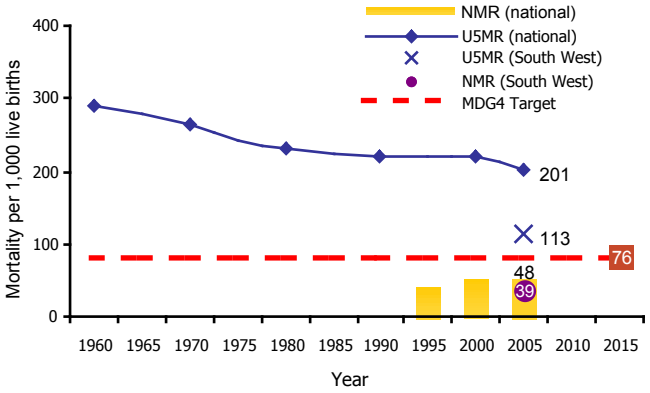


Ekiti State

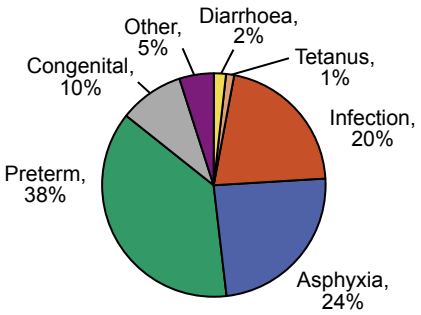
BIRTHS AND DEATHS

Population	2,384,000
Annual births	95,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	4,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	11,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

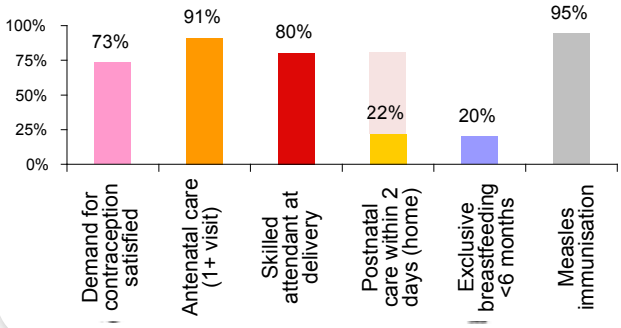
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



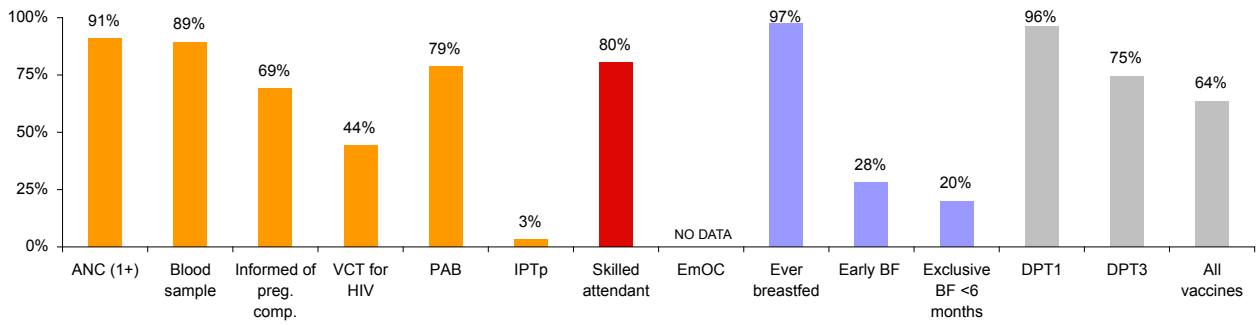
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	80	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	55	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	10	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

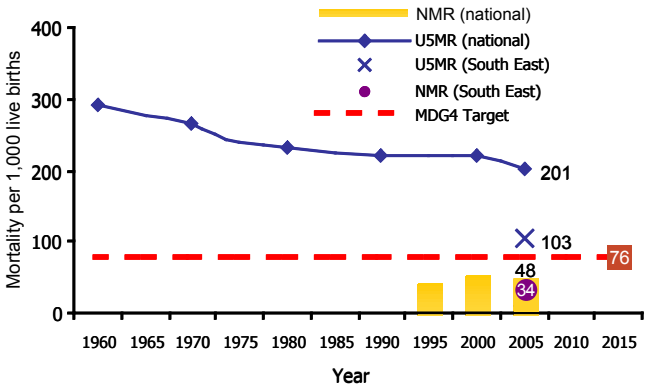


Enugu State

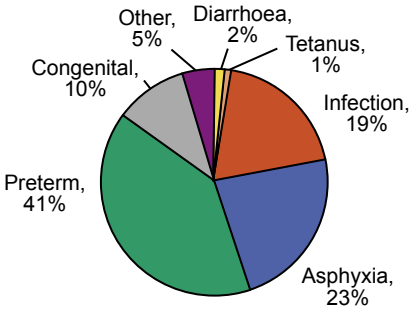
BIRTHS AND DEATHS

Population	3,257,000
Annual births	130,000
Neonatal Mortality Rate (2003)	34
Annual number of neonatal deaths	4,000
Under-5 Mortality Rate (2003)	103
Annual number of under-5 deaths	13,000
Percent of under-five deaths that are neonatal	33%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

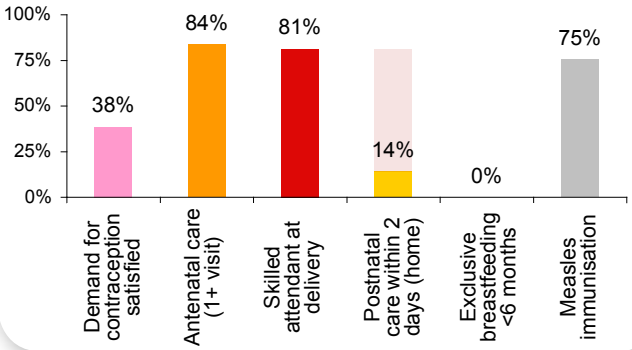
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



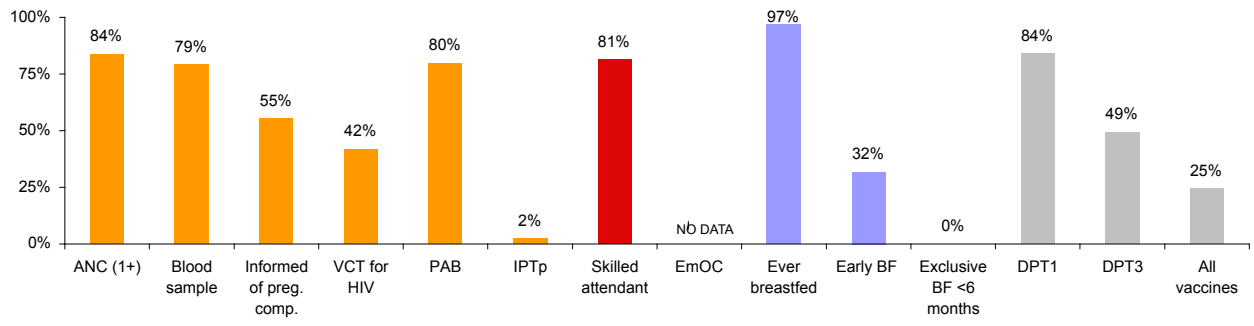
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	75	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	8.6	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	22	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	11	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

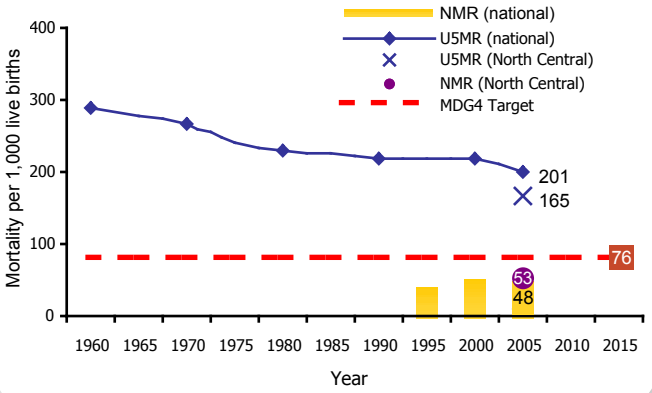


Federal Capital Territory

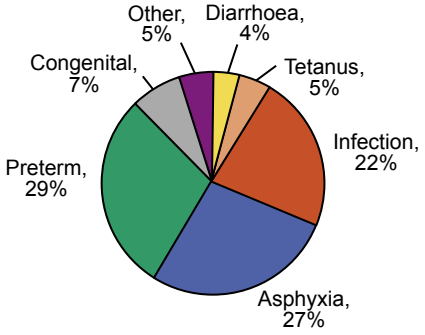
BIRTHS AND DEATHS

Population	1,405,000
Annual births	56,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	3,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	9,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	0

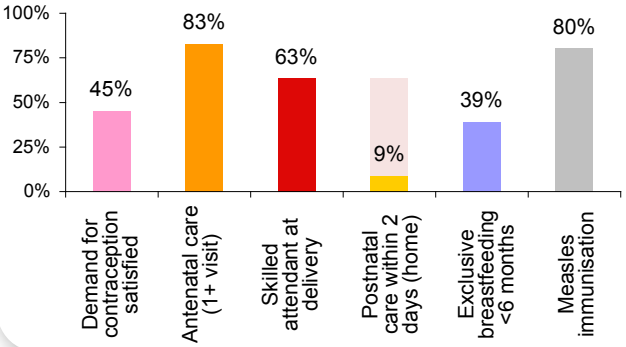
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



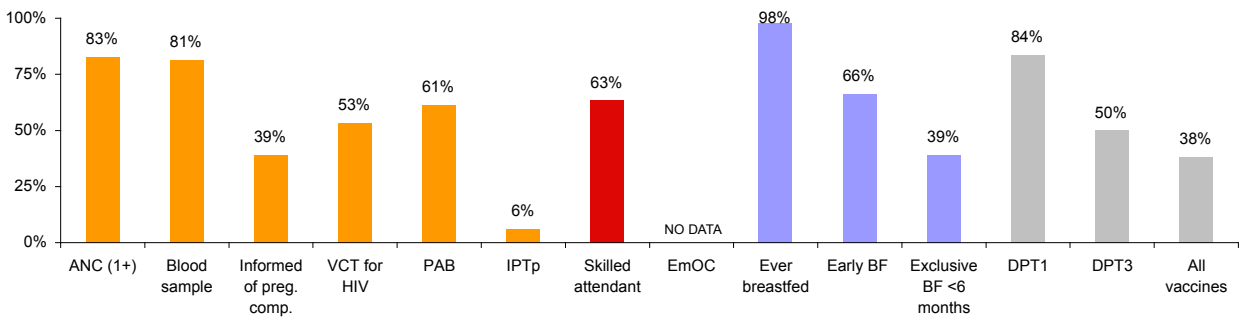
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	75	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	34	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	13	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

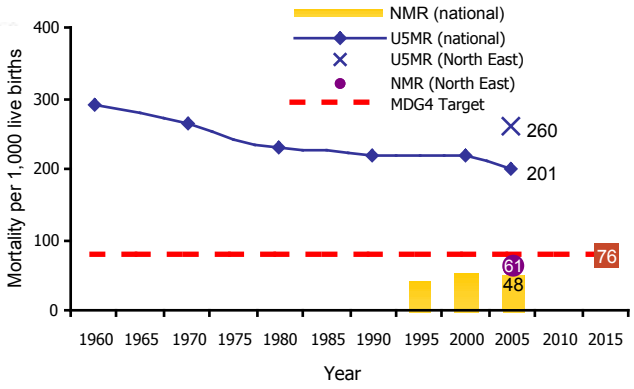


Gombe State

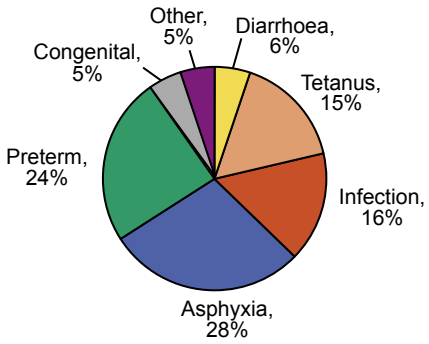
BIRTHS AND DEATHS

Population	2,354,000
Annual births	94,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	24,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

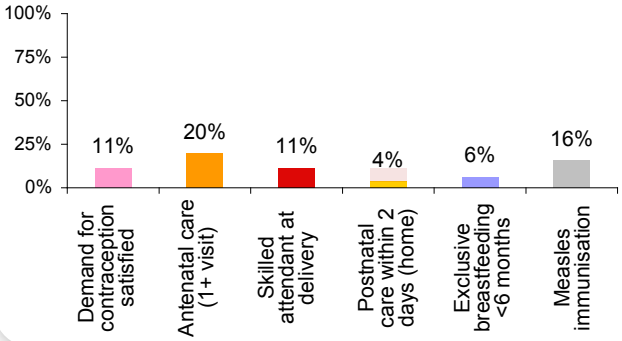
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



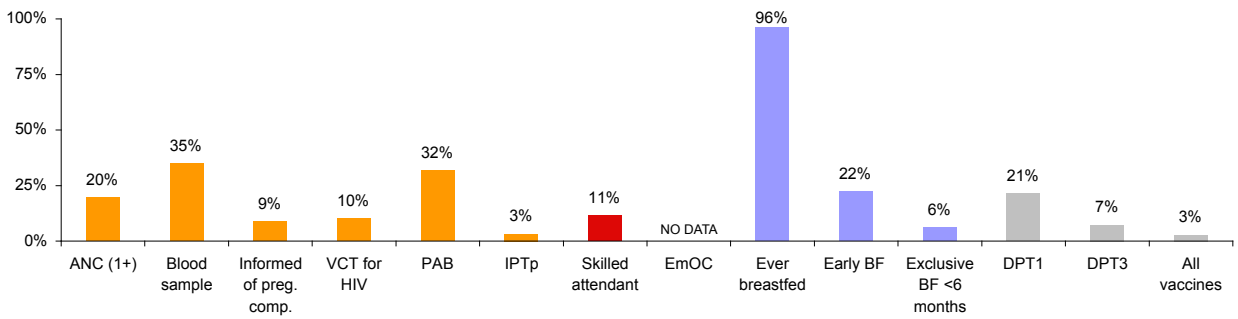
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	37	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	7	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	15	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

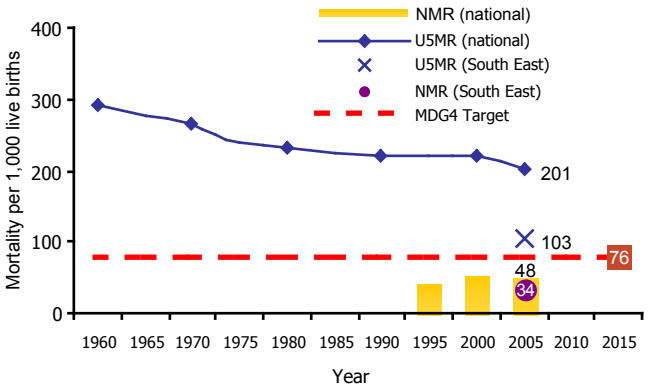


Imo State

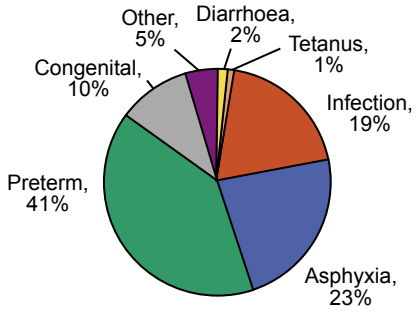
BIRTHS AND DEATHS

Population	3,935,000
Annual births	157,000
Neonatal Mortality Rate (2003)	34
Annual number of neonatal deaths	5,000
Under-5 Mortality Rate (2003)	103
Annual number of under-5 deaths	16,000
Percent of under-five deaths that are neonatal	33%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

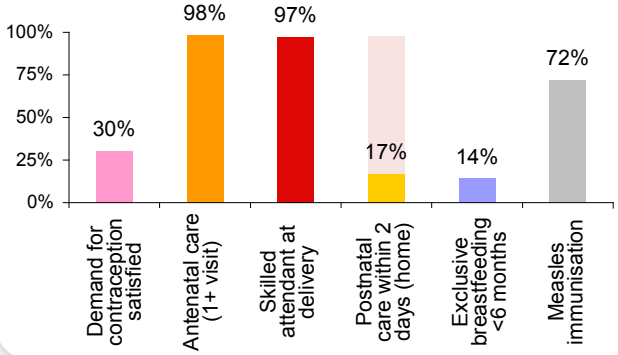
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



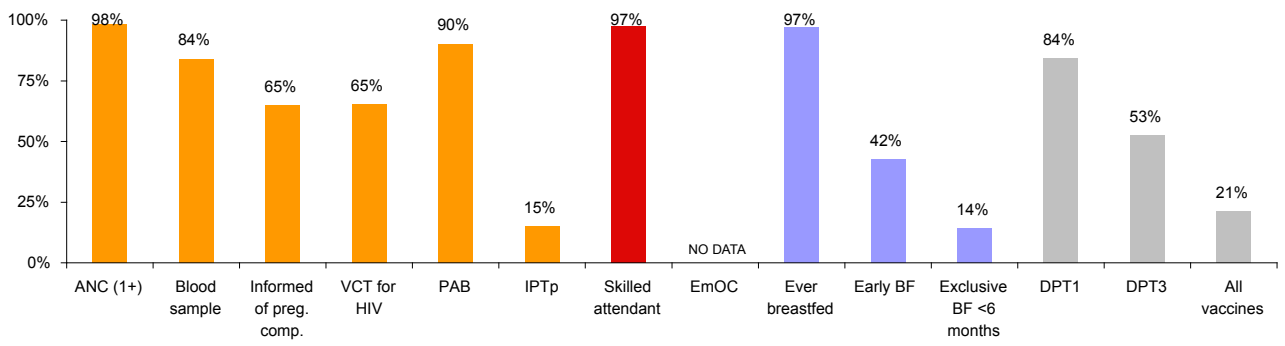
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	82	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	8.6	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	23	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

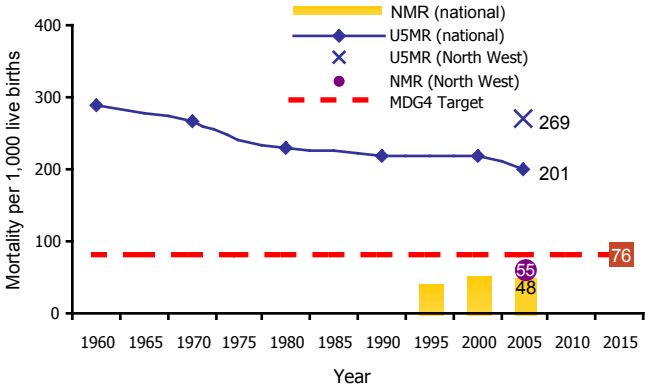


Jigawa State

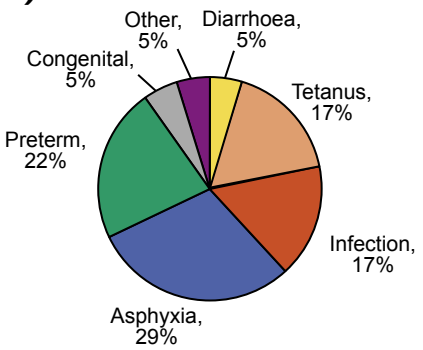
BIRTHS AND DEATHS

Population	4,349,000
Annual births	174,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	10,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	47,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

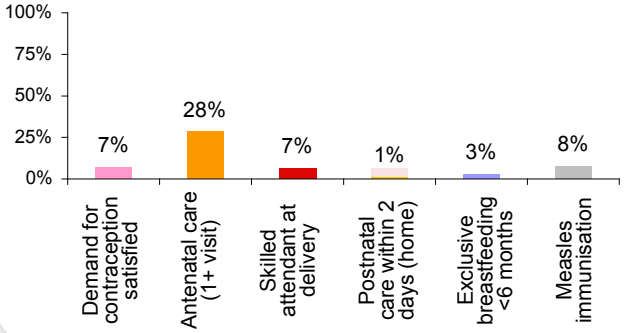
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



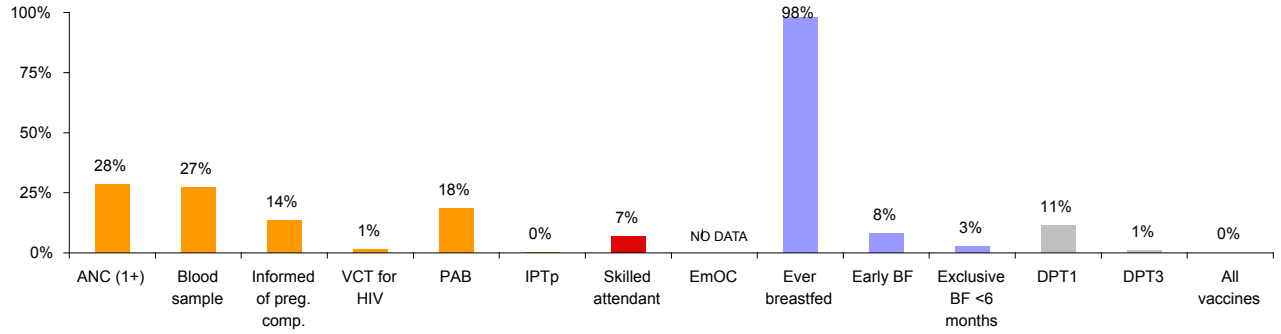
COVERAGE ALONG THE CONTINUUM OF CARE

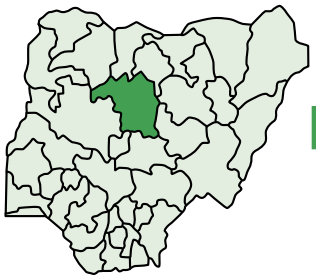


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	58	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	6	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	15	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



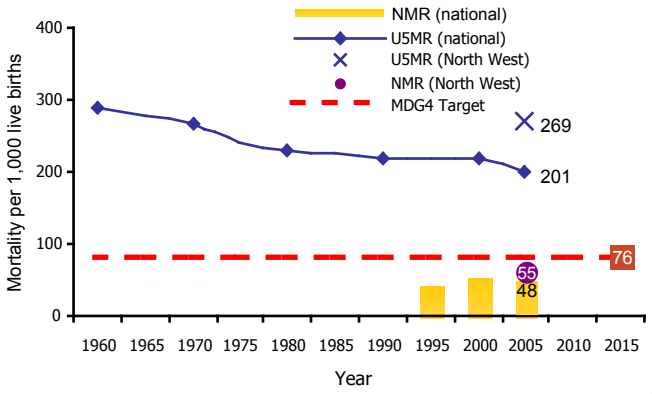


Kaduna State

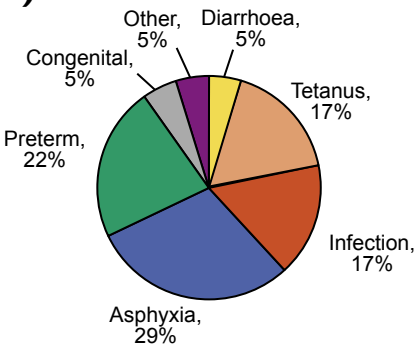
BIRTHS AND DEATHS

Population	6,067,000
Annual births	243,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	13,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	65,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	2,000

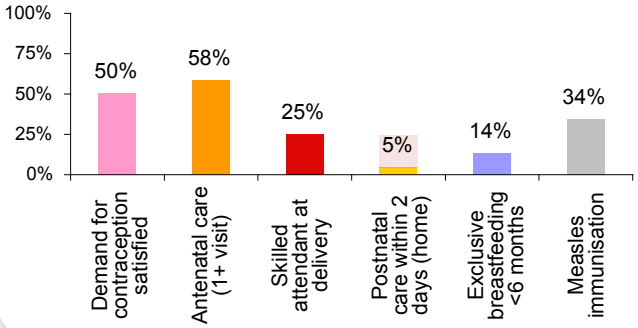
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



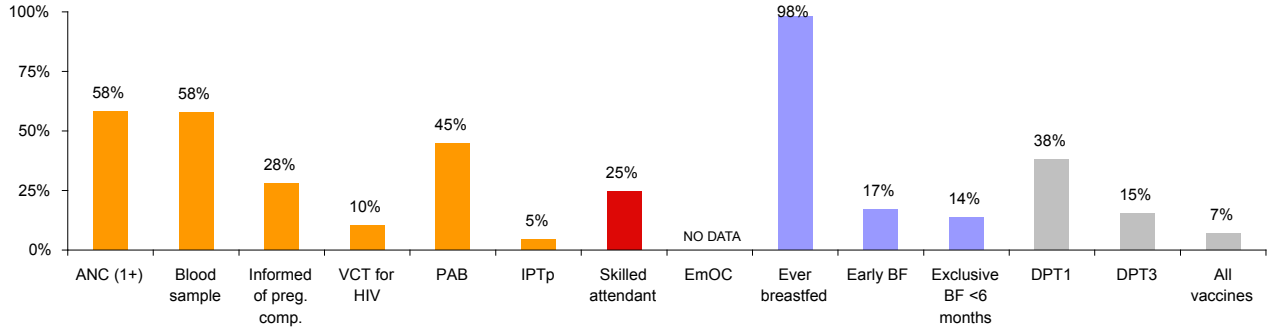
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	85	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	17	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	15	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

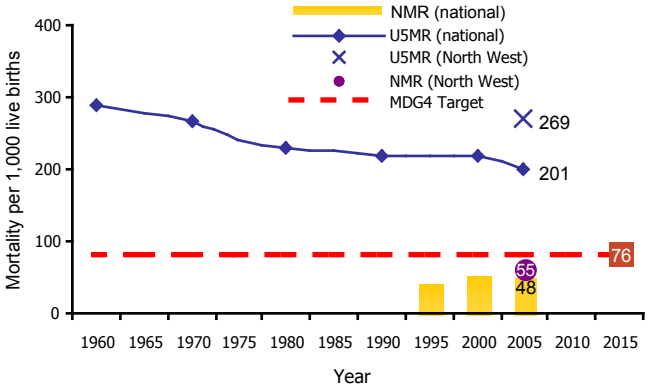


Kano State

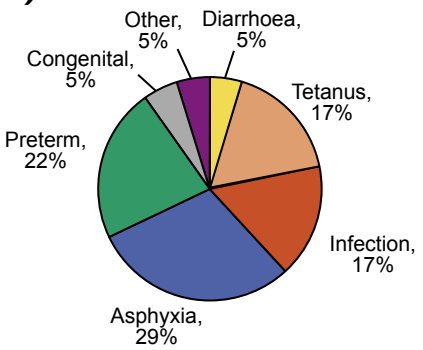
BIRTHS AND DEATHS

Population	9,384,000
Annual births	375,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	21,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	101,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	3,000

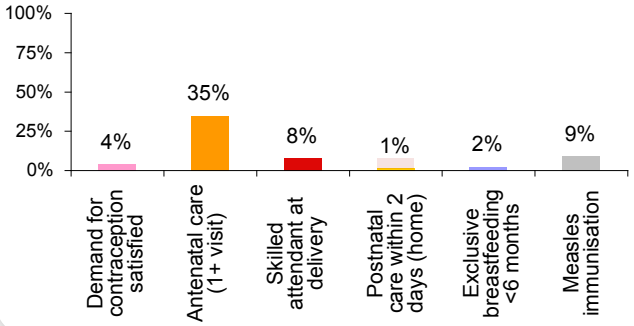
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



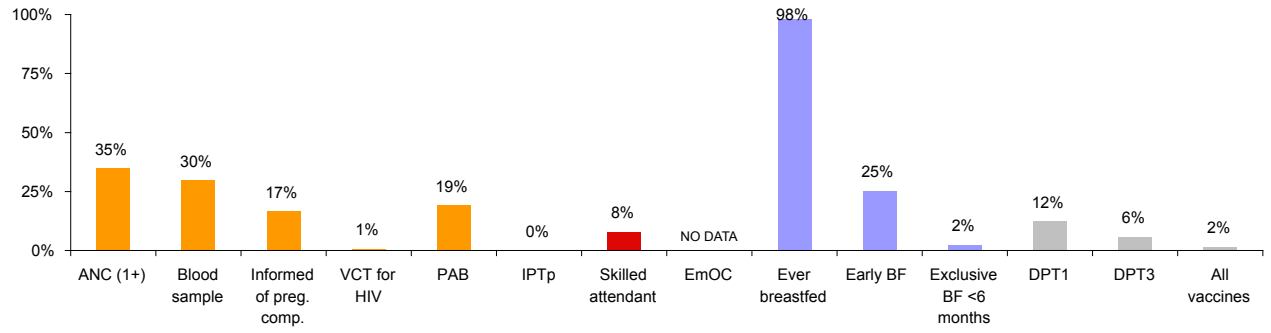
COVERAGE ALONG THE CONTINUUM OF CARE

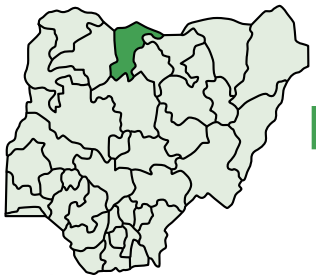


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	72	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	11	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	16	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



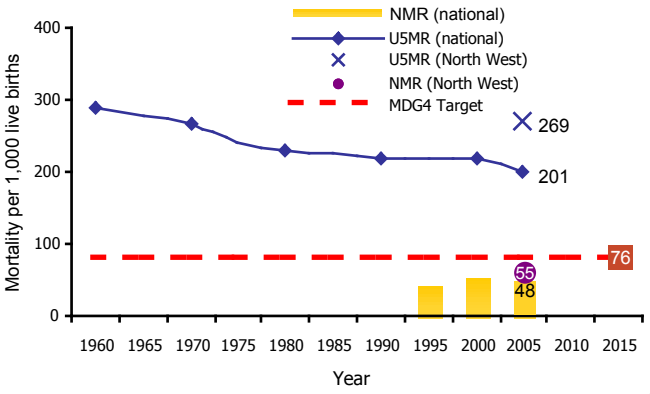


Katsina State

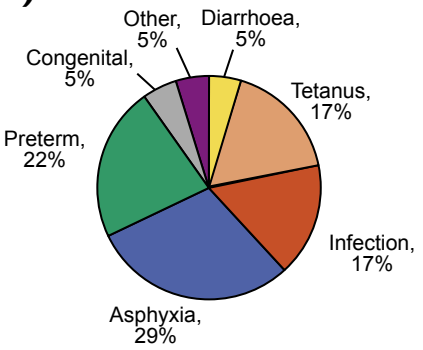
BIRTHS AND DEATHS

Population	5,793,000
Annual births	232,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	13,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	62,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	2,000

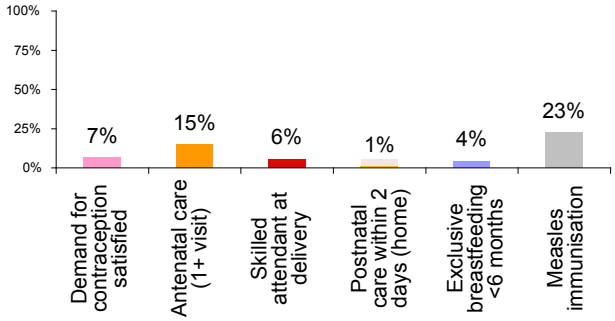
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



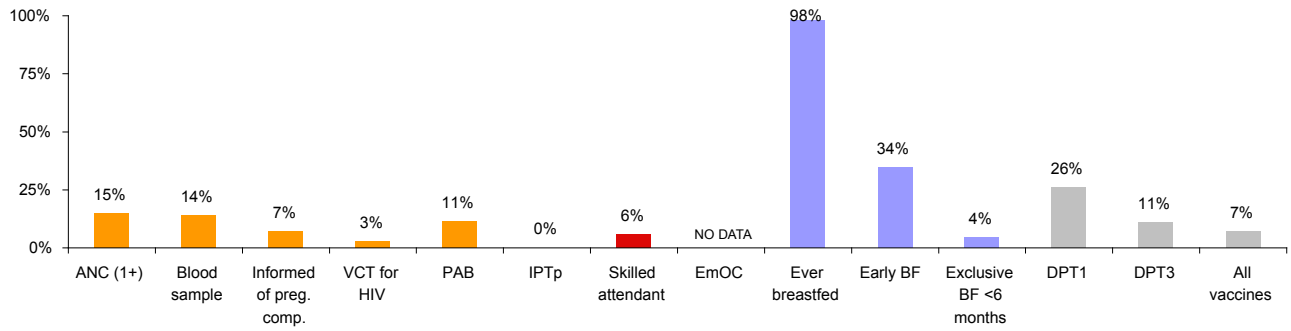
COVERAGE ALONG THE CONTINUUM OF CARE

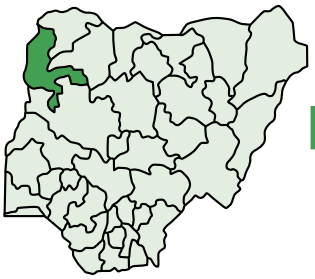


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	39	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	15	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	15	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



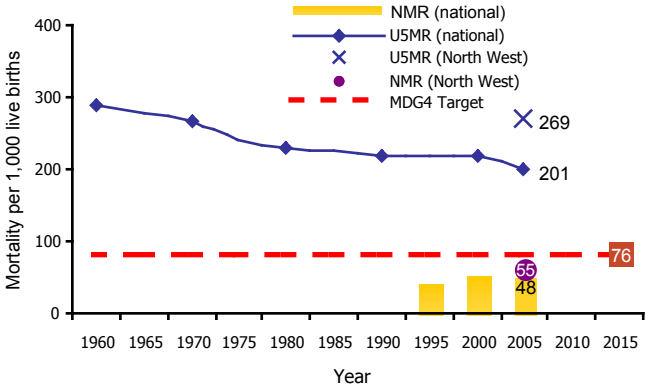


Kebbi State

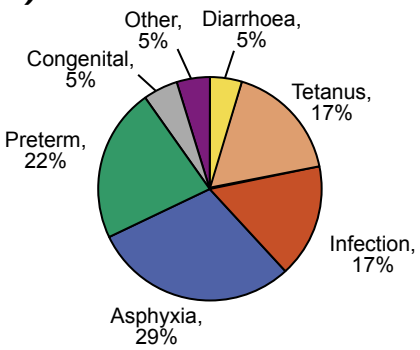
BIRTHS AND DEATHS

Population	3,239,000
Annual births	129,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	7,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	35,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

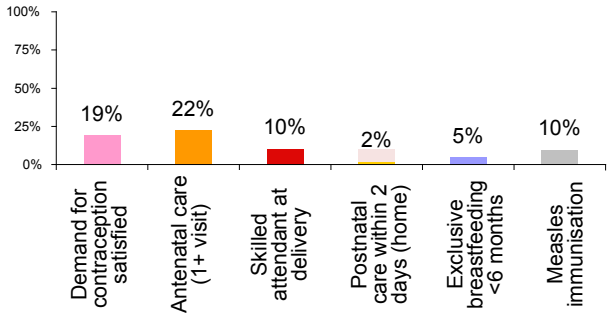
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



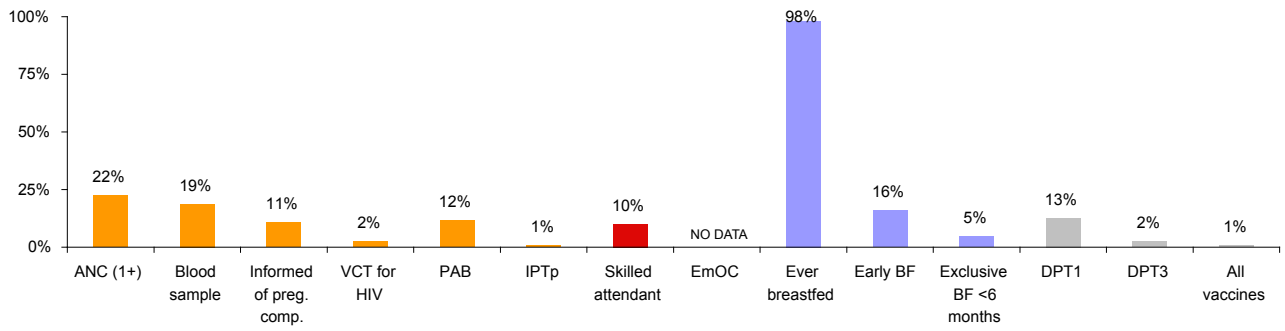
COVERAGE ALONG THE CONTINUUM OF CARE

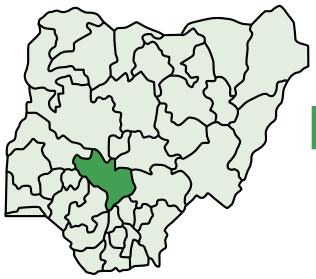


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	46	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	8	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	19	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



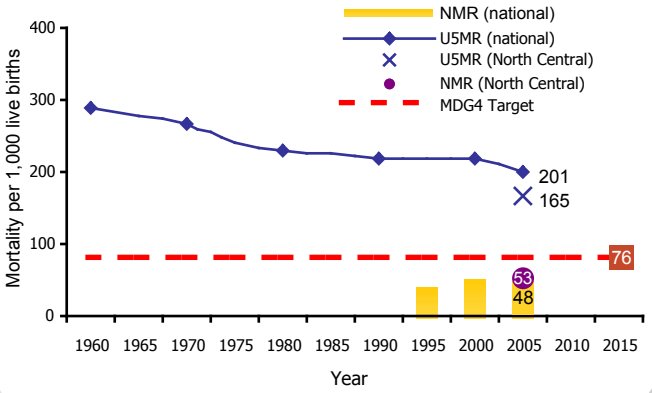


Kogi State

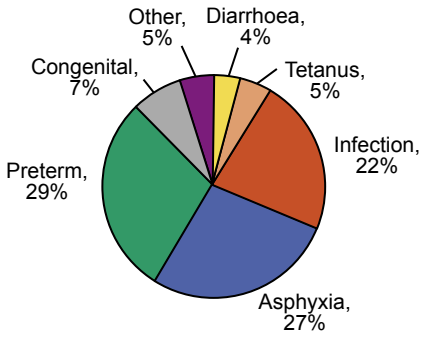
BIRTHS AND DEATHS

Population	3,278,000
Annual births	131,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	7,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	22,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

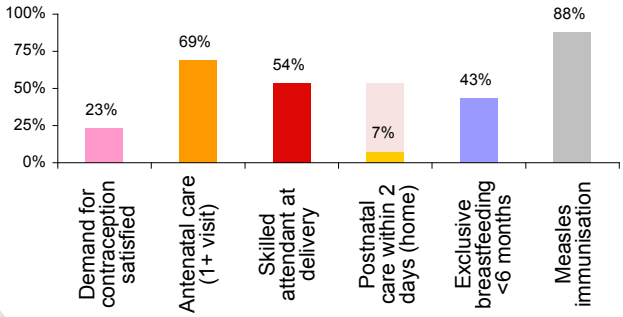
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



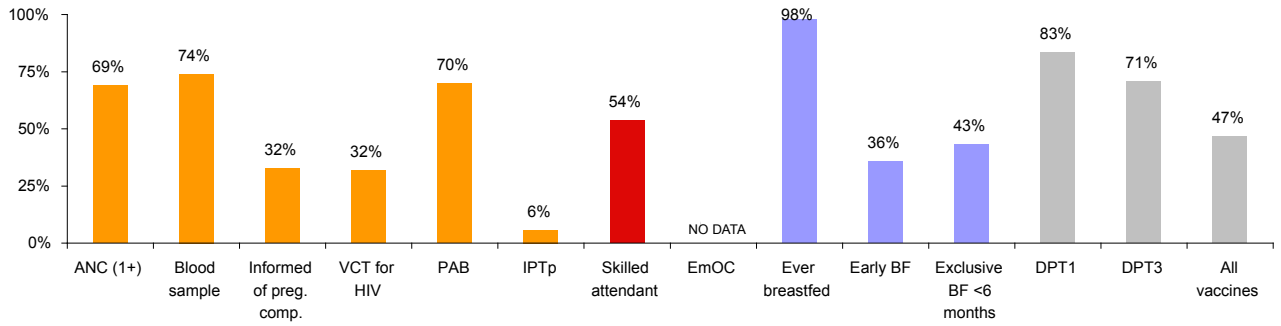
COVERAGE ALONG THE CONTINUUM OF CARE

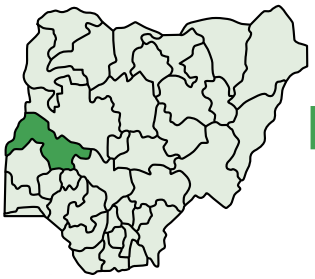


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	66	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	29	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



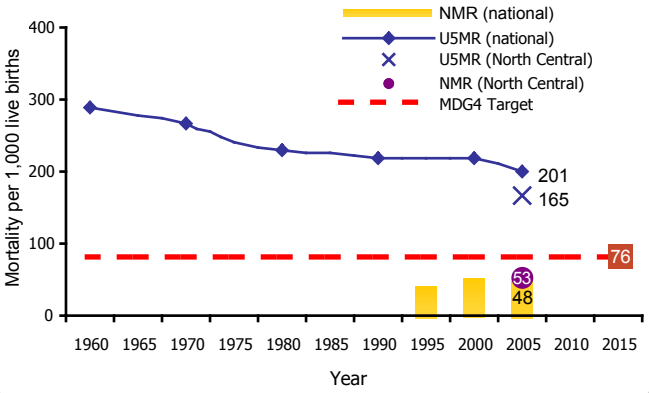


Kwara State

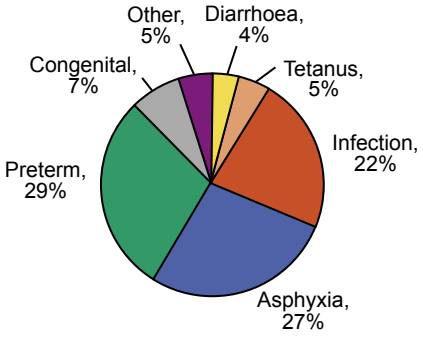
BIRTHS AND DEATHS

Population	2,371,000
Annual births	95,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	5,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	16,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

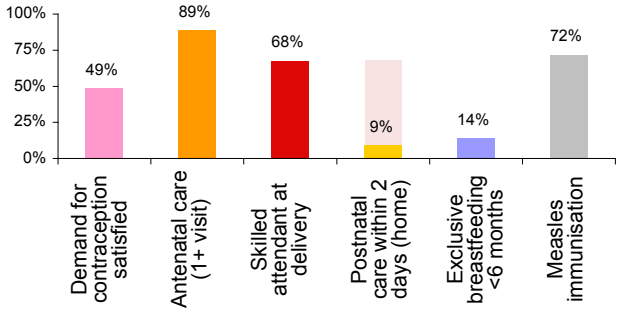
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



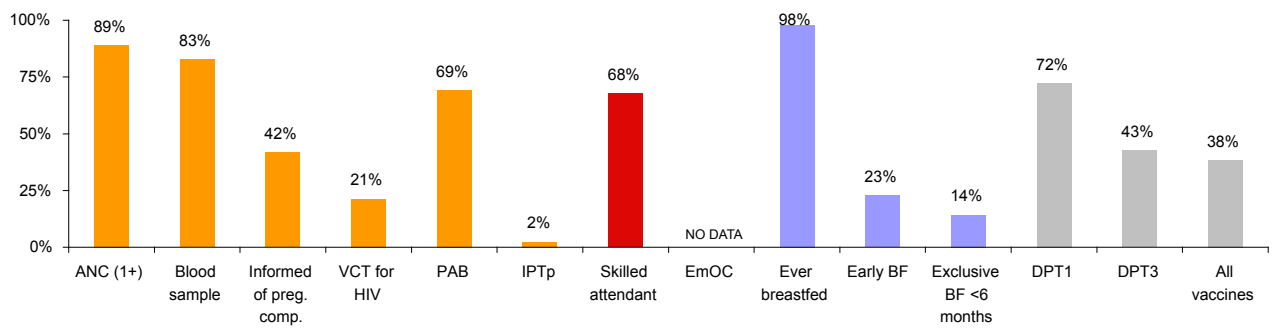
COVERAGE ALONG THE CONTINUUM OF CARE

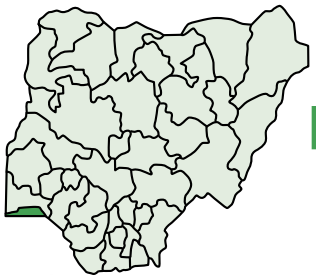


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	64	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	36	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



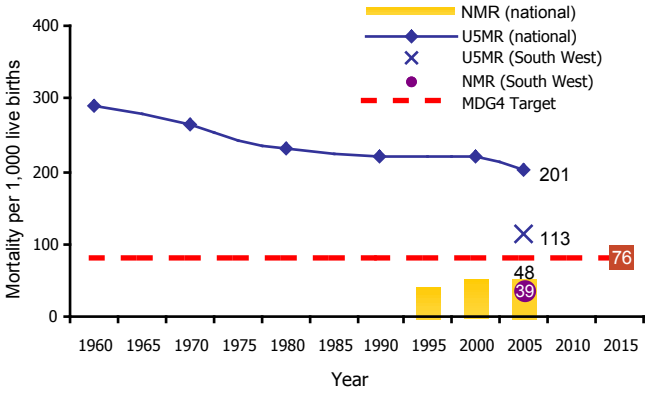


Lagos State

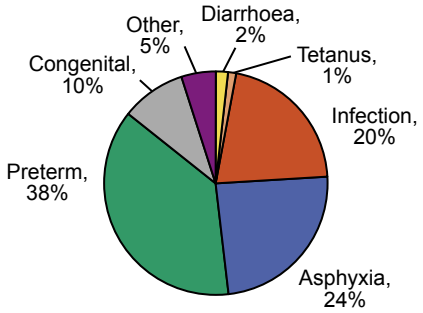
BIRTHS AND DEATHS

Population	9,014,000
Annual births	360,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	14,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	41,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	3,000

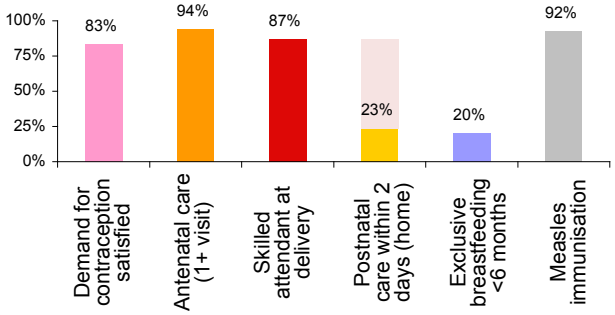
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



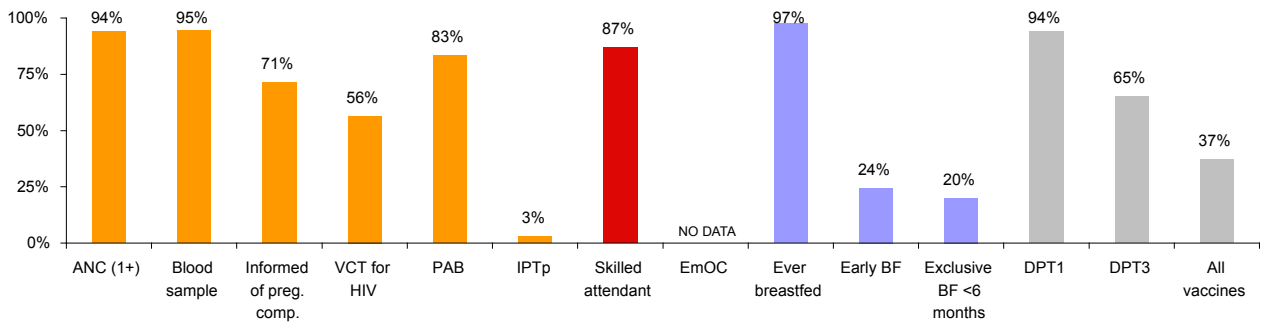
COVERAGE ALONG THE CONTINUUM OF CARE

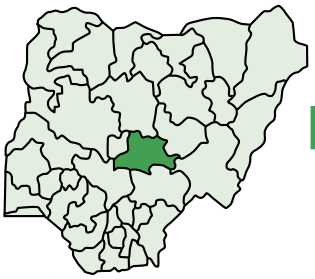


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	75	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	59	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	14	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



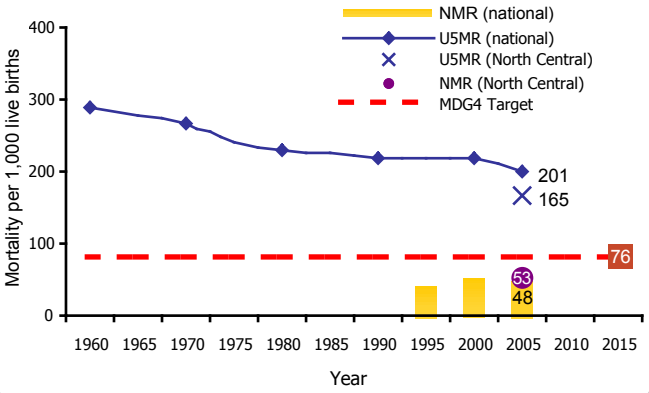


Nasarawa State

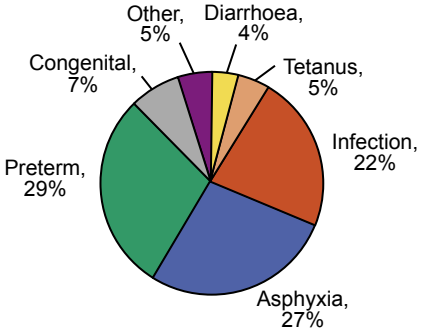
BIRTHS AND DEATHS

Population	1,863,000
Annual births	74,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	4,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	12,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

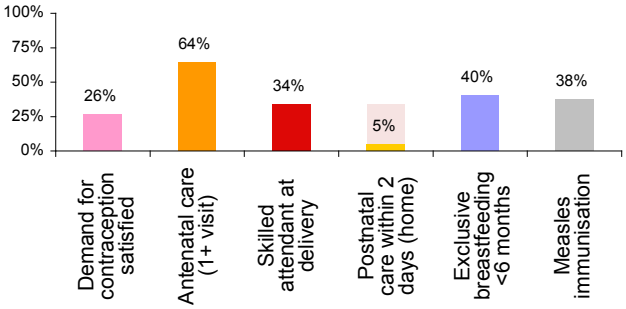
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



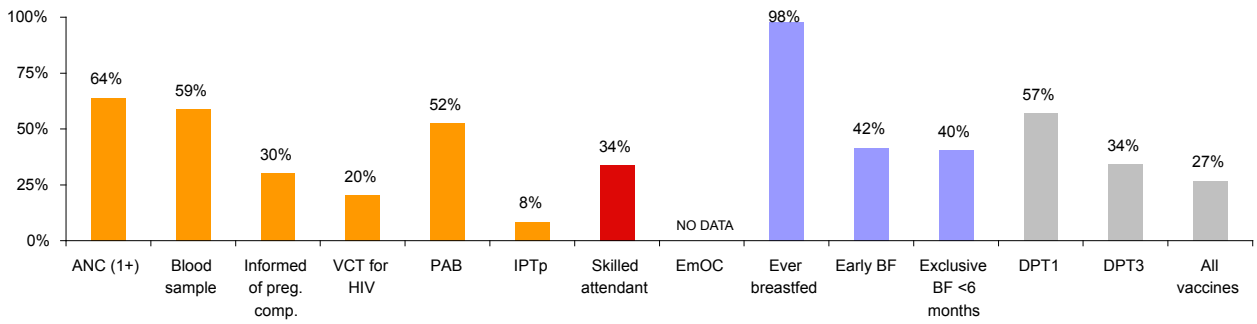
COVERAGE ALONG THE CONTINUUM OF CARE

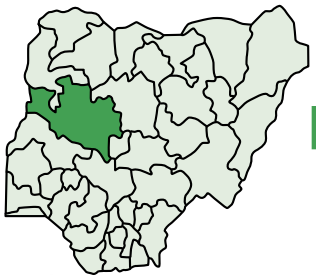


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	69	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	14	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	10	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



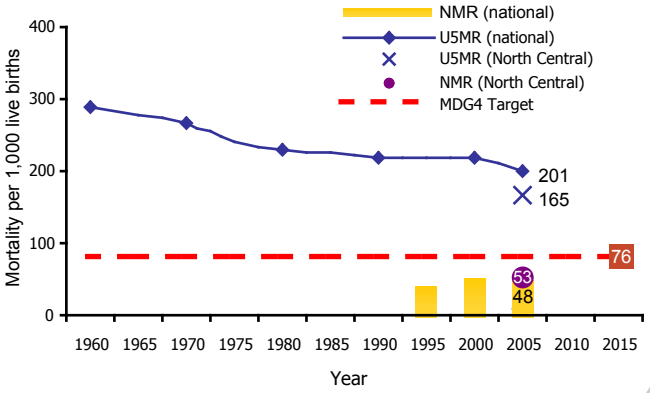


Niger State

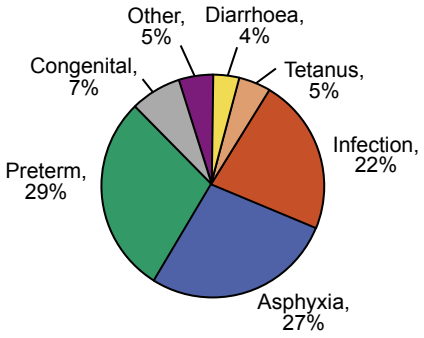
BIRTHS AND DEATHS

Population	3,950,000
Annual births	158,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	8,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	26,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

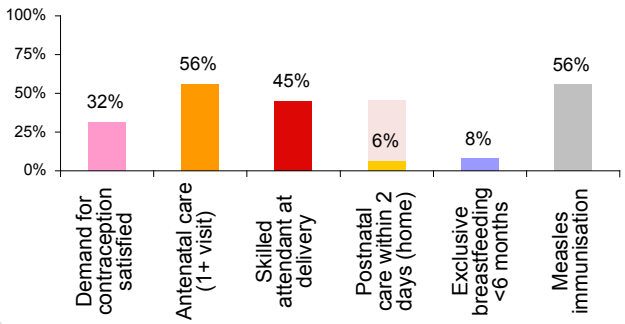
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



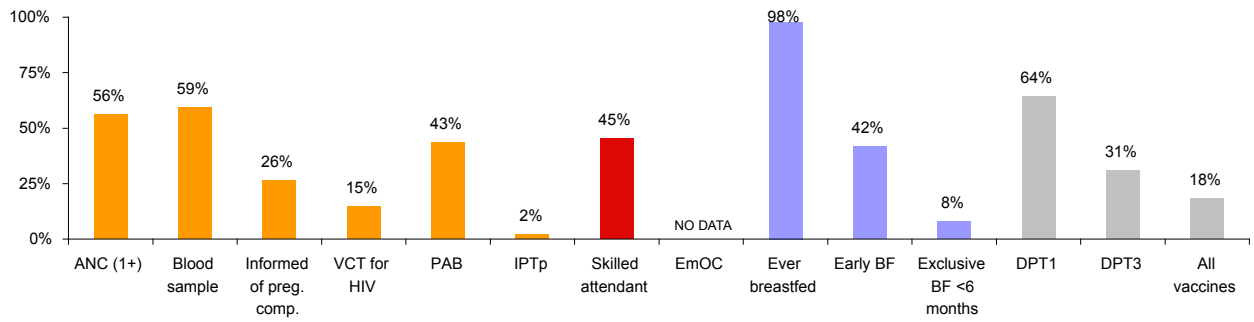
COVERAGE ALONG THE CONTINUUM OF CARE

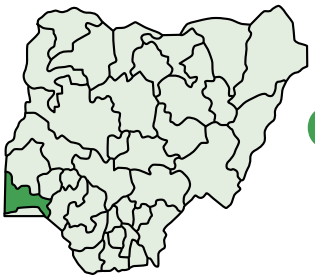


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	45	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	15	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	11	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



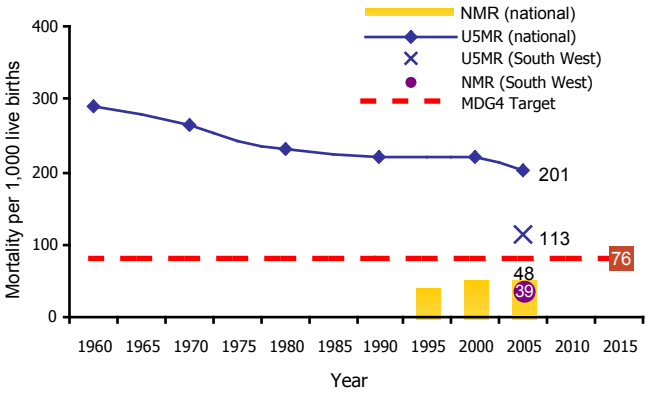


Ogun State

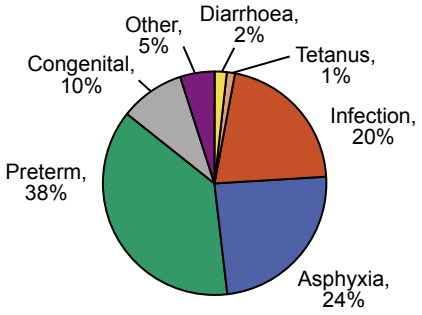
BIRTHS AND DEATHS

Population	3,728,000
Annual births	149,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	17,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

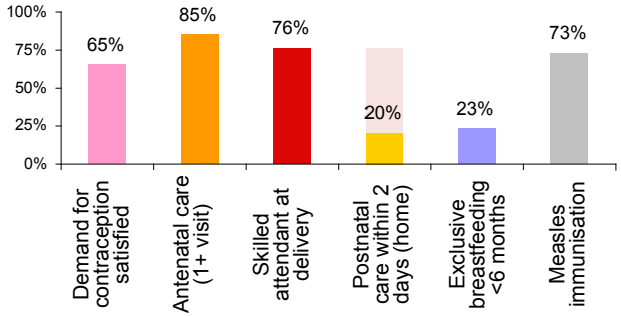
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



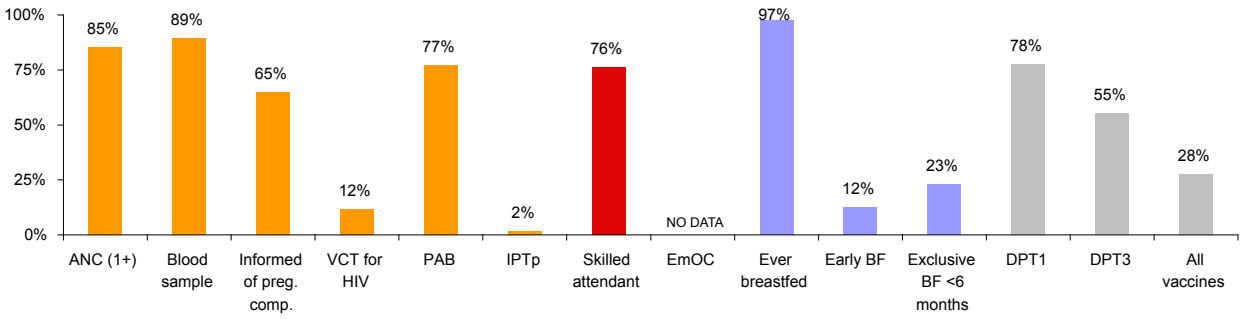
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	64	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	29	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

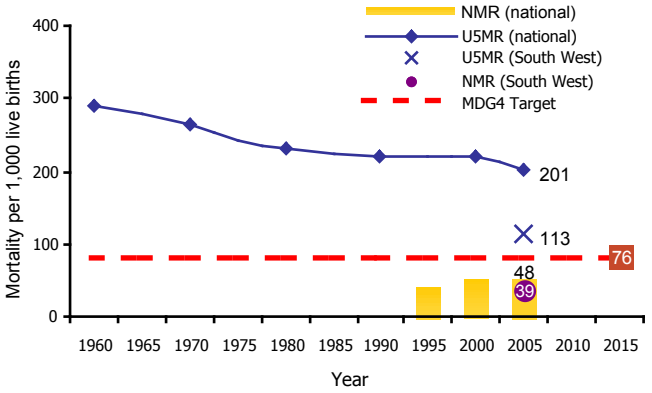


Ondo State

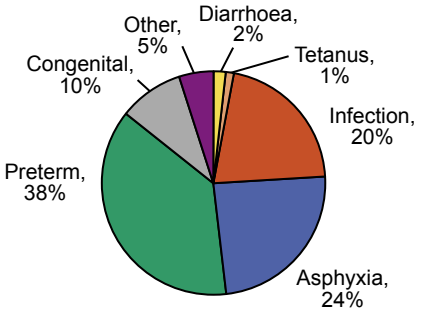
BIRTHS AND DEATHS

Population	3,441,000
Annual births	138,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	5,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	16,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

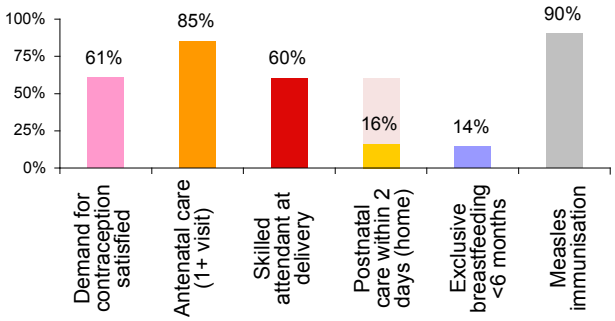
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



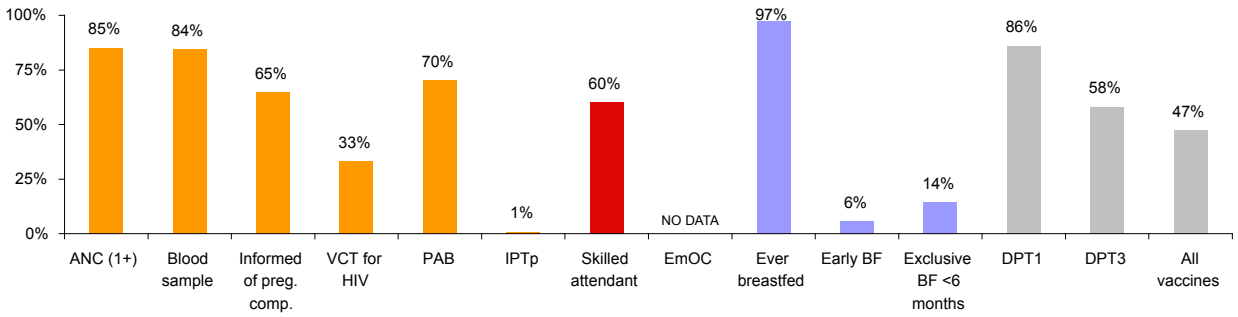
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	79	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	35	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

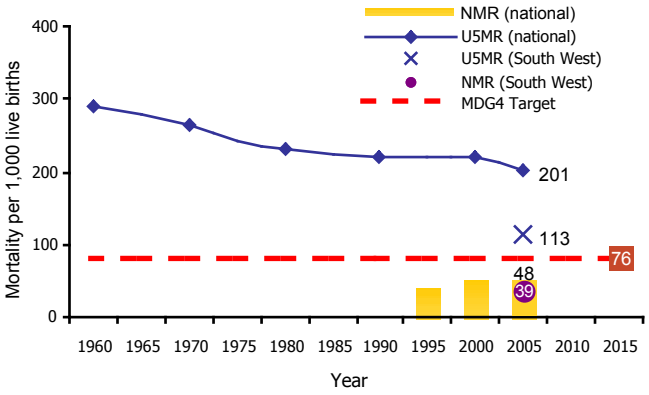


Oshun State

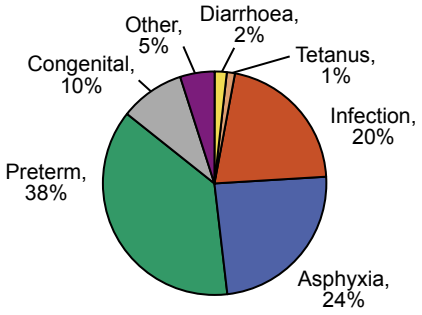
BIRTHS AND DEATHS

Population	3,424,000
Annual births	137,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	5,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	15,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

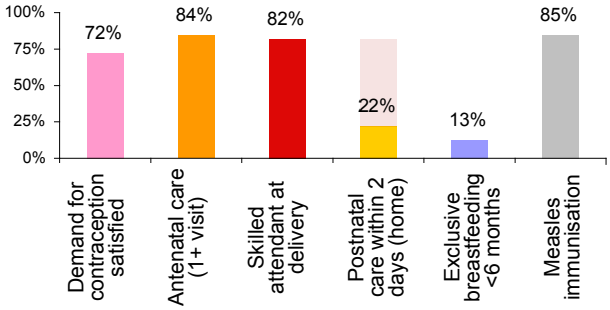
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



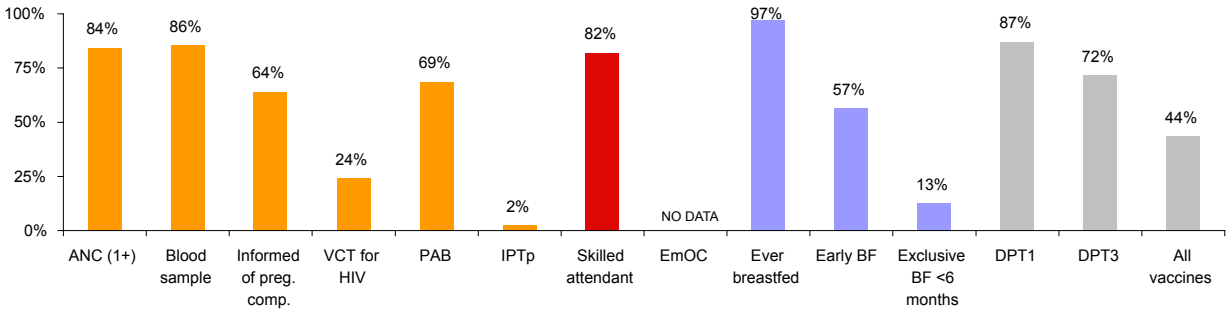
COVERAGE ALONG THE CONTINUUM OF CARE

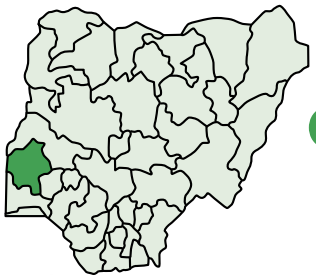


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	65	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	40	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



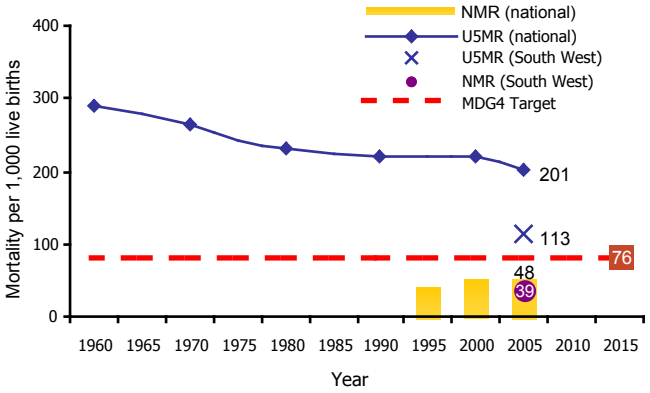


Oyo State

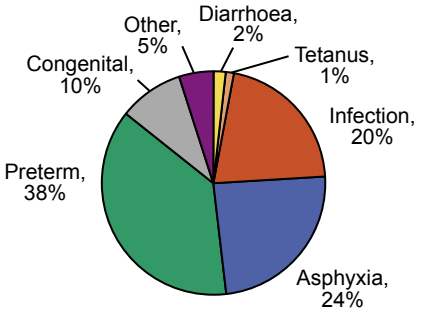
BIRTHS AND DEATHS

Population	5,592,000
Annual births	224,000
Neonatal Mortality Rate (2003)	39
Annual number of neonatal deaths	9,000
Under-5 Mortality Rate (2003)	113
Annual number of under-5 deaths	25,000
Percent of under-five deaths that are neonatal	35%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	2,000

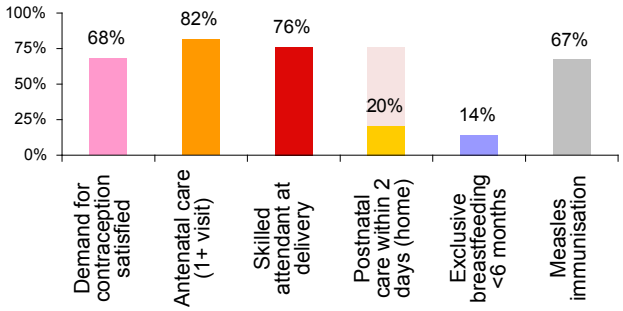
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



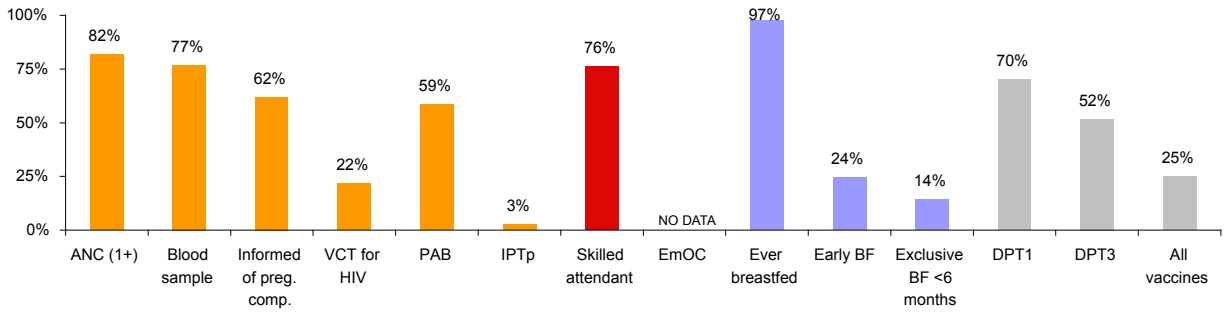
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	57	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	3.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	32	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	12	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

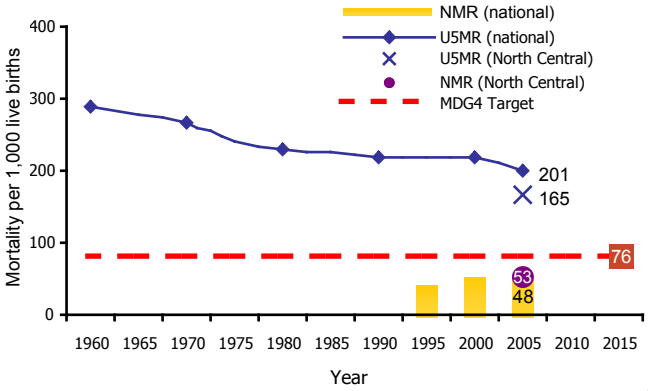


Plateau State

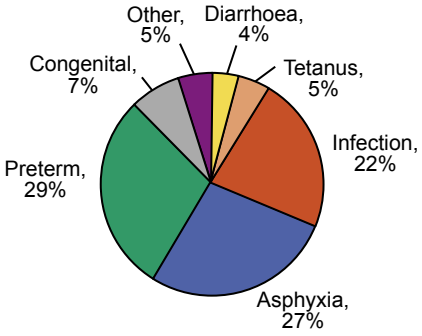
BIRTHS AND DEATHS

Population	3,179,000
Annual births	127,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	7,000
Under-5 Mortality Rate (2003)	165
Annual number of under-5 deaths	21,000
Percent of under-five deaths that are neonatal	32%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

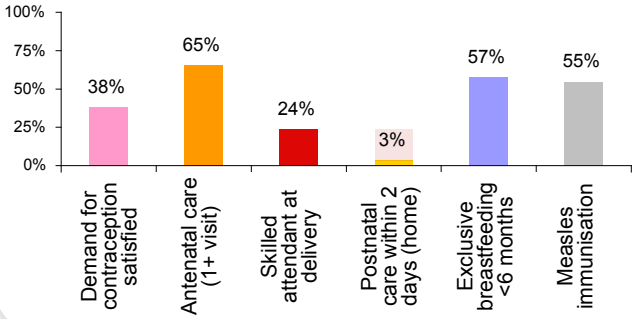
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



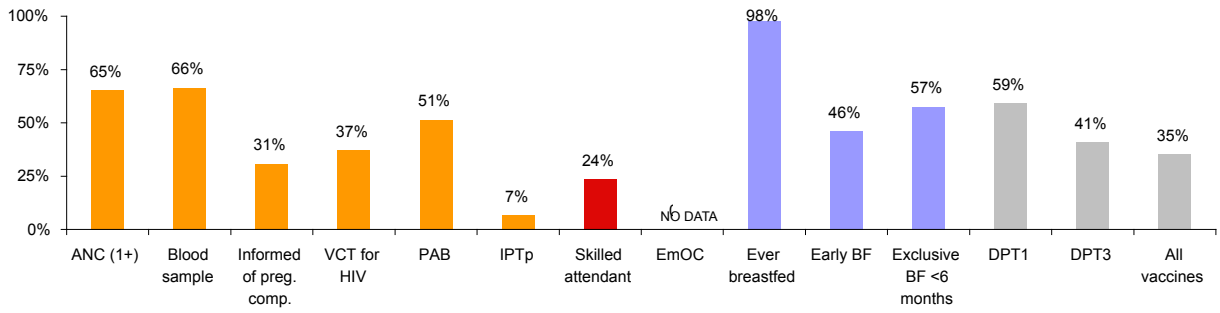
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	69	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.9	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	16	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	13	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

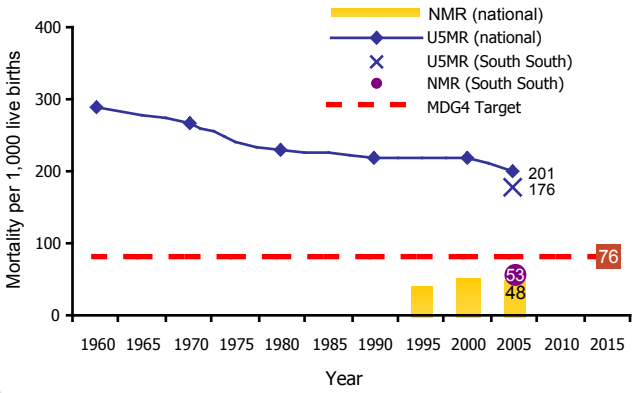


Rivers State

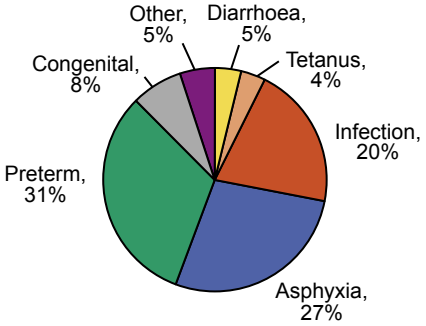
BIRTHS AND DEATHS

Population	5,185,000
Annual births	207,000
Neonatal Mortality Rate (2003)	53
Annual number of neonatal deaths	11,000
Under-5 Mortality Rate (2003)	176
Annual number of under-5 deaths	36,000
Percent of under-five deaths that are neonatal	30%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	2,000

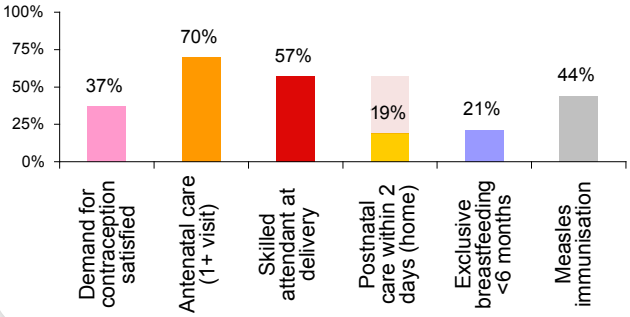
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



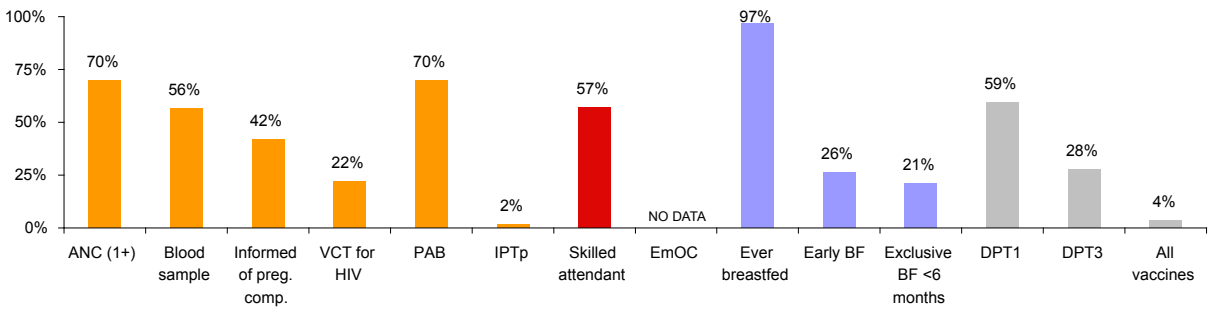
COVERAGE ALONG THE CONTINUUM OF CARE

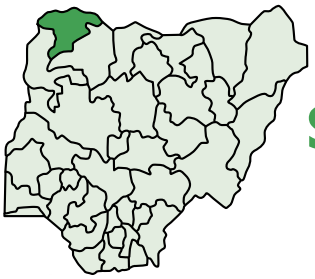


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	55	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	2.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	25	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	11	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



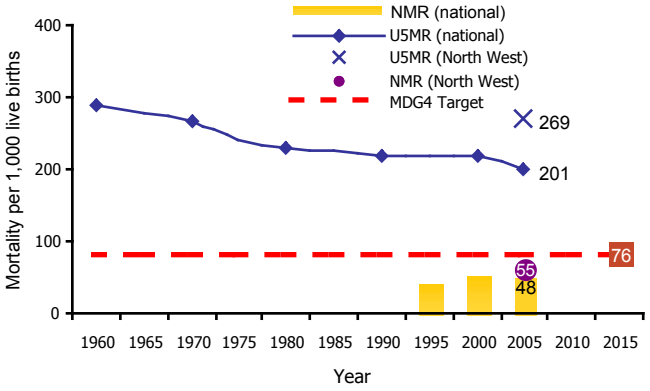


Sokoto State

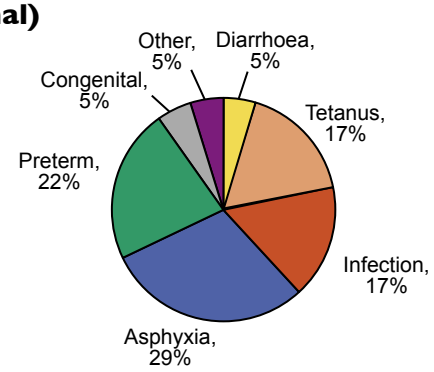
BIRTHS AND DEATHS

Population	3,697,000
Annual births	148,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	8,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	40,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

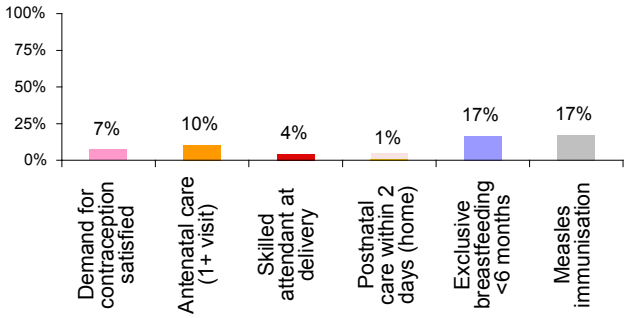
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



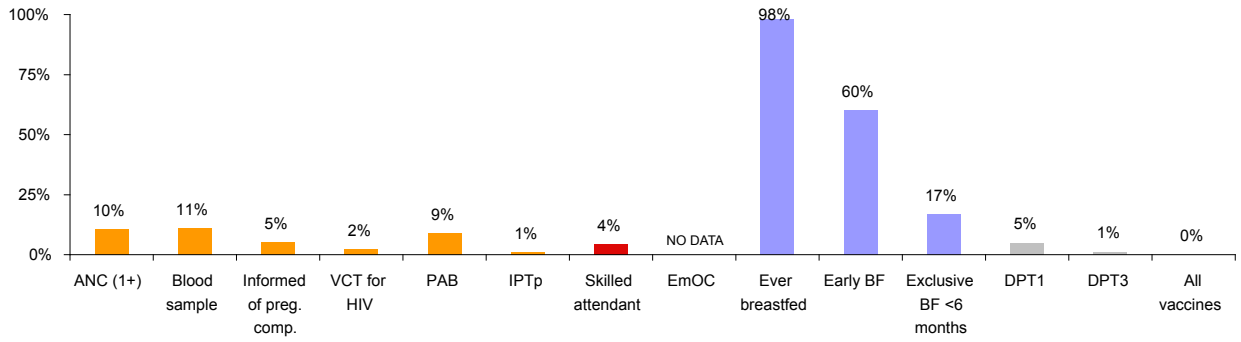
COVERAGE ALONG THE CONTINUUM OF CARE

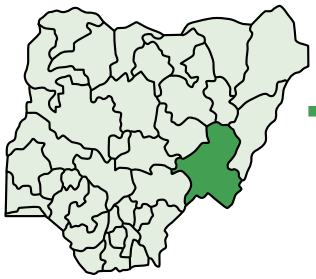


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	56	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	5	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	14	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



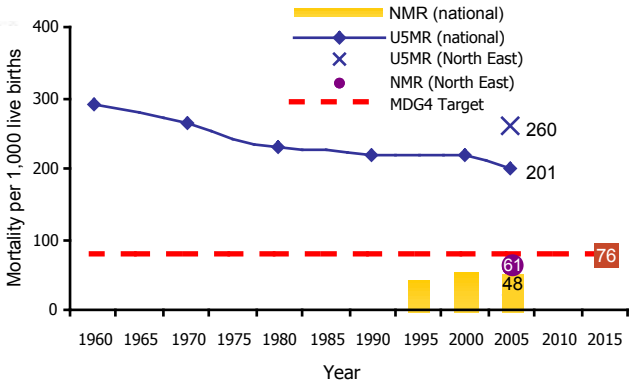


Taraba State

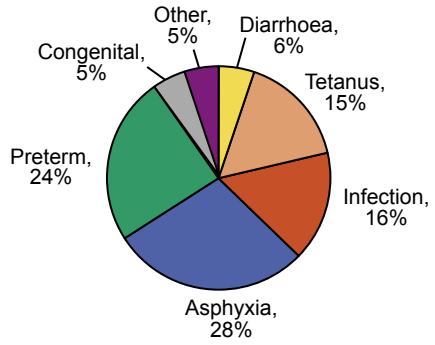
BIRTHS AND DEATHS

Population	2,301,000
Annual births	92,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	24,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

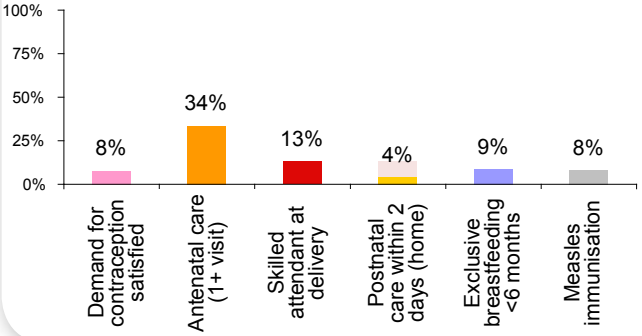
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



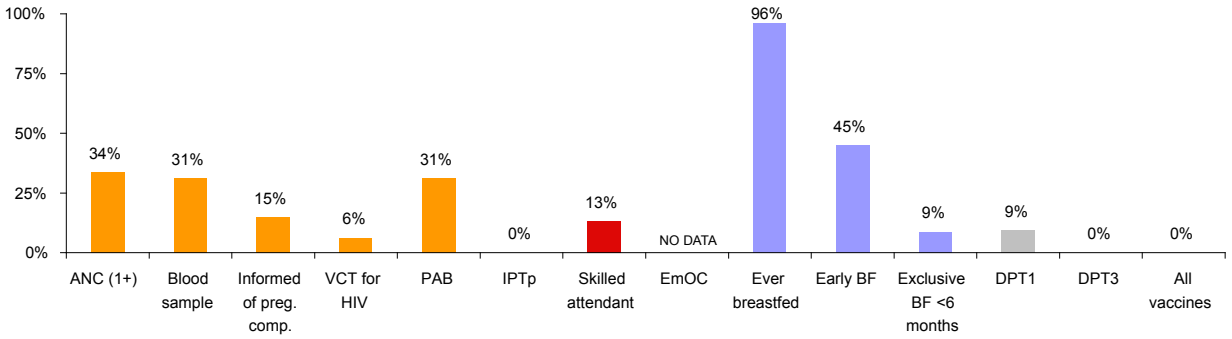
COVERAGE ALONG THE CONTINUUM OF CARE

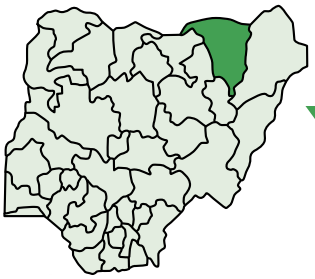


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	21	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	13	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	13	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



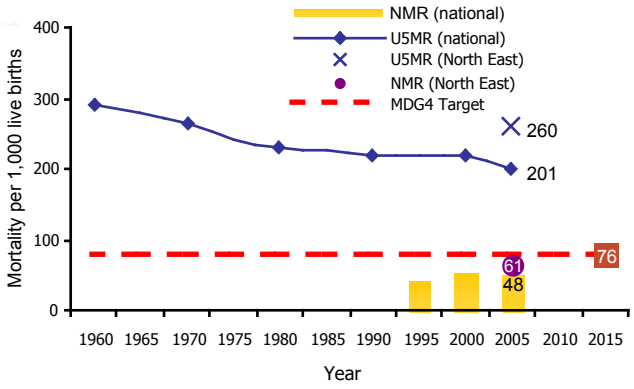


Yobe State

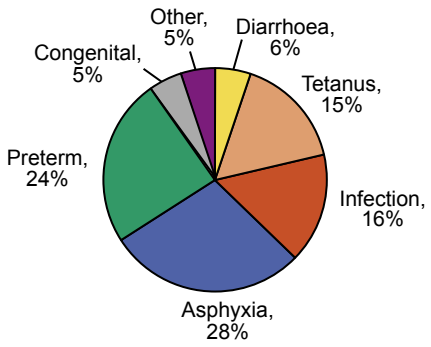
BIRTHS AND DEATHS

Population	2,322,000
Annual births	93,000
Neonatal Mortality Rate (2003)	61
Annual number of neonatal deaths	6,000
Under-5 Mortality Rate (2003)	260
Annual number of under-5 deaths	24,000
Percent of under-five deaths that are neonatal	23%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

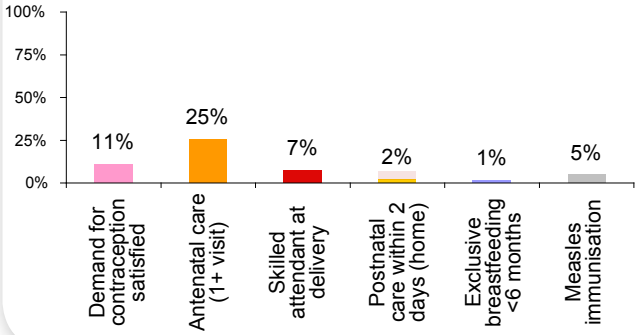
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



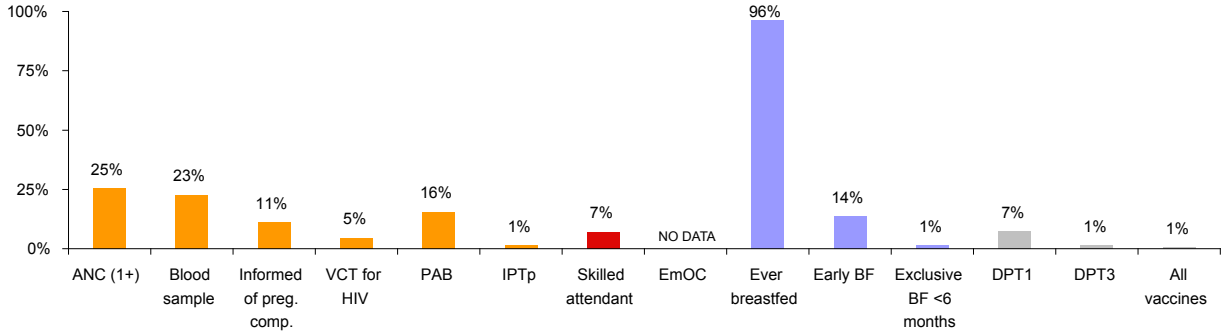
COVERAGE ALONG THE CONTINUUM OF CARE

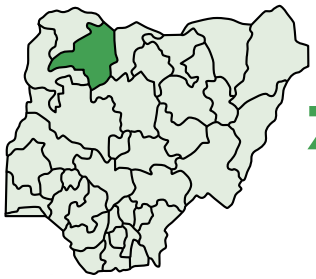


HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	12	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	1.1	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	14	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	24	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



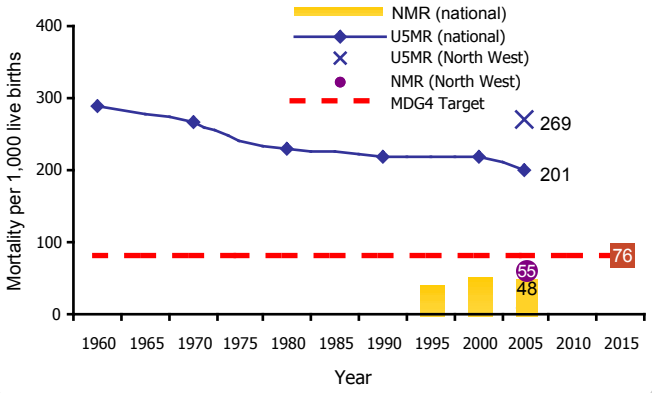


Zamfara State

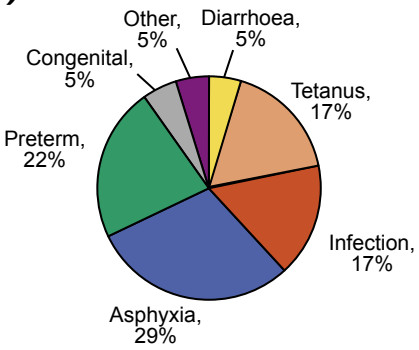
BIRTHS AND DEATHS

Population	3,260,000
Annual births	130,000
Neonatal Mortality Rate (2003)	55
Annual number of neonatal deaths	7,000
Under-5 Mortality Rate (2003)	269
Annual number of under-5 deaths	35,000
Percent of under-five deaths that are neonatal	20%
Maternal Mortality Ratio (1999)	800
Annual number of maternal deaths	1,000

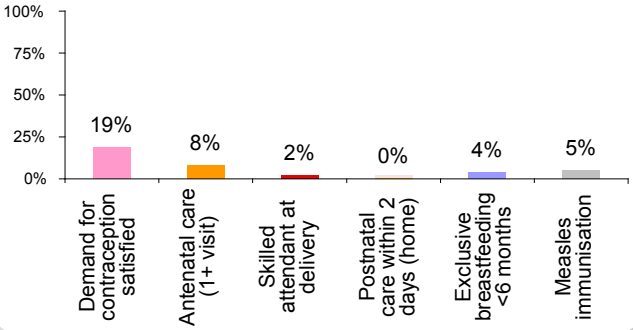
RATE OF PROGRESS TO MDG 4



CAUSES OF NEONATAL DEATH (Zonal)



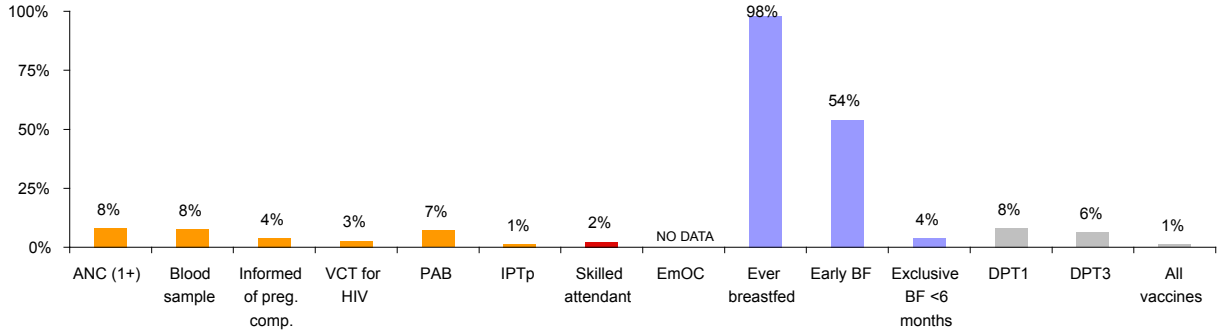
COVERAGE ALONG THE CONTINUUM OF CARE



HEALTH SYSTEMS, POLICY AND FINANCE

HIV prevalence, adults 15-49 (%)	-	Number of public hospitals; health centres	- ; -
Knowledge of PMTCT (%)	35	Health workers per 1,000 population	-
Caesarean section rate (%) (zone)	0.5	Public facilities meeting EmOC criteria: basic; comprehensive (%)	- ; -
Births registered (%)	7	LGA with health workers trained in IMCI (%)	-
Low birth weight prevalence (%)	14	Total spending on health per capita (USD)	-
Appropriate care seeking for pneumonia (%)	-	Government spending on health per capita (USD)	-

MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



References

1. State of the World's Children 2008. New York: UNICEF; 2008.
2. Human Development Report 2006. Washington, DC: World Bank; 2006.
3. World Health Report 2000—Health Systems: Improving Performance. Geneva: World Health Organization; 2000.
4. Nigeria Demographic and Health Survey 2003. Calverton, Maryland: National Population Commission and ORC/Macro; 2004.
5. Nigeria Multiple Indicator Cluster Survey 2007. Abuja: National Bureau of Statistics, UNICEF; 2007.
6. Population Commission of Nigeria. 2006 Census (preliminary results). 2007. http://www.population.gov.ng/factsandfigures.htm.
7. Federal Ministry of Health. Integrated Maternal, Newborn and Child Health Strategy. Abuja: Government of Nigeria; 2007.
8. The Millennium Development Goals Report, 2007. New York: United Nations; 2007
9. Progress for Children: a world fit for children statistical review. New York: UNICEF; 2007.
10. Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: when? Where? Why? Lancet 2005;365:891-900.
11. Lawn J, Kerber K, eds. Opportunities for Africa's Newborns: practical data, policy and programmatic support for newborn care in Africa. Cape Town: PMNCH, Save the Children, UNFPA, UNICEF, USAID, WHO; 2006.
12. Ahman E, Zupan J. Neonatal and perinatal mortality: country, regional and global estimates 2004. Geneva: World Health Organization; 2007.
13. Stanton C, Lawn JE, Rahman H, Wilczynska-Ketende K, Hill K. Stillbirth rates: delivering estimates in 190 countries. Lancet 2006;367:1487-94.
14. Onadeko MO, Lawoyin TO. The pattern of stillbirth in a secondary and a tertiary hospital in Ibadan, Nigeria. Afr J Med Sci 2003;32:349-52.
15. Lawn J, Shibuya K, Stein C. No cry at birth: global estimates of intrapartum stillbirths and intrapartum-related neonatal deaths. BullWorld Health Organ 2005;83:409-17.
16. Lawn JE, Wilczynska-Ketende K, Cousens SN. Estimating the causes of 4 million neonatal deaths in the year 2000. IntJEpidemiol 2006;35:706-18.
17. Airede A. Birth asphyxia and hypoxic ischaemic encephalopathy: incidence and severity. Ann Trop Paediatrics 1991;11:331-5.
18. Pin TW, Eldridge B, Galea MP. A review of developmental outcomes of term infants with post-asphyxia neonatal encephalopathy. Eur J Paediatr Neurol 2008.
19. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Social Science and Medicine 1994;38 1091-110.
20. REDUCE Maternal and Newborn Deaths in Nigeria: Federal Ministry of Health and World Health Organization; 2003.
21. National Study on Essential Obstetric Care Facilities in Nigeria: Federal Ministry of Health and UNFPA; 2003.
22. Ibe OE, Austin T, Sullivan K, Fabanwo O, Disu E, Costello AM. A comparison of kangaroo mother care and conventional incubator care for thermal regulation of infants < 2000 g in Nigeria using continuous ambulatory temperature monitoring. Ann Trop Paediatr 2004;24:245-51.
23. Ezeaka VC, Ogunbase AO, Awogbemi OT, Grange AO. Why our children die: A review of paediatric mortality in a tertiary centre in Lagos, Nigeria. Nigerian Quarterly Journal of Hospital Medicine 2003;13:17-21.
24. Slusher TM, Angyo IA, Bode-Thomas F, et al. Transcutaneous bilirubin measurements and serum total bilirubin levels in indigenous African infants. Pediatrics 2004;113:1636-41.
25. Nigeria Demographic and Health Survey 1999. Calverton, MD: National Population Commission and ORC Macro; 2000.
26. Hill K, Thomas K, AbouZahr C, et al. Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. Lancet 2007;370:1311-9.
27. Shiffman J. Generating political priority for maternal mortality reduction in 5 developing countries. AmJPublic Health 2007;97:796-803.
28. Shiffman J, Okonofua FE. The state of political priority for safe motherhood in Nigeria. BJOG 2007;114:127-33.
29. Obstetric Fistula in Brief. UNFPA, 2006. Accessed at http://www.endfistula.org/fistula_brief.htm.

30. Safe Motherhood in Nigeria: Patterns of Household Practices. In: Federal Ministry of Health; 2005.
31. Nigeria Gender Statistics Book. Abuja: Federal Ministry of Women Affairs; 2006.
32. Kerber KJ, de Graft-Johnson JE, Bhutta ZA, Okong P, Starrs A, Lawn JE. Continuum of care for maternal, newborn, and child health: from slogan to service delivery. Lancet 2007;370:1358-69.
33. National policy on the health and development of adolescents and young people in Nigeria. Abuja: Federal Ministry of Health; 2007.
34. Rutstein SO. Effects of preceding birth intervals on neonatal, infant and under-five years mortality and nutritional status in developing countries: evidence from the demographic and health surveys. Int J Gynaecol Obstet 2005;89 Suppl 1:S7-24.
35. UNICEF, UNAIDS, WHO, UNFPA. Children and AIDS: Third stocktaking report, 2008. Geneva: UNAIDS; 2008.
36. National situation analysis of the health sector response to HIV and AIDS in Nigeria: Nigeria and National AIDS/STD Control Programme, Federal Ministry of Health; 2005.
37. National Strategic Framework on the Health and Development of Adolescents and Young People in Nigeria: Federal Ministry of Health, Nigeria and World Health Organization; 2007.
38. Banks E, Meirik O, Farley T, Akande O, Bathija H, Ali M. Female genital mutilation and obstetric outcome: WHO collaborative prospective study in six African countries. Lancet 2006;367:1835-41.
39. Langer A, Villar J, Romero M, et al. Are women and providers satisfied with antenatal care? Views on a standard and a simplified, evidence-based model of care in four developing countries. BMC Womens Health 2002;19;2:7.
40. Carroli G, Villar J, Piaggio G, et al. WHO systematic review of randomised controlled trials of routine antenatal care. Lancet 2001;19;357:1565-70.
41. Villar J, Ba'aqeel H, Piaggio G, et al. WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. Lancet 2001;19;357:1551-64.
42. Project ANSM. Emergency obstetric and newborn care services in Kano and Zamfara states. Baseline report. ACCESS Nigeria 2007.
43. Izugbara CO, Ukwayi JK. The clientele of traditional birth homes in rural southeastern Nigeria. Health Care Women Int 2003;24:177-92.
44. Sule-Odu AO, Ogunledun A, Olatunji AO. Impact of asymptomatic maternal malaria parasitaemia at parturition on perinatal outcome. J Obstet Gynaecol 2002;22:25-8.
45. World Health Report 2005: make every mother and child count. Geneva: World Health Organization; 2005.
46. Maternal and Neonatal Tetanus elimination: Progress toward global MNT elimination. Geneva: World Health Organization; 2005.
47. IMCI: Baseline studies on key family and community practices survey. Nigeria Country Report: Federal Ministry of Health, Nigeria and World Health Organization; 2003.
48. Children's and Women's Rights in Nigeria: A Wake Up Call. Situation Assessment and Analysis. Abuja: UNICEF; 2001.
49. Galadanchi HS; Ejembi CL; Iliyasu Z; Alagh B; Umar US. Maternal Health in Northern Nigeria – a far cry from ideal. BJOG 2007;114:448-52.
50. Thomson A. The joint WHO/ICM/FIGO statement on skilled attendants at birth. Midwifery 2005;21:1.
51. Bhutta Z, Darmstadt GL, Hasan BS, Haws RA. Community-based interventions for improving perinatal and neonatal outcomes in developing countries: A review of the evidence. Pediatrics 2004.
52. Bosse G, Massawe S, Jahn A. The partograph in daily practice: it's quality that matters. Int J Gynaecol Obstet 2002;77:243-4.
53. Estimates of newborn lives saved by improving coverage and quality are based on the Lives Saved Tool (LiST). LiST is based on the Lancet Child Survival and Neonatal Survival series modelling and uses the most recent mortality and cause of death data, with effect estimates for a menu of interventions based on a change between current coverage and target coverage.
54. Baqui AH, El-Arifeen S, Darmstadt GL, et al. Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomised controlled trial. Lancet 2008;371:1936-44.
55. Bhutta ZA, Memon ZA, Soofi S, Salat MS, Cousens S, Martines J. Implementing community-based perinatal care: results from a pilot study in rural Pakistan. Bull World Health Organ 2008;86:452-9.
56. Bryce J, Daelmans B, Dwivedi A, et al. Countdown to 2015 for maternal, newborn, and child survival: the 2008 report on tracking coverage of interventions. Lancet 2008;371:1247-58.

57. Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice. Geneva: WHO; 2003.
58. National Clinical Service Protocol for Obstetric and Neonatal Care. Abuja: Federal Ministry of Health and COMPASS; 2006.
59. Clinical signs that predict severe illness in children under age 2 months: a multicentre study. Lancet 2008;371:135-42.
60. IMCI/AFRO Monitoring Tool. Brazzaville: World Health Organization; 2004.
61. WHO Country Office, Nigeria: 2007 Annual Report. Abuja: World Health Orgnaization; 2007.
62. Managing newborn problems: a guide for doctors, nurses and midwives. Geneva: WHO; 2003.
63. Pocket Book of Hospital Care for Children: Guidelines for the Management of Common Illnesses with Limited Resources. Geneva: World Health Organization; 2005.
64. Technical report on Nigeria Reproductive Health Resources and Services at the Primary Health Care level of government facilities: Federal Ministry of Health, Nigeria and World Health Organization; 2002.
65. Ward Minimum Health Care package: Federal Ministry of Health, Nigeria and World Health Organization; 2001.
66. Bang AT, Bang RA, Reddy HM. Home-based neonatal care: summary and applications of the field trial in rural Gadchiroli, India (1993 to 2003). JPerinatol 2005;25 Suppl 1:S108-S22.
67. National Health Accounts: Nigeria. World Health Organization, 2008. (Accessed at http://www.who.int/entity/nha/country/nga/en.)
68. Greco G, Powell-Jackson T, Borghi J, Mills A. Countdown to 2015: assessment of donor assistance to maternal, newborn, and child health between 2003 and 2006. Lancet 2008;371:1268-75.
69. Christensson K, Pettersson KO, Bugalho A, et al. The challenge of improving perinatal care in settings with limited resources. Observations of midwifery practices in Mozambique. Afr J Reprod Health 2006;10:47-61.
70. Chilopora G, Pereira C, Kamwendo F, Chimbiri A, Malunga E, Bergstrom S. Postoperative outcome of caesarean sections and other major emergency obstetric surgery by clinical officers and medical officers in Malawi. Hum Resour Health 2007;5:17.
71. Mullan F, Frehywot S. Non-physician clinicians in 47 sub-Saharan African countries. Lancet 2007;370:2158-63.
72. National Human Resources for Health Policy. Abuja: Federal Ministry of Health; 2006.
73. Cavagnero E, Daelmans B, Gupta N, Scherpbier R, Shankar A. Assessment of the health system and policy environment as a critical complement to tracking intervention coverage for maternal, newborn, and child health. Lancet 2008;371:1284-93.
74. National HIV/AIDS and Reproductive Health Survey. Abuja: Federal Ministry of Health; 2003.

FEDERAL REPUBLIC
OF NIGERIA
MINISTRY OF HEALTH

Accountable leadership at all levels of government and civil society is crucial for effective MNCH planning and action to reduce needless newborn deaths in Nigeria.

Saving Nigeria's Newborns: Key Messages From This Report

- **Nigeria's newborns are dying in huge numbers** – 284,000 each year, over 700 a day. There has been no measureable reduction in the average national neonatal mortality rate in the last decade. There is wide variation in mortality between states, between urban and rural areas and a huge difference for the poorest families who have more than twice the risk as the richest Nigerian families.

- **Most of these young lives could be saved with existing interventions** – recent analyses suggest that up to 193,000, or 68 percent of these newborn deaths could be prevented if essential interventions possible through existing health packages reached all Nigerian women and newborns. Healthy home practices and community-based care, possible even in hard to access areas could save over 90,000 babies a year. Almost 23,000 babies die each year just from neonatal tetanus.

- **The key interventions to save newborn lives are mostly possible through the existing health system but coverage is extremely low** – even much lower than most other African countries, for example for tetanus toxoid (51%), skilled attendance during childbirth (44%) and early breastfeeding (30%).

- **The policies are mostly in place and the cost is affordable** – the key gap is connecting to action in each state and implementing services, and considering innovations to reach higher coverage and quality of care, e.g. delegation of newborn health tasks to extension workers and other cadres and new strategies to bridge care in the community and health facilities.

Save the Children

access
Access to clinical and community maternal, neonatal and women's health services

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