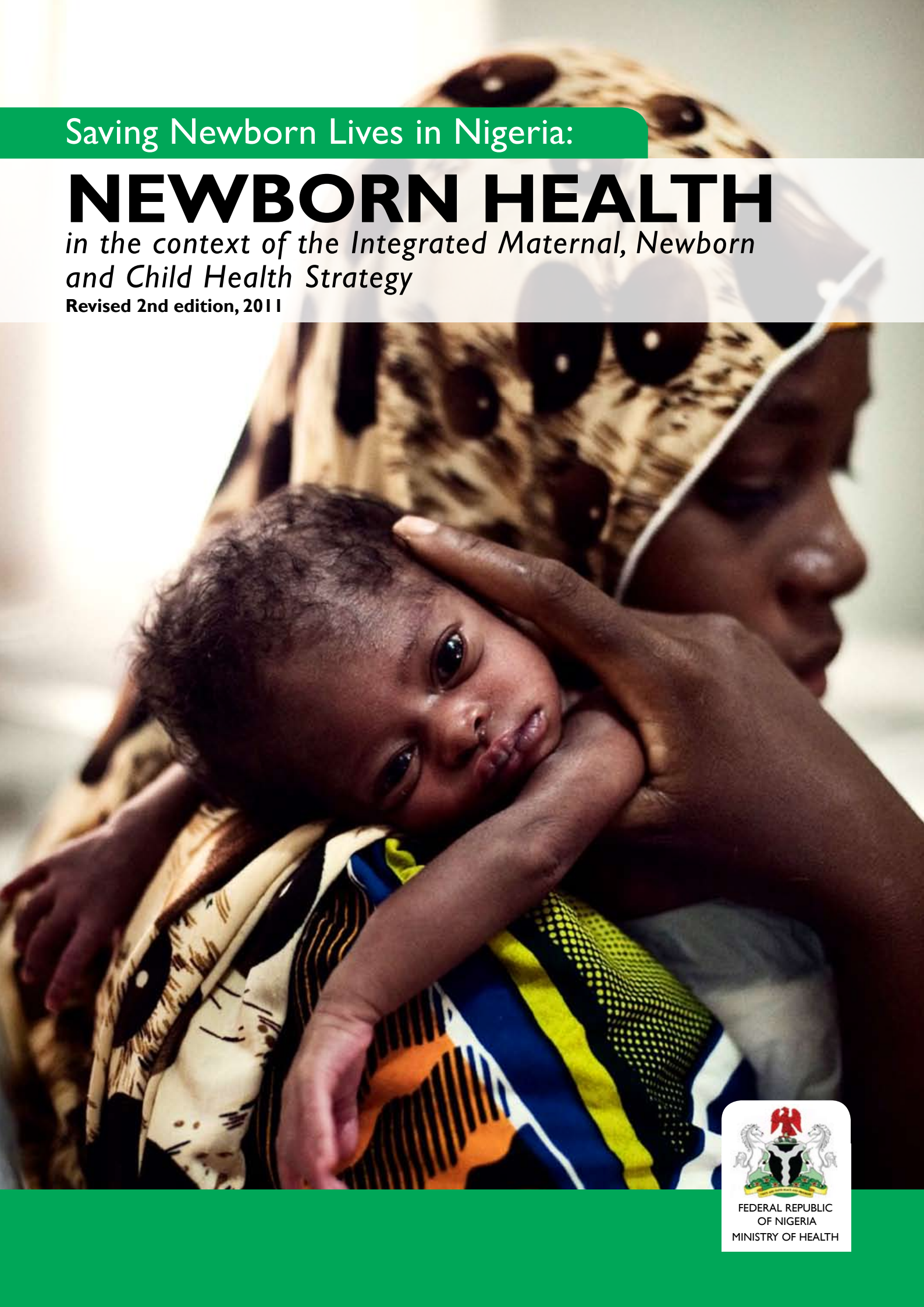


Saving Newborn Lives in Nigeria:

NEWBORN HEALTH

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

Revised 2nd edition, 2011



FEDERAL REPUBLIC
OF NIGERIA
MINISTRY OF HEALTH

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Key abbreviations and acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ART	Antiretroviral therapy
BCC	Behaviour Change Communication
CDC	Community Development Committee
CHEW	Community health extension worker
CIMCI	Community Integrated Management of Childhood Illness
EmOC	Emergency obstetric care
EPI	Expanded Programme on Immunisation
FGC	Female genital cutting
FMOH	Federal Ministry of Health
GNI	Gross national income
HBB	Helping Babies Breathe
HIV	Human Immuno-deficiency Virus
HMIS	Health management information systems
IMCI	Integrated Management of Childhood Illness
IMNCH	Integrated Maternal, Newborn and Child Health Strategy
IMR	Infant mortality rate
IPTp	Intermittent preventive treatment for malaria in pregnancy
ITN	Insecticide-treated net
KMC	Kangaroo Mother Care
LGA	Local government authority
LSS	Life saving skills
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MMR	Maternal mortality ratio
MSS	Midwives Service Scheme
MNCH	Maternal, newborn and child health
NANNM	National Association of Nigerian Nurses and Midwives
NDHS	Nigeria Demographic and Health Survey
NHIS	National Health Insurance Scheme
NISONM	Nigerian Society of Neonatal Medicine
NMR	Neonatal mortality rate
PAN	Paediatric Association of Nigeria
PHC	Primary healthcare
PMNCH	Partnership for Maternal, Newborn and Child Health
PMTCT	Prevention of mother-to-child transmission of HIV
PNC	Postnatal care
SOGON	Society of Gynaecologists and Obstetricians of Nigeria
TBA	Traditional birth attendant
THE	Total health expenditure
TT2+	Tetanus Toxoid vaccine (2 or more doses)
U5MR	Under-five mortality ratio
VVHW	Volunteer village health worker

Foreword

The first 28 days of life – the neonatal period – is a critical time for survival of the child. Every day in Nigeria, about 700 babies die (around 30 every hour). This is the highest number of newborn deaths in Africa, and the second highest in the world.

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 preventable causes such as intrapartum-related injury, infections, and prematurity. There has been a fast reduction in under-five mortality compared to neonatal mortality. The present circumstance informs that if we do not reorient to arrest the current trend, Nigeria will not attain Millennium Development Goal 4 for child survival.

The challenges are both technical and operational, spanning health system deficiencies to issues relating to the development and implementation of the right policies and strategies to scale up programmes. It is against this background that the Federal Ministry of Health (FMOH) put together the Integrated Maternal, Newborn, and Child Health (IMNCH) strategy to help revitalize maternal, newborn, and child health in Nigeria. This strategy is being implemented within the framework of the National Strategic Health Development Plan (NSDHP). The 2nd Edition of this report has been updated with recent data in order to further identify strategic opportunities to improve newborn health in Nigeria and prevent unnecessary deaths.

Newborn health continues to be a sensitive indicator 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 reflects a well-conceptualised framework that will enable government to monitor newborn health in Nigeria, and to adjust programme implementation appropriately.

I hereby recommend this 2nd Edition of the Situation Analysis for Newborn Health in Nigeria as a road map for all stakeholders delivering survival interventions for newborn health in the context of maternal and child health in this country.

Finally, I wish to express my appreciation to Saving Newborn Lives / Save the Children; Jhpiego, and other agencies such as WHO, UNICEF and UNFPA who collaborated closely with the Federal Ministry of Health in this initiative. Significant reduction of newborn deaths 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. All of Nigeria's babies deserve a healthy start in life.



Professor C.O. Onyebuchi Chukwu
Honourable Minister of Health
Federal Ministry of Health, Abuja

Our commitment - Countdown to 2015 for Maternal, Newborn, and Child Health



Countdown to 2015 for Maternal, Newborn and Child Health (MNCH) is a global movement of governments, academics, agencies, non-governmental associations and healthcare professionals, with The Lancet as a key partner. Countdown was established in 2005 to improve the use of country-specific data to stimulate and support action and accountability by tracking coverage for priority MNCH interventions to accelerate progress towards Millennium Development Goals (MDGs) 4 and 5, plus parts of MDGs 1, 6 and 7. Every two years a Countdown report takes stock of progress for 68 priority countries, including Nigeria. We call on governments, development partners and the wider community to be accountable if rates of progress are not satisfactory, or if coverage remains inequitable. We also monitor health system policy and inputs such as human resources. Countdown plays a role in highlighting knowledge gaps that are hindering progress, and promoting intervention and service delivery innovation. Official development assistance for MNCH is tracked by country as a key measure of partner accountability.

We applaud Nigeria for this report focusing on state level data and critical coverage, equity and quality gaps for reducing maternal, child and especially the focus on the country's 241,000 newborn deaths, which have been neglected until very recently. We call on the technical and political leaders in Nigeria to use this data to set evidence based priorities, invest in implementation and be accountable for change, especially for the poorest families.

Nigeria, as the largest country in Africa holds the key to Africa's progress towards the MDGs. Recent progress for MDGs 4 and 5 is more encouraging but much remains to be done with 33,000 maternal deaths and almost 1 million under-five deaths. Time is short and focused action is critical. Priority actions based on the Nigerian data are clear:

- Focus on coverage gaps for high-impact interventions, particularly family planning services, and antenatal, childbirth, and postnatal care, and case management of childhood illnesses.
- Prioritise within the continuum of care, especially around the time of birth, and from pre-pregnancy through 24 months. This will save mothers, babies and also the many stillbirths in Nigeria each year, and improve child health and survival.
- Implement equitable healthcare. Describing inequities, though an important first step, is not enough. Programmatic implementation is critical to address inequities by geographic region, by urban/rural and by socioeconomic status, supported by monitoring data.
- Emphasise maternal and child nutrition. Nutrition is central to both national and subnational development strategies and requires a multi-sectoral approach.
- Ensure predictable, long-term funding for MNCH in all states, and invest in the highest impact care for the poorest families.
- Monitor progress and evaluate outcomes. Conduct locally driven implementation research and act on the results.
- Lead the change for maternal, newborn, and child survival. It is time for all to work together as partners to improve the lives of Nigeria's women, newborns and children. Those in the global Countdown movement commit to support you in this partnership for accelerated progress for Nigeria's families.

A handwritten signature in black ink, appearing to read 'Mickey Chopra'.

Dr Mickey Chopra
*Chief of Health, UNICEF
New York, USA
Co-Chair of Countdown to 2015*

A handwritten signature in black ink, appearing to read 'Zulfiqar Bhutta'.

Professor Zulfiqar Bhutta
*Chair, Division of Women and Child Health,
Aga Khan University, Pakistan
Co-Chair of Countdown to 2015*

Our commitment - United Nations Mission in Nigeria



As the 2015 deadline for the Millennium Development Goals draws closer, the challenge for improving maternal, newborn and child health goes beyond meeting the goals; it lies in preventing needless human tragedy and securing Nigeria's future. Success will be measured in terms of lives saved and lives improved.

Success will depend on reaching women and their children throughout the continuum of care and across many sectors. Premature pregnancy and motherhood pose considerable risks to the health of girls. The younger a girl is when she becomes pregnant, the greater the health risks for herself and her baby. Early marriage and pregnancy, HIV and AIDS, sexual violence and other gender-related abuses also increase the risk that adolescent girls will drop out of school. This, in turn, entrenches the vicious cycle of gender discrimination, poverty and high rates of maternal and neonatal mortality. Educating girls and young women is one of the most powerful ways of breaking the poverty trap and creating a supportive environment for maternal and newborn health.

The United Nations mission in Nigeria is committed to saving the lives of Women, Newborns and Children through a coordinated effort to:

- Work closely with governments at all levels, development partners, civil society, communities and families; combining efforts to maximise impact and using existing infrastructure to make the best use of available resources and avoid unnecessary duplication
- Provide support in improving the legislative environment and policy implementation and addressing human resource constraints, thereby expanding coverage of essential services and stronger health systems, especially close to home where the majority of Nigeria's births take place. This involves strengthening family planning, institutional delivery, community-based newborn care, and promoting healthy behaviours such as exclusive breastfeeding and care-seeking for illness.

The United Nations mission will also play a critical role in data collection and reporting on progress, and estimating outcomes and impact of interventions to improve the health of mothers, newborns, and children through the analysis of population-based surveys and routine data. The Mission will help Nigeria strengthen monitoring and evaluation systems to systematically track progress to ensure that programmes yield impact and that the promises made for women and children are kept.

Dr Suomi Samai
The Country Representative
UNICEF/Nigeria

Dr Peter Eriki
WHO Representative
WHO/Nigeria

Dr Agathe Lawson
Country Representative
UNFPA/Nigeria

Our commitment - Maternal and Child Health Integrated Program (MCHIP)



The Maternal and Child Health Integrated Program (MCHIP) is the USAID Bureau for Global Health's flagship maternal, neonatal and child health (MNCH) programme, which focuses on reducing maternal, neonatal and child mortality and accelerating progress toward achieving Millennium Development Goals (MDGs) 4 and 5. Awarded to Jhpiego and partners in September 2008, MCHIP works with a wide group of stakeholders to implement programs at scale for sustainable improvements in MNCH.

In Nigeria, the MCHIP programme is being implemented as a continuation of the ACCESS program which was designed to focus on increasing the use of high quality Emergency Obstetric and Newborn Care (EmONC) services in Northern Nigeria. This program started in four local government areas (LGAs) in two states but has expanded to 29 LGAs and 57 health facilities across three states, namely Kano, Katsina and Zamfara.

The key approach has been the implementation of integrated essential maternal and newborn care interventions focusing on antenatal care, comprehensive and basic EmONC, postnatal care, and family planning for healthy timing and spacing of pregnancies highlighting the importance of the household-to-hospital continuum of care. MCHIP recognises the importance of systematically addressing maternal and newborn issues at the community and facility levels together using evidence-based interventions and best practices.

The MCHIP programme seeks to address delays associated with maternal and newborn deaths by improving household and care-seeking practices, empowering the community to create and maintain an enabling environment for increased utilisation of maternal and newborn care services, whether public or private, and improving the quality of care provided at the peripheral and district (LGA) levels. The main technical intervention is the improvement of EmONC services, but recognising that preparation for management of complications starts in the antenatal period and continues through childbirth and the postnatal period. Going forward towards 2015 MCHIP commits to:

- Work with others under the IMNCH umbrella to develop and implement a coordinated behaviour change communication strategy to promote simple essential newborn care practices at community level through women's groups, religious organisations and other community mobilisation structures.
- Scale-up the use of its trained household counsellors in Kano, Katsina and Zamfara States to educate women and their families about the danger signs in pregnancy, during and after childbirth.
- Scale-up the use of its trained male birth spacing motivators to educate men about the benefits of healthy timing and spacing of births and use of long-acting contraceptive methods.
- Implement community identification and management of neonatal infection as appropriate with strict supervision and channels for immediate referral to primary health clinics and hospitals.
- Expand the scale-up of its very successful Mothers' Savings and Loans Clubs which empowers women economically and provides a source of funding for emergency newborn care.
- Continue to build capacity of health facilities to set up more Kangaroo Mother Care units in hospitals and train health care workers on the use of this life-saving intervention to keep small babies alive.
- Work with other stakeholders in Nigeria to scale-up the Helping Babies Breathe (HBB) programme in order to reduce the incidence of neonatal deaths due to not being able to breathe at birth.
- Continue to ensure that essential newborn care is given appropriate attention through EmONC trainings and continue to provide support to health facilities for the institutionalisation of essential newborn care.
- Finally, in line with the goal of planning for sustainability of its program approaches, MCHIP will work with the National Primary Health care Development Agency to strengthen its Midwives Service Scheme (MSS) program to provide essential newborn care nationwide.

Professor Emmanuel O. Otolorin, FCOG, FWACS, FRCOG
Jhpiego Country Director
Abuja, Nigeria

Our commitment - PRRINN/MNCH



In 2007, JHPIEGO's ACCESS project and Save the Children provided the Government of Nigeria technical and financial support to do a situation analysis of newborn health in Nigeria in the context of the newly-launched Integrated Maternal, Newborn and Child Health Strategy. Since the release of that publication, the 2008 Nigeria Demographic and Health Survey has provided information on newborn health in Nigeria and many stakeholders have taken up issues of maternal and newborn care.

It became necessary to update this publication including an update on progress made and include new national and state level data profiles. In September 2010, the Core Technical Committee of the National Partnership for Maternal, Newborn and Child Health headed by the Federal Ministry of Health held an extraordinary meeting in Kaduna (PRRINN/MNCH was also in attendance) to review the publication and recommendations in detail, led by a consultant neonatologist. Following this, at a meeting held by PATHS 2 in November 2010, partners committed to support the improvement of newborn health in Nigeria.

It is against this background that the PRRINN/MNCH programme wishes to express its commitment to working with federal, state and local governments, and in close consultation with local communities to support the implementation of strategies for improving newborn health in the four northern states of Nigeria where it operates (Katsina, Yobe, Jigawa, and Zamfara), where rates of maternal, newborn and child mortality are amongst the highest in the world. We also commit to sharing the results of our learning with partners and stakeholders in order to make the future healthier for Nigeria's newborns.

Dr Garba A. Idris

National Programme Manager

Partnership for Reviving Routine Immunization in Northern Nigeria;

Maternal Newborn and Child Health Initiative (PRRINN/MNCH)

Our commitment - Save the Children



This report represents a major milestone to save Nigeria's 241,000 newborns who die from preventable and treatable causes every year. Published under the auspices of the Federal Ministry of Health and developed by Save the Children in collaboration with major stakeholders, the report will accelerate action by duty-bearers to save the lives of Nigeria's newborns.

Save the Children believes that the health of newborns is a critical bridge between maternal and child health and central to the paradigm of the continuum of care linking mother, child, and newborn care. Childbirth and the first week of a baby's life present the highest and greatest risk for mothers and children. However, in Nigeria, just over one third of all women deliver with a skilled attendant, and still fewer benefit from effective postnatal care. Gains from higher coverage of the essential interventions outlined in this publication will benefit both mothers and newborns and reach far beyond the neonatal period to benefit infants and older children.

Save the Children is working together with Federal and State Ministries of Health and Local Governments to seize the opportunity to advance newborn health in the context of strengthening health systems that work for mothers, newborns, and children. In particular, Save the Children commits to:

- Partner for advocacy at national, state and local level for policy change that will benefit mothers, newborns, and children, including increasing the budgetary allocation for health to 15%, and ensuring improved access to health care for all and particularly for women, newborns, and children.
- Promote the roll out of high impact essential interventions such as Helping Babies Breathe, Kangaroo Mother Care, case management of newborn infections, and integrating newborn care into existing packages such as emergency obstetric care, as well as support of healthy practices at community level such as early and exclusive breastfeeding, hygiene, and care-seeking for illness.
- Prioritise use of local data for decision making and implementation research to fill knowledge gaps for maternal, newborn, and child health.

The health of mothers, newborns, and children under five years represents the well-being and future of Nigeria. Reaching 'EVERY ONE' with essential, life-saving interventions will depend on all of us.

Handwritten signature of Susan Grant.

Susan Grant
Country Director
Save the Children
Abuja, Nigeria

Our commitment - Healthcare Professionals



Health care professionals, along with their national and international associations, have a significant role in the advancement of maternal, newborn and child health (MNCH). Healthcare providers who have experience working on the front line are often placed in the unique position of educating, training and preparing the environment for change in addition to influencing national healthcare policy.

Health professionals working together at the national and community levels can make a significant contribution towards the achievement of Millennium Development Goals (MDGs). We believe that strengthening national and local commitment to improving access and quality of care is an essential component of promoting safe motherhood, newborn health and child survival. We believe this is best achieved by fostering partnerships among health care professional associations and their individual members.

While Nigeria desperately needs more health workers, at 20 health workers per 10,000 population, the country actually has the fourth highest density of health workers in Africa, after Egypt, Gabon and South Africa. However, health workers are not necessarily working where the need is greatest. Health professional associations have a responsibility to focus on mortality reduction for the poorest and hardest-to-reach mothers, newborns and children in order to reach the MDGs.

In line with the global Partnership for Maternal, Newborn and Child Health joint statement by health care professionals, Nigeria's health professionals commit to:

- Work together to ensure integration across the continuum of care for MNCH through collaboration amongst health care professionals across the spectrum, as well as through alliances with development partners, indigenous NGOs, and civil society groups;
- Promote effective communication, respect, and collaboration among professionals, recognising that each professional group has unique expertise to contribute and that together we are more effective than any one group alone;
- Strengthen existing health professional organisations and promote collaborative efforts to achieve a common vision for maternal, newborn and child health, with appropriate consideration for socio-cultural and religious beliefs;
- Advocate for increased coverage of essential interventions for newborns, children, adolescents, women and mothers using innovative means such as task-shifting and redistribution through initiatives such as the Midwives Service Scheme;
- Engage in training in order to ensure the most appropriate and up-to-date pre-service and in-service training in MNCH, including Integrated Management of Childhood Illness, Helping Babies Breathe, Kangaroo Mother Care, and outreach efforts to build capacity amongst community level cadres;
- Improve the collection and use of data in our health facilities and organisations, including the implementation of regular mortality audits and implementation research that addresses the major causes of death and disability in Nigeria and focuses on reaching the poorest families with essential care.

Dr. (Chief) Abiola-Oshodi
President
Society of Gynaecology and
Obstetrics of Nigeria (SOGON)

Dr. Dorothy Esangbedo
President
Paediatric Association of Nigeria
(PAN)

Prof. Raphael Oruamabo
President
Nigerian Society of Neonatal Medicine
(NISONM)

Mr. Lawal H. Dutsima
President
National Association of Nigerian Nurses
and Midwives (NANNM)

Our commitment - Ambassadors for Children

Nigeria's mothers, newborns and children are dying in large numbers – over 110 each day – but there is much that can be done to prevent this. These tragic stories are not broadcast to millions of viewers but theirs are stories that still must be told.



As Nollywood artists, we are in a unique position to influence the public and raise awareness about these deaths and how they can be prevented, through simple care and reaching the poorest families in our country. The health of mothers, newborns and children represent the well-being and future of our society.

We commit to being ambassadors for newborn and child survival and participating in a national movement that will engage public attention and communities to help Nigeria meet our Millennium Development Goals.

As Nigerians, each one of us can play a leading role in the effort to raise awareness and save the lives of mothers, newborns and children in Nigeria. We hear the story of the mother and baby who have just survived childbirth, and the child nursed back to health after an illness. And we hope that many others may hear it, too.

John Fashanu
*TV presenter and
former professional footballer
SC Ambassador for children*

Sani Musa Danja
*Actor
SC Ambassador for children*

Joke Silva
*Actress
SC Ambassador for children*

Our commitment - Federal Ministry of Health



Each year in Nigeria almost one million children die before their fifth birthday, one quarter of these, 241,000 die in the first month of life. Reducing these deaths is a crucial step to advancing Nigeria's progress towards MDG 4. Preterm (babies born before 37 completed weeks) and low birth weight babies, account for more than half of newborn deaths. Preterm newborns are prone to hypothermia immediately after birth and in the course of neonatal care. The newborn is a bridge between care for mothers and children, but the health of these vulnerable citizens has too often fallen between the cracks.

In response to this challenge, the Federal Ministry of Health (FMOH) and partners 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 and focuses on integrated services that can rapidly increase coverage of cost effective MNCH interventions. The strategy aims to pull together an evidence-based MNCH framework in a practical continuum in order to achieve MDGs 4 and 5.

As part of efforts to achieve global and national targets as reflected in the MDGs and Nigeria's vision 20: 2020, the Federal Ministry of Health will create a budget line for the comprehensive newborn care at all levels of care, scale up capacity building for newborn care in the community, Primary Health Centre and referral centres, establish six zonal Kangaroo Mother Care centres and publish an annual report of status of newborn in Nigeria.

Handwritten signature of Professor C.O. Onyebuchi Chukwu in red ink.

Professor C.O. Onyebuchi Chukwu
Honourable Minister of Health
Federal Ministry of Health, Abuja

Acknowledgements

Newborn health and its contribution to child mortality and linkages with maternal health cannot be overemphasised. This situation analysis report has greatly helped to clarify this situation. The Federal Ministry of Health wishes to appreciate the tremendous work done on this second edition by the team of experts led by Dr Chinyere V Ezeaka (Lagos University Teaching Hospital, Lagos), with managing editor Kate Kerber (Saving Newborn Lives/Save the Children, Cape Town).

The report was led and carefully reviewed by dedicated Core Technical Committee members of the National Partnership for Maternal, Newborn and Child Health (PMNCH) at an extraordinary meeting of the committee in September 2010. Many thanks to Dr Nkeiru Onuekwusi, Head, Child Health Division, Federal Ministry of Health (FMOH), Abuja and other FMOH officers: M N Enumah (Health Promotion Division), Tinuola Taylor (Child Health Division), Akinsanmi C M (Reproductive Health Division), Dr Aderinola Olaolu M. (Child Health Division), Falana Adetunji O (Nutrition Division) as well as Abdul Adama (Child Health Division). Our special appreciation also goes to Dr Abimbola Williams (Save the Children), Prof. Raphael Oruamabo (UPTH, PH), Dr Tunde Adegboyega (WHO), Dr Esther Obinya (UNICEF), Aishatu Abubakar (PRRINN-MNCH), Dr Aminu Mamuda (PRRINN-MNCH), Dr Tunde Segun (Jhpiego), Dr Garcia Ekeh (UPTH, PH), Hadiza T Tafashia (TUY MCH), and Dr Olutola Bamsa (Healthwatch International) who all participated.

Worthy of note are all the contributors to the first edition of this document: Dr Chinyere V. Ezeaka, Dr. Oladapo S. Shittu, Dr. Tolulope F. Olufunlayo and Dr. Gabriel O. Ekekwe. Also officers from the Federal Ministry of Health, Abuja, and independent consultants Dr. Abimbola Williams and Dr. K. Sagoe, as well as the managing editors, Kate Kerber and Dr. Joy Lawn.

We very much appreciate support from Save the Children and other partners such as Jhpiego, UNICEF and WHO for this second edition. Special appreciation also goes to Kate Kerber, Dr. Joy Lawn (Cape Town), Dr Abimbola Williams (Nigeria), Maria Pizzini, Kitty Arie, Sara Rose (London), and other staff of Save the Children including David Olayemi, for reviewing and editing this second edition. Credit for the state-level child and neonatal cause of death analysis data collection and analysis is given to the Child health Epidemiology Reference Group especially Li Lui and Professor Robert Black of Johns Hopkins University, and Professor Simon Cousens (LSHTM) with Dr Joy Lawn. Maricar Garde collated data for the report. Kate Kerber coordinated the data profiles. Many thanks to Chris Rowland of The Miracle Book for the report layout and design.



Dr Nkeiru Onuekwusi
Head, Child Health Division
Federal Ministry of Health, Abuja

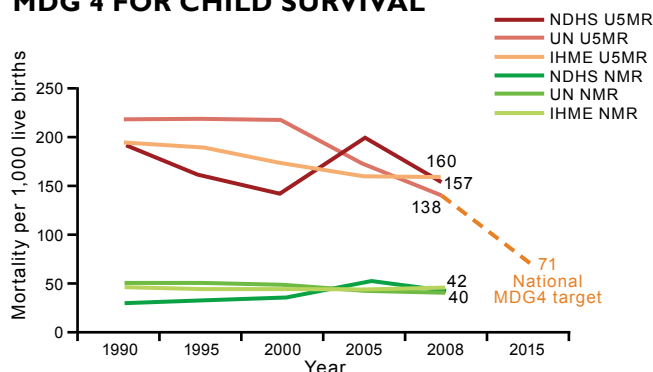
Executive summary and call for action

Recent progress has been made towards reducing child mortality but Nigeria is currently off track for Millennium Development Goal (MDG) 4 – a two-thirds reduction in child mortality (on 1990 levels) by 2015. According to UN mortality estimates, Nigeria has achieved only an average of 1.2% reduction in under-five mortality per year since 1990; it needs to achieve an annual reduction rate of 10% from now until 2015 to meet MDG 4 (Figure 1).

While some progress has been made to reduce deaths *after* the first month of life (the post-neonatal period), there has been no measurable progress in reducing neonatal deaths over the past decade. About 5.9 million babies are born in Nigeria every year, and nearly one million children die before the age of five years. One quarter of all under-five deaths are newborns – 241,000 babies each year. Many deaths occur at home and are therefore unseen and uncounted in official statistics. Given that the country's 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.

In 2009, the first edition of *Saving Newborn Lives in Nigeria: Situation Analysis and Action Plan for Newborn Health* was produced in order to provide a more comprehensive understanding of newborn survival and health in Nigeria, to analyse the relevant data by state and to present concrete steps to accelerate action to save newborn lives in Nigeria in the context of the Integrated Maternal, Newborn and Child Health (IMNCH) strategy. This second edition of the report includes updated national and state-level data profiles in line with the global Countdown to 2015 for Maternal, Newborn and Child Health process; a new chapter on maternal, newborn and child nutrition; updated recommendations; and a renewed call to action, including letters of commitment from key stakeholders in maternal, newborn and child health in Nigeria.

FIGURE 1: NIGERIA'S PROGRESS TOWARDS MDG 4 FOR CHILD SURVIVAL



Source: see report for data and references



Pep Bonet/Save the Children

Key findings of *Saving Newborn Lives in Nigeria*

1. Nigeria's mothers, newborns and children are dying in large numbers – nearly 3,000 each day.

Nearly a quarter of a million newborn babies die each year. There has been no significant reduction in the average national neonatal mortality rate over the past decade. There is wide variation in mortality between states, between urban and rural areas and among the poorest families compared to the richest.

2. Most of these young lives could be saved with existing interventions.

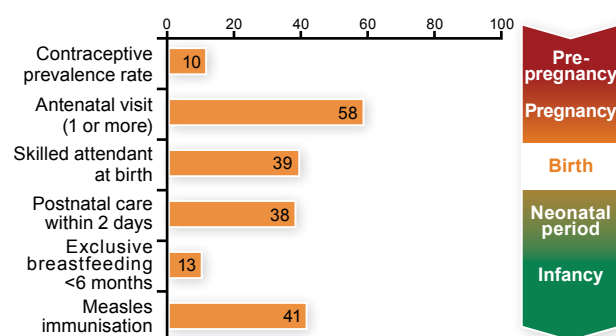
Recent analyses suggest that up to 70% of these newborn deaths could be prevented if essential interventions in existing health packages reached all Nigerian women and newborns. The leading causes of death are intrapartum-related, or 'birth asphyxia' (28%), complications of preterm birth (30%), and severe infections (22%). Healthy home practices and community-based care – which are possible to improve even in hard-to-serve areas – could save over 90,000 babies a year.

3. The key interventions to save newborn lives are mostly possible through the existing health system and will prevent the deaths of mothers and older children – but coverage remains very low.

In 2007, the Federal Ministry of Health developed a strategy to address gaps in care, making Nigeria one of the first countries in Africa to plan along an integrated continuum of care. Roll-out of the IMNCH strategy has taken place in 23 states. However, according to the Nigeria Demographic and Health Survey (NDHS) 2008, no key package along the continuum of care reaches above 60% coverage (Figure 2), and there is massive disparity across and within states. Coverage is especially low for modern contraception use (10%) and for exclusive breastfeeding of infants less than six months (13%).

Antenatal care coverage is not much below the average for Africa, but immunisation and skilled attendance coverage is much lower than the regional average: only 62% of Nigerian children receive all the required vaccines – a missed opportunity to prevent child deaths through relatively inexpensive outreach services. Nine states have skilled attendance coverage over 90%, yet there are 12 states where less than 20% of women give birth with a skilled attendant present.

FIGURE 2: COVERAGE ALONG THE CONTINUUM OF CARE IN NIGERIA FOR MATERNAL, NEWBORN AND CHILD HEALTH



Source: see report for data and references

4. More than a third of children's deaths are attributed to maternal and child undernutrition.

Greater priority on tackling malnutrition is vital to attain Millennium Development Goals on eradicating poverty, reducing child mortality and improving maternal health. In 2008, 41% of children under five were stunted, 14% were acutely malnourished and 23% were underweight. Addressing the underlying causes requires cross-ministerial and multi-sectoral action, and coherent and coordinated implementation of existing policy frameworks.

5. The policies needed to reduce newborn mortality are mostly in place and the cost is affordable.

The key gaps are in streamlining activity and increasing accountability at state and local levels around IMNCH strategy implementation, and considering innovations to achieve higher coverage and quality of care, such as delegating newborn health tasks to extension workers and other cadres and new strategies to coordinate care in the community with health facilities. Priority must be given to reaching the poorest families with essential care.

6. Inadequate funding and stewardship of resources at all levels hampers the performance of the Nigerian health care system.

The 2007 government budgetary allocation for health of 6.5% is still far below the target set in the Abuja Declaration of 2001. Three quarters of total health expenditure is borne by households through out-of-pocket payments for healthcare. The cost of care, particularly in the case of obstetric emergency, is one of the most important barriers to healthcare use. Local and state governments also demonstrate a critical lack of accountability, as local governments allocate resources with little influence and oversight from the state.

7. The Nigerian health system is relatively rich in human resources compared to many other African countries. However, there is inequitable distribution of staff to offer maternal, newborn and child health services.

Innovative use of community health extension workers for MNCH is an important issue on the operations research agenda. The Government of Nigeria has promised to reinforce the initiative by introducing a policy to increase the number of core service providers, including Community Health Extension Workers and midwives, with a focus on deploying more skilled health staff in rural areas.

Report's 2nd edition unveils critical findings

- The 2nd edition of this report draws on NDHS 2008 data, whereas the 2009 edition used data from the 2003 NDHS and the 2007 Multiple Indicator Cluster Survey (MICS).
- Under-five mortality fell by 22% from 201 deaths per 1000 live births in 2003 to 157 deaths per thousand live births in 2008. Neonatal deaths improved marginally from 48 per 1000 live births to 40 per 1000 live births during this period.
- While mortality decreased, the gains for many indicators of coverage of care for women and children were less significant. In 2008, 58% of pregnant women attended one or more antenatal visits, slightly lower than 61% in 2007. Around 39% of deliveries were with a skilled birth attendant in 2008, down from 44% in the 2007 MICS. Exclusive breastfeeding among children less than 6 months fell from 17% in 2003 to 13% in 2008. Treatment for childhood diarrhoeal disease, malaria and pneumonia have dropped or remained stagnant. Coverage of care remains on average much worse in the North East and North West of the country.

The continuum of care: current coverage of evidence-based interventions and priority actions for healthcare decision-makers and providers

Before pregnancy

- Secondary school attendance among females is at less than half. A quarter of girls are married before age 15 (a dramatic increase from 15% in 2003). Use of modern contraceptives among girls aged 15–19 is just 11%.
- Immunisations, such as tetanus toxoid (TT), to school-age females are not routine.
- Female genital cutting, which has a prevalence rate as high as 80% in some states of the country, poses significant reproductive health challenges.
- Nigeria's total fertility rate is among the highest in Africa at 5.7 births per woman. Over 20% of married women in Nigeria have an unmet need for family planning, either in spacing or limiting their pregnancies.

Priority actions during this time period

- Promote delay of first pregnancy until after 18 years and space each pregnancy 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 cutting
- Increase coverage of PMTCT and improve integration, especially with antenatal and postnatal care

During pregnancy

- Coverage of at least one antenatal care (ANC) visit with a skilled care provider reaches 62% of women. 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 package of interventions. Only 45% make four or more ANC visits, and fewer (36%) make their first ANC visit during the first three months of pregnancy. Only 45% of mothers receive the recommended two or more doses of TT, with figures as low as 7% in some states.
- Only 5% of pregnant women received the recommended two doses of Intermittent Preventive Treatment during pregnancy (IPTp) for malaria and the same percentage of pregnant women sleep under an insecticide treated bed net (ITN). The slow rate of progress since 2003 does not match the large investment in malaria prevention.
- Only 13% of pregnant women are offered counselling and testing for HIV and receive their results, a missed opportunity for treatment programmes to prevent mother-to-child transmission.

Priority actions during this time period

- Undertake TT vaccination campaigns, especially in 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 a part of focused ANC
- Promote better care of women at home and look for opportunities to involve women and communities in analysing and solving problems, such as high workload during pregnancy and transportation to health facilities
- Increase coverage and use of ITN and IPTp during pregnancy
- Use opportunities for strengthening malaria and HIV programmes to improve MNCH services (eg, laboratory, supplies and social mobilisation)

During childbirth

- Almost 40% of women in Nigeria give birth with just a relative or no attendant present at all. 39% of deliveries are with a skilled birth attendant – doctors, nurse/midwives or auxiliary midwives. Traditional birth attendants assist 22% of births. The proportion of home births is 90% in the North West and 87% in the North East zones of the country.
- The quality of care in health facilities is often low. Knowledge, availability and use of the partograph are limited. 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.
- Only 4% of public health facilities meet EmOC standards – most in wealthier, urban areas. Less than 2% of women nationally deliver by caesarean section, pointing to an unmet need for emergency services.
- Emergency care for newborns is even more lacking. Only 10% of midwives are trained in neonatal resuscitation, and fewer are trained in the immediate care of premature babies.



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Priority actions during this time period

- Increase demand for facility-based deliveries with skilled birth attendants
- Promote birth and emergency preparedness at home and better linkages between home and facility (emergency loan and transport schemes, etc)
- Ensure that all skilled birth attendants are competent in essential newborn care and resuscitation
- Include essential newborn care and resuscitation in scale up of emergency obstetric care

Postnatal care

- There are very little data available about the coverage and quality of routine postnatal care for mothers and newborns. One third of women receive postnatal care within the first two days of birth, but the content of this visit, especially the care provided to the baby, is unknown.
- Early postnatal care could prevent up to one quarter of newborn deaths through promotion of healthy behaviours such as hygiene, warmth and early and exclusive breastfeeding, and through recognition and care seeking for danger signs.
- The proportion of children aged 12 to 23 months who are fully immunised by their first birthday has only increased from 13% in 2003 to 19% in 2008 NDHS. Nearly 30% of children have not received any vaccinations at all.

Priority actions during this time period

- Ensure all mothers and babies are seen by a trained healthcare provider within two days of childbirth, regardless of place of delivery
- Develop a consensus regarding content, delivery strategies and timing for PNC for newborns and mothers at community and facility level, as per the WHO/UNICEF Joint Statement on Home Visits for the Newborn Child
- Undertake operations research to test models of PNC provision at community level, which will inform scaling up

Case management of newborn and childhood illness

- From the limited information available, coverage of case management of childhood illness in Nigeria is low. Care seeking is also low – only 58% of babies with pneumonia symptoms and 47% of babies less than six months with fever were brought to a health facility, and among those, less than half received antibiotic treatment.
- Kangaroo Mother Care provides an evidence-based opportunity to care for small babies that could save thousands of lives. It has been rolled out in a small number of health facilities and is being incorporated into training packages for health workers to increase scale up.
- Nigeria has adapted the Integrated Management of Childhood Illness (IMCI) to include care of newborn illness, but implementation is limited. Neonatal sepsis case management is one of the highest impact interventions and is achievable at primary or even at community level. Severe cases should be referred for facility care. Specialised neonatal care is required in all referral centres, but currently is largely restricted to teaching hospitals.

Priority actions during this time period

- Ensure hospitals can provide care of small babies, including KMC and support for feeding preterm babies
- Improve availability of drugs and supplies for treating sick newborns at lower level health facilities
- If it is not possible to provide case management for neonatal illness at scale through existing service delivery, consider other mechanisms to bring care close to families (eg, community based treatment of neonatal sepsis)
- Continue to train health workers and community cadres on IMCI, including care during the first week of life

Nutrition and MNCH

- Of the 10 countries contributing to 60% of the world's wasted children under-five, Nigeria ranks the second.
- Nigeria has one of the poorest exclusive breastfeeding rates in Africa. Only 38% of newborns are breastfed within one hour of birth; recent data show that the percentage of infants exclusively breastfed has decreased from 17% in 2003 to 13% in 2008.
- 41% of children under five years are chronically malnourished (ie, stunted), and 23% of children suffer from severe stunting.
- 14% of children under-five in Nigeria are wasted and 7% are severely wasted – an increase from 11% wasting and 4% severe wasting obtained in 2003 NDHS.

Priority actions during this time period

- Review and strengthen policy and programme implementation to support early and exclusive breastfeeding through the national Infant and Young Child Feeding Strategy
- Increase community awareness about the benefit of early and exclusive breastfeeding and address harmful practices - such as discarding colostrum - that may prevent optimal infant feeding
- Address anaemia in pregnancy through iron and folic acid supplementation, hookworm treatment and malaria prevention
- Engage in multi-sectoral efforts to combat food insecurity and chronic malnutrition

Recommended actions for healthcare decision-makers

1. Ensure leadership, appropriate funding and accountability

- Allocate 15% of government annual budget to health in order to meet the Abuja commitment and the more recent government commitment to the UN Secretary General's Global Strategy for Women's and Child Health.
- Review implementation of the National Health Insurance Scheme to identify gaps and to scale-up services to offer community-level insurance.
- Ensure free and equitable access to a comprehensive package of health services for all mothers newborns and children under five years.
- Hold development partners accountable to honour their funding pledges and, in partnership with the Government of Nigeria, to coordinate their efforts for effective MNCH delivery.
- Publish federal, state and local government health budgets on the federal government website and ensure these budgets are publically accessible.
- Encourage and open the space for civil society to assist in monitoring budgets and holding government to account.
- Ring-fence the budget for health at all levels, and ensure that there is prompt release of funding.

2. Orient policies, guidelines and services to include newborn care

- Advocate for the passage of the National Health Bill into federal law and ensure its prompt implementation at the state, local government and facility levels.
- Continue roll-out of the IMNCH strategy in all states, including support for supervision, logistics and data tracking.
- Support development, review, dissemination and implementation of newborn care standards, to be adapted and used at state level.
- Target early postnatal care through clear policy directives to reach women and their newborns at home or close to home in the crucial first days of life.
- Develop a national KMC guideline to address service standards, admission and discharge criteria, and best practices that can be adapted for all levels of health care.
- Create an enabling environment across government departments for addressing cross-cutting issues such as water and sanitation, food security, gender equality and women's empowerment, particularly addressing girls' education, early marriage and female genital cutting.



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3. Effectively plan for and implement policies, including human resources, equipment and supplies

- Prioritise and accelerate implementation of the highest-impact and most feasible interventions using a clear, data-based process. Priorities and phasing of implementation will differ by state and can be linked to the IMNCH strategy planning process in each state.

RECOMMENDED ACTIONS FOR HEALTHCARE DECISION-MAKERS

- Identify key bottlenecks in drugs and supplies logistics systems; strengthen referral centres and ensure that all facilities have appropriate equipment.
- Systematically increase the number and capacity of staff, especially in under-served areas, as exemplified in the Midwife Service Scheme, and consider delegation of tasks to other cadres.
- 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 to provide life-saving services at community level.

4. 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.
- Ensure key newborn health indicators are integrated into the routine Health Management Information System (HMIS).
- Involve development partners, agencies and professional associations in developing 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.

5. Inform and communicate

- Develop a consensus-based behaviour change communication strategy based on formative research and use media effectively to discourage harmful practices, create awareness about newborn care and inform about danger signs and care-seeking.
- Increase awareness of maternal, newborn and child health issues, particularly among the middle classes and government officials, and involve beneficiary communities in taking action.
- Monitor coverage and evaluate effect and cost. When scaling up services, it is crucial to increase the availability and quality of information to monitor progress and inform decision-making.
- Enable communication and information sharing between national, state, LGA, facility and community levels. Keep lower- and mid-level health facilities up to date on new and revised national policies and link national strategic planning and action in LGAs.
- Engage communities with the health system and enable their voices to be heard on issues important to them. They should be able partners in improving the health system and the health system should be accountable to them.



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Introduction to the second edition

Each year in Nigeria nearly one million children die before their fifth birthday. One-quarter of these children – 241,000 – die in the first month of life as newborns. Reducing these deaths is a crucial step to advancing Nigeria’s progress towards Millennium Development Goal (MDG) 4. In addition, many of the solutions for newborn deaths link closely to reducing the country’s 33,000 annual maternal deaths. Until recently, far too little attention has been paid to the fact that more than one-third of child deaths and more than 10% of total global disease burden can be attributed to maternal, newborn and child undernutrition, demonstrating the huge significance of this prevalent risk factor to international health goals.

To address this urgent issue, the Federal Ministry of Health (FMOH) and partners, in alliance with the Partnership for Maternal Newborn and Child Health, have developed the Integrated Maternal, Newborn, and Child Health (IMNCH) strategy.¹ 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.

The wellbeing of mothers and newborns forms the foundation of a strong health system. Historically, maternal and child health packages in Nigeria addressed care for the mother and the child separately, resulting in newborn care issues not fully addressed in either and falling between both. 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. Although more than two-thirds of newborn deaths could be prevented through essential MNCH packages, most of which are already part of policy,² the coverage and quality of these healthcare services continue to fail women, newborns and children.

In view of the rate of state roll-out of the IMNCH strategy and the 2008 Nigeria Demographic and Health Survey (NDHS) which was formally released in November 2009, as well as the recently launched EVERYONE and CARRMA campaigns for newborn, child and maternal health, there arose a need for a review of the first edition of the report³ with a renewed call to action. Furthermore, this second edition has an added chapter on nutrition as a key factor in maternal, newborn and child health, in view of the pivotal role that nutrition plays throughout the entire life cycle, as well as revised state profiles with indicators in line with the global countdown to 2015 for MNCH process.⁴ Although the focus of this situation analysis is on newborn health, the continuum of maternal care from pregnancy through childbirth and the postnatal period is highlighted, as these have a significant impact on the health of newborns.

The first chapter in this report looks at the current state of Nigeria’s newborns in light of the country’s commitment to the MDGs, the place of newborns within maternal and child health, and aspects of poverty and social determinants of health. Chapter 2 reviews current coverage and quality of newborn care services across the continuum of care through pregnancy, childbirth and the postnatal period. The third chapter provides an overview of the burden of maternal, newborn and child undernutrition and of multi-sectoral strategies to tackle this important risk factor. The policy environment for newborn health in the context of MNCH is addressed in Chapter 4. Recommendations for improving newborn health are given in Chapter 5 for various actors and levels of decision-making. Finally, new state profiles for MNCH are included, followed by league tables listing data by state.

TABLE 1: NUMBERS OF DEATHS OF NIGERIAN MOTHERS, BABIES AND CHILDREN

Population	151,212,000
Annual births	6,028,000
Mothers	
Maternal mortality ratio	545
Annual number of maternal deaths	33,000
Newborns	
Neonatal mortality rate	40
Annual number of neonatal deaths	241,000
Children	
Under-five mortality rate	157
Annual number of under-five deaths	946,000

Chapter I: Current state of Nigeria's newborns

Commitment to the Millennium Development Goals

The international community, including Nigeria, endorsed the eight Millennium Development Goals (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. Indeed these goals have constituted the mantra of development and progress of developing countries, and offer the framework for instituting intervention measures. Despite rapid advances by some countries that show that the MDGs are achievable in low-income countries, many countries in sub-Saharan Africa, including Nigeria, have yet to mobilise resources, political and financial support to meet the goals and improve the health of all Nigerians. Nigeria's failure to make progress towards meeting the MDGs contributed to the 2007 United Nations (UN) mid-term progress report concluding that "the goals [MDGs] are very unlikely to be achieved in Sub-Saharan Africa".⁵

It is good news, however, that the Nigerian government participated in the three-day United Nations Summit on the MDGs held in New York in September 2010. At this Summit, world leaders adopted a declaration expressing their determination to achieve the MDGs by 2015, and pledged that renewed commitment, effective implementation and intensified collective action by all member states and other relevant stakeholders would result in achieving the MDGs, even in low-income countries.⁶

"Nigeria endorses the Secretary-General's Strategy on women's and children's health, and affirms that the initiative is in full alignment to our existing country-led efforts through the National Health Plan and strategies targeted for implementation for the period 2010–2015, with a focus on the MDGs in the first instance and the national 'Nigeria Vision 20:2020'. In this regard, Nigeria is committed to fully funding its health programme at US\$31.63 per capita through increasing budgetary allocation to as much as 15% from an average of 5% by the Federal, States and Local Government Areas by 2015. This will include financing from the proposed 2% of the Consolidated Federal Revenue Capital to be provided in the National Health Bill targeted at pro-poor women's and children's health services. Nigeria will work towards the integration of services for maternal, newborn and child health, HIV/AIDS, tuberculosis and malaria as well as strengthening Health Management Information Systems. To reinforce the 2,488 midwives recently deployed to local health facilities nationwide, Nigeria will introduce a policy to increase the number of core services providers including Community Health Extension Workers and midwives, with a focus on deploying more skilled health staff in rural areas."

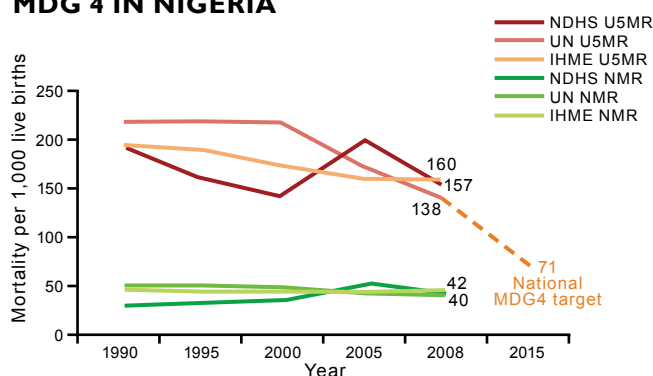
– Nigeria's commitment following the United Nations MDG Summit, 20–22 September, New York

MDG 4 – reduce under-five mortality

Currently, only three low-income countries in sub-Saharan Africa are on track to achieve MDG 4: Botswana, Eritrea and Malawi. Burkina Faso, Uganda and Tanzania have all achieved neonatal mortality rates of between 21 and 35 per 1,000 live births, despite having gross national income of less than US\$500 per capita.⁷ Nigeria is wealthier on average than many neighbouring countries, but is making less progress. It saw a 22% reduction in the under-five mortality ratio (U5MR) between 2003 and 2008 (as shown in the Nigeria Demographic and Health Survey – NDHS), while Ghana, Cameroon and Kenya achieved 53%, 40% and 42% reductions respectively during the same period.⁸

For Nigeria to meet MDG 4, the country must attain a two-thirds reduction in the U5MR from 230 deaths per 1,000 live births in 1990 to 76 by 2015. It has reduced under-five mortality by an average of only 1.2% per year since 1990, yet needs to achieve an annual reduction rate of 10% from now until 2015 to meet MDG 4 (Figure I.1).⁸ The 2008 NDHS reported an U5MR of 157 deaths per 1,000 live births, suggesting a 22% decline from the NDHS report of 2003 which had shown an U5MR

FIGURE I.1: RATE OF PROGRESS TOWARDS MDG 4 IN NIGERIA



Sources: NDHS=Nigeria Demographic and Health Survey;⁹⁻¹¹ UN=United Nations;¹⁴ IHME=Institute for Health Metrics & Evaluation¹³

of 201 per 1,000 live births.^{10,11} Most of the decrease in mortality occurred outside of the neonatal period. Figure 1.2 shows the trends in neonatal mortality rates from various sources between 1990 and 2008.

MDG 5 – improve maternal survival

A staggering 33,000 Nigerian women die each year giving birth,¹⁵ and for every maternal death at least seven newborns die and a further four babies are stillborn. Meeting MDG 5 for maternal survival will require a 75% reduction in maternal mortality from an estimated 1,100 maternal deaths per 100,000 live births

at baseline in 1990 to 275 per 100,000 live births by 2015.¹⁵ Although maternal mortality seems to be coming down, according to recent estimates from the United Nations (UN), the Institute for Health Metrics and Evaluation (IHME) and the NDHS, Nigeria is not yet on track to meet MDG 5.

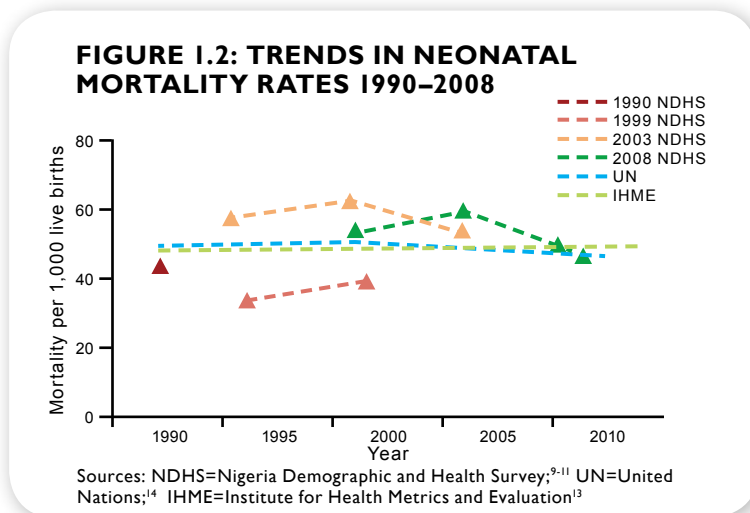


TABLE 1.1: COUNTRIES WITH THE HIGHEST NUMBERS OF NEWBORN DEATHS IN SUB-SAHARAN AFRICA

COUNTRY	Rank for number of newborn deaths	Number of newborn deaths annually	Rank for number of maternal deaths
Nigeria	1	241,000	1
DRC	2	131,000	2
Ethiopia	3	120,000	3
Tanzania	4	45,000	8
Uganda	5	45,000	6
Kenya	6	44,000	4
Côte d’Ivoire	7	43,000	16
Angola	8	43,000	5
Mali	9	37,000	9
Niger	10	32,000	7

Source: Lawn et al, 2010¹⁶

Owing to its large population and high rates of mortality, Nigeria ranks highest in Africa in terms of the number of neonatal deaths and second highest in terms of neonatal deaths worldwide. Nigeria contributes about 8% of the world’s annual neonatal deaths and approximately 1 in every 9 maternal deaths worldwide is a Nigerian woman (Table 1.1).¹⁶ Nigeria also has the highest numbers of maternal and newborn deaths of any country in Africa. There are wide variations in neonatal mortality rates between states, which mirror disparities in other health outcomes.

There are a number of different estimates for maternal, newborn and child mortality in Nigeria, but the consensus is that not enough progress is being made (Table 1.2). The UN-modelled maternal mortality ratio for 2008 is 840 deaths per 100,000 live births with uncertainty bounds of 460–1,500, which encompasses the other estimates from IHME and NDHS. While some uncertainty surrounds the exact estimate, these figures are much too high compared with industrialised countries, where the average MMR is 8, and the figure is as low as 4 in some countries.⁸

TABLE 1.2: MATERNAL, NEONATAL AND UNDER-FIVE MORTALITY TRENDS IN NIGERIA

	1990			1995			2000			2005			2008		
	NMR	U5MR	MMR	NMR	U5MR	MMR	NMR	U5MR	MMR	NMR	U5MR	MMR	NMR	U5MR	MMR
NDHS	42	192	-	-	-	-	37 (1999)	140 (1999)	-	48 (2003)	201 (2003)	-	40	157	545
UN	49	230	1100	49	230	1100	46	207	980	42	194	900	40	186	840
IHME	49	194	473	47	187	-	45	177	694	43	165	-	42	160	608

Sources: NDHS=Nigeria Demographic and Health Survey;⁹⁻¹¹ UN=United Nations;^{14,15} IHME=Institute for Health Metrics and Evaluation^{13,17}

Vital registration of births and deaths: making everyone count

Birth registration is basic to ensuring a child’s legal status and, thus, basic rights and services. In Nigeria, vital registration of births is generally low despite the Births, Deaths Compulsory Registration decree which came into effect 1 December 1992. The law gave the sole authority to coordinate the registration of these events nationwide to the National Population Commission, whilst the public health departments of LGAs did the actual registration.

The 2008 NDHS reported that only 30% of under-five children had their births registered, and this represented little increase from previous surveys.^{11,18} Births in urban areas (49%) were more than twice as likely to be registered compared with rural areas (22%). There was significant zonal variation as well, with over one-half of births in the South East zone being registered compared with only 14% in North East zone. Two-thirds of children in the richest households are registered compared with 9% in households in the poorest wealth quintile. One-third of birth registrations were done through the National Population Commission. The rest were done through local government authority (LGA) or private clinic or hospital.¹¹

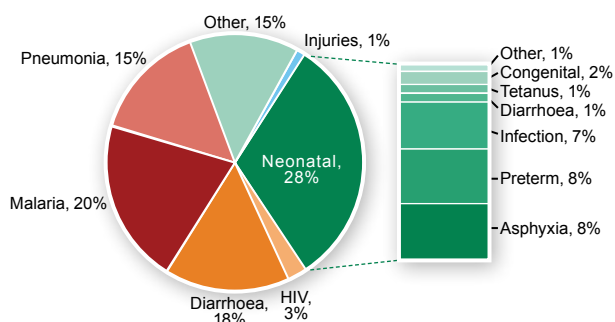
When births occur at home, they are much less likely to be registered. The majority of Nigeria’s newborns who die also do so without any record, often totally uncounted. The few estimates of neonatal mortality are at a national level and all are dependent on retrospective household surveys such as the NDHS. Retrospective surveys can result in undercounting neonatal deaths by as much as 10 to 30%.¹⁹ Furthermore, mothers are less likely to report a neonatal death if a baby dies in the early hours or days after birth, or is very small.²⁰ Stillbirths that occur at home are almost never registered.²¹

Why do Nigerian newborns and children die?

Facility-based data alone over-represent 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 2008 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 (CHERG).²²

According to these estimates, direct causes of under-five deaths after the neonatal period include preventable infectious diseases: malaria (20%), pneumonia (15%) and diarrhoeal diseases (18%) (Figure 1.3). One-third of all under-five deaths have malnutrition as an underlying cause. The major causes of death in the first month of life in Nigeria are intrapartum-related injury (29%), complications of preterm birth (28%) and severe infections (26%).

FIGURE 1.3: ESTIMATED CAUSES OF UNDER-FIVE AND NEWBORN DEATHS



Source: Black et al, 2010²²

Intrapartum-related injury

Intrapartum-related neonatal deaths – previously loosely called birth asphyxia – remain a major cause of newborn death for over 800,000 newborns globally each year. For each intrapartum-related newborn death, many more babies are left with permanent disabilities. A study from one 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.²³ Almost all babies who survive severe neonatal encephalopathy are expected to have long-term impairment. Only 39% of births are attended by skilled birth attendants and most Nigerian health facilities lack partographs for monitoring the progress of labour.²⁴

Underlying factors that contribute to intrapartum injury include the classical list of “three delays” that also apply to maternal deaths and stillbirths:²⁵

1. Delay in recognition of complications and especially in seeking care for obstructed labour.
2. Delay in accessing care once the decision is made to seek care, due to distance, lack of transport or other barriers.
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.

Complications of preterm birth

Preterm birth is a major direct cause of neonatal death, accounting for an estimated 30% of neonatal deaths in Nigeria. As well as a direct cause of death, preterm birth is also an important risk factor: up to 80% of neonatal deaths are among preterm babies.⁷ Nationally, it is estimated that 14% of Nigerian babies are born with low birth weight, weighing less than 2,500g,⁸ and in Nigeria most low-birth-weight babies are preterm.⁷ The NDHS 2008 reports that the neonatal mortality rate (NMR) for babies categorised by mothers as small or very small was more than twice that for babies classified as average or larger.¹¹

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 to save these small babies. A number of simple, evidence-based interventions such as adequate hygiene, thermal care and breastfeeding can be practised at home. Kangaroo Mother Care (KMC), which involves ongoing skin-to-skin contact between mother and baby, infection prevention and breastfeeding, has been proved to be at least as effective as incubator care and should be feasible in all secondary-level and higher-level facilities in Nigeria.²⁶

Severe infection, including tetanus

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.

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 but still accounts for a significant number of deaths each 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.

Other causes: neonatal jaundice

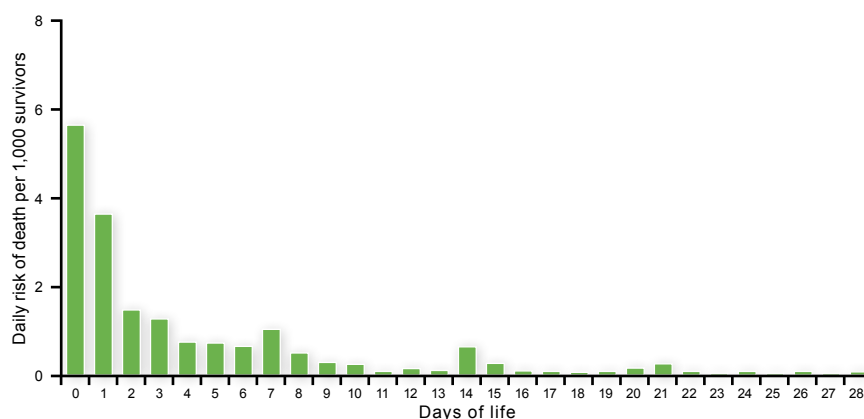
Even though it is not identified as a major cause of death, neonatal jaundice remains an important cause of preventable brain damage, physical and mental disability and early death among infants in Nigeria. While there are no national figures on neonatal jaundice in Nigeria, paediatric emergency admission data in a Lagos tertiary centre showed that 23% of admitted newborns who died had neonatal jaundice.²⁷ The high prevalence of hereditary G6PD enzyme deficiency in Nigeria is believed to contribute to this problem.²⁸

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 soon after birth, when the features of neonatal jaundice have not yet appeared. In many situations, healthcare professionals do not know how to manage this condition, and infants consequently develop kernicterus, which causes brain damage.

When do newborns die?

The day of birth and the first day of life are the riskiest times for both the mother and the baby. A child is about 500 times more likely to die in the first day of life than at one month of age.²⁹ Up to one-half of all newborn deaths are known to occur on the first day of life.¹⁹ (Figure 1.4)

FIGURE 1.4: DAILY RISK OF NEWBORN DEATHS



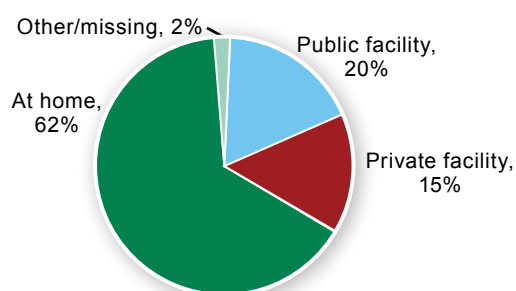
Source: NDHS 2008¹¹

Where do newborns die?

More than one-half of Nigerian babies who die do so at home. The place where mothers give birth, which usually indicates whether or not 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 2008 NDHS, approximately 62% of births occur at home, while only 35% take place in a health facility,¹¹ and there had been no significant increase in facility births over the five years preceding the survey.¹⁰

Of the births that take place in a health facility, 15% are in private sector facilities, and 20% in public sector facilities (Figure 1.5). Rates of facility deliveries are higher for women in urban centres (59%), mothers who have had an education beyond secondary level (90%) and those in the highest wealth quintile (80%).¹¹

FIGURE 1.5: DISTRIBUTION OF BIRTHS IN NIGERIA BY PLACE OF BIRTH



Source: NDHS 2008¹¹

Stillbirths in Nigeria

Stillbirths refer to fetal deaths occurring after seven completed months of pregnancy; they are still largely uncounted in Nigeria. This dearth of information highlights the challenges that must be addressed in order to provide effective care and to recognise the rights of these babies. The World Health Organization (WHO) stillbirth rate estimate for the year 2008 is 33 per 1,000 total births for Nigeria, resulting in an estimated 163,000 stillborn babies each year.²¹

NDHS 2008 collected data on the number of stillbirths by selected demographic and socio-economic characteristics. While stillbirths in these surveys are almost always under-reported, it was shown that the number of stillbirths was highest in the first pregnancy, in rural areas, and among mothers from poorest households. It is notable that mothers with no education had more than seven times the risk of stillbirth compared with mothers with an education beyond secondary level.¹¹ A hospital-based study on the pattern of stillbirth in Ibadan showed a stillbirth rate of 37 per 1,000 births, with 65% of fresh stillbirths having no visible congenital malformations, meaning that appropriate care during childbirth could have saved the lives of most of these babies.³⁰ A new analysis has shown that almost two-thirds of intrapartum stillbirths could be avoided with better obstetric care and by reducing delays at home and in getting to the hospital.³¹

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 (ANC) and care during childbirth, they and their babies face a higher risk of disease and premature death.

There are a number of maternal health champions in Nigeria, but a lack of reliable estimates at state level has contributed to a situation in which most state governors and local government heads have previously been unaware of problems in their own areas, resulting in inaction.³² One analysis of political priority for maternal health in Nigeria describes an open policy window for safe motherhood after decades of neglect.³³ Since the analysis, this policy window has broadened to include maternal, newborn and child health.

More than two-thirds of maternal deaths occur during childbirth, and are closely linked to intrapartum stillbirths and early neonatal deaths.²⁹ There is an additional burden: for every woman who dies during pregnancy or childbirth, around 30 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.³⁴

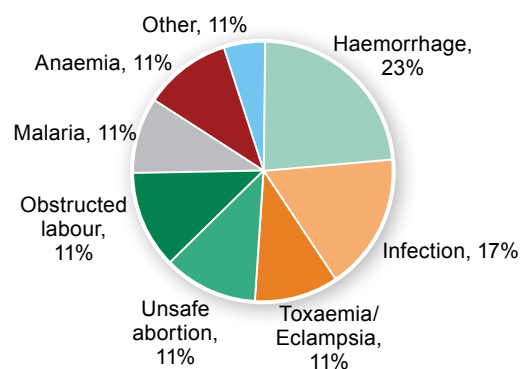
In developing countries, a mother's death in childbirth means peril for her newborn. Those babies who survive infancy often face serious challenges to their growth, development and long-term survival. Studies have shown that children who lose their mothers during childbirth have a 66% higher risk of death than those whose mothers survive.³⁵

Nigeria's high neonatal mortality rate reflects a vicious cycle common in many low-resource settings. Pregnant mothers are often poor, malnourished and overworked and may still be recovering from a previous pregnancy. One Federal Ministry of Health (FMOH) Safe Motherhood Survey concluded that "the pregnant women rarely ate a balanced diet because of the high level of poverty facing them".³⁶ 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 (FGC).

Causes of maternal mortality

The main causes of maternal mortality in Nigeria are: haemorrhage (23%); infection (17%); unsafe abortion (11%); obstructed labour (11%); toxæmia/eclampsia/hypertension (11%); malaria (11%); and anaemia (11%). Other causes, including HIV/AIDS, contribute to about 5% of maternal deaths (Figure 1.6).¹ In the SOGON facility-based survey, eclampsia was the most commonly reported cause of maternal mortality.²⁴ 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, postpartum haemorrhage is often excluded as a major cause of death according to hospital data.

FIGURE 1.6: ESTIMATED CAUSES OF MATERNAL MORTALITY



Source: Federal Ministry of Health, 2007¹

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. Childbearing during the teenage years frequently has adverse social consequences, particularly regarding educational attainment, because women who become mothers in their teens are more likely to curtail their education. The NMR for babies born to mothers less than 20 years old was 61 per 1,000 live births, compared

with a significantly lower 39 per 1,000 live births in mothers aged 20–29. One-quarter of teenage women aged 15–19 have already begun to bear children, and 47% have become mothers by age 20.¹¹

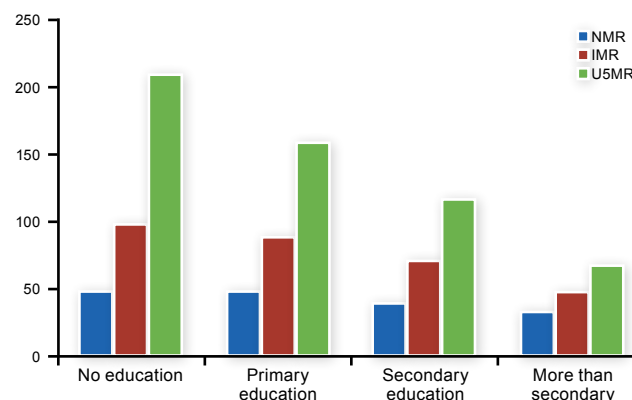
Early marriage often leads to children being born to women who are still themselves children. Furthermore, women who marry earlier are more likely, on average, to have their first child earlier and give birth to more children overall, contributing to higher fertility rates. The MICS 2007 indicates that 15% of women are married before the age of 15; nearly 40% are married before the age of 18.5.¹⁸ These findings corroborate the figures from the 2008 NDHS, which showed that nearly half (46%) of women aged 20–49 had been married by the age of 18, and 58% by the age of 20.¹¹

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 2008 NDHS showed that in the case of women with no education the NMR was one-and-a-half times greater, the infant mortality rate (IMR, ie, deaths in children less than one year of age) was twice as high, and the U5MR three times as high compared with the case of women educated beyond secondary level¹¹ (Figure 1.7). 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. Furthermore, female education has an impact on survival both as a direct determinant of behaviour and indirectly as it affects cultural attitudes and gender issues.

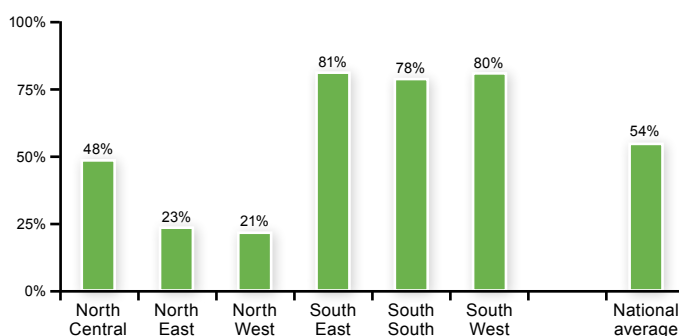
The National Bureau of Statistics reported an adult female literacy of 57%, compared with 75% among males.³⁷ However, these rates vary widely: there are lower literacy rates in the rural areas and in the northern part of the country. The 2008 NDHS noted a similar female literacy rate of 54%, with figures above 80% in the South East and South West, compared with 21% and 23% in the North West and North East zones respectively (Figure 1.8).¹¹

FIGURE 1.7: NEONATAL, INFANT AND UNDER-FIVE MORTALITY BY MOTHER'S LEVEL OF EDUCATION



Source: NDHS 2008¹¹

FIGURE 1.8: FEMALE LITERACY AMONG 15–24-YEAR-OLDS, BY ZONE



Source: NDHS 2008¹¹



Pep Bonet/Save the Children

Poverty and maternal, newborn and child 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 with wealthier families. Most poor women in Nigeria live in the rural areas. Access to quality and affordable health services and other basic amenities is limited. These include access to safe drinking water and improved sanitation facilities. Economic opportunities that may alleviate these challenges to health remain limited for many citizens.¹

In 2007, Nigeria was the 12th-largest oil producer in the world. It is a lower middle income country as per World Bank classification, but despite this and a wealth of other natural resources, poverty is rife in the country. Around six of every 10 Nigerians live below the \$1.25 poverty line and 84% of the population lives on less than \$2 USD per day.⁴⁰

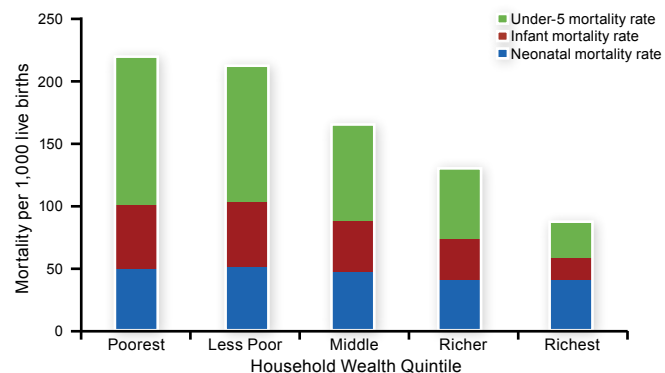
Child mortality rates in Nigeria are among the highest in Africa and under-five mortality in the bottom to middle wealth household groups is higher than the national average. This implies a pattern of mass deprivation, meaning that outside of the wealthiest 10-20% of the population, most families lack access to the necessary range of health and other related services.⁴¹ Furthermore, an analysis of African countries with economic status index data showed that Nigeria had one of the greatest disparities in childhood mortality rates. According to the 2008 NDHS, the richest quintile demonstrated an U5MR of 87 per 1,000 live births, while the poorest quintile had an U5MR of 219 (Figure 1.9).¹¹ Children belonging to the bottom wealth households are 2.5 times more likely to die before their fifth birthday than those belonging to the top wealth households.

There is also a gap in mortality rates between urban (NMR of 38) and rural (NMR of 49) families.¹¹

The few health facilities that are situated in rural areas are often poorly equipped, poorly staffed, inaccessible owing 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 urbanisation increases, more people move to cities and strain healthcare service provision. Many urban poor, especially those who live in slums, consequently face neonatal mortality statistics comparable to those for people living in rural areas.

Wealth and geographic location are just two of a number of socio-economic characteristics that determine disparities in child mortality rates across households. The characteristics of mothers - for example their age and educational attainment - influence their children's survival. Disparities in child survival primarily result from the different abilities of households to access healthcare, which are rooted in structural issues such as poverty and income inequality.

FIGURE 1.9: NEONATAL, INFANT AND UNDER-5 MORTALITY AND HOUSEHOLD WEALTH



Source: NDHS 2008¹¹

Socio-cultural issues

Several traditional beliefs and practices limit the ability of women to make decisions for their health and the health of their babies, and these practices vary among ethnic groups. Many of these beliefs also influence health-seeking behaviour, and may provide inaccurate information about health issues, thereby exposing mothers and their newborns to harmful practices related to health. It is often the practice to seek medical care only as a last resort, for a variety of cultural and family reasons as well as economic barriers.

Female genital cutting (FGC)

FGC is a widely used practice in Nigeria despite the existence of an FMOH policy against FGC. Some state governments continue to condone the procedure, which has the potential for substantial health risks, including a higher risk of stillbirths and early neonatal death. An estimated 10 to 20 additional babies die per 1,000 deliveries as a result of FGC and a link has been found between the increased need to resuscitate babies whose mother had had FGC (66% higher in women with the most serious form of FGC). Women who have been subjected to the most serious form of FGC will have on average 30% more caesarean sections compared with those who have not had any FGC, and the risk of postpartum haemorrhage is substantially higher.³⁸

The 2008 NDHS showed that 30% of Nigerian women had been circumcised, compared with the 2003 NDHS result of 19%. This increase is substantial, but some differences in the definitions persist across the surveys.¹¹ According to NDHS 2008, much of the increase in FGC in 2008 is due to an observed prevalence of 20% in the North West zone compared with a prevalence of only 0.4% in 2003, and it is notable that this increase in FGC prevalence in the North West zone is mostly due to a prevalence of 74% in Kano state. The person who performs the circumcision is usually a traditional circumciser (64%).¹¹

Gender issues

Intertwined with low levels of education, the process of household decision-making with 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. Unfortunately, many women have lost their lives and those of their babies in pregnancy-related conditions, while awaiting a decision to be taken by such gatekeepers.¹ 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, limited newborn immunisation, inadequate childcare practices and poor healthcare-seeking behaviour. This is especially true in the northern parts of the country.

A national baseline survey on positive and harmful traditional practices that affect women in Nigeria reports that 19% of household heads claim to beat their wives. In some states, the reported rates of violence against women are as high as 30–50%.³⁹ The 2008 NDHS reports that 28% of all women have experienced physical violence since the age of 15; and 5% of currently married women have experienced violence during pregnancy. The highest proportion of physical violence was reported by women in South South zone (52%).¹¹

These cultural attitudes and practices that discriminate against girls and women significantly contribute to maternal newborn and child morbidity and mortality in Nigeria. Given these complex realities, developing strategies for improvement remains a considerable challenge.



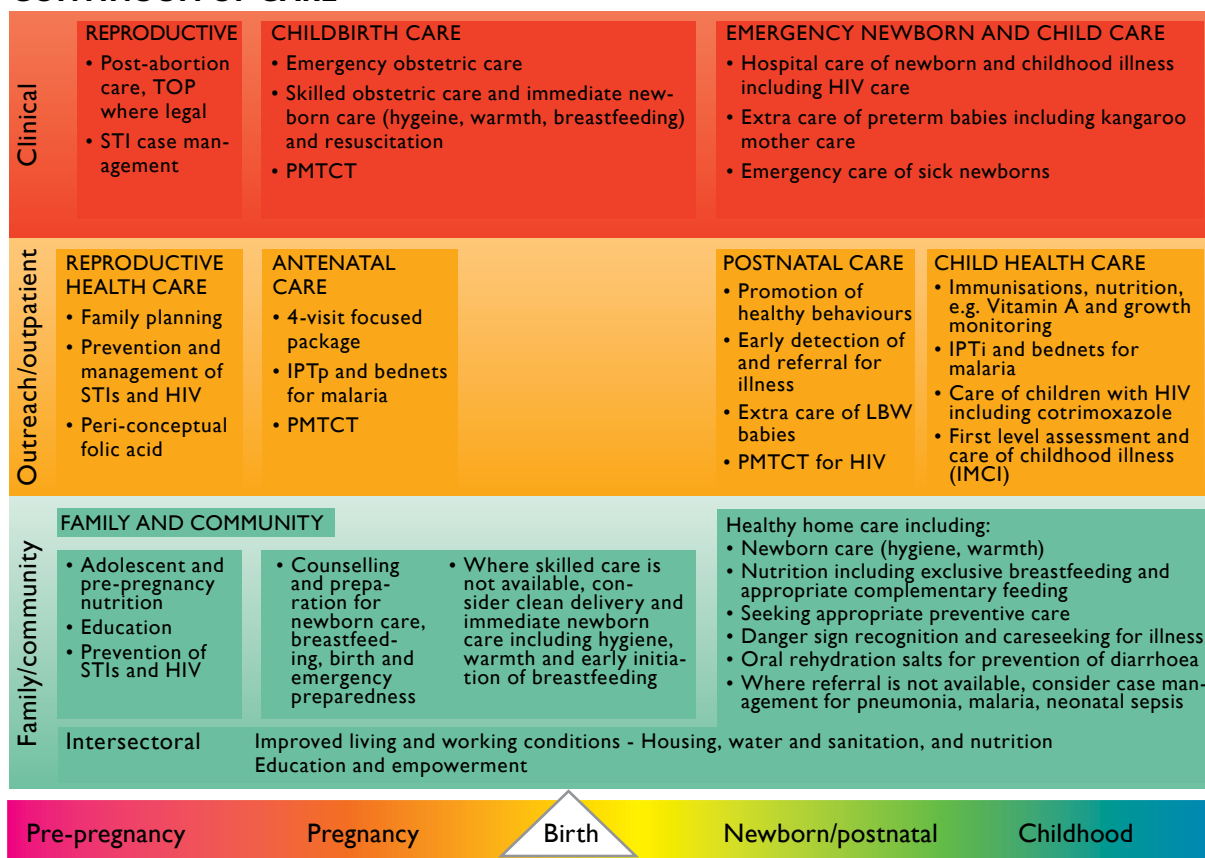
Pep Bonet/Save the Children

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 on 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.⁴²

Recognising the importance of this continuum of care, the FMOH built on this framework in the IMNCH strategy¹ (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: Adapted from Kerber et al, 2007⁴²

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 and those for the 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 newborn health. Young Nigerians (aged 10–24 years) comprise

about one-third of the population. There has been increasing recognition of the need to respond effectively to their development challenges and reproductive health needs.⁴³

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 the newborn. To address the developmental, nutritional and reproductive challenges of young Nigerians, the FMOH in conjunction with the World Health Organization (WHO) developed the National Policy on Health and Development of Adolescents and Young People in Nigeria. This policy identifies major areas of adolescent healthcare needs and describes broad strategies for intervention in the areas of sexual behaviour, reproductive health and nutrition.⁴³ 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 folic acid 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.⁴³ 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

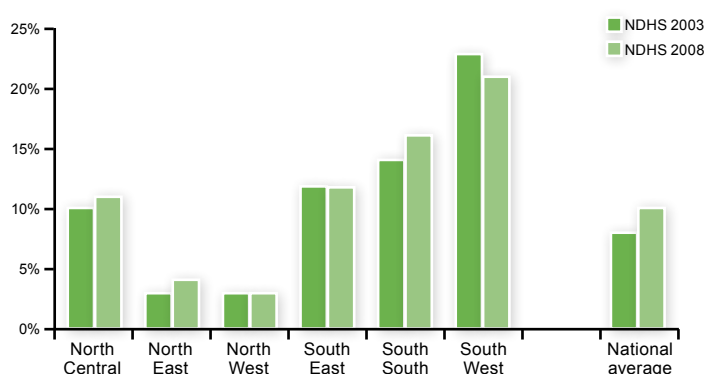
Effective family planning reduces mortality among mothers and children.⁴⁴ It also plays a pivotal role in the delay of first pregnancy, child-spacing and the prevention of sexually transmitted infections (STIs), including the Human Immunodeficiency Virus (HIV). Delaying first pregnancy requires the provision of 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 5.7, with rates as high as 6.3 in the rural areas.¹¹ Nigeria also has a high rate of early marriages and a low rate of modern contraceptive use. Only 10% of married women report use of modern contraceptives, with minimal increase in coverage between 1990 and 2008.¹¹ Over the 18-year period, contraceptive prevalence increased from 6% in 1990 to 15% in 2008 and use of modern methods increased from 4% in 1990 to 10% in 2008 (Figure 2.2).¹¹

Over 20% of Nigerian women have an unmet need for family planning, 15% for spacing and 5% for limiting pregnancies.

Children born too soon after a previous birth, especially if the interval between the births is less than two years, have an increased risk of sickness and death at an early age. Yet 8% of births are less than 18 months apart and 24% have an interval of less than two years.

FIGURE 2.2: MODERN CONTRACEPTIVE USE AMONG MARRIED OR IN-UNION WOMEN, BY ZONE



Source: NDHS 2008¹¹

HIV/AIDS and other sexually transmitted infections

Women of reproductive age now comprise over 55% of HIV-infected adults in Africa.⁴⁵ Despite a national HIV prevalence of 4.6%, there are several variations by state and local government area. At the zonal level, prevalence is lowest in the South West (2%) and highest in the South South (7%). Prevalence is highest in the age group 20–29 years (5.6%), while prevalence in the 15–19 year age group is 5.2% and has risen rapidly.⁴⁶

Other STIs, such as syphilis and gonorrhoea, also affect newborn health. These STIs are generally under-reported because of lack of supplies and staff for detection and management, and because of fear of the stigma of disclosure. Adolescents have a particularly high risk; hence reproductive health counselling is critical for

adolescent girls. At present, family life education is integrated into Nigeria's school health curriculum but its implementation is limited.⁴⁷ Also, although youth-friendly centres are included in the National Policy on Health and Development of Adolescents and Young People and are being introduced 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. Five lifetime doses of the tetanus toxoid 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. Rubella and Human Papilloma Virus (HPV) vaccines have been recommended for the same age group in order to prevent congenital rubella syndrome and cervical cancer, but there is no evidence 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.⁴⁷

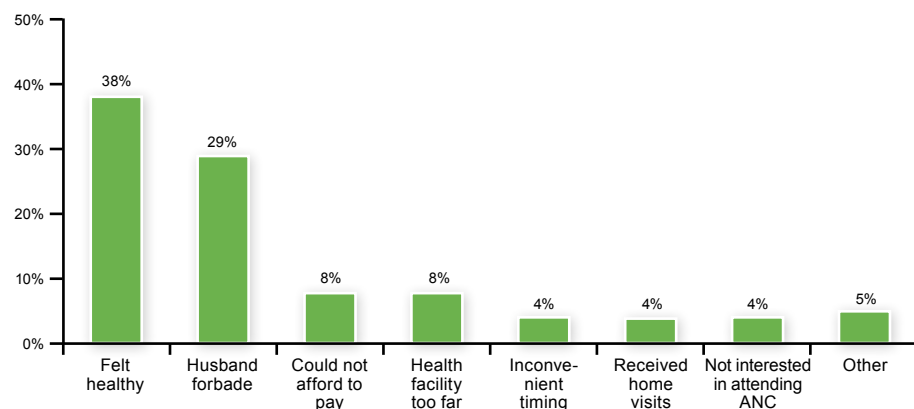
Care during pregnancy

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 (ANC), she cannot benefit from essential preventive care. Over half (58%) of pregnant women receive ANC from a skilled provider at some point during their pregnancy.¹¹ Nigeria's ANC coverage is the fifth-lowest in Africa, and coverage has not measurably increased nationally over the past five years.¹¹ Some African countries with fewer resources have managed to maintain more than 90% coverage of ANC, including Ghana, Malawi, Rwanda, Tanzania, Uganda and Zambia.⁸

There are marked variations in ANC attendance across different geographical zones and states. While 99% of women in Osun (South West) and Anambra (South East) attend ANC at least once, only 14% of pregnant women in Zamfara, 15% in Sokoto, and 15% in Kebbi – all in the North West – attend ANC.¹¹ Urban women are three times more likely to receive ANC than rural women.¹¹ Furthermore, there is variation in the type of healthcare professional from whom women receive ANC, with 52% of women in the South West receiving care from a doctor, compared with only 4% of women in the North East.¹¹

The FMOH Safe Motherhood Survey provides some reasons why women do not attend ANC during pregnancy (Figure 2.3).³⁶ The most common reasons for not attending ANC are women's perceptions that they were in good health (38%), followed by spouses forbidding or disapproving of the use of ANC services (29%).

FIGURE 2.3: REASONS FOR NOT ATTENDING ANC



Source: FMOH, 2005³⁶

Number and timing 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, 45% of Nigerian mothers made four or more ANC visits, with significant disparities between urban and rural mothers. Just over two-thirds of urban women made four or more ANC visits compared with only 34% of rural women.¹¹

It is important that women attend ANC 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 16% make their first ANC visit during the first three months of pregnancy.¹¹ One survey of safe motherhood in northern Nigeria found that more than half (53%) of the women who attended ANC made their first visit from the sixth month of pregnancy.⁴⁸ Culturally, it is common for Nigerian woman not to disclose their pregnancy early for fear of evil spirits.⁴⁹

Focused antenatal care

A multi-country randomised control trial led by 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.^{50,51} This evidence has prompted WHO to define a new model of ANC based on four goal-oriented visits. The Nigerian National Policy Guidelines for Reproductive Health has recommended a minimum of four ANC visits as follows:⁵²

Visit 1: before 16 weeks of pregnancy

Visit 2: between 20 and 24 weeks of pregnancy

Visit 3: between 28 and 32 weeks

Visit 4: at 36 weeks or later

However, women with complications, special needs, or conditions beyond the scope of basic care may require additional visits.⁵¹ 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 of visits, but on costs and other barriers to ANC access and supply.

The goal of focused ANC is 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, and basic health promotion through sound nutrition and preventive measures.

Content of antenatal care visits

The content of ANC is an essential component of the quality of services. Focused ANC hinges on the principle that every pregnancy is at risk of complications and should be monitored. According to NDHS 2008, 87% of Nigerian mothers who attend ANC have their weight measured, 85% have a blood pressure taken and 74% have a blood sample taken. Three-quarters have a urine sample taken, 54% receive iron tablets, and 61% are informed of signs of pregnancy complications.¹¹ Most women also obtain a height measurement but 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 often incomplete, as it only detects levels of haemoglobin and does not routinely include tests for syphilis screening.

Malaria prevention and management during pregnancy

Malaria is a major public health concern in Nigeria. Pregnant women and children under the age of five are most vulnerable. During pregnancy, a woman's natural immunity is reduced; pregnant women are consequently four times more likely to suffer complications from malaria than non-pregnant women. Though not a major direct cause of neonatal deaths, malaria in pregnancy can lead to miscarriage, stillbirth, preterm labour and low birth weight.⁵³

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 sulphadoxine pyrimethamine (SP). 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 (ITNs). According to NDHS 2008, 17% of households surveyed own at least one ITN, while 5% of

pregnant women sleep under an ITN¹¹ (Table 2.1).

Only 5% of mothers receive two doses of IPTp during antenatal visits, though 18% take some form of anti-malarial medication to treat malaria during pregnancy.¹¹ The most commonly used drugs are less optimal for pregnant women to prevent malaria infection, including chemoprophylactic drugs such as daraprim/metaprim (58%), chloroquine (39%), Halfan (2%) and herbs (4%). Of those women who take IPTp, 12% use SP/Fansidar.¹¹ (Table 2.1)

TABLE 2.1: MALARIA PREVENTION DURING PREGNANCY

	Pregnant women who slept under an ITN the night before the study (%)	Women who received IPTp during ANC visit (%)
North Central	3.4%	6.9%
North East	5.6%	2.9%
North West	4.2%	3.9%
South East	6.4%	5.4%
South South	7.2%	6.3%
South West	3.4%	5.8%
National average	4.8%	4.9%

Source: NDHS 2008¹¹

Tetanus toxoid immunisation

Although many African countries have made progress during the past decade towards the elimination of neonatal tetanus, Nigeria is among the few countries listed by WHO that have made only minimal strides towards the same goal.⁵⁴ Nationwide, only 45% of mothers receive two or more doses of tetanus toxoid (TT2+) during pregnancy, a very small increase on the 40% figure reported in NDHS 2003.^{10,11} This is much lower than in other West African countries, such as Gambia, which has TT2+ coverage as high as 95%.⁸ Benin and Malawi are among those countries that have achieved certified elimination of neonatal tetanus.⁵⁵

A survey looking at the community component of IMCI on key family and community practices found that mothers offered several reasons for not receiving TT in their last pregnancy.⁵⁶ These include not being aware (42%), the unavailability of the injection (23%) and a feeling that it was not necessary (17%). Only 7% of survey respondents had completed the regimen.

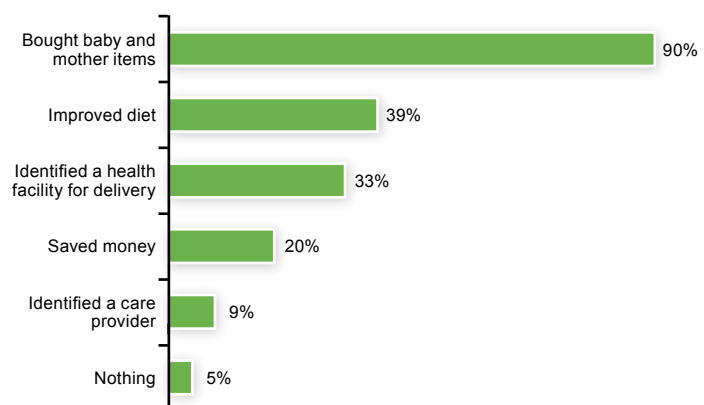
Prevention of mother-to-child transmission of HIV (PMTCT)

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 NDHS 2008, only 13% of pregnant women are counselled and tested for HIV and receive their results, which implies a huge missed opportunity for PMTCT and other supportive services.¹¹ Only 10% of HIV-infected pregnant women receive antiretroviral (ARV) drugs for PMTCT.⁴⁵

Birth preparedness

Birth preparedness counselling is one of the evidence-based interventions in the focused ANC package and FMOH key household community-Integrated Management of Childhood Illness (IMCI) practice.⁵⁶ It is also stated as a key intervention in the IMNCH strategy.¹ Many pregnant women and their families do not take the recommended steps to prepare for childbirth. A survey in northern Nigeria showed that 47% of women are unaware of birth preparedness steps and fewer than 1% identify the need for a skilled provider to attend the birth.⁴⁸ According to the FMOH Safe Motherhood Survey, only 32% of women identify a health facility for birth (Figure 2.4).³⁶

FIGURE 2.4: BIRTH PREPAREDNESS ACTIVITIES



Source: FMOH, 2005³⁶

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.²⁹ 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.³⁹ The failure to take appropriate, timely action can lead to life-threatening consequences of obstructed labour and haemorrhage.

Place of birth

The 2008 NDHS reports that approximately two thirds of all births take place at home while the remaining third take place in a health facility. The same survey shows that the rate of home deliveries has increased in all the zones of the country, with the North West recording a rate as high as 90% versus 89% in 2003; while home births in the South East increased from 13% in 2003 to 21% in 2008.^{10,11} Women who are giving birth to their first baby are more likely than other women to deliver in a health facility; the proportion of facility deliveries decreases sharply as birth order increases. Further, women with more than secondary education are nine times more likely to deliver in a health facility (90%) compared with women with no education (10%).¹¹

Results from a baseline survey on safe motherhood in two northern states provide some insight into why home births are so prevalent.⁴⁸ Women list several reasons for not delivering in a healthcare facility, including that their husband/family say it is unnecessary (34%). Women also listed having no time to go, the facility being too far or too expensive as reasons for giving birth at home.⁴⁸

Approximately half of the nation's facility births take place in private health facilities.¹¹ NDHS 2003, MICS 2007 and NDHS 2008 did not specify which deliveries occur in faith-based maternity homes/churches. Deliveries at churches and other faith-based establishments (clearly distinguished from mission hospitals or clinics) that are not registered for medical purposes may not be able to provide skilled attendance for births, or be subject to regulation and standards of services. The FMOH Safe Motherhood Survey states that up to 9% of mothers from Akwa-Ibom state and 7% from Ebonyi state deliver in faith-based maternity homes.³⁶

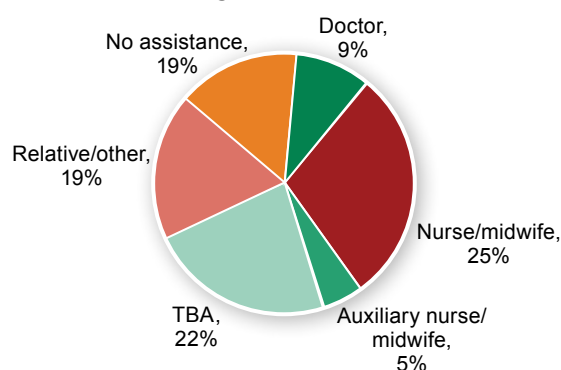
Skilled care at delivery

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 traditional birth attendants – TBAs).⁵⁷ 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 initiating breastfeeding.

According to a study on maternal health in Northern Nigeria, up to 81% of births are supervised by personnel with no formal training in obstetric and neonatal care.⁵⁸

The 2003 NDHS showed that 35% of deliveries took place with a skilled attendant – doctor, nurse/midwife or auxiliary midwife; and the 2007 MICS showed a promising increase to 44%.^{10,18} However, NDHS 2008 reported that just 39% of births were assisted by a skilled health worker; 9% by a doctor; 25% by a nurse or midwife; and 5% by auxiliary nurse/midwife (Figure 2.5).¹¹ TBAs dealt with 22% of deliveries and relatives attended to 19% of all births.¹¹

FIGURE 2.5: DISTRIBUTION OF BIRTH ATTENDANTS



Source: NDHS 2008¹¹

Using the 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.⁵⁹ 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.”²⁴ There are no national data on the availability and utilisation of partographs in health facilities.

Emergency obstetric care (EmOC)

Globally, 15% 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, have been identified as essential for the treatment of obstetric complications to reduce maternal deaths. These signal functions provide a basis for assessing, training, equipping, and monitoring obstetric services.

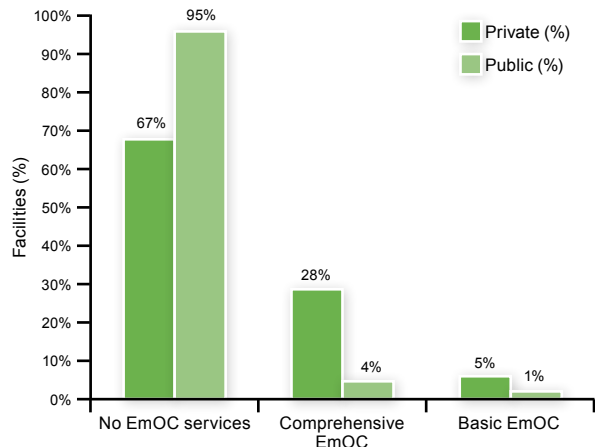
A Basic EmOC (BEmOC) facility can administer parenteral antibiotics, oxytocics and anticonvulsants. It can perform manual removal of the placenta and retained products and perform assisted childbirth. A Comprehensive EmOC (CEmOC) facility, in contrast, can perform all BEmOC functions in addition to performing surgery (eg, 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.²⁴ Neonatal resuscitation has been incorporated as a signal function for basic and comprehensive care at the global level as an additional signal function for both basic and comprehensive EmOC, but this service is not yet reflected in the policies of many African countries.

WHO recommends that for every 500,000 population, the minimum acceptable level is five EmOC facilities, at least one of which provides comprehensive care. According to the FMOH/UNFPA EmOC survey in 2003, only Lagos state met the standard of four BEmOC facilities per 500,000 people, combining both public and private healthcare providers. Just seven states met the standard of one CEmOC facility per 500,000 people, considering public facilities alone.²⁴ In all states surveyed, a higher proportion of private facilities met the EmOC standard compared with public health facilities, but both fell below the recommended EmOC levels (Figure 2.6).²⁴

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% of secondary facilities provide the same service.²⁴ Not only is there almost no 24-hour coverage in primary healthcare (PHC) facilities, which are often the closest facilities for pregnant women, but many do not have a qualified midwife present. 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.²⁴

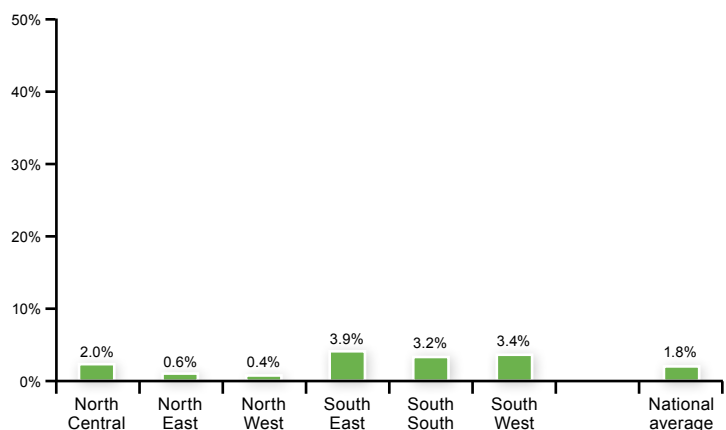
Many health facilities generally lack adequate material resources, as well as basic infrastructure such as water and electricity. This has a significant impact on health facilities’ ability to offer quality obstetric care. As one primary healthcare worker in the EmOC survey stated, “There is a lack of drugs and equipment, no suction machine, no water, no power supply. We deliver babies using light from lanterns and candles, and also do vaginal exams with them as well.”²⁴ The same EmOC survey shows that 21% of secondary health facilities and most primary healthcare centres have no functional equipment to take blood pressure measurement in their labour wards.

FIGURE 2.6: PRIVATE AND PUBLIC FACILITIES WITH EMOC



Source: FMOH and UNFPA, 2003²⁴

FIGURE 2.7: CAESAREAN SECTION RATES, BY ZONE



Source: NHDS 2008¹¹

The estimated proportion of women who will experience complications requiring a caesarean section is between 5% and 15%. The prevalence of women who give birth by caesarean section can serve as an indicator of whether EmOC facilities meet women's needs when they present with obstetric emergencies.²⁴ While a high caesarean section rate can also reflect poor services, Nigeria does not meet even the low threshold, as just about 2% of babies are delivered using this procedure and some zones recording coverage as low as 0.4% (Figure 2.7).¹¹

Nigeria's Midwives Service Scheme

The health sector human resource crisis is well known in Africa. It is especially challenging to train and retain staff for PHC facilities in rural areas, where communities have the highest risk of maternal, newborn and child death. This presents a major barrier to effective EmOC service provision.

In order to provide a short-term solution to this problem, the federal government initiated the Midwives Service Scheme (MSS), currently implemented by the National Primary Healthcare Development Agency (NPHCDA). The initiative, which involves deployment of midwives including those newly qualified from schools of midwifery, unemployed midwives and retired midwives to health facilities in rural communities was packaged to run for two years initially. The one year service would be mandatory for the newly graduated basic midwives, preparatory to being fully licensed to practice midwifery in Nigeria. The Scheme, however, has been extended to three years due to its seeming success.

More than 2,600 midwives have been deployed to 652 PHC facilities across the country, many in rural communities. The midwives are trained in life-saving skills, integrated management of childhood illnesses and other initiatives to improve quality of care. The project also includes plans for improving supplies and equipment, including 'Mama kits', which contain a personal health record book and items for a clean and safe delivery, and are held by the women themselves.

Source: FMOH 2009⁶⁰

Neonatal resuscitation

Although most babies breathe spontaneously at birth, up to 10% of newborns require some assistance to initiate breathing. Less than 1% of babies need extensive resuscitation.⁶¹ As the need for neonatal resuscitation is often unpredictable, all birth attendants should be competent in basic resuscitation skills. Essential equipment for resuscitation, such as an ambubag 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 did not report on the availability of neonatal resuscitation equipment, highlighting a commonly missed opportunity to address intrapartum care for mothers and newborns together.²⁴

There are in-service training 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. The proportion of trained staff is low: only 10% of non-specialist physicians, 10% of midwives and 5% of CHEWs have been trained in these essential skills.³⁶

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% of Nigerian tertiary institutions. Currently, the Paediatric Association of Nigeria (PAN), supported by the Church of Latter Day Saints and the Nigerian Society of Neonatal Medicine (NISONM) are continuing these trainings, which are a necessary input to maintain competence; plans for wider national coverage in conjunction with the FMOH are in progress.

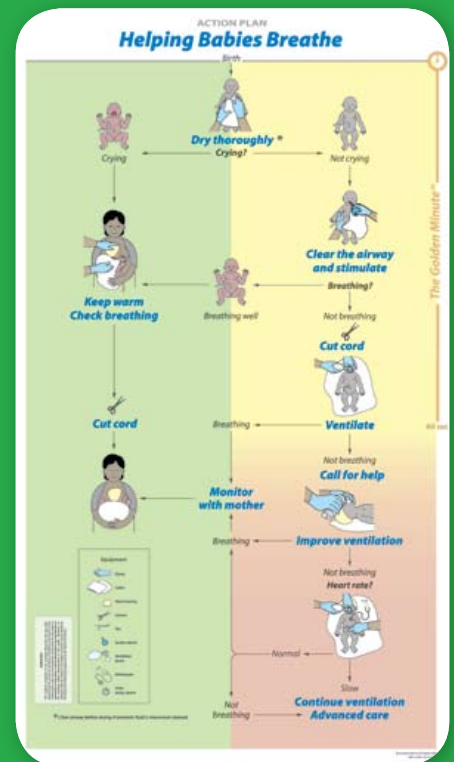
Helping Babies Breathe

Each year in Nigeria, 70,000 babies die from intrapartum-related injury – not being able to breathe at birth. Helping Babies Breathe (HBB) is an evidence-based educational programme that addresses this problem.

HBB teaches neonatal resuscitation techniques in resource-limited areas, and promotes global commitment to life-saving newborn care. HBB is an initiative of the American Academy of Pediatrics (AAP) in consultation with WHO, and in collaboration with the US Agency for International Development (USAID), Save the Children, the National Institute of Child Health and Development (NICHD), and a number of other global health stakeholders.

The Action Plan uses pictures and only a few words to guide birth attendants through the evaluation, decision and action steps in neonatal resuscitation. The Golden Minute™ emphasises that the first minute after birth is a priority time for the baby.

Source: American Academy of Pediatrics, 2010⁶²



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 of these life-saving practices. Immediate breastfeeding practices are less than optimal: just 38% of babies are given breast milk within one hour of birth and about two-thirds (67%) are given breast milk within 24 hours of birth.¹¹

Postnatal care

Postnatal care (PNC) refers to both routine preventive and curative services provided in the period after birth until six weeks after birth. Studies have identified the first week of life, and indeed the first two days, as the most crucial period for PNC services.⁶³ This is a critical time to reach both mother and newborn with a package of preventive and health promotion interventions, as well as ensuring access to case management for illnesses.

Routine, early PNC is lacking in both policy and implementation in many countries. PNC within two days has been highlighted as the lowest coverage gap in the continuum of care.⁶⁴ There are a number of approaches for delivering PNC, most combining home visits with health facility follow-up. Home visits with health systems strengthening have been effective and feasible in settings with weak health systems and high neonatal mortality.⁶⁵ When births occur at home, visiting a health facility for PNC as soon as possible after birth is recommended. In high mortality settings and where access to facility-based care is limited, WHO and UNICEF recommend at least two home visits for all home births: the first visit should occur within 24 hours of birth and the second visit on day 3. If possible, a third visit should be made before the end of the first week of life (day 7). For babies born in a health facility, the first home visit should be made as soon as possible after the mother and baby come home. The remaining visits should follow the same schedule as for home births. More frequent postnatal visits with strong links to referral care are required for sick, small or high-risk newborns.⁶⁵

WHO and UNICEF recommendations for content of postnatal home visits in the first week of life

Newborn care

- Promote and support early and exclusive breastfeeding.
- Help to keep the newborn warm – promote skin-to-skin care.
- Promote hygienic umbilical cord and skin care.
- Assess for danger signs and counsel on their prompt recognition and care seeking by the family (not feeding well, reduced activity, difficult breathing, fever or feels cold, fits or convulsions).
- Promote birth registration and timely vaccination according to national schedules.
- Identify and support newborns who need additional care (eg, small, sick, mother HIV-infected).
- If feasible, provide home treatment for local infections and some feeding problems.

Maternal care

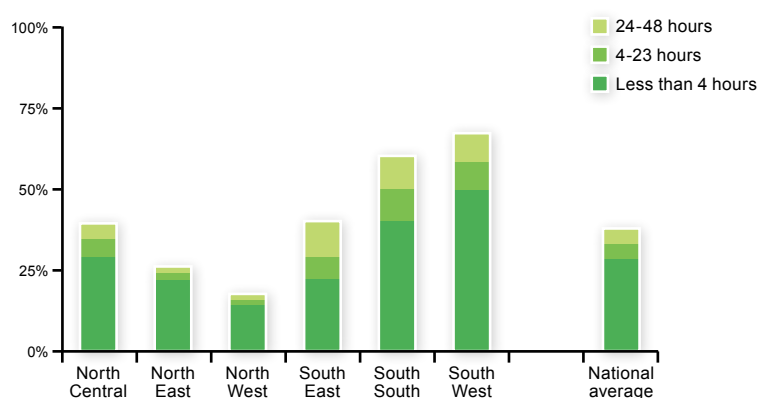
- Ask about mother's wellbeing.
- Ask about excessive bleeding, headache, fits, fever, feeling very weak, breathing difficulties, foul smelling discharge, painful urination, severe abdominal or perineal pain. If she has any of these symptoms, refer her to a health facility for care.
- Assess for swollen, red or tender breast or nipples; manage breastfeeding problems if possible; if not, refer her to a health facility for care.
- Counsel about danger signs for mother and newborn and advise on where to seek early care when needed.
- Provide birth spacing and nutrition counselling.

Source: WHO and UNICEF, 2009⁶⁵

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% by 2015 by increasing coverage of preventive and health-promotive PNC alone to 90% of women and newborns. Effective routine PNC 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.

WHO recommends that all recently delivered women and their newborns should receive PNC from a skilled provider on days 1, 3, and 7, and six weeks after childbirth, yet most healthcare providers only emphasise the six-week postnatal visit. According to NDHS 2008, more than half (56%) of women did not receive any PNC; only 38% received a postnatal check-up within two days of delivery and this varied by zones (Figure 2.8).¹¹ More than 70% of mothers who give birth at home do not see any healthcare provider during the postnatal period at all.¹¹

FIGURE 2.8: POSTNATAL CARE WITHIN 2 DAYS FOR HOME BIRTHS, BY ZONE



Source: NHDS 2008¹¹

Community-based newborn care training

There is no explicit policy in Nigeria concerning who provides postnatal care. Clearly, with more than 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. However, there are few projects implementing the WHO/UNICEF model of home visits. These projects are supported by WHO, UNICEF, DFID, Jhpiego and WAHO and focus on training CHEWs to conduct home visits during pregnancy and the first week of life.

The basic training curriculum consists of four modules or units. The trainees learn in a participatory mode, making use of basic background information provided by the trainer, followed by practical demonstrations, role-plays and field visits in carefully designed programmed learning sessions. Lessons can be supplemented and reinforced by a training DVD (provided a TV and DVD player is available), which illustrates the basic skills needed by a CHEW in a village or home setting. The suggested MNCH-related tasks for the CHEWs include:

- identifying pregnant women in the community
- making two home visits to pregnant women
- helping organise delivery (or helping with delivery where referral is not possible)
- making postnatal visits at facility and/or home
- identifying, managing where appropriate, and referring for danger signs
- maintaining all registers and records
- maintaining kit of materials and supplies and seeking timely replacement or repair
- maintaining medicine stock and seeking timely replenishment
- organising group health education talks

Cord care

WHO recommends that nothing should be applied to the umbilical cord after it is cut.⁶⁶ Nigerian protocol states that after securing the cord with a tight string, one should clean the cord with methylated spirits/warm saline solution and expose, and then keep the cord clean and dry. Chlorhexidine has been reported to be effective from studies in Nepal.⁶⁷ There are no current national data on cord care practices at health facilities or households in Nigeria. A survey in northern Nigeria reports that 63% of respondents know how to practise clean cord care.⁴⁸ However, a study of cord care practices in a local government area of Borno state showed poor cord care practices including application of hot fermentation and use of Vaseline on the cord.⁶⁸

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.⁶⁹ Vitamin A ensures healthy vision, maintains epithelial cellular integrity and boosts the mother's and newborn's immune systems when administered to the mother after birth. The 2008 NDHS shows that on average, only about 25% of mothers receive a vitamin A dose within two months of giving birth.¹¹

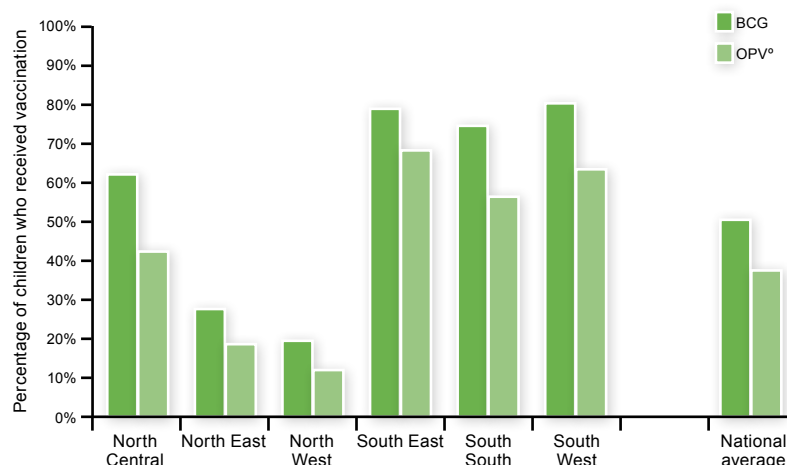
Immunisation

Nigeria's immunisation coverage for children is among the lowest in the world.⁸ The country misses many opportunities to provide adequate immunisation to newborns. The percentage of children fully immunised by age 12 months has only minimally increased from 14% in 2003 to 17% in 2008.^{10,11} Approximately 30% of children aged 12–23 months have had no vaccinations at all.¹¹ Only 32% of children receive all three doses of diphtheria, pertussis, and tetanus (DPT) vaccine.

Only 47% of Nigerian children receive the Bacille Calmette-Guérin (BCG) vaccination by 12 months of age.¹¹ BCG is meant to be given at birth, but owing 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 (OPV0), the FMOH Safe Motherhood Survey shows that only 33% receive it at birth.³⁶ Immunisation coverage varies widely by zone (Figure 2.9). Reasons given by the mothers for not vaccinating their children are pertinent for targeting special efforts to improve vaccination coverage. These include lack of information (27%), fear of side effects (26%), and the health post being located too far away (13%).¹¹

FIGURE 2.9: CHILDREN 12–23 MONTHS WHO RECEIVED BCG AND OPV0 BY ZONES



Source: NHDS 2008¹¹

Health system strengthening: PRRINN and MNCH Consortia Programmes in Nigeria

The Programme for Reviving Routine Immunisation in Northern Nigeria and the Maternal Newborn Child Health (PRRINN/MNCH) Programme is aimed at improving access to routine immunisation and MNCH services in four states of Northern Nigeria: Katsina, Jigawa, Zamfara, and Yobe. The PRRINN project started as a six-year project funded by the UK’s Department for International Development (DFID) in 2006, while the MNCH component started in 2008 and is funded by the Norwegian aid agency Norad .

The primary goal of the PRRINN/MNCH programme is to support the Nigerian government at the federal level and in four states to improve access of women and children to routine immunisation and maternal, newborn, and child health services. This is done through a coordinated approach of strengthening primary healthcare systems, improving demand, and improving healthcare policy through advocacy activities at state and national levels. The PRRINN/MNCH programme focuses on strengthening the governance necessary to build the systems required to deliver these health services, in order to address Nigeria’s poor health statistics for women and children.

Recognition of newborn danger signs and care-seeking

While national data on illness recognition and care-seeking behaviour for newborns is lacking, interviews with healthcare 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

TABLE 2.5: SIGNS PREDICTING SEVERE ILLNESS IN THE FIRST TWO MONTHS OF LIFE

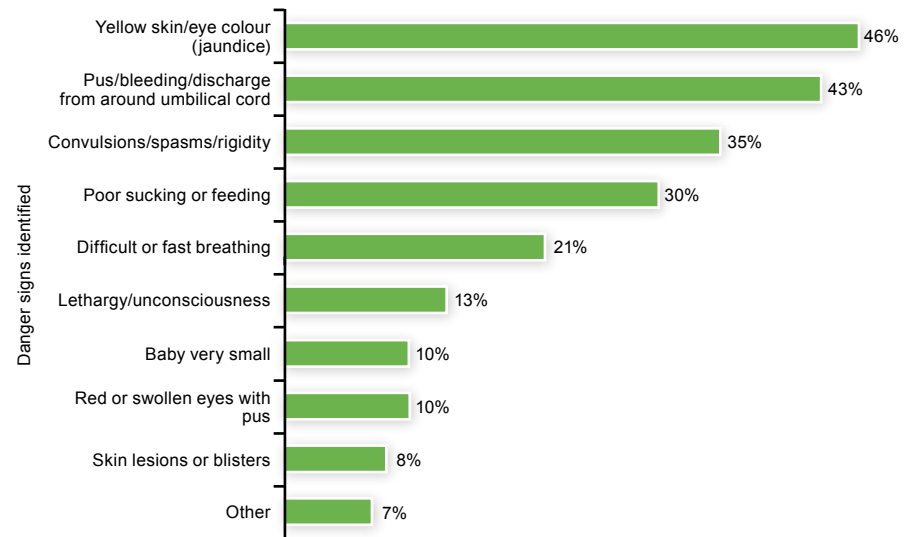
1.	History of difficulty in feeding
2.	History of convulsions
3.	Movement only when stimulated
4.	Respiratory rate of 60 breaths per minute or more
5.	Severe chest indrawing
6.	Temperature of 37.5°C or more
7.	Temperature below 35.5°C

Source: The Young Infants Clinical Signs Study Group⁷⁰

been tested in a multi-centre evaluation and endorsed by WHO to identify severe infection and other illnesses in infants less than two-months old who are brought to health facilities (Table 2.5).⁷⁰ More research is needed on screening newborns for illness in the community during routine home visits.

A northern Nigeria survey found that mothers have insufficient knowledge of warning signs regarding their newborn, and their perceptions do not necessarily correlate with the signs outlined in Table 2.5. The most common danger signs known by mothers included yellow skin/jaundice (46%), bleeding or discharge from around the cord (43%) and convulsions (35%). Only 30% of mothers identified inadequate sucking or feeding as a danger sign,

FIGURE 2.10: KNOWLEDGE OF NEWBORN DANGER SIGNS AMONG MOTHERS



Source: ACCESS Nigeria Safe Motherhood Project⁴⁸

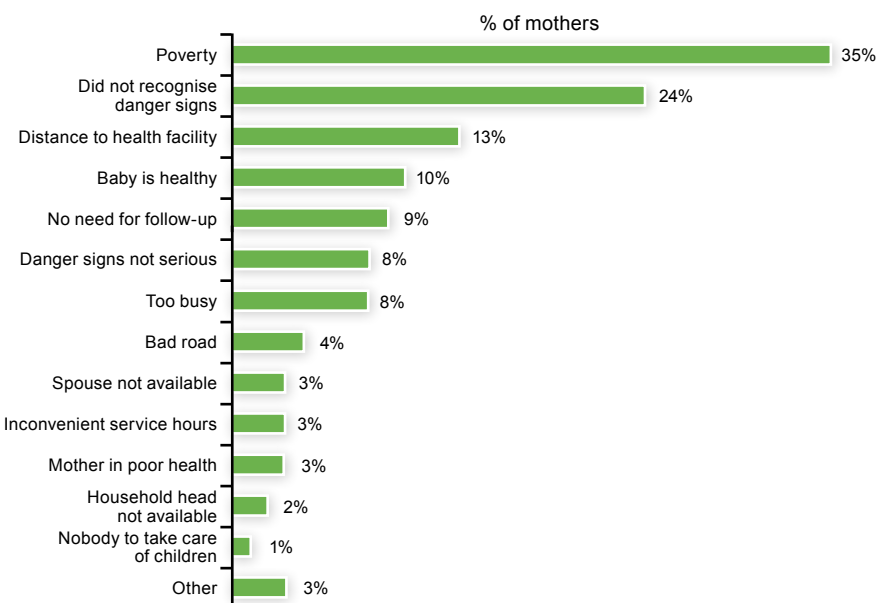
while just 10% identified a baby’s small size as a danger sign (Figure 2.10). Knowledge was generally lower among illiterate mothers and families living in rural areas.⁴⁸

Care-seeking practices

According to NDHS 2008, 58% of children less than six months of age with symptoms of respiratory infection are likely to be taken to a health facility for treatment; a remarkable improvement from the NDHS 2003 figure of 24%.^{10,11}

An FMOH survey shows that 44% 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% go to private health facilities. Women who choose not to seek care or treatment for their newborn do so for several reasons (Figure 2.11).³⁶ Poverty is seen as a major impediment to accessing care for one-third of women.³⁶

FIGURE 2.11: REASONS FOR NOT SEEKING CARE IF THEIR CHILD HAD FEVER OR COUGH



Source: FMOH, 2005³⁶

Implementing Integrated Management of Childhood Illness (IMCI) in Nigeria

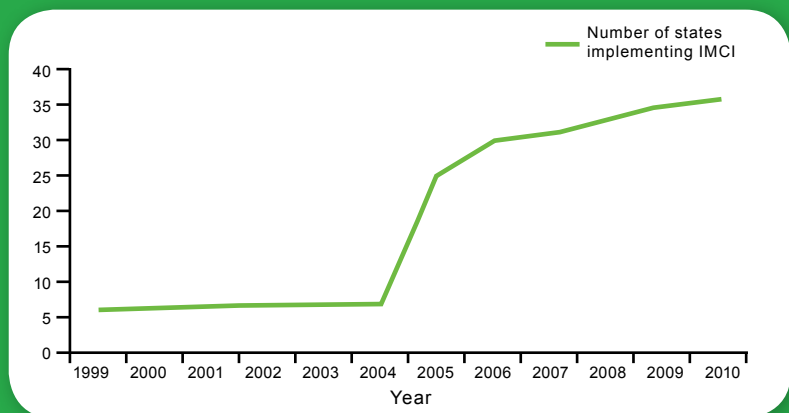
IMCI is an approach to managing child illness that focuses on the wellbeing of the whole child. It aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. IMCI includes both preventive and curative elements that are implemented by families and communities as well as by first-level health facilities.

Nigeria began IMCI implementation in 1999 in six states (in one LGA per state). The strategy was later scaled up through inclusion in the World Bank-assisted Health System Development Project-2 that was implemented in the country between 2001 and 2005, and with the assistance of partners, especially WHO, UNICEF, USAID and DFID. The 2005 Review of IMCI in Nigeria indicated that health workers trained in the approach were able to manage sick children in a holistic and more effective manner.

At the beginning, IMCI in the country did not include newborns 0–6 days old; it only catered for children from one week up to five years of age. However, since neonatal mortality contributes significantly to infant and under-five mortality and most deaths occur in the first week of life, it became imperative to include guidelines for management of sick newborns in the first week of life. Thus, in 2007, Nigeria adapted IMCI clinical guidelines for use at first-level health facilities to cover sick newborns aged 0–6 days and the community IMCI training and counselling materials were revised to include essential newborn care.

The coverage of IMCI implementation has increased steadily but not very impressively since its inception. Although the number of states implementing IMCI rose from 6 in 1999 to 36 (out of 37 states including, the Federal Capital Territory) in 2010, the coverage within states is limited to a few LGAs.

However, there are ongoing efforts that could improve IMCI coverage and care, including the recent (2010) training of midwives in Life Saving Skills and IMCI, for the Midwives Service Scheme.



Extra care for small babies

As many as 14% of Nigerian newborns are estimated to be of low birth weight, and these babies account for the majority of newborn deaths. The majority of preterm infants are born between 33 and 37 weeks of gestation.¹⁶ They should survive with careful attention to feeding, warmth and early treatment of problems, including breathing problems, infections and jaundice. Babies born before 33 weeks' gestation or with birth weight under 1,500g are more likely to need advanced care, especially for breathing problems and feeding. If possible, these babies should receive care in a referral hospital.

Kangaroo Mother Care (KMC) involves caring for small, particularly preterm, babies by having them strapped skin-to-skin to the mother's front. A recent meta-analysis of three randomised trials in low-income settings suggests a 51% reduction in mortality for newborns weighing less than 2,000g compared with conventional incubator care.⁷¹ KMC is simple and effective, empowers mothers, and is feasible in most facilities in low-income settings in which care for small infants is provided. Additional home visits for extra care at home with skin-to-skin care and additional support for breastfeeding has great potential.

Kangaroo Mother Care in Nigeria

Existing methods of caring for small babies

Incubators are widely used in high-income 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, owing 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.

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. 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. It 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. No special ward is required and KMC can be practised 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 16 teaching hospitals across the country. In 2007, Jhpiego (Johns Hopkins University's health organisation) supported the introduction of KMC in two general hospitals in Kano and Zamfara states. As part of the process, Jhpiego 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. The PRRINN/MNCH (DFID funded) programme with support from Save the Children has since trained

more health workers and supported the State MOHs in Katsina, Zamfara and Yobe states to establish KMC in additional health facilities ranging from CEOCs and BEOCs, making KMC service more accessible to many more babies.

KMC practice has continued at various levels but it has not been systematically rolled out, since there has been no government plan to expand services beyond the existing KMC centres. While there is a national in-service training curricula, currently there is no national KMC policy, service guidelines or routine data collection system in place.



Pep Bonet/Save the Children

Chapter 3: Nutrition – a key factor for maternal, newborn and child health

There is a golden interval for (nutrition) intervention: from pregnancy to two years of age. After age two years, undernutrition will have caused irreversible damage for future development towards adulthood.

The attribution of more than a third of child deaths and more than 10% of total global disease burden to maternal and child undernutrition demonstrates the huge importance of these prevalent risk factors to international health goals.

Black et al. 2008⁷²

Current status of MNCH nutrition

Nutrition remains an important predictor of outcomes for both mother and child. Malnutrition perpetuates throughout the life cycle (Figure 3.1).¹ Girls who are malnourished, especially those who are still children when they become pregnant, often have babies who are too small, and therefore more likely to have poor health into adulthood, which in turn will affect future generations. The health and nutrition needs of Nigeria's mothers, newborns and children are inextricably linked, and optimal child growth and development are fundamental to the government's efforts to accelerate economic development.

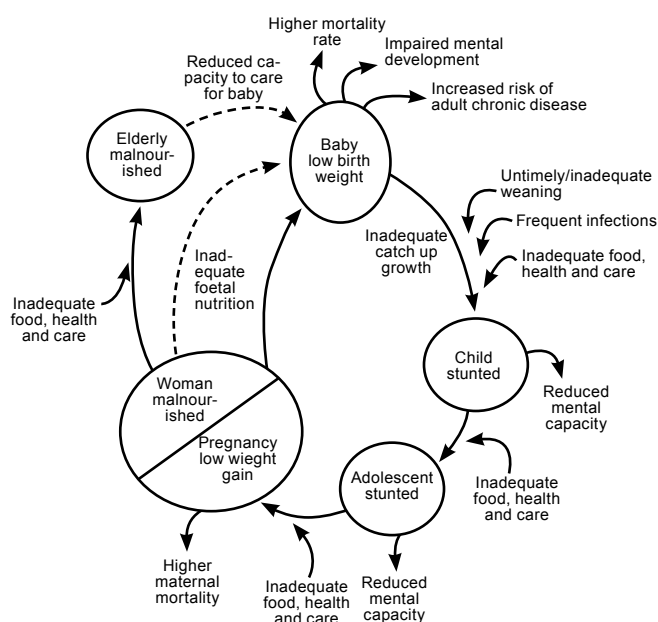
The period of greatest vulnerability to nutritional deficiencies starts in early pregnancy and lasts through the second year of the child's life.⁷² Significant brain formation and development occurs, and during this period nutritional deficiencies have a significant adverse impact on child survival and growth. By the end of the second year, undernutrition will have caused irreversible damage for future development towards adulthood.⁷²

Chronic undernutrition and deficiencies of micronutrients in early childhood result in lifelong impaired cognitive and physical development. Children may perform poorly in school because of significant limitations in intellectual, sensory, psychomotor and social development; this leads to reduced productivity and low income-earning capacity in adult life. Children with deficient growth before the age of two may have an increased risk of chronic diseases such as cardiovascular diseases, cancers and diabetes.⁷⁴

The 2008 *Lancet* undernutrition series reviewed interventions with a direct impact on maternal and child undernutrition and survival. Table 3.1 summarises the reviewed interventions that showed sufficient evidence for implementation in 36 countries with 90% of the global stunting burden, as well as those with evidence for implementation in specific situational contexts. Several important interventions such as unconditional cash transfers and microcredit programmes, agricultural subsidies and land reform, and food-for-work programmes were not reviewed.

¹ Malnutrition refers to both undernutrition (chronic and acute malnutrition and micronutrient deficiencies) and overnutrition (overweight and obesity), although it is very often used to indicate undernutrition alone. For this report the term is used for undernutrition only, unless specified otherwise.

FIGURE 3.1: UNDERNUTRITION THROUGHOUT THE LIFE CYCLE



Source: Seres, 2000⁷³

TABLE 3.1: INTERVENTIONS THAT AFFECT MATERNAL AND CHILD UNDERNUTRITION

Sufficient evidence for implementation	Evidence for implementation in specific situational contexts
Maternal and birth outcomes	
<ul style="list-style-type: none"> • Iron/folic acid supplementation • Maternal supplements of multiple micronutrients • Maternal iodine through iodisation of salt • Maternal calcium supplementation • Interventions to reduce tobacco consumption or indoor air pollution 	<ul style="list-style-type: none"> • Maternal supplements of balanced energy and protein • Maternal deworming in pregnancy • Intermittent preventive treatment of malaria in pregnancy • Insecticide-treated bed nets
Newborn babies	
<ul style="list-style-type: none"> • Promotion of breastfeeding 	<ul style="list-style-type: none"> • Neonatal vitamin A supplementation • Delayed umbilical cord clamping
Infants and children	
<ul style="list-style-type: none"> • Promotion of breastfeeding • Behaviour change communication for improved complementary feeding • Treatment of severe acute malnutrition • Zinc supplementation • Zinc in management of diarrhoea • Vitamin A fortification or supplementation • Universal salt iodisation • Handwashing or hygiene interventions 	<ul style="list-style-type: none"> • Conditional cash transfer programmes (with nutritional education) • Deworming • Iron fortification and supplementation programmes • Insecticide-treated bed nets

Source: Bhutta et al, 2008⁷⁵

Adolescent and maternal nutrition

A pregnant woman's nutritional status affects her baby as well. When there is no increase in intake of energy and other nutrients during pregnancy and lactation, a woman's own reserves are used, leaving her weakened. Breastfed children benefit from micronutrients in the mother's breastmilk, especially vitamin A, iodine, thiamine, riboflavin, pyridoxine and cobalamin, which are dependent on maternal nutritional status and intake, so the risk of infant depletion is increased by maternal deficiency.⁷²

A mother's nutritional status during pregnancy is important both for the child's intrauterine development and for protection against maternal morbidity and mortality. Lack of iron, causing anaemia, increases the risk of infants' death while the lack of folic acid can cause severe birth defects. Anaemia may have detrimental effects on the health of women and children and may become an underlying cause of maternal mortality and perinatal mortality. Anaemia also increases the risk of premature delivery and low birth weight. Early detection of anaemia can help to prevent complications related to pregnancy and delivery, as well as child development problems. It is recommended that iron tablets be taken daily for at least three months during pregnancy.

One-fifth of women (21%) reported taking iron supplements for at least 90 days during the pregnancy, which is the recommended supplementation but 40% of women received no iron at all. Almost half of women in rural areas did not receive any iron supplementation, which is more than twice the proportion in urban areas. Pregnant women living in the South West are the most likely subgroup to have taken iron for at least 90 days (63%). This compares with just 10% of women in the North West.

Maternal short stature and iron deficiency anaemia increase the risk of death of the mother at delivery and may account for approximately 20% of maternal mortality. Meta-analyses have shown a 60% increase in the need for caesarean section and other assisted delivery options with maternal short stature.⁷² NDHS 2008 showed that 3% of mothers had very short stature <145cm, and this decreased with increasing level of education (4% in mothers with no education versus 1% if more than secondary education) and wealth status (5% in the lowest quintile versus 1.5% in the highest quintile) but increased in the youngest age group of mothers aged 15-19 years up to 6%.¹¹ The NDHS showed that 12% of women were underweight, with a body mass index (BMI) of less than 18.5. This ranged from 7% in the South West zone to 21% in the North East zone. Mothers from the youngest age group (15–19 years old) were at higher risk for low BMI: 19% of them had a BMI < 18.5.

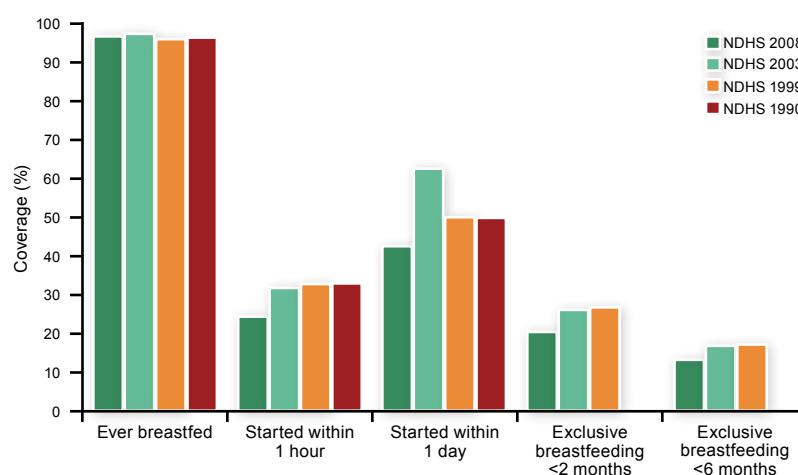
Newborn nutrition

A newborn’s future nutritional status is affected before conception and is greatly dependent on the mother’s nutritional status prior to and during pregnancy. Maternal malnutrition increases the risk of stillbirth and newborn death, intrauterine growth restriction, preterm birth and birth defects. Suboptimal feeding practices after birth increase the baby’s risk of death, infection and malnutrition. Despite overwhelming evidence in favour of exclusive breastfeeding, only 13% of infants in Nigeria are exclusively breastfed to the age of six months. The key indicators for breastfeeding have seen little or no improvement over the past two decades, which is a major cause for concern (Figure 3.2).

Initiation of breastfeeding

Early initiation of breastfeeding is recommended, as early suckling stimulates breast milk production, facilitates release of oxytocin, which helps contract the uterus, and reduces postpartum blood loss. In Nigeria, less than half of the infants (38%) were put to breast within one hour of delivery, and only 68% commenced breastfeeding within the first day.¹¹

FIGURE 3.2. TRENDS IN BREASTFEEDING PRACTICES IN NIGERIA



Source: NHDS 2008¹¹

Exclusive breastfeeding

Globally, non-optimal breastfeeding, especially non-exclusive breastfeeding in the first six months of life, results in 1.4 million deaths and 10% of disease burden in children younger than five years.⁷² In Nigeria, exclusive breastfeeding for the first six months of life is very poorly practised. Only about one in ten (13%) of infants below six months of age are exclusively breastfed. At national level, the median duration of exclusive breastfeeding is less than one month across all the zones, wealth quintiles and mothers’ education levels, while the median duration of breastfeeding in addition to water and other juices (predominant breastfeeding) was three months. This depicts the poor practice in Nigeria of early initiation of semi-solid and solids before the recommended six months of age. The proportion of exclusively breastfed infants under six months old fell from 17% in the 2003 NDHS to 13% in the 2008 NDHS.^{10,11}

Prelacteal feeding

Early introduction of foods and other liquids reduces breast milk intake, decreases the full absorption of nutrients from breast milk, and increases the risk of diarrhoea, other gastrointestinal complications and acute respiratory infections, because the infants’ gut has not fully developed to digest foods other than breast milk. This practice is common in Nigeria, with a national prevalence of 56%.¹¹

Recommended breastfeeding and infant and young child feeding practices

The importance of early, exclusive and sustained breastfeeding practices cannot be overstated. The Lancet 2008 undernutrition series concluded that even if all other nutritional risks were addressed, a substantial number of child deaths would still require interventions related to breastfeeding practices. The internationally agreed guidelines for optimal breastfeeding and infant and young child feeding (IYCF) practices for breastfed children are:

1. Initiate breastfeeding as soon as possible within the first hour and ensure that colostrum is not discarded. Colostrum is essential for supporting and developing an infant's immune system.
2. Practise exclusive breastfeeding from birth to six months of age (whereby breast milk and nothing else, not even water, is given to the baby), and introduce complementary foods at six months of age while continuing to breastfeed.
3. Continue frequent, on-demand breastfeeding until two years of age or beyond.
4. Practise responsive feeding. Specifically: (a) feed infants directly and assist older children when they feed themselves, being sensitive to their cues; (b) feed slowly and patiently, and encourage children to eat but do not force them; (c) if children refuse foods, experiment with different food combinations, tastes, textures and methods of encouragement; (d) minimise distractions during meals if the child loses interest easily; (e) remember that feeding times are periods of learning and love – talk to children during feeding, with eye-to-eye contact.
5. Practise good hygiene and proper food handling by (a) washing hands before food preparation and eating, (b) storing foods safely and serving foods immediately after preparation, (c) using clean utensils to prepare and serve food, (d) using clean cups and bowls when feeding children, and (e) avoiding the use of feeding bottles, which are difficult to keep clean.
6. Start at six months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding.
7. Gradually increase food consistency and variety. Infants can eat pureed, mashed and semi-solid foods beginning at six months. By eight months most infants can also eat 'finger foods' (snacks that can be eaten by the child alone without help from a caregiver). By 12 months most children can eat the same types of foods as consumed by the rest of the family. Avoid foods that may cause choking.
8. Increase the number of times that the child is fed complementary foods as he/she gets older. For the average healthy breastfed infant, meals of complementary foods should be provided two to three times per day at six to eight months of age and three to four times per day at 9–11 and 12–24 months of age, with additional nutritious snacks offered one to two times per day, as desired. If the energy density or amount of food per meal is low, or the child is no longer breastfed, more frequent meals may be required.
9. Feed a variety of foods to ensure that nutrient needs are met. Meat, poultry, fish or eggs should be eaten daily, as often as possible. Vitamin A-rich fruits and vegetables should be eaten daily. Provide diets with adequate fat content. Avoid giving drinks with low nutrient value, such as tea, coffee and sugary drinks such as soda. Limit the amount of juice offered so as to avoid displacing more nutrient-rich foods.
10. Use fortified complementary foods or vitamin-mineral supplements as needed. In some settings, breastfeeding mothers may also need vitamin-mineral supplements or fortified products.
11. Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetising favourite foods. After illness give food more often than usual and encourage the child to eat more.

Source: Save the Children, 2009⁷⁶ and PAHO, 2001⁷⁷

Malnutrition underlies more than one-third of deaths among children under the age of five. Undernourished children struggle to withstand attacks of measles, malaria, diarrhoea, pneumonia and other illnesses. Every level of malnutrition increases the risk of a child's dying. While children suffering from severe acute malnutrition are more than nine times more likely to die than children who are not undernourished, a large number of deaths also occurs among moderately and mildly undernourished children who may otherwise appear healthy.⁷²

It is estimated that 80% of under-five deaths from malnutrition are due to mild and moderate malnutrition, and only 20% to the severe form.⁷² In Nigeria, all three types of malnutrition (acute malnutrition, chronic malnutrition and micronutrient deficiencies) can be found. Levels of chronic and acute malnutrition are high (see below), but for deficiencies in micronutrients such as iron and vitamin A no data were available. According to the NDHS report of 2008, there has been no significant improvement in the overall prevalence of stunting or chronic undernutrition (height for age) among Nigerian under-fives in the past decade.¹¹

Chronic malnutrition or stunting: Stunted children are too short for their age as a result of linear growth retardation and cumulative growth deficits caused by an inadequate food intake over a long period of time. In Nigeria 41% of children under-five are stunted, and 23% are severely stunted. Stunting was even apparent in babies less than six months of age (21%). Stunting increases with the age of the child through the first two years of life, before declining in the third year; from 27% of stunting among babies aged six to eight months up to 50% among children aged 18-23 months. There has been no significant improvement in the overall prevalence of stunting or chronic undernutrition (height for age) among Nigerian under-fives in the past decade.

Acute malnutrition: Acutely malnourished children are too thin for their age (wasting) or suffering from nutritional oedema (kwashiorkor), and the cause is usually an inadequate food intake in the period immediately preceding the survey, or else a recent episode of illness that resulted in weight loss. The NDHS 2008 survey shows that 14% of under-fives in Nigeria are wasted and 7% are severely wasted. These figures are higher than the 9% wasting and 2% severe wasting shown in NDHS 2003, suggesting that little or no action has been taken to address this crucial problem and that food intake may even have worsened. Of the ten countries accounting for 60% of the world's wasted children under five, Nigeria ranks second.⁸

Underweight: Underweight is not a different type of malnutrition, but a composite index of height-for-age and weight-for-height, thus taking into account both acute and chronic malnutrition. In Nigeria, nearly one in four children are underweight (23%), and almost one in ten of these children are severely underweight (9%). The percentage also almost doubles from 14% among babies of less than six months, to 26% among children aged 12–17 months.¹¹ This may be because complementary foods are often improperly and inadequately introduced (or nutritious food items are just not affordable), which results in faltering nutrition and susceptibility to illnesses.

For all forms of malnutrition the highest rates are found in the north of the country. Hence children in the north are more likely to be undernourished, and to suffer from the multiple, almost irreversible consequences for physical and mental development. Furthermore, the proportions of stunting, wasting and underweight were higher among rural children than among urban children; among children born to mothers with no education compared with those born to mothers with above-secondary education; and among children from the lowest wealth quintile.

Micronutrient deficiencies

The third type of malnutrition is the group of micronutrient (vitamin and mineral) deficiencies. Micronutrients are necessary for normal body function and play a vital role in ensuring good health. Children can receive micronutrients from foods, food fortification, and direct supplementation. It is essential to consume sufficient amounts of micronutrients as the body is not able to produce them. Deficiencies may lead to serious illness, disability and even death. In Nigeria, mothers and children are affected by various micronutrient deficiencies.

Globally, 10% of deaths in children under five years of age are attributable to micronutrient deficiencies, with nearly all this burden due to deficiencies of vitamin A and zinc. While vitamin A supplements have a greater impact on mortality than on stunting, therapeutic zinc supplementation for children with diarrhoea

reduces stunting by up to 17% and can reduce mortality from diarrhoea by 50%. When it is combined with oral rehydration salts (ORS), it can prevent as many as three-quarters of all diarrhoea deaths.⁷⁸ Anaemia is the most prevalent condition resulting from micronutrient deficiency, affecting an estimated 54% of pregnant women in developing countries. Anaemia is usually the result of a nutritional deficiency of iron, folic acid, vitamin B12, or some other nutrients. At least half of all anaemia cases in pregnancy are due to nutritional iron-folate deficiency. This raises the risk of preterm delivery, low birth weight, haemorrhage and sepsis, all of which are associated with increased maternal and infant mortality rates.⁷⁹⁻⁸¹ Iron-folate supplementation can reduce maternal mortality by 23%.⁷⁵ Anaemia is a serious concern for young children because it can result in impaired cognitive performance, behavioural and motor development, coordination, language development, and scholastic achievement, as well as increased morbidity from infectious diseases.

Vitamin A: Vitamin A is essential for the development of the immune system and vision, and deficiency leads to night blindness, total blindness and even death. It is estimated also that vitamin A deficiency leads to about 82,000 under-five deaths each year in Nigeria, contributing up to 25% of diarrhoea mortality, and the FMOH has estimated that one in every three Nigerian children is vitamin A-deficient.

Iron: Iron is required for brain development and blood production, and deficiency leads to anaemia. Globally, WHO has reported that 42% of pregnant women and 47% of preschool children worldwide have anaemia.⁷² The Nigerian National Micronutrient Survey conducted in 2003 indicated that the proportion of children with varying degrees of iron deficiency was 42.2% for the dry savannah areas, 68.2% for the moist savannah and 21.8% for the humid forest areas of the country. The iron in breastmilk is generally adequate for term infants who are exclusively breastfed for the first six months of life. After six months, infants and young children require iron-rich foods such as meat, fish and poultry to complement the iron received from breastmilk, as iron requirements for infants and young children are greatest between age six and 11 months, when growth is extremely rapid. NDHS 2008, however, showed that during the period of greatest need, fewer infants were fed iron-rich foods (29% at age six to eight months, compared with 70% among children 18–23 months old.)

Deworming: Infections with intestinal worms have been associated with high levels of iron-deficiency anaemia and other nutritional deficiencies, and have an adverse effect on the physical and cognitive development of children. Studies have reported that only about one in five children (21%) aged 6–59 months had received deworming medication in the preceding six months.¹¹

Iodine: Iodised salt has been recommended for the prevention of goitre and for improved mental development. Iodine deficiency has been a significant public health problem in Nigeria, with a goitre rate of 67% in 1988, but the universal salt iodisation programme that started in 1993 reduced the rate to only 6% in 2007. In 2007, 98% of households were reported to have access to iodised salt and Nigeria was certified as having achieved universal iodisation.⁸² However, the NDHS 2008 reports that just over half (53%) of children lived in households with adequately iodised salt.¹¹

Zinc: Zinc deficiency in children results in increased risks of diarrhoea, pneumonia and malaria.⁷² Therapeutic zinc supplementation for children with diarrhoea reduces stunting by up to 17%, it also reduces the prevalence of diarrhoea in children by 27% and can reduce mortality from diarrhoea by 50%, because it shortens the duration and reduces the severity of the diarrhoeal episode. When it is combined with oral rehydration salts (ORS), it can prevent as many as three-quarters of all diarrhoea deaths. Worldwide, 4% of under-five deaths are associated with zinc deficiency.⁸³ It is estimated that one in five Nigerian children under five years of age suffers from zinc deficiency, yet less than 1% of children receive zinc supplementation for the treatment of diarrhoea.¹¹

The causes of malnutrition in Nigeria

Given the diversity and complexity of nutritional problems, no single solution/action exists to tackle the problem; instead, a package of interventions is required. This package should be comprehensive and context-specific. It is essential to further investigate the key determinants/causes of malnutrition in Nigeria in the different regions, in order to define the best possible package of interventions for each region.

The causes of malnutrition can be divided into: immediate causes (inadequate dietary intake and disease, caused by household food insecurity, inadequate care and unhealthy household environment, and lack of health services); underlying causes (poverty, lack of financial/human/physical/social/natural capital); and basic causes (social, economic and political context), as shown in the conceptual framework in Figure 3.3.

Some of the more general causes of malnutrition are clear from available data such as the DHS surveys. Other causes can vary greatly between different regions, and need to be identified for each region so that the package of interventions developed for each region is tackling the most imminent causes of malnutrition in that region.

One of the main underlying factors of malnutrition is poverty, as it determines household food security and affects the capacity of part of the population to afford nutritious food. Although the barriers to a nutritious diet can also be linked to availability or to behaviour, inequality in wealth is directly related to the proportion of children suffering from malnutrition. The

percentage of stunted under-fives from the lowest quintile group (54% in 2003 and 52% in 2008) was more than twice the percentage from the highest quintile group (21% in 2003 and 24% in 2008). Furthermore, 45% of children from the rural areas were stunted compared with 31% of urban children (NDHS 2003 and 2008). These figures clearly show the need to identify interventions that target the most vulnerable populations as part of a multi-sectoral nutrition strategy.

Other identified more general causes of malnutrition in Nigeria include:

- incorrect IYCF practices (such as low levels of exclusive breastfeeding for the first six months; improper and incorrect complementary feeding practices)
- reduced access to healthcare (due to various reasons such as costs, lack of services provided)
- inadequate healthcare (low immunisation rates, low coverage of vitamin A and deworming supplementation)
- discriminatory treatment of women (gender discrimination, low levels of female education, lack of empowerment)
- urban/rural divide (nearly 50% of Nigerians live in urban areas and numbers are increasing)
- shortage of resources in health services (insufficient staff, drugs, etc)

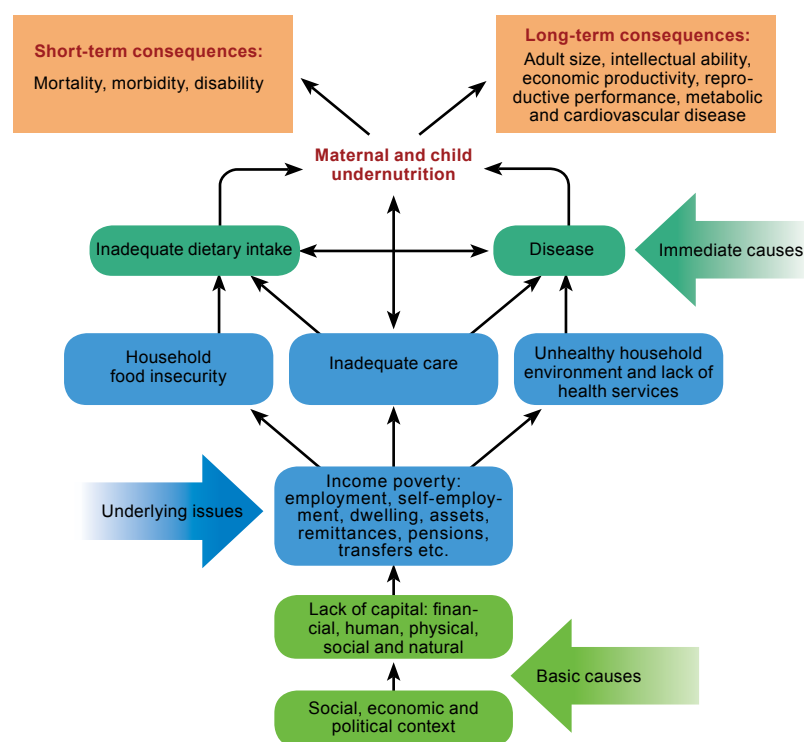
The extent of malnutrition among Nigeria’s children is staggering, yet this cycle is preventable. Malnutrition reduces the impact of investments in all key basic services: it holds back progress in education, in mortality reduction and in treatment of HIV/AIDS.⁸³

Improving Maternal, Newborn and Child Nutrition

Acting in a timely and comprehensive manner

Attaining MDG 1 (to eradicate extreme poverty and hunger), MDG 4 (to reduce child mortality) and MDG 5 (to improve maternal health) will not be feasible in Nigeria unless urgent and well-resourced measures are implemented and scaled up. Nigeria’s strategy to tackle malnutrition must rely on a set of interventions to be delivered from pre-pregnancy to 24 months of age (commonly known as the ‘window of opportunity’). These 36 months are crucial to avoid irreversible impairments. After 36 months, it is extremely difficult to reverse the long-term consequences of stunting.

FIGURE 3.3 CONCEPTUAL FRAMEWORK OF THE CAUSES OF MALNUTRITION



Source: Black et al, 2008⁷²

The need for strong political commitment and leadership to tackle child malnutrition holistically

Isolated and health-focused actions will not be able to substantially change the nutrition situation in Nigeria. The government should take certain significant steps to initiate a process that will have a long-term impact on reducing child malnutrition in the country. First, malnutrition needs to be given greater priority within the Ministry of Health, but at the same time its underlying causes must be addressed through cross-ministerial action. This will entail developing a set of coherent and coordinated institutional arrangements put in place. For example, Food and Nutrition Committees at federal and state level could coordinate actions to tackle causes of malnutrition. Secondly, nutrition must become a political priority, particularly for the northern states, where malnutrition is more severe; momentum needs to be initiated and maintained by the President and by high-level political leaders.

Situation analysis

To get a better understanding of the complexity of the causes of malnutrition, a situation analysis is needed, to identify the key determinants of child malnutrition in the different regions. This will enable the development of a context-specific package of interventions to tackle the problem.

Treatment of severe acute malnutrition

Treatment of severe acute malnutrition (SAM) currently only takes place in tertiary institutions, which are inaccessible to those who critically need it. The government should therefore mainstream the management of severe acute malnutrition into all levels of the structures of the Ministry of Health, particularly its decentralised health structures down to the LGA level (including local dispensaries). Some states (such as Jigawa, Kebbi and Katsina) have already taken a positive step by piloting Community Management of Acute Malnutrition with various partners (Valid International, UNICEF, Médecins Sans Frontières, Save the Children, etc). The Ministry of Health needs to develop a national protocol making the treatment of SAM a free, good-quality, and accessible service for the whole population. This will require investments in human resources (healthcare workers), and a large-scale public awareness campaign. It will also require the inclusion of Ready-to-Use Therapeutic Food (RUTF) in the national list of essential drugs and predictable supplies (national production of RUTF is an option).

Guidelines on the community management of acute malnutrition (CMAM) were developed in draft form during 2010, aimed at harmonising the management of SAM already taking place at community level, in schemes implemented by the Ministry of Health, with the support of several partners.

Prevention of malnutrition by improving diet of mothers and children

Preventing malnutrition will require implementation of the following interventions at scale together with strategies to improve behaviour and community awareness.

a) Improvement of breastfeeding and complementary feeding practices

For recommended breastfeeding and infant and young child feeding practices, see box on p.51. These essential recommendations need to be accompanied by actions to improve women's ability to breastfeed. These include:

- one-to-one support around the delivery period and encouraging the creation of breastfeeding support groups
- effective implementation of the International Code of Marketing of Breastmilk Substitutes
- making the wider environment supportive to breastfeeding (women's education, maternity legislation allowing working women to breastfeed, activities reducing women's workload, etc).

b) Micronutrient supplementation and deworming

The Nigerian government has already made some efforts towards tackling micronutrient deficiencies by including vitamin A distribution in its polio campaign, by ensuring that mothers attending antenatal care receive iron and folic acid supplementation, and by the supplementation of zinc in the clinical management of diarrhoea (although zinc is still not widely available for treatment). However, the coverage rates for women and children actually receiving the supplementation still need to be improved. Further efforts should be made through the health system in order to:

- sustain the delivery of micronutrients supplementation (particularly iron, folic acid, vitamin A and zinc) and extend the coverage of deworming programmes to all children over the age of one and to pregnant women who are in their first trimester (as micronutrient deficiency can be related to worm infections

by affecting gut absorption and appetite).

- strengthen the existing campaign of micronutrient supplementation, particularly the promotion of the use of multi-micronutrient supplementation.

c) Fortified foods

Food affordability is an issue for the poorest Nigerian households, especially as nutritious foods are often too expensive. The inclusion of fortified foods in people's diet can ensure that women and children consume a wider range of nutrients in sufficient amounts on a more long-term basis (compared with micronutrient supplementation, which often is prescribed only at critical moments during pregnancy and a child's development).

The government's programme of fortification of salt with iodine and support to salt producers has resulted in a designation of universal salt iodisation. Other products like vitamin A-fortified flour and bread, cooking oil and sugar are also widely available. Of all products recently developed to provide vitamins and minerals, including iron for young children and women of reproductive age, multiple micronutrient powders (MNPs) have been the most promising. Studies have found that they may reduce anaemia in young children by as much as 45%. MNP sachets contain a blend of vitamins and minerals in powder form that can be sprinkled on to home-prepared foods, thus enabling families without access to commercially fortified foods to add micronutrients directly to their diets. The use of MNPs can help to improve complementary feeding practices if it is included in the design of complementary feeding programmes. Fortified food supplements (such as corn–soya blends, lipid-based nutrient supplements) could also be provided for undernourished women and children suffering from moderate malnutrition.

d) Improvement of food access and availability of nutritious foods

Measures to increase Nigerian agriculture's productivity should be accompanied by strong policies designed to ensure that the poorest also fully benefit from the improvements. Agricultural development must be pro-poor, to increase the availability and affordability of nutritious food items (such as milk, pulses, oil, fruits and vegetables). In addition, the feasibility of safety-nets and social cash transfers should be investigated. These types of programmes can be very effective in helping poor families afford a nutritious diet for their children.

e) Interventions to prevent and treat infections

These include immunisation, hygiene and sanitation education, improving access to clean drinking water, provision of ORS and zinc to treat diarrhoea, prevention and treatment of malaria, and treatment of pneumonia with antibiotics.

f) Strengthening and improvement of the health system at all levels

This includes:

- training of health staff at all levels and ensuring they are present in facilities
- people acknowledging malnutrition as a (health) problem
- people attending health facilities for treatment
- health staff knowing how to diagnose and treat deficiencies
- drugs (including RUTF) to treat acute malnutrition and micronutrient deficiencies being made available in facilities
- routine follow-up of children (PNC, growth monitoring, immunisation, etc)



Jonathan Hubschman/Save the Children

Chapter 4: Newborn health policies and programmes

Health system structure

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

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

Secondary-level services are administered by the state government and are provided at comprehensive health centres and general hospitals. Services supported and overseen by the State Ministry of Health (SMOH) include curative care, radiological, diagnostic, referral and emergency medical and surgical services. In several states, some of these facilities provide inpatient care for the treatment of severe acute malnutrition. CEmOC services are provided at this level.

Primary-level services include antenatal care, childbirth care including BEmOC, PNC, health education and promotion, simple laboratory tests and preventive interventions. Treatment of uncomplicated cases of malnutrition in ambulatory is provided by some of these facilities. The local government authority (LGA) is responsible for managing the health service delivery at the primary level; the SMOH is expected to support and supervise.

The LGA is designated as the main primary health service provider in Nigeria. There are 774 LGAs, each made up of 10 to 15 wards. The community or village level forms the support structure for the implementation of primary healthcare (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% of PHC committees were functional at the time.¹

A challenge arises from the fact that each level of the healthcare 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 each other's efforts and confuse their respective roles. For instance, the federal government has been involved recently in building comprehensive health centres while state governments have been involved in building and managing specialist and teaching hospitals. LGAs have, to a certain extent, abdicated their responsibilities of direct service provision.

In addition to facilities owned and operated by the federal, state and local tiers of government, there are numerous private healthcare facilities. These include for-profit private sector institutions, not-for-profit private facilities, mission hospitals, other faith-based hospitals, and facilities run by community-based organisations (CBOs) and non-governmental organisations (NGOs). The private sector accounts for 72% of secondary-level healthcare facilities.¹ 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. There are also numerous unknown and unsupervised traditional maternity homes.

Although reproductive health services are offered at all health system levels (tertiary, secondary and primary),



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their inequitable distribution has a negative impact on the quality of reproductive healthcare. This may also have a detrimental effect on health-seeking behaviour due to unequal access to reproductive health counselling and additional services (eg, modern contraceptives).

Nutrition services are scarce at all levels mostly due to inadequate funding. As mentioned above, some facilities throughout the country are providing treatment for severe acute malnutrition, mostly supported by partner organisations (UNICEF, Médecins Sans Frontières, Save the Children). Nutrition counselling for children and mothers (pregnant and lactating women) doesn't appear to be standard practice, principally because of staff shortages and insufficient training and support. Growth monitoring and promotion as well as macronutrients supplementation and deworming are not routinely implemented in most of the facilities. Supplementation, deworming and immunisation services are provided mainly through outreach activities or campaigns such as Child Health Days.

TABLE 4.1: DISTRIBUTION OF PRIMARY-LEVEL HEALTH FACILITIES BY ZONE

Zone	Dispensaries	Health Posts	Maternity Centres	Primary Healthcare 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	2,993
South West	36	306	57	1,511	1,910
Total	2,390	3,322	356	8,597	14,665

Source: FMOH, 2002⁸⁴

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

A 2002 FMOH survey of reproductive health resources and services showed that of the 13,215 primary health facilities in Nigeria, 65% are in the three northern zones (8,591).⁸⁴ Southern zones have the greatest number of tertiary- and secondary-level health facilities. The majority of health facilities in the North East and North West are dispensaries and health posts, resulting in a low level of accessible skilled care (Table 4.1). The proportion of reproductive health services offered in primary-level health facilities vary. Overall, half of all the nation's facilities offer ANC services, 43% provide childbirth services and PNC (Table 4.2).

TABLE 4.2: MATERNAL AND NEWBORN SERVICES AT PHC LEVEL

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: FMOH, 2002⁸⁴

Access to health services

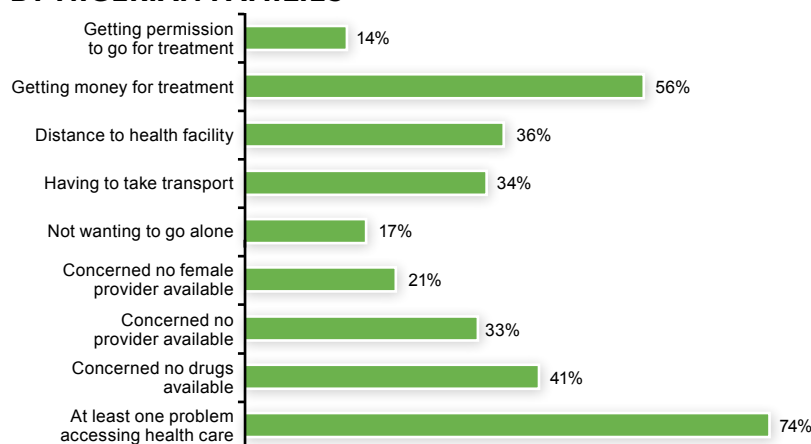
Access to healthcare services, including ANC, childbirth and PNC, is determined by a variety of factors. These include the availability of healthcare services within a certain distance, affordability, perceptions of quality, people's level of education, and attitudes regarding gender.

Approximately 71% 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, owing to stocks frequently running out, and a lack of equipment, essential supplies and qualified staff.¹

Information on perceived problems in accessing healthcare is particularly important to understanding and addressing the barriers some women face in seeking care during pregnancy and at the time of delivery. An FMOH/UNFPA reproductive health survey found that poor transport, negative attitudes among health workers, the high cost of drugs and services, frequent shortages of drugs, supplies and staff and long waiting times contributed to poor access to and utilisation of public sector health facilities.²⁴

FIGURE 4.1: BARRIERS TO ACCESSING CARE REPORTED BY NIGERIAN FAMILIES



Source: NHDS 2008¹¹

The NDHS 2008 report showed that poverty was the main perceived barrier to accessing health services among women (56%) and it is worth noting that this figure has increased from the 30% attributed to poverty in the 2003 NDHS.^{10,11} Also in 2008, 41% of women said they were concerned that there would be no drugs available at the health facility, while one in three women reported that transport and distance to the health facility were major challenges. Nearly 20% of women expressed concern that there might 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 (Figure 4.1).¹¹

Policies and strategies for newborn and child health

Nigeria demonstrates a great degree of positive political will towards MNCH, and this must be sustained. For example, the former First Lady of the Federation was made the “National Goodwill Ambassador” for MNCH; she encouraged the wives of all 36 state governors to promote MNCH in their states. The country also has numerous existing policies, frameworks and related guidelines to improve MNCH. Nevertheless, it has still failed to deliver healthcare to the majority of its women and children, largely because of inadequate funding and resources, inequitable implementation and lack of transparency and accountability.

National Health Policy

In 1988, Nigeria developed its first National Health Policy, which adopted a PHC approach for its healthcare delivery system. The goal of this policy was to increase the proportion of Nigerians with access to adequate and affordable healthcare and to establish a healthcare 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 to enable it 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.

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%, with targets to reduce low birth weight and neonatal tetanus, and increase exclusive breastfeeding and prevention of mother-to-child transmission of HIV (PMTCT).

Ward Minimum Healthcare 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 low birth weight babies is also included.⁸⁵

National Policy on Food and Nutrition, 2001 (reprinted in 2005)

The goal of this policy is to improve the nutritional status of all Nigerians, with particular emphasis on the most vulnerable groups, ie, children, women and the elderly. It aims to reduce household food insecurity, improve feeding practices, increase human resources providing nutrition services, and improve understanding of nutrition problems and the capacity to address them, through the promotion of coordinated activities and appropriate resources allocation. It is currently being reviewed in the light of the new WHO recommendations on infant feeding and HIV/AIDS

National HIV/AIDS and PMTCT Policy and Strategic Plan, 2003

This policy and the 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, so that all Nigerians will be able to achieve socially and economically productive lives free of the disease and its effects. One of the targets is to halve mother-to-child transmission of HIV by 2010.

Health Sector Reform Programme, 2004

The Health Sector Reform Programme established a framework for improving service delivery including its goals, targets and priority interventions. There were seven thrusts established for the reform. They include:

1. improving the stewardship roles of government
2. strengthening the national health system and its management
3. reducing the burden of disease
4. improving health resources and their management
5. improving access to quality health services
6. improving consumer awareness and community involvement
7. promoting effective partnership, collaboration and coordination.

Although some MNCH indicators (eg, 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 as indicators for the programme, newborns were not mentioned in the document and the programme failed to include neonatal mortality as an indicator.

National Plan of Action on Food and Nutrition, 2004

Attached to the Policy on Food and Nutrition, this plan was designed to introduce a new focus, and to effectively integrate and coordinate all the food and nutrition programmes in all sectors. Furthermore, it aims to vigorously advance a national nutrition agenda that will recognise and respond effectively to regional, zonal and specific needs, in accordance with the National Policy on Food and Nutrition.

National Policy on Infant and Young Child Feeding (IYCF) in Nigeria, 2005

The goal of this policy is to ensure the optimal growth, protection and development of the Nigerian child from birth to the first five years of life. It addresses topics related to breastfeeding, complementary feeding, IYCF in the context of HIV, use of milk substitutes, improved counselling, awareness-raising and the capacity-building of health staff.

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-fives and school-age children. One of the policy objectives is to halve the 1990 neonatal mortality rate by 2015, through the provision of 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. The

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.

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 strategy specifically aimed to reduce neonatal morbidity and mortality by 30% by 2010 – a goal which has not yet been met.

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 PNC attendance rates. The roadmap also includes follow-up actions and an implementation framework with benchmarks and a log frame.

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 50% reduction in the incidence of unwanted pregnancies among young females, a 50% reduction in the rate of marriage among young people under the age of 18, and a 75% reduction in the maternal mortality ratio among young women.

The National Health Bill

At the time of this report going to press, the long-awaited National Health Bill has not yet been signed into law, though this was expected to happen by the end of 2010. The Bill, having undergone several modifications, has been passed by the Nigerian Senate and the House of Representatives. If properly implemented, the National Health Bill has the potential to rapidly increase Nigeria's chances of achieving MDGs 4 and 5. The Bill will create an enabling environment for the coordination of primary healthcare in Nigeria. It will ensure more funds are available for infrastructure, service delivery, procurement and maintenance of the Health Management Information System. To address the issue of equitable distribution of resources, 50% of the funds provided for in the Bill will be managed under the National Health Insurance Scheme. This is one strategy that will need to be closely monitored in the coming years. To strengthen sustainability, the Bill provides for the establishment of health committees at the ward and village levels. The only health system pillar that may not be adequately addressed by the Bill is that of human resources. A sustainable solution must be found to tackle the country's current severe shortage of clinical personnel and to ensure appropriate distribution of personnel to areas where they are most needed.



Pep Bonet/Save the Children

The Integrated Maternal, Newborn and Child Health Strategy, 2007

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, and is currently putting it into practice throughout the country. The IMNCH strategy aims to ensure that the interests of mothers and children do not compete with each other, and provides opportunities for the integrated implementation of evidence-based interventions for MNCH. It involves reorienting the health system to ensure the delivery of essential interventions providing a continuum of care for women, newborns and children.

IMNCH Strategy Implementation Plan

The IMNCH strategy has a three-phase implementation plan with defined targets for the reduction of neonatal mortality. However, as of 2010, implementation is still in the first phase.

Phase I: 2007–2009

- Immediate removal of major bottlenecks
- Delivery of intervention packages
- Reduction of neonatal mortality by 33% by 2009

Phase II: 2010–2012

- Implementation reinforced at all service delivery modes
- Reduction of neonatal mortality by 44% by 2012

Phase III: 2013–2015

- Achieve 80% effective coverage of clinical interventions at basic healthcare facilities and 70% at first and secondary referral care facilities
- Reduction of neonatal mortality by 57% 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 workers with periodic supervision from more skilled health staff. Family neonatal care includes clean birth and essential newborn care, early and exclusive breastfeeding, temperature management and care of low birth weight babies.
2. *Population-oriented outreach and schedulable services*: These require health staff with clinical skills (eg, midwives/CHEWs and other paramedical staff) and can be delivered either through outreach or within health facilities on a scheduled programme (eg, ANC and routine immunisations).
3. *Individual-oriented clinical care services*: These require skilled health workers (preferably registered nurses/midwives or physicians) who are available on a permanent basis for skilled birth care, newborn resuscitation, management of newborn infections at the PHC level, clinical management of newborn jaundice and universal emergency newborn 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 ANC: 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 life-saving skills and providing equipment, supplies and drugs required for obstetric and newborn emergencies.

PNC: For the mother – priority interventions to reduce morbidity and mortality during the immediate postpartum period include support for breastfeeding and general monitoring of the mother's wellbeing; 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 breastfeeding as soon as possible and after delivery and anyway within one hour. The wellbeing 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 (eg, difficulty in feeding, breathing difficulty, infection, jaundice, complications of prematurity, birth injury and malformations), immunisations, the administration of vitamin K, advice on danger signs and the identification and management of low birth weight babies.

Limitations of the IMNCH strategy

The IMNCH strategy is not intended to be a comprehensive review of all essential interventions for MNCH, resulting in some gaps. Improved adolescent nutrition and immunisation is not discussed in the context of appropriate care before pregnancy. Another gap is that implementation of essential newborn care, kangaroo mother care and neonatal resuscitation, while mentioned, are not clearly detailed in the strategy. 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, such interventions are not highlighted in the strategy.

Protocol requires that the states invite the FMOH to facilitate the roll-out of the IMNCH strategy; without such an invitation the ministry cannot initiate roll-out activities. Since each state has different levels of healthcare delivery, the IMNCH stipulates that each state should develop its own state-specific IMNCH roll-out plan of action. To date, 24 states out of 36 and the Federal Capital Territory (FCT) have started implementation.

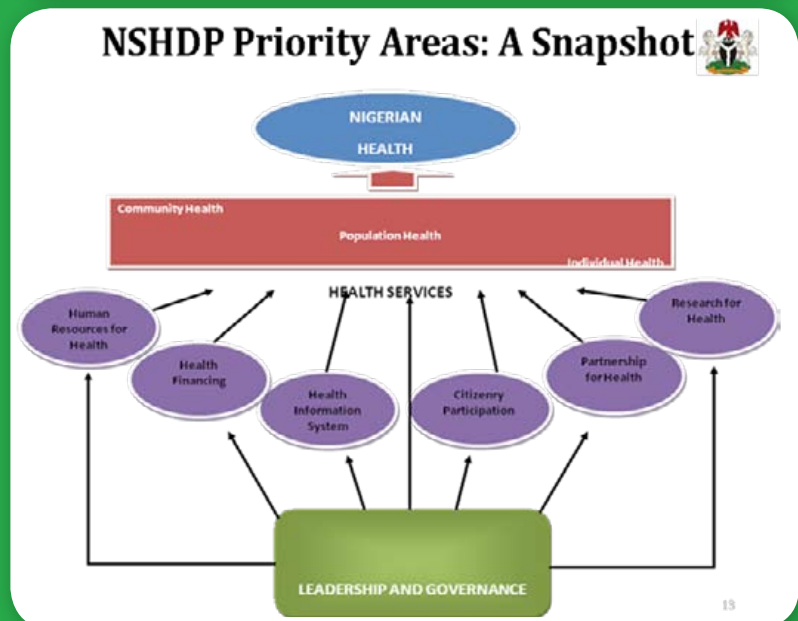
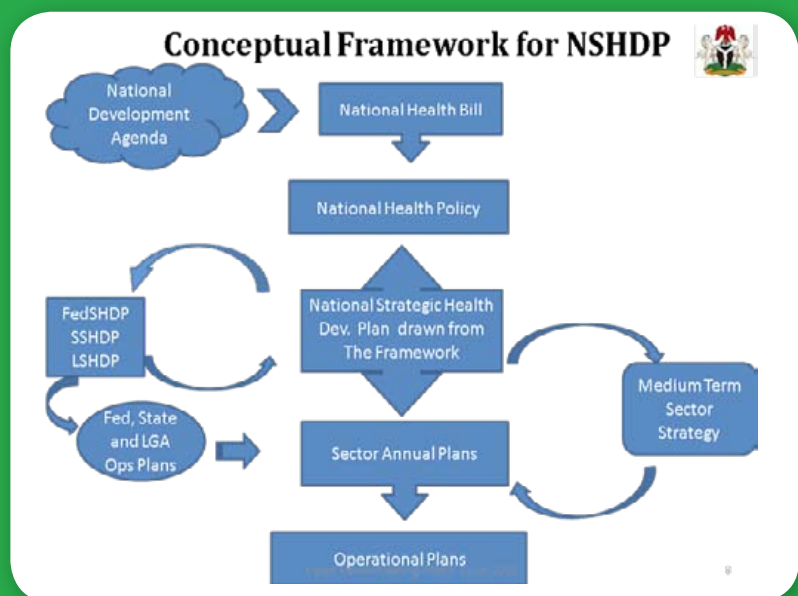
National Strategic Health Development Plan

The National Council on Health 2007 adopted a resolution to develop a National Strategic Health Investment Plan and this was subsequently refocused as a National Strategic Health Development Plan (NSHDP) to provide a generic framework to guide federal, states and LGA health planning processes, using the PHC approach.

The objective is to meet the challenge of improving health outcomes against country targets and the health-related MDGs, particularly for the poorest and most vulnerable population:

1. Health services must be scaled up.
2. Health systems must be strengthened.
3. Hard-fought gains in health must be sustained and expanded.

The NSHDP will serve as the basis for a single health plan framework towards achieving: collective ownership; harmonisation; alignment; mutual accountability; monitoring and evaluation of results within the national health system; wide stakeholder participation at federal, states and LGA levels, to include civil society organisations and development partners.



Healthcare financing

The poor performance of Nigeria's health system can be attributed primarily 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. 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 remedied.

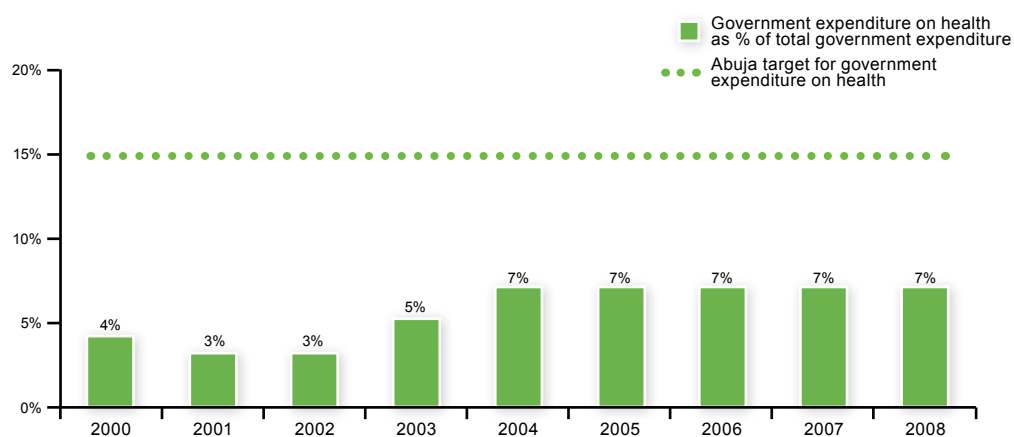
The National Health Bill will enhance healthcare financing and streamline the responsibilities of the different levels of care, especially at PHC level. The bill proposes an amount not less than 2% of the National Consolidated Fund of the Federation should be allocated to a PHC Fund. This is expected to finance MNCH and other PHC activities through the National Primary Healthcare Development Agency (NPHCDA). The bill states that the management and accountability of this fund should be completely transparent.

Budget allocation and financing for newborn health

The percentage of the federal budget allocated to health increased only marginally between 2000 and 2008, from 4% to 6% (Figure 4.2). This remains far below the 15% that was agreed by African Union members including Nigeria in the Abuja Declaration of 2001. The allocation of funding for health is lower than in many other resource-poor African nations. Nigeria's total health expenditure (THE) is 4.1% 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%), Kenya (5.3%), Zambia (6.2%), Tanzania (6.8%), Malawi (7.2%) and South Africa (7.5%).⁸

National Health Accounts also reveal that the bulk of Nigeria's health spending is on curative care, which utilises 74% of THE. Preventive care is a distant second, consuming only 1% of THE in 2002.⁸⁶ National health expenditure data are not broken down according to the type of services rendered and

FIGURE 4.2: GOVERNMENT SPENDING ON HEALTH AND THE ABUJA COMMITMENT



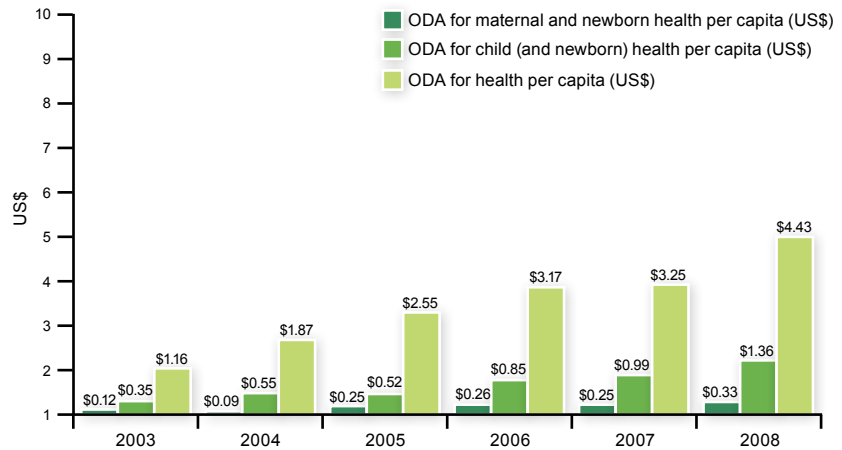
Source: WHO, 2010⁸⁶

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.

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. While the total amount of official development assistance (ODA) allocated to Nigeria is the highest in Africa,

spending per live birth and per child (US\$8.30) is very low compared with other African countries such as Tanzania and Senegal, which received US\$29.30 and US\$31.40 respectively for maternal and newborn health per live birth in 2008.⁸⁷ While Nigeria's ODA for health per capita has increased marginally, a smaller increase has been seen for MNCH-specific ODA.

FIGURE 4.3: ODA FOR MATERNAL, NEWBORN AND CHILD HEALTH



Source: Pitt et al, 2010⁸⁷

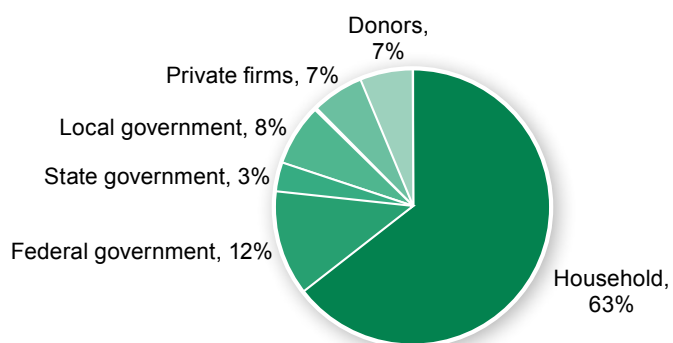
The new National Primary Healthcare Development Fund

The National Primary Healthcare Development Agency is the distributing body through State Primary Healthcare Boards for use by LGAs. Clause 10 of the National Health Bill enacts a new fund known as the National Primary Healthcare Development Fund. This includes funds from national and international sources. Money from the fund will be used in the following ways:

- 50% 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% of the fund will be used to provide essential drugs for primary healthcare
- 15% of the fund will be used to provide and maintain facilities, equipment and transport for primary healthcare
- 10% of the fund will be used to develop human resources for PHC.

The National Health Account estimates that the bulk of health funding is provided by households through out-of-pocket payments for healthcare (Figure 4.4). In 2006, out-of-pocket spending on health contributed 63% of THE.⁸⁶ Although the previous federal government announced free medical services for pregnant women and children under the age of five at tertiary level of care, this measure did not have any monetary or legislative support and therefore was not implemented. Many states currently exempt fees for this vulnerable group in state hospitals, but cannot exempt fees in federal and local government hospitals.

FIGURE 4.4: SOURCES OF HEALTHCARE FUNDING



Source: Pitt et al, 2010⁸⁷

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 healthcare. The National Health Insurance Scheme (NHIS) intends to reduce out-of-pocket spending for healthcare and thereby increase utilisation of health services.

The NHIS was established by Decree Number 35 of 1999 but the implementation began formally in 2005. The scheme, identified as a tool for achieving health-related MDGs, currently enrolls only those in the formal employment sector. Contributions are based on income. The employee contributes 5% of his or her basic salary per month to the scheme, while the employer contributes 10%. However, with such a large informal sector and high unemployment, many families do not qualify for coverage under this scheme. NDHS 2008 collected data on health insurance coverage in Nigeria, and it was shown that 98% of women and 97% of men have no health insurance coverage.¹¹

The NHIS does not include a specific package for newborn care, 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.

Human resources for newborn health

Ensuring availability and retention of competent human resources to provide healthcare is a major challenge, especially in remote or challenging settings. 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 because of poor remuneration and service conditions, minimal opportunities for staff development and a general lack of basic amenities.

The Human Resources 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.⁸⁸

Facility-based healthcare provision

Nigeria has among the highest density of healthcare professionals among African countries, alongside Egypt and South Africa. There are approximately 39,000 doctors, 125,000 nurses and 89,000 midwives registered in the country (Table 4.3).⁸⁹ These figures translate to 20 physicians, nurses and midwives per 10,000 population, which is higher than in many countries in sub-Saharan Africa and closer to the WHO benchmark of 25 per 10,000 population deemed necessary to provide minimum services for MNCH. These figures include health workers in both the private and public health sectors, and may also include health professionals who are not practising in Nigeria or not practising healthcare at all.

Mismatches in reproductive health services requirements and manpower have a negative effect on MNCH service delivery. The FMOH Reproductive Health Resources and Services Survey shows that approximately 58% of all health facilities that offer ANC and delivery services do not have midwife positions currently filled.⁸⁴ Even when staff are available, about 77% of the primary-level health facilities that offer ANC and delivery services operate with health personnel that do not reach appropriate competency levels.

TABLE 4.3: DISTRIBUTION OF HEALTH WORKERS

Staff Type	Number of staff	No. per 10,000 population
Doctors	39,210	3
Nurses	124,629	10
Midwives	88,796	7
Community health practitioners	117,568	20
Dentists	2,773	0.2
Pharmacists	12,072	1
Medical lab scientists	12,860	1
Health record officers	820	0.06
Physiotherapists	769	0.06
Environmental health officers	3441	0.3

Source: FMOH, 2006⁸⁹

Community-based healthcare providers

At the community and village level, health clinics and health posts should be served by junior CHEWs who work in the community 80% of the time and 20% of the time in a health facility (Ward Minimum Healthcare Package 2001). Volunteer village health workers (VVHWs) who are members of the community should be selected and trained to provide care within the Ward Development Committees (WDCs) and Community Development Committees (CDCs). These are also means of strengthening healthcare through community participation and ownership.

Although these are the ideal recommendations, community-based care is not commonly practised. In most rural areas, it is rare to find doctors and midwives in primary facilities. CHEWs are not in the communities as per protocol, but often end up staffing under-served health facilities. Most communities have yet to develop effective CDCs and WDCs.

The federal government plans 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: and 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 has made funds available from the MDG fund and has started implementing the Midwives Service Scheme (MSS), which was initially to run for two years but has recently been extended for an additional year (see p.40).



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Chapter 5: Recommendations for the improvement of newborn health

Roll-out and implementation 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, by strengthening the continuum of care and by honouring its previous commitments to more funding, resources and accountability, Nigeria has the capacity and strategy in place to save the lives of up to 165,000 newborns and potentially to meet MDG 4. Nigeria's future depends on the ability of these newborns to survive and thrive.

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 maternal deaths, stillbirths, newborn and under-five deaths
- Innovative solutions for improving 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, owing to incident or illness during the first month of life
- Formative research into 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 referral for antenatal and follow-up postnatal care
- Practical methods of screening and managing of preterm/low birth weight babies at community level.

Actions for development partners and civil society

Increase funding, track MNCH and support effective coordination and communication mechanisms

- Work with the FMOH to coordinate funding from development partners to ensure MNCH programmes have sufficient funding.
- Negotiate at federal, state and LGA levels for newborn-specific budgeting and spending.
- Monitor budgets and hold government to account.
- Work with government to develop a behaviour change communication strategy that includes messages about delaying marriage and pregnancy, ending harmful practices such as female genital cutting, and encouraging demand for healthcare services and care-seeking for danger signs.

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.

Monitor and evaluate activities and share results

- Development partners, agencies and professional associations should have monitoring and evaluation frameworks for their own activities and support monitoring of 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.
- Categorise and clearly define roles and responsibilities of CHEWs and community resource persons.
- 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 WMHCP 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 about immunisation or gender issues. In 2010, the FMOH in collaboration with the Federal Ministry of Women Affairs and Social Development and other partners instituted the twice-yearly Maternal, Newborn and Child Health Week to target healthy behaviours for newborn care such as breastfeeding, warmth and hygiene or recognition of danger signs, as well as key health promotion messages for family planning, maternal and child health. Key aspects of a BCC strategy include:

- Evidence-based messages arising from qualitative research and assessment of knowledge, attitudes and practices
- The use of the national media (radio, television, newspapers) as well as local community groups to create awareness and sensitise the general population to newborn care and harmful practices
- Simple language, local dialects and visual media materials for maximum comprehension
- Information on delays to accessing maternal and neonatal healthcare, the early identification of danger signs and the importance of prompt referral
- Highlighting positive deviance among families who plan and space pregnancies, attend ANC, deliver in the health facilities and seek early postnatal care for themselves and their newborn
- Messages on adequate nutrition during pregnancy and lactation should be included, as well as on age-appropriate infant feeding practices with special emphasis on early initiation of breastfeeding and exclusive breastfeeding for six months.
- Engagement of policy-makers, religious and traditional leaders, men and women at community, household and individual levels. Communities are an integral part of BCC campaigns for MNCH.

Health-facility level

<p>Focused antenatal care</p>	<ul style="list-style-type: none"> • Ensure goal-oriented, four-visit Focused Antenatal Care (FANC) • Ensure nutrition counselling is given to the pregnant women and that breastfeeding promotion starts at this level • 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 healthcare personnel receive adequate and frequent training on FANC • Ensure necessary equipment and laboratory tests are available in health facilities providing ANC
<p>Intrapartum care</p>	<ul style="list-style-type: none"> • Ensure sufficient human resources to provide a skilled birth attendant for each birth and 24/7 availability • Ensure ‘Mama kits’ and midwifery kits are readily available for all deliveries • Provide and enforce correct usage of partographs during labour • Support the continuation of the Midwives Service Scheme • 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 healthcare 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
<p>Postnatal care</p>	<ul style="list-style-type: none"> • 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, regardless of place of birth • 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 • Nutrition counselling for the mother and the newborn should be provided. Special attention should be given to exclusive breastfeeding promotion, reinforcing the mother’s nutrition to enable her to breastfeed as well as introducing concepts of complementary feeding
<p>Extra care for sick newborns</p>	<ul style="list-style-type: none"> • Define extra and emergency care for sick newborns at national, state and LGA levels, emphasising KMC for preterm/low birth weight 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 (eg. gentamicin and penicillin for neonatal infections) • Develop and maintain an essential supplies list for newborn care at various levels

<p>Referral systems</p>	<ul style="list-style-type: none"> • 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 transport to a referral facility through mothers' clubs or other community mechanisms • Ensure functional triage systems are in place to minimise delays at health facilities • Ensure 24-hour availability of maternity services at all health facilities
<p>Collection and use of data</p>	<ul style="list-style-type: none"> • Review patient forms and facility registers and incorporate relevant neonatal indicators (eg, NMR, cause of death) into facility data collection systems • Ensure service statistics are registered daily, collated monthly and sent to the LGA • Implement multi-disciplinary, no-fault, facility-based maternal and neonatal mortality audits • Transition to electronic data collection and management to enable sharing, analyses and tracking trends over time • Work with community implementers to record pregnancies and births in the community and plan for outreach



Pep Bonet/Save the Children

Actions at federal, state and local levels

	Federal actions	State actions	LGA actions
Ensure appropriate funding and accountability	<ul style="list-style-type: none"> • Redouble efforts to meet the Abuja commitment to allocate 15% of total government spending on 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 Midwives Service Scheme to recruit and deploy midwives, 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 comprising FMOH, development partners, civil society including professional associations. • Publish budgets and make the space for civil society to hold governments to account. 	<ul style="list-style-type: none"> • Ensure appropriate MNCH funding by including a state-level budget line item for newborn health and enabling prompt release of funds. • Work with FMOH to secure the funding necessary to implement 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. • Publish budgets and make the space for civil society to hold governments to account. 	<ul style="list-style-type: none"> • 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. • Publish budgets and make the space for civil society to hold governments to account.
Orient policies, guidelines and services to include newborn care	<ul style="list-style-type: none"> • Sign the National Health Bill in to law and begin implementation. • Revise policy to ensure community-based MNCH delivery approaches are clearly defined. • Update policy to include an early PNC visit within the first 24 hours, another at day 3, and day 7, making provisions for home and facility visits. • Review CIMCI training modules for harmonisation and incorporate relevant aspects of the UNICEF and JHPIEGO community-based newborn care training. • Encourage KMC implementation by developing national guidelines for adaptation at state and LGA level. • Develop standardised training materials, job aids and treatment protocols, including newborn care materials (eg, KMC, danger signs of newborn illness and neonatal resuscitation). • Shift the focus of the MDG office of Nigeria towards a strategy of strengthening health systems, in particular implementing sustainability mechanisms such as community-led decision-making, implementation and monitoring. • Create an enabling environment across government departments for addressing cross-cutting issues such as water and sanitation, food security, gender equality and women’s empowerment, particularly addressing girls’ education, early marriage and female genital cutting. 	<ul style="list-style-type: none"> • Engage in state-level IMNCH roll-out and implementation. • Update the Minimum Healthcare package to include basic neonatal resuscitation, immediate and exclusive breastfeeding promotion, KMC, eye care, cord care, community treatment of neonatal infections and the use of Vitamin K. • Disseminate and train staff at all maternity facilities on the National Emergency Obstetric and Newborn Care Performance Standards. 	<ul style="list-style-type: none"> • Strengthen PHC services through the NPHCDA, 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 and identify, manage or refer newborn illness. 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.

	Federal actions	State actions	LGA actions
Plan effectively and implement	<ul style="list-style-type: none"> • 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 governments. • 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 PMNCH 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. • Provide more training institutions for midwives, especially in the few northern states where no training institutions currently exist. 	<ul style="list-style-type: none"> • 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 care to include neonatal resuscitation and management of neonatal encephalopathy • Adapt standards for newborn care to ensure provision of KMC and case management of sepsis. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Ensure implementation plans include measurable indicators and targets for newborn care. • Standardise forms used for supervision, monitoring and evaluation through the FMOH HMIS and other data-collection mechanisms • Improve the coordination and effectiveness of the HMIS framework by strengthening the link between the HMIS, the National Population Commission and health facilities. • Increase coverage of the national birth and death registration policy. • Evaluate and publish results of the MSS. • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.

State MNCH 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. All indicators in the profile are specific to the state, except where noted.

Notes and data sources

Births and deaths

The annual number of births at the national level is from United Nations Population Division estimates for 2008. State level population and annual births are from the National Census of 2006 updated to 2008 levels. The latest available national and zonal neonatal and under-five mortality rates are from the Nigeria Demographic and Household Survey (NDHS) 2008. Neonatal mortality refers to deaths that occur during the first 28 days of life. Under-five mortality refers to deaths that occur from birth to 59 months of age. Mortality rates are expressed as the annual number of deaths per 1,000 live births. Zonal mortality rates are applied at the state level. Maternal mortality refers to the annual number of deaths of women from pregnancy-related causes per 100,000 live births. The national maternal mortality ratio is from NDHS 2008 and is used on each state profile because sub-national data are not available. The number of neonatal and under-five deaths are calculated by applying the national and zonal mortality rates to the number of births for each state and for the country as a whole.

National progress to MDG 5 and reproductive health

Graph shows estimates of national maternal mortality ratios from the United Nations (UN),¹⁵ Institute of Health Metrics and Evaluation (IHME),¹⁷ and the NDHS 2008.¹¹ The MDG 5 target requires a three-quarters reduction from the 1990 maternal mortality rate.

Total fertility rate: average number of children a woman would bear over the course of her lifetime if current age-specific fertility rates remained constant throughout her childbearing years (normally between the ages of 15 and 49) - figure taken for the three years prior to the survey.¹¹

Adolescents who have begun childbearing: percentage of women aged 15-19 who have had at least one child.¹¹

Female genital cutting: percentage of women who have been circumcised.¹¹

Unmet need for family planning: Percentage of women who are currently married or in union that have an unmet need for contraception (ie, are fecund and want to space their births or limit the number of children they have but that are not currently using contraception).¹¹

C-section rate: percentage distribution of live births delivered by caesarean section.¹¹

National progress to MDG 4

National trend in neonatal and under-five mortality shown using UN estimates between 1990 and 2015.¹² Zonal U5MR and NMR from NDHS 2008 are included as discrete points on the graph. The MDG target requires a two-thirds reduction from the 1990 under-five mortality rate.

Coverage along the continuum of care

The continuum of care for maternal, newborn and child health reflects integrated service delivery for mothers and children from pregnancy to delivery, the immediate postnatal period, and childhood. Such care is provided by families and communities, through outpatient services, clinics and other health facilities.

Demand for contraceptive satisfied: proportion of women who are married or in a union using contraception, of the total demand for contraception.¹¹

Antenatal visits (1+): percentage of women who received antenatal care at least once during the pregnancy.¹¹

Skilled attendant at delivery: percentage of deliveries attended by a doctor, nurse, midwife, auxiliary nurse or auxiliary midwife.¹¹

Postnatal care (within two days): percentage of women who received their first postnatal check-up within two days after birth.¹¹

Exclusive breastfeeding (less than six months): percentage of infants 0-5 months exclusively breastfed.¹⁸

Measles immunisation: percentage of children 12-23 months who received measles vaccine.¹¹

Estimated causes of neonatal and under-five mortality

These profiles include a new and previously unpublished analysis for sub-national causes of neonatal and under-five mortality using multicausal proportionate mortality models to estimate deaths in neonates aged 0–27 days and children aged 1–59 months, to estimate causes of child deaths based on methods published in Black et al, *Lancet* 2010 and Lawn et al, *Intl J Epi* 2006.^{22,90}

Missed opportunities in key maternal, newborn and child health packages

These indicators show the coverage gap and missed opportunities to deliver high impact interventions across pregnancy, nutrition, child health outreach and child health curative services.

Antenatal coverage (ANC 1+): percentage of women who received antenatal care at least once during the pregnancy.¹¹

Informed signs of pregnancy complications: percentage of women who received antenatal care and were informed of signs of pregnancy complications.¹¹

Protected at birth from tetanus at birth: Percentage of mothers aged 15-49 with a live birth in the five years preceding the survey with two injections during the pregnancy for her last live birth, or two or more injections (the last within three years of the last live birth), or three or more injections (the last within five years of the last birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last birth.¹¹

Voluntary counselling and testing (VCT) for HIV: Percentage of women aged 15-49 who gave birth in the two years preceding the survey who were counselled, were offered and accepted an HIV test, and who received results.¹¹

Intermittent preventive treatment (IPTp) for malaria: percentage of women who received any SP, Fansidar, Amalar, or Maloxine during an antenatal care visit .¹¹

Ever breastfed: percentage of children born in the past five years before the survey who have ever been breastfed .¹¹

Breastfeeding within one hour: percentage of children born in the past five years before the survey who started breastfeeding within one hour of birth.¹¹

No prelacteal feeds: percentage of children who were given nothing but breastmilk in the first three days of life.¹¹

Infant and young children feeding (IYCF) 6-23 months: Percentage of children aged 6-23 months fed with all three IYCF practices (food diversity, feeding frequency, and consumption of breastmilk or other milk or milk products).¹¹

Diphtheria, pertussis and tetanus (DPT) 1: percentage of children 12-23 months who received the first dose of the DPT vaccine. ¹¹



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Diphtheria, pertussis and tetanus (DPT) 3: percentage of children 12-23 months who received the third dose of the DPT vaccine.¹¹

All vaccines: percentage of children 12-23 months who received BCG (for tuberculosis), measles, and three doses each of DPT and polio vaccine (excluding polio vaccine administered at birth).¹¹

Vitamin A use: percentage of children 6-59 months given vitamin A supplements.¹¹

Insecticide-treated net use: percentage of children under-five who sleep under an insecticide-treated net.¹¹

Children treated for fever-malaria drugs: percentage of children under-five with fever who took anti-malarial drugs

Children treated for fever-antibiotic drugs: percentage of children under-five with fever who took anti-malarial drugs.¹¹

Children treated for pneumonia-antibiotic drugs: percentage of children under-five with symptoms of acute respiratory infection (ARI) who received antibiotic drugs (zonal level).¹¹

Health systems

A well-functioning health system comprises several building blocks that have multiple relationships and interactions. The following indicators are included in the state profiles for health system building blocks relating to health information, human resources, governance and leadership, financing for health and medicines and equipment:

Health information: birth registration. Percentage of de jure children under five whose births are registered with the civil authorities

Human resources: Nurses, midwives and community health officers. Number of registered nurses, midwives and community health officers per 10,000 population.⁹¹

Governance and leadership: IMNCH strategy launched. Reflects whether the IMNCH strategy has been adapted and launched at state level (Yes or No). Data from FMOH.

Financing for health: IMNCH strategy costed. Reflects the existence of a costed IMNCH strategy at state level (Yes or No). Data from FMOH.

Medicines and equipment: proportion of 20 essential child health medicines available at district health facilities. Standard WHO indicator for essential medicines for children, not available at state level at this time but included in the profiles in anticipation that this indicator will be tracked in the future.⁹²

Maternal, newborn and child lives saved at 90% coverage

Using the Lives Saved Tool (LiST) version 4.2, the potential number and percentage of maternal, newborn and child lives saved were calculated based on scaling up coverage of essential interventions from current levels in each state to 90%. LiST is based on The Lancet Child Survival and Neonatal Survival series modelling of lives saved and is built into the freely available demographic software package (Spectrum™). LiST is linked to the modules for estimating the impact of family planning interventions and HIV/AIDS interventions, and is pre-loaded with national-level health status and mortality data for 2008, as well as intervention coverage. LiST models the impact of changes in coverage of individual interventions on the reduction of deaths due to specific causes. The effectiveness estimates for each intervention come from a standardised review process developed by the Child Health Epidemiology Reference Group (CHERG). More details on the inputs and methods used as well as the full software (free access download) can be found at: <http://www.jhsph.edu/dept/ih/IIP/list/spectrum.html>.

League tables

The following indicators are included in the league table (p.116) with data by state.

Demographics

- Annual births: annual number of births, by state.
- Neonatal mortality rate: probability of dying during the first 28 days of life, expressed per 1,000 live births. Reflects the zonal ten year rate.
- Neonatal deaths: zonal NMR multiplied by annual births by state, divided by 1,000 and rounded to nearest hundred.
- Under-five mortality rate: probability of dying during between birth and five years of age, expressed per 1,000 live births.
- Under-five deaths: U5MR multiplied by annual births, divided by 1,000 and rounded to nearest thousand. Reflects the zonal ten year rate.

Continuum of care: definitions and sources as listed above for state profiles.

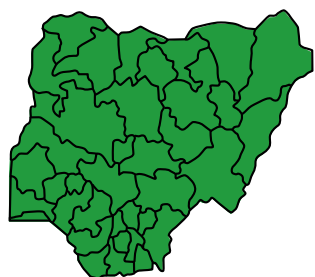
- CPR: Contraceptive prevalence rate
- ANC (1+): one or more antenatal visit during pregnancy
- Skilled attendant at birth
- PNC: Postnatal care within 2 days
- Exclusive breastfeeding <6 months
- Measles immunisation

Nutrition

- Stunting (%): percentage of children under-five whose height-for-age score falls below minus two standard deviations from the median of the reference population.
- Wasting (%): percentage of children under-five whose weight-for-height score falls below minus two standard deviations from the median of the reference population.
- Low birthweight rate (%): percentage of infants weighing less than 2,500 grams at birth.



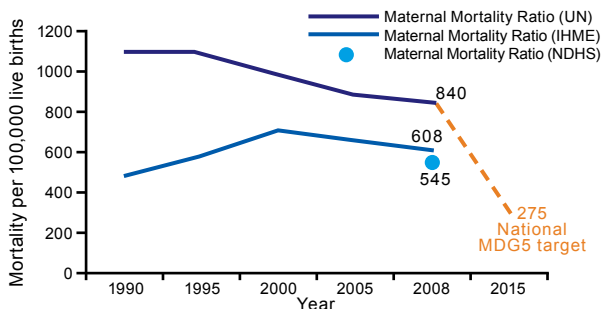
Pep Bonet/Save the Children



Nigeria

Indicator data are national data for 2008. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

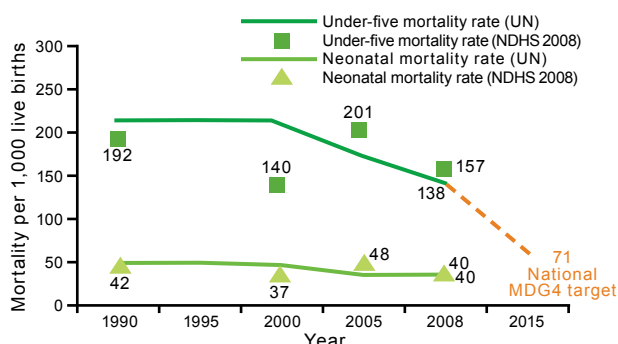


Total fertility rate	5.7
Adolescents who have begun childbearing (%)	23
Female genital cutting (%)	30
Unmet need for family planning (%)	20
C-section rate (%)	1.8

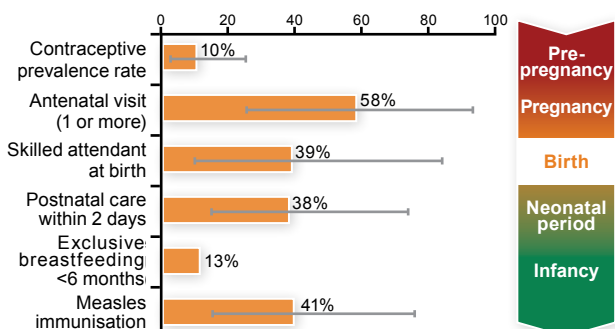
BIRTHS AND DEATHS

Population	151,212,000
Annual births	6,028,000
Neonatal mortality rate per 1000 live births	40
Annual number of neonatal deaths	241,000
Under-five mortality rate per 1000 live births	157
Annual number of under-five deaths	946,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	33,000

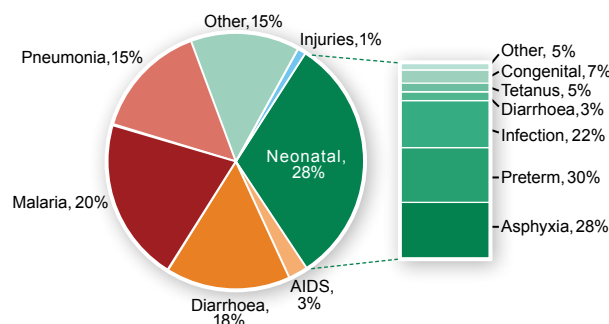
NATIONAL PROGRESS TO MDG4



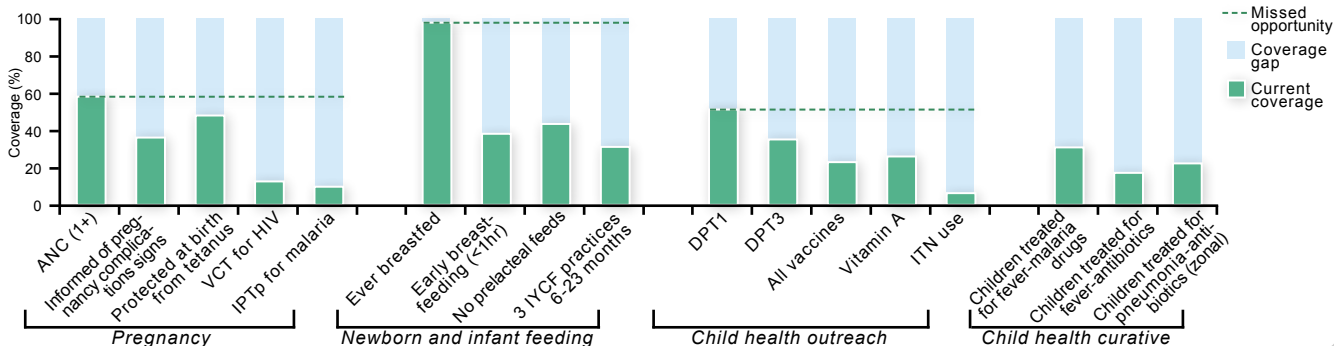
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	30
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	19 & 13
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	51%
Number of maternal lives saved	16,800
% neonatal lives saved	75%
Number of neonatal lives saved	180,800
% post-neonatal and child lives saved	66%
Number of post-neonatal and child lives saved	465,300



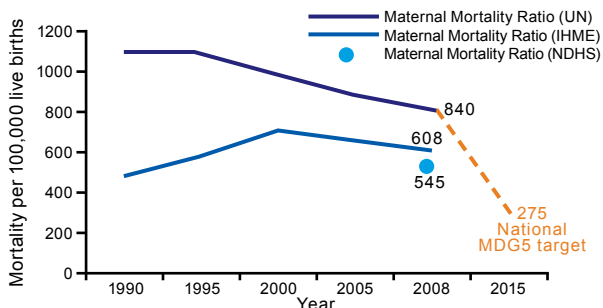
Abia State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

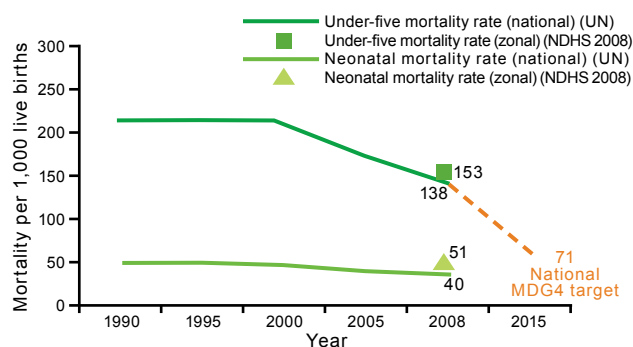
Population	3,061,000
Annual births	123,000
Neonatal mortality rate per 1000 live births (zonal)	51
Annual number of neonatal deaths	6,200
Under-five mortality rate per 1000 live births (zonal)	153
Annual number of under-five deaths	18,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	700

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

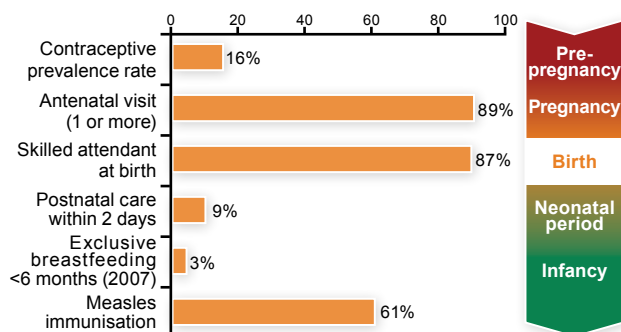


Total fertility rate	4.4
Adolescents who have begun childbearing (%)	13
Female genital cutting (%)	55
Unmet need for family planning (%)	18
C-section rate (%)	3.1

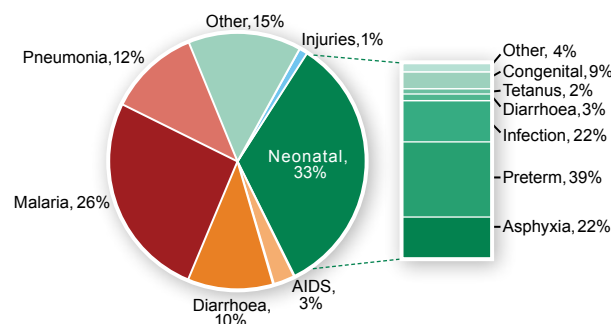
NATIONAL PROGRESS TO MDG4



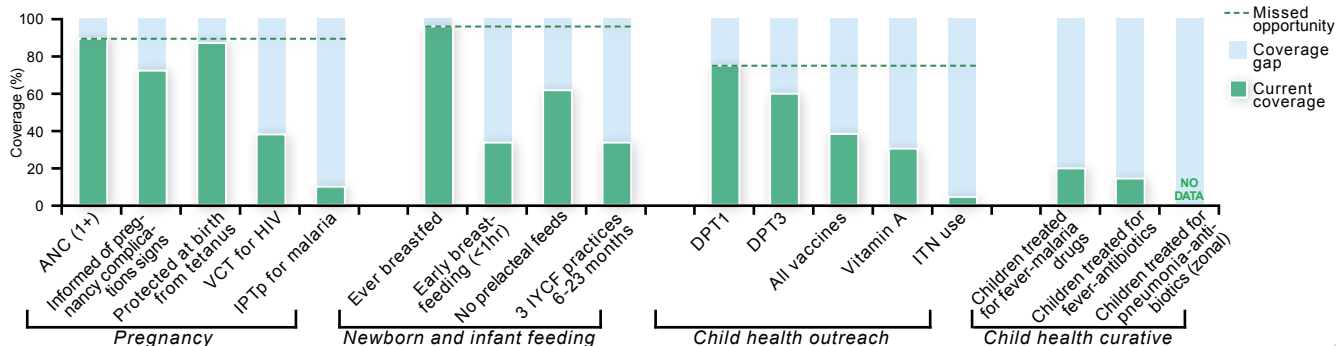
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	56
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	17 & 5
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

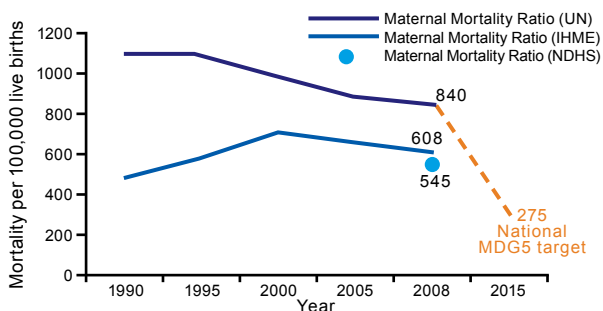
% maternal lives saved	53%
Number of maternal lives saved	370
% neonatal lives saved	60%
Number of neonatal lives saved	3,700
% post-neonatal and child lives saved	64%
Number of post-neonatal and child lives saved	7,600



Adamawa State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

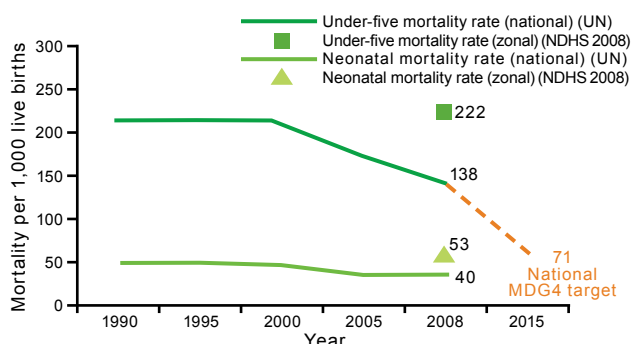


Total fertility rate	6.8
Adolescents who have begun childbearing (%)	24
Female genital cutting (%)	1
Unmet need for family planning (%)	18
C-section rate (%)	0.2

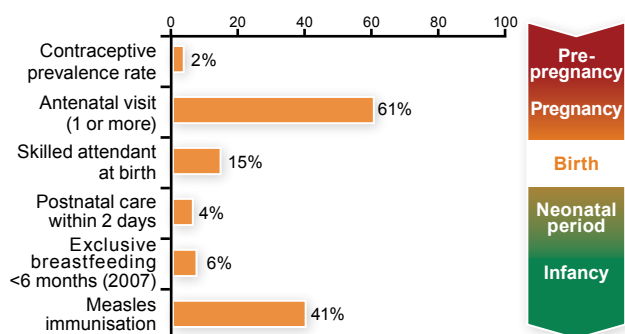
BIRTHS AND DEATHS

Population	3,422,000
Annual births	136,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	7,200
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	30,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	700

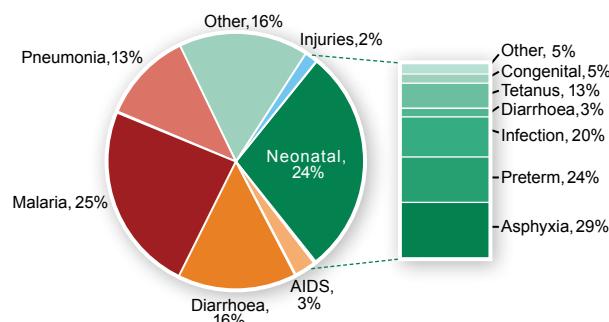
NATIONAL PROGRESS TO MDG4



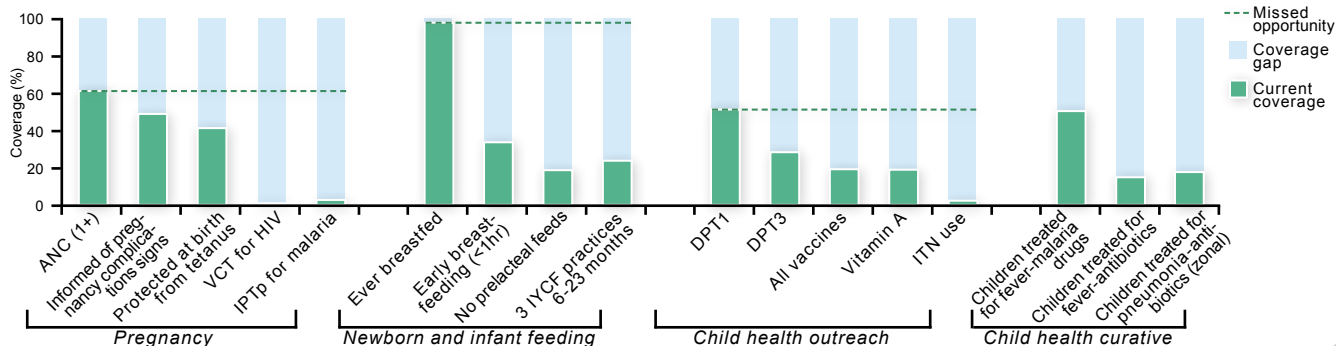
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	19
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	19 & 28
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	360
% neonatal lives saved	70%
Number of neonatal lives saved	5,100
% post-neonatal and child lives saved	79%
Number of post-neonatal and child lives saved	18,000



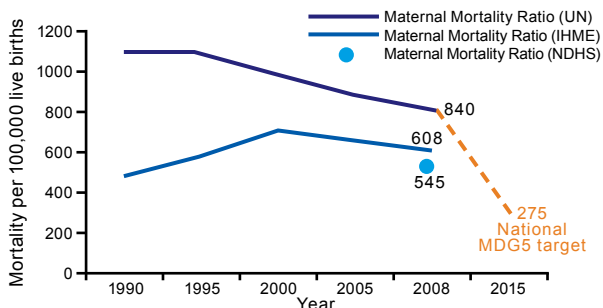
Akwa-Ibom State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

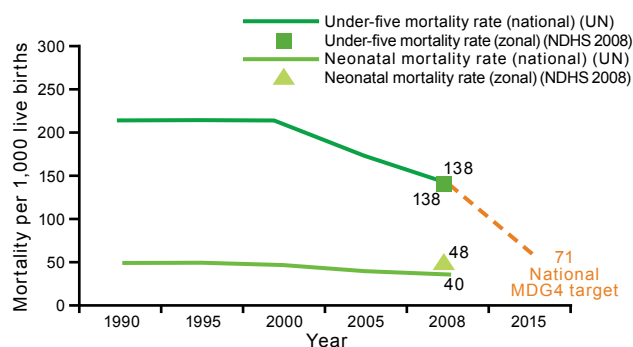
Population	4,234,000
Annual births	169,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	8,100
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	23,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	900

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

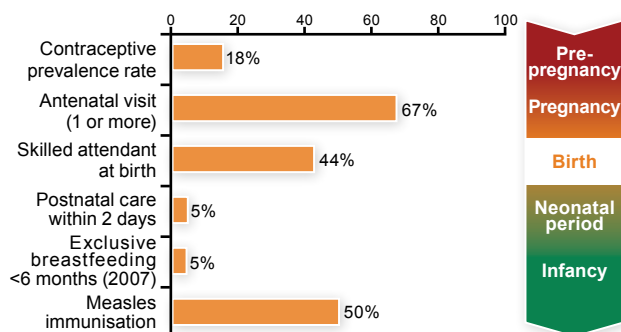


Total fertility rate	4.0
Adolescents who have begun childbearing (%)	15
Female genital cutting (%)	15
Unmet need for family planning (%)	26
C-section rate (%)	4.5

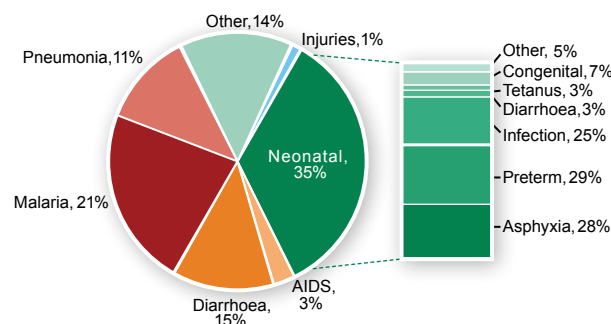
NATIONAL PROGRESS TO MDG4



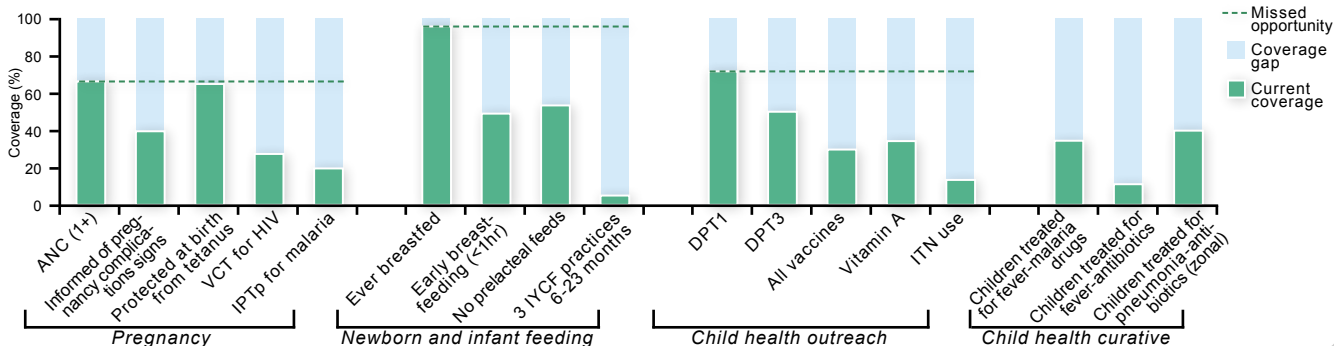
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	30
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	124 & 12
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	58%
Number of maternal lives saved	530
% neonatal lives saved	72%
Number of neonatal lives saved	5,800
% post-neonatal and child lives saved	70%
Number of post-neonatal and child lives saved	10,400



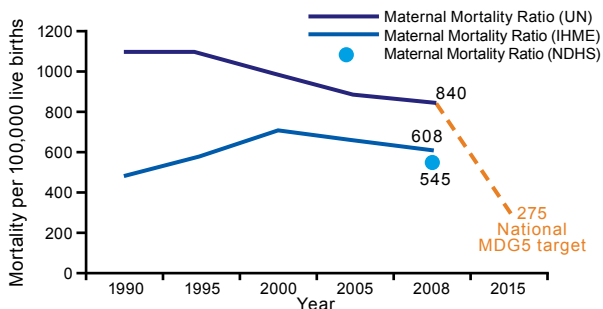
Anambra State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

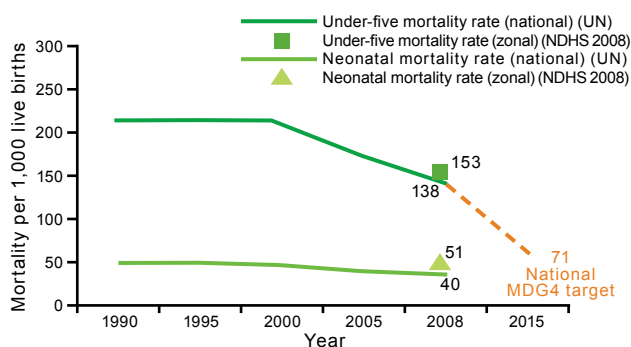
Population	4,517,000
Annual births	180,000
Neonatal mortality rate per 1000 live births (zonal)	51
Annual number of neonatal deaths	9,100
Under-five mortality rate per 1000 live births (zonal)	153
Annual number of under-five deaths	28,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1000

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

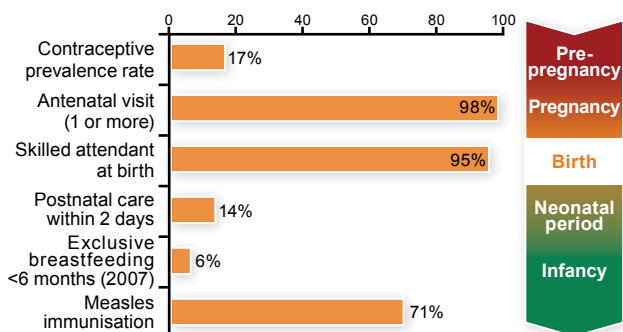


Total fertility rate	5.0
Adolescents who have begun childbearing (%)	6
Female genital cutting (%)	30
Unmet need for family planning (%)	18
C-section rate (%)	4.7

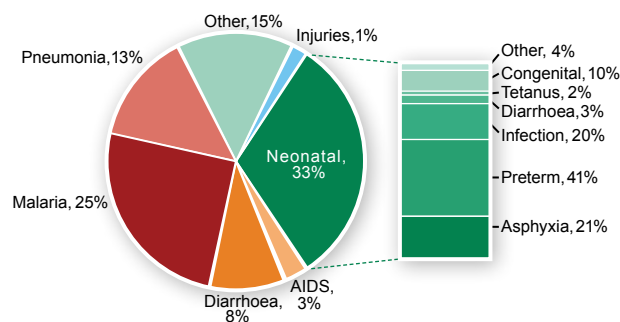
NATIONAL PROGRESS TO MDG4



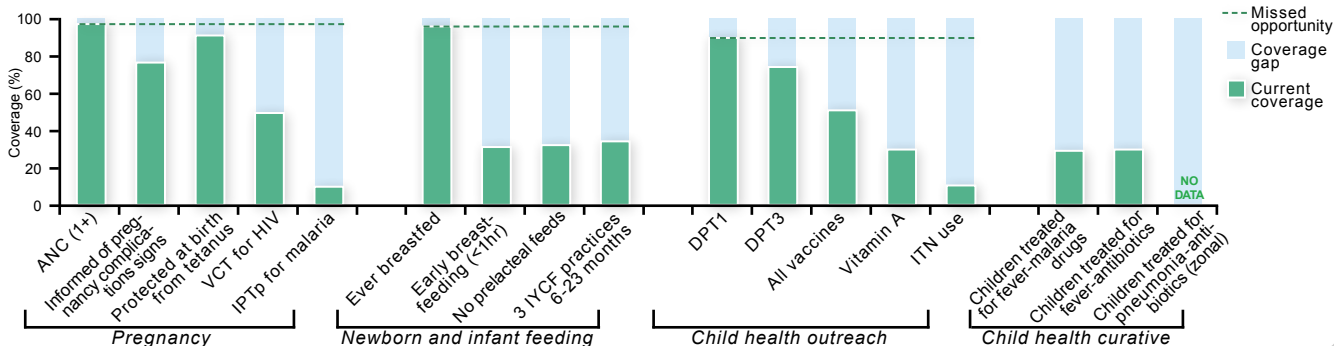
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

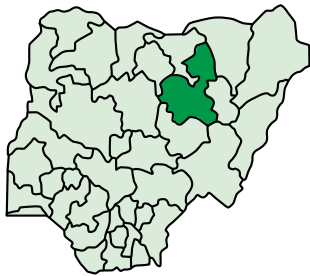


HEALTH SYSTEMS

Health information: Birth registration (%)	71
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	37 & 10
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	47%
Number of maternal lives saved	470
% neonatal lives saved	59%
Number of neonatal lives saved	5,400
% post-neonatal and child lives saved	58%
Number of post-neonatal and child lives saved	10,900



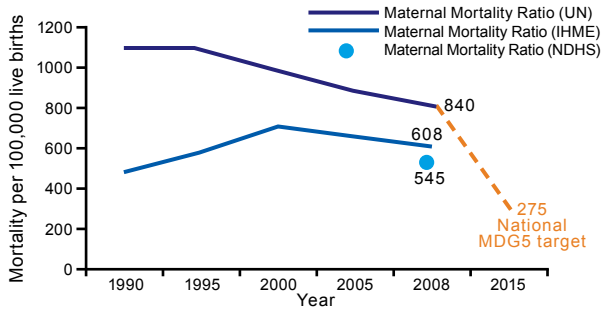
Bauchi State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

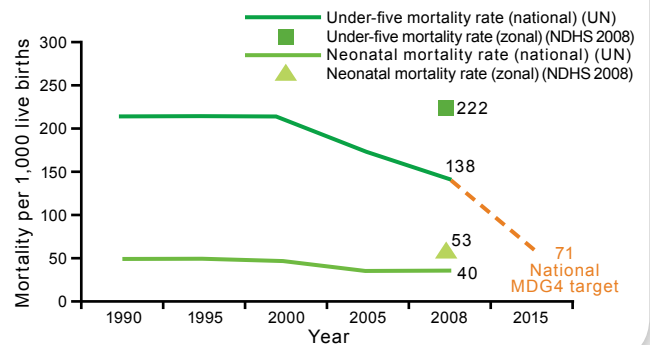
Population	5,051,000
Annual births	201,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	11,000
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	45,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1100

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

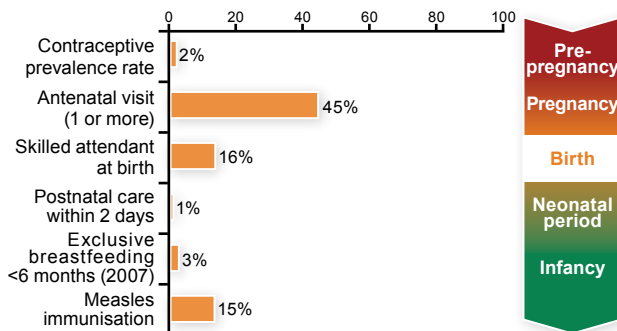


Total fertility rate	8.1
Adolescents who have begun childbearing (%)	51
Female genital cutting (%)	1
Unmet need for family planning (%)	18
C-section rate (%)	0.9

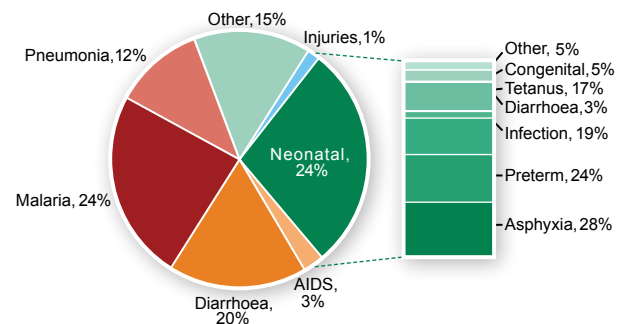
NATIONAL PROGRESS TO MDG4



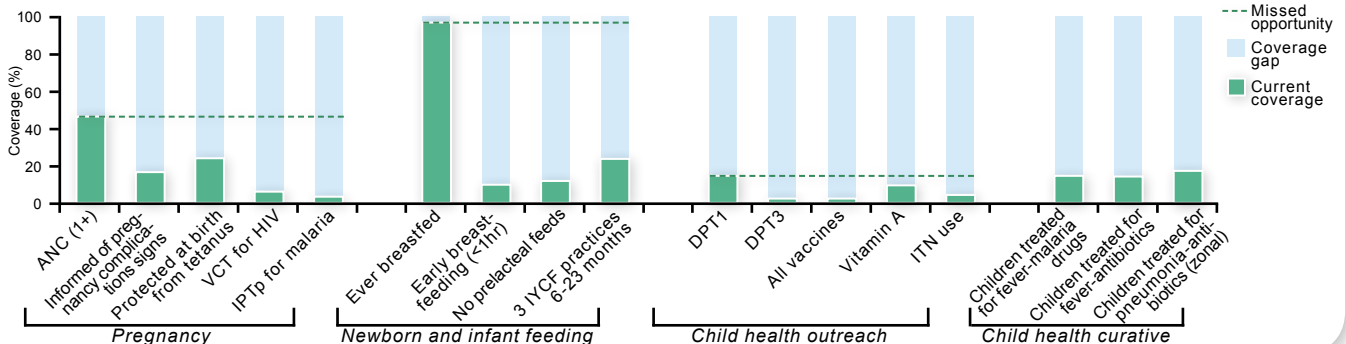
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	11
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	2 & 18
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	570
% neonatal lives saved	72%
Number of neonatal lives saved	7,900
% post-neonatal and child lives saved	78%
Number of post-neonatal and child lives saved	26,400



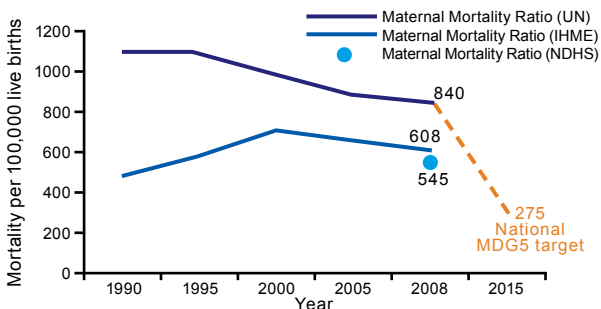
Bayelsa State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

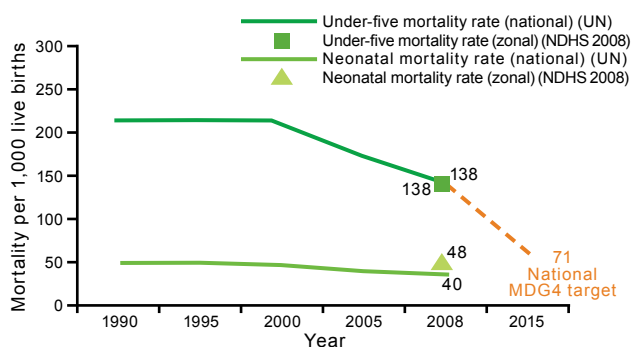
Population	1,840,000
Annual births	73,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	3,500
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	10,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	400

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

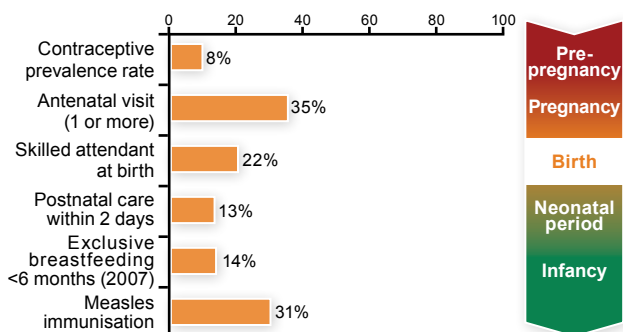


Total fertility rate	5.8
Adolescents who have begun childbearing (%)	21
Female genital cutting (%)	26
Unmet need for family planning (%)	26
C-section rate (%)	1.5

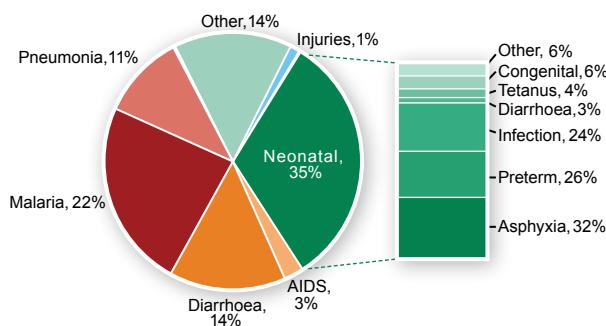
NATIONAL PROGRESS TO MDG4



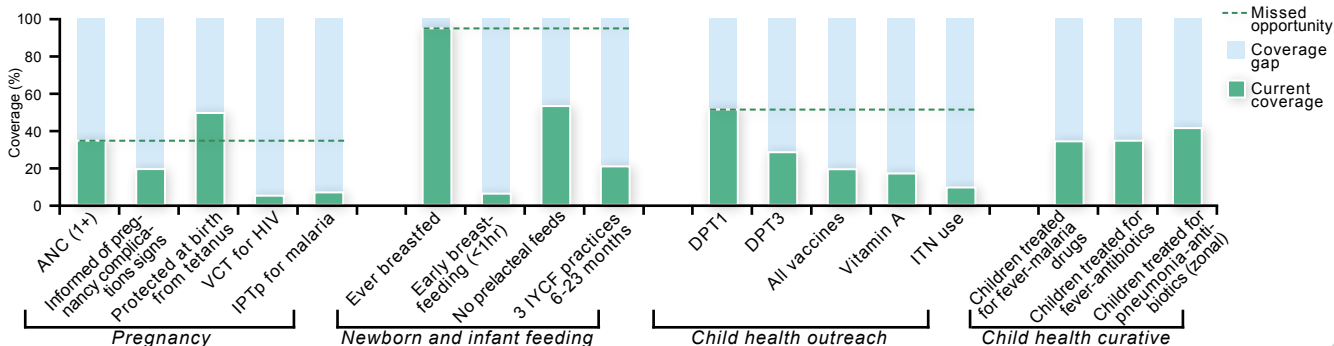
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	10
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 8
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

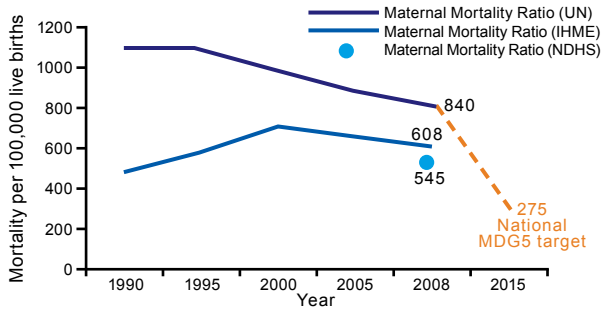
% maternal lives saved	59%
Number of maternal lives saved	230
% neonatal lives saved	72%
Number of neonatal lives saved	2,500
% post-neonatal and child lives saved	72%
Number of post-neonatal and child lives saved	4,700



Benue State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

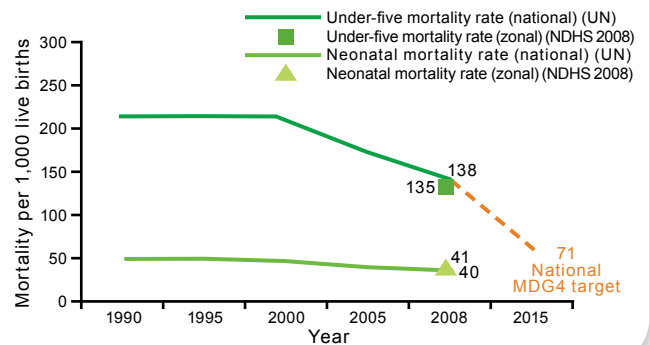


Total fertility rate	5.9
Adolescents who have begun childbearing (%)	23
Female genital cutting (%)	4
Unmet need for family planning (%)	19
C-section rate (%)	1.1

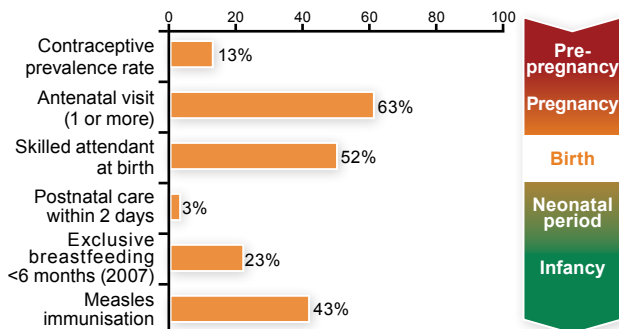
BIRTHS AND DEATHS

Population	4,557,000
Annual births	182,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	7,400
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	25,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	100

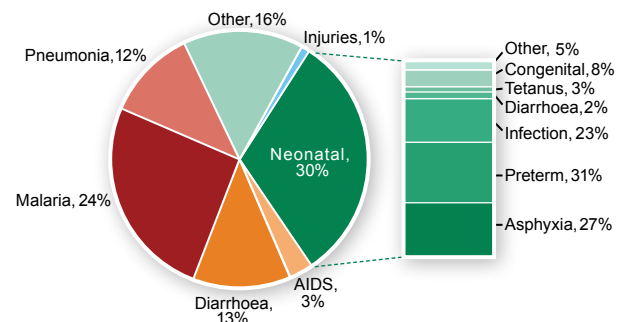
NATIONAL PROGRESS TO MDG4



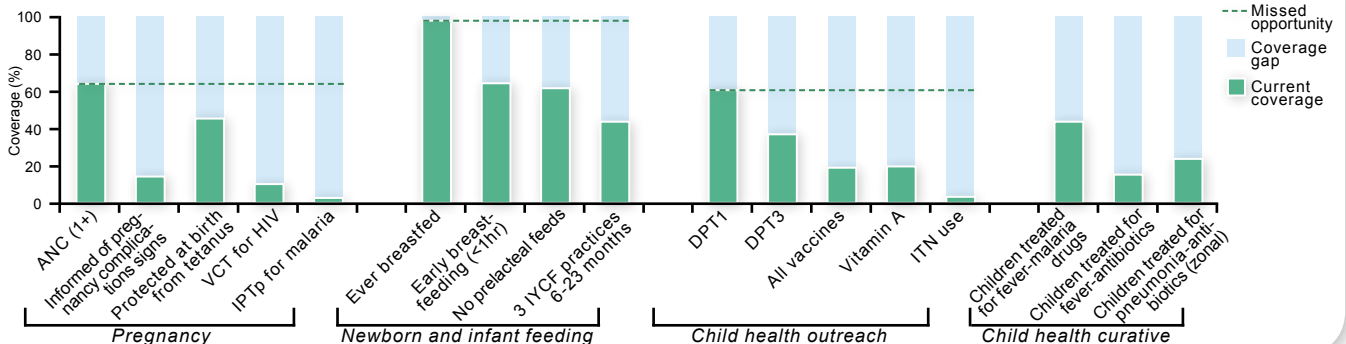
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	24
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	35 & 26
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	54%
Number of maternal lives saved	50
% neonatal lives saved	72%
Number of neonatal lives saved	5,300
% post-neonatal and child lives saved	71%
Number of post-neonatal and child lives saved	12,500



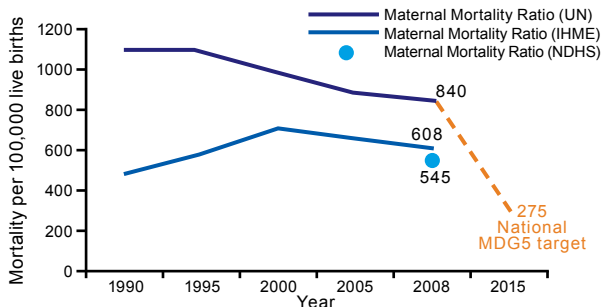
Borno State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

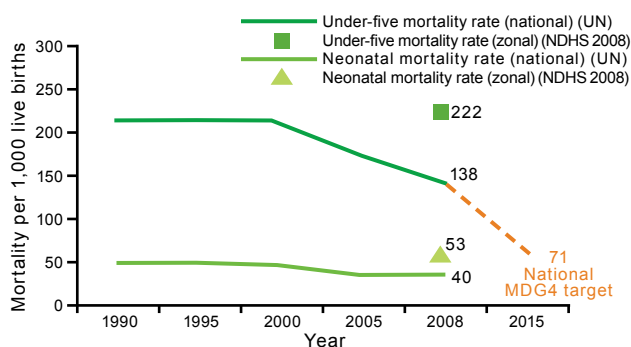
Population	4,484,000
Annual births	179,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	9,500
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	40,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1000

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

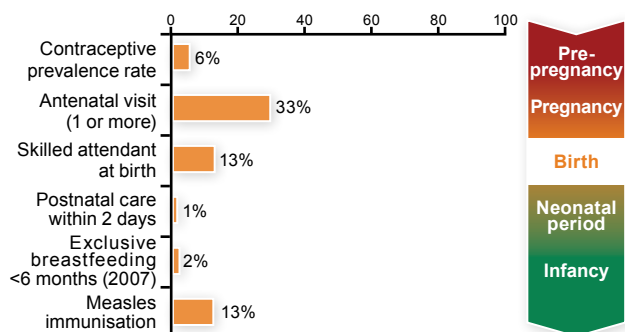


Total fertility rate	7.1
Adolescents who have begun childbearing (%)	48
Female genital cutting (%)	10
Unmet need for family planning (%)	18
C-section rate (%)	0.6

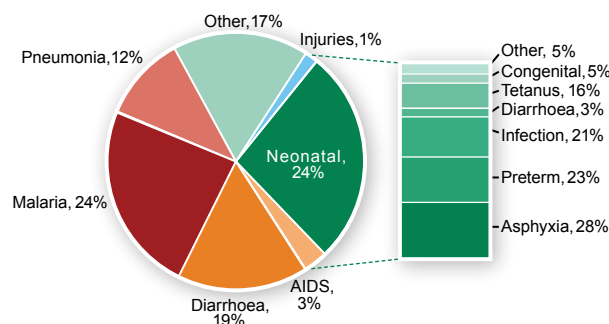
NATIONAL PROGRESS TO MDG4



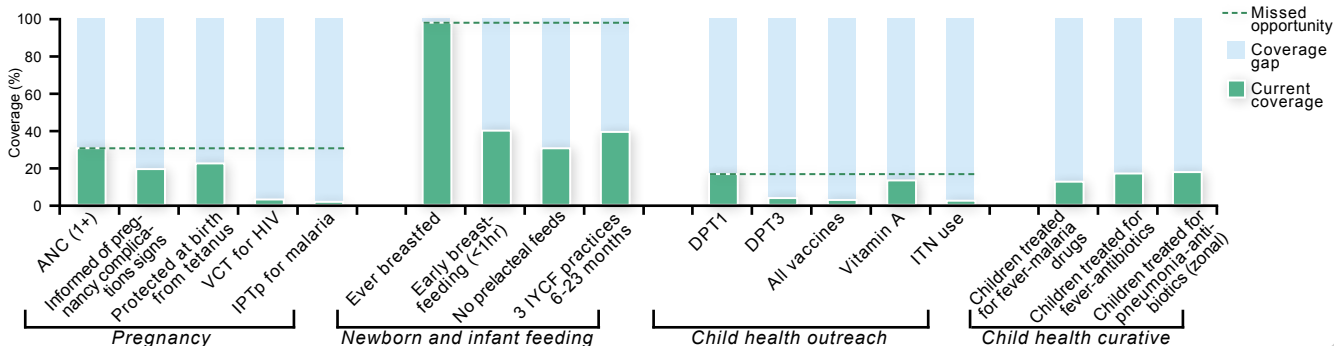
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	9
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	29 & 9
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	520
% neonatal lives saved	71%
Number of neonatal lives saved	6,700
% post-neonatal and child lives saved	78%
Number of post-neonatal and child lives saved	23,800



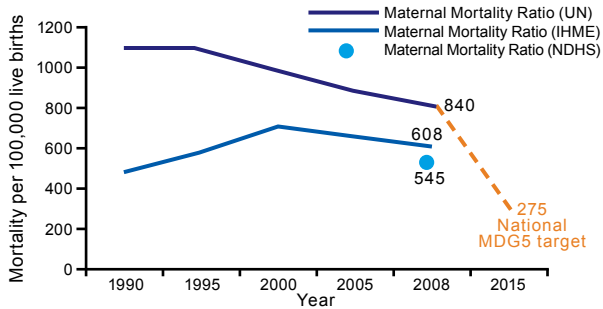
Cross River State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

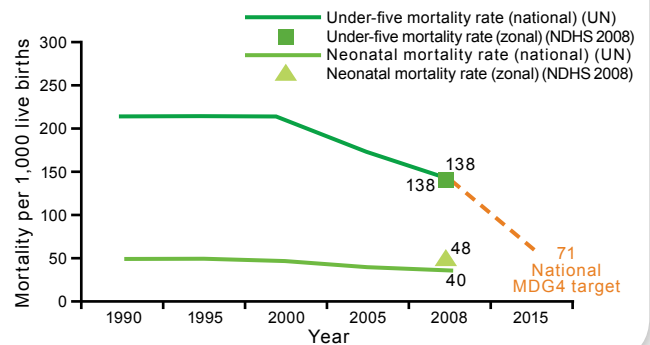
Population	3,120,000
Annual births	124,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	6,000
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	17,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	700

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

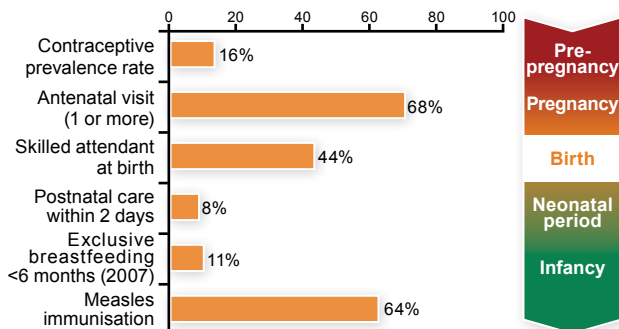


Total fertility rate	5.4
Adolescents who have begun childbearing (%)	18
Female genital cutting (%)	34
Unmet need for family planning (%)	26
C-section rate (%)	1.7

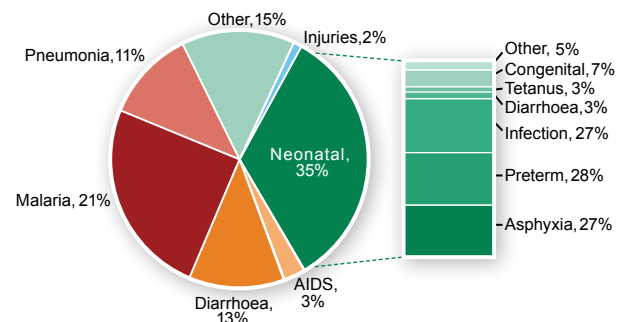
NATIONAL PROGRESS TO MDG4



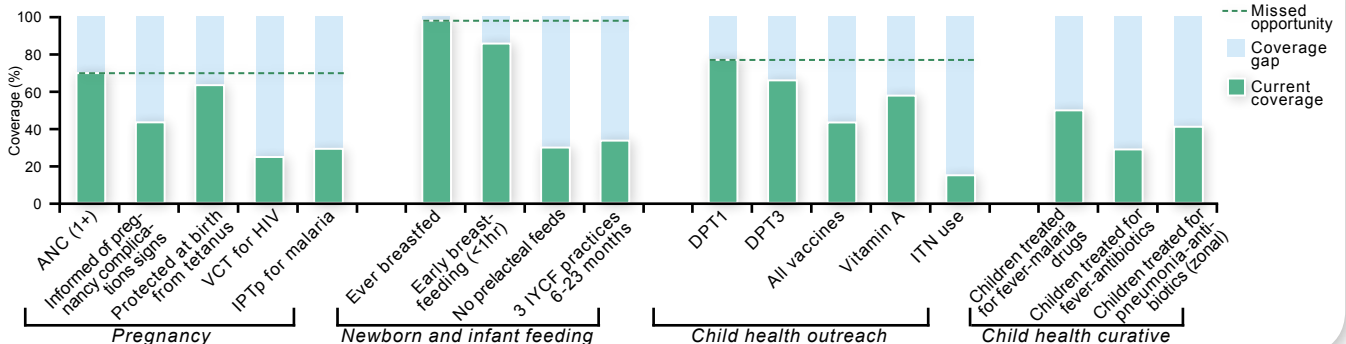
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	16
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	11 & 23
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	58%
Number of maternal lives saved	410
% neonatal lives saved	71%
Number of neonatal lives saved	4,300
% post-neonatal and child lives saved	72%
Number of post-neonatal and child lives saved	7,900



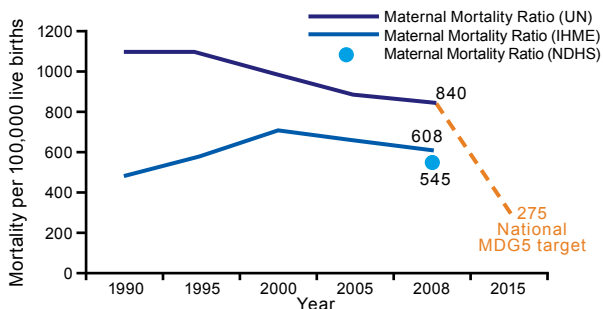
Delta State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

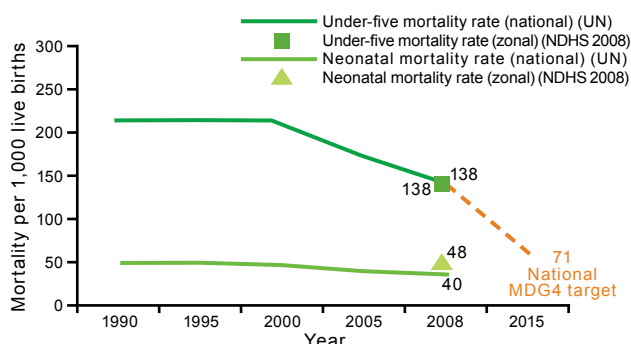
Population	4,427,000
Annual births	176,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	8,400
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	24,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1000

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

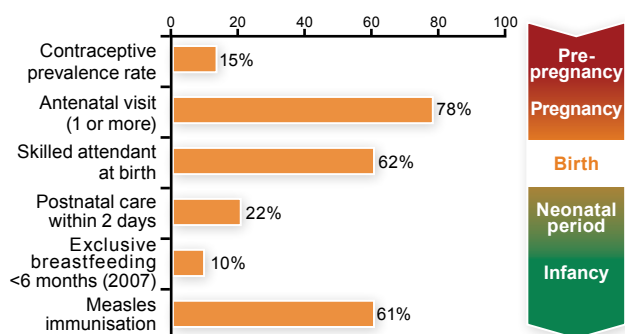


Total fertility rate	4.5
Adolescents who have begun childbearing (%)	8
Female genital cutting (%)	57
Unmet need for family planning (%)	26
C-section rate (%)	2.7

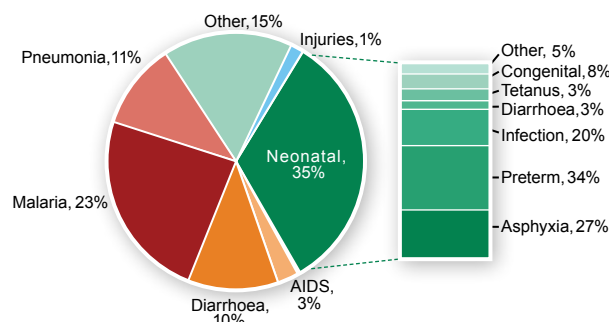
NATIONAL PROGRESS TO MDG4



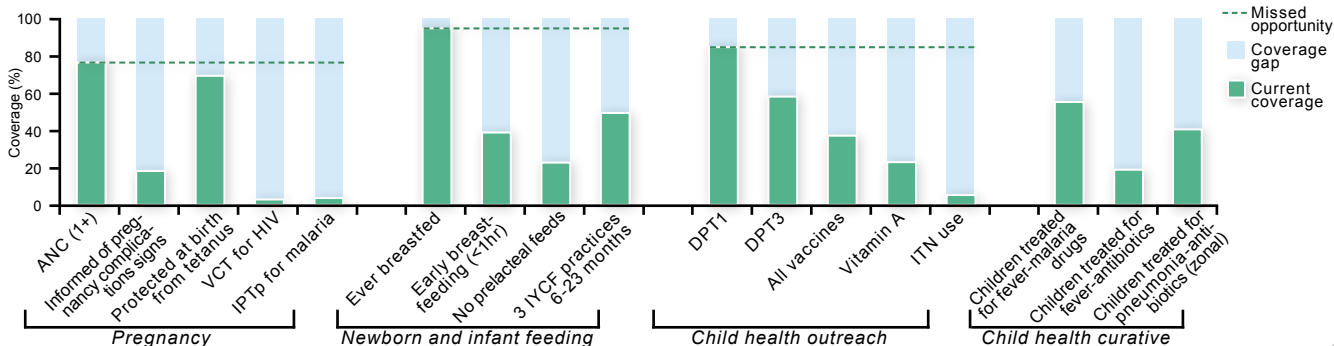
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	33
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	56 & 4
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	45%
Number of maternal lives saved	460
% neonatal lives saved	63%
Number of neonatal lives saved	5,300
% post-neonatal and child lives saved	67%
Number of post-neonatal and child lives saved	10,400



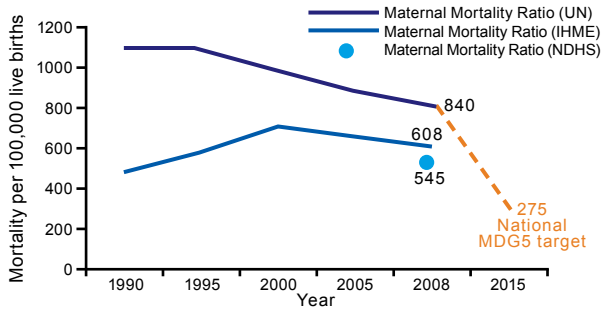
Ebonyi State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

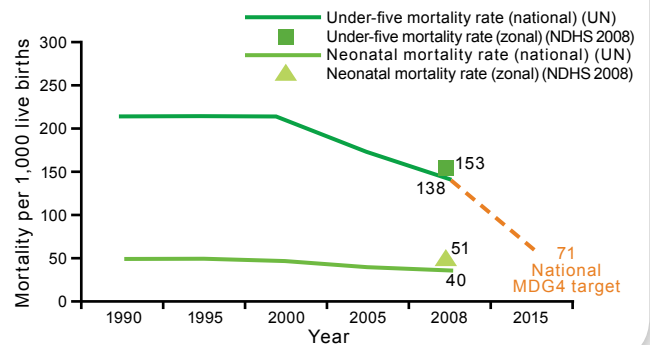
Population	2,348,000
Annual births	94,000
Neonatal mortality rate per 1000 live births (zonal)	51
Annual number of neonatal deaths	4,800
Under-five mortality rate per 1000 live births (zonal)	153
Annual number of under-five deaths	14,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	500

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

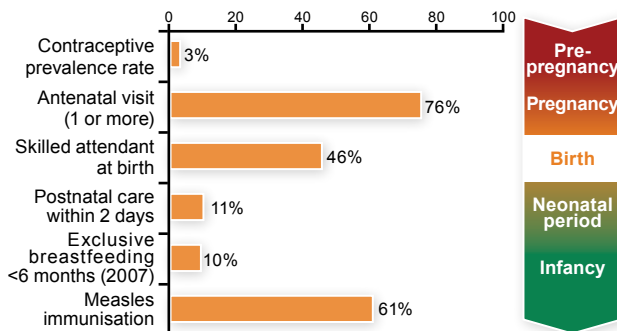


Total fertility rate	5.6
Adolescents who have begun childbearing (%)	8
Female genital cutting (%)	83
Unmet need for family planning (%)	18
C-section rate (%)	2.4

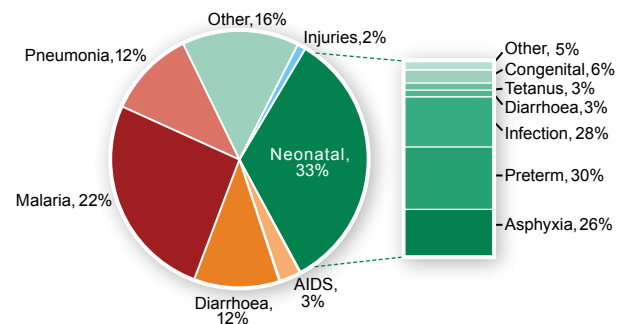
NATIONAL PROGRESS TO MDG4



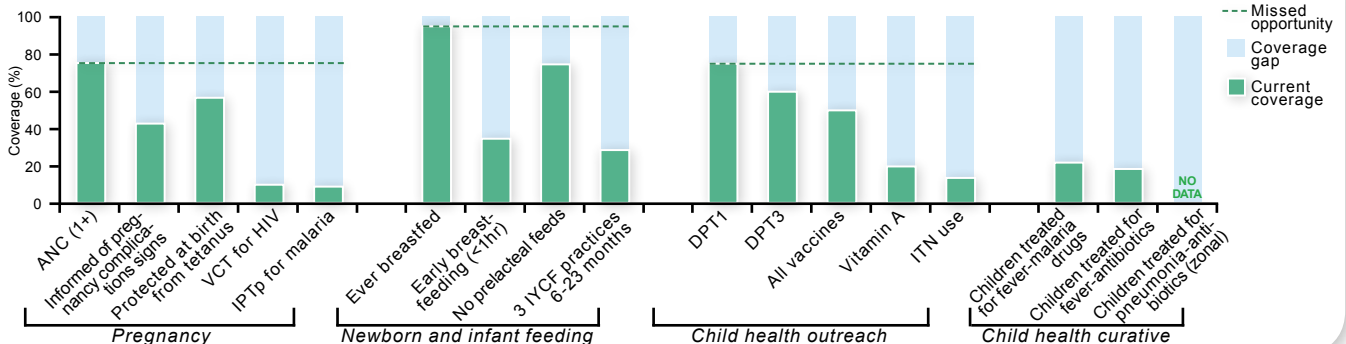
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	26
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	6 & 11
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	64%
Number of maternal lives saved	320
% neonatal lives saved	71%
Number of neonatal lives saved	3,400
% post-neonatal and child lives saved	70%
Number of post-neonatal and child lives saved	6,500



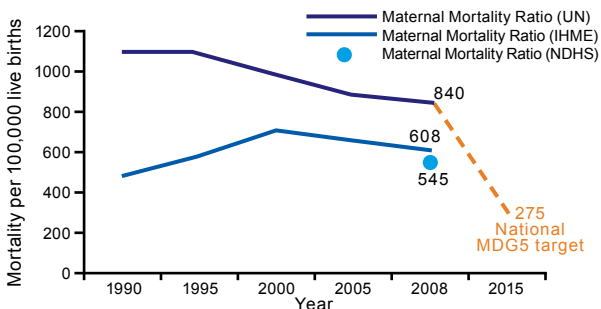
Edo State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

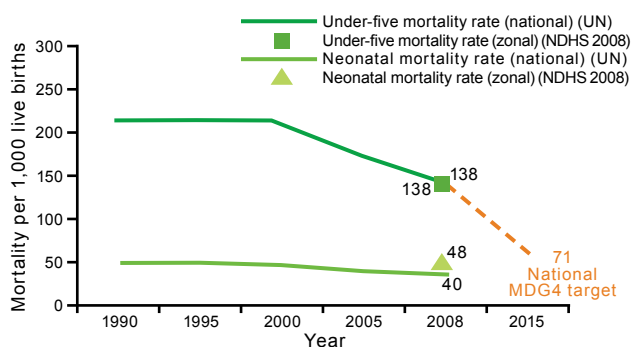
Population	3,476,000
Annual births	139,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	6,700
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	19,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

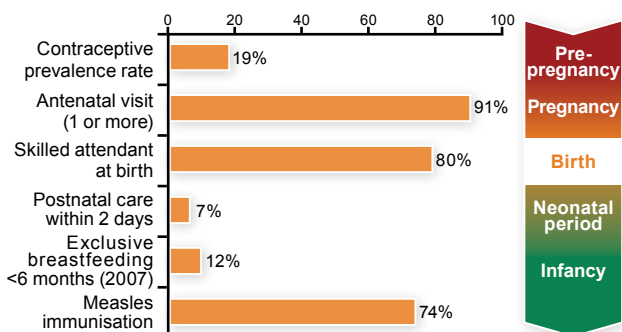


Total fertility rate	5.3
Adolescents who have begun childbearing (%)	3
Female genital cutting (%)	51
Unmet need for family planning (%)	26
C-section rate (%)	2.4

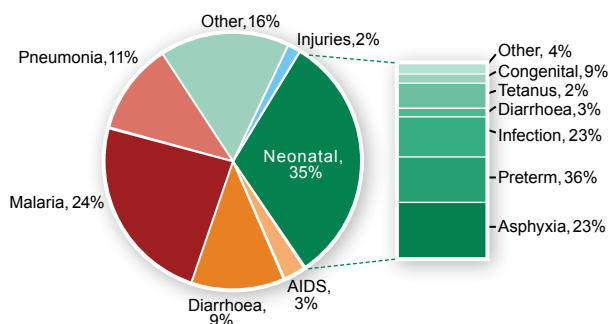
NATIONAL PROGRESS TO MDG4



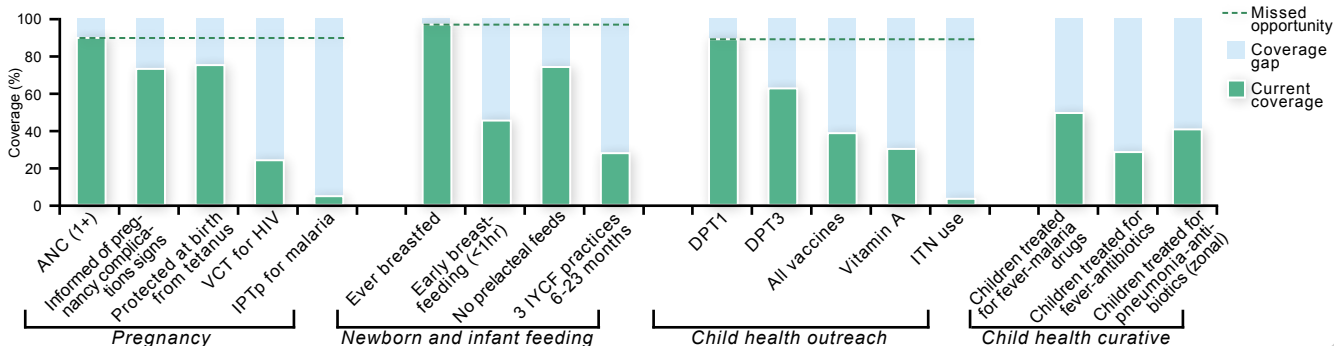
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	58
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	42 & 9
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	44%
Number of maternal lives saved	350
% neonatal lives saved	61%
Number of neonatal lives saved	4,100
% post-neonatal and child lives saved	68%
Number of post-neonatal and child lives saved	8,300



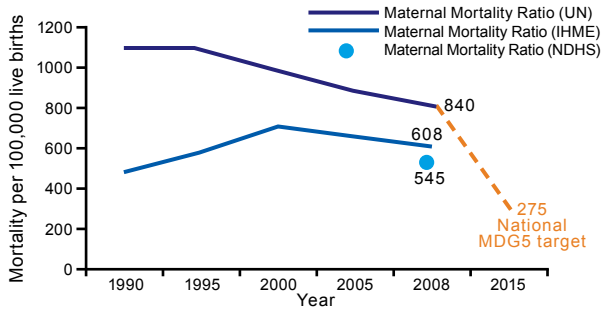
Ekiti State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

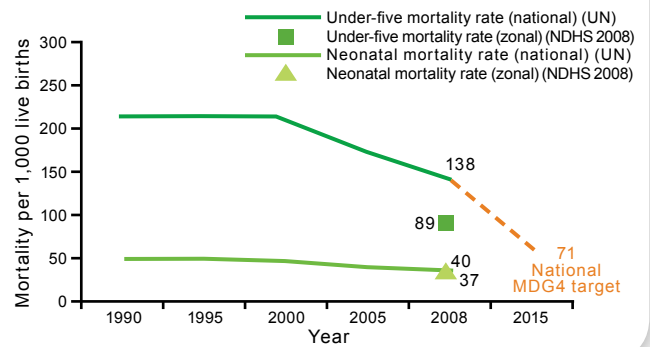
Population	2,575,000
Annual births	103,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	3,800
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	9,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	600

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

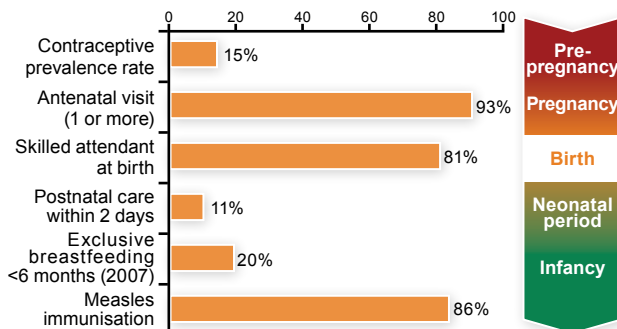


Total fertility rate	5.0
Adolescents who have begun childbearing (%)	8
Female genital cutting (%)	63
Unmet need for family planning (%)	20
C-section rate (%)	5.6

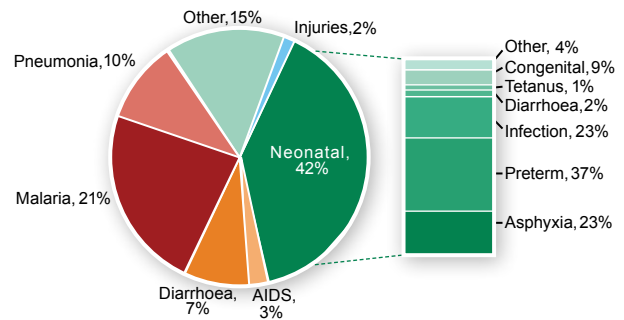
NATIONAL PROGRESS TO MDG4



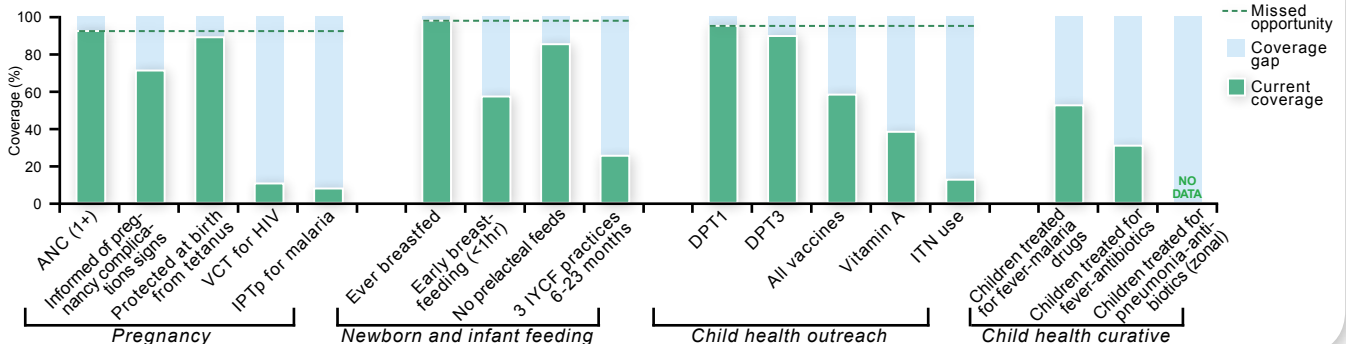
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	59
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	13 & 13
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

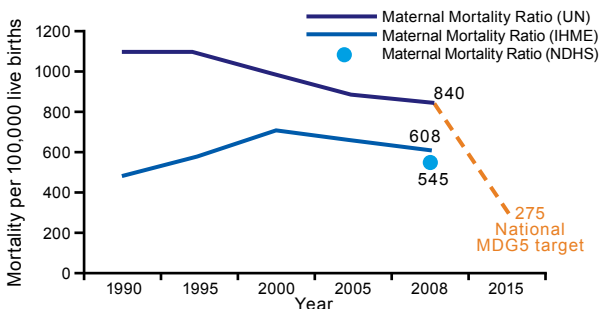
% maternal lives saved	48%
Number of maternal lives saved	290
% neonatal lives saved	63%
Number of neonatal lives saved	2,400
% post-neonatal and child lives saved	59%
Number of post-neonatal and child lives saved	3,100



Enugu State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

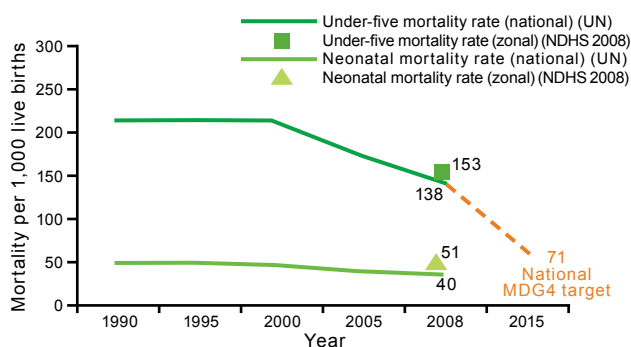


Total fertility rate	4.4
Adolescents who have begun childbearing (%)	6
Female genital cutting (%)	47
Unmet need for family planning (%)	18
C-section rate (%)	3.1

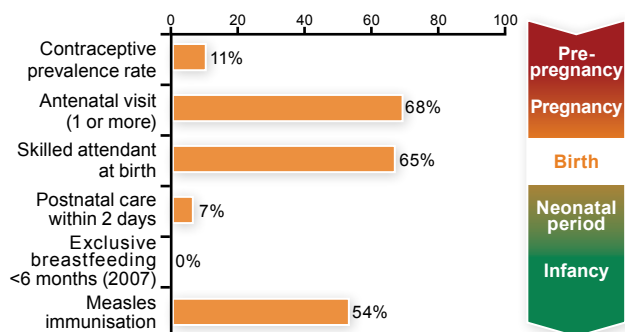
BIRTHS AND DEATHS

Population	3,518,000
Annual births	140,000
Neonatal mortality rate per 1000 live births (zonal)	51
Annual number of neonatal deaths	7,100
Under-five mortality rate per 1000 live births (zonal)	153
Annual number of under-five deaths	21,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

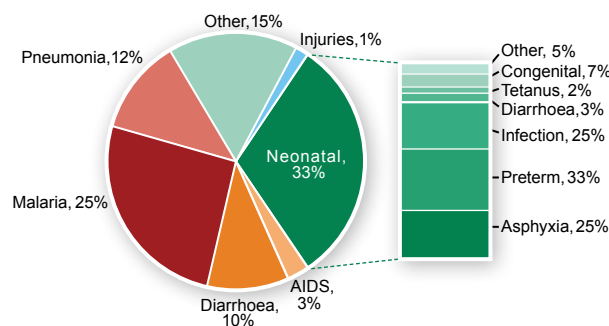
NATIONAL PROGRESS TO MDG4



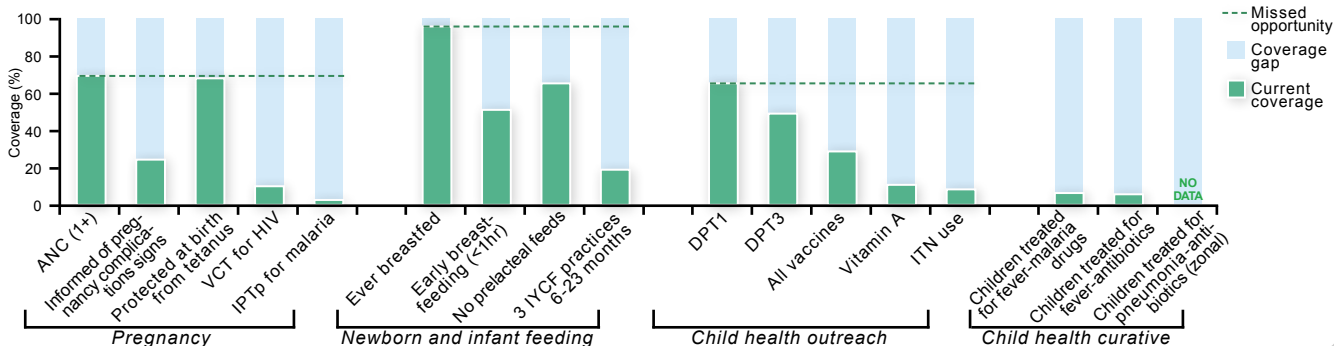
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	41
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 33
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	50%
Number of maternal lives saved	400
% neonatal lives saved	62%
Number of neonatal lives saved	4,400
% post-neonatal and child lives saved	65%
Number of post-neonatal and child lives saved	9,100



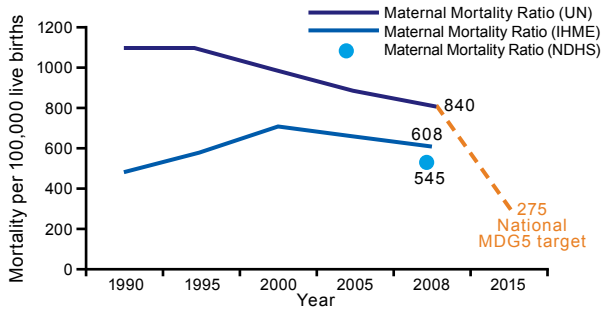
Federal Capital Territory

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

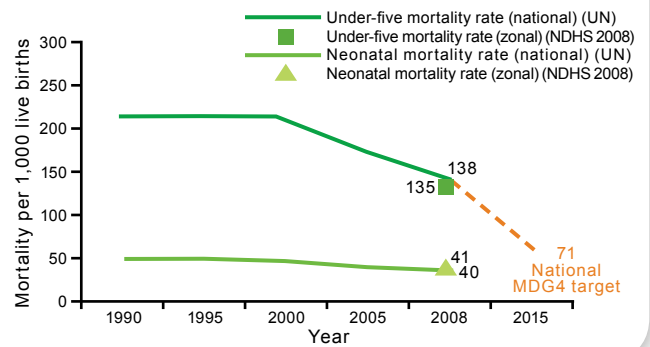
Population	1,518,000
Annual births	60,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	2,400
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	8,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	300

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

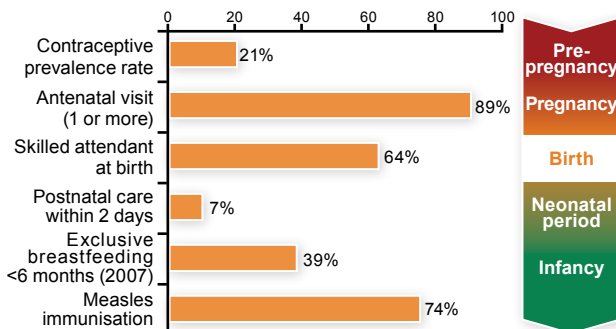


Total fertility rate	4.0
Adolescents who have begun childbearing (%)	7
Female genital cutting (%)	12
Unmet need for family planning (%)	19
C-section rate (%)	4.6

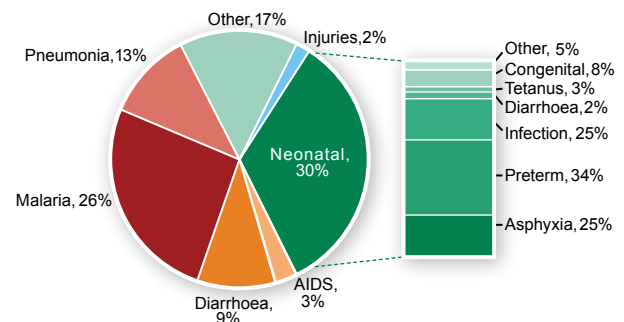
NATIONAL PROGRESS TO MDG4



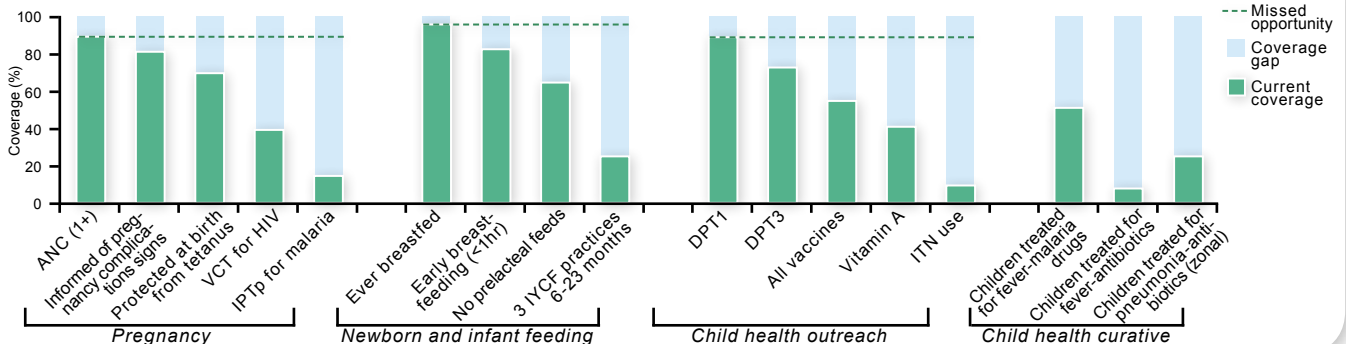
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	46
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	23 & 2
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	45%
Number of maternal lives saved	140
% neonatal lives saved	66%
Number of neonatal lives saved	1,600
% post-neonatal and child lives saved	63%
Number of post-neonatal and child lives saved	3,500



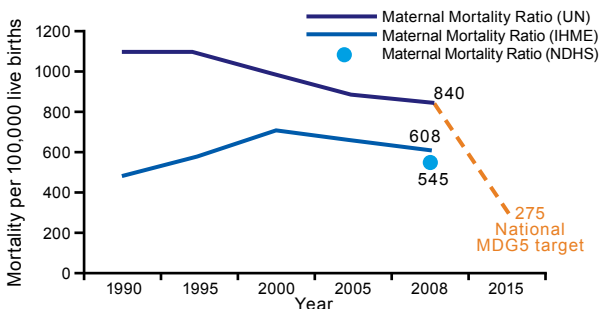
Gombe State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

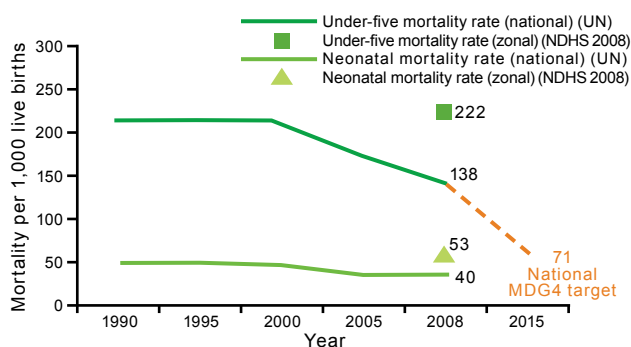
Population	2,542,000
Annual births	101,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	5,400
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	22,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	600

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

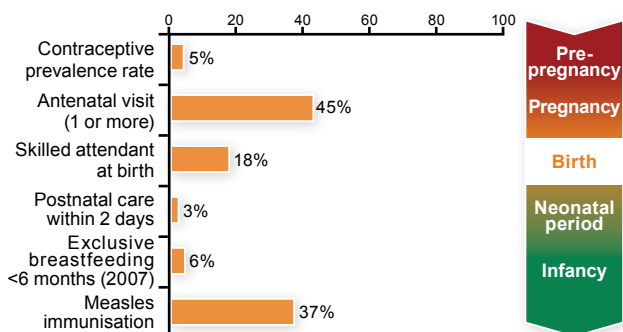


Total fertility rate	7.4
Adolescents who have begun childbearing (%)	47
Female genital cutting (%)	1
Unmet need for family planning (%)	18
C-section rate (%)	1.3

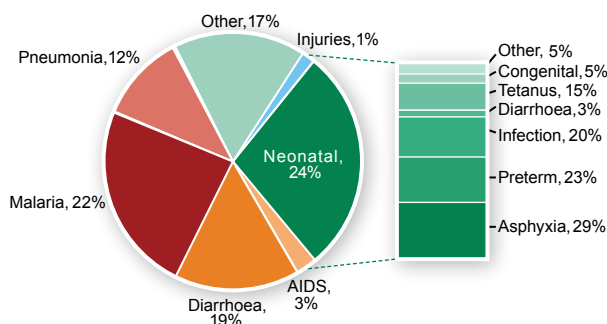
NATIONAL PROGRESS TO MDG4



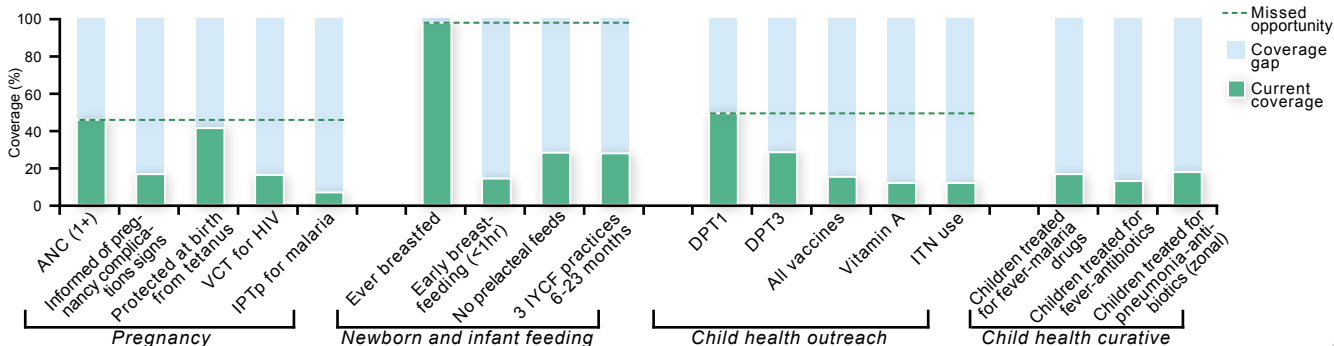
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	22
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	27 & 22
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	310
% neonatal lives saved	72%
Number of neonatal lives saved	3,900
% post-neonatal and child lives saved	80%
Number of post-neonatal and child lives saved	13,300



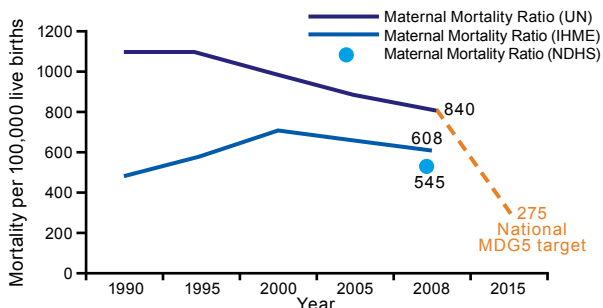
Imo State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

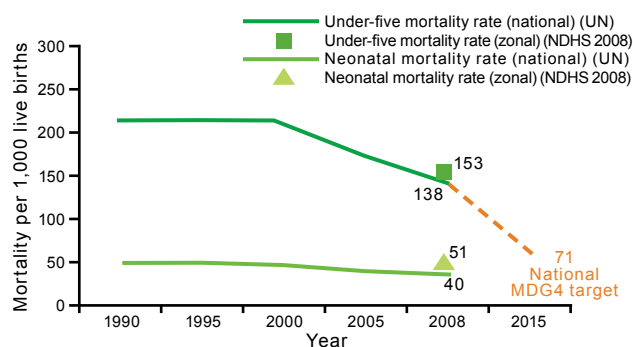
Population	4,250,000
Annual births	169,000
Neonatal mortality rate per 1000 live births (zonal)	51
Annual number of neonatal deaths	8,600
Under-five mortality rate per 1000 live births (zonal)	153
Annual number of under-five deaths	26,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	900

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

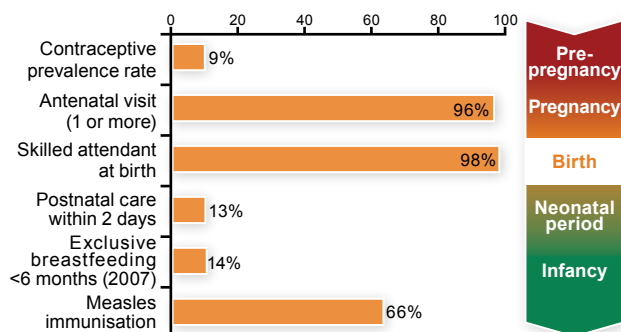


Total fertility rate	4.8
Adolescents who have begun childbearing (%)	8
Female genital cutting (%)	64
Unmet need for family planning (%)	18
C-section rate (%)	5.4

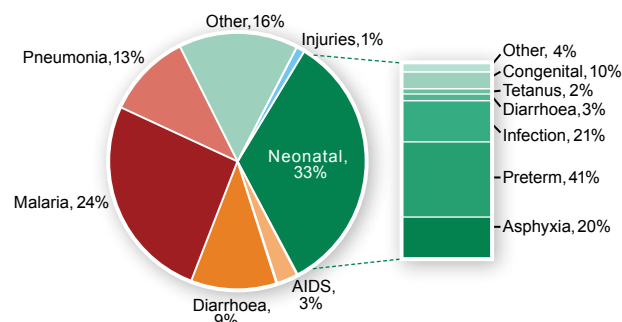
NATIONAL PROGRESS TO MDG4



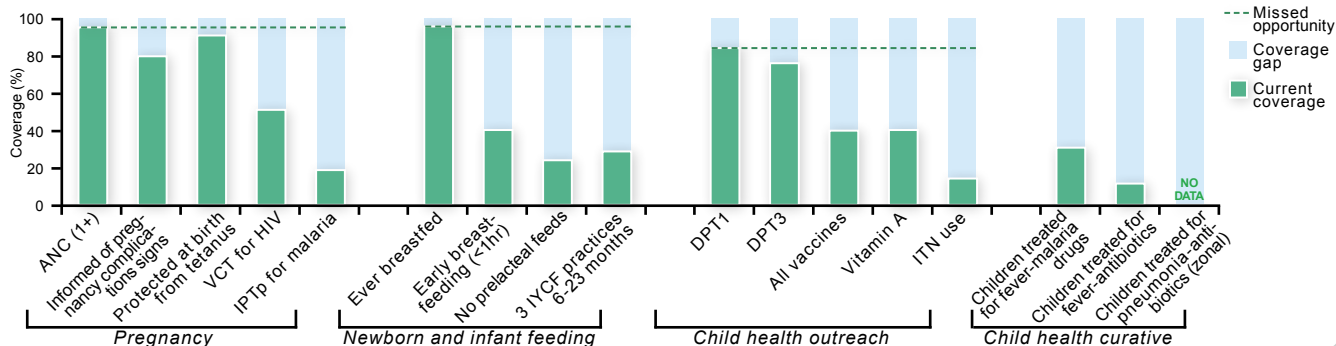
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	61
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	23 & 4
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	45%
Number of maternal lives saved	410
% neonatal lives saved	56%
Number of neonatal lives saved	4,800
% post-neonatal and child lives saved	66%
Number of post-neonatal and child lives saved	11,500



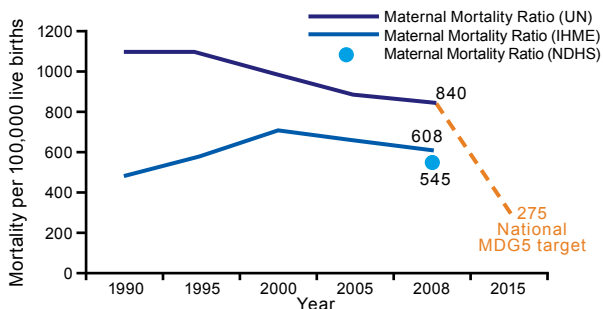
Jigawa State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

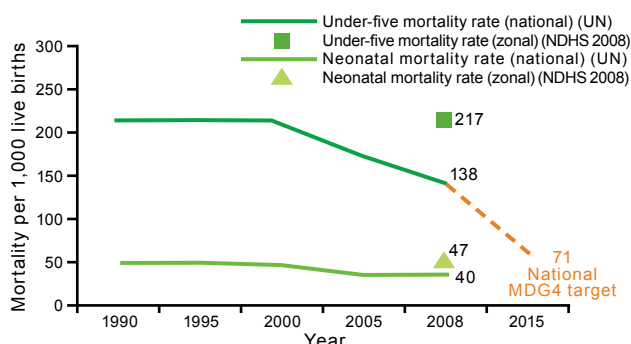
Population	4,697,000
Annual births	187,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	8,800
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	41,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1000

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

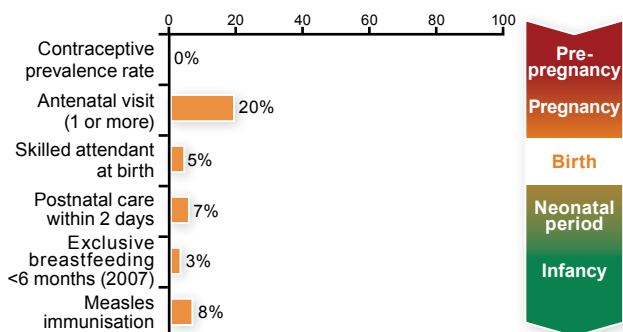


Total fertility rate	7.1
Adolescents who have begun childbearing (%)	45
Female genital cutting (%)	0
Unmet need for family planning (%)	21
C-section rate (%)	0.0

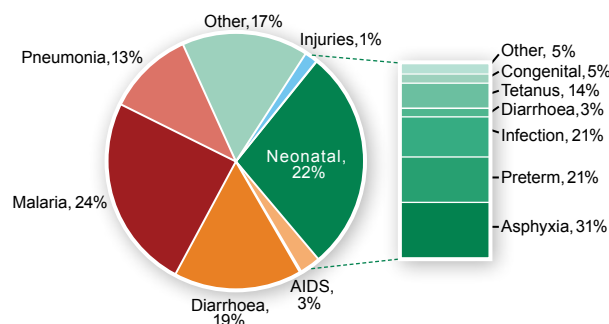
NATIONAL PROGRESS TO MDG4



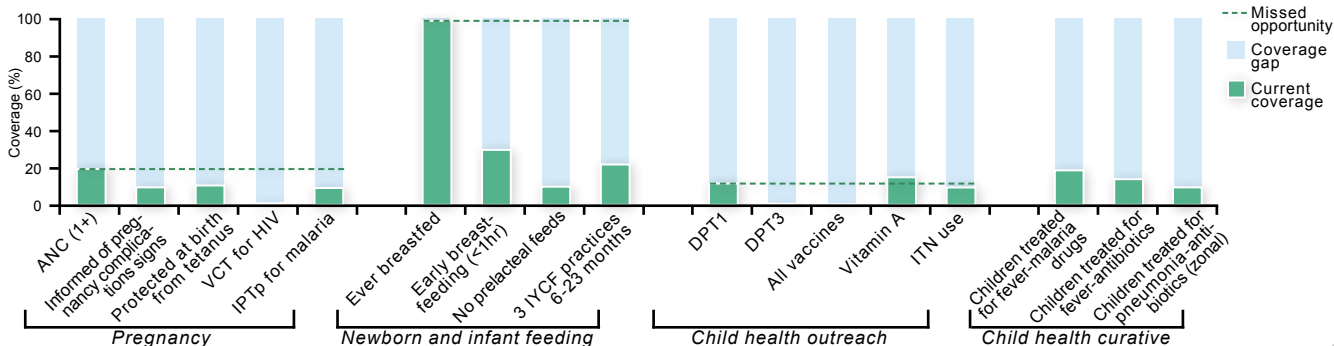
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	11
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	7 & 10
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	520
% neonatal lives saved	73%
Number of neonatal lives saved	6,400
% post-neonatal and child lives saved	76%
Number of post-neonatal and child lives saved	24,600



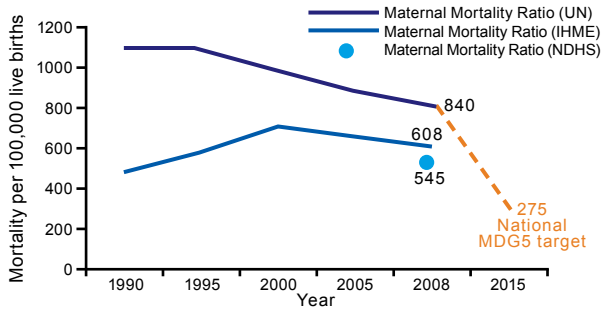
Kaduna State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

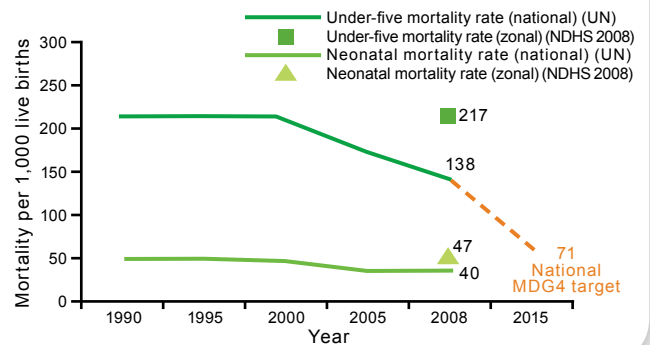
Population	6,552,000
Annual births	262,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	12,300
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	57,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1400

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

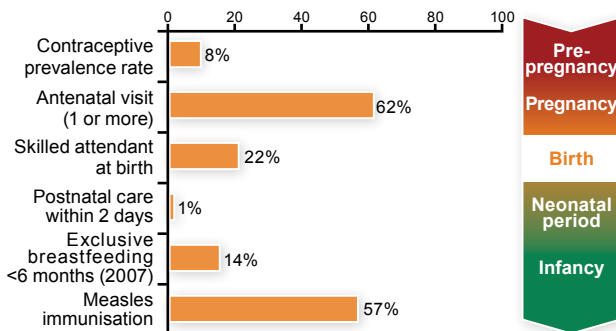


Total fertility rate	6.3
Adolescents who have begun childbearing (%)	32
Female genital cutting (%)	2
Unmet need for family planning (%)	21
C-section rate (%)	1.0

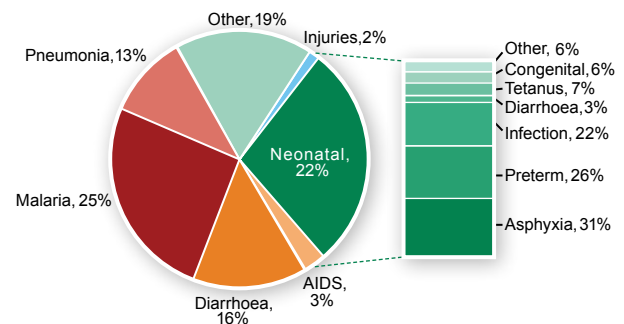
NATIONAL PROGRESS TO MDG4



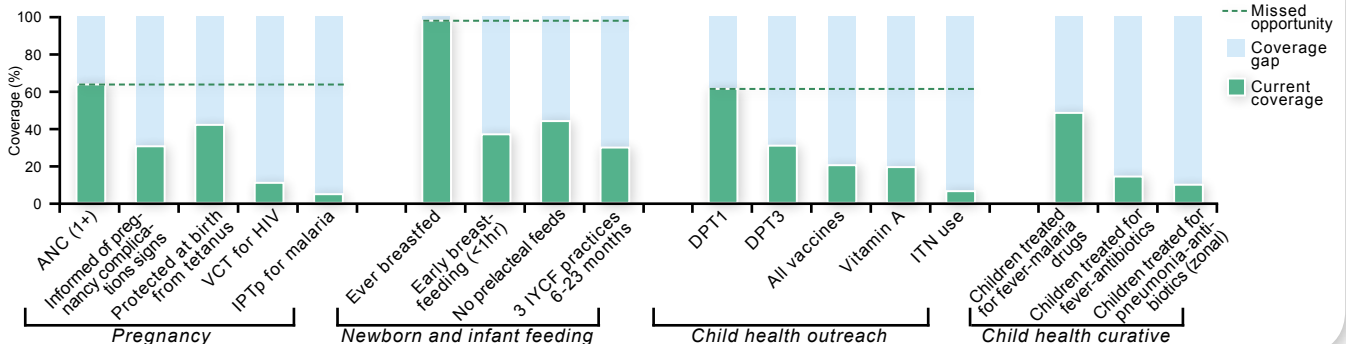
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	26
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	88 & 83
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	720
% neonatal lives saved	71%
Number of neonatal lives saved	8,800
% post-neonatal and child lives saved	75%
Number of post-neonatal and child lives saved	33,700



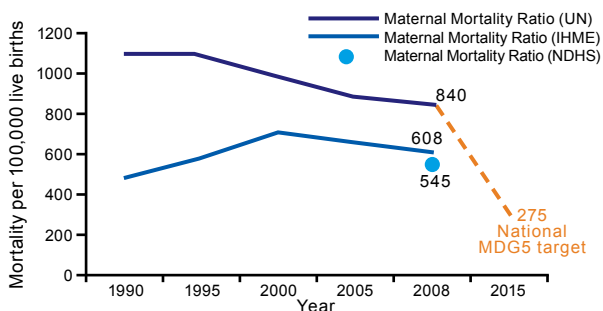
Kano State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

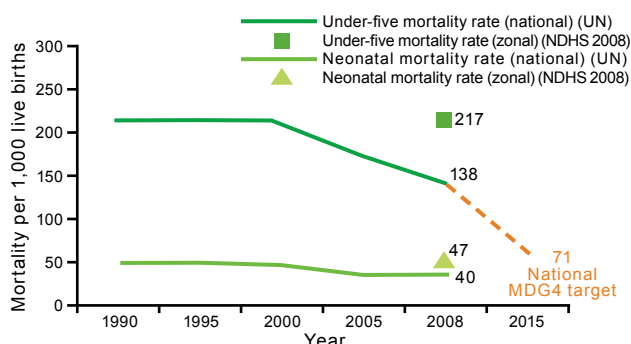
Population	10,135,000
Annual births	404,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	19,000
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	88,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	2200

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

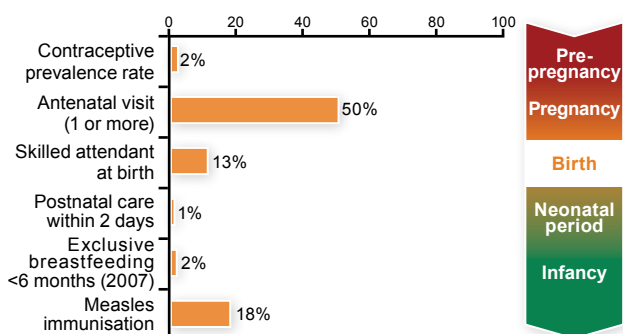


Total fertility rate	8.1
Adolescents who have begun childbearing (%)	42
Female genital cutting (%)	74
Unmet need for family planning (%)	21
C-section rate (%)	0.6

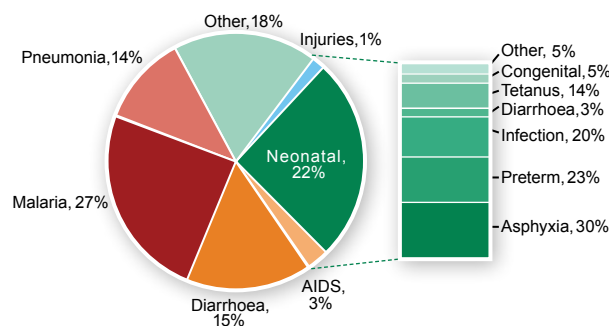
NATIONAL PROGRESS TO MDG4



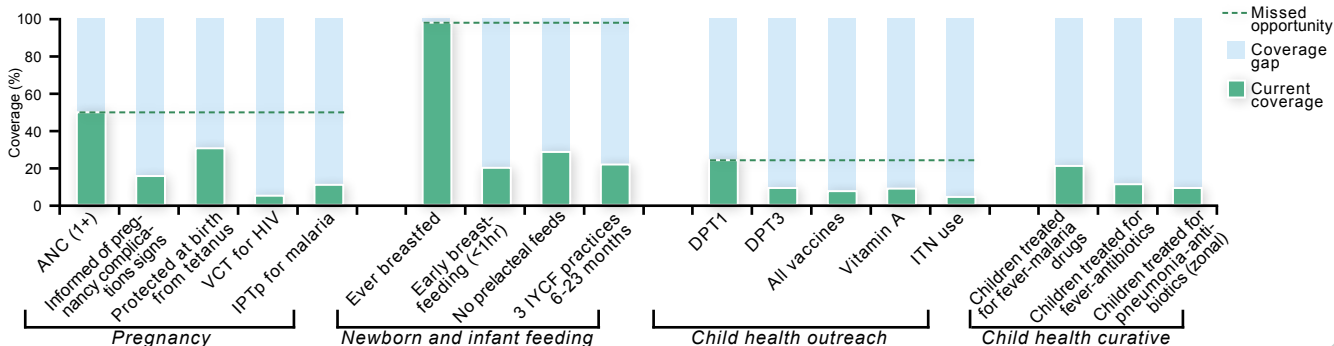
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

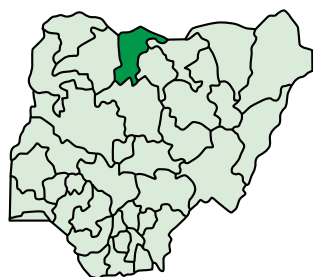


HEALTH SYSTEMS

Health information: Birth registration (%)	31
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	42 & 16
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	1,140
% neonatal lives saved	73%
Number of neonatal lives saved	13,800
% post-neonatal and child lives saved	70%
Number of post-neonatal and child lives saved	48,300



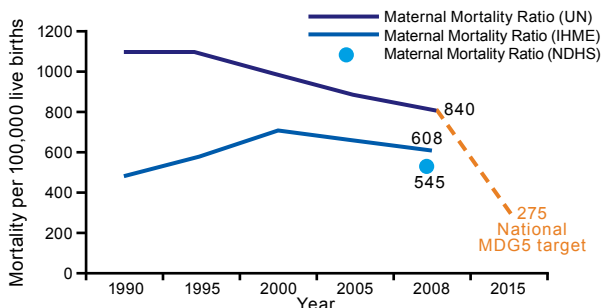
Katsina State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

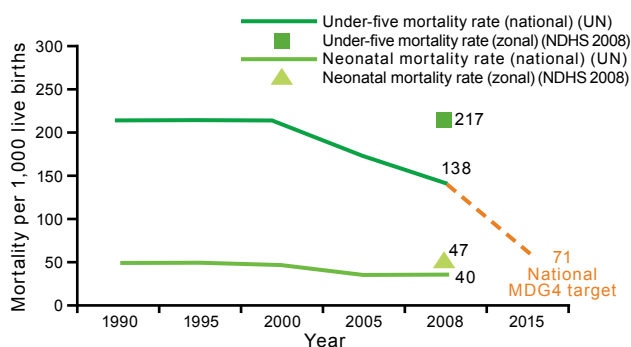
Population	6,256,000
Annual births	249,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	11,700
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	54,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1400

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

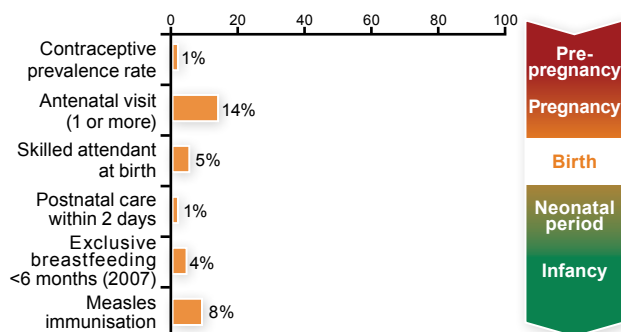


Total fertility rate	7.2
Adolescents who have begun childbearing (%)	65
Female genital cutting (%)	0
Unmet need for family planning (%)	21
C-section rate (%)	0.1

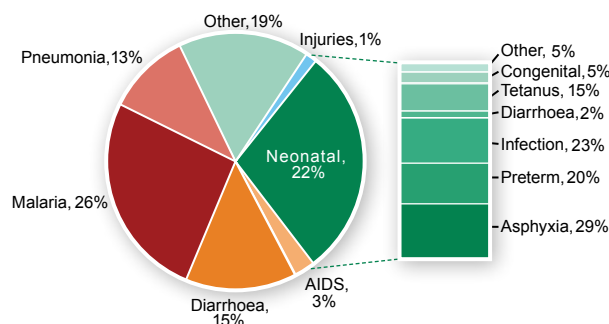
NATIONAL PROGRESS TO MDG4



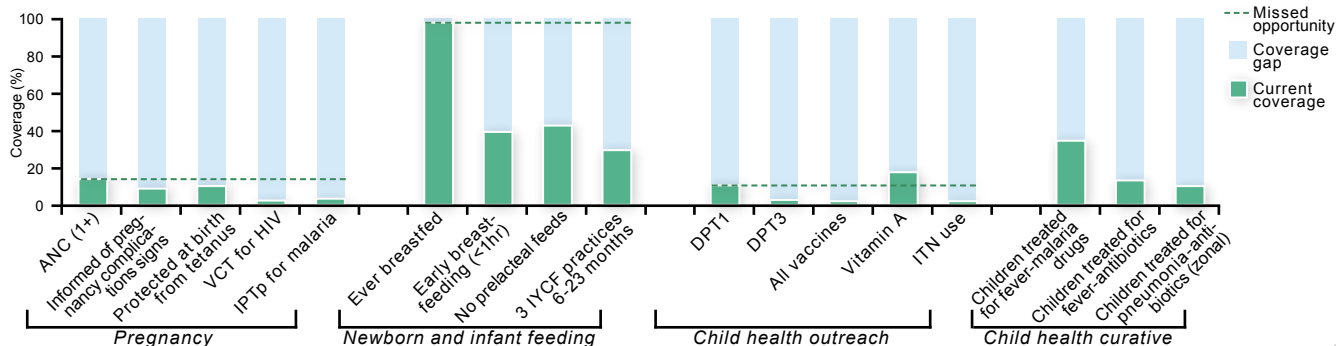
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	30
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	23 & 5
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	730
% neonatal lives saved	73%
Number of neonatal lives saved	8,500
% post-neonatal and child lives saved	77%
Number of post-neonatal and child lives saved	32,700



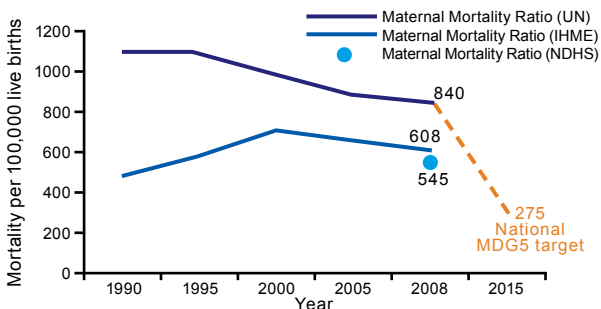
Kebbi State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

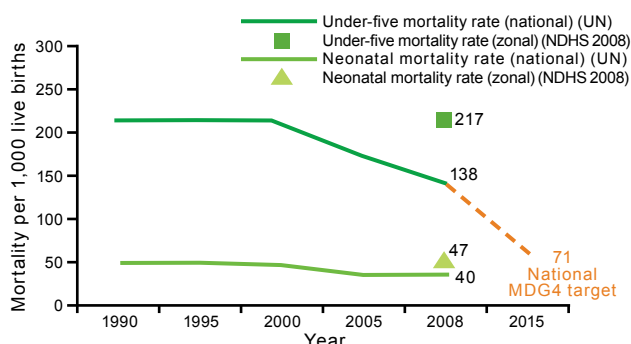
Population	3,498,000
Annual births	139,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	6,500
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	30,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

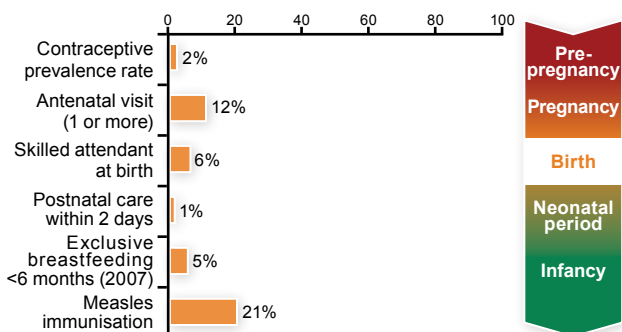


Total fertility rate	6.0
Adolescents who have begun childbearing (%)	39
Female genital cutting (%)	0
Unmet need for family planning (%)	21
C-section rate (%)	0.1

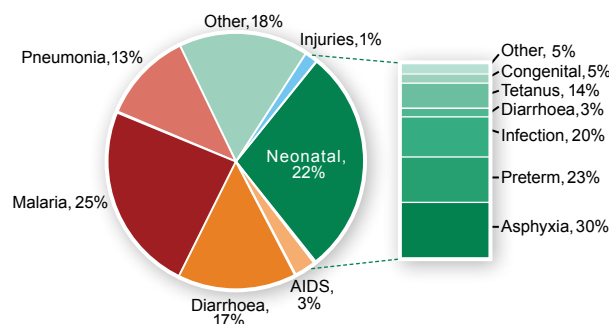
NATIONAL PROGRESS TO MDG4



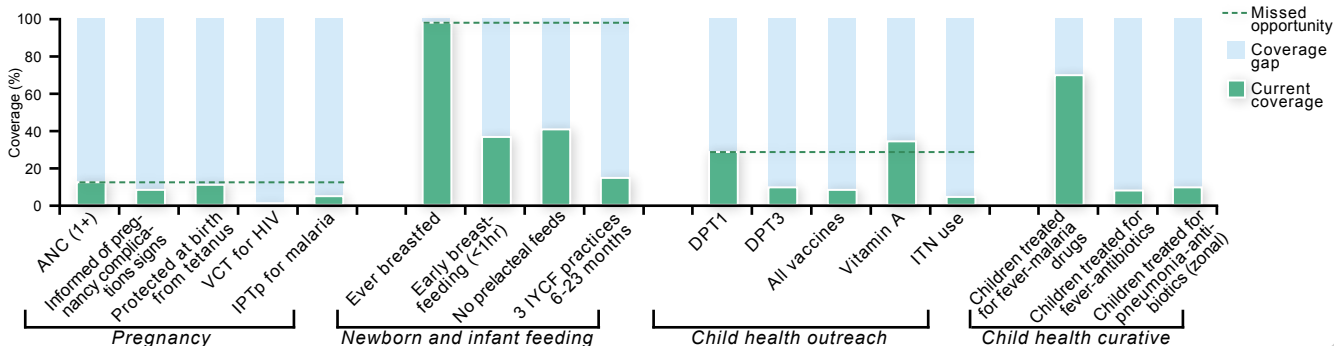
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	13
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	7 & 4
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	420
% neonatal lives saved	73%
Number of neonatal lives saved	4,800
% post-neonatal and child lives saved	79%
Number of post-neonatal and child lives saved	18,600



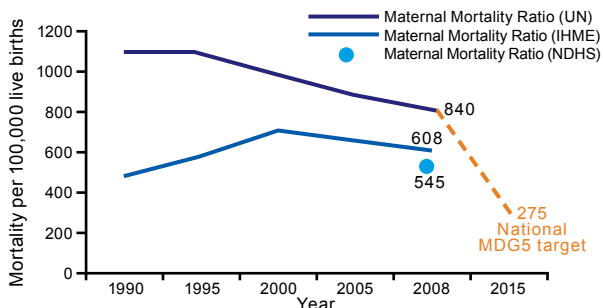
Kogi State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

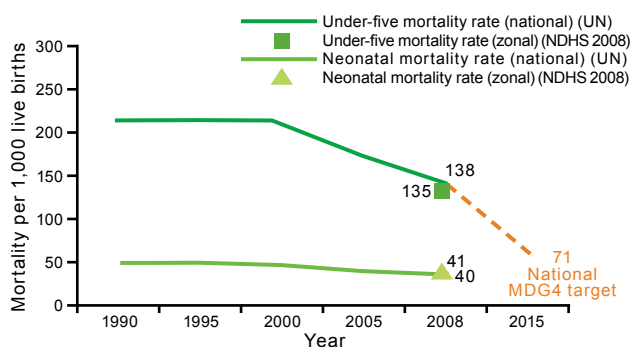
Population	3,541,000
Annual births	141,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	5,700
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	19,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

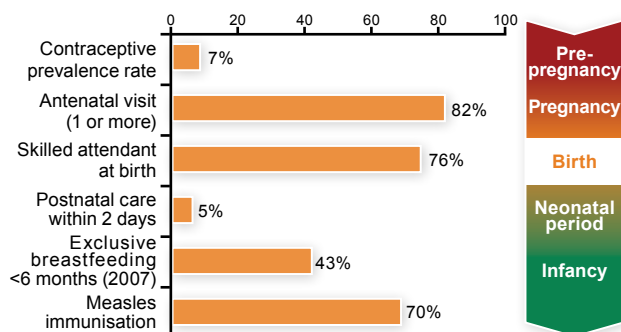


Total fertility rate	4.2
Adolescents who have begun childbearing (%)	15
Female genital cutting (%)	1
Unmet need for family planning (%)	19
C-section rate (%)	3.8

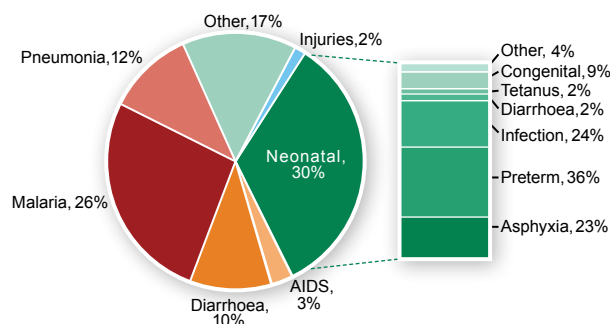
NATIONAL PROGRESS TO MDG4



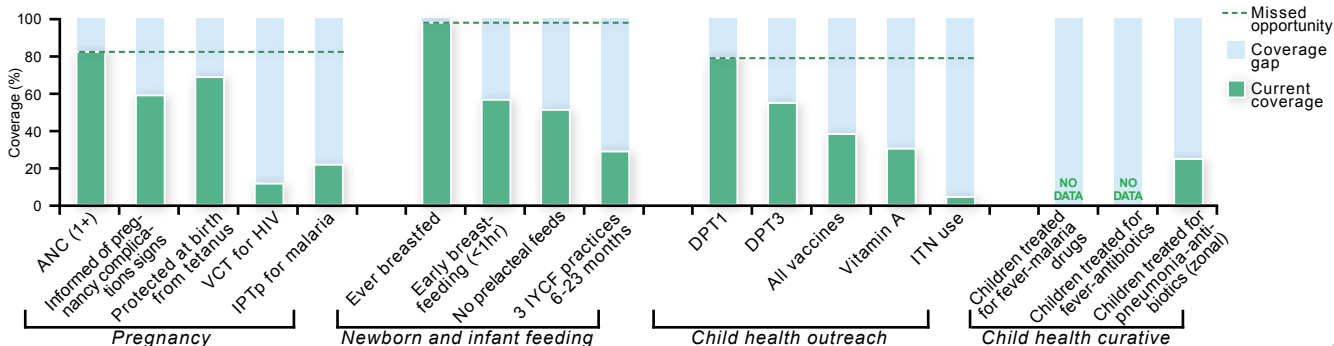
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	40
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	33 & 22
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

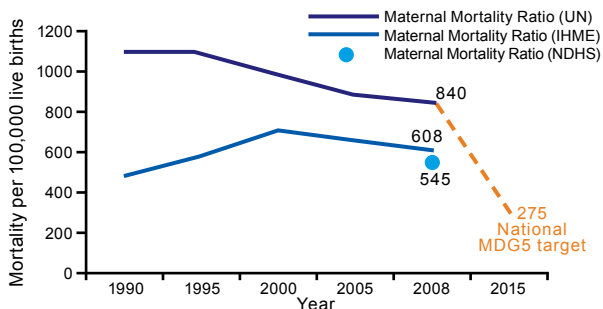
% maternal lives saved	45%
Number of maternal lives saved	360
% neonatal lives saved	64%
Number of neonatal lives saved	3,700
% post-neonatal and child lives saved	67%
Number of post-neonatal and child lives saved	8,900



Kwara State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

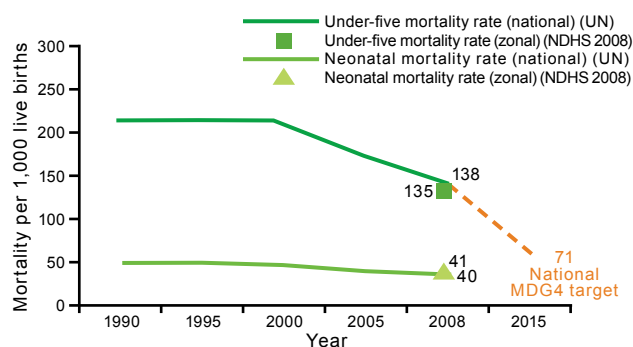


Total fertility rate	4.5
Adolescents who have begun childbearing (%)	30
Female genital cutting (%)	67
Unmet need for family planning (%)	19
C-section rate (%)	2.0

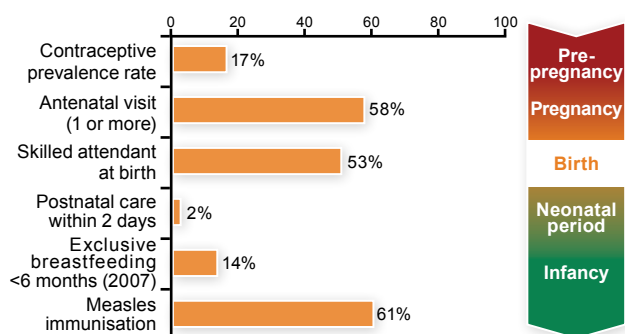
BIRTHS AND DEATHS

Population	2,561,000
Annual births	102,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	4,100
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	14,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	600

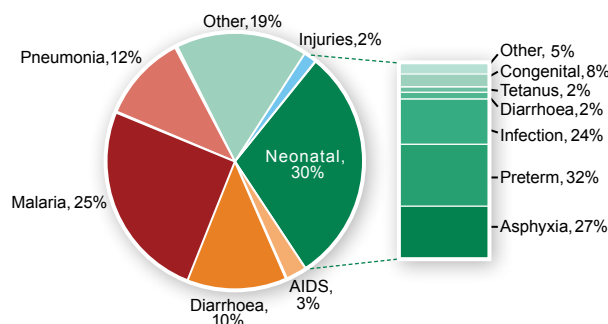
NATIONAL PROGRESS TO MDG4



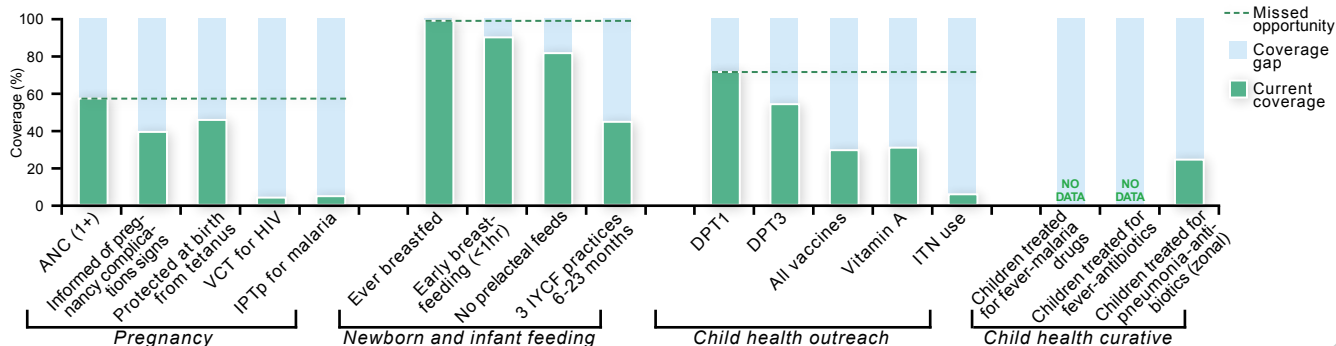
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	38
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 25
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	43%
Number of maternal lives saved	260
% neonatal lives saved	65%
Number of neonatal lives saved	2,700
% post-neonatal and child lives saved	66%
Number of post-neonatal and child lives saved	6,500



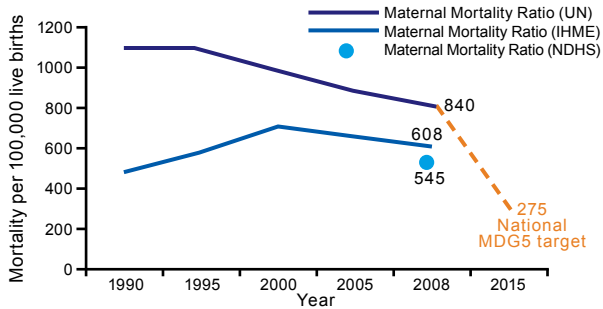
Lagos State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

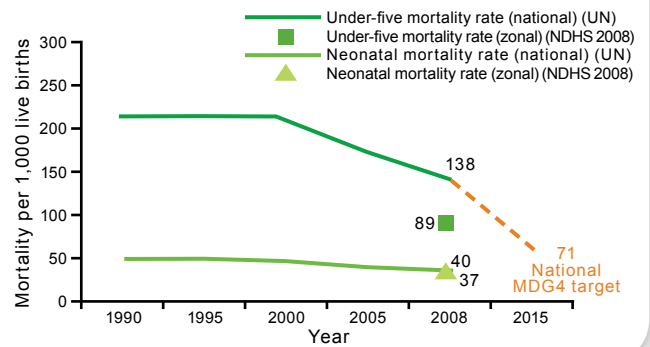
Population	9,735,000
Annual births	388,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	14,400
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	35,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	2100

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

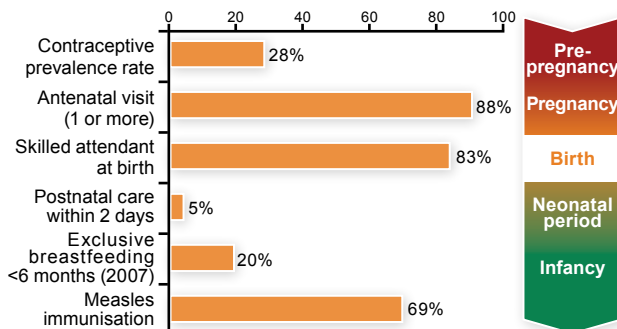


Total fertility rate	4.0
Adolescents who have begun childbearing (%)	5
Female genital cutting (%)	36
Unmet need for family planning (%)	20
C-section rate (%)	5.2

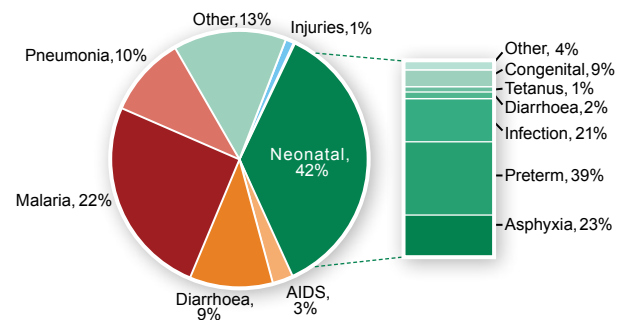
NATIONAL PROGRESS TO MDG4



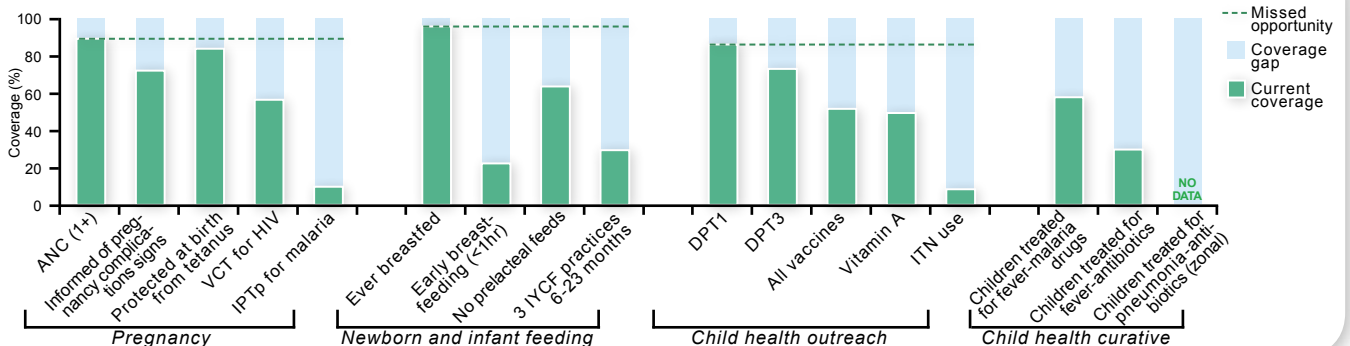
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	53
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 5
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

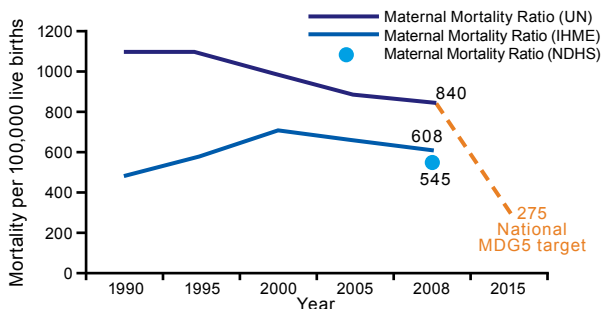
% maternal lives saved	45%
Number of maternal lives saved	950
% neonatal lives saved	59%
Number of neonatal lives saved	8,500
% post-neonatal and child lives saved	61%
Number of post-neonatal and child lives saved	12,600



Nasarawa State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

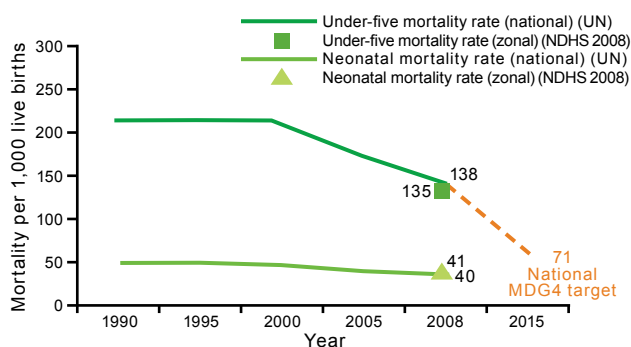


Total fertility rate	4.7
Adolescents who have begun childbearing (%)	20
Female genital cutting (%)	11
Unmet need for family planning (%)	19
C-section rate (%)	3.0

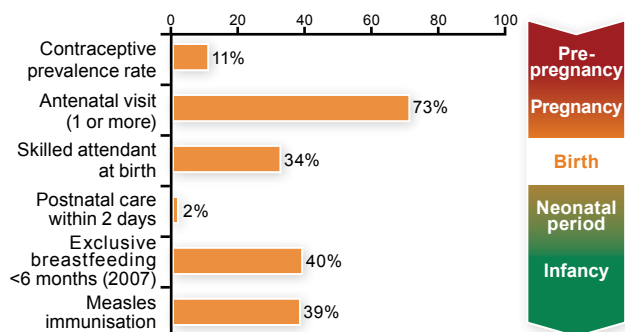
BIRTHS AND DEATHS

Population	2,012,000
Annual births	80,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	3,200
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	11,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	400

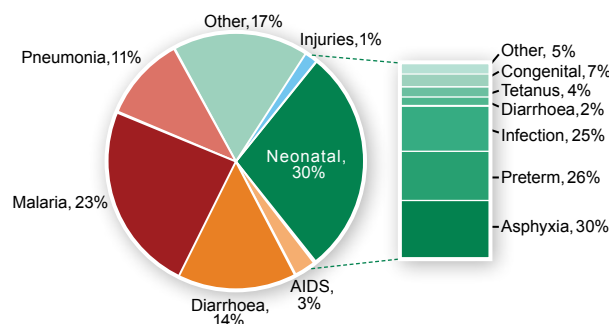
NATIONAL PROGRESS TO MDG4



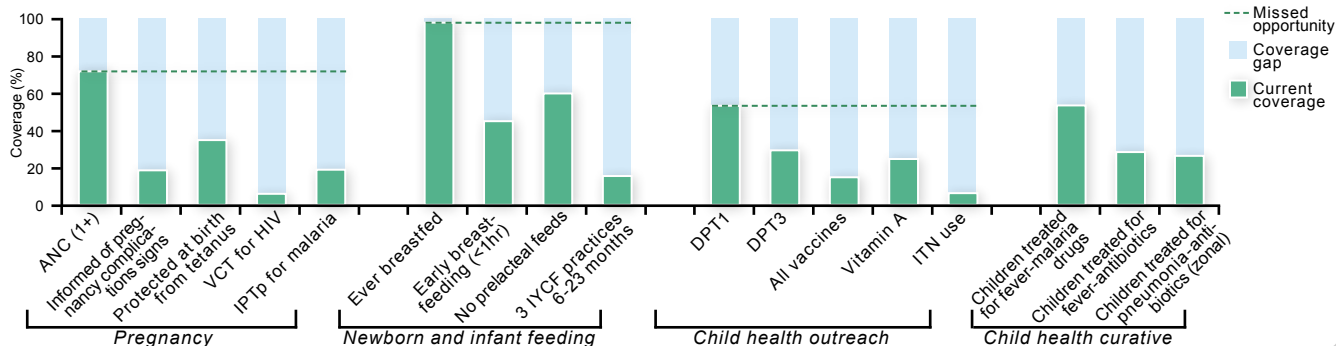
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	21
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	11 & 9
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	54%
Number of maternal lives saved	220
% neonatal lives saved	73%
Number of neonatal lives saved	2,300
% post-neonatal and child lives saved	70%
Number of post-neonatal and child lives saved	5,500



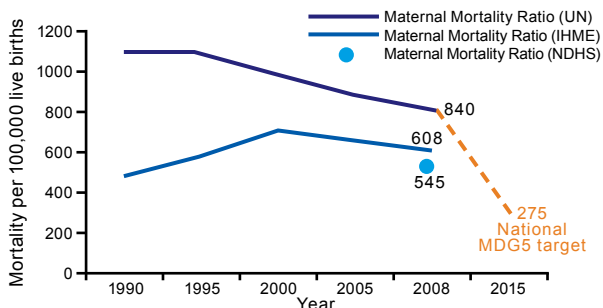
Niger State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

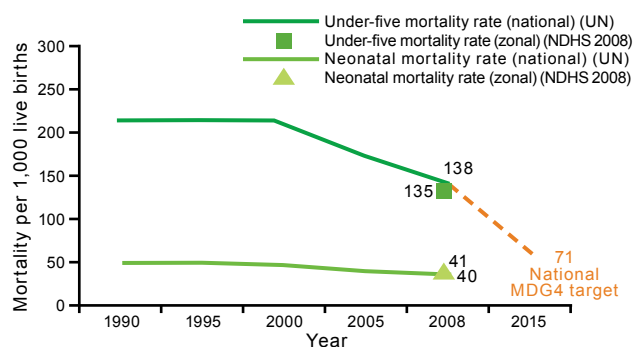
Population	4,267,000
Annual births	170,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	6,900
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	23,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1000

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

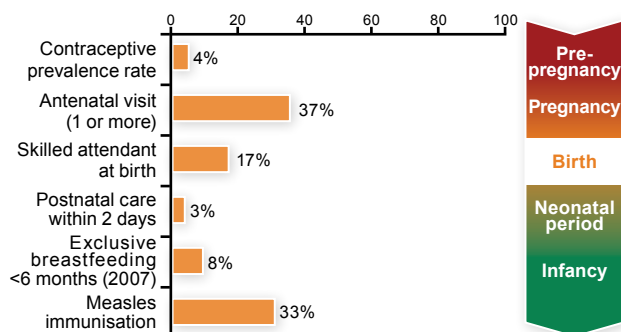


Total fertility rate	7.5
Adolescents who have begun childbearing (%)	41
Female genital cutting (%)	3
Unmet need for family planning (%)	19
C-section rate (%)	0.9

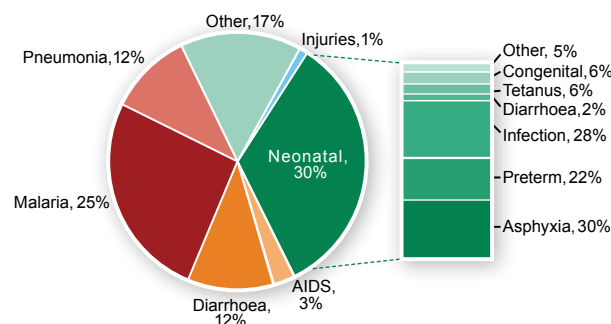
NATIONAL PROGRESS TO MDG4



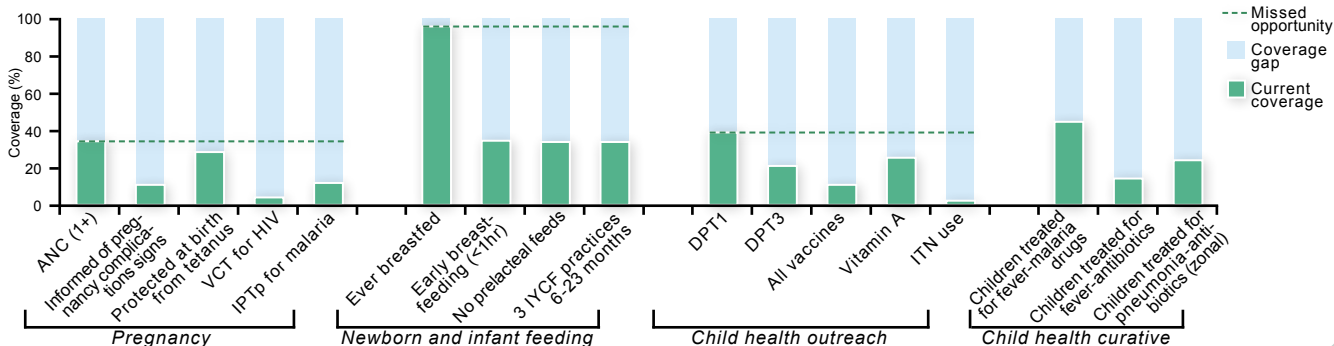
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	15
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	70 & 48
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

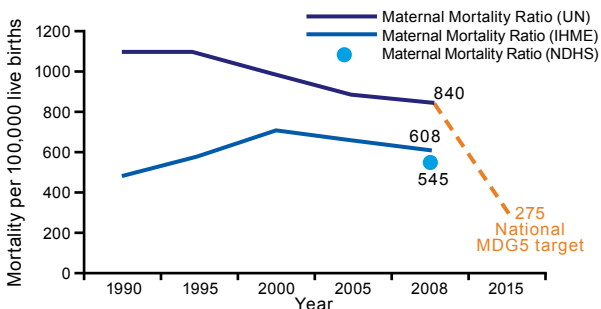
% maternal lives saved	54%
Number of maternal lives saved	540
% neonatal lives saved	72%
Number of neonatal lives saved	5,000
% post-neonatal and child lives saved	64%
Number of post-neonatal and child lives saved	10,300



Ogun State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

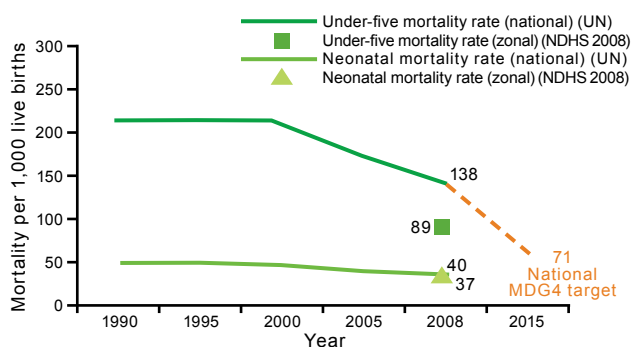


Total fertility rate	5.4
Adolescents who have begun childbearing (%)	12
Female genital cutting (%)	23
Unmet need for family planning (%)	20
C-section rate (%)	1.7

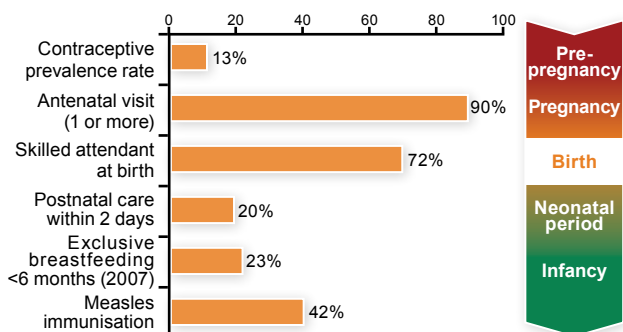
BIRTHS AND DEATHS

Population	4,027,000
Annual births	161,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	6,000
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	14,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	900

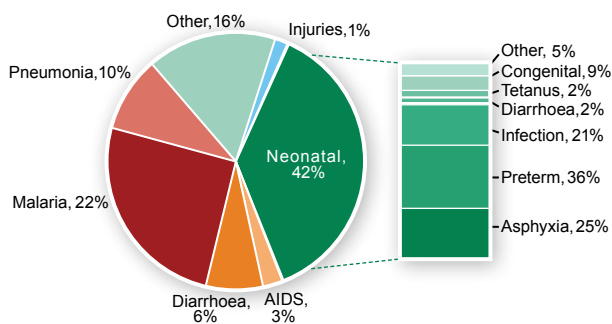
NATIONAL PROGRESS TO MDG4



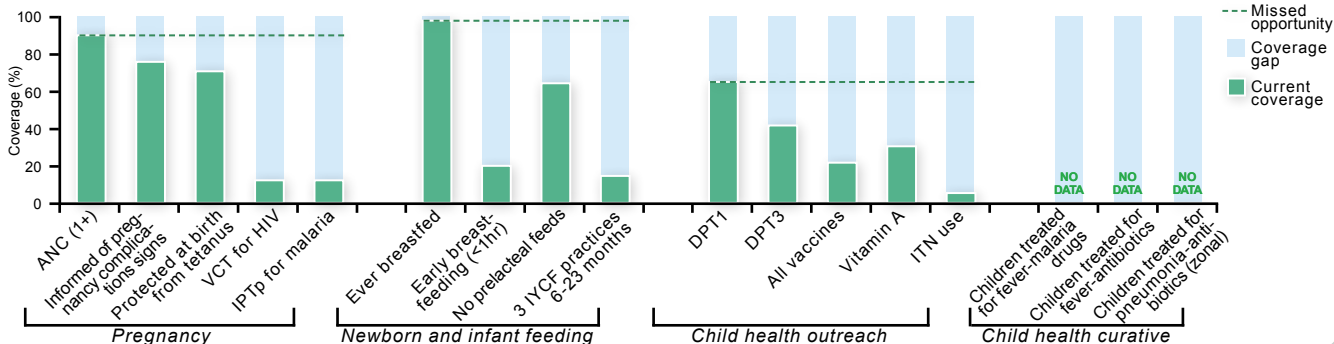
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	46
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	27 & 14
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	48%
Number of maternal lives saved	430
% neonatal lives saved	63%
Number of neonatal lives saved	3,800
% post-neonatal and child lives saved	58%
Number of post-neonatal and child lives saved	4,600



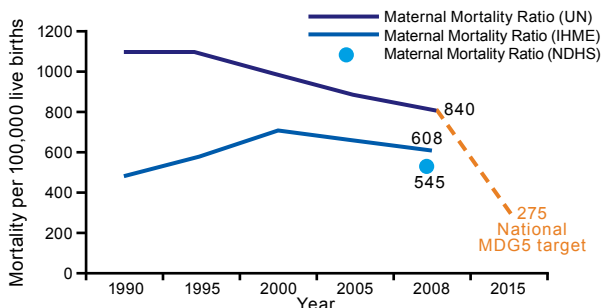
Ondo State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

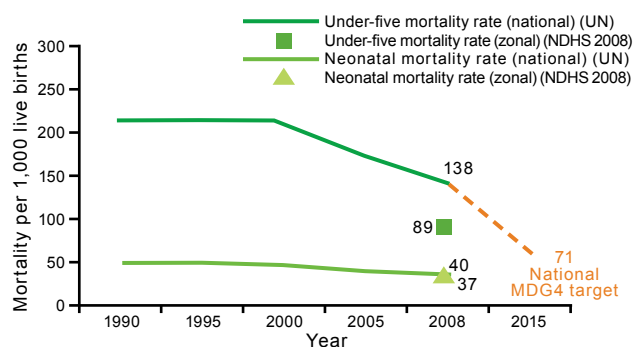
Population	3,717,000
Annual births	148,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	5,500
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	13,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

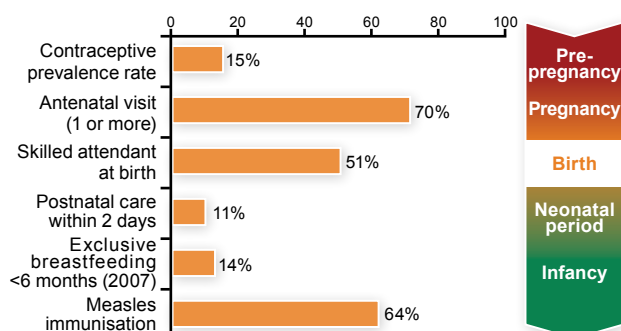


Total fertility rate	4.9
Adolescents who have begun childbearing (%)	8
Female genital cutting (%)	53
Unmet need for family planning (%)	20
C-section rate (%)	1.5

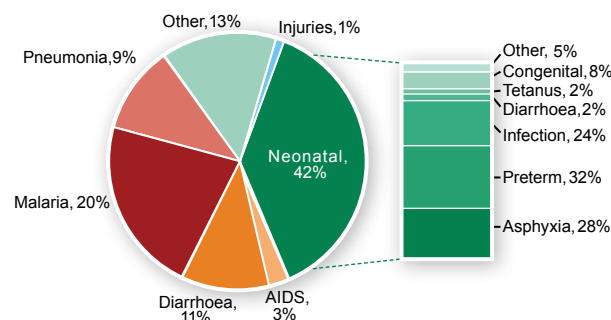
NATIONAL PROGRESS TO MDG4



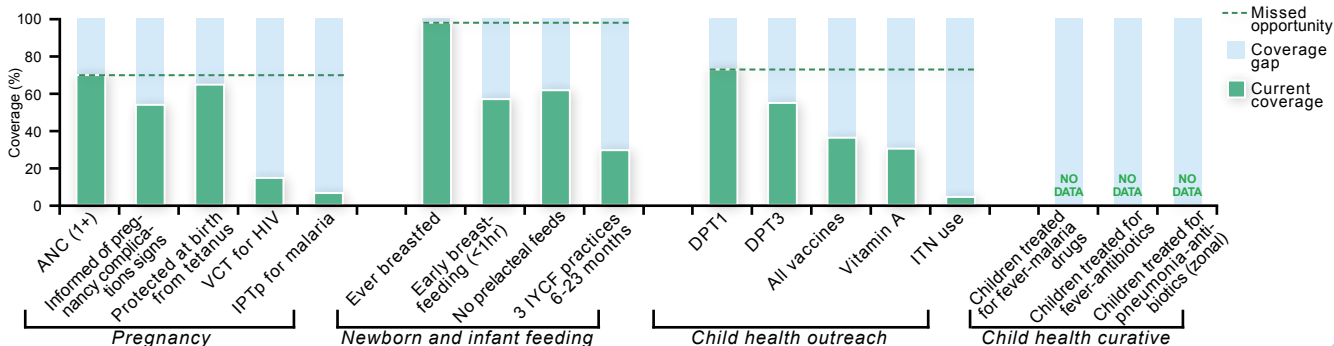
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	36
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 26
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

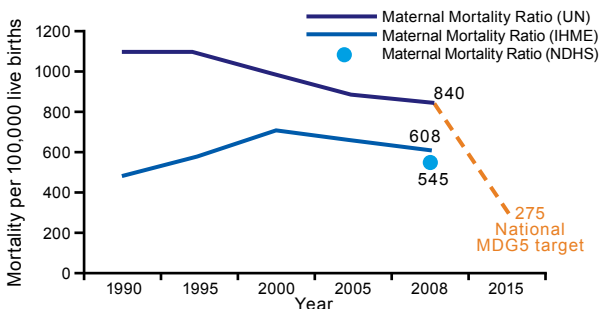
% maternal lives saved	52%
Number of maternal lives saved	420
% neonatal lives saved	66%
Number of neonatal lives saved	3,600
% post-neonatal and child lives saved	73%
Number of post-neonatal and child lives saved	5,500



Oshun State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

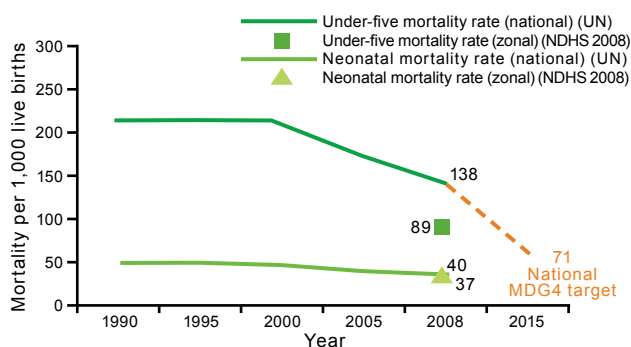


Total fertility rate	4.0
Adolescents who have begun childbearing (%)	5
Female genital cutting (%)	83
Unmet need for family planning (%)	20
C-section rate (%)	5.0

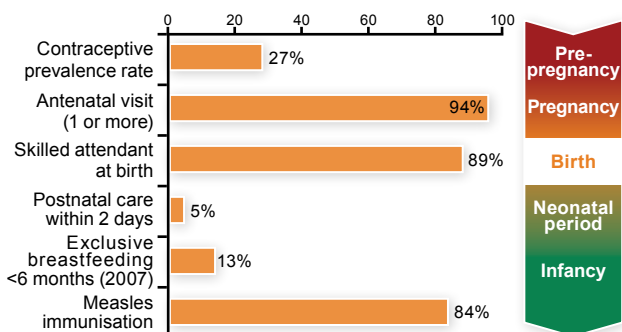
BIRTHS AND DEATHS

Population	3,698,000
Annual births	147,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	5,400
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	13,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

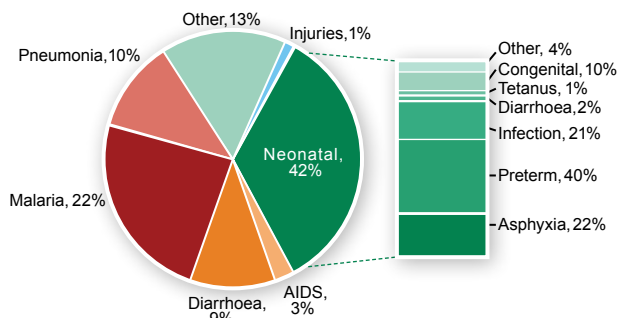
NATIONAL PROGRESS TO MDG4



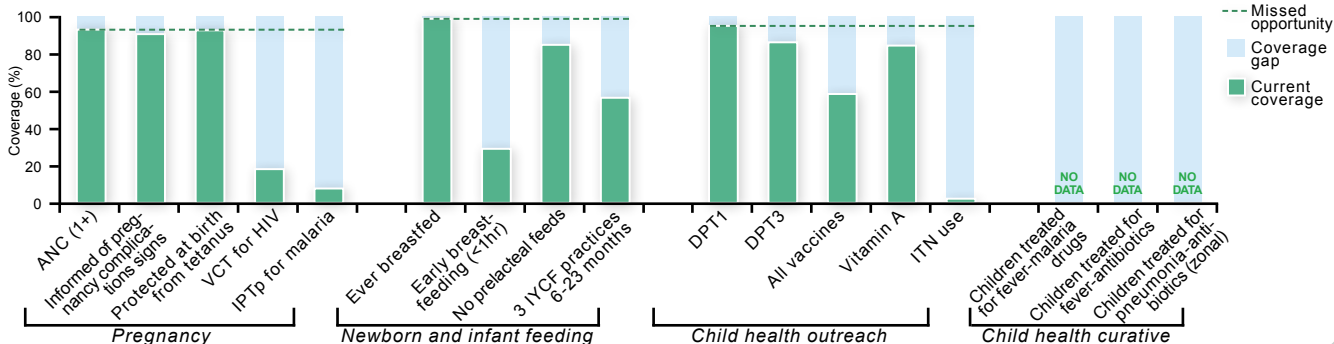
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

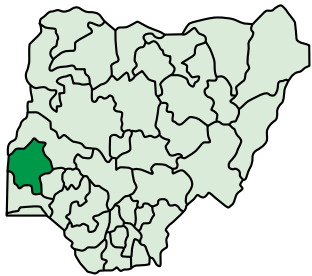


HEALTH SYSTEMS

Health information: Birth registration (%)	59
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	62 & 52
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	47%
Number of maternal lives saved	380
% neonatal lives saved	63%
Number of neonatal lives saved	3,400
% post-neonatal and child lives saved	70%
Number of post-neonatal and child lives saved	5,300



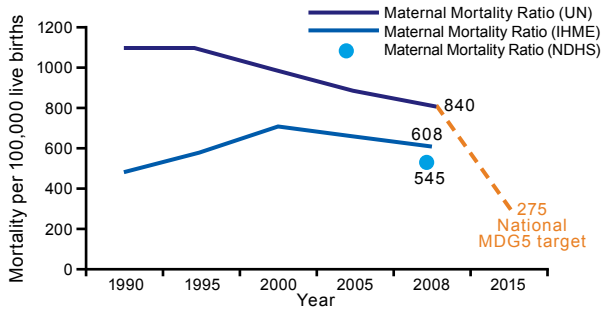
Oyo State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

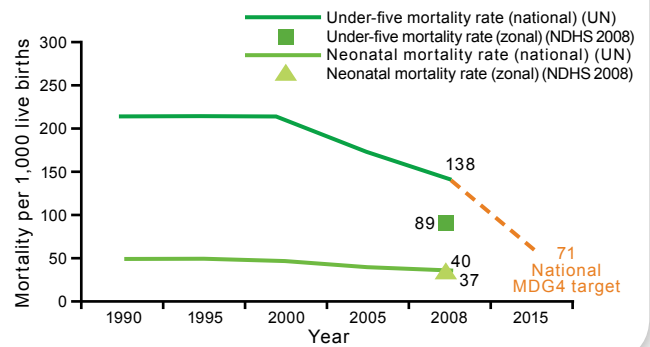
Population	6,039,000
Annual births	241,000
Neonatal mortality rate per 1000 live births (zonal)	37
Annual number of neonatal deaths	8,900
Under-five mortality rate per 1000 live births (zonal)	89
Annual number of under-five deaths	21,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1300

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

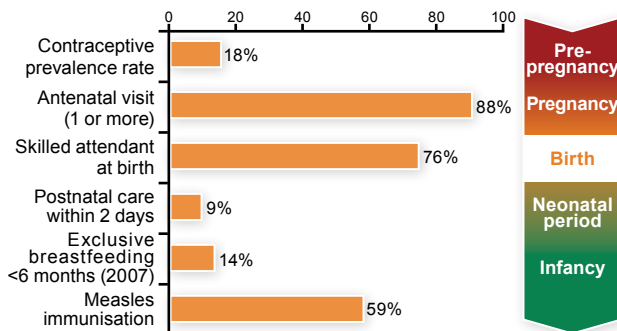


Total fertility rate	5.0
Adolescents who have begun childbearing (%)	20
Female genital cutting (%)	84
Unmet need for family planning (%)	20
C-section rate (%)	1.1

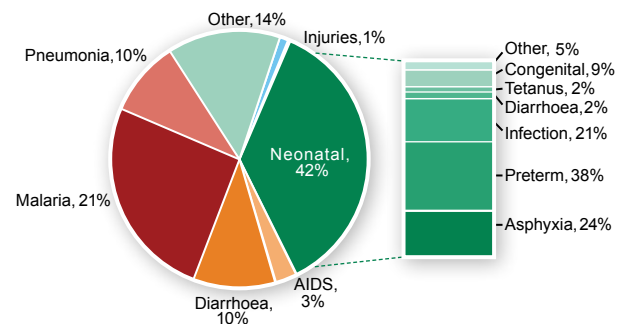
NATIONAL PROGRESS TO MDG4



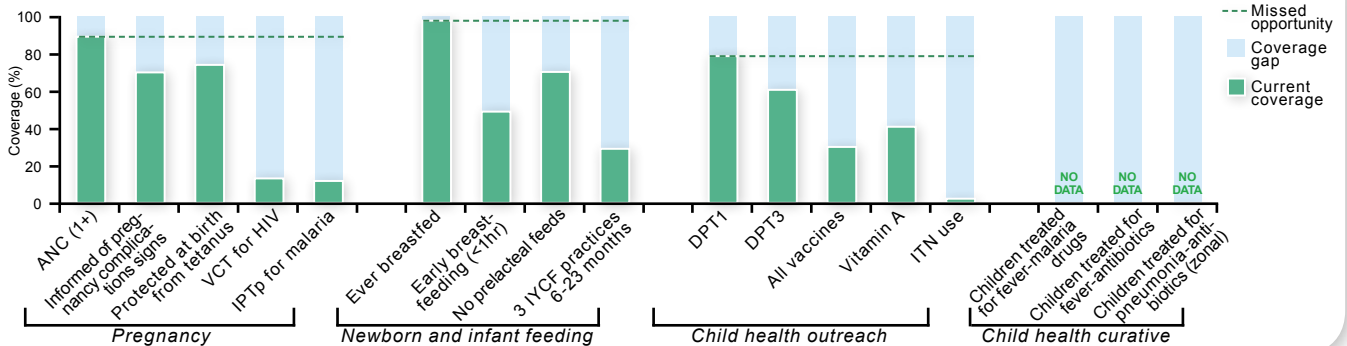
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

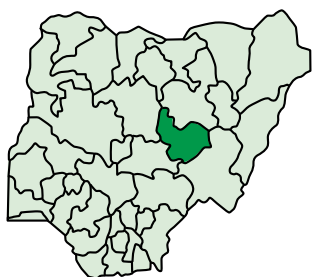


HEALTH SYSTEMS

Health information: Birth registration (%)	40
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	50 & 24
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	670
% neonatal lives saved	66%
Number of neonatal lives saved	5,900
% post-neonatal and child lives saved	68%
Number of post-neonatal and child lives saved	8,200



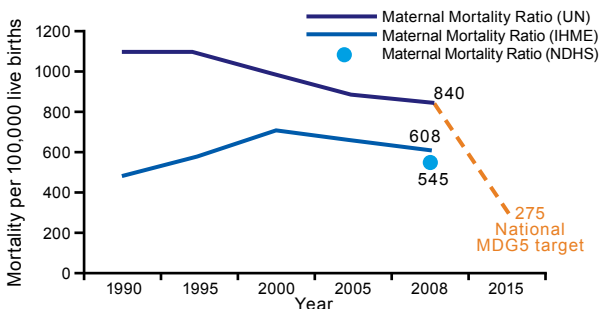
Plateau State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

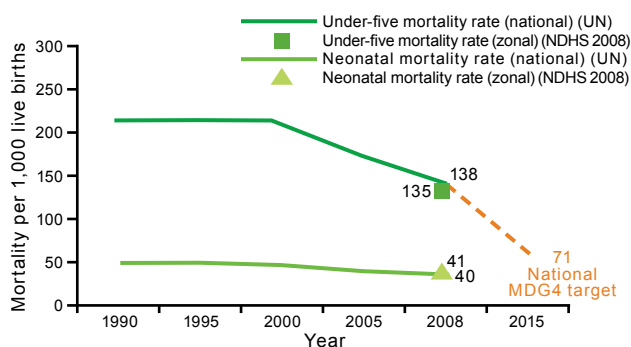
Population	3,433,000
Annual births	137,000
Neonatal mortality rate per 1000 live births (zonal)	41
Annual number of neonatal deaths	5,500
Under-five mortality rate per 1000 live births (zonal)	135
Annual number of under-five deaths	18,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

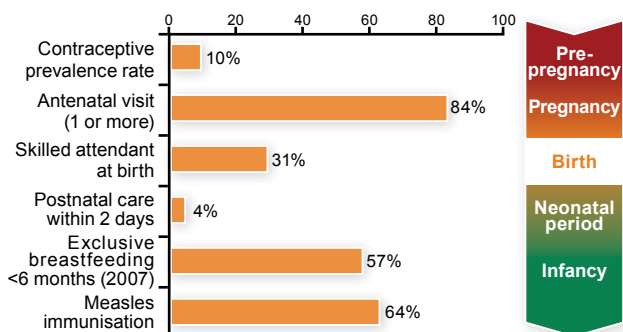


Total fertility rate	5.3
Adolescents who have begun childbearing (%)	15
Female genital cutting (%)	1
Unmet need for family planning (%)	19
C-section rate (%)	1.9

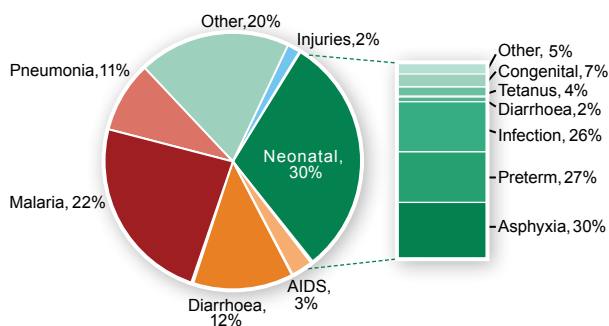
NATIONAL PROGRESS TO MDG4



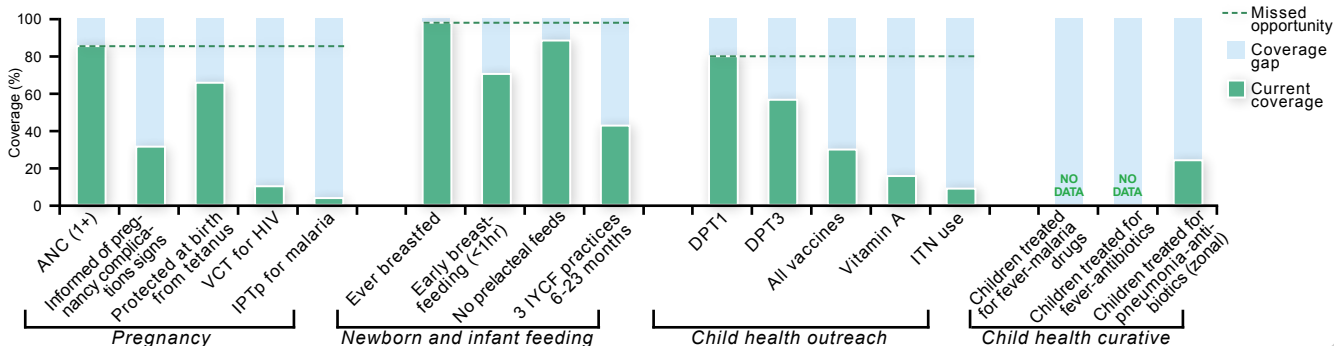
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	23
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	27 & 25
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	54%
Number of maternal lives saved	430
% neonatal lives saved	71%
Number of neonatal lives saved	3,900
% post-neonatal and child lives saved	73%
Number of post-neonatal and child lives saved	9,200



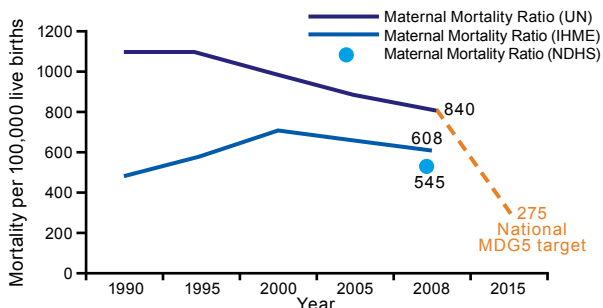
Rivers State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

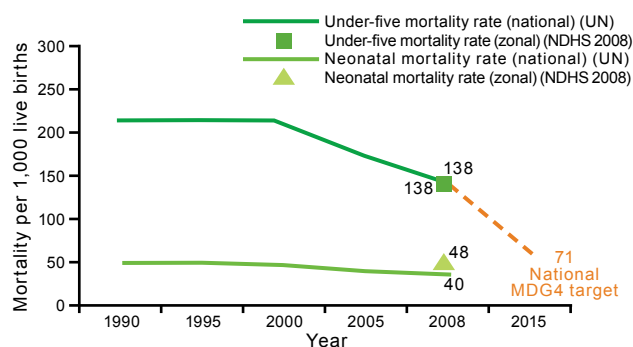
Population	5,601,000
Annual births	223,000
Neonatal mortality rate per 1000 live births (zonal)	48
Annual number of neonatal deaths	10,700
Under-five mortality rate per 1000 live births (zonal)	138
Annual number of under-five deaths	31,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	1200

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

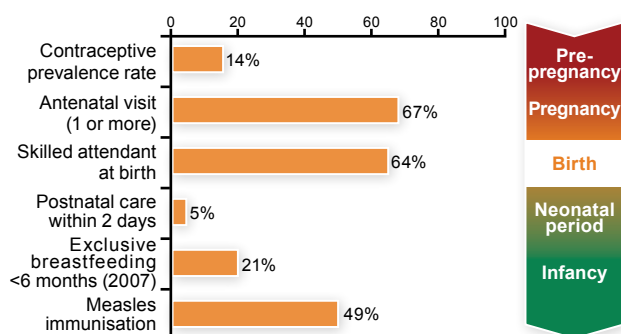


Total fertility rate	4.3
Adolescents who have begun childbearing (%)	10
Female genital cutting (%)	24
Unmet need for family planning (%)	26
C-section rate (%)	4.6

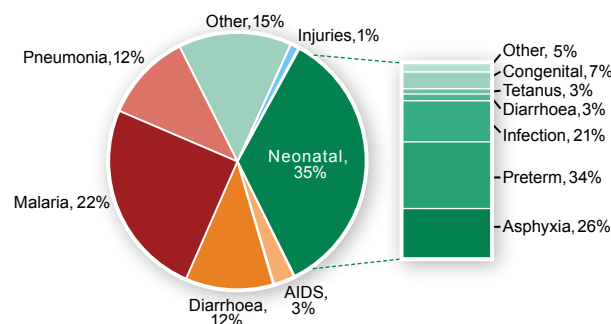
NATIONAL PROGRESS TO MDG4



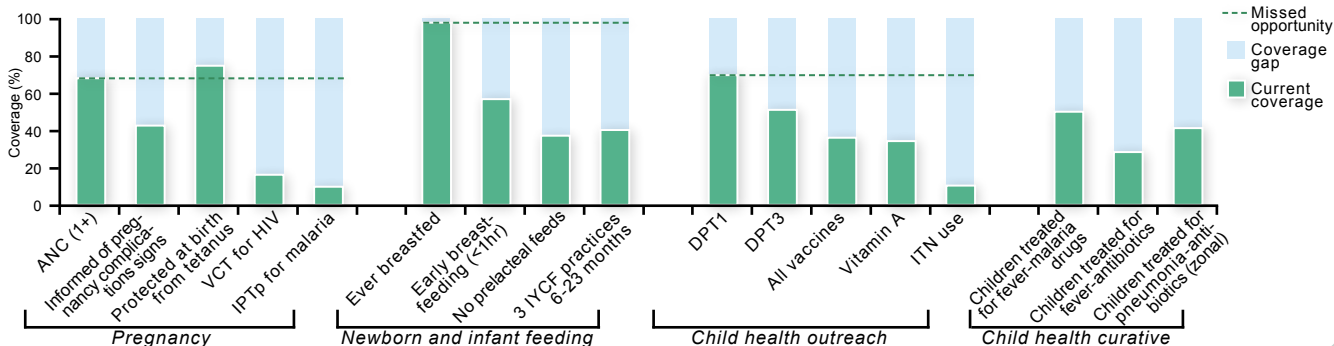
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

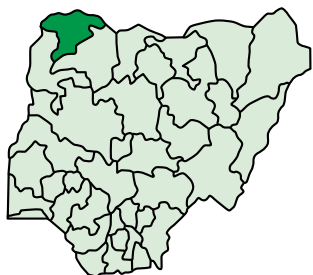


HEALTH SYSTEMS

Health information: Birth registration (%)	26
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	18 & 14
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	48%
Number of maternal lives saved	580
% neonatal lives saved	65%
Number of neonatal lives saved	6,900
% post-neonatal and child lives saved	73%
Number of post-neonatal and child lives saved	14,800



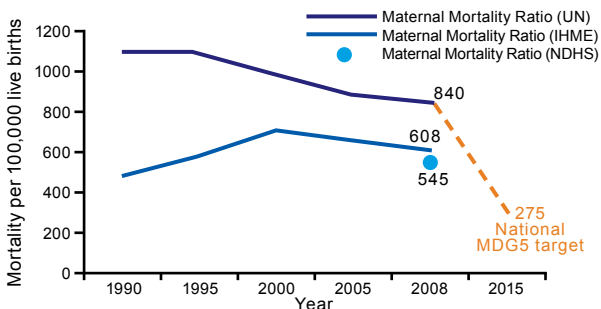
Sokoto State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

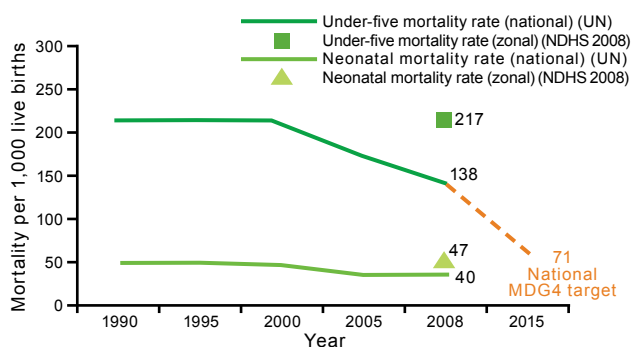
Population	3,993,000
Annual births	160,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	7,500
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	35,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	900

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

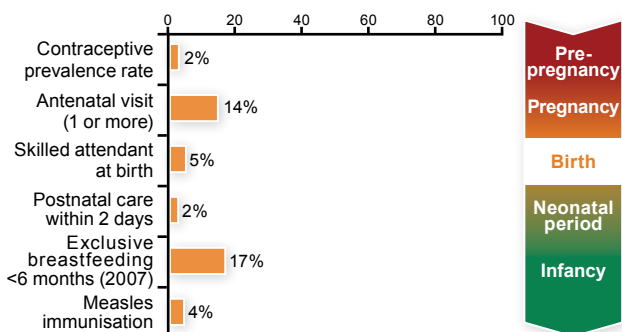


Total fertility rate	8.7
Adolescents who have begun childbearing (%)	47
Female genital cutting (%)	1
Unmet need for family planning (%)	21
C-section rate (%)	0.4

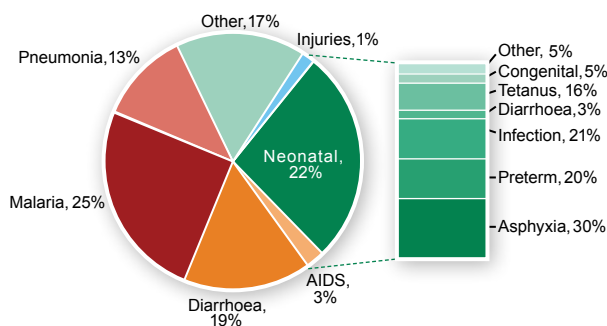
NATIONAL PROGRESS TO MDG4



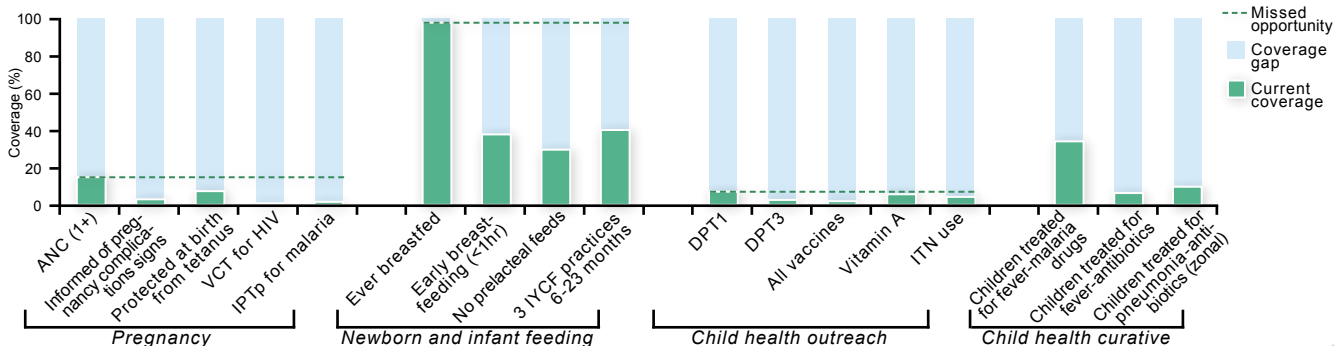
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	14
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	No data & 3
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	470
% neonatal lives saved	74%
Number of neonatal lives saved	5,500
% post-neonatal and child lives saved	75%
Number of post-neonatal and child lives saved	20,700



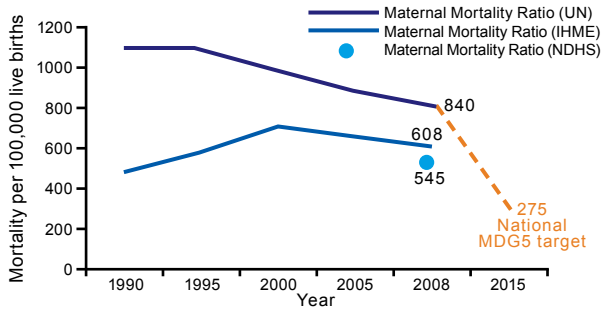
Taraba State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

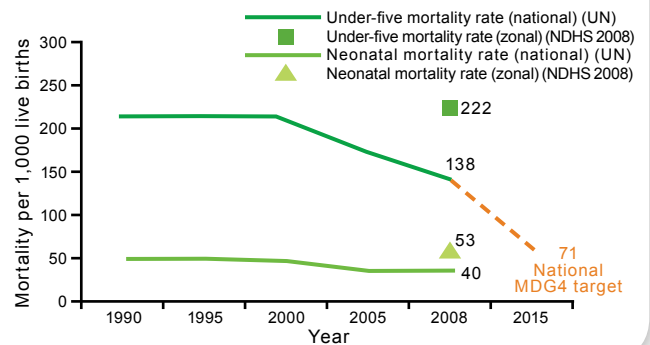
Population	2,485,000
Annual births	99,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	5,300
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	22,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	500

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

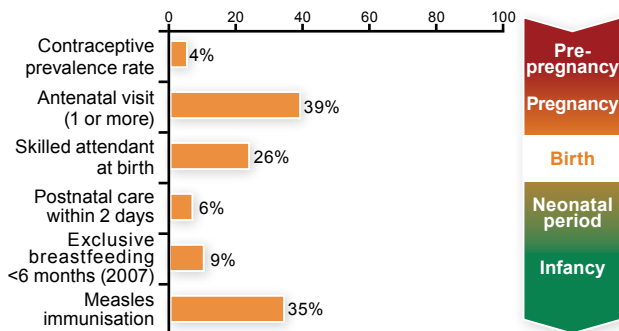


Total fertility rate	5.9
Adolescents who have begun childbearing (%)	22
Female genital cutting (%)	2
Unmet need for family planning (%)	18
C-section rate (%)	0.1

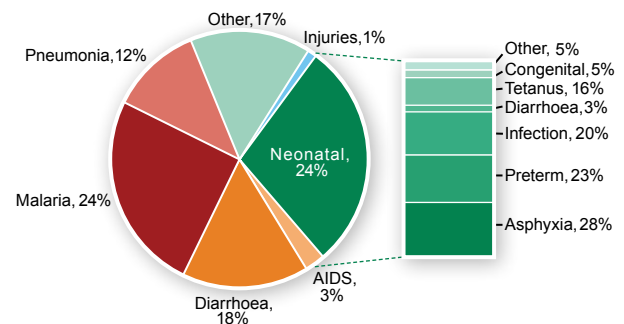
NATIONAL PROGRESS TO MDG4



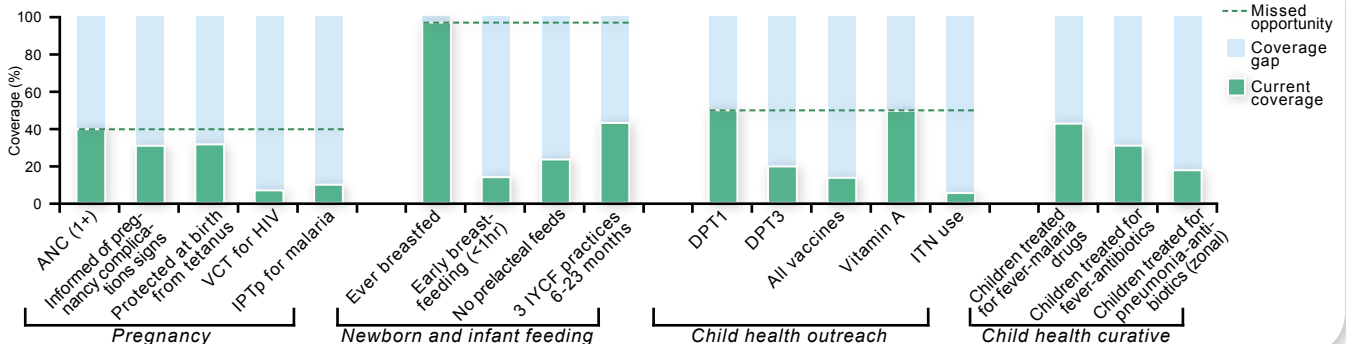
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	20
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	16 & 13
Governance and leadership: IMNCH strategic planning initiated	No
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	260
% neonatal lives saved	72%
Number of neonatal lives saved	3,800
% post-neonatal and child lives saved	81%
Number of post-neonatal and child lives saved	13,500



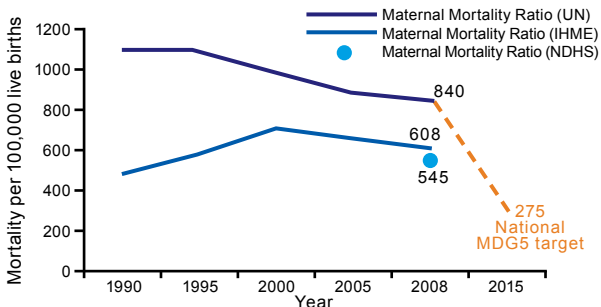
Yobe State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

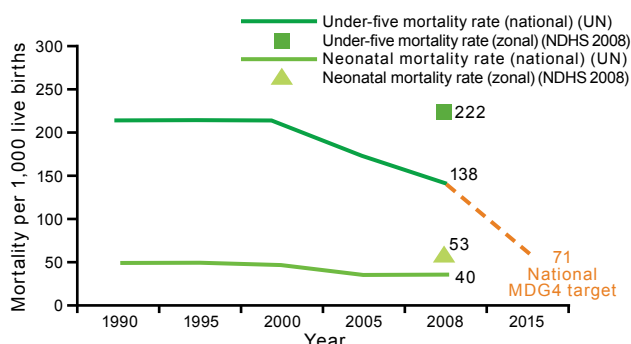
Population	2,507,000
Annual births	100,000
Neonatal mortality rate per 1000 live births (zonal)	53
Annual number of neonatal deaths	5,300
Under-five mortality rate per 1000 live births (zonal)	222
Annual number of under-five deaths	22,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	500

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

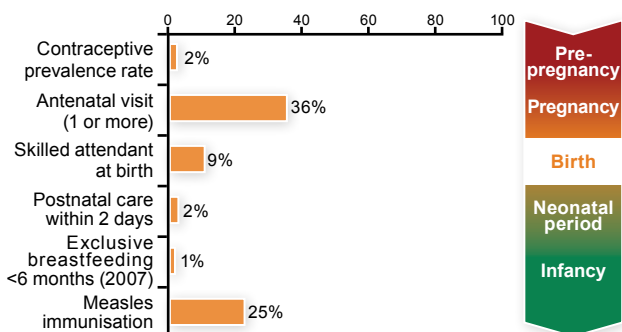


Total fertility rate	7.5
Adolescents who have begun childbearing (%)	42
Female genital cutting (%)	0
Unmet need for family planning (%)	18
C-section rate (%)	0.3

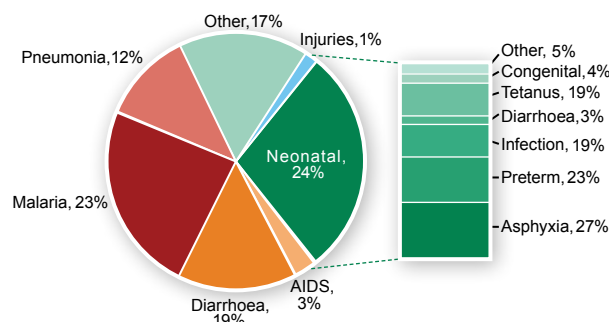
NATIONAL PROGRESS TO MDG4



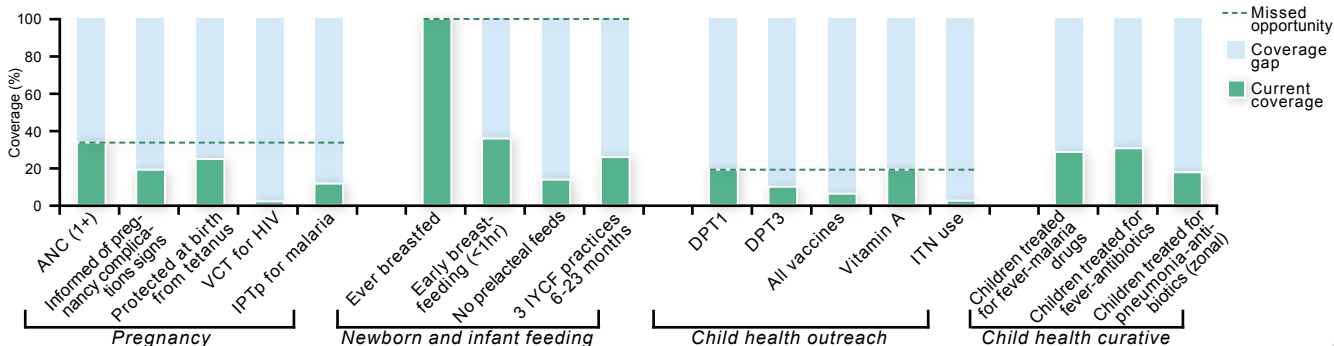
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES

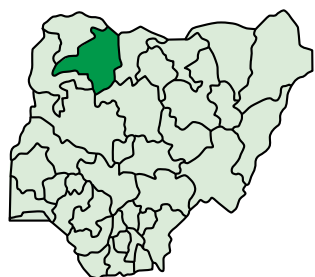


HEALTH SYSTEMS

Health information: Birth registration (%)	10
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	11 & 6
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	260
% neonatal lives saved	73%
Number of neonatal lives saved	3,900
% post-neonatal and child lives saved	79%
Number of post-neonatal and child lives saved	13,300



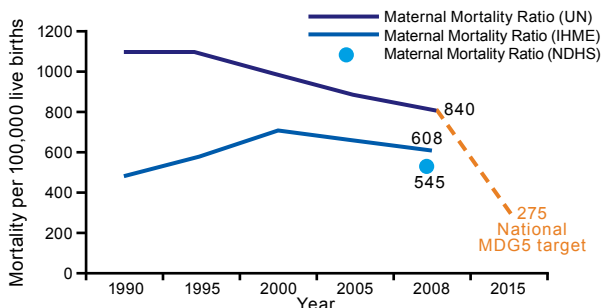
Zamfara State

Indicator data are state-specific data for 2008, unless otherwise noted. Please see page 74 for indicator definitions and data sources.

BIRTHS AND DEATHS

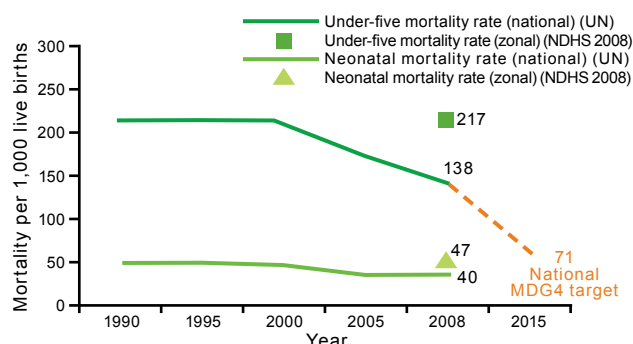
Population	3,521,000
Annual births	141,000
Neonatal mortality rate per 1000 live births (zonal)	47
Annual number of neonatal deaths	6,600
Under-five mortality rate per 1000 live births (zonal)	217
Annual number of under-five deaths	31,000
Maternal mortality ratio per 100,000 live births (national)	545
Annual number of maternal deaths	800

NATIONAL PROGRESS TO MDG5 AND REPRODUCTIVE HEALTH

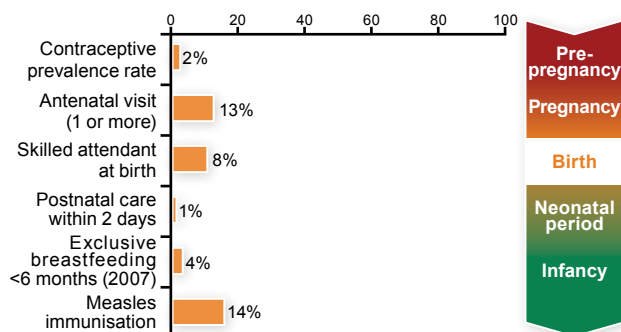


Total fertility rate	7.5
Adolescents who have begun childbearing (%)	47
Female genital cutting (%)	1
Unmet need for family planning (%)	21
C-section rate (%)	0.1

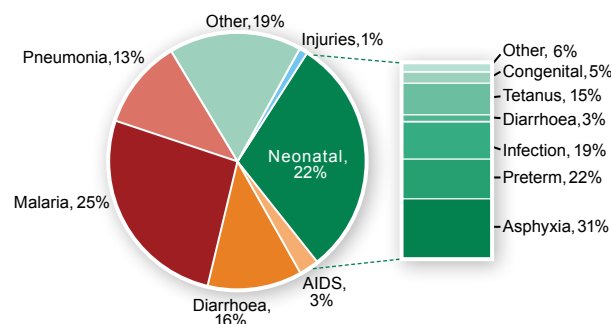
NATIONAL PROGRESS TO MDG4



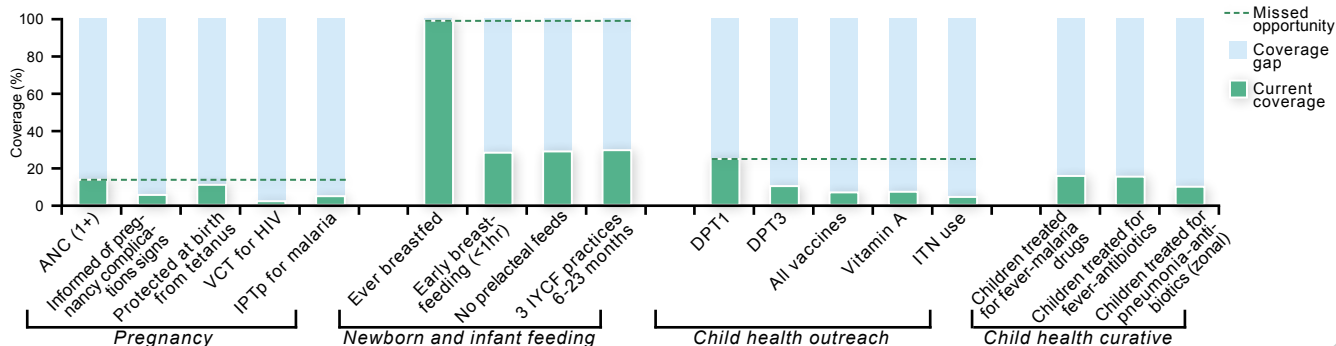
COVERAGE ALONG THE CONTINUUM OF CARE



CAUSES OF NEONATAL AND UNDER-FIVE MORTALITY



MISSED OPPORTUNITIES IN KEY MATERNAL, NEWBORN AND CHILD HEALTH PACKAGES



HEALTH SYSTEMS

Health information: Birth registration (%)	10
Human resources: Nurses and midwives & community health officers (per 10,000 pop)	2 & 2
Governance and leadership: IMNCH strategic planning initiated	Yes
Financing for health: IMNCH strategy costed	Yes
Medicines and equipment: Proportion of 20 essential child health medicines available at district health facilities	No data

MATERNAL, NEWBORN AND CHILD LIVES SAVED AT 90% COVERAGE

% maternal lives saved	52%
Number of maternal lives saved	420
% neonatal lives saved	74%
Number of neonatal lives saved	4,900
% post-neonatal and child lives saved	76%
Number of post-neonatal and child lives saved	18,600

League table

State	Demographics					Continuum of care						Nutrition		
	Annual births	NMR per 1000 live births (zonal)	Annual neonatal deaths	U5MR per 1000 live births (zonal)	Annual under-five deaths	CPR (%)	ANC (1+) (%)	Skilled attendant (%)	PNC within 2 days (%)	Exclusive breast-feeding <6m (%)	Measles (%)	Stunting (%)	Wasting (%)	Low birthweight rate (%)
National	6,028,000	40	241,000	157	946,000	10	58	39	38	13	41	41	14	14
Abia	123,000	51	6,200	153	18,000	16	89	87	9	3	61	24	9	12
Adamawa	136,000	53	7,200	222	30,000	2	61	15	4	6	41	42	21	17
Akwa Ibom	169,000	48	8,100	138	23,000	18	67	44	5	5	50	28	14	12
Anambra	180,000	51	9,100	153	28,000	17	98	95	14	6	71	12	6	14
Bauchi	201,000	53	11,000	222	45,000	2	45	16	1	3	15	51	41	19
Bayelsa	73,000	48	3,500	138	10,000	8	35	22	13	14	31	29	7	13
Benue	182,000	41	7,400	135	25,000	13	63	52	3	23	43	37	6	12
Borno	179,000	53	9,500	222	40,000	6	33	13	1	2	13	49	13	17
Cross River	124,000	48	6,000	138	17,000	16	68	44	8	11	64	32	6	12
Delta	176,000	48	8,400	138	24,000	15	78	62	22	10	61	35	6	12
Ebonyi	94,000	51	4,800	153	14,000	3	76	46	11	10	61	32	8	16
Edo	139,000	48	6,700	138	19,000	19	91	80	7	12	74	38	8	11
Ekiti	103,000	37	3,800	89	9,000	15	93	81	11	20	86	33	5	10
Enugu	140,000	51	7,100	153	21,000	11	68	65	7	0	54	20	17	11
FCT-Abuja	60,000	41	2,400	135	8,000	21	89	64	7	39	74	30	9	13
Gombe	101,000	53	5,400	222	22,000	5	45	18	3	6	37	52	17	15
Imo	169,000	51	8,600	153	26,000	9	96	98	13	14	66	24	8	12
Jigawa	187,000	47	8,800	217	41,000	0	20	5	7	3	8	53	34	15
Kaduna	262,000	47	12,300	217	57,000	8	62	22	1	14	57	52	9	15
Kano	404,000	47	19,000	217	88,000	2	50	13	1	2	18	46	17	16
Katsina	249,000	47	11,700	217	54,000	1	14	5	1	4	8	58	20	15
Kebbi	139,000	47	6,500	217	30,000	2	12	6	1	5	21	64	35	19
Kogi	141,000	41	5,700	135	19,000	7	82	76	5	43	70	36	7	12
Kwara	102,000	41	4,100	135	14,000	17	58	53	2	14	61	51	12	12
Lagos	388,000	37	14,400	89	35,000	28	88	83	5	20	69	21	10	14
Nasarawa	80,000	41	3,200	135	11,000	11	73	34	2	40	39	44	6	10
Niger	170,000	41	6,900	135	23,000	4	37	17	3	8	33	47	20	11
Ogun	161,000	37	6,000	89	14,000	13	90	72	20	23	42	42	7	12
Ondo	148,000	37	5,500	89	13,000	15	70	51	11	14	64	32	6	12
Oshun	147,000	37	5,400	89	13,000	27	94	89	5	13	84	31	12	12
Oyo	241,000	37	8,900	89	21,000	18	88	76	9	14	59	37	12	12
Plateau	137,000	41	5,500	135	18,000	10	84	31	4	57	64	59	5	13
Rivers	223,000	48	10,700	138	31,000	14	67	64	5	21	49	29	5	11
Sokoto	160,000	47	7,500	217	35,000	2	14	5	2	17	4	54	24	14
Taraba	99,000	53	5,300	222	22,000	4	39	26	6	9	35	43	9	13
Yobe	100,000	53	5,300	222	22,000	2	36	9	2	1	25	54	21	24
Zamfara	141,000	47	6,600	217	31,000	2	13	8	1	4	14	54	11	14

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