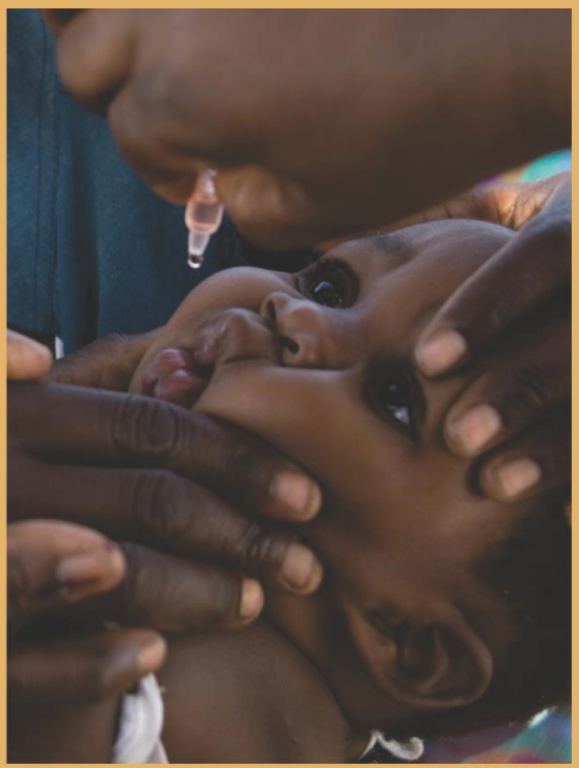
Republic of Namibia

Namibia
Child Survival Strategy
2014 - 2018



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Foreward

The Ministry of Health and Social Services has made remarkable progress in the last two decades to reduce the number of child deaths in Namibia. Progress in reducing under-five mortality (U5MR) has been slow but it is showing a declining trend. The 2013 Namibia Demographic and Health Survey (NDHS 2013) shows U5MR of 55 per 1000 live births declined from 69 per 1000 live births in 2006. Despite its progress, neonatal mortality rates declined at a slower pace. And Namibia's children are still facing the preventable and treatable childhood conditions such as malnutrition, pneumonia and diarrhoea.

The government of Namibia, with the support of partners, has controlled malaria, reduced the spread of vaccine preventable disease and reduced prevalence of HIV/AIDS. Malaria, which used to be a leading cause of U5MR in the past, has declined and by 2010, Namibia had exceeded both the Abuja and Roll Back Malaria (RBM) targets. Vaccine preventable diseases, apart from occasional measles outbreaks, no longer among the top morbidities reported in the ministry's health information system database. Current estimates show that the PMTCT programme has brought down the mother- to- child transmission rate of HIV to 4% from a high of 20% in 2002. Exceeding and sustaining the current achievements is a major objective of this child survival strategy.

The MOHSS has created an enabling environment for the implementation of the key child survival interventions. There are supporting national and sectoral policies and strategies; the per capita funding for health is good, access to health care is at 79% for the majority of the population; and the user charges are within reach of the majority. The introduction of the health extension worker programme will not only improve the links between the health facilities and the communities but will also increase the demand for child survival interventions particularly in hard to reach areas.

As follow up to the Namibia's commitment to "A Promise Renewed": the Child Survival Call to Action Forum held at the George Town University in Washington, D.C. on 14-15 June 2012 and subsequent Africa Regional Child Survival Forum in Addis Ababa, Ethiopia between 16 and 18 January 2013, the Ministry of Health and Social Services with the collaboration of UNICEF and WHO are gearing towards implementation of this Child Survival Strategy to reduce child mortality below 20 per 1,000 live births by 2035.

I truly hope that this strategy when fully implemented with sufficient resources and effectively monitored regularly will have a great impact on health status of the Namibian Children.

Dr Richard Nchabi Kamwi, MP
Minister of Health and Social Services

Preface

"Committing to Child Survival: A Promise Renewed" is a global movement to end preventable child deaths by accelerating progress on maternal, newborn and child survival. In support of the U.N. Secretary-General's *Every Woman Every Child* effort, *A Promise Renewed* brings together public, private and civil society actors committed to advocacy and action for women, newborns and children.

Thirty years after the launch of the Child Survival Revolution and ten years after the United Nations General Assembly resolution on A World Fit for Children, the world has made remarkable progress on child survival. In the past two decades alone, the number of Under 5 deaths has fallen dramatically, from 12 million in 1990 to 7.6 million in 2010. Tragically, however, the global progress in child survival continues to elude millions of children in rich and poor countries alike. And the poorest and most disadvantaged children continue to die from preventable diseases.

Though some significant progress has been made in child mortality, Namibia may not achieve the MDG 4 targets of reducing child mortality mainly due to neonatal causes and preventable diseases such as pneumonia, diarrhea, measles, malnutrition and AIDS. In this regard, the Ministry of Health and Social Services with the support of development partners such as WHO and UNICEF started in late 2013 to develop a comprehensive costed child survival strategy, action plan and monitoring tools to accelerate the progress toward achieving child survival goals, and link to the global commitment "A Promise Renewed".

The goal of the child survival strategy is to contribute to the accelerated reduction of under-5 morbidity and mortality in order to achieve the national and international targets by 2018. The general objective is to increase and sustain the integrated delivery of high impact and cost effective maternal, newborn and child health and nutrition interventions.

This strategy aims to reduce the under-five mortality rate from 54 in 2013 to 39 by 2015 and to 24 by 2018 and below 20 by 2035 as part of Namibia's regional and global commitments in Child Survival Initiatives. The child survival challenges in Namibia can be overcome when there is a concerted effort by all concerned. The hope is that this child survival strategy will help, in the short and long term, the children and mothers in Namibia to live healthy, long and productive lives.

The Ministry of Health and Social Services wishes to recognize all valuable contributions made by many individuals, government directorates, development partners especially UNICEF and WHO, and NGOs and look forward to a stronger collaboration in realization of Child Survival Goals in Namibia.

PERMANENT SECRETARY
08 AUG 2014
Republic of Namibia
MINISTRY OF HEALTH AND SOCIAL SERVICES

Mr. Andrew Ndishishi
Permanent Secretary
Ministry of Health and Social Services

Acknowledgements

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The Ministry also extends its appreciation to the World Health Organization (WHO) working through the European Union Funded Programme for the Acceleration of Maternal and Child Mortality (PARMaCM) and United Nations Children's Fund (UNICEF) for their continuous technical support throughout this process. Other government departments, non-governmental organizations and development partners are also recognized for their valuable inputs during the process of developing this strategy.

Special thanks to the consultant, Dr Sam Muziki for his tireless work in ensuring all necessary information captured and inputs from regions incorporated in this document.

The Ministry wishes to recognize all valuable contributions made by individuals and reaffirms its commitment to working towards the realization of child survival goals in Namibia.

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Executive Summary

Namibia's children are challenged by a small number of preventable and treatable childhood conditions that have reversed some of the earlier gains in under-five mortality reduction that had been achieved since the country's independence in 1990. Neonatal conditions (prematurity, low birth weight, asphyxia, and infections), pneumonia, diarrhoea, HIV and malnutrition are the commonest causes of morbidity and mortality in under-5 children in Namibia. Malnutrition is an underlying condition in many childhood illnesses.

Progress in reducing under-five mortality (U5MR) has been slow but is showing a declining trend. The 2013 Namibia Demographic and Health Survey (NDHS 2013) shows an U5MR of 55 per 1000 live births. In 2007, the U5MR was 69 per 1000 live births (NDHS 2006) up from 62 in 2000 (NDHS 2000). The Infant Mortality Rate (IMR) has declined from 46 in 2006 to 39 per 1000 live births in 2013 although it is still slightly higher than the 38 reported in the 2000 DHS. The Neonatal Mortality Rate (NMR) has continued to decrease and was reported to be at 20 per 1000 live births (NDHS 2013) while in 2006 it had decreased to 24 from 32 per 1000 live births reported in 2000. The increase in U5MR in 2006 was attributed mainly to the HIV/AIDS epidemic. Over the last 12 years, the intensive efforts of the Prevention of Mother to Child Transmission of HIV (PMTCT) programme which is now available in 94% of health facilities coupled with increasing immunization and aggressive malaria control are beginning to show an impact on childhood mortality. The United Nation's Inter-agency Child Mortality Estimation Group reported Namibia's 2012 U5MR to be 39 per 1000 live births. Namibia's annual rate of reduction of U5MR was 2.7% and the average annual percent change in maternal mortality was 0.1%. The country is therefore unlikely to meet the Millennium Development Goals (MDG) 4 and 5 targets of child and maternal mortalities.

The proportion of under-five mortality attributable to neonatal mortality tends to increase as the U5MR decreases. In 2013, 71% of U5MR was during the infant period and the neonatal mortality rate was 36.4% of the under-five mortality. The majority of neonates and their mothers die during the first few days after birth. Although the majority of mothers attend antenatal care at 96.6% and 87.4% delivered in a health

facility. Though percent delivered by skilled health care providers was at 88.2% postnatal care remains a challenge. The Ministry of Health and Social Services (MoHSS) recommends that all mothers and their babies should be thoroughly checked within 48 hours after delivery, however in 2006 survey, only 65% of mothers are seen within 2 days after delivery. Implementation of key neonatal interventions and postnatal activities will be given top priority in the community, at outreach and at the facility levels.

The government of Namibia, with the support of partners, has controlled malaria, reduced the spread of vaccine preventable disease and reduced prevalence of HIV/AIDS. Malaria, which used to be a leading cause of U5MR in the past, has declined and by 2010, Namibia had exceeded both the Abuja and Roll Back Malaria (RBM) targets. Vaccine preventable diseases-apart from occasional measles outbreaks-no longer among the top morbidities reported in the ministry's health information system database. Current estimates show that the PMTCT programme has brought down the mother- to- child transmission rate of HIV to 4% from a high of 20% in 2002. Exceeding and sustaining the current achievements is a major objective of this child survival strategy.

Malnutrition remains a challenge with stunting levels not declining despite the country's rising income per-capita and government efforts to address food insecurity. Stunting levels have decreased to 26% (NDHS 2013) from 29% reported in the 2006 but the reduction is not that significant. The underweight levels had slightly dropped from 17% to 13% in the same period. Wasting has also slightly dropped to 6% in 2013 from 8% in 2006. According to the global MDG 2013 report, Namibia reduced underweight by 18.6% between 1990 and 2012. A future concern though, is the rising number of obese children who may end up as obese adults with increased risks of developing non-communicable diseases such as diabetes and cardiovascular complications. If the known high impact and affordable nutrition specific and sensitive interventions are implemented to scale in an integrated manner, they can contribute greatly to the further reduction of under-5 mortality.

The MOHSS has created an enabling environment for the implementation of the key child survival interventions. There are supporting national and sectoral policies and strategies; the per capita funding for health is good, access to health care is at 79% for the majority of the population; and the user charges are within reach of the majority. The introduction of the health extension worker programme will not only improve the links between the health facilities and the communities but will also increase the demand for child survival interventions particularly in hard to reach areas.

The availability of human resources for health-especially in the hard to reach rural areas is a major constraint. Existing system bottlenecks - the continuous attrition of

public sector health workers, will have to be addressed by effective strategies such as flexible bonding arrangements and reasonable incentives.

The Child Survival Strategy

The child survival strategy proposes the scaling up of selected high impact interventions that will be delivered using three service delivery modes: (i) family-oriented, community-based services; (ii) population-oriented, schedulable services and (iii) individually-oriented, clinical services.

The goal of the child survival strategy is to contribute to the accelerated reduction of under-5 morbidity and mortality in order to achieve the national and international targets by 2018. The general objective is to increase and sustain the integrated delivery of high impact and cost effective maternal, newborn and child health and nutrition interventions.

The following targets for the child survival strategy take into account the upper-bound of Namibia's annual rate of reduction of the under-five mortality and maternal mortality between 1990 and 2012 and the targets set by the Ministry of Health's Policies and strategic plans:

a) To reduce under-five mortality rate from 54 in 2013 to 39 by 2015 and to 24 by 2018 and below 20 by 2035;
b) To reduce infant mortality from rate 39 in 2013 to 18 by 2018;
c) To reduce neonatal mortality rate from 20 in 2013 to 10 by 2018;
d) To reduce maternal mortality ratio from 358 in 2013 to 200 by 2018 and 50 by 2035.

Reaching these goals will pave the way towards ending preventable maternal, neonatal and child deaths.

The specific objectives include, *inter alia,* improvements in accessing good quality essential health and nutrition care by mothers and children at all levels of the health care system; building the capacity of the health workers to organize and manage child health services; strengthening of monitoring and evaluation systems that will support advocacy for maternal and child health and; improvement in inter-sectoral collaboration for child survival.

The following high impact interventions have been prioritized and will be scaled up and implemented in an integrated manner:

1. **Maternal and newborn care:** focused antenatal care, skilled delivery, intrapartum foetal monitoring and emergency obstetric and newborn care in facilities, essential newborn care and management of newborn complications, and postnatal care;
2. **Nutrition interventions:** promotion of early initiation and exclusive breastfeeding for 6 months, appropriate complementary feeding, micronutrients including vitamin A supplementation and growth monitoring and promotion;
3. **Treatment interventions:** oral rehydration therapy plus zinc for the management of diarrhoea and the use of appropriate antibiotics for pneumonia and dysentery; improvement in water and sanitation;
4. **HIV prevention and treatment:** PMTCT, early detection of infant HIV infection, cotrimoxazole prophylaxis for children of HIV+ mothers, ARVs for HIV+ children and their mothers;
5. **Sustaining success:** The malaria and immunization programmes will be supported to maintain and further scale up these interventions. In the longtime, the introduction of new vaccines such as IPV and HPV will further booster the routine EPI programme.

The Integrated Management of Newborn and Childhood Illnesses (IMNCI) will be the main strategy for the appropriate management of childhood diseases within the health facilities. The Health Extension Workers programme will be strengthened to be able to manage some of the common childhood conditions at the community level as part of the national strategy to provide more equitable services to the population in hard to reach areas.

The successful implementation of the survival strategy will depend on the close collaboration and coordination with other key public sectors like agriculture, water and forestry for food security and sanitation improvement, education for literacy and others. The MOHSS will take the lead in guiding and ensuring that there is collaboration and coordination of key health partners –the bilateral and multilateral agencies that support child survival.

A monitoring and evaluation system that will use a defined number of indicators will be set up to track progress towards the set targets.

Resource Needs and Impact Estimation

The cost of implementing the child survival strategy was estimated using the Marginal Budgeting for Bottlenecks tool (MBB), Lives Saved Tool (LiST) and One Health Tool (OHT) as the best options among the internationally available costing

tools given the time exigencies and available experiences. Prior to the estimation, local experts and partners undertook an in-depth bottleneck analyses along key interventions packages in different delivery platforms-at the community, the outreach and clinic levels. Strategies for ameliorating the identified bottlenecks were selected depending on the severity of the problem and based on best global and local evidence.

The required additional resources were estimated based on the identified strategic needs. The impact on child and maternal mortality was calculated based on the increase in coverage that is proposed for scaling up selected high impact interventions. The modelling generated three possible scenarios for the period 2014-2018 for consideration:

Scenario 1: offers minimal additional investments to achieve a modest impact on child and maternal mortality. An additional USD 26.85 per capita per year would be needed to reduce the existing major bottlenecks and introduce new interventions in order to get a decrease of 50% in neonatal mortality rate, 28% under-5 mortality rate and 18.0% maternal mortality rates over the next 5 years. Under this scenario, an additional 2,500 children's lives would be saved and U5MR would reduce to 28 per 1,000 live birth while the maternal mortality ratio would drop to 171/100,000 live births.

Scenario 2: offers more additional investments that will achieve more reduction in child and maternal mortality. An additional USD 36.11 per capita per year would be needed to decrease NMR by 54%, U5MR by 30% and MMR by 22%. This would save an additional 2,700 children's lives by reducing the U5MR to 27 per 1000 live birth; and MMR would reduce to 163/100,000 live births.

Scenario 3: offers the ideal additional investments that will meet all set targets for the rapid reduction of child and maternal mortality. An additional USD 43.47 per capita per year would be needed to save an additional 3,100 children's lives by reducing U5MR to 25/1000 live births and MMR would reduce by 26.1% to 153/100,000 live births.

The child survival challenges in Namibia can be overcome when there is a concerted effort by all concerned. The hope is that this child survival strategy will help, in the short and long term, the children and mothers in Namibia to live healthy, long and productive lives.

Acronyms

ANC	Antenatal Care
AIDS	Acquired Immunodeficiency syndrome
ARI	Acute Respiratory Infections
ARV	Antiretroviral medicines
CHERG	Child Health Epidemiology Reference Group
CRC	UN Convention on the Rights of the Child
DHS	Demographic and Health Survey
EmOC	Emergency Obstetric Care
EmNOC	Emergency Newborn and Obstetric Care
EPI	Expanded Programme on Immunization
EU	European Union
GDP	Gross Domestic Product
GIVS	Global Immunization Vision and Strategy
HEW	Health Extension Worker
HIV	Human Immuno virus
HMIS	Health Management Information System
IGCME	Inter-agency Group for Child Mortality Estimation
ICATT	IMNCI Computerized Adaptation and Training Tool
iCCM	integrated Community Case Management of Childhood Illness
IMNCI	Integrated Management of Newborn and Childhood Illness
IMR	Infant Mortality Rate
IYCF	Infant and Young Child Feeding
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MDG	Millennium Development Goals
MOF	Ministry of Finance
MTEF	Mid-term Expenditure Framework
NDP4	National Development Plan-4
MMEIG	Maternal Mortality Estimation inter agency Group
MOHSS	Ministry of Health and Social Services
MUAC	Mid-upper arm circumference

NAFIN	National Alliance for Improved Nutrition
NAMLIST	Namibia Essential Medicine's List
NHA	National Health Accounts
NHIES	National Household Income and Expenditure Survey
NHFC	Namibia Health Facility Census
NHPF	National Health Policy Framework
NHP	National Health Policy
NMR	Neonatal Mortality Rate
NSA	National Statistical Agency
OVC	Orphans and vulnerble children
PHC	Primary Health Care
PARMaCM	Programme for Accelerate in the Reduction of Maternal and Child Mortality
PMTCT	Prevention of Mother to Child Transmission of HIV
PNC	Postnatal Care
RBM	Roll back Malaria
RUFT	Ready-to Use Therapeutic Food
SAM	Severe Acute Malnutrition
U5MR	Under-Five Mortality Rate
UNICEF	United Nations Children Funds
UNFPA	United Nations Fund for Population Activities
WB	World Bank
WHO	World Health Organization
WFP	World Food Programme

I. Introduction

The 2.1 million population of Namibia live in 824,297 km square country that sits on the Tropic of Capricorn and is bordered by South Africa and Botswana in the east, Angola and Zambia in the north. The cold and dry Benguela current sweeps its 1300 km Atlantic Ocean coastline giving the country its desert and semi-arid climates. The northern regions get slightly more rainfall than the rest of the country. The population density has increased from 1.7 persons per square kilometer in 1991 to 2.6 in 2011. The scattered population creates challenges in the provision of health care services. The uncertain weather pattern and levels of poverty especially in rural areas have an influence on the burden of childhood illnesses and the care seeking behaviours seen in the country.

Namibia is divided into 14 administrative regions and has 34 health districts. The country is experiencing rapid urbanization. The urbanization rate has increased from 28% in 1991 to 43% in 2011[1]. The country is young (medium age 21 year) and about 37% of the population is below the age of 15 years while the under-five years old make up about 13.5% of the population.

According to the WHO Global Health Observatory, in 2010 the life expectancy at birth was estimated at 65 years for both sexes with the females living up to 66 years and males to 63 years. Between 1991 and 2001, life expectancy had declined from 63 years to 50 years for females and 59 years to 48 years for males. This decline is attributable to the HIV/AIDS epidemic that has remained high at 18.8% among pregnant women[2] .

Namibia's economic performance has elevated it to the upper-middle income status-with a GNI per capita (PPP) of USD 7390 (WB 2012)-but the levels of

[1] *Namibia 2011 Population and Housing Census: Namibia Statistics Agency (NSA)*

[2] MOHSS HIV Sentinel Survey 2010

inequality remain high with a GINI Coefficient at 0.58 in 2010. About 28.7% of the adults[3] and 34% children live below the national poverty line[4]. Although the government has been increasingly investing in health services- up to USD 145 per capita per year (2008/9 MOHSS)-the impact indicators, such as the maternal mortality ratio and under-five mortality have not reduced as expected.

The 2013 NDHS data shows an improvement in the neonatal, infant, under-five mortality rates and maternal mortality ratio. The decline in mortality rate brings back the country to the 2000 level. In 2013, Under-5 mortality rate (U5MR) was 55/1000 live births while the Infant mortality rate (IMR) was 39/1000 live births, the Neonatal mortality rate (NMR) was 20/1000 live births and the maternal mortality ratio (MMR) was 358/100,000 live births.

The 2006 Namibia Demographic and Health Survey (NDHS) recorded an MMR of 449 per 100,000 live births and U5MR of 69 per 1000 live births reflecting an increase from the 2000 NDHS which had showed a MMR of 271 and U5MR of 62.

The main causes of under-five mortality are due to a few preventable and treatable conditions that include neonatal conditions, diarrhoea, pneumonia, malnutrition, and HIV/AIDS. Malaria, once a major killer, has been effectively controlled and the transmission of HIV from the mother to the child has reduced. Measles keeps cropping up despite national and sub-national immunization campaigns.

This situation calls for a more efficient utilization of the available resources and a refocusing on critical cost-effective under-five and maternal interventions that can be done in an integrated manner.

1.1. International Commitments on Maternal and Child Health

Namibia has made a number of commitments at international level that encourage member states to streamline maternal and child issues, including health, in their development agendas. These commitments include, *inter alai*, the 1990 United Nations' Convention on the Rights of the Child (CRC), the 2000 Millennium Development Goals (MDG); the 2001 Abuja Target Declaration; the 2005 African Union Declaration on Child Survival; the 2003 WHO/AFRO and African Union's Road Map for the accelerated maternal and newborn mortality reductions; and the 2008 Ouagadougou Declaration on Renewal of Primary Health Care and Health Systems in Africa.

[3] *World Bank 2009*

[4] *Child Poverty In Namibia: A child-centered analysis of the NHIES 2009/10, NSA, 2012*

In 2012, Namibia was among the first countries that pledged to support "A Promise Renewed: Child Survival Call to Action" to reduce child mortality to 20 or fewer deaths per 1,000 live births by 2035. In January 2013, Namibia reaffirmed its pledge during the African Leadership for Child Survival meeting in Addis Ababa.

Namibia's 2015 targets for MDG 4 and 5 were set at 24 for the under-5 mortality rate and 92 for the maternal mortality ratio. The 2013 NDHS figures and the annual rate of reduction of 2.7% for under-fives mortality and an average annual percent change in MMR of 0.1% between 1990 and 2010 show that the country is not on track to achieve its MDG targets.

The child health related MDGs include MDG 1: to eradicate extreme poverty and hunger; MDG 6-to combat HIV/AIDS, malaria and other diseases. The Government's efforts in reducing poverty levels are laudable. Poverty levels have reduced from the 69.3% in 1994 to 28.7% in 2009 and country is on track to meet the MDG poverty target. However malnutrition in children remains a major challenge as the 2013 NDHS reported that 26% of under-5 children are stunted and 8% are severely stunted, 13% are underweight and 6% are wasted. Namibia will not meet the MDG target on malnutrition. Though Namibia has achieved MDG target for Malaria but still struggling with the targets for HIV/AIDS.

1.2. Policies and Strategies

The country's Vision 2030; "*A prosperous and industrialized Namibia, developed by her human resources, enjoying peace, harmony and political stability*." Office of the President 2004- has provided the overall guidance in policy formulation and strategic directions.

A number of policies, strategic plans and guidelines have been developed by the Ministry of Health and Social Services (MOHSS). The overarching policy has been that of the Primary Health Care (PHC) that was adopted soon after independence. The health policies have taken into account Vision 2030, and the various 5-years National Development Plans. The 1998 National Health Policy Framework (NHPF-1) was reviewed in 2008 and the current National Health Policy Framework NHPF-2, was published in 2010. The child survival strategy is aligned to the National Development Plan-4 (NDP4) and Health Sector Strategic Plan (2014 – 2018)

Programme specific policies and strategies/plans/guidelines direct the allocation of resources and have a bearing on the implementation of child survival interventions. The following are some of the available policies and strategies: the National Policy on Reproductive Health, the National Policy on HIV/AIDS, the National Malaria Policy(2005),the Malaria Strategic Plan (2010-2016), the National Policy on Infant and Young Child Feeding (IYCF 2003), the Road Map for Accelerating the Reduction of Maternal and Newborn Morbidity and Mortality (2007); Feeding Guideline on Nutrition Management for People Living with HIV/AIDS and National Guidelines for Adolescent Friendly Health Services.

The MoHSS reviews its policies and activities through annual review/planning meetings that are jointly conducted with regional directorates and partners.

II. Organization of the Health

MOHSS offers services at the national, regional and district level in line with its organizational structure. The national level has 7 directorates: Primary Health Care; Special Programmes; Tertiary Health; Clinical Support Services; Policy, Planning and Human Resource Development; and Developmental Social Welfare Services.

There are 14 regional directorates supervising 34 health districts. These health districts are not congruent with any other government ministry's subdivisions and do not follow the 121 official constituency boundaries.

The population is free to use the public, private sector and faith-based health services although the government remains the main provider of health services for the majority of the population. The government has outsourced some services to some of the faith-based facilities-especially in remote areas.

Health services utilization depends on the quality, affordability of services offered and the availability of health facilities within walking distance. The MOHSS estimates that about 21% of the population is living 10 km or more from a health facility which hinders easy access. Before the introduction of the Health Extension Worker's programme in 2012, the health services have been available mainly in clinics, health centres and hospitals. The country has a number of outreach points that are visited by district based health staff. ***(Table 1: Number of Health Facilities 2012***). Patients are expected to pay a nominal user charge for services other than preventive services. A health facility survey conducted in 2009 reported that almost all health facilities charge a fee to treat sick children.[5]

[5] *Namibia Health Facility Census (HFC) 2009: MOHSS Feb 2011*

Table 1: Number of Health Facilities in Namibia (MOHSS)							
Ownership	**National Referral**	**Referral / Intermediate**	**District Hospitals**	**Health Centres**	**Clinics**	**Outreach Points**	**Total Registered**
Government	1	3	30	44	265	1150	
Private	-	-	13	8	75		844

The 2010 National Health Accounts estimated that up to 3% of the HIV out-of pocket funds were used for traditional healers. Although there is no published information about the role of traditional healers in the management of childhood illness in Namibia, it has been estimated that in sub-Sahara Africa up to 70% of the population access traditional healers.[6] It is not clear what influence these traditional healers have on the health seeking behaviours of mothers and their children.

2.1. Community Health Care

The PHC approach emphasizes the role of the community in the taking care of their health through promotive, preventive and simple home care of minor illnesses. In 1992, MOHSS published guidelines for the development and implementation of community based health care programmes. The directorate of PHC has a Community-based Home Care programme (CBCH) whose role has been to support the training of community volunteers and the district CBCH teams to be able to conduct outreach activities. Outreach activities include immunization, antenatal care (ANC), growth monitoring, HIV/AIDS prevention/care and provision of some basic treatments for pain at designated outreach points many of which are health facilities. A Regional Quarterly CHB Forum discusses the contributions of the various categories of volunteers.

The outreach activities have supplemented the work of over 5000 community volunteers, who are providing, among others, promotive and preventive services linked to some programmes like malaria, TB and HIV/AIDS. Since the early days of PHC, the biggest challenge has been the retention of volunteers. The shortages of district level staff and lack of transport has reduced the effectiveness of the outreach programme.

[6] *Mills E, Singh S et al: The challenges of involving traditional healers in HIV/AIDS care: International Journal STD/AIDS, 2006 Jun; 17(6)360-3*

2.1.1. Health Extension Worker's Programme

In 2008, the MOHSS conducted a national health services review that showed a gap in the provision of health services up to the community level. A National Policy on Community Based Health Care was approved in 2008.

Political support for the programme was promised in the 2009 SWAPO Election Manifesto: "*4.13: Improve the health of the communities and strengthen community based health care by introducing a new cadre of community health promotion extension workers to work with the community volunteers and health workers.*"

The National Health Policy Framework (NHPF 2010-2020) strategic direction for the health workforce includes the introduction of a government paid community-based worker, the health extension worker (HEW), who would be supervised by the nearby health facility staff.

In 2012, the MOHSS piloted the training of the first batch of HEWs in Opuwo District, Kunene Region with support from UNICEF and USAID. Grade 10 and above school leavers were selected with the help of the community and trained for 6 months on maternal, newborn and child health, first aid, HIV/TB/Malaria, nutrition, social mobilization and community rehabilitation. They were deployed to take care of 100 homesteads or 500 persons and the initial evaluation carried out showed an increase in ANC attendance in the district.

MOHSS decided to roll out the HEW programme to other regions, initially, in the north. The national target is to train 4113 HEWs by 2016. Each HEW will be assigned to 500 persons (100 households), however the sparsely populated areas will have more HEWs who will cover fewer households. Each HEW will be paid N$ 36,480. Those interested will be allowed to pursue further training in nursing.

The HEW will regularly monitor a number of defined indicators that will be submitted to the health workers supervising them. It will be important to monitor and evaluate their work on a regular basis and re-adjust their training accordingly.

The HEWs have a lot of potential beyond their current remit. The integrated Community Case Management (iCCM) of Childhood Illness has been used

successfully by community health workers to manage conditions like pneumonia and neonatal septicemia. A landmark study used trained community health workers to resuscitate asphyxiated infants, manage low birth weight and treat neonatal infection was associated with 60-70% reduction in neonatal mortality[7].

The HEW will have to provide some treatments using antibiotics. The main professional bodies are likely to challenge the HEW programme on the use of antibiotics within the community. The MOHSS will need to clearly define the limits within which the HEW can legally operate.

2.2. Human Resources for Health

The delivery of quality health services is a labour intense activity. Namibia has a small number of health workers. Although the density of health workers per 1000 persons is high and above the WHO recommended minimum of 2.5 per 1000, the public sector that provides over 70% of the health services has very few health workers. Seventy two percent of the doctors and just under 50% of the nurses are in the private sector which is mainly concentrated in urban areas[8]. Current MOHSS policy allows government paid doctors to operate in private health facilities and health nurses are allowed to leave the public sector after serving the mandatory bonding period of 3-4 years.

The current MOHSS establishment (Table 2) shows the following numbers of health personnel.

Table 2: Number of Health Workers MOHSS 20013/13	
Medical Doctors	309
Registered nurses	1592
Enrolled nurses	3215
Environmental Health Officers	71
Pharmacists	41
Pharmacy Assistants	68
Nutritionist	1

Every year, a number of health workers resign, die, retire, transfer to other government sectors, or get dismissed. In order to mitigate this situation, the

[7] *Bang AT, Bang AR et al, Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trail in rural India. Lancet 1999; 354*

[8] *National Health Policy Framework 2010-2020, MOHSS May 2010*

government started training doctors in the University of Namibia (UNAM) and is expanding nursing/midwifery training in the National Health Training Centres.

In 2009, the Auditor General reported that replacement of staff takes a long time-up to 14 months, some clinics are operating with one staff, there is limited accommodation for staff in rural and remote areas, and some equipment needed replacement. The health workers see many patients leading to exhaustion and low morale and patents can take up to six hours before seeing a health worker[9].

2.3. Health Financing

The government has continued to invest in the health services and has rapidly expanded the services in the rural areas, which had been neglected before independence and where the majority of the population lives. Between 2001 and 2007, the public expenditure as a per cent of government expenditure was an average of 12.2%. The 2008/9 National Health Accounts (NHA) shows a doubling of government expenditure between 2001/2 and 2008/9. The total per capita expenditure on health for 2008/9 was US$ 268 and government expenditure on health as a percent of the national budget was 14.3% in 2010/11 -just below the Abuja target.

An analysis of the 2006 MOHSS budget expenditure shows that personnel costs took up to 56% of the total budget and the goods and services used up to 26%. The budget allocation that financial year showed that 36.4% of the budget went to the Referral Hospital Services and 53% was given to Regional Health and Social Welfare Services.

Spending on Reproductive Health has been dropping over the years despite an increasing maternal mortality ratio. Analysis of the NHA shows a decline in spending from 44% to 3% between 2001 and 2006. It was during this period that the DHS reported an increase of maternal mortality from 271 in 2001 to 449 in 2006. This funding trend has continued as shown in the (**table 3**) below.

Table 3: Reproductive Health Spending 2007/09 (NHA-MOHSS)		
Year	2007/8	2008/9
Public Funds	US$ 61	US$ 50
Donor	US$ 2.2	US$ 4
Total	US$ 63.2	US$ 54

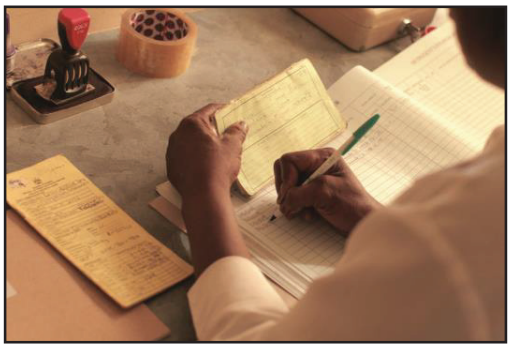
[9] *Report of the Auditor-General on performance audit on the Ministry of Health and Social Services: Provision of Health Services for the financial years 2006, 2007 and 2008. Auditor-General, Republic of Namibia 2009.*

In order to address the problems leading to the high maternal mortality ratio, the Ministry of Health developed a five years (2009-2014) US$717.2 million Roadmap for accelerating the reduction of maternal and newborn morbidity and mortality. A key partner, the European Union (EU), is supporting MOHSS through WHO, with a four years 10 million Euros Programme for Accelerating the Reduction of Maternal and Child Mortality in Namibia (PARMaCM).

No estimates or analysis of child health expenditure have been done in the past and it is currently not possible to tease the information from the Medium Term Expenditure Framework (MTEF) and or the PHC directorate's budget. An analysis of the trends in maternal and child health budgetary allocations and its impacts is urgently needed.

2.4. Health Management Information System

Any modern health system needs accurate data to efficiently allocate resources and account for them by regularly monitoring and evaluating the implementation of interventions. The health management information system (HMIS) is expected to provide management at all levels of the health system with reliable up-to date data. Those who generate the data need a feedback on a regular basis to allow self-assessment and improvement.



The current HMIS database does not integrate data from all the MOHSS programmes and some critical child health programme data is not routinely included in the HMIS e.g. Nutrition, etc. In the health facilities, the data generated is not utilized by management to request for supplies such as medicines that could be used for the treatment of childhood illnesses using the IMNCI protocols which have been proved to be cost-effective and rational[10].

The current HMIS data is showing a large number of "other respiratory diseases" for the under-five children which is a potential area for abuse of antibiotics. A review of the HMIS data in combination with pharmaceutical utilization data would help to reduce drug misuse in health facilities.

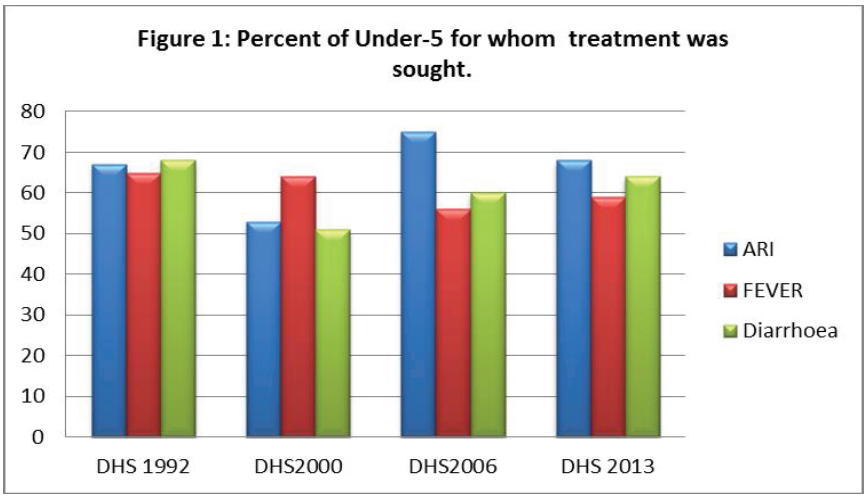
[10] *Trevor Duke; Child Survival and IMNCI-in need of sustained global support. Lancet Vol. 374. Aug 2009*

2.5. Vital Registration

The possession of a birth certificate allows one to claim nationality, facilitate access to social services such as education and medical care. Namibia has a long history of birth registration[11] as shown by the 2011 national census which reported that up to 92% of all citizens have birth certificates. Credit goes to the government's policy of promoting birth registration in hospitals where the majority of Namibians are born and an effective decentralization of vital registration processes. Further improvement is expected when the draft bill- The Birth and Death Registration Bill 2013 is enacted.

2.6. Health Services Utilization

The level of utilization of health services is influenced by its accessibility, affordability and the perceived quality. The quality is affected by the number of available well motivated staff and adequate medicines and equipment. Even when there is geographic access, not all mothers seek care for their children at the health facilities. The DHS data from 1992 to 2006 show that not all children with ARI, FEVER and Diarrhoea were taken for treatment (***Figure 1)***



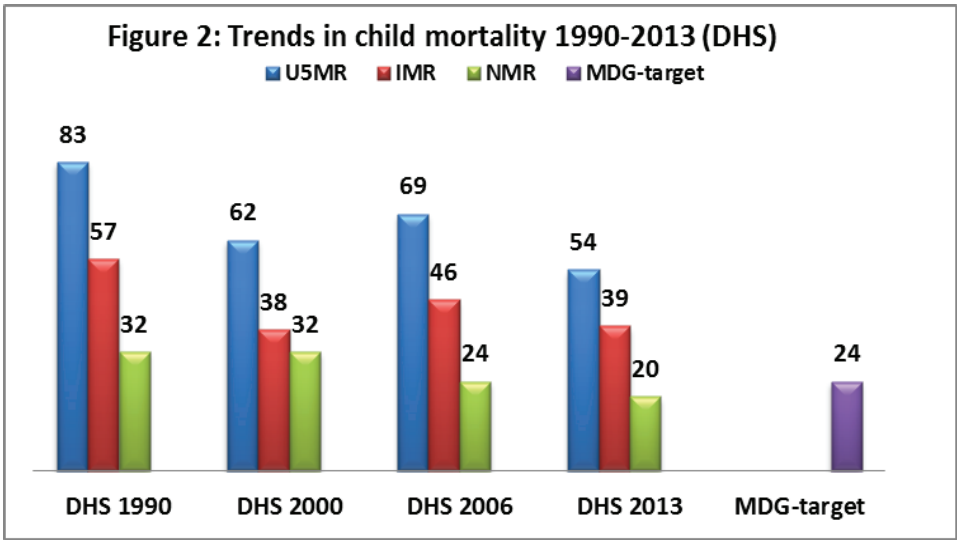
As in many findings, the children from the highest wealth quintiles utilized the health services more than those from the lowest wealth quintiles[12]. Although the current user-fees are affordable by many families, there are other expenses, such as transport costs that may make it difficult for families to access health services. In order to increase utilization of services by the marginalized a number of countries have institutionalized free health care for pregnant mothers and the under-5 children.

[11] *Births, Marriages and Deaths Registration Act No 81 of 1963*

[12] *Schellenberg, J.A. et al., Inequities among the very poor: Health care for children in rural southern Tanzania, Lancet 2003*

III. Progress in Reducing Child Morbidity and Mortality

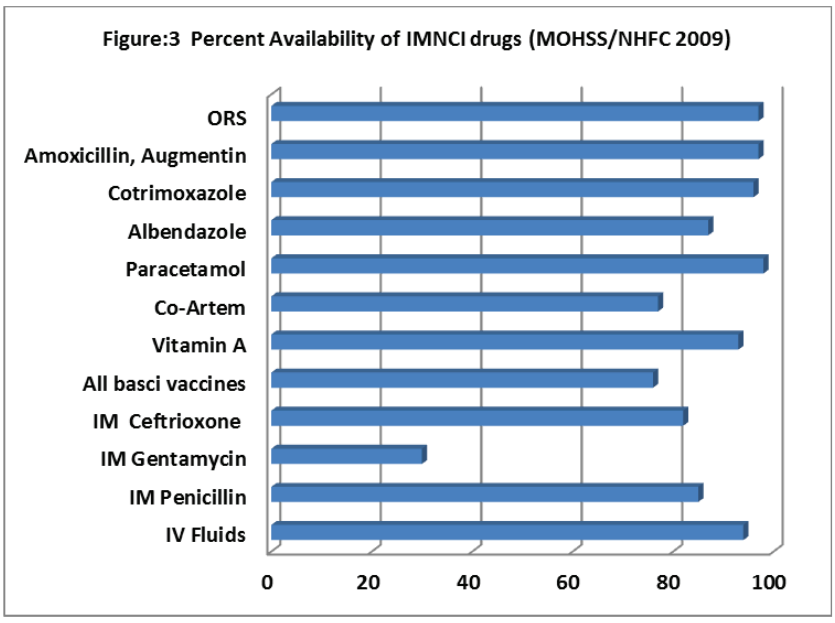
Namibia had made an initial progress in reducing under-five mortality soon after independence in 1990. The spread of HIV/AIDS epidemic in the country over the years has had a negative impact on this trend. The epidemic that was tracked through prevalence rates in sentinel surveillance ANC sites was recorded at 4.2% in 1992, peaked to 22% in 2002 and started declining to 17.8% in 2008. The 2006 NDHS data showed an increase in the under-5 mortality rates which, like in the past, are higher in the rural areas and among the lowest wealth quintiles. However, the 2013 DHS shows that the country is moving in a right direction in reducing child mortality again. ***(Figure 2)*** This is due to the aggressive manner in which the country has tackled Malaria, the HIV/AIDS epidemic and increased immunization coverage. The government has been increasing investments in the health sector.



3.1. Availability of Essential Medicines

The use of essential medicines in the public sector is guided by the Namibia Essential Medicine's List (NAMLIST), the standard treatment guidelines (STGs) and programme specific guidelines. NAMLIST categorizes the medicines according to the level of use-community, clinic and health, hospitals and referral hospitals. The list contains all the medicines needed for the management of common childhood illness. There are national, regional, district and hospital therapeutic management committees that are expected to regularly discuss drug use within their domain and ensure rational drug use. The poly-pharmacy seen in health facilities show that more needs to be done.

The ministry of health conducted a National Health Facility Census (NHFC) in 2009 which showed that the storage of vaccines and medicines were generally good although only 49% of the health facilities updated their inventory on a daily basis. Of concern was that only 60% of health facilities had adequate cold chain monitoring systems in place. The availability of drugs was also noted and on the day of assessment 75% of all the first-line and 75% of pre-referral drugs needed for the treatment of common childhood illnesses were available. **(Figure 3)** Seventy-six percent of facilities had adequate stocks of the required vaccines and 93% had



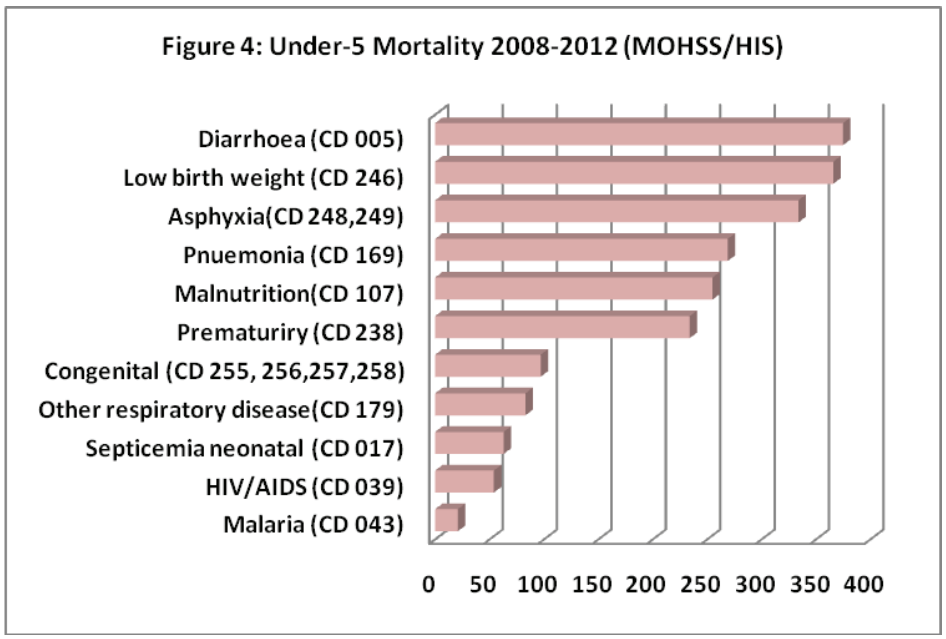
vitamin A. For both drugs and vaccines, the clinics and health centres were better stocked than the hospitals.

3.2. Determinants of Child Morbidity and Mortality

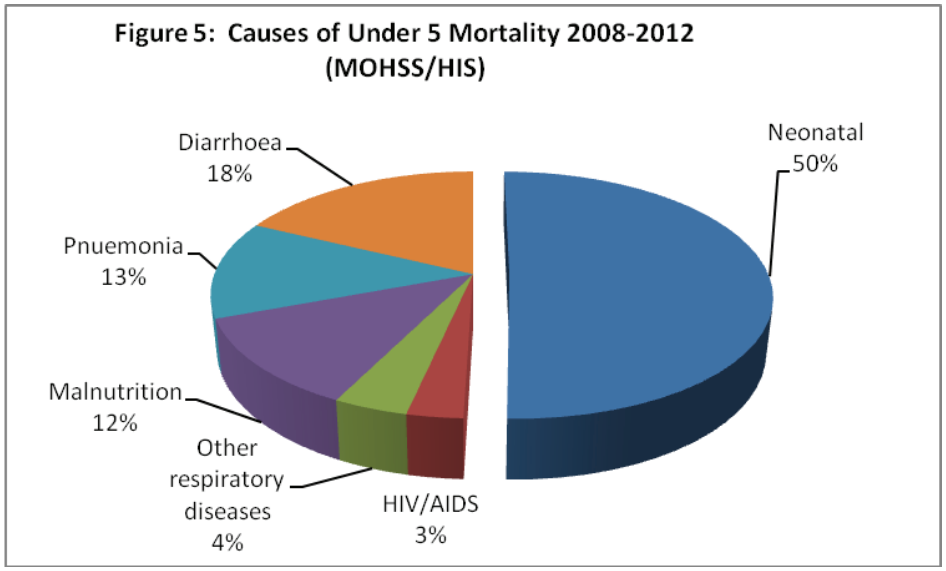
The major direct determinants of child survival are the common childhood illnesses. The social-economic factors and the health system indirectly determine child survival through their influence on decision making and the perceived quality of care[13].

3.2.1. Direct Determinants Child Survival

The MOHSS data for 2008-2012 shows that diarrhoea, pneumonia, malnutrition, HIV/AIDS and neonatal conditions as the leading causes of child morbidity and mortality. **(Figures 4 and 5)** Malaria is no longer a major cause of under-five mortality since it has been well controlled.

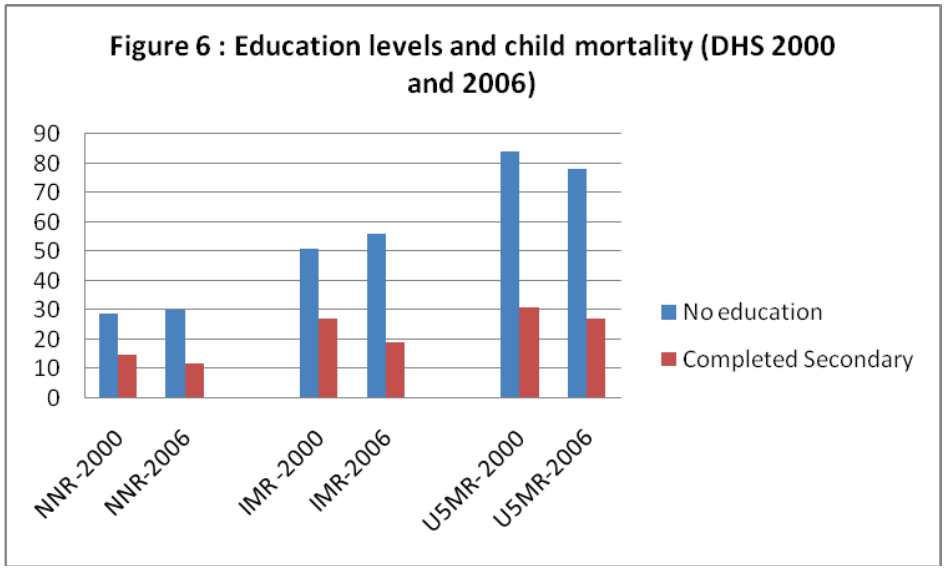


[13] *Mosley and Chan; An Analytical Framework for the Study of Child Survival in Developing Countries; Population and Development Review 1984;10 Suppl:25-45*



3.2.2. Indirect Determinants of Child Survival

The indirect determinants of child health include, among others, the mother's education, birth intervals and the wealth quintile for the family. Although Namibia has high levels of adult literacy, it is the high levels of schooling attained that shows impact on the child mortality rates. The 2000 and 2006 NDHS showed child mortality rates were high among children of mothers with no or little education.



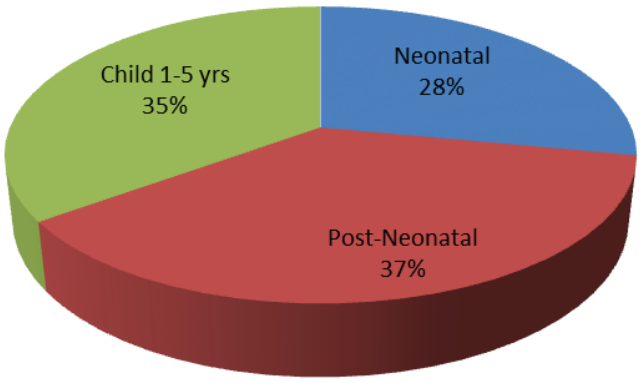
The 2006 NDHS data showed that the neonatal, infant and under-five mortality rates of children of mothers from the lowest wealth quintile were

twice as high as those from the highest wealth quintile. Birth intervals also indirectly determine the survival of a child. The same data showed that a child born within 2 years of a preceding birth doubles the likelihood of dying in infancy compared to the one born three years after.

3.2.3. Proportional Mortality

In Namibia, the majority of under-five deaths occur during the first year of life, in the neonatal period and in rural areas***. (Figure 7)*** In recognition of this fact, MOHSS has changed its policy on postnatal care (PNC). The current policy states that baby-mother pair should be comprehensively reviewed at 6 hours, 6 days, 6 weeks and 6 months. This policy is yet to be fully implemented and may need to be revised in light of WHO recommendation that mothers and newborns should all be seen within the first 48 hours (2 days).

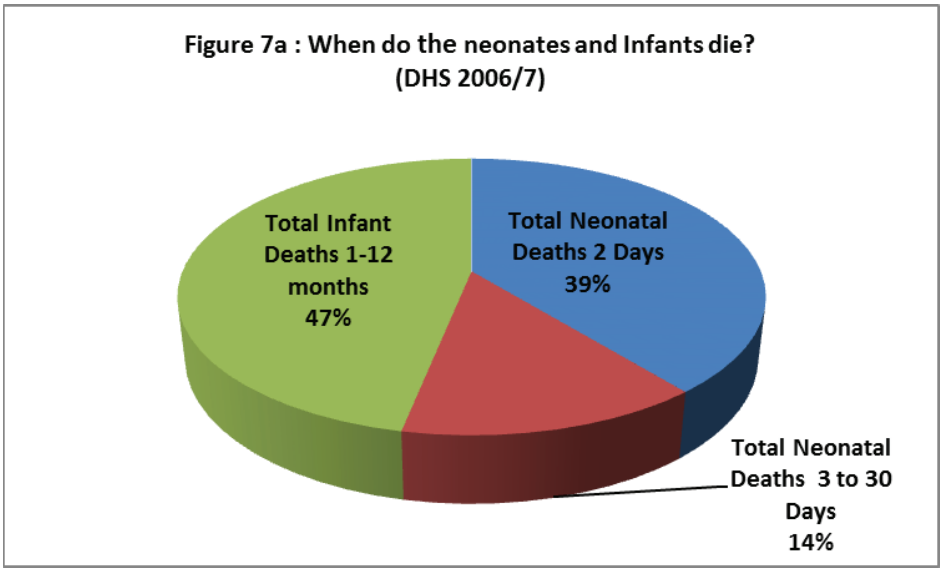
Figure 7: When are they dying? (DHS 2013)



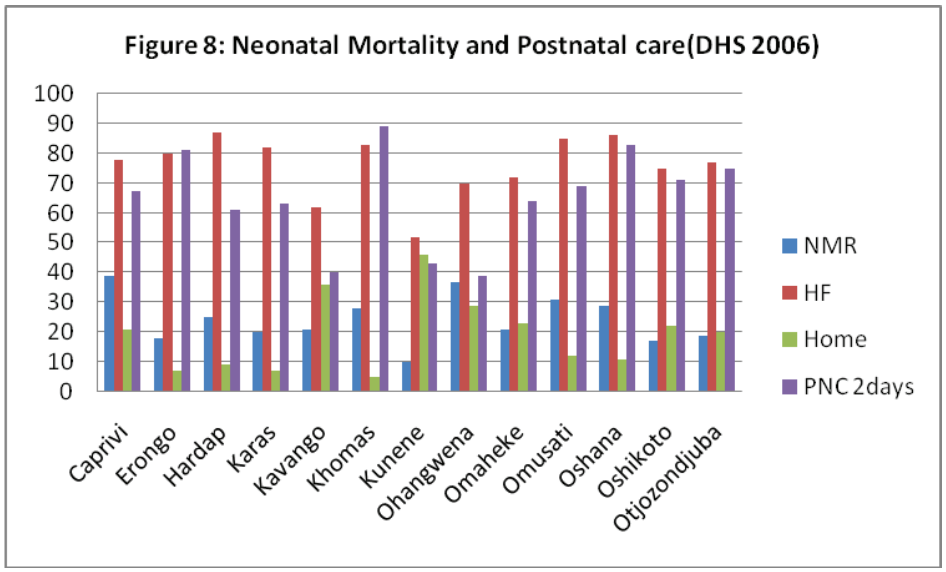
3.2.4. Neonatal Mortality

The majority of neonatal deaths occur within the first week and the first 24 hours.[14] **(Figure 7a)** It is important that the neonate and the mother are thoroughly checked and given cost-effective interventions during this period.

[14] *Lawn JE, et al., 4 million neonatal deaths: When? Where? Why? Lancet, 2005. 365: p. 891-900*



In Namibia, not all neonates are checked since only 65% of mothers (DHS 2006/7) were seen within the first 2 days after delivery, **(Figure 8)** and less than 50% were seen during the first 4 hours. There were no reported PNC visits to mothers who delivered at home.



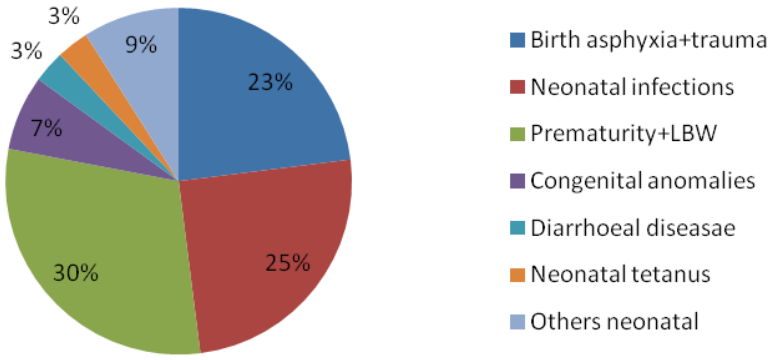
The causes of neonatal deaths are preventable and treatable. A systematic analysis of under-5 mortality for 2008 reported that 3.575 million neonates had died of preterm complications, birth asphyxia, sepsis and pneumonia[15].

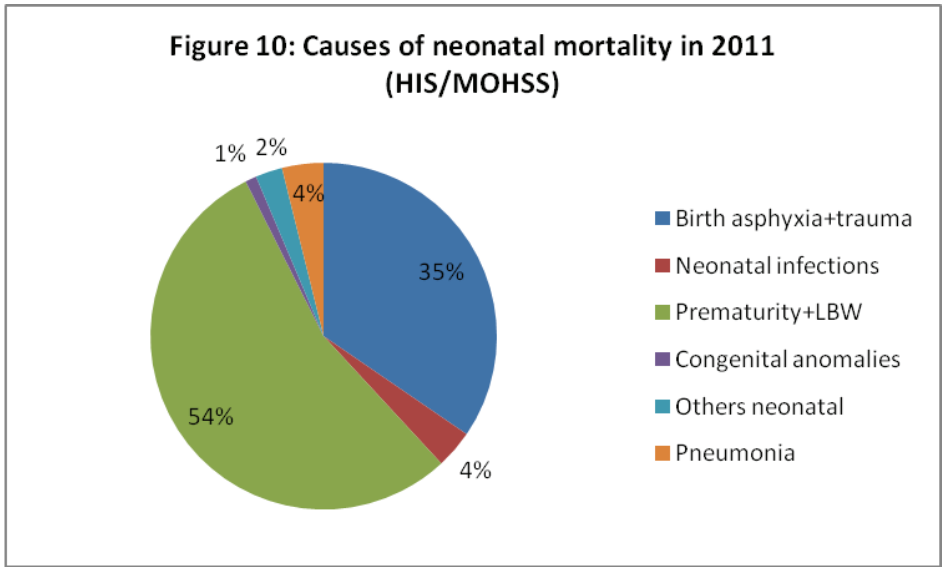
[15] *Black R, Cousens s et al; Global, regional, and national causes of child mortality in 2008: a systematic analysis The Lancet 2010 375*

In 2010, the WHO's Child Health Epidemiology Estimation Group (CHERG) listed the following as the leading causes of neonatal mortality: preterm and low birth weight, asphyxia, sepsis or meningitis, pneumonia, congenital abnormalities, tetanus, diarrhoea and others.

The MOHSS has a data base on all morbidities and mortalities seen in public health facilities. There is no annual publication showing the trends in child morbidity or mortality. The HIS data-despite its challenges-shows a similar pattern to the international picture on the causes of neonatal mortality***. (Figure 9 and 10)***. Tetanus is no longer a documented threat to child survival in Namibia.

Figure 9: Global causes of neonatal deaths(WHO estimate 2010)





3.2.5. Under-5 Mortality

The causes of death for under-5 years children in 2012 were estimated by Inter-agency Group for Mortality Estimation (IGME) to be due to pneumonia(12%), diarrhoea (5%) HIV AIDS (9%), Measles (2%), malaria (0%), Injuries (6%), Neonatal conditions (44%) and others (22%).[16]

Data from the HMIS/MOHSS for the year 2008-2011 confirms the general pattern at international level for causes of under-5 morbidity and mortality. In the available data tetanus and HVI/AIDS do not future in the top causes of under-5 admission in public facilities**. (Figures 11, 12 and 13)**

[16] *Committing to Child Survival: A Renewed Promise Progress Report 2013, UNICEF*

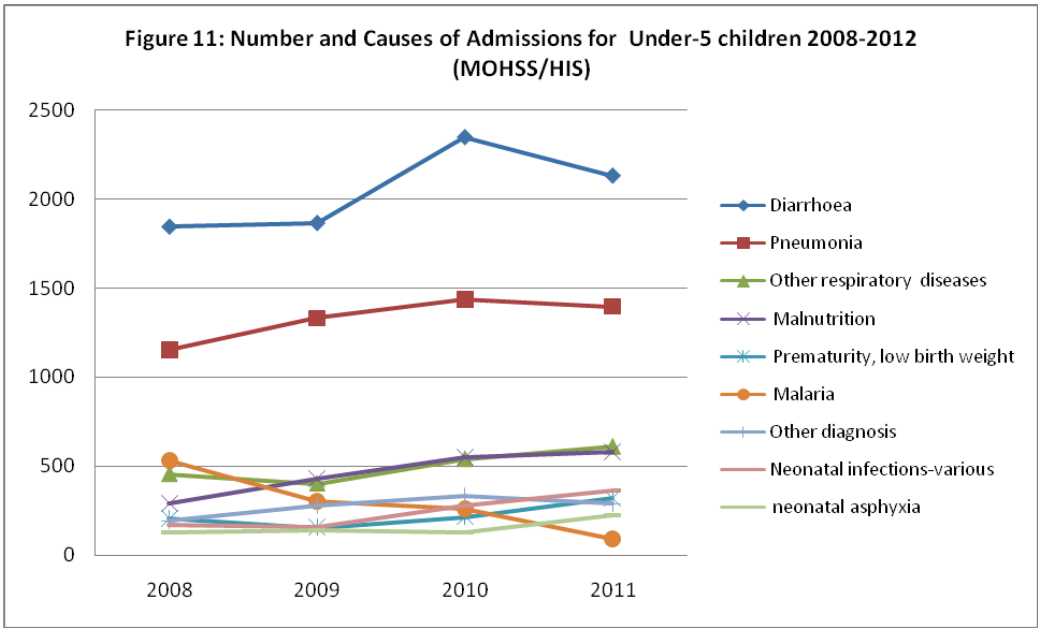


Figure 11: Number and Causes of Admissions for Under-5 children 2008-2012
(MOHSS/HIS)
2500
2000
1500
1000
500
0
2008
2009
2010
2011
Diarrhoea
Pneumonia
Other respiratory diseases
Malnutrition
Prematurity, low birth weight
Malaria
Other diagnosis
Neonatal infections-various
neonatal asphyxia

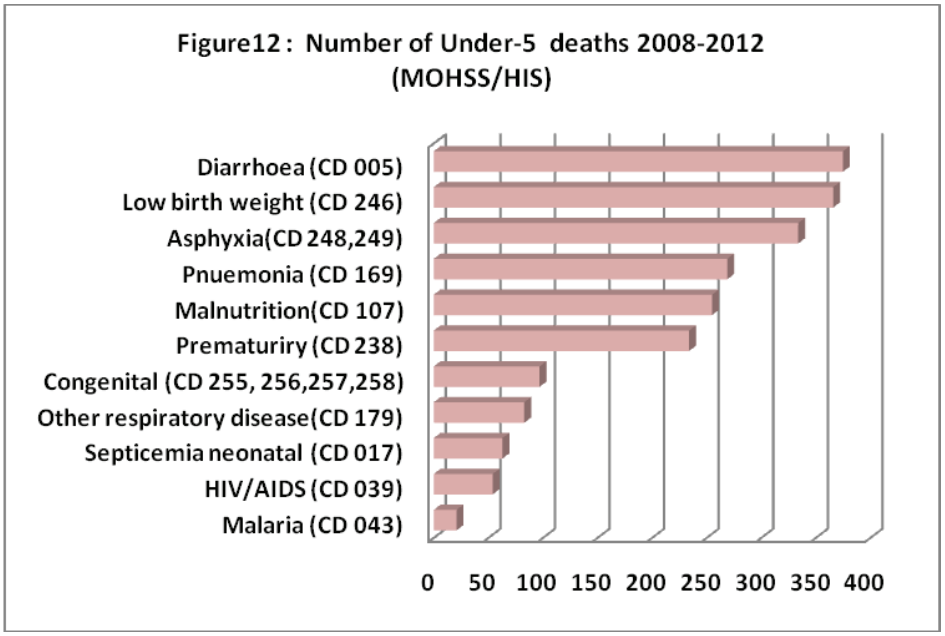
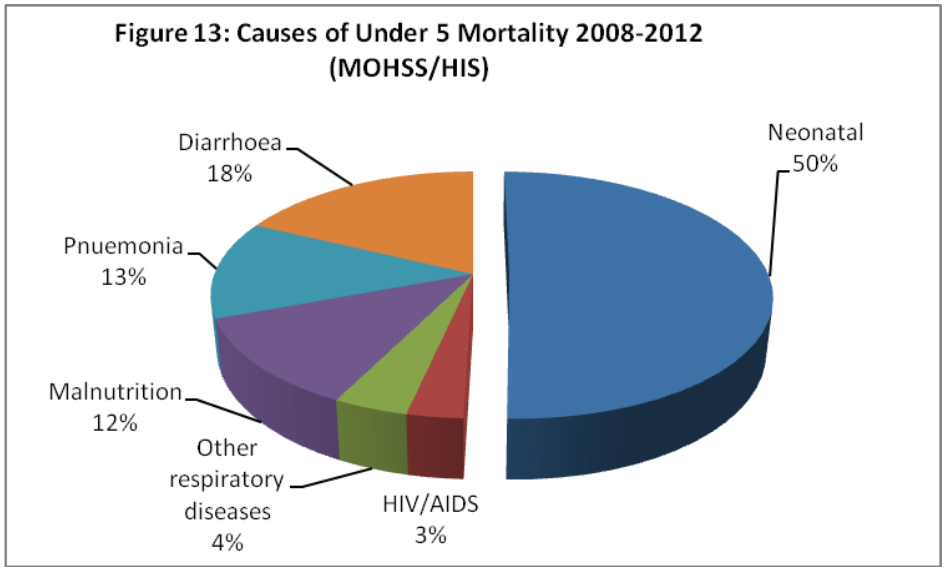


Figure12 : Number of Under-5 deaths 2008-2012
(MOHSS/HIS)
Diarrhoea (CD 005)
Low birth weight (CD 246)
Asphyxia(CD 248,249)
Pnuemonia (CD 169)
Malnutrition(CD 107)
Prematuriry (CD 238)
Congenital (CD 255, 256,257,258)
Other respiratory disease(CD 179)
Septicemia neonatal (CD 017)
HIV/AIDS (CD 039)
Malaria (CD 043)
0 50 100 150 200 250 300 350 400

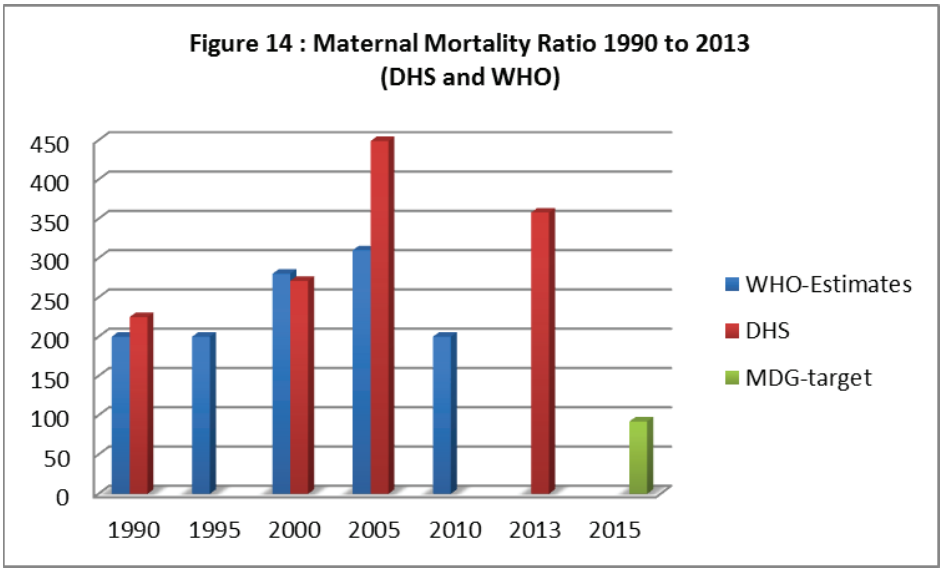


3.2.6. Maternal Mortality

It is well established that when mother dies, the infant is 3 to 10 times likely to die before 2 years of age and 2 to 3 times likely to die before the fifth birthday[17]. The child's survival is therefore closely linked to the mother's survival.

The DHS data and WHO estimates shows that Namibia had started reducing the number of maternal deaths until the late 1990s and the beginning of the century when both the maternal mortality ratio and the under-5 mortality rates started increasing. **(Figure14).** The 2013 NDHS shows a decline in the maternal mortality ratio of 358 from the 2006 NDHS of 449 however this is still high and the country will not meet its MDG target on maternal mortality reduction. Namibia, like many of the Sub-Saharan countries, has been experiencing an HIV/AIDS epidemic that was in part responsible for the increase in maternal death and it was estimated that HIV/AIDS is the leading indirect cause of maternal deaths at almost 60%. Countries that have reduced their HIV prevalence are now recording decreases in maternal mortality ratios. Although the country has made strides in increasing HIV/AIDS awareness, is providing ARVs and the majority of mothers deliver in health facilities, the current maternal mortality ratio could be a reflection on the weak postnatal care follow up as well as issues related to quality of care.

[17] *World Health Report 2005: Make every mother and child count. 2005, Geneva: WHO*

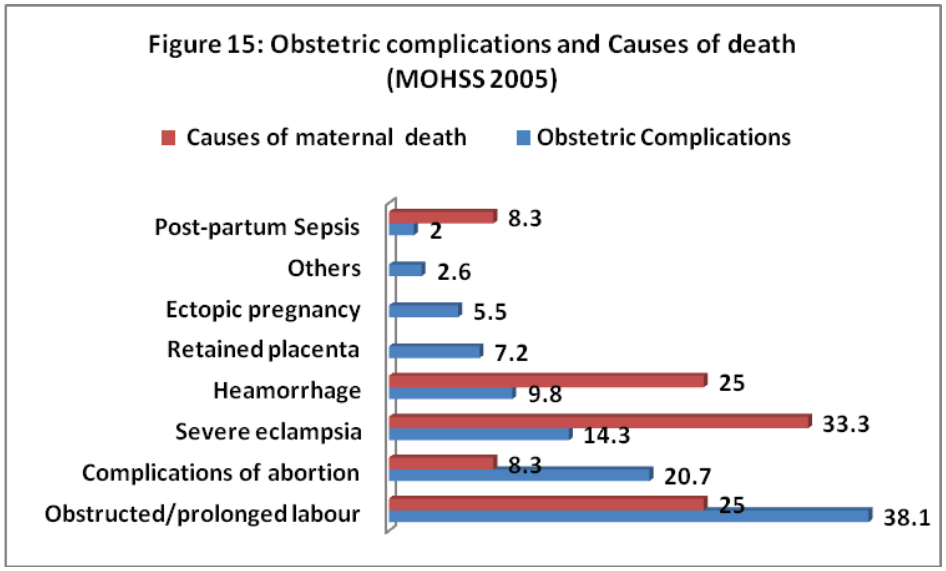


The Maternal Mortality Estimation inter agency Group (MMEIG) estimated that between 1990 and 2010, Namibia's average annual percent change in maternal mortality was 0.1% and the country is unlikely to meet its MDG 5 target. The lifetime risk of maternal death is estimated as 1 in 160. The 2013 DHS reported a Maternal Mortality Ratio of 358 but the 2015 MDG target is 94 per 100,000 live births.

The common direct causes of maternal mortality in the country are: eclampsia (33%) heamorrhage (25%), obstructed labour (25%), abortion, sepsis and HIV/AIDS is the leading indirect cause of maternal deaths (59%)[18] ***(Figure 15).*** Although up to 70% of the deliveries are conducted in health facilities, an EMOC assessment done in 2005 showed that only a few of the health facilities were fully Emergency Newborn and Obstetric Care (EmNOC) compliant[19]. Policies and strategies for tackling the maternal mortality issue have been developed and resources are being mobilized internally and externally.

[18] *National Policy on Sexual and Reproductive and Child health, MOHSS 2012*

[19] *Report on Needs Assessment for emergency obstetric care(EmOC) MOHSS 2006*



3.3. Main Causes of Child Morbidity and Mortality

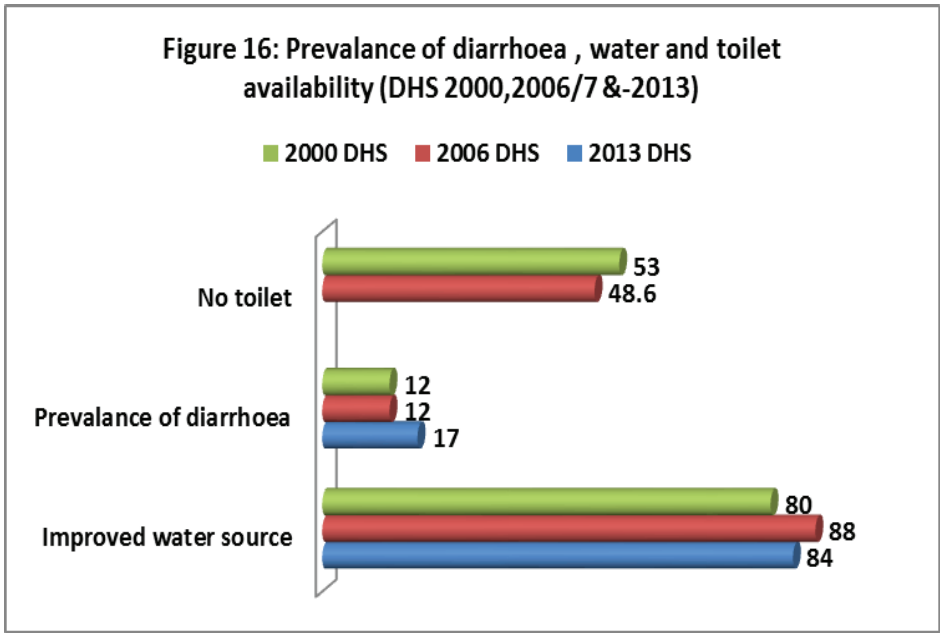
3.3.1. Diarrhoea

Diarrhoea remains the leading cause of morbidity in the country. It is seen more rural areas and in parts of the country where water and sanitation are a problem. Previous NDHS data had shown no change in the prevalence of diarrhoea between 2000 and 2006 which remained at 12% but had dropped by 50% from the 1992 levels. The 2013 DHS reported that 17% of the children had diarrhoea in the 2 weeks prior to the survey. Diarrhoea occurs more in children after 6 months usually when complementary feeds are introduced. Bottle feeding is very common and was reported in the 2013 DHS to be used in 26% of 0-5 months old babies and practiced in 50% of children between 9-11 months. Bottle feeding is still seen in health facility settings despite an earlier campaign on Baby-Friendly Hospital Initiative.

Water contamination, inadequate sanitation facilities and poor food preparation practices cause up to 88% of diarrheal deaths worldwide[20]. The availability of improved water sources has not improved. Only 84% (2013 DHS) of households have improved water sources while in 2006 NDHS showed 88% and 80% in 2000 NDHS of households with improved water sources. This can be contributed by increased population migration in urban informal settlements.

[20] *Black, RE et al. Where and why are 10 Million Children Dying Every Year? The Lancet, 361., 2003*

Access to improved sanitation remains a challenge. The 2013 DHS reported that 33.8% of the households have access to improved sanitation. Previous demographic surveys showed that about half of the households had no toilets (48.6% households 2006/7 DHS and 53% in 2000 DHS)**. (Figure 16)** Some reports mention that about 20% of schools have no toilets. Six ministries are involved in sanitation/water related activities that have inevitably resulted in coordination problems. MOHSS's role has been to educate people on hygiene and sanitation issues.



As noted earlier, not all mothers sought treatment for diarrhoea from a health provider. However, there has been an improvement of mothers taking their children for treatment. In 2013, 64% of mothers took their babies to a health provider compared to the 16.5% reported in the 2006 NDHS. Up to 78% of children were given oral rehydration therapy. An important part of diarrhoea management, prescription of Zinc tablets with ORS, is yet to start in the country. The Rota virus is a common cause of childhood diarrhoea and Government will be introducing the Rota vaccine in 2014.

3.3.2. Pneumonia

Pneumonia is the second common cause of morbidity seen in the health facilities in the country **(Figure: 11)** and it is common among children with HIV/AIDS. Pneumonia kills quickly and signs of pneumonia must be recognized early and treatment sought early. The 2013 NDHS results show that 6% of under-five children had symptoms of Acute Respiratory Illness (ARI). The 2006

NDHS, had reported that 4.3% and the 2000 DHS had reported that 18% of the under-five children had symptoms of ARI. As in previous NDHS reports, not all mothers sought treatment for their children with symptoms of ARI. Sixty-eight percent of children with ARI were taken for treatment. Sixty-one percent of the rural mothers took their sick child for treatment while in the urban area 76% took their children for treatment. The HEP workers will be critical in the management of ARI in settings where health facilities are few.

A number of risk factors that contribute to the incidence of pneumonia have been identified by WHO[21]. These risk factors include: indoor air pollution, low birth weight, crowding, malnutrition, lack of exclusive breastfeeding and lack of measles immunization. All these factors exist in the country. The NDHS showed that use of firewood for cooking is common as 62% in all households (NDHS 2006).

Children with pneumonia can be managed very well using the IMNCI algorithms and can be managed by community health workers. A meta-analysis of community-based management of pneumonia found a reduction in total mortality of 27% among the under-5 years[22].

The common organisms causing pneumonia include Streptococcus Pneumoniae, Heamophilus Influenzae type-b (Hib), respiratory syncytial virus and Pneumocystis Jiroveci which is common in children with HIV. Drugs for the treatment of these organisms are available in the country and the vaccine for Heamophilus Influenzae type b is already in use. Government has planned to introduce the Pneumococcal vaccine in 2014.

3.3.3. Paediatric HIV/AIDS

There is a 6.3 higher chance of death for an infant born to an HIV-positive mother[23], if no treatment is provided**.** The Child Health Epidemiology Estimation Group estimates that globally, up to 17% of all under-5 deaths are caused by HIV/AIDS. The MOHSS data from the HMIS shows that between

[21] *Rudan I. et al. Epidemiology and etiology of childhood pneumonia: Bulletin of the World Health Organization 2008; 86: 4008-416*

[22] *Sazawal S, Black RE et al. Effect of pneumonia case management in mortality of neonates, infants, and preschool children: a meta-analysis of community-based trials Lancet Infectious Diseases 2003*

[23] *Lallemant C, et al. Impact on Child Mortality before the Highly Active Antiretroviral Therapy Era: A Study in Pointe-Noire, Republic of Congo; Journal of Tropical Medicine, vol.2010, May 2010*

2008 and 2012, HIV/AIDS caused up to 3% of the under-5 mortality and was the 10th cause of under 5 mortality. Children with HIV are managed by ART centers. According to the 2013 progress report on the global plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive, Namibia has achieved universal access. Over 88% of the children who are eligible for receiving HIV treatment, accordingto WHO criteria,, are on ARVs.

3.3.4. Malnutrition

Food and nutritional insecurity is a widespread problem in the country due to recurrent droughts in a background of poverty and frequent childhood illnesses. The country can only produce about 50% of its cereal needs and imports food mainly from South Africa. The government donates food to the needy and is also providing a small pension to the elderly who are increasingly taking care of grand children left with then by teenage girls or working parents. The regions which are predominantly rural, with the high levels of poverty, high HIV prevalence rates, and low literacy rates have the highest levels of malnutrition.

It is estimated that in 30-35% cases of under-five deaths, malnutrition is an underlying cause[24]**.** The 2013 Lancet series on Maternal and Child Nutrition indicate that foetal growth retardation causes more than 800 000 neonatal deaths and 20% of stunting in the under-5 children. There is a strong case to address maternal nutrition during pregnancy[25].

The interaction between frequent diseases episodes like diarrhoea and pneumonia and inadequate food intake have contributed to the current levels of malnutrition. The wasting and underweight levels have improved but the stunting levels are not improving ***(Figure 17)***. A new nutritional trend is beginning to appear in the under-5 years. Overweight was recorded at 4% in the 2006/DHS but has dropped to below 1% in the 2013DHS.

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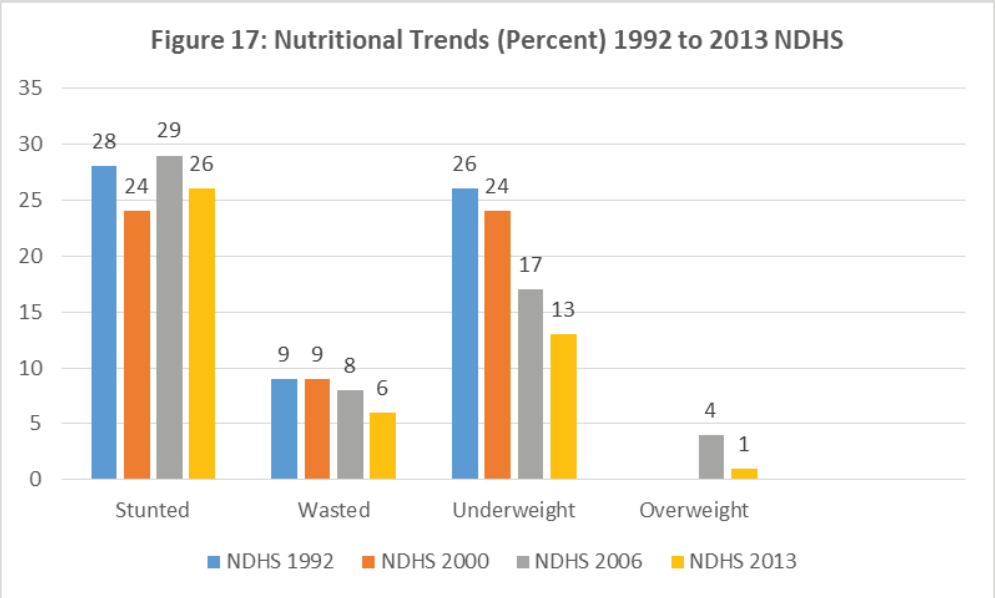
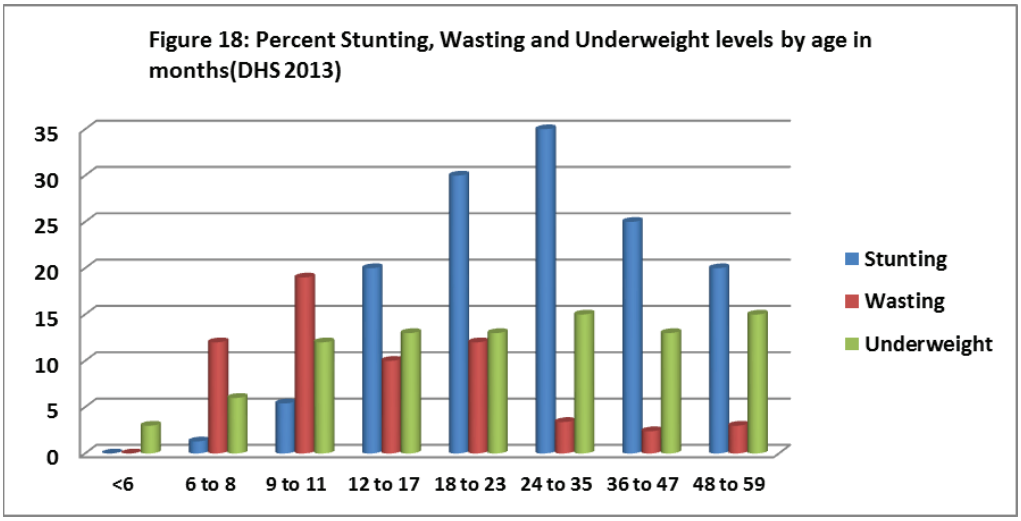
[24] *Countdown to 2015 Decade Report: Taking Stock of Maternal, Newborn and Child Survival; 2010 UNICEF*

[25] ***Black RE, Victora CG et al. Maternal and child under-nutrition and overweight in low-income and middle-income countries; The Lancet June 2013, www.thelancet.com***



Over the past 20 years, stunting levels have remained above the 20% WHO cut-off point although the country's economy has grown and the poverty levels have dropped over the same period. Levels of malnutrition tend to increase after the first 6 months of life, peak at 18 months to and 36 months and drop off as the child gets older ***(Figure 18)***

Wasting that usually indicates inadequate food intake and recent illness like diarrhoea is seen between 9-23 months while underweight, which reflects acute or chronic malnutrition is seen between 9 and 27 months.



3.4. Current Child Health Interventions

In order to reduce child morbidity and mortality, the MoHSS has been implementing a number of high impact interventions for a number of years. The following section discusses some of these interventions:

3.4.1. Integrated Management of Newborn and Childhood Illnesses (IMNCI)

Namibia started IMNCI in 1999 and by 2008, 545 health workers had been trained and 47% of the health facilities were managing children according to the IMNCI algorithm. IMNCI training has been introduced in the nursing curriculum at diploma and certificate levels.

The 2009 Health Facility Census conducted an assessment of IMNCI practices in a number of health facilities. It revealed that health workers were able to ask for the main symptoms in only 50% of the cases, correctly assessed diarrhoea and fever in 60% and 88% of the cases. Health workers checked for immunization status in 90% of the cases and weighed 96% all children. The children were given antibiotics for the correct indication in 80% of the cases, however there was limited advice to the caretakers. These observations coupled with the a diagnosis of "Other respiratory tract infections" being the commonest cause of childhood illness in Namibia (HIS/MOHSS 2012) indicates that health workers are not following the IMNCI guidelines which leads to misuse of antibiotics.

The use of Zinc in the management of childhood diarrhea has not been implemented in health centres and clinics although it is in the IMNCI algorithm, NAMLIST, and in the standard treatment guideline. The current IMNCI guidelines treat non-severe pneumonia with amoxicillin three times a day instead of two times a day as currently recommended by WHO[26].

IMNCI has faced a number of challenges including the lack of financial and administrative support. The traditional IMNCI course is long and expensive. Newer approaches have been introduced in other countries. There is the computerized course that uses the IMNCI Computerized Adaptation and Training Tool (ICATT); and a long-distance course. IMNCI implementation needs follow-up soon after training and follow-up by the district staff doing support supervision. This has not been happening.

[26] *Grant GB, Campbell H et. Al; Recommendations for treatment of childhood non-severe pneumonia. Lancet Infect. Dis. 2009*

3.4.2. Immunization

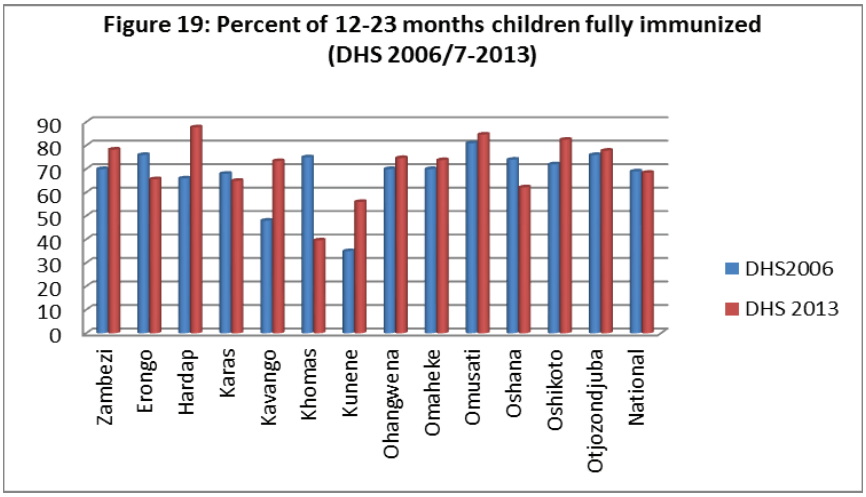
The MOHSS has been able to contain the spread of vaccine preventable diseases over the years with an active national immunization programme which has reduced child morbidity and mortality due to diphtheria, pertussis, tetanus, haemophilus influenza-type b, polio and measles. The earlier successful polio campaigns were disrupted with a polio outbreak from a case imported from a neighboring country.
Currently, no polio cases have been reported since October 2008. Sporadic measles outbreaks have continued but affect mainly older children and adults. These outbreaks occurred in the context of a low national coverage of 64% for fully immunized children. According to WHO's Global Immunization Vision and Strategy (GIVS) 2006-2015 immunization coverage for all antigens should be above 80% at district level and over 90% at national level.

Not all children are immunized as the national level coverage between 2000, 2006 and 2013 did not show much changes (Figure 19). Some regions have experienced declines in the levels of immunization and unlike in the past years when predominantly rural regions were affected, it is now the predominantly urban regions (Khomas 75.5% fully immunized in 20067 but dropped to 39.6% in 2013) that are performing badly. This cannot be attributable to access to health care in Khomas although access to immunization remains a challenge in some parts of the country. A recent cluster survey shows that mothers failed to immunize their children because of long distances and long waiting times[27]. The proof of immunization is a record on a card which must be retained. In 2013 only 69.5% of the children had a vaccination card. Interestingly, 91% of mothers in 2006 reported Tetanus Toxoid (TT) immunization but only 24% had proof on their cards. More efforts are needed to ensure retention of cards. The national drop-out rate for Penta1 to Measles is 6.6%.

The ministry has tried to address the low immunization rates by using the RED approach, conducting national and sub-national immunization campaigns which are labour intensive and expensive. The outreach activities, a key

[27] *Report of the post-measles supplemental immunization and EPI coverage in Namibia, August-September 2012 MOHSS*

approach to wide spread immunization coverage faces human resources and transport challenges.



A recent survey on the quality of the cold chain equipment revealed a number of challenges including the use of very old refrigerators and the quality of vaccines rapidly decreasing by the time it gets to the health centres and clinics.

The MOHSS will introduce the Rota virus and Pneumococcal vaccines in 2014 and is in the process of expanding the cold chain system to include the new vaccines.

3.4.3. Nutrition

Malnutrition continues to affect the health of a large number of Namibian children and adults despite government's efforts to provide food rations and developing policies, strategies and plans. Within the MOHSS there is a nutrition unit that coordinates nutrition activities including the supply of supplementary and therapeutic feeds.

There is a national food and nutrition policy and a national food security and nutrition action plan (1995). The MOHSS developed an Infant and Young Feeding Policy that was revised in 2010, to include the new WHO recommendations on exclusive breastfeeding for 6 months for all women including those with HIV.

Government's efforts to elevate the nutritional issues to a higher level and include private sector actors, lead to the formation, in 2010, of the National Alliance for Improved Nutrition (NAFIN) which is based in the office of the Prime Minister.

Government passed legislation in 1994 to ensure salt iodization but has not passed food fortification legislation for the commonly consumed foods like maize and millet (mahangu). Unfortunately, the Code for Marketing Breast milk Substitutes has not been passed although it was drafted long ago.

There is regular monitoring of growth through the well child clinics, the immunization programmes and child health days. Children are weighed, heights are taken and the mid-upper arm circumference (MUAC) is measured. It is recommended that children with severe acute malnutrition can be managed within the community[28].

The management of malnutrition is done within the community, at the clinic, health center and hospital levels. The children with Moderate Acute Malnutrition (MAM) and those with SAM without medical complications are managed at the primary level and at home with high energy, vitamin and mineral rich ready-to-use therapeutic feeds (RUTF). These children are regularly followed-up at the clinic every one or two weeks. The children with SAM and medical complications are referred to hospitals where they are initially managed on F75 and F100 until they recover and then started on RUTF. Follow-up is done by the nearby health facility. The introduction of the Health Extension Workers will go a long way in reducing MAM and SAM within the communities.

3.4.3.1. Infant and Young Child Feeding

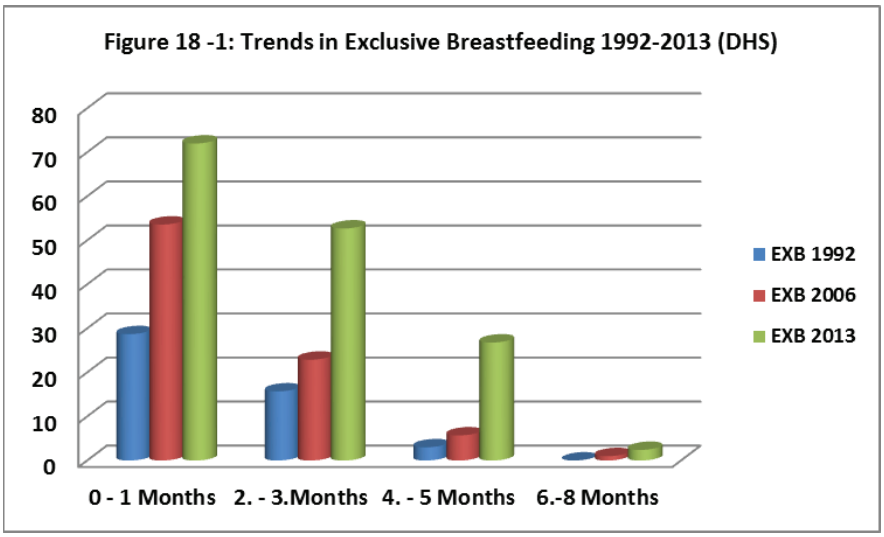
The MOHSS is using the adapted WHO Infant and Young Child Feeding (IYCF) guidelines. The guidelines were revised in 2007 to reflect the WHO/WFP/UNICEF Joint Statement on Community-Based Management of Severe Acute Malnutrition (SAM) that recommended the use of ready-to-use-food (RUTF) at community level for the management of non-complicated SAM. The guidelines were again revised in 2010 to include the management of nutrition in a high HIV environment.

3.4.3.1.1. Breastfeeding

Exclusive breastfeeding is recommended for infants under 6 months and should start within the 1st hour of birth. Global estimates show that

[28] *Collins, Steve et al/. Management of severe acute malnutrition in children; The Lancet, vol 368, 2008*

breastfeeding can prevent up to 13% of under-five deaths[29]. In the country, only 49% of babies under 6 months are exclusively breastfed (NDHS 2013) while in 2006, only 24% of the under 6 months babies were exclusively breastfed(NDHS 2006).There has been an increasing trend in exclusive breastfeeding over the past three decades (**Figure 18.1**)



The 2013 NDHS data shows that 72% of the newborns are exclusively breastfeed in the 1st month of life but by 5 months only 27% are doing so. Pre-lacteal feeds were introduced to 14% of the babies (1-3 days). However, breastfeeding is common-up to 94% of all children have been breastfed by 2-3 years, with a mean duration of any breastfeeding of 15.4 months.

Unfortunately, bottle feeding starts early and by 2-3 months, 45% of the newborns had started using the bottle (2000 NDHS). In 2013 bottle-feeding among the 0-5 months old babies, had declined from 38% rates reported in the2006 NDHS to 26 percent. It is not clear to what extend these breastfeeding and bottle feeding habits were due to the mixed messages about breastfeeding in the context of HIV/AIDS. The current practice is to encourage exclusive breastfeeding irrespective of the HIV status of the mother. The HIV positive mother should be on ARV treatment and the baby on prophylaxis up to 4 weeks after cessation of breastfeeding.

Mothers in Namibia introduce complementary feeds early and by age 5 of months, up to 28% (NDHS 2013) of the babies are receiving complementary feeds instead of the recommended 6 months. Half of Namibian children get

[29] *Jones, G. et al; How many child deaths can we prevent this year? The Lancet 2003; vol. 362, 65-71*

solid or semisolid food at 6-8 months and only 33% of the 6-8 months old are appropriately fed.

The aggressive promotion of breastmilk substitutes has long been considered to be a major hinderance to exclusive breastfeeding, Although many hospitals had been certified as Baby Friendly in the past, it is not clear whether the Baby Friendly Hospital Initiative is widely practiced. The Code of Marketing of Breast milk Substitutes was drafted a number of years ago but is still waiting for parliamentary approval.

3.4.3.2. Micronutrient supplementation

Micronutrients are vital to the child's growth, development and prevention of diseases like blindness or cretinism that may result from the micronutrient deficiencies. Vitamin A can prevent up to 2% of all under-5 deaths while iodine can prevent the development of goiters and hypothyroidism.

The 2006 NDHS shows that up to 63 % of the under-5 children were given iron rich foods and 76% were given vitamin A rich foods. Micronutrient supplements were given to children. Vitamin A was given to 52% of the children and 11% received iron supplements.

Although mandatory salt iodination was introduced in 1994, up to 13% of households are using none-iodized salt. [30] There is no mandatory law that states that cereals available to the public should be fortified with vitamin A or iron. Some imported and locally produced maize brands have multi-vitamin fortification.

3.4.4. Prevention of Mother-to-Child Transmission (PMTCT)

In order to bring about an HIV free generation, the prevention of mother to child transmission (PMTCT) programme is a key arsenal in the fight against HIV/AIDS. PMTCT, if well implemented, can reduce MTCT by 93%. The PMTCT programme, which started in 2002, is an example of what can be achieved for child survival if sufficient resources and commitment are made by national authorities. The First Lady Mrs. Pohamba, is actively involved in PMTCT advocacy work and is supporting the construction of maternity waiting shelters,

Namibia is following the WHO recommended 4 pronged approach: 1) Primary prevention of HIV infection among reproductive age persons; 2) Prevention of

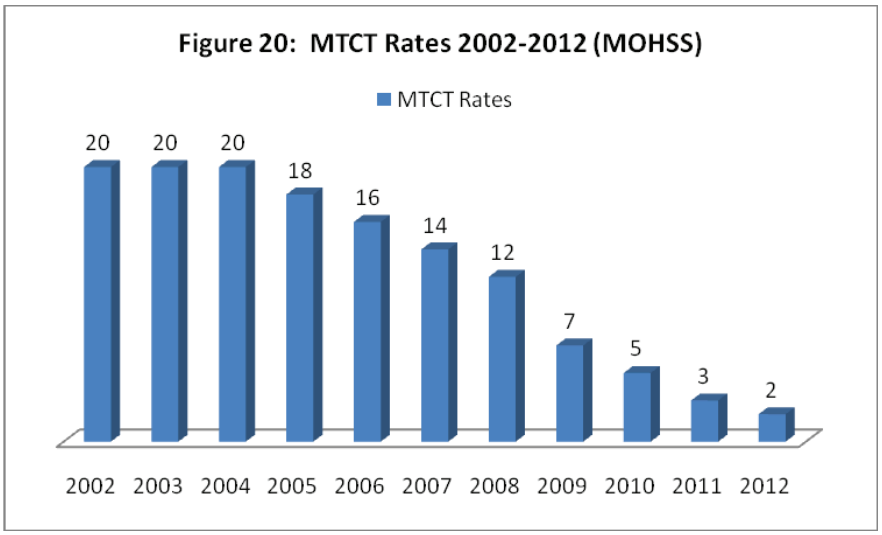
[30] *Landscape analysis to accelerate actions to Improve Maternal and Child Nutrition in Namibia MOHSS 2012*

unintended pregnancies among HIV positive women; 3) Prevention of mother-to-child transmission of HIV and, 4) Provision of care, treatment and support for HIV positive mothers, their children and families.

The PMTCT programme is now available in 94% of health facilities and 3245 health workers have been trained[31]. Dry blood spot testing (DBS) is being carried out in 66% (March 2011) of the health facilities. Ninety-four percent of pregnant women who were counseled and tested at ANC received their results. There has been an increase in ANC attendance and deliveries in health facilities offering PMTCT services. Ninety-two percent of the HIV +ve pregnant women are on ARV prophylaxis. This is in part due to the official policy of provider initiated counseling and testing and providing the results on the same day.

MOHSS reports, based on HIV spectrum estimates, show that the mother to child transmission rates (MTCT) dropped from 20% in 2002/3 to 2% in 2012/13, **(Figure 20).** The proportion of PMTCT-PCR linked blood samples that were submitted at 4-9 weeks and were found to be positive has decreased from 10% in 2006/7 to 1% in 20012/13.

Figure 20: MTCT Rates 2002-2012 (MOHSS)



The PMTCT guidelines were revised in 2010 to reflect option "A"-starting ARV prophylaxis at 14 weeks of pregnancy and at or below a CD4 cell count of 350. The infant is started on niverapine (NVP) until 4 weeks after the completion of breastfeeding. MOHSS has approved the new PMTCT guidelines which will introduces option "B" –lifelong ART irrespective of the CD4 cell count or clinical stage. All infants whether breastfeeding or not will be placed on NVP

[31] *Annual Report Family Health Division 2012/13 MOHSS*

for 6 weeks The Infant and Young Child Feeding guidelines were also revised in 2011 to reflect the WHO recommendations of exclusive breastfeeding up to 6 months by the HIV positive mother.

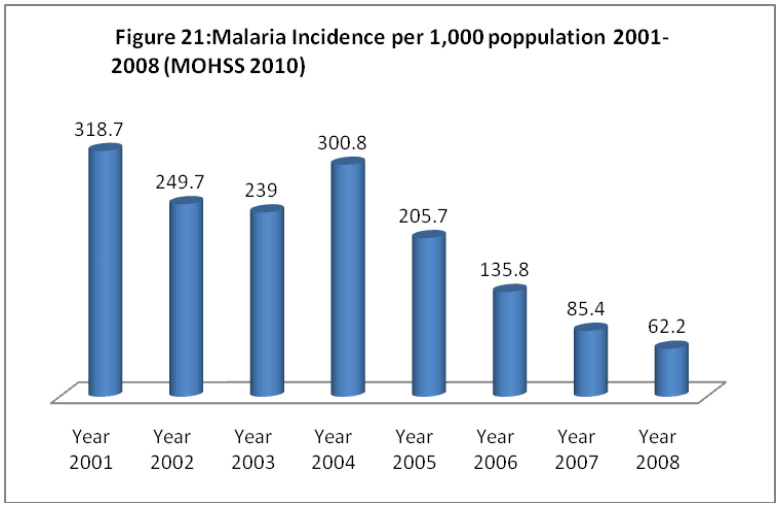
Although 91% of the mothers who came to deliver knew their HIV status, there was a small number that did not know their HIV status. Ninety- six percent of the mothers and 95% of infants were on ARVs for PMTCT, HIV exposed infants receive Cotrimoxazole prophylaxis from the age of 6 weeks

The PMTCT efforts are paying off as fewer HIV infected infants being seen and by 2011 estimates showed that only 4% of infants were HIV positive, a drop from 12% in 2007. The country launched, in 2012, the elimination of Mother to Child Transmission (e-MTCT) strategy.

The PMTCT programme is facing, *inter alia*, the following challenges: to increase the number of pregnant mother attending ANC in the 1st trimester; to increase male participation; integrating all PMTCT data within the HIS; and a close follow-up of the mother/baby pair

3.4.5. Malaria Control

Malaria used to be a major cause of childhood morbidity and mortality in the country. The malaria control programme, managed by the National Vector-born Disease Control Programme, has reduced the burden of malaria and by 2010, it had exceeded the Abuja, MDG, and the global Roll back Malaria (RBM) targets. **(Figure 21)** The key interventions used are: 1) Early diagnosis and treatment with artemether-based anti-malaria drugs; 2) Distribution of long lasting mosquito nets (LLN) to pregnant women and children; and 3) Indoor residual spray (IRS) and targeted larviciding. In 2006, rapid diagnostic tests (RDT) were introduced to increase accuracy in diagnosis.



As a result of the above efforts, malaria transmission is now localized in a number of areas in the northern parts of the country. MOHSS has developed a new strategic plan that aims at reducing the incidence of malaria to levels below 1 per 1000 population in every district by 2016, and enter into a malaria elimination phase.

3.5. Coverage of Key Child Survival Interventions

It is estimated that up to 66% of under-5 deaths could be averted by the widespread coverage of cost-effective interventions.[32] Namibia is implementing a number of cost-effective child survival interventions through a number of programmes that have been operating up to the clinic level and outreach points.. The level of performance of the various programmes have been mentioned in the relevant sections above and is affected by the quality of health services. The introduction of the Health Workers Extension programme will go a long way in engaging communities to ulitlize the interventions.

3.5.1. Current coverage of Key Child Survival Interventions

The key child survival interventions, which must be available and accessible all the time they are needed, are classified as preventive or treatment interventions. In Namibia, like many developing countries, the utilization/coverage of the interventions are more common in the urban than in the rural areas, more accessible to the rich and more educated families. The

[32] *Jones, G. et al; How many child deaths can we prevent this year? The Lancet 2003; vol. 362, 65-71; Darmstadt, G L et al ; Evidence-based, cost-effective interventions: how many newborn babies can we save? The Lancet , 2005.*

exception is for breastfeeding and vitamin A supplementation that was noted to be more common in the rural areas than the urban areas. The estimated coverage of key interventions is shown on table 4.

Table 4: Estimated coverage of preventive and treatment interventions (DHS and MOHSS)

Prevention Interventions	Coverage	Treatment Interventions	Coverage
Ever Breastfed	93.8% (NDHS 2006)	Oral Rehydration Therapy	77.5% (NDHS 2013)
Exclusive breastfeeding	49% (NDHS 2013)	Antibiotics for Sepsis-newborn	No data
PMTCT	93% (MOHSS 2011)	Antibiotics for ARI (pneumonia)	75% (NDHS 2006)
Complementary feeding 6 to 9 months	62.4% (NDHS 2013)	Newborn Resuscitation	No data
Fully vaccinated by 12 months	68.4% (NDHS 2013)	Antibiotics for dysentery	21.4% (NDHS 2006)
Clean delivery (delivered by skilled provider)	88,2% (NDHS 2013)	Vitamin A (in last 6 months)	
Vitamin A supplementation	52% (NDHS2006)	Zinc for diarrhoea	No data
Access to improved water, source	84% (NDHS 2013)	Antimalarials for fever	8.4% (NDHS 2013)
Access to improved sanitation	33.8% (NDHS 2013)		

3.6. Priority Areas for Action

The above analysis shows that the commonest causes of under-5 morbidity and mortality are diarrhoea, pneumonia, malnutrition, neonatal conditions. The following interventions will be prioritized in the child survival strategy:

1. Oral rehydration therapy plus zinc for the management of diarrhoea and the use of

appropriate antibiotics for pneumonia and dysentery;

2. IMNCI will be the main strategy for the appropriate management of major childhood diseases/ conditions;
3. HIV prevention and treatment: PMTCT, early detection of infant HIV infection, cotrimoxazole prophylaxis for children of HIV+ mothers, ARVs for HIV+ children;
4. Maternal and newborn care: focused antenatal care, skilled delivery in facilities, intrapartum foetal monitoring, newborn resuscitation, newborn temperature management(kangaroo mother care), antibiotics for neonatal sepsis, treatment of neonatal jaundice and postnatal care/visits beginning in the 1st week;
5. Strengthening of the Health Extension Workers programme to be able to handle the above conditions including the appropriate use of antibiotics;
6. Nutrition interventions: promotion of early, exclusive, and prolonged breastfeeding, appropriate complementary feeding, vitamin A supplementation and growth monitoring and promotion. The Health Extension Workers will play a major role.

Efforts will be made to **increase coverage and sustain** the following successful interventions:

1. Immunization against preventable diseases;
2. Malaria; and
3. PMTCT

The following is a summary of some key bottlenecks, their main causes and potential strategies to address them. Some selected tracer interventions are used to illustrate the problems identified in the situation analysis and the levels at which they can be tackled-family and community level, outreach and at individual clinic levels.

3.7. Key Issues and Observations

1) The overall public sector financial allocations for health are good although not yet meeting the Abuja target and although a big percentage of the budget is used for tertiary care;
2) The reproductive health budget has been decreasing over a number of years despite an increasing maternal mortality ratio;

3) Poverty levels and inequality-(Gini-coefficient 0.58) remain high in the rural areas especially in the northern parts of the country although Namibia is now classified as an Upper-middle class country;
4) The overarching challenge for the public health sector is the shortage of human resources especially in the marginalized areas;
5) The under-five mortality rate is not reducing at an appropriate rate in order to meet the MDG 4 targets;
6) The majority of children are dying in infancy (about 67%) with a larger group dying in the neonatal period (35%);
7) Neonatal conditions, pneumonia and diarrhoea are the leading causes of morbidity and mortality in the under-5 children; malnutrition is a major underlying cause;
8) Vaccine preventable diseases have been controlled and will be further reinforced with the planned introduction of rota and pneumoccocal vaccines in 2014.
9) The HIV/AIDS and malaria challenges have been contained-for the time being;
10) IMNCI implementation has stagnated because of funding and a leadership vacuum at the national level;
11) Exclusive breastfeeding remains a major challenge in the environment with a high HIV prevalence and past confusing messages;
12) Published MOHSS data on child morbidity and mortality is outdated;
13) Coverage of key maternal interventions is relatively good but stagnating;
14) The country's Human Development Index (HDI= 0.606 in 2010) is good and is among the highest in Africa but when it is discounted for inequality, the HDI drops to 0.366 for 2010;There a number of supportive national policies and strategies for child health;
15) The introduction of the Health Extension Workers' programme will boost the community component of the health system; and
16) There are a number of international and national partners who support child survival and maternal health activities.

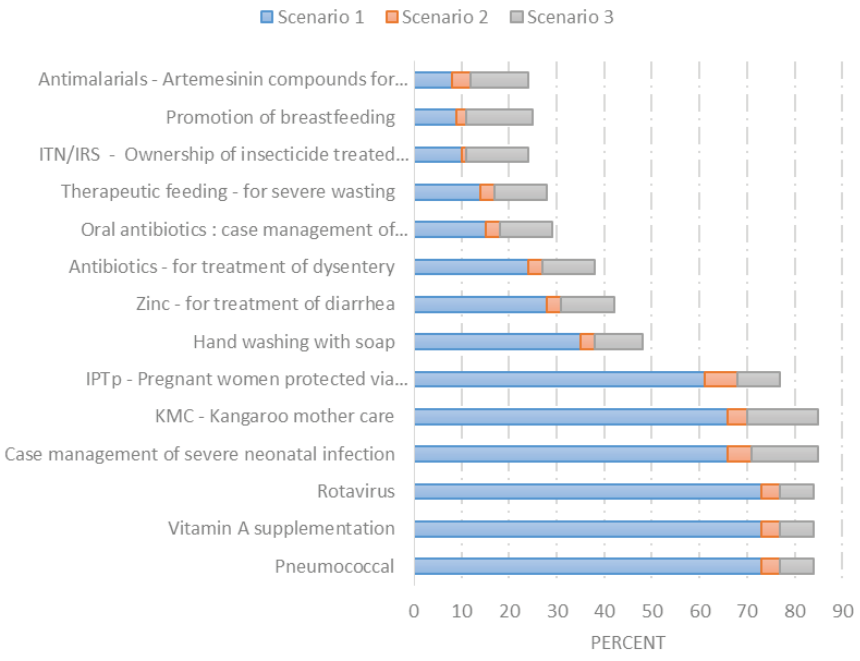
3.8. Resource Needs and Impact Estimation

The cost of implementing the child survival strategy was estimated using the Marginal Budgeting for Bottlenecks tool (MBB), Lives Saved Tool (LiST) and One Health Tool (OHT) as the best options among the internationally available costing tools given the time exigencies and available experiences. Prior to the

estimation, local experts and partners undertook an in-depth bottleneck analyses along key interventions packages in different delivery platforms-at the community, the outreach and clinic levels. Strategies for ameliorating the identified bottlenecks were selected depending on the severity of the problem and based on best global and local evidence.

The required additional resources were estimated based on the identified strategic needs. The impact on child and maternal mortality was calculated based on the increase in coverage that was proposed for scaling up selected high impact interventions***. (Figure 21)***. The modelling generated three possible scenarios for consideration. These additional budgets are in the end combined with a baseline budget to make up the total budget requirement. The analysis used 2013/14 budget allocation (MTEF framework 2013/14 to 2015/16) as baseline budget.

Figure 22: Coverage increase for selected intervention program by scenario



3.9. Expected Impact

The 3 scenarios show the following projections on child and maternal mortality reduction:

Scenario 1: offers minimal additional investments to achieve a modest impact on child and maternal mortality. An additional USD 26.85 per capita per year would be needed to reduce the existing bottlenecks and introduce new interventions in order to get a decrease of 50% in neonatal mortality rate, 28% under-5 mortality rate and 18.0% maternal mortality rates over the next 5 years. Under this scenario, an additional 2500 children's lives would be saved and U5MR would reduce to 28 per 1,000 live birth while the maternal mortality ratio would drop to 171/100,000 live births.

Scenario 2: offers more additional investments that will achieve more reduction in child and maternal mortality. An additional USD 36.11 per capita per year would be needed to decrease NMR by 54%, U5MR by 30% and MMR by 22%. This would save an additional 2,700 children's lives by reducing the U5MR to 27 per 1000 live birth; and MMR would reduce to 163/100,000 live births.

Scenario 3: offers the ideal additional investments that will meet all set targets for the rapid reduction of child and maternal mortality. An additional USD 43.47 per capita per year would be needed to save an additional 3,100 children's lives by reducing U5MR to 25/1000 live births and MMR would reduce by 26.1% to 153/100,000 live births.

Figure 23: Projection of U5MR reduction by scenario

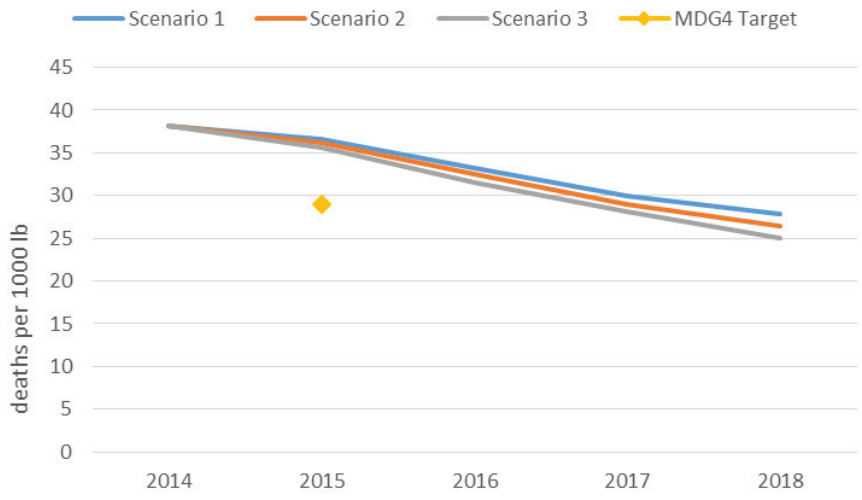


Figure 24 Projection of NNMR reduction by scenario

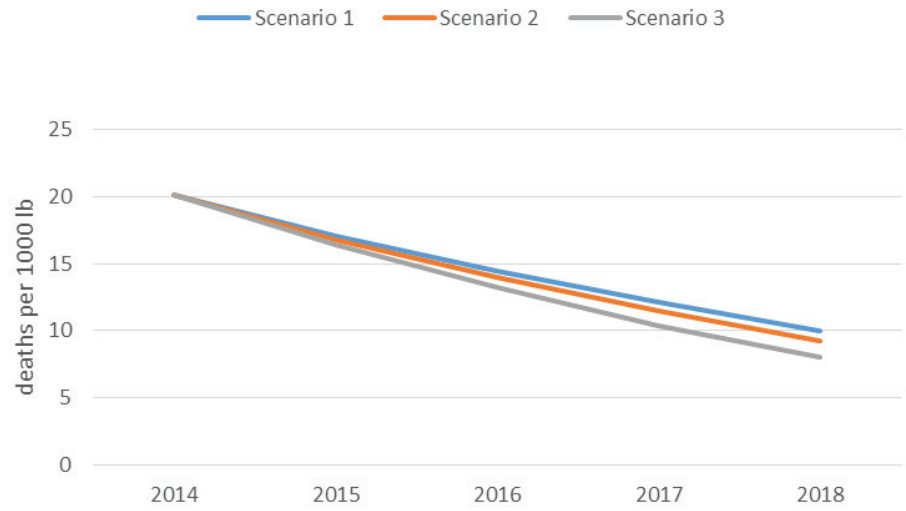
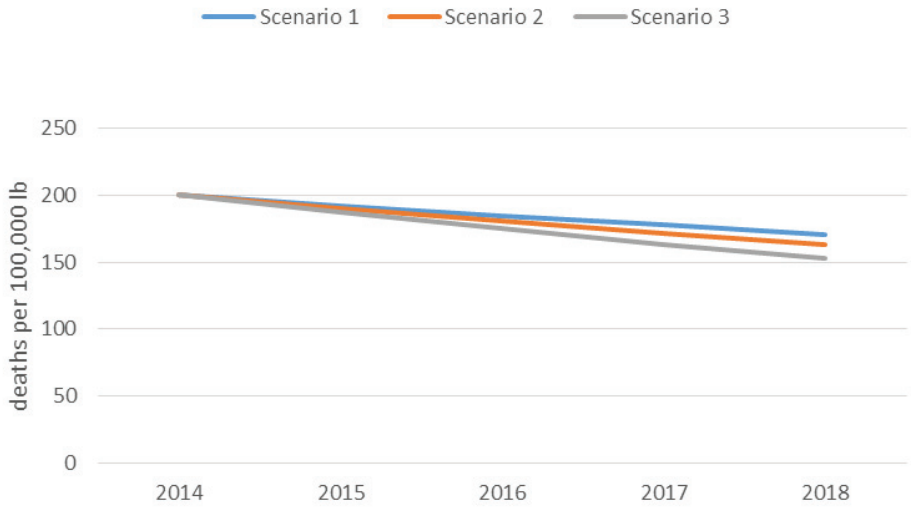


Figure 25: Projection of MMR reduction by scenario



3.9.1. Financing Needs

Funding requirement for this plan started with an analysis of the current budget allocation. According to the MTEF framework 2013/14-2015/16, health sector budget allocation amounted N$ 5.245 billion during FY 2013/14, out of which nearly 80%, about N$ 4.2 billion concern child survival and maternal health. In other words, currently the sector budget is estimated at

about USD 192 per capita. This result will be used in the calculation of total budget needs since the total budget requirement is just a sum of current budget allocation and additional costs identified to scale up selected high impact interventions by different scenarios. The following tables suggest this plan requires in average a spending of USD 470 million annually to implement scenario 1 strategy, USD 490 million are needed for scenario 2 and more than USD 506 million are necessary under scenario 3.

In terms of additional budget, the bulk of spending requirement is needed at clinical level where the sector requires to spend between 78% and 83% of additional per capita needs. If Namibia can afford to mobilize an additional USD 43 per capita annually, which is required by the optimum scenario 3, not only the country can reach MDG4 much earlier, before 2017 but most of the key problems such as insufficient number of skilled staff and low quality of care on some services for mother and children will be removed.

Table 5: Total budget for CSS 2014-2018, (Average per capita USD per annum)

Per capita USD	Scenario 1	Scenario 2	Scenario 3
Current	$ 191.88	$ 191.88	$ 191.88
Additional	$ 26.85	$ 36.11	$ 43.47
1. Family/Community	$ 1.09	$ 1.17	$ 1.17
2. Schedulable/Outreach	$ 4.00	$ 4.64	$ 4.92
3. Individual Clinical	$ 21.04	$ 29.25	$ 36.16
4. Governance/management	$ 0.71	$ 1.05	$ 1.22
TOTAL Budget requirement	$ 218.73	$ 228.00	$ 235.36

Total budget for CSS 2014-2018, (Average USD per annum)

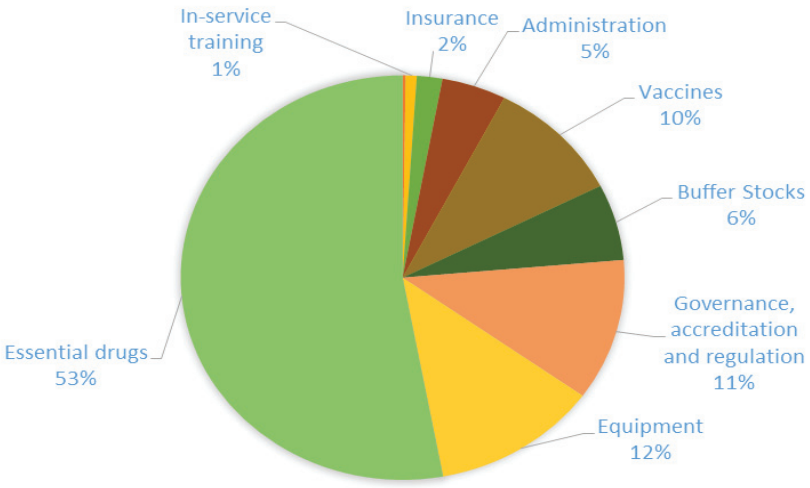
Per capita USD	Scenario 1	Scenario 2	Scenario 3
Current	$ 412,762,781	$ 412,762,781	$ 412,762,781
Additional	$ 57,749,462	$ 77,682,600	$ 93,512,499
1. Family/Community	$ 2,339,713	$ 2,514,562	$ 2,516,145
2. Schedulable/Outreach	$ 8,614,556	$ 9,981,669	$ 10,592,897
3. Individual Clinical	$ 45,267,913	$ 62,927,715	$ 77,779,116
4. Governance/management	$ 1,527,281	$ 2,258,654	$ 2,624,341
TOTAL Budget requirement	$470,512,243	$490,445,381	$506,275,280

Total budget for the CSS 2014-2018, (Average N$ "000 per annum)

Per capita USD	Scenario 1	Scenario 2	Scenario 3
Current	4,127,628	4,127,628	4,127,628
Additional	577,495	776,826	935,125
1. Family/Community	23,397	25,146	25,161
2. Schedulable/Outreach	86,146	99,817	105,929
3. Individual Clinical	452,679	629,277	777,791
4. Governance/management	15,273	22,587	26,243
TOTAL Budget requirement	4,705,122	4,904,454	5,062,753

Looking at the budget distribution, it is estimated that over 90% of the budget have to do with increasing or maintaining sufficient number of skilled staff within the health system. The remaining 10% of the budget share have identified the following cost drivers as illustrated in next figure 25: 53% of the non-salary spending should be for the purchase of essential drugs, 12% for equipment, 11% for governance and regulation, as well as 10% for vaccines procurement and logistics.

Figure 25: Additional non-salary costs distribution by budget category



3.9.2. Limitation

The latest national data for Namibia is from the period 2006 to 2013, the Demographic and Health Survey in 2006-07, the Census of 2011, the 2009 Malaria Indicator Survey and preliminary report of NDHS 2013. Consequently the baselines used and some parameters used default values during the modelling and may not reflect exactly current health situation, results should be interpreted with caution. Based on experience elsewhere for more than a decade, in general calculations done to estimate impact and funds requirement in this strategy are robust and provide the most accurate projection. However results presented here should be limited to advocacy purposes and should not stop us from developing detailed operational plans.

3.10 Recommendations

1. More financial and human resources should be allocate to the management of the major causes of childhood illness-pneumonia, diarrhoea and malnutrition using the IMNCI approach.
2. The MOHSS should support the introduction training using the IMNCI Computerized Adaptation and Training Tool and other innovative approaches that are focused and short in duration;
3. The integration of programmes at operational level should be further reinforced with clearer guidelines and continuously emphasized during support supervision;
4. The Health Extension Workers should be trained and allowed to treat pneumonia within the community;
5. A longitudinal prospective study on the HEW programme should be started in conjunction with UNAM to continuously assess its impact on child survival;
6. Legal or administrative barriers to antibiotic prescription by health extension workers should be removed or modified;
7. The government should pass The Code of Marketing of Breast milk Substitutes;
8. The government should introduce laws on food fortification;
9. The MOHSS and Ministry of Education should jointly take up the problem of lack of sanitation facilities in schools;
10. The key department of Health Information should be strengthened with epidemiologists and supported to publish regularly HMIS data and provide feedback to the health facilities;
11. MOHSS and partners should urgently conduct an analysis of the trends in maternal and child health budgetary allocations and its impacts on child survival;
12. MOHSS should develop and implement policy on the retention of government sponsored medical and nursing graduates for a 4-6 years period;
13. Health personnel working is difficult areas should be given good incentives and be prioritized for further studies.

IV. Namibia Child Survival

Vision

ALL Namibian children will equitably have access to good quality promotive, preventive, curative and rehabilitative health care, and will be healthy, able to survive, and develop to their full potential so that they can contribute to a healthy nation, which is free of poverty and inequality.

Goal

The goal of the child survival strategy is to contribute to the accelerated reduction of under-5 morbidity and mortality so as to attain an under-5 mortality of 24 by 2018 and below 20 or fewer deaths per 1000 live births by 2035.

The following targets are in line with the MOH Policy and strategic plans and have been estimated using the 2013 DHS data as the baseline:

1. To reduce under-five mortality rate from 54 in 2013 to 39 by 2015 and to 24 2018 and below 20 by 2035;
2. To reduce infant mortality from rate 39 in 2013 to 18 by 2018;
3. To reduce neonatal mortality rate from 20 in 2013 to 10 by 2018;
4. To reduce maternal mortality ratio from 358 in 2013 to 200 by 2018 and 50 by 2035.

Overall Objective

To increase and sustain the delivery and uptake of integrated, high impact and cost effective maternal, newborn and child health interventions.

Specific Objectives

- To improve access to quality essential health care for mothers and children at the community level and in health facilities;
- To ensure the sufficient provision of pharmaceuticals, equipment and commodities;
- To build the capacity of the health workers to organize and manage child health services;
- To increase the capacities of the families and communities to undertake appropriate child survival activities within their homes and communities;
- To strengthen health information, monitoring and evaluation systems that will support advocacy for child health and enable the tracking of progress towards achieving stated targets and Vision 2030; and
- To promote and support multi-sectoral approach to child survival

Guiding Principles

The child survival strategy will be guided by the following principles:

1. ***Evidence based:*** Only high impact interventions that will contribute to the accelerated reduction of child mortality will be selected for nationwide implementation;
2. ***Life-course approach****:* The strategy will promote the best options for the growth and development of a child, taking into account the continuum of care from pregnancy, childbirth, childhood, adolescence, and adulthood. During implementation close coordination with other strategies will be necessary;
3. ***Equity:*** All children in the country will get equal access to and utilize all the available child survival interventions. More focus will be placed on reaching the most vulnerable and poorest children.
4. ***Child Rights:*** The most vulnerable children will be protected in line with the rights-based planning and programming;
5. ***Integration:*** The implementation of the priority interventions at all levels of the health system will be done in an integrated manner and coordinated with other programmes and initiatives;
6. ***Strengthening partnerships:*** New partnerships will be developed and existing partnerships will be strengthened to ensure integration of the child survival interventions at all levels of the health system;
7. ***Multi-sectoral collaboration and Coordination:*** Achieving the child health outcomes requires the contribution of other sectors. Existing

strategic collaborations and coordination with key sectors and partners will be encouraged.

4.1. Strategic Approaches

The following proposed strategic approaches are based on the situation analysis and are recommended for increasing the efforts to strengthen health systems and implement the proposed high impact interventions:

Strengthening of the health system*:* In order to have high population coverage of the child survival interventions, capacities will be built at all levels of the health system so that there will be increasing access and utilization of integrated quality health services.

Empowering families and communities: Improvements in newborn and child care practices at the family and community level are needed especially for the poor and the marginalized. Families and communities will be empowered to improve key child care practices including seeking for early care and treatment for neonatal conditions, pneumonia and diarrhoea. The communities will have a say in setting their health intervention priorities and demand improvement of health services.

Linkage of community based interventions with health facilities: Community based interventions need to have linkages with the health facilities to ensure quality delivery of health intervention and continuous supply of essential medicines and supplies. Linkages with ongoing health related and school health interventions will be established.

***Strategic and operational partnerships, collaboration and coordination*:** There are many stakeholders engaged in child survival activities. Under government leadership and with relevant sectors, key stakeholders-- NGOs, private sector, donors-will be engaged in joint planning, implementation, financing and performance reviews of child survival activities.

Advocacy and resource mobilization: Continuous advocacy at regional, national and international levels will be needed in order to promote, implement, and scale up evidence-based and cost-effective interventions, and allocate sufficient resources to achieve national and international goals and targets. At regional and district levels monitoring and evaluation results will be used to leverage resource allocation for child survival.

Evidence for decision making: This will include research on new interventions, and the implementation strategies. Systematic reviews involving joint monitoring and evaluation of performance will be done and published.

4.1.1. Strategies and Interventions

Strategic Objective 1*: *Improve access to quality health services.

There is relatively good funding of the public health services and access to health care has been improving despite the vast distances. However, not all mothers take their children for medical care. The mortality rates are high for the level of funding indicating problems with the quality of services offered at all levels of health care-from the community level to the health facilities. Improvements in the quality of integrated services from the community to the facility levels will lead to increased demand. The IMNCI programme is expected to take the lead in improving the capacity of the health providers and the HEW will build the capacity of the community to take care of their health needs. The pocket book for hospital care will be used to address the care of the sick child at first referral level hospitals.

Priority actions:

1. Define minimum package of child survival interventions at all levels of health care system;
2. Upgrade the health services to effectively deliver the minimum package of child survival interventions at all levels;
3. Build capacity of health service providers at all levels of the health care system to deliver the minimum package of child survival interventions;
4. Strengthen pre-service education in health training institutions for nurses/midwives to provide the necessary skills and competencies to manage child survival interventions;
5. Actively engage the private health providers to contribute to the scaling up of child health interventions;
6. Provide regular outreach services from the public health units and other health facilities to communities and households, including hard-to-reach areas;
7. Build the capacity of the health extension workers to manage minor illnesses in remote areas;
8. Improve quality of care by having all the necessary guidelines and protocols in place, clinical mentoring and supportive supervision, conducting reviews of maternal, newborn and child deaths to inform avoidable factors and action

Strategic Objective 2: *To ensure adequate provision of medicines, commodities and other basic equipment*

The constant availability of medicines is important to manage the common childhood illnesses. Frequent stock-outs do affect the quality of care and also the utilization of the services since the populace associates quality of care with the availability of medicines and commodities. The capacity of the health workers to manage their supplies will improve with appropriate pre-service and in-service training. Treatment guidelines such as Standard Treatment Guidelines and the IMNCI chart booklet will ensure uniform management of conditions and encourage rational drug use. The equipment for the basic child care management must be available in all health facilities.

Priority actions

1. Assess and strengthen capacity for the appropriate management of child survival medicines and commodities;
2. Update, disseminate and enforce compliance with the essential medicines list and standard treatment guidelines including the IMNCI guidelines;
3. Build capacity of service providers on supply chain management for child survival;
4. Include as part of the supervisory system the monitoring of medicines and commodities for child survival.

Strategic Objective 3: *To improve capacity for organization and management of child health services*

The efficiency of the health delivery system depends a lot on the skills of the managers. It has been observed that many health managers are not adequately trained to handle child health interventions. The managers will be exposed to appropriate training to ensure a clear focus on child health needs.

Priority actions:

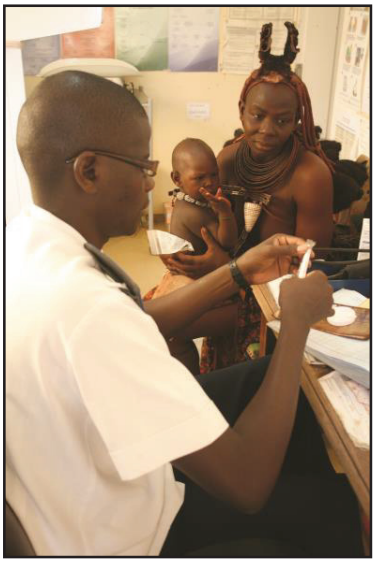
1. Strengthen the skills and capacity of Programme Managers and Health Management Teams at all levels in the management of child survival interventions;
2. Develop child survival advocacy tool and promote its use at various levels to improve commitment of international, national and community level;
3. Strengthen the link between health facilities and the community through establishment of regular integrated meetings of health extension workers, health facility committees, and district management teams;
4. Support and promote the use of standardized supervision tools and registers at all levels through training, supervision and regular feedback.

Strategic Objective 4*: *To strengthen individual, family and community capacity to take necessary child survival actions at home and to seek appropriate health care

The individuals and families need good child care practices. Some of these practices like exclusive breastfeeding and appropriate complementary feeding can be effectively supported by community based health workers with regular support from trained health workers. Community based health workers –the health extension workers will play an important role in building the capacities of families to have hygienic practices-in order to reduce rates of diarrhoea, to provide adequate complementary feeding after the 6 months exclusive breast feeding period. The families should be informed about the danger signs and symptoms for the mother, newborn and child that necessitate urgent care seeking, as well as seeking care for routine services such as immunization and growth monitoring.

Priority actions:

1. Update the curriculum of Health Extension Workers to improve the promotion of key behaviours including the construction of affordable sanitation facilities;
2. Build capacity of Health Extension Workers and mothers/caregivers for early recognition of warning signs of obstetric and neonatal complications and childhood illnesses and referral;
3. Scale up behavioural change communication (BCC) activities to promote key family practices;
4. Develop and disseminate an integrated package of health promotion materials on maternal, newborn, child health and nutrition;
5. Advocate for the creation of a special budget for the implementation of community based activities;
6. Advocate for increased community resources and investment in community-based child survival interventions;
7. Improve integration and coordination of child health, nutrition and maternal health activities at community level;
8. Support school health programmes on sanitation, de-worming and the environment;
9. Promote male involvement as part of collective action to improve household healthcare seeking behaviour and other key health care practices-during labour and kangaroo mother care practices;
10. Improve coverage of clean water in underserved communities in collaboration with other relevant sectors;



11. Improve coverage of sanitation in rural areas in collaboration with other relevant sectors.

Strategic Objective 5: Strengthen health information, monitoring and evaluation systems to report on progress towards achieving stated targets, Vision 2030 and generate evidence for improved decision making

It will be important to continuously assess if the implementation of the child survival strategy is getting the anticipated outputs and impacts.. This will be done within the MOSS supervision and monitoring framework using jointly agreed upon indicators and evaluation mechanisms. Regular reports, using HMIS derived information, routine and special surveys, will be discussed and disseminated. The child health team of the ministry will work closely with the HMIS teams to ensure that appropriate data is captured and reported on regularly. The problems identified during the routine monitoring and evaluation will need further scrutiny. Operational research will be needed to get quantitative and qualitative data that will be analyzed to guide the child survival strategy.

Priority actions:

1. Develop integrated monitoring and evaluation tools for the Child. Survival Strategy;
2. Conduct regular integrated supervisions;
3. Strengthen health information systems to include community based information for improved decision making and programming at all levels;
4. Conduct joint regular review and planning meetings with stakeholders to monitor progress and re-plan activities to improve on implementation
5. Conduct operational research for evidence based decision making; and
6. Publication and dissemination of research findings

Strategic Objective 6: Establish, strengthen strategic and operational multi-sectoral partnerships, collaboration and coordination in order to support the implementation of the child survival strategy

There are many active local and international partners involved in child survival activities in the Namibia. Some of them cover the whole country while others are located in selected regions and locations. They need to meet regularly to discuss the different ways of supporting the child survival strategy.

The international agencies-the UN family and bilateral agencies need to collaborate and coordinate their support for child survival. In order to increase efficiencies, different Government ministries engaged in activities affecting child health will need to jointly plan and jointly implement where feasible. The ministry of health is expected to take the lead in coordinating the various partners and ensure that they complement each other.

Priority actions

1. Conduct advocacy activities to promote partnerships for child survival;
2. Strengthen the MOH's Child Survival Technical Working group to coordinate strategy implementation and monitoring process;
3. Strengthen the Maternal, Newborn and Child Health Committees at all levels of the health care delivery system;
4. Promote inter-sectoral collaboration e.g. through school health programme, school feeding, home gardening, provision of toilets and safe water supply, food security and nutrition etc…
5. Conduct regular coordination meetings, reviews and evaluation of child survival interventions;
6. Involve and build capacity of teaching and professional bodies to support implementation of child survival activities

4.2. Evidence based Interventions and Service Delivery Modes

Namibia has been implementing most of the known high-impact and cost-effective childhood interventions. Where resources and clear support has been available, success has been recorded. The implementation level of some of the interventions has been low especially at community level. If the interventions are implemented to 90% levels, and in an integrated manner, they could prevent up to two-thirds of all under-five deaths**.**

4.2.1. Packages of Interventions and Delivery Modes

The situation analysis has informed the selection of the interventions taking into account that they can be scaled-up, achieve high equitable coverage and could be sustained within the resource envelop of the health sector. They have been grouped in such a way that they can be implemented at the community level,

as part of the outreach services or at the health facility level. An implementation matrix is shown in the annex A.

4.3. Opportunities and Challenges

There are a number of opportunities that will facilitate the implementation of the child survival strategy. There are also a number of challenges that will have to be taken into account during the micro-planning and implementation of activities at the various levels of the health system.

4.3.1. Opportunities

- A clear National Vision 2030;
- Government commitments to international conventions and targets-CRC, MDG, Abuja
- Government pledges to support child survival - A Promise Renewed: Child Survival Call to Action" in 2012 to reduce child mortality to 20 or fewer deaths per 1,000 live births by 2035.
- National Health Policy Frameworks and Health Sector Strategic Plan (2014 – 2018
- Specific programme policies and strategies: the National Policy on Reproductive Health, the National Policy on HIV/AIDS, the National Malaria Policy(2005),the Malaria Strategic Plan (2010-2016), the National Policy on Infant and Young Child Feeding (IYCF 2003;
- A good per capita health budget;
- The presence of health supporting partners-multilateral and bilateral ;
- Availability of the HEW programme;
- Availability of decentralized MOSS structures that can facilitate implementation of interventions at sub-national levels-the Regional Health Directorates;
- Successful experiences from Malaria, Immunization and PMTCT programmes;
- Successful experiences from community based IMNCI and malaria programmes ; and
- A robust vital registration system that can support monitoring and evaluation.

4.3.2. Challenges

- Scattered population sometimes with long distances to access to health services;
- A MHIS that does not capture all the data in an integrated manner;
- Inadequate funding of IMNCI activities;
- Health budget eschewed to hospital based services-and personnel; and
- Low numbers of health workers and high staff turnover.

4.4. Coordination Mechanism and Institutional Framework for Implementation

The successful implementation of the child survival strategy requires the strengthening the partnerships for maternal and child health at all levels of the health of system. The PHC directorate shall have the primary responsibility for ensuring the formation and coordination of the partnership at all levels. The current national maternal, child and nutrition technical committee and the regional reproductive and child health committees will need to be expanded to undertake activities that support the implementation of the child survival strategy.

At national, regional and district levels, the partnerships are expected to do the following:

- Develop and implement an appropriate advocacy plan for that level;
- Engage various partners and civil societies in the planning, implementation and monitoring of the child survival strategy;
- Mobilize, allocate and ensure appropriate utilization of the resources from various sources;
- Have quarterly or biannual review and planning meetings;
- Support capacity building through tailored trainings using tools and materials that have been approved at national level; and
- Ensure that regular supportive supervision, monitoring and evaluation of progress toward the attainment of goals and targets takes place.

The following are the suggested composition of the partnerships:

4.4.1. National Level

The Director of PHC will be the overall coordinator of the child survival strategy and will chair the national committee composed of the following: 1) MOHSS-all PHC programmes, malaria control, PMTCT programme, and the HMIS. 2) Other line ministries including education, agriculture, water and

lands; 3) International development partners-WHO, UNICEF, UNFPA and bilateral partners-USAID, JICA etc. 4) Medical and paramedical training institutions-UNAM and 5) Active NGOs supporting child survival –MSH etc.

4.4.2. Regional Level

The regional medical directors will chair the meetings of the regional partnership committees. The membership will composed of the regional representatives of the national level committee structure.

4.4.3 District Level

The head of the district health team will chair the district committee that will reflect the same composition as the regional committees. At this operational level, representatives of the communities implementing the HEW programme and local NGOs will be included.

4.5. Monitoring and Evaluation

In order to asses if implementation of the child survival strategy is going according to plan, it will be important to monitor and evaluate the strategy on a regular basis. This calls for a robust HMIS and regular surveys. It will be important to strengthen the current health information system in order to address the information gaps for maternal, newborn and child care. MOHSS will ensure that the child survival strategy is implemented in an integrated manner, monitored and evaluated every two and half years. The process, output, outcome and impact indicators together with the operational targets that will be monitored.

4.6. Key Assumptions

A number of important factors that may greatly influence the outcome of the child survival strategy are beyond the Ministry of Health and Social Services. It is assumed that the following key factors will be in place:

Political will and commitment will continues for the mobilization of leaders, at national, regional, district and community levels to support and allocate sufficient human and financial resources for this strategy;

The central government and development partners will continue and increase funding to the health sector and in particular to the child survival strategy.

V. Annexes

5.1. Annex 1. IMPLEMENTATION MATRIX

The following implementation matrix shows the various interventions and the level at which they will be implemented taking into account the Basic Health Package and objectives stated above

Delivery levels	Community level	Outreach	Health Facility
Family/community-based services			
Environmental care			
Use of safe drinking water	X		
Use of sanitary latrine	X		
Safe home environment	X		
Family neonatal care			
Clean delivery and cord care			X
Prevention and management of hypothermia	X		X
Infant and child feeding			
Exclusive breastfeeding for children 0-6 months	X	X	X
Early initiation of breastfeeding	X		X
Continued breastfeeding for children 6-11 months	X	X	X
Complementary feeding from 6 months	X	X	X
Community Based Therapeutic Feeding	X	X	
Community-Integrated Management of Newborn and Childhood Illnesses			
Oral Rehydration therapy	X	X	X

Zinc for diarrhea management			X
Vitamin A – supplementation	X	X	X
Antibiotic therapy for management of pneumonia cases	X	X	X
Outreach Services			
Preventive care for adolescent girls & women			
School health		X	
Preventive pregnancy care			
Tetanus immunization	X	X	X
HIV/AIDS prevention and Care			
Cotrimoxazole prophylaxis for infants of HIV+ mothers	X	X	X
HCT and ARVs and infant feeding counseling		X	X
Preventive infant and child care			
Routine vaccinations+ introduction of new vaccines		X	X
Clinical services			
Clinical primary level skilled maternal & neonatal care			
Resuscitation of asphyxiated newborns at birth	X	X	X
Antibiotics for preterm premature rupture of membranes			X
ARVs for mothers and infants with HIV/ AIDS	X	X	X
Management of neonatal infections at Primary Health Care level	X	X	X
Clinical Integrated Management of Childhood Illnesses (IMNCI)			
Antibiotic for pneumonia and dysentery			X
Oral Rehydration Therapy	X	X	X
Vitamin A – supplementation	X	X	X
Zinc for diarrhea management	X	X	X
Clinical first referral illness management			
Management of severely sick children (referral IMNCI)-			X
Clinical management of neonatal jaundice			X
Universal emergency neonatal care			X
Clinical second referral illness management			
Management of complicated AIDS at second referral level			X
Other emergency acute care			X

5.2. Annex 2: SELECTED TARGETS, MONITORING AND EVALUTION INDICATORS

Monitoring and Evaluation

It will be important to monitor and evaluate the child survival strategy in order to asses if implementation is according to plan and is leading to the desired outcomes. A robust HMIS will be critical although. It will be important to strengthen the current health information system in order to address the information gaps for maternal, newborn and child care.

Operational Targets

- Increased coverage of births attended by skilled attendants from 88.2% in 2013 to 95%.
- Increased immunization coverage of 3 doses of Pentavalent vaccine and Measles vaccine to above 90% in 95% of the districts.
- Introduced new vaccines to EPI (Pnumoccocal, and rota virus vaccine).
- Reduced stunting to 15%, underweight to 8% and wasting to 4%
- Increased exclusive breast feeding coverage from 49% to 80%.
- PMTCT services provided to at least 90% of pregnant women, their babies and families.
- 90% of sick children seeking care at health facilities appropriately managed.
- 100% of villages having health extension workers offering child health services at community level.
- Increase the number of health facilities offering Essential Newborn Care to 75%.
- Increased antenatal care attendance for at least four visits from 62.5% to 90%

A) Community Indicators:

1. Proportion of children who needed referral who went for referral.
2. Proportion of women with knowledge of danger signs of obstetric, neonatal and child health complications.
3. Proportion of facilities with a designated staff responsible for community health services.
4. Proportion of villages with HEP implementing child health interventions.
5. Coverage of access to potable water (improved drinking water source).
6. Coverage of improved latrines.
7. Use of solid fuels for cooking.
8. Households' care-seeking rate for diarrhoea, pneumonia and malnutrition.

B) Neonatal Indicators

1. Neonatal mortality rate.
2. Prevalence of low birth weight.
3. Early initiation of breast feeding (within the first hour).
4. Postnatal care attendance rate.

5. Proportion of district hospitals implementing essential newborn care including Kangaroo Mother Care for management of Low Birth Weight.
6. Proportion of district hospitals that can manage newborn complications
7. Cause specific case fatality rate of newborn complications
8. % of newborns receive postnatal care on day 1, 3 and 7 after births by a trained health worker
9. Postnatal vitamin A coverage.

C) Maternal Health Indicators:

1. Maternal mortality ratio.
2. Proportion of deliveries taking place in a health facility.
3. Proportion of births assisted by a skilled attendant.
4. Proportion of first level facilities with two or more skilled attendants.
5. % of pregnant women receive 4 FANC visits
6. Proportion of pregnant women with access to PMTCT services.
7. Proportion of HIV positive women provided with ARV's during pregnancy.
8. Percentage of service delivery points providing youth friendly services.

D) Child Health Indicators

1. Under-five mortality rate.
2. Exclusive breastfeeding rate up to 6 months.
3. Continued breastfeeding rate 6-23 months
4. Timely complementary feeding rate.
5. Under-weight prevalence.
6. Stunting prevalence.
7. Wasting prevalence.
8. Vitamin A supplementation coverage (under-fives).
9. Antibiotic treatment for pneumonia and dysentery.
10. ORS and zinc treatment in management of diarrhoea.
11. Proportion of health facilities with 60% of health workers trained on IMNCI.
12. Measles immunization coverage.
13. DTP- HB3 immunization coverage (Rota and pneumoccocal coverage after introduction).
14. Proportion of HIV positive children accessing ARV.
15. Proportion of HIV exposed infants accessing ARV prophylaxis.

E) Increased Political will and Commitment Indicators:

1. Proportion of Government budget allocated to health
2. Proportion of MOHSS/ regional budget allocated to Primary Health Care
3. Proportion of MOHSS/ regional budget allocated to Maternal Neonatal and Child Health

F) Indicators for Measuring Progress of the Child Survival Strategy

1. Existence of Partnership for Child Survival

2. Total resources mobilized for the Child Survival Strategy
3. Annual implementation report tracking progress on indicators listed above

5.2.1. Process Indicators

1. Percent of Health Workers trained on IMNCI ,and other Child Survival interventions;
2. Percent of villages with trained Health Extension Workers;
3. Percent of health facilities receiving supportive visits to assess stock out of key childhood medicines, vaccines and contraceptives;
4. Proportion of sick under-fives who are managed in health facilities according to IMNCI guidelines;
5. Percent of pregnant women attending 4 focused ANC visits; and
6. Percent of pregnant women tested for HIV and knew their test results

5.2.2. Outcome Indicators

1. Percent of children who are fully immunized by 12 months;
2. Percentage of children 0-59 months with diarrhea who received oral rehydration therapy and or increased fluids with continued feeding;
3. Percentage of children 0-59 moths with signs of pneumonia who received an antibiotic;
4. Percent of deliveries taking place in a health facility;
5. Percent of births assisted by skilled birth attendants;
6. Percentage of mothers and newborns receiving postnatal care visit within 1 hour of birth;
7. Proportion of health facilities managing sick under-five according to IMNCI guidelines.
8. Proportion of HIV infected pregnant women and their infants receiving ARVs to prevent MTCT.
9. Proportion maternal, newborn and child deaths reported and reviewed

5.2.3. Output Indicators

The outputs indicators for the child survival strategy will be:

1. The number of districts with at least 50% of the villages implementing a defined package of community based child survival interventions;
2. Number of districts with over 80% of the health facilities managing children according to IMNCI standards;
3. Number of health facilities providing EmONC services;
4. Number of districts with over 80% of their facilities providing nutrition services; and
5. Number of districts with 100% of their health facilities providing PMTCT services.

5.2.4. Impact Indicators

The following will be the impact indictors:

- Neonatal mortality rate; Infant mortality rate; Under-five mortality rate; and
- Maternal mortality ratio.

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