GLOBAL FUNDING MECHANISM IN SUPPORT OF ALL WOMEN AND ALL CHILDREN

INVESTMENT CASE PROPOSAL - Version IV

April, 2017

Foreword

Message

ACKNOWLEDGEMENTS

The preparation of this Investment Case proposal is the result of the involvement of a long list of entities and individuals, between June 2016 and April 2017. Technicians of the National Public Health Directorate and other National Directorates of the Ministry of Health participated in consultations and provided indispensable documentation. Several technical experts from UN technical agencies, bilateral cooperation offices and international NGOs in Maputo provided time, comments and documentation and carried out specific analyzes. Officers of the Ministries of Education and Human Development, Youth and Sports, Gender, Children and Social Welfare and the Ministry of Justice and Constitutional and Religious Affairs participated in consultations on mulitsector programs.

Several public and private entities provided time and documentation to carry out the auscultation exercise.

We are also grateful for the collaboration of the sector development partners that financed the hiring of technical and secretarial assistance for the elaboration of the IC.

The GFF-IC secretariat allowed for continuity between the various phases of the preparation.

ABBREVIATIONS

A&Y	Adolescents and Youth
ACA	Avaliação Conjunta Anual (*Annual Joint Evaluation*)
ANC	Antenatal Care
ART	Antiretroviral Treatment
AVNP	Anos de Vida Não Perdidos (*Life Years Not Lost*)
CCS	Consulta da Criança Sadia (*Healthy Child Consultation*)
CDC	Centres for Disease Control and Prevention
CMAM	Central de Medicamentos e Artigos Médicos (*Central Medical Stores*)
CO	Central Organs
CONEm	Cuidados Obstétricos e Neo-Natais de Emergência (*Emergency Obstetric and Neonatal Care*)
CPR	Contraceptive Prevalence Rate
CR	Civil Registry
CRVS	Civil Registry and Vital Statistics
CSO	Civil Society Organizations
CUSd	Cobertura Universal de Saúde (*Universal Health Coverage*)
DAF	Direcção de Administração e Finanças (*Administration and Finance Directorate*)
DH	District Hospital
DHS	Demographic Health Survey
DNRH	Direcção Nacional de Recursos Humanos (*National Human Resources Directorate*)
DNSP	Direcção Nacional de Saúde Pública (*National Public Health Directorate*)
DPS	Direcção Provincial de Saúde (*Provincial Health Directorate*)
EFS	External Funds Survey
EPAs	Elementary Polyvalent Agents
EPI	Expanded Program on Immunisation
FP	Family Planning
G/O	Gynaecology and Obstetrics
GDP	Gross Domestic Product
HBS	Household Budget Survey
HC	Health Center
HF	Health Facility
HIS	Health Information System
HIMES	Health Information, Monitoring & Evaluation System
HIV-SIDA	Human Immunodeficiency Virus (and its respective Syndrome)
HRH	Human Resources for Health
IC	Investment Case
IMASIDA	Inquérito de Indicadores de Imunização, Malária e HIV/SIDA (*Survey on Vaccination, Malaria and HIV/AIDS Indicators*)
IMCI	Integrated Management of Childhood Illness
INE	Instituto Nacional de Estatística (*National Institute of Statistics*)
INS	Instituto Nacional de Saúde (*National Institute of Health*)
IPT	Intermittent Preventive Therapy
IUD	Intra-uterine Device
L-B	Life Births
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MCHN	Maternal and Child Health Nurse
MDG	Millennium Development Goals

MEDH	Ministry of Education and Human Development
MEF	Ministry of Economy and Finance
MJ	Ministry of Justice
MM	Maternal Mortality
MMR	Maternal Mortality Rate
MOH	Ministry of Health
NAC	National AIDS Council
NB	Newborn
NGOs	Non Governmental Organizations
NHS	National Health System
PED	Paediatrics
PEF	Performance Evaluation Framework
PMTCT	Prevention of Mother to Child Transmission
PNC	Postnatal Care
PNDRHS	Plano Nacional de Desenvolvimento de Recursos Humanos (*National Human Resources Development Plan)*
RMNCAH	Reproductive, Maternal, Neonatal, Child and Adolescent Health
SADC	Southern African Development Community
SDGs	Sustainable Development Goals
STD	Sexually Transmitted Diseases
TB	Tuberculosis
TDR	Total Dependency Ratio
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Infant, Children and Education Fund
USD	American Dollars
VTP	Voluntary Termination of Pregnancy
WHO	World Health Organization
YFHS	Youth Friendly Health Services

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EXECUTIVE SUMMARY

The Government of the Republic of Mozambique, in recognizing the successes and challenges in the field of Reproductive, Maternal, Neonatal, Child and Adolescent Health (RMNCAH), responded at the highest level to the proposal to include the Country in the Global Financing Facility (GFF) in support of All Women and All Children.

The Investment Case (IC) for RMNCAH assumes that progress towards the Sustainable Development Goals (SDGs) in the areas of Maternal and Neonatal Health and the reduction of fertility, particularly in adolescents, is more difficult to realize than to reduce the child mortality rate. The IC thus presents an opportunity to increase the effectiveness of the services provided by the national health system, strengthen its pillars and move the agenda of Universal Health Coverage forward. The IC also represents an opportunity to improve the coordination mechanisms between the Ministry of Health and the sector development partners. The IC focuses on priority interventions to realize these opportunities.

The recent situation

The preparation of the IC was based on data from the Survey on Vaccination, Malaria and HIV-AIDS Indicators in Mozambique (IMASIDA, 2015), which showed marked increases in coverage of institutional deliveries and in the use of contraceptive methods, as well as the continuation of previous progress in vaccination and antenatal care coverage. However, there are still obstacles which will make progress in reducing maternal and neonatal mortality difficult and slow. The limited numbers, distribution and competencies of health professionals are combined with the irregular availability of critical consumables and the poor physical conditions of the health facilities (HF), in an extensive country with a mostly rural and dispersed population. Accessibility and quality of the services provided are conditional, and the opportunities provided by the many contacts that the users have with the health facilities are not taken advantage of. It is also recognized that there are discontinuities in the care of pregnant-parturient-postpartum women. The preparation of the IC also acknowledged the social determinants that continue to maintain high levels of teenage pregnancy, which is one of the major risk factors for maternal and neonatal mortality. IMASIDA data also show substantial inequalities - despite some reduction - in the accessibility and use of Maternal and Child Health (MCH) services. Lastly, it should be noted that the public health system in Mozambique in 2015 had only about half of the per capita funding needed to provide basic care to the population.[1]

International evidence shows the effectiveness of selected technical interventions in the pregnant-parturient-postpartum woman continuum of care, particularly when they are made available in an integrated way and at the appropriate levels of the health system. In addition, the potential impact of the increased use of contraceptive methods on maternal and neonatal mortality in the short-term, as well as its long-term contribution to economic growth through the “demographic dividend”, is also known.

Improve supply and accessibility

[1] The estimates of the cost of a “basic health care package” for low- and middle-income countries have grown from the early 2000s (MDG's) from USD35 (Macroeconomic and Health Committee) to USD60-80 (McIntyre, 2014) (cost plus ART, new vaccines and clinical management of non-communicable diseases). In 2012-2013, Mozambique spent between USD30-35 per capita (PHER, World Bank Maputo, 2016)

The IC proposes a set of mutually integrating and reinforcing “investment areas”: supply expansion, contributing to increased demand, coupled with initiatives to increase knowledge and that lead to behavior change. The Country’s Districts were characterized according to their potential for results – more dense and complete healthcare network - or lack and difficulties - dispersed population and accessibility problems. The majority of assisted deliveries take place in Type - I Rural Health Centers and District Hospitals - and about 40% of maternal deaths occur in the District Hospitals due to delays in both the decision to look for and get transportation, as well as in the readiness of the services: the reduction of the (national) maternal mortality rate will be influenced by the greater effectiveness - and readiness - of the services provided in these two types of HFs. However, for the Districts with more dispersed population - or scarce healthcare network - the solutions must bring the services closer, in order to reach higher rates of coverage of simple and effective services.

Proposals to reduce supply-side barriers start by addressing the problem of geographical accessibility in both types of Districts. It is proposed to reinforce the readiness of the maternity hospitals of the largest HFs of the District through: qualified professionals (surgery, obstetrics, and neonatology), consumables and small equipment logistics, basic infrastructure (water and electricity) and media and transportation. In addition, it is proposed to give priority to the Districts with most disperse population and healthcare network in order to strengthen the presence and operability of the Elementary Polyvalent Agents (EPAs) and mobile teams. It is proposed to increase the number and competencies of the “core” professionals, for the IC - the Maternal and Child Health Nurse, as well as to differentiate the professionals in the 1st reference HFs. The recent positive experience with the revitalization of the EPA Program argues in favor of increasing its number and additional monitoring, in order to achieve the already extended scope of tasks.

The variations in the frequency of contact of the users throughout each pregnancy and first year of the child reflect the combination of accessibility problems and perceptions about the quality of care. It is suggested that, while taking measures to improve the motivation and training in communication of professionals, services that can be provided at each contact with the health facilities should be better integrated. In a complementary way, it is suggested to expand the experience of the use – by EPAs – of mobile communication technologies to encourage contacts in the critical pre- and postpartum moments. One of the most urgent service integrations to be undertaken is at the so-called “healthy child consultation”, since a very large number of contact opportunities are lost to promote adequate feeding during the first year of life.

The supply of family planning services has to be increased and diversified in order to meet the unmet demand of women of childbearing age and especially of adolescent girls. The Adolescent and Youth Friendly Services in the public HFs have to be strengthened, and the existing directives for the active promotion and integration of FP in the services for users of sexually active age have to be applied. In addition, the effectiveness of recent initiatives to expand the provision of FP services by private providers (profitable and non-profitable), expansion of accessibility to schools, and outreach campaigns in the community is recognized.

Behaviors, demand and continuity in health care

The improvement in the health indicators critically depends on the application of preventive measures, screening and treatment of problems at regular contacts during the gestation cycle, first year of life and family planning: in the case of Mozambique, it is also necessary to increase the frequency of contact in the final phase of pregnancy, postpartum and in the second semester of the child's life. In addition, the use of contraceptive methods among adolescents needs to be substantially increased in order to reduce the prevalence of teenage pregnancy.

The objectives of the IC depend on behavior change in two specific areas: breastfeeding and feeding in the first year of life, and sexual and reproductive life of adolescents - coupled with cultural pressures by the family. The improvement of the humanization in the treatment of the patients by the health professionals is insufficient to provoke these changes in behavior - at least in the short term -, it is necessary to mobilize NGOs and local leadership to question the traditional justifications for the non-healthy behaviors and practices in a contextualized way.

The pillars of the Mozambican Health System

The requirements of regularity of services and prompt response to obstetric and neonatal complications and emergencies continue to pose challenges to the pillars of the health system. The additional number of requested professionals should be better distributed using workload criteria, and their motivation should be the target of measures to manage their professional careers and provide formative supervision. Improved management capacity should address both the procurement of clinical consumables and the management of stocks in the HFs and the integrated functioning of local health systems. A particular aspect of service delivery management is the coordination of pediatric and gynecological-obstetrical services in the major cities to improve the performance and quality of services provided by reference hospitals. There should be a similar investment in the integration of planning, budgeting and monitoring of additional plans and financing flows at provincial and district levels, with disbursements linked to performance indicators. The orientation of IC funding towards “results” implies an increased local analytical capacity for the information needed for monitoring and evaluation and local accountability to users and communities.

The need to act on the social determinants of unhealthy exposures and practices implies an additional effort to work with organizations outside the health system, including community organizations, schools and private providers of health services.

The elaboration of the Operationalization Strategy of the IC in the Health Sector provided a momentum for the finalization of the preparation of the strategy for the Civil Registry and Vital Statistics (CRVS). The MOH has set targets for updating vital event registration formats in the health facilities - in order to expedite their transfer to the civil registry network, and to improve the quality of information contained in these registries through the training of health professionals.

Resources and Impact

To edit, briefly:

In 2017-2018, the set of intervention areas included in the IC represents around 33-34% of the total budget of the Mozambican NHS in 2016. The per capita expenditure (MCH target population) will be around USD23 -24 in 2017-18 and USD31 in 2022. Infrastructure spending will account for the largest portion of IC costs in the early years, with a progressive increase of the human resources portion to about 48% by 2021-2022.

A mapping of the resources traditionally available in the intervention areas of the IC and of the intentions of continuity of the main sector development partners was carried out. The State Budget has been increasing its share of health expenditures - and RMNCAH, albeit with a disruption of the trend in 2016, while funds made available by sector partners have reduced since 2013. RMNCAH-related areas have received significant portions of the available funds, although the reduction of total funding could jeopardize the regular activity of the public service provider. The Government's

commitments are again reflected in the increase in the budget requested for the Health Sector for 2017. The partners' commitments could only be partially confirmed for 2017, despite the large number of projects/funding lines reported in the External Funds Survey (EFS).

The expected impact of the proposed interventions lies both at the level of the intermediate outcomes and the state of health and fertility. As for the intermediate outcomes, the expected critical results combine the increase of accessibility to technically simple care - made available in an integrated way and continuously used - with the effectiveness of referring cases of life-threatening and incapacity complications. Within this group of results, it is also expected that the use of contraceptive methods among adolescents will increase, and that the pregnancy rate in this age group will reduce. Foreseen improvements in health status include reductions in the maternal, neonatal and child mortality rates, as well as reductions in the overall fertility rate and the fertility rate among adolescents, placing Mozambique on a promising path to reach the Sustainable Development Goals. The IC can thus contribute to accelerate the demand of the demographic dividend in Mozambique.

To edit, briefly:

A preliminary analysis of the cost - effectiveness ratio of the IC confirms that the cost per year of life year gained is 2.3 times Mozambique's current GDP per capita, which is within the range defined by the World Health Organization, despite the high proportion of investment in human resources and infrastructures. [2]

[2] The use of GDP as a standard means the "willingness to pay for health" in a country. In a low-income country with a resource-deficient NHS, the IC is more expensive because of the strengthening of the health system, in addition to the cost of the interventions.

I. INTRODUCTION

The Government of Mozambique is committed to the Sustainable Development Goals, Universal Health Coverage (UHC) and the accelerated achievement of results in Reproductive, Maternal, Neonatal, Child and Adolescent Health (RMNCAH). The results of the 2015 Survey on Vaccination, Malaria and HIV-AIDS Indicators in Mozambique (MOH-INS, 2016) indicate improvements in several RMNCAH indicators, the 2011 Demographic and Health Survey (IDS) showed the progressive reduction in child mortality, with Mozambique meeting MDG 4. However, maternal mortality did not change and neonatal mortality declined at a slower pace, and challenges and inequalities persist in the coverage of health services. This investment case for RMNCAH responds to concerns about the insufficient prioritization of measures to overcome the obstacles that hamper the provision of interventions of well-known effectiveness. The framework proposes effective, efficient and innovative strategies for achieving sustainable, equitable and accelerated improvements in RMNCAH.

The Investment Case (IC) results from a consultation process led by the Ministry of Health (MOH) involving National Directorates and Departments of the MOH, other governmental entities, representatives of civil society, the private sector, professional associations and development partners (**Annex 1**)[3]. The IC relies on a wide consultation of documentation and statistical data from various sources, which informed the prioritization process. Thus, the framework is based on recent evidence, identifies the best and most viable investments for the country's context and its priorities, and suggests an integrated approach across the RMNCAH areas.

The hereby suggested IC is still a "work in progress". However, it is already possible to provide indications on how to strengthen the health system so as to deliver high-impact interventions and to transform political will and health policy definitions into measurable outcomes.

The Investment Case adopts the already existing strategies and implementation plans of the RMNCAH area, as well as programs and initiatives of the MOH and its development partners. It is expected that it will support national and local RMNCAH plans and the implementation of the Health Sector Strategic Plan.

II. OBJECTIVES

i. The IC defines priorities for the best possible allocation of additional resources to achieve better results in Reproductive, Maternal, Neonatal, Child and Adolescent Health;
ii. The IC seeks to contribute to the strengthening of resource management capacities and the provision of quality care by the National Health Service

III. VISION

Despite the delimitation of its operationalization to the strategic objectives for health improvement in specific target population groups, this Investment Case has the potential to catalyze changes and

[3] The IC consultation and preparation process was coordinated by a task force including the National Directorates of Public Health and Planning and Cooperation - of the MOH - and representatives of WHO, UNICEF, UNFPA, the World Bank and USAID

reforms both in the organization and operation of the public health system and in the coordination with others actors.

The IC focuses on investing in priority interventions and directing additional inputs to achieve expected results in accessibility, quality and effectiveness of health care, improvements in health status and reduction of fertility levels. To obtain these results, the IC seeks ways of targeting funds that link the financial flows to achieving the expected results at the decentralized level of operationalization.

The operationalization of the IC brings the district level of the NHS to the center of policies and plans, requiring local capacity to manage the interaction between the expansion of accessibility to simple technologies and the readiness of District Hospitals to respond to obstetric and neonatal complications. At SDSMAS level, community accountability mechanisms should also be strengthened.

The improvement of the coverage of effective RMNCAH services implies the strengthening of training policies, the distribution and motivation of health professionals, with particular emphasis on MCH Nurses.

The improvement of the coverage of effective services and the reduction of the mortality and fertility rates imply better communication between health professionals and users, greater integration of services at each contact of the users, and recovery of the current discontinuities in care during pregnancy, childbirth, postpartum and the first year of life.

Reducing mortality and fertility rates also means encouraging the demand for critical services and addressing social factors related to child, sexual and reproductive health behaviors.

The improvement of the continuity in the use of services requires greater articulation between the professionals in the health facilities and the Elementary Polyvalent Agents.

The Provincial Health Directorates (DPS) will have increased analytical capacity to design provincial Emergency Obstetric and Neonatal Care plans, coordinate service delivery at district level, coordinate and account with development partners - including the coordination of financial flows - and coordinate external actors to the public health system. Mechanisms that link the obtained results to the continuation of financial flows and that have the potential to improve the motivation of health professionals in the periphery should be established between the DPS and the district service provision networks.

The quality of information originating from the health facilities will be improved by updating vital event registration processes.

The involvement of non-governmental and civil society organizations is essential for changing practices and behaviors that increase exposure of the target groups to health risks, providing an opportunity to enhance the link between the health care system and the community. On the other hand, the recent experience of expanding the presence of private family planning services providers in an orderly, cost-effective manner and in coordination with local levels of health management also provides learning for the sector's potential to use the private sector to fulfill public utilities.

IV. PRINCIPLES AND ASSUMPTIONS

- The investment case (IC) is guided by the social objectives of a health system and the strategies for strengthening it in the medium and long term, although adapted to the target population and specific RMNCAH problems. Specifically, the IC intends to contribute to the materialization of citizenship rights and gender expectations, equity of access, efficient use of resources to obtain results and approximate the implementation of Universal Health Coverage (UHC);
- The IC assumes the realization of results as justification for additional resources: it prioritizes evidence-based interventions, suggests sets of interventions and use of opportunities of contact with the users;
- The search for results assumes both the potential for quality and impact of health in the Districts with better current conditions, and the benefits of improved accessibility in the most fragile Districts;
- The IC seeks to encourage the demand for health services and to change behaviors that are detrimental to Health, while assuming the need to understand the cultural reasons for these behaviors;
- The operationalization of the IC requires additional resources, including the participation of non-governmental actors, and a more efficient allocation by geographical priorities and levels of the health network;
- The IC suggests results-based financial management mechanisms, which places additional demands on monitoring and evaluation;
- Increasing coverage of effective technical interventions requires strengthening of various health system blocks, particularly human resources, infrastructures and the supply chain of clinical consumables, as well as innovation in forms of community participation, particularly for interventions involving changes of practices and behaviors;
- The operationalization of the IC requires an increase in the capacity for strategic planning, particularly at provincial level, as well as greater use of information in coordinating actors, managing resources *versus* results and accountability.

V. PROGRESS MADE TO DATE

The Infant Mortality Rate (0-1 Year) has been decreasing in the last decades, although the estimated value in the 2011 DHS is still 64/1000 live births. The 0-4 Year Mortality Rate also declined, standing at 97/1000 L-B in the same year. The Neonatal Mortality Rate registered a slower decline, estimated at 30/1000 in 2011.

The reduction in infant mortality benefited from the overall expansion of the healthcare network and its basic resources (professionals and consumables for the Integrated Management of Childhood Illness - IMCI) and from specific interventions such as vaccinations (66% of complete vaccinations in 2015) and mosquito nets (available in 66% of households and used by children in 70% of households with nets, *IMASIDA 2015*):

- In 2015, child preventive consultations and vaccinations constituted 73% of the MCH contacts and 33% of the total outpatient services of the National Health Service; in 2015,

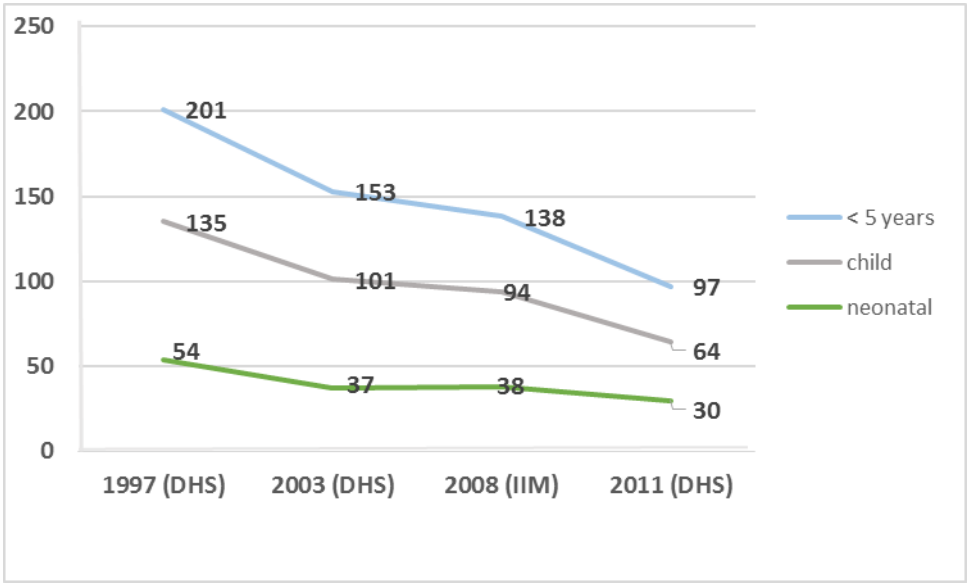
each child between the ages of 0-4 years completed 2.1 “healthy child” consultations and another 2.5 contacts for vaccinations ([4]; [5]);

- The frequency of health care demand for children with fever increased from 51% to 63% between 2003 and 2015 (DHS, IMASIDA 2015);
- New vaccines with potential impact on the causes of infant mortality - pneumococcus, hemophilus influenza, rotavirus, as well as zinc supplement for the treatment of diarrhea were introduced into the national calendar of the Expanded Program on Immunization(EPI) – including by EPAs;
- Antiretroviral Treatment coverage for HIV (ART) in infected children increased from 20% to 53% between 2011 and 2015, covering more than 66,700 children in the first quarter of 2016 (*CDC, Maputo*). Pediatric HIV prevention was reinforced with the increase in the number of health facilities (HF) that perform “prevention of mother to child transmission” (PMTCT) – 1,288 HFs, representing 89% of the HFs of the public network;
- Most of the curative activities of the EPAs have addressed three of the leading causes of infant mortality (diagnosis and treatment of malaria, respiratory infections and gastro-enteritis); [6]

The reduction in child mortality should also be credited to the progressive growth of education among women and girls (21.2% of secondary school attendance by 2015).

Figure 1 and Table 1 show the recent time evolution of these indicators.

Figure 1: Recent evolution of Child Mortality



Source: MISAU, USAID, WHO, SDC, HS2020, 2012. Revision of the Health Sector

[4] Author’s calculations, based on HIMES, 2015

[5] The use of these consultations presents marked variations between urban and rural areas: 6-8 in the cities and less than 4 in several rural districts

[6] The scope of activities by the EPAs has been extended to the screening and follow-up of HIV treatment in 2015

The Maternal Mortality Ratio has remained high in the last decade, regardless of the methods used for its estimation – between 408 and 489/100,000 live births for 2011-2015. [7]

These persistently high values - Figure 2 - are disturbing, given the increase in the use of antenatal consultations (ANC) and institutional delivery - Table 1.

Table 1: Maternal and Child Health Indicators, recent evolution

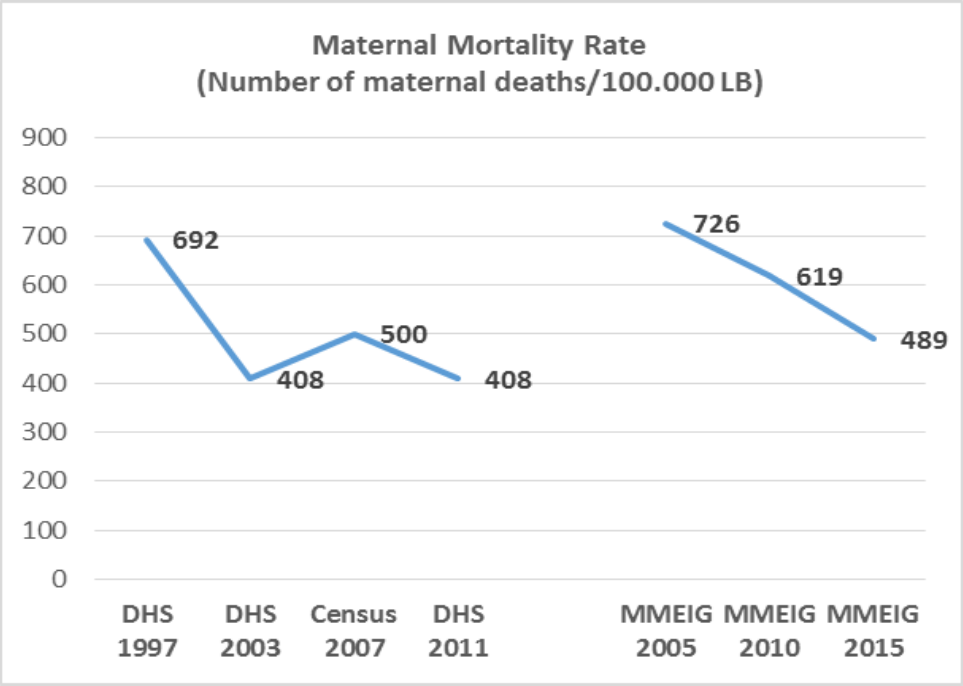
INDICATOR	DHS 2003	DHS 2011	IMASIDA 2015	S-S Africa Average *(ii)*
Child Mortality Rate (per 1000 Life-births)	101	64	-	31.1
Neonatal Mortality Rate (per 1000 Life-births)	37	30	-	61.1
Mortality Rate 0-5 years (per 1000 Life-births)	153	96	-	92.4
Maternal Mortality Rate (per 100,000 Life-births) *(i)*	762	619	489	510
Global Fertility Rate	5.5	5.9	5.3	5
Teenage Pregnancy	41.0%	37.5%	46.4%	-
Chronic Child Malnutrition rate	41.0%	42.6%	-	-
Assisted Childbirth in Health Facility Rate	47.6%	54.8%	70.3%	48.6%
Pregnant Women with ≥ 1 ANC	84.5%	90.6%	92.6%	77.0%
Pregnant Women with ≥ 4 ANC	53.1%	50.6%	54.6%	-
Children with Complete Vaccination, 1st Year	53.2%	64.1%	65.8%	-
Children, % Demand for Care when Fever	51.0%	55.7%	63.0%	-
Children < 6 Months exclusively breastfed	32.1%	42.8%	-	37.7%
Modern Contraceptive Methods Prevalence Rate, Women 15-49 Years	14.2%	12.1%	25.3%	23.6%
Married Adolescents (at 18 Years) *(iii)*	55.1%	43.9%	-	-
Unmet FP needs	18.4%	28.5%	23.1%	24.4%
(i) : Source - MMEIG, 2005, 2010, 2015				
(ii) : Source - World Bank, 2013				
(iii) : Among 20-49 year old surveyed women				

Regarding the demand for postpartum care, according to the Health Information System (HIMES) statistics for 2014-2015, the growth in the volume of postnatal consultations has accompanied the recent growth in coverage of institutional deliveries.

This favorable evolution of the national average values for the various result indicators, accessibility and demand for services should not underrate the concern with the disparities in socio-demographic characterization: rurality, educational level and wealth. Figure 3 exemplifies these differences in coverage of assisted childbirth: inequalities regarding the attendance of ≥ 4 antenatal consultations (ANC) or the use of contraceptive methods are repeated, and did not alter between 2011 and 2015.

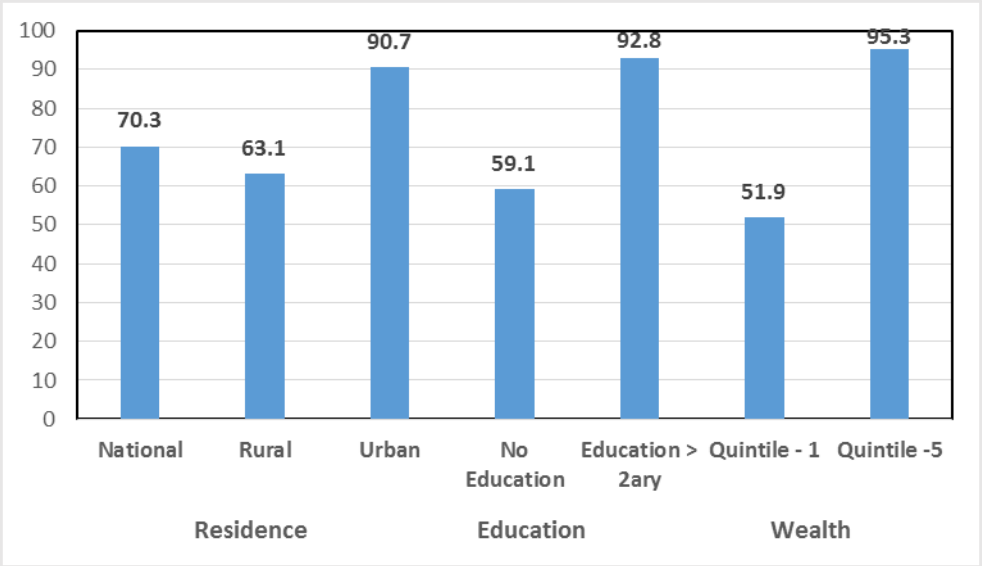
[7] The Maternal Mortality rate however fell significantly from the late 90's and early 2000's (Figure 2).

Figure 2: Recent evolution of Maternal Mortality



NOTE: MMEIG – UN Inter-agency expert group on Maternal Mortality Trends, 1990-2015

Figure 3: Coverage of Assisted Delivery (2015): socio-demographic inequality

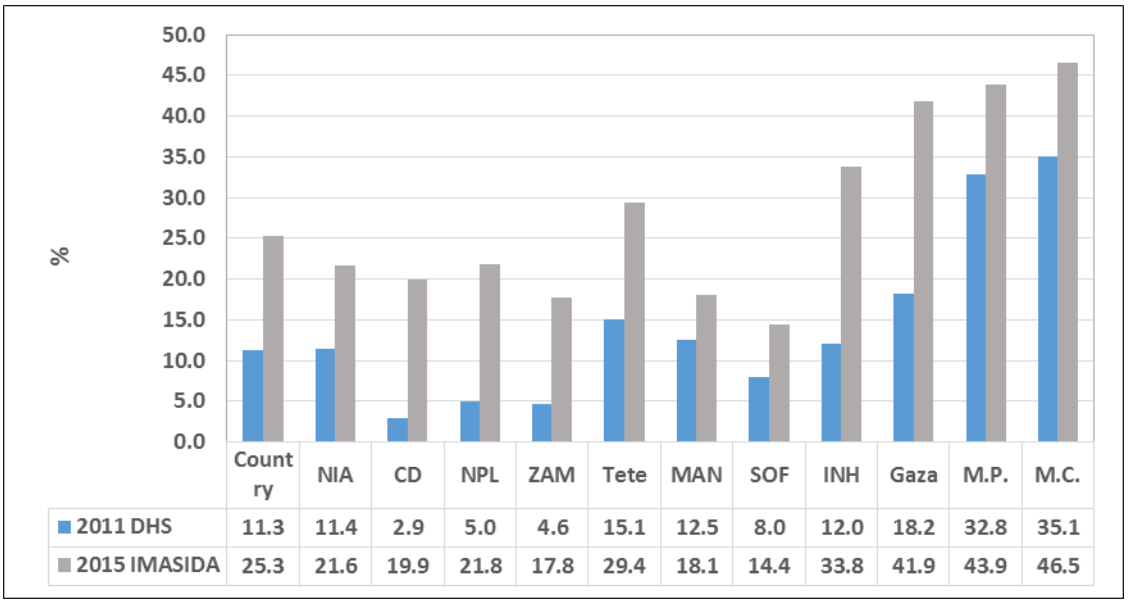


The slower decline in Neonatal Mortality may be related to the quality of Childbirth and Postpartum care identified by the various surveys and MCH Needs Assessments carried out in recent years, and the quality limitations of resources and processes also affect the District Hospitals. This issue is covered in the section "Reducing barriers to supply and demand".

The use of modern contraceptive methods (contraceptive prevalence rate - CPR) increased significantly between 2011 and 2015. Simultaneously, the prevalence of "unmet need" (for contraception) was reduced. The increase in CPR was observed in all Provinces and age groups,

including adolescents - Figure 4. The increase was most pronounced in some of the provinces with the lowest CPR in 2011 (Cabo Delgado, Nampula and Zambezia).

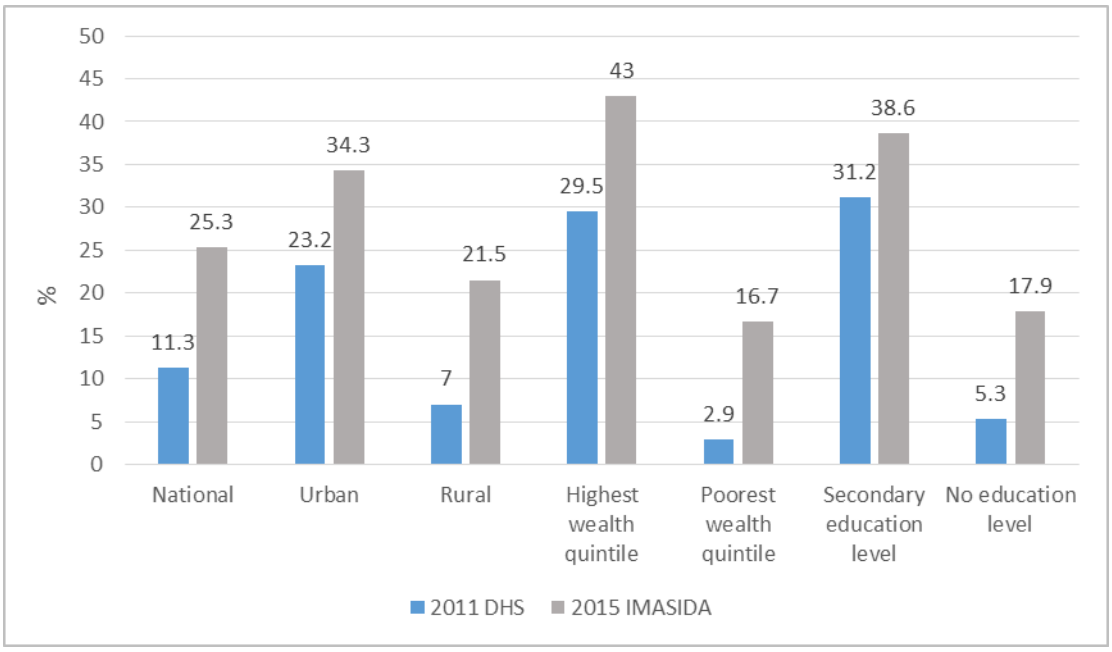
Figure 4: Contraceptive Prevalence Rate 2011-2015 by Province



	Country	NIA	CD	NPL	ZAM	Tete	MAN	SOF	INH	Gaza	M.P.	M.C.
2011 DHS	11.3	11.4	2.9	5.0	4.6	15.1	12.5	8.0	12.0	18.2	32.8	35.1
2015 IMASIDA	25.3	21.6	19.9	21.8	17.8	29.4	18.1	14.4	33.8	41.9	43.9	46.5

Differences persist in the CPR values by place of residence, levels of education and wealth - Figure 5. The CPR is still very low in rural areas – 21.5%.

Figure 5: Contraceptive Prevalence Rate 2011-2015 by place of residence and wealth index



The remarkable growth of the CPR between 2011 and 2015 is substantially influenced by the creation of a favorable environment ([8]) and several interventions, namely: awareness campaigns,

[8] FP is a priority in the Government Five Year Plan 2015-2019 and in the PESS 2014-2019, having been boosted by the Mozambique commitments at the London FP2020 Summit.

mass training of health providers, adoption of community provision of FP through EPAs and the provision of services "*during campaigns*".

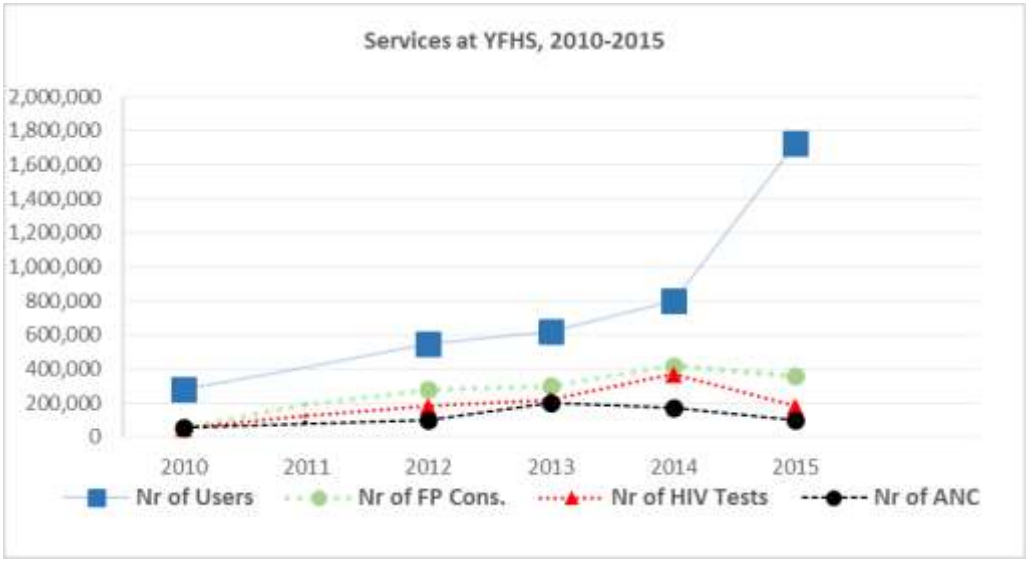
The range of available contraceptive methods increased and, therefore, also the possible choices by the users[9]. The growth in the use of long-term methods however is slow: the proportion of use of "implants + IUDs" increased from <2% in 2011 to around 10% in 2015, while the growth in the CPR between 2011 and 2015 was based on the increase of the proportion of injectable contraceptives – from 46% to 55.6%, respectively.

Adolescent health has become a priority issue for the Government and the Health Sector in Mozambique, due to demographic, social and public health reasons: adolescents constitute 32.7% of the population (INE, projection for 2015) and are the target group of the school system. The demographic and family dynamics in Mozambique are still marked by the high frequency of premature marriages and teenage pregnancy, which constitute one of the most important distal factors for maternal and neonatal mortality.

The use of contraceptive methods among adolescents and young people increased from 5.8% to 14.1% between 2011 and 2015. The preferred methods are, as in the other age groups, oral and injectable contraceptives, representing 75% of the use. [10]

Adolescent and Youth Friendly Health Services (YFHS) were created in 2009-2010 and have continuously increased in demand, exceeding 1.7 million users in 2015. Their growth faces some problems however: the number of services offered did not keep up with demand (Figure 6) and recent surveys among adolescents reveal a lack of knowledge about their existence (*NAC, All-in-One, 2015*).

Figure 6: YFHS, Evolution of Demand and Services Provided, 2010-2015



In summary, the mentioned positive results reveal an increase both in the demand (as a result of improved education and greater urbanization) and the provision of health services.

The Mozambican Health System has the National Health Service (NHS) with public ownership, management and financing as main and majority component. The healthcare network has grown

[9] In 2012, the implant and emergency contraceptives were introduced.

[10] The frequency and regularity of condom use is presented in the section "Adolescents: Sexual and Reproductive Health" (page…)

mostly in peripheral units - responding to the unsatisfied needs of the almost two-thirds of the dispersed rural population - to which the network of Elementary Polyvalent Agents (numbering around 3,300) was added.

The pyramid of the Mozambican NHS is composed of:

- About 1,150 small rural Health Centers (CS) (Type II);
- About 150 bigger rural HCs (Type I);
- About 150 urban HCs;
- 43 District Hospitals (in rural areas) and 5 (urban) General Hospitals, which represent the 1st surgical reference line; [11]
- 11 Hospitals in capital cities (7 Provincial, 4 Central), ensuring medical referral.

The availability of "medical-nursing-MCH" professionals was of approximately 0.71/1,000 inhabitants in 2014 (*MOH/DNRH, HRH Yearbook, 2014*), and the number of Maternal and Child Health Nurses (MCHN) increased from 4,106 to 4,644 between 2010 and 2014.

By 2015, there was 1 health facility for every 16,761 inhabitants (*MOH, 2016*).

The Public Health Sector had about USD37 per capita in 2012 (*Nat. Health Accounts, 2015*), although this figure has reduced to about half in 2016.[12]

The average use of external consultations per capita was 1.34 in 2015.

The Maternal and Child Health Services represent significant fractions of total NHS production: deliveries (9%), vaccinations (13%) and MCH outpatient services accounted for 20% of services produced in 2015 (*MOH, 2016*). [13]

The private health-care provider sector is growing. Approximately 250 medical clinics are registered in the Greater Maputo area and around 500 pharmacies are registered in the country. The capacity of this network is being expanded with support - from international NGOs - to low cost clinics geared to reproductive health (installation and supply of consumables). The use of private health-care providers still represents a small proportion of household expenses: according to the Household Budget Survey, 2014-15 (*HBS 2014-15*), the use of private clinics or hospitals is only representative in the Province and City of Maputo and for the 5th (wealth) quintile 5 – between 8% and 10% of cases where it is necessary to use health services.

VI. CHALLENGES, INSUFFICIENCIES AND OBSTACLES

The biggest challenge is to reduce Maternal and Neonatal Mortality, mainly because the demand for assisted childbirth has already reached 70%. Both indicators are strongly related to the quality of childbirth and postpartum care. However, progress already made in reducing Child Mortality must be consolidated - and accelerated to reach the Sustainable Development Goals (SDGs).

But it is also necessary to acknowledge the social - distal determinants of Maternal and Neonatal Mortality, and face those that can be improved with Health Sector interventions and some

[11] Some larger rural HCs have been re-named as "district hospital", but their regular surgical capacity is unknown. They are not counted here.
[12] This represents about 50% of the estimate of internationally suggested core funding
[13] The percentages refer to "Attendance Units", which include very different services, such as vaccinations and hospital admissions. They are the units used in the MOH planning and monitoring system.

partnerships with greater potential of effectiveness in the short term – such as, for example, in the adolescent school population. Absolute poverty still affects 41.5% of the rural population (*MEF, 2016*), and is coupled with the distances to access a HF. Girls' and women's levels of schooling are progressing, but are still slightly above 20%.

These determinants are coupled with the underlying causes of childhood and adolescent health problems. The prevalence of Chronic Malnutrition in children was still above 40% in 2011, reflecting problems of food availability and traditional infant feeding practices. And in the rural areas of some provinces in the North of the country, the levels of malnutrition and anemia among teenagers are alarming (*INS, 2015*).

Several cultural and socio-economic reasons continue to justify the practice of premature marriage, and the poverty and gender inequality motivations maintain the high percentage of teenage pregnancies – 46.4% in 2015. The early onset of reproductive life is coupled with multiple births and high fertility, which reflect a model of reproductive behavior still marked by rural life. Together they constitute an excessive chain of exposure to reproductive risks.

Several factors contribute to delays in the decision to seek health care, which has particularly severe consequences for Childbirth complications and for the newborn (*Options CS, 2013; Pathfinder, 2013*). According to the 2009 MCH Needs Assessment, the delay to arrive at the HF was a factor in 54.4% of maternal deaths, and the delay in receiving care in 28.2%. Health care demand limits are also observed in relation to childhood diseases: in 2015 (*MOH-INS, 2016*) the percentage of children (with Diarrhea or Respiratory Tract Infection) for whom health care was sought, varied between 53% and 64%, in rural and urban areas, respectively.

Nor can the inequalities in access and use of available health services be forgotten, according to the place of residence and levels of education and wealth, as can be seen in Figure 3 and Table 2.

Table 2: Social inequalities in the use of MCH Services

	Rural	Urban	1^{ary} Education	Education ≥ 2^{ary}	Quintile 1	Quintile 5
Antenatal Consultation ≥ 4	50.9	65.4	42.5	71.5	42.7	72.6
Contraceptive Prevalence Rate	21.5	34.3	17.9	38.6	17.9	43

Despite the increase in coverage of MCH services (Table 1), several surveys have identified problems with the technical quality of the services provided, as well as limitations in communication with the users (*MOH, 2012, MOH-MCHIP, 2013; World Bank, 2013*). Concerning the problems with the technical quality of the services, the foreseeable consequences of delayed identification and intervention of obstetric complications, which are aggravated by the delays in arriving at the HF, are of particular concern.

Deficiencies in communication occur both due to the limitations of time, knowledge and motivation of the professionals, and because of the organization of the service delivery points.

The increasing number of contacts that users have with the HFs of the NHS are partially "wasted" opportunities, both for screening problems (antenatal care, healthy children), and to improve the information of mothers and stimulate demand throughout the continuum of care. These contacts should be better utilized, particularly in rural areas, in order to maximize the users' effort (distances, opportunity costs and women's decision-making capacity).

It is fair to consider that **part of the deficiencies in the quality and accessibility of the demand for services is related to the general shortage of resources in the Mozambican NHS**:

- Funding limitations - besides the additional burden represented by the cost of care for the high number of HIV patients in the country;
- Limitations of the availability of health professionals: in 2014, each MCH nurse carried out an average of 173 deliveries and almost 5,000 consultations and vaccinations (*author's calculations, based on data from the Basic Module and the Statistical Yearbook, 2014*);
- In some districts, the workload of the MCH nurses can reach extremes of 2-3 times the national average due to the non-use of workload criteria in their distribution;
- In spite of efforts to improve the management of the supply chain of clinical consumables, the 6th Survey on the Availability of Contraceptives and Essential Medicines for MCH (2016) found that some of the "7 essential medicines for Maternal Health" were missing in 16% of the HFs, and 60% of the HFs experience stockouts of some contraceptive method;
- In 2015, about 32% of the inhabitants had to walk more than 30 minutes to access a health facility (*HBS 2014-15*); in 2012, 25% of the HFs were more than 100Km of the nearest surgical capacity (*MCH Needs Assessment, 2012*);
- The 2012 MCH Needs Assessment identified that only 54.3% of the 1st line Hospitals had an alternative source of electricity.

VII. LESSONS FROM INTERNATIONAL EXPERIENCE

It is necessary to invest in health systems to dispose of the platforms through which the intervention technologies on health-disease problems become available. For this investment case (IC), it is necessary to invest simultaneously in three complementary platforms: the community (the demand for services and behaviors), Primary Care (prevention and simple care, nearby) and first line reference (complex technologies for emergencies).

The provision of integrated care and the use of the contacts already made by a growing demand, offer opportunities for the promotion of knowledge and practices that are favorable to health, of recovery of protection discontinuities (*Claeson, 2000*) and make the decision to look for care in rural areas profitable.

The implementation of the investment case requires greater co-ordination in the use of investment and current resources, both domestic and from development partners, both at the central level (strategic investment decisions) and at the local level (operationalization).

On the other hand, the implementation of health policies in Mozambique has traditionally been dependent on external support. During the last 2-3 decades, there has been both an increase in the number of sector development partners and a number of institutional experiences to coordinate agendas, resources, interventions and accountability mechanisms, in line with the recommendations of the international forums on the coordination and effectiveness of development aid. The IC places new demands on these coordination mechanisms because of their investment orientation towards results – and, potentially, disbursements conditioned to the same results.

The current policy of decentralization of governance and administration of public services is particularly relevant to the strategy for implementing this investment case. Each Province presents a specific context of the healthcare network (more or less hospitals), accessibility to services (particularly due to the population density and the distances to be traveled), the possibility of articulating multisector interventions and the preferential presence of development partners.

Decentralization also creates new expectations and responsibilities in the interaction with communities and users, both for the modification of cultural practices with negative effects on health and for accountability.

Managing these IC challenges implies a political commitment to coordinate sector plans and to provide guidance to various cross-sectoral processes in the medium term.

VIII. BENEFITS OF INVESTING IN RMNCAH

International health agendas and forums cyclically announce "investment opportunities and returns" in various problem and intervention areas. Consequently, each agenda and forum seeks to present the arguments for its "case".

The investment now proposed in RMNCAH has a set of arguments for its potential returns to the social objectives of the health system and to social well-being in general.

The IC in RMNCAH proposes a continued growth in the supply and use of contraception and family planning methods, which alone have the potential to result in a significant reduction in maternal and child mortality and in the frequency of abortion (and its complications). For Mozambique, it is estimated (*UNFPA, 2014*) that an increase in the Contraceptive Prevalence Rate from 11% to 34% may have the following benefits ([14]): a) prevention of 951,196 unwanted pregnancies (40% reduction), including 411,868 abortions and 123,655 stillbirths; b) the reduction of unwanted pregnancies will reduce maternal and neonatal mortality by 19% and 10%, respectively; c) approximately 43,000 cases of children infected with HIV by vertical transmission can be avoided. It is also known that the sustainability of the initial stages of increase in the use of contraceptive methods is related to perceptions of the users about the effectiveness of the interventions that reduce child mortality and services of maintained quality.

A recent review of global evidence on the effectiveness of technical interventions that may be offered in antenatal and childbirth care (including newborn care) shows the potential for reducing maternal and neonatal mortality that may result from improving the quality and integration of care and the readiness of first-line hospitals in Mozambique (*Stenberg, 2014*).

The reduction of neonatal and child mortality has high results in terms of average life expectancy (non-lost life years) due to the age at which the problems that can be controlled occur. Reducing high levels of maternal (obstetric) mortality has substantial effects on reducing overall mortality in women aged 15-49, although the effects on average life expectancy are less marked (*Rajaratnam, 2010*). ([15])

Multi-sector interventions that promote improved information, changes in practices and behaviors, and the demand for services by adolescents - resulting in reduced teenage pregnancy - are potential vectors for improving girls' life chances and gender equality.

Finally, the persistence of high fertility rates combined with a gradual decline in child mortality has resulted in a rapid growth of the population with a very young age structure. Indeed, Mozambique is still at the beginning of the second stage of the demographic transition and the fertility rate of about 5.3 implies high total dependence ratios in the population. The country needs to create a

[14] The UNFPA study used the "baseline" of Contraceptive Prevalence Rate of 11% of the 2011 DHS.
[15] The death of an adult in a poor family – and particularly the mother – can have effects on the health of the whole household, due to the redistribution of tasks and destabilization (*Feachem, 1993*).

window of demographic opportunity that occurs when the Total Dependency Ratio (TDR) is low and the proportion of individuals of productive age is high. This specific demographic structure coupled with the right policies (education, skills, employment) could lead to socio-economic gains or in other words the "demographic dividend". The fall in fertility rate is the first step for the demographic opportunity to emerge. Therefore, the current demographic dynamics in Mozambique are seen as a brake on development and poverty reduction. Reducing the fertility rate, particularly for the rural, poorer young population, is crucial to changing the proportional role of young and productive populations in society, accelerating economic growth, creating surplus for investment and improving quality of education. Fortunately, the use of modern contraceptive methods has grown more in recent years among the rural, poorer young population: the first - albeit modest - reduction in the total fertility rate (TFR) has been achieved in more than a decade, but it is still insufficient to trigger a change in the age structure of the population. The experience of other lower-income countries that are more advanced in the demographic transition shows that TFR reduction efforts have to be sustained for decades before the decline in the annual population growth rate is observed. Mozambique is among the Southern African Development Community (SADC) countries with high TFRs along with Malawi and Zambia, although the latter have already started to note a decline in the TFR (*World Bank, 2016*).

IX. THEORY OF CHANGE

The design of the Health Sector's response strategy to the listed challenges may assume different levels of complexity.

A simplifying approach assumes that there is enough knowledge to elicit changes in plans, programs and resource allocation: i) recent status analyzes are available on the socio-economic and demographic context of health risks in the target groups of the IC; ii) there are recent surveys on resource deficiencies and their use in the NHS; iii) collections of evidence of the effectiveness of the interventions recommended in the IC have been regularly published in the international literature; iv) the MOH has also published technical norms and guidelines for practically all areas of intervention.

Combining all this accumulated evidence, one could suggest merely adjustments to the current planning and management modes, and quantify the additional resources needed to increase the coverage and quality of the already defined interventions.

However, a more critical opinion might ask "why don't we get better results if we have all this evidence"? "Is it only because of a limitation of available resources"?

In the following sections on "*Reducing barriers to supply and demand to carry out high-impact interventions*", the obstacles to greater coverage and effectiveness of the known interventions are analyzed. In **Annex 6**, this analysis of the "*causes of the obstacles*" is summarized for the Health System as a whole and other sectors involved.

After analyzing the *"causes of the causes",* it can then be suggested that the proposed interventions have the potential to achieve systemic effects and achieve the outcomes and impacts that Mozambican society deserves and the SDGs to which the Mozambican Government has committed.

Matrix 1 summarizes the arguments about the **expected effect of the IC on the Health System and its social objectives:**

- A clear perception of the obstacles to be overcome, but also the mapping of the capacities and resources of the health system and the increasing level of demand and supply of services;
- The orientation of efforts to expand accessibility of services to target groups, according to the local efficiency of each level of the provider system;
- Encouraging the search and promotion of healthy behaviors among the target groups;
- Efficient management of the additional resources expected to be obtained with the IC, including accountability to the communities;
- That these improved results in service delivery, expansion of coverage and management of resources will be manifested in: a) reduction of inequalities; b) predominance of strategic decisions based on evidence; c) the predominance of decisions on allocation of resources based on results;
- That the health system will evolve towards Universal Health Coverage by: a) serving a considerable portion of the Mozambican population; b) expanding accessibility to effective and regularly available services;
- That the expected results include both the reduction of mortality in pregnant women and children, as well as the reduction of general and adolescent fertility

It is possible to identify some critical assumptions that must be made in order to obtain the expected results:

a. The completion of the investment in the responsiveness of the District Hospitals and maternities of the Type - I Rural Health Centers, that is, the HF network capable of offering Emergency Obstetric and Neonatal Care;
b. The increase in the number and improvement of the distribution and competencies of the MCH nurses, as well as the guarantee of having surgical teams in the District Hospitals;
c. Continued investment in the management capacity of the logistics supply chain for clinical consumables;
d. The capacity of each Provincial Health Directorate to promote the effective management of the "local health systems" of each SDSMAS, particularly the balance of contemporary investment in the Districts with the best and worst healthcare network;
e. The implementation of interventions in schools and communities to reduce teenage pregnancy and premature marriage.

In turn, **the effectiveness of these critical assumptions requires progress in the Health Sector reform agenda**, in particular in the management of the Health System. It is considered of particular importance to:

- Channel scarce resources to the implementation levels and priority interventions with potential for results, and this should be expressed in the expenditure managed directly by the MOH;
- Strengthen the capacity to analyze the available resources and results achieved from the various sources of information available;
- Give priority attention to the management of health professionals, in particular the effort to motivate and retain rural people, the balanced placement and fair workload and the association of performance with rewards and penalties;
- For RMNCAH, the professionals of basic and medium level dispersed in the rural HFs are the backbone to obtain better results: training supervision has to be strengthened, as well as clear policies of career development and wage decompression;

- Strengthen the management capacity of the HFs and SDSMAS, for the management of stocks and reorganization of service points, distribution of professionals and micro-planning of work with the EPAs and mobile teams;
- The HF and SDSMAS managers are critical points to monitor and evaluate the IC and the potential association between channeling of funds and results;
- The MOH's position in providing "direction" to the health system must encourage the roles and responsibilities of other actors - and channel resources for this purpose - including the support and recognition of non-governmental service providers (direct providers of health services, and those involved in advocacy for behavior change) and respect for commitments in multi-sector programs, of which collaboration with the school system is the most important for the IC;

In turn, sector development partners are expected to maintain funding priorities for the priority interventions defined in the IC and to strengthen the NHS management capacity, including the capacity to redirect funds as suggested by monitoring and evaluation.

The sustained alignment of priorities between the MOH and key development partners is particularly important in the short term, given the high dependence of the sector on external funding, channeled through projects and implemented in various partnerships with international NGOs: multiplying interventions and updating service protocols contributes to the destabilization of a dispersed health system based on mid-level professionals and with a poor supervision network.

Matrix – 1: Theory of Change – the perspective of the intelligent interventions in the Health System

IMPACT	Maternal Mortality Ratio; Neonatal Mortality Rate; Child Mortality Rate; Global Fertility Rate; Adolescent Fertility Rate		
OUTCOMES	**Equity** Increased services and results in Priority rural Districts Reduction of Teenage Pregnancy (health, education, life project)	**Efficiency** Evidence-based interventions Resource and results management based on HIS Improved continuity (and opportunities) of contacts Results-based management of additional funding	**Universal Health Coverage** Continuity and quality of services Expansion of coverage to groups with lower accessibility (rural, adolescents)
OUTPUTS	**Increased Production of services** Priority Districts EPA's and Mobile Teams Adolescents, schools and YFHS Catching Discontinuities Former NHS Providers Increase of referrals between HC - I and District Hospitals (HD)	**Increased Demand and Participation by the Users** Information for behavior change in 2 target groups: adolescents, young mothers (child feeding) Strengthening of Co-Management Committees	**Strengthened Health System** No., distribution and skills of the MCH nurses HRH specific for G/O and PED in DH Clinical Consumables Logistics Reorganization of service points Management capacity (DPS, SDSMAS, HF) Efficient management of partner financial support Use of information for management and accountability (HIS and CRVS)

Obstacles to overcome: Supply (accessibility, quality, continuity), Demand (delayed decision, lack of information), social determinants of risk exposure for sexual and reproductive health (teenage pregnancy, fertility, lack of protection). ([16])
Promising context: Health - demand and supply growth, healthcare network expansion, experience of coordinating partnerships for sector development, availability of sector policy documents; political decentralization and public administration; documented improvements in some social determinants, education and poverty.

[16] A detailed list of "supply" obstacles can be found in "Politics and Legacy Dependence" in Annex 5 – *Theory of Change. The perspective of causality and the obstacles to overcome.*

X. INVEST IN "WHAT"?

The process of consulting the technical Departments of the MOH, civil society, UN technical agencies and other development partners resulted in the prioritization of interventions, their modes of delivery across the health system, geographical areas and that present the best opportunities and potential returns of investment of resources.

Thus, three main strategies are suggested, as the core of this investment case:

i. Equity and expansion of coverage;
ii. Reduction of Barriers in Supply and Demand (access, use, coverage): to carry out high-impact interventions
iii. Strengthening of the Health System

EQUITY AND EXPANSION OF COVERAGE

Provinces and Districts: potential results and deficits in the initial situation

Both the survey results and the analysis of the routine statistical data (HIS) reflect inequalities in the use of services, available resources and service production, inequalities in population density and healthcare network across the territory, and even some specificities for health-disease problems.

Achieving improvements in RMNCAH implies - roughly speaking - the combination of interventions of three types and at three levels of the health system:

i. Interventions to increase demand and change individual and family health practices;
ii. Technically simple interventions (on the "supply side") – including some with high impact, such as vaccinations, IMCI, family planning – that can be carried out to a large extent-coverage for peripheral healthcare networks, including extension through EPAs and mobile brigades; [17]
iii. Technically complex interventions – requiring specialized resources, with high fixed costs and requiring a minimum volume of production to maintain quality – that are indispensable to attend to complications and avoid deaths, especially obstetric and neonatal interventions.

In each District, it will be necessary to intensify interventions at these three levels, in an integrated way (see Figure 8). The variable emphasis to any of these levels depends on the demographic, topographical, and healthcare network characteristics of each District (see Annex 12).

An exercise was carried out to characterize the "rural" Districts of the Country (i.e. excluding the Provincial capital cities and Maputo-City), to identify two types of priorities: [18]

a) The "best results opportunities" for coverage and reduction of mortality related to the availability of a healthcare network (with first-line hospital readiness capacity) and better accessibility;

[17] It is also this level that determines the "risk" situations that need to be referred to level "iii" HFs.
[18] In "rural" districts, distances to the HF promote the 1st and 2nd delays in obtaining medical care in obstetric and neonatal emergencies and increase the "opportunity costs" for regular contacts with the HFs. These obstacles are less marked in large cities.

b) The opportunities to "improve the initial poor situation" of districts with greater resource shortages and dispersed population – which also require less orthodox approaches to accessibility

Figure 7 expresses this characterization *(the use of colors aims to identify the potential for results: the districts with **darker color** are those with greater results potential).* The following two comments can be made:

Districts with "best results opportunities", for the most part:

- Have a Hospital;
- Have a larger population and population density;
- Have a denser healthcare network;
- Have current coverage of services that are better than the national averages;

Conversely, the Districts shown in Table 3 are characterized by: [19]

- Lower population and population density;
- More sparse healthcare network;
- Current coverage of services worse than national averages;

Both types of Districts require investments in each Province. As an example:

- Districts with "best results opportunities" should reinforce their role as reference for obstetric and neonatal emergencies, within the CONEm Provincial Plan;
- Districts with a "deficient initial situation" are those where outreach solutions for dispersed populations – EPAs and Mobile Brigades – can deliver the best results for expenditures;

The detailed methods and results of the exercise are presented in Annexes 2 (Provinces) and 3 (Districts).

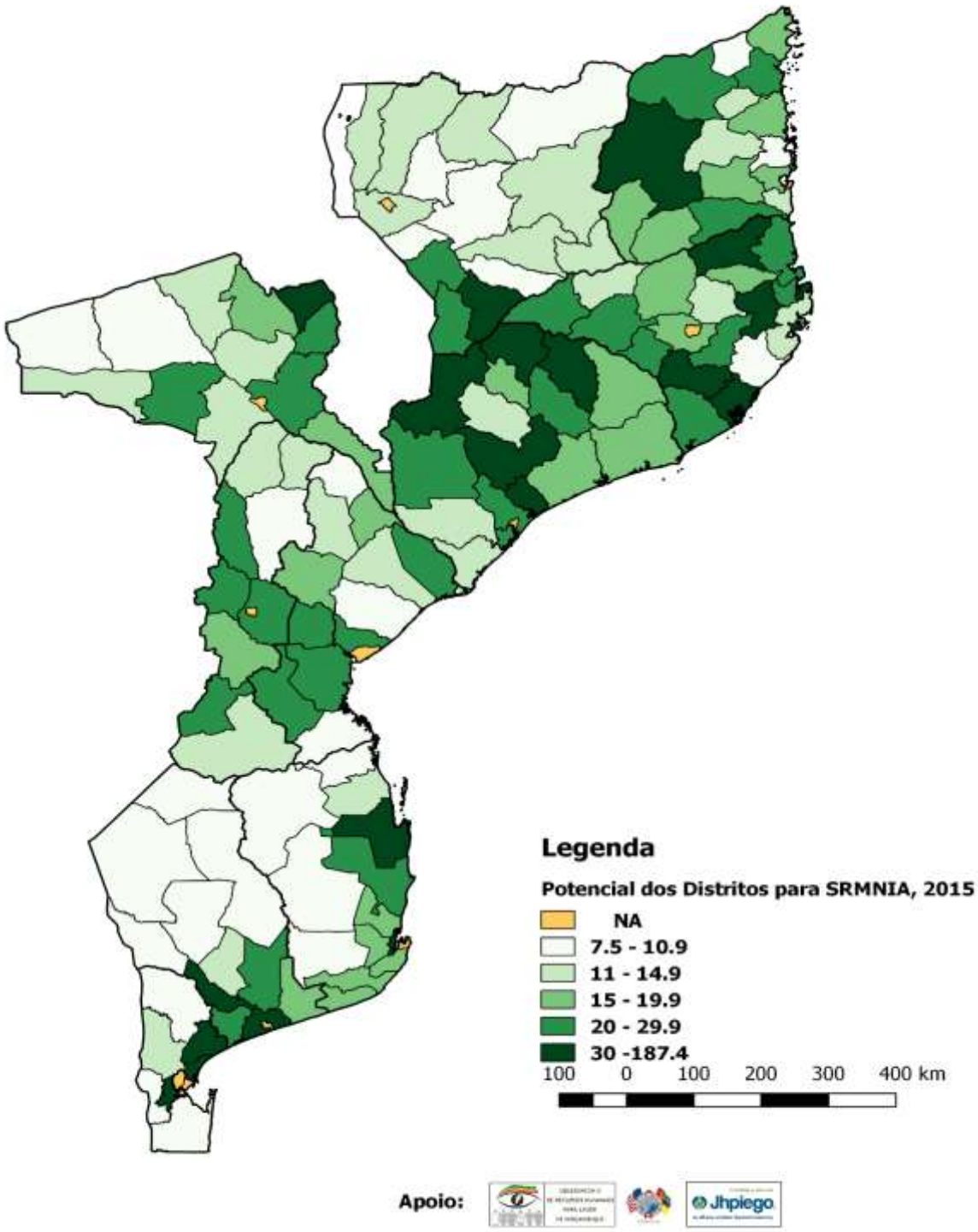
Annex 3 also includes a description of the estimates of the minimum requirements of additional peripheral HFs in the "new Districts" – which was used in the IC costing.

NOTE:

The methods and results that are reported in Annexes 2 and 3 should be taken as an indication of the planning exercise to be carried out in each Province. The use of more indicators (for example HIV or Malaria prevalence) will change the relative position - indicative priority grade - of Provinces and Districts.

[19] This group of Districts with an "initial deficient situation" includes several of the "new Districts", recognized in 2015-2016.

Figure 7: Distribution of the Districts by Provinces. Classification by "results potential" ([20])



NOTA: Potential for Results in RMNCAH: i) coverage - accessibility for Primary health care; ii) Hospital to respond to obstetric and neonatal complications. Greater population also allows greater contribution to the overall impact on health status.

[20] In the map of Figure 7, the darker Districts are those with "greatest potential for results", as shown in the legend of Figure 7 (potential of the districts for RMNCAH, 2015).

Table 3: Districts with "deficient initial situation"

Order of Priority	Districts	Weighted Results	Population	Populational Density
101	MAGOE	11.59	97,774	11
102	MARINGUE	11.52	92,976	15
103	MECUFI	11.48	48,503	41
104	NIPEPE	11.43	37,446	15
105	CHIMBUNILA	11.42	124,217	15
106	CHIUTA	11.40	96,367	14
107	CHINDE	11.37	92,728	21
108	MAVAGO	11.34	27,929	3
109	MOAMBA	11.23	68,231	15
110	MELUCO	11.14	26,221	5
111	DERRE	11.06	89,861	- NA -
112	DOA	11.05	94,032	- NA -
113	MOGINCUAL	10.96	83,695	20
114	CHEMBA	10.90	78,478	19
115	PANDA	10.87	52,446	8
116	NGAUMA	10.79	99,343	30
117	VANDUZI	10.54	131,588	- NA -
118	MARAVIA	10.49	107,589	7
119	CHICUALACUALA	10.40	44,847	3
120	NANGADE	10.32	71,588	24
121	MACHANGA	10.15	62,827	12
122	ZUMBO	10.09	77,870	6
123	MECULA	10.06	17,305	1
124	MAGUDE	9.55	62,000	9
125	MABALANE	9.50	38,707	4
126	LUABO	9.45	55,025	- NA -
127	METARICA	9.35	59,751	17
128	MUEMBE	9.28	37,733	7
129	MASSANGENA	9.14	18,222	2
130	MACATE	9.08	99,679	- NA -
131	MASSINGIR	9.07	35,224	6
132	NAMAACHA	8.96	51,257	24
133	MABOTE	8.85	52,038	4
134	QUISSANGA	8.78	40,486	20
135	MATUTUINE	8.76	41,070	8
136	MUANZA	8.38	36,849	5
137	GOVURO	8.23	41,635	9
138	CHIGUBO	8.17	29,383	2
139	MACOSSA	7.89	44,957	5
140	FUNHALOURO	7.82	47,637	3
141	MAJUNE	7.70	38,220	4
142	MARARA	7.68	89,025	- NA -

NOTES: a) "Order of priority" = sequential numbering of the Districts (Table 3 includes the 43 Districts with the lowest score - the last of the sequence); b) "Weighted results" = combination of the values of the criteria mentioned on page 30 and in Annex 3.

Population Dispersion and Accessibility Strategies: Elementary Polyvalent Agents and Mobile Teams/ Brigades

A particular concern is the distance barrier to reach the HFs in rural Districts with a more dispersed population and lower healthcare network density. The scope of activities of the EPAs has recently been extended ([21]), and mobile teams are set up in virtually all non-urban districts. Recent evaluations suggest that the presence of EPAs has contributed to increasing accessibility to basic services for people living at more than 8km from a HF (*Rohde & Rohde, 2014*).

The initial training of the EPAs and initial indications of the Program anticipated that: a) each District should have 25 EPAs, and/or; b) each EPA should serve between 500-2,000 people.

An evaluation (for the preparation of this IC) of the average EAP productivity in 2015 revealed that: i) home visits are 3-4 times higher in number than the number of "patients" attended; ii) the average productivity of the EPAs is about 2/3 of a health professional's (about 4,700 service units). On the other hand, a brief analysis of some statistics of services by EPAs in the Districts of Inhambane between 2014 and 2016 shows that regular monitoring of their activity may be reflected in a progressive increase in their productivity and in the demand for EPAs for curative consultations.

Table 4: Average Productivity of the EPAs, 2014-2016. Inhambane and National Average

Monthly Productivity	Inhambane			
	2014 *(a)*	2015	2016 *(b)*	National Average 2015
Nr of Consultations/EPA	56	92	134	46
Nr of Home Visits/EPA	146	73	125	172
Nr of Supervisions/EPA	0.4	0.5	0.6	
(a): Based on Statistics of 5 Months				
(b): Based on Statistics of 9 Months				

The evaluation of the need for more EPAs in the different Districts can be made through 2 indicators: i) the effect of population dispersion and scarcity of the healthcare network ([22]); ii) the current ratio of "inhabitants/EPA". A characterization was made of the Districts for these two parameters: the Districts listed in Table 5 have the highest "dispersion index" and also the lowest "population per EPA" ratio; which is followed by a second group of Districts, with a lower "dispersion index" and a higher "population per EPA" ratio (details in Annex 4).

For these two groups of Districts, it is estimated that it would be useful to have between 1,300-1,350 additional EPAs. For a third group of Districts, with better population density and healthcare network, it is considered unnecessary to increase the current number of EPAs. See Table 6. ([23])

[21] After reviewing the curriculum (2014), the EPA will provide a package of services related to: MCH (reinforcement counseling for women to attend ANC and Institutional Births, navel care of the newborn with chlorhexidine, postnatal consultation, verification of vaccination, malnutrition screening, deworming), community IMCI, increased adherence to HIV treatment (ART) and TB treatment

[22] In this case, the "dispersion" factor resulted from the combination of 3 parameters: population density, inhabitants/HF and theoretical radius of the healthcare network in the District.

[23] The districts of the provincial capital cities are not counted, nor are Nacala and Maputo

The numbers suggested here, as well as the stratification of the Districts into 3 levels of population dispersion - should be taken as an indication of: i) the identified need for a greater number of EPAs and Districts with a more dispersed population; ii) the type of Districts where the increase in the number of EPAs could have the greatest impact in terms of expanding access to a "minimum package" of health care.

A complete listing of the 3 groups of Districts, according to the dispersion index, is found in Annex 4.

Table 5: Districts with highest population dispersion – higher needs for EPAs

District	Population/EPA	Populational Dispersion + Sparse Healthcare Network
Magoe	6,614	1.23
Machaze	5,848	1.48
Machanga	5,712	1.61
Maravia	5,199	2.45
Cheringoma	5,182	2.27
Montepuez	5,140	1.63
C. Bassa	4,986	1.19
Zumbo	4,390	2.93
Guro	3,883	1.18
Sanga	3,728	5.24
Massingir	3,202	6.12
Mabote	3,061	8.67
Inhassoro	2,876	1.89
Govuro	2,776	2.86
Marrupa	2,531	8.56
Panda	2,497	2.67
Moamba	2,437	1.11
Matutuine	2,416	4.79
Magude	2,296	2.26
Chigubo	2,260	26.39
Maua	2,221	3.83
Tambara	2,093	1.43
Nangade	2,091	1.04
Funhalouro	2,071	10.92
Majune	1,911	10.53
Muembe	1,887	3.64
Nipepe	1,872	1.44
Macossa	1,823	5.67
Mabalane	1,613	9.99
Chicualacuala	1,602	15.07
Mavago	1,470	15.12
Massangena	1,402	31.00
Muanza	1,152	6.56
Meluco	1,140	8.11
Mecula	865	152.87

NOTE: "Population Dispersion + Scarce Healthcare Network": higher values mean more critical situation, i.e., lower population density and rarer HFs.

Table 6: Additional needs for Elementary Polyvalent Agents: 3 groups of Districts

District Groups	Populational and HF Dispersion Index	Inhabitants / EPA	Nr. of Districts	Population	EPAs Needed	New Inhab/EPA Rate
1	10.4	2,921	35	2,060,422	327	2,000
2	0.36	6,529	54	8,804,766	1,015	2,500
3	0.06	8,504	36	8,967,386		

Estimates of the needs for additional EPAs have been made by the MOH in collaboration with some development partners, suggesting numbers that are higher than those presented here ([24]). However, the more modest numbers suggested above are consistent with:

- The National Malaria Control Program suggests that 1,336 additional EPAs would allow access to care for people without access to HFs; according to the EPA Training Plan, an additional 1,400 EPAs would increase accessibility to approximately 60% in Nampula, Zambezia and Tete Provinces;
- Recent reviews have identified problems that must be solved to achieve better effectiveness and efficiency with the EPAs (before the mass expansion of their numbers): flaws in supervision, uneven quality of diagnostics, need to refresh knowledge, review of the relative weight of curative and preventive care, fixed and homebased care in the model of time use of the EPAs (*Rohde & Rohde, 2014; Save the Children, Mozambique. 2017*);
- Concerns about the financial limitations of the Health Sector, which are also reflected in the weak guarantees of sustainability for the EPAs;

Mobile Teams

Similarly, a brief analysis was made of the usefulness of the MOBILE TEAMS: the mobile teams have logistics costs and can reduce production capacity in the fixed HFs.

The mobile teams can increase accessibility to a "limited" package of integrated maternal and child health services (including vaccination, supplementation with Vit. A, deworming, nutritional screening and Family Planning), for the population living more than 5km away from any health facility.

The effectiveness of the mobile teams in realizing this expected increase in coverage can be improved with better mapping of communities and micro-planning, in coordination with similar exercises that are already carried out for the EPI and the EPA programs, and that have the support of GAVI – as part of the "REC" strategy (*Reach Every Child/Community*).

As for the EPAs, the potential usefulness of mobile teams is greater in Districts with a more dispersed population and healthcare network. However, according to the 2015 HIMES data, mobile activity for the Expanded Program on Immunization was not very different between Districts with a greater or lesser dispersion rate: 15% of vaccinations were done by mobile teams in the Districts with the highest Dispersion, compared to 11% in the most densely populated Districts.

[24] The Training Plan (2017) suggest 3,350 additional EPAs between 2017 and 2019. The draft Strategy of the National EPA Program (2017-2021) suggest that an increase of 40% of the NHS coverage should be reached, with a costing done by UNICEF-MSH for 9,700 EPAs in 2021.

It is recommended that the activity of the mobile teams in the Districts of Group "3" (Annex 4) be reviewed as to the relation between cost and results (coverage expansion and control of target groups), compared to the activity in the fixed HFs.

REDUCTION OF BARRIERS IN DEMAND AND SUPPLY: TO CARRY OUT HIGH-IMPACT INTERVENTIONS

Approach

The following intervention areas are addressed:

a) Maternal Health;
b) Neonatal Health;
c) Child Health;
d) Child and Adolescent Nutrition
e) Adolescent Health: Early Pregnancy and HIV;
f) Family Planning

For each of the areas, the following is presented:

- The main health ***problems***, or causes of morbi-mortality;
- The effective ***interventions*** with potential to control these problems;
- The ***obstacles*** to implement these interventions, at large scale and with quality: on the supply side and on the side of demand and family health practices;
- The ***actions*** suggested by the IC to ***overcome the obstacles*** and increase the availability of the effective interventions

This section ends with the suggested interventions to increase demand, encourage behavior change and improve the continuity of care.

The strengthening of several pillars of the health system to facilitate the implementation of the suggested actions in each thematic area is presented in the next section of the text.

High-impact interventions: plenty of international evidence

The recent international literature confirms the evidence on the effectiveness of well-known interventions for the management of the major diseases and complications of pregnancy, childbirth, care for the newborn and early childhood (*Stenberg, 2014*). The observation of the good cost/benefit ratio of these interventions (*Stenberg, 2015*) stimulated the broad international consensus on the Global Strategy for Women's, Children's and Adolescents' Health, 2016-2030 (*United Nations, 2015*). The set of effective interventions and suggestions of the UN technical agencies for their implementation are shown in Figure 8. The Ministry of Health of Mozambique has also compiled and published technical standards to support the implementation of these effective interventions in the public health system (*MOH, 2014, 2015*).

The most common pathologies and complications in Mozambique do not differ from the average ones of sub-Saharan African countries - highlighting the high prevalence of HIV, Malaria, Chronic Malnutrition and Teenage Pregnancy.

It also seems clear from the review of international literature that the major limitations do not reside in the knowledge of the specific intervention technologies, but in the coverage and regular operation of healthcare networks near the general population and target groups that stimulate the increase in demand for these efficient services and facilitate change in health practices in families.

Figure 8: Grouping of effective interventions to reduce maternal, neonatal and child mortality and improve adolescent health

	Growth and Development	Pregnancy	Delivery and Childbirth	Postnatal, Mother and N-B	Child	Adolescence
Hospitals	Sexual and Reproductive Health, including FP	Management of pregnancy complications	CONEm-C Care of premature newborns and with problems	Hospitalar care of sick mother and N-B	Hospitalar care of sick child	Differentiated care for adolescent health problems
Health Center - I	Sexual and Reproductive Health, including FP	ANC Management of pregnancy complications Abortion Care Communication with EPA	Assisted delivery (CONEm-B) Identifcation and evacuation of complications and emergencies Normal N-B Care	Post-Partum Cons + Post-Partum FP Vaccines and counseling Child feeding	Vaccines, control of development IEC Child feeding and screening of malnutrition Child diseases care	YFHS Coordination with schools
Health Center - II	Sexual and Reproductive Health, including FP	ANC Communication with EPA Mosquito Net	Assisted delivery (normal) Identifcation and evacuation of complications and emergencies Normal N-B Care	Post-Partum Cons + Post-Partum FP Vaccines and counseling Child feeding	Vaccines, control of development IEC Child feeding and screening of malnutrition Child diseases care	YFHS
EPAs and Community	Activity of the EPA and Mobile Teams: vaccines, FP, ANC, IMCI, mobilize local leaders on child and adolescent feeding	Counseling and preparation for delivery Stimulus for 4+ ANC	Hygiene during homebirth Prevention of Hemorrhage and Sepsis	Stimulus for Post-Partum Cons Counseling Child feeding	IEC and mobilization for Vaccines Mentoring of child feeding for young mothers	IEC on Sexual and Reproductive Health Mobilization of local leaders & Premature marriage; FP

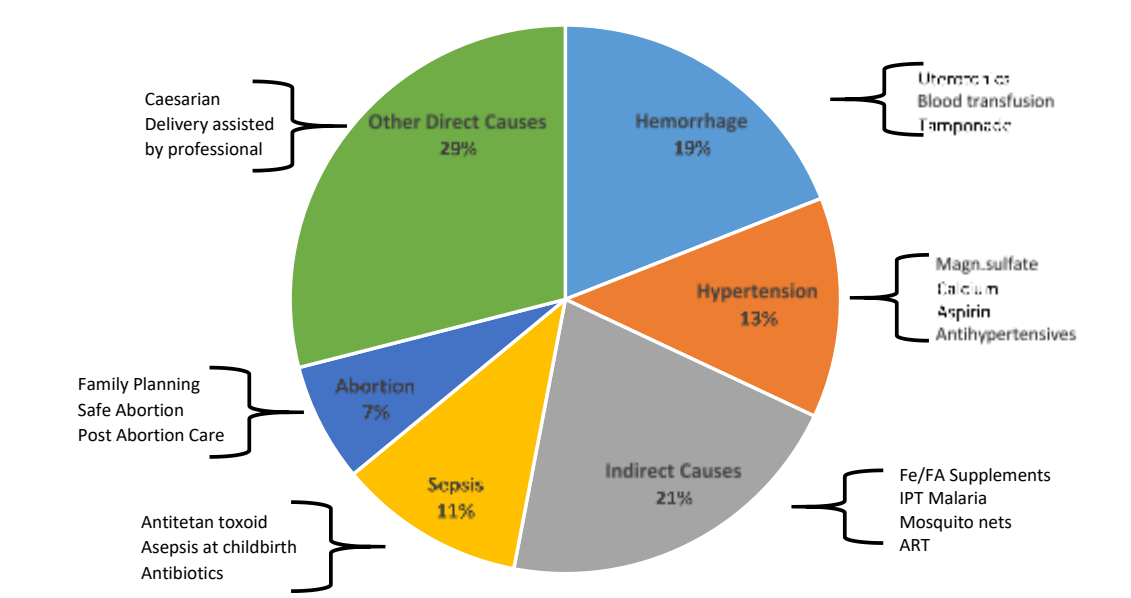
Source: Adapted from: UN. The global strategy for Women's, Children's and Adolescents' Health (2016-2030). New York, 2015

MATERNAL HEALTH

In Mozambique, the most important causes of maternal mortality do not differ from other sub-Saharan African countries: a) direct obstetric causes: hemorrhage, eclampsia (and preeclampsia), postpartum sepsis and uterine rupture, abortion complications (sepsis and hemorrhage), and; b) indirect causes: malaria, HIV, anemia. Figure 9 shows their proportional importance as well as effective interventions to control them.

The list of causes of maternal mortality should also include chronic disabilities and pathologies such as obstetric fistula or infertility.

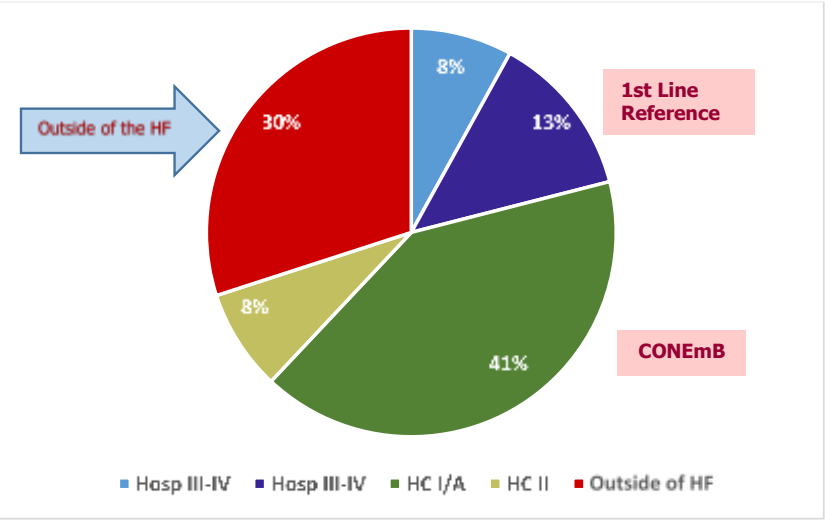
Figure 9: Main pathologies and complications of Pregnancy and Childbirth



Source: Adapted from Government of Kenya, Ministry of Health (2016). Kenya Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) Investment Framework. Nairobi. Mozambique – MCH Needs Assessment, 2009

The knowledge of the places - levels of the health system - where the deliveries are attended is important, in order to define the interventions that will improve the response to obstetric complications. Combining data from the 2009-2012 MCH Needs Assessments and the increased institutional delivery coverage from the 2015 IMASIDA, we can estimate the distribution of institutional deliveries as suggested in Figure 10. ([25])

Figure 10: Levels of conducting Deliveries, including outside of the Health Facilities (2015)



[25] It should be noted that the percentage distribution numbers of deliveries in Figure 10 include those performed "outside the HFs". If only "institutional" deliveries are considered, the percentage distribution for NHS levels will be slightly higher. For example, the percentage of deliveries in the Rural HC - I and Urban HC - A will be 52%, and that of the General District Hospitals will be about 20%.

Text box 1: Recent increase in coverage with Institutional Deliveries and stagnation of Maternal Mortality

Having reached the 70% coverage of Institutional Deliveries, it is urgent to carry out new estimates of Maternal Mortality in order to verify if it continues as high as the previous estimates.

A brief analysis of the HIMES (2015) data provides some suggestions:

- The percentage of deliveries performed by HFs of the primary level rose from 72% to 82% between 2012 and 2015: since the HIMES does not indicate whether the HC are Type I or Type II, it is not possible to deduce the quality of care at the Maternity. What is certain is that the percentage referred to Hospitals declined, which is not a good sign for the treatment of complications;
- On the other hand, the percentage of deliveries by caesarean section increased, which is a positive indication of the potential for resolution of obstetric and neonatal complications; [26]
- Institutional obstetric mortality reported in annual reports of several central, provincial and general-district hospitals has declined between 2013 and 2015

Annex – 6 (6.1) details and systematizes the potential for carrying out effective interventions in the health facilities - prevention and treatment - in Mozambique and lists known obstacles.

The obstacles to the implementation of the known technologies, with ample coverage, within the appropriate time and with quality, can be systematized in:

Delays in the decision and demand for the antenatal consultation 4+ (ANC4+) and assisted childbirth, related to: preference for childbirth at home, gender decision power, rural distances, transportation difficulties and costs, experiences of previous contact with the HF;

Delays in treatment of obstetric complications, related to: distances between peripheral HFs and 1st line Hospitals; transport and communication between the two levels; state of readiness of these hospitals (surgical staff, supplies, blood, electricity, etc.);

- *Delays in treatment of obstetric complications: in the 2009 MCH Needs Assessment, the delay to arrive at the HF was a factor in 54.4% of maternal deaths, and the delay in receiving care in 28.2% of the cases;*

Limitations in knowledge and experience of health professionals in remote HFs: screening of complications at ANC4+ and upon arrival in the Maternity; intervention readiness (details in the Text Box 2);

- *Due to the human and material limitations, more than 80% of the HCs (2012) were not able to provide assisted vaginal delivery, and only 33 of 56 hospitals provided complete CONEm*
- *In 2012, only about 50% of the MCH nurses had full knowledge of how to carry out one ANC with quality (MOH/MCHIP, 2013)*

Shortages of consumables and small equipment, both for regular treatments as those necessary to attend to serious complications: see Box 2;

[26] The percentage of deliveries by caesarean section increased from 2.2% and 3% - from the 2009 and 2012 MCH Needs Assessments - to 3.9% in 2015 (HIMES). However, it is not known if the increase in the number of cesarean deliveries mainly benefited the pregnant women with complications and obstetric risk.

Insufficient number of MCH nurses, and distribution that does not include workload criteria, generating extreme situations of work overload:

- *In 2014, each MCH nurse on average carried out 173 deliveries and did nearly 5,000 consultations and vaccinations;* [27]
- *Because of the irregular distribuition of the available professionals, the average workload of the MCH nurses can reach 2-3 times the acceptable levels in some districts of Nampula and Zambezia Provinces;*
- *The presence of only 1 MCH nurse per shift in the Maternity makes it difficult to comply with norms of attendance of obstetric complications* [28]

Poor communication between health professionals and users, with predictable consequences for the continuation of the ANC, preparation for the delivery (particularly in primiparous women), retention in ART and postpartum consultation *(MOH/MCHIP, 2013)*;

Poor supervision of young professionals usually placed in the more peripheral HFs: 76% of professionals visited in the last 6 months, but the participation of supervisors in quality improvement activities took place in less than 50% of the visits *(MOH/MCHIP, 2013)*.

[27] Author's calculations, based on the data of the Basic Module and the Statistics Yearbook, 2014

[28] The immediate administration of oxytocin (at post-partum) can be delayed if the same MCH nurse is helping the expulsion of the foetus and providing immediate care to the new-born (MCHIP Model Maternity Quality Assessment, 2013)

Text Box 2: Lack of human and material resources in antenatal, childbirth and newborn care

Needs Assessment of 2012:

- only 32% of the health facilities reported having a suction cup and 5% had forceps;
- only 17% of Health Centers and Health Posts had either an ambulance or other functioning transportation;
- 42 of the 55 surveyed hospitals were providing surgery, and there were frequent absences of small material for incision, suture and perfusion in these hospitals;
- In the District Hospitals, there were frequent shortages of small R-N reanimation-resuscitation equipment

Presentation of National Human Resources Directorate, 2016:

- 27% (268) of the Type II Health Centers did not have any MCH nurse

6th Survey on Availability of Goods and Products:

- The availability of "oxytocin and magnesium sulfate" improved to 84%, but in the Primary level HCs, the availability of pediatric amoxicillin was only of 66% and that of chlorhexidine (for umbilical cord asepsis) of 51%

The limitations in knowledge and skills of the MCH nurses (*MCH Needs Assessment, 2012*): [29] [30]

- only about 50% of the MCH nurses had full knowledge on how to carry out an ANC with quality;
- 75-80% were able to identify the onset of labor;
- less than 50% were able to identify the first signs of postpartum haemorrhage;
- 55% were able to provide reanimation care for the newborn

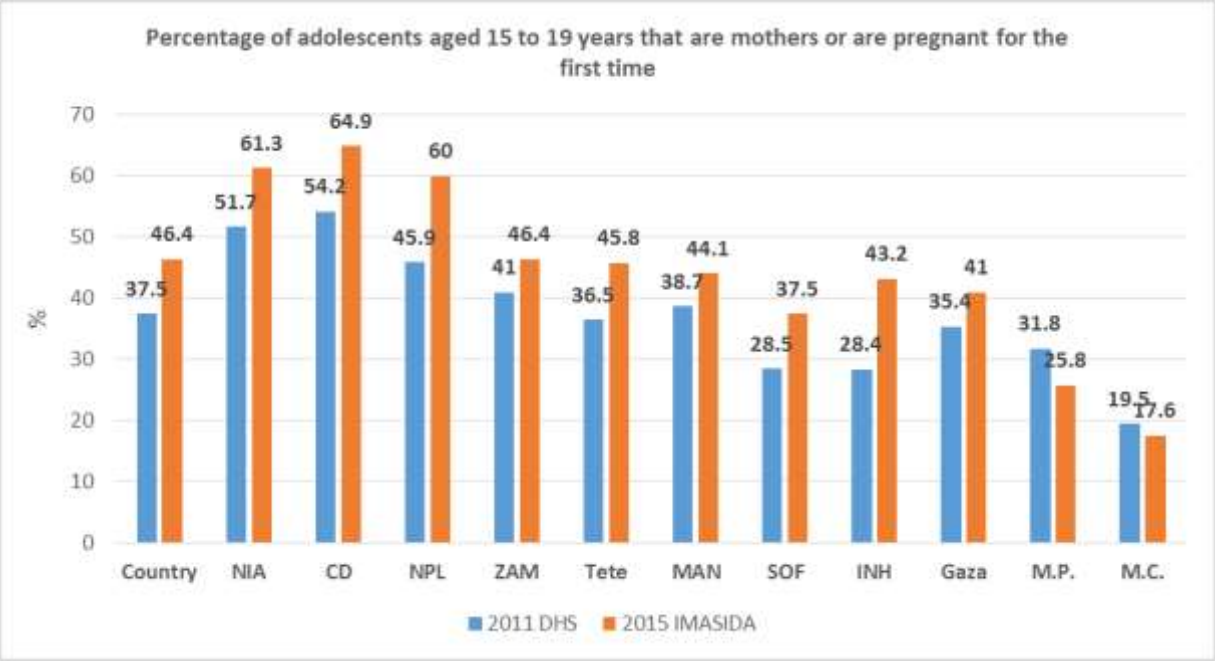
The frequency of obstetric complications is increased in a social context of high prevalence of teenage pregnancy and multiparity. In turn, these two factors are related to the practices and values of rural societies: premature marriage and large family models.

The overall fertility rate has remained high - higher than 5 - with higher values in the rural areas of the Northern and Central Provinces of the Country and in the social strata with lower levels of education and wealth. The percentage of pregnant adolescents before the age of 19 has the same geographical and socioeconomic distribution, and worsened between 2011 and 2015: 37.5% and 46.4%, respectively. The aggravation was registered in practically all the Provinces of the Country.

It should be noted that the Provinces with the highest rates of teenage pregnancy are also those with the lowest contraceptive prevalence rates (CPR), and more frequently also with more premature marriages: the young girl's marriage is quickly followed by the first pregnancy.[31] (DHS*, 2911, UNICEF-UNFPA, 2015*).

[29] Carrying out an ANC "with quality" refers to the standards published by the MOH (*MOH, 2014*). The 2013 MCHIP Model Maternity Quality Assessment identified: reasonable rates of medication compliance, but lower rates of 1st ANC evaluation in primiparous women (on average 50%) and poor communication with users (less than 30% of counseling on signs of risk and preparation for delivery).
[30] The WHO Recommendations for a quality ANC were updated in 2016 (WHO, 2016)
[31] The 2011 DHS data indicate that 39% of the girls who married before the age of 15 years also had their first child before 15 years.

Figure 11: Percentage of Adolescents between 15 and 19 years that are pregnant or are mothers



Abortion complications (particularly hemorrhage, sepsis) account for 7% of maternal mortality (*MCH Needs Assessment, 2009*).

The estimates of the frequency of abortion (spontaneous or induced) are difficult in any country. Recent international literature suggests that in sub-Saharan Africa, the number of abortions would represent a ratio of about 14% relative to the number of births (*Sedgh, 2016*). According to data from the 2012 MCH Needs Assessment, the ratio in Mozambique is 6%, varying between 4% in Health Centers and 18% in Provincial and Central Hospitals.

Almost 50% of abortions were attended to in the Hcs, whose capacities are limited, according to the same 2012 Assessment:

- 81% of the HCs had trained professionals to perform voluntary termination of pregnancy (VTP) or post-abortion care, but with limited knowledge;
- 53% of the HCs had Gynecology Urgency, and 78% had VTP or post abortion care;
- The lack of small material was very frequent, even in the HFs with Gynecology Emergency;

The necessary interventions

In order to reduce maternal mortality, the interventions need to be organized so that they:

- Increase the frequency and quality of the 4th ANC;
- Improve the early identification of obstetric complications and the possibility of evacuation when necessary;
- Improve the readiness of the District Hospitals to attend obstetric complications, including surgical capacity, on a permanent basis;

- Increase the number of deliveries currently performed at home, in rural areas and improve care by traditional midwives; ([32])
- Reduce the prevalence of teenage pregnancy.

The MOH has regularly published detailed and up-to-date technical standards for antenatal care, delivery and postpartum care (*MOH, 2015*).

The recommended interventions are: ([33])

- Capacity building of a sufficient number of Type I, Type A Urban, and some Type II Health Centers to meet the target of about 300 capable of providing CONEm-B needed for the population: given that in 2012, only about 30% of these HFs had capacity for CONEm, this means equipping about 140 HFs with the minimum human and material resources for the provision of CONEm-B; [34]
- Build the capacity of the District Hospitals (existing and planned for the next 5 years) for 24/7 surgical readiness, which involves specialized professionals (surgery, anesthesiology, instrumentation, obstetrics and neonatology), critical equipment and infrastructures (water and electricity);
- It is estimated that for the provision of MCH services to the growing population, over the next 5 years, about 2,000 additional MCH nurses are required (see Box 3 on page 64) ([35]). In addition to these "generalist" professionals, the maternities of the major HCs and the District Hospitals (DH) need MCH nurses (of mid-level or higher) specialized in Obstetrics and Neonatology, in an approximate number of 500 for Obstetrics, and 250 for Neonatology; ([36])
- The surgical readiness of the DHs requires 2 surgical teams in each Hospital. The needs approximately are for 160-170 medium-level surgery, anesthesiology and instrumentation professionals (60 Hospitals X 2 surgical teams + "available resources" to cover leaves and losses);
- The guarantee of critical infrastructures (water and electricity) should be extended to the HCs defined to carry out CONEm-B, according to plans in each Province;
- Communication and means of transport should be guaranteed between the major HCs (CONEm-B) and the District Hospitals, for the rapid evacuation of parturients in need - ambulances and telephones;
- The approximately 300 HFs with capacity to carry out CONEmB-C should regularly have the small equipment to provide voluntary termination of pregnancy and post-abortion care services;

[32] The participation of Traditional Midwives extends to specific interventions such as the use of Misoprostol to prevent postpartum hemorrhage. However, in most Districts the provisioning for these interventions is made through contact with local EPAs.

[33] The important component of increased use of contraception among adolescents and reduced practice of marriage is presented in the "Adolescent: Sexual and Reproductive Health" section (page 53)

[34] According to international standards: 1 HF with COEm-B/100,000 inhabitants; 1 HF with COEm-C/500,000 inhabitants

[35] A similar number of MCH nurses is proposed to be reached by the NHRDP, between 2021 and 2025. The "additional" 2,000 MCH nurses referred to herein have the same meaning as "required number in addition to the currently available".

[36] It is assumed that these specialized professionals will be available in reduced numbers at each shift, teaming up with the generalist MCH nurses.

- Ensure the availability of critical consumables and small equipment for ANC, delivery, surgery and abortion, including simple laboratory tests for peripheral HFs and clinical consumables for the major pathologies involved in maternal mortality;
- Professionalize the management of the HFs, in order to serve, as a priority, the organization of services and management of stocks of consumables and small equipment;
- Local application of possible measures for the various causes of poor motivation of health professionals: improve distribution (to avoid extreme workload); supervision and mentoring (for young people in the peripheral HFs);
- Improve knowledge on interpersonal communication in the graduate training of the MCH nurses;
- Equip the MCH nurses of the peripheral HFs to communicate with the EPAs of their catchment areas, to timely cater for ANC 4 and childbirth;

HEALTH OF THE NEW-BORN

The most important "potentially avoidable" causes of neonatal mortality (NNM) are closely associated with the health status of the pregnant woman – during labour, and the management of the complications of these two moments: prematurity (50%), severe asphyxia (32%), neonatal sepsis (29%), bronchopneumonia 13%), hypoglycaemia (10%) – Figure 12.

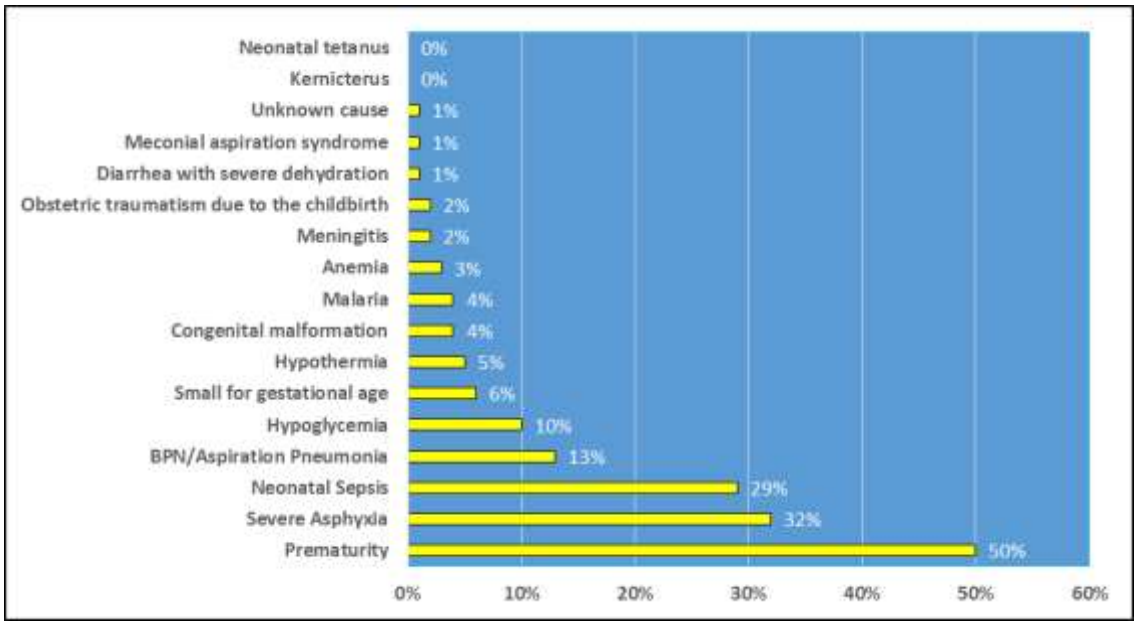
In addition, "distal" factors that contribute to prematurity, such as the frequency of teenage pregnancy and the frequency of malnutrition in the same adolescent (particularly anemia - 40-50% - and micronutrient deficiencies, for example, 30% of women with iodine deficiency) (*MOH/DNSP/NUT, 2010*). Other important contextual factors are delays in the decision to seek institutional care for delivery and the 37% of deliveries that occur without professional assistance in rural areas (*MISAU, INS, INE, ICS 2016*).

The interventions to reduce NNM can be divided into: a) those technically simple ones, which begin with the prevention of risk factors during pregnancy and which are concluded with appropriate care for all newborns (at least when delivery is institutionally assisted); **b) specialized care for low-weight or sick newborns (NB)** who require professionals and hospital environment equipment. [37]

The organization of delivery and postpartum care in each HF also has important implications: **international literature suggests that 50% of neonatal deaths occur within the first 24 hours after delivery.** The 2012 MCH Needs Assessment indicates that in almost all of the analyzed HFs (942/947), the average length of hospital stay for normal deliveries was 24 hours, suggesting that **some of the newborns leave the Maternity before 24 hours after delivery**, missing the opportunity of better screening-control of possible pathologies (and wasting the opportunity costs of the woman-family going to the Maternity).

[37] Several of these complex pathologies of the newborn are related to pregnancy pathologies and/or complications of the delivery, so the majority of these newborns should already be in the hospital setting.

Figure 12: Causes of Neonatal Mortality, Mozambique, 2009



Source: MOH/UNFPA. Maternal and Neonatal Health Needs Assessment in Mozambique. Maputo, 2009

Anexo – 6 (6.2) details and systematizes the potential for effective interventions in the health facilities - prevention and treatment - in Mozambique and lists the known obstacles.

The obstacles to the implementation of the known technologies, with ample coverage, within the appropriate time and with quality, can be systematized in:

Poor screening and management of pregnancy-related conditions related to prematurity, including malnutrition in adolescent pregnant women;

Poor screening for intrauterine growth deficiency due to low frequency of 4+ ANC;

Delay in demand for and provision of services for complications of childbirth;

Early discharge from maternity;

Poor care for newborns in general;

- *In 2011, complete care for the N-B was only performed in less than 20% of births, with more frequent failures in breastfeeding and heat (MOH-MCHIP, 2013);*

Poor care for newborns with problems, even in the reference HFs:

- *The 2012 MCH Needs Assessment identified that neonatal resuscitation could only be practiced in 68% of primary-level HFs because of the lack of small equipment;* ([38])

Poor knowledge of health professionals about the diagnosis and treatment of neonatal complications related to deficiencies in graduate education

- *In the 2012 MCH Needs Assessment, the percentage of correct responses was less than 40-50% for various items of general care, diagnosis and treatment of newborn complications;*

[38] The shortages in the DHs are less frequent, but still worrying. See details in MCH Needs Assessment Report, 2012 - pp. 116.

- *According to the same Assessment, only 36.8% of professionals had obtained knowledge about neonatal resuscitation in their initial training.*

The necessary interventions

The protocols for prenatal, delivery, newborn and postpartum care are detailed and updated in MOH technical standards (*MOH, 2011; MOH, 2014*).

The reduction of predisposing factors and improved care for newborns closely follow the interventions to reduce maternal mortality, both on the supply side (quality of services to pregnant women and parturients seeking the HFs) and on the demand and health behavior side (CPN4+, teenage pregnancy).

It is worth emphasizing, however, the importance of some of the components already mentioned for reducing maternal mortality:

- Drastic improvements in the knowledge and experience of the MCH nurses in the screening and management of complications;
- The availability (at the service points) of critical consumables and small equipment, including for handling N-B with problems in the District Hospitals;
- Communication between MCH nurses and EPAs should also be used to increase the frequency of postpartum control of newborns outside the HFs.

Other interventions with potential impact on the reduction of neonatal mortality are:

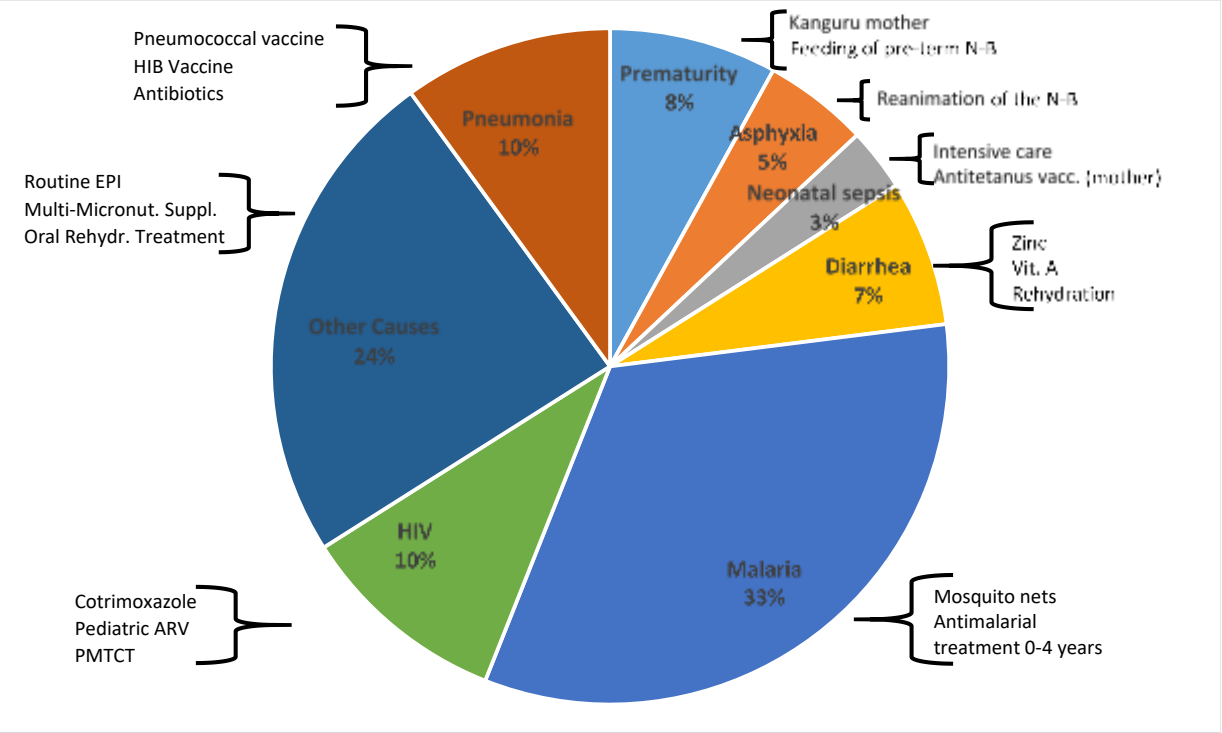
- Improving the quality of ANC in the primiparous adolescent, for all factors predisposing to prematurity (infections and parasitic diseases, anemia and malnutrition, hypertension);
- Extension of the average time of hospitalization in the Maternity to more than 24 hours, and insistence on quality control before discharge (mother and N-B);

CHILD MORTALITY (0 – 4 YEARS)

Mortality in the 0-4 year olds is still around 97/1,000 live births and the mortality rate in the first year of life around 60/1,000 live births (*UNICEF-Stats 2015*). The most important causes of serious illness and mortality after the first month of life are well known (and the list is similar to other low-income countries in sub-Saharan Africa): malaria, HIV, acute respiratory infections, diarrhea, anemia, malnutrition, sepsis, meningitis (Figure 13). The same diseases are the main causes of hospitalization and death in Hospitals, with slight variations in the 1st position: malaria is much more frequent in Nampula, HIV is more prominent in Xai-Xai.

The 2015 IMASIDA reported that malaria prevalence in children increased slightly (about 40% of parasitized children compared to 38.2% in the 2011 DHS).

Figure 13: Main causes of neonatal and child mortality



Source: Adapted from Government of Kenya, Ministry of Health (2016). Kenya Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) Investment Framework. Nairobi. Mozambique – National Child Mortality Study 2009

The high prevalence of chronic malnutrition in children increases the risk of lethality from other pathologies of the child (particularly communicable diseases). This is coupled with the high prevalence of anemia - 64% "any anemia"; 33.5% "moderate anemia" (*IMASIDA, 2015*).

The technologies of prevention and treatment of the main causes of morbidity and mortality in children are simple and effective. These technologies have been applied on a large scale through the primary level of the NHS, both in the HFs, as well as by mobile teams and EPAs, including the increased coverage of EPI and mosquito nets. A similar effort has been made in recent years to expand the diagnosis and initiation of children with HIV: the percentage of HFs offering PMTCT, ART, Option B+ and Early Childhood Diagnosis services reached 89%, 65%, 65% and 84%, respectively. The more than 65,000 children who started ART accounted for more than 60% coverage in 2015.

However, there are remaining limitations: a) the coverage rate with complete vaccinations was 66% in 2015; b) about 56% of children with diarrhea or upper respiratory infection (URI) sought care when ill; c) the 12-month retention rate for children on ART was 64% (*MOH-CDC, 2015*).

There are also persistent inequalities in the accessibility and use of these services, as can be seen from Table 7.

Table 7: Differences in vaccine coverage and demand for child health care services, 2011-2015

		Vaccination		Demand for Care - Fever		
		2011	2015	2011	2015	
Residence	Rural	60%	62%	50%	53%	
	Urban	75%	78%	72%	64%	
Education	Without Education	58%	53%	45%	50%	*a)*
	Education > 2ary	75%	85%	72%	74%	*a)*
Wealth	Quintile 1	54%	53%	48%	54%	
	Quintile 5	76%	85%	68%	73%	
a) In 2015, the IMASIDA did not desaggregate the demand for care for "Fever" by level of Education.						
	The numbers that are registered here are for the demand of care for "Acute Respiratory Infection"					
	The disaggregated data by "place of residence" and "wealth quintile" are for "Fever", in 2015					

Source: DHS, 2011; IMASIDA, 2015

The contacts for vaccinations and “healthy child consultation” are one of the areas with the highest volume of NHS services: more than 20 million contacts in 2015, making up about 73% of all MCH contacts (and the equivalent of 0.8 of the number of External Consultations). However, the care model is criticized for the predominance of the “assembly line” for vaccination and weight control, with limited duration of service and few opportunities used for communicating with mothers or screening for illness and malnutrition problems. On the other hand, the intensity of use - number of contacts per child/year - is very unequal, resulting in an insufficient number of contacts (≤ 4) in 29% of the rural Districts.

The quality of pediatric hospital care may also be lower than expected in reference units: in 2015, the lethality rate in pediatric wards in 5 out of 9 provincial and central hospitals was greater than 5%.

Figure 13 includes international evidence of effective interventions for each major cause of child mortality.

Annex – 6 (6.3) details and systematizes the potential for effective interventions in the health facilities - prevention and treatment - in Mozambique and lists the known obstacles.

The most important causes of child mortality may (with the exception of malnutrition) be reduced in frequency and lethality with relatively simple and passive medical interventions of high coverage and effectiveness.

The obstacles to the implementation of the known technologies, with ample coverage, within the appropriate time and with quality, can be systematized in:

Problems with the organization of child care in fixed HFs, in addition to the short duration and content limitation of most “healthy child” consultations - HCC:

- Little functionality in the internal circuit of children, with loss of users between healthy and “at risk” children's consultations, and obtaining laboratory results for HIV;

Poor efficiency of the Mobile Brigades in the expansion of coverage;

Irregular availability of consumables to control the main causes of mortality; [39]

Insufficient knowledge of IMCI protocols: in graduate training; rotation after in-service training; [40]

Reduced demand for HCC consultation after the first six months of the child's life, when the problems of malnutrition are aggravated;

The necessary interventions

The protocols for the care of the healthy and sick child are detailed and updated in the MOH's technical standards (*MOH-DNSP, 2016*).

It is assumed that:

- The growing demand for childcare - vaccinations, healthy and sick children's consultations - will continue to manifest itself, and must be matched with the quality of the services offered;
- Consumables and the IPE cold chain may have reasonably guaranteed support from sector development partners;
- The EPAs continue to be involved in interventions addressing the most important causes of child mortality

For the purpose of reducing mortality in the first 5 years of life, the interventions can be systematized in:

Organization of services to expand coverage and continuity:

- Reorganization of the Healthy Child Consultation (HCC): extension of activities and longer average duration of each contact (which also facilitates information to mothers about child feeding);
- Simplification of the circuits between service points and professionals within the Health Centers, to integrate preventive and curative services at each contact;
- Simplify and accelerate the delivery of laboratory results for HIV in children;
- Efficient scheduling of mobile brigades, for greater population coverage with appropriate package for periodic visits;
- Ensure regular supervision and supply of EPAs
- Use the EPAs and mobile brigades to encourage continuation of healthy child consultations after the end of the child's first six months

For specific causes of illness and mortality:

- Insist on compliance with quality standards for PMTCT and postpartum care, and increase the proximity of children's ART;
- Ensure the availability of critical supplies (other than ARVs): mosquito nets, tests, antibiotics, zinc, anti-parasites, nutritional supplements and multi-nutrients;
- Expand the experience gained in ensuring the "last stage" of vaccine distribution (up to the HFs)

[39] A campaign had to be launched in 2016 to extend the availability of mosquito nets

[40] Several points addressed by the delegates of the Provinces to the National Meeting on RMNCAH/Nutrition/EPA, December 2016, Maputo

In relation to the health professionals:

- Continue the on-the-job training and mentoring-supervision for the IMCI protocols; [41]

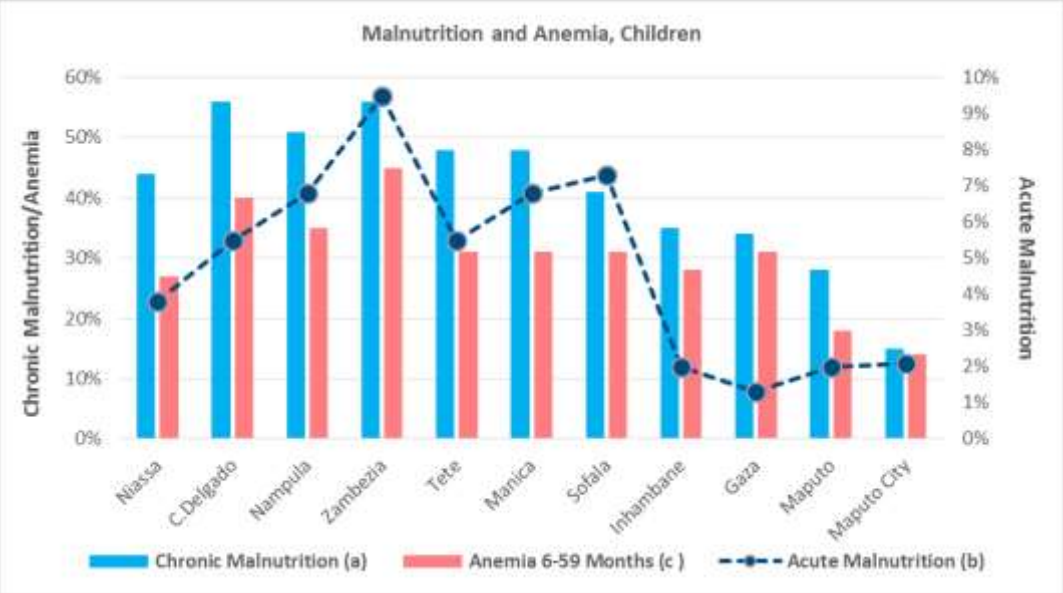
The reduction of lethality rates in emergency rooms and hospitalizations of pediatric hospitals can benefit from the setting up of "Pediatrics coordination" in each city with Type III-IV Hospital, in order to: a) reduce the congestion of Pediatric Emergencies in these Hospitals; b) institute a "review of deaths" similar to Obstetrics. [42]

CHILDHOOD AND ADOLESCENT MALNUTRITION

The problems

The prevalence of chronic childhood malnutrition continues to exceed 40%. The distribution of chronic childhood malnutrition is more intense: in the Provinces of the North and Center of the Country; in rural areas; in families with lower educational level and lower quintile of wealth. The same distribution pattern is also observed for acute childhood malnutrition and anemia in the child. See Figure 14 and Table 8.

Figure 14: Prevalence of Chronic and Acute Malnutrition, and Anemia, in Children under 5 years old. Geographic distribution



Sources: DHS, 2011; IMASIDA, 2015

[41] Previous suggestions on communication training (with users) and the motivation factors of professionals from the periphery of the NHS still apply

[42] Similar to the Committee - for Obstetrics and Pediatrics - already existing for Greater Maputo (Maputo and Matola Cities). In addition to reviewing data on institutional deaths, the Committee can analyze specific problems suggested by service quality indicators – of the peripheral HCs and hospitals.

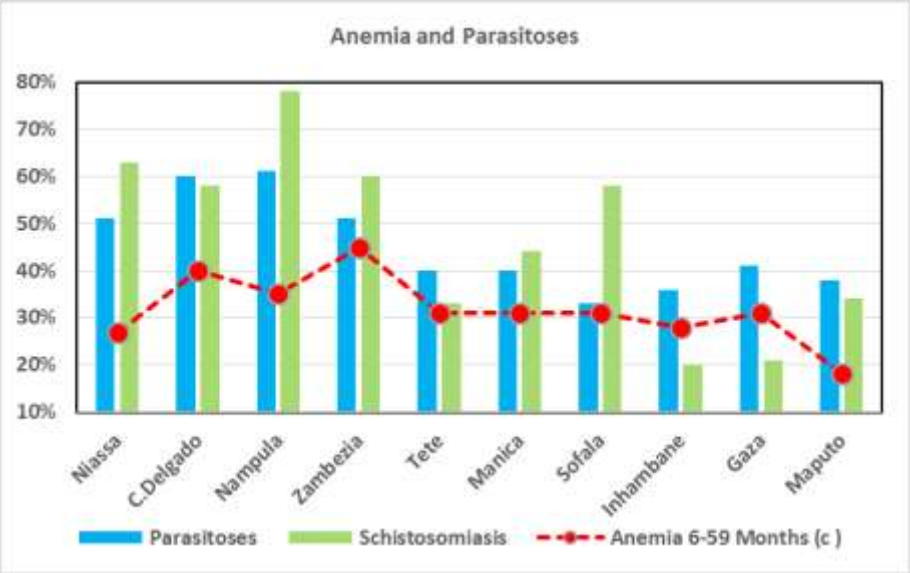
Table 8: Prevalence of Chronic and Acute Malnutrition, and Anemia, in Children under 5 years old. Differences by socioeconomic characteristics

		% Chronic Malnutrition *(b)*	% Acute Malnutrition *(b)*	Anemia 6-59 Months *(c)*
Residence	Rural	45%	7%	36%
	Urban	35%	4%	27%
Education	1^{ary} Education	43%	6%	
	Education > 2^{ary}	27%	4%	
Wealth	Quintile 1	51%	10%	39%
	Quintile 5	24%	3%	21%

Sources: DHS, 2011; IMASIDA, 2015

At the same time, **most Districts of the Country are characterized as hyperendemic for parasitoses associated with the etiology of anemia:** intestinal parasites transmitted by the soil and schistosomiasis. The degree of endemicity is also more intense in the northern and central provinces (*MOH/DNSP/PNICDTN, 2016; Augusto, 2009*). See Figure 15.

Figure 15: Prevalence of Moderate Anemia and Parasitoses (Intestinal and of bladder), in Children under 5 years. Geograhical distribution



Sources: IMASIDA, 2015; Augusto, G. (2009)

It is also in the Northern and Central Provinces that the most severe rates of prevalence of malnutrition and anemia in adolescent girls are seen. A recent study by the National Institute of Health of Mozambique (INS) (*MOH-INS, 2015*) in the provinces of Niassa, Cabo Delgado and Nampula quantified the frequency of low weight - about 20% - and moderate malnutrition - 12% to 13% - in young people aged 11-19 years. But the situation is more severe in pre-adolescents (11 - 16 years) and particularly in Nampula Province: 13.9% of frequency of moderate anemia.

This set of problems and their higher prevalence by geographic, social and economic characteristics reflect the most recent data on poverty levels, the low levels of spending by most families and the predominance of food expenses in rural areas (*MEF, 2016; INE,2015*).

This set of problems is also coupled with cultural practices on breastfeeding (limited duration) and child feeding (low diversification and frequency of meals). ([43]) Table 8 shows that the prevalence of chronic malnutrition and anemia was even high in the richest quintile.

Effective interventions

"High impact" - and relatively simple - technical interventions are known and these have been implemented with varying coverage and regularity in Mozambique: ([44])

- Encouragement to start breastfeeding immediately after delivery, exclusive breastfeeding in the first six months of life; introduction of complementary feeding after six months, with continued breastfeeding up to 24 months of age;
- Supplementation with MNPs integrated with complementary feeding for children aged 6 - 24 months;
- Regular deworming and provision of vitamin A supplements to children aged 1-4 years, during contacts with health professionals (in HFs and mobile teams) and EPAs;
- Supplementation with Zinc in treatment of diarrhea;
- Screening and treatment of acute malnutrition, during contacts with health professionals (in HFs and mobile teams);
- Regular deworming of children in primary education;
- Supplementation of adolescents (and pregnant women in ANC) with Fe/Folic acid;

Nutritional supplementation in school adolescents should begin in the 2nd cycle of Primary Education. ([45]) The MINEHD began reviewing teacher training curricula for inclusion of School Health topics. The relative ease of access to the large school population (concentration of large schools in more urbanized centers) and specific health problems that can be reduced, make the partnership between the Health and Education Sectors one of the multisector actions with greatest potential in the short term.

Mentoring experiences among more experienced women and rural adolescent mothers are also being initiated in Mozambique to promote adequate child feeding and changes in traditional practices. The experience is very recent and the results have not yet been disseminated, but the experience of other countries provides grounds for positive expectations (*D'Alimonte, 2015*).

Obstacles

Weak training in interpersonal communication of health professionals and the flaws of the healthy child consultation have already been mentioned.

Other obstacles are:

[43] The frequency of exclusive breastfeeding of children under 6 months of age increased from 30% to 42.8% between 2003 and 2011 (DHS).

[44] For the "1000-day window of opportunity", interventions in the first 2 years of the child's life are also important, such as the reduction of malnutrition in adolescent pregnant women - which contributes to prematurity.

[45] The population of children and adolescents attending school has been growing, but still shows significant losses (53-54%) between the end of the 2nd cycle of Primary Education (7th grade) and the start of Secondary Education (8th Grade) for both boys and girls *(MINEHD, 2016*).

- Irregular availability of therapeutic supplements for nutritional rehabilitation of malnourished children;
- The number of contacts of children with the HFs declines dramatically from the end of the first semester of life: between the 2nd and 5th years of life, children make an average of only 1 contact per year (*HIMES, 2015*); [46]
- Weak local follow-up of initiatives between the Health and Education Sectors to bring preventive services to schools, including deworming (general) and supplementation (Fe/FA) for adolescents;
- Traditional breastfeeding practices (reduced duration) and adequate feeding in the first years (frequency, quantity and reduced variety)

Proposed interventions

The interventions can be systematized in:

Make better use of the contacts of mothers and children with the HF to provide information (breastfeeding and complementary feeding) and screening for acute child malnutrition, as well as:

- Increase the diagnosis of acute malnutrition and the number of treated children, including the collaboration of the EPAs and mobile teams for deworming and treatment of acute malnutrition in children aged 1-5 years;
- Expand the services of Nutritional Treatment and Rehabilitation in Ambulatory Services (TDA) as to reach approximately 1,300 Type II Health Facilities (urban and rural) ([47])

Encourage mothers to continue contacts of the children after the end of the first semester of life, for better control of the nutritional status, including:

- Increase the number of children benefiting from regular deworming, vitamin A supplementation and advice on adequate and enhanced nutrition with supplements of MNPs (micronutrients in powder);

Use of collaboration of EPAs and mobile brigades for deworming, vitamin A supplementation and nutritional screening of children aged 1-4 years;

Focus efforts on Provinces with a higher prevalence of malnutrition and anemia in children and adolescents, including:

- ensure continuity of local initiatives with schools and District Directorates of Education, at least for general deworming and supplementation with Fe/FA in adolescents;
- support community mentoring initiatives among mothers, both in HFs and in articulation with EPAs and mobile brigades

Complete the review of the scope of tasks of Nutrition Technicians (NT) in order to make them the organizers of most of the activities listed here [48]

[46] Although the first year of life is the most critical for the child's survival, there is still a great deal of morbidity and mortality (which must be controlled) during the next 4 years of life.

[47] In 2015, the coverage was of 690 HFs out of a total of 1,435 1st level HFs, according to the PRN 2015 Annual Report (page 5), MOH/DNSP

[48] For the HFs where there is no NT, other health professionals should be trained - especially the MCH nurses and the Preventive Medicine Technicians;

ADOLESCENT: SEXUAL AND REPRODUCTIVE HEALTH

Problems

The most severe health problems for adolescents, for the purposes of this Investment Case, are ([49]): i) teenage pregnancy, its consequences on maternal mortaliy in this age group ([50]); ii) the onset of sexual activity without adequate protection for sexually transmitted diseases, in particular HIV.

The frequency of teenage pregnancy is higher in the Northern and Central Provinces - also with higher frequencies of premature marriages - showing an inverse association with the contraceptive prevalence rate (for all ages) – Figure 16.

The recent increase in the frequency of marriage in adolescents occurs in parallel with the increased use of contraceptive methods in the same age group (Table 10), showing the need to continue expanding the availability of contraception and information to the target group.

The frequency of premature marriage is associated with (*UNICEF, 2015*): rural residence, lower educational level (of the girl), family headed by men and older people, animist religion. Belonging to the wealth quintile "5" reduces the frequency of premature marriage. Pregnancy before 15 years of age is more common in unmarried urban adolescents.

Figure 16: Teenage Pregnancy and use of Contraception, 2015

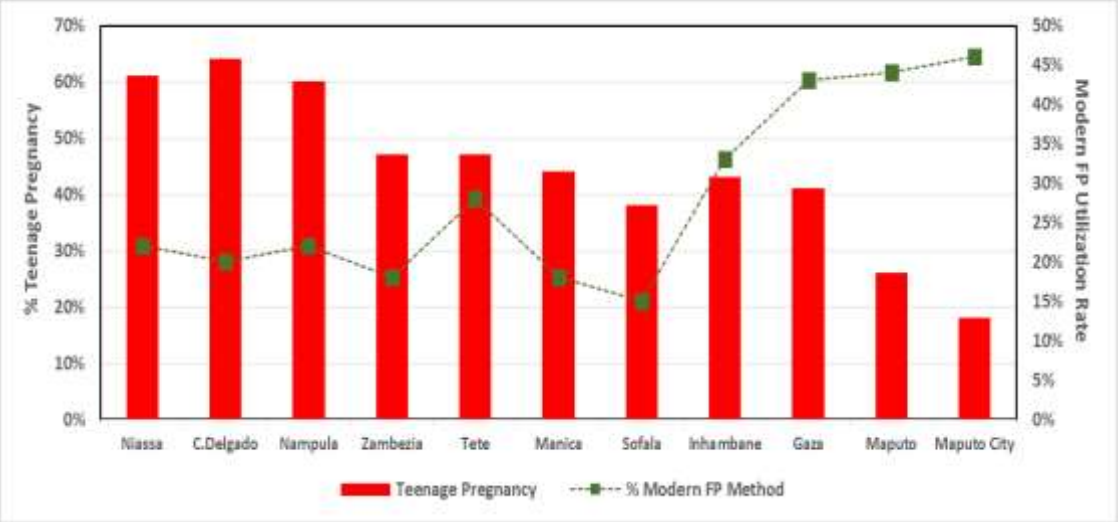


Table 9: Use of Contraception (modern methods) in Adolescents, 1997-2015

	1997	2003	2011	2015
All	1%	14%	8%	
Married	1%	7%	6%	14%
Not Married	5%	40%	27%	

[49] The additional problems of high frequency of malnutrition and anemia in adolescents were discussed in the previous section of the text.

[50] The social consequences of teenage pregnancy, starting with frequent school dropouts, are not addressed here.

The consequences of the high frequency of teenage pregnancy are tragically evident in the distribution of maternal mortality ages: between 41% and 48% of maternal deaths occur in pregnant women under 24 years of age (*INE-INCAM, 2007; MCH Needs Assessment, 2009*).

The risk of HIV infection, according to the 2009 INSIDA, is much higher in girls than in boys, which is shown by the significant differences in sero-prevalence:

Table 10: HIV Sero-Prevalence, by gender, ages 15-19 and 19-24, INSIDA-2009

	15-19	20-24
Girls	7.1%	14.5%
Boys	2.7%	5.0%

The level of knowledge about prevention of HIV transmission among young people has declined in recent years, particularly among the boys. The levels of knowledge also show wide differences by socioeconomic characteristics - Figures 17 and 18.

Figure 17: Frequency of Comprehensive Knowledge aboutprotection from HIV Transmission, among Adolescents and Youth, 2009-2015

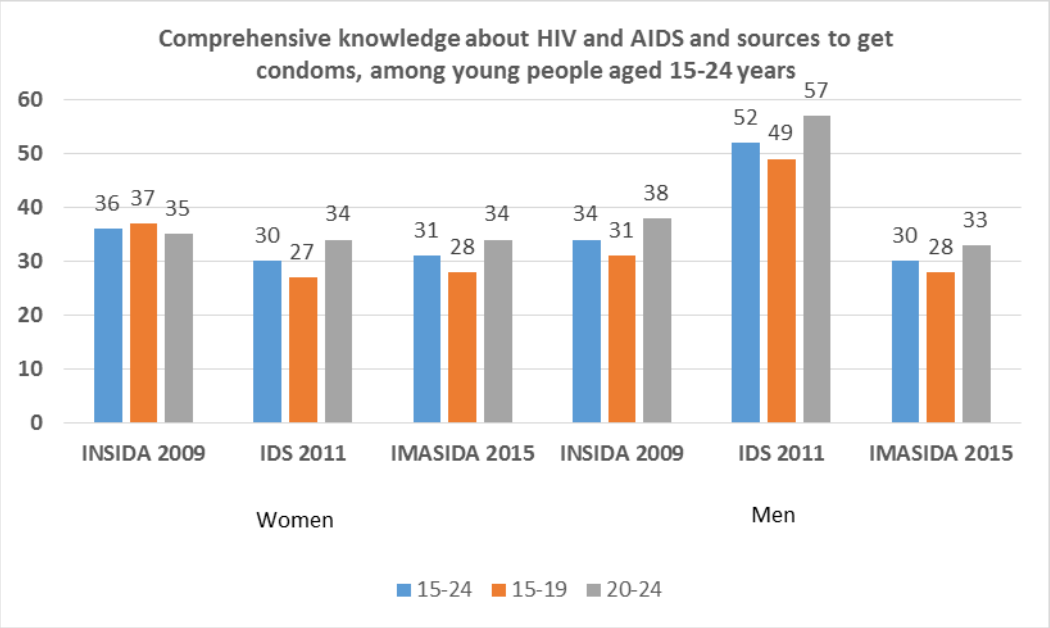
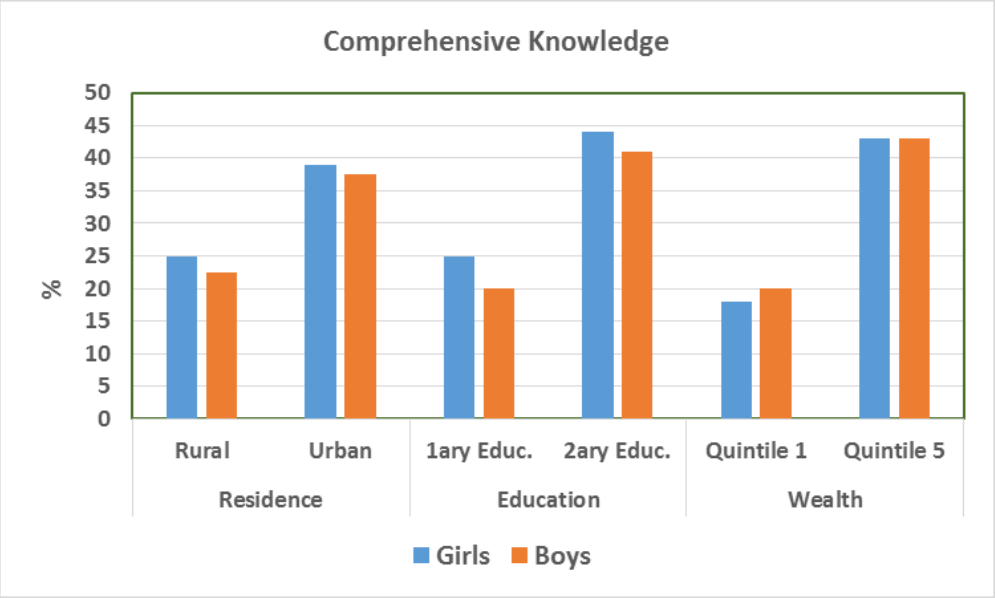


Figure 18: Comprehensive Knowledge about protection from HIV Transmission, among Adolescents and Youth, 2015. Differences by socio-economic stratification

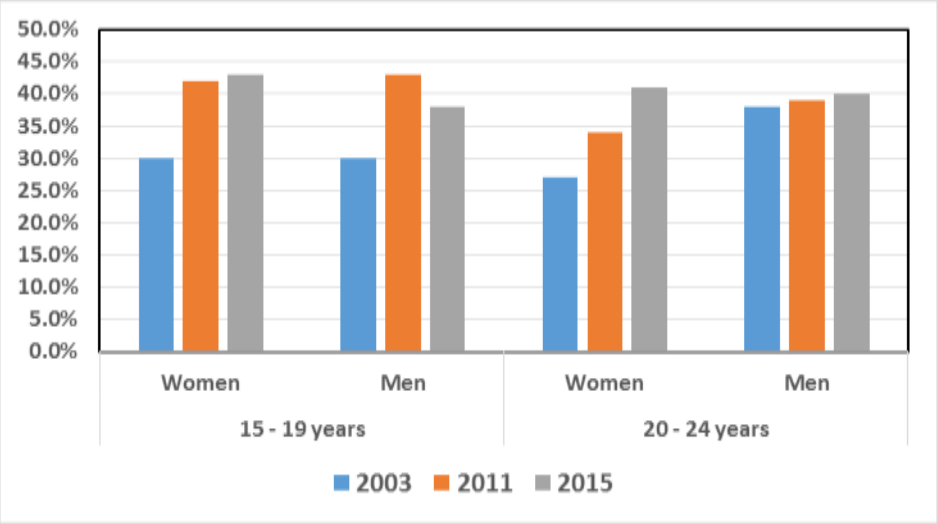


Demand for HIV testing has increased, particularly among young women aged 20-24 years. On the contrary, the use of condoms in high-risk sexual relationships (with non-usual partner) has stagnated since 2011 (except for slight improvements in young women aged 20-24 years), which happens in parallel with stagnation in "comprehensive knowledge" – Figures 19 and 20[51]

Figure 19: Demand for HIV testing and obtaining result, Ages 15-24. 2003-2015

[51] The use of the male condom as a contraceptive method is very low among young married women - less than 2% in both the 2011 DHS 2011 and the 2015 IMASIDA. However, it was cited as a contraceptive method by about 21% of "unmarried" girls (15-19 and 20-24 years).

Figure 20: Use of condom in sexual relationships with non-usual partner, Ages 15-24. 2003-2015



The possible interventions and existing obstacles for their implementation are systematized in **Annex – 6 (6.4).**

Possible interventions

- dissemination of sexual and reproductive health knowledge and information on available services;
- dissemination of information on condom use and male circumcision;
- Advocacy for reducing premature marriages, teenage pregnancy risks and family position on girls' opportunities;
- availability of youth-friendly SRH services;

Obstacles

Young people and adolescents show an attempt to satisfy felt needs, for example in the search for YFHS services or HIV testing.

The main obstacles to the implementation of the known interventions are:

- Limits in knowledge about STD risks and contraception - and exposure negotiation strategies - aggravated by social behaviors under the effect of alcohol and addictive substances;
- Social and family pressures for teenage marriage and pregnancy;
- Insufficient response of the provision of services in the YFHS, given the increased demand;
- Insufficient dissemination about the existence and services available in YFHS: several groups of young people surveyed (NAC *AllinOne, 2015*) report having little knowledge of the existence, availability of services and location of the YFHS, besides dissatisfaction with working hours and lack of privacy. ([52])

[52] The Adolescent and Youth Audience held for this IC reaffirmed these criticisms (November, 2016)

Organization of the interventions

International evidence shows that it is necessary to simultaneously combine interventions on the demand and supply of services, and on the social determinants of risk exposure.

The interventions can be systematized in:

- Increase, in an intensive and repeated manner and through all possible means of public dissemination, information on risks and prevention in sexual and reproductive health
- Support recent experiences in the use of digital communication platforms among young people to disseminate information (on risks and prevention, as well as on available public and private providers) and reinforcement of peer support networks;
- Build capacity of the YFHS to respond to the increased demand for services, particularly in antenatal care, family planning and contraception and HIV testing; ([53])
- Improve the graduate training of health professionals regarding adolescents' health problems and communication with these users;
- Study the recent experience of supporting the setting up of SRH services in private health units (evolution of the use and response to privacy of adolescents and young users); ([54])
- Use the various types of community leaders and influential people (e.g. godmothers and godfathers of initiation rites) to reduce pressure factors for premature marriages, and disseminate knowledge of legislation and the National Strategy for Preventing and Combating Premature Marriages (*Rep. of Mozambique, 2015*) ([55])
- Extend local collaboration with schools - similar to the one proposed for Nutrition - to facilitate the accessibility of SRH services in the school population, reaching the target population of adolescents in the 2nd Cycle of Primary Education
- Strengthen coordination with the Ministries of Education and Human Development, Youth and Sports, and Gender, Children and Social Action

FAMILY PLANNING

The use of modern contraceptive methods has increased in recent years, with National Health Weeks, the participation of EPAs and the creation of YFHS, as well as the more recent experience of private providers. However, it is still necessary to continue and accelerate this trend in order to obtain potential impacts on maternal and neonatal mortality and anticipate access to the demographic dividend. This recent increase in the use of contraceptive methods still has some limitations:

[53] Health Care for Adolescents should be integrated in public HCs - throughout the healthcare network. However, the MOH's view is that there should be - at least – a HF at each District capital with a wider range of services - and adapted modes of provision - for adolescents: YFHS.
[54] Reference is made to the creation of small SRH clinics supported by NGOs such as PSI and TDK.
[55] The interventions under the responsibility of other sectors and potential medium- to long-term results provided for in the National Strategy, such as incentives for the retention of girls in school, are not covered here.

- Unmet needs, particularly among young people;
- The persisting socio-economic differentials (although they have subsided);
- The insufficient supply of long-term methods and the reliance on “campaign” actions to achieve coverage improvements;

Obstacles

The following obstacles remain:

- High dependence on external aid for contraceptive procurement;
- Persistence of some irregularities in supply up to the HFs - in 2015, 40% of the HFs did not have a contraceptive stockout at the time of the survey;
- Insufficient knowledge of health professionals about long-term methods;
- Failure to take advantage of the opportunities provided by the contact of the users with the HFs to suggest the adoption of contraceptive methods;
- Limited accessibility for adolescents, even those in school settings;
- Persistence of the large family model and high number of children;

Interventions

The interventions can be systematized in:

- Ensure the co-participation of the Government of Mozambique in the regular search for sufficient quantities of contraceptives;
- Regularization of the provisioning of the peripheral HFs, including evaluating the pilot experience of the stock management information system up to the HF, in order to minimize situations of occasional contraceptive stockouts;
- Ensure the availability of a broad spectrum of contraceptive methods in all HFs, including the training of health professionals in long-term methods;
- Increase the demand for contraception among users of different services in the HFs;
- Promote the inclusion of FP in the regular activities of the Mobile Teams;
- Ensure support and supervision of the EPAs for the expansion and regularity of their participation in supplying methods;
- Insist on and expand advocacy for limiting the number of children and spacing of pregnancies, including advantages on maternal health and socio-economic benefits

INCREASE DEMAND AND CONTINUITY OF CONTACTS WITH PROVIDERS AND CHANGE BEHAVIOURS

Increase in the demand for services

The demand for MCH services, in general and as a national average, has increased as demonstrated by the coverage of assisted delivery, antenatal consultation and complete childhood vaccination. However, the specific problems mentioned above persist, particularly in relation to the demand for family planning (in the general population and among adolescents) and the decision to seek services in rural areas (distances and opportunity costs). [56]

The proposed interventions are:

- Facilitating accessibility to a minimum package of MCH services, through EPAs and mobile teams, for districts with more dispersed population; [57]
- Use of digital communication platforms and the school environment to increase the dissemination of information on sexual and reproductive health (SRH) - including the availability of service providers - among adolescents;
- The testing of massive and long-term mass media campaigns, to diversify the use of existing (national and local) media in Mozambique, effectively demonstrated by recent evidence (*Wakefield, 2010*);

Common Strategy on Health Promotion and Behavior Change

Previous chapters have identified: i) knowledge limitations, including among adolescents at the onset of their sexual life, and young mothers with regard to child feeding; ii) cultural justifications for practices and behaviors with increased risk, such as premature marriages, or inappropriate child feeding; iii) the most exposed groups in society, particularly adolescents and children in the first year of life; iv) some "channels" of information and influence on the same groups.

The interviews conducted during the preparation of the IC also enabled the identification of private and civil society organizations that have gained experience in mobilizing leaders and well-known people in rural or urban adolescent communities.

The Ministry of Health and NHS professionals should support these organizations.

Interventions where there already is some local experience include:

- The "model families" approach in the National Health Promotion Strategy, 2015-2019;
- Support to the Ministry of Education and Human Development, for: i) the preparation of teacher training programs and materials on SRH; ii) periodic visits to schools with a larger population, for regular support to teachers and student activists;

[56] "Opportunity costs" – negatively – influence the decision to seek repeat services: going to a HF entails not doing household chores, including caring for other children.

[57] The services already carried out by EPAs include family planning (FP), treatment of the most common childhood diseases, as well as the promotion of antenatal visits and collaboration with traditional midwives to accompany parturients to the maternity - and to manage post-partum hemorrhage in non-institutional deliveries

- Regular support to all health promotion organizations among adolescents “by their peers”;
- Support for local leadership networks to change traditional practices on: i) breastfeeding and child feeding; ii) premature marriages

These interventions will be reinforced by improvements in communication between professionals and users in priority services: healthy child consultations, YFHS, family planning, maternity (including the moment of discharge).

Recovery of losses of continuity of care: communication between MCHN and EPAs

There is “loss” of users at various points in the continuum of care for pregnancy and childbirth: i) among a percentage of pregnant women that go to the 1st ANC e and the ones that attend ≥ 4 ANCs; b) in 2015, in rural areas (MOH-INS, 2016) 63% of deliveries were attended in a HF, but 91% of pregnant women had received a 1st ANC; a) according to the HIMES data for 2015, the coverage rate of Postpartum Consultations has no statistical correlation with the coverage rate of institutional deliveries, nor with the average number of ANCs per pregnant woman.

Similar losses seem to occur in the “preventive follow-up” of children in the 1st year of life: after the concentration of vaccines in the 1st semester, the child contacts the HF much less frequently in the 2nd semester, when serious problems related to insufficient feeding start to occur.

The recovery of these “losses” can facilitate the impact of the strategy for the IC: a) the 3rd - 4th ANC allow to identify problems of fetal growth (at least in the best equipped HFs) and to encourage institutional delivery in rural areas; b) greater use of postpartum consultations would allow identifying and controlling problems in the Mother or N-B and insisting on exclusive breastfeeding; c) the promotion of good child feeding practices with Mothers in the 2nd semester of the child's life.

There are EPAs in practically every district of the country. In addition, there is already experience by EPAs (Inhambane) of using smartphones to communicate data of their activities to the supervisors in the nearby HFs.

The proposed interventions are:

- Generalization of equipping the EPA with mobile equipment, as well as the MCHN - supervisor in each of the approximately 1,300 rural HCs, for;
- Communication by the MCH nurse to the EPAs of her influence area of pregnant women, parturients and mothers to encourage contact on the appropriate dates

STRENGTHENING OF THE HEALTH SYSTEM

The operationalization of the IC in RMNCAH offers a specific opportunity to use the intervention in a “program area” as a vehicle for strengthening the health system. The facilitating motives include: concern with the skills of the professionals in obstetric and neonatal emergencies; the requirement of surgical readiness in the District Hospitals; ensuring the existence of stocks of “vital” consumables; the need to review the internal organization of the “service points” within the HCs, to make full use of the contact opportunities. Suggested

interventions to improve RMNCAH should result in a comprehensive strengthening of Health System resources, processes and results.

It is equally important that the operationalization of the IC not only provides "support to the functioning" of the NHS - in the medium term, but also creates resources and improves procedures that build this "system strengthening" for the long term.

It can be stated - in a simplified way - that the regular operation of the healthcare network is based on 3 factors: competent professionals; motivated professionals; clinical consumables without stockouts (*Gov. of Kenya, 2016*). The IC assumes these three factors, but also considers that the consolidation of good management practices in the NHS implies investments in the areas of information management, organization of service provision, use of available financing and governance.

In the short term, in order to achieve the necessary results in RMNCAH, the implementation of the strengthening of the health system's pillars should be based on an approach – priorities strategy:

- Insist on a "core package of services" - including priority RMNCAH interventions - and a minimum number of essential contacts throughout the continuum of care;
- Insist on improving the quality of services provided: i) the skills and motivation of professionals, which influences the integration of care and communication with the users; ii) consumables and small vital equipment; iii) the reference capacity for obstetric and neonatal complications;
- Improved management of SDSMAS and the HFs;
- Link with the community in order to: i) increase demand; ii) promote health; iii) provide accountability.

The critical level of the healthcare network pyramid - the Health Facilities equipped for Obstetric and Neonatal Emergency Care

Institutional births occur mostly in Type I HCs (> 50%), followed by District Hospitals (about 20%). However, about 40% of maternal deaths occur in the District Hospitals. These two numbers suggest that:

- The distances covered by more than 50% of parturients are significant (there are only about 150 rural Type I HCs in the country);
- Communication and evacuation between the Maternity Units of the Type I HCs and the District Hospitals is problematic, contributing to the delay in attending to the complications and high mortality

The total number of hospitals - at different levels - would be sufficient to meet the international standards (CONEm-C; 1/500,000 inhabitants); however, the low population density and dispersion in several rural areas translates into considerable distances to access Hospitals. However, the number of potential HCs - candidates for Basic CONEm is reduced in relation to the same standards: for the approximately 26 million inhabitants of Mozambique in 2016, 260 HFs (CONEm-B; 1/100,000 inhabitants) would be required, while the sum of Type I Rural and Type A Urban HCs is about 200.

The problem is more complex than the numerical availability of HFs. According to the 2012 MCH Needs Assessment: i) “full care” was available in 70% of hospitals; ii) "basic care" in only 35 public HFs.

In the sections on “Maternal Health” and “Newborn Health”, the material constraints faced by the Health Centers and District Hospitals have already been listed.

The increase in the number and functionality of HFs with capacity for CONEm-B will facilitate: i) the care of parturients with complications that do not require surgical care; ii) stabilization of parturients requiring evacuation to the District Hospitals.

Given the majority contribution of Type I Rural HCs and District Hospitals for Childbirth care - and the potential for reducing maternal and neonatal mortality, it is justifiable to prioritize these two types of HFs in the Provincial Plans for Obstetric and Neonatal Care: ([58])

- Rehabilitation and equipping of District Hospitals and Type I Rural Health Centers;
- Placement of MCH professionals - general and specialized - and surgical teams;
- Consumables and small equipment logistics

Human Resources for Health: Competent professionals to attend to complex situations

The IC needs the following interventions in the area of human resources for health in order to put into practice:

- Increased number, skills and better distribution of MCH nurses;
- Specialized professionals for the surgical teams and obstetrics and neonatology care in the reference HFs;
- Measures to improve professional motivation and satisfaction

The MCH nurses are still the backbone of all RMNCAH services. The limitations of knowledge and, above all, the skills of the MCH nurses to act quickly and effectively in obstetric and neonatal complications seem to be related to problems in pre-graduate training: a) shortened courses, with insufficient time to practice maneuvers and work experience in shifts and emergencies; b) internships with weak student tutoring; c) the modular training model that limits the “repetition” of the information (necessary for the students' general lack of knowledge at admission to training institutions).

Improvements in pre-graduate training will reduce the intensity of “on-the-job” training as this contributes to high levels of absenteeism (*World Bank 2013*)

Placement of MCH nurses also routinely sends newly trained young people to the peripheral HFs, where their limited knowledge and experience and professional isolation make supervision and mentoring more necessary.

The proposed interventions are:

- Traning of an additional 2,000 MCH nurses - See Box 2;

[58] Details can be found in the section on “Reduction of the barriers to demand and supply – Maternal Health”.

- Revision of the training curriculum of the MCH nurses, adding one semester for the acquisition of practical experience and greater rigor in the compliance with the norms of operation and mentoring during internship;
- Graduated MCH nurses training should improve in areas that have recently been bridged by continuing education, reducing absenteeism factors;
- Distribution and placement of MCH nurses to include workload criteria; ([59])
- More "formative" supervision visits accompanied by "peer" mentoring visits involving professional health associations; ([60])

Text Box 3: Need for an additional 2,000 MCH nurses by 2021. Methodology

The number of services to be provided by the MCH nurses in 2021 was estimated on the basis of:

- increase in demand for FP, in the 5 years between the DHS-2011 and the IMASIDA-2015: around 13% - predicting that the 34% target foreseen in the PESS will be reached;
- in the remaining MCH services, where the current coverage is already high, only monitoring of population growth is proposed: between 2016 and 2021, total growth will be between 13% and 14%

The expected productivity of the MCH nurses was the national average in 2015, based on data from the HIMES and eSIP-Health: about 150 deliveries and more than 4,800 outpatient services, per MCH nurse.

An increase of between 2,000 and 3,000 MCH nurses is suggested. We took the lower limit – 2,000 - for reasons of budgetary constraint and potential to improve efficiency with better distribution. In the NHRDP 2016-2025, a growth of 2,400 MCH nurses is forecast for 2025.

It is therefore presumed that the number of an additional 2,000 MCH nurses will be sufficient to meet the coverage targets of the main MCH services, and this is consistent with the numbers to be trained, as foreseen in the NHRDP.

In order for the District Hospitals to be ready to attend to obstetric emergencies and complications, other more specialized professionals are required:

- It is necessary to guarantee **2 surgical teams** per DH: surgical technician, anesthesia technician and instrumentalist. It is estimated that about 170 professionals from each of the three careers (to cover losses, and to ensure coverage of colleagues on vacation) are needed;
- Their training is foreseen in the NHRDP 2016-2025, but they must be placed in DHs in sufficient number;

In the bigger Maternities – from Type I HC – the care of obstetric complications and complications of the new-born need professionals who are more qualified and experienced in the maneuvers and instrumentations to be carried out rapidly and safely. Consideration should be given to the training of MCH nurses specialized in Obstetrics and Neonatology,

[59] A Time and Movement Study is being prepared, and its results will be available by 2017. The use of workload-based formulas can apply to both primary care HFs and hospital staff.

[60] The improvement in distribution and quality of supervision are local measures that can contribute to rural motivation and retention in the short term, pending the implementation of policies defined in the Human Resources for Health Master Plan (NPDRH), 2016-2025;

whereby about 500 Nurses Specialized in Obstetrics (maternities of Type I HCs and all levels of Hospitals) and 250 Nurses Specialized in Neonatology (Hospitals of all levels) are required. ([61])

The implementation of this suggestion implies:

- Acceptance of the specialization as training and professional career policy, with definition of its scope of tasks; [62]
- Design of courses and capacity buildng of accredited training institutions;
- The definition of wage decompression policies at the middle career level, which attract professionals to enroll in the specialization courses;

The general concern about the "low motivation" of health professionals - particularly those placed in the rural periphery **- is particularly important to implement this IC.**

The low motivation results from several complementary factors, some of which are difficult to solve in a context of lack of resources: progression of careers and respective salary updates, rural installation kits, regular payment of subsidies, among others.

This IC proposes the application of non-monetary incentives that can improve the satisfaction and motivation of professionals (*Rowe, 2005*), including improvements in distribution, supervision and specialized training.

Text Box 4: The EPAs

Traditional human resources for health plans take care of professional careers and rarely address the problems of "village health workers".

The revitalization of the EPA Program in Mozambique has led to the increase in their number and the scope and volume of services provided. EPAs play an important role in the interventions suggested by this IC, both in the direct provision of services and in the promotion of health and referral to health facilities. In 2015, the number of consultations carried out by the 232 EPAs in Inhambane Province was equivalent to 14.5% of the total number of external consultations carried out by the rural primary network of the same Province.

The IC proposes to increase their number in districts with greater population dispersion. In the section "Population Dispersion and Accessibility Strategies: Elementary Polyvalent Agents and Mobile Teams/ Brigades" (page 33), we list the necessary improvements in training and monitoring of EPAs to achieve the effectiveness of their increased numbers.

[61] The MOH recently started the training of Higher Level Nurses in Pediatrics and Obstetrics. However, the perception of their effectiveness is mixed: a) difficult placement outside the capital cities; b) insistence on assuming mainly clinical, not nursing functions, c) withdrawal from delivery rooms, prefering the operating theater. Specialized training, but at medium level, would have advantages for placement in the District headquarters, and could train experienced professionals, as long as the admission would be restricted to already experienced MCH nurses. It has the drawback that the training is not attractive until the mid-level wage decompression is resolved.

[62] Applications for admission to the specialized mid-level training referred to above would be restricted to already experienced professionals with previous mid-level training in the areas of Medicine, Nursing (surgical teams) and MCH nurses (Obstetrics and Neonatology).

Goods and products

The availability of small equipment and clinical consumables has two types of relevance for the IC: a) the lack of "essential" consumables - medicines, contraceptives and vaccines - negatively influences the perceptions of the users and contributes to the discontinuity of contacts; b) the lack of "vital" consumables for surgical activity, obstetric and neonatal complications directly contribute to mortality in both activities.

The regular supply of these goods is compromised by several factors: i) dependence on external financing; ii) limitations in the management of a national chain of warehouses, information on stocks and needs, and transportation; iii) limitations on local management of the same products.

It is hoped that this IC will benefit the definition of modalities of agreement between the MOH and the usual partners to ensure the necessary amounts and the regular disbursements for the regular supply of these consumables. It is also assumed that the current programs to computerize the management of stocks, needs and supplies in the CMAM and provincial warehouses - Strategic Pharmaceutical Logistics Plan, will progress well. ([63]). The experience of other Sub-Saharan African countries calls for the strengthening of centralized demand and importation mechanisms of clinical consumables, critical to public health systems (*IC Kenya*).

The 2012 RMNCAH Needs Assessment listed several shortcomings of small obstetrical and neonatal resuscitation equipment, even in the District Hospitals.

Recent surveys have also identified problems in stock management and supply of consumables and small equipment at service points (*UNFPA, 2014, 2016*): i) there may be contraceptive stockouts because the volume of demand is not compared with the flow of use of the quantities in stock; ii) materials that are lacking in the delivery room may be stored in the HF warehouse. These limitations may result from the lack of hospital management professionals placed in the HFs.

Proposed intervention:

- In the NHRDP, the number of professionals in the Hospital Administration career only increases by 150 between 2016 and 2025. They will certainly be few to allocate to the Type I HCs and DHs. An alternative proposal is to organize a training for "logistics officers", which can be started with candidates with previous experience and training in Pharmaceutics;

It is assumed that it is useful to continue the practice of regular surveys on the availability of goods and products for FP and MCH in general.

Improve the organization of service delivery: in each HF; between local Levels I-II

In the HFs, some current modes of service delivery are not very flexible and do not favor communication with the users, for example, the "assembly line" of the healthy child care and

[63] The operationalization of the SPLP includes: computerization of stock and movement information, redefinition of the numbers and responsibilities of the current network of provincial and district warehouses, and the outsourcing of transportation between warehouses and the HFs.

the too early discharge from maternity. On the other hand, shortages of small equipment and local stockouts of consumables reduce the quality of services.

In addition, it is necessary to reinforce the proportional role of each level in the "local system" of service provision: the effectiveness of the mobile teams in increasing accessibility; the appropriate referral of deliveries to hospitals; the prevention of overcrowding in pediatric hospital emergencies.

Proposed Interventions:

- Reinforcement of the insistence on the need for hospital administration professionals to be placed in Type I HCs and District Hospitals;
- The working standards of HF management professionals should include regular verification of the existence of the minimum working means at each HF service point, and the quality of care modalities;
- Preventive Medicine professionals can collaborate with HF managers on micro-planning and coordination of the activities of EPAs and mobile teams; [64]
- Existing MCH service registers should be simplified to facilitate the integration of services to each user;
- The SDSMAS management should be professionalized, with benefits for the placement of resources - particularly professionals - and local coordination of activities and results of primary and referral service levels;

Funding

The MCH area – in the NHS - absorbs around 13% of the external Health funding in Mozambique (*HPER, 2014*) ([65]) and about 7% of total current expenditures (*NHA, 2012*), therefore being the second largest program area after HIV/AIDS. The sources of external funding vary according to the central decision-making components (supply of consumables, MCH nurses training), and the intensity of the distribution of funds and institutional support through the Provinces (see "Resource Mapping").

It will be necessary to insist on the functioning of the existing coordination mechanisms between the MOH and the development partners, because it is to be expected, at least in the medium term, that this variety of sources of fuding for the IC will be maintained.

This coordination should be strengthened at two stages: a) the prioritization of external support through consultation of priority and resource mapping; b) the use of the monitoring and evaluation framework, which should serve as a basis to demonstrate the effectiveness of disbursements, i.e. the degree of achievement of the predefined targets.

Details on the alignment of resources and results in the IC should be coordinated with other ongoing discussions between the MOH and the sector partners on the needs and management of external resources, such as on ProSaúde.

The allocation of resources for better results (allocative efficiency) should be done through Provincial Plans. Each Province will define: i) the opportunities for better results, in which Districts and at which levels of the NHS; ii) the necessary reinforcement between peripheral and reference HFs; iii) the inequalities to be corrected (and the commitments to efficiency); iv)

[64] This may need some post-graduate training in planning, management and use of statistical data
[65] A similar percentage is suggested in the section "Mapping of resources" (page 88)

the need to invest in the expansion of accessibility to the communities. The backbone of these provincial plans is to ensure basic and complete CONEm, in accordance with international standards.

The modalities to channel "additional funding" to be mobilized with the IC should encourage local health authorities to achieve the agreed targets. Some principles are central to this objective: i) funding planning, budgeting and channeling should focus on SDSMAS (or the larger HFs with own financial management capacity), since it is at this level that resources are transformed into activities and results ([66]); ii) the local planning and budgeting process at this level more easily expresses the logic of the resources needed to meet investment and production of services according to targets; iii) the annual verification mechanisms provide the feedback to the actors on the consequences of compliance or non-compliance with the targets and processes of allocation of resources more directly; iv) the entities meeting the targets and procedures may be authorized to spend on improvements in working conditions that have an impact on the motivation of their staff; v) on the other hand, non-compliance may mean reduction in the next disbursement.

The modalities of chanelling of funds to local health authorities, encouraging the achievement of indicators, can respond to two principles: i) the variation in the volume of services, depending on the population and intensity of use – "capitation" financing; ii) compliance with outcome indicators and/or quality of the M&E framework of the IC, allowing the negotiation of incentives-penalties that encourage good management and motivate professionals.

The parallel application of the two principles facilitates the application of "conditionality" in disbursement linked to results-indicators: the continuity of the provision of services is not put at risk.

It is also necessary to avoid that the local government bodies reduce the allocations of the State Budget to the Health sector, since they consider this Sector adequately financed. To this end, advocacy work between the MOH and the Government at all levels is essential to demonstrate how the pool of financial resources requested (from partners and the SB) are closely associated with the volumes of activities to be developed, to achieve the targets that guarantee the continuation of this funding. This number-based advocacy is especially critical at provincial level - where infrastructure plans are decided, health workers are distributed and funding is provided to District Governments.

The operationalization of this financing model implies:

- The revitalization of mechanisms previously used in the "integrated provincial plans" (SWAp) of the 1990s: integration of the available support of all stakeholders in the Province in the annual planning-budgeting process and the targets of the Provincial Plan for RMNCAH; ([67])
- The definition of verification and disbursement procedures;

[66] The term "local health authorities" includes the Provincial and District levels. Most of the services are provided in the healtcare network of each District, but some investment interventions will continue to be managed at Provincial level, such as the Training of Health Professionals and contracts for the construction/rehabilitation of health facilities.

[67] It is possible that the use of ProSaúde will use the same mechanisms. In this case, efforts can be saved using the same negotiation-planning instances and similar mechanisms for channeling funds.

- The inclusion of technical support for Planning-Budgeting and Verification in the Terms of Reference of the Provincial Coordination for the IC-RMNCAH (see "*Operationalization of the Strategy"*)

Use of the information: monitoring and evaluation, accountability. Information System for Health Management and Civil Registry and Vital Statistics

The management of the CI is governed by the verification of the achievement of the expected results with the additional financing. Annex 8 systematizes the Reference Framework for Monitoring and Evaluation (M&E). Most of the suggested indicators for institutional "resources", "outputs" and "outcomes" originate in the MOH Health Management Information System (HMIS).

Verification of the performing of activities and the achievement of results for the negotiation of the annual funding volumes is carried out at District and Provincial levels - and in the HFs with specific "results" contracts.

The analysis of some of the "outcomes – results, by problems" indicators - for example, institutional lethality rates - requests information on the quality of the services provided.

The follow-up to the implementation of the IC also suggests some "research questions" (see section "*Innovation and Research"*).

The section on "Monitoring and Evaluation" suggests that most "intermediate outcomes" and "results by problems" indicators as well as "impact" indicators will have to be measured through surveys. Triangulation between HMIS and survey data will be an important part of the MOH Planning and Cooperation's analytical activity at both central and provincial level.

More objective and systematized information can be useful to make the functioning of the Co-Management Committees in the HFs and SDSMAS more efficient (*Fund. MASC 2015*). Local accountability to the Communities and users also uses the information of the HMIS together with data about the perceptions of the users about the services provided.

Proposed interventions:

- Definition of a framework of indicators to be provided regularly to the Co-Management Committees;
- Strengthening the information analysis capacity - mainly statistical - in the DPS and SDSMAS for regular response to the monitoring and evaluation (M&E) framework of the IC-RMNCAH Provincial Plan

XI. LEADERSHIP AND GOVERNANCE

The implementation of the IC poses challenges to the public health system's decision makers and administration at the level of policies, plans, resource management and service delivery: [68]

[68] The contents of the presentation on the Preliminary Draft of the Institutional Reform Plan 2017-2019, at the MOH Retreat with the Development Partners, October 2016, was consulted.

- The IC is guided by the achievement of the results, obliging the allocation and management of resources for this purpose, seeking balance between efficiency and equity, within a context of resource limitation;
- In order to achieve the results, the IC suggests ways of overcoming resource constraints and obstacles, including encouraging the participation and regulation of private actors;
- In order to achieve the results, the IC insists on promoting the demand for effective care and on changing unhealthy behaviors and practices, involving a variety of institutions and people with capacity to intervene in these areas and the vitality of community participation organizations for accountability;
- In order to achieve the results, the IC insists on incentives for the performance of local professionals and managers and on the central role of managers in the allocation and availability of resources to fulfill the quality protocols for the services provided;

The effectiveness of the already institutionalized coordination mechanisms between the MOH and the main sector development partners at central and provincial level is strengthened through the annual verification of the M&E Framework indicators. The agenda of the Joint Annual Evaluations (ACA) may include this item, to avoid duplication of evaluation instances and cycles. ([69])

The MOH - at the central, provincial and district levels - **will be the catalyst of interest and support for the initiatives of actors outside the NHS, whether from "civil society" or from the private sector**. Sounding these groups of actors has shown that: a) their capacities, target populations and interests can vary a lot; b) collaboration always implies the search for mutual benefits, regardless of the size and capabilities of each actor. The success of IC depends both on the effectiveness of the NHS and on the success of these actors in achieving health promotion, behavior change and service demand. The increasing participation of private health providers, particularly in family planning and contraception (satisfying varying degrees of utility and privacy sought by potential users), is also becoming better known.

The potential for establishing partnerships varies from place to place, depending on: the presence of those stakeholders; the importance of the health determinants whose control is a priority.

A large national partnership with the Education sector is foreseeable, to take place in each District, both because of the priority of the target group for both sectors, and of the ease of access to the same group.

The MOH and the Ministry of Gender, Children and Social Action (MGCAS) should collaborate in monitoring the resources, services and results envisaged in both the IC and the National Strategy for Preventing and Combating Premature Marriages.

The management, support and monitoring of partnerships with actors outside the NHS (agreements - contracts) implies the investment of time of qualified professional planners of the MOH administration. The orientation of the IC to achieve results suggests that this investment by the MOH administration in partnerships should be selective (in favor of the most likely results) and sustained (ensure follow-up).

[69] The IC monitoring and evaluation indicators were obtained in consensus with those of the Health Sector Performance Evaluation Framework (PAF).

Participation of actors outside the NHS can be encouraged by their inclusion in local accountability forums and by a clear definition of their contribution to the M&E Framework indicators.

The existing local accountability forums need to be revitalized and made more objective to monitor the implementation of the IC: i) for monitoring the supply (use of resources, implementation of activities, achievement of targets); ii) for the knowledge of the perceptions of the users; iii) to monitor interventions on cultural practices that influence reproductive health and child feeding.

Recent evaluations show that the Health and Co-Management Committees feel conditioned and dependent on local Health administration and that "user service classification" (or cost-tracking) initiatives are still heavily reliant on partner support (*Fund. MASC, 2015, Nweti, 2016*). Ways should be sought to improve the sustainability of these initiatives, without making them dependent on state administration and budget.

These responsibilities transcend the routine management of service delivery and require the ability to analyze information. It reinforces the need for professionals trained in: a) hospital management; b) management of public health programs.

Poposed interventions:

- Harmonization of coordination mechanisms between the MOH and key development partners, and harmonization of the annual verification of M&E indicators of the IC with those of the PAF;
- Design and follow-up of selected partnerships;
- Reactivation of existing local accountability forums;
- Strengthening of the analytical, planning and monitoring capacity of agreements and contracts at the level of the Provincial and District Health Directorates, including the professionalization of health management functions
- Strengthening the training of health and hospital management professionals and their preferential placement in SDSMAS and larger HFs

Private Sector and Civil Society

Representatives of the private sector related to the Health sector were consulted (see Annex 1). Activity areas include the provision of health care, the provision of equipment, services and consumables and the health insurance business.

The activity area with more obvious mutual involvement and interest is the expansion of accessibility to reproductive health and family planning services, particularly for adolescents - due to the relative scarcity of adapted public services and the demand for privacy and flexibility of schedules. About 250 medical clinics are registered in the Greater Maputo area and about 500 pharmacies are registered in the country.

The capacity of this network is being expanded with support to low cost clinics (setting up and supply of consumables) by international NGOs and with participation of the Provincial Health Directorates. The initially urban supply of these services has already begun to expand to some rural areas.

The growth of these initiatives provides evidence on the potential for collective benefit of private providers' participation: the expansion of coverage of affordable (subsidized cost) individual (preventive or curative) protections that contribute to the improvement of collective indicators as a complement to the public network.

The first experiences of collaboration with suppliers of - telecommunications, consumable distribution logistics - equipment and services show that it is possible to design initiatives with mutual gains, as long as the public health administration objectives are aligned with the core business areas of each potential private partner. These partnerships also require the strengthening of local management capacity, particularly for the good use of equipment and services obtained through partnerships.

The Central Medical Stores (CMAM) already outsources the transportation services of its products between the central, provincial and district warehouses, and up to the HFs.

It is foreseen that the health insurance market, social or private, will be expanded, and it is one of the components of the Health Financing Strategy - in preparation. It will be a priority for the Ministry of Health (MOH) to encourage the inclusion of reproductive health and family planning services in the packages of services to be insured, including the potential need for their subsidy from public funds.

In Mozambique, there is an extensive network of non-governmental and community organizations, both national ones and others affiliated with international networks, available to work with the MOH to increase the demand for services. This potential should be supported by a response from the local health authorities to provide the corresponding capacity and quality of supply. Civil society organizations are also key actors in changing practices and behaviors - particularly those related to the sexual and reproductive lives of adolescents - and the health sector must be able to work together with these actors to seek funding for their activities.

Civil society organizations (CSOs) are also the key players in the functionality of the co-management committees in the health facilities, and in the expression of users regarding the quality and humanization of services. Mutual training on accountability and governance mechanisms is needed for the CSOs and the local health managers.

Adolescents and Young People

The Government of Mozambique has sought to address the health problems of adolescents and young people (A&Y), including the establishment of YFHS, supported by the *Generation Bizz* program, and through the legislation on the minimum age for marriage (*Rep. of Mozambique, 2015*). However, sexual and reproductive health problems among A&Y remain.

A&Y (aged 10-24 years) throughout the country were interviewed during the development of this IC. The main results - and the indications for Health and multi-sector interventions - are: ([70])

- A&Y of all ages experience limitations of information regarding the most striking problems in each stage of this life exploration phase, but they are perfectly aware of these problems: knowledge of the body and the fear of premature marriage – for the

[70] Details of the Youth and Adolescent Auscultation (December, 2016) can be found in Annex 1.

youngest; the difficult balance between the exploitation of life and protection against the risks of sexual relations - for those already socially more active.

- A&Y refer to the lack of preparation of teachers and health professionals as sources of information, in addition to the cultural and family contexts that hinder the active search for this information;
- A&Y are aware of exposures to health risks, but also of the particular vulnerability of girls to family or financial pressures;
- A&Y are critical regarding the accessibility and utility of YFHS, in addition to the risks of being stigmatized by family when using them;
- Consequently, A&Y recommend: i) innovation in the media and environments in which information is disseminated on SRH issues, in addition to qualification of teachers (including formalization in the school curriculum) and health professionals; ii) targeting this information to younger adolescents, preparing them before intensifying their exposure to risk factors and environments; iii) the technical improvement and humanization of the YFHS, emulating the qualities offered by private providers; iv) the mobilization of community and religious leaders to facilitate dialogue within the family context; v) dissemination of the legislation that limits the practice of premature marriages.

XII. OPERATIONALIZATION OF THE INVESTMENT CASE IMPLEMENTATION STRATEGY: INSTITUTIONAL CAPACITY

The agreement and enthusiasm created between the MOH and the key development partners, civil society organizations and the private sector needs to be transformed into efficient channeling of resources for the delivery of priority community and multi-sector services and interventions.

Particular attention should be paid to:

- maintaining the alignment of policy and investment priorities between the MOH and the development partners;
- managing local referral of resources to NHS sites and levels where interventions may have the greatest impact and ensure accountability at the local levels of public health sector management

It is suggested to set up a “central technical unit” in the National Public Health Directorate, with the main functions of:

- maintaining dialogue with the development partners in order to align policies and priorities for channeling the IC resources;
- coordinating between the intentions and needs for the intensification of the service delivery programs and the National Directorates of the MOH responsible for investment plans in human resources and infrastructure and supply of clinical consumables;
- collaborating with the HIMES and other sources of information necessary for national monitoring and evaluation and accountability to development partners;

- developing and disseminating principles to the DPS for: i) prioritization of resource channeling and allocative efficiency; ii) respect for the monitoring and evaluation framework;

It is also suggested to set up a "coordination and implementation unit" in each DPS, with the main functions of:

- Collaborating with the Provincial Departments of Public Health, Medical Assistance and Planning and Cooperation in the design of the CONEm Provincial Plan, priority investments in infrastructures and equipment, and the role of local training institutions for health professionals;
- Collaborating with DPS to coordinate the contributions of the partners supporting the Province, including joint planning and M&E exercises;
- Collaborating with DPS, and in particular with the Provincial Public Health Department, for the organization of multi-sector and community interventions, including civil society organizations;
- Supporting SDSMAS in the effective use of resources made available through the IC, including: i) more efficient and effective resource allocation; ii) preparation for M&E; iii) the modalities of accountability of financial resources directly channeled to SDSMAS and the HFs;
- Supporting the DPS Financial Management Department in reporting to the partners and the Central Organs (CO) of the MOH on the financial resources channeled to the Province

The SDSMAS will be supported by the DPS and the "coordination and implementation unit", particularly regarding: i) priority allocation of resources between the HFs, in particular the HFs with capacity for CONEm-B and CONEM-C; ii) micro-planning for EPAs and mobile brigades; iii) use of statistical information for M&E and accountability to the community; iv) coordination with community and civil society actors; v) response to financing models linked to results.

Coordination with the Ministry of Education and Human Development (Nutrition and School Health) is carried out regularly by the Public Health National Directorate and local Sectors (DPS and SDSMAS). The SDSMAS will have the primary responsibility for defining the support (consumables, time and supervision) for the local priority schools and coordinating the M&E modalities with the local MINEDH administration.

XIII. MONITORING AND EVALUATION

Rationale. Principles

- The viability of the Implementation Strategy of the Investment Case depends on the availability of resources and its operational organization (***Inputs***);
- It is expected that these resources will be applied in the provision of the services listed as effective and priority in the description of "sets of interventions" (***outputs***), while it is also assumed that obstacles to their implementation are overcome;
- This production of services, if: a) it is applied at the appropriate levels of the NHS; b) is geared primarily to geographical locations with the greatest need and potential for results; will result in improvements in accessibility and continuity (coverage) and changes in behaviors (***intermediate outcomes***), with the potential to generate results;

- The results can be divided into: i) ***outcomes by problem*** (causes of mortality, exposure to risk factors); ii) overall health status results (***impact***)

Indicators

The principle of SMART indicators is followed for a project with an estimated duration of 5 years.

Table 2 presents the suggested indicators of these various types that are presumed to be measurable, to monitor and evaluate the proposed set of activities for the IC.

No indicators are proposed for community intervention activities still in the embryonic stage in the areas of Child Nutrition and Teenage Pregnancy/Premature Marriage because: a) the interventions are still in the embryonic stage (their potential for achieving results in the short to medium term is poorly understood); b) the potential impact of these interventions on cultural habits and practices justified by reasons other than health, is unknown.

Disbursement and expenditure management indicators are not included here.

Targets

The targets suggested in Annex 8 are considered attainable, based on some principles:

- For various "intervention coverage" indicators, the temporal trends of the last years (measured by surveys) were used where available; ([71])
- The possibility of maintaining the coverage growth of previous years assumes the availability of the requested additional number of MCH nurses (which is reasonably guaranteed by the National HRH Development Plan, 2016-2025);
- For the "impact" indicator targets, the EQUIST instrument estimates are used (see Section XIX)

Sources of Information (for the Indicators)

Annex 8 includes the list of sources of information:

- Most "resource" and "output" indicators can be estimated based on HIMES information;
- The same applies to several of institutional "outcome" indicators, such as lethality rates;
- Most "intermediate outcome" and "results by problems" indicators will have to be measured through surveys, as well as the "impact" indicators

Institutionalization

It is proposed (see previous section) that the technical units and the central – up to - district levels of the MOH carry out annual evaluations of the degree of achievement of resources, service production and results. These constitute the formal moments of M&E.

The list of sources of information suggests the usefulness of conducting surveys, in particular:

[71] Annex 8 includes a brief exercise - with some IC targets - based on evidence published by the World Bank, on the limits of the application of previous growth rates (*IDA, World Bank, 2011*).

- the Demographic and Health Survey, to: i) confirm routine HIMES statistics on production and coverage of services; ii) know changes in behaviors and practices; iii) identify inequalities;
- the surveys of the needs and quality of MCH services, to verify the availability of inputs and compliance with standards and protocols (processes) of service provision
- the annual surveys on the availability of modern contraceptives and vital and essential medicines for maternal health
- the survey on the "Readiness and Availability of Services" (SARA) of the HFs (in preparation);

Many of the proposed interventions that are suggested in this IC - and the targets considered to be achievable - are based on information collected by survey 4-5 years ago. Some of these surveys deserve to be repeated shortly, whether to triangulate their data with recent information from other sources of information - for example, the possible association between increased coverage of institutional deliveries and maternal mortality, or to review assumptions used in this IC - for example, criticisms about the quality of the training and skills of the MCH nurses.

Priority is to be given to replicating the DHS (at least the components not covered by the 2015 IMASIDA) and the MCH Needs Assessment, whose latest data were collected in 2010 and 2012, respectively.

MATRIX - 2: Monitoring and Evaluation Matrix				
Resources, Processes, Organization, Obstacles	**Outputs (service production)**	**Intermediate Results**	**Outcomes (results) by problem**	**Impact**
N.º of available MCH nurses N.º of HR for surgery in the District Hospitals N.º of Districts with work overload of the MCH nurses HFs that offer CONEm-B and CONEm-C N.º of District Hospitals with capacity for: • 24/7 surgery (HR and equipament); • CONEm-C • Water and electricity Type I HC and District Hospitals equipped with transport and telecommunications N.º of EPAs in the Priority District N.º of HFs that provide services for VTP	N.º of routine MCH services: • Antenatal cons.; Deliveries; Post-Natal cons., Family Planning, Healthy Child, At-risk child consultation, etc. N.º of services offered by YFHS (ANC, FP, HIV T&C) N.º of services by EPAs: • Individual consultations (curative; preventive); • Home visits N.º of SRH services / Users met by private providers	4+ ANC Coverage Ratio Institutional Delivery Coverage Rate (Rural X Urban) % of deliveries performed in District, Provincial and Central Hospitals % of Cesarean deliveries: i) in hospitals; Ii) in the general population Postpartum Consultation Coverage Rate (2 - 7 days): a) Mothers; b) Newborns *(Alternative indicator) Ratio between "N.º of PPC and N.º of Deliveries" ([72])* Contraceptive Prevalence Rate: • Rural-Urban; • Adolescents (≥ 15 Years); • ≠ methods	Lethality Rate in Hospitalar Paediatrics ([73]) Lethality Rate in Institutional Births Nati-Mortality Rate with positive focus on entry Low Birth Weight Rate % of Teenage Pregnancies ([74]) % of Maternal Deaths by i) HIV; ii) Malaria; iii) Direct Obstetric Causes % of Prevalence of Anaemia (any type) in	Maternal Mortality Rate Neonatal Mortality Rate Child Mortality Rate Mortality Rate 0-5 Years Global Fertility Rate Fertility Rate in Adolescents (15-19 Years)

[72] This indicator (PPC Coverage rate) has not been measured by survey since the 2003 DHS. The "alternative indicator" has the advantage that it can be measured with HIMES data.

[73] The detailed definition of this indicador (and the next one) should include "the moment the death took place, after reaching the HF"

[74] When a new DHS is confirmed, information on "Unmet FP needs" will also be available, usually disaggregated by: Province, rural-urban, age (adolescents), educational level and quintile of wealth

MATRIX - 2: Monitoring and Evaluation Matrix				
Resources, Processes, Organization, Obstacles	**Outputs (service production)**	**Intermediate Results**	**Outcomes (results) by problem**	**Impact**
Type II HC with capacity to communicate between MCH nurse and EPA *(mobile, new IT application)* Average N.º of supervision visits per EPA / Year N.º of functional Co-Management and Health Committees N.º of Private Providers Involved in Sexual and Reproductive Health (SRH) N.º of Provincial Operational Plans --- *% of discharge from maternity ≤ 24 H* *Average N.º of services (ANC, FP, HIV T&C)/YFHS user* *Average waiting time for child HIV results* *% of COE-B functions not performed due to lack of professional knowledge* *% of HFs without stockouts of (to be specified) - at the time of the survey:* • *tests; nets*		Rate of Exclusively Breastfed Children % of Children with Acute (Severe) Malnutrition treated Rate of Demand of services per Sick Child % of "comprehensive knowledge" about SRH in School-aged Adolescents % of Pregnant women seen at ANC who do ITP-Malaria % of new users in FP through EPAs and schools % of Children (at 12 months) with complete vaccination Average N.º of "Healthy Child" Consultations / Child 0-4 years Average N.º of "Healthy Child" Consultations / Child 0-11 Months % of Children aged 6-24	Adolescents and Pregnant Women	

MATRIX - 2: Monitoring and Evaluation Matrix				
Resources, Processes, Organization, Obstacles	**Outputs (service production)**	**Intermediate Results**	**Outcomes (results) by problem**	**Impact**
• *Medication for HIV, Malaria, IMCI antibiotics, Zinc* • *Essential Medication for Woman's Health and Contraceptives* *% of Young people who perform HIV Test and receive the result (disaggregated by Sex)* *% of married women <15 Years and <18 Years (among Women aged 20-24)*		months seen at Health Child Consultation that receice: a) Vit A; b) multi-micro nutrients % of Pregnant Women seen at Antenatal Consultation receiving Fe/FA % of Young people who have had 2 or more sexual intercourses in the last 12 months and have used condoms during the last sexual intercourse (disaggregated by Sex) % Retention in ART (12 Months) between: • Pregnant women (9 Months); • Children (12 Months)		

Indicators in "purple": *related to "obstacles" to the implementation of the suggested interventions*

XIV. CIVIL REGISTRY AND VITAL STATISTICS

Justification

Vital statistics are indispensable for planning public services for the population and for assessing the benefits of such services, in addition to the general objective of regular knowledge of the demographic dynamics underlying all good governance. The network of health facilities plays a major role in the functioning of the civil registry - and is always growing with institutional development parallel to the economic growth of societies - given the growing institutional location of births and deaths. With the increasing use of digital platforms for recording and communicating information, there is scope for overcoming the heavy paper-based procedures.

For this IC, the Civil Registry - Vital Statistics (CRVS) system is based on the quality of the data that will feed into the already described M&E framework.

In Mozambique, the modernization of the CRVS system depends on three State bodies and their respective levels of organization and services: the Ministry of Justice and Constitutional and Religious Affairs (MJ), the Ministry of Health, and the National Institute of Statistics (INE). The Ministry of Justice (MJ) does the formal registration of the data, while the National Institute of Statistics is the entity that compiles and analyzes the information and makes it available as statistics. ([75])

This text only addresses the portion of the modernization of the CRVS system that is the responsibility of the Ministry of Health: the registration of births and deaths that occurred in the health facilities and the inclusion of these data in the health information system.

Initial Situation

The percentage of births that occurs in HFs has recently risen to 70%, but is only about 63% in rural areas (*IMASIDA, 2015*). Regarding deaths, in 2007, INE estimated that only 21% occurred in a HF, and in rural areas this percentage was only 13% (the MJ estimated that this percentage was 14% in 2014). By 2014, only 9% of deaths had information on the causes of death. It is clear that the HFs only capture part of the vital events.

The network of civil registries (CR) is even smaller than that of HFs: 504 civil registry units and 1,435 health facilities, respectively. No wonder, therefore, that by 2014, only 49% of children under 5 years of age were registered in the CR, and that in 2011, only 28% of children had a birth certificate.

Certification in the HFs, both manual and in paper, has limitations. It no longer issues the "birth certificate", and the HF only delivers the "vaccination card" to the Mother – when being discharged from the maternity: this card serves as a "certificate" for the CR units. Death certification suffers from the lack of registration books, as well as incomplete inclusion of the

[75] Other ministries involved in the CRVS activities include the Ministries of the Interior; Science and Technology, Higher and Vocational Education; and Local Government Bodies (Ministry of State Administration and Public Administration). The CRVSs are also supported by development partners, donors and NGOs, including UNICEF, WHO, UNHCR, UNFPA, CDC, Government of Canada, Plan International and Save the Children.

causes of death: besides the lack of statisticians, physicians are still scarce in the primary level HFs - legislation requires that the death certificate be signed by "a doctor".[76]

The current legislation does not facilitate the expediency of processes: besides the limitation for doctors to issue death certificates, birth registration is also hampered by the requirement to have a name for the newborn.

Recent efforts have been made by the Ministry of Health (in addition to increasing accessibility to health services and the healthcare network): i) the regular functioning of the Maternal and Neonatal Death Audit Committees; ii) the training of physicians on the use of the international summary classification of diseases (ICD-10) used on death certificates; iii) the database on maternal deaths has already been included in the HIMES; iv) the training of statisticians.

Proposed interventions

The MOH is responsible for one of the four strategic objectives of the CRVS Strengthening Plan (**Annex 11**) and participates in another one: i) strengthen and improve the coverage of vital event registration; ii) integrate the database and generate vital statistics ([77])

The MOH proposes to intervene on the obstacles for a better quality of records of the events that occur in the HFs:

- The standardization and general provisioning of registration books to the HFs;
- Experimentation, together with the MJ, of notification of vital events by SMS;
- The continuation of the training of physicians and statisticians in the registration of causes of institutional death, in health facilities with hospitalization - 65 Hospitals, 59 Urban Health Centers Type A, 144 Type I Health Centers;
- Continued logistical support for the functioning of the Maternal and Neonatal Death Audit Committees

The MOH is also responsible for integrating information on deaths (particularly Maternal and Neonatal, produced by the Audit Committees) with the remaining data on the production of services and resources that are already part of the HIMES. The MOH will collaborate with the MJ and INE to integrate the HIMES data (already with information on the deaths) into the CRVS information system. The capacity of the HIMES equipment base and operators to integrate this information will have to be assessed and eventually strengthened.

The opportunity to extend coverage of the promotion of civil registration of births and deaths through contacts for vaccinations (high coverage, mobile teams) and through the activities of the EPAs and other community agents can also be explored. However, the limitations already stated in this text should be taken into account: a) micro-planning of mobile teams

[76] It is also presumed that part of the maternal and neonatal deaths are not reported, due to the fear of health professionals to suffer institutional reprisals. And the data on neonatal deaths and stillbirths may be mixed: according to the WHO, about 50% of late fetal deaths occur during childbirth. If the stillborn is considered to be "dead" rather than "alive", both the numerator and the denominator of the neonatal mortality rate change (*WHO, 2014; De Bernis, 2016*).

[77] The other two strategic objectives are: iii) to adapt legislation and raise awareness of stakeholders on the importance of CRVS; iv) to establish mechanisms for coordinating and implementating the Plan

(vaccinations) needs improvement; b) the EPAs already have their range of activities loaded with new assistance tasks. ([78])

Priority activities for the Health Sector are summarized in the targets in Table 11. The expected costs for these activities are presented in Table 12.

Table 11: Targets of CRVS activities, 2017 – 2019

	2017	2018	2019	TOTAL
Training of professionals in certification and codification of the causes of death	330	330	330	990
Training of professionals in the use of the hospital information module	330	330	330	990
Acquisition and distribution of computers and peripherals to Hospitals	65			65
Acquisition and distribution of computers and peripherals to Type I (144) and Type A HCs (59)	33	100	70	203

Table 12: CRVS investment costs, 2017 – 2019

CRVS Costs - *in US Dollars*	2017	2018	2019	TOTAL
Acquisitions				
Expand the use of the medical death certification books to all Health Facilities with hospitalization	98,784	98,784	98,784	296,352
Acquisition and distribution of computers and peripherals to the HFs with hospitalization	242,464	242,464	242,464	727,392
Program Area Cost	**341,248**	**341,248**	**341,248**	**1,023,744**
Training				
Training of professionals in certification and codification of the causes of death	105,789	105,789	105,789	317,367
Training of professionals in the use of the information module	271,094	271,094	271,094	813,282
Visits to observe experiences in other Countries	26,000	20,000		46,000
Program Area Cost	**402,883**	**396,883**	**376,883**	**1,176,649**
Analysis of Causes of Maternal and Child Deaths				
Functioning of the Death Analysis Committees (3 sessions/ year, 11 provinces)	276,438	276,438	276,438	829,314
Program Area Cost	**276,438**	**276,438**	**276,438**	**829,314**
TOTAL COST	**1,020,569**	**1,014,569**	**994,569**	**3,029,707**

A broad list of activities to be carried out jointly with the Ministry of Justice and INE is found in **Annex 11**.

XV. INOVAÇÃO E PESQUISA

The implementation of the IC focuses on the best organization of the health system as a platform to use technologies of known effectiveness, and verify the attainment of the

[78] In addition to using time and extending the range of tasks, the involvement of the EPAs also means their training for this additional task.

expected health improvements. In addition, some innovative experiments are suggested, whose effectiveness should be evaluated.

This is expected to lead to increased interest in operational/implementation type research. Box 5 suggests some examples of such "research issues".

Text Box 5: Innovation and Research. Examples

Examples of "research issues":

- Impact of the early identification of obstetric complications (ANC 4+, Maternity Entrance) on the management of obstetric and N-B complications
- Improved knowledge of the MCH nurses - on adolescent health problems - and perceived quality of services by adolescent users
- Caesarean section: appropriate decision (high frequency); iatrogeny?
- Perceptions of professionals and clients about the reorganization of the healthy child's consultation
- Impact of mentoring + continuing education on quality of care for N-B complications
- EPAs/Traditional Midwives: appropriate use of Misoprostol (postpartum haemorrhage) and Antibiotics (early rupture of membranes)
- Adolescents: effect of social networks on knowledge and attitudes
- Premature marriages: household perceptions of costs and benefits of girls' continuing education
- CRVS: impact of the introduction of a new system for recording deaths on the quality of information on causes of maternal and neonatal death

Innovative experiments (examples) whose effectiveness should be evaluated:

- (Mobile) communication between MCH nurses and EPAs in rural HFs: effect on: i) "capturing" women attending the ANC for institutional birth; ii) recuperation of institutional parturients for the Postpartum Consultation;
- Change in the MCH nurses' training curriculum: effect on: i) improvement of knowledge; ii) improved skills in the screening and management of obstetric and N-B complications;
- Reorganization of the Healthy Child Consultation: effect on screening for chronic malnutrition;
- Adolescent care by private providers (outside the NHS): effect on: i) increase in the contraceptive prevalence rate in adolescents and reduction of the teenage pregnancy rate; ii) improved knowledge on the protection of sexual and reproductive health risks;
- Effectiveness of the intensive use of the Media, on knowledge and practices in child feeding and risks of teenage pregnancy

XVI. RISKS

The main risks to the implementation of IC proposals are: [79]

[79] Circulation limitations in rural areas, for safety reasons, can affect both the rehabilitation of HFs and the movement of mobile teams, supervision and users, reducing the likelihood of achieving the proposed coverage targets. It is recommended to monitor the political situation in the country.

- The availability of insufficient funding - from the development partners or the State Budget - for the various inputs deemed necessary; [80]
- The delays in the training of the additional number of MCH nurses considered necessary to increase service coverage and quality rates , as well as the specialized teams for surgery, obstetrics and neonatology;
- The delay in implementing motivation and retention policies (mainly rural) of mid-level and basic-level health professionals;
- The delays in the rehabilitation of the priority HFs - Type I HCs and District Hospitals - that put the readiness of care for obstetric and N-B complications into question

In addition to these risks, efficiency in the use of invested resources will continue to be less than possible if: i) the management capacity of the HFs is not improved; ii) work with the community is not intensified (co-management committees, monitoring of EPAs and programming of mobile teams).

XVII. COSTING AND METHODOLOGY

The OneHealth costing model has already been used in the costing of the PESS 2014-19.

It is a model that combines the specific costs of public health programs with the implications of using the essential parts of the health system to achieve the program targets. [81]

The application of OneHealth to the IC costing followed an incremental cost approach, i.e. the increase over the current costs of the set of resources spent on MCH programs.

The cost growth parameters for the implementation of the proposed interventions are of two main types:

i. The additional fixed resources that need to be created or rehabilitated: a) additional numbers of health professionals (and the creation of some new courses); b) the construction and rehabilitation of health facilities and their equipment; c) the large-scale setting up of a communication platform between MCH nurses and EPAs;
ii. The additional volumes of clinical consumables that will be used with an increasing coverage and growing population;

"Program management" costs, such as training and supervision, are added.

The average cost of the construction and rehabilitation of infrastructures was updated with information provided by the National Planning and Cooperation Department (DNPC). Infrastructure costs include:

i. the rehabilitation and equipment of District Hospitals and Type I Health Centers, in order to reach the population coverage recommended by international standards (COEm-B/C HFs);

[80] It is expected that the Mozambican State will start to collect additional tax revenues from the exploitation of natural resources, starting in 2021, which will allow a realignment between the contribution of the Government and the partners for the financing of the Health Sector.
[81] The OneHealth model is part of a set of models - Spectrum - widely used by the technical agencies of the United Nations system. These other Spectrum models include capacities to estimate the potential impact of the costed interventions. However, the impact of the IC was estimated by using the EQUIST model separately. OneHealth was only used for costing.

ii. The construction of 24 new Type II Rural HCs: the estimated number to address health network deficiencies in the new Districts, but whose location can be redefined to other priority ocations needing rural access improvement;

The application of OneHealth for IC costing: i) assumed the current resources and operating characteristics of the NHS; ii) used unit costs for consumables and human resources already defined in the costing for the (updated) PESS; iii) defines annual targets (new resources and service coverage) to estimate the annual cost increment.

The annual cost evolution took the gradual growth in the volume of activities and the time to prepare investments in the creation of fixed resources (training, infrastructures) into account.

The numbers of additional resources to be created or rehabilitated - and the possible timing of the growth of these resources - were checked with the National Directorates of Human Resources and Planning and Cooperation of the MOH.

Two "scenarios" were built:

- Equal costs for "programming expenses" and "human resources" in both scenarios;
- Higer "infrastructures" costs in Scenario 2: includes 24 Type II HCs in the new Districts;
- Higher "drugs and consumables" costs in Scenario 1: greater coverage of interventions

The full report on the IC costing exercise can be found in **Annex 9**.

The updated cost figures are still being worked out. The values entered in Tables 13 and 14 are only indicative, in order to know the total needs envelope and its relation with the current costs of the NHS.

Table 13 presents the estimated costs for the years of implementing the 2017-2022 Strategy, with decomposition by main cost lines.

Table 14 summarizes the data in Table 13 and compares it with the NHS expenditure in 2016 (*MOH/DAF, 2016*).

Table 13: Estimated costs to implement the interventions proposed in the Investment Case (awaiting updating)

Scenario 1							
In US Dollars	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total/Lines**
Programming Costs	1,415,187	3,558,395	3,734,022	3,906,004	4,097,488	4,227,439	**20,938,535**
Human Resources	71,236,945	87,338,191	107,350,021	129,510,973	151,874,278	176,493,691	**723,804,099**
Infrastructure	90,091,169	81,429,797	72,976,519	82,589,096	65,169,769	63,983,314	**456,239,664**
Drugs and other Consumables	89,960,438	96,503,394	102,915,326	109,373,157	115,810,293	122,218,210	**636,780,818**
TOTAL	**252,705,756**	**268,831,795**	**286,977,907**	**325,381,250**	**336,953,849**	**366,924,676**	**1,837,763,116**

Scenario 2							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**Total/Lines**
Programming Costs	1,415,187	3,558,395	3,734,022	3,906,004	4,097,488	4,227,439	**20,938,535**
Human Resources	71,236,945	87,338,191	107,350,021	129,510,973	151,874,278	176,493,691	**723,804,099**
Infrastructure	97,065,561	88,695,389	80,533,311	90,437,088	80,283,353	65,730,514	**502,745,216**
Drugs and other Consumables	80,946,050	84,949,219	92,370,261	99,840,400	107,300,506	118,452,783	**583,859,219**
TOTAL	**250,665,760**	**264,543,212**	**283,989,634**	**323,696,485**	**343,557,646**	**364,906,449**	**1,831,347,069**

Table 14: Costs of the Investment Case and Current Expenses (awaiting updating)

							In %			
	2017		2018		2022		2017		2022	
Category of Costs	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Administration	1,415,187	1,415,187	3,558,395	3,558,395	4,227,439	4,227,439	0.6%	0.6%	1.2%	1.2%
Staff	71,236,945	71,236,945	87,338,191	87,338,191	176,493,691	176,493,691	28.2%	28.4%	48.1%	48.4%
Infrastructure	90,091,169	97,065,561	81,429,797	88,695,389	63,983,314	65,730,514	35.7%	38.7%	17.4%	18.0%
Consumables	89,960,438	80,946,050	96,503,394	84,949,219	122,218,210	118,452,783	35.6%	32.3%	33.3%	32.5%
TOTAL	**252,705,756**	**250,665,760**	**268,831,795**	**264,543,212**	**366,924,676**	**364,906,449**				

Budgeted Total NHS, USD, 2016	**771,637,333**
Total Expenses NHS, USD, 2016	**414,585,594**

	2017	2018	2022
Cost / Capita TTL	9.3	9.7	11.9
Cost / Capita Target Pop	23.6	24.5	31.1

	2017	2018
IC 2017 USD, as % of Budgeted NHS, 2016	32.7%	34.8%
IC 2017 USD, as % of Expenses NHS, 2016	61.0%	64.8%

Priorization of investments

It can be envisaged that the use of additional IC funding will be decided and implemented at different levels of the public health system, according to the areas of authority defined by the decentralization policy and current practices.

At the central level, investments to initiate (or restart) the specialized training of mid-level professionals - surgery, obstetrics, neonatology, for the supply of clinical consumables and logistics chain management, are priorities.

At the provincial level, the portfolio of investments in the health facilities selected for the provincial network of Obstetric and Neonatal Emergency Care - including the ability to communicate and transport patients and parturients, training at local Training Institutions (for MCH nurses) and of the EPAs and the strengthening of supervision and mentoring to peripheral professionals and EPAs, are priorities. It is also at the provincial level that collaborations with non-governmental and community organizations should be designed for community interventions to change behavior and encourage the demand for services.

The District level is where services are provided and interventions are carried out that achieve increased coverage-use and impacts on mortality and fertility. The district health system administration is the level that manages the resources used to provide community services and activities, and that should also receive - and manage - dedicated funding for performance evaluation. The priority investment for this level is to improve management capacity, including accountability and use of (possible) performance bonuses.

It is suggested that the investments that can not be jeopardized in case of limitation of available financing, are:

- The creation of surgical capacity in the District Hospitals and equipment for CONEm in the HFs: infrastructures and equipment, transportation, specialized professional staff;
- The regular supply of contraceptives to all HFs, essential consumables for obstetric and neonatal care and small equipment for antenatal care, delivery and newborns;
- Support to community organizations that increase the demand for services and modify practices and behaviors on child feeding and teenage pregnancy;
- Improving the quality of practical training of MCH nurses;

- Keep up the supplies for preventive (vaccinations, deworming, nutritional supplementation) and curative care (IMCI and diseases that are the main causes of child mortality) for children in the first 5 years of life;
- Support the work of EPAs and mobile teams, in Districts with the greatest population dispersion and limitated healthcare network coverage
- Regular supervision of MCH nurses in peripheral HFs and of EPAs

This "short list" of priorities includes:

- The 3 intervention levels (community-demand, peripheral network and hospital of 1st reference);
- Basic inputs;
- The integration of the 3 levels through supervision

XVIII. MAPPING OF RESOURCES

The evolution of the resources available in recent years (2013-2016) shows the progressive increase in funding of the Health Sector - and the RMNCAH activities - by the State Budget - interrupted in 2015, while the total volume of external financing reduces.[82]

Examination of spending areas clearly shows that RMNCAH-related activities are a priority both for the Government, through the support to peripheral health facilities and the purchase of medicines, and for the sector partners. Between 65% and 83% of external funding channeled through projects were targeted at RMNCAH-related areas - including HIV - although only 37% -40% of this funding had been implemented by the public sector.

Table 15: RMNCAH-related areas: as percentage of external funding (Non-ProSaúde)

	2013	2014	2015
Reproductive and Maternal Health	14%	9%	11%
Child Health (including IPE)	6%	7%	8%
STI and HIV/AIDS	40%	47%	42%
Malaria	4%	15%	8%
Nutrition	1%	5%	8%
Subtotal RMNCAH-areas	***65%***	***83%***	***77%***
Staff training and placement	2%	4%	6%
Planning, HIS, M&E	4%	5%	10%

The lack of funding for adolescent health is noteworthy, although part of the funding for reproductive and maternal health, STI and HIV/AIDS, health promotion and community involvement activities has benefited adolescents.

Reducing the funding available for both specific interventions and health system support activities compromises the delivery of RMNCAH-realted health care.

[82] Data are still incomplete, due to lack of confirmation of information of some substantial project funding.

Table 16: Recent evolution of funding available to the Health Sector

	2013	2015	2016	
External Funding	**519,237,010**	**244,033,970**	**178,984,432**	
Projects	438,637,809	171,253,954	149,787,608	*a)*
Pro-Saude	80,563,201	52,780,016	29,196,824	*b)*
State Budget	**182,488,000**	**371,481,037**	**235,601,161**	
Current Expenses	143,970,459	295,501,289	220,663,084	*c)*
Investment	38,517,541	75,979,748	14,938,077	*d)*
Total Funding	**701,725,010**	**615,515,007**	**414,585,593**	
RMNCAH Funding	**2013**	**2015**	**2016**	
ODA + SB Expenses (without HIV), including:		117,356,390	92,897,639	*e);f)*
Infrastructure		2,120,400	5,751,559	*f)*
Human Resources		16,434,079	2,505,996	*g)*
a): Projects executed by Partners + Medicines "in kind"				
b): Staff + Medicines Expenses				
c): Includes expenses with Medicines (SB + ProSaude)				
d): Central + Provincial Level				
e): Includes Expenses with other STIs (not HIV)				
f): Based on data of 9 months, 2016				
g): Includes Training; Incomplete data (SB)				

Sources: 2013-2015: Resource Mapping Report; 2016: MOH/DAF, Budget Execution Report, 2016 (preliminar)

As for future years, the commitments of many partners are yet to be confirmed. 106 projects/ lines of financing were identified, reported in the External Funds Survey (EFS) with funding suggested for the coming years and with funding already confirmed for 2017. However, many of those figures still need to be confirmed, especially from 2018, as there is funding of a limited number of partners that has not yet been confirmed, and additional funding allocated to Health, but with intervention areas that yet have to be decided according to sector priorities.

It is useful to note that for 2017, increases in availability of GSB and ProSaude funds are expected - with the funding of substantial projects (HIV, Malaria, TB) yet to be allocated. ([83]) The figures included in Table 17, in the line "External Financing – Projects" for 2017, may reach USD 150 million after these allocations.[84]

The International NGOs are relevant recipients and users for funding "by Project". Twenty-six international NGOs working on maternal, newborn and child health in Mozambique have been identified. Most of these NGOs carry out activities in a limited number of Provinces.[85]

The Resource Mapping report can be found in **Annex 10**.

[83] The MOH proposal for the Medium Term Expenditure Framework foresees the growth of Current Expenses financed by the GSB to approximately USD 317,577,000 in 2018 and USD 339,786,000 in 2019.
[84] Commitments to ProSaúde may also change as a result of the negotiations on the Memorandum of Understanding between Partners and Government.
[85] List obtained courtesy of NAIMA - Network of Organizations working in the area of Health and HIV/AIDS

Table 17: Expected evolution of available funding for the Health Sector, 2017

	2016	2017 *(a)*	
External Funding	**178,984,432**	**124,545,303**	
Projects	149,787,608	87,068,723	
Pro-Saude	29,196,824	37,476,580	
State Budget	**235,601,161**	**336,808,241**	
Current Expenses	220,663,084	313,091,728	
Investment	14,938,077	23,716,513	
Total Funding	**414,585,593**	**461,353,544**	
RMNCAH Funding			
ODA+SB Expenses (Without HIV), including:	**92,897,639**	**71,273,883**	*b)*
Infrastructure	5,751,559	6,915,520	*b)*
Human Resources	2,505,996	4,803,562	*b)*
a): Information on SB, "ProSaude" and "Projects" is incomplete			
b): Distribution of SB, "ProSaude" and "Projects" is incomplete			

Sources: 2016: MOH/DAF, Budget Execution Report, 2016 (preliminar); 2017: Resource Mapping Report

XIX. HEALTH FINANCING STRATEGY

The Health Financing Strategy (HFS) is being developed simultaneously with the IC and should inform both the availability of funds for the IC (the priority interventions with high potential for results) and ways of managing those funds.

Expenditures on the Health sector in Mozambique have been increasing over the past decade, although per capita spending is still below the average for low- and middle-income countries. It is also noted that the percentage of Total Government Expenditure dedicated to Health is lower than the average of the same countries. And some indicators of efficiency in the use of financing also show that one could obtain better results with the financing invested in Health in Mozambique.

In 2016, public spending was subject to contraction and pressure for further consolidation (simultaneously with a reduction in tax collection). The short-term outlook (before the regular revenues from hydrocarbon exploration in the North of the country) is that there will not be a significant increase in the collection of taxes. However, the government's commitment to Health was clearly expressed in the protection of the sector, when the GSB was revised in 2016: the Health sector increased by 10%, while the average of the social and economic sectors suffered reductions of 4.7%.

Recent reviews suggest a number of inefficiencies in the sector, ranging from resource allocation, poor management of productivity and presence of professionals, to high expenditure on administration (including the exaggerated “general scheme” staff contingent).

The consensuses already drawn on the content of the HFS include:

- alternative - domestic - financing sources: dedicated taxes, percentage of revenues from mineral resource exploitation, moderating fees and other revenues of the HFs;

- efficiency gains: i) allocative efficiency: formulas for placing resources, setting up health insurance for the formal economy; ii) technical efficiency: audits of resource flows, outsourcing, execution of external aid ([86])
- The formulas for estimating needs will contribute to the decentralization process

These HFS components are important to the IC: because it needs additional resources; because the achievement of ambitious intervention targets implies the efficient use of available resources; because the link between resources and results implies the decentralization of planning, management and accountability.

XX. POTENTIAL IMPACT

The EQUIST tool was used to obtain estimates of the potential impact of the interventions listed in the IC implementation strategy. EQUIST data were complemented by an assessment of the potential impact of the increased use of contraceptive methods, undertaken by UNFPA in 2015.

The impact assessment is limited to "avoided deaths" and "non-lost life years". The "non-lost life years" are substantial because of the ages at which deaths occur that are to be avoided.

The impact assessment assumes that effective intervention coverage can reach the coverage levels announced in the Monitoring and Evaluation Framework in about 5 years: the improvement in outcomes and impact indicators is therefore dependent on the achievement of these coverage levels.

The summary is presented in Table 18. The main results are:

- Maternal, neonatal and 0-5 year mortality rates can be reduced by 7%, 9%, 9% and 4.8%, respectively, per year;
- Resulting in an annual reduction of about 19,000 child deaths, 800 maternal deaths and 11,000 neonatal deaths
- Reduction of the % of unmet FP need from 23.1% to 17.7%;
- Annual gains of 237,500 non-lost life years

Table 18: Potential gains from implementing the RMNCAH Strategy

Indicator	Baseline	Results in 5 years	Reduction in Nr.	Reduction in %	% Reduction / Year	Nr. Of Deaths Avoided / Year
0-5 year Mortality Rate	79	60	19.09	24%	4.80%	18,922
Maternal Mortality Rate - 1	408	231	177	43%	9%	1,808
Maternal Mortality Rate - 2	*489*	*312*	*177*	*36.20%*	*7.20%*	*1,808*
Neonatal Mortality rate	27	15.15	11.85	44%	9%	10,915
	IMASIDA 2015	**GFF-IC Target**				
Unmet FP Need	23.1	17.7				
Nr. of gained DALY	237,513					

[86] Proposals for the harmonization of the use of external financing for the IC are presented in the section "Strengthening the Health System – Financing".

The mortality reduction rates for the 5 years of the IC were applied to the remaining years until 2030 to verify the **possibility of achieving the Sustainable Development Goals (SDGs).** The projection is too simplistic as it is based on the continuation of the effects of expanded and more effective service delivery, and greater intensity of demand (in addition to the positive manifestations of behavioral changes and distal risk factors) expected to be observed in the first 5 years.

The results in Table 19 show that efforts have to continue in order for Mozambique to reduce its initial handicap and to approach the SDGs. In the case of Maternal Mortality, the reduction of the high initial values is very much associated with coverage of assisted deliveries (*Lerbergue, 2014*). In the long term, the performance of the various pillars of the health systems and socio-economic and demographic factors influence the continuation of the decline (*Kuruvila, 2014*).

Table 19: Potential for approaching the Sustainable Development Goals

						Result in 2030	
Indicator	Baseline	Results in 5 years	Reduction # / Year (2015-21)	Reduction % / Year (2015-21)	% Reduction acumul. 2015-2030	Estimated Result	SDG Target
0-5 year Mortality Rate	79	60	3.8	4.8%	52.4%	37.6	20
Maternal Mortality Rate - 1	408	231	35.4	8.7%	74%	104.6	70
Maternal Mortality Rate - 2	*489*	*312*	35.4	7.2%	68%	158.4	70
Neonatal Mortality rate	27	15.15	2.37	8.8%	75%	6.8	12

For the cost/benefit analysis, the cost per "Non lost life year" was estimated for 2021: about USD 1,446,50 (pending updating of the "Costing"). WHO considers that a health intervention is cost - effective if the cost per non-lost life years is between 1-3 times the country 's per capita GDP ([87]): using Mozambique' s GDP/capita of USD 622, the IC is cost - effective (Ratio = 2.3 * GDP), despite high investment in human resources and infrastructure (*Marseille, 2015; Mangham-Jefferies, 2014; Stenberg, 2014*). [88]

Annex 8 ummarizes the targets that are supposed to be reached by 2021-2022, with the RMNCAH Strategy - for all indicators listed in the Monitoring and Evaluation Framework.

[87] GDP/capita can be considered as the expression of the "readiness to pay" of the country's population.
[88] The IC for Mozambique implies the reinforcement of human resources and infrastructures of the NHS, to allow the expansion of the availability of the proposed technical interventions. This is the main reason for the high cost per non-lost life year.

LIST OF ANNEXES:

i. Process of preparing the IC
ii. Selection of Provinces
iii. Selection of Priority Districts
iv. Index of population dispersion and healthcare network: 3 groups of Districts
v. Theory of Change. The perspective of causality and obstacles to overcome - Supply and Demand
vi. 6.1 - 6.4 – Obstacle Analysis by 4 intervention areas
vii. EQUIST Obstacle Analysis
viii. Monitoring and Evaluation Framework
ix. Costing
x. Resource mapping
xi. Extended CRVS program: to be carried out jointly between MOH and MINJUS (Working Group with the World Bank)
xii. Guidelines for Provincial Operationalization
xiii. “Continuous” Training Needs for interventions in the RMNCAH Investment Case

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