

The Government of Rwanda



The Ministry of Health

The National Health Research Agenda 2014-2018

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THE NATIONAL HEALTH RESEARCH AGENDA

The Ministry of Health

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	AnteNatal Care
ART	AntiRetroviral Treatment
BCC	Behaviour Change Communication
CAMERWA	Central d'Achat des Medicaments Essentiels de Rwanda
CDC	Centers for Disease Control (Atlanta USA)
CHUB	Teaching Hospital University Butare
CHUK	Teaching Hospital University Kigali
CHW	Community Health Workers
CPA	Comprehensive Package of Activities
CPR	Contraceptive Prevalence Rate
CSO	Civil Society Organization
DFID	Department for International Development (UK)
DH	District Hospital
DOTS	Directly Observed Treatment Short course (for TB)
DP	Development Partner
EDPRS	Economic Development and Poverty Reduction Strategy
EmONC	Emergency Obstetric and neo-natal care
EPI	Expanded Program on Immunization
FBO	Faith-Based Organization
FP	Family Planning
GDP	Gross Domestic Product
GF (ATM)	Global Fund for AIDS, TB and Malaria
GoR	Government of Rwanda
HC	Health Centre
HCC	Health Communication Centre
HMIS	Health Management Information System
HP	Health Post
HRH	Human Resources for Health
HSSP	Health Sector Strategic Plan
ICT	Information and Communication Technology
IDHS	Interim Demographic and Health Survey
IEC	Information, Education and Communication
IMCI	Integrated Management of Child Illness
ITN	Insecticide-Treated Net
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MDR-TB	Multi-Drug Resistant Tuberculosis
MoE	Ministry of Education
MoF	Ministry of Finance and Economic Planning (MINECOFIN)
MoH	Ministry of Health
MTEF	Medium Term Expenditure Framework
NCD	Non-Communicable Diseases
NGO	Non-Governmental Organization
NHA	National Health Accounts
NHRA	National Health Research Agenda
NISR	National Institute for Statistics Rwanda
NRL	National Reference Laboratory
NTD	Neglected Tropical Diseases
OC	Oral Contraceptives
OOP	Out-Of-Pocket
PBF	Performance-Based Financing
PHC	Primary Health Care

PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother To Child Transmission (of HIV)
RBC	Rwanda Biomedical Center
MRC	Medical Research Center
SPH	School of Public Health
STI	Sexually Transmitted Infection
TC	Technical Committee
TWG	Technical Working Group
VCT	Voluntary Counseling and Testing

FOREWORD

Previously, research in the health sector has been conducted with no written agenda. This has often led to less focus on the locally relevant priorities. The Ministry of Health has developed the first NHRA to provide an orientation framework for researchers, implementers, academicians, and development partners with a common focus and vision.

Rwanda is committed to attaining various national and international development goals, particularly the MDGs (specifically MDGs 4, 5 and 6 that directly relate to human health). Sanitation, Malaria, and HIV and AIDS management are among the research priority areas embraced and identified in this research agenda. The burden of NCDs has been evident and the pattern of these diseases is expected to increase as the country's economy grows. Maternal and child health, which is a critical focus in the HSSP III 2012-2018, has been focused on as well. The health sector system's support such as: health financing, decentralization, and human resources for health have had a major contribution to the health sector performance. These successes have been largely evidence-based driven coupled with leadership commitment.

To achieve the HSSP III objectives and the health components of the EDPRS II, it is important that health care needs and the delivery of health services be prioritized in a systematic and rational way so that resources are fully utilized to attain maximum positive impact. Priorities and other program/policy decisions cannot be effectively made unless they are informed by relevant information generated by high quality research.

It is against this background that the Ministry of Health developed the National Health Research Agenda, which identified research priorities in health, and will be implemented in the same time frame as the Health Sector Strategic Plan 2012-2018. The Ministry of Health being the implementing agency of this document, is calling upon all partners, relevant ministries, higher learning institutions, students, development partners, etc. to embrace this research agenda and ensure that researches conducted in Rwanda address priority areas identified.

We acknowledge the technical support from the University of Rwanda/College of Medicine and Health Sciences/School of Public Health. And the financial support from Rockefeller Foundation.

We also greatly acknowledge the RBC leadership that was actively involved at different levels to provide the needed inputs to enrich this document. We thank all partners including the district health authorities, District Hospitals and University Teaching Hospitals, King Faysal Hospital, Higher learning institutions (KHI, SPH, FoM), Civil Society Organizations (CSOs), Development Partners (WHO, MSH, PSI etc...), Government organizations (MINEDUC, MINALOC, MINAGRI, MINIRENA, MIGEPROFE, MININFRA, MINECOFIN, NISR, REMA, RBS and IRST) who provided different inputs to enrich and improve the NHRA.


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Minister of Health



1. INTRODUCTION

Over the last couple of years, the Ministry of Health in collaboration with its stakeholders has been conducting research in the health sector. Some of the research outcomes have had an influence on the policy formulation and implementation. During the last five years, the need to conduct health research has grown more than ever in order to generate more evidence to inform policy processes and health care service delivery.

The health sector research policy (2012) noted that most research conducted in Rwanda had no written agenda, driven by scientists' interest and thus having less focus to the most urgent policy questions locally relevant. The Rwandan Ministry of Health (MoH) is championing the development of the National Health Research Agenda (NHRA) to provide a framework of orientation for all researchers, implementers, academicians, and development partners for a coordinated response to the need for evidence to inform policy making and program implementation.

To respond to the growing demand for health research in Rwanda, the Ministry of health in collaboration with the University Of Rwanda School Of Public Health through the Center of Excellence for Health Systems Strengthening initiated the development of the National Health Research Agenda that will be implemented for the period 2014 through 2018. As a first step, the gap analysis was conducted with the aim of identifying research priority areas based on the national health policies, strategies, and mission, as well as non-health sectors whose actions have impact on health.

The NHRA development process was based on the health priorities and research areas identified from the national set of agreed health priorities in which research efforts will be concentrated over the next five years (2014-2018). This research agenda is largely aligned to the HSSP III 2012-2018 in which most themes and research priorities have been identified under specific strategic areas; the agenda also considers non-health research areas that have an impact on the health status of the population. Specifically, 9 themes have been identified based on the national health priorities, under each theme, health priorities and main research areas were identified. The Ministry of Health expects that the success of this document will be based on broad participation of all stakeholders: research community, implementers, and development partners to support the implementation of this NHRA.

This document has been arranged into 10 chapters. These are: the introduction, background; Goal Objectives, and Guiding Principles; Methodology; priority areas for the research agenda (themes, research priority areas, framework: policy, implementation, monitoring and evaluation (M&E), and beneficiaries); Implementation of the Research Agenda; Monitoring Evaluation of the Research Agenda; dissemination of research findings; and financing.

2. BACKGROUND

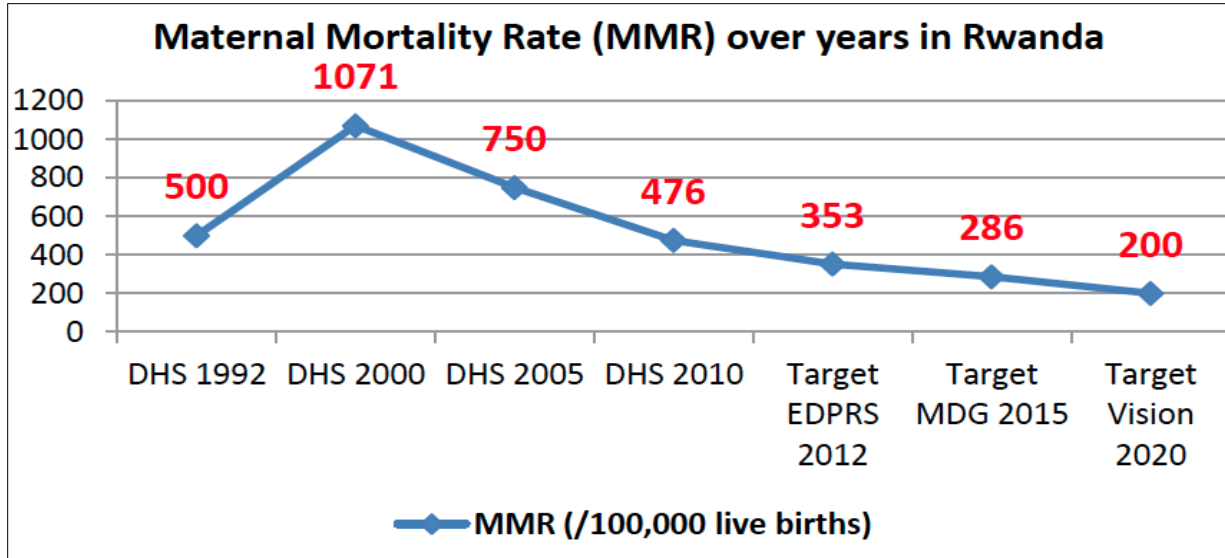
Over the past decade, Rwanda has recorded impressive socioeconomic growth: the Ministry of Finance and Economic Planning (MINECOFIN) estimated that the percentage of people living under poverty line dropped by 14%, from 59% in 2001 to 45% in 2010 (World Bank, 2013). The MINECOFIN stated that the Gross Domestic Product (GDP) per capita has increased by 42% over the last 5 years, growing from \$ 317 in 2005 to \$550 towards the end of 2010 (MINECOFIN, 2012). It was also estimated that in 2010, 80% of the population was relying on the agriculture for food consumption and household income—which contributed to 31% of the country’s economy while services and industry contributed to 48% and 16% respectively. By 2015, the GDP capita is expected to grow to over \$600 by 2015 (MINECOFIN, 2012). This improvement in economic development indicators is also due to the development of the health sector by providing preventive and on time curative care, and social protection that allows the population to be productive and to save money that would otherwise be devoted for health care.

The GoR recognizes the contribution of health and health research in the socio-economic transformation processes. The Vision 2020 and the Economic Development and Poverty Reduction Strategy (2012-2018) are the two main documents guiding the national development agenda; they acknowledge that “a healthy population is vital if the country is to achieve sustainable economic growth”. The EDPRS II states that, in the last decade (2002-2012), the Rwandan economy has grown at an average of 8.3% and asserts that health is a foundation for macroeconomic stability. More research are needed to indicate further the pathways through which health and economic development are interlinked. It is against this background that the national health research agenda has been developed to further cement the place of health in the economic development.

As said before, health priorities were grouped into themes and were drawn mainly from the HSSP III 2012-2018; the themes include: disease prevention and control (communicable diseases and non-communicable diseases), maternal and child health, health promotion, intersectoral collaboration, community health systems strengthening, integrated disease surveillance, health systems support (i.e. human resources for health, health financing, governance or stewardship, health care service delivery, and health management and information system). Each of these major themes is tailored to the framework of *policy, implementation, monitoring and evaluation, and beneficiaries*.

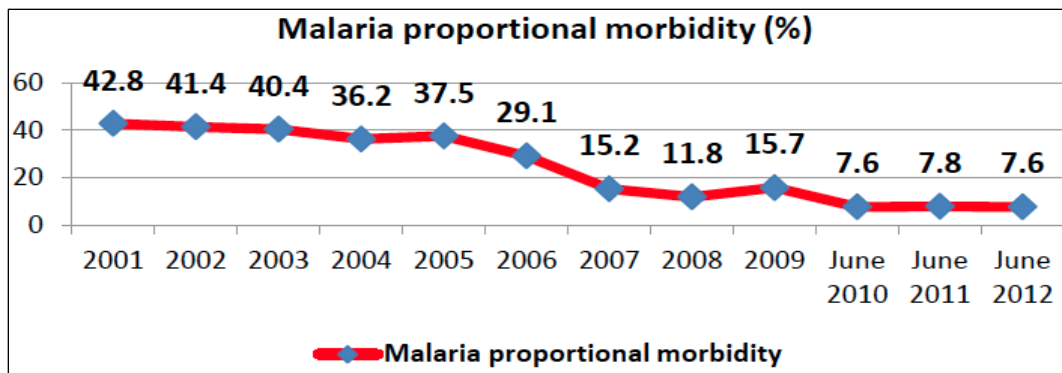
Rwanda’s health indicators have been steadily improving over the last 10 years and the country is on track to achieve health-related MDGs. According to the Demographic Health and Survey of 2010 (DHS, 2010), the maternal mortality rate stood at 476/100,000 live births in 2005 compared to the previous 5 years or 2010, a 37% reduction.

If the current trends are maintained, the MGD of 268/100,000 is going to be attained by 2015 (MoH Annual report 2012). Despite the improvement in these indicators, the country still faces major health challenges due to a persisting high burden of preventable and curable diseases, in addition to the challenges of the health system to respond (for example the two leading causes of the maternal deaths have been identified as severe hemorrhage): according to the data reported from health facilities through the health management and information system (HMIS) in 2012, the respiratory tract infections (RTI) was responsible for 59% of child deaths (HMIS, 2012), making it the leading cause, followed by malaria.



Source: MoH Annual Report 2012

In addition to the burden of RTI and malaria, the 2010 DHS also demonstrates that the prevalence of chronic malnutrition is still considered high. Among the under five population, stunting was reported at 44% (height/age) and underweight at 11% (weight/age), while the prevalence of acute malnutrition was 3%. Diarrhea infections have been ranked among the top 10 causes of deaths for children under five years of age, after neonatal infections and pneumonia (DHS, 2010). The DHS 2010 indicates that 25% of the children aged 6-11 months and 22% of children aged 12-23 months suffered from diarrhea, despite the introduction of preventive measures such as the rotavirus vaccine. Although these indicators are still bad, there are some positive trends: over past years, malaria incidence declined in the whole country (from 2005 to 2010) by about 70%. The same source indicates that there has been decline of malaria outpatient cases by 60% between 2005 and 2010; 54% in inpatient malaria deaths between 2005 and 2010; and 66% decline in malaria test positivity rate (TPR) between 2001 and 2010 (MoH Report, 2012). The incidence has been unstable and the eradication of malaria has not yet been reached. There is a need to continuously do research to compare interventions, treatment, and trans-boarder transmission of malaria.



Source: MoH Annual report

The WHO reports that NCDs are the leading cause of mortality in the world, representing more than 60% of all deaths (36/57 millions deaths). Every year, at least 5 million people die because of tobacco use and about 2.8 million die from being overweight (WHO, 2010). High cholesterol accounts for roughly 2.6 million deaths and 7.5 million die because of high blood pressure. The WHO further reports that, an estimated 80% of the four main types of NCDs – cardiovascular diseases (CVDs), cancers, chronic respiratory diseases and diabetes - now are occurring in low- and middle-income countries, while two-thirds of the affected people by diabetes are residing in developing nations. In Rwanda, CVDs are most common form of NCD.

As the Rwandan economy grows, the burden of NCDs will grow even more, already the MoH reports a major shift in the disease patterns. NCDs and their risk factors are a significant public health problem and call for more research to generate evidence for the policy makers in order to respond efficiently to the scourge. Although the MCH indicators have been improving at impressive rates, some indicators are still relatively bad. With the current average fertility rate at 4.6 (having reduced from 6.1 in 2005 to 4.6 in 2010), the number of children per woman of reproductive age still needs to be reduced. There is also need to sustain proven interventions and keep high both the political commitment and level of funding to scale piloted and successful interventions. Such interventions include: the CBHI that contributed to the attainment of the universal health coverage, the Performance-based financing in health that has visibly contributed to improved provider motivation leading to the increase quality and quantity of services delivered at the health facilities and community.

Rwanda has often seen many research studies conducted in the health sector. However, the majority of these studies are externally funded and there is often no clear alignment with national health priorities. To ensure that research conducted in Rwanda addresses its health priorities, this NHRA has been intentionally developed to provide guidance of investment in health research intended to improve the health status of Rwandan population and contribute to the overall goal of the EDPRS II and Vision 2020.

It is important to note that the NHRA has been developed to inspire researchers to focus more attention on priority topics, but at the same time the intent is not to stifle innovative research that may lie outside of the specific topics listed. Rwanda’s research needs will evolve over time and the NHRA priorities need to be updated to reflect these changes. The existing research technical committees provide a good mechanism to assess the relevance of research proposals that fall outside of the priority areas listed.

3. GOAL, OBJECTIVES, AND GUIDING PRINCIPLES

The goal, objectives, and guiding principles for the NHRA have been drawn from the Health Sector Research Policy (2012) and readjusted to suit the overarching purpose of the NHRA for the whole health sector.

3.1 Goal of the NHRA

The Goal of the Rwanda National Health Research Agenda is to guide researchers, policy makers, health program implementers, academic institutions, health development partners and other stakeholders involved in health research in Rwanda, contributing toward the vision and targets set in the EDPRS II and Vision 2020.

3.2 The objectives of the NHRA

Box 1: Objectives of the NHRA

1. To identify priority areas for health research that should be given high priority in Rwanda. Prioritize each program area according to the Ministry of Health policies and strategies, and missions
2. To Identify critical gaps and define health research strategies with the aim of facilitating the resource mobilization,
3. To promote multi-disciplinarily and collaboration in conducting comprehensive research aimed at informing the development of health research policies and guidelines,
4. To strengthen the capacity and culture for conducting research in Rwanda,
5. To bridge gaps and facilitate translation of research findings into policy and practice.

3.3 The Guiding Principle

3.3.1 Commitment and ownership

Rwanda will maintain country ownership and leadership of the direction of the research activities. Research done in Rwanda should have a significant impact on the country, to improve evidence-based policy-making and strategies formulations. In its quest to provide evidence on critical national health policy questions, the NHRA will require adequate resources; to ensure country ownership, the GoR will endeavor to dedicate substantial resources and donors may provide additional needed support.

3.3.2 Capacity-building and demand driven research

The NHRA will involve building local capacity for conducting research in Rwanda; to achieve this, a competent human resource will be needed to train and supervise Rwandans in research and an appropriate and research infrastructure will be needed. The NHRA presents an opportunity that researchers need to capitalize on to promoting their field of interest and provide needed information.

3.3.3 Ethics, human rights, vulnerable subjects, and gender

Ethics and human rights are critical while conducting research and need to be considered in research undertaking. Health research involving vulnerable¹ populations may only be carried out when the research is directly relevant to the health needs of that population, and when it cannot reasonably be carried out on a less vulnerable group. Risk of harm must be minimal for participants and informed consent must be carefully obtained, ensuring that consent is not given out of desperation or lack of other options. The dignity and rights of all research participants including vulnerable populations shall be promoted and protected as enshrined in the HSRP 2012. This policy encourages fair participation of both sexes as well as vulnerable populations in research taking into account their special needs, in order to decrease the disparity among population groups.

3.3.4 Multi-disciplinary and complementary research work

Health research will benefit from a variety of research fields such as biomedicine, public health, anthropology, sociology, economics, chemistry, political science, etc. While not all health research undertaken in Rwanda will be interdisciplinary, the Ministry of Health will encourage multi-disciplinary and interdisciplinary collaboration that supports the health research agenda objectives. Networking, public and private partnerships will be promoted to capture multiple realities necessary in health research. This will result in optimal usage of resources, and translation of research findings into improving policy formulation and strategic program implementation.

3.3.5 Quality and coordination of health research

Coordination of efforts in health research is of paramount importance to avoid duplication of research and wastage of the already limited resources. Coordination will allow the efficient use of resources, synergy and concerted efforts to improve health in Rwanda. Continuous training and the use of best practices will improve the quality of research in conformity with international standards.

3.3.6 Availability and use of data

The Ministry of Health is committed to promoting the use of existing data. This will help to reduce waste of resources by collecting unnecessary data. It is of utmost importance that data generated through research in Rwanda be accessible and used to improve health in Rwanda while remaining in accordance with national intellectual property standards.

¹Rwanda define 5 categories of vulnerability follows: 1) *cognitive/communicative* vulnerability: includes people with learning disabilities or language

3.3.7 Financing

Worldwide, 90% of research funds are spent studying diseases that make up only 10% of the disease burden (WHO, 2012). Rwanda will aim at ensuring that funds used for research better reflect the needs of the health sector according to the burden of diseases.

4. METHODS TO IDENTIFY PRIORITY AREAS

This chapter describes in detail the methods used to develop the NHRA.

4.1 Formation of NHRA follow-up Committee

The initial process involved meetings of staff from the MoH, the MRC/RBC, and the School of Public Health (SPH) to discuss the steps needed to develop the NHRA. The meetings generated recommendations, which served as initial basis for the development of the NHRA. One of the main recommendation was to create two committees: (1) the National Steering Committee (NST): this committee was appointed and approved by the MoH, whose Terms of Reference (ToR) was to oversee the NHRA development process, (2) Technical Committee (TC): was appointed and approved by the Senior Management Meeting of the School of Public Health (SMM SPH). The TC was given the role of developing the NHRA. Within the TC, a chair and vice chair were chosen to lead the NHRA development process.

The chair of the TC presented the inception report to the NSC with the proposed methodology for the development of the NHRA. The NSC approved the inception report with and requested the chair to move forward with the next steps according to the proposed methodology and time-line. The next paragraphs provide details of the processes involved in developing the NHRA. To provide a solid document, the NHRA development process ensured wide stakeholder participation, transparency, value, national ownership and thorough analysis of inputs from desk review and different stakeholders.

4.2 Identification of Themes and Health Priority Areas

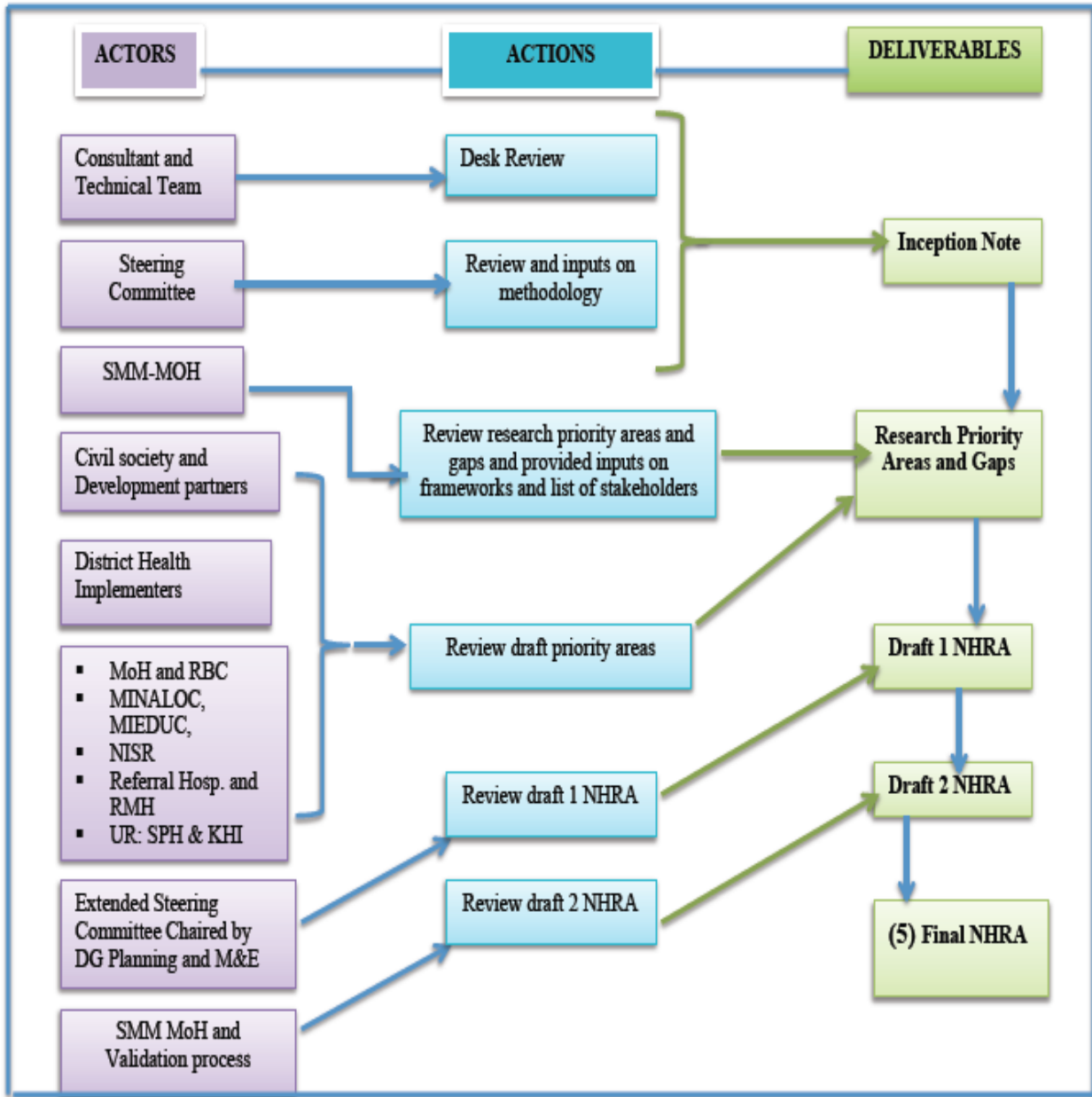
After the presentation and acceptance of the inception report, the process to identify themes and health priorities started, largely through the desk reviews. Documents from non-health sectors that have potential effect on health outcomes were also reviewed. The desk review also included literature on trends and burden for the major diseases (communicable and non-communicable) and health program performances data to further support the framing of the priorities. Consequently, nine themes were selected based on the health priorities outlined in the HSSP III (2012-2018) and EDPRS II and other national policies and strategies from relevant ministries (Ministries of gender, agriculture, finance, education and local government). The nine themes are: disease prevention and control (communicable and non-communicable diseases), maternal and child health, health promotion, integrated diseases surveillance response, health system support, clinical research and intersectoral collaboration. From each theme, research priority areas were identified.

A draft report was then developed and presented to the Senior Management Meeting of Ministry of Health (SMM MoH) for guidance. The SMM MoH provided useful comments; the most important was to create a framework for the research agenda where themes were tailored to *policy, implementation, monitoring* and *evaluation* (M&E), and *beneficiaries/risk groups*. The first draft was then rewritten based on this SMM MoH framework. The beneficiaries were particularly emphasized to ensure that we capture the needs and expectations of the populations.

The revised draft with themes and research priorities organized under the new framework were presented again in the SMM to ensure that there was consensus on the framework before moving forward. The new draft was approved and the SMM MoH recommended to the research team to consult other stakeholders as the next consultation step. Other stakeholders include: district health program implementers, partners, and representatives of the civil society, other ministries and institutions whose actions directly impact health. Three different stakeholder meetings were organized. The first meeting brought together district health implementers, while the second meeting brought together stakeholders (representatives of the civil society organizations and development partners working in areas of research). As a final consultative process, the consulting team convened a consultative meeting with the MoH and RBC divisions to provide inputs to the draft document resulting from all stakeholders' inputs.

Below is the *conceptual framework* demonstrating steps taken to develop the current document. Four key deliverables anticipated are shown as: 1, 2, 3, and 4. These deliverables were produced with the contribution of the main actors as shown.

Figure 1: Milestones during development process of the NHRA



The box below summarizes the processes in the above *conceptual framework*. It provides brief outline of what transpired throughout the whole process of developing the NHRA, with major milestones attained along the process.

Box 2: Consultative Process for NHRA Development

- 1) Meetings with SPH, MoH, and MRC/RBC members suggest that NSC and TC be established.
- 2) MoH appoints and approves the NSC in the SMM. SPH appoints a TC through its SMM.
- 3) Consulting team is recruited to oversee the development of the NHRA.
- 4) Consulting team presents inception report to the NSC and is approved for the next steps.
- 5) Consulting team conducts desk review to identify priority areas for research.
- 6) Draft report of priority areas presented to the SMM/MoH to get further guidance. SMM provides inputs and suggests improvements.
- 7) Improved draft presented to SMM/MoH again. SMM expresses satisfaction and advises to consult more stakeholders: district implementers, partners, and MoH and RBC unit program managers to enhance consultative process.
- 8) Report on priority areas for research is drafted and completed.
- 9) RBC divisions are given more time to provide inputs.
- 10) NHRA draft to be presented to the NSC and subsequently to the SMM/MoH

4.3 Criteria for Setting Research Priority Areas

The criteria described below were a basis for identifying research priority areas from the desk review and discussion with stakeholders in the three different consultative meetings (district health implementers, stakeholders, and MoH and RBC representatives).

Box 3: Criteria for setting research priority areas

- 1) Current and future trends in the burden of diseases;
- 2) Ability to do research based on available human, financial and infrastructure capacity;
- 3) Design of interventions, their direct and indirect effects, short and long term effects;
- 4) Insurance of equity and social justice for vulnerable groups;
- 5) Contribution to strengthening local capacity for research.

5. HEALTH AND RESEARCH PRIORITY AREAS

As said before, there are 9 thematic areas identified using mainly the HSSP III (2012-2018), other MoH key program documents, and other relevant ministries' documents. Within each thematic area, health and research priority areas were identified and structured according to the *policy, implementation, monitoring and evaluation and beneficiaries* framework.

5.1 Theme I: Disease Prevention and Control: Communicable Diseases

The Rwandan health sector strategic plan 2012-2018 highlights three main communicable diseases as: HIV and AIDS, Malaria, and Tuberculosis. The health sector will endeavor to focus attention and resources in the prevention and management of these diseases over the next 5 years. Research priority areas were set based on these diseases and planned for the next five years as well. Neglected Tropical Diseases (NTDs) were also added to this theme as a potential priority over the coming years. Below are presented research priority areas:

5.1.1 Research priority areas for HIV and AIDS national programs

5.1.1.1 Policy

- Conduct a study on the quality of care provided to pre-ART children and adults;
- Conduct clinical research on EMTCT;
- Contribution to DHS - HIV Component;
- Conduct Rwanda AIDS Indicators & HIV Incidence Survey (RAIHIS);
- Impact of plasmatic level and other factors on the emergence of toxicity and drug failure among adults under ARTs in Rwanda;
- Early Diagnosis of In Utero and Intrapartum HIV Infection in Infants prior to 6 Weeks;
- Studies on determinants or drivers of new HIV infections e.g. social media;
- Evaluations of multisectoral approach in mainstreaming gender in HIV programs;
- The cost of HIV and AIDS illness to the country's economy;
- Studies on blood borne infections often associated with HIV—Trends and burden;
- Evaluations of novel preventative approaches e.g vaccines, microbicides

5.1.1.2 Implementation

- Conduct ANC Serosurveillance survey among pregnant women;
- Conduct Sero Discordant Couple study;
- Conduct Serosurveillance Early Warning Indicators (EWI);
- Conduct study on HIV clinical mentorship;
- Evaluation of HIV testing in newborns and infants;
- Exploring the efficacy and effectiveness of HIV tests in newborns and infants;
- Further integration of HIV services within existing CHW program;
- Feasibility of further integration of HIV testing in routine services and screening programs (cancer, immunization, etc.);
- Assessment of accuracy of early HIV infant diagnosis, CD4 and initiation of treatment, viral loads testing, efficiency and accuracy of blood testing protocol;
- Exploring the accuracy of the management opportunistic infections (OI): diagnosis, adherence, treatment, drug resistance and death related;
- Evaluation of novel strategies to improve adherence to medications

5.1.1.3 Monitoring and Evaluation

- Conduct Serosurveillance survey Drug Resistance Monitoring;
- Conduct Sero-surveillance survey Threshold Survey;
- Conduct STIs study in out patients;
- Conduct Hepatitis study as a routine check up for HIV patients;
- Conduct STIs surveillance in key population;
- Studies on treatment, monitoring and prevention targeting key high risk populations (CSWs, MSM, Sero-discordant couples);
- Effectiveness and/or impact of provider initiated testing (PIT) and counseling to early HIV diagnosis and treatment;
- Assessment of second generation HIV treatment in risk population;
- Evaluation of the effectiveness of psycho social services in infected population;

5.1.1.4 *Beneficiaries/Risk Groups*

- Conduct BSS Female sex workers and their clients;
- Conduct BSS for Men who have sex with men (MSM);
- Conduct BSS for Truck driver;
- Exploring the equity of PLWHIV in accessing equal opportunities;
- Evaluation of cultural factors favoring the spread of HIV;
- Assessment of condom accessibility and availability in the population;
- Comparative studies of the impact of cooperatives in the lives of PLWHIV versus those who have not joined cooperatives (on adherence treatment and psychosocial impact);
- Assessment of the HIV burden in MSM and the impact on the rest of the population;
- Evaluation of the role of high-risk groups (CSW, MSM, long distance drivers) in the transmission, prevention and treatment of HIV;
- Assessment of pediatric and adolescent HIV management and follow-up;

5.1.2 **Research priority areas for malaria control programs**

5.1.2.1 *Policy*

- Mapping of Malaria vectors and parasites in Rwanda;
- Epidemiology of malaria in Rwanda;
- Feasibility studies of malaria new interventions;
- Malaria prevalence surveys and incidence and seasonal specific malaria control interventions;
- Risk factors of malaria in Rwanda;
- Health facility malaria risk mapping surveys;
- Assessing the burden, trends and distribution of malaria vectors and parasites;
- Comparative studies on “having” and “not having” mutuelle de santé on malaria associated morbidity and mortality;
- Evaluation of the role of traditional healers in delaying malaria care seeking behavior;
- Assessment of trans-border transmission of malaria;

5.1.2.2 *Implementation*

- Drug and insecticide efficacy studies;
- Mosquito nets durability, usage and acceptability studies;
- KAP and TRAC Survey;
- Surveillance and etiology of non-malaria febrile illness in low-resource areas: prospective cohort study;
- Periodic assessment of health care services provided by CHWs to treat malaria;
- Analysis of malaria death audits and the impact on quality of malaria control program;
- Assessment of the efficacy of malaria diagnostic tools;
- Studies on new anti-malaria interventions (drugs, vaccine, vector control...);

5.1.2.3 *Monitoring and Evaluation*

- Evaluation/ assessment Malaria community case management;
- Malaria death audits;
- Impact of malaria control interventions
- Residual efficacy of insecticides used for Indoor Residual Spraying Malaria commodities quality testing;

5.1.2.4 *Beneficiaries*

- Malaria in pregnancy;
- Analysis of the determinants of the delays in seeking care for malaria treatment;
- Assessment of knowledge, attitude and behavior of the population towards malaria prevention and treatment;
- Evaluation of malaria treatment in pregnancy and determinants of poor uptake of malaria drugs by pregnant women;
- Malaria treatment outcomes in at risk population;

5.1.3 **Research priority areas for tuberculosis**

5.1.3.1 *Policy*

- What are the long term outcomes (clinical, biomedical, chest X-ray impairments, hearing function and socio-economical recovery) of MDR-TB patients treated in Rwanda MDR-TB program?
- What is the prevalence of TB drug resistance in Rwanda?
- Evaluation of impact of new tuberculosis diagnostics on patient health outcomes: an east Africa multi-country proposal;
- Assessment and mapping of the determinants of MDR in Rwanda;
- Evaluation of the spread of bovine TB to humans and vice versa;

5.1.3.2 *Implementation*

- What are the factors associated with low sputum smears positivity for AFBs (with focus on patients screening process and quality of sputum samples)?
- Evaluation of resource gaps for an effective TB control program.
- Assessment of the effectiveness community directly observed treatment (DOT);
- Costs and cost-effectiveness analysis of TB preventive and control programs;
- Exploring the best ways of optimizing TB diagnosis among sputum negative population;
- Assessing level of implementation of Isoniazid Prophylactic Treatment (IPT) and its added value to TB control program;
- Assessment of challenges in Pediatric TB management;

5.1.3.3 *Monitoring and Evaluation*

- What are the deaths rates and risk factors associated with deaths during TB treatment?
- What is the effectiveness of a short-term course of MDR-TB treatment regimen (9 months), as compared to long-term treatment course (20 months)?
- What will be the impact of an intervention consisting at decentralizing TST at nurses' level in HCs, on TB detection among children?
- Impact of program's interventions to increase case detection on the transmission of Mycobacterium tuberculosis measured by molecular tools;
- Evaluate TB efficacy and sensitivity (clinical, radiological and laboratory) diagnosis;
- Studies on the management and outcome of TB-HIV co-infection;

5.1.3.4 *Beneficiaries*

- Evaluation of the management of TB in high risk group;
- Evaluation of feasibility and capacity of one stop centers for TB care;
- Studies associated with barriers to identifying TB suspects at community level;
- Prevalence and quality of care of TB infection among vulnerable groups e.g. Prisons, Immune depression, slum areas, etc.

5.1.4 **Research priority areas in NTD's**

NTDs represent a considerable burden for the health system in Rwanda; the MoH has designed various strategies to address the problem. The common causes of NTD's are: the soil transmitted helminthes (STH), schistosomiasis, trachoma, lymphatic filariasis, and onchocerciasis (Mupfasoni, et al. 2009). Different research priorities for NTD's are organized as follow:

5.1.4.1 *Policy*

- Assessment of the burden, the determinants and distribution of NTDs;
- Analysis of the economic cost of NTDs (children schools absenteeism, lost of productivity for adults, anemia for pregnant women, low birth weights, etc.);
- Assessment of the long-term impacts of not treating NTDs in the country.

5.1.4.2 *Implementation*

- Analysis of costs and effectiveness of integrated NTDs management in community-based interventions;
- Evaluation of efficacy and sensitivity of diagnostic tests for NTD's at health center level;
- Estimating resources needed to treat NTDs using novel approaches;

5.1.4.3 *Monitoring and Evaluation*

- Periodic assessment of the prevalence of NTD's in Rwanda;
- Assessment of the effectiveness of preventive strategies for the common NTD's;
- Costs and cost-Effectiveness of NTD preventive programs for in and out-of school children and pregnant women;
- Impact evaluation of mass-drug administration as a prevent strategy;
- Cost and cost-effectiveness of common treatment outcomes;

5.1.4.4 *Beneficiaries*

- Assessment of community coverage levels for the NTDs preventive program;
- Exploring the social benefits for preventing NTDs in Schools;

5.2 Theme II: Disease Prevention and Control (DPC): NCD's

As the economy grows, the diseases pattern is expected to change as well. Currently, various non-communicable diseases have been on the rise and are expected to continue be increasing over the next couple of years in the country. Common NCD's include diabetes, cardio-vascular diseases (CVD), high blood pressure, cancers and mental health. This calls for more relevant research to inform polices on how to best handle the progress of NCDs.

5.2.1 Research priority areas in mental health

5.2.1.1 *Policy*

- Prevalence of depression in Rwanda;
- Exploring factors associated with relapse and chronicity of mental disorders;
- Comorbidity of drug related disorders and other mental disorders;
- Costs, cost-effectiveness of mental health programs; the economic gains in promoting mental health services;
- Evaluating the effects of alcohol and drug abuse on mental health;

5.2.1.2 *Implementation*

- Assessment of perceptions and attitudes toward epileptic patients in Rwanda;
- Evaluation of the determinants of successful mental health programs;
- Assessment of the determinants of late treatment of mental health diseases;
- Assessment of the impact of trans-generational genocide trauma;
- Evaluation of the impact of drug and harmful use of alcohol on mental health;
- Exploring comorbidities of mental health diseases;
- Evaluation of the effectiveness of the rehabilitation centers for chronic mental patients;

5.2.1.3 *Monitoring and Evaluation*

- Evaluation of integration and decentralization of mental health care in primary health Care in Rwanda;
- Studies on the effects of mental health diseases and stigma in the community;
- Impact assessment of community-based health interventions on mental health;
- Evaluation of the efficacy of mental health diagnostic procedures in Rwanda;
- Analysis of costs and cost-effectiveness of different diagnostic procedures in Rwanda;
- Analysis costs and cost-effectiveness of preventive programs in Rwanda;

5.2.1.4 *Beneficiaries*

- Treatment adherence for mental health patients—and determinants for adherence;
- Cultural influences to seeking early mental health treatment;

5.2.2 **Research priorities areas in cardiovascular diseases (CVS)**

According to the available mortality data, cardiovascular diseases (hypertension, heart failure, and stroke) emerge as the most important causes of death among NCDs in Rwanda. The following are research priority areas linked to the CVDs in Rwanda.

5.2.2.1 *Policy*

- The impact of NCDs screening programs in the communities and health facilities;
- Burden of CVD in Rwanda: exploring the burden, trends, distribution and determinants of CVD among Rwandans;
- Evaluations of casual links between CVD and nutrition;
- Casual links between CVD and nutrition;
- Cost-effectiveness studies for the CVD preventive interventions;

5.2.2.2 *Implementation*

- KAP Practice on CVD risk factors;
- Assessment of CVDs and their comorbidities in Rwanda;
- Assessment of quality and management of CVD in Rwanda including clinical and rehabilitative services;
- Studies on the quality of clinical management of CVD cases in health facilities;

5.2.2.3 *Monitoring and Evaluation*

- Evaluation of the quality of CVD management in Rwanda;
- Evaluation of access to and utilization rate of CVD preventive services;
- Evaluation of the effectiveness of referral system for CVD conditions;
- Analysis of costs and cost-effectiveness of CVD preventive programs in Rwanda;
- Analysis of costs and cost-effectiveness of common CVD managements plans;
- Studies on the effectiveness of referral system for the CVD patients;

5.2.2.4 *Beneficiaries*

- Exploring cultural barriers and favoring factors to preventing CVD;
- Assessment of the quality of treatment for CVD from beneficiaries' perspective;
- Evaluation of the awareness of CVD risk factors among general population;
- Assessment of knowledge and awareness gaps for CVD preventive strategies in the general population;

5.2.3 **Research priorities areas in common cancers in Rwanda**

5.2.3.1 *Policy*

- Burden of Cancers in Rwanda: e.g. what are trends, distribution, attributable causes, and determinants of cancers in Rwanda?
- Studies on determinants and distribution of common cancers in Rwanda;
- Studies on socio-economic determinants of late seeking care amongst cancer patients;
- Evaluation of current cancer surveillance systems in Rwanda;
- Analysis of costs and cost-effectiveness of cancer related preventive and curative programs in Rwanda.

5.2.3.2 *Implementation*

- Exploring country's capacity in responding to the burden of cancers at different levels of health system;

5.2.3.3 *Monitoring and Evaluation*

- Evaluation of factors determining the access to cancer treatment;
- Effectiveness of cancer preventive programs;
- Exploring issues related to access to screening, diagnosis and management of patients with cancer in Rwanda including quality of counseling;
- Sensitivity and efficacy of cancer diagnostic and treatment protocols;

5.2.3.4 *Beneficiaries*

- Assessment of patients knowledge and skills in dealing with cancer in health facilities and under home-based care;
- Evaluation of the perception of quality of care in cancer management from patients' perspective including hospital and palliative care;
- Exploring cultural barriers in management of common cancers.

5.2.4 Research priorities areas in diabetes

5.2.4.1 Policy

- Prevalence of diabetes in Rwanda;
- Diabetes risk factors in Rwanda;
- Periodic studies on prevalence of diabetes in Rwanda;

5.2.4.2 Implementation

- Evaluation of Determinants of access to and utilization of diabetic treatment services;
- KAP of risk factors, diabetes prevention in Rwanda;
- Knowledge and attitude of the population about diabetes risk factors and prevention;
- Access and utilization of preventive, diabetic diagnostic and treatment services;
- Evaluation of the quality of long-term management of diabetes in Rwanda;

5.2.4.3 Monitoring and Evaluation

- Effectiveness of monitoring and management of diabetes in Rwandan;
- Analysis of cost and cost-effectiveness of common diabetic management protocols;
- Availability and impact of screening programs in health facilities and in communities;

5.2.4.4 Beneficiaries

- Evaluation of the quality of the organizational and preventive structures, clinical cases management, rehabilitative services, and psychosocial support from beneficiary perspective;
- Exploring the links between Rwandan culture on nutrition and diabetes;

5.2.5 Research priorities areas in chronic and recurrent lung disease

5.2.5.1 Policy

- The burden of chronic and recurrent lung diseases in general population;
- Comparison of the treatment outcomes for different treatment protocols of COPD;
- Explore the burden, trends, distribution, and determinants of chronic and recurrent lung diseases in general population;
- Studies on novel and cost-effective strategies for the management of common chronic and recurrent lung disorders.

5.2.5.2 Implementation

- Assessing the capacity of providers (doctors, nurses, CHWs) in management of chronic and recurrent lung disorders;
- Efficacy and sensitivity of diagnostic tests and treatment protocols for common lung diseases.

5.2.5.3 *Monitoring and Evaluation*

- Evaluation of current strategies for prevention of COPD;
- Analysis of costs and cost-effectiveness of proven preventive strategies for common lung diseases;
- Evaluation of strategies for prevention of chronic and recurrent lung disorders e.g. asthma in Rwanda;
- Studies on treatment outcomes for common lung diseases.

5.2.5.4 *Beneficiaries*

- Perception of quality of services of patients suffering from recurrent lung diseases;
- Assessment of the quality of life of patients with chronic and recurrent lung diseases.

5.2.6 **Research priorities areas in trauma**

5.2.6.1 *Policy*

- Prevalence of different types of injuries in Rwanda;
- Determinants of the RTA: e.g. what are the determinants of RTA in Rwanda?
- Morbidity and Mortality resulting from trauma;
- Analysis of the costs and cost-effectiveness of various trauma preventive programs;
- Assessing the effectiveness of public education as a strategy for the road safety;

5.2.6.2 *Implementation*

- Effectiveness in public education strategies on road safety for all road users;
- The rate of treatment failures and causes as well as resulting morbidity;
- Effectiveness of trauma diagnostic tools in referral and district hospitals.

5.2.6.3 *Monitoring and Evaluation*

- Determinants of post-trauma infections in the health facilities;
- Cost & cost-effectiveness analysis of various diagnostic techniques;
- Effectiveness in pre-hospital trauma care including levels of preparedness;
- Accident response system and prevention of injuries in high-risk groups (motorcyclists and passengers carriers);
- Length of stay in hospital following trauma as compared to standard guidelines;
- Economic impact of trauma associated morbidity and mortality.

5.2.6.4 *Beneficiaries*

- Assess existing usability of guidelines for trauma, disabilities, and rehabilitation compared to the norms;
- Quality of perceived care in the management for trauma patients;
- Perceptions, knowledge on first aid in management of the RTA and trauma.

5.2.7 Research priority areas in disabilities

5.2.7.1 Policy

- Prevalence and causes of disabilities in Rwanda;
- Capacity of Facilities to manage visual and hearing disorders before complications;
- Cost and saving to the country in preventing common disabilities;
- Studies on burden of common disabilities
- Capacity of health facilities to provide early care to prevent complications;
- Cost and saving to the country in preventing common disabilities.

5.2.7.2 Beneficiaries

- Assessing the quality of services in rehabilitation centers;
- Studies on availability and use of guidelines for trauma cases and disable patients.

5.3 Theme III: Maternal and child Health

The HSSP III 2012-2018 has a great ambition of reducing the maternal, neonatal and child mortality beyond the targets set by the international community, particularly the MDGs by the year 2015. The Ministry of health plans to attain the target through various strategies, including empowering community-based care delivery by community health workers to provide essential primary health care services packages and ensuring universal health coverage. The directorate of the MCH implements the following key MCH programs:

1. Maternal and neonatal health (MNH);
2. Child health (CCM) former integrated management of children illnesses (IMCI);
3. Vaccine preventable diseases division (VPDD);
4. Family planning (FP);
5. Sexual and gender-based violence (SGBV);
6. Adolescent sexual and reproductive health and rights (ASRH&R);
7. Nutrition.

To identify the priority areas where research is needed in the next five years, programs that are jointly implemented and overlapping in research objectives were grouped; from seven topics we obtained three major research areas that are:

- Maternal and neonatal health, child health and VPDD;
- FP, SGBV, ASRH&R; and
- Nutrition.

5.3.1 Research priority areas in: MNH, CH (CCM) and VPPD

5.3.1.1 Policy

- Exploring the burden of childhood illnesses such as diarrhea, respiratory infections, malnutrition, malaria, etc.
- Assessing the role of CHWs in the epidemiological surveillance of childhood illnesses;
- Evaluation of the ability to diagnose and treat infectious childhood diseases;
- Assess the effectiveness of new strategies to diagnose childhood diseases caused by pathogens.

5.3.1.2 Implementation

- Assessment of the capacity gap (tools and skills) for epidemiological surveillance at community level;
- Evaluating the pathways to increasing the demand and the supply for preventive health services in rural areas;
- Evaluation of the capacity of decentralized structures in supporting the implementation of MCH prevention programs;
- Assessing the effectiveness of health centers and community health workers in identifying and following-up children who missed preventive services such as immunization;
- Analysis of the costs and effectiveness of treatment protocols for major childhood illnesses;
- Assessing the effectiveness of the referral system (community, health center, district and referral levels).

5.3.1.3 Monitoring and Evaluation

- Analysis of the costs and effectiveness of proven community initiatives and mobilization campaigns for childhood diseases;
- Assessment of the effectiveness of preventive interventions for diarrheal diseases;
- Cost and cost-effectiveness analysis in managing respiratory outbreaks among children under five years.

5.3.1.4 Beneficiaries

- Assessment of the determinants of poor uptake of preventive health services from beneficiaries' perspective;
- Evaluation of the knowledge gaps and determinants of behavioral change.

5.3.2 Research priority areas in: SGBV, ASRH&R, and FP

5.3.2.1 Policy

- Exploring the role of Rwandan culture in favoring and prevention of gender-based violence;
- Assessing the burden, trends, and impact of STIs (including HIV), unplanned pregnancies, unsafe abortions in the general population, particularly among the young;
- Evaluation of the magnitude and trends of maternal and neonatal morbidity and mortality;
- Assessment of the determinants of early sexual behaviors among adolescents (in and out-of-school);
- Exploring the socio-determinants of GBV;
- Exploring the cultural beliefs vis-à-vis MSM practices;
- Evaluation of the causal links between FP uptake and economic development.

5.3.2.2 Implementation

- Evaluating the determinants of the utilization (demand and supply) of preventive FP services among women of reproductive age, including female condoms. Specifically, discuss the issues around access, availability, and choice of the demand;
- Analysis of the capacity gaps to implement one-stop-center for the GBV at district and sector level.

5.3.2.3 Monitoring and Evaluation

- Assessment of the impact of early child bearing on the mother, baby and entire family;
- Evaluation of the prevalence of the teen pregnancy and its impact on the country's economy;
- Exploring the determinants, extent, and effects of sexual abuse in the Rwandan society;
- Evaluation of preventive gender-based violence programs.

5.3.2.4 Beneficiaries

- Assessment of the impact of one stop center for the GBV on the victims' recovery;
- Assessment of the barriers and impact of men involvement on FP services uptake;
- Exploring the barriers (including stigma) on adolescents' use of FP services;
- Socio-economic impact of fistulae and associated stigma on women and family wellbeing;
- Exploring gaps and effectiveness of clinical management of fistulae.

5.3.3 Research priority areas in nutrition

5.3.3.1 Policy

- Exploring the determinants of micronutrient deficiencies (iron, iodine, Vitamin A and zinc) and its impact on the population health;
- Assessment of the impact of the 'one cow per family' on the prevention of malnutrition in the community;
- Evaluation of the links between Rwandan nutrition on the population's health, particularly on pregnant women and how this potentially affect birth outcomes;
- Assessment of the factors leading to recurrence of malnutrition after discharge from rehabilitation centers and possible solutions;
- Assessment the effects of artificial additives (drugs and hormones) used to enhance food production on human health;
- Studies on the capacity of CHWs to identify, treat, or refer malnourished children;
- Evaluation of the financial and productivity impacts of unhealthy behaviors.

5.3.3.2 Implementation

- Examination of the periodic trends in nutritional status of the general population, focusing more on the lower income group;
- Estimation of micronutrient requirements in HIV+ children with malnutrition;
- Studies on costs and feasibility of enhancing micronutrients content of food, including bio-fortification from local processing plants;
- Assessment of the methods for the identification of malnourished children at community level;
- Examination of the optimal treatment options in people living with HIV/AIDS with severe acute /chronic malnutrition.

5.3.3.3 Monitoring and Evaluation

- Assessment of the effectiveness of the referral system in treating malnutrition;
- Evaluation of the impacts of agricultural intensification on the population's health;
- Assessing the effects of nutrition on long-term growth and development of children;
- Evaluation of the impacts of health education programs on micronutrient consumption (e.g. zinc, iodine and vitamin A);
- Cost of managing chronic malnutrition in children.

5.3.3.4 Beneficiaries

- Assessment of the burden and determinants of malnutrition (underfeeding and obesity), its effects in all wealth quartile of the population;
- From patients' perspective, assessment of the impact of malnutrition programs at community and health facility level on malnutrition relapses;
- Exploring the cultural determinants (household decision to seek treatment) for delayed malnutrition treatment;
- Assessing the barriers to feeding practices (e.g. barriers for optimal access to nutritional interventions among pregnant women).

5.4 Theme IV: Health Promotion

The Rwanda health communication centre (RHCC) operating as part of RBC is mandated to conduct health promotion activities. RHCC collaborates with and provides technical support to various units and programs in the health sector through its focal points. Its mandate includes:

- (i) Support health promotion/BCC actions at MoH units, desks, departments and RBC;
- (ii) Mainstream media information flow within and outside the health sector, including public relations for the MoH.

5.4.1 Research priority areas in health promotion:

5.4.1.1 Policy

- Studies aimed at enhancing the capacity of CHW and local leaders to implement health promotion activities in the community.

5.4.1.2 Implementation

- Assessment of the effectiveness of strategic approach to health promotion/ communication for behavior and social change (e.g.: The impact of IEC on the reduction of communicable and non communicable diseases);
- Assessment of gaps in RHCC capabilities in term of infrastructure and human resource;
- Studies to assess the strength and size of existing 'call centers' and assess the quality of information on key health issues.

5.4.1.3 Monitoring and Evaluation

- Assessment of the information gaps among beneficiaries for BCC related interventions;
- Evaluation of costs and cost-effectiveness of current BCC and IEC strategies.

5.5 Theme V: Community Health Systems Strengthening

5.5.1 Research priority areas in community health strengthening

5.5.1.1 Policy

- Studies on the CHW cooperatives: revenue levels, management issues, sustainability, strategies to get ready markets for their produce;
- Assessment of the health system's capacity to monitor and evaluate CHW service delivery;
- Evaluation of the factors motivating CHWs;
- Assessment of determinants of access to health services in rural and sub-urban centers;
- Interface of modern and traditional medicine: production, utilization, and scale of consumption;
- Assessment of the effects of immigration and emigration on the quality, the demand and the supply of health services;
- Evaluation of the capacity and effectiveness of CHWs to implement health programs;
- Evaluation of the costs and cost-effectiveness of current strategies used for health promotion (IEC).

5.5.1.2 *Beneficiaries*

- Assessment of the effects of educational programs on healthy behaviors;
- Evaluation on CHW's time allocation between the provision of community health services, the work for their cooperatives and other family, economic and social activities;
- Exploring the knowledge of CHW of common communicable and non-communicable diseases.

5.6 **Theme VI: Integrated Disease Surveillance Response (IDRR)**

In Rwanda, communicable diseases constitute 90% of all reported medical consultations in health facilities (MoH Annual Report, 2012). Malaria, respiratory tract infections, diarrheal diseases, parasitic infections and zoonosis are most predominant and thus considered as a public health priority (HSSP III 2012-2018). The country is often faced with epidemics including emerging and re-emerging infectious diseases such as influenza A (H1N1), cholera, epidemic typhus and meningitis. The MOH has been implementing the Integrated Disease Surveillance and Response (IDSR) system since 2000 to promptly respond and report any of these diseases if they emerged. As this is an important priority component in the health sector strategic plan, it is important to develop research priority areas.

5.6.1 **Research priorities in IDSR**

5.6.1.1 *Policy*

- Surveillance of common circulating enteric bacteria and antimicrobial susceptibility patterns in Rwanda
- Evaluation of Widal agglutination test in diagnosis of typhoid fever in Rwanda
- Economic impact of Epidemic Infectious Diseases in Rwanda
- Assessment of cholera risk factors in Rwanda
- Zoonotic disease mapping in human population
- Influenza and Malaria comorbidities – e.g. a case study of Nyagatare district
- Epidemiological pattern of Diarrhea diseases in Rwanda
- IDSR evaluation: what is the effectiveness of IDSR system in early detection and response of epidemic prone diseases?
- e-IDSR system description: e.g. what is e-IDSR and how does it work?
- e-IDSR Lessons learned from a successful implementation: e.g. what are the lessons learnt from the successful implementation of e-IDSRs?
- Studies on the burden of influenza in Rwanda: e.g. what are prevalence, risk factors and outcomes associated with influenza in Rwanda?
- Epidemiology of Influenza and other respiratory pathogens in Rwanda;
- International Health Regulations core capability assessment
- Rwanda Influenza sentinel surveillance system evaluation
- Assessment of the capacity, gaps and possible impacts of a coordinated “one health” (ministries of health, ministries of agriculture and schools of public health) to address cross-country diseases between human and animals.

5.7 Theme VII: Health System Support

5.7.1 Research priority areas in health financing

Rwanda's health financing policy and the health financing strategic interventions are harmonized and aligned with national development documents such as: the Vision 2020, EDPRS II, as well as the sector-specific guiding documents, the health sector policy and health sector strategic plan (HSSP-II) 2012-2018, the social security policy, health insurance policy and the community-based health insurance policy. A consultative process has suggested the following research priorities in health financing:

5.7.1.1 Policy

- Studies on health insurances in Rwanda:
 - How much is recovered from insurances and how much is saved?
 - Could insurances help sustain the health system in Rwanda?
 - What are the needed changes to improve efficiency in providing financial protection for the insured population?
- Studies to suggest pathways for sustaining CBHI program;
- Comparison of healthcare costs and quality in public and private institution
- Assessment of the equity in financial contributions highlighting the population groups and their expenses: are the better off subsidizing the worst off?
- Analysis of high cost medical services and their cost-effectiveness.
- Analysis of the impact of missed preventive services to the cost of medical services,
 - E.g.: Cancer-screening programs; would better screening lead to lesser spending in the future?
 - What is the financial impact of expanding preventive services on health insurances and families?

5.7.1.2 Implementation

- Analysis of the role of providers and consumers in inducing the demand for health services;
- Studies on coordination, alignment and harmonization of the functioning of health insurances in Rwanda -- critical analysis of the efficiency and effectiveness of flow of funds (internal and external) in the system;
- Periodic studies on the impact of performance-based financing (PBF) on strengthening the health system (service utilization, customer satisfaction, accountability, health workers morale, internal health workforce migration, performance of health workers in delivering health services);
- Assessment of ways to make health facilities self reliant by getting payment for their services through insurances.

5.7.1.3 *Monitoring and Evaluation*

- Periodic review of provider payment mechanisms and the role of private and public providers in the rising costs for the health services;
- Periodic studies on the willingness and ability to pay the CBHI premiums;
- Analyses of the health insurance and health services:
 - Assessment of the relevance of current premiums (how much should actually be paid for every income group to make insurance self sustaining? – Keep in mind notion of equity);
 - Evaluation of the adequacy of health packages to be offered with current premiums and coverage? – Keep in mind the need for the country to maintain a healthy population;
 - Analysis of unmet needs for medical referrals abroad and the need to cover services that are not locally provided—this may be applicable for already self-sustaining insurances;
 - Assessment of the efficiency in administrating health insurances--periodic review of the overhead costs of health insurances.
- Assessment of costs and efficiency in providing emergency health services

5.7.1.4 *Beneficiaries*

- Studies on client satisfaction on expected insurance benefits vis-à-vis insurances administration and health facilities;
- Benefit Incidence Analysis (BIA) studies for insured and non-insured population;
- Evaluation of the relationship between having an insurance or not and the link with health outcomes;
- Evaluation of the impact of PBF on the quality of health service (provider-beneficiary perspectives).

5.7.2 **Research priority areas in governance/stewardship**

For convenience purpose, the research priorities for governance and stewardship are presented based on policy and implementation perspective and providers and beneficiaries perspective.

5.7.2.1 *Policy and implementation*

- Assessment of the use of research-based evidences to improve health governance;
- Evaluation of the role of stewardship in strengthening health service delivery;
- Assessment of the impact of novel policy reforms in strengthening stewardship;
- The interconnectedness of the six WHO health system's building blocks in enhancing health systems performance²;
- Assessment of the impact of the decentralization on health services delivery;
- Evaluation of the impact of the decentralization of laboratory testing package for level IV (NRL), III (RH) and II (DH) laboratories within the health system.

² The WHO building blocks: Service delivery, stewardship,

5.7.2.2 *Monitoring and evaluation, beneficiaries perspectives*

- Studies on patients' and providers' satisfaction on the quality of governance in health: views at policy, facility and community levels -- focus on improvements needed;
- Evaluation of costs and cost-effectiveness of governance activities related to health promotion, administration of staff and health services; etc.
- Leadership in health:
 - Assessing the level of commitment, ownership and decentralized leadership in health service delivery.
 - Assessment of staff migration in the health sector: motives and expectations. What could be improved to retain staff better?

5.7.3 **Research priority areas in human resource for health (HRH)**

Like in many low and middle-income countries (LMIC), Rwanda's overall objective of HRH is to ensure availability of an adequate, equitably distributed, quality, motivated and productive workforce responsive to the country's changing needs and demands in health (HSSP III 2012-2018). The research gaps in the priority areas for the HRH will be based on the three objectives developed by the MoH, which include:

- (i) Increasing the quantity, scope and quality of HRH to adequately respond to country HRH needs;
- (ii) Expanding and strengthening the capacity of Teaching Institutions (TI) to augment HRH production; and
- (iii) Improving HRH management, ensuring rational deployment, adequate and equitable distribution, and retention of HR staff.

5.7.3.1 *Policy*

- Learning from the past and present to advance the future development of HRH:
 - Studies on the barriers of effective implementation of current and past HRH policies and regulations (issues of budget and infrastructure;
 - Evaluation of the motivation of local trainers to provide quality training to medical and paramedical students;
 - Studies on the effects of HRH strategy ("HRH retention") in the health sector: what works and what does not work;
 - Assessment of the satisfaction of medical and paramedical students in the training process: what should be improved? What are the specialties facing shortage of students;
- Studies on the costs, cost-effectiveness and challenges of task shifting in health, including CHW.
- Assessment of the workload for health worker and impact on their performance;
- Periodic assessment of the staff turnover in public health facilities;
- Analysis of the projection of HRH remuneration increase in relation to PBF reduction as way of increasing public servants salaries.

5.7.4 Research priority areas in healthcare delivery

Service delivery is the ultimate goal of any health system (WHO World Health Report 2000); the point of medical service delivery is the place where the forces of supply and demand for healthcare work (HSSP III, 2012-2018). It is the point at which all resources are channeled and norms come together to be transformed into curative, preventive, promotional, and rehabilitative services. The way in which health services are organized and delivered has a significant effect on how well they serve the needs of the population (HSSP III, 2012-2018). Service delivery can be defined as the way that inputs are combined to produce outputs that are meant to satisfy the consumers. The NHRA has the ambition of illustrating the research priorities in this domain.

5.7.4.1 Policy

- Cost of interventions/Understanding cost of business: e.g. how much are we spending to take care of patients? (Cost per patient/case for a range of care services in various diseases)
- Value of interventions (select among communicable and non communicable diseases): e.g. what is the value/outcome of a given intervention (medical/public health)?
- Assessment of the equity of the distribution of health care services and resources at different levels of health care system;
- Assessment of the private-public partnership (PPP) in the delivery of health services;
- Assessment of the availability of norms and standards for medical equipment: acquisition/donation, installation and certification, validation, maintenance, calibration, decommissioning and disposal. Does the MoH have appropriate norms and standards? What are challenges faced in complying with standards in term of quality?
- Evaluation of the determinants for delivering health care quality services;
- Evaluation of effective strategies for delivering quality health care services in resource constrained settings;
- Assessment of unmet quality needs for health services delivery; and the factors behind?
- Periodic review of the quality of infrastructure and biomedical services (i.e. installation, maintenance, calibration and biosafety precautions);
- Studies on the protection of providers in delivering health care services, including but not limited to the:
 - Studies on occupational hazards and suggestions of novel strategies to protect and support providers;
 - Evaluation of existing and planned training on legal measures affecting providers and strategies to protect them when it is fair to do so.

5.7.4.2 Beneficiaries

- Examine the costs and cost-effectiveness of the referral system (from community national referral system) and referrals abroad—how much do patients pay? How can the referral system ease and increase efficiency from patients' perspective?
- Evaluation of the factors influencing the choice of service provider/health provider (private and public);
- Assessment of the factors behind increased search for abroad medical services even for minor cases—what is the experience of patients when abroad and what can be improved in Rwanda?
- Evaluation of the satisfaction of foreign patients in receiving medical services in Rwanda: what should be improved to promote medical tourism issues in Rwanda?

5.7.5 Research priority areas in medical products and technologies

5.7.5.1 Policy and implementation

- Evaluation of the rationale behind the utilization of medical and pharmaceutical products (particularly the use of antibiotics, corticoids and medicine used for beauty purposes, etc.);
 - Periodic examination of challenges in the pharmaceutical supply systems;
- Constant assessment of quality and content of medical products among formal and informal sectors of health;
- Assessment of the costs, cost-effectiveness and appropriateness of currently available medical technologies in the country:
 - Evaluation and validation of new laboratory technologies and in-vitro diagnostics (IVDs);
 - Evaluation of the minimum standards met for X-ray machines and other medical equipment;

5.7.5.2 Monitoring and Evaluation, beneficiaries

- Periodic assessment for drug resistance for common infections;
- Evaluations of overuse of medical products among population, especially patients covered with medical insurances;
- Assessment of the determinants of medical and pharmaceutical products stock-outs;
- Assessment of supply chain management as part of a regular monitoring and evaluation system;
- Pharmaco-vigilance studies to monitor adverse drug reactions;
- Effectiveness of monitoring drug stock-outs at central and decentralized stores;
- Assessment of the unmet needs for pharmaceuticals amongst the patients population:
 - Are drugs needed but not available?
 - Why are patients failing to access a given medicine,
 - Why do insurances deny coverage for needed medicine?
 - What about prescriptions provided by providers living abroad for patients seeking care abroad?

5.7.6 Research priority areas in HMIS

5.7.6.1 Policy and Implementation

- Strengthening data use/evidence based planning: e.g. what are the barriers of data use in Health sector? What types of data elements are needed for decision-making? What are the efficient and effective ways for disseminating best practices?
- Assessment of the appropriateness, the costs and cost-effectiveness of current technologies used for HMIS;
- Evaluation of the current strategies for harmonization all health information systems;
- Examination of the benefit of harmonization of HMIS and other data systems;
- Effectiveness of strategies to improve data collection processes and utilization for program policy, planning, and implementation.

5.7.6.2 *Monitoring and Evaluation, and beneficiaries*

- Assessment of the current capacity of providers to enter data in HMIS as a tool for daily consultation with the aim of working in a paperless environment;
- Studies on the impact of the use of HMIS on improving patients' quality of care.

5.7.7 **Research priority areas in knowledge management /research**

Research is a core tool for improving medical practice worldwide as it is in Rwanda because the epidemiology of diseases varies according to regions, countries, districts and families, the genetics playing its own role. To provide the best health care possible, every provider should be able to make basic statistics of data available at hands whether it is in the consultation department, pharmacy, hospitalization, community, etc. It is thus important to make regular:

- Assessment of the extent of use of research findings for improving policy and implementation;
- Evaluation and promotion of providers' capacity to make basic analysis of data to inform their diagnostic and treatment decisions;
- Assess the capacity of health care managers and providers to publishing findings from data collected at their site with the aim of improving health services.

5.8 **Theme VIII: Clinical Research**

5.8.1.1 *Policy*

- Studies on testing the use of new drugs;
- Research on vaccines or microbicides;
- Feasibility studies on investment in medical products, pharmaceutical products, clinical trials for treatment, and new prevention technologies;
- Assessment of efficacy of new drugs for communicable and NCD's;

5.9 **Theme IX: Inter-Sectoral Collaboration (ISC)**

The World Health Organization's Ottawa Charter for Health Promotion in 1986 endorsed and stressed that policy makers should seriously take the "inter-sectoral collaboration" as a key health concern of the modern society's living style due to environmental challenges, tobacco and alcohol legislation, trauma, life style, gender inequities, etc. The suggested implementation framework was through comprehensive approaches such as health promotion in schools and healthy workplaces. This further highlighted the need for accountability for health, laying the base for health impact assessments. Since 1986, there has been no follow-up research identified or planned to document what has worked and what has not worked.

In many LMIC, many sectors have directly or indirectly contributed to the improvements or worsening of health outcomes. The best example in Rwanda is the collaboration between ministries to improve health outcomes. When it comes to the CBHI, the coverage has reached 92% for the overall population. The ministry of local government has contributed significantly in mobilization and categorizing the population according their wealth, through *Ubudehe*³ ranking.

³ The definition of *Ubudehe* (with quotation of the source)

The *Ubudehe* ranking seeks to cross-subsidize between the poor and rich where the rich pay more to cover the poor. With all ministries working jointly, the government of Rwanda has also registered record high improvements in poverty reduction, combating hunger through agricultural intensification programs, and fighting illiteracy. Reducing hunger and educating children in general and women in particular has an impact on the health status of the population.

This calls for the need to conduct studies on the impact that other sectors have had on health and vice-versa. The impact may be positive or negative; positive impacts can be seen with MINALOC (*ubudehe and decentralization*), MINAGRI (improved food production), and ministry of finances (financing different health programs) whereas negative impacts can be seen with the ministry of commerce that allows for tobacco and alcohol companies to operate because their products are harmful for health.

5.9.1 Research priority areas in the intersectoral collaboration

5.9.1.1 Policy

- Systematic and periodic assessments on how non-health sectors have and are still contributing to the health sector performance in Rwanda;
- Evaluation of the costs and cost-effectiveness of the army week in health: learning from the army to improve the scale-up of specialized services;
- Assessment of the prevalence and effect of substances abuse such as tobacco, alcohol and other drugs and their negative impact on the country's economy;
- Research on unmet needs for IEC on health related information through other ministries, information necessary to make appropriate decisions regarding personal and family health;
- Assessment of the quality and quantity of social security support received by patients and the access to emergency transportation;
- Assessment of the effects of housing and transportation on population's health;
- Contribution of multi-sectoral collaboration to fight against malnutrition, sexual and GBV, vulnerable children (street kids, orphans), and other risk groups;
- Assessment of the level, unmet needs for optimal inter-sectoral collaboration between MoH and other institutions that have impacts on health such as: RURA, RBS, REMA, BRALIRWA, other line ministries;
- Assessing impact of inter-sectoral collaboration on health outcomes, e.g.: the management and use of toxic/dangerous products on health;
- Studies on waste management across community, private, and public sectors;
- Studies of institutions (NGO) and other sectors in combating nutritional deficiencies;
- Assessment of impact of VUP program in promoting the accessibility to health services;

6. IMPLEMENTATION OF THE NATIONAL HEALTH RESEARCH AGENDA

The implementation of the National Health Research Agenda will be a vital instrument for the Ministry of Health to support the continuous generation of evidences needed to inform policies, strategies, and implementation needed to improve the population health status. To maximize the potential for the implementation of this research agenda, there is need for the involvement of all the stakeholders at both national and international levels in the design and execution the research priorities.

While several partners involved in research will support the implementation of this agenda, the Ministry of Health, which is responsible for developing health policies and strategies, and organize service delivery, will also be responsible of the execution of this agenda. With the support of the existing research boards and committees, the Ministry of Health, will advance the objectives of this research Agenda.

As public resources for doing research are oftentimes limited, the available government resources will be focused mainly in the priority areas identified in this document. While this NHRA represents the priorities of the MoH, it does not discourage other research in health from which findings may improve knowledge in other specific areas.

6.1 The Role of Partners

In this research agenda, the key partners that are mainly being called upon in the implementation of this agenda include:

- Government ministries whose actions are linked with the determinants of health;
- Academic institutions of higher learning, and their affiliates such as foreign University; research institutions in Rwanda and abroad;
- Districts health staff (majority of these are students doing masters)
- Civil society organizations, private sector organizations, NGO (national and international), and
- Development partners (including unilateral, bilateral, and multilateral agencies).

6.2 The Coordinating Structures of the NHRA at MoH

The MoH through the directorate of planning and M&E will coordinate the NHRA. The Medical Research Center (MRC) will take the advantage of this document to tap resources for the implementation of this research agenda. The current functioning of the research approval mechanisms will continue as usual.

6.3 Ownership and Capacity Building

The NHRA document primarily belongs to the MoH, and everyone wishing to do health research is encouraged to join the efforts in responding to the pressing need for evidence on already selected priority areas. In order to promote the ownership in the planning and execution of the NHRA, the partners' efforts shall aim at nurturing the capacity development of local researchers and their institutions by disseminating this document and by conducting and publishing their research outcomes. However, it is important to consider the limitations of local institutions in their capacity to conduct research. That is why partnerships are necessary to conduct research while building local capacity. Any other contingency measure to address the limitations in health research can be adopted along the implementation process of this research agenda.

6.4 The Financing of the National Health Research Agenda

There is a need to continuously look for funding to allow researchers provide evidence on what works and does not work and to propose alternative ways of implementing policies and making an impact on health care service delivery which is the ultimate goal of the NHRA. There is variety of possible sources of funding that are the Government of Rwanda through the general budget support, and development partners.

The charge of overheads and other revenues from the researchers, such as approvals and clearance can be source of funding for doing research. These charges can be used for administrative costs and also for hiring experts to write research proposals for future grants. Endowment funds can be tapped and used for funding some research. These funds are solicited from donations and accumulated to support particular research priorities, e.g. breast or cervical cancers among women.

Doing good quality research requires enormous amounts of resources and resources are often limited; unfortunately, research is often not funded as needed especially in LMIC. Low capacity often observed with local researchers to do research, especially those requiring special skills and techniques can be challenging in the presence of scarce financial resources. The MoH will endeavor to seek sufficient funding for the NHRA and to call upon partners' support in this task. The Ministry of Health shall be particularly proactive in leveraging support for this research agenda from within or outside the country via development partners.

The World Health Organization emphasize that 2% of the Ministry of Health's budget should be used to support research activities. Also, to foster ownership, the Government shall need to commit funds to support the undertaking of research in the identified priorities. The Ministry of Education's commission in charge of research already allocates 1% of its general budget to research. While this is appreciable, other countries in the region (East African) have increased resources for research to an impressive level of about 5%. There is need to continuously advocate for the increase of resource allocation for research to achieve the objectives of this research agenda and claim national ownership for research in the country.

The majority of the LMIC has private sectors with limited resources; however in Rwanda the sector is showing some hope due to its economic growth over time. The involvement of the public and private partnerships shall be an important medium for nurturing resource mobilization for research in the priority areas. Researchers in public and private sectors shall be encouraged to pursue a spirit of collaboration in responding to the call for adequate research.

6.5 Monitoring and Evaluation of National Health Research Agenda

The NHRA shall be monitored regularly to assess if the needed evidence is gathered to inform the decisions of the policy makers. The directorate of planning continuously will perform the monitoring of the NHRA, while RBC/MRC shall mobilize resources and encourage stakeholders to join efforts in implementing this agenda. The following indicators have been proposed to track the progress towards implementing the NHRA.

6.5.1 Tracking progress towards implementation of the NHRA

Tracking progress in the implementation of the NHRA is extremely important for the MoH if the institution is to evaluate itself as per the extent to which its questions of interest are being answered. The MoH will evaluate and regularly assess the challenges and opportunities towards the implementation of the NHRA in order to raise funds or solve an issue that hinders the realization of the research agenda. Below are provided tools that have the potential to informing leaders on the progress made.

- The committee or board responsible for approving and clearing research will develop a checklist for all those submitting protocols for ethical review. The checklist shall contain an element of whether the study is addressing any of the priority areas.
An assessment of existing database shall be done and if necessary, a new database will be developed to compile all approved protocols of studies addressing the priority areas and other research done within the context of health.
- The division of planning at MoH shall workout a mechanism of filling the database and tracking progress, at the same time working closely with research institutions and partners in generating needed interest and resources in implementing the NHRA.
- Progress and final reports shall be submitted to an ethics committee that approved the study as stipulated in the guidelines and standard operating procedures. At the end of the research study, final report shall be deposited at the ethics committee that approved that study with copies submitted to MOH directorate in charge of research.
- Final reports of studies deposited with MOH, and other affiliated institutions shall be used to compile database and directories of approved research studies and to assess how well priority areas for research have been attained.

6.5.2 *Review of the agenda*

The NHRA has been developed in line with the HSSP III 2012-2018, and thus has similar lifespan. Informed by emerging issues in health and the above stated indicators for tracking the implementation progress, the MoH will endeavor to ensure midterm evaluations are done by a final review of the Agenda after five years.

6.5.3 *Dissemination of Research Findings*

Research dissemination is about publicity and marketing research outcome; researchers should make sure that knowledge generated from their work is communicated to the wider community audience beyond the small team involved in research. It is important to note that reporting of the research and its results shall remain the role of every researcher and the research institution to ensure that the results reach end-users. However, the responsibility may be delegated to another individual upon mutual agreement.

Researchers and research institutions shall be bound to promote high quality research and present a fair view of the results after consulting all parties involved in the research. Competent authorities in charge of research approval and clearance processes shall provide more guidelines on this.

Then, through various research boards and other coordinating institutions such as the Rwanda National Ethics Committee shall ensure that research information is available for utilization at the national level by policy makers, communities, target populations, researchers and all other relevant stakeholders. Additionally, the MoH may use the media to disseminate the research findings as a way of communicating the new information and or knowledge to rest of the population. The policy on the data use and the custodian data can be found in the health sector research policy.

7. REFERENCE (MATERIAL RESOURCES CONSULTED)

7.1 Annex 1: List of Documents consulted

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7.2 Annex 2: The Drafting Team and List of Stakeholders Involved

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