



USAID
FROM THE AMERICAN PEOPLE

**HUMAN
RESOURCES
FOR HEALTH**



Strengthening Human Resources for Health

End of Project Report: 2012 – 2019



This report is made possible by the generous support of the American people through USAID under the terms of the Cooperative Agreement AID-663-A-12-00008. The contents are the responsibility of the Strengthening Human Resources for Health (HRH) Project and do not necessarily reflect the views of USAID or the United States Government.

Cover Photo: Beruk Weldeyesus for Jhpiego

Table of Contents

ACRONYMS.....	v
ACKNOWLEDGMENTS	vi
EXECUTIVE SUMMARY	vii
I. INTRODUCTION	13
Country Context.....	13
Project Description	13
Project Management	16
II. MAJOR ACCOMPLISHMENTS BY INTERMEDIATE RESULTS.....	18
RESULT 1-IMPROVED HUMAN RESOURCES FOR HEALTH MANAGEMENT	18
IR 1.1. Improved Human Resources Management Capacity	20
IR1.2. Improved Staff Motivation and Retention Schemes	27
IR1.3. Improved HRH Policy and Practices	29
IR 1.4. Enhanced HRH forums at different levels	32
IR 1.5. Improved Management of Staff Training	32
Major Challenges.....	34
Recommendations.....	35
RESULT 2- INCREASED AVAILABILITY OF MIDWIVES, ANESTHETISTS, HEWs AND OTHER ESSENTIAL HEALTH WORKERS	37
IR2.1. Increased Availability of Anesthetists	37
IR2.2. Increased Availability of Midwives.....	47
IR2.3. Increased Availability of Health Extension Workers (HEWs)	55
IR2.4. Increased Availability of other Essential Health Cadres.....	58
Major Challenges.....	66
Recommendations.....	67
RESULT 3- IMPROVED QUALITY OF TRAINING OF HEALTH WORKERS	68
IR3.1. Improved Quality of Preservice Education of Health Workers	69
IR3.2. Improved Quality of In-Service Training of Health Workers	81
Major Challenges.....	85
Recommendations.....	85
RESULT 4-PROGRAM LEARNING AND RESEARCH CONDUCTED	86
IR 4.1 Research and Evaluation Evidence on Critical Human Resource for Health Issues Generated.....	86

IR 4.2 Build Local Capacity in Monitoring, Evaluation and Research Focusing on HRH.....	88
Major Challenges.....	91
Recommendations.....	91
ADDITIONAL PROJECT ACTIVITIES.....	92
Leadership, Management and Governance.....	92
Surgical Backlog Clearance.....	93
Appendix A: Selected PMP Indicators	95
Appendix B: Success Story.....	97
Appendix C: Implementation Researches.....	98
Appendix D. Published manuscripts in peer reviewed journal	99
Appendix E: Curricula, Materials and Tools Developed, Adapted or Contributed to by the program, 2013-2019.....	101
E1. Curricula.....	101
E2. Training materials.....	102
E3. Laws, Policies, Directives, regulations, and Guidelines reviewed and /or developed.....	104
E4. Accreditation and Quality Improvement standards developed for PSE programs	104

ACRONYMS

BSC	Balanced Score Card	MCQ	Multiple Choice Question
COC	Certificate of Competence	MDGs	Millennium Development Goals
CDC	Centers for Disease Control and Prevention	M&E	Monitoring and Evaluation
CPD	Continuing Professional Development	MOH	Ministry of Health
EAA	Ethiopian Association of Anesthetists	MOU	Memorandum of Understanding
EMwA	Ethiopian Midwives Association	MNCH	Maternal, Newborn and Child Health
EMT	Emergency Medical Technician	NBE	National Board of Examinations
ETS	Effective Teaching Skills	OR	Operating Room
FMOE	Federal Ministry of Education	OSCE	Objective Structured Clinical Examination
FMHACA	Food, Medicine and Healthcare Administration & Control Authority	PSE	Pre-Service Education
HEIs	Higher Education Institutions	QA	Quality Assurance
HERQA	Higher Education Relevance and Quality Agency	QI	Quality Improvement
HEWs	Health Extension Workers	RHB	Regional Health Bureau
HPR	Health Professionals Regulation	RHSC	Regional Health Science College
HR	Human Resources	RMNCH	Reproductive, Maternal, Newborn and Child Health
HRDA	Human Resources Development and Administration	SNNPR	Southern Nations, Nationalities and Peoples Region
HRH	Human Resources for Health	ToR	Terms of Reference
HRIS	Human Resource Information System	TOT	Training of Trainers
HRM	Human Resources Management	ToHOs	Town Health Offices
HSEDC	Health Sciences Education Development Center	TVET	Technical and Vocational Education and Training
ISS	Integrated Supportive Supervision	TWG	Technical Working Group
IST	In-service Training	WorHO	Woreda Health Office
IT	Information Technology	WHO	World Health Organization
JD	Job Description	ZHD	Zonal Health Department

ACKNOWLEDGMENTS

The Strengthening Human Resources for Health (HRH) Project has made substantial contributions to improving the availability and quality of health workers as well as strengthening national health and education systems. The Project would not have been as successful without the leadership and commitment of the Government of Ethiopia. The HRH Project was planned and implemented with country ownership through the leadership of the Federal Ministry of Health and Regional Health Bureaus (RHBs).

The HRH Project also worked very closely with the Federal Ministry of Education (now Ministry of Science and Higher Education), Higher Education Relevance and Quality Agency (HERQA), the Food, Medicine and Healthcare Administration and Control Authority (FMHACA), higher education institutions and professional associations. The Project extends its appreciation to these institutions.

We are extremely grateful to USAID and the American People for their generosity in funding the HRH Project, and their commitment to strengthening the health systems of Ethiopia. The Project also extends its appreciation to Tom's Shoes for their donation of 80,000 shoes, which were given to members of the Health Development Army in Addis Ababa, Amhara, Dire Dawa, Oromia and SNNP regions.

We hope that the progress made through this USAID investment will be sustained and enhanced through continued ownership, commitment and institutionalization of strategies and initiatives by the Government of Ethiopia and ultimately contribute to Ethiopia's aspirations to attain sustainable development goals and improve the health outcomes of its people.

EXECUTIVE SUMMARY

In 2006/07, Ethiopia had a health workforce density of 0.7 doctors, nurses and midwives per 1,000 population. Compared to the WHO recommendation of 2.3 per 1,000 population required for attaining adequate coverage of essential health interventions, this was extremely low. This low health workforce density poses a serious challenge to the delivery of essential health care services in the country, especially in rural areas.

The shortage of health workers was compounded by high attrition and inequitable geographic distribution. Across Ethiopia, a regional disparity persisted: health worker density ranged from 0.24 per 1,000 population in rural areas to 2.7 per 1,000 population in urban areas. The physician-to-population ratio varied from 1:3,056 in the capital city, Addis Ababa, to 1:98,258 in the remote region of Afar. Beyond availability, there were also serious concerns about the quality of education of health workers, which was strained by the rapid scale-up in pre-service education. In-service training (IST) was also beset by poor planning and coordination and concerns around quality. There has also been an underuse and under-availability of HRH evidences, making evidence based policy to address these issues even more challenging.

In response to the country's need, United States Agency for International Development (USAID) funded the Strengthening Human Resources for Health (HRH) Project, a US \$55 million bilateral cooperative agreement of seven years (May 2012 – September 2019). The ultimate goal of the HRH project was to improve health outcomes for all Ethiopians, with emphasis on the reduction of infectious disease and gender-focused disparities in maternal and newborn mortality. The project had four intermediate results:

- Result 1: Improved Human Resources for Health Management
- Result 2: Increased Availability of Midwives, anesthetists, HEWs and other essential health workers
- Result 3: Improved Quality of Training of Health Workers
- Result 4: Program Learning and Research Conducted

The HRH Project was implemented by a Jhpiego-led consortium that included Management Sciences for Health (MSH), Ethiopian Midwives Association (EMwA), Ethiopian Association of Anesthetists (EAA), Open University UK, and Project Mercy. To achieve its objectives, the HRH Project mainly supported the Federal Ministry of Health (FMOH), the Federal Ministry of Education (FMOE), the 11 regional health bureaus (RHBs), 52 government universities and colleges, over 40 private higher educational institutions, and nine health professional associations. The key achievements by result areas are provided below.

Result 1: Improved Human Resources for Health Management

The Project facilitated participatory HRM capacity assessments with 15 institutions including the FMOH, FMHACA, and 11 RHBs, EMwA and EAA, identifying critical Human Resources Management (HRM) challenges and proposing appropriate interventions for priority problems. Using these capacity assessments as a baseline, the project guided institutions to develop three-year action plans. The involvement of key stakeholders during planning established a collaborative approach that allowed stakeholders to be involved in and lead interventions throughout Project implementation.

The project supported the FMOH to develop the National HRH Strategic Plan (2016–2025) and regional HRH strategies. The HRH Project supported the FMOH and RHBs to conduct a workload analysis to determine the number of HR staff required to adequately perform HRM functions at each level of the health system and determine the HR structure and staffing gaps. As a result, the Project contributed in the creation of more than 1,300 new HRM positions and filling more than 95% of both newly created and existing vacant HR positions and training and coaching of 2,950 HR staff using the HRM in-service training curriculum it developed.

The HRH project supported the development and updating of Scopes of Practice for 26 professional categories, and also provided significant technical and financial support to the FMHACA in updating the health professional regulation proclamation that was approved by the House of Representatives in February 2019.

The Project also supported establishments of national and regional HRH forums, and development of national and regional strategic and operational HR planning. The Project conducted training in performance management and supportive supervision, generated evidence to improve health workforce motivation and retention, disseminated selected HRM policies and procedure manuals and strengthened national and regional partnerships for HRH. This resulted in a sector-wide improvement in HRM practices, improved planning capacity and increased budgets for HR activities, availability and utilization of HR policy and procedures, performance planning and management and HRH partnership at national and regional levels. The HRH Project magnified HR functions as a key component of the health sector performance and laid the foundation for stronger HRM practices in Ethiopia.

Overall, the project contributed for improvements in HRM and health workers' production, **from 114,362 health workers in 2012 to 243,602 in 2018**. This resulted in **an increase in health workforce density by 85%**, from 1.36 to 2.52 per 1,000 population. Additionally, health worker **attrition decreased from 3.1% to 1.2%** in the same period.

Result 2: Increased Availability of Midwives, anesthetists, HEWs and other essential health workers

The Project worked to increase availability of midwives, anesthetists, HEWs and other essential health workers by supporting 52 HEIs to expand existing programs and opening new ones for these cadres while maintaining quality. Overall, the Project contributed to the **graduation of 48,923 health workers**, including 1,508 anesthetists, 15,552 midwives, 13,849 Level III and 14,593 Level IV HEWs, 1,551 nursing specialists, 1,277 emergency medical technicians (EMTs), 474 biomedical technicians and 119 masters of public health in HRH Management and Health Economics. These achievements were made through:

- Supporting scale up of education of anesthetists, midwives, HEWs, EMTs, and BMTs by providing the necessary technical and material assistance to FMOH and HEIs.
- Assisting with development of trainings for seven nursing specialties in 24 universities.
- Supporting establishment of postgraduate (MPH) programs in HRH management in three education institutions and health economics (HE) in four education institutions
- Strengthening the capacity of the Ethiopian midwifery and anesthesia associations to play a central role in supporting and strengthening the education of midwives and anesthetists respectively.

The PSE strengthening interventions not only increased the number but also the quality of anesthesia and midwifery graduates. Implementation research conducted by the HRH Project documented a **statistically significant increase in the clinical competence of students** graduating from anesthesia programs, with a rise in average scores from 61.5% in 2013 to 65.7% in 2016; and for midwives, from 51.8% to 56.6% in the same period

Result 3: Improved Quality of Training of Health Workers

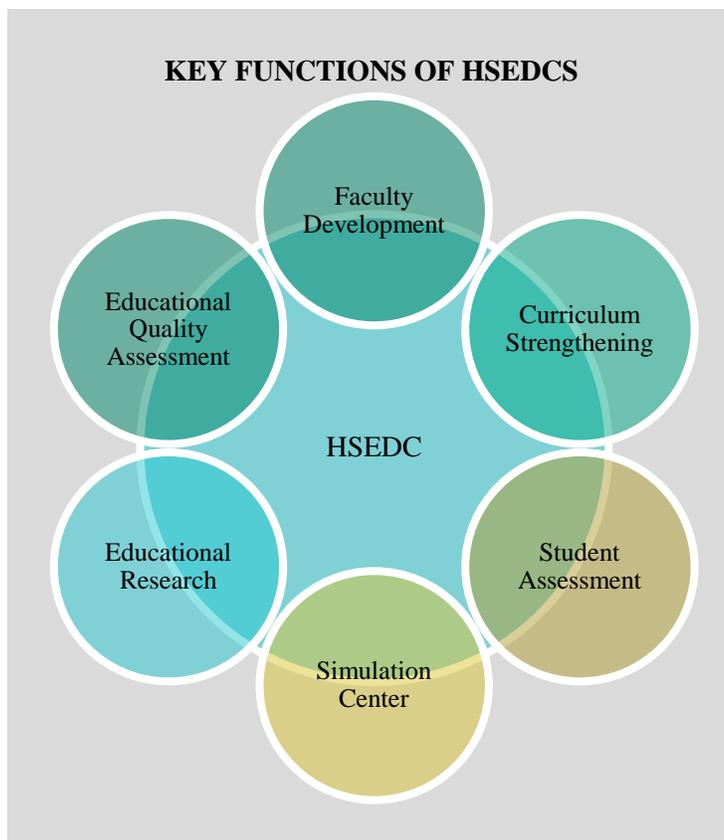
The HRH Project focused on improving quality of PSE, institutionalizing and standardizing in-service training (IST) and strengthening systems for continuing professional development (CPD). **The HRH Project strengthened institutional capacity of more than 90 public and private Higher Education Institutions (HEIs)** and regulatory agencies to produce competent graduates. A total of **13,183 instructors and preceptors from 52 public and 40 private HEIs** benefited from technical and pedagogic faculty development courses. **Sixty curricula were developed or re-designed** to maximize competency based learning and enhance professional competence.

52 public HEIs were supported to improve their skills labs, clinical practicum, teaching, learning and assessment processes. Gender services were also strengthened and introduced in HEIs to ultimately contribute to increasing the number of female health workers. One of the successful program innovations was the establishment of an internal quality improvement monitoring unit called the health science education development center (HSEDCs) to serve as internal quality assurance hub. At the national level, the HRH Project worked with the Higher Education Relevance and Quality Agency (HERQA) to improve systems for regulation of health workers' education by strengthening accreditation, audit and inspection to regulate programs through developing academic standards, guidelines, policies and capacity building of the agencies through building a national pool of accreditors and quality audit experts.

The Project also worked with the Technical and Vocational Education and Training (TVET)

Agency to improve the national licensure system for health professionals. Aiming at to improving the validity and reliability of the existing diploma level certification examinations, regional COC centers were supported to develop and standardize items and train assessors. Seven system level document to guide COC was also developed. Licensure examinations were also established for university graduates, taken by 20,000 students to date. The fact that the FMOH, established the Health Professionals Competency Assessment and Licensure Directorate that guarantees ownership and sustainability of the initiative beyond the life of the HRH Project.

The HRH Project supported FMOH to standardize and institutionalize in-service training across the country through; the standardization of national 56 training packages, strengthening and establishing 50 IST centers with provision of furniture and electronic equipment and assignment of IST coordinators. As of 2018, IST centers were able to train more than 100,000 health workers and generate grants in excess of 210 million birr, which is encouraging progress towards susta/inability and local ownership.



The HRH Project also worked with FMOH and relevant partners to develop a national framework for CPD, advocated and promoted CPD for different stakeholders, trained and oriented more than 250 CPD providers and supported different health professional associations to develop a total of 30 CPD courses.

Result 4: Program Learning and Research Conducted

To enhance a culture of evidence-based decision making, the Project used a participatory approach to build the capacity of the FMOH, RHBs, training institutions, and professional associations to conduct implementation research, program learning, and monitoring and evaluation. The HRH Project conducted **12 national and regional level implementation researches**, published **14 manuscripts in peer reviewed journals**, developed 13 program learning reports, disseminated evidence at international and national conferences and distributed over 800 copies of study reports to stakeholders to assist for evidence informed decision making and interventions design. Throughout the process, the Project **built the capacity of 254 experts working at local institutions** (FMOH, RHBs, FMHACA, professional associations and training institutions) in research design, data collection, analysis, publication, and M&E. Another key contribution of the Project was an impact model which was developed to predict the impact of HRH interventions on population health outcomes. The Project's end-of-project evaluation was conducted by external evaluators commissioned by USAID in March 2018. The HRH Project supported evaluators to facilitate evaluation process and provided information as needed.

Additional Activities and Close-out

In addition to the core HRH Project activities, through the mechanism described below, the project also provided LMG training for 313 leaders and managers during a nine-month Leadership, Management and Governance (L+M+G) program to help them achieve greater equity and quality of health services. Additionally, the project supported FMOH to perform 1,615 surgeries during working days (90.5%) and weekend campaigns (9.5%) in target hospitals as part of Project-supported efforts to reduce the surgical backlog at key institutions.

The HRH Project organized a colorful closeout and dissemination workshop on April 3, 2019 in Addis Ababa. The event was attended by 240 participants; including His Excellency Dr Amir Aman, Minister of Health, the Federal Democratic Republic of Ethiopia, Mr. Getachew representative of Her excellency Prof. Hirut Woldemariam, Minister of Science and Higher Education, the Federal Democratic Republic of Ethiopia, Leslie Reed, USAID Mission Director, and Dr Leslie Mancuso, CEO and President of Jhpiego.

In conclusion, the combined improvements in HRM and health workers' production contributed to increase Ethiopia's workforce density by 85%, from 1.36 per 1,000 population in 2012 to 2.52 in 2018. (See below for summary of key achievements by result area). The HRH Project's sustained political commitment and leadership, coherent long-term HRH strategies, improved institutional capacity, inter-sectoral collaboration and adequate resources from government and non-government organizations are fundamental to sustaining and/or scale up the current success of this USAID-funded mechanism.

STRENGTHENING HUMAN RESOURCES FOR HEALTH PROJECT ACCOMPLISHMENTS

GOAL: Improve Health Outcomes for All Ethiopians through Improved Availability, Quality and Management of the Health Workforce

Health workforce to population ratio **1.36/1000** in 2012 Vs **2.52/1000** in 2018

Total number of health workforce

in 2012	in 2018
114,362	243,602



IMPROVED MANAGEMENT

Developed national HRH strategic plan

>1,300 newly created HR positions

>2,900 HR managers/staff trained

>300 MOH staff trained on LMG

>67,000 health workers recruited

Strengthened regulatory capacity



IMPROVED QUALITY

Built capacity of **52** public higher education institutions to improve quality of education and gender gap

Strengthened accreditation system

Established national licensure exam

Standardized **50** in-service training centers



INCREASED AVAILABILITY

>48,900 health workers graduated

>1,500 anesthetists

>15,500 midwives

>28,000 HEWs and other essential health workers



GENERATED RESEARCH

12 researches conducted

14 peer-reviewed articles published in international journals

13 program learning reports produced





I. INTRODUCTION

Country Context

The World Health Organization (WHO) had designated Ethiopia as having a ‘critical’ health workforce shortage¹. The crisis in Ethiopia was characterized by an absolute shortage of trained health workers; an imbalance in the numbers of different health workers; uneven distribution of health workers between urban and rural areas; under-production of trained personnel, especially at high and mid-levels; low retention, including a “brain drain” of health workers to more developed countries that offer better compensation; and a poorly motivated health workforce.

Ethiopia had a total health workforce of 55,373 in 2006/07² (counting only health professionals), which translates to 0.7 health workers per 1,000 population, compared with the WHO recommended 2.3 doctors, nurses and midwives per 1,000 population required to attain adequate coverage of essential health interventions. Health worker density ranges from 0.24 per 1,000 population in rural areas to 2.7 per 1,000 population in urban areas. This low health sector workforce density poses a serious challenge to the delivery of essential health care services in the country, especially in rural areas. The greatest deficit in health sector workforce density was for physicians, with only one doctor serving 36,158 people³. This strikingly low physician-to-population ratio in Ethiopia was a result of a high annual attrition rate of medical doctors, fast population growth and low capacity for training doctors quickly. In 2012, Ethiopia’s health worker density of 0.76 per 1,000 was nowhere close to the WHO thresholds, even when health officers and health extension workers (HEWs) were included in the numerator²

The shortage of health workers was compounded by high attrition and inequitable geographic distribution. For example, the physician-to-population ratio varied from 1:3,056 in the capital city, Addis Ababa, to 1:98,258 in the remote region of Afar³. Moreover, there were serious concerns about quality of education of health workers, which was strained by the rapid scale-up in pre-service education. In-service training (IST) was also plagued with poor planning, coordination, and quality⁴.

Project Description

Recognizing that the pervasive workforce challenges were a major barrier to attaining national and global health development goals, the United States Agency for International Development (USAID) awarded Jhpiego the Strengthening Human Resources for Health (HRH) Project in May 2012, an investment of \$55 million to support efforts of the Government of Ethiopia (GOE) to improve health outcomes for all Ethiopians. The Project had four result areas (see the HRH project results framework in Figure 1 below).

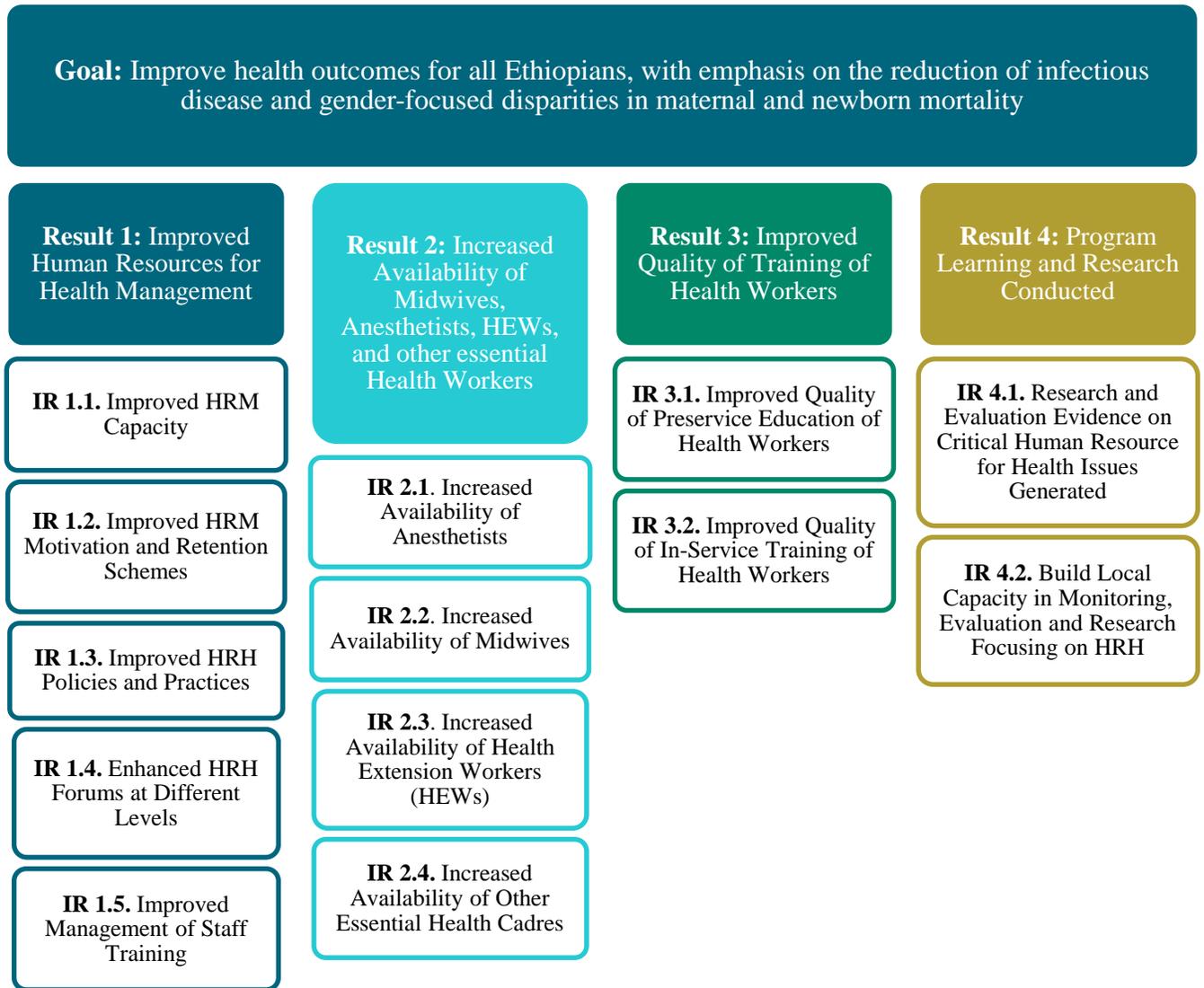
¹ WHO (2006). The World Health Report 2006 - working together for health. <https://www.who.int/whr/2006/en/>

² FMOH. Health and Health related indicators, 2004 E.C, 2011/12 G.C

³ Federal Ministry of Health’s (FMOH) Health Indicators Survey, 2008 G.C

⁴ The World Bank. Health workforce in Ethiopia, 2012.

Figure 1: The HRH Project Results Framework



The HRH Project was designed in consultation with the FMOH, RHBs and stakeholders. The Project was implemented by a Jhpiego-led consortium that included Management Sciences for Health, Ethiopian Midwives Association (EMwA), Ethiopian Association of Anesthetists (EAA), Open University UK, and Project Mercy. After a successful seven years of implementation, the current project came to an end as of September 30, 2019.

Jhpiego was a prime and led result areas 2, 3 and 4; MSH led result area 1; Open University supported establishment of postgraduate programs in human resource for health management (HRM) and health economics, which is part of result two. The EMwA and EAA contributed to the education and training of midwives and anesthetists, respectively. Project Mercy, a Christian, non-profit organization, was added after the launching of the Project to contribute to midwifery education and training.

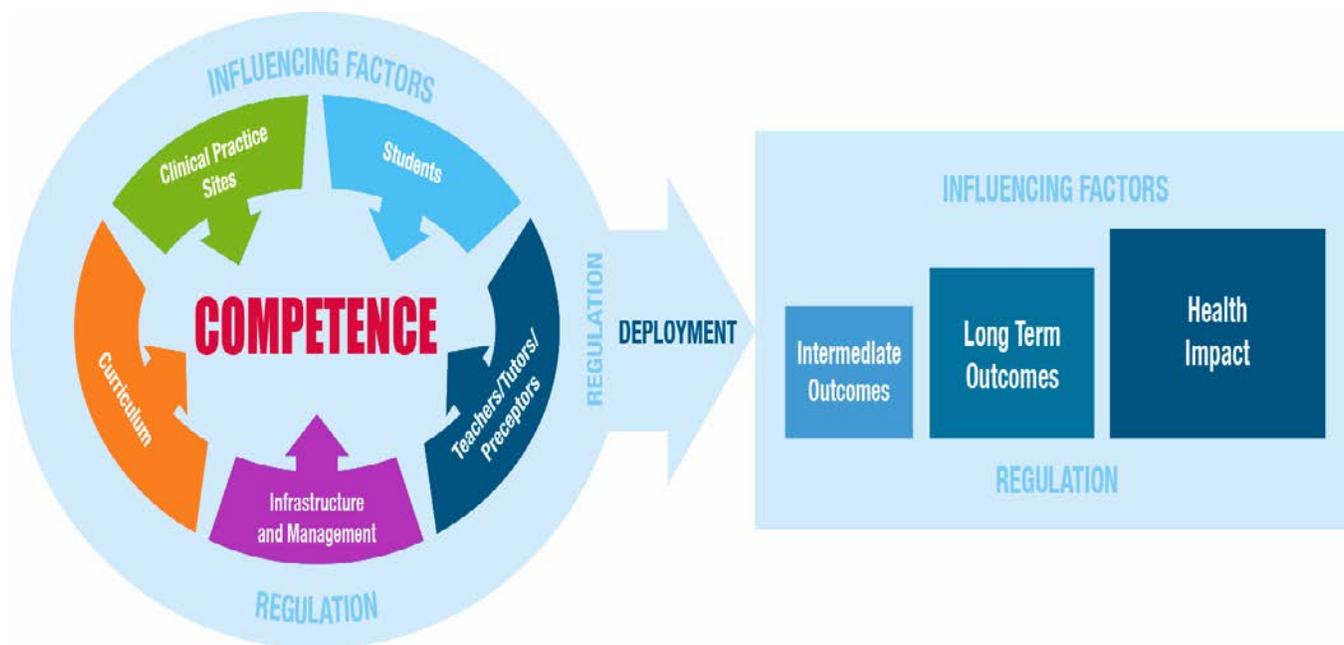
To achieve its objectives, the HRH Project supported and strengthened the Federal Ministry of Health (FMOH), the 11 regional health bureaus (RHBs), the then Food, Medicine and Healthcare Administration and Control Authority (FMHACA), the Federal Ministry of Education (FMOE), the Higher Education Relevance and Quality Agency (HERQA), the Technical and Vocational Education and Training Agency, regional occupational assessment and certification agencies, 52 government universities and colleges (28 universities and 24 regional health science colleges (RHSCs)), over 40 private colleges, and nine professional associations.

The HRH Project applied the following strategic approaches to implement activities:

- Strengthen HRH management systems at federal, regional and woreda levels;
- Invest in improving HR information systems for evidence-based planning and decision-making;
- Promote and strengthen professional associations as leaders in education, continued professional development, regulation and human resource management;
- Increase the capacity of institutions of higher learning to produce highly-qualified midwives, anesthetists, health extension workers (HEWs) and other essential health workers;
- Build the capacity of institutions of higher learning to improve the quality of pre-service education for health workers;
- Support policy and strategy development for educational accreditation and licensing of health workers and foster accountability of regulatory bodies;
- Support the development of a strategy and framework for continuing professional development and in-service training;
- Prioritize gender across interventions.

The HRH Project used the Pre-Service Education Conceptual Framework (figure 2): developed based on an integrative review of the literature, to ensure interventions address each aspect of the pre-service education system, including health professions regulation and educational accreditation.

Figure 2. Pre-Service Education Conceptual Framework



Project Management

Immediately after the award, the HRH Project began to implement startup activities including staff recruitment and deployment both at the Addis Ababa office and regional offices in Oromia, Amhara, SNNP and Tigray.

A National HRH Project Launching workshop was conducted on October 12th, 2012 in Bahir Dar, Amhara. The workshop, attended by approximately 100 participants including the then Minister of Health Dr. Tedros Adhanom and USAID mission director. Following this workshop, a separate regional launching events were conducted in collaboration with respective RHBs.

The HRH Project led a rapid situational assessment on prioritized geographic areas in June 2012, and the report was submitted to USAID. The objective of this rapid situational assessment was to describe and analyze the existing HRH situation in the country. The assessment highlighted that there was lack of capacity in HRH management, gaps in the quality of PSE and IST of health workers, including lack of adequate resources and infrastructure in training institutions and clinical practice sites; inadequate number of skilled health providers and lack of adequate and complete HRH data. Findings from the situational assessment informed the development of five year project implementation plan and yearly operational plans.

A comprehensive HRH baseline survey was conducted in December 2012; and the report was submitted to USAID. The objective of the survey was to assess the current capacity and performance of: a) HRM systems at national, regional and sub-regional levels, and b) capacity of pre-service training institutions for midwifery, anesthesia and HEWs. The survey indicated that none of the health management organizations had conducted an HRM capacity assessment, they had not conducted a staff satisfaction survey regularly and had poor functionality of HRIS. The survey informed that PSE institutions had shortages of skill lab resources, learning materials and student transport

to practicum sites and weak functions of education quality assurance system. The survey findings were used to set project bench mark and targets for developing performance monitoring plan, revised five year implementation plan, guided for procurement of skill lab materials (simulators and medical equipment), office supplies and furniture, books, modules, computers and vehicles, etc.

To ensure continued ownership and collaboration with the FMOH, all annual work plans were developed in consultation and alignment with relevant government entities including: Human Resource departments at FMOH and RHBs, health professionals' regulatory units at FMHACA, HERQA and the Higher Education and TVET Directorates at FMOE.

The HRH Project was originally a five-year project, however two years and four months were added through No cost extension mechanisms for ensuring continuity of project implementation and attainment of results. In the Project's sixth year, USAID requested the HRH Project to implement the Leadership, Management and Governance (LMG) Project (2012-2017) that was implemented by MSH through a global award. The LMG Project was designed to improve the leadership, management, and governance capacities of health systems. The continuation of the LMG project was a response to a high priority request by USAID towards supporting its efforts to standardize and harmonize LMG IST program for senior FMOH, RHB, district and facility level managers. Given the similarity of the scope with HRH Project's Result Area 1, in Year 6, the HRH Project became the Mission's mechanism to continue supporting the FMOH with LMG. The Mission allocated a total of 500,000 USD to implement LMG activities. The HRH Project integrated LMG activities into Result Area One and recruited the 4 senior LMG Project staff after the end of their project. Guidance and implementation oversight was provided by Result One Team Leader while the LMG staff were hired by Jhpiego.

Moreover, increasing access to safe and affordable surgical services is a flagship initiative for the Government of Ethiopia and is aligned with the World Health Assembly Resolution A16/15, which called for universal access to emergency and essential surgical and anesthesia care. One of the important FMOH priorities in this initiative is reducing the surgical backlog, especially in Addis Ababa. Although the FMOH was able to reduce the waiting list from 15,000 to 8,000 over a 10-months period in 2018/19, the initial progress could not be maintained and the waiting list was increasing again. In response to this unmet need for surgical services, USAID through the HRH Project provided funding to support the efforts of the Government of Ethiopia to clear the surgical backlog in 2019 and improve surgical efficiency. The aim of this activity was to increase the number of elective operations and thereby reduce the waitlist while at the same time assist in identifying bottlenecks to efficient elective surgery performance and address them in a sustainable manner.

II. MAJOR ACCOMPLISHMENTS BY INTERMEDIATE RESULTS

RESULT 1-IMPROVED HUMAN RESOURCES FOR HEALTH MANAGEMENT

The health workforce is an essential component of a strong health system, and a critical link between other health systems. Without an adequate number of qualified and committed health workers, there won't be a meaningful health services and no significant health sector achievements can be made.

The underlying causes for HRH challenges in Ethiopia are many and interrelated. Some of which include: poor forecasting, projections, and workforce planning; years of underinvestment in health workforce education, training and deployment; inadequate remuneration, retention and motivation; poor financing and limited opportunities for professional development; weak collaboration among relevant ministries and non-governmental stakeholders; and weak Human Resources Management (HRM) systems and practices at national, regional and local levels.

This Result Area is further sub-divided into five intermediate result (IR) areas.

- IR 1.1. Improved HRM Capacity
- IR 1.2 Improved HRM Motivation and Retention Schemes
- IR 1.3 Improved HRH Policies and Practices
- IR 1.4 Enhanced HRH Forums at Different Levels
- IR 1.5 Improved Management of Staff Training

The HRH Project applied the Discover, Determine, Develop and Deliver (4D) technical approach to identify the country's HRM needs and design appropriate interventions (Figure 3).

KEY SUCCESSES

Contributed to the development and finalization of the national HRH strategic plan (2016-2025)

Increased the availability of health workers from 114,362 in 2012 to 243,602 in 2018, resulting in improving health workforce density from 1.36 to 2.52 per 1,000 population

reduced attrition from 3.1% to 1.2% in the same period.

Contributed to increase in number of HR staff from 1600 in 2012 to 5030 in 2018

1,307 new HR positions created and approved at the FMoH and 10 RHBs; 95% of these approved positions filled,

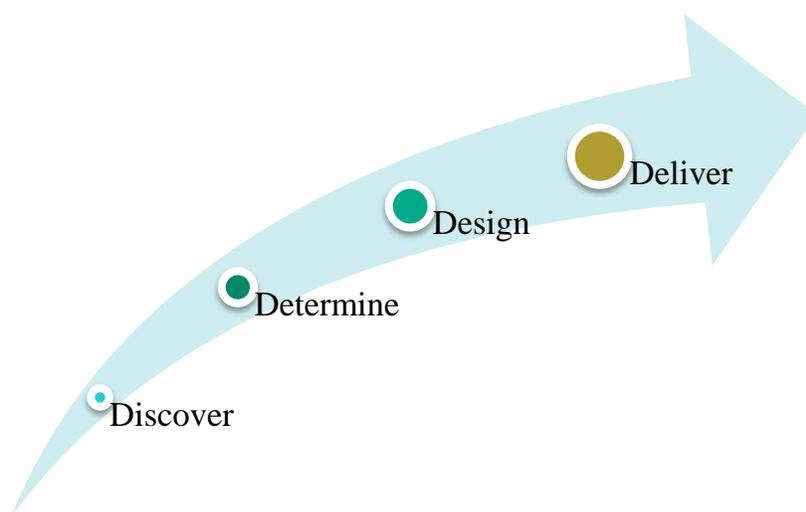
Supported RHBs with the recruitment and deployment of 67,070 health professionals

Updated and organized personnel files of 130,938 health workers, which improved HR Data Management and Use at different levels

Built capacity of 2950 HR managers and staff through HRM trainings and mentoring

Established national and regional HRH forums to facilitate local ownership, responsibility, accountability, and transparency in HRH issues

Figure 3: 4D Technical Approach



The Project facilitated participatory HRM capacity assessments with 15 institutions including the FMOH, FMHACA, and 11 RHBs, EMwA and EAA. Multidisciplinary teams of experts from HR, programs and operational units, and representatives from civil service and finance bureaus conducted the assessments, identified critical HRM challenges (Table 1), and proposed appropriate interventions for priority problems. Using these capacity assessments as a baseline, each institution developed a three-year action plan. The involvement of key stakeholders during planning established a collaborative approach that allowed stakeholders to be involved in and lead interventions throughout Project implementation.

Table 1: Major HRM capacity gaps identified through baseline capacity assessments, (2013-2014)

HRM capacity assessment components	Major challenges identified
HRM capacity	<ul style="list-style-type: none"> • HR staff had limited knowledge, skills and experience in effective HR management practices. • The HR budget was limited and covered only staff salaries, non-salary expenses such as supervision and staff training were missing. The situation was worse at lower levels (zonal, <i>woreda</i> and health facilities). • Weak HR planning and management at all levels; plans were not reviewed against HR performance.
Personnel (HRM) policy and practices	<ul style="list-style-type: none"> • HR policies and procedures were not consolidated into an HR manual. The existing policy and procedure manuals were not accessible to staff. • New staff were not formally oriented, and there was no orientation manual. • Existing job classification, recruitment, compensation, deployment and discipline policies and procedures were not applied consistently.

HR data	<ul style="list-style-type: none"> • The national human resources information system (HRIS) was not fully functional. There was huge data backlog and a critical shortage of computers. • No staff dedicated to collect and organize HR data. • Data on staff turn-over or retention was unavailable except at some hospitals and there was no established mechanism to collect this data.
Performance management	<ul style="list-style-type: none"> • Supervision was ad hoc, and the system was not widely understood or used. • Weak performance appraisal system and the proposed Balanced Score Card (BSC) was not implemented in all RHBs. • Performance appraisal practices were not linked to rewards or sanctions mechanisms.
Training and staff development	<ul style="list-style-type: none"> • Limited In-Service Training (IST) opportunities relevant to HRM areas. • Training was not always linked to employee and organizational performance needs. • There was no initiative to develop leadership and management skills in HRH.

Based on the findings from the assessments, key priorities were identified which include:

- Increasing the number and qualifications of HR staff
- Improving HR planning and budgeting (especially non-salary recurrent budgets)
- Strengthening staff motivation, retention and performance schemes
- Improving the management of staff IST and CPD,
- Maintaining HR data for decision-making and
- Fostering partnership and coordination among relevant stakeholders.

These priorities were aligned with intermediate result areas of IR1 (Figure 1) and integrated into the annual work plans of the HR Directorate at the FMOH and FMHACA as well as HR Support Processes at all RHBs. The HRH Project seconded 15 HRM officers in all RHBs to catalyze organizational change and management and support and build capacity of government offices to implement joint action plans.

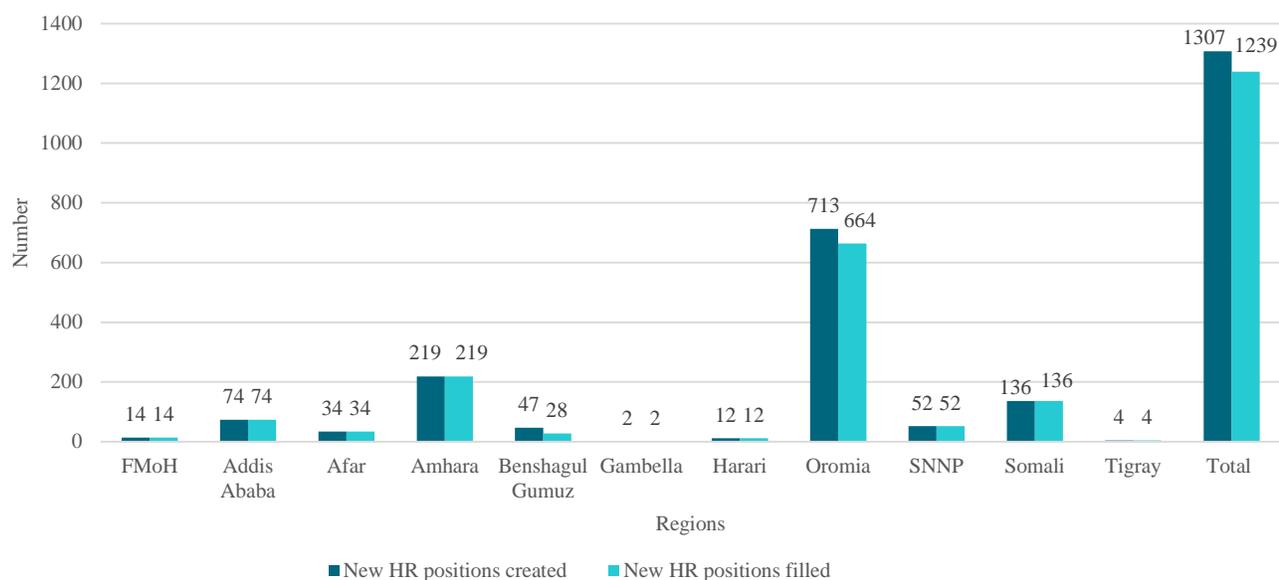
IR 1.1. Improved Human Resources Management Capacity

Improved HRM Governance Structure and Staffing Levels

The absence of a dedicated and autonomous HR structure, particularly below the RHB level, was an HRM capacity gap identified in Addis Ababa Afar, Amhara, Benishangul-Gumuz, Somali and Tigray regions. In these regions, the HR planning and management decisions at zonal health department (ZHD) and *woreda* health office (WorHOs) levels were made by the Administration and Finance Pool (popularly referred to as a ‘**Pool System**’) under the Offices of the Civil Service or Capacity Building at respective levels. In RHBs where HR structures existed at zonal, *woreda* and health facility levels as in Dire Dawa, Harari, Gambella, Oromia and Southern Nations, Nationalities and Peoples Region (SNNPR), there were either not enough staff (e.g. in Oromia) or the positions were mostly vacant (e.g. SNNP and Dire Dawa).

The HRH Project supported the FMOH and RHBs to conduct a workload analysis to determine the number of HR staff required to adequately perform HRM functions at each level of the health system and determine the HR structure and staffing gaps. The qualifications for newly created HR positions were revised to increase seniority and capacity of HR managers and staff. In regions with no dedicated HR structure, the Project recommended that the RHBs create their own independent HRM units with adequate numbers of HR staff. The proposals were reviewed and approved by senior management teams at the respective RHBs. Consultative workshops were then held with the respective Regional Civil Service Bureaus/Capacity Building Unit to get the proposed structures and additional positions endorsed. The Project supported sustained negotiations with the respective RHBs and Civil Service Bureaus, which gradually resulted in **1,307 new HR positions created and approved** at the FMOH and 10 RHBs. Of these approved positions, **95% (1,239) were filled** by the end of the project (Figure 4) clearly indicating the country ownership and sustainability.

Figure 4 Number of New HR Positions Created and Filled in the Health Sector, 2012-2018



In addition to strengthening HR units, the HRH Project supported RHBs with the recruitment and deployment of 67,070 health professionals (See table 2 below). The support included participation in recruitment committees, selecting suitable candidates from a pool of applicants, and conducting interviews. Recruitment was followed by comprehensive orientation and induction to familiarize the new hires with the required job expectations at each institution.

Table 2: Health Care Providers Deployed by Region and year

RHB	2013	2014	2015	2016	2017	2018	Total
Addis Ababa	636	1,193	958	1,211	845	284	5,127
Afar	251	320	387	475	549	324	2,306
Amhara	982	3,437	4,147	4,006	4,925	1,340	18,837
Benishangul Gumuz	126	115	27	132	141	141	682
Dire Dawa		97	93	109	114	21	434
Gambela			108	150	715	431	1,404
Harar			20	88	90	80	278
Oromia		1,861	2,725	1,960	1,842	1,958	10,346
SNNPR	2,081	2,525	2,358	2,193	2,564	2,148	13,869
Somali	189	256	729	516	584	1,146	3,420
Tigray	1,985	1,662	1,672	1,521	1,859	1,668	10,367
Total	6,250	11,466	13,224	12,361	14,228	9,541	67,070

Mengistu Alehegn, Head of the HRMD Support Process in Amhara RHB, states that the HRM capacity assessment and subsequent technical support from the HRH project has enhanced the capacity of the HR staff to adapt the employee orientation manual and carry out the orientation program. He said, “As part of the HRM strengthening, teams identified key challenges during HRM capacity assessment and developed a plan of actions to address the challenges. We are implementing the actions that were planned, one of which being, employee orientation manual and programs. Orientation was provided using the manual, and it provided an opportunity for new employees to become familiar with the RHBs vision, mission and goals as well as their colleagues and job expectations from an administrative standpoint.”

The project contributed for improvements in HRM and health workers’ production from 114,362 in 2012 to 243,602 health workers in 2018, which resulted to increase a health workforce density by 85%, from 1.36 to 2.52 per 1,000 population. Besides, health worker attrition decreased from 3.1% to 1.2% in the same period (see figure 5 & 6).

Figure 5: Health workers density and attrition rate, 2012- 2018

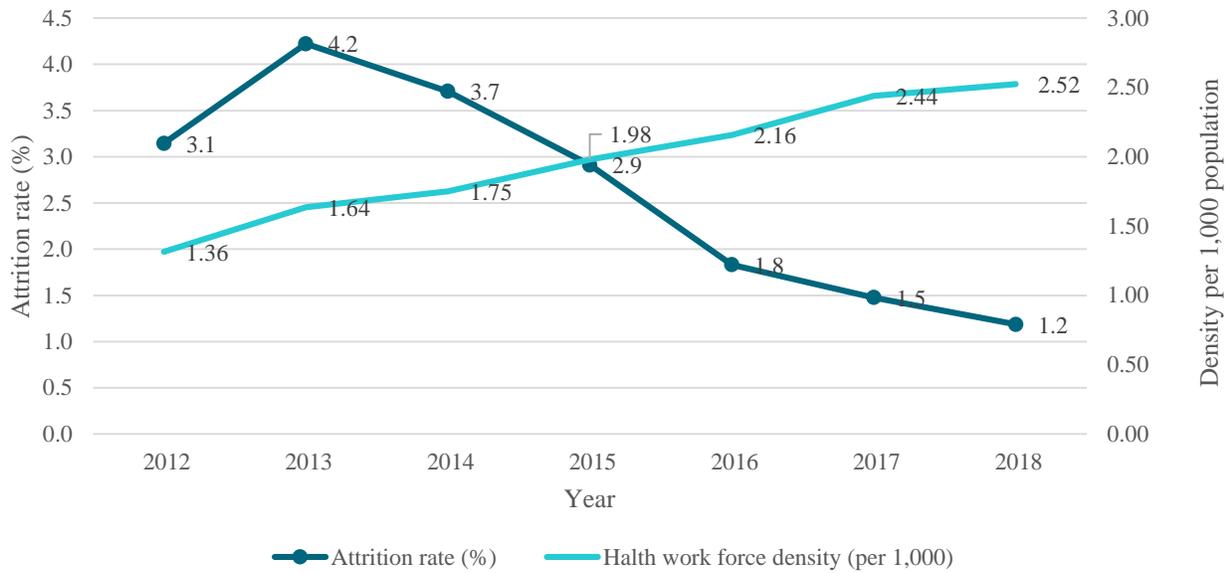
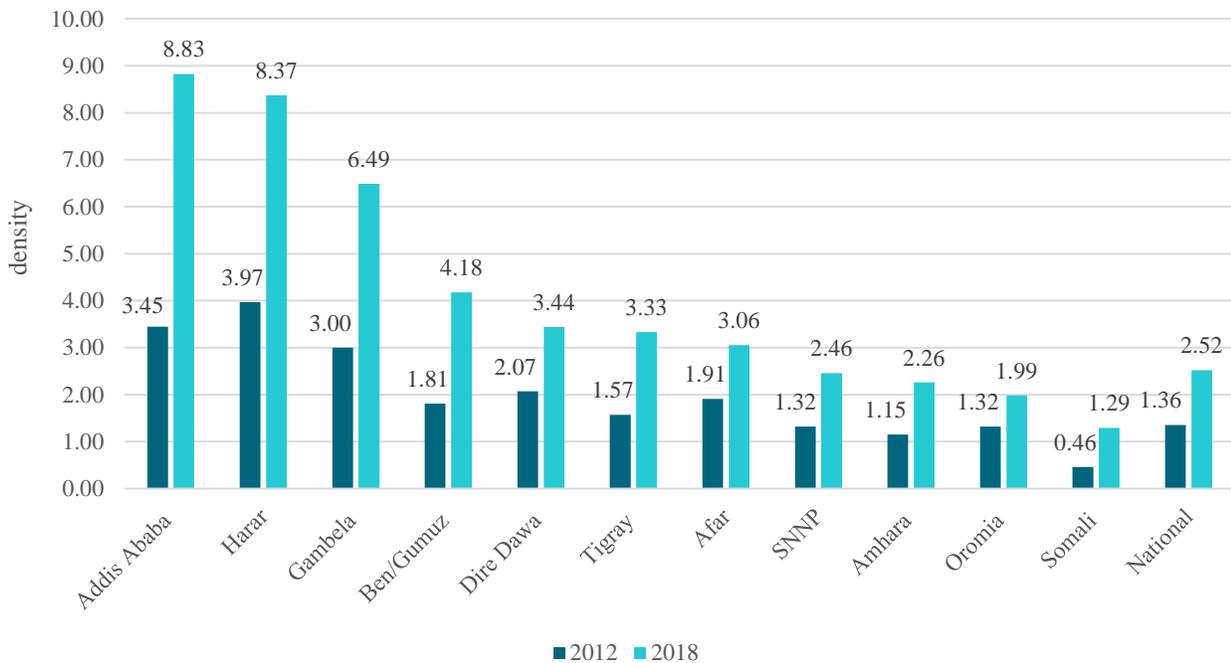


Figure 6. National and Regional Health Workforce Density Per 1,000 Population, 2012 - 2018



Strengthened HR Planning and Budgeting

The Project's baseline HRM capacity assessments indicated that there was no system for comprehensive HRH planning in all institutions, and that HR plans were developed on an ad hoc basis. The lack of sufficient budgets for non-salary recurrent HR activities, such as staff training, supervision and performance review meetings, was a particular challenge for HR work processes in all regions, particularly at district and health facility levels. Thus, the Project's support to the HR Development and Administration (HRDA) units at the FMOH and RHB levels focused on building their capacity for developing comprehensive HR planning and budgeting as well as integrating HR plans into their respective woreda-based planning. Regions, zones and woredas were able to negotiate funding to recruit more HR and health professionals, and though far from sufficient, nine RHBs eventually succeeded in securing government budgets for non-salary recurrent costs.

The HRH project supported FMOH to update and finalize the national HRH strategic plan (2016-2025). As part of this process, the project supported the FMOH to conduct interviews with key stakeholders in preparation for the review and submission of the revised strategic plan to the Directorate of HRDA at the FMOH. The objectives of strategic plan are to:

- Develop and implement appropriate HRH standards, guidelines and Legislative Frameworks
- Establish a comprehensive Human Resources Information System (HRIS) and strengthen data use for decision-making
- Strengthen HRH Planning at all Levels
- Create a Gender Responsive and Healthy workforce
- Engage diverse partners in National HRH dialogue and actions
- Improve pre-service education and training for the health workforce
- Strengthen In-Service Training and Continuing Professional Development for the health workforce
- Strengthen accreditation and regulation of training institutions and health professionals
- Improve HRH leadership and governance structure and capacity at all levels
- Strengthen HRM capacity and Practices at all levels
- Improve health worker recruitment and deployment at all levels
- Reduce inequity in geographic distribution and skill mix of health care workers
- Enhance staff motivation and retention
- Improve health workforce performance and productivity

Improved HR Data Management and Use

In 2012, the HRH rapid capacity assessment and baseline survey found that human resources for health information system (HRIS) was not fully functional at all levels. In an effort to revitalize the national HRIS, the HRH Project advocated for the hiring of 17 data personnel in the 11 regions to alleviate the data backlog and perform routine data entry. RHBs received both financial and technical support to collect annual HR data and report to the FMOH. To help create a fully functional HRIS, the Project collaborated with the CDC-funded and Tulane University-supported HRIS Project to provide IST to 544 HR staff in Tigray, Addis Ababa, Afar, Dire Dawa, SNNP, Oromia, Harari and Benishangul-Gumuz regions to complete HR data collection.

Ongoing technical support was also provided to RHBs to enter data into MS-Excel that was later transferred to the HRIS software at the regional level. This support was critical for RHBs to monitor progress against planned targets, calculate annually reportable indicators, and document improvements in HRM functions at the RHB and ZHD levels even in the absence of a robust HR information system.



The Project supported RHBs to update and organize personnel files of 130,938 health workers.

In the past, health worker personnel files were not well organized and were usually incomplete, misplaced or lost. Improved file management significantly reduced wastage of health workers' time traveling back and forth between health facilities and management structures in vain.

Improved HRM data management practices at different levels of the health system enabled the FMOH and RHBs to determine the stock and distribution of the health workforce easily.

Improved Performance Management Systems and Practices

Well written job descriptions (JD) are a communication tool that allow prospective job candidates, employees and managers to understand their essential duties, responsibilities, performance expectations, and the required educational credentials and experience needed for each role. However, due to the lack of clear JDs, it was not possible to ensure behavioral accountability, good performance or increased commitment to the mission and vision of the FMOH. Moreover, though the FMOH and seven RHBs (except Afar, Somali, Benishangul-Gumuz and Gambella) adopted the BSC as their performance management system, its implementation was affected by limited understanding of BSC concepts (given its complex nature and limited practical training), and inconsistent performance monitoring and support to the teams and staff. Annual BSC-guided plans were limited to case teams at the FMOH and RHBs, and were not extended to individual staff within RHBs or any staff below the RHB levels.

The HRH Project provided technical and financial support to all RHBs to identify and review existing JDs or develop new ones, and to disseminate updated JDs to all staff in the RHBs and sub-regional levels. The presence of JDs guided each employee to develop his/her own performance plan and created a basis for performance evaluation and improved accountability.

In addition, the HRH Project in collaboration with RHBs and regional civil service bureaus conducted BSC training in seven RHBs for 328 participants from RHBs, zones, *woredas* and hospitals as well as civil service employees.

Table 3: Number of HR and other staff who received BSC training by RHB

#	RHB	Staff trained
1.	Addis Ababa	30
2.	Amhara	40
3.	Dire Dawa	30
4.	Harari	39
5.	Oromia	75
6.	SNNP	44
7.	Tigray	70
	Total	328

The HRH Project provided financial and technical support to organize experience-sharing visits for Afar, Somali, Gambella and Benishangul-Gumuz regions to learn from the Oromia and SNNP regions. The experience-sharing opportunities inspired the four regions to initiate BSC implementation. Follow-up was provided to all regions through the Project's seconded regional HRM officers who assisted the expansion of BSC implementation in the seven RHBs and the initiation process in the four regions. Ongoing technical support was provided to government staff in developing individual performance plans using BSC tools. As a result, performance planning was cascaded down from the case team levels to health workers.

Supportive Supervision and Review Meetings for HRH

Supervisors had limited practical experience with staff supervision and carrying out review meetings. While improving performance planning, the HRH Project provided technical support and developed checklists and guidelines to strengthen supportive supervision to assess and improve HRH performance at all levels. Based on individual performance plans, the Project conducted regular monitoring of progress against planned targets.

Supportive supervision interventions were implemented in two broad approaches: where the RHBs had well established integrated supportive supervision (ISS), for example in Tigray, Amhara, Oromia and SNNP, the HRM indicators/checklists were integrated into the overall RHB ISS checklist. In developing regions and at the FMOH, where there was no strong ISS, the HRH supervision was conducted independently according to the schedules in their annual HR operational plan. Moreover in developing regions, the HR Unit inspired other units and departments in the RHB to develop checklists and schedules for their ISS. The regional HRH Project staff provided technical support in trainings, site visits, feedback and planning for the supervision, while costs were shared by the Project and RHBs. Teams from the FMOH supervised and supported RHBs while the RHBs conducted similar supervision to the ZHDs, WorHOs and selected hospitals, and zones and *woredas* conducted supervision to primary health care facilities. In addition to onsite feedback and agreed action plans for performance improvement, supportive supervision findings were also shared at regional performance review meetings.

In this way, supportive supervision and review meetings helped HR support work processes identify gaps and provided appropriate inputs in preparing action plans based on the identified gaps. The review meetings enabled hospitals and *woredas* to share their experiences and created healthy competition among staff, becoming a framework for selecting high performing staff for rewards to improve motivation and retention.

IR1.2. Improved Staff Motivation and Retention Schemes

All the available evidence in the literature suggests that the ways health care providers are managed, motivated and supported is not only central to the quality of health services that they provided but it also enhances motivation, job satisfaction, retention and productivity. One of the biggest HRH problems in Ethiopia was low motivation and high turnover of staff; and lack of national level evidence was also a major challenge for making an evidence based motivation and retention strategy.

Evidence generation and advocacy on job satisfaction, motivation and retention

To provide evidence for an effective and contextually relevant and feasible motivation and retention strategy, the HRH Project collected data from various sources, including desk review, employee job satisfaction surveys, retention study, and staff exit interviews. In the first year, the HRH project completed a desk review on the effectiveness of existing motivation and retention strategies in the country. Findings from the desk review indicated that there were limited published systematic reviews of motivation and retention schemes. However, the interviews suggested that there were various financial and non-financial retentions schemes being implemented by the government.

The major findings from the retention study were disseminated to key stakeholders during the Third National HRH Forum held from 31 May- 1 June 2015. FMOH and RHBs agreed to start implementation of recommendations based on the study findings. The HRH project was also implemented multiple and concurrent initiatives/advocacies such as developing locally appropriate motivation and retention strategies, strengthening HRM and improving timely implementation of financial and non-financial incentives approved by the federal government. Hence the FMOH and RHBs agreed to strengthen implementation of the existing motivation retention schemes (financial and non-financial incentives) such as timely payments of duty and various professional allowances to improve health workforce motivation and retention.

Ensuring consistent implementation of incentive packages

The FMOH developed a health professionals' incentive package to improve health workforce motivation, retention and performance. The incentive package includes allowances for duty, acting, transport, housing and professional risk/hazard. The HRH project supported regions for implementing the incentive package, which led the RHB to establish a team of experts (including HRH project staff), who were tasked with reviewing and examining the challenges and adapting the package into the regional context for better implementation.

Building capacity of HR managers and leaders

The capacity of the FMOH and RHBs to implement evidence-based motivation and retention strategies was limited. The HRH project enhanced their skills through HRM trainings, supportive supervision, and coaching and mentoring activities. For example, staff motivation, retention and performance was addressed as one of the eight thematic modules in HRM IST to increase the understanding of HR managers and staff about the "pull" and "push" factors for health workforce motivation and retention. With the improved understanding of such factors, the HRM

leaders/staff are now striving to reinforce the pull factors while reducing the push factors under their control. HR managers at the FMOH and RHBs are able to clearly see the relationship between a motivated and stable health workforce and improvement in service delivery. In addition, with ongoing technical support from the Project, RHBs implemented the health professionals' incentives packages approved by the FMOH which includes, duty allowance, professional risk allowance, free medical services for themselves and family members.

The HRH project supported all RHBs' HR Support Processes to organize and conduct consultative workshops with regional Civil Service Bureaus and Cabinets to secure approval for newly proposed HR positions, create additional positions, and job evaluation and grading. Subsequently, RHBs decided to replace JDs with the Job Evaluation and Grading (JEG) system approach, to better address benefit packages and nomenclature of professions within a comprehensive system. For example, Oromia RHB submitted JEG document to the FMOH for further review and endorsement.

Work Climate Improvement Programs Developed and Implemented

The HRH Project developed and pilot-tested a concept note to improve the work climate at national, regional, and local levels. With further review, the actions stipulated in the concept note were in line with the work climate and quality management approach called 5S-KAIZEN Total Quality Management (TQM) already introduced in institutions by the Government. To avoid duplication of interventions, the Project began supporting this government initiative. Subsequently, the Project provided technical and financial support to Amhara RHB to train 95 staff from the RHB and hospitals in the region. As result the implementation of 5S-KAIZEN TQM progressed well in all HRDA units at the RHB and 17 hospitals in Amhara. Regular supervision and coaching was conducted to improve the work environment and performance. With promising results and the good experience from the Amhara Region, the Project extended technical and financial support to Oromia, SNNP, Tigray and Addis Ababa regions to conduct 5S-KAIZEN TQM training and initiate its implementation. A total of 218 staff were trained in these regions with implementation started in the regional HRDA support processes. The training improved staff capacity to create a better working space and a clean environment, including changing the office set-up and filing systems and their efficiency at work by reducing time spent on searching for files.

Tesfaye Dadi, a young and energetic human resource management professional, has been working at the Oromia Regional Health Bureau (RHB) for the past seven years. He recalls that the office was overcrowded and poorly equipped, leading to poor customer service to the health workers who often visited the RHB seeking HR related support. "All offices at the RHB were congested. The paper files and office furniture were not properly arranged, making it difficult to clean, and there was a poorly functioning air conditioning system," Tesfaye explained. Today, the RHB is a much more pleasant working environment. The seating arrangements were changed to best meet the staff needs and customer service delivery. New furniture and metal sliding shelves for storing filing were procured; and a fresh coat of paint applied. Staff members no longer complain about the lack of fresh air. They have also improved their document and personnel filing systems

Region- Specific Motivation and Retention Initiatives Implemented

The HRH project provided technical and financial support to RHBs to design and implement contextually appropriate motivation and retention schemes. Thus, the project supported Amhara and SNNP RHBs to conduct annual motivation and retention regional festival for the recognition and reward of best performing individuals and health organizations for improving staff motivation, promote healthy competition among health workers, reinforce the use of the BSC performance management system, and ultimately improve the quality of health care service delivery. In Amhara regional public service and health bureau developed and distributed region-specific recognition and rewarding criteria to be used by all institutions. Accordingly, the RHBs, all zones and hospitals started monthly recognition of best performing staff which helped in the process of staff selection for annual recognition and award.

The project was also provided financial support to Oromia RHB to recognize 251 best performing midwives to complete their bachelor’s education and advance their career. To reduce staff turnover, Afar RHB also approved incentives, such as top up salaries, overtime, or duty allowance for the staff working in the most remote woredas with more than average hardship index in the region.

IR1.3. Improved HRH Policy and Practices

Access to and Compliance with HR Policies and Procedures Improved

Health workers did not have access to existing HR policy documents, and were therefore unaware of the processes available to support them when HR issues such as conflicts arose. Similarly, managers often made HR decisions based on their intuition, personal experience, or collective wisdom. Coupled with limited knowledge and skills in effective HRM practices, it was difficult for supervisors and managers to provide adequate support for their staff.

The HRH Project provided technical and financial support to the RHBs to collect relevant national and regional civil service proclamations, directives, guidelines and standard operating procedures. The documents were printed and photocopied, and bound together as one HR Policy Package (See picture below). The purpose of binding the documents as a package was to encourage HR teams to regularly use them as a reference and prohibit HR or other staff from removing these documents from the HR office. A total of 6,317 copies were distributed to the HRDA support processes at FMOH, RHBs, ZHDs and woreda/town health offices. (See table 4 below)

Table 4: Number of HR policy documents printed/photocopied and distributed by RHBs

#	RHB	# of HR policy packages distributed
1.	Addis Ababa	20
2.	Afar	82
3.	Amhara	175
4.	Benishangul Gumuz	70

5.	Dire Dawa	50
6.	Gambella	20
7.	Harari	28
8.	Oromia	2,500
9.	SNNP	3,230
10.	Somali	100
11.	Tigray	42
	Total	6,317

Moreover, the Oromia RHB used its own budget to reprint more than 1,500 additional HR Policy Packages that were distributed to its 20 ZHDs, 18 town health offices, 316 woredas and 80% of the 504 health facilities. This demonstrates regional ownership and understanding of the value of HR policy documents in improving the HRM practices at all levels of health system.

Yet, merely increasing availability and accessibility of HR policy and procedure documents does not on its own guarantee consistent and fair application of rules and regulations. Thus, the HRH Project supported the FMOH and RHBs to implement multifaceted interventions to increase awareness including targeted trainings and orientation to staff on HR policy, integrating HR policy and procedures into HRM IST and post-training follow-up visits. For example, the Project supported the FMOH to conduct a 7-day training on federal civil services policies and procedures for 36 participants from the FMOH, federal ministry agencies and federal ministry hospitals. The Addis Ababa RHB organized an orientation on HR policy for 150 HR managers and staff from the RHB, hospitals and health centers while the Tigray RHB oriented 500 of its staff on HR policy packages during regional review meetings. The Oromia RHB conducted a three-day orientation at different times to its 17,163 staff from RHB, ZHDs, hospitals and health centers. The Harari RHB conducted an awareness workshop for 50 staff from the RHBs, WorHOs and health facilities in the region. The Dire Dawa RHB conducted a three-day orientation to 52 RHB staff on civil service proclamations, policies and procedures. Similarly, multiple day orientations on HR policies and procedures were provided to HR managers and staff working in SNNP, Amhara, Benishangul-Gumuz and Gambella regions. These efforts have significantly addressed irregularities in routine HRM practices and reduced customer complaints at all levels.

“Health workers’ recruitment and deployment at the woreda health offices used to be open for corruption. However, it improved significantly in the last four years, with HRM training and follow up by the RHB and the HRH Project. Now, we strictly follow the regional civil service rules and regulations to hire health workers which increased speed, transparency and accountability”.

-- Redwan Hassen, HRM Officer, Woreda health office, Silte Zone, SNNPR

Health Professionals Regulation Policies, Systems, Programs and Practices Strengthened and Established

There was no comprehensive and systematically organized health professional designation and scope of practice legal framework and associated evidence in Ethiopia during the HRH project inception period. The absence of legal framework was one of the challenges in ensuring the accountability of health professionals' practices. This in turn, resulted in public discontent over the health professionals' service safety and quality, and losing confidence in health service available in the country.

In collaboration with FMHACA, the project conducted a national health professional regulation study to generate evidence on strengths and challenges of health care professionals' regulation (registration, licensure, and relicensure, scope of practices, CPD, ethics and Competence) in Ethiopia to improve the health care system, processes, and practices. The study key findings indicated that the current professional registration and licensure practices did not comply with national regulatory standards, and a majority of professionals practicing at public health facilities did not renew their professional license. Registration and licensing practices at regions were not supported by an automated human resource management information system. Findings used for FMHACA in developing the five year regulatory sector transformation plan.

The Project supported the development and updating of Scopes of Practice for 26 professional categories. A legal framework defining scope of practice of health professionals is an important regulatory mechanism to ensure public safety by delineating the limits of what a given cadre is qualified. The final version of the scope of practice directive was submitted to the management council of FMHACA for signature and approval.

The HRH Project provided significant technical and financial support to the FMHACA in updating the health professional regulation proclamation that was approved by the House of Representatives in February 2019. The support included:

- Drafting a literature review that synthesized the global experience on best practices of regulation of health professionals and overall health care; this was used to revise existing articles in the proclamation.
- Identifying limitations of the existing legal framework, and providing recommendations for the following additional articles: Internal quality assurance system at health institutions, CPD requirements, ethics committee, a health professional council and tele-health, reporting duty on Vital Statistics, Ambulance Services, Emergency Service, Informed Consent, Organ Transplant and Bank, etc. Inclusion of these articles will strengthen regulatory functions at national and subnational levels and work towards assuring conformity to regulatory and standard patient safety practices.
- Supporting the revision of existing sanction categories and outlining financial and administrative sanctions commensurate with the severity of violation of health care and regulatory standards stipulated in the proclamation.

Moreover, the HRH Project assisted the Federal Customer Services Directorate to develop, print, and disseminate a brochure on health professional regulation, which aims to create awareness among its target customers – health professionals registered at the federal level.

IR 1.4. Enhanced HRH forums at different levels

Human resource challenges in the health sector are multifaceted and call for multi-sectoral collaboration and action from government sectors such as ministries of education, civil service, and finance, higher education institutions as well as non-government organizations like professional associations, the private sector, donors and implementing partners.

The HRH Project worked closely with the FMOH and USAID to develop a framework of collaboration with various stakeholders to create a multi-stakeholder HRH partnership forum. The Project developed terms of reference (ToR) for national and regional HRH forums including membership profiles, a coordination mechanism, and a meeting schedule. Beyond and above facilitating HRH project implementation, the forums were designed to facilitate local ownership, responsibility, accountability, and transparency. The ToR was reviewed and endorsed by the FMOH, with RHBs adapting the ToR to their own context. As stipulated in the ToR, the National HRH Forum holds semi-annual meetings while the regional HRH forums meet quarterly. In practices, the FMOH is currently organizing national HRH forum once per year. On the other hand RHBs have conducted the meetings on semi-annual or annual basis depending on their plan.

During the past six years, the HRH Project provided technical and financial support to FMOH and RHBs to organize these HRH forum meetings. National and regional HRH forums were instrumental in addressing various issues involving many stakeholders. For example, the FMOH and RHBs worked closely with their counterparts in the Civil Service and Finance Ministries to discuss financial and non-financial incentives for health workers' motivation and retention. The FMOH and RHBs also improved administration of competency assessment tools and approaches which contributed to increasing the success rates of mid and lower level health professionals in certification exams. RHBs, TVET agencies and RHSCs are now working closely to address gaps in the quality and quantity of health professional education and training. A good example of this collaboration is the coordination of practical training to address the shortage of practicum sites.

During the first three years, the HRH Project was the source of technical and financial support to plan, organize, and conduct these HRH forums. However, over the last two to three years, the importance of such forums was recognized by the FMOH and RHBs, which are now organizing meetings with their own budgets or other sources.

IR 1.5. Improved Management of Staff Training

Poor quality of pre-service education and in-service training, lack of institutionalization, standardization and evaluation of in-service training, absence of in-service training management directive and guideline were the key HRH challenges in Ethiopia during the project inception period.

Training and professional development of health workers, managers and support staff is one of the key inputs for successful health program implementation. Regional Project staff assisted regional HR support work process and core work processes to develop need-based IST plans and budgets for health workers and administrative staff. In Tigray, Afar, Dire-Dawa, Amhara and Addis Ababa the Project technically supported RHBs in the designing and implementation of an IST participant tracking logbook to improve planning and coordination of IST opportunities.

Increased Knowledge and Skills of HRM Staff

The 2013 HRM rapid assessment findings indicated that exiting HR staff had limited technical skills and experience in HRM; and training was not linked to employee and organization performance needs. Thus, in-service training in HRM as well as various other professional development activities is essential for improved skills and capacity of HR leaders, managers and staff.

The HRH project conducted a health workers in-service training (IST) needs assessment at FMoH and RHBs; and findings used to develop a comprehensive staff training plan, which was incorporated into the HRDA annual plan. The project also developed an HRM IST package and provided a 5-day training to 2,950 HR managers and staff from the FMoH, FMHACA, Pharmaceutical Fund and Supplies Agency (PFSA) and Ethiopian Public Health Institute (EPHI), RHBs, ZHDs, WorHOs and federal and selected regional hospitals; and 50% of the trained personnel were mentored (See Table 5 below).

“As a result of the training and other HRH support, we have improved workforce planning and utilization, strengthened the use of workforce policies, HR recruitment, orientation and deployment system and increased numbers and types of health workers deployed. Our Human Resource Information System and data driven decision making is improving”.

-- Yeshiwork Fekadu, Head of the HRM unit of Felege Hiwot Hospital

Trained HRM leaders and officers were coached/mentored to encourage and support them in applying the newly acquired knowledge and skills in their daily tasks. In addition to enhancing staff capacity and motivation, this approach enhanced coordination of different HRM activities across all levels of HR functions including regional, zonal, and *woredas* level.

Table 5. Number of HR managers and staff who received HRM in-service training and mentoring, 2013-2018

Region	Number of HR staff trained		
	Male	Female	Total
Oromia	513	179	692
Amhara	191	152	343
Harari	81	40	121
Gambella	110	7	117
Somali	140	21	161
SNNP	527	92	619
Tigray	118	29	147
Afar	109	18	127

Addis Ababa +FMoH	179	152	331
Dire Dawa	98	44	142
Benishangul-Gumuz	106	44	150
Total	2172	778	2950

Major Challenges

Weak HR governance structures and staffing in some regions: Despite substantial gains, not all RHBs were successful in securing regional cabinet or regional civil service approval for the proposed creation of dedicated HR structures at zonal and district levels and increased number of HR staff. In Tigray, no dedicated HR positions were possible in the districts. Ongoing advocacy by the HRH Project through the regional HRH forum was instrumental in obtaining approval for 230 out of the proposed 730 HR positions in Amhara. In Tigray, planning and HMIS staff were assigned to handle HR activities. However, the approved positions were located in ZHDs, not in districts, and needs more support.

High attrition and slow recruitment of HRM staff: The low profile of the HR role within the health sector coupled with unfavorable compensation and work climate was a source of HR staff instability. The HRH Project staff worked tirelessly with the RHBs and sub-regional management structures to replace the staff losses by increasing the speed of recruitment. However, at the FMoH and in some regions (e.g. Addis Ababa, Dire Dawa, Somali and Afar), it was difficult to attract suitable candidates to the HR roles due to low salaries and benefits. The HRH Project provided technical support to the FMoH and RHBs to revise position requirements to attract additional candidates who otherwise would be excluded from the pool, and provided them with immediate orientation, HRM IST and coaching to enhance their capacities.

Limited budget for HR: In many regions, budget allocation for staffing is difficult to negotiate as personnel expenses are perceived to be costs to be contained instead of investments with future returns. As a result, the amount has been very low and allocations inconsistent, though improvements were observed. The Project provided technical and financial support to the RHBs to hold consultative meetings with civil service and finance sectors to present their cases. Technical support also included an analysis of HR data to show existing gaps in health professionals' deployment in health facilities and how that affects service delivery and quality of care.

Weak HRIS: The weak HRIS remained a major challenge in HRH Project implementation, despite the support for evidence-based HR planning, monitoring and evaluation practices in the health sector.

Low job satisfaction, motivation and retention: Some decisions made by the RHBs to improve health workers' motivation and retention are not implemented in a coordinated and comprehensive manner. Despite ongoing negotiations and capacity building by the HRH Project, the motivation and retention agenda did not cover sufficient ground in the health sector. This was due to the complex nature of health workforce job satisfaction, motivation, and retention but also limited capacity to understand and adapt the existing evidence into locally appropriate actions

as well as limited financial capacity to fund salary increase which is the fundamental motivational and retention issue by health care providers.

Recommendations

The Project recommends that the GOE and partners build on the experience and achievements of the current HRH Project and prioritize future HRM work focusing on the following areas:

Strengthening HR governance structure, staffing and capacity building at decentralized district levels: It is extremely important to create dedicated HR structures and strengthen HR staffing levels at *woreda* health offices and health facilities and improve leadership and management capacity through targeted training, coaching, and creating conducive work environments. It is also important to scale up HRM training and on-the-job support as an entry to address HRM capacity and sustain improved performance of HR staff. Strengthening HRM capacity and leadership skills at district and health facility levels is critical in ensuring access to quality health care. Alternative capacity building strategies such as on the job training or blended learning, mentoring, creating an enabling environment for life-long learning and professional development, and developing performance and management systems that engage staff in overall organizational strategies are also important aspects to consider.

Strengthening comprehensive HR planning and budget: It is important to support the RHBs to develop their own regional HRH strategic plans to guide HR development and management in comprehensive manner. Build capacity of HRM staff by providing practical training in the BSC tool and coaching them to develop their teams and individual performance plans guided by the tool. Costing and budget development skills are required as is the availability of accurate information (performance data) on HRM functions. It is necessary to develop information systems and generate relevant HRM performance data to build staff capacity to utilize information for evidence-informed planning and budgeting, particularly at zonal health departments, *woreda* health offices and health facilities.

Raising HRM profile, professionalize and modernize the HRM functions: One of the ways the HRH Project contributed to advancing the capability of HR leaders and functions was through the development of master of public health (MPH) program in three higher education institutions aiming to produce qualified candidates in the country who can meet the strategic and operational demands of the HR functions (See the detailed activity in IR2). Professionalizing the HR may face challenges due to the low profile of HR jobs, low salary and benefits and inadequate fiscal space to absorb more HR managers and staff. Thus, it is important to advocate for raising the profile of HR jobs at all levels and increase their compensation and benefits. This requires continued advocacy to create the structure, budget and work environment that will attract, motivate and retain such professionals.

Improving health workforce motivation, retention strategies and practices: Though multiple, concurrent interventions are being implemented, they are not yet sufficient to fill the vacuum created by the existing low base salary; and project research demonstrated very high (more than 50%) intention to leave rates. The FMoH should evaluate the costs of investing in retention versus over production. Establishing compensation and a reward and recognition system to ensure decent living conditions is a requirement, not an option. This system should take into account the changing needs of health organizations in the context of broader socioeconomic development and

epidemiologic and demographic transitions. Collaboration between multiple actors (mainly health, civil service and local government) and strong leadership and commitment of FMOH, RHBs and local governance is needed to initiate changes.

It is also important to translate motivation and retention strategies outlined in the National HRH Strategic Plan into national and regional HRH plans. Particular emphasis should be placed on building management and leadership capacity of *woreda* and health facility managers to create an improved work environment that promotes better health worker motivation, retention and productivity while the FMOH and RHBs focus on improving compensation packages and opportunities for professional development and promotion.

Improving HR policies and practices: Increasing availability of HR operational policies and procedures at all levels with particular attention to the district and health facilities is critical to strengthen evidence-based HRM practices. Not only availability of policy/procedure manuals but also familiarization orientation and compliance monitoring are instrumental in improving HRM practices at all levels. Consistent regulations and policies, including CPD and professional ethics should go hand in hand with other HRM practices.

Leadership commitment: Sustained political commitment and leadership, coherent long-term HRH strategies, institutional capacity, inter-sectoral leadership and governance, and flow of adequate resources from government and non-government organizations are critical to sustain and scale up the current success under the USAID-funded mechanism. Sustaining existing HRH forums will help harmonize decision made among key HRH actors at different levels.

These efforts will consolidate gains from the HRH Project and more importantly significantly contribute to the achievement of the HSTP.

RESULT 2- INCREASED AVAILABILITY OF MIDWIVES, ANESTHETISTS, HEWs AND OTHER ESSENTIAL HEALTH WORKERS

Although Ethiopia had severe workforce shortages across all health care occupations, the needs were greater for some cadres. For instance, in 2012, Ethiopia had only 4,709 midwives, 252 anesthetists, and 28,994 HEWs serving its population of over 84 million⁵. Thus, the HRH Project supported government efforts to improve the availability of competent midwives, anesthetists, HEWs, specialist nurses, emergency medical technicians, biomedical technicians and public health specialists.

The HRH Project interventions focused on supporting higher education institutions and other key stakeholders using the PSE conceptual model developed by Johnson and colleagues⁶ to sustainably increase the production of adequate number of competent essential healthcare providers. The technical approaches are summarized below:

- **Building the capacity of faculty** to enhance their teaching skills.
- **Strengthening clinical education** to increase development of practical competencies;
- **Infrastructure support** to create an enabling environment for teaching and learning.
- **Strengthening PSE curricula** to ensure core competencies are clearly defined, measured and attained.
- **Building the capacity of professional associations and other local institutions** involved in health workforce production to help them effectively support the pre-service education and increase their commitment to the same.

IR2.1. Increased Availability of Anesthetists

The shortage of qualified anesthesia professionals restricts access to emergency and essential surgical services. In 2012, Ethiopia had only one anesthesia provider for every 330,000 people, which was far below the global benchmark of 5 providers to 100,000 populations.

⁵ Ayalew F, Misganaw A, Yigzaw T, Kibwana S, W/Mariam D, Kachara S. 2013. *Strengthening Human Resources for Health in Ethiopia, Baseline Survey Findings*. 42-43

⁶ Johnson P, Fogarty L, Fullerton J, Bluestone J, and Drake M. 2013. An integrative review and evidence-based conceptual model of the essential components of pre-service education. *Hum Resour Health*. 11:42. doi: 10.1186/1478-4491-11-42.

KEY SUCCESSES

Increased the number of anesthesia training institutions from 14 to 30

Annual graduation output increased by 251%, from 98 in 2012 to 344 in 2018

Anesthesia workforce density has increased more than fourfold: from 1 per 333,000 populations in 2012 to 1 per 63,000 in 2018

Competence of graduating anesthetists improved: OSCE score rose from 61.5% to 65.7% and NLE pass rate rose from 70.7% to 92.8%

Among female students, enrollment increased from 9% to 34%; attrition reduced from 2.07% to 0.38%, and performance improved from 56.9% to 66.3%

EAA became a visible, stronger and trusted local partner

A variety of factors had contributed to the shortage of anesthesia professionals: limited capacity of pre-service training programs and associated clinical practice sites; difficulty attracting top students to the anesthesia training track and consequent high dropout rates, especially among female students; and inequitable distribution and high turnover among practicing anesthetists. Though professional associations can play a leadership role in addressing these types of problems the Ethiopian Association of Anesthetists (EAA) lacked the capacity to do so. Thus, increasing the supply and availability of anesthetists was a top priority for the Ministry of Health. The HRH Project supported the Government of Ethiopia to increase the availability of anesthetists.

Three strategies were used to increase pre-service education capacity for anesthesia. *First*, targeted technical, financial, and material support from the Ministry of Health and the HRH Project enabled the six existing anesthesia programs to expand the number of new BSc students enrolled each year from 146 in 2012 to 208 in 2018. *Second*, the deans of 18 universities and Regional Health Science Colleges (RHSCs) were persuaded to establish new anesthesia training programs with places 393 students in 2018. *Third*, an alternative training track (post-basic training) was developed for diploma level nurses with two years of experience; this enrolled 114 additional students in 2018.

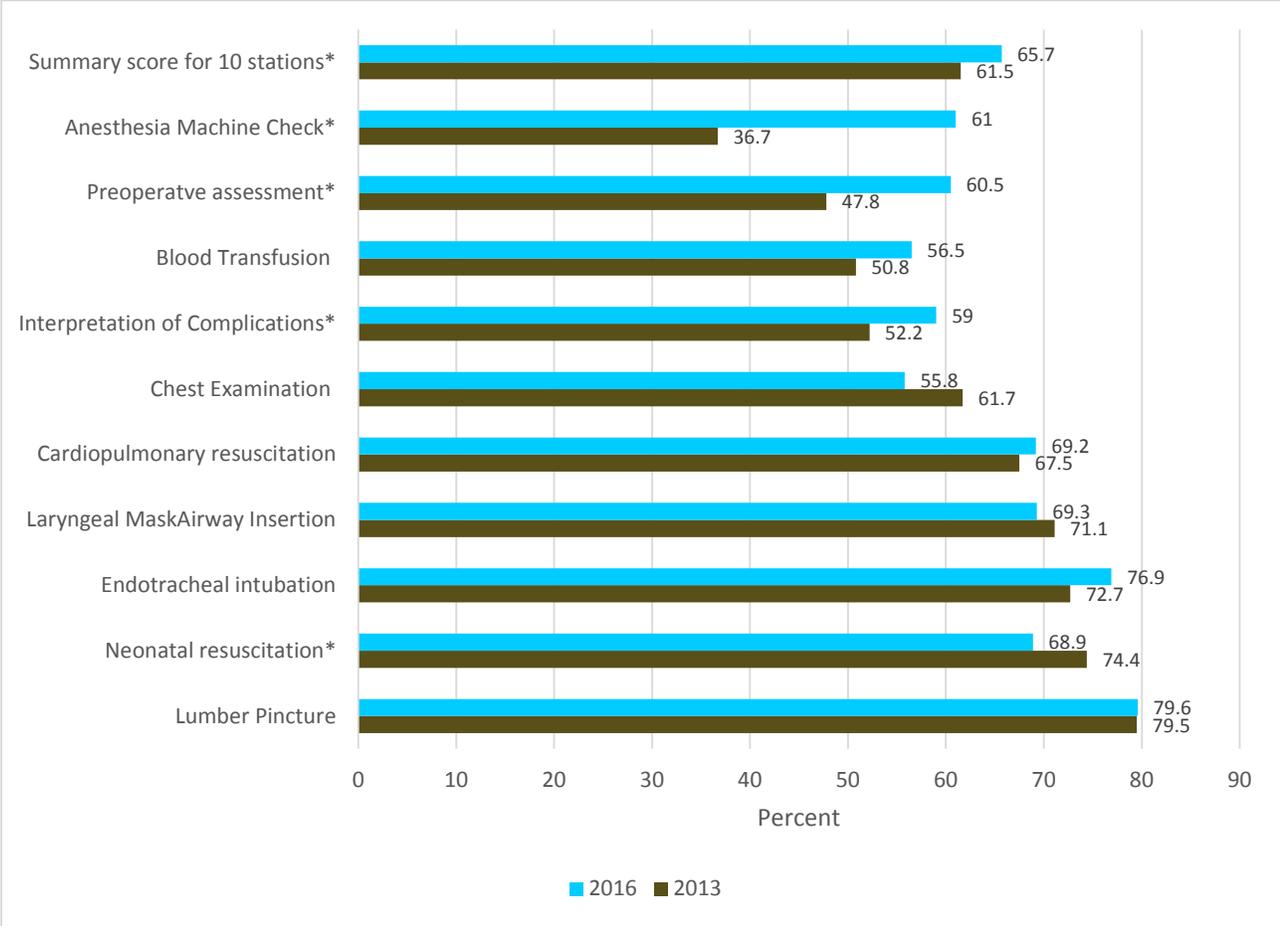
As a result, the number of pre-service training institutions increased from 14 to 30 with a parallel substantial increase in enrollments and graduates (Figure 7 below). These efforts have contributed towards the graduation of over 1,508 anesthetists (six fold of the total number of anesthetists by 2012) over the project’s life span.

Figure 7. Annual number of students who enrolled in and graduated from anesthesia training programs in Ethiopia, 2012-2018.



The PSE strengthening interventions not only increased the number but also the quality of anesthesia graduates. A study done by the HRH Project documented a statistically significant increase in the clinical competence of students graduating from anesthesia programs: average scores in OSCE (objective structured clinical examination) rose from 61.5% in 2013 to 65.7% in 2016 (Figure 8 below). The improvement in quality of education was also confirmed by the improved performance of graduates in the national licensing examination (NLE). Pass rate in NLE rose from 70.7% in 2016 to 92.8% in 2019.

Figure 8: Anesthesia students' clinical competence scores in 2016 versus 2013 for each of the 10 OSCE stations



* indicates P values considered statistically significant at < 0.05.

Furthermore, the Ethiopian Association of Anesthetists (EAA) has increased its capacity to play a central and visible role in improving quality of anesthesia education, continuing professional development and regulation. These achievements were made possible due to the following interventions.

Scaling-up

The HRH project supported the government to scale up anesthesia training institutions and student enrollment through three approaches: Serious of advocacies, institutional readiness assessment and capacity building. As a result, anesthesia training institutions increased from 14 in 2012 to 30 in 2018; and annual students' enrollment increased from 157 to 715 in the same period.

Faculty Development

Continuing professional development for faculty and preceptors is important to maintain the quality of instruction at health science training institutions. Despite this, however, most anesthesia instructors and preceptors did not have such opportunities before the HRH Project. For instance, a baseline study conducted in 2012 revealed that only 33% of classroom and clinical instructors received such training regularly while none of the preceptors received any type of training⁷. Findings from regular coaching and mentorship visits also suggested that many of the faculty had not received technical updates and teaching methodology training.



The HRH Project designed and delivered a series of needs-based in-service training for anesthesia instructors and preceptors; some focused on improving teaching skills, others on technical expertise. While acknowledging that teachers and preceptors were likely to have taken multiple trainings (hence the risk of double counting), a total of 1,434 anesthesia tutors and preceptors attended faculty development events. To expand the pool of qualified anesthesia instructors, the HRH Project also supported the revision and expansion of the MSc program in anesthesia, raised national awareness of professional volunteerism, and honored anesthetists who served as committed teachers with awards from the EAA.

As a result of these trainings:

- The standard of anesthesia education has improved
- Anesthesia faculty have started to systematically plan their classes using session plans on regular basis
- The motivation and drive for better anesthesia training has increased among anesthesia faculty The engagement and motivation of anesthesia preceptors has significantly increased leading to establishing an enabling learning environment

⁷ Ayalew F, Misganaw A, Yigzaw T, Kibwana S, W/Mariam D and, Kachara S. 2013. *Strengthening Human Resources for Health in Ethiopia, Baseline Survey Findings*.

- The learning climate has improved for anesthesia students
- Anesthesia faculty have shifted from a predominantly knowledge-based assessment to a mix of competency-based assessments
- A pool of experts (trainers and/or key personnel) has been created to roll out any education improvement activities (like curriculum development, faculty development, and education quality improvement initiatives).

Strengthen clinical Anesthesia education

According to a rapid situational assessment conducted in 2012⁸, the clinical anesthesia practice opportunities required for the achievement of professional core competencies were not effectively designed and implemented. The clinical attachments in the curriculum lack deliberately identified and sequenced competencies (divided in milestones across training years), objectives, learning and assessment strategies and tools. This was compounded by the absence of essential skill development lab (SDL) equipment, poor communication and collaboration between schools and clinical practice sites, and lack of well trained and prepared preceptors and SDL assistants. All this had collectively contributed to poor clinical anesthesia education.

To address these challenges, the HRH Project supported the development and implementation of clinical practice syllabi and competency-based assessment tools. Further, over 20 clinical management algorithms and protocols were developed and distributed to more than 100 hospitals to standardize clinical care, which has a direct impact on clinical education.

To maximize the utilization of clinical practice sites and enhance the collaboration between clinical sites and anesthesia schools, the Project encouraged anesthesia programs to assign clinical practice coordinators and established a mechanism to review collaboration with clinical education sites.

As a result of this support:

- The clinical exposure of anesthesia students has increased
- The overall competence of anesthesia graduates has improved
- Clinical anesthesia education has been strengthened
- The engagement of preceptors in teaching and assessment process has been standardized

Infrastructure and Educational Resources

A study finding in 2012 revealed that none of the anesthesia training universities had clinical skill development labs designed for the program. Regarding the RHSCs, only 38% of them claimed to have these labs designated for anesthetists' training though they were poorly outfitted. As a result, no more than half of these colleges had appropriate equipment required to teach key anesthesia competencies. Moreover, libraries in most anesthesia

⁸ Human Resources for Health (HRH) Project. 2012. *Human Resources for Health Rapid Situational Assessment on Prioritized Geographic Areas*

training institutions were not fully equipped with relevant references and national guidelines, and most libraries in RHSCs were not open outside of working hours.

To address these challenges, the HRH Project equipped skills development labs with 513 simulators, strengthened clinical practice sites with 13 Universal Anesthesia Machines together with integrated patient monitors, stocked medical libraries with 1,174 anesthesia books and 8,260 common books, supported the development and printing of 2,405 Level V anesthesia training modules (13 types), and distributed electronic ICT resources, such as 12 laptops, 405 computers and 24 LCD projectors. To facilitate the effective utilization and management of donated skill development lab resources, clinical simulation training together with post-training coaching and mentoring was conducted regularly. Resource sharing between RHSCs and nearby universities was also encouraged.

The distribution of these educational resources enabled new universities and RHSCs to open anesthesia training program. Unavailability of educational resources in local market was a major barrier to expansion of anesthesia training (see the picture, right: *Anesthesia instructor teaching students how to assess a critically ill patient using a donated mannequin, University of Gondar*)



As a result of this support:

- Anesthesia students across all teaching institutions utilized skills lab for their courses before clinical attachment (for the first time).
- Anesthesia students got the chance to practice skills with feedback under non-threatening environment before actual patient contact
- The potential inconvenience and harm that might have happened to patients because of lack of clinical experience was reduced (i.e., patient safety improved)
- The confidence and motivation of anesthesia students improved
- Access to safe surgery has been expanded/ improved (through donations of anesthesia equipment and monitoring devices, and increase in clinical attachment sites for students – contributing to reducing referrals).
- The skills labs are also used for competency assessment before clinical practice and graduation.
- Students got safe and adequate exposure to practice rare but critical clinical skills (e.g. emergency lifesaving procedures such as cricothyrotomy and Cardiopulmonary resuscitation).
- The skills labs were also used to provide technical update training for faculty.
- Overall, competency of students improved

- Overall quality of anesthesia education has improved (as measured by HERQA standard); Overall mean anesthesia training program quality from the 10 main area basic standards has improved from 48% in 2016/7 to 59.3% in 2018 (see figure 7 for details).

An increased availability of frontline health workers saves lives in rural and remote hospitals. Getenet Tadese, 28, was one of the 45 new anesthetist graduates of Wolaita Sodo University, and was assigned to serve the rural community at the Laha Hospital. Getenet started by ensuring the installation of the anesthesia machine in the operating room and enabled his hospital to avail different anesthetic drugs to be used for a range of surgical procedures. “The operating room became fully functional in August 2016,” said Getenet proudly. Since Getenet’s assignment, 203 patients, including Adugna, have successfully received surgeries in the last six months.

“So far, we have not faced any cases of post anesthetic complications,” explains Haptegeorgis Kifle, Medical Director and Surgical Officer of the hospital. He also added that the accessibility of quality surgical health care service in the hospital has contributed to an increase in the number of institutional births in the hospital.

Adugna, who just had a successful caesarian section said, “This is my seventh pregnancy but my first to give birth in a health facility. God bless the hospital staff that saved the life of my baby and mine as well.”

Curriculum Development and Strengthening

Before 2013, anesthesia curricula were designed following the traditional course-clustering approach where more emphasis was given to theoretical classes leading to cognitive overload and compromised clinical and community attachments. The curricula also lacked the integration of innovative learning and assessment methods required to facilitate the achievements of the 21st century skills. Furthermore, there was no mechanism to periodically review and revise these curricula nationally.

The HRH Project with effective leadership by EAA developed four competency-based national curricula (for Level V, post-basic BSc, generic BSc, and MSc anesthesia programs), informed by a task analysis study⁹ to ensure that training was aligned with practice realities. Accompanying clinical practice syllabi incorporated innovative learning and assessment methods. With the aim of establishing a valid and reliable assessment system, assessment blueprints for 21 anesthesia courses were developed, and Objective Structured Clinical Examination (OSCE) was introduced for the first time for training and evaluation purposes across all the 23 BSc training anesthesia institutions. Further, OSCE¹⁰. Moreover, the use of workplace-based assessment tools and clinical algorithms for teaching and assessment purposes has been fostered among all anesthesia institutions.

⁹ Kibwana S, Teshome M, Molla Y, Carr C, Akalu L, Roosmalen JV, Stekelenburg J. 2017. Education, Practice, and Competency Gaps of Anesthetists in Ethiopia: Task Analysis. *Journal of PeriAnesthesia Nursing*. 33:04, 426-435.

¹⁰ OSCE is an assessment tool based on the principles of objectivity and standardization, in which the candidates move through a series of

As a result of this support:

- Most common curriculum gaps have been solved
- The motivation and engagement of anesthesia students has improved
- Anesthesia education has been harmonized facilitating transfer of students from one to another institution.
- Clinical and community attachments maximized – contributing to better competency achievement
- OSCE has been introduced for anesthesia training and become a mandatory component of clinical assessment
- Overall competence of graduating anesthetists improved

Strengthening the capacity of EAA

The Ethiopian Association of Anesthetists (EAA) was established by a few volunteer anesthetists in 1984. In 2012, the Association had an executive committee and 280 members. At that time, the Association did not have an office and full-time staff. The executive committee members were conducting limited activities on a part-time basis.

As the vast majority of anesthesia providers (accounting for more than 92%) in Ethiopia were anesthetists, the HRH Project worked to strengthen the professional organization representing them - the EAA. This included restructuring the organization; building leadership, strategic planning, and management capabilities; developing policy and procedural handbooks including a 5-year strategic plan opening and furnishing an office; establishing CPD unit; developing an official website for the Association (Figure 6); purchasing a vehicle (Figure 5); and facilitating networking through participating in international forums such as the International Federation of Nurse Anesthetists. As a result, EAA has increased its office staff to 04 and its membership to 2,150, and the organization became a strong partner in national human resource development activities.

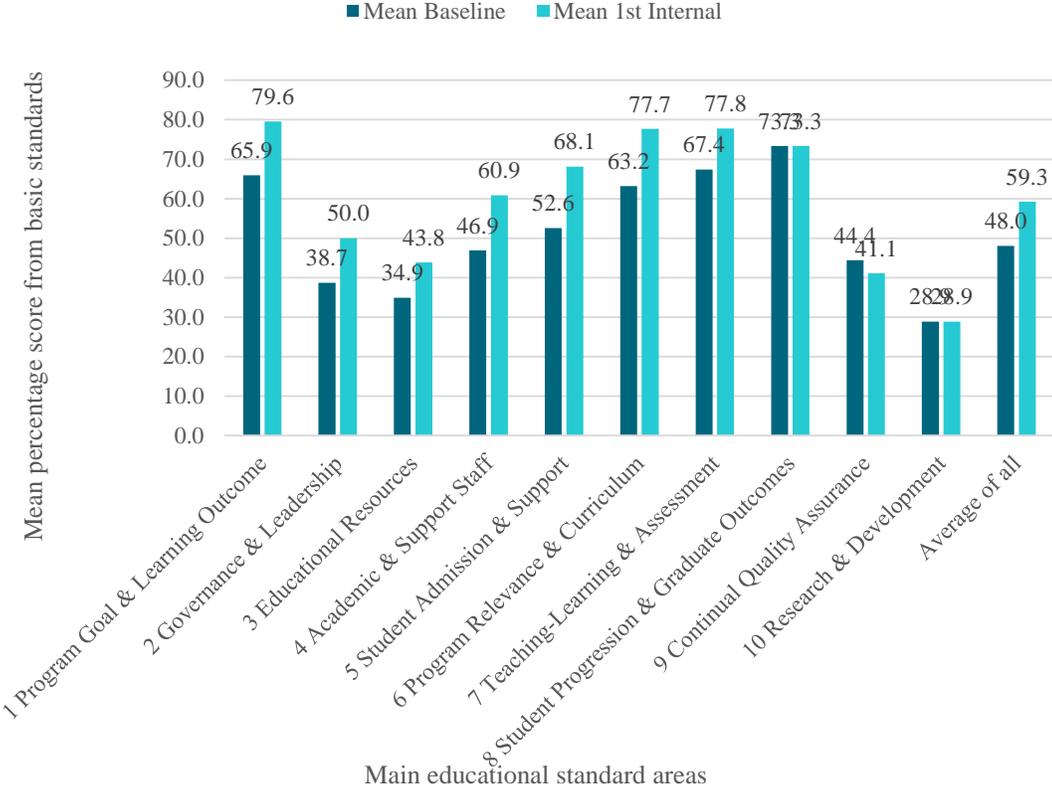


A screenshot of EAA's official website established with a support from HRH Project

time-limited stations in a circuit for the purposes of assessment of professional performance in a simulated environment. At each station candidates are assessed and marked against standardized scoring rubrics by trained assessors". OSCE is the mainstay of high-stake performance examinations worldwide.

The strengthened EAA was able to build strong bonds among anesthesia training institutions through face-to-face meetings, and a shared email pool. This network played a vital role in promoting regular educational quality audits, and the agenda to increase the availability of qualified anesthetists, including agreements on the opening of new schools and increase in enrollment numbers. Departments presented the results of program quality audits and improvement efforts on occasion of EAA’s annual conference thereby creating a sense of positive competition among the training institutions. The graph below shows results of baseline assessment and progress assessment across anesthesia programs (figure 9).

Figure 9: Anesthesia education quality showed improvement (Comparison between mean baseline and first progress results of BSc anesthesia departments across the 10 areas of HERQA standards, September 2018)



With support from the HRH Project, EAA developed code of ethics and conduct, and scopes of practice for anesthetists with different levels of education based on the WHO recommendations. EAA also created nine CPD training packages, based on the results of a task analysis study to ensure that anesthetists possess and retain the capacity to practice safely and effectively within an evolving scope of practice. In addition, the EAA organized annual scientific conferences to update members and promoted research to be done by members.

To attract highly capable students, EAA conducted a nationwide campaign to promote careers in anesthesia through social media, television, radio, and at local high schools. Promotional activities targeting women, together with institutional gender-based supports in admissions, were used to recruit more female students to anesthesia program. To motivate and retain anesthesia students, the EAA, in addition to efforts made by institutional gender offices, organized and mentored a student association, invited student representatives to its annual conferences, and awarded medals and certificates to top students.

As a result of this support, EAA:

- Has an own office (for the first time) with required physical resources and full-time employed staff to run routine activities
- Has increased its visibility and contribution to education, practice and regulation at national and regional levels.
- Played major roles in development of national documents including accreditation standards, curricula, scope of practice, and national licensing examinations.
- Has been accredited as CPD provider for anesthesia professionals.
- Gained greater respect and trust among its members (its membership increased from 226 to 2,150)
- Has become a hub for facilitating regular annual anesthesia education quality audits across all the anesthesia teaching HEIs. This has cultivated a culture of continuous quality improvement among anesthesia departments
- Is in a strong position to execute any project activities
- Female enrollment in anesthesia training programs has increased steadily from 9% in 2013 to 34% in 2018.
- The performance of female anesthesia students has improved; average OSCE scores for female graduates increased from 56.9% in 2013 to 66.3% in 2016
- Attrition of female students has reduced from total enrollments; 2.07% in 2015 to 0.38% in 2018.

IR2.2. Increased Availability of Midwives

A shortage of midwives posed a serious obstacle to increasing skilled midwifery care and improving maternal and newborn health outcomes in Ethiopia. According to the 2011 Health and Health Related Indicators report of FMOH², Ethiopia had only 2,700 midwives, with a midwife to population ratio of 1:33,903. Almost all regions of Ethiopia had a high unmet demands for midwives (overall 63%) and unfilled positions were more than two thirds of the demand in Amhara, Oromia and Somali regions.

Thus, increasing the supply and availability of midwives was a top priority for the Government of Ethiopia. The HRH Project supported government efforts to scale up pre-service midwifery education including expansion of direct entry diploma and degree programs and introduction of a post-basic accelerated midwifery training initiative. The rapid expansion threatened quality of education due to high student enrollments, shortage of qualified faculty, resource constraints, and low caseloads and doubtful quality of care at clinical training sites. Thus, the HRH Project interventions were intended not only to increase the number of graduates but also to maintain and improve quality of education.

Over the life of the HRH Project, the number of public midwifery pre-service training institutions increased from 42 to 47 with exponential rise in new enrollments from 391 to 2,264 (figure 10 below). Consequently, the HRH Project has contributed to graduation of 15,500 midwives, leading to more than doubling of the density of midwives (from 0.07 per 1,000 population in 2012 to 0.17 per 1,000 in 2018).

KEY SUCCESSES

The number of midwifery training institutions increased from 42 to 47 and the number of graduates rose by 24%.

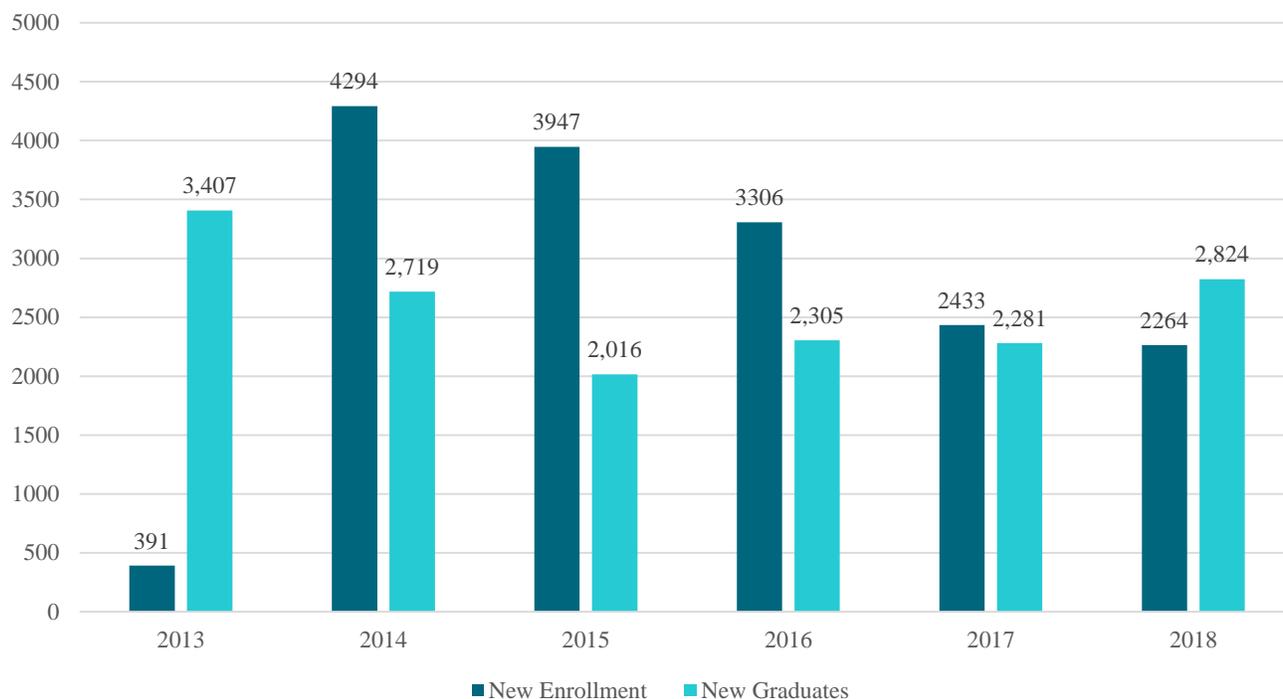
The density of midwives has more than doubled: from 0.07 per 1,000 in 2012 to 0.17 per 1,000 in 2018.

Overall competence of midwifery graduates improved

The dropout rate across all midwifery programs declined from 5.13% in 2014 to 1.56% in 2018.

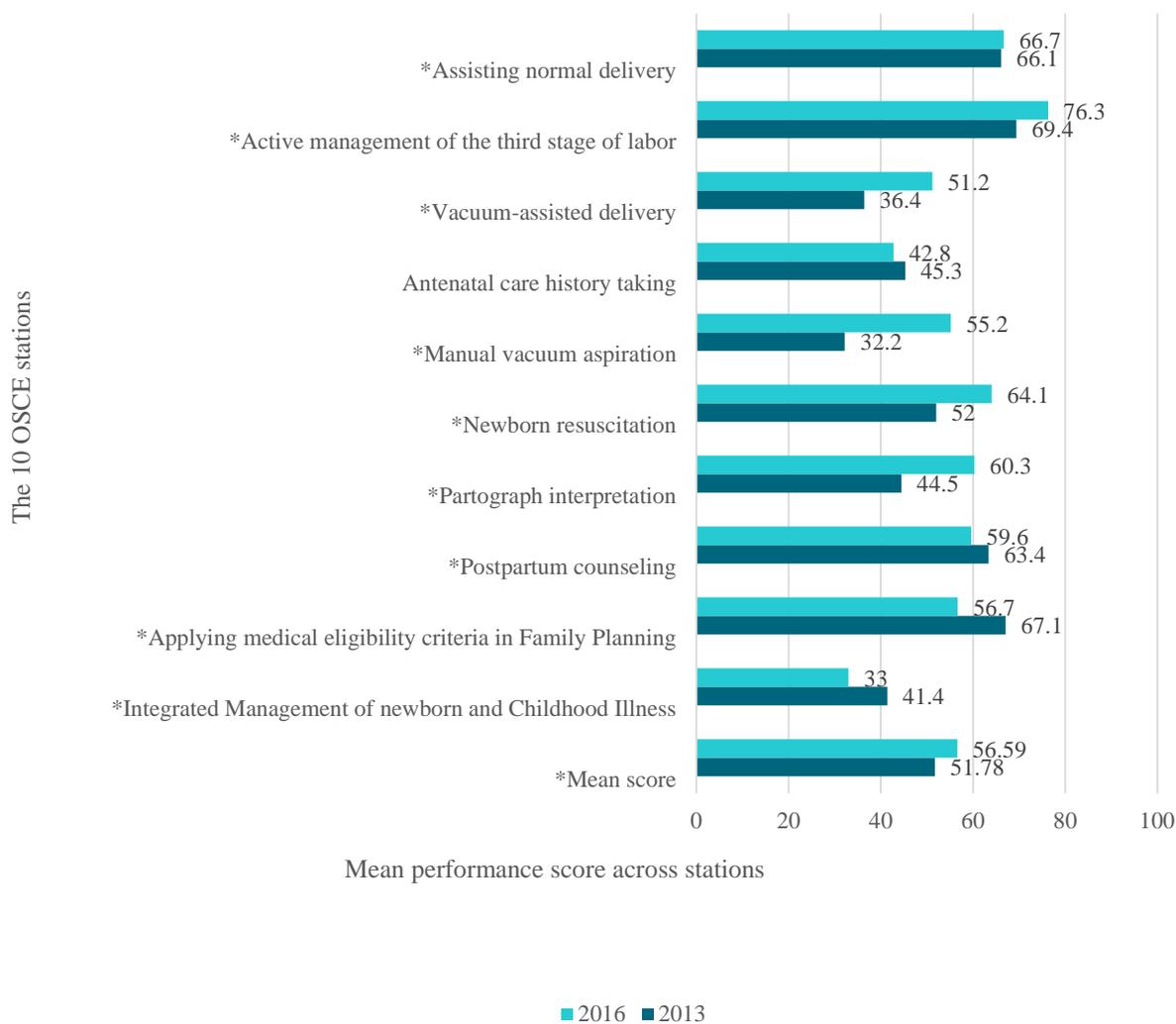
The EMwA has increased its capacity to play a central and visible role in midwifery education, training and regulation.

Figure 10: Annual student enrollments and graduations from midwifery training programs, 2013-2018.



At the same time, the clinical competence of graduating midwifery students improved significantly; average scores in objective structured clinical examination (OSCE) rose significantly from 51.8% in 2013 to 56.6% in 2016 (figure 11 below). Efforts to support female students have also increased retention as demonstrated by a reduction in the dropout rates across all midwifery programs in Ethiopia from 5.13% in 2014 to 1.56% in 2018. Moreover, as a sustainability strategy, the Ethiopian Midwifery Association has increased its capacity to play a central role in midwifery education, training and regulation.

Figure 11: Midwifery students' clinical competence scores in 2016 versus 2013.



* indicates P values considered statistically significant at < 0.05.

Major HRH Project interventions and achievements related to midwifery are presented as follow.

Scaling-up

The HRH project supported the government to scale up midwifery training institutions and student enrollment through three approaches: Serious of advocacies, institutional readiness assessment and capacity building. As a result, midwifery training institutions increased from 42 in 2013 to 47 in 2018; and annual students' enrollment increased from 391 to 2264 in the same period.

Faculty Development

Continuing professional development of faculty and preceptors is important to maintain the quality of midwifery instruction at health sciences training institutions. However, according to the baseline survey conducted in 2012, over half of training institutions did not offer faculty development program to midwifery instructors. The findings from the survey also showed that more than 80% of midwifery faculty did not receive faculty development training, with more training gaps reported by skill lab assistants and clinical preceptors⁷.

To address this gap, the HRH Project designed and provided trainings for 2,716 midwifery instructors, skills lab assistants, and preceptors. Training contents included teaching methods (effective teaching skills, simulation based training, problem-based learning, student assessment, instructional design skills) and technical updates on a variety of health topics (such as RMNCH, HIV, TB and malaria).

Importantly, to ensure sustainability, many of these faculty development activities were organized in collaboration with health sciences education development centers (HSEDCs) at each institution, which were established and/or strengthened under the HRH Project to lead educational quality enhancement activities in a sustainable manner (see result area 3 for details). Regular coaching and mentoring followed the faculty development courses and workshops to ensure transfer of learning and support practice changes at individual and organizational levels.

In addition to supporting faculty development, the HRH Project recruited and deployed 14 volunteer tutors and preceptors (senior midwives) in 10 midwifery training institutions facing critical shortages of teaching staff. The HRH Project also contributed to long-term staff development through support to developing and revising competency-based curricula for postgraduate education in midwifery.

As a result of this support:

- Competence of midwifery faculty improved
- Innovative teaching/learning methods have become part of the curriculum
- Motivation and confidence of faculty has improved
- Satisfaction of midwifery students with teachers has improved (as demonstrated by the 2016 evaluation study)
- Key challenges on implementation of competency based curriculum has been solved partially
- Strong networking has been established among midwifery teaching institutions

Strengthening Clinical Education

The clinical training of midwives is critical to ensuring midwives are equipped with appropriate technical competencies required to provide safe RMNCAH services. However, pre-service clinical education of midwives was not effective because of multiple factors including weaknesses in curriculum, clinical skills lab teaching and learning, and coordination and management of clinical practice.

The old national midwifery curricula did not set clear objectives and practice times for clinical teachings. Clinical training sites were inadequate (in terms of case mix and volume relative to student numbers) and poorly prepared. In addition, there was poor communication and coordination between midwifery schools and clinical practice sites

compounded by limited number of prepared preceptors at clinical attachment sites. Further, the use of procedural checklists for teaching and assessment purposes by was minimal leading to lack of standardization in clinical midwifery education. On top of this, the absence of basic skill development laboratory materials required to teach core midwifery competencies posed a major threat to clinical teaching of midwives.

To tackle these challenges, the HRH Project implemented a number of interventions. It donated essential skill development lab materials to midwifery training institutions (see section 2.2.3 for details). It supported midwifery training institutions to identify and sign Memorandum of Understanding (MoU) with 559 additional clinical practice sites. Furthermore, the donation of buses facilitated shuttling of students to and from the expanded clinical education sites. These interventions were supported with curriculum strengthening (see 2.2.4) and preceptor and skills lab assistant development and coaching (see 2.2.1).



Bus donated by the HRH Project

As a result of this support:

- Skills training in skills development lab has improved-leading to better competency achievement
- Clinical exposure of midwifery students has increased – leading to better competency achievement
- Clinical midwifery education has become standardized
- Overall competence of graduates has improved
- Clinical practicum sites have become more conducive for student learning

Infrastructure and Educational Resources

To provide quality education, health science training institutions need a sufficient number of properly equipped classrooms, clinical skills learning labs, clinical practice sites, and internet connected computer labs and libraries.

However, more than two-third of midwifery schools at universities did not have midwifery skill labs. Among midwifery teaching institutions with SDLs, no more than 33% had adequate models or instrument kits, and not more than half had appropriate equipment. Universities and RHSCs alike reported critical shortages of models and instruments for teaching critical midwifery competencies.

To address these gaps, the HRH Project strengthened educational infrastructure and resources of midwifery schools with a special focus on ensuring that all midwifery training institutions had functional and well= equipped skills development labs that allowed students to practice hands-on, decision-making and communication skills. The donations high fidelity simulators such as the NOELLE S550 maternal birthing simulator with neonatal resuscitation. To maximize the effective utilization of donated resources, technical support was provided to facilitate simulation-based training, develop competency-based learning and assessment tools, and set up and manage skills labs.

The HRH Project also equipped midwifery teaching institutions with thousands of the latest text and reference books, teaching modules and about 800 computers and pieces of audio-visual equipment.



Reference books donated by the HRH Project

As a result of this support:

- Skill development lab utilization has become a standard practice in midwifery teaching
- Quality of midwifery education has improved (as measured by in internal evaluation)
- The confidence and motivation of midwifery students has improved
- The skills labs are being used for competency assessment before clinical practice and graduation.
- Overall competency of midwifery students has improved

Curriculum Development and Strengthening

Regular curriculum review and strengthening is necessary to update and adapt teaching programs to the evolving healthcare needs and health system priorities. This is especially important to increase the efficiency of training by

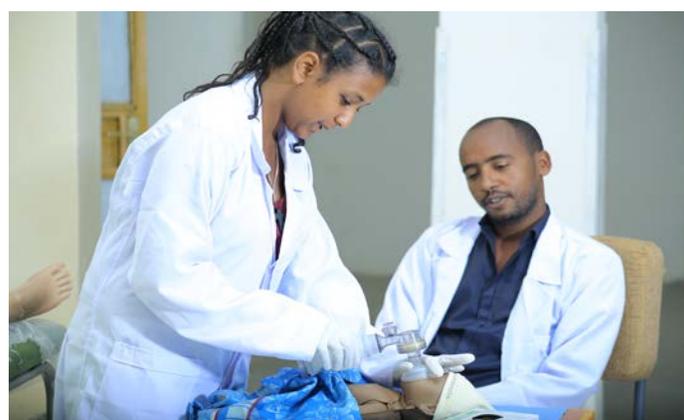
focusing on the ‘*must know*’ and ‘*must do*’ elements that are essential for saving lives. However, the midwifery curricula in use in 2012 had major weaknesses. Midwifery curricula at universities were traditional with inadequate emphasis on practical skills development. Vocational curricula also had design problems with coverage of irrelevant contents and disconnect between theoretical learning and clinical practice.

The HRH Project supported the Ministry of Health to re-design midwifery curricula for vocational and university programs based on principles of competency-based education. Innovative teaching methods like problem-based learning were introduced to encourage deep learning and problem-solving skills. The curriculum reform was supported with development of competency-based learning and assessment tools and student logbook to standardize midwifery training and assessment across the nation.

With the aim of improving student performance assessment system, exam blueprints were developed for all midwifery professional courses. Objective Structured Clinical Examination (OSCE) was strengthened for training and evaluation purposes. Further, workplace-based assessment tools and clinical algorithms have also been introduced for teaching and assessment purposes in at least half of the midwifery training institutions.



Midwifery students during simulated clinical practice in skill development lab, Bahirdar University, July 2017



Midwifery student during OSCE examination

As a result of this support:

- Innovative and engaging teaching, learning and assessment methods have been introduced in midwifery curricula
- Student retention has improved, overall midwifery students' attrition rate declined from 4.88% in 2014 to 1.53% in 2018.
- Social responsiveness of the curriculum is ensured by integrating relevant community attachments
- The national curriculum for midwifery training has been harmonized – better experience and resource sharing opportunity for departments is established
- Faculty engagement is increased in clinical teaching
- Overall competency of midwifery students improved

Strengthening the Capacity of EMwA

Professional associations play a key role in patient care, monitoring and analysis of practice, integration of new evidence-based practices, and maintaining high quality practice standards. Moreover, associations, through the provision of CPD, can play a vital role in improving education and clinical services provided to the community.

According to a rapid situation assessment done in 2012, the Ethiopian Midwifery Association (EMwA) had 5 regional offices and over 1500 members. EMwA was mainly engaged in in-service trainings but did not have a training center. The association was in need of financial and technical support to finalize its administrative documents and HR database. Its staff also had capacity building needs on such areas as curriculum design, monitoring and evaluation, and project management. The lack of vehicle and a training center was costing the EMwA a huge amount of money due to rental expenses.

The HRH Project supported the Ethiopian Midwifery Association (EMwA) to expand the coverage and accessibility of its services to members through strengthening office administration capacity, infrastructure support (office furniture, computers, LCD projectors, internet server, electric power generator, vehicle and others), establishment of a continuing professional development (CPD) unit, development of CPD courses, design of a website, and mentoring and coaching of staff.

With the support of the HRH Project, EMwA also developed a five-year strategic plan, a monitoring and evaluation plan, a resource mobilization strategy, and a business plan. Three additional regional chapter offices were established to give the organization a presence in every region of the country, and a database was created to track practicing midwives across Ethiopia.

Midwifery was not a top choice for students enrolled in health education institutions, because they did not appreciate the role of midwives beyond managing births. To generate demand for midwifery education and attract more capable students, the HRH Project supported EMwA to promote midwifery profession in the community and in schools, using radio, television, and brochures. The HRH Project also supported efforts of gender offices at health education institutions to retain midwifery students by offering like skills training, financial and material aid to economically struggling students and recognizing top performing students (See more on Result 3).

As a result of this support:

- Visibility of the Association and its contribution to midwifery education, practice and regulation increased at national and sub-national levels
- EMwA contributed to the development of accreditation standards, curricula, scope of practice, and national licensing examinations.
- EMwA is engaged in faculty and preceptor development.
- Accredited CPD courses are now available and accessible to all the members across the country (See also Result 3).

IR2.3. Increased Availability of Health Extension Workers (HEWs)

The health extension program is the backbone of primary healthcare contributing to the massive improvement in access to basic health services for Ethiopia's large rural population. However, maintaining coverage and improving quality of health extension services remained a challenge. By the end of HSDP III (2010), the Health Extension Program (HEP) had trained and deployed more than a total of 33,000 HEWs, surpassing the target number. Even so, HEP only reached 89% of communities, versus the planned target of 100%. A rapid situational assessment conducted by the HRH Project estimated a larger staffing gap (23%)¹¹.

In 2010/11, the attrition rate for HEWs was estimated as 5% (with higher rates in some regional states). However, HEW replacement training was inadequate to compensate for the loss and growing population, threatening to erode gains made in improving health access. It was also an MOH priority to upgrade HEWs to level IV to enhance the quality of service they provide and respond to the career development question HEWs had, which was one important push factor. Hence, the HRH Project supported government efforts to scale up level III and IV HEW training.

As a result of the coordinated support provided by the HRH Project, the number of pre-service training institutions providing HEWs training increased from 15 to 20 with a substantial increment in annual student enrollment. These efforts have contributed towards graduation of over 13,849 Level III and 14,593 Level IV HEWs over the life of the project (See Table 6 below).

KEY SUCCESSES

HEW training institutions increased from 15 to 20, and enrollments increased more than tenfold

HRH supported the graduation of 13,849 Level III and 14,593 Level IV HEWs.

¹¹ Jhpiego (2012). Human resources for health rapid situational assessment in prioritized geographic regions

Table 6: Annual number of enrollments and graduations from HEW training programs in Ethiopia, 2013-2018.

Year	Enrollments		Graduates	
	Level III	Level IV	Level III	Level IV
2013	328	321	529	1,285
2014	2584	980	2,662	2,036
2015	3445	3834	1,777	2,302
2016	3631	2489	2,757	3,271
2017	3381	3522	2,807	2,083
2018	2323	4215	3,317	3,616
Total	15692	15361	13849	14,593

In addition to successful advocacy to expand HEW training, the HRH Project implemented the following interventions to increase the supply of level III and IV HEWs.

Scaling-up

The HRH project supported the government to scale up HEWs’ training institutions and student enrollment through three approaches: Serious of advocacies, institutional readiness assessment and capacity building. As a result, HEWs’ training institutions increased from 15 in 2013 to 20 in 2018; and annual students’ enrollment increased from 649 to 6538 in the same period.

Faculty Development

A total of 1,593 HEW instructors were provided effective teaching skills and technical update trainings to enhance their teaching quality.

Strengthen Clinical Education

To strengthen the clinical education of HEWs, the HRH Project supported expansion of clinical education sites, training of clinical preceptors and procurement of shuttle buses to and from practicum sites. Technical and financial support was also provided to training institutions to develop competency based assessment checklists and tools, which facilitated development and monitoring of healthcare delivery skills in a standardize manner.

Infrastructure and Educational resources

The health extension workers share common resources with other departments especially nursing and midwifery due to the similarity of competencies. Hence, interventions to strengthen skills development labs, computer centers and libraries considered the needs of the health extension program. Some RHSCs were also /able to establish a dedicated HEW skills lab. In addition to this, the HRH Project supported the development, printing and distribution

of 17,163 training modules (21 types) for HEWs training institutions. The development of these modules improved access to contextually relevant and tailored educational materials.

Curriculum Development and Strengthening

With financial and technical support from the HRH Project, four HEW curricula (HEW III, HEW Level IV, Urban HEW level III and Urban HEW level IV) were reviewed and strengthened in line with the updated occupational standards. The revision of occupational standards and curricula was informed by the results of HEWs task analysis study conducted by the Project^{12,13}.

These curricula revisions resulted in refinement and expansion of HEWs roles. The Level III curriculum is modified to focus on health promotion and disease prevention while the level IV focuses on management of activities. As a result, Level III HEWs competencies increased from 16 to 23 by adding 7 more competencies including: infection prevention techniques (which was first designated to level IVs only), team leadership, prevention and elimination of the even wastes (MUDA), and applying quality control. Likewise, the level IV curriculum added competencies, including managing pharmaceuticals in health posts, preventing and managing neglected tropical diseases, applying computer and mobile health technology and compassionate and respectful care (CRC), to become 17 in total with an increase by 3 competencies from the 2013 curriculum. Through integration of additional competencies, these curricula revisions further strengthened access to basic care to the level of community.

In adjacent to revising the HEW curricula, HRH implemented interventions aiming for improved quality of the training. In this regard, through the development and implementation of educational quality standards at HEW training institutions, training programs were able to conduct periodic self-assessments to regularly monitor and improve their education quality.

The conduct of regular coaching and mentoring together with ongoing orientation and follow-up were the other strategies employed to improve the quality of HEWs training. In this regard, HRH supported the FMOH and TVET agency to conduct joint supportive supervisions at each training institution on a quarterly basis. Further, the Project provided a direct ongoing technical support to each training institutions including but not limited to supporting the facilitation of need-based trainings, on job transfer of lessons learned from trainings and development of curriculum implementation tools.

The ongoing integrated gender transformative were the other strategies followed to retain female HEW students and enhance the overall competency of graduating HEWs. HRH Project through means of FAA has provided life skills training to a total of more than 700 healthcare students including HEWs. In addition to training, the Project provided financial and material support (sanitary pads and hygienic supplies) to needy female students as means of supporting them to relieve their economic problems, and improve their confidence, health and wellbeing thereby ultimately contributing to better performance and position. To create healthy competition among female students,

¹² Jhpiego (2014). Ethiopia task analysis study report: midwives, anesthetists and health extension workers

¹³ Desta FA, Shifa GT, Dagoye DW, Carr C, Roosmalen JV, Stekelenburg J, Nedi AB, Kols A and Kim YM. 2017. Identifying gaps in the practices of rural health extension workers in Ethiopia: a task analysis study. *BMC Health Services Research*. 17:839, 2-9.

the Project also supported the recognition of best-performing female students across all the 20 HEW training institutions.

As a result of this support:

- The scope of HEWs training has expanded to address the growing demands of primary healthcare
- The number of HEW training institutions has increased by more than 33% and became 20 by 2018.
- The competency of HEW graduates has improved as evidenced by a rise in COC pass rates from 40.5% in 2015 to 100% in 2018.
- The dropout rates of female HEW students (total of both level III & IV) has declined from 2.57% in 2014 to 0.7% in 2018.

IR2.4. Increased Availability of other Essential Health Cadres

The health workforce development priorities of the Ministry of Health were not limited to midwives, anesthetists and HEWs. The MOH needed support to train emergency medical technicians (EMTs) to improve pre-hospital emergency care for mothers. Medical equipment maintenance was a big challenge in the country but there was severe shortage of biomedical engineers and technicians. Growing public demands for quality care and expansion of hospitals required development of specialized nurses. It was also becoming clear that Ethiopia needed to develop public health specialists to improve the management of the health sector's two critical resources: human capital and finance. Low workforce motivation and retention, poor financial management, and weak monitoring, evaluation and evidence-based decision making were persistent health sector challenges¹⁴. Thus, the HRH Project supported government priorities to increase the supply and availability of biomedical technicians (BMTs), specialized nurses, emergency medical technicians (EMTs) and health economists and HRH management specialists.

The HRH Project contributed to the graduation of over 474 biomedical technicians, 1,551 specialist nurses, 1,277 EMTs, 72 health economists and 47 HRH management specialists until 2018 (Figure 12). The details of support are described for each of the cadres below.

KEY SUCCESSES

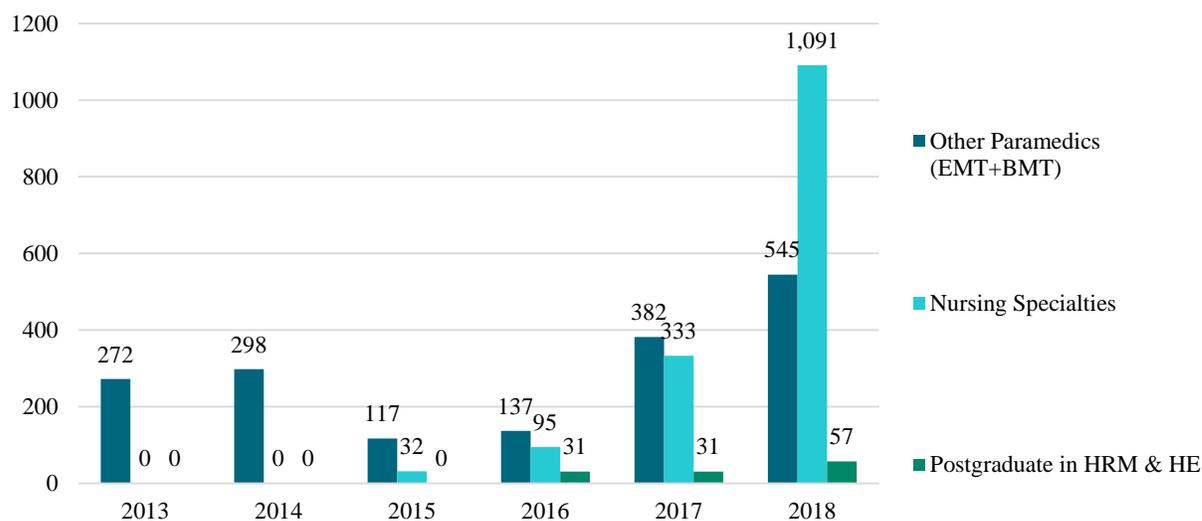
7 new nursing specialty programs opened in 24 teaching institutions.

MPH programs in HRH management and health economics established in 4 teaching institutions

Contributed to graduation of over 1,277 EMTs, 1,551 specialist nurses, 474 biomedical technicians, 72 health economists and 47 HRH management specialists.

¹⁴ FMOH (2010). Health Sector Development Program IV: 2010/11-2014/15

Figure 12. Annual number of essential health cadre students who graduated from training programs in Ethiopia, 2013-2018.



Major HRH Project interventions and achievements related to the five essential health cadres (BMTs, specialized nurses, EMTs, health economists and HRH management specialists) are presented as follow.

Biomedical Technicians (BMTs)

Through the development of new training programs and curricula the HRH Project supported the government effort to increase the production of qualified biomedical engineers and technicians. In this regard, the Project supported FMOH and TVET agency on the development of Level IV occupational standard, a curriculum and seven training modules. This curriculum has contributed for the graduation of 474 biomedical technicians from 7 TVET colleges. As a means of advancing the biomedical device maintenance service and ensuring a career pathway for mid-level (including Level IV) technicians, the Project extended its support to the development of two additional curricula at baccalaureate and postgraduate levels. The development and revisions of these curricula utilized data obtained from government policy documents setting the expectations as an input in addition to global and local technical guidelines, desk reviews, and expert opinions. The curricula ensured the allocation of reasonable proportion of time for clinical practice.

In addition to the efforts made to increase the number of BMTs, HRH also conducted intervention to ensure the competency of BMT graduates is up to the required level. In this regards, to support the institutions to implement the curricula, ongoing technical support was provided through orientation, mentoring and coaching of faculty. In view of improving the quality of instruction in biomedical technician education programs, the HRH Project also supported the development of five training packages on operating room, maternal and child health, imaging, laboratory, and ophthalmic medical devices. These packages were used during a series of technical updates for

BMT instructors at health education institutions and practitioners at hospitals, as well to build the capacity of government regulators. The teaching capacity of BMT instructors was also built through the provision of relevant methodological trainings including effective teaching skill, instructional design and clinical simulation. In addition, through means of FAA, competency assessment tools for these essential health cadres were developed and being in use to date.

Refurbishment of skills development labs were also supported by the Project to contribute to education quality enhancement efforts. The HRH Project provided technical support to the FMOH to install skill lab materials in 9 BMT training institutions and hospitals located in Oromia and SNNP regions. After installation, onsite user level training was provided to hospital staff and faculty.

Extending the biomedical technical support to other programs, the HRH Project supported maintenance of 496 pieces of SDL equipment found in Jhpiego-supported university teaching hospitals and Regional Health Science Colleges (RHSCs) to keep them running. In addition, to improve skills training for healthcare providers, the HRH Project offered technical support for the installation and maintenance of medical devices and other equipment at skills development labs located at 13 New Innovative Medical Education (NIME) institutions that offer an accelerated training program for physicians. An average of 50 new instruments and devices purchased by the FMOH were installed at each skills development lab.

As a means of ensuring sustainability and increasing efficiency of biomedical devices testing and maintenance, the Project supported the establishments of 13 public regional biomedical device maintenance centers across the country. The Project installed essential equipment procured by FMOH across these centers. In parallel to establishing these centers, the Project conducted capacity building events to those technicians assumed to run these centers. At many of these maintenance centers, however, all necessary testing and measuring devices have not yet been installed.

As a result of these supports:

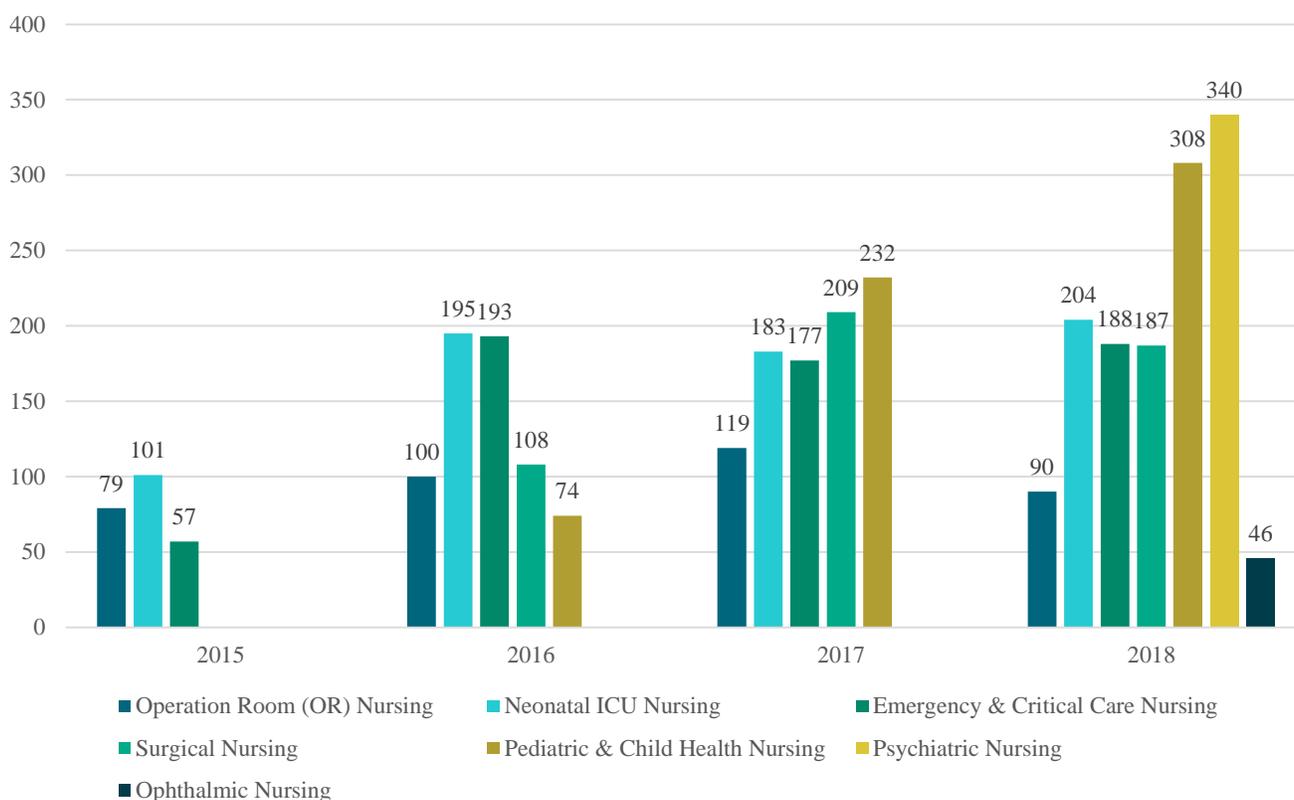
- The capacity of biomedical technician instructors, hospital practitioners and government regulators has been built
- The delivery of faculty development trainings for BMT faculty facilitated the implementation of the new competency based curricula
- The development of level IV training modules helps to standardize the training while ensuring the contextualization of training content to the country's need.
- The onsite equipment maintenance support created an opportunity for skills transfer to biomedical technicians working in respective hospitals.
- SDLs of other healthcare programs were able to reuse repaired skills lab items (simulators, anesthesia machines, and other equipment) thereby saving the additional cost required for purchasing new one.
- The establishment of regional biomedical device maintenance centers facilitates the provision of prompt technical support to nearby healthcare facilities whenever required. This maximizes efficiency of the service.

Specialized Nurses

The HRH Project supported FMOH, FMOE and HEIs to develop new curricula for newly established seven specialized nursing program at BSc level, as none existed previously. These programs were Neonatal Nursing, Operation Room (OR) Nursing, Emergency and Critical Care Nursing, Pediatric and Child Health Nursing, Psychiatric Nursing, Ophthalmic Nursing and Surgical Nursing.

During the development of these curricula, data generated from relevant research studies conducted by the Project were used as an input, as were global and local technical guidelines, desk reviews, and expert opinions. The curricula also ensured allocation of appropriate opportunities for clinical practice, and updates on priority health issues such as RMNCH, FP, HIV/AIDS, TB and malaria. Further, innovative learning approaches, such as problem-based learning (PBL), were integrated to improve critical thinking capabilities and retention of learning, and reduce cognitive overload with better student engagement. Following curriculum development, HRH Project provided technical and material support to 24 public teaching institutions to open one or more of these programs. This has contributed to the graduation 1,551 specialist nurses with annual new intakes of 1363 students in 2018 (figure 13 below).

Figure 13: Annual new student enrollments from nursing specialty training programs, 2015-2018.



To ensure the quality of specialist nurses' training, the HRH Project provided ongoing technical support to all the teaching institutions through awareness creation orientation, coaching and mentoring of faculty.

Based on findings from supportive supervisions, faculty were in demand of technical and methodological update trainings. In response to this demand and to improve the quality of respective programs, the Project supported the provisions of need-based faculty development trainings. Methodological trainings include instructional design, clinical simulation, effective teaching skills and PBL (see result area 3 for details). The PBL training provided to nursing specialty faculty equipped them with the knowledge and skills required to effectively implement PBL for the new competency based curricula, including writing contextually relevant PBL cases, facilitating PBL tutorials and monitoring student progress. As part of this training, participant faculty wrote PBL cases which later are being used to teach students across the institutions. Technical update trainings in relevant topics including the National Integrated Emergency Medicine, advanced newborn care, and pediatrics and newborn advanced resuscitation (PALS) were provided to the faculty by the Project.

The HRH Project in total has provided technical and methodological trainings for a total of 7,440 participants from nursing specialty, EMT, biomedical technician and other essential healthcare provider departments.

To maximize most out of simulated practice, HRH Project has advocated for shred resource utilization of skill development labs among different healthcare programs. As a result, the nursing specialty programs were able to effectively use the skill labs of midwifery, anesthesia and/ or EMT programs depending on the competencies wished to teach/ assess (Figure 14 below).



Jimma Nursing Midwifery Department skills laboratory re-arranged to serve students from the nursing specialty programs in addition to the generic nursing and midwifery programs

To standardize clinical education of these specialty nurses, HRH Project, through the provision of institutional grants, supported the development of relevant competency teaching and assessment tools for the seven cadres.

The Project extended its support to the government to develop a ten-year strategic plan on nursing education and services aligned with the health sector transformation plan and the national HRH strategic plan.

As a result of this support:

- The number of nursing specialty program teaching institutions increased from 0 to 24 with annual student intakes rising from 0 in and before 2014 to 1,363 in 2018
- The provision of faculty development training for nursing faculty facilitated the implementation of the respective competency based curriculum
- Effective resource sharing within and across training institutions has been practiced to facilitate nursing specialty training
- The development of the strategic plan will serve as a roadmap to guide the specialty training programs

Emergency Medical Technicians (EMTs)

Emergency medical technicians are essential to provide pre-hospital emergency care to critically ill patients including mothers and children with medical emergencies. However, a finding from a baseline assessment study revealed that there was only one paramedic ambulance professional in the entire nation by the year 2012¹⁵. Considering this critical shortage of EMT professionals the HRH Project supported the productions of such cadres through targeted intervention.

To start with, HRH Project supported series of curriculum development and review events. These events involve the integration of two new competencies in to the level III training curriculum: infection prevention and patient safety, and medico-legal issues and professional ethics including CRC. As a means of establishing education career for level III EMTs and advancing the care provided by these cadres, the Project also supported the development of Level IV training curriculum.

To address the critical educational resource challenge, the HRH Project strengthened its support to 6 EMT training institutions to stock their libraries with printed copies of 4620 training modules (10 types) and 75 essential reference books, and equipped skill development labs with 70 different types of equipment including advanced patient monitors and high fidelity emergency skill training simulators.

In view of building the capacities of EMT faculty, HRH Project provided need-based technical and methodological trainings including basic management of trauma patients to prevent permanent disabilities or death which could happen from improper handling and transportation of victim(s). Through the regular supportive supervisions and coaching and mentoring visits, the Project provided intensified its technical support to training institutions to facilitate the implementation of EMT curricula as per the required standard.

As a means of expanding clinical practice sites for EMT students, HRH supported the FMOH to conduct readiness assessment on the emergency management institute, which has been newly established under the Addis Ababa City Administration to train students in interventions related to emergency situations (firefighting, drowning etc.). Based

¹⁵ Ayalew F, Misganaw A, Yigzaw T, Kibwana S, W/Mariam D, Kachara S. 2013. *Strengthening Human Resources for Health in Ethiopia, Baseline Survey Findings*. 42

on the assessment findings the institute was found to be an ideal place to train emergency medical technicians on some essential competencies.

To enhance the productivity of EMTs after deployment, the HRH Project provided financial support to the Amhara RHB for the provision of ambulance driving skills training for 56 EMT graduates. The training enabled EMT technicians to obtain driving skills that helped them to provide safe transportation services to mothers and patients receiving emergency care.

As a result of this support:

- The total number of EMT health workforce has increased to 523 with exponential rise in number of new enrollments in EMT programs from 54 in 2013 to 497 in 2018
- The provision of driving skills training for EMT graduates enabled them to provide the required emergency medical care without waiting for a driver (productivity improved)
- The procurement and donations of library and skill lab resources contributed to increasing the enrollment capacities and improved quality of training as observed for results of institutional quality audits.
- A potential but unseen clinical practice site (the emergency management institute) was explored and added to clinical training of EMTs. On top of expanding clinical attachments, the inclusion of this site as a clinical attachment area will improve the inter-professional education and collaborative practice between EMTs and the institute graduates.
- The development of a level IV curriculum improved the delivery of advanced care including provision of Advanced Life Support (ALS) for medical and traumatic emergencies, which is the 8th leading cause of death in the country¹⁶.
- Effective resource sharing within (especially with anesthesia and ICU nursing programs) and across training institutions (e.g. with the institute) has been practiced.
- Through upholding the agenda of EMT production upfront, private sector engagement on training of these cadres has been achieved (e.g. 'Tebita Paramedics College').

HRH Management Specialists and Health Economists

Since Ethiopia did not have postgraduate training in health economics and HRH management, the HRH Project supported FMOH, FMOE and 4 HEIs to develop Master of Public Health (MPH) programs in Human Resource for Health Management and Health Economics. During the development of these curricula, data generated from relevant research studies conducted by the Project were used as an input, as were global and local technical guidelines, desk reviews, and expert opinions. The curricula were competency-based and employed blended learning approach with a mix of distance learning and face-to-face instruction components to enable students to do their studies with minimal interruption to their jobs. The opportunity to continue working also promoted the ability to apply new learning in the work place.

¹⁶ Ethiopian Federal Ministry of Health (FMOH). 2011. *Health and Health Related Indicators*. Page 34

The health economics program was established in the four HEIs (University of Gondar, Jimma University and Addis Continental Institute of Public Health and Addis Ababa University) while the HRH management was opened in the first three HEIs only.

To support the institutions to implement these curricula, ongoing technical support was provided through orientation, mentoring and coaching of faculty. Furthermore, subject matter experts from Open University introduced faculty members to the concepts of blended learning and current trends in the specific disciplines. Once the MPH programs were underway, these same experts made one-week co-teaching visits to each HEI and worked alongside Ethiopian tutors to deliver the modules. The Open University provided additional support for faculty in three workshops, which offered a technical training update, training for thesis supervisors, and training on applied research for tutors working with students on their theses.

With a support from HRH Project, faculty members of the public health specialty programs with a guidance of experts from Open University have produced a full package of learning, teaching, and support resources for each MPH program. Learning modules and instructional plans customized to local context were produced and availed for students to promote their active participation through the recognition of their professional experience and pre-existing knowledge. Further, tutors' learning guides, assessment guides, student guides, online handbooks, CDs with extra materials for each module, and a DVD case study were produced to supplement the core materials. On top of this, 78 different types of essential reference and textbooks were procured and distributed to the training institutions.

As a result of this support:

- 154 students were enrolled in four HEIs as of 2018.
- 72 health economists and 47 HRH management specialists have graduated to date.
- MPH programs in health economics and HRH management have been established in 4 local HEIs, ensuring sustainable supply of these cadres.
- Blended learning has been utilized to facilitate delivery of the curricula. This can be modeled for other programs where exclusive face-to-face sessions were assumed to be the only delivery options. The successes, challenges and lessons learned in implementing this program can provide useful insights for similar future undertakings.

Support Project Mercy to Establish a Center of Excellence in Midwifery Training

Project Mercy, a US-based organization, was added the HRH Project by USAID, after the launching of HRH Project to contribute to Result 2, specifically midwifery education and training. In 2013, the HRH Project began supporting the Project Mercy, to establish Project Mercy Health Science College (PMHSC) in Yetebon, near Butajera Town, and provide high quality PSE and IST for the SNNP Region health workforce.

After conducting a rapid assessment to identify needs related to establishment of a training program and the community's needs of the population in Yetebon, a year one work plan was development for PMHSC under the HRH Project. The HRH Project supported Project Mercy to first obtain an accreditation certificate from the SNNP TVET Agency then assisted with recruitment of program, academic and administrative staff to support project

implementation and to run the College. Teaching/learning materials, including skills labs equipment required to establish the College were procured and broadband internet installed. Moreover, administrative and financial manuals, including a Health Science College Legislation, draft student handbook, and a Health Science College Implementation Manual to were developed.

A student enrollment criteria was also developed. PMHSC initiated the student recruitment process with the SNNP RHB and the RHB assigned student quotas based on the needs and capacity of zones in the region. The College's initial plan to also launch a nurse anesthesia program was canceled because of change that occurred at the federal level. At the time, there was lack of clarity about continuing with the Level V anesthesia training due to the condensed training period and its implication on quality, as well as the fact that graduates did not obtain significant career progression/benefits, and were thus demotivated. In the end despite significant delays, the College was allowed to begin recruitment of the first batch midwifery students as of October 2014.

The HRH Project introduced a quality improvement approach to the College to regularly monitor and improve the quality of education it provides. To provide greater access to hands-on practice to the students, the HRH Project supported PMHSC to establish two skills labs, the first one focusing on training skills covered in COC Level IV skills and the second skill labs focusing on skills in COC Levels II and III. Separating the skills covered in these labs has improved the overall teaching and skill building sessions and independent practice and has enhanced confidence of students when preparing for national COC exams. As a result, the College has had an impressive COC exam pass rate for all batch.

The PMHSC also established an in-service training center to contribute to improving the quality of health service delivery in the SNNP Region by providing need-based training to health workers on priority RMNCH topics. In collaboration with the RHB the College provided the following ISTs and contributed to building capacity of RHB's HCPs.

Major Challenges

- *Infrastructure:* Despite significant procurement for skills labs and other equipment, due to high volume of students, sufficient equipment and supplies for practice remains a major challenge.
- *Faculty:* Shortage of competent and motivated faculty (instructors, SDL assistants and preceptors) together with rapid turnover is another key challenge.
- *Clinical education:* Sufficient clinical practice is key to competency development, yet sufficient clinical practice sites, transporting students to those sites and supporting the linkages between facilities and the institutions is not up to the desired level.
- *Curriculum implementation:* The implementations of the newly developed competency-based curricula is not up to the required standard. Reasons for this, as reflected by faculty include, increased workload, the need for increased resources, departmental boundaries, etc.
- *Culture of continuous quality improvement:* Despite the development of program-level educational standards and increased capacity of HERQA, the culture of continuous quality improvement is not yet well cultivated across all programs.

- *HRH management and HE programs:* The lack of applicants for HRH management and not deploying HRH management and health economics graduates in jobs they are trained for are the two key challenges associated with these programs.

Recommendations

- Support to increase supply of health workers should focus on anesthetists, biomedical technicians, emergency medical technicians, pharmacy professionals and medical laboratory professionals.
- Initiatives to increase the number of graduates should be balanced with pre-service education capacity to ensure quality.
- The Government should ensure value for money by deploying graduates in posts they are trained for.
- Continue building the capacity of local professional associations.

RESULT 3- IMPROVED QUALITY OF TRAINING OF HEALTH WORKERS

In 2006, the World Health Organization (WHO) designated Ethiopia as having a ‘critical’ health workforce crisis which is characterized by an absolute shortage of trained health workers. To address the crisis, the Government of Ethiopia implemented a ‘flooding strategy’ and started to train as many health workers as possible through massive expansion of health training institutions and academic programs. This strategy strained the quality of education as the speed and volume of expansion outpaced the development of appropriate faculty, educational infrastructure, academic management and regulatory capacity. This together with overburdened clinical training sites and outdated curricula compromised the quality of health professions education and graduates^{17,18}.

Moreover, Ethiopia was spending considerable national resources and development assistance on in-service training (IST) to enhance the competence of practicing health workers. However, many of the trainings were developed, delivered and financed by development partners making sustainability uncertain. The quality of IST was questionable as there was no standardized mechanism for monitoring and evaluating training effectiveness. Despite the presence of myriad government, non-government and private actors in the training space, there was poor coordination in planning and implementing IST. Last but not least, although health workers are expected to maintain and update their knowledge and skills, Ethiopia did not have a system for managing and regulating continuing professional development (CPD)^{19,20}.

Thus, the HRH Project supported the Government of Ethiopia to improve quality of education, standardize and institutionalize in-service training and establish a managed CPD system. The Project provided technical, financial and material support to the Federal Ministry of Health (FMOH), the then Federal Ministry of Education (FMOE), Higher Education Relevance and Quality Agency (HERQA), the then Food, Medicine, Healthcare Administration and Control Authority (FMHACA), Technical and Vocational Education and Training (TVET) Agency, Regional Occupational Competency Assessment Agencies, Health Training Institutions, In-service Training (IST) centers and professional associations in implementing the following impactful interventions.

KEY SUCCESSES

Institutional capacity of 90+ public and private HEIs strengthened

Functional HSEDCs established at 52 public teaching institutions.

Faculty development training provided to 13,183 teaching staff and preceptors

66 competency-based curricula developed

44 HEIs established a functional gender office.

Accreditation standards developed for 17 academic programs established

50 functional IST centers established.

56 standardized training packages developed and approved.

The IST centers trained > 100,000 health workers

National directives and guidelines for CPD and IST developed.

8 Professional association developed and delivered CPD courses.

¹⁷ Feyesa B, Herbst C, Lemma W, Soucat A, editors. The health workforce in Ethiopia: addressing the remaining challenges, a World Bank study, 2012. DOI: 10.1596/978-0-8213-8984-3

¹⁸ Yigzaw T, Ayalew F, Kim YM, Gelagay M, Dejene D, Gibson H et al. BMC Medical Education (2015) 15:130. DOI 10.1186/s12909-015-0410-6

¹⁹ Ayalew F, Misganaw A, Yigzaw T, Kibwana S, W/Mariam D, Kachara S. Strengthening Human Resources for Health in Ethiopia: Baseline Survey Findings; 2012

²⁰ Dejene D, Yigzaw T, Mengistu S, Woldemariam D, Kassay M. Exploring health workforce regulation in Ethiopia: a national cross sectional study. 2015

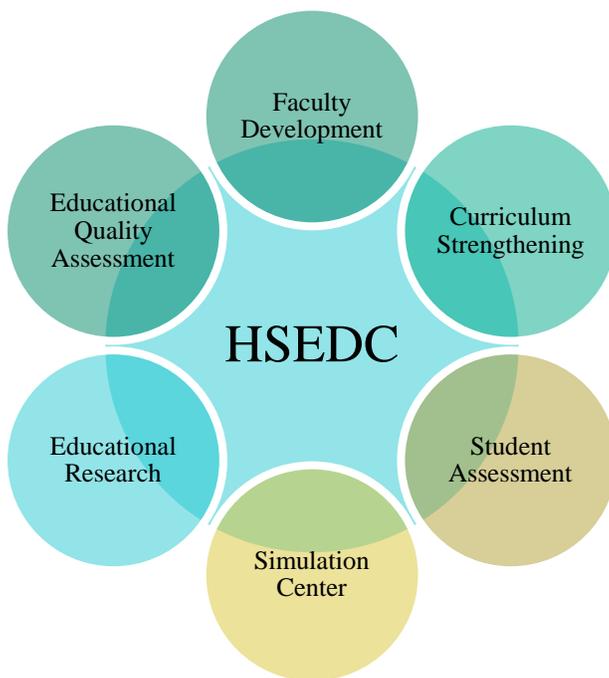
IR3.1. Improved Quality of Preservice Education of Health Workers

Establishing and strengthening health science education development centers (HSEDCs):

The Higher Education Proclamation instructs all higher education institutions (HEIs) to establish robust internal quality assurance system. Although most HEIs have a quality assurance office, there are no similar structures at health science college, school or department level²¹. Out of the 42 universities and regional health science colleges included in the 2012 HRH Project baseline survey³, only 5 universities had an internal quality assurance unit for health training programs. Even those universities with a medical or health science education development center (HSEDC) did not have optimal structure, staff capacity and resources to carry out quality improvement and assurance activities. Regular and comprehensive quality audits were rare.

In order to address this gap, the HRH Project supported 52 government universities and regional health science colleges to establish and/or strengthen a HSEDC. Technical support was also provided to about 40 private higher education institutions to establish a HSEDC. The HSEDC is a unit or office tasked with leading education quality improvement (QI) efforts for all health academic programs. The HSEDC functions include program quality audits, faculty development, curriculum development or strengthening, learning and student assessment materials development, and educational research and innovations. These were our approaches to establish and strengthen HSEDCs (Figure 14).

Figure 14. Functional units of HSEDCs



²¹ HERQA and FMOH (2014). Revitalizing the Quality Assurance System for Education of Health Professionals Education in Ethiopia

- **Advocacy to establish a HSEDC:** The Project organized series of advocacy meetings and national, regional and institutional consensus building workshops with MOE, HERQA, MOH, RHBs, regional TVET bureaus, and leaders of both public and private HEIs. A strategic document sponsored by HERQA and MOH recommended that health teaching institutions must establish a HSEDC²². International and local experiences were shared. A terms of reference (ToR) outlining the structure and functions of HSEDC was developed and HEIs were supported to adapt it to fit their context and priorities. The Project provided ongoing technical support to nominate and orient HSEDC focal persons and teams. Repeated advocacy meetings were organized to persuade HEIs to integrate HSEDC in the formal organogram of HEIs and allocate budget for QI activities.
- **Capacity building of HSEDCs:** The HRH Project provided training of trainers courses to 1,058 HSEDC focal persons and members in order to prepare them to operationalize their functions. The course breakdown included: Transformational leadership (90), quality assurance/improvement management (329), instructional design skills (124), effective teaching skills (174), clinical training skills (146), skills lab management (76), and multimedia for learning (119).

“The ETS training has opened our eyes to effectively plan and conduct teaching. We are making a paradigm shift from customary teaching to a meaningful and carefully planned management of classroom and practical teaching philosophies. We have felt the impact of planned teaching on the outcomes of our students’ competency exams. Previously, the success rate of our students for competency exam was not different from other regional health science colleges. Following the utilization of carefully prepared session plans and steered monitoring, however, the trend of the students’ success in our college has markedly increased”

-- Andargie Simegn, the Vice Dean of Dessie Health Science college

- **Onsite coaching and mentorship:** The Project supported the HSEDCs and departments in 52 institutions to undertake self-audits and use the audit results. The HSEDCs and departments utilized the results of the program audits to develop plan and implement the QI interventions. Institutions mobilized local financial, technical and material resources to organize skills lab, strengthen libraries, improve clinical practice, build teaching skills of faculty and develop student learning and assessment tools.
- **Developing guidelines, standards, training materials and resources:** The Project collaborated with the FMOH, HERQA and TVET Agency to develop an internal quality assurance (IQA) guideline, a national strategy to revitalize health training quality, national educational standards for 17 academic programs, clinical practice management guideline, simulation-based training management guideline, and seven faculty development training packages (effective teaching skills, instructional design skills, training skills, QI management training, simulation training, student performance assessment, and problem based learning courses). Various resources on teaching, learning and assessment were also collected, adapted and shared with the HSEDCs.

- **Providing financial support to HSEDCs:** The Project provided a modest amount of financial grants using fixed amount award (FAA) and fixed obligation grant (FOG) agreements to support the HSEDCs in 52 public HEIs to conduct faculty development, quality-audits, curricula review, and learning and assessment tools development. Using the FAA/FOG mechanism, a total of 9,131 instructors, preceptors and skills lab assistants were trained, 188 curricula were reviewed, and 345 course syllabi were developed. Moreover HSEDCs developed 197 competency-based assessment tools, 24 exam blueprints, 18 test item banks, and program-level exam committees. The accomplishments realized through the grants motivated HEIs to mobilize and allocate internal resources to fund their ongoing QI activities, indicating progress towards self-reliance.
- **Monitoring HSEDCs:** Through closely working with the Federal Ministry of Education (FMOE), the Project integrated indicators measuring the performance of the HSEDCs into the higher education supervision checklist. The FMOE in collaboration with HERQA and FMOH monitored the functions of the HSEDCs at 28 universities biannually using the checklist. This activity helped the institutions to strengthen their HSEDCs. The Project also organized annual review meetings, benchmarking visits, and social media platform to facilitate sharing of best experiences and solve challenges.
- **Develop Masters of Science in Health Profession Education (MHPE):** HSEDC leaders and teams need advanced knowledge and skills in order to effectively manage QI activities and serve as resource persons. The HRH Project supported Jimma University to develop and implement a postgraduate training program in health professions education to build capacity of HSEDC teams and prepare future HSEDC leaders. To date, the MHPE program has enrolled two batches and graduated the first cohort. Graduates from the MHPE program are driving educational quality improvement activities not only in their institution but also at national level.

As a result of these interventions, the relevance of HSEDC is officially recognized by FMOH, MOSHE, HERQA and HEIs. For example, establishing a HSEDC is one of the strategic initiatives to strengthen pre-service education in the National HRH Strategic Plan. Most government HEIs have functional HSEDCs. 48 out of 52 HEIs have undertaken impactful quality improvement actions, including self-evaluation of their academic programs against national education standards, enhancing skills of instructors and preceptors through faculty development program, and reviewing and strengthening curricula and student assessment. As evidence of institutionalization and sustainability, 32 out of 52 have integrated HSEDC into their organizational structure and developed QI strategic plans; 13 allocated annual budgets and 29 mobilized other resources for QI interventions.

Faculty development

Faculty development program is essential to enhance teaching skills of instructors and preceptors. The need for faculty development program is greater in a context like Ethiopia, where many of the instructors are junior and inexperienced. However, according to the 2012 HRH Project baseline survey, over half health training institutions did not offer faculty development program to their teaching staff. Although most universities had the higher diploma program, the program was criticized for not being tailored to educators of health professionals. Therefore, the HRH Project offered quality faculty development programs appropriate to education of health professionals, such as effective teaching skills, problem-based learning, simulation-based training, student assessment and instructional design skills courses (The aims of most frequent faculty development courses are described in the textbox below). Moreover, to ensure self-reliance in faculty development, the HRH Project coached the HSEDC at the 52 public education institutions to be able to conduct faculty development courses by themselves through the FOG/FAA

mechanism (See 3.1.1 for faculty development cascaded by HSEDCs). Post-training follow up and support was provided to maximize transfer of learning.

As a result of these faculty development interventions, the HRH Project enhanced skills of 13,183 teachers, preceptors and academic leaders (4,052 directly trained by Project staff and 9,131 trained through HSEDC). To ensure sustainability, capacity to develop and implement faculty development courses is built at 52 health training institutions. A national pool of trainers and standardized faculty development courses are prepared, which will enable continuity of faculty development programs.

Aims of sample faculty development courses

Effective teaching skills course: is designed to help instructors to effectively plan, deliver, coordinate, monitor and evaluate teaching.

Instructional design skills course: is intended to enable faculty to assess, design, develop, implement and evaluate curricula and modules.

Clinical teaching skills course: Clinical Preceptors and instructors to effectively plan, deliver and manage clinical practice

Simulation based training course: is intended to enable faculty and skills lab assistants to use simulation-based training methods effectively.

Multimedia for learning course: is intended to enable faculty to design, develop and deliver instructionally sound images, audio and video for teaching.

Problem based learning (PBL) course: aims to enable faculty to develop PBL cases and apply PBL teaching/learning method.

Student performance assessment (SPA) course is designed to help faculty to develop and implement valid and reliable student assessment.

Quality assurance management course: aims to establish systematic educational quality improvement and structures and processes including regular self-evaluation using educational standards, quality enhancement action based on gap and needs analysis and monitoring progress.

Transformational leadership skills course is intended to equip academic leaders with leadership skills for achieving quality of education.

Table 7: Number of participants in faculty development courses

Type of course	No. faculty	No. institutions
Instructional Design Skills	406	52
Effective-Teaching Skills	2,704	52 public & 40 private
Clinical Teaching Skills	1,274	52
Simulation	1,347	52
Multimedia for Learning	194	47
Problem-Based Learning	281	23
Student performance Assessment	1,170	52
Quality Improvement	2601	52
Transformation Leadership	45	44
Technical updates	2,031	29
Others (e.g. research skills, grant writing, communication)	1130	52
Total	13,183	92

Strengthening education infrastructure and learning resources

To be most effective, health training institutions need properly equipped classrooms, clinical skills learning laboratories, computer labs, internet access, libraries and transportation facilities to and from clinical practice sites. However, the health training institutions in Ethiopia suffer from critical shortage of educational materials and infrastructure. According to the 2012 baseline survey and rapid situational assessment²³, many universities lacked skills labs. The few available skills learning labs tended to be poorly equipped with models and instrument kits. Most institutions only had one computer lab and the overall student-to-computer ratio was more than 1 to 30. Fewer institutions had computer labs for teachers. Libraries at most schools were not equipped with relevant references and national guidelines. The Project



Nursing students attending practical session in simulation center, Debre Berhan University

²³ Jhpiego. Human resources for Health. Rapid situational assessment on prioritized geographic areas. 2012

supported development or procurement of the following priority educational materials:

- 12,844 standard books were procured
- 49,722 modules were locally developed, printed and shared
- 1,384 skills lab models and equipment were procured
- 1,190 computers were procured and donated to strengthen the computer laboratories at 51 institutions

In addition, the HRH Project procured 13 shuttle buses to enable clinical practice in expanded and remote sites.

Develop competency based curricula for health workers training programs

Before 2012, the majority of curricula in health training programs were traditional, and subject based. They did not have clear and measurable learning outcomes. The learning content, teaching methods and assessment strategies failed to ensure attainment of education outcomes. Curricula were not reviewed and updated regularly to integrate emerging health system priorities and educational trends. In the last seven years, the HRH Project supported the FMOH, FMOE and health training institutions to develop competency based curricula using the following approaches and strategies:

- **Training of faculty and HSEDCs on evidence-based curriculum design:** The Project provided 406 faculty members, HSEDC focal persons and FMOH staff instructional design skills course to enable them to review and develop curricula, course syllabi and learning modules.
- **Generating evidence:** The HRH Project conducted competence assessment and task analysis studies, which generated evidence on education and competence gaps and informed curriculum re-design.
- **Engaging multiple stakeholders during curriculum development and review:** The Project promoted engagement of primary stakeholders (FMOH, FMOE, HERQA, health training institutions, and professional associations) during curriculum development and review.
- **Using FAA and FOG:** The Project provided grants to the HSEDCs to review and standardize curricula
- **Facilitating integration of national health priorities:** The Project promoted integration of contents related to priority national health programs during curriculum revision.

Because of the support from the Project, a total of 66 competency based innovative curricula were developed with clear and measurable learning outcomes, updated contents, evidence-based teaching and learning methods, expanded opportunities for skills learning and clinical practice, and valid and reliable assessment strategies. The Project also developed the capacity of HSEDCs at 52 institutions to review and develop competency based curricula

Supporting effective implementation of competency based curricula

Before 2012, the capacity of health training institutions to effectively implement curricula was limited due shortage of qualified teaching staff, infrastructure, education materials, practical training opportunities in the skills laboratories and clinical sites. In addition, faculty members needed training and support to implement innovative teaching and assessment methods like problem-based learning. In order to enable HEIs to properly implement the newly developed competency based curricula, the Project implemented the following technical approaches and strategies:

- Strengthening and increasing skills learning labs and clinical training sites to expand skills learning opportunities

- Faculty development courses to equip instructors with the knowledge and skills required to implement innovative teaching, learning and assessment methods, such as problem based learning (PBL), and simulation based learning
- Workshop and coaching support to develop guidelines, learning resources, PBL cases, case studies, and assessment tools (logbooks, learning guides/checklists)



Fourth year anesthesia students performing induction of anesthesia for a woman undergoing CS at University of Gondar



Clinical practice session for fourth year medical students, Mekelle University

As the result, the Project strengthened and expanded simulation based training at 52 health training institutions through donating high fidelity skills lab models, developing a national Skills Development Laboratories management guideline, training of 1,347 skills lab assistants and instructors. The total number of skills lab in health training institutions increased from 58 in 2013 to 286 in 2018. In addition, the institutions hired additional skills lab assistants, mobilized resources to procure more models, and improved the organization and management of skills lab stations and equipment using the KIAZEN philosophy.

The Project also improved student clinical practice opportunity at 52 health training institutions through expansion of clinical practice sites from 526 in 2013 to 1,085 in 2018. To expand practice sites, the Project supported HEIs to identify appropriate health facilities, and facilitated the signing of Memorandum of Understanding. The Project supported FMOH to develop a national clinical practice management guideline to inform planning, implementation

and monitoring of clinical practicum. In addition, 1,274 clinical preceptors were given clinical teaching skills training. National service delivery guidelines were collected and distributed to promote evidence-based practices at the practice sites (see annex E3). The Project also supported the HSEDCs to develop 36 course syllabi for clinical attachments. Through advocacy and review meetings, coordination between education institutions and clinical sites has improved progressively. Eleven institutions have also assigned program level clinical coordinators.

The Project supported 17 health training institutions and their clinical sites with medical equipment maintenance to avail necessary equipment for health workers training. As the result, 496 essential equipment and models were maintained and availed for student practice at skills lab and clinical practice sites. The repaired equipment included autoclaves (steam & dry oven), sphygmomanometers, delivery couches, oxygen concentrators, weight scales, stethoscopes, examination lights and anesthesia machines.

Standardized problem based learning methodology was introduced into medical schools and other programs implementing the competency based curricula. We supported the FMOH to develop quality PBL cases and a guideline to standardize the PBL delivery. About 281 faculty were also trained on PBL.

Improving student selection

Student selection methods impact the competence and qualities of the future health workforce. However, student admission criteria largely depend on academic achievement in pre-university national examination. The HRH Project advocated for a move towards evidence-based, comprehensive and fairer student selection model, which considers not only cognitive ability but also other important qualities. A national workshop was organized in collaboration with FMOE and FMOH and with leaders of HEIs to discuss the shortcomings of the current student selection method, share international best practices and propose action plans to reform student admission systems. Pursuant to the advocacy workshop, the Project developed an information booklet to facilitate informed self-selection of a career in medicine. The information booklet was uploaded on FMOE website for easy access to high school students. The Project also supported the FMOH and FMOE to revise the admission process for the New Innovative Medical Education Initiative (NIMEI) program by integrating aptitude test and behavioral interview. It also supported the FMOH to develop a more valid entrance examination for residency matching program.

Strengthen gender-transformative interventions

Despite the government affirmative action program designed to close the gender gap, women in Ethiopia have been under-represented in pre-service education programs with significantly lower performance and graduation rates than their male counterparts. Moreover, as of 2012, the share of female enrolment was only 29% and to the proportion of female academic staff was 9%.

Many factors have contributed to the gender gaps, including an unfavorable teaching and learning environment for women, sexual harassment, peer pressure, and financial problems. A national report in 2010²⁴ showed that most of the universities organized gender directorates to provide different support to female students which included: coaching new arrivals by senior students, organizing female associations, establishing reward system for effective female students and arranging orientation programs using female professional role models. Such positive interventions, however; were not successfully cascaded down to the health colleges and departments at universities. Regional health science colleges did not have any gender office whatsoever.

²⁴ Federal Ministry of Education (FMOE). Education sector development program (ESDP) IV 2010/11-2014/15. Aug 2012

In order to address the gender disparity, the Project worked with 52 health training institutions, FMOE and Federal Ministry of Women, Youths and Children (FMOWYA) to reduce female student attrition, reduce sexual harassment, give female students an opportunity to realize their full potential, achieve gender equity, and ultimately to increase women's share in the growing healthcare workforce. The following approaches and strategies were implemented in this regard:

- **Developing gender office structures at 52 health training institutions:** In collaboration with sector ministries, regional health bureaus (RHBs), and HEIs, the Project advocated for and supported establishment of a dedicated gender office for health training programs. The Project provided ongoing technical support to nominate, orient and train gender focal persons. The Project also provided working tools and resources for the gender offices.
- **Building the capacity of gender offices:** The Project advocated for the assignment of a full or part-time gender focal person for the gender offices. It also advocated for formally integrating gender units into the organogram of the health training institutions. It provided TOT level courses and coaching supports to develop the skills of gender focal persons.
- **Supported the gender offices with materials and finance:** The Project provided financial grants and furniture and supplies for the gender offices.
- **Supporting gender offices to develop and use policy and advocacy tools:** The Project supported the adoption of the FMOE's sexual harassment policy and the development of gender case reporting and monitoring tools at health training institutions. It conducted national level support to the FMOE to organize annual meetings of university gender directorates to review performance and provide solutions to gender mainstreaming challenges in universities
- **Mainstreaming gender awareness on campus:** Gender offices organized discussion forums on gender issues and academic and psycho-social challenges students face for both male and female students. These forums encouraged male students to reflect on gender-related challenges in the school setting. In addition, the gender offices in collaboration with the HSEDCs conducted a two-day course on gender-responsive education.

As a result, college level gender offices were successfully established at 44 health training institutions with trained focal persons, office space and furniture. Of these, 34 gender offices were formally integrated into the institutional organogram. The Project also supported 44 gender offices to organize welcoming and orientation sessions for almost 8,647 mostly female first year students to enable them to adapt to the campus lifestyle. It also supported the gender offices to conduct life skills training for more than 4,560 female students to strengthen their communication, negotiation, time management, stress management, and assertiveness skills and overcome social limitations. Tutorial sessions for 7,067 female students were organized by the gender offices. Providing counseling services for 1,827 female students was possible at the gender offices. Financial and material support were provided to 5,198 female students who were on the verge of dropping out to help them meet basic needs, such as for sanitary pads, photocopying and stationeries. Money and certificates awarded to encourage to 1,093 high performing female students. Gender responsive pedagogy training was provided to 697 faculty members. The topics included: gender-sensitive classroom teaching, learning materials, school environment and school management; sexual harassment and safety; and tracking retention and performance by gender.

“Like many of female university students from poor economic background, my fate was to lay off my education and leave the campus”. Selam Deres, 20, is a 4th year midwifery student at Bahir Dar University, and is explaining her situation before she met with the gender office. Ms. Eden, who is the gender office coordinator of Bahir Dar University, received technical and financial support from the HRH Project. As a result, she has been better equipped to deal with the problems of female students like Selam. “I was so grate full. Seeing the resolution of Selam’s problems, who was almost near to school withdrawal due to financial issues, is source of my happiness and indeed I am also indebted for the support been provided to us”.

Through that support, Selam’s situation has dramatically improved. “Even though, I have been passed with many difficulties, now I am the graduating class student with many dreams in the future,” she said. “I have a bright future to be the best midwife ever with great aspiration to help the community and my family.”



Because of the support from the project, female students felt more confident and comfortable speaking up for themselves in the classroom and the community. Female students took leadership roles on student councils and committees, advocated for themselves and other women on campus, and worked to challenge gendered stereotypes. Direct financial support and tutorial classes also helped improve attendance, concentration, participation, and test scores, while rewards for female students who excel in school was an important motivator. Gender offices have reported a number of success stories in averting imminent drop-outs of female students. An evaluation study conducted by the Project also showed that performance scores of female students improved significantly by 5.1% and 9.4% for midwifery and anesthesia students ($p \leq 0.002$). Notably, the significant gender gap documented in anesthesia program in 2013 (56.9% vs. 63.2%, $p = 0.001$) disappeared three years later (66.3% vs. 65.3%, $p = 0.667$).

Table 8: Number of supported female and male students at gender offices

Type of activity	Number of supported student		Total
	Female	Male	
Orientation sessions	7,695	952	8,647
Life skills training	4,058	502	4,560
Tutorial support	6,077	990	7,067
Financial and material support	3,935	1,263	5,198
Counseling	1,493	334	1,827
Performance Awards	1,093	-	1,093

Strengthening Regulation of Health Professions Education in Ethiopia

Higher Education Relevance and Quality Agency (HERQA) is primarily responsible to regulate quality of higher education in Ethiopia including that of health professions education using program accreditation, quality audit, inspection and authentication of education credentials. Regional technical and vocational education and training (TVET) agencies regulate quality of mid-level health professional training through quality audit and supervision while regional occupational assessment and certification agencies manage certification examinations.

Up until 2012, these regulatory agencies were not able to discharge their responsibilities effectively due to limited capacity and legal mandate. Public higher education institutions were not subject to accreditation. Shortage of trained personnel, absence of explicit program specific standards and directives for audit and accreditation, infrequent and inconsistent inspection, and poor mechanism of follow-up were also important challenges. HERQA had no regional presence and the existing tools did not measure education processes and outcomes. Even though a certification of competence examination for vocational training programs exists, under-sampling of contents, poor quality of items, rater bias and lack of standardization affected its validity and reliability. However, there was no national exit or licensing examination for university graduates. Aiming to improve regulation of health professions education, the Project built the capacity of the regulatory agencies and strengthened the regulation practices through the following technical approaches.

- **Assessment and understanding of the existing regulatory systems.** In 2012, the HRH Project conducted a rapid assessment of the capacities, strengths and weakness of the regulatory authorities. As part of the exercise to revitalize the education quality, SWOT analysis was conducted to identify strengths, weaknesses, opportunities and threats of the regulation system in 2014. A national mixed methods study was also conducted in 2015 to further understand the challenges of health professionals' regulation in Ethiopia. The findings of these assessments were then used to develop a plan of action to address needs and gaps.
- **Building capacity of the regulatory agencies:** The Project supported the HERQA, FMOH, TVET Agency and regional occupational assessment agencies through training, coaching, and secondment of a technical assistant. As the result, program specific accreditation and quality improvement standards, checklists, guidelines, strategies, directives, and manuals were developed. Full-time seconded advisors at HERQA, FMOH, and TVET agency introduced new practices, coached resident staff, and transferred knowledge and skills. The project also provided critical financial and material support to improve the HERQA's website, library and administrative functions. For instance, a server, heavy duty printer and relevant books were procured.

- **Expand pool of assessors, accreditors and item developers through training:** Through capacity building training courses, pool of peer assessors for quality audit and accreditation in nine rounds of training courses were trained. The Project supported the FMOH and regional assessment agencies to train and coach test item developers for licensing examination in thirteen training courses and certification examinations in four training courses, respectively.

Table 9. Experts trained by type of training courses (2012-2017)

Type of course	No. experts trained
Accreditation for Assessors	300
Quality Audit for Assessors	534
Certification Exam Item Development	300
Licensing Exam Item Development	360
Standard Setting	75
Total	1,569

- **Reviewing and adapting global knowledge:** The Project supported the regulatory agencies to implement evidence based regulation practices through conducting desk-reviews and proper operational studies. Findings from research studies in Ethiopia and reviews of the global best experiences bridged information gaps. For instance, education standards of the World Federation of Medical Education were adapted to develop accreditation standards for medicine. Results of task analysis studies for seven health professions were used to develop blueprints for national licensing examinations.
- **Benchmarking and experience sharing:** Internship visit to Philippines' higher education QA system was supported for 6 HERQA staff members. Lessons on accreditation mechanisms and audit system were taken. The results of the visit was used to organize an advocacy workshop with stakeholders including Members of House of Representatives. The Project also supported benchmarking visits of 5 FMOH and FMHACA staff to learn from Uganda's licensing examination experience. Key attributes for success of licensure examination including the role of professional councils, associations, s and the required legal framework were taken as lessons.
- **Engaging relevant stakeholders:** The Project worked with regulators to ensure effective collaborations among key stakeholders - FMOE, FMOH, Education strategic center, private and public training institutions, health professionals' associations, and partners. Many relevant workshops, meetings and consultative forums were conducted to obtain expert opinion, ensure buy-in from stakeholders and secure supportive policy environment. Using annual meetings and forums, the Project helped regulators to review progress and provide feedback. In addition, the Project supported the HERQA to organize three national higher education quality assurance conferences and annual Universities forums.

As a result of all these interventions, the HRH Project supported HERQA and TVET Agency to develop accreditation and quality improvement standards for 11 undergraduate degree programs (Medicine, Nursing, Public Health Officer, Anesthesia, Midwifery, Medical Laboratory, Pharmacy, Dentistry, Physiotherapy, Radiology Technology and Environmental Health) and 6 vocational programs (Nursing, Midwifery, Anesthesia, Medical Laboratory, Pharmacy and Health Extension). Although the revision of the higher education proclamation to expand the accreditation mandate to public HEIs has not happened yet, there is building momentum towards it. The Project supported the TVET Agency to introduce a quality audit system for vocational health professionals' education programs. The newly developed education standards have been used to audit private medical schools and TVET

health science colleges. The Project supported FMOH to establish national licensing examinations for university graduates. Exam blueprints and high quality item pools were prepared. The exam was piloted successfully and went into effect in 2019 with written examination for 7 clinical cadres (medicine, nursing, midwifery, health officer, anesthesia, pharmacy and medical laboratory). As a clear demonstration of ownership and sustainability, a new directorate (Health Professionals Competency Assessment and Licensing Directorate) has been established at the FMOH with 27 staff to manage the program. The Directorate has developed relevant directives, guidelines and manuals to operationalize NLEs. The Directorate has established partnership with a local testing organization and secured grant from the European Union.

The Project also supported establishment of the first COC center in Gambella Region. Nine regional occupational assessment and certification agencies were also supported to strengthen their assessment systems.

IR3.2. Improved Quality of In-Service Training of Health Workers

Support FMOH, RHBs and IST centers to standardize and institutionalize IST

In-service training has been used by the GoE as a key strategy to strengthen and maintain competency of health workers. The FMOH has rolled out various in-service training programs for health professionals in collaboration with key stakeholders which have significantly contributed to enhancing the competencies of health workforce in different priority health topics.

However, there were major concerns regarding the quality, effectiveness, efficiency, sustainability and ownership of the IST programs in Ethiopia. According to the IST gaps assessment report in 2013²⁵, rigorous needs assessment for the IST programs was not always done. The majority of the ISTs were primarily implemented and financed by development partners. There was limited capacity of the FMOH, RHBs, universities, hospitals and others to design, finance, implement and monitor the IST programs. The FMOH and RHBs also had limited capacity to coordinate and monitor the IST programs. There was only one national IST center with better infrastructure, capacity and training management experience, with most of IST programs taking place in hotels. Different organizations used different training packages and conducted less effective and costly training strategies. The IST courses were also conducted in limited technical areas and in fragmented manner. There was no national IST database. In addition, the IST programs were not linked to the health workers' career development or professional licensing.

Recognizing the presence of these challenges, the Project supported the FMOH, RHBs, universities, hospitals and IST centers to standardize and institutionalize the IST programs using the following technical approaches and strategies:

- **Assessing national IST management capacity:** The Project conducted baseline HRH assessment in 2012 and gaps assessment of national IST in 2013 to understand existing context, strengths, weaknesses and gaps related to the IST programs. Results of the assessment were used to develop plan of actions and guide interventions of the Project. In addition, regular monitoring assessments were done to fine tune the IST program interventions.

²⁵ Jhpiego and FMOH, national in-service training, gap assessment report, 2013

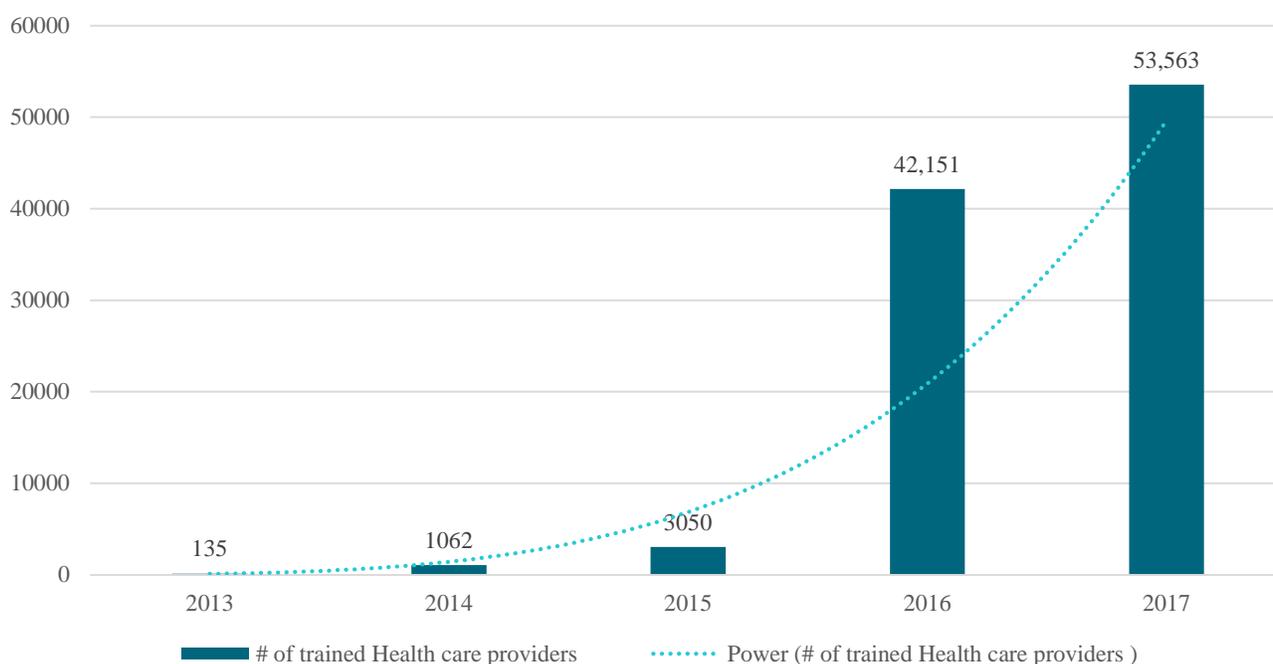
- **Developing IST policies and guidelines:** In 2012 the HRH Project supported the FMOH to develop and approve a national IST directive and implementation guideline. Both policy documents were distributed for use to RHBs, IST centers, partners, universities, colleges, hospitals and other users.
- **Establishing IST centers:** The Project supported the FMOH to have national level consensus building discussion on establishing IST centers. The Project developed a standard checklist to identify potential IST centers at health science colleges and universities across Ethiopia. Based on the criteria, 50 sites were selected to establish as IST centers, ensuring that every region had at least one IST center. At each proposed IST center, plans of actions to equip the center, prepare the staff and set the administration was developed and implemented. The HRH Project equipped 35 IST centers with computers, LCD projectors and pointers, flip-chart stands, white boards, tables and chairs, and bookshelves. It also provided technical support (including capacity building, mentoring, and supportive supervision) to all 50 centers. Of these, 40 have assigned IST directors and 49 have conducted at least one IST course.
- **Capacity building for IST coordinators and focal personnel:** To institutionalize in-service training, the Project conducted training courses to build capacity of IST centers in developing courses, facilitation of training courses, managing IST centers, developing grants and implementing training information system for a total of 565 participants. The Project also provided training for RHB focal persons on how to manage IST centers, coordinate IST and carry out strategic planning. The Project conducted regular coaching and supervisions at the IST centers and RHBs to build capacity in planning, organizing and facilitating IST courses. The FMOH in particular was supported through embedding technical advisor to build the capacity of the national IST coordination unit.
- **Standardizing training materials:** The Project oriented 12 technical working groups at the FMOH on instructional design concepts, approaches, and tools and supported their efforts to create or update a dozen training packages. The draft packages were sent to the national IST team for review and approval. The FMOH IST case team used a standardized checklist to review 100 IST packages developed by various FMOH directorates and partner organizations; 56 of those packages have been approved for distribution and use at IST centers to date.
- **Facilitated experience sharing on IST management:** The Project provided financial and technical support to FMOH, RHBs and IST centers to conduct annual review meetings, experience sharing workshops, benchmarking, online support groups and advocacy sessions. The best performing IST centers – based on reports compiled for supportive supervision action plans – shared their experience with other IST centers during the sessions.
- **Developed IST database:** The Project also supported the development and implementation of an IST database linked with the HRIS software at the FMOH.

Table 10. Experts trained by type of training Courses (2012-2017)

Type of course	Total # of experts trained
Instructional Design	78
Training Facilitation Skills	244
Grant Development	30
Database Management	52
Leadership Management and Governance	61
IST Management Training	100
Total	565

- The Project established 50 IST centers run by government and strengthened their capacity to plan, implement and monitor the IST programs. Of these, 49 IST centers ever conducted at least one IST course. All the IST centers have assigned a training director, training officers, and ICT officers, and eight IST centers have hired a permanent center director as well. The centers have also benefited from technical and financial support from the HRH Project. The Harari IST Center demonstrates the success of these efforts: with an allocation of 29 million Ethiopian Birr, it has expanded its single-room training center to a complex that includes four training rooms, nine breakout rooms, offices, plus 41 bedrooms and a cafeteria for students.
- The Project built a national capacity to coordinate and manage IST through establishing IST coordination unit at FMOH and building capacity of RHBs.
- Through support from the Project, 56 standardized national IST courses on priority health agenda were developed and disseminated. A thorough review, revision, and approval process for training packages has ensured that IST Centers offer high quality, and standardized training
- Through support from the Project, national capacity to develop standardized training packages and deliver quality IST improved
- The Project supported the FMOH to develop favorable policy environment to manage IST programs.
- Initially, IST centers relied on collecting hall rent for income, but training on grant development and management has enabled IST coordinators/directors and RHB focal personnel to successfully apply for grants from the FMOH and partners. IST centers were awarded grants totaling 208,713,238 Birr from 2013 to 2017. Some IST centers have taken the initiative to expand their training hall, which is an indication of their long-term sustainability. The IST centers mobilized money to train about 100,000 health workers using standardized packages and trained facilitators on national priority health agenda.
- The number of training provided to health care providers by the IST centers has increased from 135 to 53,563 from the year 2013 to 2017 as depicted in the figure below.

Figure 15: Trends of training provided by IST centers



Support FMOH and FMHACA to develop a framework for continuing professional development

Continuing professional development (CPD) is any educational activity including IST used to enhance knowledge and skills of health professionals. Systematic, monitored and need-based CPD schemes for health workers were not well acknowledged and ill developed in Ethiopia before 2012. There were no organized CPD providers to develop, implement and monitor CPD events. There were no policy and guidelines to regulate CPD. There were no sanctions for not keeping up-to-date. The 2015 regulation study⁴ showed that newly developed CPD directives and guidelines, and ratified proclamation were not enacted. Nearly 40% of health workers never participated in CPD in the preceding year. Most health workers mentioned lack of awareness about the importance of CPD, higher cost, shortage of time and lack of incentives as barriers to undertake CPD. Health facilities and RHBs were not directly involved in funding, designing and delivering CPD. The health facilities and RHBs lacked mechanisms to track participation of the health professional in and effectiveness of the CPD activities. The FMHACA and regional regulatory bodies had limited capacity to implement the health professional regulation practices effectively including CPD.

In order to solve the challenges, the Project supported FMOH, FMHACA, the IST centers, professional associations and others to develop national framework for CPD in the last seven years. The following interventions were completed with support of the Project:

- Development, printing and dissemination of national CPD guidelines and directives for health professionals
- Advocacy workshops on CPD, scope of practice, licensing, registration, ethical and competence review system of health professionals
- Financial support to FMHACA to promote CPD via Ethiopia Television for one week
- Established a National CPD Accreditation Committee

- Strengthened the national CPD Accreditation Committee through developing SOP for accreditation of CPD courses and orientating 73 CPD providers on the CPD program and its requirements and
- Supported professional associations (Ethiopian Midwifery Association, Ethiopia Association of Anesthetists and Ethiopian Medical Association) to develop online CPD courses and deliver the courses for their members.
- 8 professional associations have been approved to accredit CPD courses

Major Challenges

- Weak academic leadership at health training institutions with unfavorable culture of continuous quality improvement affected regularity of educational quality audits, use of audit results for QI and decreased attention of the institutions to earnestly support the HSEDCs and gender offices.
- Inadequacy of education infrastructure and standardized learning resources for large student size affected the implementation of the competency based curricula in the institutions.
- High attrition rate of teaching staff and academic leaders due to low motivation schemes and poor work climate was a huge challenge for most institutions
- Limited capacity of regulatory agencies and loopholes in the legislations slowed the pace of changes in the health professional regulation practices in Ethiopia.
- Institutionalizing IST at the IST centers were not fully completed due to low capacity of IST centers and lack of collaboration among IST stakeholders
- Delay in enforcement of CPD due to leadership ambivalence and concerns about CD access were also challenges.

Recommendations

- Strengthen academic leadership at all levels of the health training institutions including at the academic departments, HSEDCs, and gender offices.
- Improve the capacity and motivation of teaching staff in the training institutions through strengthened faculty development culture, improved workplace environment and staff performance management and recognition system.
- Avail essential education infrastructure and learning resources emphasizing skills lab, clinical practice and information technology enough to the size of students
- Strengthen accreditation practices for all academic programs in health through revising the higher education proclamations, better organizational structure and staffing of the regulatory agencies.
- Establish strong health professions council to effectively implement licensing, registration and CPD for priority health cadres and to link IST/CPD with licensing and relicensing.
- Develop capacity of IST centers through proper staff, finance and infrastructure including IST database and technology for IST planning, delivery and monitoring

RESULT 4-PROGRAM LEARNING AND RESEARCH CONDUCTED

HRH evidence and data are essential to assess workforce challenges, identify effective strategies, design high-impact interventions, and make good decisions regarding the production, distribution, and management of the health workforce. However, the HRH rapid situational assessment and baseline survey in 2012 showed that Ministry of Health and regional health bureaus did not have functional human resource information system (HRIS)^{26,2}. The availability and quality of HRH research evidence was also poor. The FMOH did not also pay much attention to generating HRH research evidence.

To address these gaps, the HRH Project supported the MOH, RHBs, health agencies, training institutions, and professional associations to conduct implementation research and M&E on HRH issues using a capacity building approach. For this Result Area, the Project had two intermediate objectives:

- IR 4.1. Research and Evaluation Evidence on Critical HRH Issues Generated
- IR 4.2. Build Local Capacity in Monitoring, Evaluation and Research Focusing on HRH

IR 4.1 Research and Evaluation Evidence on Critical Human Resource for Health Issues Generated

HRH research conducted

The HRH Project conducted 12 studies to inform not only Project implementation but also health workforce education and management strategies. A participatory approach was used to ensure ownership of findings and build local capacity in research management. Policy relevant research topics were selected in collaboration with the MOH, FMHACA, RHBs and professional associations after identifying existing evidence gaps. For each of the studies, the HRH Project collaborated with relevant stakeholders during study protocol development, data collection and analysis, report writing and manuscript publication.

These are the titles of studies conducted by the HRH Project. (Refer to **Appendix C** for more detail).

1. Human Resources for Health Rapid Situational Assessment in Prioritized Geographic Areas, 2012
2. Strengthening Human Resources for Health in Ethiopia: Baseline Survey Findings, 2013
3. Competence Assessment of Graduating Midwifery and Anesthesia Students in Ethiopia, 2014
4. Job Satisfaction and Factors Affecting Health Worker Retention in Ethiopia's Public Health Sector, 2014

²⁶ Jhpiego (2012). Human resources for health rapid situational assessment in prioritized geographic areas

KEY SUCCESSES

12 national and regional researches conducted

13 program learning reports produced

14 peer reviewed articles published in international journals; and 2 manuscripts submitted

HRH evidences disseminated in local and international conferences and meetings to share knowledge and distributed over 800 copies of technical reports to stakeholders

HRH research evidences utilized for development/revision of HRH strategic plan, curriculum, blueprints for national licensing examination, etc.

Built capacity of 254 experts from local partners in research management and M&E

Development of health systems modeling tool to predict the impact of HRH interventions on population health outcomes

5. Ethiopia Task Analysis Study Report: Midwives, Anesthetists and Health Extension Workers, 2014
6. Ethiopia Task Analysis Study Report for Medical Doctors, Health Officers, Nurses, Medical Laboratory Professionals and Pharmacy Professionals, 2015
7. Competence of Midwives in Provision of Care during Labor, Childbirth and Immediate Postpartum Period in Tigray Region, 2015
8. Competence of Midwives in Provision of Care during Labor, Childbirth and Immediate Postpartum Period in Amhara regions, 2015
9. Health Professional Regulation in Ethiopia, 2015
10. Evaluation of the Effectiveness of Interventions to Improve Quality of Midwifery and Anesthesia Education, 2018
11. Assessment of Health Extension Workers' Performance on Reproductive, Maternal, Newborn and Child Health Services in Oromia Region, 2018
12. Magnitude, Distribution, Performance and Challenges of Staff Secondment in Ethiopia's Public Health Sector, 2018

Produced program learning documents

The HRH Project developed 13 program learning briefs that summarized lessons learned from implementing the different components of the HRH Project. These documents will inform future HRH programs in Ethiopia and beyond. The program learning briefs are the following:

1. Strengthening Human Resources Management Capacity in Ethiopia: Achievements, Lessons Learned and the Way Forward
2. Improving Human Resource Management Practices in Ethiopia's Public Health Sector: Achievements, Lessons Learned and the Way Forward
3. Improving Human Resources Management Policies and Procedures in Ethiopia: Achievements, Lessons Learned and the Way Forward
4. Strengthening Regulation of Health Professionals in Ethiopia: Achievements, Lessons Learned and the Way Forward
5. Expanding and Strengthening Midwifery Workforce in Ethiopia: Achievements, Lessons Learned and the Way Forward
6. Building the Size and Capacity of the Anesthesia Workforce in Ethiopia: Achievements, Lessons Learned and the Way Forward
7. Building Human Resource Capacity for Medical Device Maintenance & Management in Ethiopia: Achievements, Lessons Learned and the Way Forward
8. Launching Postgraduate Programs for Health Managers in Ethiopia: Achievements, Lessons Learned, and the Way Forward
9. Establishing Health Science Education Development Centers to Lead Internal Quality Improvement Efforts in Ethiopia's Higher Education Institutions: Achievements, Lessons Learned and the Way Forward
10. Institutionalization and Standardization of In-service Training in Ethiopia's Health System: Achievements, Lessons Learned and the Way Forward
11. Addressing Gender Inequity in Health Professionals' Education in Ethiopia: Achievements, Lessons Learned and the Way Forward
12. Empowering Female Health Science Students in Ethiopia: A Case Study

13. Generating and Using Evidence on Human Resources for Health in Ethiopia: Achievements, Lessons Learned and the Way Forward

Disseminations of HRH evidence

The HRH Project used various channels to share study findings with local partners, and the international scientific community. The Project:

- Distributed over 800 copies of study reports to USAID, MOH, RHBs, training institutions, professional associations, and partners.
- Presented study findings in local and international conferences and meetings.
- Submitted 16 manuscripts to peer-reviewed journals of which 14 have been published to date. (See Appendix D).

Utilization of Research Results for Decision Making

The Project supported the MOH, RHBs, professional associations, and training institutions to use HRH study data to inform policy development and program implementation as summarized below:

- **Baseline survey** findings were used to refine the HRH Project implementation plan and Performance Monitoring Plan. It also served as an input and source of baseline data for developing the national HRH strategic plan.
- **Competence assessments** findings prompted and informed revision and re-design of midwifery and anesthesia curricula.
- **Job satisfaction and retention** study findings informed development of the National HRH Strategic Plan.
- **Task analysis** findings guided the development of *blueprints for national licensing examinations; prompted and informed curricula re-design; and guided development of scope of practice and CPD priorities*
- **Regulation study** findings informed development of the regulatory sector transformation plan and strengthened oversight by FMHACA.
- **Secondment study** findings prompted and informed the MOH to develop a TA management guideline.

IR 4.2 Build Local Capacity in Monitoring, Evaluation and Research Focusing on HRH

Built capacity of partners in conducting research

The HRH Project systematically built the capacity of stakeholders so that they would be able to conduct quality HRH research independently in the future. Experts from the MOH, RHBs, professional associations and HEIs were involved in every aspect of the research undertaking, including designing studies, validating study tools, collecting and analyzing data, producing technical reports, drafting recommendations, preparing conference abstracts, and writing journal manuscripts.

A total of 254 experts at these organizations benefited from skills development training and hands-on experience in research (including study design, data collection, report writing and manuscript development)

Monitoring and evaluation conducted to ensure quality of program implementation

The HRH Project developed a monitoring and evaluation plan (Performance Monitoring Plan) to standardize monitoring and reporting of project success. The Project developed routine monitoring, supportive supervision and data quality assessment checklists to measure the key performance indicators of the Project. Program data were collected annually to track project performance, make course corrections and prioritize interventions. Appendix C summarizes overall Project progress against key targets in the PMP.

A web based data storage and visualization system was developed to store, visualize and track the Project results using the District Health Information System (DHIS2) platform. The system is hosted online at <http://jeis.jhpiego.org> (user access permissions required). Sample dashboards for selected technical areas including enrollment and graduation rates for priority cadres, HRM, and education quality improvement were developed and used to routinely review progress against plans. The Project submitted progress reports to the MOH.

The HRH Project provided technical and financial support to the MOH, FMOE, 11 RHBs and TVETs to conduct integrated and joint supportive supervision activities at HEIs, IST centers, zonal and *woreda* health offices and health facilities. The supervision teams identified promising practices and challenges, and proposed and supported solutions to address the gaps and strengthen implementation of HRH activities. The Project also conducted annual performance data collection from 52 training institutions, 11 RHBs and selected zonal and *woreda* offices and health facilities on key project performance indicators.

In addition, data quality assessments were conducted to ensure the quality of HRH program implementation data, and the margin of errors reported against recounted figures was less than 10%.

In March 2018, the Project's end-of-project evaluation was conducted by external evaluators commissioned by USAID. The HRH Project staff coordinated meetings and field visits at selected supported institutions requested by the evaluation team, and provided information as needed. The evaluation encompassed HRH Project implementing partners, 14 public HEIs, 5 RHBs and national stakeholders such as MOH, FMHACA, HERQA, MoFED, and the Ethiopian Medical Association.

Developed a health systems modeling tool to predict the impact of HRH interventions on population health outcomes

The HRH Project collaborated with the Johns Hopkins University to develop a web-based application for estimating the impact of health system strengthening efforts on health system outcomes, intervention coverage, and population health. It is designed to model any type of health intervention that involves the availability and competency of health workers, the distribution of supplies and equipment, and/or care-seeking for health services by the population. The tool development is near to the final stage and has the following functionalities:

- Generation of alternative future scenarios to support decision-making for policies;
- Retrospective analyses of past programs to estimate the impact of a program and to understand the reasons/bottlenecks for unmet targets;
- Understand the opportunities for what a government could achieve in a future program or policy if it were to direct resources to one or more components of the health system.

The model generates a variety of output-level, outcome-level, and impact-level estimates, including:

- Changes in the availability of health workers and health worker competencies;
- Changes in the availability of supplies and equipment at facilities;
- Changes in the readiness of health facilities to provide effective care;
- Changes in the proportion of the population seeking care;
- Changes in the proportion of the population receiving effective care (coverage) and
- Changes in cause-specific mortality and all-cause mortality

Findings from the model suggested that it could be used for planning at national level and it could be further improved when new data from studies are available. The user interface of the final model will be shared to USAID and MOH in the future.

Conducted HRH Project Closeout and Dissemination Meeting

The HRH Project organized a colorful closeout and dissemination workshop on April 3, 2019 in Addis Ababa at Hayat Regency Hotel. The event was attended by 240 participants, including 38 health and education sector leaders (MOH, MOSHE, RHBS, HERQA, and TVET), 48 from universities and RHSCs, 26 from donors, 31 from partners, 13 from professional associations, 14 from local and international media and project staff.

The event featured keynote speeches from His Excellency Dr Amir Aman, Minister of Health, the Federal Democratic Republic of Ethiopia, Mr. Getachew representative of Her excellency Prof. Hirut Woldemariam, Minister of Science and Higher Education, the Federal Democratic Republic of Ethiopia, Leslie Reed, USAID Mission Director, and Dr Leslie Mancuso, CEO and President of Jhpiego.

Dr Damtew Woldemariam, Chief of Party for HRH Project, presented high-level achievements. A marketplace was arranged for beneficiary institutions to tell their success stories by their own. The exhibition at the marketplace demonstrated the range of target institutions and breadth of project scope, featuring different departments at the MOH, a regional health bureau, education regulatory body, professional associations, and higher education institutions. In the end, meeting participants appreciated the impact the Project has had in strengthening the health workforce and called for continued investment.

During the closeout event, the HRH Project also distributed 13 program-learning documents, a booklet summarizing high-level project accomplishments and a compendium of research abstracts to meeting participants.

Major Challenges

- Engagement of the FMOH in setting HRH research agenda and generating research evidence was not up to the desired level, resulting in missed opportunities for learning and affecting the enthusiasm to use the evidence.
- The poor functionality of HRIS made monitoring of HRH results difficult
- Poor education information management systems in pre-service education institutions made monitoring of PSE data difficult (achievements, progression or failure rate, graduation rate, dropout rate)
- Most of the studies done by the HRH Project are cross-sectional design, which may not generate strong evidence.

Recommendations

Though the Project was successful in meeting its goals and objectives, additional efforts are required to build local capacity to generate empirical data through rigorous study designs and program learning.

The followings are key recommendations:

- A systematic process of routinely and collaboratively determining and reviewing national and regional HRH research priorities should be developed and institutionalized within the MOH and RHBs. This can be discussed as part of the agenda in routine HRH forum meetings, and universities, colleges and other stakeholders can align their planned research to support the overall national and regional priorities.
- High quality evidence requires stronger study designs such as quasi or experimental/ purely experimental/ study with a control group, interrupted time series design, longitudinal design, and mixed methods evaluation with robust qualitative component.
- Improve HRIS to track the health workforce accounts at national and regional levels:
- Develop electronic based educational information system to track students and faculty especially for new generation universities and regional health science colleges.
- Continue to build institutional and human capacity in M&E and research at federal, regional and district levels
- Enhance culture of using research and M&E data for decision making at all levels of government institutions
- Develop a health system modeling tool to estimate health outcomes at sub regional levels

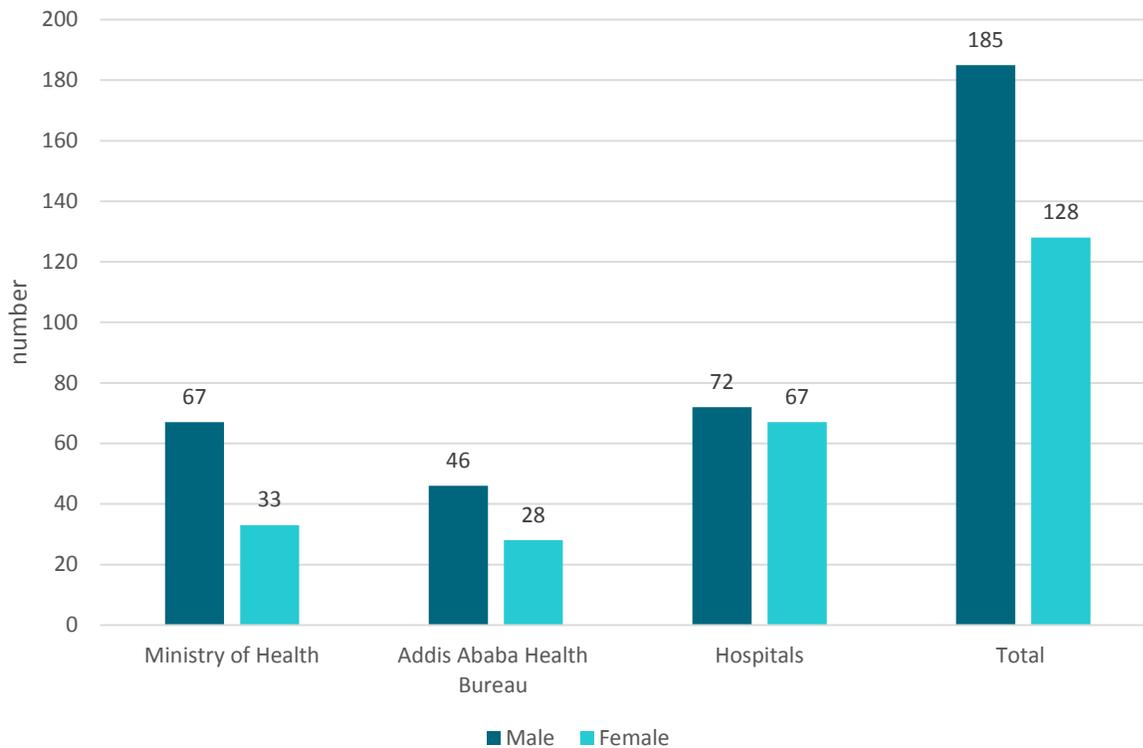
ADDITIONAL PROJECT ACTIVITIES

In response to FMOH requests, USAID tasked the HRH Project to provide Leadership, Management and Governance (LMG) training for improving leadership, management, and governance capacity and practices at the FMOH, RHBs and regional hospitals and to carry out surgical backlog clearance at selected hospitals in Addis Ababa.

Leadership, Management and Governance

The project provided LMG training for 313 leaders and managers during a nine-month Leadership, Management and Governance (L+M+G) program to help them achieve greater equity and quality of health services. The LMG course engages leaders/managers and teams of health workers to identify critical challenges and address obstacles in their own work settings that are preventing high quality health care. When health workers are empowered to work in teams to focus on priority health areas and address local challenges, they increase their commitment and strengthen their ability to produce positive results. The course engages participants in applied learning. Learning how to be effective in addressing challenges is a process that takes place over time for performance and quality improvement. Training participants disaggregated by gender is shown in figure 16 below.

Figure 16. Number of health workers successfully completed LMG training, 2018



Surgical Backlog Clearance

Conducted baseline assessment of the surgical performance of target hospitals

The FMOH's review of hospital performance had shown cancellations on the day of surgery reaches as high as 32% and averages above 20% in tertiary hospitals like Tikur Anbessa Specialized Hospital(TASH) where most of the backlog was exists.

The Project conducted a baseline assessment of the operating room (OR) performance of the hospitals. A review of the literature on OR efficiency was done. Consultative meetings were held with the OR directors, quality unit heads and surgical department heads of TASH, St Paul's and Yekatit 12 hospitals.

Analysis of the baseline findings showed that the common reasons for cancellation were lack of **critical equipment or supply, late starts, and inadequate patient preparation**. The findings were presented to the OR teams, the heads of departments and the quality unit heads of the hospitals as an input to design improvement plans.

Procured medical equipment and supplies

Based on the baseline assessment findings, the Project procured equipment and supplies (sterile surgical drapes and gowns; and patient monitors) with a worth of over 35,000 USD and delivered it to TASH and Ophthalmology department at Menelik II Hospital. To show the impact of these supplies, some examples are provided below:

- There was only one portable slit lamp in the whole ophthalmology department which was used by the OPD, the inpatient wards and the operating room. There was considerable delay every time the equipment was moved from one place to the other and patients and physicians were forced to wait. The Project supplied two portable slit lamps to the department so that each unit has its own, eliminating the wait and interruption.
- The available drapes and gowns for each operating day at TASH was about 30 packs, which was consumed at the end of each operating day. During autoclave down times, operations were delayed or cancelled and were not reprocessed on time. The Project procured material and was preparing another 30 packs which doubles the capacity. Hence the OR was functional without cancellations for 2 days even when the autoclave was down. During project implementation, additional medical supplies and equipment were also distributed to hospitals to reduce the backlog further.

Recruited and deployed local multidisciplinary team of clinical experts in TASH and Menelik II hospitals

A multi-disciplinary team consisting of surgeons, anesthetists, nurses, sterilization room workers etc was recruited and surgery was performed on off duty hours at weekends. This increased the number of operations and backlog clearance rate. A total of 154 pediatrics surgical patients on the waiting list were operated in the 7 weekends (14 operation days) in TASH and 526 children on the waiting list were operated in Menelik hospital- the waiting time for surgery was reduced from around a year and a half to ~5 months.

Eliminated waste in surgical care delivery processes and optimized OR efficiency in TASH

Perioperative inefficiency results in backlogs re-accumulating in spite of running campaigns. For example, the cancellation rate at TASH just before the Project started was around 29% according to the report of MOH Quality Directorate. In order to better understand the inefficiency and improve it by using human centered design, the Project ran a two-day workshop on process mapping. The workshop was conducted with participants who were OR directors/coordinators, surgeons, anesthetists/ anesthesiologists and other members of the OR team from TASH, Yekatit 12 and St. Paul’s hospitals. Participants mapped the current perioperative process, identified waste, carried out a root cause analysis and redesigned the process to be optimally efficient. Based on that they drew an action plan for improving the process towards the optimum.

Collected weekly monitoring data on key performance indicators (KPIs)

The KPIs for the project were collected weekly starting from the time after the process-mapping workshop. The OR team collected the data routinely and reporting it to the Medical Director and Quality Unit Head. A total of 935 surgeries performed routinely. In total, 1615 surgeries were performed during working days (90.5%) and weekend campaigns (9.5%) in the target hospitals (see table 11 below)

Table 11: Number of surgeries performed during the last six Months

Hospitals	Percent of first surgeries operated on time (<= 9:00am)	Scheduled surgery cancelation rate (%)	Number of surgeries operated		
			Routinely (During working days)	During weekend campaign	Total surgeries
Tikur Anbesa	18%	28%	840	154	994
Yekatit 12	82%	11%	95	NA	95
Menelik II	NA	NA	526	NA	526
Total	-	-	1461	154	1615

Supported surgical department to analyze surgical data and installed data visualization board

In order to provide continuous input for improvement plans as well as to make the whole team aware of progress, the HRH Surgical Backlog Clearance project included setting up a data display dashboard. The weekly data collected was summarized and shared with the Quality unit head and the Head of the Department. The increased awareness regarding efficiency in the OR resulted in the staff working towards reducing cancellations and starting on time.

Appendix A: Selected PMP Indicators

S/N	Indicators	Baseline	Project Target	Cumulative achievement	% achieved
Result 1: Improved human resources for health management					
1.1	Percentage of organizations that have staff requirement plan in place	77	100	100	100
1.2	Percentage of HRM post filled with staffs who have qualification in health/management/social science with minimum of BSc degree	20	100	100	100
1.3	Number of human resources management capacity assessments conducted	0	15	15	100
1.4	Number of health workers who successfully completed an in-service training program in HRM	0	2,770	2,950	106
1.5	Number of functional federal and regional HRH forums established	0	12	12	100
Result 2: Increased availability of skilled Midwives, Anesthetists, HEWs and other essential health workers					
2.1	Ratio of midwives to population	0.56/ 10,000	1.99 /10,000	1.65 /10,000	83
2.2	Ratio of anesthetists to population	0.03 /10,000	0.17 /10,000	0.16 /10,000	94
2.3	Number of new health care workers who graduated from a pre-service training institution within reporting period disaggregated by cadre	0	38,892	48,923	126
2.3.1	Midwives	0	14,419	15,552	108
2.3.2	Anesthetists	0	1,415	1,508	106
2.3.3	HEW Level III	0	8,230	13,849	168
2.3.4	HEW level IV	0	13,500	14,593	108
2.3.5	Post graduate in Health Economics and Human Resource for Health Management	0	89	119	134
2.3.6	Other essential health workers (Nursing specialty, EMT and Biomedical technician)	0	1,238	3,302	266
2.4	Number of HEIs with expanded clinical practicum sites	0	50	52	104
Result 3: Improved quality of training of health workers					
3.1	Number of local organizations supported to provide in-service training	0	35	50	143
3.2	Number of curricula developed and/or updated	0	48	66	137
3.3	Number of laws, policies, regulations reviewed and /or developed to improve quality of education and training	0	9	14	155
3.4	Number of faculties and preceptors who successfully completed an in-service training program in pedagogical and educational quality improvement	0	10,671	13,183	124
3.5	Number of accreditation standards developed for PSE programs	NA	NA	17	-

3.6	Number of gender offices established or strengthened	25	52	44	85
3.7	Number of health science training institutions with internal quality improvement programs	3	50	52	104
Result 4: Program learning and research conducted					
4.1	Number of program learning studies/research reports produced	0	16	12 studies & 13 learning briefs	156

Appendix B: Success Story

Project Contributed to Improved Human Resources for Health

With funding from the United States Agency for International Development (USAID), the Strengthening Human Resources for Health (HRH) Project, which has been supporting efforts of the Government of Ethiopia to improve health outcomes for its citizens by improving the state of the health workforce, celebrated its completion on April 3, 2019.

In the past seven years, the HRH Project supported the Federal Ministry of Health to graduate 48,923 new health workers, including midwives, anesthetists, health extension workers, emergency medical technicians, and biomedical technicians.

In addition to increasing the number of health workers, the Project supported improvements in the quality of education of health workers. Competence of new graduates has significantly improved as a result of technical, material and financial support provided to the more than 90 public and private higher education institutions. The support included faculty development training of 13,183 teachers and preceptors; development of 66 curricula; donation of 1400 skills learning mannequins and equipment, 62,566 books and modules, 13 buses, and 1,190 computers; and establishment of internal quality improvement departments and gender offices in health science colleges.

Training systems have also improved thanks to the establishment of 50 standardized in-service training centers and development of mechanisms for monitoring and coordinating in-service training of health workers.

The HRH Project also strengthened human resource management systems, including, but not limited to, development of a 10-year national HRH strategic plan, creation of 1,307 human resource management positions, training of 2,950 human resource staff and establishment of multi-sectoral HRH partnership forums at national and regional levels.

Last but not least, the HRH Project generated 12 research and 13 program learning evidence to inform human resource for health policies and programs. The HRH Project was implemented by a Jhpiego-led consortium of partners, including Management Sciences for Health, the Ethiopian Midwives Association, the Ethiopian Association of Anesthetists, the Open University and Project Mercy.

Nearly 50,000 health workers graduated in seven years



HEALTH WORKER STUDENTS LIKE BETELIHEM TEGEGN (C) WERE SUPPORTED TO IMPROVE THE QUALITY OF EDUCATION IN THE COUNTRY

The Project supported the efforts of the Government of Ethiopia to improve health outcomes for its citizens

Appendix C: Implementation Researches

#	Learning topic	Learning objectives	Year	Final products and dissemination
1	Human Resources for Health Rapid Situational Assessment on Prioritized Geographic Areas	Describes the existing HRH situation in the country by region, reviews current initiatives and partnerships addressing HRH activities, identifies government priorities	June 2012	Technical report produced and used for program design
2	Strengthening HRH in Ethiopia: Baseline Survey Findings	Assess the existing human resources management capacity and performance; and capacity of midwifery, anesthesia and health extension worker pre-service training institutions	March 2013	“ ” “
3	Competence Assessment of Graduating Midwifery and Anesthesia Students in Ethiopia (Baseline)	Evaluate the effect of interventions implemented by the HRH project on the competence of midwifery and anesthesia students who are graduating with BSc degrees or Level IV and Level V diplomas from selected higher educational institutions in Ethiopia	October 2014	“ ” “
4	Job Satisfaction and Factors Affecting Health Worker Retention in Ethiopia’s Public Health Sector	Identify the factors and approaches to workforce job satisfaction and retention that will assist the Federal Ministry of Health and Regional Health Bureaus in Ethiopia to make evidence-based policy and management decisions regarding the successful recruitment and retention of workers in the public health sector	June 2014	“ ” “
5	Ethiopia Task Analysis Study Report: Midwives, Anesthetists and Health Extension Workers	Assess needs and gaps in the education, practice, and competencies of midwives, anesthetists, and HEWs	August 2014	“ ” “
6	Ethiopia Task Analysis Study Report for Medical Doctors, Health Officers, Nurses, Medical Laboratory Professionals and Pharmacy Professionals	Identify the needs and gaps in the education, practice, and competence of Medical Doctors, Health Officers, Nurses, Pharmacy Professionals, Medical Laboratory Professionals	March 2015	“ ” “
7	Competence of Midwives in Provision of Care during Labor, Childbirth and Immediate Postpartum Period in Tigray Region	Assess performance of midwives in provision of care during labor, childbirth and immediate postpartum period in public hospitals and health centers; and identified current gaps in competence and work environment factors that influence competence of midwives	January 2015	

8	Competence of Midwives in Provision of Care during Labor, Childbirth and Immediate Postpartum Period in Amhara regions	Assess performance of midwives in provision of care during labor, childbirth and immediate postpartum period in public hospitals and health centers; and identified current gaps in competence and work environment factors that influence competence of midwives	January 2015	“ ” “
9	Health Professional Regulation in Ethiopia	Generate evidence on strengths and challenges of health care regulation with particular emphasis on health professionals’ regulation and ultimately improve quality and safety of health services in Ethiopia.	April 2015	“ ” “
10	Evaluation of the Effectiveness of Interventions to Improve Quality of Midwifery and Anesthesia Education (Endline)	Evaluate the effects of the various interventions implemented by the Government, the USAID funded Strengthening Human Resources for Health (HRH) Project and other partners in improving quality of midwifery and anesthesia education in public higher education institutions	April 2018	“ ” “
11	Magnitude, Distribution, Performance and Challenges of Staff Secondment in Ethiopia’s Public Health Sector	Generate evidence on the magnitude, distribution, management, facilitators, barriers and effectiveness of secondment practices in the public health sector in Ethiopia	September 2018	“ ” “
12	Assessment of Health Extension Workers’ Performance on Reproductive, Maternal, Newborn and Child Health Services in Oromia Region	Assess performance of level III and level IV rural health extension workers (HEWs) in Oromia Region in relation to reproductive, maternal, child and newborn health (RMNCH) services	November 2018	“ ” “

Appendix D. Published manuscripts in peer reviewed journal

#	Article Name	Journal	Year	Link
1	How well does pre-service education prepare midwives for practice: competence assessment of midwifery students at the point of graduation in Ethiopia	BMC Medical Education	2015	http://www.biomedcentral.com/1472-6920/15/130#
2	Using task analysis to generate evidence for strengthening midwifery education, practice, and regulation in Ethiopia	International Journal of Women’s Health	2016	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4890695/

3	Preparing the health workforce in Ethiopia: A cross-sectional study of competence of anesthesia graduating students	Education for Health	2016	http://www.educationforhealth.net/article.asp?issn=13576283;year=2016;volume=29;issue=1;spage=3;epage=9;aulast=Kibwana
4	Factors affecting turnover intention among nurses in Ethiopia	World Health & Population	2015	http://www.longwoods.com/content/24491
5	Quality of midwife-provided Intrapartum care in Amhara Regional State, Ethiopia	BMC Pregnancy and Childbirth	2017	https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-017-1441-2
6	Trainers' perception of the learning environment and student competency: A qualitative investigation of midwifery and anesthesia training programs in Ethiopia.	Nurse Education Today	2017	www.nurseeducationtoday.com/article/S0260-6917(17)30097-7/pdf
7	Education, practice, and competency gaps of anesthetists in Ethiopia: Task analysis	The Journal of PeriAnesthesia Nursing	2017	http://dx.doi.org/10.1016/j.jopan.2017.02.001
8	Factors predicting Ethiopian anesthetists' intention to leave their job	World Journal of Surgery	2017	https://www.ncbi.nlm.nih.gov/pubmed/29110158
9	Identifying gaps in the practices of rural health extension workers in Ethiopia: a task analysis study	BMC health services research	2017	https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2804-0
10	Job satisfaction amongst anesthetists in Ethiopia – a national cross sectional study	International Journal of Health Planning and Management	2017	https://onlinelibrary.wiley.com/doi/abs/10.1002/hpm.2573
11	Assessing the competence of midwives to provide care during labor, childbirth and the immediate postpartum period – A cross sectional study in Tigray region, Ethiopia.	<i>PLoS One</i>	2018	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0206414
12	Strengthening nursing education and practice in Ethiopia: A cross sectional task analysis study	International Journal of Africa Nursing Sciences	2018	https://doi.org/10.1016/j.ijans.2018.10.002 . https://www.sciencedirect.com/science/article/pii/S2214139118300611?via%3Dihub
13	Practice analysis of junior doctors in Ethiopia: implications for strengthening medical education, practice and regulation.	<i>Global Health Research and Policy2</i>	2018	https://doi.org/10.1186/s41256-018-0086-7 . https://ghrp.biomedcentral.com/articles/10.1186/s41256-018-0086-7

Appendix E: Curricula, Materials and Tools Developed, Adapted or Contributed to by the program, 2013-2019

E1. Curricula

#	Name of Curriculum	No	Level (type)
1	Anesthesia	5	Anesthesia Level V, Hybrid innovative, generic, post-basic (BSc.), Harmonized MSc., and PhD
2	Biomedical Equipment Servicing	3	Biomedical Equipment Servicing Level II and III and Advanced Biomedical Equipment Servicing management level IV
3	Emergency Medical Technique/ Service	3	Emergency Medical Technique (EMT) Level III, Emergency Medical Service Level III and IV
3	Environmental Health Service	2	Environmental Health Service Level III and IV
4	Health Economics	1	MPH in Health Economics
5	Health Extension Service	4	Health Extension Service Level III and IV, Health care giving level II and Urban Health Extension Service level IV
6	Health Informatics	1	Harmonized Curriculum for Bachelor of Science in Health Informatics
7	Health Professions Education	1	Master of Health Professions Education
8	Human Resources for Health Management	1	MPH in Human Resources for Health Management
9	Medical Laboratory science/Service	7	BSc. Hybrid innovative MLS, Post Basic BSc, Medical Laboratory Technique Level III and IV, Outcome Based Medical Laboratory (OBML) Service Level III & IV, and OBML Assistance Level II
10	Midwifery	7	Midwifery Level IV, Hybrid Innovative BSc., BSc upgrading, Post Basic BSc., national harmonized modular BSc, MSc. and PhD
11	Medical Radiologic Technology	2	Post Basic Medical Radiologic Technology BSc, and Medical Radiologic Technology MSc.
12	Medical Radiography Technique	2	Medical Radiography Technique Level III and IV
13	Medicine	3	BSc: Hybrid Innovative Medical Curriculum, Family Medicine Residency & Neurological Surgery Residency Program Curriculum
14	Microbiology	1	PhD in Microbiology

15	Nursing	4	BSc. In Post Basic Nursing, Hybrid innovative BSc Nursing, Generic (Comprehensive)BSc, PHD in Nursing
16	Nursing Specialties	10	BSc in Operation Room (OR) Nursing, Neonatal Nursing, Emergency and Critical Care Nursing, Pediatric and Child, Health Nursing, Surgical Nursing, Psychiatric Nursing, Ophthalmic Nursing, Oncology Nursing, Nephrology Nursing, Cataract Surgery
17	Pharmacy	6	BSc. In Pharmacy, Pharmacy Level II and IV and Outcome Based Model Pharmacy Level II, III and IV {Retail Pharmacy Assisting-Level II, Hospital/community Pharmacy Assisting- Level III and Pharmacy Technology Services (Level IV)}
18	Public Health	1	BSc. In Public Health
19	Supply Chain Management	1	Masters of Science in Supply Chain Management
20	Regulatory Affairs	1	Master of Science in Regulatory Affairs
Total		66	

E2. Training materials

#	Name
1	Human Resources for Health Management In-service Training: Participants Manual
2	Human Resources for Health Management In-service Training: Facilitator's Manual
3	Competency-based Anesthesia Assessment Book
4	Competency based midwifery assessment tools
5	Training Facilitation Skills Training: Facilitator's Manual
6	Training Facilitation Skills Training: Participants Manual
7	Grant Development and Management – Training Manual
8	Assessment Development tool Manual
9	Assessment and Certification Management Manual for CoC
10	Basic and Advanced Life Support (Reference material and Facilitator guide)
11	Perioperative critical incidents and their management (Reference material and Facilitator guide)
12	Difficult airway management (Reference material and Facilitator guide)
13	ECG and Capnography Monitoring (Reference material and Facilitator guide)
14	Pain management (Reference material and Facilitator guide)
15	Pediatric emergencies (Reference material and Facilitator guide)
16	Regional anesthesia (Reference material and Facilitator guide)
17	Trauma and shock (Reference material and Facilitator guide)

E3. Laws, Policies, Directives, regulations, and Guidelines reviewed and /or developed

#	Name
1	FMHACA, Continuing Professional Development (CPD) Guideline for Health Professionals in Ethiopia
2	FMHACA, Directive on Continuing Professional Development (CPD) for Health Professionals
3	MOH, National In-Service Training Directive for the Health Sector
4	MOH, National In-Service Training Implementation Guide for the Health Sector
5	HERQA, National Guideline for Recognition of Foreign Qualifications
6	MOH, Clinical Practice Guideline for Health Science Students
7	MOH, National Human Resources for Health Strategic Plan for Ethiopia, 2016-2025
8	MOH, Skills Development Laboratories Guideline for Medical And Health Science Schools
9	MOH, Guideline for Follow up after Training Human Resource for Health Management In-Service Training
10	HERQA, Revitalizing the Quality Assurance System for the Education of Health Professionals in Ethiopia
11	Federal TVET Authority, Directive: Occupational Assessment and Certification (Federal TVET Authority)
12	FMHACA, Scope Of Practice For Health Professionals In Ethiopia
13	EAA, Five-year strategic plan (2015-2020)
14	National Nursing Strategic Plan and Roadmap

E4. Accreditation and Quality Improvement standards developed for PSE programs

#	Name of Accreditation and Quality Improvement standards
1	Internal Quality Assurance and Improvement Standards for level V Anesthesia Program
2	National Accreditation and Quality Improvement Standards for Anesthesia Degree Program
3	National Accreditation and Quality Improvement Standards for Environmental Health Science Degree Program in Ethiopia
4	Internal Quality Assurance and Improvement Standards for the Health Extension Workers Program
5	National Accreditation and Quality Improvement Standards for Dental Degree Program (DDS/DMD)
6	National Accreditation and Quality Improvement Standards for Medicine Degree Program
7	Internal Quality Assurance and Improvement Standards for the Midwifery Program (Level IV)
8	National Accreditation and Quality Improvement Standards for Midwifery Degree Program
9	National Accreditation and Quality Improvement Standards for Medical Laboratory Science Degree Program

10	Internal Quality Assurance and Improvement Standards for Medical Laboratory Science Program (Levels II–V)
11	National Accreditation and Quality Improvement Standards for Medical Radiology Technology Degree Program in Ethiopia
12	Internal Quality Assurance and Improvement Standards for the Nursing Program (Level II- IV)
13	National Accreditation and Quality Improvement Standards for Nursing Degree Program
14	Internal Quality Assurance and Improvement Standards for Pharmacy Program (Level II- IV)
15	National Accreditation and Quality Improvement Standards for Pharmacy Degree Program
16	National Accreditation and Quality Improvement Standards for Physiotherapy Degree Program
17	National Accreditation and Quality Improvement Standards for Public Health Officers Program