

ICAP: TEN YEARS OF PARTNERSHIP IN ETHIOPIA

2005–2015



SUPPORTING HIV SERVICES
STRENGTHENING HEALTH SYSTEMS
SAVING LIVES



ACRONYMS

ART	Antiretroviral therapy
CDC	Centers for Disease Control and Prevention
EmONC	Emergency obstetric and newborn care
EPHI	Ethiopian Public Health Institute
EQA	External quality assessment
FHAPCO	Federal HIV and AIDS Prevention Coordinating Office
FMOH	Federal Ministry of Health
GIPA	Greater and meaningful involvement of people living with HIV and AIDS
HMIS	Health management information system
IPT	Isoniazid preventive therapy
LQMS	Laboratory quality management system
M&E	Monitoring and evaluation
MNCH	Maternal, newborn, and child health
NEP+	Network of Networks of HIV Positives
NEPI	Nursing Education Partnership Initiative
PEPFAR	President's Emergency Plan for AIDS Relief
PMTCT	Prevention of mother-to-child transmission of HIV
RHB	Regional Health Bureau
SNNP	Southern Nations, Nationalities, and Peoples
STI	Sexually transmitted infection
TB	Tuberculosis
ToT	Training of trainers
VMMC	Voluntary medical male circumcision
WHO	World Health Organization



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A Message From Ethiopia's State Minister Of Health

Ethiopia has made huge progress in curbing the HIV epidemic. The last ten years in particular have seen a massive scale-up of comprehensive HIV care and treatment services and, as a result, many lives have been saved. Substantial capacity has been put in place to ensure that comprehensive and quality HIV services are accessible to all affected by HIV throughout the country. The achievements are a testament to the committed leadership at national and regional levels, and the devotion of the health care workers and partners working in Ethiopia. Indeed, the concerted efforts we have mustered through collaboration with the U.S. President's Emergency Plan for AIDS Relief; the Global Fund for HIV/AIDS, Tuberculosis, and Malaria; multi-lateral and bilateral organizations; non-governmental organizations; the private sector; and other partners and stakeholders has been instrumental in meeting the immediate challenges and building a stronger health care delivery system that will support HIV program implementation integrated with other basic health services, both in the short- and long-term.

In dealing with the unparalleled complex challenges posed by the HIV epidemic, the experience we have had in our collaborative work with ICAP at Columbia University over the last ten years reaffirms the need to deploy forces at our disposal through bold leadership and innovative partnership. The productive collaboration we have had with ICAP in Ethiopia demonstrates the imperative for a two-pronged approach of providing comprehensive and intensified implementation of all HIV/AIDS-related activities integrated with other basic health services at facility, regional, and national levels, while at the same time addressing the overarching goal of strengthening health systems and capacity building to sustain the program. ICAP's unwavering commitment to local capacity building has paid off not only in our response to the HIV epidemic, but also in building the capacity of the health system at all levels, thereby establishing operational and technical capacity while fostering local ownership. Indeed, one would say that our ICAP colleagues are champions of local ownership, always on the go to work with the national and regional strategies and priorities.

Ten years of productive collaboration is surely a significant milestone to celebrate and to reflect on what has been achieved, and what remains to be done in the years ahead. We are proud of our strong partnership with ICAP and the important progress we have made together through concerted action. The ten-year anniversary of ICAP in Ethiopia provides a unique opportunity to express our deepest appreciation to ICAP, to colleagues and friends for their dedicated work and unreserved support in our fight against the HIV epidemic. We are glad to see our continued partnership as the transition of international partners' support moves into high gear, and we are committed to working with ICAP to continue to build on our country's accomplishments.

Congratulations to all on this ten year milestone.

Kebede Worku, MD, MPH
State Minister of Health
Ethiopia Federal Ministry of Health

A Message From ICAP

It is our singular pleasure to acknowledge our collaboration with the Federal Ministry of Health, the Federal HIV Prevention and Control Office, the Ethiopian Public Health Institute, the Regional Health Bureaus, and other partners and stakeholders in the effort to confront the HIV epidemic in Ethiopia. Working hand-in-hand with our partners, ICAP has been privileged to support comprehensive HIV services at 514 health facilities in Oromia, Harari, and Ethiopian Somali Regions and the Dire Dawa City Administration, with the overarching goal of making quality services available to all of those affected by the HIV epidemic.

We are deeply honored to have worked closely with the Federal Ministry of Health, providing assistance in key program areas such as adult and pediatric HIV prevention, care, and treatment; TB/HIV integration; and engagement of people living with HIV. Our joint efforts at the national and regional level have enabled us to build capacity and strengthen the health system, resulting in increased access to quality HIV services.

It is heartening to note the hundreds of thousands of persons living with HIV—women, men, and children—who have garnered the benefits of this partnership over the past decade. The commitment and leadership provided by the Federal Ministry of Health and the Regional Health Bureaus have been an inspiration. The ICAP teams at our Headquarters in New York and in the country and regional offices in Ethiopia have all cherished working with the leadership and staff at the Ministry of Health, Regional Health Bureaus, and health facilities.

ICAP is committed to continuing its partnership and providing support in a manner that will serve the Ethiopian nation and the health care needs of its people. We sincerely hope that this report will provide a glimpse into what has been achieved over the past decade and help shed light on the way forward.

Wafaa El-Sadr, MD, MPH
ICAP Director

Zenebe Melaku, MD
Country Director, ICAP in Ethiopia

CONTEXT

THE HIV RESPONSE IN ETHIOPIA

Over the past decade, the Government of Ethiopia has transformed the HIV prevention, care, treatment, and support landscape in the country. The successful scale-up and decentralization of these services has been achieved in the face of substantial infrastructural and workforce constraints, in addition to the challenges of delivering complex HIV programs in a country so geographically and culturally diverse.

The first Strategic Plan for Intensifying Multi-Sectorial HIV/AIDS Response (2004-2008), implemented by government, civil society, Ethiopia's private sector, and international partners, focused on building capacity for the response within communities and the health sector; while the second Strategic Plan (2009-2014) aimed to consolidate capacity gains, intensify priority interventions, target services to vulnerable populations, and improve the use of strategic information to guide and manage the HIV response. As a result of sustained, multi-sectoral efforts, by 2011, HIV prevalence had fallen to 1.4 percent, a decrease of 80 percent from the 6.6 percent level in 2001.¹ In addition, in 2013, the number of people initiated on ART in Ethiopia surpassed the number of new HIV infections for the first time, signifying a critical 'tipping point' in the national epidemic.

Interventions to reverse the spread of HIV; mitigate its impact on affected individuals, families, and communities; and develop the

capacity required to sustain control of the epidemic have been supported by international donors—including the President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund—and a range of implementing partners. This support has enabled the Federal Ministry of Health (FMOH) to roll out high impact interventions that have resulted in the number of people on ART increasing more than 40-fold over ten years, from 8,278 in 2005 to 344,344 in 2014.² Over 2,000 health facilities across the country now offer prevention of mother-to-child transmission of HIV (PMTCT) services and over 1,000 provide HIV care and treatment for adults and children.

The focus of PEPFAR support has evolved since 2005—from supporting the emergency response in Phase I; to strengthening health systems and ensuring national leadership in Phase II; and, now, to achieving sustainable epidemic control under Phase III. The 2010-2014 Partnership Framework between PEPFAR and the Government of Ethiopia emphasizes sustainability, a multi-sectorial approach, collaboration among stakeholders, effective targeting of interventions to those most in need, and the integration of services for people living with HIV. Cross-cutting priorities within the Partnership Framework include building health system capacity, increasing national ownership, and scaling up high impact interventions.



¹Ethiopian Demographic and Health Survey, 2011.

²Ethiopian Demographic and Health Survey, 2011.

ICAP'S ROLE: BUILDING CAPACITY AND STRENGTHENING HEALTH SYSTEMS

STANDARDIZED NATIONAL POLICIES AND GUIDELINES

During the past ten years, ICAP at Columbia University has become an established national technical assistance partner to the FMOH, the Federal HIV and AIDS Prevention Coordinating Office (FHAPCO)³, and the Ethiopian Public Health Institute (EPHI), ensuring that up-to-date policies and standardized guidelines are in place to guide the HIV response, along with the related training materials, job aids, and monitoring and evaluation (M&E) tools required for implementation.

A highly collaborative approach underpins ICAP's work. From day one, its technical assistance and capacity building activities in Ethiopia have been designed in a participatory manner—developing plans in close collaboration with government entities—and implemented by working hand-in-hand with governmental and non-governmental organizations, as well as affected populations. ICAP plays a proactive role in many national technical working groups and advisory committees, collaborating with a range of national stakeholders and international partners to support national planning for the initiation, rollout, and strengthening of critical interventions.

Technical assistance to the FMOH is provided by ICAP's team of experienced Ethiopian nationals. ICAP also seconded experts to the FMOH to strengthen capacity at the federal level, with advisors on adult care and treatment, pediatric care and treatment, and tuberculosis (TB)/HIV integration currently seconded.

The major thematic areas in which ICAP has supported the development and updating of national policies and guidelines are:

- **HIV Testing and Counseling.** Recognizing testing and counseling as the gateway to comprehensive HIV care, treatment, and support services, ICAP has provided technical assistance to the FMOH in the development and revision of national guidelines for voluntary and provider-initiated HIV testing and counseling, as well as the needed training manuals and web-based training materials. ICAP has also provided policy advice and support for task shifting testing and counseling from nurse counselors to adherence case managers and adherence supporters. Further, ICAP contributed to the development of the Millennium AIDS Campaign in Ethiopia, in which testing and counseling was a major focus.

"I believe that the country has benefited substantially from ICAP's support over the years. We have been able to strengthen the HIV program and scale up comprehensive and quality HIV care and treatment services. Our close collaboration at national level has been a great success, and we are particularly glad that ICAP's support is provided within our national framework and strategies."

Dr. Kebede Worku
State Minister of Health

- **PMTCT.** Since the inception of the national PMTCT program, ICAP has provided policy advice and supported the development of key PMTCT guidelines and tools, including the national PMTCT Option B+ reference manual, the strategy for elimination of MTCT, and progressive policies for integrating PMTCT with maternal and child health services, along with needed implementation plans and training manuals.
- **Early Infant Diagnosis.** ICAP played a key role in the introduction of early infant diagnosis in Ethiopia, supporting the EPHI with the development of the 2006 National Early Infant Diagnosis Implementation Plan and building capacity for DNA PCR testing using dried blood spot technology. As part of the National Infant Diagnosis Multi-Disciplinary Team, ICAP supported the development of national guidelines, standard operating procedures, training modules, and job aids for HIV-exposed infant follow-up clinics and PCR laboratories.
- **Adult HIV Care and Treatment.** As a member of the National HIV Care and Treatment Advisory Group in Ethiopia, ICAP provided policy advice and supported the development of the national adult HIV care and treatment guidelines, clinical mentoring guidelines, training manuals, and implementation tools. The current national guidelines, which expanded the ART eligibility criteria to a CD4 count of 500 cells/mm³ or less, were revised with ICAP support, and ICAP contributed to road maps for ART scale-up and the national strategic framework to improve ART adherence and retention in HIV care.

³The FHAPCO is the secretariat of Ethiopia's National AIDS Council. It is an autonomous organ of the federal government and is responsible for overseeing the multi-sectoral HIV response.

- **Pediatric HIV Care and Treatment.** ICAP supported the first national pediatric HIV care and treatment situational analysis in 2005. In 2007, a high-level advocacy conference was held, in the presence of the First Lady, to disseminate the findings and to advocate for a greater focus on pediatric HIV care and treatment in Ethiopia. Subsequently, ICAP supported the development of the first standalone pediatric HIV care and treatment guidelines, minimum packages of pediatric HIV services, training curricula, and provider support tools. More recently, ICAP worked with the FMOH and the Centers for Disease Control and Prevention (CDC) in Ethiopia to create, pilot, and roll out a pediatric psychosocial support training curriculum, and to update the national consolidated HIV care and treatment guidelines, which include PMTCT and pediatrics. In collaboration with the Ethiopian Pediatric Society, ICAP has supported high-level national pediatric HIV care and treatment conferences and continuing medical education on HIV care for pediatricians.
- **TB / HIV Integration.** ICAP has supported the development of national guidelines for TB, TB/HIV, TB infection prevention, and multidrug resistant (MDR) TB services. Implementation plans, program M&E tools, training materials for nurses and physicians, job aids, and educational materials for clients were also developed.

Further, ICAP supported the convening of a national symposium on the management of latent TB in 2006, and a national workshop on the '3Is' of TB/HIV integrated management in 2008.

- **Sexually Transmitted Infection (STI) / HIV Integration.** ICAP played a pivotal role in the implementation of STI/HIV collaborative activities through its participation in the FMOH Technical Working Group, providing policy advice to integrate STI activities into the maternal and child health and family planning program. ICAP has also supported the development of STI-related guidelines, training materials, and health provider support tools. In 2014 and 2015, ICAP supported the revision of the STI syndromic management guidelines and training materials and, in an effort to increase client-friendly STI services, supported the establishment of confidential STI clinics in Ethiopia.
- **Laboratory Systems.** As a member of the National Laboratory Technical Working Group, ICAP has supported strategic and operational planning, the development of HIV-related implementation guidelines for laboratory services, training packages, and quality assurance tools. ICAP's role in strengthening laboratory systems and services is further detailed later in this report.



REGIONAL LEADERSHIP AND STEWARDSHIP

A CORE STRATEGY FOR PROGRAM IMPACT AND SUSTAINABILITY

Under Ethiopia's federal system of government, its nine National Regional States and two City Administrations are responsible for the planning and delivery of public services. During ten years of supportive partnerships with the Regional Health Bureaus (RHBs) in Dire Dawa, Harari, Oromia, and Ethiopian Somali, ICAP has progressively built their capacity to design, manage, and implement high-quality HIV programs. These partnerships commenced during the emergency phase of the HIV response, with a focus on implementation support. Later, once basic services were in place, the emphasis shifted to building sustainable HIV programs by progressively reducing RHBs' need for implementation and management support.

Within its partnership with each RHB, ICAP's role has included:

1. Undertaking baseline assessments to identify key gaps and inform structured, targeted programs to build organizational capacity
2. Transferring essential knowledge, skills, and competencies to RHB personnel
3. Providing health facility-level support to assist in achieving short-term goals for increasing service coverage
4. Working alongside RHBs to strengthen the systems that underpin HIV service delivery
5. Incrementally transitioning management and health facility support functions to RHBs, in line with verifiable capacity improvement

The Focus of ICAP's Capacity Building Support

- **Program Management.** In the early stages of its partnership with RHBs, ICAP played an active role in regional planning and program review. This evolved into an advisory role in RHB-led management processes, and eventually, into an exit by ICAP. RHBs were supported to develop annual operational plans, review performance systematically, and appraise the status of programs. Sub-awards to RHBs were used as a means of strengthening planning, operational, and financial management (including management of U.S. Government funding). Standard operating procedures for decentralizing HIV services were jointly developed and implemented. As decentralization progressed, ICAP also built RHBs' capacity for Woreda-level integrated planning of health services.

"Our highly productive collaboration with ICAP has enabled us to rapidly scale up comprehensive, quality, family-focused HIV services. We have been able to strengthen systems for planning, implementing, and monitoring programs across our vast region (with a population of over 31 million people). We have been able to strengthen capacity across our health system with a focus on workforce, infrastructure, referral systems, laboratory systems, and information systems."

Mr. Shallo Daba
Head of the Oromia Regional Health Bureau

- **Systems Strengthening.** ICAP worked with RHBs to institute and strengthen key health system components for HIV program implementation. The laboratory system was strengthened by developing and rolling out standard operating procedures for sample referral and by institutionalizing external quality assessment (EQA). M&E support included the establishment of data quality assurance systems within each RHB and promoting a culture of using data to assess and continuously improve the quality of health services.
- **Human Resources.** ICAP used a multi-pronged approach to build human resource capacity within RHBs. Basic training and training of trainers (ToT) were provided for both clinical and management personnel. The posts of Regional HIV Coordinator, Assistant Coordinator, and M&E Officer were supported and subsequently absorbed by each RHB. Local HIV Coordinators were continuously mentored by ICAP to enable them to manage complex cases, and staffing resources at the regional level were augmented with clinicians, accountants, and data clerks. Staff development initiatives included RHB resource centers and regional training centers. Periodically, ICAP also identified and supported international training opportunities for RHB personnel.
- **Mentorship and Supportive Supervision.** Efforts to build RHBs' capacity to provide independent oversight and direct support to health facilities began with the creation of standard operating procedures for comprehensive HIV service delivery. The first standard operating procedures were a joint endeavor between ICAP and the Oromia RHB, with other RHBs customizing this model document to suit each regional context. ICAP then trained pools of trainers and clinical mentors, who progressively assumed responsibility for the training, mentorship, and supportive supervision of health providers.

- **Coordination and Linkages.** ICAP supported each RHB to develop a framework for coordination and oversight of programs. Catchment area meetings of HIV Coordinators were established as a forum to implement clinical systems mentorship and manage referral networks between health facilities and hospitals. Regional associations of people living with HIV were engaged in

the design and management of programs, while HIV partners forums led by RHBs were set up to harmonize planning, facilitate problem solving, and exchange experiences. To further increase regional coordination, ICAP assisted with the establishment of regional TB/HIV Steering Committees and regional technical working groups on both PMTCT and laboratory services.



HUMAN RESOURCES FOR HEALTH

WORKFORCE CAPACITY BUILDING: A PREREQUISITE FOR SCALING UP SERVICES AND ASSURING QUALITY

Ethiopia's successes in HIV prevention, care, and treatment have been achieved in the face of severe health worker shortages. In-service training on a vast scale, the introduction of task shifting policies, and continuous site-based mentorship have been critical components of the HIV response to date. By mitigating workforce constraints, these strategies have created the conditions for scaling up HIV services and, in doing so, have strengthened the overall health system.

ICAP has supported training and education in Ethiopia since 2005 by:

- Providing extensive technical and logistical support to the in-service training and mentorship programs of the FMOH and RHBs
- Providing basic and refresher training in the various HIV thematic areas to different cadres of health workers (doctors, health officers, nurses, midwives, pharmacy personnel, laboratory personnel, and data clerks) and lay providers (adherence supporters, adherence case managers, and mother mentors)
- Training clinical trainers and mentors from the FMOH, RHBs, and universities in Ethiopia

- Supporting task shifting and task sharing initiatives that have equipped nurses, midwives, adherence supporters, and case managers to assume greater responsibility for the delivery of HIV services
- Partnering with pre-service education institutions to increase the quantity and quality of physicians, nurses, and midwives entering Ethiopia's health workforce

IN-SERVICE TRAINING

ICAP has supported the FMOH in the development of standardized in-service training materials across HIV thematic areas since 2005 (see Table 1). Specifically, ICAP has supported more than **1,600 basic and refresher trainings**, in partnership with the FMOH and RHBs, while also helping to establish regional trainer pools to ensure sustainability. Training is both needs- and competency-based and aims to align the capabilities of health providers with the needs of the populations they serve. Basic and refresher trainings conducted over the past decade have built workforce capacity at hundreds of health facilities, allowing hundreds of thousands of families affected by HIV to access high-quality prevention, care, and treatment services.

TABLE 1: SUMMARY OF ICAP-SUPPORTED IN-SERVICE TRAINING, 2005-2014

Thematic Area	Total Number Trained*
HIV care and treatment	5,614
PMTCT and maternal, newborn, and child health (MNCH)	6,488
TB/HIV integration	2,698
HIV testing and counseling	6,408
STI/HIV integration	2,344
Infection prevention and patient safety	2,127
Blood safety	207
Voluntary medical male circumcision	269
Nursing care process	3,383
Psychosocial support services	2,065
Laboratory services	4,960
M&E (including data use)	2,720
HIV program management	2,043
Training of trainers (in various technical areas)	1,192

*Note: These figures multi-count individuals who have attended more than one training, and therefore do not represent the cumulative number of persons trained.

FACILITY-BASED CLINICAL SYSTEMS MENTORSHIP

ICAP has provided health workers with clinical systems mentorship that complements in-service training and reinforces their competencies, thereby promoting continuous improvement in the quality of service they deliver. The concept of clinical systems mentorship and its history in Ethiopia are summarized in Box 1.

The first component of clinical systems mentorship is one-to-one clinical preceptorship, used to reinforce health workers' clinical knowledge and skills. Individual providers are observed regularly by mentors, who then offer feedback and coaching, and discuss specific cases with their mentees. Mentors also conduct group activities using methods such as presentations, case studies, and chart reviews.

Preceptorship is complemented by continuous quality improvement processes. Key among these is the standards of care assessment, in which data from a sample of patient charts is used to measure performance against quality standards. Standards of care assessments enable health facility teams and their supervisors to identify gaps in infrastructure, systems, and skills. Support is then planned according to the needs of each facility. Health workers are closely involved in conducting standards of care assessments, analyzing findings, and designing quality improvement actions to address identified gaps. This participatory approach fosters ownership of both health

services and continuous quality improvement activities by facility teams and individual health workers.

To support the process of transition, ICAP is building capacity for hospital-based mentorship, the system under which hospitals are responsible for providing mentorship to health facilities within their catchment areas. ICAP has worked with RHBs to standardize mentorship tools, establish ToT pools for different HIV thematic areas, and train hospital-based mentors. Mentorship visits are conducted jointly by hospital and ICAP mentors in order to build capacity and, since 2014, the hospital-based mentorship approach has been used to expedite the national rollout of PMTCT Option B+.

TASK SHIFTING AND TASK SHARING

Task shifting and task sharing initiatives have enabled Ethiopia to rapidly scale up HIV prevention, care, treatment, and support services.

In the early days of the national ART program, only doctors were authorized to prescribe ART. In order to render the goal of universal access feasible and to decrease the HIV program's dependence on doctors, the FMOH changed this policy in 2007 to allow appropriately trained nurses to also provide ART services. Since then, ICAP has supported in-service training for **20,000 practicing nurses** to equip them with the knowledge, skills, competencies, and confidence to initiate and manage ART for adults and children. Additionally, 100 nurses have been trained as trainers and 120 have been trained to mentor nurses delivering ART services.

While task shifting ART provision and monitoring to nurses has addressed dependence on doctors, training clients enrolled in HIV care and treatment as adherence case managers has enabled nurses and professional counselors to dedicate more time to clinical service delivery. To date, ICAP has helped train 75 people living with HIV as adherence supporters and adherence case managers, and 15 as adherence case management trainers. ICAP's role in this innovation is described further in Box 3.

PRE-SERVICE MEDICAL AND NURSING EDUCATION

The World Health Organization (WHO) estimates that countries with fewer than 23 doctors, nurses, and midwives per 10,000 inhabitants will generally fail to achieve adequate coverage of essential primary healthcare services. In 2009, when the FMOH drafted its human resources for health strategic plan, the doctor to population ratio stood at 1 : 36,158, with 43 percent of doctors working in Addis Ababa. At the time, it was estimated that the country had 20,109 nurses and 1,479 midwives.⁴ Increasing the production of health professionals was an urgent priority.

Since 2008, ICAP has partnered with Jimma and Haramaya Universities to strengthen pre-service medical education by supporting:

- Training and ToT for faculty in HIV technical areas
- Training of faculty in effective teaching skills, student performance assessment, and simulation-based medical teaching
- Integration of HIV/AIDS competencies into Jimma University's curricula
- Two-week pre-placement HIV care and treatment training programs for graduating students
- Upgrading of teaching resources, such as textbooks, audio-visual materials, medical mannequins, e-libraries, and video-conferencing

In addition, comprehensive HIV clinics were renovated at both universities to serve as in-service training and pre-service education centers. This initiative facilitated the integration of HIV competencies into pre-service education and enabled the universities to become in-service training partners to the Oromia and Harari RHBs. The training centers were supported through sub-agreements and so, to optimize the use of donor funds, ICAP trained university staff in leadership and grant management.

BOX 1: Clinical Systems Mentorship

Clinical systems mentorship combines fundamentals of clinical preceptorship with systematic, data-driven continuous quality improvement processes. It focuses on building the capacity of service providers, health facilities, and systems in order to continuously improve service quality.

ICAP worked closely with other key stakeholders in Ethiopia to support the FMOH in developing the first Clinical Mentorship Guidelines in 2007, and in revising the Clinical Systems Mentorship Guidelines in 2015.

Since 2013, ICAP has also been a partner in the FMOH's New Medical Education Initiative, supporting ten universities and three hospital-based medical colleges. Overall, **300 faculty** have been trained in effective teaching skills and 78 have been trained to use simulation for medical teaching and problem-based learning. To facilitate student learning, ICAP has supplied partner schools with more than **4,000 medical textbooks** and over **1,300 tablet computers** preloaded with medical resources. In addition, two clinical skills laboratories—at Adama Health Science College and Wollega University—have been renovated and provided with mannequins.

Starting in 2012, ICAP has also partnered with the Addis Ababa University School of Nursing, the Arbaminch College of Health Sciences, and Gondar University to enhance pre-service nursing and midwifery education under PEPFAR's Nursing Education Partnership Initiative (NEPI).

ICAP support has included:

- Upgrading equipment, resources, and physical infrastructure
- Updating undergraduate and postgraduate degree programs from content-based to modular competency-based curricula
- Training nurse educators in HIV thematic areas, clinical instruction, and research skills
- Strengthening preceptorship by conducting site assessments, developing preceptorship guidelines, and training preceptors from hospitals and universities
- Supporting facility- and community-based preceptorship and pre-placement training for nursing graduates

In the five years since the launch of NEPI, a total of **4,553 undergraduate students** have enrolled in NEPI-supported programs at these three schools.

NURSING REGULATION AND LEADERSHIP

Nurses and midwives are at the frontline of the HIV response in Africa and, in Ethiopia, nurses provide 90 percent of the health services on which families and communities depend. A sustainable HIV response requires a nursing workforce that is trained, skilled, empowered, and well-regulated.

In partnership with the FMOH, the Ethiopian Nurses Association, and the Ethiopian Midwives Association—and in collaboration with other PEPFAR implementing partners—ICAP has provided support at the policy level to advance the nursing and midwifery professions. Leaders within the Nurses Association have received leadership training from ICAP, while four health facilities have been supported as models for nursing care standards. ICAP has also supported the Nurses Association to conduct baseline wellness assessments and to initiate wellness services for nurses, a strategy to reduce absence, burnout, and attrition within the profession.

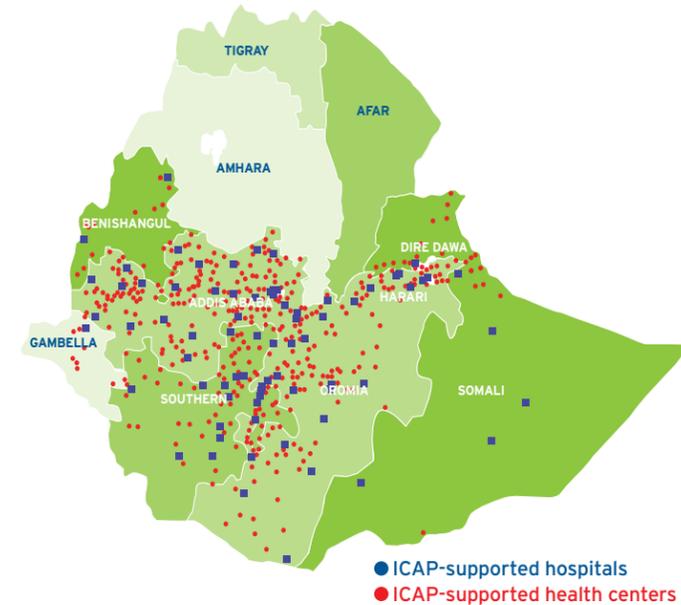
Through the PEPFAR-supported Global Nurse Capacity Building Program, ICAP assisted in the establishment of a national nursing and midwifery pre-service education coordination forum. This body facilitates the sharing of resources, knowledge, and best practices, and promotes standardization in nursing and midwifery education across Ethiopia. ICAP is also facilitating expert support for the process of establishing an Ethiopian Nursing Council to regulate nursing and midwifery education, training, and practice. Technical assistance for this ongoing process has been provided by ICAP's global and regional nursing advisors, the International Council of Nurses, the Nurses and Midwives Council of Malawi, and the Kenya Nursing Council.

As a member of the National Nursing Advisory Technical Working Group, ICAP has also supported the Midwifery Association to develop national midwifery standards and is advocating for the creation of the office of the Chief Nursing and Midwifery Officer within the FMOH.



⁴FMOH. Health and Health Related Indicators. 2009-2010.

DECENTRALIZATION OF HIV SERVICES



EXPANSION OF HEALTH FACILITY-LEVEL SUPPORT

Decentralizing HIV prevention, care, and treatment increases access to these life-saving services by making them available in the communities where affected families live. From 2005 to 2014, ICAP provided health facility-level support in Dire Dawa, Harari, Oromia, and Ethiopian Somali regions to enable hospitals and health centers to operationalize minimum service packages, along with the systems needed to manage the services effectively (see Figure 1). The number of health facilities receiving ICAP support in these four regions increased gradually between 2005 and 2009, as services were expanded to additional hospitals. During 2010-2011, ICAP supported the Oromia RHB with decentralization of HIV services to health centers in Ethiopia's most populous region, resulting in a seven-fold increase in the total number of supported facilities. Since October 2013, ICAP has also provided facility-level support to 200 health facilities in the Addis Ababa; Benishangul Gumuz; Gambella; and Southern Nations, Nationalities, and Peoples (SNNP) regions.

HEALTH FACILITY INFRASTRUCTURE

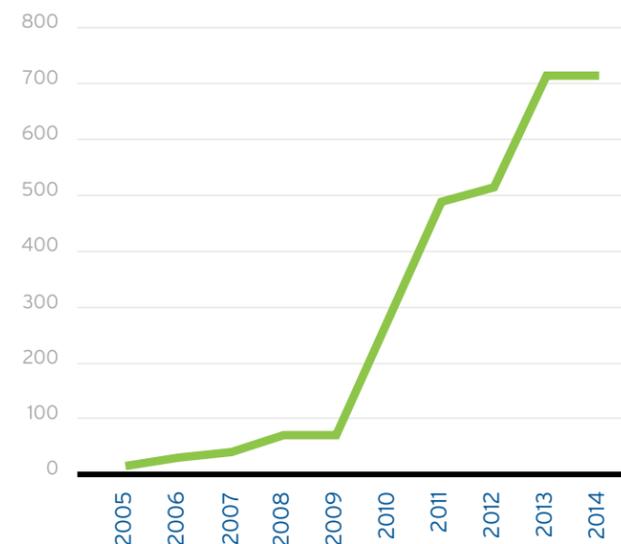
Scaling up and decentralizing HIV services has meant that many health facilities must accommodate increased numbers of patients and be able to provide them with specialized HIV care. To enable supported health facilities to improve the care they provide—not only to those accessing HIV services, but to all patients—ICAP has supported infrastructure enhancements, the provision of basic medical equipment and supplies, and the installation of computing systems at supported facilities. For example, Jimma and Haramaya

teaching hospitals have received nerve conduction and endoscopy equipment, operating tables, X-ray and anesthesia machines, and HIV-related testing equipment.

Since 2005, ICAP has supported renovations or upgrades to **102 health facilities**, including improvements made to ART clinics, TB clinics, general inpatient wards, emergency units, laboratories, and record rooms. This type of infrastructure enhancement has improved the work environment for care providers and helped motivate patients to access services. Technical assistance for the planning and monitoring of renovation projects and the installation of equipment has been closely coordinated with RHBs and, in the process, ICAP has built the capacity of RHBs to manage renovation projects independently.

Many improvements have focused on enhancing MNCH care linked with the delivery and scale-up of PMTCT services. For example, ICAP supported renovations to antenatal/PMTCT clinics and maternity units to improve antenatal care and facility-based labor and delivery services, and upgraded PMTCT clinics within MNCH units, pediatric inpatient wards and outpatient departments, newborn corners in maternity wards, and neonatal care units. ICAP also supported targeted renovations at **15 high-volume antenatal clinics and maternity wards** and provided essential obstetric and newborn equipment and supplies to these facilities. Further, ICAP worked with Adama, Asella, Bishoftu, Shashemene, Nekemte, Dil Chora, Hiwot Fana, and Karamara referral hospitals to establish neonatal intensive care units, supporting them to renovate rooms and providing them with needed resuscitation equipment and supplies.

Figure 1: Expansion in Number of ICAP-Supported Health Facilities, 2005-2014



FOCUS ON QUALITY

Working alongside RHBs, ICAP has applied the multi-pronged approaches described in Box 2 to enable health facilities to deliver high-quality, comprehensive HIV services. Each team of health workers is supported to integrate and continuously improve HIV services using four quality management mechanisms:

1. Multidisciplinary teams are established, typically consisting of ART nurses, physicians, pharmacists, adherence counselors, and data clerks. Teams meet on a weekly basis to discuss individual cases and generate solutions to challenges like patient flow, retention, and adherence.
2. Quality of care is measured through standards of care assessments. This data is analyzed by the multidisciplinary team and used to plan and monitor quality improvement actions.
3. ICAP trains and mentors an HIV Coordinator at each health facility, who is responsible for coordinating HIV services between different units and continuously monitoring compliance with national standards.
4. A facility-level HIV Committee of senior managers is formed to address macro-level programmatic issues.

BOX 2: How ICAP Supports Health Facilities to Improve Quality

- Assesses services regularly and develops work plans
- Upgrades infrastructure and supplies basic medical equipment
- Provides basic and refresher training in all HIV thematic areas, and in both laboratory services and M&E
- Provides clinical job aids (e.g. manuals and standard operating procedures) and patient education materials
- Mentors individual health workers and multidisciplinary teams
- Enhances adherence support systems
- Improves systems for referral within and between health facilities
- Strengthens laboratory services
- Reinforces M&E systems



LABORATORY SYSTEMS

SYSTEMS STRENGTHENING

Laboratory systems are critically important for achieving high-quality HIV testing, PMTCT, TB/HIV, and ART services. In 2005, critical gaps were identified in laboratory infrastructure, equipment, data systems, skills, and quality control at all levels of Ethiopia's health system.

ICAP support, which initially focused on laboratory support for ART monitoring and early infant diagnosis of HIV, has evolved to encompass infrastructure, training, networking, and quality assurance. In collaboration with the EPHI and CDC in Ethiopia, ICAP has played a significant role in establishing and strengthening laboratory systems at each level.

Regional specimen referral networks between health centers, hospitals, and regional laboratories support early infant diagnosis with DNA PCR testing and ART monitoring with blood chemistry, CD4 count, and viral load testing, as well as TB and malaria microscopy. Systems are now in place for specimen transportation, communication of test results, and backup in the event that services are interrupted at a particular health facility.

ICAP has also worked closely with **13 regional referral laboratories** to train and mentor staff, establish effective monitoring systems, and build capacity in site supervision. By the end of 2014, full responsibility for support to hospital and health center laboratories had been transitioned to regional referral laboratories and RHBs, a measure of the effectiveness of ICAP's work to build their capacity.

Seventeen hospital laboratories now serve as training sites, where personnel from other health facilities receive competency-based training. Partnerships have also been fostered with local universities and ICAP has trained personnel from university hospital laboratories as regional trainers. Hospital and health center laboratory staff have been trained in ART monitoring and machine operation, and supported through regular mentorship and technical assistance visits. Meanwhile, nurses have been trained to collect whole blood and dried blood spot samples, manage specimen transportation, and interpret results from laboratories.

“Through our collaboration with ICAP, we were able to jointly plan and pilot early infant diagnosis of HIV, which was subsequently expanded to all regions of the country. We also established laboratory sample referral systems in four regions of Ethiopia. Our regional reference laboratories now have better capacity and we have three TB culture facilities in Jimma, Adama, and Harari. Malaria laboratory diagnosis and monitoring have also improved through our collaborative work, which we hope will continue for a long time to come.”

Dr. Amha Kebede, Director General
Ethiopian Public Health Institute

LABORATORY INFRASTRUCTURE

ICAP has supported the standardization of laboratory infrastructure and internal setup in order to improve the quality of services and ensure patient and staff safety. Major and minor renovation works have been carried out where required and standard packages of furniture have been supplied to regional, hospital, and health center laboratories. Laboratories have been upgraded with basic and ancillary equipment, including calibrators, storage units, generators, water distillers, refrigerators, DNA PCR facilities, and equipment for TB drug sensitivity testing and MDR-TB monitoring. To minimize interruption to services, regional maintenance centers have been established and laboratory personnel have been trained in equipment maintenance. As needed, safety materials, reagents, and basic supplies have also been provided to address gaps.

QUALITY ASSURANCE

Working closely with the EPHI and RHBs, ICAP has provided a comprehensive package of technical support for laboratory quality management system (LQMS) implementation to improve the quality of HIV-related laboratory testing. ICAP's approach to LQMS implementation was adopted by the EPHI under objective four of its current strategic plan⁵, and 17 ICAP-supported hospital laboratories have been recognized by the African Society of Laboratory Medicine for their performance in LQMS implementation and service delivery.

Extensive technical support has been provided to the EPHI for the WHO AFRO stepwise laboratory improvement process towards accreditation (SLIPTA) process. To date, 112 facilities have been selected for SLIPTA enrollment based on LQMS implementation performance. Regional referral laboratory staff have been oriented and trained on SLIPTA by ICAP and subsequently supported with training and facility-level mentorship on strengthening laboratory management toward accreditation (SLMTA)⁶.

A multi-level EQA framework, under the auspices of the EPHI, has been established with support from ICAP. International and national EQA is conducted for point-of-care HIV rapid testing and for ART monitoring tests, including CD4, hematology, clinical chemistry, TB microscopy, and diagnosis of opportunistic infections. Regional EQA systems are in place for point-of-care HIV rapid testing and TB and malaria microscopy. ICAP now supports laboratory teams at over 700 health facilities with EQA reporting and assists teams to implement recommendations for quality improvement based on results from the EQA process.

CAPACITY FOR SPECIALIZED HIV-RELATED TESTS

ICAP, in collaboration with the EPHI and CDC in Ethiopia, has provided comprehensive support to RHBs, regional referral laboratories, and health facilities to build capacity for specialized, HIV-related laboratory testing by:

- Upgrading laboratory infrastructure and equipment
- Mapping referral networks
- Establishing specimen transportation systems
- Training and mentoring laboratory staff and health providers
- Implementing quality management and quality assurance processes

Specifically, ICAP support has increased access to the following specialized HIV-related tests:

1. **Early infant diagnosis of HIV** requires DNA PCR testing, which was not available anywhere in Ethiopia a decade ago. Today, DNA PCR testing capacity using dried blood spot technology exists at eight regional referral laboratories and one hospital laboratory, in addition to the EPHI national laboratory. These laboratories support the early infant diagnosis program at more than 1,000 health facilities countrywide. ICAP has provided technical support to the program from its outset, beginning with development of the first guidelines and support tools, and working with the EPHI to initiate and pilot DNA PCR testing at the national laboratory in 2007. All ten HIV DNA PCR laboratories have been enrolled in CDC's international EQA scheme in Atlanta.
2. **Viral load testing** is required to monitor viral suppression in HIV patients who are on ART and identify cases where first-line treatment is failing. Until 2010, only the EPHI national laboratory had the capacity to monitor viral load. Since then, however, ICAP-supported upgrades, technical assistance, and training at two regional laboratories has enabled 54 health facilities in Oromia and Harari regions to offer viral load testing. The FMOH plans to expand viral load testing to additional referral laboratories and hospitals, which ICAP will support by mapping catchments facilities and providing sensitization workshop on viral load testing.

3. **TB culture testing** capacity is critical in Ethiopia, where MDR-TB has become a major public health problem. As HIV-positive individuals with MDR-TB have poorer health outcomes, it is critical that MDR-TB is diagnosed early in these patients so they can be provided with needed interventions. To address this need, ICAP has worked closely with the EPHI and CDC in Ethiopia to support the creation of three TB culture laboratories to test sputum samples from patients with suspected MDR-TB.
4. **TB smear microscopy**, commonly known as 'acid-fast bacilli' (AFB) microscopy, is an integral component of TB/HIV management. Since an assessment in 2012 identified capacity gaps at all levels, ICAP has supported 135 hospital and 414 health center laboratories to improve access and quality. ICAP designed a comprehensive, on-site training for laboratory staff to improve their skills in microscopy and reinforced training with standard operating procedures and regular mentorship. International, national, and regional EQA programs are now in place, with 733 health facility laboratories participating in regional EQA.
5. **Microbiology laboratory tests** enable health providers managing HIV patients to provide better quality of care; however, ICAP identified important capacity constraints at the labs providing these tests. These gaps have been addressed by providing infrastructure and training support to four regional referral laboratories and two hospital laboratories, and by expanding microbiology testing capacity to two hospital laboratories. These eight referral sites now support HIV care at a total of 54 health facilities through the diagnosis of opportunistic infections and microbiology results that inform selection of antimicrobial drugs and treatment follow-up.



⁵EPHI. A Five Year, Balanced Scorecard Based Strategic Plan, 2010-2015.

⁶SLIPTA is a WHO-designed program for strengthening laboratories in resource-poor settings; it is resource intensive and therefore undertaken in a stepwise manner. SLMTA is a task-based training and mentorship program to build human resource capacity within SLIPTA-enrolled laboratories.

BLOOD SAFETY

To prevent transfusion transmissible infections including HIV, ICAP is working with the FMOH and RHBs to improve blood safety at the central national blood bank, 14 regional blood banks, and 45 transfusing hospitals. Following the transfer of blood banking services from the Ethiopian Red Cross Society to the FMOH and RHBs in 2013, constraints relating to access, staffing, and screening were addressed. ICAP has provided the following support to further strengthen capacity and assure safety:

- **Support to the FMOH.** At national level, ICAP has supported strategic planning and the development of new guidelines on pre- and post-donation HIV testing and counseling. Copies of national guidelines, blood transfusion standards, and job aids for blood bank staff have been distributed; and client education materials on blood donation and transfusion transmissible infections have been developed.
- **Support to RHBs.** ICAP has supported RHBs with recruitment of blood bank staff and network mapping of regional blood banks and the transfusing hospitals in their catchment areas. Joint

visits to regional blood banks and transfusing hospitals have been conducted to build supervisory capacity, and client education materials have been adapted to local languages and contexts. Physicians from high-volume transfusing hospitals have been trained as trainers on the appropriate use of clinical blood, and blood bank refrigerators have been supplied to 30 transfusing hospitals.

- **Support to regional blood banks.** The infrastructure and internal setup of regional blood banks has been standardized through the provision of equipment and supplies that had been lacking. For example, 12 blood banks were provided with medical equipment, 21 with infection prevention materials, 20 with laboratory furniture, and nine with blood bags. Blood bank staff have also been trained on basic blood banking, infection prevention, and HIV testing and counseling; and blood bank managers have received management training. Further, ICAP has promoted public awareness of blood donation and supported campaigns to mobilize individuals to donate blood.



GREATER AND MEANINGFUL INVOLVEMENT OF PEOPLE LIVING WITH HIV

ICAP has been a champion of the greater and meaningful involvement of people living with HIV and AIDS (GIPA) at all levels of Ethiopia's health system. As the lead PEPFAR implementing partner for GIPA, ICAP advocated for the development of national guidelines to give associations of people living with HIV an official role in developing policy, strategy, and implementation plans.

Through its partnership with the Network of Networks of HIV Positives (NEP+), the national umbrella organization of more than 200 associations of people living with HIV, ICAP has facilitated linkages between NEP+ member associations and FHAPCO to ensure that their ideas and concerns are represented within forums for debate and decision-making.

This partnership also strengthened NEP+ as an institution, building its capacity as a national technical assistance and implementation partner for peer education and adherence support interventions.

ICAP support has focused on:

- Development of the national GIPA guidelines in collaboration with the FMOH, ensuring the involvement of NEP+ at all stages of development and dissemination
- Support through a sub-award for operating costs, advocacy, consultation workshops, experience-sharing visits, the NEP+ website and newsletter, educational resources, programmatic meetings, and supportive supervision
- Technical assistance in the areas of strategic planning, financial and grant management, proposal development, and M&E
- Development of training manuals to guide the training of people living with HIV as adherence case managers, and the training of trainers in this area

"I wish to express our sincere appreciation to ICAP for its invaluable support. Assistance from ICAP has helped to strengthen NEP+'s capacity to design, plan, organize, coordinate, and monitor implementation of our HIV program and has enabled us to win direct PEPFAR funding to implement the HIV case management program across the country. ICAP's direct support to some of our regional member associations has made a real difference in building their capacity and in engaging them in HIV program activities."

Mr. Kassahun Tadesse
Executive Director, NEP+

ICAP support contributed to NEP+ becoming a principal recipient of the Global Fund and a prime recipient of U.S. Government funds. At sub-national level, ICAP has worked closely with three associations of people living with HIV to build their capacity—through sub-awards, capacity building, and implementation assistance—to implement the Adherence Case Management program: the Tesfa Bisrat Miskir Association of People Living with HIV, Mekdim Ethiopia National Association, and Adama City Life Saving Association. At the Adama Hospital in Oromia region, ICAP helped a group of highly motivated adherence supporters and case managers organize and form the Ethio-Life Saving Association. The association expanded with ICAP support and, in 2014, secured a direct grant from NEP+ to manage adherence support services at 50 health facilities throughout the region.



RETENTION AND ADHERENCE

Supporting HIV patients from the moment they are diagnosed through pre-ART care and initiation on ART—and providing ongoing adherence support thereafter—is crucial to the efficacy of HIV care and treatment programs.

THE ADHERENCE CASE MANAGEMENT PROGRAM

ICAP was an early advocate for adherence support services in Ethiopia, as described in Box 3, and has worked with stakeholders to promote innovation in this area and to roll out the national Adherence Case Manager Program.

This program, led by the FMOH and FHAPCO, engages experienced ART patients as adherence supporters and trains them to play an important, dual role in HIV service delivery—supporting patients and also assisting health teams to maximize rates of ART adherence and minimize loss-to-follow-up. Utilizing the skills of people living with HIV in this way has been doubly beneficial. Adherence case managers find meaning in supporting fellow patients and maximizing adherence in their communities, while the program offers its clients ‘safe,’ stigma-free opportunities to discuss their problems and fears.

Adherence supporters and adherence case managers (who serve as facility-level coordinators) engage newly diagnosed patients, helping them come to terms with their status, disclose their status to others if they wish to, and get linked to psychosocial and nutrition support services. Patients initiating ART are offered individual support to help them understand treatment and its potential side effects. Adherence supporters and case managers facilitate group support sessions at health facilities and group education on positive living, assist with linkage and referral, and provide one-to-one adherence counseling. They also provide a vital link between health facilities and communities by tracing defaulter patients and offering the support these patients need to return to care. In 2013, 16,466 (75 percent) of the patients newly enrolled in HIV care and treatment received adherence support and adherence case managers were able to trace 88 percent of patients lost to follow-up, returning half of these patients to care.

MOTHER SUPPORT GROUPS

Mother Support Groups were introduced by ICAP in 2008 to strengthen PMTCT services, address stigma, and empower HIV-positive women. PMTCT clients who volunteer as mentor mothers receive training to provide psychosocial and adherence support to other PMTCT clients. As soon as a pregnant woman tests positive, she is linked with a mentor mother, who supports her with disclosure to her partner and works with her and her family to ensure that she receives the service she needs, including delivery at a health facility.

“PMTCT services would not have been so successful in the absence of mentor mothers. I have witnessed remarkable improvement in the lives of HIV-positive mothers. We have seen a significant increase in institutional deliveries, and the women report exclusive breastfeeding and use of dual protection. There has been a remarkable reduction in loss-to-follow-up among support group members and their HIV-exposed infants, and mother-to-child transmission of HIV infection is declining.”

Sr. Selamawit Dagne, Mother Support Group Coordinator, Asella Hospital, Oromia

BOX 3 : Pioneering Adherence Support

In 2006, in collaboration with NEP+, the FMOH, FHAPCO, and RHBs, ICAP set up a pilot peer education program to improve psychosocial and adherence support provided to patients at four high-volume HIV care and treatment facilities. Based on its success, the initiative was subsequently adopted and scaled up nationally as the Adherence Case Manager Program. In 2014, the program reached a key milestone in terms of its sustainability when ICAP’s technical support role was fully transitioned to NEP+.

Both mentors and mentees participate in Mother Support Groups, which are facilitated by trained PMTCT nurses. The groups meet regularly to discuss issues such as adherence to care, HIV testing for family members, family planning, infant feeding, and safe sex. Each support group monitors its members’ health and uptake of services, from the point when a woman tests positive to the time her infant’s status is determined at 18 months of age.

To date, ICAP has trained **1,214 women** as mentor mothers and **96 PMTCT nurses** as Mother Support Group coordinators across seven of Ethiopia’s regions. In addition, to help address the economic challenges faced by many patients, ICAP has supported Mother Support Groups at 81 of the 130 health facilities where the program is active to provide training on income generation.

Among Mother Support Group members at ICAP-supported facilities in 2014, **90 percent of pregnant women** delivered at health facilities, **100 percent of HIV-exposed infants** were followed up in care, and **95 percent of women** accessed family planning services after delivery.

PEDIATRIC PSYCHOSOCIAL SUPPORT

ICAP has worked with the CDC in Ethiopia and RHBs to establish pediatric psychosocial support services in selected HIV care and treatment facilities, aiming to ensure that HIV-positive children initiate and are retained in treatment. To establish these specialized services, multidisciplinary teams are trained to help pediatric patients and their parents to understand their status and treatment, deal

with stigma, and live positively. Health care providers are mentored on disclosure and adherence support for children and adolescents, and specially trained nurses lead group support sessions for children. Through these sessions, children learn about HIV and ART and acquire practical life skills, including how to deal with stigma and discrimination in the classroom and community. Children identified during support group meetings as needing individual support are subsequently provided with ongoing counseling.

MONITORING AND EVALUATION

Drawing upon its core strength in M&E, ICAP has provided technical assistance in Ethiopia at the national, regional, and facility level to:

- Strengthen systems for data collection, reporting, and dissemination
- Ensure access to timely, reliable data
- Build skills in data presentation and analysis
- Foster a culture of using data to inform decisions and drive progress towards program goals
- Institute cycles of continuous quality improvement using self-assessment and standards of care assessments

AT THE NATIONAL LEVEL

In order to improve the quality of reporting and program management, ICAP has worked closely with the FMOH and RHBs to establish a standardized and robust, paper-based M&E system for HIV services. Health facility-level M&E has been integrated with paper-based record keeping and reporting for other health services, which has facilitated the integration of HIV program M&E into the national health management information system (HMIS).

Paper-based M&E tools are complemented by an electronic patient-level database for HIV care and treatment. This database enables users to generate automated HIV care and treatment reports that include quality of care variables, as well as HMIS and PEPFAR monitoring, evaluation, and reporting indicators. ICAP has also assisted with the revision of indicators and HMIS tools, as well as with the development of training materials in the areas of adult HIV care and treatment, pediatric care and treatment, and PMTCT.

AT THE REGIONAL LEVEL

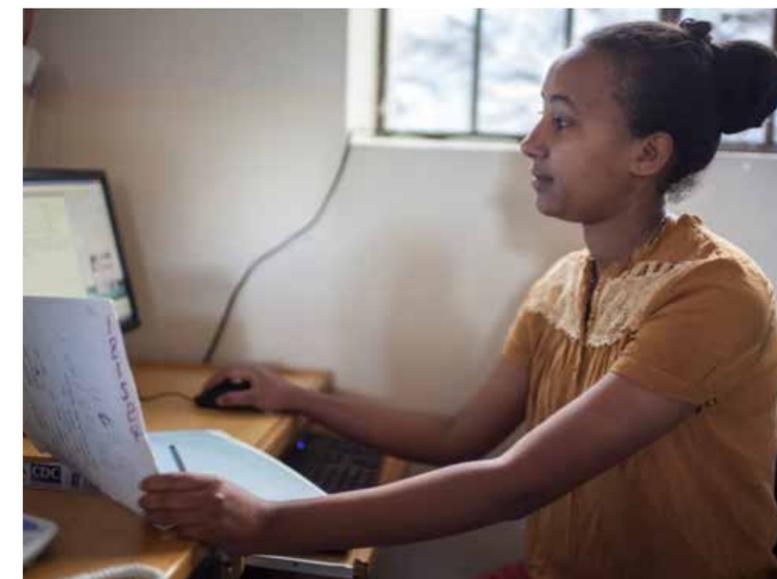
ICAP has worked with RHBs to strengthen program reporting, planning, and performance management at the regional level by strengthening core M&E skills and systems. As part of its support for decentralized delivery and management of HIV services, ICAP is now working with RHBs to build M&E capacity within Zonal Health Departments.

Through training, mentorship, and joint site visits, ICAP has supported RHBs to implement standardized data collection and reporting within the HMIS. ICAP has built RHBs’ capacity to use data gathered through supportive supervision to monitor compliance with national standards for HIV service availability, inputs, and quality. M&E support to health facilities has been progressively transitioned from ICAP to RHBs. Now, RHBs also lead regional data review meetings, where program results are presented, analyzed, and used to design corrective measures and quality improvement actions.

AT THE HEALTH FACILITY LEVEL

To improve data collection and reporting systems, ICAP has provided basic and refresher M&E training to health care providers and data clerks; ensured that facility-level M&E tools are readily available; and conducted data quality assurance checks on patient charts and registers.

ICAP has built the capacity of health facility teams in data-driven CQI by providing self-assessment tools and training teams to interpret and apply data. Teams have been oriented on CQI processes so they are able to participate fully in standards of care assessments and CQI planning. Today, quality of care data generated by health facility teams is routinely used by RHBs during supportive supervision and mentorship visits—a testament to the capacity that now exists at both facility and regional levels.





ICAP-SUPPORTED ACHIEVEMENTS IN HIV PREVENTION, CARE, AND TREATMENT

HIV TESTING AND COUNSELING

The scale-up of HIV testing and counseling services, illustrated in Figure 2, has been a cornerstone of Ethiopia's success in controlling the spread of HIV. Since 2007, ICAP has worked closely with the FMOH and RHBS to introduce provider-initiated testing and counseling and to expand the service to every point-of-entry to the health care system. This strategy has normalized HIV testing by ensuring that it is offered to every adult and child who accesses in- or out-patient services.

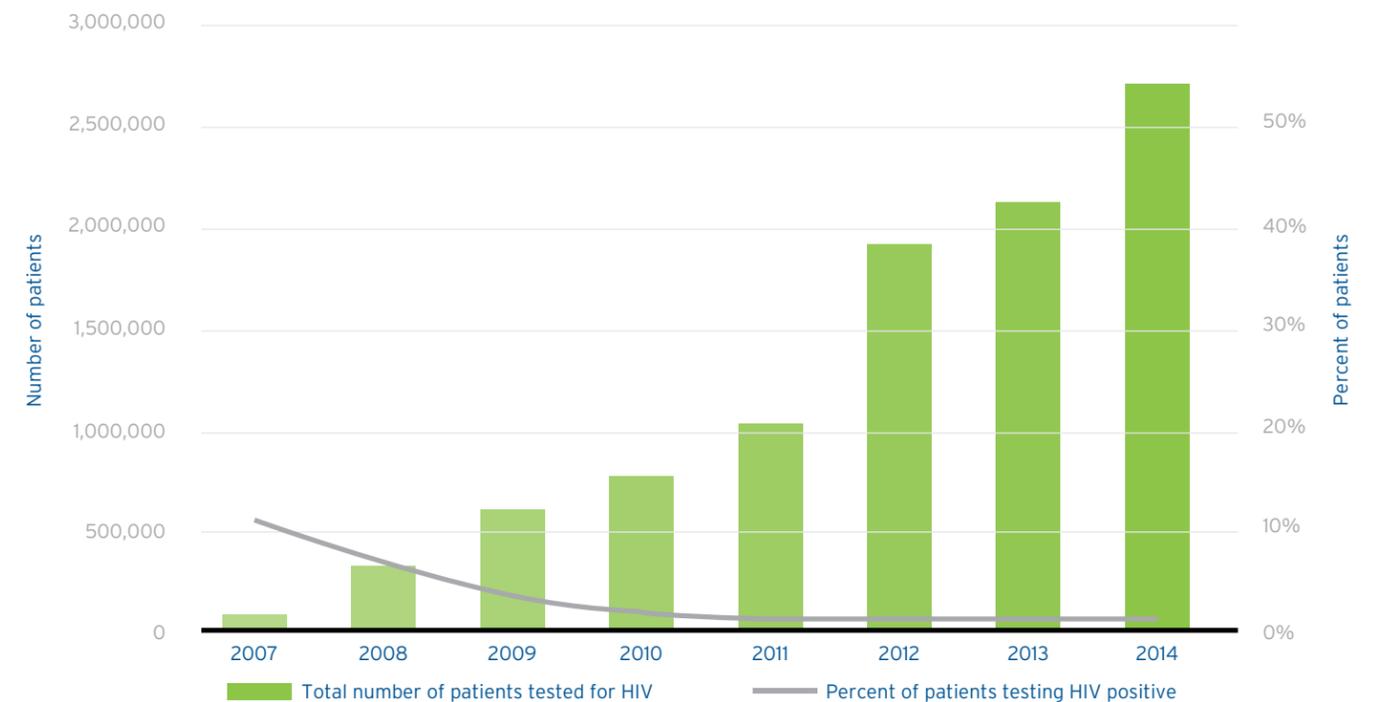
At present, provider-initiated testing and counseling is offered routinely to patients at: general medical, pediatric, maternal and child health, and TB out-patient units; and general medical, gynecology, labor and delivery, pediatric, and surgical in-patient wards. An 'opt-out' strategy has also been implemented at antenatal care, family planning, and immunization clinics—as well as in labor and delivery wards, where HIV testing and counseling is offered 24 hours per day to all male partners and to women whose HIV status is unknown. Voluntary testing and counseling has been scaled up at hospitals and health centers, with weekend clinics established at high-volume health facilities.

KEY ACHIEVEMENTS

- The number of ICAP-supported health facilities offering HIV testing and counseling increased from **32** in 2006 to **622** in 2014.
- More than **6,400** health care workers have been trained and mentored in HIV testing and counseling.
- By 2014, over **9.6 million** adults and children had received HIV testing and counseling at ICAP-supported health facilities, **137,050** of whom tested positive and were enrolled in care.

HIV testing and counseling services have also been expanded beyond health facilities. At the community level, locally recruited lay counselors are trained to offer basic counseling, provide HIV testing and counseling services, and refer HIV positive clients to health facilities. Outreach testing and counseling initiatives target such diverse settings as orphanages, universities, and traditional

Figure 2: Scale-Up of HIV Testing and Counseling Services at ICAP-Supported Health Facilities, 2007-2014



BOX 4 : Implementing Point-of-Care HIV Rapid Testing in Ethiopia

When efforts to scale up and promote HIV testing and counseling began, the workload of hospital and health center laboratories increased substantially. This lengthened turnaround times for results and risked undermining quality. To address this challenge, ICAP worked with RHBs to implement point-of-care rapid HIV testing. Unlike standard HIV tests, rapid tests are conducted in the clinic setting while the client waits for the result. Point-of-care testing was initiated at 33 hospitals in 2007 and was found to be an effective strategy, both for increasing uptake of testing and for improving timely linkage to care for those who tested HIV-positive. Now, 690 ICAP-supported health facilities offer point-of-care HIV rapid testing, enabling them to provide quick and convenient HIV testing to their patients, along with same-day results.

ceremonies. Mobile testing and counseling services have been used to reach distant, pastoral communities in Ethiopian Somali region, where ICAP has partnered with the Family Guidance Association of Ethiopia to integrate provider-initiated testing and counseling for HIV into their package of mobile reproductive health services.

These approaches have greatly facilitated HIV case finding—and in particular early HIV diagnosis—enabling people living with HIV to access pre-ART care and to be supported with timely ART initiation rather than remaining undiagnosed until they experience symptoms of advanced HIV disease. Point-of-care rapid HIV testing has made it possible for patients to be diagnosed, receive counseling, and be linked to care during a single visit to the health facility (see Box 4). In addition, the number of patients lost to follow-up has been greatly reduced by engaging adherence case managers and mentor mothers to escort patients to be enrolled at chronic HIV care clinics immediately after post-test counseling.



PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV

ROLLOUT OF PMTCT

PMTCT services have been implemented in MNCH settings in Ethiopia to ensure that pregnant women, postpartum women, and children have access to life saving HIV care and treatment. The systems established for PMTCT services have also been utilized to strengthen antenatal and delivery services, neonatal care (see Box 5), and emergency obstetric and newborn care (see pages 36-37).

During the early years of the program, PMTCT consisted of ‘opt-in’ HIV testing and single-dose nevirapine (sd-NVP) for HIV-positive women and their HIV-exposed infants. In 2008, this was replaced by the opt-out testing approach and provision of AZT (zidovudine) prophylaxis starting at 28 weeks, a transition that in ICAP-supported regions was largely achieved within six months. Option A—AZT (zidovudine) for pregnant women from 14 weeks gestation and nevirapine syrup for infants for the duration of breastfeeding—was introduced in 2011, and the launch of the PMTCT Accelerated Plan in 2012 signalled renewed effort by the FMOH to expand access, improve quality, and stimulate demand for PMTCT services. In 2013, ICAP assisted with the rollout of the Option B+ ‘test and treat’ model, whereby all HIV-positive pregnant women are initiated on lifelong ART. Figure 3 illustrates the evolution of the PMTCT program at ICAP-supported health facilities.

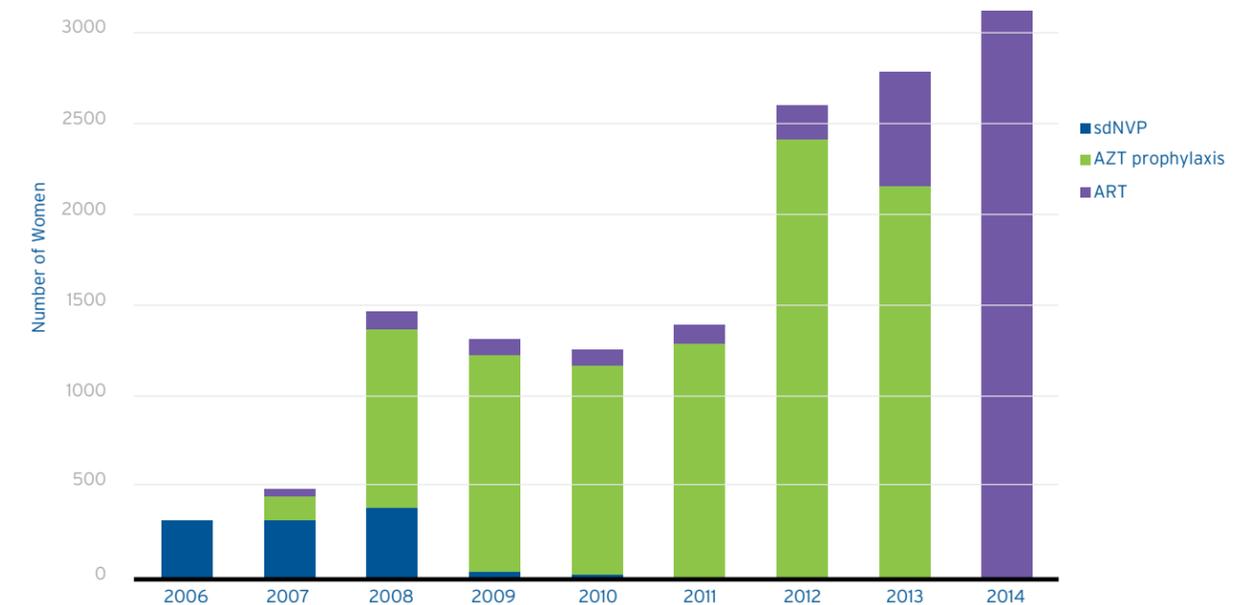
The implementation of opt-out HIV testing and counseling in antenatal settings greatly increased access to PMTCT and HIV-exposed infant follow-up services. This approach has also been implemented in community settings—outreach antenatal care nurses have been trained to initiate testing and counseling for HIV with pregnant

KEY ACHIEVEMENTS

- The number of ICAP-supported facilities offering comprehensive PMTCT services increased from **30** in 2006 to **690** in 2014.
- By 2014, Option B+ was provided at all **690** health facilities as part of integrated MNCH service delivery.
- Approximately **6,500** health care workers have been trained and mentored in PMTCT and MNCH.
- More than **1.6 million** pregnant women have been counseled and tested for HIV at ICAP-supported health facilities.
- Over **33,000** HIV-positive pregnant women have received ARV prophylaxis for PMTCT at ICAP-supported health facilities.
- **3,556** mothers have received adherence support through the mother support program.
- **450,000** male partners have been counselled and tested for HIV within ICAP-supported PMTCT/MNCH settings.

women, to accompany those who test positive to health facilities, and to assist them with enrollment in PMTCT services. Once women are enrolled in PMTCT, mentor mothers and mother support groups (see page 20) work with them to help ensure they remain in care, adhere to treatment, and that their HIV-exposed infants are followed up.

Figure 3: Increase in ARV Uptake Among HIV-Positive Pregnant Women at ICAP-Supported Health Facilities



BOX 5: Strengthening Neonatal Care

In order to improve neonatal outcomes, specialist neonatal care units were established at the following high-volume hospitals in Ethiopia during 2013 and 2014: Adama, Asella, Bishoftu, Shashemene, Nekemte, Dil Chora, Hiwot Fana, and Karamara. This initiative to reduce neonatal mortality, which built on the integrated MNCH/PMTCT platform, helped address a lack of basic care and treatment services for newborns and enabled health workers to better prevent deaths from asphyxia, neonatal infections, and complications arising from preterm birth. Admissions to neonatal care at these hospitals have increased greatly since the units opened, and neonatal health outcomes have improved substantially. Out of almost 12,500 neonates admitted between 2012 and 2014, 76 percent were discharged as improved. As stated by Sr. Gadise Zewdie, head of the neonatal care unit at Nekemte hospital, "The quality of care that we provide for newborns has improved. Hospital-acquired infection has decreased, and several very low birth weight infants have been discharged improved."

FOLLOW-UP OF HIV-EXPOSED INFANTS

HIV disease progresses rapidly in infected infants, but early diagnosis and ART initiation can reduce infant mortality and HIV disease progression by 75 percent. Prior to 2007, a lack of diagnostic capacity was a significant barrier to caring for and treating children born with HIV in Ethiopia.

Since then, the infrastructure, skills, and systems necessary for DNA PCR testing using dried blood spot technology have been created and rolled out within an integrated MNCH/PMTCT package of services (see page 17). The HIV-exposed infants of HIV-positive mothers are monitored until they are 18 months old in order to ensure that those born with HIV are diagnosed and linked to care. The early infant diagnosis program now extends to **690 health facilities** in ICAP-supported regions, thanks to effective networks linking them to specialized DNA PCR testing services. A postal system is used to transport samples to laboratories, while SMS printer technology makes real-time test results available at the health facility to expedite the initiation of HIV-positive infants on ART. To make sure that patients benefit from this technology, ICAP has supported the purchase, distribution, and use of SMS printers at **300 health facilities**.



MALE PARTNER INVOLVEMENT

Low uptake of HIV testing by male partners has been a challenge for the national PMTCT program, partly because men do not commonly attend antenatal care visits with their partners: in 2007, only 806 (2.4 percent) of male partners were tested at antenatal clinics. Following a successful pilot initiative at the labor and delivery unit at Nekemte Hospital in 2008, ICAP worked with RHBs to introduce and scale up male partner testing services within all supported antenatal clinics and labor wards. Care providers received intensive mentoring, and invitation cards were introduced to encourage male partners to come for testing at antenatal clinics. The proportion of male partners tested has now increased to **32 percent, a 13-fold increase** since 2007. Men who test positive are enrolled in HIV care, discordant couples are offered HIV prevention support, and all couples receive counseling to ensure ongoing male partner support for PMTCT.

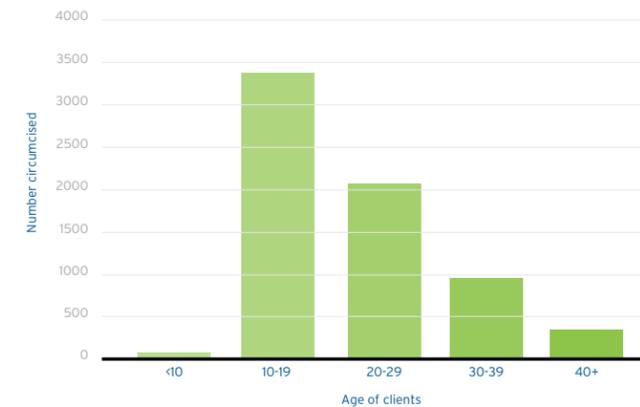


MALE CIRCUMCISION

Since October 2013, ICAP has partnered with the FMOH, the Gambella RHB, and JHPIEGO to support voluntary medical male circumcision (VMMC) services for HIV prevention in the Gambella Region. To date, 24 providers have been trained in VMMC and early infant male circumcision, and 245 health extension workers have received orientation. VMMC for adults and adolescents is now offered at 11 static and 16 outreach health facilities. A range of demand creation strategies has been used to promote services and raise awareness of the benefits of male circumcision for HIV prevention, including activities to sensitize civil society leaders and zonal-/Woreda-level HIV program staff, the installation of billboards, and the distribution of client education materials in Amharic and the region's three major indigenous languages (Agnuak, Nuer, and Majang).

As a result of these efforts, **17,273** infants, adolescent, and adult males were circumcised in Gambella Region between October 2013 and June 2015 (see Figure 4).

Figure 4: Age Distribution of Males Circumcised in Gambella Region, October 2013 - June 2015



STI/HIV INTEGRATION

STIs are associated with increased risk of both HIV acquisition and onward transmission of HIV. Behavioral factors—including unprotected sex—increase both STI and HIV risk, while sores or inflammation caused by untreated STIs increase the risk of HIV infection. Thus, HIV services have been integrated with STI diagnosis and treatment. Health workers apply the STI syndromic case management approach, using screening tools and algorithms to



identify symptoms and prescribe treatment. Further, HIV testing and counseling are routinely offered to patients presenting with STIs, and STI clients are offered STI/HIV prevention services, including support with partner notification, counseling on risk reduction, and provision of condoms. To date, **85,465** STI clients have been tested for HIV at ICAP-supported health facilities, **1,090** of whom have tested positive.

PRE-ART CARE

A comprehensive package of pre-ART care has been implemented for people living with HIV in Ethiopia. It includes the following components:

- Cotrimoxazole prophylaxis
- Isoniazid preventive therapy (IPT) for TB prophylaxis
- Diagnosis and treatment of opportunistic infections
- Routine pain assessment and management
- Nutritional assessment and counseling, and linkage of malnourished patients to organizations providing nutritional support
- Insecticide-treated mosquito nets (in malaria endemic areas)
- Counseling on sanitation and hygiene, along with water treatment products provided by PEPFAR implementing partners (at some health facilities)
- STI/HIV prevention counseling and the provision of condoms

These services promote positive living and motivate attendance at health facilities, facilitating client retention in care, regular CD4 monitoring, and timely ART initiation.

Family planning services for discordant and concordant positive couples are also integrated with HIV care, namely counseling on safe pregnancy, PMTCT, and contraception. Further, specialist mental health services for HIV patients are being piloted at selected

KEY ACHIEVEMENTS INCREASING ACCESS TO ART AND PRE-ART CARE

- The number of ICAP-supported health facilities offering ART and comprehensive pre-ART care increased from **15** in 2005 to **553** in 2014.
- Over **5,600** health care workers have been trained and mentored in comprehensive HIV care and treatment.
- **465,552** adults have been enrolled in pre-ART care at ICAP-supported facilities.
- By September 2014, **321,241** adults and **21,393** children had been initiated on ART at ICAP-supported facilities.

health facilities, with technical support from CDC in Ethiopia, so that lessons learned can inform the future scale-up of such services.

Referral systems between hospitals, health centers, and community organizations that provide care and support for adults and children living with HIV and their families are managed through catchment-area meetings and regular mapping exercises. There is a standard appointment system for pre-ART patients, who are provided with appointment calendars and reminder cards. Patients who miss appointments are traced using the contact information they have provided to health facilities for this purpose.



ART FOR ADULTS AND CHILDREN

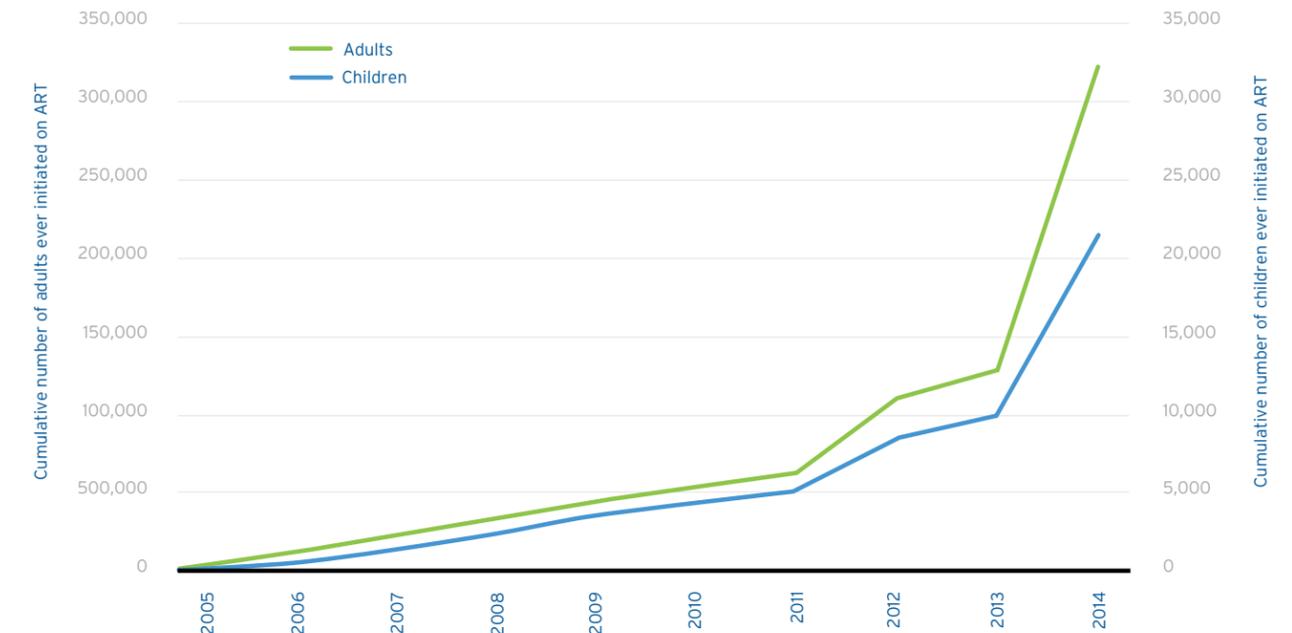
ART services were initiated in Ethiopia in 2004, but only 9,500 HIV patients (about 3.5 percent of those eligible) had access to care and treatment until 2005, when a free, larger-scale ART program was launched at selected public hospitals. Since then, access to life-saving ART has increased as services have been scaled up in hospitals, decentralized to health centers, and expanded within private health facilities.

Both adult and pediatric ART services are offered at all 553 ICAP-supported health facilities located across eight of Ethiopia's regions. Specifically, ICAP has supported the scale-up of ART in Dire Dawa, Harari, Oromia, and Ethiopian Somali since 2005; and has supported ART at health facilities in Addis Ababa, Benishangul Gumuz, Gambella, and SNNP regions since 2013. Figure 5 illustrates a decade of progress increasing access to ART among adults and children in Ethiopia.

ART SERVICES FOR CHILDREN

HIV care and treatment services for children pose particular implementation challenges. For example, pediatric patients are highly dependent on their caregivers, they may not understand their HIV status, and medication doses must be adjusted over time. Acknowledging these challenges, pediatric ART services have been designed to be as child- and family- friendly as possible. HIV care and treatment for infants and children is integrated with MNCH care and is offered alongside general pediatric services, such as immunization, growth monitoring, nutrition, and family planning services.

Figure 5: Cumulative Number of Adults and Children Initiated on ART at ICAP-Supported Facilities



ADHERENCE AND RETENTION

The efficacy of ART—in terms of outcomes in individual patients, prevention of HIV transmission to others, and achievement of epidemic control—depends on ensuring patients' retention in HIV care and their adherence to treatment. A range of retention- and adherence-focused interventions have thus been put in place to support patients and their families, including:

- Appointment systems and integrated approaches that enable patients to access all the services they need during a single clinic visit
- Co-location of adult and pediatric services, and co-scheduling of family members' appointments
- Adherence counseling during consultations
- An Adherence Case Management program to help preempt or overcome challenges (which is now being implemented in many regions by local associations of people living with HIV)
- Peer education and peer support provided to patients to facilitate linkage and referral
- Outreach programs to trace patients who miss appointments and support them to return to care

Providers and health facility teams are also being supported in their efforts to maximize retention and adherence rates through regular mentorship, M&E support to manage the HIV care continuum, and continuous quality improvement support to ensure care continuity. These interventions have contributed to continuous improvement in ART retention rates, with a 22 percent improvement in the 12-month retention rate at ICAP-supported health facilities (from 68 to 83 percent) between 2007 and 2014.

TB/HIV INTEGRATION

TB is the leading cause of death among HIV-positive individuals in Ethiopia and globally. People living with HIV are more likely to develop active TB than people without HIV, and if TB diagnosis is delayed, HIV-positive individuals are at particularly high risk of complications and of transmitting TB to others in their communities. Delayed diagnosis of HIV among TB patients, on the other hand, is associated with increased mortality.

ICAP has supported RHBs to roll out TB/HIV collaborative activities at 553 health facilities to prevent TB and improve the diagnosis and management of TB/HIV. ICAP has supported minor renovations to ensure natural cross-ventilation of air in waiting areas and outpatient departments, and other TB infection prevention measures—such as fast-tracking coughing and TB patients—are in place. Annual TB infection control risk assessments are conducted at all ICAP-supported health facilities and findings are used to develop infection control plans.

HIV patients are routinely screened for TB upon enrollment in HIV care and at follow-up appointments, and those who do not have TB are initiated on IPT. All newly diagnosed TB patients are offered HIV testing and counseling, and patients with both TB and HIV are initiated on ART and provided with cotrimoxazole prophylaxis. The family contacts of TB patients, especially child contacts, are now routinely screened for TB. Family contacts who screen positive are

KEY ACHIEVEMENTS

- Since 2005, **2,698** health care workers have been provided with comprehensive TB and TB/HIV training.
- The proportion of patients screened for TB at ICAP-supported facilities increased from **26 percent** in 2006 to **97 percent** in 2014.
- The proportion of patients tested for HIV at ICAP-supported facilities increased from **24 percent** in 2005 to over **90 percent** in 2014.
- Over **50,000** HIV patients who do not have TB have been provided with IPT at ICAP-supported facilities.
- By 2014, cotrimoxazole prophylaxis was being provided to over **98 percent** of TB patients who tested positive for HIV at ICAP-supported facilities.

evaluated further for active TB, and those who screen negative are initiated on IPT.

To add to the evidence base regarding strategies to improve rates of IPT initiation, adherence, and completion, ICAP is also currently supporting a TB-focused implementation science study in Ethiopia, described further on page 36.

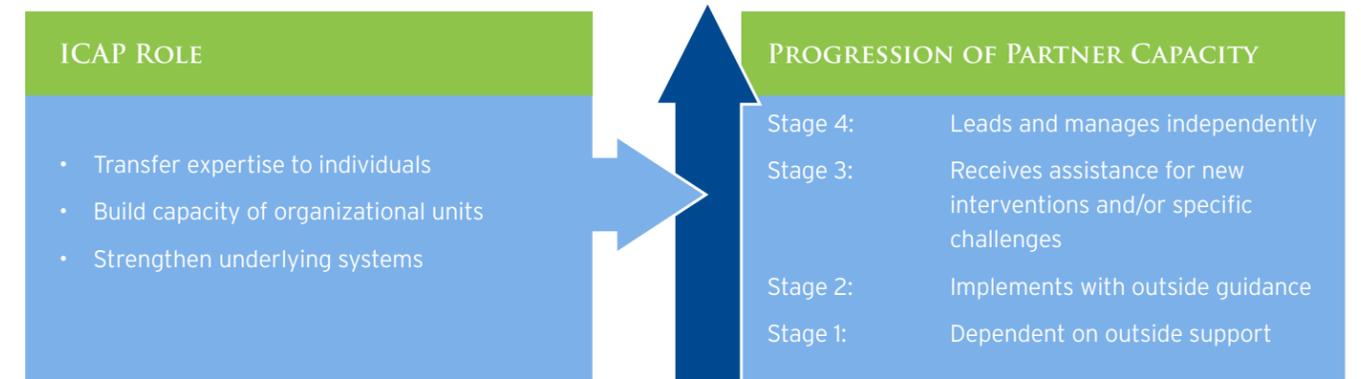
NATIONAL OWNERSHIP AND TRANSITION OF THE HIV PROGRAM

THE TRANSITION MODEL

In order to achieve sustainable control of the HIV epidemic in Ethiopia, the HIV response must be owned, led, managed, and implemented by national entities. The principle of transition guides all of ICAP's work to build capacity, strengthen systems, expand

coverage, and assure the quality of services using the approaches presented in this report. It is at the heart of ICAP's partnerships with federal and regional government bodies, universities, and civil society organizations in Ethiopia.

Figure 6: ICAP's Approach to Building Capacity for Transition



TRANSITION OF HEALTH FACILITY-LEVEL SUPPORT TO REGIONAL HEALTH BUREAUS

Significant milestones have been reached in the transition of HIV programs to the Dire Dawa, Harari, Oromia, and Ethiopian Somali RHBs—with whom ICAP has partnered since 2005—and to two universities and NEP+. ICAP's approach to building RHB capacity is detailed on pages 9-10. By providing sub-awards to these four RHBs, ICAP incrementally prepared for the transition of facility-level support functions from ICAP to each RHB. Clinical systems mentorship and regular catchment area coordination meetings were implemented jointly and progressively transitioned to RHBs over time.

In recognition of its sustainable approach to regional partnership, ICAP was selected by CDC in 2013 to provide technical assistance to support the transition of the HIV program to four additional RHBs: Addis Ababa, Amhara, Tigray, and SNNP. Health facility-level support functions were successfully transitioned from international implementing partners to these RHBs in 2014.



HIGHER-LEVEL TECHNICAL ASSISTANCE TO REGIONAL HEALTH BUREAUS

ICAP is currently partnering with the Addis Ababa, Amhara, Dire Dawa, Harari, Oromia, SNNP, and Tigray RHBs to manage the phase-out of external support for the HIV program. Capacity building support focuses on five core domains that are essential for effective leadership and stewardship of the program:

1. **Program planning**, including strategic planning, annual operational planning, and coordination
2. **HIV service delivery**, including implementation of minimum service packages, clinical systems mentorship, referral linkages, in-service training, supportive supervision, review meetings, and provision of clinical job aids
3. **Laboratory services**, including laboratory-specific planning, minimum service packages, referral linkages, standard operating procedures, regional technical working groups, and mentorship in LQMS implementation
4. **M&E systems**, including reporting and oversight, data quality assurance, data storage, and data access
5. **Operations management**, including grant management, financial management, human resources management, procurement, management of drugs and supplies, minor renovations, and maintenance

The transition process is being overseen by the FMOH under the National Transition Framework and associated M&E plan—which

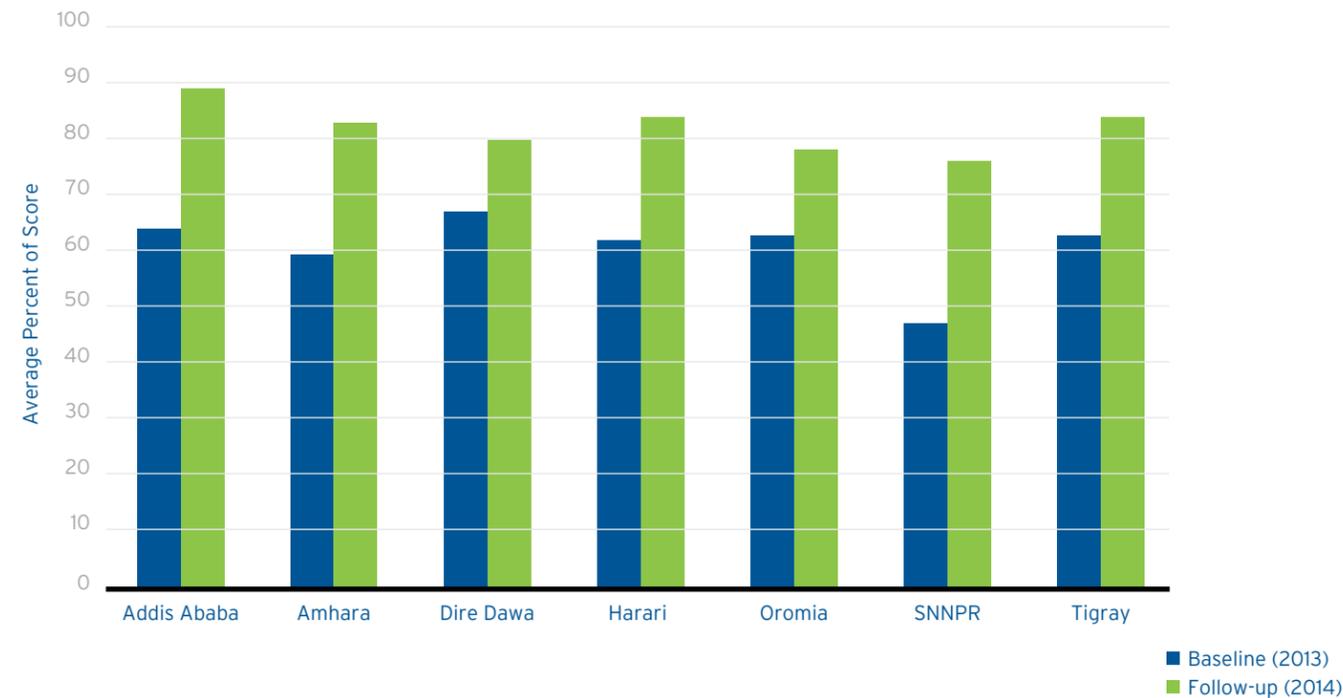
were developed with ICAP support and in collaboration with CDC in Ethiopia—and sub-national operational and M&E plans. A range of standard operating procedures covering the domains described above have also been developed to facilitate transition.

ICAP has developed participatory assessments to inform its capacity building and transition support to RHBs. Baseline and annual follow-up assessments are used to:

- Identify technical, managerial, and financial gaps
- Jointly design specially tailored capacity building programs
- Objectively measure capacity gains
- Measure progress and assess readiness for transition
- Adjust capacity building plans, as required

In 2013, ICAP conducted a joint assessment with each RHB, followed by a subsequent 12-month assessment to measure improvement in the five core management and leadership domains described above. Multiple indicators within each domain were scored 1-4, with 1 signifying 'no capacity' and 4 signifying 'full capacity.' A percentage was then calculated for each domain by comparing the points awarded with the maximum number of obtainable points. Figure 7 illustrates the progress made by each ICAP-supported RHB between 2013 and 2014.

Figure 7: Improvement in RHB Leadership and Management Capacity, 2013-2014



TRANSITION OF TRAINING TO UNIVERSITIES AND COLLEGES

ICAP has built the capacity of Jimma and Haramaya Universities as in-service training partners to the Oromia and Harari RHBs, respectively, as part of a strategy to ensure the sustainability of training programs by transitioning responsibility for in-service training to national entities. Both universities now organize and lead a diverse range of HIV training, in collaboration with the RHBs, and send mentors to health facilities to reinforce training through facility-based mentorship. In addition, chronic HIV care and training centers have been established at the Adama Regional Referral Hospital and the Jimma University Teaching Hospital. ICAP has also supported the establishment of regional ToT pools (that include both RHB and university trainers),

the development of standard operating procedures for in-service training, and a database of trainers to facilitate planning.

ICAP is now building the capacity of selected university medical schools and health science colleges in six regions (Addis Ababa, Amhara, Dire Dawa, Oromia, SNNP, and Tigray) to serve as in-service training partners to RHBs. Baseline capacity assessments have been carried out at all of the partner institutions and tailored capacity building plans developed. ICAP has also provided refresher ToT in HIV thematic areas, and supported trainers to carry out needs assessments and deliver trainings at specific health facilities.



IMPLEMENTATION SCIENCE AND HEALTH SERVICE INNOVATIONS

Implementation science is the study of methods for translating knowledge and discoveries into practice. By layering implementation science into its support for HIV service delivery, ICAP builds research capacity, promotes innovation, and enriches the evidence base for program implementation (see Box 6). ICAP-supported studies in Ethiopia have advanced, and continue to build, contextual knowledge related to:

- The delivery of interventions at scale
- Enhancement of service delivery
- Barriers to and enablers of improved health outcomes

BOX 6: Building Research Capacity

ICAP-supported studies have built research capacity in Ethiopia and advanced the national research agenda. By partnering with the FMOH, RHBs, and universities, ICAP has helped transfer key research skills, such as study management and scientific writing, to local partners. Meanwhile, training and intensive mentoring of local teams builds capacity to conduct research in compliance with ethical and data quality standards.

IDENTIFYING OPTIMAL MODELS OF HIV CARE IN SUB-SAHARAN AFRICA

There are substantial variations in the way that HIV care and treatment programs are implemented across sub-Saharan Africa, and few documented insights on the approaches that produce optimal outcomes. Facility and program level characteristics vary substantially across health facilities, as do the characteristics of patient populations. In 2012, ICAP in Ethiopia joined the multi-country *Identifying Optimal Models of HIV Care* consortium that is seeking to use routinely-collected service delivery information to evaluate HIV program performance. The Optimal Models study:

- Utilizes routinely collected service data to measure the effectiveness of HIV care and ART programs and describe factors that influence patient and program outcomes
- Is designed to identify program level factors that influence HIV care and treatment program outcomes, with the aim of identifying best practices in the delivery of HIV care and treatment services (i.e. 'optimal models')
- Is building in-country capacity to monitor exposure to interventions and measure outcomes at the individual and program levels—and thereby improve HIV care and treatment services
- Aims to improve the prognosis of people living with HIV through relevant and timely epidemiological analyses and dissemination of findings



ICAP has worked closely with RHBs to develop research objectives and study hypotheses, prioritizing research questions that aim to identify more evidence-based and cost effective models of HIV service delivery. In 2014, ICAP collaborated with investigators from the Oromia RHB and CDC in Ethiopia to assess the characteristics and outcomes of adult HIV-positive patients enrolled in HIV care at ICAP-supported facilities across Ethiopia, and to assess trends over time considering the rapid scale-up of provider-initiated testing and counseling⁷.

IDENTIFYING BARRIERS TO TIMELY ART INITIATION

The effectiveness of ART in saving lives and preventing new HIV infections depends on ensuring that eligible patients are initiated on ART in a timely manner. Late ART initiation by patients at advanced stages of HIV disease is associated with higher mortality and morbidity, as well as greater risk of onward transmission. Thus, it is crucial that individuals diagnosed with HIV be linked to and retained in care so that they can be initiated on ART as soon as they become eligible and continuously monitored by health workers.

ICAP has partnered with the Oromia RHB since 2011 to explore barriers to and enablers of linkage to care, retention in pre-ART care, and ART initiation, using in-depth interviews with HIV care providers and observational visits. A cross-sectional qualitative study was conducted at four hospitals in Oromia to identify facility-level enablers of and barriers to timely ART initiation. Additionally, a case-control study including 360 patients who initiated ART late compared to 360 patients who initiated earlier examined potential individual risk factors such as knowledge and behaviors related to HIV care and treatment and experiences of stigma.

Key findings to date include:

- Patients diagnosed as a result of provider-initiated testing and counseling are unready to receive the diagnosis, and post-test counseling often fails to address their reality. Such patients are more comfortable being counseled by an adherence supporter than by a nurse because they know that the adherence supporter him/herself is also HIV-positive.

- Many patients fear being seen accessing pre-ART or ART services because this could lead to inadvertent disclosure of their status and subsequent stigma.
- To reduce the risk of inadvertent disclosure, patients prefer to attend clinics further away from their residence, but this increases their travel time and cost of transportation.
- Many patients fear starting ART because of concerns about side effects and some even believe that the drugs may cause death.
- Some asymptomatic patients misinterpret feeling healthy to mean they are not actually HIV-positive and others do not understand why a healthy person needs to attend the clinic regularly.
- Patients who seek to cure themselves through prayer and the use of Holy Water delay enrollment in HIV care or disengage from care during this time.
- Programmatic initiatives promoting earlier diagnosis, patient-centered counseling, engagement in pre-ART care, and integration of TB and HIV treatment may facilitate more timely ART initiation. Men and those experiencing distress may also benefit from targeted support during pre-ART care.

The results of these studies have been described in published manuscripts and presented at several international conferences.



⁷Melaku, Z., Lamb, M., et al. Characteristics and outcomes of adult Ethiopian patients enrolled in HIV care and treatment: a multi-clinic observational study. BMC Public Health. 2015, 15:462.

PREVENTING TB IN PERSONS LIVING WITH HIV

People living with HIV are at increased risk of contracting TB, and TB/HIV co-infection accelerates the progression of HIV disease to AIDS. The WHO recommends that HIV patients who are unlikely to have active TB receive at least six months of IPT as part of a comprehensive package of HIV care.

ICAP is partnering with the Dire Dawa RHB to explore innovative strategies for increasing IPT initiation, adherence, and completion

in Ethiopia, where TB prevalence is the third highest in Africa. The *Enhance Initiation and Retention in IPT Care for HIV* study, a cluster randomized trial being conducted at ten health centers in Dire Dawa region, is evaluating the effectiveness of a combination intervention package compared to the standard of care for IPT provision per the current national guidelines, presented below. The study is scheduled to be completed in May 2016.

Standard of Care	Combination Intervention Package
<ul style="list-style-type: none"> • TB screening at enrollment in HIV care and during each routine HIV clinic visit thereafter • Use of a simple symptom screening questionnaire • Assessment of patients with a negative TB screen for IPT eligibility and, in the absence of contraindications, provision of counseling on IPT benefits, potential side effects, and adherence • Monthly clinic visits for monitoring of side effects, TB symptoms, self-reported 30-day adherence, and a 30-day supply of isoniazid • Adherence counseling in case of problems, and continued IPT if the patient still wants to take it 	<p>The standard of care plus</p> <ul style="list-style-type: none"> • Use of a clinical algorithm by providers • Identification of HIV-infected family members who are also eligible for IPT • Monthly review of monitoring data on IPT initiation and adherence by the health facility team • Reimbursement of transportation costs for monthly clinic visits • Real-time adherence support using interactive voice response (via cellphone) and specially trained adherence supporters

STRENGTHENING MATERNAL, NEWBORN, AND CHILD HEALTH SERVICES USING THE PMTCT PLATFORM

Only 41 percent of pregnant women in Ethiopia access antenatal care services from a skilled provider and just 16 percent deliver at health facilities, factors that have significantly affected the uptake of PMTCT⁸. In 2011, neonatal mortality was estimated at 37 per 1,000 live births, with 60 percent of newborn deaths occurring within the first 24 hours after delivery⁹. Low uptake of antenatal care, low rates of facility-based delivery, and a lack of emergency obstetric services were some of the main drivers of high neonatal mortality.

IMPROVING THE QUALITY OF ANTENATAL AND DELIVERY SERVICES

In order to improve antenatal and delivery services, ICAP supported the Dire Dawa City Administration to launch an MNCH initiative, integrated with the PMTCT platform, at 16 health facilities in 2010. A baseline needs assessment of antenatal and delivery services was conducted and standards of care indicators were measured both at the initiative's launch and 12 months into implementation (see Table 2). This initiative demonstrated that integrated implementation of PMTCT and MNCH programs could improve antenatal and delivery

services, and served as a catalyst for integrated MNCH and PMTCT implementation in other regions—using the already established PMTCT platform.

IMPROVING EMERGENCY OBSTETRIC AND NEWBORN CARE

Improved access to emergency obstetric and newborn care (EmONC) is a critical strategy for reducing maternal and neonatal mortality, but a FMOH assessment in 2008 found that only half of Ethiopia's hospitals were providing comprehensive EmONC and just 1 percent of health centers offered basic EmONC¹⁰.

Between 2011 and 2013, ICAP worked with the Dire Dawa RHB to pilot EmONC interventions at 16 health facilities, using systems established for PMTCT services as a basis for the interventions:

- Providers within antenatal clinics and labor and delivery wards were trained, mentored, and provided with job aids on active management of the third stage of labor, manual removal of the placenta, and vacuum delivery.

TABLE 2: IMPROVEMENT IN ANTENATAL AND DELIVERY STANDARDS OF CARE IN DIRE DAWA REGION

Indicator	Baseline (March 2011)	Follow-up (February 2013)
Percent of pregnant women receiving rapid syphilis test at first antenatal visit	20	83
Percent of pregnant women advised on birth preparedness and complication readiness	31	96
Percent of pregnant women receiving urine test hemoglobin level determination at first antenatal visit	35	90
Percent of women receiving all of the following during labor and delivery: vaginal exam and documentation of cervical dilation every four hours in the first stage of labor; fetal heart beat documentation every 30 minutes in the first stage of labor; and maternal blood pressure measurements	10	85
Percent of women monitored for labor progress using partograph	40	91
Percent of women managed actively during third stage of labor	41	98
Percent of newborns receiving tetracycline eye ointment and Apgar score determination	10	77
Percent of women receiving vitamin A and family planning counseling post-partum	20	97

- ICAP ensured that all facilities were equipped to perform the seven basic EmONC 'signal functions' (i.e. the essential medical interventions that treat the major causes of maternal and newborn morbidity and mortality).
- Standards of care for antenatal, labor and delivery, and postnatal care were established, assessed at baseline, and reassessed at regular intervals thereafter.
- Referral procedures within health facilities were improved.
- Multidisciplinary EmONC teams were formed at each facility and began holding bi-weekly and monthly meetings with RHB and ICAP staff to review implementation and address challenges.

Early results of this initiative, presented in Table 3, show that improvements in basic EmONC care were achieved at all 16 pilot sites. Furthermore, parenteral antibiotics and anticonvulsants not previously allowed at the health center level were introduced at health centers during the initiative. Results were jointly reviewed by the Dire Dawa RHB, ICAP, and teams from the participating health facilities, serving as a basis for planning consolidation of basic EmONC at the pilot sites and expansion to other health facilities in the region.

TABLE 3: IMPROVEMENTS IN PERFORMANCE OF BASIC EMONC SIGNAL FUNCTIONS IN DIRE DAWA REGION

Health Facility	Number of Signal Functions Performed at Pilot Health Facilities (out of 7)	
	Baseline (December 2010)	Follow-up (August 2011)
Legehare	4	7
Biyawale	1	6
Sabian	2	5
Gendekore	4	5
Addis Ketema	2	4
Gendegerada	1	3
Melkakero	0	3
Melkakero	0	3
Diredawa	1	2
Melkajebdu	2	2
Wahil	1	2
Goro	4	2
Jeldesa	0	2
Kalicha	0	1

⁸Ethiopian Mini-Demographic and Health Survey, 2014.

⁹Ethiopia Demographic and Health Survey, 2011.

¹⁰FMOH, National Baseline Assessment for Emergency Obstetric and Newborn Care, 2008.

ADAPTING THE HIV PLATFORM TO IMPROVE DIABETES CARE

The burden of non-communicable diseases including diabetes mellitus is growing in Ethiopia: the national prevalence rate increased from 3.45 percent in 2011¹¹ to 4.84 percent in 2014¹². While access to diabetes and other non-communicable disease services remains limited, the platform that has been established to support life-long HIV care and treatment may be leveraged to support care for these patients.

In 2010, ICAP partnered with the FMOH and the Ethiopian Diabetes Association to conduct a proof-of-concept study at Adama hospital that

BOX 7: Diabetes Intervention Components:

- An 'essential package' of services
- Adapted, step-by-step protocols
- Point-of-service diagnosis
- Family-focused care
- M&E of basic indicators
- Appointment system
- Training and mentorship of health providers
- Job aids
- Peer education

illustrated the potential to leverage HIV-specific chronic care policies, systems, and tools to improve non-communicable disease programs and strengthen longitudinal services across the health system.

Following baseline assessment of diabetes services at the hospital, an intervention package of strategies, systems, and tools adapted from the hospital's HIV program (summarized in Box 7) was applied. Services were then reassessed after six months.

The assessment found that the hospital lacked the longitudinal services and chronic care systems required to manage diabetes despite having a functional chronic care program developed for HIV. At baseline, no algorithms or standard operating protocols were used to support diabetes care; key diabetes services were rarely documented; and only one in six providers had ever received in-service training in diabetes management. The follow-up assessment found a marked increase in documentation of services (such as weight and blood pressure measurements, foot and neurologic exams, and adherence assessment), and patients expressed increased satisfaction with services. This study's findings were published in the *Journal of Tropical Medicine* in 2012¹³.

THE FAMILY ENROLLMENT FORM

Identifying HIV-positive individuals can be a challenge. ICAP in Ethiopia helped address this challenge by developing the family enrollment form, a simple tool that has since been adopted nationally to provide comprehensive support to families. The form is inserted in HIV patient charts and, using each patient as an index case, identifies family members (infants, children, and adults) who may also be HIV-positive. Each patient is then counseled to bring their partners and children in for testing.

The form facilitates:

- Identification of infants, partners, and other family members who have been exposed to HIV
- Diagnosis of HIV in infants, children, and adults within each patient's family
- Provision of disclosure support
- HIV prevention support and family planning counseling for discordant couples
- Linkage to psychosocial, nutritional, and other support services
- Efforts to enable family members to access services at a single facility and at the same time

Following initial implementation, the family enrollment form was presented during the 2007 PEPFAR Annual Implementer's Meeting in Ethiopia. It was subsequently adopted by other implementing partners in Ethiopia and has also been implemented by ICAP in other countries.



LESSONS LEARNED AND THE WAY FORWARD

Lessons learned during the past decade supporting the national HIV program in Ethiopia include:

- The Government of Ethiopia's strong commitment and the effective collaboration fostered by the FMOH and RHBs have been instrumental in the success achieved to date.
- Multilevel technical support (at national, regional, and health facility levels) has promoted both national ownership of the HIV program and accountability at each level of the health system.
- Strengthening human resources for health at all levels has enhanced program coordination, improved service and administrative linkages, and created a culture of program integration.
- Joint program review and planning processes have consolidated RHB leadership, while the integration of HIV and related services has increased program efficiency.

- A family-focused approach has helped to ensure that all immediate family members of HIV patients receive HIV testing and counseling, and that HIV-positive individuals receive comprehensive care and treatment services.
- Innovations such as task shifting, clinical systems mentorship, and catchment area meetings have played an important role in the successful scale-up of high-quality HIV services.
- The engagement of people living with HIV in the delivery and management of services has enabled HIV patients to access practical and emotional support from others who have faced similar fears and challenges, thereby improving the effectiveness of HIV care and treatment services.

Beyond 2015, ICAP will continue to apply these lessons to its technical assistance and capacity building activities in Ethiopia, as it works in partnership with government and civil society to further enhance program implementation, strengthen systems, and manage transition to national ownership.

¹¹Rabkin M., et al. Strengthening Health Systems for Chronic Care: Leveraging HIV Programs to Support Diabetes Services in Ethiopia and Swaziland. *Journal of Tropical Medicine*. 2012.

¹²International Diabetes Federation, *Diabetes Atlas 6th Edition*. 2014.

¹³Rabkin, et al. 2012.

ABOUT ICAP AT COUMBIA UNIVERSITY

Founded in 2003, ICAP at Columbia University has become a lead PEPFAR implementing partner, currently supporting HIV prevention, care, and treatment programs and providing technical assistance in over 21 countries. Wherever ICAP works, its support blends wide-ranging technical expertise with extensive experience in HIV program development and implementation. Rigorous, results-oriented performance management approaches enable ICAP to respond flexibly and creatively as countries' technical support needs evolve.

All of ICAP's work in clinical service delivery, training, and research is guided by five core principles that aim to optimize impact:

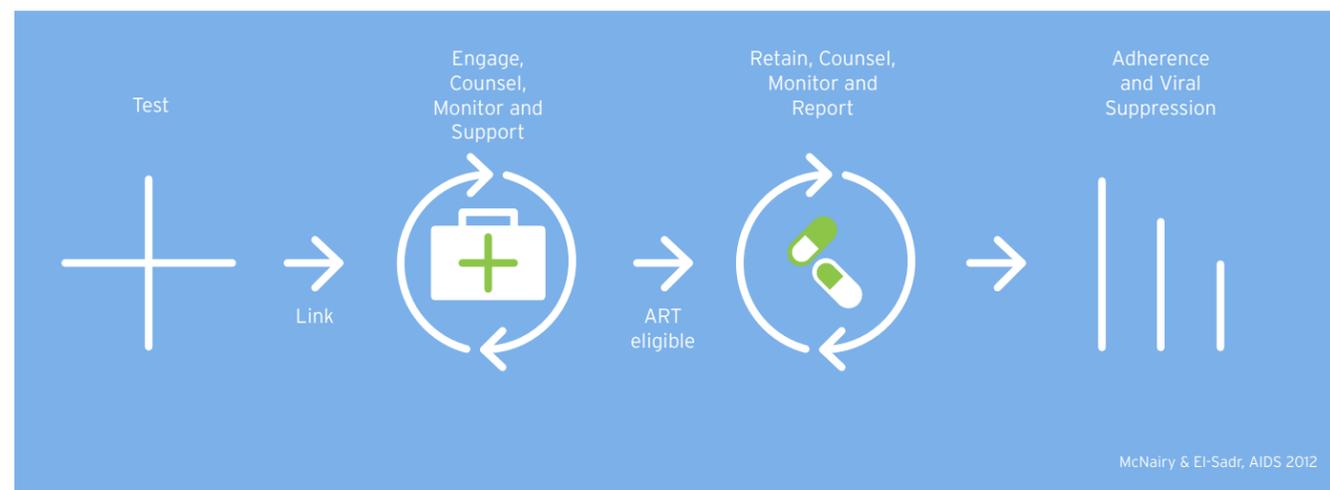
-  **Access**
Ensuring equitable access for all, including poor, rural, and disenfranchised populations
-  **Acceptability**
Engaging communities and shaping HIV services according to patients' needs
-  **Quality**
Assuring quality through training, mentoring, and quality improvement systems
-  **Coverage**
Maximizing the reach of programs to serve all of those in need
-  **Effectiveness**
Employing evidence-based interventions at scale to achieve population-level impact

The HIV care continuum guides ICAP's approach to achieving quality and coverage. A continuum is the full spectrum of services that are needed to ensure quality care in a specific domain, in this case: HIV testing; linkage of those found to be HIV-positive to HIV care; assessment for ART eligibility; timely ART initiation with adherence support; and life-long retention in HIV care.

ICAP's work in Ethiopia began in 2005, focusing on support for the scale up of HIV prevention, care, and treatment for adults and children, and then evolving into a broad portfolio of technical assistance, capacity building, and transition support. In addition to the technical areas summarized in this report, ICAP supports malaria laboratory diagnosis and monitoring, and research to improve malaria treatment. ICAP's multidisciplinary team of over 300 staff in Ethiopia includes physicians, public health experts, health systems specialists, nurse advisors, M&E experts, operations management and financial officers, technical advisors, and researchers.

ICAP's team in Ethiopia is supported by clinical, implementation, and research specialists based at ICAP's headquarters in New York, who ensure that cutting edge science, the latest global recommendations, and proven methodologies inform activities on the ground. This expertise is complemented by on-the-ground expertise in service delivery, guidelines development, education, research, and M&E sourced from the many other countries where ICAP works. State-of-the-art information systems, decision-support tools, and online teaching and learning resources promote excellence across every ICAP platform. For the past ten years, ongoing program management support, country visits, and technical webinars have brought the full spectrum of ICAP's global experience to bear on the challenges of scaling up high-quality HIV prevention, care, and treatment services in Ethiopia.

Figure 8: The HIV Care Continuum



OUR MISSION

ICAP ENSURES THE WELLBEING OF FAMILIES AND COMMUNITIES BY STRENGTHENING HEALTH SYSTEMS AROUND THE WORLD.

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