ICAP at Columbia University:
Technical Assistance for Comprehensive, Sustainable HIV Services in Ethiopia, 2013-2018

- Partnering with Regional Health Bureaus
- Supporting HIV Services
- Advancing Toward Epidemic Control

ETHIOPIANS AND AMERICANS IN PARTNERSHIP TO FIGHT HIV/AIDS

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Federal Democratic Republic of Ethiopia
Ministry of Health

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FOREWORD

ICAP at Columbia University has supported Ethiopia's National HIV Prevention and Control Program at all levels since 2005, working with the Federal Ministry of Health (FMOH), Regional Health Bureaus (RHBs), and health facility teams. In 2013, with support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the Centers for Disease Control and Prevention (CDC), ICAP began providing technical assistance for the transition of Ethiopia's comprehensive HIV program to ownership by Ethiopian institutions. This project generated important learning and best practices in sustainable transition of HIV service delivery and management to local health government, which can inform future efforts to sustain programmatic accomplishments and achieve control of the HIV epidemic.

This report documents achievements, outcomes, and evidence for consideration by stakeholders, policymakers, program managers, researchers, and health care workers in Ethiopia and beyond. It describes how the management of comprehensive HIV programs was transitioned successfully to seven RHBs, government in-service training institutions, and the Network of Networks of HIV Positive Ethiopians (NEP+); provides insights regarding these seven RHBs' current capacity to own and implement the comprehensive HIV program; and highlights critical interventions to ensure sustained progress toward the UNAIDS 95-95-95 targets in Ethiopia.

ICAP is privileged to work closely with the FMOH, the Federal HIV/AIDS Prevention and Control Office (FHAPCO), the Ethiopian Public Health Institute (EPHI), the eleven RHBs, associations of people living with HIV and AIDS, local universities, and other institutions of higher education. In the years to come, we will continue to support progress towards reaching HIV epidemic control in Ethiopia and to position the health system to respond to other public health challenges.

Zenebe Melaku, MD
Country Director
ICAP at Columbia University in Ethiopia

A woman being tested for HIV at Adama Hospital.

BACKGROUND

The HIV Response in Ethiopia

The Government of Ethiopia has had a longstanding commitment to confronting the HIV epidemic. The current National HIV and AIDS Strategic Plan (2015-2020) is focused on ensuring sustainability, increasing national ownership, and scaling up high-impact interventions. The burden of HIV in Ethiopia varies significantly between population groups, with high transmission occurring among key and priority populations, as well as between regions. HIV prevalence is seven times higher in urban areas than in rural areas, where HIV prevalence is below 1%.

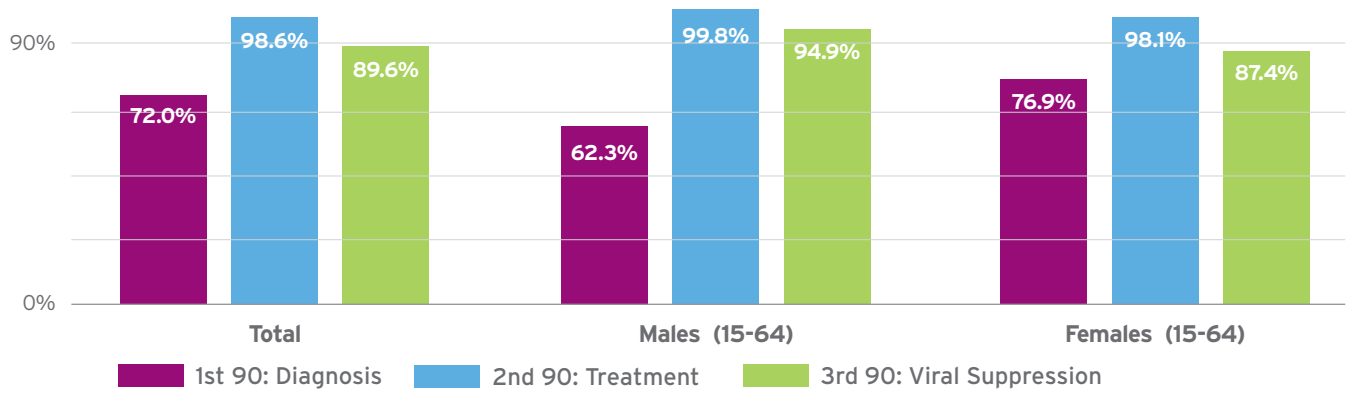
In 2017-18, PEPFAR supported the **Ethiopia Population-based HIV Impact Assessment (EPHIA)**, a household-based national survey conducted in urban areas. This survey was led by ICAP at Columbia University in partnership with FMOH and with technical assistance and support by the CDC. EPHIA found annual HIV incidence of **0.06%** among urban adults (ages 15-64), which corresponds to approximately 7,000 new cases per year. HIV prevalence in urban areas is **3.0%** among adults (4.1% among females and 1.9% among males) and 0.3% among children (ages 0-14), corresponding to approximately 380,000 adults and 19,000 children living with HIV. Among females, HIV prevalence peaks among 35-39 year-olds, at 9.1%; among males, HIV prevalence peaks among 40-44 year-olds, at 5.7%. The sex difference is most pronounced among 30-34 year-olds, with HIV prevalence of 6.1% among women and 0.9% among men. Between regions, urban HIV prevalence ranges from 5.7% in Gambella to 0.8% in Ethiopian Somali. The other most severely affected regions are Dire Dawa (4.6%), Harari (4.6%), Afar (4.1%), Amhara (4.1%), Addis Ababa (3.1%), and Oromia (3.0%).

EPHIA showed **impressive progress toward the UNAIDS 90-90-90 targets**, particularly the second and third 90s, as illustrated in Figure 1. Nearly three quarters of urban HIV-positive Ethiopians have been diagnosed, almost 99% of those diagnosed are on antiretroviral therapy (ART), and in urban areas the country has achieved close to 90% viral suppression among those on ART.

ICAP's Role

From 2005-2014 ICAP supported the HIV response in four regions of Ethiopia: Oromia, Dire Dawa, Harari, and Ethiopian Somali, working with the respective RHBs as well as with the FMOH, EPHI, and FHAPCO at national level. ICAP initially supported the rollout of large-scale ART programs, and then provided technical assistance for the massive scale-up of the country's comprehensive HIV/AIDS program. By 2014, ICAP had fully transitioned responsibility for providing direct support to health facilities to the RHBs, universities, and NEP+ in three of the four regions (Oromia, Harari, and Dire Dawa), a critical step toward sustainability and country ownership of HIV programs. During its first decade of support, ICAP established highly effective models for partnership, health facility and health system technical assistance, and transition to country ownership.

Figure 1: Progress Toward 90-90-90 Targets in Urban Areas of Ethiopia (EPHIA 2018)



PROJECT SUMMARY

Based on its track record of successful support at both the health facility and health system levels, ICAP expanded its work to all eleven regions of Ethiopia. Beginning in October 2013, ICAP supported the **Transition of Comprehensive HIV/AIDS Programs and Medical Education**, a five-year project, funded by PEPFAR through CDC under cooperative agreement # U2GGH001036.

Technical Approach

ICAP provided multilevel technical assistance and capacity building support: nationally, to improve HIV-related policies and guidelines; regionally, to strengthen RHBs' capacity to manage HIV programs; and at facility level, to enable health care workers to deliver comprehensive, high-quality services, as shown in Figure 2.

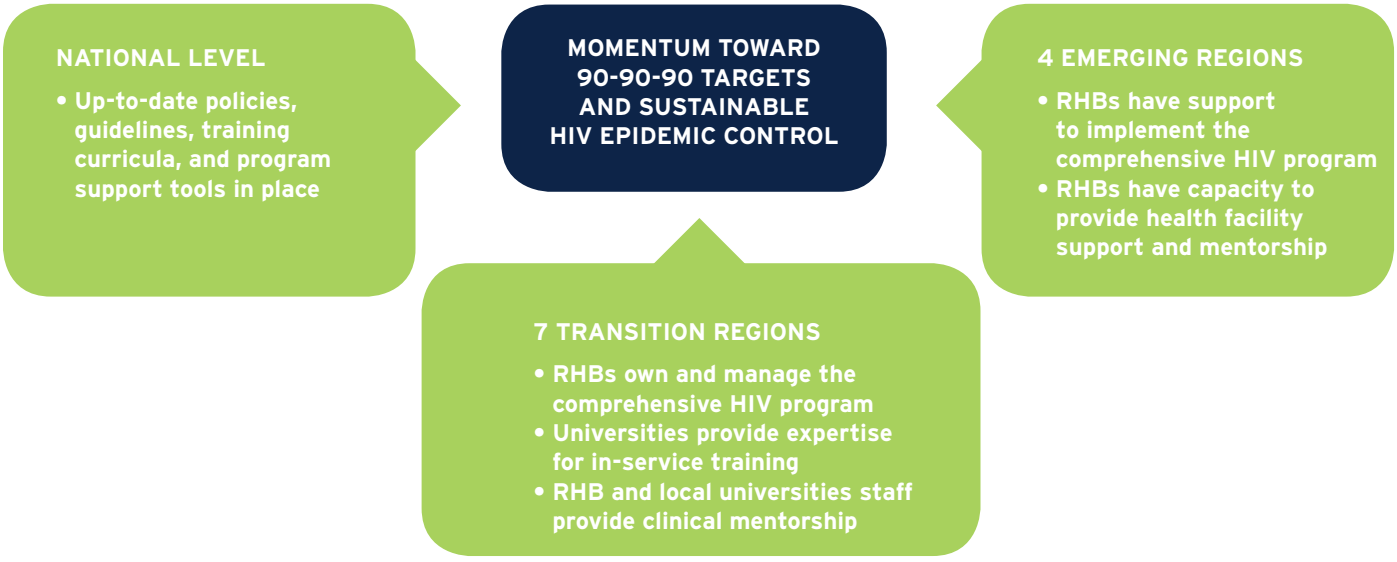
Transition Regions

ICAP provided **health system level support** to complete the transition of quality-assured HIV prevention, care, and treatment programs for adults and children, consistent with the National Transition Framework. The Addis Ababa, Amhara, Dire Dawa, Harari, Oromia, Southern Nations, Nationalities and Peoples Region (SNNPR), and Tigray RHBs now exercise full and independent ownership of HIV programs. Targeted technical assistance and capacity building support enabled the transition of critical activities, including implementation of minimum service packages, clinical systems mentorship, referral linkages, in-service training, supportive supervision, monitoring and evaluation (M&E), and performance management. To create sustainable capacity for in-service training and hospital-based mentorship, ICAP also fostered partnerships between the RHBs and local universities.

Emerging Regions

At 54 priority health facilities in the four emerging regions of Afar, Benishangul-Gumuz, Somali, and Gambella, ICAP provided direct support to assist the RHBs with implementation of comprehensive HIV services, including testing and counseling, prevention of mother-to-child transmission (PMTCT), care and treatment for adults and children, retention and adherence support, viral load monitoring, and TB/HIV integrated care. ICAP enhanced the capacity of health facility teams through training, regular mentorship, and structured facility presence. Additionally, ICAP strengthened the RHB capacity in program planning, implementation, coordination, and monitoring, through joint activities including supportive supervision, quality improvement (QI) processes, data quality assessment, and performance review meetings.

Figure 2: Approach to Sustainable, Comprehensive HIV Services



Support To Seven Transition Regional Health Bureaus

Targeted Capacity Strengthening

In Addis Ababa, Amhara, Dire Dawa, Harari, Oromia, SNNPR, and Tigray, this project marked a new level of RHB ownership. The seven RHBs had full responsibility for programming and drew on technical assistance from ICAP to improve HIV services and ensure their sustainability. ICAP teams worked hand-in-hand with RHB counterparts to achieve a seamless transition of the comprehensive HIV program to full RHB ownership.

Transition Strategy. During the early months of the project, ICAP supported each transition RHB to develop a transition plan that set out the activities needed to prepare them to assume full managerial and technical responsibility over five years. The transition plans included M&E components to track the status of program management activities both before and after transition. ICAP also assisted the RHBs to establish transition technical working groups and performance monitoring teams to oversee HIV services at the health facility level.

Capacity Building Approach. Each RHB organized its transition plan around the six core domains of HIV program management summarized in Table 1.

> "Over the last five years, ICAP has collaborated with the Tigray RHB in an effort to standardize and institutionalize HIV program activities. Our fruitful partnership and collaboration with ICAP has enabled my region to plan, implement, monitor, and sustain HIV program activities with local capacity."
>
> *Hagos Godefay, Head of Tigray RHB*

ICAP developed a capacity assessment tool to identify gaps in RHBs' institutional capacity and measure their readiness to assume full ownership of specific activities. Assessments were conducted at baseline and annually thereafter to measure results and prioritize technical assistance in order to ensure a timely transition. The tool contains a total of 30 indicators relating to the essential elements for transition described in Table 1. They were assessed on a scale of one to four and used to calculate a percentage score for each element and domain, as well as for the overall assessment.

Table 1: Core HIV Program Management Domains and Elements

6 PROGRAM MANAGEMENT DOMAINS	ESSENTIAL ELEMENTS FOR TRANSITION
1. Planning, coordination, and leadership	Strategic, operational, and transition planning. Technical working groups.
2. Program implementation	Minumum service package, referrals, and adherence support. Health facility level and catchment area interview meetings. In-service training, clinical systems mentorship, and support tools.
3. Laboratory services	ART monitoring. Laboratory mentorship and quality assurance. Coordination and maintenence.
4. Supply chain management	Drug procurement and stock management. Equipment maintenance.
5. Performance monitoring	Reporting, data quality assesement, M&E mentorship, facility supervision, regional review meetings.
6. Finance/Grant management	Resource management – grants, finances, human resources, buildings and equipment, procurement.

Figure 3 summarizes annual capacity assessments results across the seven RHBs, illustrating impressive capacity gains in the six core HIV program management domains (see Table 1).

Figure 3: Annual Capacity Assessment Gains Across 7 RHBs

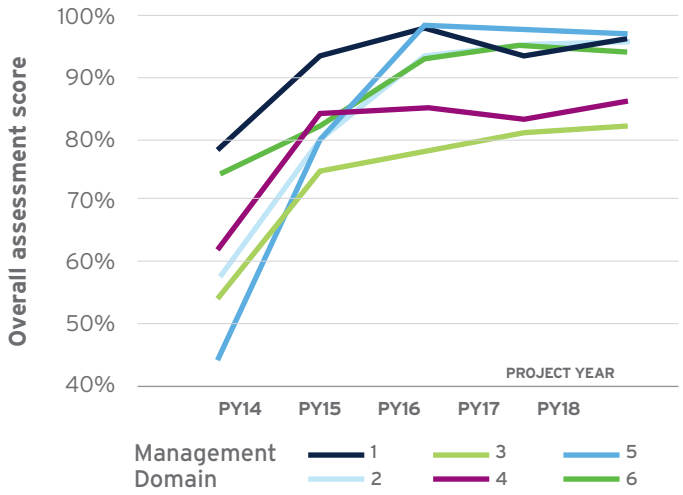
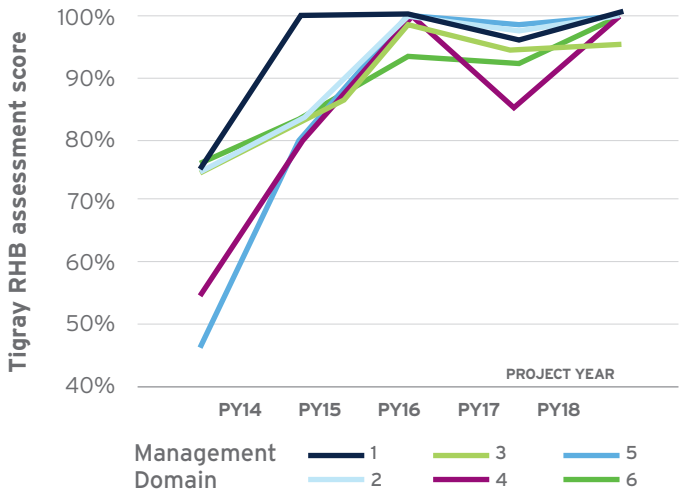


Figure 4: Annual Capacity Assessment Gains, Tigray RHB



Case Study: Targeted Capacity Strengthening of Tigray Regional Health Bureau

In early 2014, ICAP and the Tigray RHB conducted the baseline capacity assessment for the project. RHB program, finance, human resource, grants, procurement, laboratory, and engineering staff participated in an in-depth orientation, followed by discussion and data collection using the assessment tool described above. The RHB achieved an overall baseline score of 61%; their capacity was strongest in the areas of program planning and coordination and finance/grant and operations management and weakest in laboratory services and performance monitoring.

Following five years of targeted capacity strengthening support from ICAP, Tigray RHB achieved an overall score of 99% in the fifth and final assessment, conducted in February 2018:

- 100% in all elements of program planning, coordination, and leadership
- 100% in all elements of program implementation
- 100% in two of the five laboratory elements
- 100% in both elements of supply chain management (the only RHB that achieved this)
- 100% in four out of five elements of performance monitoring
- 100% in five out of six finance/grant management elements

Figure 4 illustrates how the capacity gains achieved by the Tigray RHB increased in each core HIV program management domain (see Table 1) over the course of the five-year project.

Improving the Quality of HIV Services

Implementing the National Healthcare Quality Strategy. From 2015 onwards, ICAP supported the transition RHBs to operationalize Ethiopia's National Healthcare Quality Strategy for providing patient-centered, safe, efficient, effective, and equitable HIV prevention, care, and treatment services. ICAP's regional QI specialists supported the RHBs to design a QI strategy and road map; cascade national standards and guidelines; and organize trainings for health care workers. They assisted health managers and service providers to roll out QI interventions and transferred the skills needed to identify, design, plan, and implement QI projects in a timely way. The RHBs established QI structures including quality units and health care quality steering committees within the RHB. Health facility level QI teams were also set up, and ICAP assisted the RHBs to train these teams, monitor individual QI projects, and provide empowering feedback. In total, 46 hospitals and 43 health centers in the transition regions designed and implemented QI projects between 2015 and 2018.

Using of Data for Quality Improvement. ICAP assisted the RHBs to strengthen data use for performance review and QI at the regional, zonal, and health facility levels, as part of a much broader package of support to strengthen information systems and M&E for HIV programs. Each RHB developed guidelines and standards for QI activities and data use for QI, along with performance monitoring indicators and data tools. As needed, ICAP mentored RHB staff on the analysis, interpretation, and use of performance data for decision-making and QI. As part of its support for the Surge Strategy to eliminate gaps and missed opportunities relating to the 90-90-90 targets in the 20 PEPFAR priority towns, ICAP designed an HIV data use and QI tool and a corresponding database, aligned with CDC core performance indicators, to make it easier for teams at priority health facilities to generate performance data. ICAP transitioned management of the database and QI support to Surge facility teams to regional and zone/town level program and M&E staff.

The Oromia Viral Load Quality Improvement Collaborative

The QI collaborative is an ICAP in Ethiopia innovation that enables teams from multiple health facilities in a defined geographic area to work together to address a shared challenge.

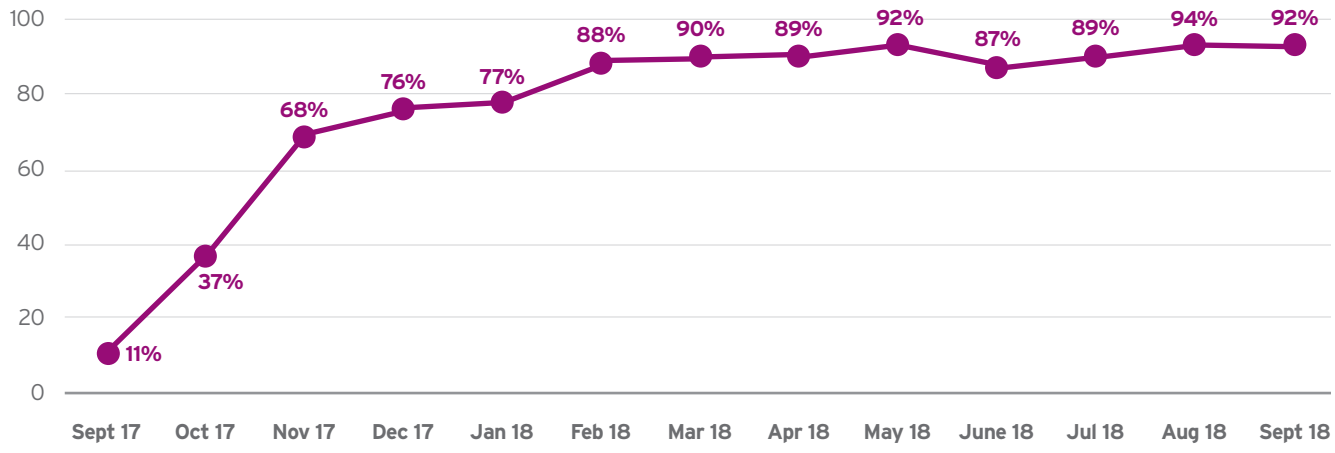
In Oromia, where the RHB identified increasing timely uptake of routine viral load testing by eligible patients as a high priority, ICAP convened RHB, FMOH, and CDC Ethiopia staff to establish a viral load QI collaborative, which launched in September 2017 and ran for one year. A total of 12 health facilities in four towns in the eastern Oromia zone were selected, based on viral load testing data for the previous six months: three public and one private hospital, six public health centers, and two non-governmental organization-run health centers.

With technical support from ICAP, the RHB defined the aims of the QI collaborative with targets, indicators, and a set of QI actions. The overall goal of the intervention was to increase uptake of viral load testing by eligible patients (those on ART for at least six months) to 90%. ICAP QI specialists helped to update standard operating procedures to reflect the planned changes and to adapt data tools to monitor the intervention.

A viral load testing QI team was formed at each participating health facility and, with joint support from the RHB and ICAP staff, they implemented and monitored the QI actions during a minimum of three action periods. During a review and learning session at the end of each period, each team identified where the changes were working well and where adjustments or improvements were required.

Figure 5 illustrates how uptake of routine viral load testing was enhanced across the 12 sites. Within one year, the proportion of newly eligible patients receiving their first viral load test reached 94%, from a baseline of 11% when the QI collaborative began.

Figure 5: Percentage of Newly Eligible Patients at QI Collaborative Facilities Who Received Their First Routine Viral Load Test



Support for Medical Education and In-Service Training

Strengthening Medical Education

ICAP supported the Government of Ethiopia's effort to address the acute shortage of medical workers and establish a critical mass of trained professionals by strengthening pre-service medical education at six universities between 2014 and 2017: Addis Ababa, Gondar, Jimma, Haromaya, Hawassa, and Arba Minch. Infrastructure support included renovation of six libraries and three clinical skills laboratories and provision of reference and text books, medical equipment, interactive mannequins and teaching aids for skills laboratories, and tablets loaded with e-learning resources for medical students.

ICAP trainers also upgraded faculty members' teaching skills and technical knowledge, as follows:

- Effective teaching skills – 507 faculty trained
- Clinical teaching skills – 225 faculty trained
- Problem-based learning – 364 faculty trained
- Technical updates – 281 faculty trained

Standardized In-Service Training

ICAP facilitated partnerships between the seven transition RHBs and local universities and health science colleges to ensure that frontline health care workers have ongoing access to high-quality in-service training based on national curricula. All in-service training in the seven regions is now delivered by pools of trainers affiliated with local education institutions, in collaboration with the RHBs, FMOH, and EPHI.

A total of 18,190 health care workers and lay providers in the seven regions received competency-based in-service training on one or more HIV thematic areas during the lifetime of the project, and 1,677 were trained as trainers. Table 2 presents the numbers of people trained by thematic area.

ICAP supplied a total of 34 higher education institutions with training resources such as furniture, computers, TV monitors, and projectors. Additionally, ICAP supported the establishment of two HIV chronic care and training centers at Jimma University and Adama Regional Referral Hospital, as part of the effort to institutionalize in-service HIV training across the country. Both centers are equipped with video conferencing facilities that enable medical specialists to provide case management support remotely.

> "ICAP has provided us with up-to-date reference medical books, video conferencing and computing facilities, as well as state-of-the-art medical equipment. It has also considerably strengthened the pre-service medical education and Integrated Emergency Surgery and Obstetrics training program of our college. Because of this intensive support, the quality of our clinical services and medical education program has been substantially improved in the last five years."
>
> *Dr. Sileshi Garuma,*
> *Provost of Adama Medical College*

Table 2: In-Service Training, October 2013 – September 2018

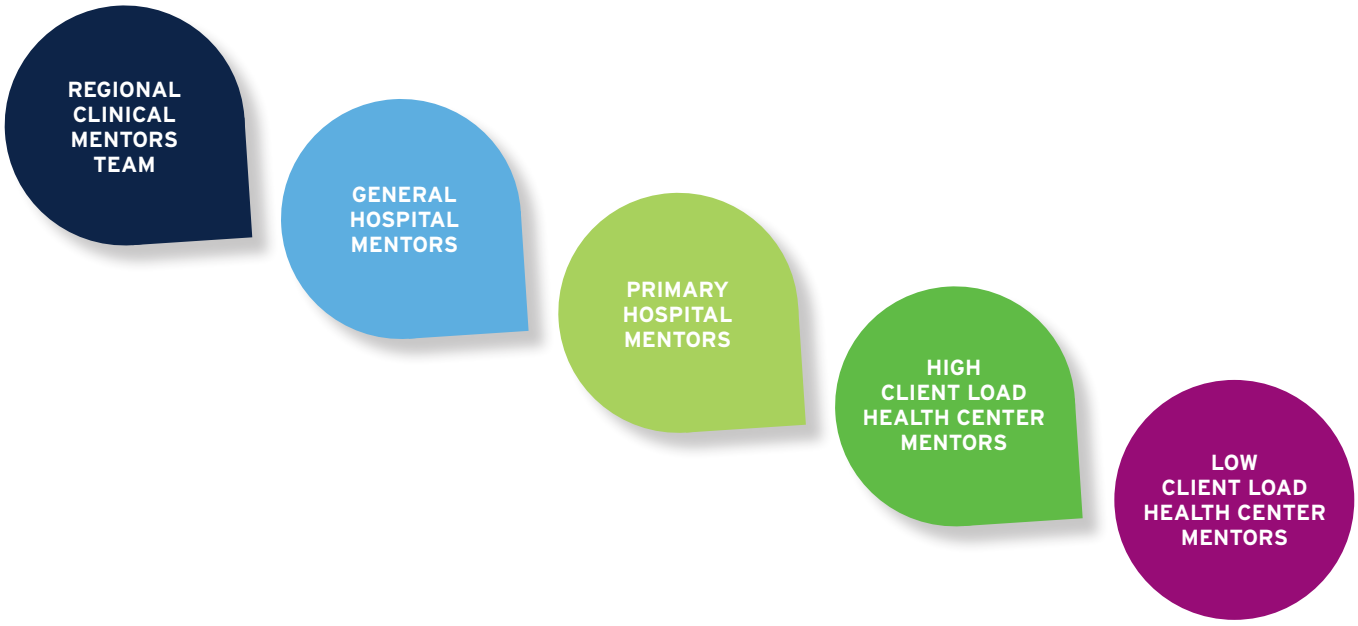
HIV THEMATIC AREA	PEOPLE TRAINED
Integrated HIV care and treatment	1,108
HIV testing and counseling	963
Prevention of mother-to-child transmission	1,482
Sexually transmitted infections	1,352
HIV care and treatment for adults	725
Pediatric HIV care and treatment	693
TB/HIV integration	412
Laboratory services	12,564

Innovation: The Hospital-Based Mentorship Model

ICAP assisted the RHBs to institutionalize clinical systems mentorship (CSM), an essential strategy to reinforce health care workers' competencies and continuously improve the quality of HIV services. A sustainable, locally owned CSM model was created, in which hospitals manage mentorship for the health centers within their catchment area. Figure 6 shows how mentorship is cascaded from regional to health center level.

Each RHB mapped hospitals and their catchment areas and tailored the CSM model, support tools, and standard operating procedures to the local context. As part of regional transition plans, ICAP worked with the RHBs to ensure that numbers of CSM trainers and clinical mentors are sufficient to mitigate the turnover of health care workers. Clinical mentors present on performance and areas requiring attention at quarterly catchment area meetings, the forum where hospital and health center staff monitor the overall HIV program at the local level.

Figure 6: Regional Mentorship Cascade



Support to the Federal Ministry of Health

ICAP has provided assistance to the FMOH across a broad range of HIV program areas. Its technical leadership team has participated in many national technical working groups and supported the development of strategic frameworks, policy documents, guidelines, standardized training materials, program implementation and M&E tools, job aids, and client education materials. Staff seconded to FMOH by ICAP have provided technical leadership in TB/HIV integration, pediatrics, PMTCT, and maternal, newborn, and child health.

BOX 1

Six-Month ART Appointment Spacing

- **Available at all 1,051 health facilities providing ART in Ethiopia**
- **162,158 clients enrolled by November 2018**

Other notable areas in which ICAP has contributed at the national level include:

- National quantification of antiretroviral drugs, HIV rapid test kits, and opportunistic infection drugs
- Developing and rolling out the National Healthcare Quality Strategy and building FMOH capacity to lead QI activities
- Implementing the principle of greater and meaningful involvement of people living with HIV across the national HIV program
- Introducing multi-month ART dispensing (six-month appointment spacing model) across all ART facilities in the country (see Box 1)
- Integrating sexual and gender-based violence services into the HIV program
- Developing the National Transition Framework and overseeing the transition process

Support to the Ethiopian Public Health Institute and Regional Referral Laboratories

ICAP has a longstanding partnership with the EPHI to build capacity in laboratory support for HIV services.

During the past five years, ICAP provided laboratory technical assistance at national and regional levels with a focus on the following:

- Scaling up routine viral load testing (see Box 2)
- Implementing external quality assurance of HIV rapid tests
- Rolling out early infant diagnosis testing using GeneXpert technology
- Creating an integrated referral network for testing of TB Xpert and TB culture specimens
- Establishing routine microbiological analysis services at four regional referral laboratories
- Strengthening the specimen referral network for ART monitoring laboratory tests
- Supporting infrastructure upgrades and renovations at regional and hospital laboratories
- Training staff in laboratory quality management systems and supporting implementation of the Strengthening Laboratory Improvement Process Toward Accreditation (SLIPTA) program

BOX 2

Driving Progress Toward the Third 90

Viral load testing in Ethiopia has evolved since 2016, from targeted testing to routine viral load monitoring, implemented at 19 regional and high-volume hospital laboratories.

ICAP laboratory specialists supported the EPHI to develop standard operating procedures, job aids, and recording formats for viral load testing. They worked closely with EPHI and regional referral laboratory staff to implement a specimen referral service and to mentor health care workers to identify eligible clients and utilize test results to improve client management.

HEALTH SERVICE SUPPORT

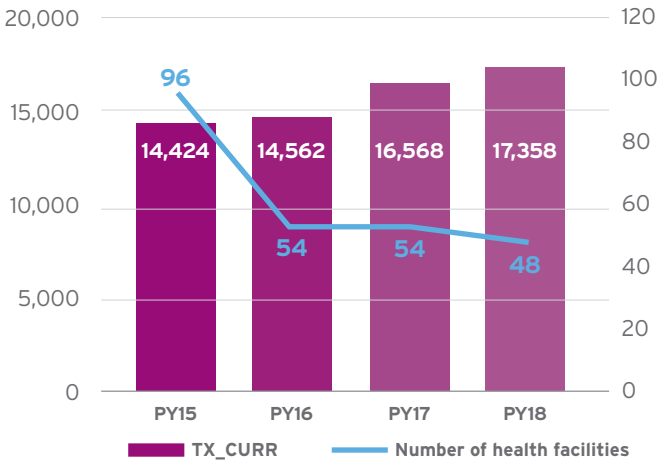
Supported Health Facilities and Services

In the four emerging regions of Afar, Benishangul-Gumuz, Gambella, and Somali, ICAP provided direct health facility support for the comprehensive HIV program. Figure 7 shows the number of adults and children receiving ART at ICAP-supported facilities.

The range of services supported included HIV testing and counseling, PMTCT, adult and pediatric care and treatment, ART retention and adherence support, laboratory services, TB/HIV integrated care, mental health/HIV integrated care, sexually transmitted infection services, services for survivors of gender-based violence, and services for key populations. Health facility support also covered blood safety, infection prevention, M&E, and QI activities. In Gambella, ICAP also supported voluntary medical male circumcision services, in partnership with Jhpiego.

The selection of facilities for direct ICAP support each year was based on local estimates of unmet need for ART. At the outset of the project, 99 facilities were selected. During the first year the RHBs and CDC Ethiopia prioritized 54 hospitals and health centers (16 in Afar, 14 in Benishangul-Gumuz, 15 in Gambella, and 9 in Somali), and for the final year, the number of supported facilities was reduced to 48.

Figure 7: Cumulative Number of Adults and Children Active on ART



Health Facility Support Model

Regional ICAP teams supported multidisciplinary teams of HIV service providers—including nurses, physicians, pharmacists, adherence supporters, and data clerks—to enable them to deliver the comprehensive HIV program. ICAP trained health care workers and lay providers, reinforced competencies through targeted mentorship and QI activities, and ensured that necessary guidelines, standard operating procedures, manuals, job aids, and client education materials for HIV services were available at all facilities.

The regional ICAP teams maintained a regular health facility presence through monthly clinical systems mentorship visits, quarterly joint supportive supervision with the RHBs, quarterly data quality assessment, and three times yearly laboratory external quality assurance. ICAP and the RHBs conducted Service Improvement through Monitoring System (SIMS) assessments on a quarterly basis at high-volume facilities and twice yearly at low-volume facilities, with additional facility visits to monitor SIMS performance improvement plans.

The First 90: HIV Diagnosis

The scale-up of HIV testing and counseling services has been a cornerstone of Ethiopia's successful endeavors to control the spread of HIV. To increase momentum toward the first 90, ICAP assisted all the supported facilities to implement targeted HIV testing approaches that maximize yield (the proportion of HIV-positive test results) and thus make the most efficient use of available resources.

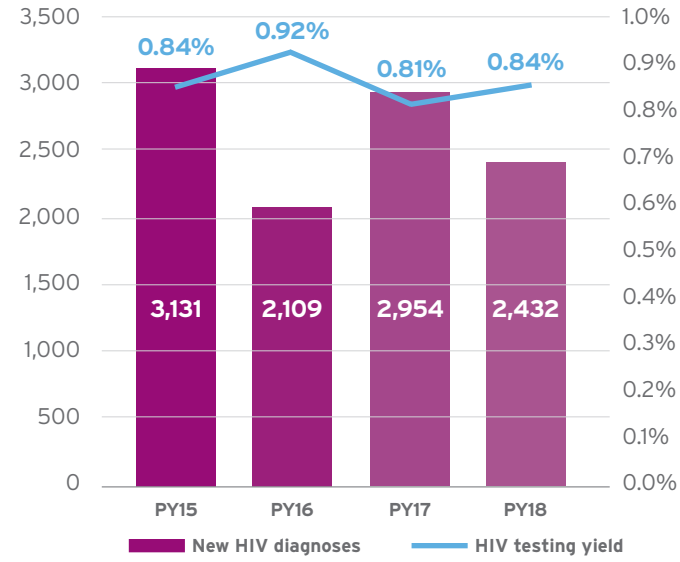
A total of 1,257,867 clients were tested for HIV at ICAP-supported facilities during the life of the project, 10,626 of whom tested HIV-positive (0.84%). ICAP ensured that HIV rapid test kits were continuously available at all supported facilities and trained 729 health care workers on provider-initiated testing and counseling. Figure 8 shows the number of individuals tested at ICAP-supported facilities, while Figure 9 shows the number of positive tests and the yield of HIV testing services.

Targeted Testing

ICAP supported providers to scale up targeted provider-initiated counseling and testing at key entry points within the health facility, using the opt-out approach to increase uptake. Patients with suspected or confirmed TB, sexually transmitted infections, opportunistic infections, or other HIV symptoms were targeted, as were high-yield population groups. HIV risk assessment tools and targeted testing algorithms were implemented systematically within adult and pediatric outpatient and inpatient departments to improve the coverage and yield of HIV testing services. Index client testing is a key strategy for identifying people with undiagnosed HIV infection. ICAP-supported facilities to increase index client testing through use of the national family enrolment form, which lists the partners and children of index clients and flags those with unknown HIV status for follow-up. Each week, ICAP supported health facility teams to monitor the yield of HIV testing services and identify gaps or missed opportunities.

Figure 8: Number of People Who Received HIV Testing and Counseling

Figure 9: Yield of HIV Testing Services



Linkages

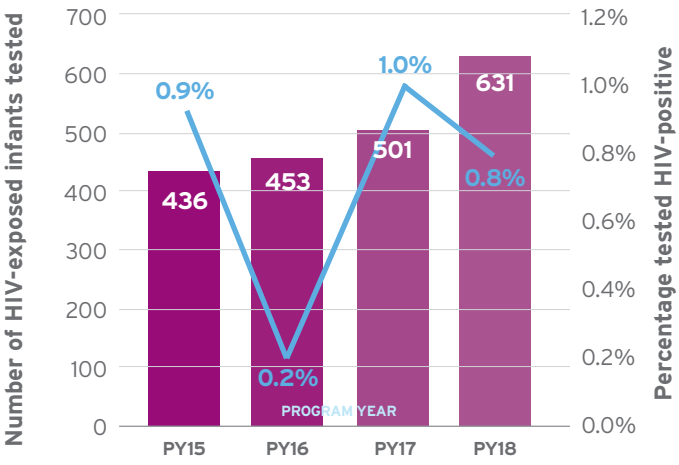
Linkage services for clients newly diagnosed with HIV are the "bridge" between diagnosis and ART initiation. To improve linkage to ART, ICAP mentored HIV testing providers on the use of referral forms and monitoring tools and improved coordination between health facility teams and case managers, managed by NEP+. The case managers escort newly diagnosed clients to HIV care and treatment service points, as well as assisting clients with disclosure and referring them to community-based HIV testing services for index case testing of partners and family members.

Prevention of Mother-to-Child Transmission

Through its support for PMTCT services at high-yield facilities in priority woredas (third-level administrative divisions), ICAP assisted all four emerging RHBs to ensure that the proportion of HIV-exposed infants under two months of age who tested positive was under 5%.

A total of 234,155 pregnant women received PMTCT services at ICAP-supported facilities. The number of HIV-exposed infants with a final HIV diagnosis increased every program year, as shown in Figure 10.

Figure 10: HIV-Exposed Infant Testing



With ICAP support, the facility teams increased the coverage of HIV testing among pregnant women and HIV-exposed infants by implementing key strategies including:

- Routine HIV testing for pregnant and postpartum women and their partners at antenatal clinics, labor and delivery wards, and postnatal clinics
- Routine HIV testing for children of adult HIV patients, at inpatient and TB units, at malnutrition clinics, and through the immunization program
- Newborn corners at all supported facilities and special newborn units at facilities with high PMTCT client volume
- Early infant diagnosis using GeneXpert
- Improved adherence counseling for HIV-positive pregnant women
- Monitoring of retention in the PMTCT care cascade and final infant diagnosis
- Defaulter client tracing, through strong working ties with NEP+
- Collaboration with community organizations to increase HIV testing, linkage to care, and treatment adherence among HIV-exposed and HIV-infected orphans and vulnerable children

The Second 90: Antiretroviral Therapy

ART Services for Adults

ICAP supported the provision of high-quality treatment services for adults, including the rollout of the Test and Start strategy to drive progress toward the second 90.

A total of **16,573** adults aged 15 years and older received ART at ICAP-supported facilities during the lifetime of the project: **10,297** females and **6,276** males. ICAP provided basic comprehensive ART training for **1,229** health care workers from the emerging regions and trained **74** adherence case managers on mental health/HIV integration. Figure 11 shows the number of adults and children initiated on ART during program years 2-5.

Key strategies to improve access to high-quality ART services included:

- Assisting RHBs to map HIV service points regularly and strengthen linkages and two-way referral mechanisms within health facilities, between health facilities, and between facilities and communities
- Ensuring that relevant registers, monitoring tools, provider support tools and client education materials were available at all supported facilities
- Collaborating with NEP+ to train and support adherence case managers and expert clients, who play an important role supporting ART patients with retention on treatment and working with health facility teams to return those who default to care
- Integrating other health care with ART, including services for TB diagnosis and treatment, family planning, basic preventive health care, mental illness screening and management, pain management, cryptococcal meningitis screening and management for patients with CD4 counts of less than 100, and sexual and gender-based violence

Figure 11: Number of Adults and Children Initiated on ART

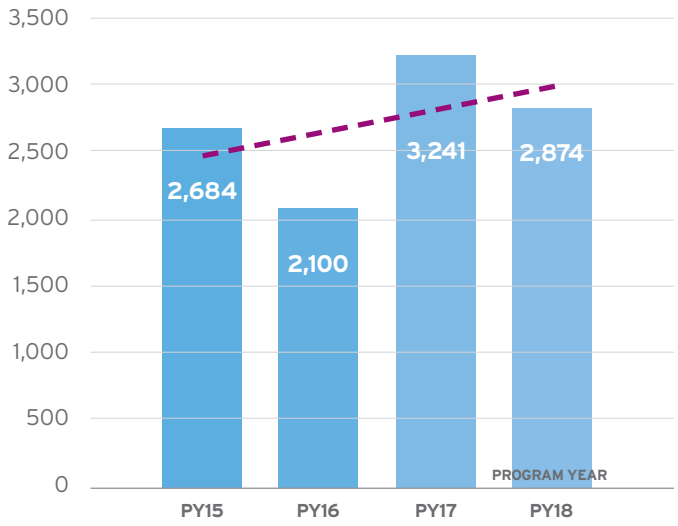
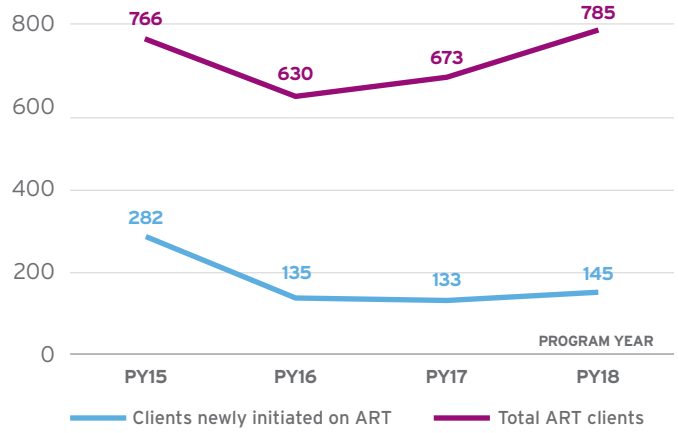


Figure 12: Number of Children Age 0-14 on ART



Pediatric ART Services

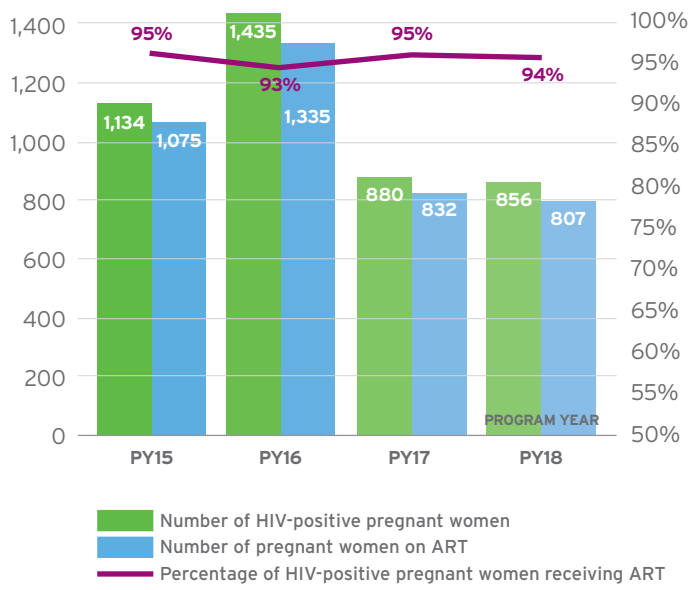
ICAP supported the expansion of high-quality pediatric ART services, integrated with maternal, newborn, and child health services. To increase uptake of pediatric ART, ICAP supported the four RHBs to implement a QI initiative to improve linkage from HIV testing service points to pediatric ART enrollment.

A total of **785** HIV-positive infants and children aged 0-14 years received treatment and support at ICAP-supported facilities during the lifetime of the project and **693** health care workers were trained on pediatric HIV care and treatment services. Figure 12 shows numbers of pediatric ART clients during program years 2-5.

The package of care offered at ICAP-supported facilities integrates:

- Child survival interventions, including immunization, growth monitoring, improved infant and young child feeding, and family planning
- Routine nutritional assessment and counseling services, with referral mechanisms between health facilities and community-based nutritional support organizations for malnourished children
- A palliative care package and pain management services for pediatrics
- Peer psychosocial support programs for children and adolescents at five hospitals
- Improved adherence counseling and tracking of HIV-exposed infants and patients lost to follow-up, in collaboration with NEP+

Figure 13: Number of Pregnant Women Receiving ART



ART Services for Pregnant Women

ICAP-supported priority facilities in the emerging regions to offer lifelong ART for pregnant and postpartum women and assisted the RHBs to roll out PMTCT Option B+.

A total of **4,049** HIV-positive pregnant women received ART at ICAP-supported facilities during the lifetime of the project, and ICAP provided a range of PMTCT/maternal, neonatal and child health trainings to **1,482** health care workers. With ICAP support, PMTCT service providers reviewed HIV testing and ART data for pregnant and postpartum women on a weekly basis to ensure prompt ART initiation by those who tested HIV-positive. The proportion of HIV-positive pregnant women who received ART for PMTCT was consistently higher than **90%**, as shown in Figure 13.

In addition to ART, the package of PMTCT care offered at ICAP-supported facilities integrates family planning, couples counseling, partner HIV testing, ART for discordant couples, TB screening, isoniazid preventive therapy, screening and management of opportunistic infections, cotrimoxazole preventive therapy, nutritional assessment and counseling, and antiretroviral prophylaxis for infants born to HIV-positive women. At 29 facilities, mother support groups were set up to strengthen services, address stigma, and empower clients (see case study).

Case Study: The Assosa Mother Support Group

Every week, a mother support group discussion facilitated by a PMTCT nurse takes place at the Assosa Health Center in Benishangul-Gumuz Region. Every pregnant woman who tests HIV-positive is linked immediately to the support group and to a volunteer mentor mother, a fellow PMTCT client who has received an intensive five-day training supported by ICAP.

This is an important component of the PMTCT program, an outlet for HIV-positive pregnant and postpartum women to express themselves and learn from others. Through discussions, coffee ceremonies, and birthday celebrations for children who reach their first and second year HIV-free, the mother support group members enjoy social ties and empowering conversation.

The Assosa group started in June 2015 with just seven members. Today, 66 member strong, it provides services, including home-based care for up to 45 days, ART follow-up, health education, HIV counseling, linkage to community care, and tracing of mother/HIV-exposed infant pairs who have been lost to follow-up.

> "We have created a friendly atmosphere that enables mothers to develop awareness and self-value."
>
> *Etalem Kibret, Mentor Mother, Assosa Health Center*

By 2017, members of the group had given birth to 41 babies who reached their second birthday HIV-negative and a further seven babies who celebrated their first birthday free from HIV. Since the group began, not a single member has had an HIV-positive child, a testament to the quality of counseling, education, and follow-up services provided by mother mentors and the site's PMTCT unit.

The Third 90: Viral Load Suppression

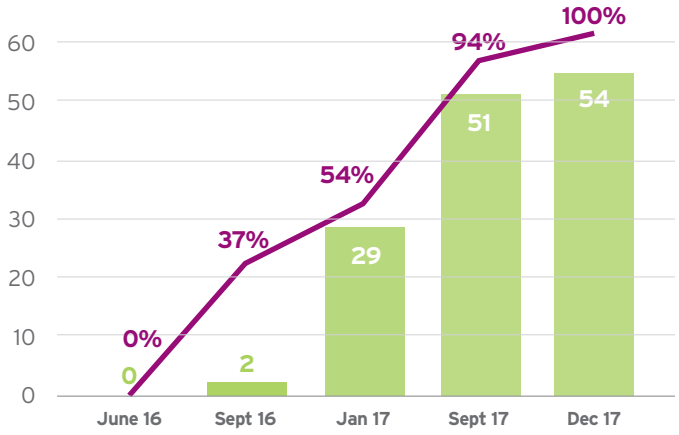
From Targeted to Routine Viral Load Testing

Routine viral load tests are recommended by the World Health Organization as the most effective tool for monitoring ART and diagnosing and confirming treatment failure, an essential step toward HIV epidemic control. However, in mid-2016 no health facility in Ethiopia's four emerging regions had the capacity to conduct routine viral load testing, and thus, viral load testing was only done for clients with suspected treatment failure.

ICAP supported the RHBs, regional referral laboratories, and health facility teams to implement the national strategy for scaling up viral load testing. By the end of the project, the third 90 landscape was transformed, with robust specimen referral networks in all four regions and routine viral load testing at all 54 ICAP-supported health facilities (see Figure 14).

Health care workers now have the capacity to identify eligible patients, manage specimen referral, and utilize results for patient care. They also received mentorship from ICAP and the RHBs on enhanced adherence counseling to ensure that barriers were identified and acted upon, which resulted in viral re-suppression in almost 60% of clients with an initial viral load greater than 1000 copies/ml. Health facility level specimen referral focal persons were responsible for following up viral load test results and, by September 2018, almost all facilities had achieved the target 25 days turnaround time. The lowest average turnaround time was achieved at Karamara Hospital (see case study).

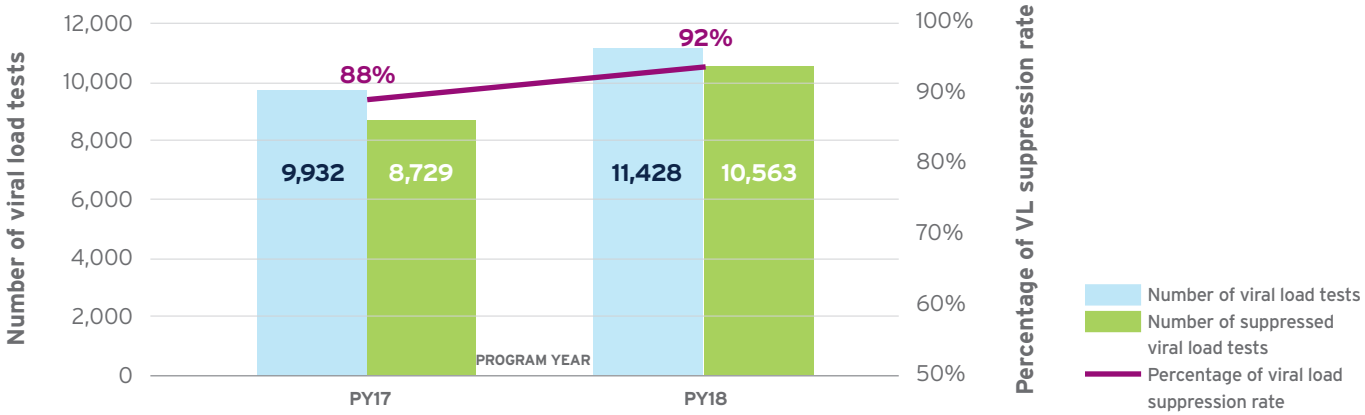
Figure 14: Scale-Up of Routine Viral Load Testing – Number of ICAP-Supported Facilities Referring Specimens



National and regional ICAP laboratory specialists worked in partnership with the EPHI and the four regional referral laboratories to build the staff, organizational, and systems capacity needed to support routine viral load monitoring. Facilities received comprehensive ICAP support for planning and implementation activities, including: customization of national standard operating procedures, job aids, and M&E tools; training, mentorship, and joint supportive supervision health facility and laboratory staff; provision of supplies, treatment failure algorithms, high viral load registers and follow-up forms, and other program tools; and intensive performance monitoring and QI.

By the end of the project, viral load suppression across ICAP-supported facilities was **92%**. Figure 15 illustrates the rapid progress toward the third 90 that was achieved during program years four and five.

Figure 15: Viral Load Test Suppression Rate



Case Study:

Over two thirds of the 2,000 ART clients across Somali region receive services at the Karamara Hospital, which is located over 100 kilometers from the nearest viral load testing laboratory.

The hospital was therefore a high priority for the implementation of routine viral load testing, which was initiated by ICAP, the RHB, the regional referral laboratory, and the hospital management team in July 2016. A three-day sensitization and planning workshop was held, attended by 60 hospital staff from the ART clinic, antenatal clinic, laboratory, pharmacy, mother support group, adherence counseling team, and data unit. They developed a weekly specimen referral and transportation plan, in collaboration with stakeholders including the RHB, hospital and laboratory management teams, and representatives of the postal service. ICAP supported the team with implementation, as described above, including ongoing mentoring and supportive supervision to ensure quality at all service points. Within five months, Karamara Hospital was routinely testing almost all eligible ART clients as illustrated and 70% of all eligible ART clients were virally suppressed. Further, the average turnaround time for test results improved from 45 days in early 2017 to 18 days by August 2018.

Figure 16: Routine Viral Load Testing Cascade, Karamara Hospital, Ethiopian Somali Region

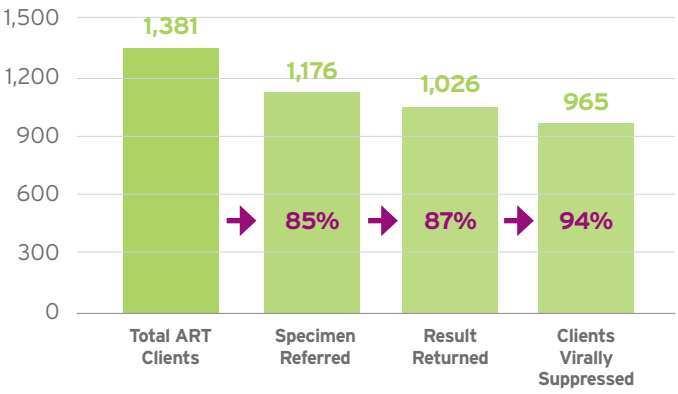


Figure 16 illustrates the cascade for routine viral load testing that was achieved at Karamara Hospital.

APPLYING LESSONS LEARNED

Transition of HIV Program Management

The past five years have seen substantial growth in the capacity of the Addis Ababa, Amhara, Dire Dawa, Harari, Oromia, SNNPR, and Tigray RHBs to manage HIV program activities independently of external assistance, in partnership with other national and local stakeholders in the HIV response.

The capacity assessment tool used for transition planning is simple, participatory, and focused on essential elements of HIV program management; it should be promoted and adapted for other health programs. All the RHBs bought into the approach fully during the initial orientation and baseline assessment. These early activities kindled the enthusiasm, ownership, and diligence that the RHBs brought to the five-year transition process as they worked with ICAP's teams to address gaps and measure progress.

ICAP supported the RHBs to develop all the technical documents and program tools that were needed to support the transition of program management activities and ensure high-quality HIV care. Use of these resources expedited the transition process and will simplify future assessment of activities such as mentorship and performance management.

The RHBs mobilized hundreds of zonal, hospital, and health center staff in order to implement the hospital-based mentorship model and cascade other essential elements of HIV program management down to the facility level (e.g., the minimum service package, referral systems, laboratory support, data quality improvement, and performance review meetings). This experience could be harnessed and adapted as part of efforts to strengthen and transition non-HIV services.

The 2018 capacity assessments offer insight into HIV program management priorities moving forward. These include:

1) Working at both national and regional levels to close gaps and overcome bottlenecks in the management of drug supplies and drug stocks, issues which could jeopardize program achievements if not addressed
2) Improving regional management of laboratory services, with standard operating procedures for equipment maintenance, regional technical working groups with designated coordinators, biomedical laboratory equipment workshops, mentorship manuals, and guaranteed budgets for regular mentorship
3) Ensuring that the SNNPR RHB receives targeted assistance to attain the same level as the other regions
4) Supporting the RHBs to establish or restructure their training units, which are indispensable for coordinating effective trainings at scale, and creating regional bodies for joint work planning and implementation by the RHBs and in-service training partners

Comprehensive HIV Services in the Emerging Regions

Afar, Benishangul-Gumuz, Somali, and Gambella regions have made significant advances in delivery of high-quality, comprehensive HIV services and progress toward the 90-90-90 targets since 2013. A number of strategies and activities were key to the project's success in the four emerging regions and offer lessons for effective health facility support in similar contexts.

Training and mentoring of health care providers and managers built essential skills and competencies, while the integration of various other health services with HIV prevention, care, and treatment improved quality and promoted retention in HIV care. Both HIV testing yield and ART uptake were enhanced through targeted HIV testing within health facilities, routine index case testing, and escorted linkage to ART and PMTCT clinics. For mothers and children, integrating PMTCT with maternal and child health services improved the overall quality of care, and antenatal care was an essential point of entry for HIV-exposed infant monitoring.

QI interventions were instrumental in improving the quality of point-of-care rapid HIV testing and routine viral load testing, and the regular measurement of shared QI indicators created positive competition between health facility teams.

The rollout of routine viral load monitoring was possible because of intensive financial and operational support, coordination at national level, in-country resource mobilization, joint-planning, and a multi-disciplinary approach. Moving forward, the emerging RHBs and 54 priority facilities in the four regions are poised to gain the capacity to enable them to:

- Manage in-service training, mentorship, and supportive supervision
- Continue the integration of other health services with HIV services
- Standardize targeted HIV testing and index case testing, and monitor implementation, yield, and linkage to HIV treatment and prevention services
- Improve monitoring of HIV clients from the time of diagnosis, to facilitate Test and Start, track retention in care, and trace those who miss appointments or are lost to follow-up
- Implement PMTCT cohort monitoring at high-volume facilities and engage mentor mothers in retaining mother/infant pairs throughout the PMTCT care cascade
- Improve the completeness of viral load monitoring data and make greater use of the data for program improvement

"ICAP has been the most dependable partner in the national effort to control the HIV epidemic in Ethiopia. ICAP's support has enabled thousands to access HIV prevention, care, and treatment services; strengthened the health care system; and built health workforce capacity of the country in a bid to accelerate the national response against the HIV epidemic."

Dr. Kebede Worku, State Minister of Health, Federal Democratic Republic of Ethiopia

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ICAP'S MISSION

ICAP ensures the wellbeing of families and communities by strengthening health systems around the world.

ETHIOPIANS AND AMERICANS IN PARTNERSHIP TO FIGHT HIV/AIDS

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