

Rapid Scale-Up of HIV/AIDS Care and Treatment Services in the Kingdom of Swaziland



A Summary of ICAP's Progress

Year 1 to Year 4



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Executive Summary

ICAP at Columbia University has been supporting HIV care and treatment in the Kingdom of Swaziland since 2006, initially with a focus on maternal and child health through support from USAID. In October of 2009, CDC awarded ICAP funding through Cooperative Agreement #UGPS002005, “*Rapid Scale-Up of HIV/AIDS Care and Treatment Services in the Kingdom of Swaziland under the President’s Emergency Plan for AIDS Relief (PEPFAR)*,” a five-year agreement designed to provide technical assistance to the Swaziland Ministry of Health (MOH) on the development of a sustainable and responsive HIV/AIDS care and treatment (HIV C&T) program and the rollout of rapid scale-up and decentralization services throughout the country.

In the past four years, ICAP has worked closely with the Swaziland Ministry of Health, the PEPFAR-Swaziland team and many stakeholders and organizations in Swaziland to achieve or exceed the originally proposed objectives of this cooperative agreement:

- **Develop a strategy for decentralizing HIV C&T services, including a timeline and supportive guidelines and tools.**

ICAP supports a strategy for scale-up of decentralized adult and pediatric pre-ART and ART services, embraced by the MOH, based on increasing the number of supported facilities, especially smaller, peripheral “baby” health facilities; providing both direct site support and support to regional teams; task-shifting; and the use of multidisciplinary teams. Implementation of this strategy over the last four years has led to increases in the number of supported facilities from 47 to 89, and increases in the number of patients on ART and pre-ART from approximately 38,000 to over 71,000 and from less than 5,000 to over 55,000, respectively. The proportion of individuals enrolling in care and initiating ART at peripheral health clinics, rather than central health facilities, increased from 26% in 2009 to 48% in 2013. Children have consistently accounted for at least 8% of all individuals initiating ART, in line with the PEPFAR target for pediatric enrollment. These individuals have been enrolled evenly across all three regions where ICAP works.

- **Enhance the capacity of the four regional health management teams (RHMTs) to manage, implement, and supervise decentralized HIV services in their respective regions.**

At the request of the MOH and CDC, ICAP has supported HIV C&T in three of the country’s four regions. ICAP therefore worked with three of the four RHMTs and succeeded in enhancing their capacity through a focus on training and mentorship. ICAP’s commitment to competency-based training uses intensive mentorship to build the skills needed for successful patient and program outcomes. ICAP staff join the RHMTs on most health care facility site visits to assist each RHMT with providing support and oversight to clinical providers, especially those at more decentralized sites. ICAP has also enhanced the financial and administrative capacity of the RHMTs and has provided intensive training to other cadres of workers, particularly data capturers and data managers at facilities. These efforts are reflected in the increased number of patients enrolling in care and treatment, improved retention rates and the increasing independence of the RHMTs.

- **Provide intensive site support to health facilities, enabling rapid initiation of HIV C&T services at 17 sites during Year 1 and 33 additional sites by Year 4.**

ICAP provided intensive site support in the first two years and this allowed the initiation of HIV C&T services at one additional site in Year 1, 11 in Year 2, three in Year 3, and 27 so far in Year 4 to reach a total of 89 supported sites by Year 4 (as of Q2), exceeding the proposed targets. In Years 3 and 4, ICAP began to transition from the task of direct facility site support to the RHMTs, as above, in order to maximize local ownership and sustainability.

- **Enroll 6,000 People Living with HIV (PLWH) in care and provide ART to 2,000 during Year 1, and enroll 40,000 in care and provide ART to 15,000 by the end of the project, ensuring that at least 10% are children.**

During Year 1, ICAP enrolled 14,609 patients in care and supported the provision of ART to 9,406 new patients. Cumulatively, during the past four years, ICAP has enrolled a total of 55,212 in care and initiated ART for 34,183, as of Q2 Year 4. As above, children have consistently accounted for at least 8% of all individuals initiating ART, in line with the PEPFAR target for pediatric enrollment.

- **Train more than 250 Health Care Workers (HCW) during Year 1, including 150 home-based caregivers.**

During Year 1, ICAP trained 2,122 health care workers, including 469 home-based caregivers. Cumulatively, during the past four years, ICAP has trained a total of 7,126 health care workers, as of Q2 Year 4.

- **Develop key policies and guidelines related to decentralization and related issues such as task shifting ARV prescription to nurses, defining the package of HIV care, quality improvement, and monitoring and evaluation.**

The paucity of physicians in Swaziland makes task-shifting to nurses a critical strategy in the scale-up of HIV care and treatment. ICAP developed and helped implement key policies on task shifting antiretroviral drug (ARV) prescription to nurses through the Nurse ART Initiation in Swaziland (NARTIS) program. In 2011, ICAP conducted an assessment of the feasibility and effectiveness of NARTIS at 15 pilot sites and then conducted a national training in NARTIS, including at sites not supported by ICAP. By July 2013, a total of 386 nurses were trained and NARTIS-certified.

In the past four years, ICAP also developed policies and guidelines on the package of HIV care to include palliative care and prevention with positives, implemented quality improvement initiatives and has supported monitoring and evaluation efforts. ICAP's support for prevention with positive programs are consistent with the UNAIDS Positive Health Dignity and Prevention framework. This has entailed piloting feasibility of couples HIV testing and counselling at 16 model centers; training of 345 health care workers on positive prevention, including family planning, sexual and reproductive health, and referral needs; and in the development of the prevention with positives technical working group (TWG).

- **Expand and strengthen the Swazi health workforce to address HIV through the development of a continuing medical education program for nurses and other health care workers, HIV pre-service training programs for new cadres, and new community-based cadres of health care workers.**

ICAP has expanded and strengthened the Swazi Health workforce through education programs for nurses. ICAP has also enhanced the skills of other health care workers by developing the Expert

Client program and by strengthening multidisciplinary teams (MDTs). Expert Clients provide adherence and psychosocial support to clients newly initiated on ART and clients who have defaulted or are at risk of defaulting on their care regimens. MDTs meet to discuss patient care and review site data to identify challenges and deficits, conduct root cause analysis and develop quality improvement interventions. The multi-dimensional challenges that individuals and families with HIV face, from clinical to psychosocial to structural barriers, are best addressed through the use of MDTs to help patients achieve health and well-being. The success of the MDTs have transformed the hierarchal medical establishment into a “horizontal,” collaborative environment, representing an important contribution of ICAP’s work in Swaziland.

- **Other achievements beyond those originally proposed in 2009**

ICAP has accomplished other achievements, beyond those originally proposed in 2009. These include strengthening **the quality of care** at multiple levels. The extensive training and mentorship activities at the health facility level through ICAP’s clinical and nursing advisors has allowed sites to stay current with international guidelines, improving quality of care. The presence of ICAP’s Monitoring and Evaluation advisors has led to **stronger documentation, data collection, data quality** and the ability to transmit higher quality data to MOH. ICAP has also enabled the establishment of quality improvement systems to address one of the key challenges, the efficacy of the HIV cascade. Working with facility staff, ICAP enabled the use of program data for analytic purposes to identify gaps in the cascade that then informed corrective actions and ongoing follow-up.

ICAP’s **support to the MOH** in Swaziland is distinguished by its depth, breadth and quality. ICAP has supported and facilitated technical working groups, mentored and trained trainers, built capacity for strategic information systems, supported and reviewed guidelines, policies and job aides, implemented task-shifting strategies, and supported infrastructure renovation and procurement of needed medical equipment.

Enabling and supporting **innovations** is another of ICAP’s key distinguishing features and is well-noted in Swaziland. Examples of such innovations include spearheading the establishment of systems and guidelines for follow-up and assessment for pre-ART patients, engaging high school students in debates regarding HIV, integration of HIV services in the National Referral Psychiatric Hospital, providing access to HIV services and ART to members of the armed forces and prisoners, and providing access to oral morphine for terminally ill patients with pain, among other innovations.

As a university partner, ICAP understands how **relevant research** is critical to effective policy and implementation. ICAP has worked extensively to contribute to answering critical questions and informing policy and practice in Swaziland. These efforts have included the landmark Swaziland HIV Incidence Measurement Survey (SHIMS), the first national HIV incidence study to be conducted, as well as a portfolio of highly relevant implementation science studies, including evaluation of ART outcomes and linkages, and studies assessing linkages and retention. ICAP has also deliberately worked on building **research capacity** in-county by building capacity through training and site supervision and procuring equipment for the National Reference Laboratory (NRL), organizing

writing and data modeling workshops and establishing the Health Research Training Program, all in collaboration with MOH and CDC.

A common theme in all of ICAP's work is **health systems strengthening**. With a commitment to sustainability and to integrating all activities into national frameworks and systems, ICAP has anchored all of its work in the principles of health systems strengthening. ICAP's work in Swaziland reflects the WHO health system building blocks: ICAP has developed health facility infrastructure by undertaking strategic renovations; strengthened the health workforce through training and mentoring providers and spearheading NARTIS; strengthened M&E systems and medical records; and, in view of the continuum across HIV testing, linkage, care, treatment and prevention, has supported a continuity of care model. By transforming the service environment, ICAP has facilitated multidisciplinary work, heightened attention to quality and to the integration of other health services beyond HIV C&T. ICAP continues to seek innovations to respond to identified gaps and to conduct research studies to answer critical implementation questions. Realizing the importance of partnerships with community organizations and PLWH, ICAP's efforts have included community engagement in order to optimize individual and programmatic outcomes.

In summary, in the past four years, ICAP has worked closely with the Swaziland Ministry of Health, the PEPFAR-Swaziland team and many stakeholders and organizations in Swaziland to achieve or exceed the originally proposed objectives to scale-up and decentralize HIV care and treatment. Through these achievements, as well as the progress in strengthening the overall health system, ICAP is proud to have worked with the MOH and PEPFAR to contribute to the health and well-being of the people of Swaziland.

Country Profile

Quick Facts

Population 1.0 million ¹

TB incidence 1,287 new cases/100,000 population ²

Maternal Mortality 320 deaths/100,000 live births ³

Infant Mortality 59.5 deaths/1,000 live births ³

Child mortality under age five 104/1,000 live births ⁴

HIV prevalence 32% (adults 18-49) in 2011 ⁵

HIV Incidence 2.38% (adults 18-49) in 2011 ⁵

Total # of HIV-infected individuals 190,000 ⁶

Access to Care

- 94% of HIV-positive pregnant women receive ART for PMTCT ⁷
- 72,402 individuals actively on ART in 2011⁸
- ART coverage: 84% of eligible HIV+ adults and 53% of eligible HIV+ children ⁷

Total # of patients initiating ART at ICAP-supported sites 71,603 (as of March 2013)

Total # of HIV-infected patients currently on ART at ICAP-supported sites 58,083

Total # of health facilities 290 ⁹

Total # of ICAP-supported health facilities 89

Physician density

1.7 physicians/10,000 population ¹⁰

Nurse/Midwife Density 16.0 nurses/ 10,000 population⁹

References

1 2007 population census

2 WHO Global TB control (2011)

3 CIA Factbook 2013

4 UNICEF 2011

5 SHIMS 2012

6 UNAIDS 2011

7 UNAIDS, Country Progress Report (2012)

8 MOH ART Annual Report 2011

9 Ministry of Health 2013

10 WHO (2013)

Background

ICAP is committed to partnering with the Government of the Kingdom of Swaziland through service, education and training, and research projects that support sustainable health systems strengthening and ensure impact towards national health development goals.

ICAP's work in Swaziland is supported by a senior team based at Columbia University's Mailman School of Public Health with technical, clinical, implementation, and research expertise for health systems strengthening. In Swaziland, ICAP's highly-skilled, multidisciplinary team of physicians, nurse advisors, monitoring and evaluation (M&E) officers, administrators, managers, logisticians, and research staff provide technical support to the Ministry of Health, regional and district health management teams and health care facility staff.

Between 2006 and 2010, ICAP began its work in Swaziland with support from USAID through the President's Emergency Plan for AIDS Relief (PEPFAR) to reduce perinatal transmission of HIV. In partnership with the Swaziland MOH, ICAP supported activities that strengthened, linked and decentralized services to prevent mother-to-child transmission of HIV (PMTCT) and comprehensive, family-focused HIV care and treatment.

Building on this experience, since 2009, through the Rapid Scale-up Cooperative Agreement with the Center for Disease Control (CDC), ICAP has worked at the national, regional and district level and with non-governmental organizations (NGOs), PLWH, and community organizations and leaders to address Swaziland's HIV epidemic and support the scale up of quality, integrated care and treatment services and more broadly, by strengthening overall health systems in Swaziland.

Health care in Swaziland is delivered through the nation's network of health care facilities of which 115 are

publically-funded, 35 are faith based operations, 116 are industrial and private health care facilities, and 21 are NGO funded facilities. The public facilities consist of six hospitals, five health centers, five public health units, and 99 clinics. The larger district clinics and hospitals are often linked to smaller health centers; together they are referred to as "mother-baby" pairs. At present, pre-ART care is provided in general medical clinics, while patients who receive ART are seen at ART facilities. These are often distinct facilities. About 70

percent of patients on ART in Swaziland are receiving care and treatment services at ICAP-supported sites.

ICAP's portfolio in Swaziland is focused now on rapid scale up of HIV care and treatment in three of the country's four regions; Hhohho, Lubombo and Manzini. ICAP is working closely with the MOH and collaborative partners to decentralize adult and pediatric HIV services from hospitals and health centers to clinics and to expand treatment through a proven service delivery model for nurse-initiated ART. ICAP supports over 80 health facilities that deliver comprehensive HIV care and treatment, including tuberculosis/HIV integration; prevention with positives, adherence and psychosocial support; family planning, mental health support, and palliative care; and community-based information, education and communications initiatives. To advance a multidisciplinary team approach, ICAP is working with the MOH to strengthen networks of service providers and facility managers at the central and regional level, enhance linkages to care and referral systems and introduce the Expert Client Program to support individual adherence and retention in care.

ICAP provides technical support to the Swaziland National ART Program (SNAP) and several technical working groups (TWGs) in order to provide national-level technical assistance and support the development and implementation of guidelines, standard operating procedures and key policy issues. ICAP is using outcomes from the Swaziland HIV Incidence Measurement Survey (SHIMS), a national impact assessment of HIV prevention and treatment services conducted in partnership with the CDC and the MOH, as a springboard to develop research capacity in Swaziland and has established the Health Research Training Program (H RTP) to strengthen the capacity of public health professionals to design, implement and interpret health research to influence public policy.

ICAP also provides support to strengthen the capacity of the MOH and SNAP to use national HIV program data to inform public health decision-making and ART programs, to design and implement evaluations of priority programs and to strengthen M&E capacity within the MOH's Strategic Information Department (SID) and to initiate and expand nurse ART initiation (NARTIS) program. This has included an evaluation of National ART Program, implementation of regional semi-annual ART data review, and technical guidance and workshops for key MOH staff in data analysis to improve national-level reporting.

How ICAP Works

Approach to Technical Assistance

Since its inception in 2003, ICAP has emerged as a leader in the field of implementation support, capacity building, and technical assistance (TA) for HIV and many other related health programs. ICAP was an early pioneer in championing the need for comprehensive, family-focused HIV prevention, care, and treatment services. At the core of ICAP's work is a commitment to sustainable health systems strengthening (HSS) that ensures programs are rooted within and managed by local organizations and that they contribute to the strengthening of broader health systems, with all of their diverse components. ICAP works with ministries of health, governmental and non-governmental academic and research institutions, health facilities, and collaborating non-governmental partners and affected communities to build their capacity to establish and sustain health services beyond the life of time-limited projects or initiatives. To guide its work and ensure high quality, sustained health outcomes, ICAP adheres to five core principles of Access, Acceptability, Quality, Coverage, and Effectiveness through service, training/education, and research.

Management Overview

ICAP's management capacity is built on **people** and **process**. It is informed by the standards and methods set by Columbia University, donor procurement and project requirements, and ICAP's knowledge of the local operating context in Swaziland. It is designed to operate fluidly and seamlessly between headquarters and the Swaziland field office and across programs and projects.

People. ICAP is directed by Wafaa El-Sadr MD, MPH, MPA, an internationally recognized HIV physician, educator, and researcher. ICAP's global network of dedicated and highly qualified staff and consultants supports projects and activities across 19 countries and includes leading international experts in the areas of HIV prevention, care, and treatment; research; strategic information; training; operations; financial management; and compliance.

ICAP's team in Swaziland is composed of highly skilled technical and management personnel with both local and international experience. The Swaziland team is led by Dr. Ruben Sahabo, Country Director; Nicola Pierce, Deputy Country Director for Management; Dr. Pido Bongomin, Deputy Country Director for Programs; Dr. Harrison Kamiru, Director of Monitoring and Evaluation; and Dr. Harriet Nuwagaba-Biribonwoha, Director of Research. Together with technical and operational support provided by ICAP's global network, the team of 52 staff currently manages the implementation of multiple projects focused on technical assistance, training, and research.

ICAP's global support team for Swaziland is in place to provide oversight and high-level support across technical, programmatic and operational domains. This team is composed of Dr. El-Sadr, ICAP Director; Dr. Jessica Justman, Senior Technical Director; Dr. David Hoos, Senior Implementation Director; and Mark Fussell, Chief Operating Officer. Together with mid-level staff in New York and within the Southern Africa region, Swaziland collaborates closely with the ICAP team in Swaziland via structured webinars, conference calls and country visits to design, implement, monitor and review key aspects of the projects.

ICAP Clinical & Training Unit Webinars, August 2011-August 2013

July 25th, 2013 **Update on 2013 WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection** with Elaine Abrams, MD

June 20th, 2013 **Palliative Care & HIV** with Meera Pahuja, MD, MSc

May 23rd, 2013 **Global HIV Epidemic among MSM and HIV Prevention Strategies** with Chris Beyrer, MD, MPH

February 21, 2013 **Preventive HIV Vaccine** with Magda Sobieszczuk, MD, MPH

February 7, 2013 **Gaps in Pediatric Treatment** with Stephen Arpadi, MD, MS

December 13, 2012 **Sexual Reproductive Health and HIV** with Lynn Collins, MD

November 15, 2012: **Update on Malaria and the Management of HIV-Malaria Co-infections** with Johanna Daily, MD MS

September 20, 2012: **HIV and Health Systems** with Miriam Rabkin, MD, MPH

June 21, 2012: **Isoniazid Preventive Therapy** with Andrea Howard, MD, MS

May 17, 2012: **HIV and Infant Feeding** with Louise Kuhn, PhD

April 19, 2012: **Nurse Initiated and Managed ART (NIMART)** with Jennifer Dohrn, DrNP, CNM

March 15, 2012: **Averting Maternal Mortality** with Helen DePinho, MD

February 16, 2012: **Sexual and Gender Based Violence** with Fran Cournos, MD

January 26, 2012: **Male Circumcision and HIV** with Jason Reed, MD, MPH

December 15, 2011: **HIV and bone loss** with Michael Yin, MD

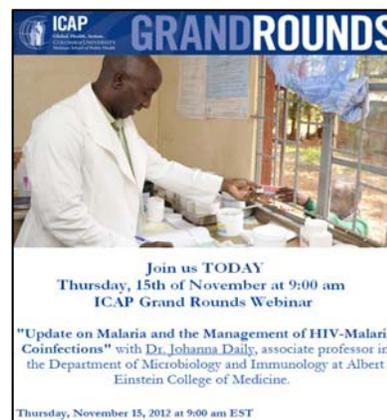
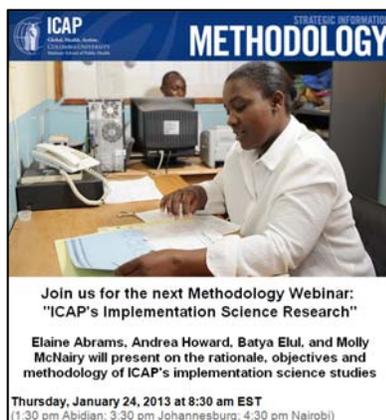
November 17, 2011: **Injection Drug Use, Syringe Access, Methadone and Overdose Prevention** with Sharon Stancliff, MD

October 19, 2011: **Improving effectiveness of adherence in HIV treatment settings** with Robert Remien, PhD

September 15, 2011: **Rapid initiation of ART/ARV during pregnancy** with Elaine Abrams, MD

August 18, 2011: **Enhancing adolescent HIV care** with Ruby Fayorsey, MD, MPH; Stephen Arpadi, MD, MS, Bea Thome, MD, MPH

Process. From individual staff work plans to those of the organization as a whole, all ICAP management plans are generated in close collaboration with donors, project partners, and key stakeholders. The planning process includes reviewing the project objectives; conducting a situational analysis; setting goals and strategies; defining objectives to achieve and measure progress on goals; assigning responsibility and timeframes; finalizing, disseminating, and communicating plan documents; and plan monitoring and analysis. These detailed work plans not only guide the day-to-day aspects of each project, but are designed with built-in quality checkpoints to allow necessary course corrections and improvements to ensure continued responsiveness to project goals. Each work plan identifies detailed project tasks, their duration, and implementation requirements so that managers can accurately assess the actions required and quickly and efficiently assign specific resources and staff to complete all of the tasks.



ICAP implements this process in Swaziland in several ways. ICAP in Swaziland holds regular (typically monthly) internal development and monitoring meetings that focus on assessing activity status against planned results and troubleshooting when technical and administrative barriers present themselves. Various data points are utilized ranging from financial data (e.g., financial burn rate) to site level data (e.g., clinical targets). Project quality assurance indicators are established and reviewed quarterly to ensure key project components are on target. This is done collaboratively between ICAP team members in Swaziland and in HQ to ensure a local context informed by global insights. This internal process is used as the springboard for external meetings that follow a similar process regarding project progress.

ICAP has quarterly review and planning meetings with strategic stakeholders (e.g., SNAP) to present project progress, understand their priorities and refine project plans according to their emerging needs. This serves as an important opportunity for ICAP to understand the government's emerging plans so resources are optimally leveraged and so that project activities are synergistic with government and other donor plans. Also, ICAP monitors sub-recipient progress closely to ensure quality and timeliness of planned activities as well as optimal use of resources. ICAP requires sub-recipients to provide ICAP quarterly progress reports that are used as a key reference in progress review meetings. When activities are not progressing as expected, ICAP provides guidance and, where needed, deploys technical assistance to ensure activities get on track or performance improves. Additionally, ICAP interacts regularly and meets approximately every other week with the CDC-Swaziland team to: ensure alignment with their priorities, present on project progress, seek guidance on project plans and on how best to address strategic challenges. The input and conclusions from these interactions all feed back into ICAP's internal planning review and project implementation. Lastly, it is key that all stakeholders benefiting from ICAP projects give inputs on project progress and learn of project outcome. Consequently, ICAP holds bi-annual project planning and dissemination meetings with

stakeholders (i.e., faith-based organizations, nursing schools) to ensure that they are engaged, informed and provide inputs into project plans.

Scale-Up of Decentralized Adult & Pediatric Pre-ART and ART Services

ICAP currently supports 89 health facilities, an 82% increase from the 47 facilities supported at the program’s inception in October 2009 (Figure 1).

Facility characteristics. A unique feature of ICAP’s work is that it tracks characteristics of its supported facilities through a structured survey, completed annually (PFaCTS) that collects information on type of facility, staffing patterns and types of services provided. As would be expected with a program that has rapidly decentralized, the large majority of care and treatment facilities are located in rural settings; nearly 2/3 are public, primary health facilities. The facility survey provides information on services supported by ICAP including those that promote patient adherence and retention – including ART adherence counseling, outreach for missed visits, and peer educator programs – which are available at 85-90% of care and treatment facilities supported by ICAP (Figure 2-3).

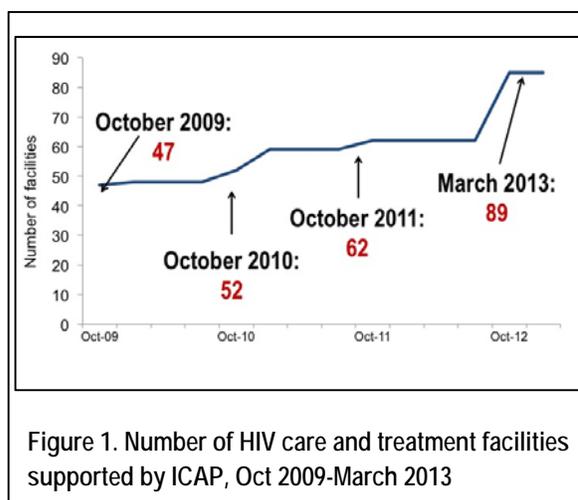


Figure 1. Number of HIV care and treatment facilities supported by ICAP, Oct 2009-March 2013

By March 2013, through **scale-up activities** and intense support, 71,603 patients initiated ART (Figure 4) and 48,283 patients had enrolled into pre-ART care across all ICAP-supported sites. Over 5,000 (8%) ART patients, consistent with PEPFAR target, and nearly 2,500 pre-ART patients (5%) were <15 years of age.

Scale up of pre-ART and ART services have been supported in three of the country’s four regions, (the regions assigned by MOH for ICAP support), Hhohho, Lubombo, and Manzini. The quarterly numbers of patients newly initiating ART were similar across the

three supported regions until the last quarter of 2012, when ICAP began supporting three additional “mother” facilities in Manzini (AHF Lamvelase, Simunye Clinic, and Wellness Center).

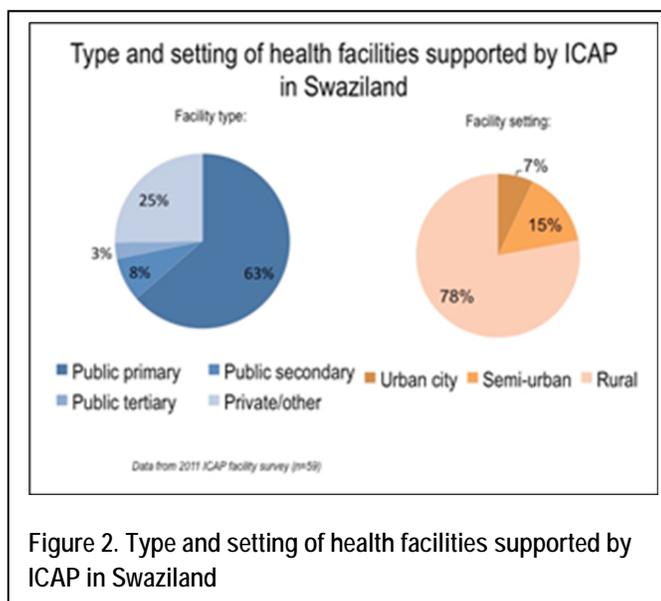
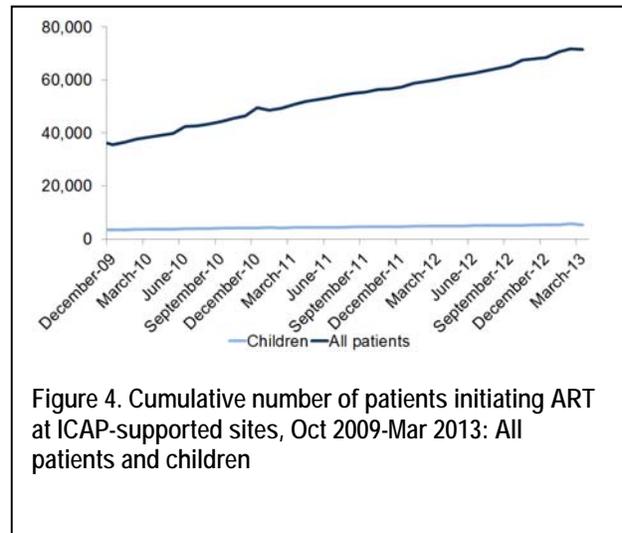
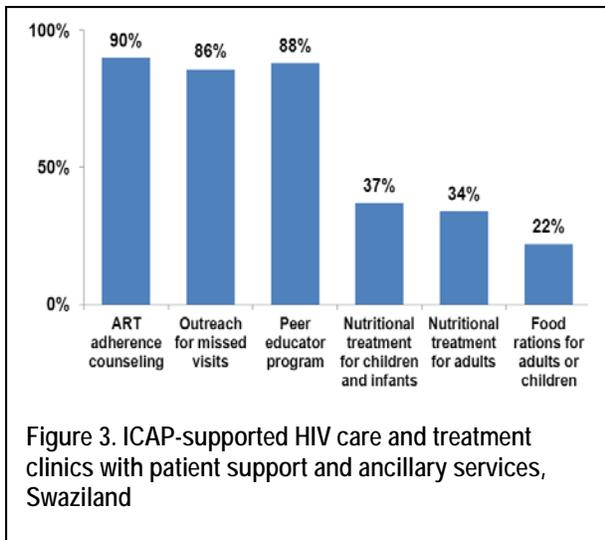


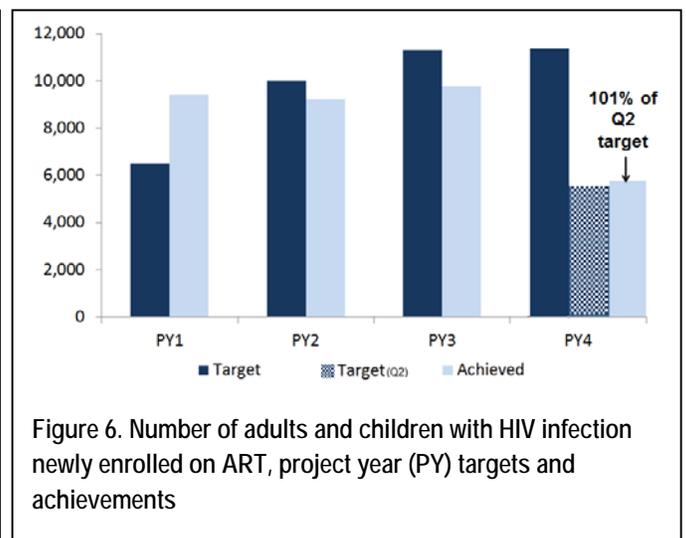
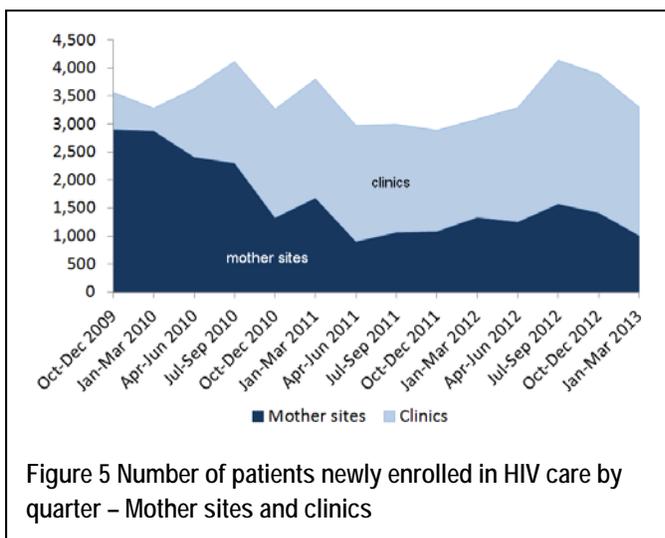
Figure 2. Type and setting of health facilities supported by ICAP in Swaziland



During the past four years, there has been a **rapid decentralization** of HIV care and ART services from “mother” facilities to “baby” clinics. This is reflected in the increasing proportion of all new HIV care enrollment that is occurring in clinics (Figure 5). For the January-March 2013 quarter, nearly 70% of patients enrolling in HIV care enrolled at a clinic facility.

Performance towards targets

ICAP has consistently performed well as measured by PEPFAR performance targets for all past project years. For this year, as of the end of the second quarter (Q2) of PY4, ICAP is on track to meet or exceed key annual performance targets including initiating nearly 6,000 patients on ART, or 51% of the annual PY4 target, i.e. 101% of target at this half point in the year (Figure 6). In addition, by the end of Q2 of this year, approximately 65,000 patients were currently receiving ART at an ICAP-supported facility (90% of PY4 target, Figure 7). In terms of retention on ART, over 80% of patients had been retained on ART at 12 months after initiation (Figure 8), over 50,000 HIV care patients had been provided cotrimoxazole and nearly 40,000 screened for TB (see Figures 9 and 10).



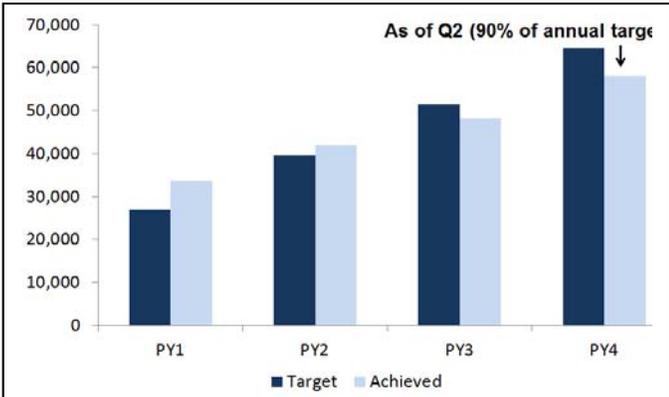


Figure 7. Number of adults and children with advanced HIV infection currently receiving ART, project year (PY) targets and achievements

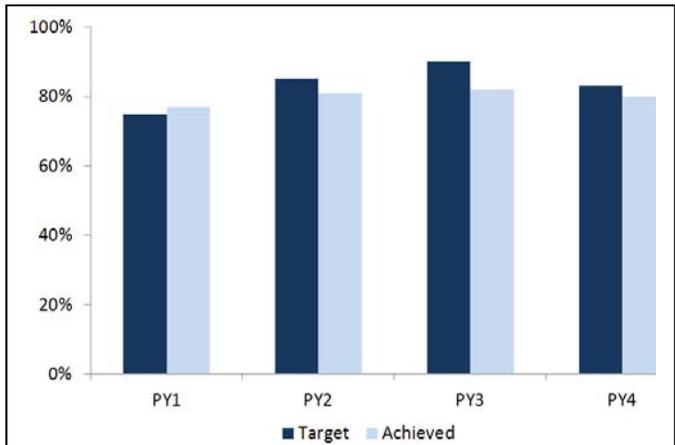


Figure 8. Percent of adults and children retained 12 months after initiation of ART, project year (PY) targets and achievements

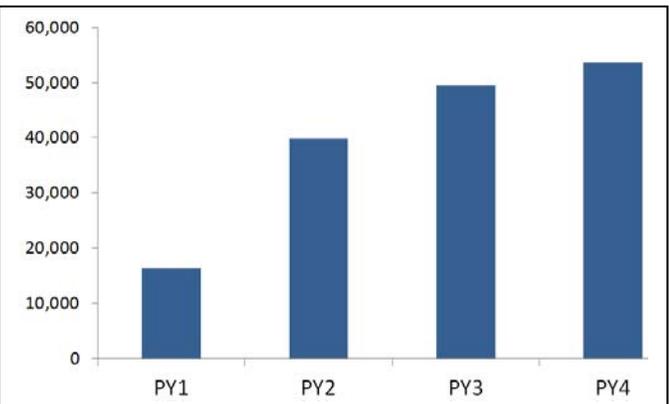


Figure 9. Number of HIV-positive persons receiving cotrimoxazole prophylaxis, by project year (PY)

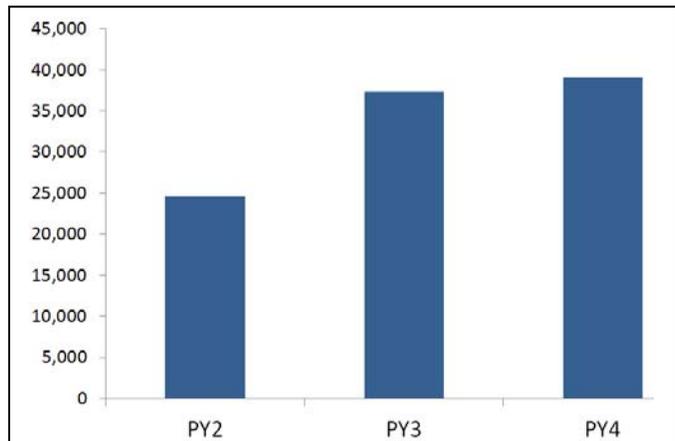


Figure 10. Number of HIV-positive patients who were screened for TB in HIV care or treatment settings, by project year (PY)

Nurse ART Initiation in Swaziland (NARTIS)

The Kingdom of Swaziland faces two substantial health challenges—the highest HIV prevalence in the world (26%) and a critical shortage of HCW with 1.7 physicians/10,000 population and 16.0 nurses/10,000 population¹. In addition, there are high HCW vacancy rates (50%) in other critical services positions such as laboratory, medical imaging, psychology, and health education. These challenges have created a large gap between the need for, and the availability of, HIV care and treatment.

ICAP's Response & Interventions

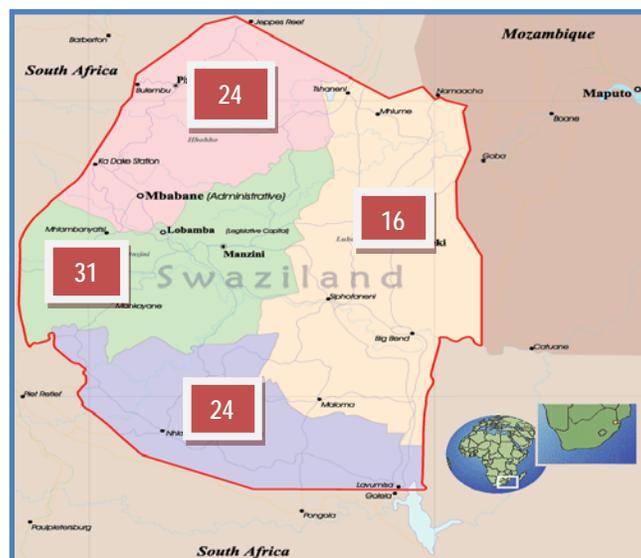
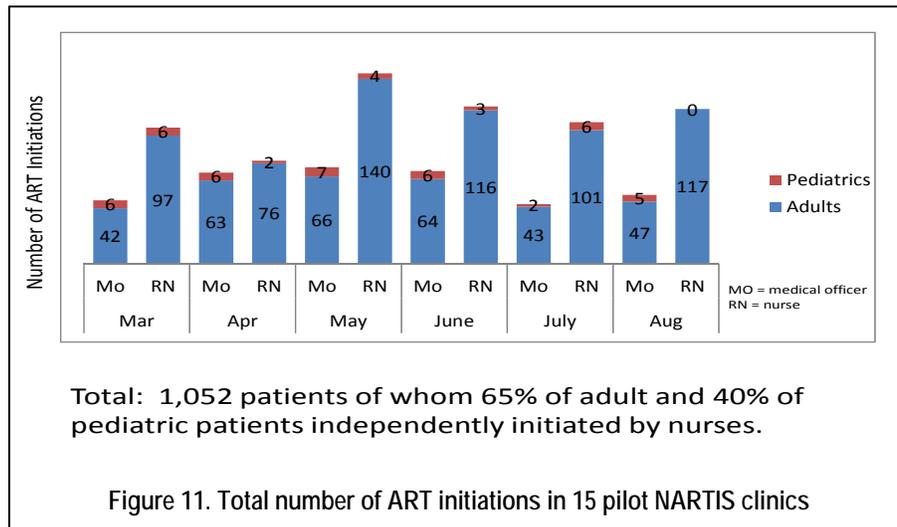
In 2011, ICAP supported the MOH to implement and evaluate a pilot program of nurse initiation and management of HIV care and treatment (NARTIS) in primary-level clinics, where the majority of health care, including HIV care, is provided by nurses. This pilot included training nurses in pediatric and adult ART initiation and follow-up care, providing clinical practice with trained physicians, and site-level support for nurse-initiation at 15 pilot clinics. The evaluation included review of aggregate data on ART initiations, a comparison of patient outcomes between nurse- and physician-led ART initiations, and a provider competency assessment.

The success of this pilot led to the MOH's adoption of this model in 80 more clinics (**currently 95 NARTIS facilities as of July 2013**) which allowed for further rapid decentralization and scale-up of HIV services to primary level clinics. The expansion of ART prescribing to nurses has been an important component of the success of ICAP's activities in Swaziland. **By July 2013, a total of 386 nurses were trained and NARTIS certified.**

Accomplishments

- During the original pilot period of March to August 2011, nurses in 15 primary-level clinics were trained to provide ART initiation. A total of 1,052 patients (978 adults and 109 children) were initiated on ART (Figure 11). **It is noteworthy that a substantial proportion of those initiated were children.** The median age of patients who initiated ART was 32 years and approximately two-thirds of patients were female. Over 90% of patients were eligible for ART based on initial CD4+ cell count of less than or equal to 350 cells/uL.
- Data on patient outcomes indicate that more than **90% of adult patients who initiated ART in NARTIS clinics were retained at six months.** In the provider competency assessment, nurses and doctors equally initiated ART in eligible patients but nurses were more likely to provide ART counseling while doctors were more likely to complete comprehensive physical exams.
- The impact of NARTIS has been national as nurses are enrolling for NARTIS training from **all over Swaziland**, including areas outside the 89 facilities that ICAP supports in the three regions (see map on page 13).

¹ WHO (2013)



In addition to reviewing aggregate data from all 15 pilot NARTIS clinics (Figure 11), ICAP also conducted a retrospective chart review to compare patient-level outcomes between NARTIS (i.e., nurse-led) and doctor-led clinics before and during the NARTIS pilot. The goal of this descriptive evaluation was to compare: 1) the volume of patients initiated before and during the NARTIS pilot, and 2) the outcomes of patients initiated on ART by nurses versus doctors. Outcomes included the number of patients (children and adults) initiated on ART, patient vital status at six months after initiation (retained, died, lost to follow-up (LTF), TB screening, and time from ART eligibility to initiation. This element of the NARTIS evaluation used a pre-post design matching three NARTIS clinics with three doctor-led clinics based on the characteristics of clinic size (i.e., number of ART patients), region, and shared referral clinic. All patients who initiated ART during the six-month period before NARTIS began (between March and May 2011 depending on the clinic) were compared with all patients who initiated ART during the six-month period of NARTIS. At the NARTIS clinics, patients could be initiated during the pre-NARTIS period by doctors who visited the clinics only on a weekly or bimonthly schedule.

During the review, a total of 190 and 216 adult patients were initiated at NARTIS clinics as compared to 187 and 228 in the same time periods at doctor-led clinics. A total of 16 and 14 children were initiated on ART at

the NARTIS clinics as compared to 12 and 11 in the same time periods as doctor –led clinics. Adult outcomes at six months post-ART initiation were similar between NARTIS and doctor-led clinics. At NARTIS clinics during the NARTIS pilot period, 87% of adult patients were retained at six months, 3% were confirmed to have died, and 7% were LTF. At doctor-led clinics during the same time period, 86% of adult patients were retained at six months, 2% were confirmed to have died, and 9% were LTF. Pediatric outcomes were similar in nurse-led clinics during the pre-NARTIS and NARTIS periods with 81% and 71% of patients being retained at six months after ART initiation. The time from ART eligibility to ART initiation was 20 to 23 days in both nurse- and doctor-led clinics.

Multidisciplinary Approach to HIV Service Delivery

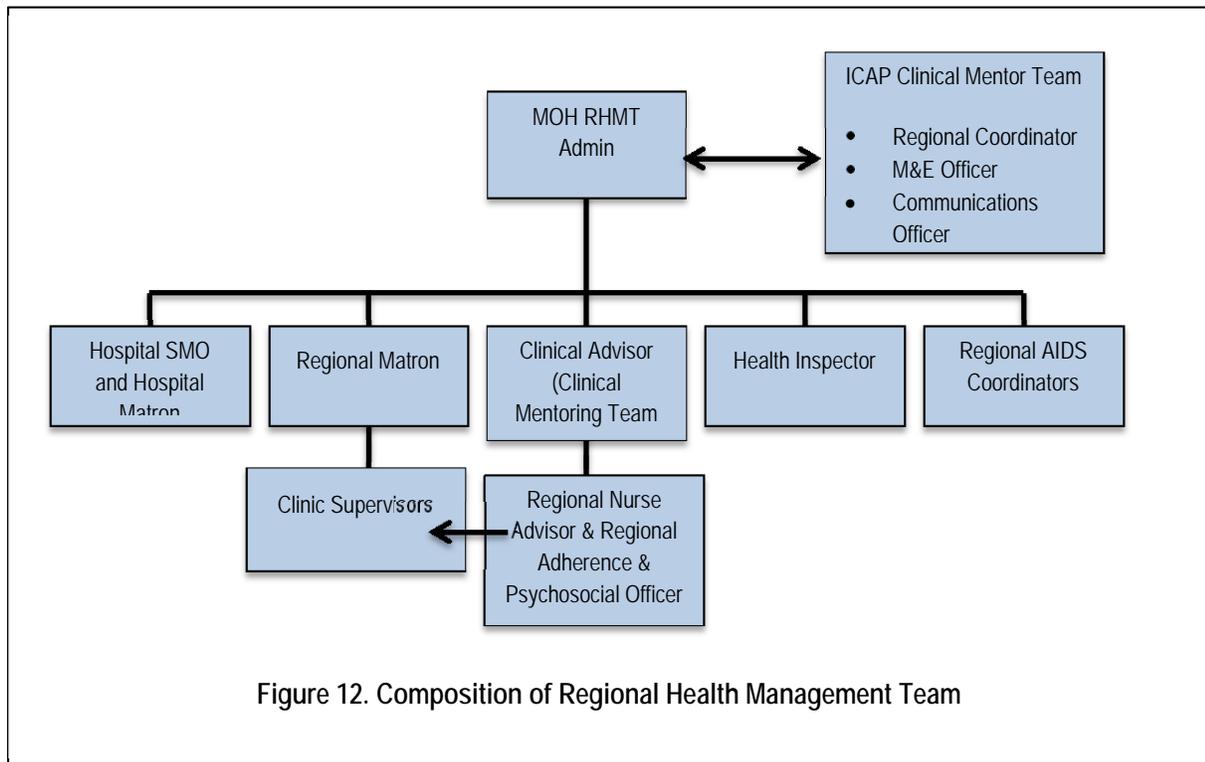
The diverse and complex needs of PLWH necessitate the delivery of coordinated services provided by a multidisciplinary team (MDT) of providers who have expertise in different clinical and technical areas. Such an approach enhances the knowledge and skills of all facility staff across disciplines, helps promote the rapid scale-up of HIV services and enables achievement of optimal outcomes for individuals and families accessing the services. MDTs facilitate high quality clinical services, along with accurate and timely data collection for program monitoring and evaluation of performance towards targets.

ICAP's Response & Interventions

ICAP's MDT approach is focused on both the **health facility (site) and regional level**. Initially, in 2009, ICAP's MDT approach focused on **site-level assistance** with an ICAP MDT of clinical providers with expertise in HIV prevention, treatment (adult and pediatric), and related care (TB, family planning, palliative care) and M&E experts who collaboratively provide ongoing clinical mentorship at the facility level working with the staff on site through knowledge sharing, review of clinic data, and case reviews and data management support.

Over the past several years, the ICAP site-supported MDT has expanded to include **Expert Clients (EC) and laboratory staff**. Expert Clients are in charge of linking clients to HIV care and tracking patients who are lost to care. Laboratory technicians are responsible for sample examination on site or for transportation of samples to other laboratories. Depending on the level of the site, a physician, a data clerk, laboratory personnel and pharmacy personnel may also be a member of the MDT. Site-level MDTs meet regularly (monthly to quarterly) to review clinical aggregate data, discuss progress to targets, identify progress and challenges, discuss possible reasons for low performance, and develop an action plan to address identified problems. They also review progress in remedial interventions in place and adjust interventions. This exercise ensures continuous quality improvement of the care and treatment services for PLWH.

Since 2010, ICAP has complemented **site-level MDT support** with a **regional MDT approach** aimed at strengthening a network of MOH service providers and facility managers within each region (Hhohho, Lubombo, Manzini), with direct collaboration with the MOH's regional team, the RHMT, which oversee the management of health programs and activities in each region. ICAP reorganized its site-level teams into regional clinical mentoring teams, which are comprised of a clinical advisor (MD), nurse, adherence-psychosocial support (APS) officer and an M&E officer, work with RHMTs to provide strategic assistance to regional and central MOH teams, support to RHMTs, and site support when needed. ICAP nurse coordinators supervise the ICAP clinical regional teams in their operations and also facilitate collaboration with ICAP monitoring and evaluation and health communication officers (Figure 12).



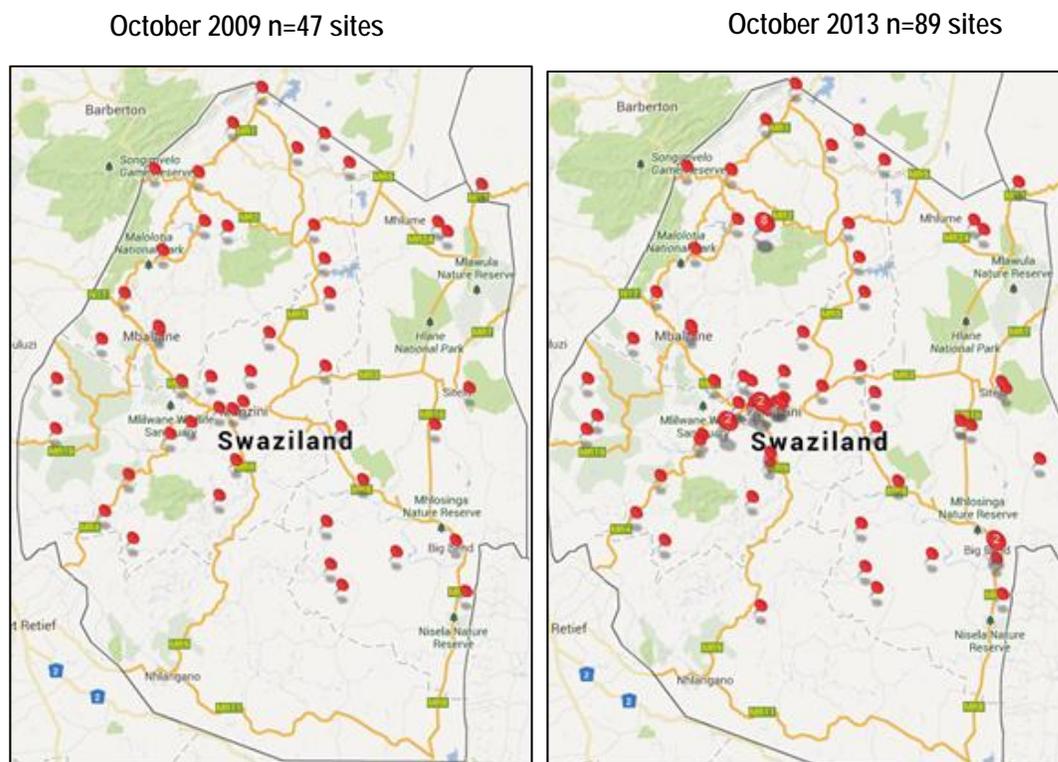
Accomplishments

1. ICAP supports the site-level MDTs to enable coordination of care and optimize patient and program outcomes through quality improvement activities.
2. ICAP supports the MOH Regional Clinical Mentoring Teams to establish a system of monthly MDT meetings to discuss performance towards targets and management issues.
3. ICAP, in collaboration with the MOH and other implementing partners, developed standard operating procedures (SOP) for linkage of newly-identified HIV positive patients into HIV care and retention in ongoing care. This SOP was adopted by the MOH and ICAP's Regional Clinical Mentoring Teams are training RHMT and clinic staff on the procedures.
4. ICAP's Regional Clinical Mentoring Team now supports integrated technical assistance for TB/HIV management, HIV integration into mental health, palliative care, and integration of HIV services within Swaziland's Correctional Services.

Clinical Mentoring & Training

To ensure high-quality delivery of HIV and related clinical care (i.e. TB, family planning, etc.), clinical staff must be equipped with up-to-date knowledge of treatment guidelines and management practices, have ongoing clinical mentorship to improve clinical diagnosis, treatment, and referral skills, and have the ability to review clinical data related to volume and quality of services.

To support such skills, ICAP, in collaboration with the MOH, trains and supports a multidisciplinary clinical mentoring teams to support 89 facilities, of which 61 provide ART initiation, nine provide ART refills, and 19 provide pre-ART services (see maps below). ICAP also supports MOH-RHMT's to provide regional-level coordination with MOH activities, regional support and training and regional review of data.



ICAP's Response & Interventions

Recognizing that training and mentorship must be competency-based and must go beyond didactic training, ICAP provides both site and regional clinical mentoring and training through its regional clinical mentorship teams whose clinical staff include a physician, nurse, and psychosocial advisor. Each team provides regular mentoring and supportive supervision to identify and address clinical challenges, review quality indicator data, and consolidate lessons learned across clinics.

At the regional level, ICAP **supports RHMTs to monitor the performance** of clinics through semi-annual review of national indicators organized jointly by ICAP, SNAP, and the Strategic Information Department of the MOH. Known as the Regional Semi-Annual ART Data Review (RESAR) meeting, these reviews commenced in June 2012. The meeting is a joint clinical and monitor and evaluation effort sought to improve clinic staff's skills in analyzing routinely-reported HIV care and treatment data in the domains of pre-ART care, ART care, TB/HIV, and antenatal care (ANC) to build capacity for quality improvement activities among clinic staff and to generate best practices among peripheral clinics in each region through data sharing. ICAP's role in the RESAR meetings also includes planning and coordination of meeting activities, facilitating of the meeting, and summarizing data outcomes from the meeting. ICAP supports the RHMT to provide in-service and offsite trainings in the areas of HIV standards of care, palliative care, and integrated service delivery. Experienced multidisciplinary ICAP staff from Swaziland and New York provide technical

assistance to RHMTs through monthly reviews of site-level activities, clinical webinars, journal clubs, technical assistance visits and conference calls, and participation in MOH-sponsored technical working groups.

Accomplishments

ICAP supported the Regional Clinical Mentoring Teams to conduct 771 facility level support visits between October 2012 and June 2013. Each facility has been visited on average 1.6 times per month during the past year. These teams contributed to the observed improvements in ART retention up to 89% in 2012 (Figure 17).

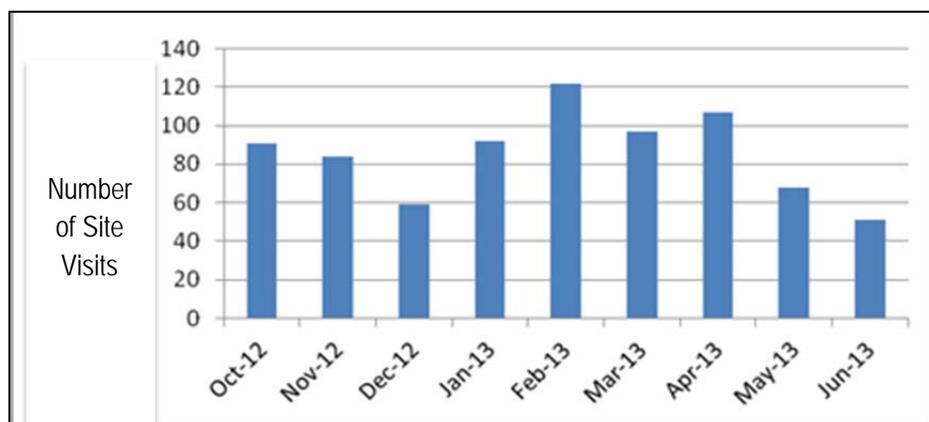


Figure 13. Site Level Support October 2012 to June 2012

ICAP's Quality Improvement (QI) Approach

Achievement of high quality services is a key priority for any health program. Thus, it is essential that implementing partners, health facilities and regional health management teams, as well as national HIV treatment programs respond rapidly and expertly to challenges in reaching targets for patient enrollment and retention in HIV care and treatment services. Data are typically reported on a quarterly or semi-annual basis and such data are scrutinized carefully to identify any areas where there is suboptimal performance. ICAP responds with establishment of a multidisciplinary team (MDT) and designs a work plan using a QI approach to improve performance towards the target. ICAP's QI methodology includes the following steps:

- ICAP New York provides ongoing QI training to ICAP Swaziland clinical and M&E staff including webinars, tools, and standard operating procedures which are then shared by ICAP Swaziland staff to RHMTs and site-level staff.
- Review existing baseline data and interview clinic teams to identify reasons for low performance
- Strategize interventions (both short- and long-term) hypothesized to improve performance
- Prioritize interventions with highest-impact
- Develop a phased plan, starting with immediate interventions and moving to longer-term interventions
- Select priority clinics based on lowest performance and/or highest volume
- Introduce selected interventions and monitoring tools to MDT at clinic level

- Collect ongoing (i.e. weekly, biweekly, or monthly) data to evaluate if the newly introduced intervention(s) impact performance
- Refine and scale interventions based on data review by multidisciplinary teams on a monthly basis
- At a more macro level, engage the district, region or national level health planners and programmers to review and understand the systemic issues that may impede reaching expected targets

High data quality is also critical to QI initiatives. Assessments of data quality, specifically data completeness and accuracy, should be used to inform QI interventions, as well as routine QI activities.

ICAP's Response & Interventions

In September 2012, ICAP refined its QI approach to evaluate individual targets within a larger framework, referred to as the “**HIV care cascade**,” in which any individual target is a part of a larger series of interlinked targets or steps. The cascade is a spectrum of services that are needed to ensure high quality care in a specific domain such as HIV care, HIV/TB care, PMTCT or even non-communicable disease. For example, the HIV care cascade begins with HIV testing, followed by linkage of those who test positive to enrollment into HIV care, assessment for ART eligibility using CD4+ cell count or WHO stage, ART initiation for eligible patients, early and long-term retention of all patients in care, and ART adherence, the latter necessary to achieve optimal health outcomes and decrease HIV transmission on the population level. Failure of any one step results in overall system failure, resulting in poor health outcomes and unrealized prevention benefits to the community.

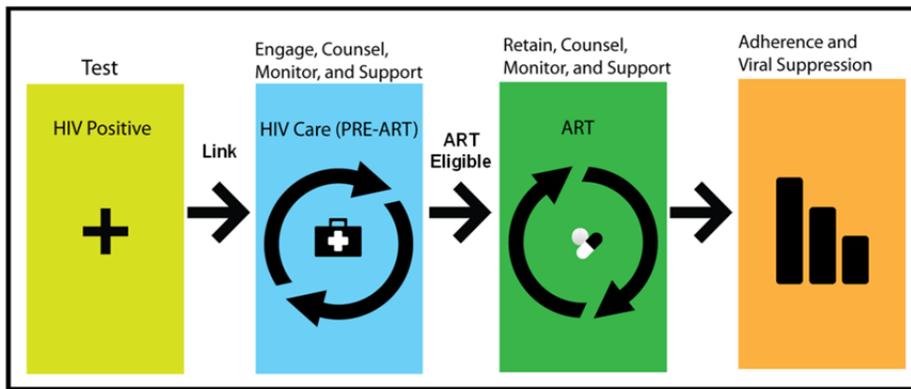


Figure 14. Steps in the HIV Care Cascade Approach

McNairy et al. AIDS 2012

Steps in the HIV Care Cascade Approach

The approach is based on five sequential steps, each briefly described below.

1. Identify steps in the cascade that relate to target

The team should identify the steps in the cascade that relate to the target of interest. For example, if the target of interest is *number of ART initiations*, other steps would be HIV testing, ART linkage to care, and eligibility assessment—all of which influence number of ART initiations. Alternatively if the target of interest is TB screening among HIV patients, the steps would be number of HIV patients screened for TB, found TB positive, and initiated on TB treatment.

2. Identify baseline data to operationalize the cascade

The next step is to use historical or retrospective data, either from existing data sources or collected from a small chart review, to develop a baseline cascade measuring the steps identified in step 1. This data will serve as a baseline to illustrate significant bottlenecks in the cascade that are in need of improvement.

3. Choose priority sites

Choose the number of priority sites (i.e. facilities or clinics) that the team would like to perform this approach in over the next three to six month period. The sites can be selected based on volume of patients, poorest performance, geographic location, or a combination of selection factors. Teams typically pick 10-20 sites.

4. Choose interventions and prioritize them

The team should then brainstorm interventions that they feel will improve the performance of the selected steps in the cascade. Ideas for interventions can be generated using a “driver diagram” and then prioritized using a “focusing matrix.” Once the team has selected several interventions (usually one to three), they will meet with the site staff and introduce the interventions to the staff. In many cases, the chosen interventions may be part of recommended care, but staff are given refreshers on the interventions to ensure they are done routinely.

5. Use a cohort methodology to monitor progress

Finally, the impact of the interventions will be monitored over time using a cohort methodology. In brief, the cohort methodology uses prospective cohorts of patients at each site to monitor the performance of cascade steps on a weekly-monthly period over time. This methodology requires teams to collect site level data and review it routinely as a group.

An Example of the ICAP’s QI “HIV Care Cascade” Approach

In September 2012, ICAP identified that the data demonstrated that site ART initiations were at 50% of the target by the end of Q3 (goal at that time was 75%). In response, ICAP engaged with MOH and regional health teams to investigate the causes of low performance at the clinic and system levels. ICAP New York and Swaziland teams framed the target of ART initiations within the HIV care cascade and worked with 30 priority clinics (large volume) at the site-level to review patients in the HIV care cascade across three cohorts. This exercise was fundamental in identifying accurately the reasons for the lag in ART initiations. For example, it was assumed that a shortage of CD4+ count reagents was driving the low rates of ART initiations. Further analysis, however, revealed that the latter was due to more than one cause and therefore three immediate interventions were introduced to increase ART initiations based on this evidence.

The interventions developed by ICAP in collaboration with site staff included the following: 1) training on and increase in the **use of WHO Staging checklist** to ensure clinical staff assessed all patients for ART eligibility regardless of CD4+ count availability; 2) introduce a mechanism to identify all patients at a site who were ART-eligible but who had yet to initiate ART; for **clinic staff to** phone these ART-eligible patients to ask them to return as soon as possible to the site for ART initiation; and 3) improve **the retrieval of CD4+ count results** from lab records to patient charts to enable clinicians to identify promptly those eligible for ART initiation.

Of note, **under-reporting of data** was also identified as a key contributor to the low number of ART initiations: ICAP reviewed the records from 15 of the 30 priority clinics and found more than 20% of patients initiating ART between October 2011 and June 2012 in these 15 clinics had not been entered into the central electronic database used for MOH reporting.

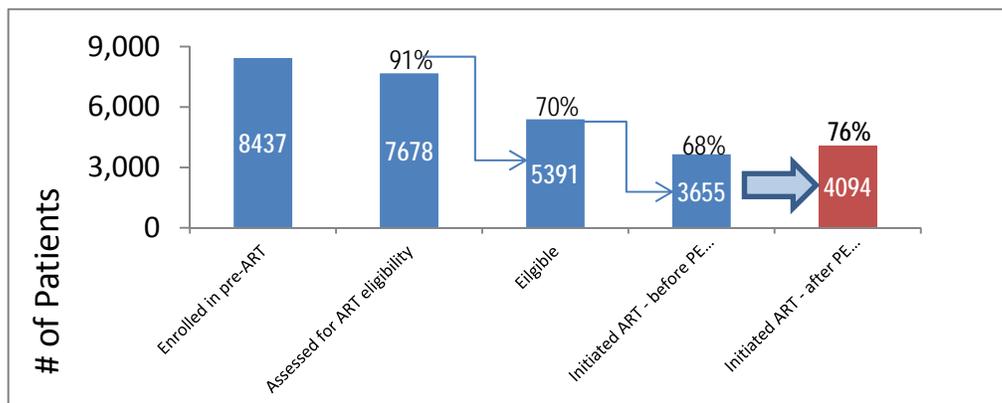


Figure 15. HIV care cascade: ART initiation among eligible patients, before and after Follow-up by Peer Educators, ART Initiations Campaign

ICAP has provided ongoing intensive mentorship to **improve data completeness** and has implemented a **routine data quality assessment** to monitor the degree of concordance between clinic records and the MOH database. To ensure that data transfer from clinics and data entry is formalized and implemented consistently throughout Swaziland, ICAP formed a task team to develop standard operating procedures for data transfer and data entry. By implementing this QI approach described above during the last quarter of year 3, ICAP achieved 81% of its annual target for Year 3. Currently, as per Q2 data 2013, ICAP has reached or exceeded its targets for all key indicators, including the number of patients initiating ART.

Figure 15 above illustrates the HIV cascade in 30 priority clinics included in this campaign and the impact of the interventions on initiating new patients on ART. A total of 8,437 adult patients enrolled in HIV care at the 30 priority clinics from July 2012 through May 2013 (Figure 15). Ninety-one percent (n=7678) were assessed for ART eligibility by CD4+ cell count and/or WHO clinical staging. Of the patients assessed for ART eligibility, 70% (n= 5391) were eligible for ART according to national guidelines. However, only 68% of patients with known eligibility were initiated on ART. By identifying and calling these patients to return to clinic, ICAP was able to initiate an additional 427 patients, bring the proportion of eligible patients who initiated ART from 68 to 76%.

Figure 16 illustrates how the proportion of ART-eligible patients who initiated ART has improved over time during this QI exercise. In July 2012, only 63% of ART-eligible patients were initiated on ART and through ICAP’s interventions, an additional 9% were added for a total of 82%. In comparison, by May 2013, the baseline proportion had increased from 63% to 81% which demonstrates that this QI campaign has led to substantial improvements in the proportion of ART initiations—the original target of interest for improvement.

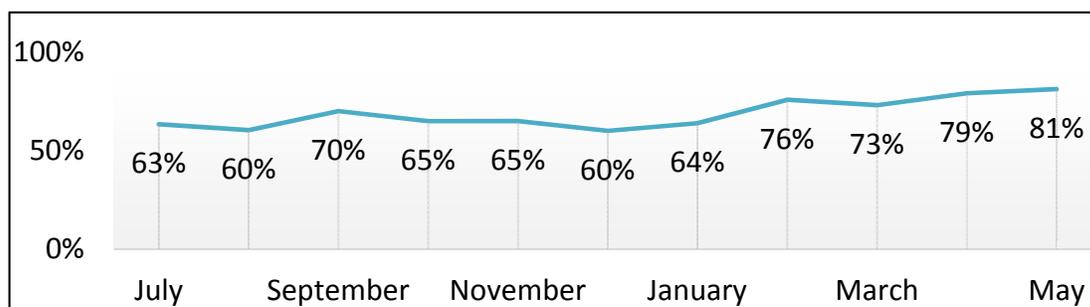


Figure 16. Percent of ART-eligible patients who initiated ART prior to additional follow-up by peer educators – ART Initiations Campaign, 2012-3

Community Linkages

Community linkages activities are essential to ensure achievement of goals and objectives of rapid scale-up including demand generation, i.e. referral and linkage to care and treatment or to prevention services from HIV testing and counseling, and to ensure retention in pre-ART and ART services. Data from a number of published cohort studies show that the largest loss of patients in the HIV care cascade occurs in the linkage from testing to care with rates ranging between 42-82%. It is essential that all HIV positive patients be linked to pre-ART services and for those eligible to initiate ART and for HIV-negative clients to receive prevention services, including male circumcision. In Swaziland, despite a successful HIV testing and counseling campaign, only 56% of HIV positive patients were linked to care in 2012.² In addition, an important global priority is enhancing retention of patients enrolled in HIV care and treatment in order to achieve desired outcomes.

ICAP's Response & Interventions

ICAP Community Linkages program team has collaborated closely with SNAP counterparts and other stakeholders, and played a key role in designing and implementing innovations that promote linkage, adherence and retention in HIV care.

Accomplishments

Since 2009, ICAP has supported the Swaziland National AIDS Program (SNAP), to implement the following strategies:

- Facility based and community based **Expert Client (EC) Program**. The purpose of this program is that patients who were missing appointments, or who were lost to care are traced and given the necessary psychosocial support that would enable them to re-access care.

- The EC model allows PLWH with high levels of ART adherence to provide support to pre-ART patients at primary health care facility level. ICAP supported SNAP to develop an EC program through the recruitment and training of ECs, placement of ECs in the primary health care facilities, and the training of MDTs on the EC model. Through these activities, ICAP facilitates the delivery of ongoing psychosocial care and support to pre-ART and ART patients.

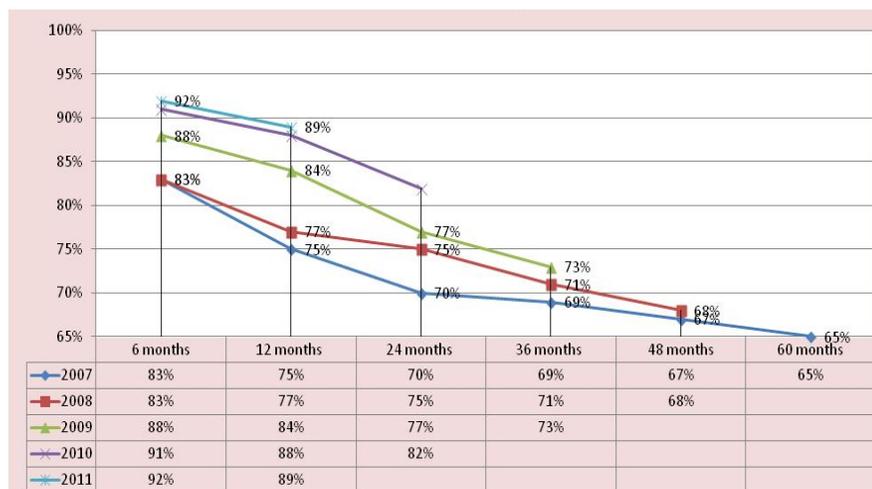
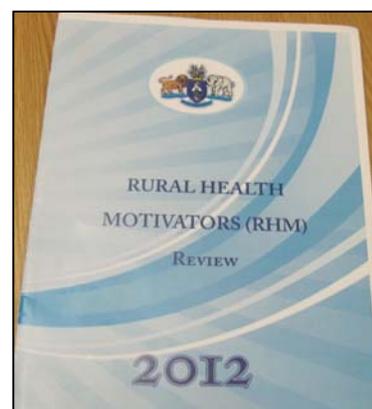


Figure 17. Retention on ART in Swaziland (MOH data): annual cohorts

² HIV Annual Report 2012

- Since development of this successful program, this model has been adopted by partners such as PSI, Baylor Clinic and Mother2Mothers. EC are now available within the uniformed services, and ECs from four correctional facilities in the country have been trained. This has contributed to a steady improvement in 12 month ART retention from 75% in 2007 to 89% in 2011 (Figure 17).
- ICAP supported the MOH in the development of a **community based EC tool** to capture patient outcomes at community level. This tool enables ECs to document why patients are missing appointments, and to identify barriers to linkage and retention.
- Development of the **HIV Care Linkages and Retention Standard Operating Procedures (SOP)**
 - ICAP supported SNAP in the development of this national SOP.
 - In addition, ICAP supported the training of health facility staff on how to use this SOP. Medical doctors, nurses, expert clients and other essential cadres (i.e. phlebotomists, lay counselors, M2M) have been trained on this SOP in all four regions of the country.
 - The evaluation of this SOP implementation is currently underway, supported by ICAP.
- The **revision of ART tools, including the ART register** - a critical tool that measures HIV linkages and retention.
 - ICAP supported SNAP to review all ART tools. The objective of this exercise was to develop a standardized way that the Appointment Register, and all other ART tools, would be used in the facilities, especially with regards to the referral and linkage of clients.
- **National Referral and Linkages Tool**
 - ICAP is a core member of the National TWG on Referral and Linkages.
 - Through the TWG, ICAP supported the development and piloting of a National Referral and Linkages tool, adapted from the HIV Care Linkage SOP.
 - This tool will facilitate intra-facility, inter-facility as well as community referrals and has been designed to cater for all referrals of any disease condition.
- **Revival of the RHM (Rural Health Motivators) program**, with increased recognition of the value added of this community based structure as a tool to sustain community outreach.
 - Through the Community Linkages Program (CLP), ICAP conducted and printed an RHM review to look critically at the effectiveness of the program and identify gaps and strengths.
 - Based on the findings, **RHM “Face Pages”** that were used in CLP clinics have now been extended to community constituencies, consisting of several chieftaincies that are clustered together (*Inkebundlas*). The face pages are posters with photos of all RHMs for a particular catchment area along with their contact information. The posters are in facility reception areas so each client is aware of who can be approached in the community for support. There is a similar face page in each clinic identifying expert clients.
 - Since the report, ICAP has worked closely with the RHM program manager and RHM regional trainers to ensure that the scope of the CLP was further adopted by communities, even those where there was no CLP in place.



- RHM *directories* now ensure that clinics are equipped with a directory of all RHMs in the country, stratified by region. This has enabled health facility staff to easily contact the relevant RHMs when a patient is lost to care.
- Finalization of the **Prison Linkages** SOP
 - ICAP supported the development of the Prison Linkages SOP. This document was modified from the HIV Care Linkages SOP and adapted to a correctional services setting.

Partnerships and Collaborations

Coordination among partners has been always highlighted as an important priority in the response to HIV epidemic in Swaziland. Without such coordination, there is a risk of duplication of efforts and/or inefficient distribution of resources across sectors involved in the response.

ICAP's Response & Interventions

- ICAP organized implementing partners and other stakeholders in regular review of care and treatment program through the National Semi-Annual ART Data Review (NASAR) and at the regional level through the Regional Semi-Annual ART Data Review (RESAR).
- ICAP takes lead in coordinating various TWG and other task forces where multiple partner skills and expertise are consolidated to support MOH/SNAP to develop and review guidelines, tools and different approaches, and facilitate technical consensus at national level.



Accomplishments

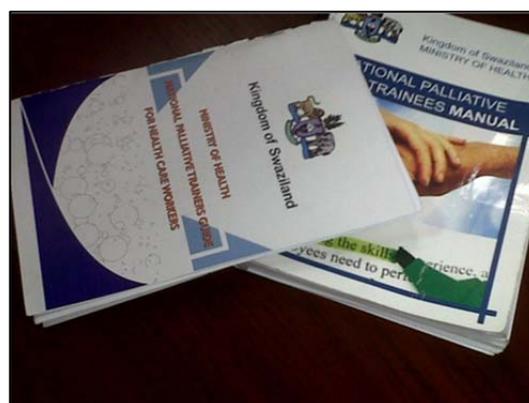
- ICAP developed contractual partnerships with different **local and international partners** in Swaziland: Baylor Clinic, National Emergency Response Council on HIV/AIDS (NERCHA), World Vision, Nazarene Compassionate Ministries, Cabrini Ministries, and Pact.
- ICAP played key role in **advisory bodies and task forces** to guide and promote implementation or pilot new innovative strategies:
 - The PMTCT Option B+ advisory body includes the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), SNAP, Clinton Health Access Initiative (CHAI),
 - The Community Linkages (CommLink) advisory body includes CHAI, EGPAF, SNAP and Population Services International (PSI).
- ICAP is a member of the core team that facilitated the first **national pediatric conference** to discuss strategic issues around pediatric care and treatment.
- ICAP supported **SNAP and Swaziland National Network of PLWH and AIDS (SWANEPHA)** to gather partners to develop a strategic plan for Positive Health Dignity and Prevention concept.

The conceptual framework of the strategic plan is under development and will be discussed in the HIV Prevention TWG scheduled in August 2013.

- ICAP conducted **SHIMS** in partnership with the MOH, NERCHA, Central Statistical Office, and the National Reference Laboratory.
- ICAP worked with other stakeholders (academic institutions, implementing partners, MOH, USG agencies) to establish a network of Research Mentors under the **Health Research Training Program**.
- ICAP played key role to establish a **taskforce to review the NARTIS curriculum**.

Palliative Care

While great progress has been made in expansion of HIV care and treatment in Swaziland, attention to palliative care and particularly to pain management has received less attention. Holistic management of pain is critical to ensure comprehensive care and treatment for PLWH. This entails the need to assess and manage pain by recognizing the concept of total pain that includes spiritual, emotional, social, psychological and physical causes of pain in the package for palliative care. ICAP's approach to palliative care has focused on alleviation of such pain since it is the most common symptom that brings a patient to a health care provider's attention.



ICAP's Response & Intervention

ICAP supports the MOH to integrate palliative care services using the HIV service platform. ICAP supported the development of **National Palliative Care Guidance documents**. These include the Palliative Care Policy, Palliative Care Guidelines, strategic plan, participant manual and trainer's guide.

ICAP has also supported the revitalization of **Palliative Care Technical Working Group** by developing its Terms of Reference and serving as the secretary.



Accomplishments

- ICAP supported the procurement of **morphine powder** that was reconstituted for distribution to 11 facilities for a pilot program. These facilities are assisted by ICAP to establish a practice process in order to guide patient flow and to monitor the provision and use of morphine.
- ICAP supported the MOH to **train 300 health care workers** on palliative care, including the use of morphine for pain management. The trainings have been reinforced by an on-going onsite mentoring and supportive supervision.

- ICAP supported the MOH to develop **M&E tools for palliative care**. This was accomplished by adapting the M&E tools used in the HIV program. Palliative care patient and appointment registers as well as a monthly cohort reporting tool were developed to capture patient level clinical data and consumption of opioids.
- ICAP supported SNAP to install a **central database for Palliative Care Services**.
- ICAP supported the MOH to prepare and distribute **job aids and wall charts** (for adults and children) to guide assessment of pain and its management using the WHO's "ladder."

Prevention with Positives

Sexual risk behaviors of HIV-infected individuals have a major effect on further transmission of HIV and the effect of initiation of ART on such behaviors has been an issue of much discussion. In order to simultaneously address prevention and treatment, ICAP included activities related to prevention with positives (PwP) under this cooperative agreement. This approach has been developed consistent with the UNAIDS-supported framework of *Positive Health Dignity and Prevention* (PHDP) that addresses the broader health and dignity needs of PLWH.



ICAP's Response & Interventions

- ICAP supported the inclusion of the **PHDP concept** in the national ART program as well as in the extended National Strategic Framework.
- ICAP provided **technical support to analyze data from a PwP situational assessment** that was conducted last year by SWANNEPHA.
- ICAP continues to support the **national PHDP strategy**.



Accomplishments

- ICAP supported the **training of 345 health care providers** on components of positive prevention that include family planning, sexual and reproductive health and referral needs of PLWH.
- ICAP supported the MOH to pilot the **feasibility of couples HIV Testing and Counseling in 16 Model Centers**. Health care providers have been trained to improve the awareness of clients enrolled in care on HIV prevention and also identify discordant couples to receive HIV prevention and follow up care services.
- ICAP, in collaboration with other key stakeholders, is currently **pre-testing job aids** for Expert Clients that will be rolled-out to all facilities in the country.
- ICAP's communication unit is also supporting a **couples testing campaign**.

- ICAP supported SNAP to draft the terms of reference for developing the National PwP Strategic Plan.
- ICAP is also supporting coordination of the **technical working group for PwP**.
- As part of capacity building, ICAP supported a training of trainers on **family planning for the Reproductive Health Unit of the MOH**.

Communications

Expansion of communications regarding HIV and its care and treatment is critical in order to disseminate knowledge and understanding among the population and to increase demand for these services, to enable communities in providing psychosocial support to those affected and to enable disclosure through combatting stigma. The Swaziland HIV Incidence Measurement Study (SHIMS) findings showed that 25% of PLWH who are aware of their HIV status and have not yet visited an ART clinic. Additional efforts to increase attendance at ART clinics promptly after HIV testing have been identified as critical to ensuring that individuals receive ART. In addition, as HIV care and treatment was decentralized, and to meet the goals of rapid scale up, it was essential to focus on demand creation for care to ensure universal uptake of newly available services.

ICAP's Response & Interventions

In 2011, ICAP, in consultation with CDC, created a **communications team** closely aligned with the ICAP technical unit to support MOH/SNAP in designing and implementing communications strategies and messages aimed at normalizing HIV care and treatment and other related conditions, and enhancing ART literacy. The emphasis of the communications team has been to **train health providers** (both at clinic and community level) and **community leaders**, to develop **key messages and information, education, and communications (IEC) materials** suitable for the Swaziland cultural context, and to engage other stakeholders (PSI, SAFAIDS, CHAI, SWANNEPHA, etc.) to **create synergy in health communication initiatives**.



In collaboration with the Health Promotions and Education Unit (HEU) of the MOH as well as the Regional AIDS Coordinators (RACs), the ICAP communications unit selected **two main approaches** to promoting the link between health facilities and communities:

1. **Focus on Families:** This concept emanates from ICAP's model of providing high quality healthcare for the whole family as a unit. In this case, ICAP has focused on HIV treatment messages that are appropriate for the family. The main strategy has been community dialogues. To date the communication team has supported MOH/RHMT's to conduct more than **18 community dialogues** in which health educators have had interactions with more than **7,000 individuals** in communities in the three ICAP-supported regions in Swaziland.

2. **Focus on Adolescents and Youth:** Working with Bantwana (USAID supported child-focused NGO) and the MOH regional offices and other PEPFAR partners, the ICAP communications unit **utilized high school debates** as a strategy for taking appropriate HIV messages to teenagers and youth. To date more than **20 schools in the Lubombo region, one in Manzini and one in the Hhohho region** have had direct contact with the unit. This has worked successfully as an approach to engage the youth in various HIV discussion topics.

Accomplishments

- **Capacity Building, ICAP supported:**
 - SNAP to train **74 community dialogues** facilitators from the three ICAP supported regions.
 - The training of **80 students as peer facilitators in 20 schools** of the Lubombo region
 - The **training of lead teachers for health clubs** in schools that participated in the high school debates.
- **IEC Materials, ICAP:**
 - Coordinated the development of **pain management** IEC materials.
 - Developed **HIV treatment testimonials** to showcase HIV treatment success stories by people openly living with HIV or by family members and friends in order to increase understanding of patients' rights to treatment.
 - Supported the organization and facilitation of 18 community dialogues in the three supported regions.
- **Advocacy and Social Mobilization:**
 - ICAP supported the **MOH Health Promotions and Education Unit (HEU)** to organize and implement health communication activities during the annual **Swaziland International Trade Fair** an event that attracts thousands of participants. The unit assisted HEU to put HIV treatment on the forefront of exhibits at the fair where people could read and take IEC messages on HIV.
 - In collaboration with SNAP, ICAP clinical advisors, communication advisors and community linkages advisors supported the **design and production of a national television and radio campaign** on HIV care and treatment and how a community can support its members living with HIV.
 - ICAP participated in SAFAID, a 26-week series supported by PSI and CHAI. ICAP staff were guests for the show discussing Positive Living and the benefits of adhering to HIV treatment.



Health Systems Strengthening (HSS)

With strong belief in sustainability and the importance of integrating all activities into the national frameworks and systems, ICAP has utilized the **principles of health systems strengthening** to anchor all its work. Focusing on **all six WHO health system building blocks**, ICAP developed infrastructure through renovation of facilities, strengthened the health workforce through training and mentorship of providers and spearheading the nurse-initiated ART program (NARTIS), supported a model of continuity care across the continuum of testing, care, treatment and prevention appropriate for a chronic disease such as HIV through transforming the service environment through strengthening medical records has transformed the service model to enable multidisciplinary work, attention to quality, integration of needed services and seeking innovations to respond to identified gaps and research studies to answer critical implementation questions. ICAP's efforts have also centered on community engagement realizing the importance of partnership with community organizations and persons living with HIV in order to optimize individual and programmatic outcomes.

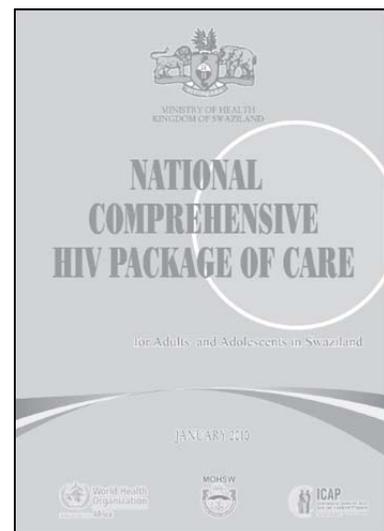
This report includes information regarding many of the elements of ICAP's support to health system strengthening. Below, we focus on two specific areas of health system support: support for the Ministry of Health and for Monitoring and Evaluation activities.

Support for the Ministry of Health

ICAP support to the Ministry of Health is notable for its breadth, depth, and quality. As one of PEPFAR's largest implementing partners, ICAP support aims at strengthening the capacity of the Ministry of Health to scale up of HIV care and treatment in three of the four administrative regions and to achieve its goals and objectives with regards to confronting the HIV epidemic and related conditions. The report includes several examples of the type of support provided by ICAP to MOH in various dimensions in support of achieving its goals and objectives.

ICAP's Response & Interventions

ICAP has placed special emphasis on supporting SNAP and the RHMTs to manage the national HIV care and treatment program, and to mentor, monitor, evaluate, and enhance the quality HIV services. ICAP has robust hands-on experience with supporting comprehensive, family-focused service delivery at the community, health facility, and regional levels. In addition to supporting the delivery of clinical services, ICAP provides wide-reaching support for many components of Swaziland's health systems, including education, training, and task-shifting, laboratory services, health facility infrastructure, approaches for patient tracing, and program monitoring, evaluation and operational research. All these efforts are conducted in a collaborative manner and in the spirit of true partnership.



Accomplishments

1. Supporting MOH/SNAP to build the **national capacity for services initiation and integration through:**

- Mentoring and training of trainers. ICAP technical advisors and officers have been working closely with their MOH counterparts to develop training plans and materials as well as training of trainers in various technical domains.
- Coordination and facilitation of various technical working groups and task forces. ICAP continued to participate as a key player in central care and treatment technical working groups. ICAP has been proactively supporting SNAP to coordinate C&T, community linkages, Palliative Care, PWP, Pediatric and PMTCT.
- Development and implementation of services integration concepts/models: e.g. TB/HIV, MH/HIV, Palliative Care.
- Renovation of health facilities.



2. Capacity building of the **Strategic Information Department of the MOH and SNAP**

for data collection and data utilization for planning, program monitoring and for quality improvement. ICAP continued to emphasize the importance of data quality, integration of data from the different components of the care and treatment program (ART, Pre-ART, QI, community linkage) and utilization of this data to optimize patient care and follow-up:

- Pre-ART registers: ICAP supported the finalization and printing of the revised pre-ART and ART registers and the new chronic HIV care file (combining pre-ART and ART in one file). It is now MOH policy that all patients who test HIV-positive should immediately be enrolled into HIV care, have a chronic care HIV file opened and be registered in the pre-ART register.
- National semi-annual ART data reviews (NASAR) were held where all ART facilities participated in reviewing program data. At the regional level, Lubombo ICAP in collaboration with the Lubombo RHMT conducted regional semi-annual ART data review (RESAR).
- ART database system (RXPMIS): ICAP, MSH and the MOH joined together to review and revise the current ART database system at main facilities, and to develop an appropriate HIV care and treatment information system at clinic level (with an electronic database component). This process is ongoing.
- Supported MOH to put in place and implement systems for data quality assessments.
- ART outcomes evaluation: ICAP in collaboration with CDC supported SNAP to plan and implement the evaluation of the national ART program. Also, ICAP used this evaluation to build capacity of MOH technical staff for data analysis and study report writing.

3. Support to MOH to **develop/review of policies, guidelines, tools and job aids** for site providers such as:

- Task-shifting policy/SOP for, and the implementation and evaluation of, NARTIS.
- Linkages and retention policy: ICAP was a key player in the development of the linkages and retention policy, as well as the development of the HTC client record. This work involved development of a linkage SOP and associated forms and implementation of the SOP in the

- clinics. A system is now in place to actively follow up patients who have been referred. ICAP has provided additional support and mentoring to ensure that follow-up is a routine.
- Palliative care policy, strategy and guidelines: ICAP worked with the MOH and other partners to support the finalization of these documents.
 - Prison SOPs for HIV care and treatment: ICAP collaborated with the department of correctional services and the MOH to develop SOPs for prisons. The SOPs have since been officially approved.
4. Renovations: ICAP has supported MOH to conduct renovations and repairs of health facilities, and to procure parkhomes to expand usable space at the following clinics.

Region	Facility Name	Type of Renovation	Year
Renovations and Repairs of Facilities			
Hhohho	Motshane Clinic	Major Renovation	2010/2011
	Sigangeni Clinic	Major Renovation	2010/2011
	Nkaba Clinic	Parkhome waiting area	2010/2011
	Bhalekane Correctional	Repairs (Partitioning, store room shelving and painting)	2011/2012
	Ntfontjeni Clinic	Major Renovation	2013
Lubombo	Lomahasha Clinic	Major Renovation	2010/2011
	Mpolonjeni Clinic	Major Renovation	2010/2011
	Cabrini Mission	Parkhome waiting areas	2010/2011
	Tikhuba Clinic	Renovation	2010
	GSH ART Clinic	Renovation	2011/2012
	GSH ART Clinic	Repairs (Plumbing, painting, tiling and dispatch counter)	2013
Manzini	Mangcongoco Clinic	Renovation	2011/2012
	Mangcongoco Clinic	Borehole repairs, Water pump	2013
	RFM Pre-ART Clinic	Major Renovation	2013
	Psychiatric Hospital	Repairs (Partitioning for workshop, VCT room, lab room & general repairs)	2013
Procurement of Parkhomes (pre-fabricated modular units)			
Hhohho	Satellite Clinic	One-3-roomed parkhome	2012
Manzini	Bulunga Clinic	One 3-roomed parkhome	2012
Lubombo	Siteki Office	One 2-roomed, ablution, kitchen	2011
Repairs of park home waiting areas			
Hhohho	Lobamba Clinic	Repairs of waiting area	2013
	Mangweni Clinic	Repairs of waiting area + water and electricity connections	2013
	Satellite Clinic	Repairs of waiting area + water and electricity connections	2013
	Pigg's Peak	Repairs of waiting area	2013
Manzini	Luyengo Clinic	Repairs of waiting area	2013
	Lamvelase Clinic	Repairs of waiting area	2013
	Mkhulamini Clinic	Repairs of waiting area	2013
Lubombo	Lubuli clinic	Repairs of waiting area	2013
	ICAP Siteki office	Repairs of waiting area	2013

5. Capacity building for **task shifting**:
- ICAP in collaboration with other stakeholders supported MOH/SNAP to develop and implement the **NARTIS** curriculum. ICAP continues to play key role in supporting MOH to

- conduct needs assessment and implement NARTIS training of trainers. Also, ICAP’s role has been paramount in decentralizing NARTIS trainings to regional level by supporting SNAP for training and mentoring regional NARTIS trainers.
- ICAP supported MOH /SNAP to develop and implement the **Expert Clients** program to enhance adherence, referral and linkages systems at supported facilities.
6. Laboratory support:
- Support to MOH/NRL and SNAP to put in place and implement systems for **fast-tracking lab results for early infant diagnosis** to ensue timely ART initiation of HIV positive infants.
 - Using SHIMS implementation platform, **ICAP supported National Reference Laboratory** to train lab staff and to establish strong lab QA systems as well upgrading the equipment.
7. Capacity building of MOH to **plan and implement and monitor renovation projects**: ICAP is proactive member of the Infrastructure upgrading TWG and has been working closely with MOH/Planning Unit and MicroProjects to conduct renovation needs assessments, and develop and implement renovation projects.

Monitoring and Evaluation & Strategic Information

An effective M&E system—including not only appropriate tools for collecting and reporting key programmatic data and providing timely data for program evaluations but also staff at all levels who are trained and experienced in conducting aspects of quality M&E—is a prerequisite for a well-functioning national HIV program. Therefore ICAP has established **M&E support as a core component** of its role in expanding and improving provision of HIV care and ART in Swaziland.

ICAP’s Response & Interventions

The range of M&E activities conducted by ICAP occurs within the context of continuous capacity building of SNAP, RHMT’s, and facility staff—via mentoring and trainings—to conduct effective M&E of the national HIV care and treatment program and improve program quality.

- At facility level, M&E Unit conducts routine on-site visits to provide **mentorship and supportive supervision to MOH staff** working at supported sites to promote the **use of M&E tools** and to **strengthen data collection and reporting to MOH**. ICAP has also been conducting on-site and off-site training of MOH strategic information staff to improve data management and M&E skills.
- One important aspect of the M&E mentorship provided by ICAP has been the work with MOH staff to **improve data quality through data quality assessments (DQA)** and use routinely-collected data for programmatic quality improvement (QI). This has resulted in improved data quality and has shown evidence of improving key elements of patient care.



Figure 18. Example of customizable DHIS dashboard

- ICAP provided technical assistance at the policy level by participating in key **Health Information Systems (HIS) technical working groups (i.e. M&E TWG and the HIV Treatment, Care and Support TWG)**, supporting regional MOH M&E officers in conducting routine data quality assurance, supporting the national ART program in finalizing and printing national HIV care tools and in revising ART treatment tools. ICAP works with other implementing partners to develop/update data collection tools, to routinely collect, analyze and disseminate data that assess program progress, quality and impact within and across ICAP-supported sites, for example as described below in the National Semi-Annual ART (NASAR) and Regional Semi-Annual ART (RESAR) data reviews.
- To ensure that ICAP Technical Advisors and M&E teams have access to routinely-collected data for program review and evaluation, ICAP utilizes a local aggregate database, adapted from the **District Health Information System (DHIS)**. ICAP's DHIS, which was implemented in PY4, includes data entry screens, tailored data validation functionality, pre-defined automated reports for all program areas, and the ability to import data from external data sources, such as the quarterly MOH ART data shared via MS Excel. The ICAP M&E team uses a series of reports to review data for key indicators at the central, region and site levels. The reports are available to all ICAP staff through a local area network such that tables and reports can be easily generated and feedback can be provided to the regional or site level in a timely and effective manner. The DHIS system has improved the use of data for program monitoring and helped to ensure targeted and relevant technical assistance. Examples of automated data summaries for program review produced by ICAP DHIS are below. Plans are in place to expand this to other facilities in collaboration with MOH.

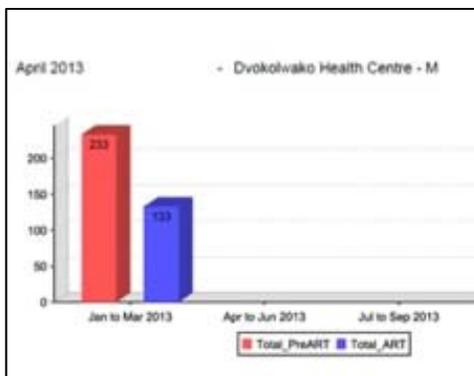


Figure 19. New Enrollees and New ART Initiations

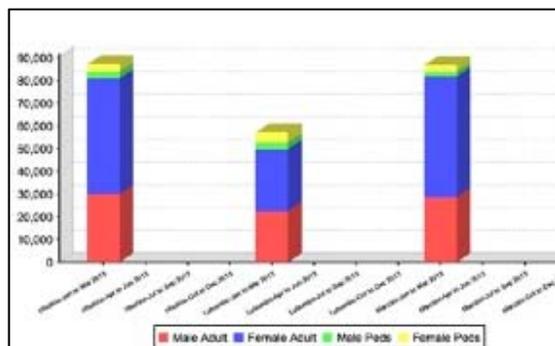


Figure 20. Ever Initiated on ART, Disaggregated by Age and Gender, Grouped by Region

Accomplishments

- ICAP supported MOH to **strengthen the health information system** at all levels of HIV care and treatment, including provided technical support to the regional Strategic Information Department (SID) teams to improve the quality of ART data.
- Through the Regional Mentorship Team, ICAP has strengthened the **M&E functions of the regional Health Management Team** by bringing the M&E agenda into the forefront of MDT leadership meetings.

- A total of **734 health care workers have completed SI trainings** to date
- Pre-ART M&E system: Since 2010, ICAP has supported the MOH to **develop and implement a pre-ART system of care**, an important addition to the portfolio. The support includes:
 - Piloting a pre-ART system at ICAP supported and presenting the findings to national ART program. The findings from this pilot were used to further pilot a national pre-ART system.
 - Supporting the MOH to develop pre-ART tools: patient charts, data collection and collation, and data management and health information system.
 - Through ICAP support, the patient level electronic database-ART Patient Management Record (APMR) has integrated both ART and pre-ART data.
- Supported MOH to **develop or adapt other M&E tools**, including palliative care registers and reporting tools, the national ART register for tracking linkage and retention in HIV care, and community health program (Rural Health Motivators) program tools.
- ICAP provided technical assistance to MOH to develop **national Routine Data Quality Assessment (RDQA) as well as implementation of RDQA at facilities**. In April 2010, ICAP, in conjunction with IHM (Institute for Health Measurement, lead PEPFAR SI partner), provided technical assistance in the development of a national RDQA tool (by Measure Evaluation). The tool assesses the M&E system and verifies reported results against primary source documents. ICAP has been using this tool to conduct RDQA at the three supported regions. Actions developed from RDQA findings have improved the M&E system (e.g. development of M&E framework) and quality of data (e.g., improved level of agreement between source records and electronic/MOH records on numbers of patients initiating ART, Figure 21).
- ICAP, in conjunction with other Strategic Information (SI) partners provided technical assistance to SNAP in the **review of the national health information system**. The findings from this review have recommended development of client health information system that will utilize a unique patient identifier. ICAP will continue to work with MOH in the project. When finalized it will improve the efficiency of data capture and reporting systems, and the tracking of individual patients across various program areas.

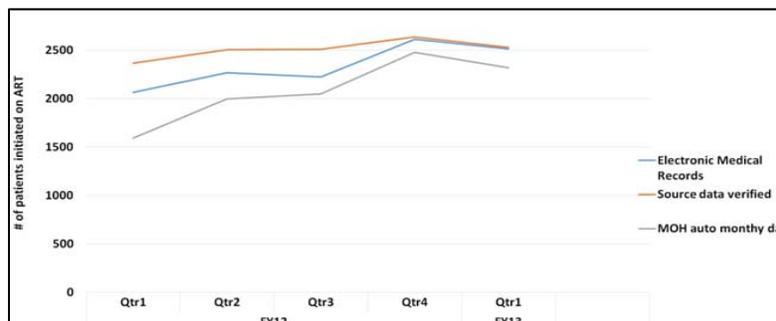


Figure 21. Data Verification: Quarterly ART Initiation

- ICAP also supported the National ART program to **pioneer the National Semi-Annual ART data review (NASAR) and regional semi-annual ART data reviews (RESAR)**. One key finding from the NASAR conducted in November 2012 was a substantial decline in the percent of patient electronic records that were observed to have errors in a set of key data quality indicators between mid-2010 and November 2012 (Figure 21). In addition to assessing data quality, these exercises also allow for the tracking of certain quality of care indicators – for example, data from the 2012 and

2013 rounds of RESAR in Lubombo region show improvements in the proportions of ART eligible patients who started ART and HIV-exposed infants tested DNA PCR negative at six months of age who were re-tested at 12 months (Figure 22).

- First National ART outcome evaluation: ICAP has completed the first evaluation of the national ART program.

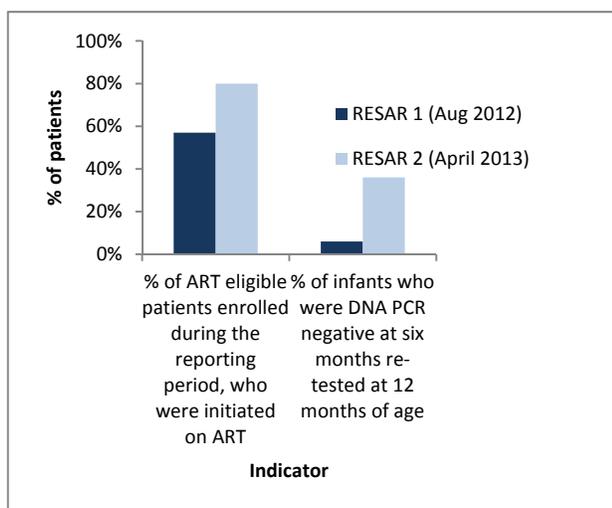


Figure 22. Trend of key RESAR Indicators: Lubombo region

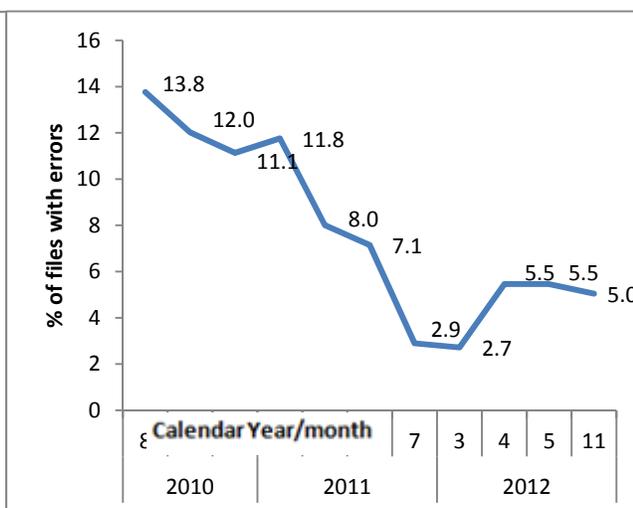


Figure 23. NASAR November 2012: Data QI in Overall Error Rate at all ART Facilities

Innovations

One of the most important contributions to the national efforts for scale-up of HIV services in Swaziland has been the identification of programmatic needs and gaps and the rapid design and implementation of innovations. ICAP's work in Swaziland is distinguished by a focus on **enabling such innovations** and then integrating them into overall MOH programming. Examples of such innovations are listed below:

Integration of HIV Care in the Correctional and Uniformed Services in Swaziland

According to one study conducted at correctional centers in Swaziland in 2011, 34.9% of prisoners and 26.9% of prison staff were infected with HIV, notably higher than the prevalence in the general population. In addition, the incidence of TB at correctional centres was estimated at 3570/100,000, which is approximately three fold compared to the incidence of TB in the general population. In response, ICAP initiated collaborations with correctional services and the uniformed forces to mitigate the impacts produced by HIV and TB. Among others ICAP supports the following:

- **The Development of a Linkage, retention and follow up SOP at correctional facilities, this helped to:**
 - Effectively link and retain inmates into care after release from correctional facilities;
 - Improve adherence to care and treatment through collaboration with the welfare service to ensure the continuity of HIV care;

- Strengthen adherence and psychosocial support including linkages and follow up within the correctional services.
- **Strategies to minimize the risk of transmission of HIV and TB in the congregate setting:**
 ICAP supported the development and implementation of an SOP for management of TB and HIV. In order to ensure adherence to treatment this SOP illustrates how new inmates receive clinical assessment up on arrival to the prison. The SOP also illustrates how:
 - Transmission of TB and HIV can be prevented;
 - To offer HTC and enroll HIV positive clients in to care;
 - To initiate ART and follow up clients for adherence to treatment;
 - To manage patients with active TB;
 - To ensure the continuity of clinical care after the release of the offenders.
- **Access to HIV Care for the Uniformed Services**
 ICAP provides support to **12 clinics under His Majesty’s correctional services** together with one clinic under Swaziland’s Defense Force and two clinics under Swaziland Royal Police. Five clinics are currently initiating ART on site and eight facilities are providing pre-ART care. ICAP also supported the training of eight registered nurses using the NARTIS curriculum and 23 nurses on basic Integrated Management of Adult Illness (IMAI).

Figure 24 depicts the status of ART enrollment and follow -up at correctional and uniformed facilities. It shows that 90% of enrolled clients are currently receiving ART

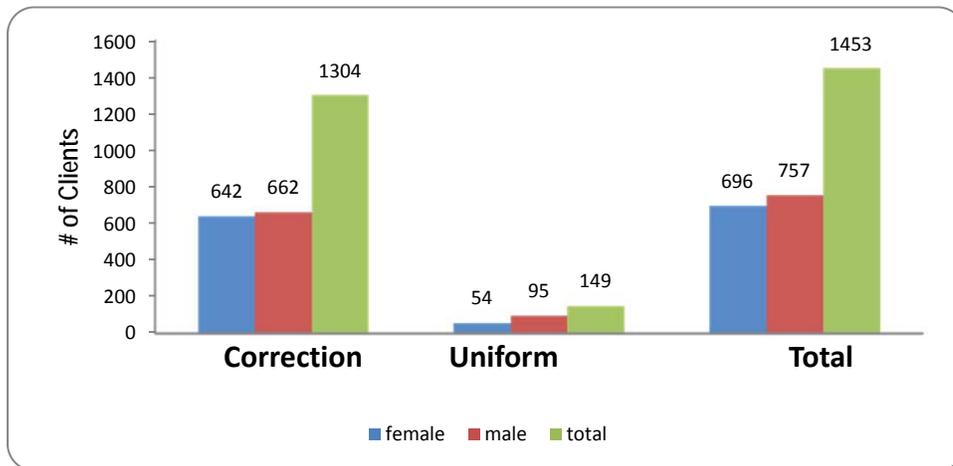


Figure 24. Clients on ART in the Uniformed & Correctional Facilities

Integration of HIV in to the National Referral Psychiatry Hospital

Cognizant of the limited data in Swaziland on the coexistence of mental disorders and HIV infection, ICAP initiated the **integration of HIV services in to the mental health services** in the country. **Out of 266 patients with mental disorders who were tested for HIV between January and November 2012 in the national psychiatry hospital, 51 (19%) were HIV positive.** According to the literature, unsafe sexual

behaviour is common among sexually active mentally ill patients. The unsafe sexual behaviour can be secondary to the symptoms of a mental health disorder, such as hyper sexuality during acute mania or failure to use condoms. Consequently, these individuals are at increased risk of transmitting or acquiring HIV infection and thus require a targeted HIV prevention and control interventions.

In view of this, **ICAP supported the following activities with a goal to integrate HIV comprehensive package of clinical services in to the outpatient and inpatient services at the National Psychiatric Referral Hospital.**

- A total of **15 nurses from the hospital and 10 psychiatric nurses from other hospitals** were trained on basic IMAI. **One MD** was also trained on advanced IMAI curriculum.
- ICAP facilitated the **accreditation of the facility by SNAP** to be an ART initiating site. This process identified the need for space for a mini lab and pharmacy. Accordingly, ICAP is effectively responding to the need for the renovation that is expected to be completed by 15th of September 2013.
- ICAP supported the development and productions of the **health files for the correctional services** facilities. These files are used to review health related complaints including HIV status and ARVs up on detention of offenders.
- ICAP **trained 75 offenders** to provide adherence and psychosocial support to inmates.

Family Planning

ICAP supported SNAP and SRH unit to train 19 nurses on integration of FP into HIV care and treatment program. The integration is being piloted at all ICAP supporter “mother” facilities.

High School Debates

ICAP supported MOH and Ministry of Education to initiate school debates, pictured below, around HIV prevention, care and treatment issues. This is a new strategy focussing on enhancing adolescent’s literacy and life skills around SRH and HIV prevention, care and treatment issues. ICAP trained 80 community dialogues facilitators from 20 schools in Lubombo Region. The MOH recommended the scale up of this approach to other regions.



Cervical Cancer Screening

Cervical cancer is the leading cancer among women in Swaziland and it is exacerbated by the high prevalence of HIV in the country. In 2011 a total of 1,400 cases were reported in the Health Management Information System (HMIS). In view of this and because of the evidence that ART does not protect HIV-infected women from developing cervical cancer, ICAP put emphasis on **integrating cervical cancer screening at supported health facilities**. Swaziland began piloting cervical cancer screening in three big hospitals in the country. However, important programmatic gaps exist including the incomplete and inconsistent data from the facilities, low uptake of the services especially by HIV-infected women in Swaziland and poor health

seeking behavior among women in Swaziland. Consequently ICAP is partnering with the MOH and Swaziland Breast & Cervical Cancer Network to strengthen the existing screening program in the country as follows:

- ICAP is providing technical support for the development of the **strategic plan** for cervical cancer treatment and prevention program in the country.
- ICAP supported the MOH to **conduct two cervical cancer planning meetings** that brought together 80 nurses from the Correctional services and wellness program. These meetings resulted into finalization of the operation plan including the training plan that is awaiting partner's commitment for funding.

ICAP will continue to support the cervical cancer screening program as part of ongoing work to integrate non-communicable diseases (NCDs) using the HIV care and treatment platform.

Research Activities and Capacity Building

Program technical assistance is most effective when accompanied by rigorous and relevant research identifying service delivery progress and gaps and population impact. Research implementation and capacity building is critical to ensure that sound evidence informs national HIV program strategies and health systems strengthening efforts. The main gap regarding health research capacity in Swaziland is related limited availability of health professionals with the training and expertise to design, implement and utilize study and program data for evidence based planning and services provision.

ICAP's response

In partnership with MOH and various US agencies and other stakeholders, ICAP has developed a broad research portfolio, under the RSU cooperative agreement and with other funding mechanisms. The research questions have been selected based on their relevance to the response to the HIV epidemic in Swaziland. Supported research activities are aimed at investigating program performance at key junctures in service delivery, including population-level outcomes and impact, program-level outcomes, and clinic-level process measures.

A variety of studies including epidemiological, and implementation science are overseen through joint collaborations between researchers at ICAP in Swaziland and New York, MOH, CDC, USAID, Population Services International (PSI), and other PEPFAR implementing partners.

Research projects are complemented by capacity building activities to enable national stakeholders—namely the Swaziland National AIDS Program (SNAP) and the National Reference Laboratory (NRL)— to undertake studies that enable service delivery strategies and health systems to adjust with client needs and evolutions in the national epidemic.

Accomplishments

Swaziland HIV Incidence Measurement Survey (SHIMS):

With support from RSU cooperative agreement, ICAP led the design and implementation of SHIMS in collaboration with MOH and CDC. SHIMS is a landmark epidemiologic study that marks the first measurement of directly-observed HIV incidence in Swaziland and the first national incidence study in the world. SHIMS enrolled approximately 18,000 participants and collected data during a cross-sectional, pre-cohort survey and from a longitudinal cohort conducted prior to the expansion of male circumcision services. Key outcomes included a national HIV prevalence estimate among adults 18-49 years (32%), a prevalence measure of male circumcision (16%), and a directly observed HIV incidence rate (2.4%). SHIMS included cross-sectional incidence estimates using three laboratory assays (NAAT, BED-EIA, and LAg-Avidity EIA) and cross-sectional estimates of CD4+ and viral load distributions among a nationally-representative sample of HIV-infected persons.



In November 2012 and April 2013, the MOH and ICAP held **data dissemination meetings to present SHIMS** findings and to discuss with national stakeholders the policy implications of the study results. Meeting attendees included MOH policy makers and implementers, local academic faculty and students, and PEPFAR implementing partners. Study results have been incorporated into HIV service strategies and health policy planning. **Messages based on SHIMS** findings are being developed for use in community dialogues, radio, TV spots, and shows. Moreover, SHIMS findings are informing the PEPFAR evaluation of the Partnership Framework and have been incorporated into modeling analyses focused on developing new national HIV combination prevention targets. SHIMS findings have also been disseminated through seven oral or poster presentations at international conferences, manuscripts are in preparation and the prevalence paper has been submitted [Bicego, G.T. et al., Recent patterns in population-based HIV prevalence in Swaziland," PLOS ONE].

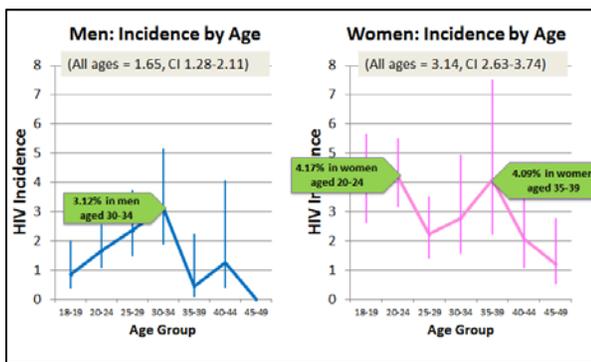


Figure 25. HIV Incidence in Swaziland by Age and Sex

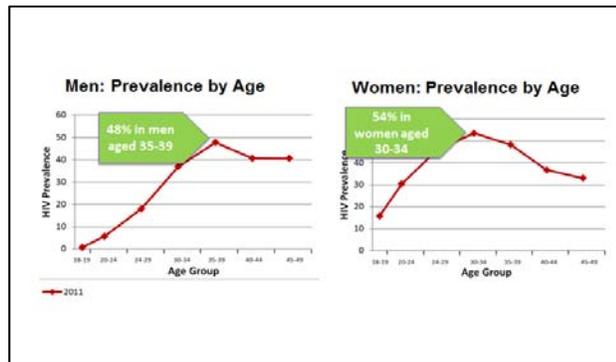


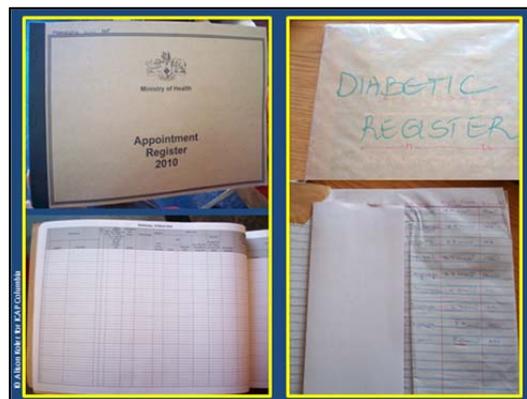
Figure 26. 2011 HIV Prevalence in Swaziland (18-49)

SHIMS accomplishments also supported **health systems strengthening at the National Reference Laboratory**. Infrastructure upgrades include installment of an AmpliPrep/Cobas Taqman system, biosafety cabinets, centrifuges, freezers, and computers for management of lab specimens. Eleven NRL laboratory scientists were trained in good laboratory practices, viral load testing, quality assurance/quality control (QA/QC) of HIV rapid testing, QA/QC of CD4+ testing, and lab specimen management. Standard Operating Procedures, lab manuals and job aides for routine lab activities, such as viral load and CD4 testing and QA/QC activities, were also established. Since the close of data collection, the laboratory scientists, instruction materials, and majority of the equipment have been integrated into routine service delivery.

SNAP evaluation on ART outcomes: With support from Rapid Scale-up (RSU) Cooperative Agreement with the CDC, a **retrospective cohort**, operations research study was conducted in 2012 to evaluate the clinical and immunological outcomes of 2510 adults and 2008 children randomly selected HIV-infected patients who started ART at 19 health care facilities. **Interviews were conducted with health care workers** at participating facilities. ICAP support included:

- Support with protocol development and obtaining IRB approvals.
- Development of SOPs and other study tools.
- Recruitment and training of study staff.
- Field implementation and data collection.
- Data entry and cleaning.
- Capacity building in data analysis.
- Report writing and production.
- Dissemination at 2012 national health research conference.

Among adults from 2004 to 2010, median CD4+ count at ART initiation increased from 94 to 180 cells/ μ L, and overall median CD4+ count gain at 6 and 12 months were 128 and 172 cells/ μ L, respectively. ART retention at the initiating clinic was 87.3% at six months and 81.8% at 12 months. While CD4+ count at ART initiation nearly doubled between 2004 and 2010, the median CD4+ count at ART initiation remained low, suggesting that patients present late for ART initiation. National stakeholder review of these findings has led the MOH and ICAP to plan an assessment of determinants of late ART initiation. Among children, majority (84%) were retained at 12 months post ART initiation. Further analysis is still undergoing.



Linkages retrospective evaluation: With support from Rapid Scale-up Cooperative Agreement, a **retrospective cohort** evaluation of 990 newly HIV-diagnosed persons during the national male circumcision campaign and SHIMS is currently being conducted. The evaluation will identify the proportion of newly HIV diagnosed persons who enrolled and remained in care within 12 months of diagnosis from two HIV testing and counseling efforts, specifically SHIMS, a nationally representative sample of home-based testing, and from men diagnosed through national male circumcision campaign. Study findings will identify

subgroups at risk for delayed HIV service linkage and possible reasons for delayed linkage. Results will be incorporated into existing national procedures supporting HIV linkage and retention.

Link4Health and Safe Generations: Two implementation science studies – Link4Health and Safe Generations – are currently being conducted by ICAP in collaboration in MOH and with support from US agencies. They are being conducted across 24 facilities within the MOH’s national clinical network. Link4Health is a NIH-PEPFAR funded cluster-site randomized controlled trial evaluating a combination intervention strategy on HIV services linkage and retention. Safe Generations is a USAID-PEPFAR funded stepped wedge trial evaluating the effectiveness of two PMTCT regimens (Option B+ and Option A.)

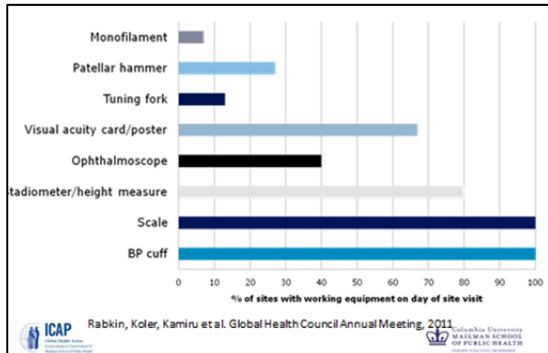


Figure 27. Availability of Basic Medical Equipment

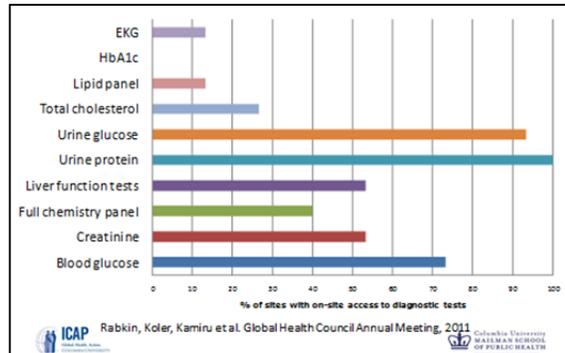


Figure 28. Access to Onsite Diagnostics

Non-communicable diseases and the HIV platform: ICAP's work supporting HIV prevention, care and treatment in Swaziland highlighted the importance of developing *systems* for chronic care. In the course of implementing HIV programs, ICAP and its partners had to transform health care systems that had been providing only episodic care for acute symptomatic illness into systems capable of providing effective lifelong care. Key elements of this work were the implementation of appointment systems, defaulter tracing, adherence support, support for retention in care and linkages within and between health facilities and the community, the development of medical records systems for longitudinal care, and the engagement of patients, families and communities in HIV programs.

Recognizing that the chronic care systems developed for HIV services could also be used to support services for chronic non-communicable diseases, ICAP partnered with the Swaziland Ministry of Health to conduct a situational assessment of existing systems for diabetes (DM) and hypertension (HTN) funded by the Rockefeller Foundation. The study included structured site assessments, chart reviews and focus group discussions with patients; the results highlighted the dramatic gap between the systems in place for HIV and those in place for NCDs. Illustrative observations include: none of the 15 health facilities surveyed had appointment systems for DM or HTN; only two out of 15 had charting tools to support continuity care; and only four out of 15 had on-site medical records of any kind. Key medical equipment and drugs were absent, patients had difficulty attending appointments and paying for their medications – and the majority of patients had poorly controlled HTN and DM. Figures 27 and 28 contrasts registers for diabetes with those for HIV and the availability of basic medical equipment and diagnostics on site.

This small situational analysis had an important impact, catching the attention of the MOH and emphasizing the opportunity to leverage the lessons and tools of HIV scale-up to support non-communicable disease services



Research capacity building:

ICAP, in collaboration with the MOH and with support from CDC, has instituted the Health Research Training Program (HRTTP) to strengthen local capacity to perform high quality implementation, epidemiological, and laboratory research and evaluations. With support from RSU, the HRTTP engages six fellows – currently employed at the MOH Research Unit, SNAP, National TB Program, NERCHA, UNISWA, and the National Population Unit—to participate in a one-year fellowship to complete a five week research curriculum and research practicum. Fellows receive close mentorship from HRTTP mentors from ICAP, UNISWA, CDC and URC. HRTTP Fellows and Mentors are also provided opportunities for further skills and knowledge development from various workshops. For example, SHIMS data now serve as a platform for national research capacity building workshops. In collaboration with MOH, ICAP conducted a scientific writing workshop in 2012 and will hold a data analysis workshop in September 2013. HRTTP fellows will also access the SNAP evaluation on ART *outcomes* for secondary analysis of late ART initiation

Conclusion

In summary, Swaziland has made remarkable advances in a challenging HIV epidemic as a result of the strong commitment and support from PEPFAR, ICAP and other partners. In the past four years, ICAP has worked closely with the Swaziland Ministry of Health, the PEPFAR-Swaziland team and organizations in Swaziland to improve access to HIV treatment and comprehensive services.

Through the Rapid Scale-Up cooperative agreement, ICAP has increased the number of supported ART sites between 2009 and 2013 from 47 to 89 sites, including 77 peripheral 'baby' sites. During this period, there has been a near-doubling in the number of patients initiating ART at ICAP-supported sites from 38,000 to over 71,000 persons and a ten-fold increase in the number of PLWH enrolled in pre-ART care from 5,000 to over 55,000. ICAP has trained over 7,000 health care workers, helped develop and launch the nurse-led ART initiation program, enhanced the capacity of the three regional health management teams to oversee HIV services and provided a wide range of innovative technical support at site, regional, and national levels. In addition, ICAP has led and collaborated on research and implementation science designed to inform HIV care and treatment policy and practice in Swaziland.

ICAP has therefore achieved or exceeded the originally proposed objectives of this five-year cooperative agreement. Through these achievements, as well as its work in health systems strengthening, ICAP is proud to contribute to the health and well-being of the people of Swaziland.

