

THE PEPFAR NURSING EDUCATION PARTNERSHIP INITIATIVE (NEPI) 2012-2016



TRANSFORMING NURSING AND MIDWIFERY EDUCATION
IN SUB-SAHARAN AFRICA



EXECUTIVE SUMMARY

THE NURSING EDUCATION PARTNERSHIP INITIATIVE (NEPI) is a PEPFAR initiative administered by the U.S. Department of Health and Human Services/Health Resources and Services Administration (HRSA) and implemented by ICAP at Columbia University. It is part of HRSA's Global Nursing Capacity Building Program and aims to promote sustainable control of the HIV epidemic by addressing shortfalls in the number, quality, and capacity of nurses and midwives. Launched in 2011, NEPI set out to foster long term collaborations between pre-service nursing education institutions and national health services in the Democratic Republic of Congo, Ethiopia, Lesotho, Malawi, South Africa, and Zambia.

The Initiative has built the capacity of 22 nursing schools to implement international best practices in pre-service nursing and midwifery education. The competency-based education delivered by the schools prepares students to provide primary health care that integrates HIV prevention, care, and treatment. More than 23,600 students have enrolled in NEPI-supported programs and over 10,400 students have already graduated and joined the health workforce, bringing acutely needed skills to clinics and communities.

As the Coordinating Center for NEPI, ICAP builds the capacity of nursing schools through training, technical assistance, mentorship, and monitoring and evaluation. ICAP also works with NEPI stakeholders to promote innovation, learning, sharing of best practices, and cross-border collaboration.

ACHIEVEMENTS TO DATE

- **Access to nursing education.** With NEPI support, nursing schools have expanded their infrastructure to accommodate more students and upgraded their facilities with clinical skills simulation labs and computerized research centers. By promoting collaboration between nursing schools and ministries of health, NEPI has increased opportunities for clinical practicum training, including rural placements that increase the availability of essential health services within rural communities.
- **Curricular reform.** ICAP has worked with NEPI-supported schools to reform curricula and ensure that they are aligned with the competencies needed for frontline nursing and midwifery, including HIV-related competencies. New curricula have also been developed in response to specific workforce gaps. ICAP has supported nursing schools to transform pedagogy to be interactive and student-centered, and to implement e-learning platforms that complement classroom and clinical instruction and facilitate distance learning.
- **Faculty development.** ICAP has trained and mentored faculty in new methods of academic teaching and clinical instruction, preceptorship, and the development of competency-based curricula. Nursing schools are linked through online networks that facilitate sharing of experience and learning and support implementation of best practices. Meanwhile, faculty exchange visits and cross-border technical assistance have enabled NEPI-supported schools to implement clinical simulation, preceptorship, and e-learning. Advanced degree programs, including a doctoral program in Malawi, have improved career development opportunities for nursing educators, and two new degree programs in nursing education have been launched to train additional faculty.

- **Leadership.** NEPI's effect as a catalyst for enhanced leadership in nursing and nursing education has yet to be fully realized. Already, partner schools have been transformed from basic training institutions to rich centers of learning for both students and faculty. NEPI has also increased the leadership role of nurses within national health systems. Leadership forums and best practice networks have created the opportunities for nurses to begin leading both health workforce activities and innovations to address public health challenges, especially HIV.
- **Institutional capacity.** ICAP has built NEPI partner schools' capacity to sustain achievements to date and continue updating the education they offer beyond NEPI, based on new clinical guidelines and national health priorities. ICAP has also upgraded schools' administrative and financial management systems and built their capacity to attract and manage funding, including U.S. Government support.

OWNERSHIP AND PARTNERSHIP

NEPI country programs are partnerships for transforming nursing and midwifery education and meeting country health needs. Ministries of health and education, nursing education institutions, nursing councils, HRSA, PEPFAR in-country teams, ICAP, and other stakeholders have worked together to realize NEPI's potential. NEPI is implemented under the guidance of the Office of the U.S. Global AIDS Coordinator and HRSA and the ownership and leadership of ministries of health, ensuring that investments support national health workforce strategies. National technical working groups have overseen the selection of nursing schools to be supported by NEPI and the design of interventions to upgrade teaching and learning, build institutional capacity, and foster leadership in nursing education. These interventions have been driven by nursing schools' leadership, faculty, and staff, with needs-based training, technical support, and mentorship from ICAP to assure the quality of teaching and strengthen institutional capacity.

LESSONS LEARNED AND THE WAY FORWARD

Ever larger cadres of well-trained nurses will be needed in high HIV-burden, low-resource settings, as test and treat approaches to comprehensive HIV care are implemented and more patients require care for comorbidities and concurrent chronic diseases. NEPI has provided a long overdue and much needed infusion of expertise and resources and generated valuable lessons to inform efforts to upgrade nursing and midwifery education. Combined nursing and midwifery training and the redesign of curricula to be competency based are fundamental changes to the way that nurses are educated. Increasingly, pre-service education addresses HIV core competencies and the expanded role of nurses in HIV care and treatment, while innovations such as simulation-based training and e-learning have been shown to be both acceptable and feasible in low-resource settings.

“Without an adequate number of well-trained and skilled nurses, HIV care will not reach everyone in need. PEPFAR's Nursing Education Partnership Initiative is key to achieving PEPFAR goals on treatment coverage and retention, both vital to achieving the 90/90/90 targets.”

*Dr. Susan Michaels-Strasser,
NEPI Project Director, ICAP*

“NEPI has improved both classroom and clinical teaching. With NEPI support, the Ministry of Health has been able to tackle human resources for health issues in a very positive way and greatly improve collaboration between nursing colleges and nursing practitioners.”

Sheila Bandazi, Former Chief Nursing Officer and Director of Nursing and Midwifery Services at the Ministry of Health, Malawi



TABLE OF CONTENTS

INTRODUCTION	6
NEPI History and Objectives	6
Leadership and Coordination	7
NEPI-Supported Schools	7
APPROACHES, INTERVENTIONS, AND ACHIEVEMENTS	9
Implementing Best Practices in Teaching and Learning	9
Nursing Education Infrastructure	9
Competency-Based Curricula	10
HIV-Related Competencies	12
Clinical Skills Simulation Labs	12
E-Learning	14
Clinical Practicum Training	15
Tuition Support	16
ENHANCING ACADEMIC TEACHING AND CLINICAL INSTRUCTION	17
Knowledge, Skills, and Competencies	17
New Faculty Training Programs	18
Clinical Preceptor Training Programs	18
Advanced Degree Programs	18
REGULATING NURSING EDUCATION	20
CREATING NURSING EDUCATION PARTNERSHIP NETWORKS	21
Nursing Education Leadership	21
Regional Technical Assistance	21
SUSTAINABILITY	22
Ownership of NEPI	22
Capacity in Nursing and Midwifery Education	22

INTRODUCTION

The Nursing Education Partnership Initiative (NEPI) aims to increase the number and quality of nurses and midwives in Africa. More than 23,600 students have enrolled in NEPI-supported diploma and degree programs to date and 10,400 nursing and midwifery students have already graduated from NEPI-supported pre-service education programs.

NEPI HISTORY AND OBJECTIVES

NEPI is part of the commitment by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) to train 140,000 new health care workers. The U.S. Department of Health and Human Services/ Health Resources and Services Administration (HRSA) launched NEPI in 2010 as part of HRSA's Global Nursing Capacity Building Program (GNCBP). ICAP at Columbia University, the GNCBP's implementing partner, has served as the NEPI Coordinating Center. NEPI activities began in Lesotho, Malawi, and Zambia in 2010, followed by Ethiopia and the Democratic Republic of Congo (DRC) in 2011, and South Africa in 2013.

Improving the performance of health systems in high HIV burden countries depends on building capacity in nursing and midwifery, including capacity to educate the future nursing workforce. The goal of NEPI is to produce sufficient numbers of nurses and midwives who are able to respond to the long-term health needs of communities in sub-Saharan Africa, where they provide up to 90 percent of all health services.

Sub-Saharan Africa has 27 percent of the world's total burden of disease but just 3.5 percent of the global health workforce¹. Figure 1 shows how five of the six NEPI-supported countries fall far short of the World Health Organization (WHO) recommendation of 230 health care workers per 100,000 citizens .

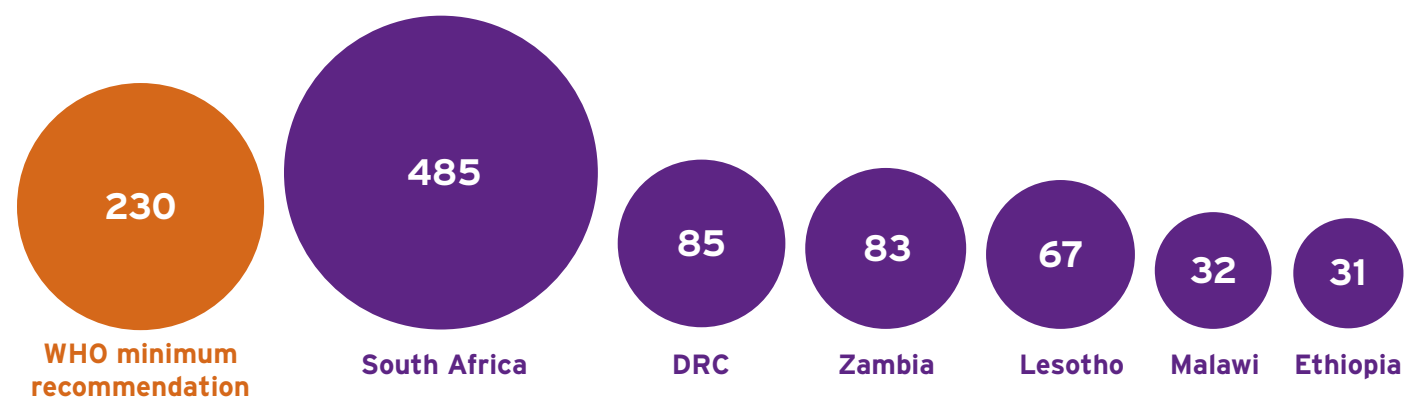
As the only health care workers in many rural areas and other settings, nurses must be able to manage acute and chronic medical conditions independently, including HIV. NEPI supports a combination of interventions in each country that increases the quantity of well-trained, clinically-competent nurses and midwives and builds the pre-service education capacity required for sustainable control of the HIV epidemic. NEPI currently supports 22 nursing schools in six countries and one nursing council (in Malawi), promoting competency-based education and the scale-up of innovations designed to align nursing workforce capacity with population health needs.

The objectives of NEPI are to:

- Strengthen teaching and learning infrastructure;
- Improve the quality and relevance of teaching and learning;
- Improve the capacity of nursing and midwifery faculty;
- Build governance, leadership, and administrative capacity within nursing education institutions; and
- Enhance partnerships with national and regional nursing education networks.

Further information about NEPI's history can be found at <http://www.pepfar.gov/partnerships/initiatives/nepi>.

Figure 1: Number of Health Care Workers per 100,000 People in NEPI Countries



¹The GNCBP commenced in 2006 and is ongoing. It is funded by PEPFAR through the HRSA, and ICAP has led its implementation since 2009. In addition to NEPI, ICAP supports the General Nursing sub-project of GNCBP. This project focuses on in-service training for nurses and midwives in six African countries, with the purpose of bridging the gap between their pre-service education and the competencies that they require to respond to population health needs.

LEADERSHIP AND COORDINATION

NEPI is a collaboration between the U.S. Government, ministries of health, schools of nursing, other in-country nursing stakeholders and PEPFAR implementing partners. Leadership and ownership of the Initiative is put into practice through national NEPI technical working groups (TWG). Known variously as TWG, advisory committees, and core teams in different countries, they provide leadership, direction, oversight, and coordination and ensure that NEPI-supported interventions are integrated with national human resources for health plans, guidelines on the role of the nurse, and task shifting policies. Establishing the TWG was an important early milestone for NEPI in each country and, in most cases, the first time that stakeholders had collaborated formally on issues related to nursing and midwifery education and practice.

TWG are led by Chief Nursing Officers within ministries of health. Membership varies by country but includes government ministries, education and training institutions, regulatory bodies, trade unions, technical assistance partners, PEPFAR in-country teams, and other stakeholders. TWG members play technical and advisory roles in the planning and implementation of NEPI, as well as coordinating activities and monitoring progress through regular meetings.

In its role as the NEPI Coordinating Center, ICAP provides a range of technical support: building the capacity of nursing schools through training, technical assistance, mentorship, and monitoring and evaluation; supporting ministries of health to facilitate TWG; and working with all stakeholders in the Initiative to promote innovation, learning, sharing of best practices, and cross-border collaboration. Strategic direction for implementation of NEPI has been provided by the Office of the U.S. Global AIDS Coordinator (OGAC) and HRSA.

NEPI-SUPPORTED SCHOOLS

NEPI currently supports 22 nursing schools in six countries. Their selection for NEPI support was based on a needs assessment of nursing and midwifery education in each country, and on rigorous selection criteria and processes designed to maximize the potential impact of PEPFAR investments. Needs assessments were conducted by the Clinton Health Access Initiative in Zambia, Malawi, and Lesotho and by Capacity Plus in DRC and Lesotho. Using assessment findings, and with technical assistance from ICAP, each NEPI TWG selected nursing schools and interventions for support. Box 1 summarizes the experience of selecting nursing schools for NEPI support in South Africa.

NEPI-supported schools receive technical support from ICAP in program design and implementation, clinical training, monitoring and evaluation, research, administration, and grant management, as well as tuition support for students enrolled in NEPI-supported diploma and degree programs. Table 1 lists the supported schools.

Table 1: NEPI-Supported Nursing Education Institutions, 2012-2016

Country	Nursing Schools
DRC	Kinshasa Higher Institute of Medical Technology Lubumbashi ISTM Kintambo Technical Medical Institute Kamalondo Institute of Medical Technology
Ethiopia	University of Gondar University of Addis Ababa Arba Minch College of Health Sciences
Lesotho	National University of Lesotho National Health Training College Christian Health Association of Lesotho (CHAL) Schools of Nursing in Maluti, Roma, Scott, Paray
Malawi	Mzuzu University, Department of Nursing and Midwifery University of Malawi, Kamuzu College of Nursing Malawi College of Health Sciences
South Africa	Free State School of Nursing, Northern Campus Mpumalanga College of Nursing Prince Mshiyeni Hospital College of Nursing
Zambia	University of Zambia, Department of Nursing Science Lusaka School of Nursing Monze School of Nursing



BOX 1
South Africa: Selection of Nursing Schools for NEPI Support to Maximize Impact from Investments

The NEPI TWG, under the leadership of South Africa's Chief Nursing Officer, selected three nursing schools in three provinces for NEPI support through a highly consultative process. The first step was to determine which provinces to target, using the following criteria: HIV prevalence and incidence; presence of rural nursing schools and national health insurance sites; absence of universities and health system resources; and opportunities to support Provincial strategic plans for nursing education. The TWG identified KwaZulu-Natal, Mpumalanga, and Free State as the provinces where the potential for NEPI investment to achieve critical HIV-related outcomes—including increasing the number of persons living with HIV who were diagnosed, initiated on ART, and virally suppressed—was greatest.

Next, the TWG identified nursing schools with interest in delivering three programs that will address key health workforce gaps: the Bachelor of Science in nursing, the Advanced Diploma in nursing, and the Diploma in midwifery. Drawing upon successes and lessons learned in other NEPI-supported countries, the TWG sought nursing schools that lacked resources, had potential to increase both numbers and quality of graduates, benefitted from good leadership and administration, and whose faculty shared NEPI's vision and ideals. The process concluded in late 2014, following technical review by the TWG and in-depth discussion with school leaderships in late 2014, with the selection of Prince Mshiyeni campus in KwaZulu-Natal, Mpumalanga College of Nursing, and Northern Campus in Free State to receive support from NEPI.

APPROACHES, INTERVENTIONS, AND ACHIEVEMENTS

IMPLEMENTING BEST PRACTICES IN TEACHING AND LEARNING

Globally and regionally, concern has been expressed regarding the relevance of pre-service nursing and midwifery curricula to communities' needs for primary health care and HIV care, and education-to-service 'competency gaps' were found during needs assessments in all NEPI-supported countries. A lack of funding and resources undermined nursing schools' ability to meet the needs of national health workforces, with many schools falling short of the nursing education standards established by the International Council of Nurses and WHO. NEPI's investment in supported schools' infrastructure, faculty, and teaching and learning systems has enabled them to offer competency-based education, the strategy for improving teaching and learning in classroom and clinical settings that is most frequently cited in human resources for health plans.³

NURSING EDUCATION INFRASTRUCTURE

NEPI-supported upgrades to the infrastructure of nursing schools have enabled them to increase student numbers and deliver high quality education using up-to-date methods.

The supported nursing schools lacked critical teaching and learning resources before NEPI. Textbooks and clinical teaching resources were often decades old, and information and communications technology was wanting. With technical assistance from ICAP, the schools upgraded their facilities and infrastructure to allow them to comply with national standards for education, increase enrollment and staffing, improve student access to resources, and reform teaching methods. Examples of ways in which NEPI has enhanced the infrastructure of supported schools are listed below.

- Clinical skills simulation labs were established or upgraded; labs are equipped with full body mannequins and static trainers that simulate real patients as closely as possible.
- Computer labs were fully equipped, internet speed and bandwidth was increased, and servers were installed to host the Moodle e-learning platform.
- Laptop and desktop computers were provided for use by students and faculty, along with data projectors and screens for classrooms.
- Each school's basic equipment needs were addressed, and libraries have been equipped with up-to-date textbooks.
- Faculty and other staff were trained to ensure the proper use, management, and maintenance of lab resources, and closed-circuit television systems were installed at skills labs, computer labs, and libraries.
- Vehicles were provided to transport students to and from clinical sites in Ethiopia, Lesotho, Malawi, and Zambia.
- Furnishings were procured for student hostels in Zambia.
- Prefabricated buildings were procured in DRC, Lesotho, Malawi, and Zambia to expand teaching and learning space.

The Kamuzu College of Nursing in Malawi increased enrollment and expanded access to distance learning by renting and renovating classroom and lodging space at three colleges and one hospital in the northern and southern regions of the country.



Read more about these achievements at nepinetwork.org.

³Middleton, L., Howard, A. A., Dohrn, J., Von Zinkernagel, D., Parham Hopson, D., Aranda-Naranjo, B., ... El-Sadr, W. M. (2014). The Nursing Education Partnership Initiative (NEPI): Innovations in Nursing and Midwifery Education. *Academic Medicine*, 89(8). Retrieved from nepinetwork.org.



COMPETENCY-BASED CURRICULA

NEPI-supported nursing schools now offer nursing and midwifery curricula that are competency-based and aligned with countries' priority health needs.

In DRC, Ethiopia, Lesotho, Malawi, and Zambia, where NEPI has been fully implemented, supported nursing schools have replaced their didactic, content-based curricula with competency-based, interactive curricula. Nursing and midwifery students now follow curricula that are aligned with the skills they will need to provide health services to communities, including HIV prevention, care, and treatment. As well as reform of existing curricula, NEPI supported the development of new diploma and degree programs that address specific health workforce gaps.

ICAP facilitated a three-step, backward design approach to curriculum revision or development,⁴ focused on ensuring that students develop the knowledge, attitudes, and skills that they require to attain full competency by the time of graduation:

- (1) Ministries of health, nursing educators, and ICAP worked together to identify the specific job tasks that students must be able to perform upon joining the workforce.
- (2) A competency framework was agreed upon in each country, and ICAP then worked with faculty to map important and frequent tasks to the framework, define measures of competency, and determine assessment methods.
- (3) At curriculum revision workshops, ICAP advisors worked with faculty to develop competency-based, student-centered curriculum modules and integrate simulation activities. Schools then received ongoing training and mentorship from ICAP to implement the revised or new curricula and updated teaching, learning, and assessment methods.

⁴Wiggins, Grant, and Jay McTighe, *Understanding by Design* (Pearson: Merrill Prentice Hall, 2006)

Curricula developed or revised with NEPI support:

DRC: Advanced Diploma in nursing (new)

Ethiopia: Bachelor of Science in nursing, Bachelor of Science in midwifery, Master of Science in medical nursing, Master of Science in surgical nursing, and Master of Science in pediatric nursing (all revised)

Lesotho: Post-basic Diploma in midwifery; Diploma in general nursing, Bachelor of Science in nursing and midwifery (all new)

Malawi: Bachelor of Science Nursing and Midwifery (revised); Master of Science in nursing and midwifery education, doctoral degree in inter-professional leadership (both new)

South Africa: Bachelor of Science in nursing, Advanced Diploma in midwifery, Staff Nursing Diploma (in development)

Zambia: Diploma in comprehensive nursing and midwifery (new, see Box 2)

BOX 2 Zambia: Developing a Diploma in Comprehensive Nursing and Midwifery

ICAP worked with the Ministry of Health and the General Nursing Council to develop a new, three-and-a-half year Registered Nurse-Midwife program at the Lusaka and Monze Schools of Nursing in Zambia. The combined program, created in response to the shortage of qualified midwives in rural areas, has halved the time required for accreditation in both nursing and midwifery.

As Evelyn Muleya, chief human resources officer at the Ministry of Health explains, "Nurses working at health facilities in the rural areas might often be the only health worker at the facility and, whether they have midwifery skills or not, they will have to do deliveries. Therefore the purpose of the program is to produce nurses who have both nursing and midwifery skills."



HIV-RELATED COMPETENCIES

Nurses are the main providers of HIV prevention, care, and treatment services in NEPI-supported countries and task-shifting, including nurse initiated and managed antiretroviral therapy (NIMART), is increasingly practiced and authorized in policy.⁵ However, in general, pre-service education had not evolved sufficiently to enable nursing graduates to provide HIV services with confidence and quality.

The integration of HIV-related competencies, as defined by ministry of health clinical guidelines and international recommendations,⁶ has been a major focus of NEPI-supported reform of nursing and midwifery curricula, to ensure that students are well-prepared to deliver HIV care and antiretroviral therapy (ART), prevention of mother-to-child transmission (PMTCT), and other high-impact interventions. ICAP has provided extensive technical assistance to build nursing schools' capacity to teach HIV knowledge, skills, and competencies as standard elements of pre-service education.

ICAP has also supported the schools to implement a self-assessment tool covering the HIV-related nursing competencies that are required in different settings. Students and faculty use the tool before and after specific educational activities to reflect upon and record their current sense of competence in: HIV education, testing, counseling, and prevention; clinical management of HIV for adults and children; ART; and PMTCT.

CLINICAL SKILLS SIMULATION LABS

Fully equipped, multidisciplinary simulation laboratories have been either newly installed or extensively upgraded at sixteen NEPI-supported nursing schools in five countries.

Clinical simulation is an important teaching and learning innovation that bridges classroom and clinic by allowing students to build clinical competence, confidence, and judgment over time. Before NEPI support, few nursing schools had clinical skills simulation labs and those in existence were outdated.

Nursing schools now have appropriately resourced skills labs, which include high-fidelity computerized mannequins that respond like real patients, in addition to low-fidelity simulators and task trainers. Students at all levels of training have the opportunity to apply their theoretical knowledge and hone their competencies prior to clinical placement, in areas including obstetrics, resuscitation procedures, and ward hygiene and management.

Between April 2012 and May 2016 over 35,000 students completed clinical simulation lab training and met the competencies required, as assessed through pre- and post-testing. Beyond NEPI, thousands of students per year will continue to have access to these important resources for independent learning, self and mediated instruction, computer-based instruction, and skills practice. Box 3 describes what this means to students and schools in Lesotho.

BOX 3 Lesotho: NEPI Builds Capacity in Simulation-Based Nursing Education

When Maselobe Lebona studied nursing at the National University of Lesotho, the first time that students performed procedures such as drawing blood samples was on real patients. The students were nervous and many patients only allowed them one chance to obtain the sample. 'This was a problem because hardly any student was able to get blood on their first attempt,' remembers Lebona, 'and those test results determined whether HIV patients would begin life-saving treatment'.

Clinical skills labs have been installed at all six NEPI-supported schools in Lesotho, and faculty were trained in South Africa to use lab equipment, develop and implement simulation scenarios, and assess changes in students' competence. Each lab is overseen by a coordinator who manages infrastructure, assists faculty in running simulations, supports students, and carries out monitoring and evaluation activities. Today, Lebona is a clinical supervisor at National University where the simulation lab is equipped with low-, medium- and high-fidelity simulation models, ranging from realistic anatomical devices to life-like, human-sized mannequins that are computerized and physiologically responsive.

In three and a half years, more than 3,400 nurses and midwives completed skills laboratory competencies at the six NEPI-supported schools. Lesotho is already gaining regional recognition for best practices in clinical simulation, will be adapted by nursing schools in Malawi, Zambia, the DRC, and Ethiopia.

⁵ Zuber A, McCarthy C, Verani A, Msidi E, Johnson C. (2014). A survey of nurse-initiated and managed antiretroviral therapy (NIMART) in practice, education, policy, and regulation in east, central, and southern Africa. *Journal of the Association of Nurses in AIDS Care* 25:6 520-531.

⁶ *J Assoc Nurses AIDS Care*. 2011 Jan-Feb; 22(1 Suppl):e5-40. doi: 10.1016/j.jana.2010.07.007. Essential nursing competencies related to HIV and AIDS. Uys, L., Chipps, J., Kohi, T., Makoka, D., & Libetwa, M. (2013). Role analysis of the nurse/midwives in the health services in Sub-Saharan Africa. *Journal of Advanced Nursing*, 69(10), 2207-2217. <http://doi.org/10.1111/jan.12087>

ICAP has built schools' capacity to maintain skills labs, ensure that they are used effectively, and manage them sustainably.

- Technical support in all countries has included comprehensive training of faculty in simulation-based education, including: the design of skills lab scenarios that prepare students for nursing and midwifery practice; mediating instruction; and assessing competencies.
- In **Malawi**, each school has appointed a clinical skills laboratory manager to manage the facility and provide support to students, and dedicated funds have been set aside from tuition fees for skills lab maintenance. The schools are collaborating with teaching hospitals to deliver continuing professional development sessions at the labs for both faculty and clinical staff.
- In **Zambia**, the NEPI-supported schools have appointed clinical instructors within the labs to plan and manage clinical skills simulation sessions. They have also appointed skills lab coordinators to manage the facilities, with support from Skills Lab Management Committees that meet each month. Beginning in 2016, supplies for clinical skills labs are being included in the annual action plans that the nursing schools submit for government funding.

Table 2 shows how opportunities for clinical learning have significantly increased as a result of NEPI support for skills labs.

Table 2: Number of Skills Labs Installed or Upgraded and Number of Students Completing Skills Lab Competencies

Country	Number of Skills Labs		Number of Students Completing Skills Lab Competencies
	Installed	Upgraded	
DRC	1	1	13,525
Ethiopia	1	3	15,20
Lesotho	6	6	3,475
Malawi	1	1	2,405
Zambia	2	3	1,230



E-LEARNING

NEPI support has greatly increased access to e-learning for nursing students and faculty. ICAP has assisted schools to install new computer labs equipped with servers, expanded internet bandwidth, video-conferencing, and extensive learning resources, while computer labs at 20 schools have been upgraded. These resources enable nursing schools to offer mixed methods programs that include distance learning during placement in rural areas; they enable faculty to stay current on clinical practice guidelines in order to provide up-to-date education; and they enable students to access to up-to-date information even if the latest textbooks are not available. Box 4 describes how NEPI has supported e-learning as a strategy for accelerating the implementation of PMTCT Option B+.

BOX 4 Online Training Prepares Nurses and Midwives for PMTCT Option B+

Online training in PMTCT Option B+ is the latest resource that ICAP has created to improve education and training for nurses and midwives. The course was developed as a distance learning tool to support the B+ rollout. The online course includes competency-based modules on HIV counseling and testing, ART for pregnant women, and care for HIV-exposed infants. It features narratives and case studies, as well as interactive activities in which students apply information to real life scenarios, along with evaluation tools that learners and instructors use to monitor progress and review test scores.

ICAP worked with faculty at four NEPI-supported nursing schools in Malawi, Zambia and Lesotho to pilot the B+ e-learning module during the 2014-15 academic year. A total of 166 nursing and midwifery students completed the module, 90 percent of whom stated that they were satisfied with the learning experience. On average, their knowledge of the Option B+ approach to PMTCT improved by 16 percent from pre-test (66 percent) to post-test (82 percent).

NEPI has supported the expansion of online Option B+ training to a broader audience of pre-service nursing education institutions and in-service nursing and midwifery training providers, as well as promoting the course for use by individual nurses and midwives. As of December, 2015, over 2,000 nurses and midwives in 32 countries had completed the course (see Figure 2). It has been accredited for six hours of continuing professional development credit and promoted for continuing education among practicing nurses and midwives in sub-Saharan Africa through the East, Central, and Southern Africa Colleges of Nursing's Continuing Professional Development Library.

Figure 2: 1,258 Users of Option B+ E-Learning in 32 Countries Globally



Online PMTCT Option B+ training is free to access at elearning.icap.columbia.edu

In **Lesotho**, NEPI is promoting e-learning at the national level. NEPI supported a national assessment, the establishment of a National E-Learning Steering Committee, and the production of a roadmap for implementation. A national e-learning platform was established and was piloted for the one-year post-basic Diploma in midwifery. This e-learning program will launch in 2016 upon accreditation from the Council on Higher Education, the Lesotho Nursing Council, and the National University of Lesotho. The diploma was prioritized for e-learning because Lesotho has an urgent need for primary health care providers who are trained in both nursing and midwifery. The online curriculum features interactive learning modules, discussion forums, and standardized assessments, which will be reinforced and supplemented with clinical supervision in skills labs and midwifery practice settings.



CLINICAL PRACTICUM TRAINING

NEPI has expanded access to high quality, structured clinical practicum training for nursing and midwifery students. Clinical placements enable students to master the array of essential skills needed to provide comprehensive, quality care and manage acute and chronic medical conditions, including HIV.

Inadequate access to clinical practice and mentorship opportunities was a gap that jeopardized the quality of pre-service nursing education in NEPI-supported countries. Thus, technical and logistical support to improve practicum training was a high priority for NEPI investment.

ICAP has fostered collaboration between nursing schools and ministries of health in all six NEPI-supported countries on initiatives to expand access to high quality, competency-based preceptorship opportunities and implement standards for clinical teaching and student learning. Students and supervising faculty are connected to diverse clinical placements in hospitals, health centers, and community settings with a high or moderate volume of HIV patients. In five countries, NEPI funds have been used to purchase buses and vans to transport students between nursing schools and practicum sites, while in Lesotho NEPI has supported improvements to dormitory accommodations, such as indoor sanitation, quiet sleeping areas, and private spaces for individual study.

Boxes 5 and 6 describe NEPI-supported innovations in preceptorship in Ethiopia and Malawi, respectively.

"E-learning is a great way for faculty in nursing schools to stay current on clinical practice guidelines so that students receive cutting-edge education. It also has the potential to make continuing education more convenient and to reduce costs and absenteeism associated with in-service training workshops, so that nurses can remain at the frontlines providing care."

Janel Smith,
Nursing Education Officer, ICAP

"I am very satisfied with teaching in this ward. I am becoming more competent because there is proper guidance, support, and resources to assist us with learning the skills."

Joseph Yusufu,
student at Zomba Model Ward

BOX 5 Ethiopia: Students Gain HIV, TB, and Malaria Skills at Rural Teaching Sites

Three NEPI-supported schools—Addis Ababa University, University of Gondar, and Arba Minch College of Health Sciences—have collaborated with Ethiopia's Federal Ministry of Health to strengthen community health practice by establishing clinical practicum training sites in rural areas.

"In Ethiopia, where nurses and midwives are heavily concentrated in urban areas, these rural attachments students train in under-served communities, where health care services are needed most," says Dr. Lyn Middleton, ICAP's former NEPI Regional Nurse Advisor. "They gain critical experience with malaria, tuberculosis, and HIV patients, graduating with hands-on experience in prevention, care and treatment."

Students rotate and practice at different units within practicum sites, participate in outreach programs, and conduct home visits in the community. ICAP has trained rural nurses as preceptors, and the nursing schools have procured buses to transport students to district hospitals in remote areas.

The rural attachment program now includes a total of 32 sites, and over 1,140 students have undertaken placements since 2013.

BOX 6 Malawi: Model Wards Provide Clinical Training

In the early 1960s students from Malawi's National School of Nursing developed their clinical skills by working on a model ward at the Queen Elizabeth Central Hospital in Blantyre, but the model ward faded from use in the 1970s due to lack of investment. With NEPI support, Mzuzu University and the Ministry of Health have collaborated to reintroduce model wards at four hospitals: Kasungu District Hospital, Mzuzu Central Hospital, Ntcheu District Hospital, and Zomba Central Hospital. Two hospitals primarily serve TB and HIV patients, and two specialize in surgical procedures.

To build the hospitals' capacity to house model wards, ICAP trained 156 preceptors, oriented a further 90 nurse midwife technicians on clinical training, and provided guidance materials and equipment. ICAP also developed a six-week training curriculum in HIV service provision, in which students observe ART initiation, work directly with HIV-positive pregnant women, and apply nursing practices to the day-to-day care of HIV patients. ICAP and Mzuzu University staff conducts regular supportive supervision visits for instructors, and ICAP has created forums across the country for tutors and hospital staff to monitor and discuss students' progress.

Since model wards were reintroduced in 2011, over 3,000 nursing and midwifery students have undertaken practicum placements at the four sites.

ENHANCING ACADEMIC TEACHING AND CLINICAL INSTRUCTION

TUITION SUPPORT

Tuition support provided through NEPI in DRC, Ethiopia, Lesotho, Malawi, and Zambia has enabled ministries of health to target investment to specific skills shortages, notably midwifery.

NEPI has provided nursing and midwifery students at supported schools with tuition support as a strategy for: expanding enrollment in selected programs; stabilizing student numbers during the life of programs; and increasing graduation rates by ensuring that students do not drop out due to financial difficulties. An additional benefit has been to stabilize schools' budgets, enabling them to plan and carry out needed improvements to facilities.

Stakeholders in **Lesotho** prioritized midwifery for NEPI tuition support, and 255 midwifery students have received tuition support through NEPI to date. Enrollment in Diploma in midwifery programs has increased steadily since tuition support was introduced in 2012, as illustrated in Table 3, and high graduation rates have been sustained. The Scott School of Nursing introduced a new Diploma in Midwifery program in 2012, since then 86 of 90 enrolled students (96 percent) have benefitted from tuition support.

Upgrading nurse-midwife technicians to registered nurses was a priority for the Ministry of Health in **Malawi**. This NEPI-supported intervention aimed to address the imbalance between population health needs and provider competencies in communities where nurse-midwife technicians are the sole health service providers. Between 2012 and 2015, tuition support enabled 85 practicing nurse-midwife

technicians to enroll as students in the Diploma in Registered Nursing bridging program at Malawi College of Health Sciences.

In **Zambia** the Ministry of Health selected the new combined Diploma in Nursing and Midwifery program as a priority for tuition support to increase enrollment. This three and a half year program at the Lusaka and Monze Schools of Nursing was developed with technical support from ICAP under NEPI. Its purpose is to increase the number of nurses with midwifery skills so that midwifery services may be integrated with other health care, thereby increasing their accessibility. To date, 162 students have received NEPI tuition support for the Diploma in Nursing and Midwifery, which increased enrollment to full capacity at both schools.

Table 3: Number of Students Enrolled in Diploma of Midwifery Program at Four Nursing Schools in Lesotho, 2011-2015

Year	Number of Students
2011	108
2012 (Tuition support introduced)	165
2013	166
2014	183
2015	204



Three core interventions have significantly increased nursing education workforce capacity in NEPI-supported countries: training and mentorship of existing nursing faculty; initiatives to train additional faculty and clinical instructors; and advanced degrees for nursing educators.

KNOWLEDGE, SKILLS, AND COMPETENCIES

Nursing school faculty in high HIV burden countries have a pivotal role to play in producing adequate numbers of appropriately educated nurses and midwives. At the outset of NEPI, the need for more educators with up-to-date knowledge, skills, and competencies was acute in all countries. ICAP has provided extensive training and mentorship to faculty at NEPI-supported schools to build their capacity in areas listed below.

Teaching skills /active pedagogy. Faculty at nursing schools learned to deliver competency-based curricula using student-centered methodologies, such as case-based and problem-based classroom teaching, clinical simulation, and e-learning. They have also trained in objective structured clinical examination and in clinical preceptorship to supervise and mentor students on practicum placements. Additionally, ICAP has trained trainers in all these aspects of nursing education.

Simulation-based education. NEPI has spearheaded the introduction of simulation-based education in Zambia, Lesotho, DRC, and Ethiopia. ICAP and the Forum of University Nursing Deans in South Africa (FUNDISA) have supported nursing school faculty and staff to design skills labs that address population health needs, and provided in-country training in scenario development, competency evaluation, and skills lab management. Since 2015 case studies and learning exercises have focused on core competencies for HIV prevention, care, and treatment, in line with the principles of PEPFAR 3.0.

Clinical management of health priorities. ICAP has provided faculty with needs-based training to update their clinical knowledge and skills or address gaps in priority areas, such as 'test and treat' approaches to ART initiation. ICAP also provides faculty with free access to online training on clinical topics and support for life-long learning.

Curriculum development. ICAP has trained faculty to review and develop competency-based curricula, using the backwards design approach to ensure that graduates are fully prepared for practice. ICAP's innovative webinar series on curriculum development (see Box 7) complemented participative in-person workshops. This training ensures that partner schools will have the capacity to continue updating and improving their curricula after NEPI funding ends.

Research. ICAP has trained faculty in research methods and research supervision methods, abstract development, and report writing, in order to build capacity in nursing education research in NEPI-supported countries. In the DRC, ICAP assisted in developing a common research template that now serves as the national standardized research tool for nursing and midwifery schools. The number of high quality abstracts prepared by NEPI institutions has increased steadily, and schools now routinely submit abstracts to national and regional conferences.

BOX 7 The Curriculum Design Webinar Series

INTRODUCTION:

The backward approach to designing competency-based curricula.

STEP 1:

Identifying desired results: What should students know, understand, and be able to do?

STEP 2:

Determining acceptable evidence: How will we know if students have achieved the desired result and met standards?

STEP 3:

Planning learning experiences and instruction: What activities will equip students with the needed knowledge and skills?

APPLICATION:

Developing competency-based modules using backward design.

NEW FACULTY TRAINING PROGRAMS

Shortages of nursing educators in Zambia and Malawi were bottlenecks that undermined health workforce development in general and efforts to increase enrollment in nursing and midwifery programs in particular.

In 2012, NEPI stakeholders in **Zambia** introduced tuition support for the Bachelor of Nursing tutor program at the University of Zambia, Department of Nursing Sciences, resulting immediately in a 60 percent increase in enrollment compared to the previous year. A total of 45 nurse tutors enrolled in the program have received NEPI tuition support to date.

In **Malawi**, NEPI tuition support has enabled 36 registered nurses to enroll in the MSc Nursing and Midwifery Education program. As a result of this initiative, the Ministry of Health anticipates that the required number of nursing faculty will be in place by the end of 2016.

CLINICAL PRECEPTOR TRAINING PROGRAMS

NEPI-supported schools in Zambia and Malawi have also launched programs in clinical preceptorship to address shortages of practicing health professionals who have been formally trained to support nursing and midwifery students during clinical practicum placements. Preceptorship training also serves as a career development opportunity for experienced clinical nurses and midwives.

ICAP supported the Lusaka School of Nursing in **Zambia** to develop a one-year Diploma in Clinical Preceptorship. First offered in 2013, it is designed for experienced nurses and midwives working in clinical settings. The Ministry of Health encourages them to enroll by offering tuition support and study-release. A total of 47 students drawn from both rural and urban settings have graduated to date, and the program is set to achieve the desired national standard of one clinical preceptor per ten students in training by 2018.

To improve clinical teaching in **Malawi**, ICAP assisted Mzuzu University and the Ministry of Health in the creation of a six-week post-graduate Certificate in Clinical Preceptorship. The course, which was first held during the 2012-2013 academic year, prepares registered nurse midwives for preceptor postings at central and district hospitals countrywide. So far 156 nursing preceptors have been trained, 60 percent of whom have received NEPI tuition support. Additionally, 90 nurse-midwife technicians have received orientation on preceptorship.

ADVANCED DEGREE PROGRAMS

Many nursing and midwifery educators in sub-Saharan Africa have left teaching positions or emigrated in search of opportunities to further their careers, at great loss to nursing schools and national health systems. The masters and doctoral programs described below are helping to reverse that trend by elevating the discipline of nursing education in NEPI-supported countries and enhancing in-country career pathways for nursing educators. Programs are blended, meaning that faculty members continue to teach at their respective institutions and/or in clinical settings, but return to school for periods of time. The scholarships supported by NEPI entail a work commitment to home institutions after completion.

By increasing the number of tutors with advanced expertise in education and specialized clinical knowledge and skills, NEPI-supported advanced degree programs are already improving clinical and academic education. Beyond NEPI, these tutors will sustain nursing schools' efforts to deliver relevant, up-to-date pre-service education, and the leadership cadres produced by masters and doctoral programs will shape the future of nursing and midwifery education in their countries. Retention, pride, and excellence in nursing and midwifery education leadership have also been encouraged by NEPI-supported mentorship, along with workplace enhancements, such as computer and clinical skills labs.

Zambia: Staff Development Fellowships. NEPI has supported faculty from the Department of Nursing Sciences at the University of Zambia to obtain master's degrees in anatomy, physiology, pathology, and biochemistry to address shortages of tutors in these areas. The staff development fellowships allow nursing faculty to pursue advanced study on a part-time basis while they continue to teach and mentor students.

Malawi: Masters in Nursing and Midwifery Education. This program, introduced by Kamuzu College of Nursing at the University of Malawi, created a new career opportunity for faculty from all the country's nursing colleges. A total of 36 participants from 12 Christian Health Association of Malawi (CHAM) colleges and three government schools of nursing have received NEPI tuition support. The program is delivered at Kamuzu College's three distance education centers, enabling faculty to pursue advanced study without absence from work or disruption to family life.



Malawi: Doctoral programs. Kamuzu College has also introduced a PhD in inter-professional health care leadership, Malawi's first doctoral program in nursing and the first such program on the continent, outside of South Africa. ICAP facilitated development of the curriculum framework by a team of experienced nurse and general educationalists and health experts from across the country, and the curriculum was approved for implementation by the University of Malawi senate in 2013. The PhD program is taught by faculty from around the world and supported with technical assistance from ICAP's regional office in South Africa. Seven nurse leaders from Kamuzu College, Mzuzu University, and the Ministry of Health are enrolled, four of whom are receiving NEPI scholarships. Six additional faculty members are receiving scholarships to complete doctoral programs in South Africa.

"The PhD program's effects are already being harnessed. The doctoral students' research ranges from the role of model wards in delivery of care to understanding the experience of preceptors in clinical teaching. It responds to very pertinent and relevant issues that will promote collaboration among health providers in HIV services and encourage new thinking and evidence-based policy development."

Gertrude Chipungu,
ICAP Country Director, Malawi

REGULATING NURSING EDUCATION

NEPI has supported ministries of health and nursing councils to improve the regulation of nursing and midwifery education.

NEPI has advanced policy discussions and the development of standard national guidelines for nursing and midwifery education, through technical support from ICAP's in-country, regional, and global nursing advisors and PEPFAR in-country teams. ICAP also provides technical and logistical support to implement standards and assists ministries of health and nursing councils as they collaborate with professional associations on workforce policy issues.

The Nurses and Midwives Council of **Malawi** (NMCM), a strategic NEPI partner, has developed and implemented new Nursing and Midwifery Education Standards (see Box 8). ICAP has also provided the NMCM with technical assistance to develop Objective Structured Clinical Examination guidelines for standardized assessment of clinical competencies in simulated and clinical settings.

In the **DRC**, ICAP supported the Ministry of Health to develop new standards for secondary-level education in ethics and deontology, which are now being rolled out to more than 200 secondary-level schools countrywide. This intervention is vital to improve the viability of secondary nursing schools, just 8 percent of which were judged viable by a ministerial audit in 2009.



BOX 8 Malawi: Improved Regulation of Nursing and Midwifery Education

With NEPI support, the Nurses and Midwives Council of Malawi (NMCM) has implemented national standards for pre-service nursing and midwifery education at all nursing education institutions in the country. Nursing councils from other countries have visited Malawi to learn from the NMCM's experience.

The NMCM led the development of new national standards with technical assistance from ICAP. Through a participative process that engaged nursing education institutions, teaching hospitals, and the national nursing association, standards were built upon the WHO's global standards for pre-service nursing and midwifery education and adapted to the national context. For example, licensure exams now use objective structured clinical examination and emphasize HIV prevention, care, and treatment.

ICAP trained nursing school faculty to implement the new standards and trained NMCM assessors to conduct re-accreditation assessments at all 16 nursing schools in Malawi. Assessors identify steps that are required for schools to improve their academic programs or their administrative and financial structures, and these are then addressed through quality improvement workshops for faculty and other staff.

CREATING NURSING EDUCATION PARTNERSHIP NETWORKS

NEPI was the catalyst for unprecedented collaboration among nursing education stakeholders to implement best practices and improve standards.

NURSING EDUCATION LEADERSHIP

Prior to NEPI there was little networking, coordination, or sharing of best practices among nursing schools and other nursing education stakeholders. NEPI TWG and national partners' forums provided the impetus for the creation of further networks, which have given nurses a greater collective voice in debate and decision-making on health workforce issues. Today, nursing education stakeholders collaborate through a range of networks on efforts to strengthen the nursing workforce to meet population health needs. Tutors have also created networks to coordinate specific interventions, share experience, and build on achievements. NEPI-inspired leadership networks include the following:

- The NEPI Schools Clinical Mentors Network in **DRC**, through which 15 practicum training sites are coordinating implementation of the new advanced level nursing curriculum.
- The National Nursing and Midwifery Educator Forum in **Ethiopia**, which was set up to develop nursing and midwifery education standards and promote evidence-based nursing and midwifery practices.
- The National Nursing and Midwifery Education Committee in **Lesotho**, which oversees all nursing and midwifery education activities undertaken by the government, the private sector, or development partners.
- The National E-learning Steering Committee in **Lesotho**, which is leading the development and implementation of e-learning interventions within nursing and midwifery education.
- The National Leaders and Tutors Forum in **Malawi**, through which nursing colleges and district teaching hospitals harmonize clinical teaching for nursing and midwifery students.
- The Clinical Practicum Placement Coordination Forum in the southern region of **Malawi**, which supports practicum sites to improve clinical teaching and ensures that all nursing and midwifery students have equal access to clinical learning opportunities.

REGIONAL TECHNICAL ASSISTANCE

NEPI has increased opportunities for nursing education institutions in different countries to collaborate and share best practices. Study tours and exchange visits between nursing schools, nursing councils, and ministries of health have allowed those leading NEPI interventions to learn face-to-face about successful interventions and promising best practices in other countries. Three examples of cross-border technical assistance are presented below.

Preceptorship and clinical simulation: Faculty from Malawi, Lesotho, and Zambia undertook study tours to South Africa to learn best practices in preceptorship and clinical simulation. Training was provided by four nursing schools affiliated to FUNDISA: the University of KwaZulu-Natal, the University of Cape Town, the University of the Western Cape, and Nelson Mandela Metropolitan University. NEPI-supported schools in Lesotho have developed a reputation for excellence in clinical simulation (see page 12), and in 2013 they hosted an exchange visit by faculty from the three NEPI-supported schools in Ethiopia.

E-learning. The African Medical Research Foundation (AMREF), a regional NEPI partner, provided technical assistance in for e-learning Lesotho. AMREF worked with a range of stakeholders to put e-teaching and e-learning infrastructure in place, establish modules on the e-learning platform, train faculty in the development of e-content, and train both faculty and IT staff to manage the platform.

Master's degree programs. Before the Department of Nursing at the National University of Lesotho began developing a master's degree in nursing, its faculty visited Kamuzu College of Nursing at the University of Malawi to learn from their experience in advanced nursing education, for example: combining face-to-face teaching, e-learning, and mentored practicum training to enable nurses to combine study and practice; and offering scholarships to increase enrollment by nurses and nurse tutors from rural areas.

SUSTAINABILITY

OWNERSHIP OF NEPI

The commitment of all NEPI stakeholders to country ownership is fundamental to sustaining NEPI-supported achievements beyond the life of the Initiative. Ministries of health and other NEPI stakeholders collaborated closely from the outset to put sustainable country ownership models in place that will assure the continuation and quality of interventions after NEPI's financial support for nursing schools ends. National NEPI TWG, led by ministries of health, have forged consensus among nursing and midwifery education stakeholders regarding long-term priorities and sustainable implementation of NEPI. For example, the TWG have: advised on institutional assessments, school selection and capacity building interventions; coordinated the participation of governmental partners; facilitated access to ministerial decision-making bodies; advocated for the establishment of regulatory bodies; and integrated NEPI into national human resources for health plans.

When Maselobe Lebona studied nursing at the National University of Lesotho, the first time that students performed procedures such as drawing blood samples was on real patients. The students were nervous and many patients only allowed them one chance to obtain the sample.

“This was a problem because hardly any student was able to get blood on their first attempt,” remembers Lebona, “and those test results determined whether HIV patients would begin life-saving treatment.”

CAPACITY IN NURSING AND MIDWIFERY EDUCATION

As a result of the technical assistance provided by ICAP under NEPI, nursing schools and their faculty are able to provide nursing and midwifery education that is:

- Based on population health needs;
- Provided to sufficient numbers of students; and
- Delivered using up-to-date best practices in teaching and learning.

The schools themselves drove the process of upgrading nursing and midwifery education from the start of the Initiative, and ICAP provided facilitation, training, and mentorship support for each NEPI-supported intervention.

NEPI has also ensured that supported schools have the administrative capacity to sustain achievements and to manage programs and donor funding. During the early years of NEPI, nursing schools received intensive support to ensure the compliance of administrative and financial management with U.S. government standards, strengthen accounting and data collection systems, and build capacity to manage sub-awards. ICAP trained faculty and staff in grant management, project planning, program management, networking and partnership building, leadership, change management, and evidence-based decision-making. Trainings were also attended by ministries of health and nursing and midwifery associations.

ted advanced degree programs and nursing education leadership networks have significantly augmented leadership capacity within the nursing education profession. Supported schools have faculty development plans in place, designed to develop technical leadership that is responsive to countries' health needs. Nursing schools and their faculty have already assumed a leadership role in the transformation of nursing and midwifery education in NEPI-supported countries, an early testament to the Initiative's success.

ABOUT ICAP

ICAP was founded in 2003 at Columbia University's Mailman School of Public Health. Now a global leader in HIV and health systems strengthening, ICAP provides technical assistance and implementation support to governments and non-governmental organizations in more than 21 countries. ICAP has supported work at more than 5,250 health facilities around the world. More than 2.5 million people have received HIV care through ICAP-supported programs and over 1.7 million have begun antiretroviral therapy.





Online at icap.columbia.edu

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