

Annex 5: Examples of Successful Business Models in Medical and Nursing Education

As mentioned in Section II, Sub-Saharan Africa has the lowest availability of qualified medical resources in the world (Figure A5.1).

Personnel numbers are well below WHO standards¹²⁶ in 36 out of 45 Sub-Saharan African countries, and there is a cumulative shortage of about 1.3 million Human Resources for Health (HRH), 750,000 of whom are health delivery workers (Figure A5.2). This represents about 30 percent of the global HRH shortage.

Although there are close to one million total HRH workers in Sub-Saharan Africa, the number in the 36 “shortage” countries is only 590,000; a

staggering 140 percent increase in HRH in those countries is required to provide even the most basic health services.

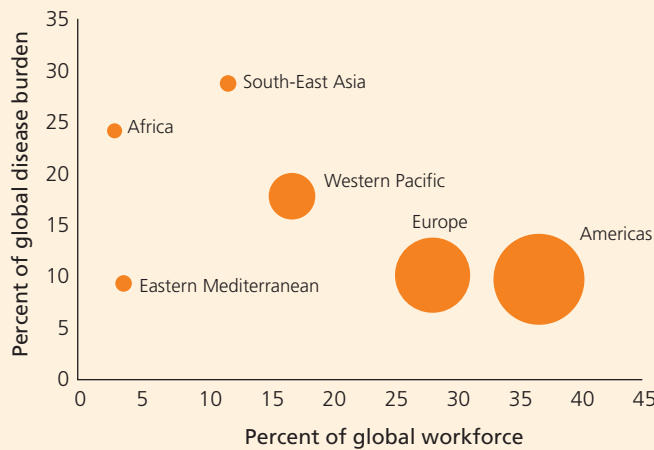
Beyond this major issue, there has also been little improvement in HRH coverage over the last 40 years in the region, whereas other countries, such as India and Morocco, have seen physician and nurse densities increase by 200–400 percent.

Growth in numbers of physicians across countries in Sub-Saharan Africa has stagnated and, in some countries, even decreased. Across other cadres, numbers are growing slowly, but the growth of

Figure A5.1

Human resources for health by region

Distribution of health workers by level of health expenditure and burden of disease, by WHO region.



Africa suffers from **24 percent of the global burden** of disease but has access to only **three percent of health workers** and less than one percent of the world's financial resources.*

* Even with grants and loans from abroad.

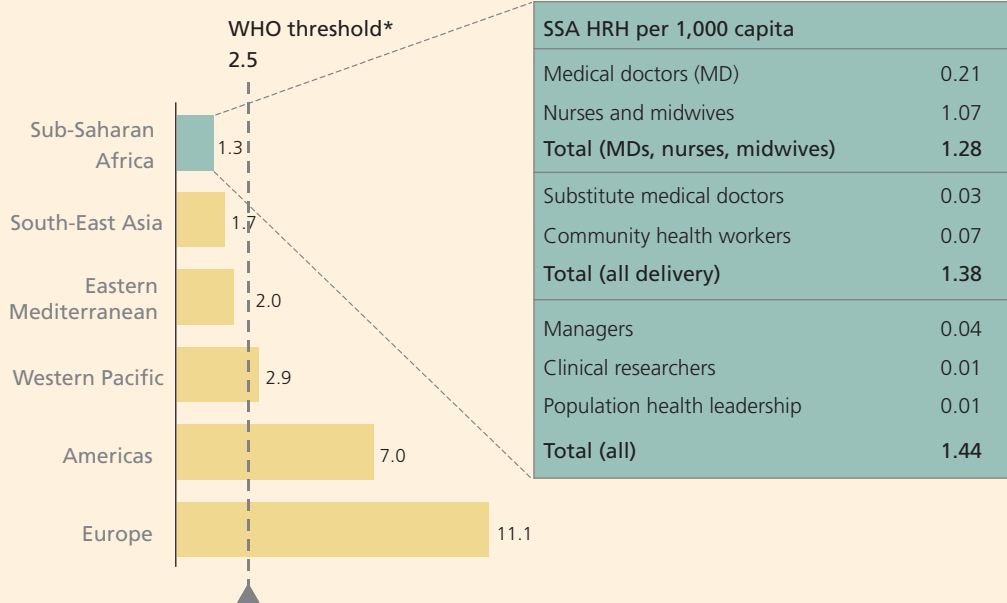
Note: 36 of the 57 countries with critical shortages of health workers (as defined by WHO) are in Africa.

Source: World Health Report, 2006; McKinsey analysis.

Figure A5.2

Medical doctors (MDs), nurses, and midwives by WHO region, 2006

People per 1,000 capita



* Derived from Anand Baernighausen regression that shows 2.5 workers per 1,000 capita needed for at least 80 percent coverage for two basic health interventions, i.e., one-year-olds immunized against measles and skilled health personnel present during child birth.

Source: Joint Learning Initiative, WHO; McKinsey analysis.

HRH is inadequate to keep pace with population growth and offset the current shortage.

Figure A5.3 shows a comparison of the HRH landscape in Ghana, Senegal, and Kenya. Although these countries vary in their systems and degrees of success meeting their HRH needs, all of them have an HRH shortage and exhibit immediate demand for growth in private medical schools.

Over the next decade, over 64,000 new physicians will be needed to fulfill growth estimates for health services provision. The HRH shortage will likely continue unless energy is focused on addressing the crisis through either private solutions or public-private partnerships, since the public sector does not appear to have sufficient resources to turn the situation around.

The private sector role within this market has nevertheless been limited thus far. This is mostly due to government regulations, the high capital investment costs peculiar to some element of medical and nursing education, and, in some cases, the inadequate spending power of students.




Student financing would considerably increase the pool of prospective students and could catalyze increased growth of private medical and nursing education. There is evidence, however, that the current medical education capacity is incapable of meeting the Sub-Saharan African demand. In Ghana, for example, public institutions can only absorb about 40 percent of the pool of qualified students who apply to nursing programs.

As shown in Figure A5.4, it is estimated that private medical and nursing education will represent about nine percent of the projected cumulative investment opportunity, or about \$1.1–\$1.9 billion.

Given that a considerable number of doctors leave Sub-Saharan Africa after completing their education, the capacity of educational institutions will have to grow considerably in order to produce the more than 80,000 new physicians necessary. A similar challenge holds true for nursing schools, pharmacist training schools, and community health worker training facilities. The private sector will

Figure A5.3

Medical and nursing education in selected countries

	 Ghana	 Senegal	 Kenya
Industry structure	<ul style="list-style-type: none"> • Six-year medical education offered by two large public universities. • Public schools only able to absorb 40 percent of qualified applicants; expansion of private education needed to train qualified applicants and meet country health needs (nine physicians per 100,000 people in 2002 is below 1975 levels). • Ghana currently trains ~1,000 nurses per year with need for more. • Health ministry support for more medical professionals, especially nurses. • Public education subsidized so private education (\$2,500 per annum) costs students more to attend. • 20–25 percent of Ghanaian-born nurses worked outside Africa in 2002. 	<ul style="list-style-type: none"> • Significant private commercial medical education, particularly of nurses: ~60 percent of nurses in Senegal are trained in private schools. • High demand for nursing school positions in country's 13 private nursing schools given limited capacity at public schools. • Four-to-eight-year medical education programs offered by two public universities. • 25–30 percent of Senegalese-born nurses worked outside Africa in 2002. 	<ul style="list-style-type: none"> • Five-to-six-year medical education for doctors offered by two large public universities, none private, producing ~450 doctors per year (14 physicians per 100,000 people in 2002—above 1975 levels but same as 1988 levels). • 58 nursing schools in Kenya as of 2004, both private and public. • Enrolled nurses represent half of registered medical personnel in Kenya. • Shortage of trained professionals in rural areas creates need for distance training programs. • ~Ten percent of Kenyan-born nurses worked outside Africa in 2002.
Opportunities	<ul style="list-style-type: none"> • Nursing schools. 	<ul style="list-style-type: none"> • Nursing schools. • Schools for other medical professionals, such as lab technicians. 	<ul style="list-style-type: none"> • Private medical schools. • Distance education.

Source: Ministries of Health; National Health Accounts; World Bank background paper No. 75, 2004; Center for Global Development; country interviews; McKinsey analysis.

need to enter in order to partially fill the demand gap. Medical and nursing education is asset intensive, and therefore most of the investment is for large and midsize enterprises, with over half of the investments being greater than \$3 million.

Successful Strategies

Strategies to succeed in this challenging environment do exist and will represent the basis for competitiveness either on a national or a regional basis:

- **Partnerships with foreign institutions.** In the United States, demand for nurses heavily outweighs the supply of registered nurses.¹²⁷ The Nursing Relief for Disadvantaged Areas Act of 1999 sought to address this issue by introducing the H-1C visa program, which allows foreign nurses to work for three years in the U.S. Since the U.S. is motivated to fill this shortage, Sub-Saharan African schools could partner with U.S. private hospitals or clinics to guaran-

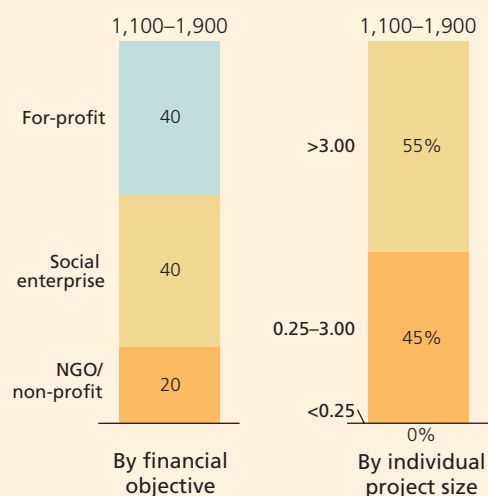
tee a flow of qualified nurses to the U.S.; U.S. institutions would partly finance the establishment of facilities in addition to supporting the development of the curriculum. Nurses would return to home countries after their time spent working in the U.S.

- **Cross-subsidization from other disciplines.** Since medical and nursing education typically requires a significant capital expenditure, it is likely that private schools would need to be operational for a number of years before they could become cash positive. Cross-subsidizing medical and nursing education programs within a larger context of other disciplines would allow businesses to become financially viable much sooner. For example, Central University in Accra, Ghana, is planning to start a large-scale school specializing in the education of pharmacologists, nurses, and physician's assistants; however, the school has been in operation previously for ten years, during which time it focused on business and divinity studies.

Figure A5.4

Medical and nursing education investment opportunities, cumulative 2007–2016

Percent, \$ million



Source: Ministries of Health; National Health Accounts; country interviews; McKinsey analysis.

• **Utilization of remote learning technologies.**

One of the key constraints associated with the education of medical personnel in rural areas is that the scale of the pool of students does not financially justify the employment costs of qualified professors and trainers. The utilization of remote learning technologies would make access to education a great deal cheaper for both schools and students (who would not need to relocate to major urban centers in order to further their educations).

Examples of Successful Business Models

The investment themes described in Figure A5.5 are selected examples of business models that effectively utilize the innovative strategies discussed above, achieving financial success, but also having an enormous development impact.

The likelihood of an investment’s success will significantly depend on the country that it targets. This will be true both because different countries will present different market opportunities (both in terms of expected market growth and competitive scenario) and because the investment climate remains significantly heterogeneous across the region.

Figure A5.5

Promising investment themes for medical and nursing education

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Large multi-discipline university	• Hubert Kairuki (Tanzania).	• 1.0–5.0	• 2.0–10.0	• Expands the overall capacity of the health care system and addresses the critical reason for resource shortage.
Schools for nurses, midwives, lab technicians	• Institut Santé Service (Senegal). • Central University college (Ghana).*	• 0.3–2.0	• 0.3–2.0	• Expands the overall capacity of the health care system within a country.
Distance learning for nurses	• African Medical & Research Foundation (AMREF) (Kenya).	• 0.2–0.5	• 0.2–0.5	• Provides access to education to students in rural areas and avoids them the cost of relocation. • Increases the availability of specialized skills in rural areas.

* Medical and nursing education program planned to be launched in September 2007.

Source: Country interviews; McKinsey analysis.

Large Medical Universities Offering Multiple Disciplines

Given that most forms of medical education require similar types of fixed investments in laboratories, medical equipment, and buildings, schools that have multi-disciplinary courses can become financially sustainable through cross-subsidization. By offering multiple disciplines, schools increase the overall volume of students and can amortize their capital costs over a larger revenue base.

However, this market is strongly driven by government regulation, which does not allow for the private sector to participate in medical education in many countries. Changing these regulations—while maintaining enforcement of strict quality standards and implementing a student-loan financing system—could prove to be an effective

catalyst for replicating this model. Countries like Ghana, Uganda, and Senegal, which have open policies encouraging the participation of the private sector in education, are best suited to see the growth of such business models.

Universities of this kind naturally require a large minimum size to operate, and are expected to have a revenue basis in the range of \$1–\$5 million.

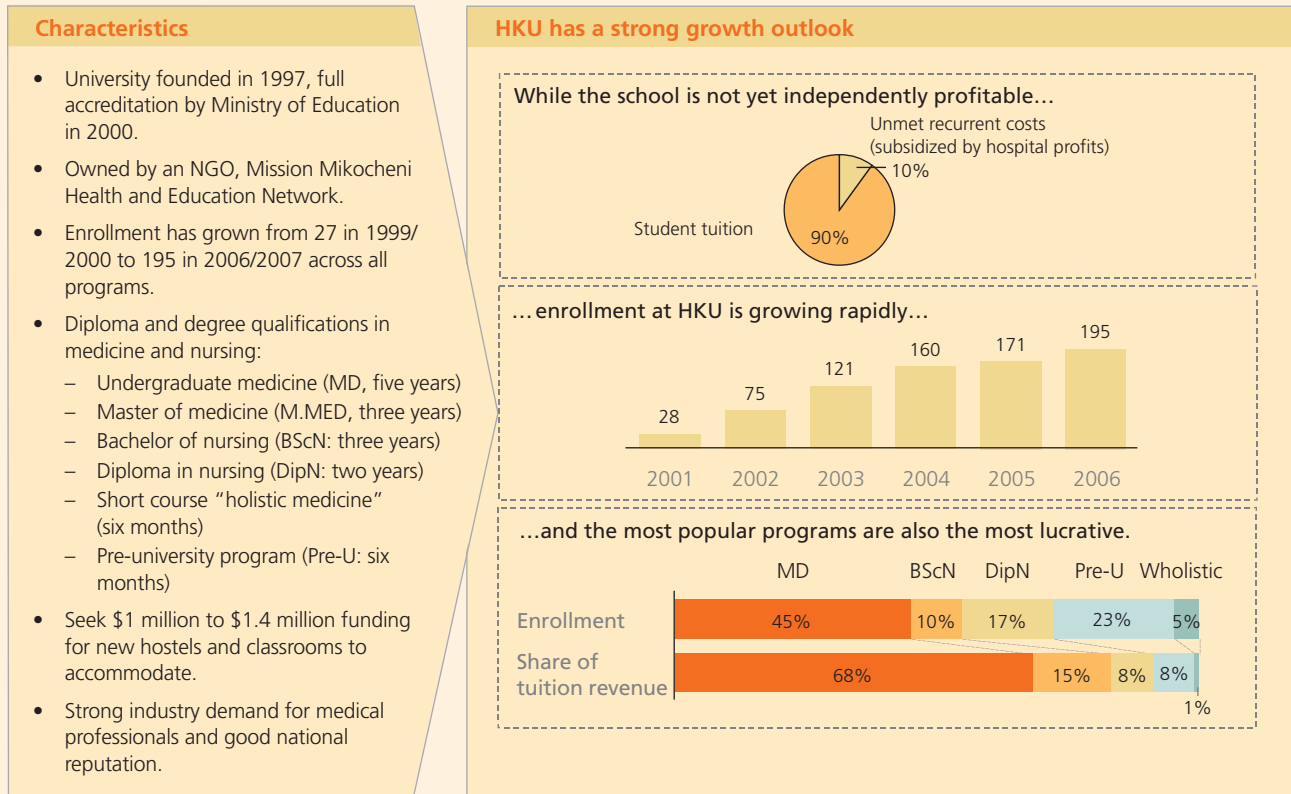
Large medical universities can have a profound development impact. The lack of skilled human resources is one of the biggest barriers to health care growth in Sub-Saharan Africa. Any model that addresses this crisis will increase the accessibility and affordability of health care across the region.

Figure A5.6 shows the key features of this business model and the financials for one successful large medical university located in Tanzania.

Figure A5.6

Case study, large medical and nursing university: Hubert Kairuki, Tanzania

Herbert Kairuki, non-profit, is a fully accredited private medical university in Dar es Salaam. It offers multiple degrees in courses ranging from holistic medicine to graduate degrees towards an MD, and has its own teaching hospital.



Source: Country interviews; McKinsey analysis.

Nursing Schools

Traditional nursing schools are still an attractive investment opportunity given the lack of nurses across Sub-Saharan Africa and the emergence of new operating models. Given the acute shortage of nurses in the area, there is a large unmet need for new nursing institutions.

Some nursing schools are reaching out to the future potential employers of their students in order to subsidize a portion of tuition in return for access to top talent. This cross-subsidization model helps finance a greater volume of students, which, in turn, helps amortize costs over a larger revenue base.

Schools of this kind vary widely in size, but with typically fall within the range of \$0.3–\$2 million.

The training of new nurses in Sub-Saharan Africa addresses one of the core health care prob-

lems and adds greatly to the capacity of the health care system as a whole.

Figure A5.7 details a case study regarding a nursing school in Senegal.

Distance Education for Nurses

Most nurses across Sub-Saharan Africa are only qualified to the lowest level of accreditation. Furthermore, the exodus of specialized nurses to more lucrative markets and the lack of teaching institutes have created an unmet need for specialized nursing staff. Furthermore, infrastructure problems and cost of instruction prohibit many nurses from undergoing further specialized training.

Given the paucity of specialized nursing schools across Sub-Saharan Africa, a hybrid model using both classroom and distance learning is becoming prevalent. The practical in-clinic element of these programs imparts the hands-on parts of the

Figure A5.7

Case study, nursing school: Institut Santé Service, Senegal

Institut Santé Service is a 20-year old private nursing school with three campuses across Senegal. Student demand that far outstrips public provision of nursing education gives ISS an opportunity to focusing on nursing and related areas. A focus on nursing leads to lower costs than for a school with more diversified programs and supports ISS's competitive pricing.

Expanded description

- Business model:
 - 567 students (nurses, midwives, technicians, lab technicians, and nurse assistants) paying \$2,000 a year.
 - Three schools: main location in Dakar within subsidiaries in Kaolack and Ziguinchor.
 - 25 permanent employees (Director, Curriculum Director, Finance and Accounting, Exams coordinator, five section coordinators, 15 yearly coordinators).
 - Professors are all employed on a short-term contract basis.
- Private sector demand is very strong given the high number of jobs created in the sector yearly and limited public capacity (~100 nurses per year).
- 85 percent of graduates work in the public sector.
- Private nursing schools appear to be a viable business, albeit with limited margins.

Key investment considerations

Profitability

Moderate (nine percent) dependable margins

- Single revenue source are student fees: \$1.1 million.
- Limited margins (estimated five–ten percent) but cash flows are stable and growth outlook is good.

Future growth prospects

Strong market growth outlook if ISS can identify acceptable source of financing

- Demand for places in Dakar campus is twice as large as the school's capacity.
- ISS seeks subsidy to finance expansion. However, it is well-positioned to negotiate favorable loan terms given its demonstrated sustainability, stable cash flows, and positive growth outlook.

Source: Country interviews; McKinsey analysis.

coursework while distance learning imparts theoretical elements. These hybrid models use computers and compact disks to facilitate distance learning. Distance education can reduce the overall cost of nursing training by eliminating large cost elements such as boarding, transportation, and lost wages due to student time spent on site (rather than at their employer).

Revenues in this area are typically small, in the range of \$200,000–\$500,000.

Countries like Kenya, Tanzania, and Nigeria, which have a higher dispersion of their nursing pool, are ideally suited to this model. For example, within Kenya and Tanzania, talent is spread across

six to seven major regions. Furthermore, these regions usually have a commercial hub or major hospital that could afford computers and instruction equipment. Conversely, given their relatively concentrated talent pools, countries such as Malawi, Rwanda, and Uganda would not appear to be receptive markets for such teaching methods.

The development impact of infusing the local health care market with more specialized skills would be enormous. The overall quality of health care delivery would improve, as would access to health services across the population.

Figure A5.8 details a case study of a distance learning course in Kenya.

Figure A5.8

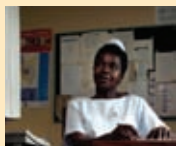
Case study, distance learning for nurses: (AMREF), Kenya

AMREF, a non-profit, offers computer-based distance education to 4,500 nurses through a network of 127 schools and E-Centers. Enrolled students work towards certification as registered nurses using a mix of computer and in-clinic learning.

The AMREF E-Learning model

The Methodology

- E-Center learning:
 - 12 months (three per module).
 - CD-based where necessary and internet-based where possible.
 - Three face-to-face sessions over the course of each module introduce content and test learning.
- Clinic-based practical learning:
 - Four 1.5 month attachments = six months.
 - Students work in a clinic with a mentor nurse, to build practical skills.



Content

- Enrolled students earn National Nursing Council of Kenya certification as registered nurses.
- Four modules:
 - General nursing
 - Reproductive health
 - Community health
 - Specialized health (e.g., mental illness).

Early success built on strong public-private partnerships

AMREF's E-Learning has enjoyed early success

- Has grown from four sites and 145 students in late 2005 to 127 sites in 61 towns and cities across all eight provinces of Kenya and enrolled 4,500 (20 percent of Kenya's 22,000 enrolled nurses) students in early 2007.
- Reaches nurses in both urban (30 percent) and rural (70 percent) areas.
- Students value the opportunity to study further, build skills, and advance their careers.
- An annual operating budget of just \$0.5 million for the program.

Early success was built on strong public-private partnerships

- Public partner The Nursing Council of Kenya provides stewardship, political will, and certification for the program.
- Private-partner Accenture provides financial support and skills transfer to develop and manage the E-curriculum.
- AMREF's own 50-year experience with health care in the region provided the capability and credibility to execute.
- A non-surplus non-profit, AMREF covers the program's costs internally; student tuition (~\$2500/nurse) goes 80 percent to partner schools and 20 percent to The Nursing Council of Kenya.

AMREF is pursuing an ambitious growth imperative

- Target of reaching 22,000 nurses in Kenya within 5 years.
- Other countries have interest in AMREF's program.
- AMREF may expand to other medical professions.
- The key growth challenges are institutional and financial capacity.

Source: Country interviews; McKinsey analysis