

The Business of Health in Africa

Partnering with the Private Sector to Improve People's Lives



Contents

Message from the Executive Vice President and CEO	iii
In Acknowledgement	v
Executive Summary	vii
Project Scope and Approach	xi
Introduction	1
 Section I: The Role and Likely Evolution of the Private Sector in Health Care in Sub-Saharan Africa	 5
 Section II: Actions Needed to Enhance the Private Sector's Participation in Health Care	 17
 Section III: The Case for Investing in the Private Health Care Sector in Sub-Saharan Africa	 35
 Conclusion	 51
 Annex 1: Examples of Successful Business Models in Health Services Provision	 56
 Annex 2: Examples of Successful Business Models in Risk Pooling Arrangements	 68
 Annex 3: Examples of Successful Business Models in Life Sciences Manufacturing and Innovation	 75
 Annex 4: Examples of Successful Business Models in Distribution and Retail	 88
 Annex 5: Examples of Successful Business Models in Medical and Nursing Education	 98
 Annex 6: Methodology for Market Sizing	 105
 Glossary	 111
Notes	117
Bibliography	121
Acknowledgments	130

The Business of Health in Africa

Partnering with the Private Sector to Improve People's Lives





This report describes opportunities for engaging and supporting a well managed and effectively regulated private sector to improve the region's health. We hope that governments, donors, investors, nongovernmental organizations, and health care providers will find this research a useful addition to traditional public sector approaches.

Message from the Executive Vice President and CEO

Sub-Saharan Africa has about 11 percent of the world's people, but it carries 24 percent of the global disease burden in human and financial costs. Almost half the world's deaths of children under five take place in Africa.

This challenge is significant but not insurmountable. There is a tremendous opportunity to leverage the private sector in ways that improve access and increase the financing and quality of health care goods and services throughout Africa.

In a region where public resources are limited, the private sector is already a significant player. Around 60 percent of health care financing in Africa comes from private sources, and about 50 percent of total health expenditure goes to private providers. Just as important, the vast majority of the region's poor people, both urban and rural, rely on private health care. A poor woman with a sick child is more likely to go to a private hospital or clinic than to a public facility.

This report describes opportunities for developing, engaging, and supporting a well managed and effectively regulated private sector to improve the region's health. We hope that governments, donors, investors, nongovernmental organizations, and health care providers will find this research a useful addition to traditional public sector approaches. We look forward to exploring partnerships with African companies, banks, and investors, as well as policy experts and other stakeholders in health care. Despite the scope of Africa's health challenge, I am optimistic about what can be achieved in the next few years.

I want to thank the partners and colleagues who made this report possible. Their diverse contributions are a powerful example of the value of collaboration.



Lars H. Thunell

Executive Vice President and CEO

There are many who deserve recognition for the help they provided us in developing this report. Lastly, we extend our gratitude to the individuals who shared their thoughts with our team on the many issues we examined to develop a picture of this most complex of issues.



In Acknowledgement

There are many who deserve recognition for the help they provided us in developing this report. Foremost is the Bill & Melinda Gates Foundation, which provided a significant part of the funding that made this work possible. Their support evolved into an intellectual partnership and a mutual commitment to improve the quality of health care in Sub-Saharan Africa. We greatly appreciate the trust they placed in us by funding this work and we value the intellectual leadership they have demonstrated every step of the way.

We would also like to thank the management consulting firm of McKinsey & Company. Over the course of six months their team traveled throughout Sub-Saharan Africa to gather information and help us to understand the challenges and opportunities facing the private health sector. The independent analysis conducted by McKinsey & Company provided a critical fact base for this report, and we thank them for their time and dedication.

A Steering Committee of leaders in health, particularly in Africa, was established to oversee this work. In addition to IFC staff, the Steering Committee comprised:

- Tadataka Yamada, M.D., *President, Global Health Program, Bill & Melinda Gates Foundation*
- Eyitayo Lambo, *Former Health Minister, Republic of Nigeria*
- Jack Shevel, M.D., *Founder and Former CEO, Netcare, South Africa*

Throughout the course of the project, this committee gave significant input and assisted IFC in thinking through its strategy for health in Africa. We are grateful for the time they devoted to the project and the leadership they showed throughout the course of work.

Our work was also greatly enhanced by the advice provided by a Technical Advisory Board consisting of a cross-section of experts with experience in the public and private sectors, international development, and academe. Their input was invaluable and we thank them for their dedication and for their many contributions, which made this report possible.

We also give our thanks to our many colleagues at the World Bank who provided advice and insight that is unavailable elsewhere. Lastly, we extend our gratitude to the individuals who shared their thoughts with our team on the many issues we examined to develop a picture of this most complex of issues. Their help was essential in completing this work. Together with the members of the Technical Advisory Board, they are listed in the Acknowledgements section of this report.



Guy Ellena

Director, Health and Education Department

Sub-Saharan Africa accounts for 11 percent of the world's population, yet bears 24 percent of the global disease burden and commands less than one percent of global health expenditure. It also faces a severe shortage of trained medical personnel, with just three percent of the world's health workers deployed in Sub-Saharan Africa.



Executive Summary

Health care in most of Sub-Saharan Africa remains the worst in the world. Despite decades of foreign assistance, few countries in the region are able to spend even the \$34–\$40 per person per year that the World Health Organization (WHO) considers the minimum necessary to provide a population with basic health care.¹ In spite of the billions of dollars of international aid dispensed, an astonishing 50 percent of Sub-Saharan Africa's total health expenditure is financed by out-of-pocket payments from its largely impoverished population. In addition, the region lacks the infrastructure, facilities, and trained personnel necessary to provide and deliver even minimal levels of health services and goods.

This study, conducted by IFC with assistance from McKinsey & Company, estimates that over the next decade, \$25–\$30 billion in new investment will be needed in health care assets, including hospitals, clinics, and distribution warehouses, to meet the growing health care demands of Sub-Saharan Africa.

This IFC report highlights the critical role the private sector can play in meeting the need for more and higher-quality health care in Sub-Saharan Africa. It also identifies policy changes that governments and international donors can make to enable the private sector to take on an ever more meaningful role in closing Africa's health care gap.

It is important to acknowledge at the outset that many in the public health community oppose *in principle* a role for the private sector in health care. Indeed, there are legitimate concerns about the role of private providers. The private sector in Sub-Saharan Africa is diverse and fragmented, and

as a result, quality can be inconsistent. Moreover, the lack of regulatory and accreditation frameworks combined with a largely uninformed patient population can sometimes allow an unscrupulous minority to prevail over responsible providers—to the detriment of the reputation of all.

The truth is, however, that for-profit companies, non-profit organizations, and social enterprises, along with insurers, providers, and manufacturers, already play an important role in providing health care to the region. They account for as much as 50 percent of health care provision, and their role is growing.

The Widening Gap

Sub-Saharan Africa accounts for 11 percent of the world's population, yet bears 24 percent of the global disease burden and commands less than one percent of global health expenditure.² Increased attention from outside donors has resulted in some remarkable initiatives, funneling billions of dollars to help combat HIV/AIDS, tuberculosis (TB), and malaria the worst health scourges of the region. But most of the area lacks the infrastructure and facilities necessary to provide and deliver minimal levels of health services and products. It also faces a severe shortage of trained medical personnel, with just three percent of the world's health workers deployed in Sub-Saharan Africa.³

Furthermore, Sub-Saharan Africa's improving economic performance means that the demand among all sectors of society for health care is poised to increase still further. This study estimates that the market for health care will more than double by 2016, going up to \$35 billion.

The Potential for Complementary Solutions

Although the importance of the private sector varies by country, it is surprisingly large and constitutes an important, diverse component of the region's health care systems. Of total health expenditure of \$16.7 billion in 2005,⁴ roughly 60 percent⁵—predominantly out-of-pocket payments by individuals—was financed by private parties, and about 50 percent⁶ was captured by private providers.⁷

The formal element of the private sector consists of non-public entities that include for-profit commercial companies, non-profit organizations, and social enterprises. Individual public sector health workers also provide private sector services, both formally and informally, and an informal health sector of healers, midwives, and individual medicine sellers also provides care.

The private sector is often perceived as serving only the rich, but often the opposite is the case. In fact, private sector providers, including for-profit and social enterprises, fill an important medical need for poor and rural populations underserved by the public sector.

In addition, the private sector frequently provides services or products that might not otherwise be available, such as advanced medical equipment and procedures. In many cases the private sector can also provide higher-quality services. Together, these benefits are likely to lead to improved health outcomes across the region.

What Can Be Done to Further Leverage the Private Sector to Improve Access to Health Care?

From interviews with all segments of Sub-Saharan Africa's health care community, five main imperatives emerged that together create an agenda that can mobilize the responsible development of private sector health care in the region.

Develop and enforce quality standards. Initial efforts at enhanced regulation could have large and immediate benefits. Financial and technical support is needed to strengthen the ability of public and private regulatory bodies to develop and enforce transparent and effective quality standards.

Foster risk pooling programs. Risk pooling arrangements—such as government-funded national payment schemes,⁸ commercial insurance, or community non-profit *mutuelles*—have enormous potential to improve the financing of health care in the region, thereby encouraging the development of higher-quality, more organized private sector providers.

Mobilize public and donor money to the private sector. Donors can help build health care capacity by earmarking some aid to fund private sector entities directly while also assisting local governments to expand their procurement capabilities and manage contracts with the private sector. Employers can foster the development of the local private health care sector by outsourcing provision of health care for their employees.

Modify local policies and regulations to foster the role of the private sector. Opportunities exist to reform the regulations that inadvertently impede the development of the private health sector. The primary areas of focus should be streamlining bureaucratic processes that limit market entry, liberalizing human resource regulations that perversely reduce the number of active health care workers, and reducing tariffs and other import barriers that impede access to or raise the cost of health supplies.

Improve access to capital. Entrepreneurs and business enterprises in Sub-Saharan Africa have trouble securing financing from established institutions. Three initiatives could tackle this issue: (i) educating local banks about the true risk profile of the health care sector; (ii) using international financial backing to encourage local financial institutions to lend to health care enterprises, includ-

ing small and medium-sized enterprises (SMEs); and (iii) developing equity-focused financing vehicles for health care enterprises.

The Case for Investing in Health Care

The weak investment climate in Sub-Saharan Africa has long posed a daunting challenge to entrepreneurs and their potential backers alike, but signs of positive change abound. Political stability has improved, reflecting a steep decline in the incidence armed conflict. Economic growth in most of the continent has been strong for the past half decade, and inflation is down. Reform is also beginning to take hold. In 2007, according to the World Bank's *Doing Business* report, Africa ranked third in the world (behind the Eastern Europe-Central Asia group and the OECD countries) in the pace of economic reform.

Investment opportunities in health care are growing apace

The expected improvement in Africa's macro-economic climate over the next decade will expand the health care gap, as higher incomes will create new demand. The biggest individual investment opportunities will be in building and improving the sector's physical assets. Around 550,000–650,000 additional hospital beds will need to be added to the existing base. An additional 90,000 physicians, about 500,000 nurses, and 300,000 community health workers will be required over and above the numbers that will graduate from existing medical colleges and training institutions. Demand for better distribution and retail systems and for pharmaceutical and medical supply production facilities will also be strong. An estimated \$25–\$30 billion in new investments will be needed to meet demand between now and 2016—of which \$11–\$20 billion is likely to come from the private sector.

A broad range of investment opportunities exist across all components of the health care industry in the region (as described in detail in the annexes to this report). These opportunities can deliver compelling financial returns and have an enormous potential development impact.



Health care provision accounts for roughly half the investment opportunity, with the remainder split across distribution and retail, pharmaceutical and medical product manufacturing, insurance, and medical education. These investments will fund capacity expansion, new businesses, and renovation of existing assets. About half of these investments are expected to be made by for-profit entities, the remaining portion of private sector investment being equally spread between social enterprises and nongovernmental organizations (NGOs).

The vast majority of the investment opportunities in the near term will be in the SME sector. Only a quarter of the opportunities are expected to have a project size larger than \$3 million. This report also highlights the availability of investment opportunities in social enterprises that, while delivering lower financial returns, can have a tremendous role in the positive development of Sub-Saharan Africa.

Different types of investors will all find significant opportunities

The vast range of financial and developmental opportunities that the health industry presents in Sub-Saharan Africa will require significant involvement by all segments of the investor community.

Financially driven private investors will find sustained industry growth combined with opportunities for consolidation.

Angel investors can engage with innovative social enterprises to deliver great returns while addressing some of the most pressing health care challenges facing the region.

Double-bottom line investors, such as development finance institutions and foundations, can collaborate to provide “patient capital” to achieve financial returns over the longer term while delivering significant developmental impact.

Donors can play a key role by financing those enterprises that are not financially viable, but have the promise to play a crucial role in the development of high-quality private sector health care.

In conclusion, the private sector, including both for-profit and social enterprises, already plays and will continue to play a pivotal role in improving the health of the people of Sub-Saharan Africa. Donors, governments, and the investment community each face a unique and important set of opportunities in developing a responsible, sustainable, and vibrant private health care sector in the region.

Ultimately, however, the vigor of the private health sector in Sub-Saharan Africa will rely on the commitment, creativity, and integrity of the people of Africa.

Project Scope and Approach

FC commissioned this report to bring focus to the role of the private sector in the financing and provision of health care in Sub-Saharan Africa and to develop an agenda for its improvement.

For the sake of clarity, it is worth explicitly noting that this paper is not an advocate for the privatization of the financing and provision of health-related goods and services in Sub-Saharan Africa. Rather, it seeks to highlight the important role that the private sector—an often neglected component of Africa’s health care systems—already plays and to outline ways in which that sector could be better engaged and harnessed, thereby improving its sustainability and the health outcomes it delivers.

Project Scope

For the purposes of this study, “health care” is defined to include:

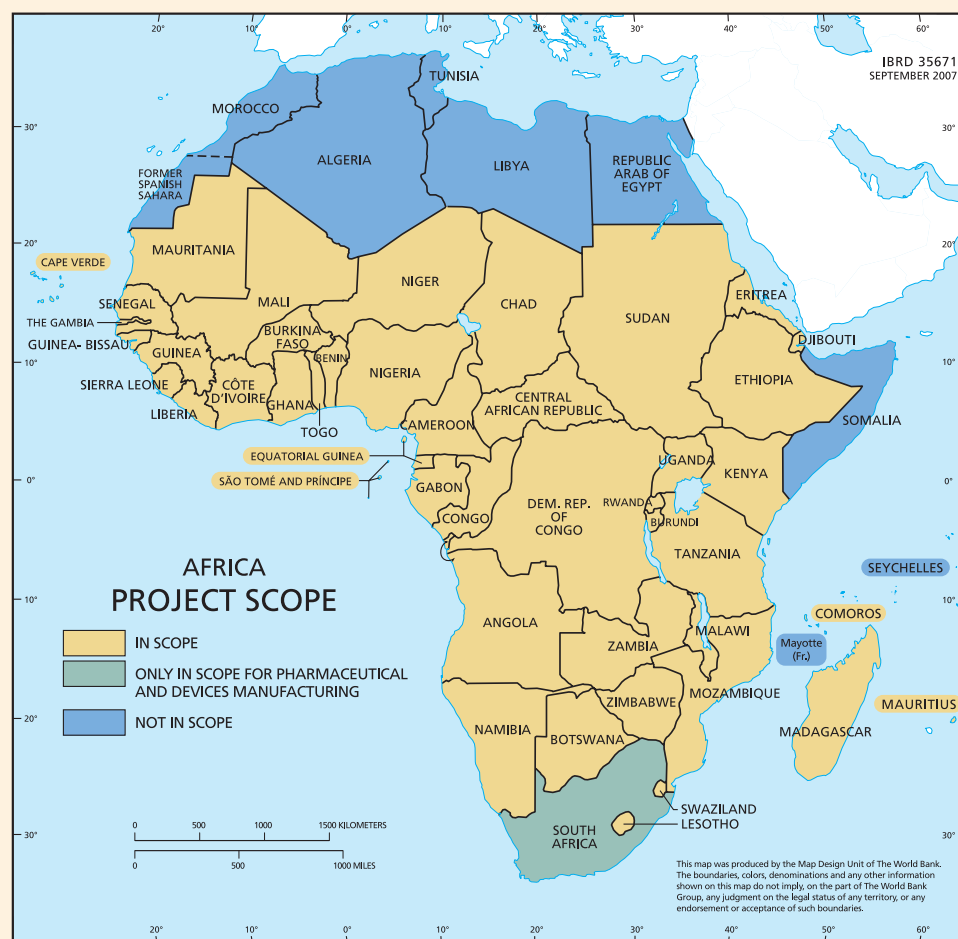
- Primary health care;
- Secondary and tertiary health care;
- Public health, including vaccination, sanitation, and family planning;
- Health programs, including HIV/AIDS, TB, and malaria;
- Health care financing;
- Pharmaceutical production;
- Medical equipment and supplies production;
- Distribution and retailing of pharmaceuticals and equipment; and
- Medical and health professional training.

The term “private sector” is defined to include:

- For-profit organizations;
- Social enterprises sometimes referred to elsewhere as “not-for-profits”;
- Non-profits including NGOs and faith-based organizations; and
- Privately motivated individuals and groups of individuals.

Broadly, the geographic scope of the study is Sub-Saharan Africa. More specifically, the project covers the following 45 countries:

- | | | |
|--------------------------------|-----------------|-----------------------|
| • Angola | • Eritrea | • Mozambique |
| • Benin | • Ethiopia | • Namibia |
| • Botswana | • Gabon | • Niger |
| • Burkina Faso | • Gambia | • Nigeria |
| • Burundi | • Ghana | • Rwanda |
| • Cameroon | • Guinea | • São Tomé & Príncipe |
| • Cape Verde | • Guinea-Bissau | • Senegal |
| • Central African Republic | • Kenya | • Sierra Leone |
| • Chad | • Lesotho | • Sudan |
| • Comoros | • Liberia | • Swaziland |
| • Congo | • Madagascar | • Tanzania |
| • Côte d'Ivoire | • Malawi | • Togo |
| • Democratic Republic of Congo | • Mali | • Uganda |
| • Djibouti | • Mauritania | • Zambia |
| • Equatorial Guinea | • Mauritius | • Zimbabwe |



For most of the study's analysis, South Africa was excluded due to the relatively high standing of its health sector and the maturity of its financial markets. However, South Africa was considered when evaluating investment opportunities in manufacturing. Further, interviews were conducted with investors and operators based in South Africa to gather their perspectives on opportunities for investment in other parts of the region.

Project approach

The study sought to develop an understanding of the private health sector landscape in Sub-Saharan Africa through literature review and extensive consultations with a range of key stakeholders. A team of consultants from McKinsey & Company conducted almost 400 interviews with stakeholders from private health enterprises, government officials and policymakers, development organizations, and financing institutions, in addition to health care experts and operators outside the region. A full list of interviewees is included in the acknowledgements section at the conclusion of this report.

Given the broad geographic scope of the project, in-person visits and more detailed analysis were limited to nine countries: the Democratic Republic of Congo, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, and South Africa (for the exploration of pharmaceutical and medical equipment manufacturing only).

These countries were chosen because they reflected the diverse environments found across Sub-Saharan Africa. Key criteria for country selection included socio-demographic factors such as population size, per-capita gross domestic product (GDP), and language, as well as health indicators including life expectancy, health spending, and private sector contribution to health provision. Additional considerations included investment climate metrics such as foreign direct investment and ease of doing business (as judged by the World Bank's *Doing Business* report).

In Senegal Institut Santé Service trains
nurses, laboratory technicians and assistant
doctors ...; Vidagas, a commercial
heating fuel supplier, distributes vaccines
free to rural clinics in Mozambique ...;
a TB patient receives treatment administered
and paid for by Hygeia, a Nigerian HMO...;
and in Tanzania a mother and child sleep
under a long-lasting insecticide treated bed
net manufactured locally by A-Z Textile Mills.



That Sub-Saharan Africa confronts a health crisis of overwhelming proportions is widely understood. The spread of HIV/AIDS, the insidious scourge of malaria, and the persistence of debilitating parasitic diseases are all well documented. Increasingly, so-called lifestyle ailments—cancer, diabetes, and heart disease—are also afflicting Africans.⁹ Compounding the continent's health crisis is the poor state of its health systems, which are ill-equipped to cope with these challenges. As a result, these ailments sap the energy, creativity and productivity of the region's 670 million¹⁰ inhabitants. Every year, malaria alone costs an estimated \$12 billion in lost wages across Sub-Saharan Africa¹¹ and, as an example, life expectancy in Swaziland is just 30 years, compared to 81 in Switzerland.¹²

For years, many of the world's best minds and a great deal of money have been applied to trying to heal this global travesty. And, so far, despite positive steps forward, Sub-Saharan Africa is not on track to meet its Millennium Development Goals as they relate to health. The hard but inescapable truth is that foreign assistance can only go so far in improving the overall health of Africa's populations.

It is easy to see why. The vast majority of health care financing comes from the pockets of Africans (either through taxes or out-of-pocket payments). The vast majority of health-related goods and services are also provided by African enterprises. In essence, Africa's health care systems are run *by* Africans and *for* Africans. Given these factors, as well as the tremendous strain on public finances in most African nations, many of these systems are dominated by the private sector. Indeed, health care in Sub-Saharan Africa is primarily associated with private initiatives. Almost two-thirds of total health expenditure, and at least half of health care

provision in the region are accounted for by the private sector.¹³ In many countries these numbers are higher, and would be higher still if more accurate assessments of the informal sector were available.

This report demonstrates that the private sector is currently playing, and will continue to play, a vital role in the financing and provision of health care in Sub-Saharan Africa, and that engaging the entrepreneurial talents of the private sector is essential in improving access to health care in the region. The report recognizes that harnessing the talents of the private sector will require new approaches to collaboration between public and private players, new approaches from donors and other stakeholders, and strategies that are tailored to local realities.

The Continuing Health Care Gap

Sub-Saharan Africa has far more than its share of the world's health problems. The region accounts for 11 percent of the world's population and 24 percent of the global disease burden, yet commands less than one percent of global health expenditure.¹⁴ These disparities have been a stimulus for the launch of several important global financial support initiatives. In 2002 the Global Fund to fight AIDS, TB, and Malaria was created to harness the world's resources against three diseases that plague Sub-Saharan Africa. Commitments to Africa account for almost half of the fund's \$7 billion budget for its first five years. The overall level of aid to the region has also increased. Over the last decade bilateral and multilateral donors combined have provided about \$8 billion¹⁵ in aid to Sub-Saharan Africa. And during the 2005 G8 summit in Gleneagles, members committed to double foreign aid by 2010, with an additional



\$25 billion for Africa.¹⁶ Overall, approximately ten percent of Africa's health care expenditure is financed directly by donor aid.¹⁷

However, in spite of the influx of outside financial assistance, most countries in the region still spend far less on health care than the recommended WHO standard of \$34–\$40 per capita needed to provide essential health services.¹⁸ Sub-Saharan Africa depends on out-of-pocket payments by its largely impoverished population to finance around half of its total health expenditure.¹⁹ Further, the region generally lacks the infrastructure and facilities to provide and deliver minimal levels of health goods and services. Even with an anticipated growth in public spending and external aid, Sub-Saharan Africa will not be able to fund basic health care for years to come.

The region's health care gap is not only a question of inadequate financial resources, but also a question of a severe shortage of trained medical personnel. Sub-Saharan Africa is home to just three percent of the world's health workers yet it supplies health professionals to the developed world.²⁰ In 2002 up to 30 percent of nurses from Senegal and Ghana²¹ were working outside Sub-Saharan Africa.

The Need for Complementary Solutions

The sheer size of the health care challenge facing Sub-Saharan Africa has forced a reassessment of traditional approaches to addressing its needs. Governments, multilateral agencies, and development finance institutions throughout the region have begun to accept that engaging and develop-

ing the private sector should be an important part of any overall strategy to improve health care.

This not particularly radical. Other countries have already embraced the private sector as a means of improving health care provision. In Bolivia,²² for example, the government has successfully utilized a non-profit primary care clinic network (ProSalud) to deliver public health goals. ProSalud, founded in 1985, serves over 500,000 patients in and around urban areas. New facilities are established in consultation with the government. In 1994 ProSalud was able to expand significantly with the passage of the “Popular Participation Law,” which eased restrictions on non-governmental organizations receiving public sector contracts to deliver health services. In India, the private health sector has developed in a more haphazard and under-regulated environment and in response to an often inadequate public sector. The private sector now provides more than 80 percent of outpatient services and 60 percent of inpatient services in that country.²³ Even in China, the Vice-Minister of Finance has said that China will encourage investment from all sectors of society, including the private sector, in order to accomplish the goals laid out in the Five Year Health Plan. That plan²⁴ seeks to provide access to a basic medical network for the entire population by 2010.

Sub-Saharan Africa already has a private sector that plays a major role in delivering positive health outcomes. Contrary to conventional wisdom, it does not serve only the urban upper- and middle-classes, but also can be found in remote rural regions and in the poorest sections of many cities. Though its importance varies from country to country, in many areas it is an indispensable part of the health care system, complementing and, in some cases, directly supporting the public sector.

Market solutions alone, however, are no panacea for Sub-Saharan Africa’s health challenges. The private sector is diverse and fragmented, and

therefore, quality can be variable and oversight difficult. In the short term, rapid growth in the private sector may also exacerbate the shortage of qualified medical personnel working in the public sector by drawing them toward higher-paying, for-profit activities. Ultimately, however, higher paying jobs will help stem the more insidious “brain drain” where medical professionals leave their countries. Still, an appropriately managed and regulated private sector can increase quality standards and efficiencies and take some of the financial burden off the public sector.

Harnessing market forces to address the region’s health challenges will require increased engagement and stewardship from the public sector and other stakeholders. Investments in the private health sector can lead to long-term, sustainable increases in funding and health infrastructure. However, new thinking is required regarding how best to leverage the capacity and resources of the private sector through investment, partnerships, and public sector oversight.

This report seeks to begin the process of developing those new approaches and has two primary objectives:

- To highlight the importance of the private health sector in Sub-Saharan Africa, suggesting ways in which key policy makers, donors, and other stakeholders can engage and develop it as a complement to over-stretched public sector health care systems; and
- To identify opportunities for investors to participate in the expected growth in health care spending in Sub-Saharan Africa over the next decade.

While not seeking to detract from the role of national governments in delivering health care, this report aims to demonstrate that the health of the region’s inhabitants would be improved through a more formalized, integrated, regulated, and better capitalized private sector.

...the private health sector in Sub-Saharan Africa is surprisingly large and constitutes an important, diverse component of the region's health care systems. Of total health expenditure of \$16.7 billion in 2005, around 60 percent (predominantly out-of-pocket payments by individuals), was financed by private parties. Private providers captured about half of that total expenditure.



Section I: The Role and Likely Evolution of the Private Sector in Health Care in Sub-Saharan Africa

The vibrancy and positive contribution of the private sector to health care in Sub-Saharan Africa is very encouraging. Examples of private sector participation—complementing and supplementing the public sector and improving quality, accessibility, and efficiency in health care—can be found throughout the region.

Reactions to the private sector among donors, ministries of health, and other public policy officials vary. Some know little about the sector, and some are ideologically opposed to its participation in health care, believing that the financing and provision of health care should be strictly within the public sector's domain. Many others recognize its potential, but are suspicious of the profit motive and have legitimate concerns about consistency of quality and the difficulty of regulating a diverse group of entities.

The private sector already plays a major role in the financing and delivery of health care throughout Sub-Saharan Africa. It is also clear that all future scenarios for health care in the region will include a major role for the private sector. Significant increases in demand for health care services are expected in many countries and, if the right environment is created, the private sector, working within a plural system, can significantly help to improve the scope, scale, quality, and efficiency of access to those services.

This section of the report examines the role that the private sector plays in health care in the region today as well as its potential for growth.

The Private Sector Already Plays an Important Role in Health Care in Sub-Saharan Africa

Its size varies by country but the private health sector in Sub-Saharan Africa is surprisingly large and constitutes an important, diverse component of the region's health care systems. It covers all of the elements along the health value chain, including provision, financing, manufacturing, distribution, and retail. Of total health expenditure of \$16.7 billion in 2005,²⁵ around 60 percent²⁶ (predominantly out-of-pocket payments by individuals), was financed by private parties. Private providers captured about half of that total expenditure.²⁷

The share of the health care market held by the private sector varies widely across countries and regions based on a variety of political, historical, and economic factors. In some countries, including Uganda and Ghana, private sector usage is over 60 percent, while in others, such as Namibia, it is less than ten percent. Figure 1.1 summarizes the self-reported usage of private sector health care for children across countries of the region.

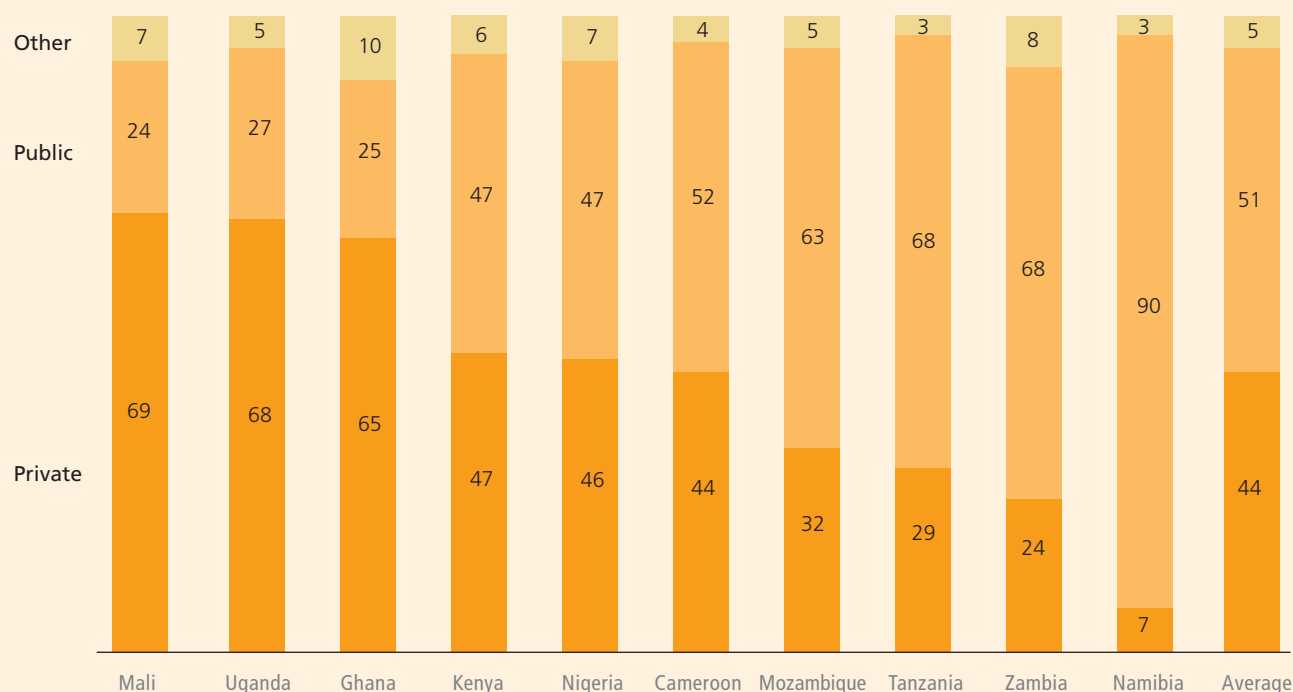
The formal element of the private sector consists of a wide variety of non-public entities, including commercial for-profit companies, non-profits, and not-for-profit, or “social enterprises.” These three groups differ from one another along three criteria: their primary financial goal, their financing and capital sources, and their fees. These differences are summarized in Figure 1.2.

In addition, there is an extensive informal health sector that includes traditional healers, midwives, and individual medicine sellers. While not the focus of this report, the informal sector is an important, if not well-documented, source of care, especially among rural and poor populations.

Figure 1.1

Self-reported site of health care provision among those in the poorest quintile who received care outside the home for a sick child, 1990–2001*

Percent



* Data obtained from DHS surveys; latest survey year available included.

Source: Marek, 2005.

Zambia's estimated 40,000 traditional healers, for example, garner approximately 60 percent of total household health spending,²⁸ equivalent to roughly 13 percent of total spending on health care from all sources in that country. In a study of health care practice patterns among rural populations in Nigeria, 12 percent of initial visits to a provider were to traditional healers.²⁹ Throughout this report, estimates for private sector participation in health care are based on national health accounts and include at least some portion—which is likely to be an under-estimate—of this informal sector.

Finally, public health workers operating in the private sector are an important component of both the formal and informal segments. For example, in Mozambique the vast majority of the 850 public sector doctors also engage in part-time activities in private facilities.³⁰

Overall, for expenditures captured by private entities region-wide, for-profit providers garner about 65 percent, social enterprises 15 percent, non-profits ten percent, and traditional healers ten percent (Figure 1.3).³¹

There are Concerns with the Role of the Private Sector

When completing this research, many in the public health community took the opportunity to make clear their opposition in principle to the involvement of the private sector—particularly for-profit entities—in health care.

Even those not opposed in principle often criticized the adverse societal impact the private sector can have on health care. They pointed to examples of poor quality, inefficiency, and a range of unethical business practices.

Figure 1.2

Differences between types of private sector entity

	Primary financial goal	Financing/capital	Charge for services/products
Commercial for-profit	Generating a return on investment	Market-rate	Market-rate
Social enterprise	Entrepreneurial, income-focused strategies with a minimum expectation of financial return Reinvestment of profits in enterprise activities	Range of market-rate capital, below-market capital, or mix of donations and market-rate capital	Range of market-rate prices, subsidized rates, or mix of full payers and those who pay nothing
Non-profit/ NGO/ Faith-based organization	Rely on donor support to carry out social missions	Donations and grants	Beneficiaries make minimal or no payments

In Sub-Saharan Africa, the private sector is diverse and fragmented and, as a result, quality can be inconsistent and sometimes poor—even when intentions are good. These conditions, coupled with the lack of accreditation and a largely uninformed (and in some cases illiterate) population, have created an environment in which an unscrupulous minority can sometimes prevail over responsible providers.

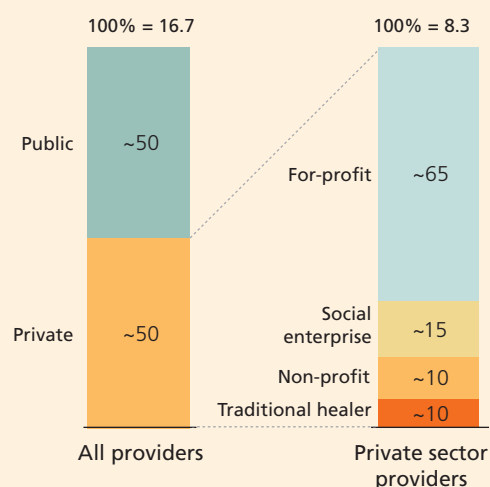
While many private sector providers are honest and well-intentioned, there are too many examples in which the pursuit of excessive profits leads to unethical business practices such as under- or over-servicing, collusion, false billing, price gouging, and unlicensed practice.³² The transgressions of the less scrupulous minority reinforce governments' already deeply seated suspicions of the private sector in the provision of health care. And, just like their public sector counterparts, even responsible private health care providers sometimes fail to deliver an appropriate level of care.^{33, 34}

The region is also plagued by substandard drugs (often resulting from small, sub-scale manufacturers without the skills, processes, and technologies required to produce to a higher standard) and counterfeit drugs (often linked to organized crime). Drugs with inadequate levels of active ingredient are all too common, and some have none at all. For example, in a study of 27 drugs on the WHO essential drug list from pharmacies in Lagos and Abuja, 48 percent of samples did not comply with pharmacopeia standards for active ingredient content. For some drugs (metronida-

Figure 1.3

Approximate expenditure on health care by provider ownership, 2005*

Percent, \$ billion



* Data for Sub-Saharan Africa (excluding South Africa) is extrapolated from the most recently available data (1995–2002) from national health accounts for Ethiopia, Kenya, Malawi, Namibia, Nigeria, Rwanda, Tanzania, Uganda, Zambia, Zimbabwe, and additional data available for 13 other individual nations.

Source: NHA reports; country interviews; literature search; McKinsey analysis.

zole and pyrazinamide) no sample was found that met the standard.³⁵ In another instance, a WHO survey of the quality of anti-malarials in seven Sub-Saharan African nations found that the majority of drugs in private facilities (pharmacies, drug shops, and street vendors) failed quality testing. Specifically, 47 percent of chloroquine tablets failed content testing and 71 percent of sulphadoxine/pyrimethamine tablets failed dissolution testing.³⁶

In Sub-Saharan Africa, all people, including middle- and upper-income populations, suffer from the often poor quality of local medical providers and products. As is often the case worldwide, however, the sins of the private sector fall disproportionately on the poor. Lower-income and/or rural populations, lacking the education, funds, or alternative options that would facilitate access to higher-quality providers, are most profoundly affected by the failings of private health care in Sub-Saharan Africa.

The poor and rural populations rely more heavily on informal private sector providers, especially unregulated drug peddlers, while upper- and middle-class city dwellers benefit more often from higher-quality providers and facilities. In a survey of 1,594 people in four rural areas in southeast Nigeria, for example, 58 percent of those in the lowest income quartile, in comparison to 42 percent of those in the highest, patronized either traditional healers or medicine dealers.^{37, 38} And in a study of treatment provided by rural shopkeepers in Kenya,³⁹ only 3.7 percent of children received an adequate dose of chloroquine for fever.

The private sector can also create headaches for governments. Aggravating an already worrisome external “brain drain,” the diversion of trained health care personnel to local for-profit and non-profit private sector jobs is a major challenge for health officials struggling to staff public facilities.⁴⁰

Effectively Harnessing the Private Sector Can Have Positive Impact on Health

While legitimate concerns about private sector participation in health care exist, the sheer size of the region’s health challenge has driven a growing realization—including among governments throughout the region—that engaging and developing the private sector should be an important part of the strategy to improve health care. By serving broad segments of the population, increasing access, expanding the range of services and products available, and improving the quality of services, the private sector can have a positive impact on health and the quality of life in Sub-Saharan Africa.

The Private Sector Serves the Poor

Studies consistently show that the private sector cares for people from a wide distribution of incomes, including poor and rural populations. In Ethiopia, Kenya, Nigeria, and Uganda, more than 40 percent of people in the lowest economic quintile receive health care from private, for-profit providers (Figure 1.4). In addition, the portion of health care provided by informal health workers and traditional healers is significant. The private sector also has a broad geographic reach among rural populations. Based on self-reported usage, over 50 percent of the rural populations of Nigeria and Uganda and use for-profit private providers (Figure 1.5).

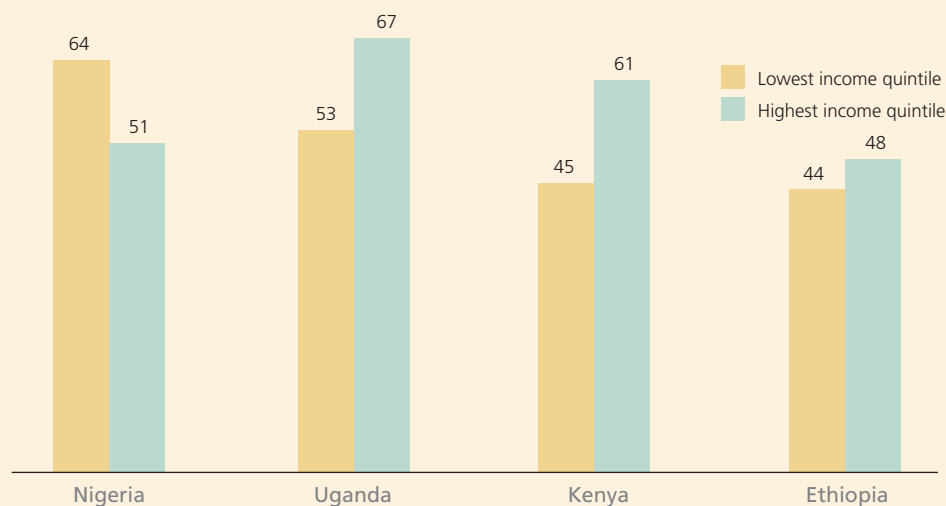
When the services of faith-based organizations and other non-profits are included, the coverage of poor and rural populations increases further. The Christian Health Association of Nigeria for example, represents church medical institutions across the country, which serve about 40 percent of the population, targeting urban slums and poor rural areas. It works with state and local governments to provide low-cost medical goods and services.

Surprisingly, in many Sub-Saharan African countries it is the wealthy, not the poor, who disproportionately benefit from public health spending. For example, in Mauritania, 72 percent of hospital subsidies benefit the richest 40 percent of the population. Figure 1.6 shows that in Ghana, one-

Figure 1.4

Population receiving care from private, for-profit providers of modern medicine

Percent of population*

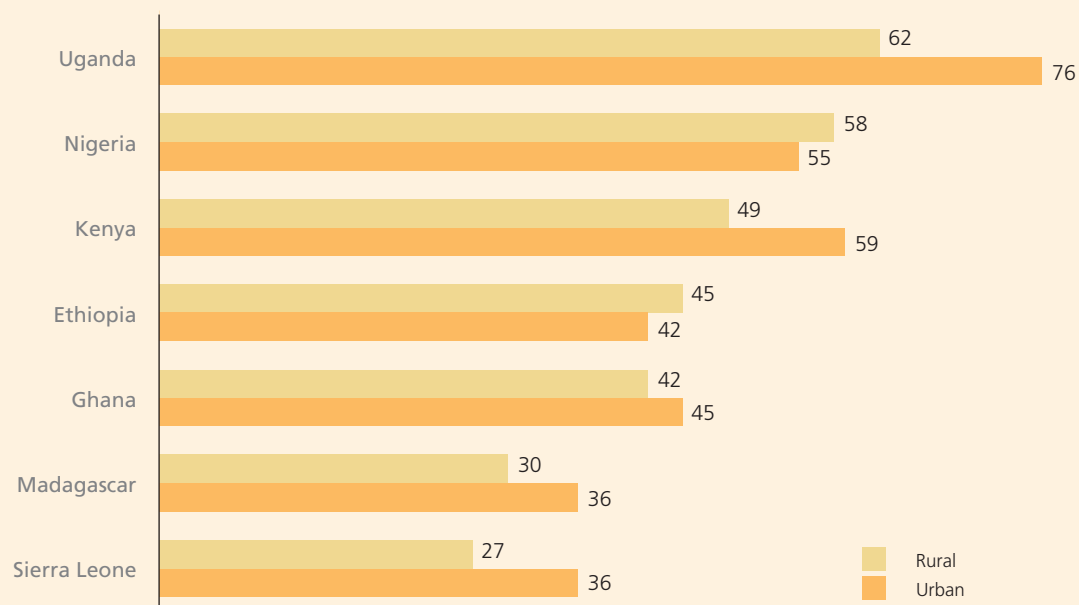


* Data based on usage, not expenditure (most recent survey year available between 1995–2006); data not available for all countries.
Source: Africa Development Indicators, World Bank 2006.

Figure 1.5

Population using private, for-profit providers of modern medicine

Percent of population*



* Data based on usage, not expenditure (most recent survey year available between 1995–2004); data not available for all countries.
Source: Africa Development Indicators, World Bank 2006.

third of public health spending benefits the richest quintile, while just 12 percent of public health spending goes to the poorest quintile. The numbers are similar for Tanzania.

A similar pattern holds true for government subsidies of rural and urban care. In 2002, although more than three out of four Rwandans lived in rural areas, more than 80 percent of public health care spending was directed to facilities in urban areas.

The disproportionate benefit that higher-income, urban populations have received from public spending can be explained in part by the high cost of operating specialized hospitals and teaching institutions, which are commonly located in urban areas where higher-income populations are concentrated. The political activity of wealthier, urban populations has also helped to ensure that they are the beneficiaries of public health spending.

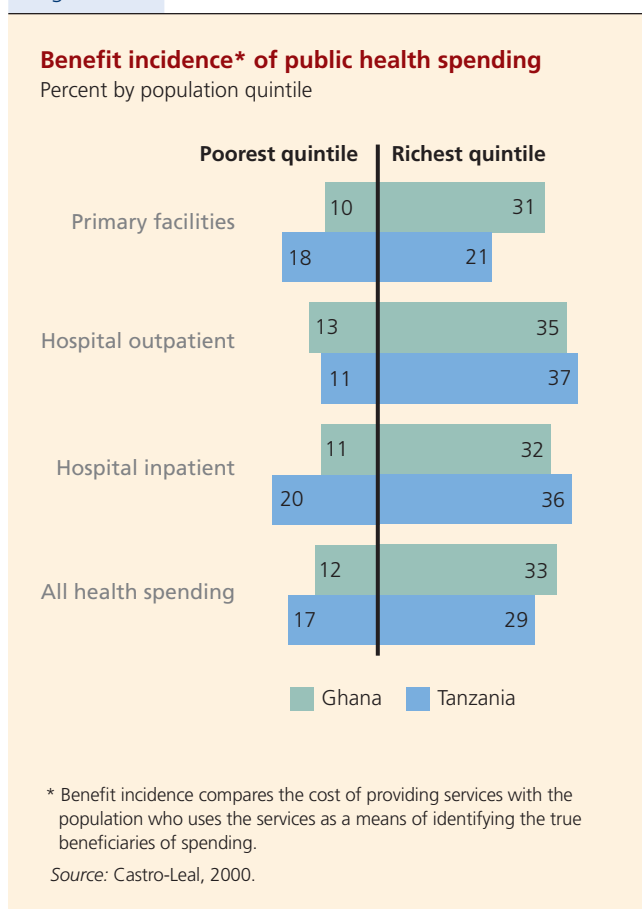
Given the concentration of public health services in urban areas, private sector providers (including for-profit and social enterprises) are filling an important medical need using strategies that successfully target underserved, rural patient populations.

The Private Sector Can Increase the Scope and Scale of Service Offerings for Private and Public Patients

The private sector often provides services or products that might not otherwise be available. In Mozambique, for example, the Ministry of Health recently purchased its first MRI machine. Previously, the only available machines were in private facilities. Even today, heart surgery is only available in Mozambique at the Instituto Do Coração, a non-profit cardiology and cardiac surgery facility. Again in Mozambique, Village Reach, a non-profit organization with a mission of improving the coverage and quality of health systems in sustainable ways, provides “last mile” distribution for vaccines to public rural clinics where public distribution infrastructure does not exist. In Senegal, the only widely available health insurance product besides the employer-based Institut de Prévoyance Maladie (IPM) is provided through community financing mechanisms characterized by voluntary membership and community involvement in design and management of the scheme.

Even for services in which the public sector plays the dominant role, the private sector can ameliorate resource limitations that frequently constrain capacity. In Ghana, public nursing schools have the resources to accept only 40 to 50 percent of qualified applicants in spite of a serious shortage of nurses. Private initiatives are expected to help fill that gap. Although fees, at about \$2,500 per year, will be close to 50 percent higher than at government institutions, private programs are projected to be well subscribed. Graduates can expect to find jobs immediately that pay about \$4,000 annually—enough to make the higher fees affordable. In Tanzania, Bugando Medical School, an entirely private medical college operated by the Catholic Church, trains 30 doctors a year. Bugando, Hubert Kairuki Memorial University (a for-profit institution), and one other private medical school account for over half⁴¹ of newly qualified doctors in Tanzania.

Figure 1.6



Opportunities also exist for the public sector to increase its capacity by contracting out either a discrete function or a set of services to competent private sector players. A frequently cited example of this approach is the contracting of nutrition services in Senegal and Madagascar in the 1990s. The programs, which were run by NGOs, provided monthly growth monitoring, weekly nutrition education, food supplements for malnourished children, and referrals to health services. They reached more than 450,000 women and children in each country, and in less than 18 months severe malnutrition among six- to 11-month-old children in Senegal dropped from six percent to zero. The results in Madagascar were also impressive, with the proportion of malnourished children dropping from 30 to ten percent.⁴²

The Private Sector Can Have a Positive Impact on the Quality of Care

Although many of the concerns that public sector officials express about the private sector are legitimate, publicly provided care also often falls far short of acceptable standards.⁴³ Even though it has a very high degree of variability overall, the private sector has a number of benefits: it often provides care of comparable quality to the public sector, it is frequently preferred by patients, and in some notable cases, it is setting the benchmark for higher quality.

Patients choose private providers rather than their public counterparts for a variety of reasons. In private settings, caregivers are thought to have greater autonomy and flexibility, allowing them to respond more fully to patients' needs and demands. This perceived benefit can take many forms, including greater accessibility, flexible payment plans, continuity of care, metrics of perceived quality (such as cleanliness, convenience, wait times, and friendliness) and availability of physician providers and pharmaceuticals.^{44, 45, 46, 47}

In many large cities, the private sector frequently operates specialized facilities that predominantly serve the middle- and upper-classes. Their need to attract and retain a demanding and educated clientele means they must offer a higher level of services. In Lagos, Lagoon is one such private tertiary hospital, with modern equipment that serves upper-middle-class patients who might otherwise travel abroad for care. Such entities can

serve as a national benchmark for public and private sector providers, raising expectations and benefiting the broader population.

Beyond these high-end centers, private facilities that serve the lower- and middle-classes can outperform the public sector on measures valued by patients, in part explaining their widespread use. One such example is R-Jolad Hospital, which opened in Lagos, Nigeria, in 1982 as a self-sustainable, physician-owned, full-service facility with a mission to "serve the masses."

Respondents from 18 Sub-Saharan African countries were significantly more satisfied with the skills, equipment, and drug supplies of private inpatient hospitals (Figure 1.7). And in a survey of rural farmers in Tanzania, more than two-thirds of respondents preferred private providers and drug dispensaries, citing convenience, courteous staff, and quality of care, among other benefits (Figure 1.8).

Many of these patient-perceived benefits do not necessarily translate into higher standards of care or better health outcomes, but the private sector has the potential to achieve both through increased access to care and increased availability of pharmaceuticals and medical supplies. In

R-Jolad Hospital

Every day on a busy street in Lagos, over 200 men, women, and children walk through the doors of R-Jolad Hospital. From its beginnings as a small, private clinic in 1982, R-Jolad has gradually expanded into a full-service 150-bed hospital. Dr. Oladipo founded R-Jolad with the mission of serving the masses and has instituted a tiered fee structure that charges patients what they are able to pay, sometimes as low as \$1 for a visit. This is important, as half the patients of R-Jolad earn less than \$2 per day. However, according to patients, affordability is only part of the reason they choose R-Jolad when they're sick. Say patients: "There is no wasting of time"; "They are friendly and have qualified doctors"; "They have reliable drugs."

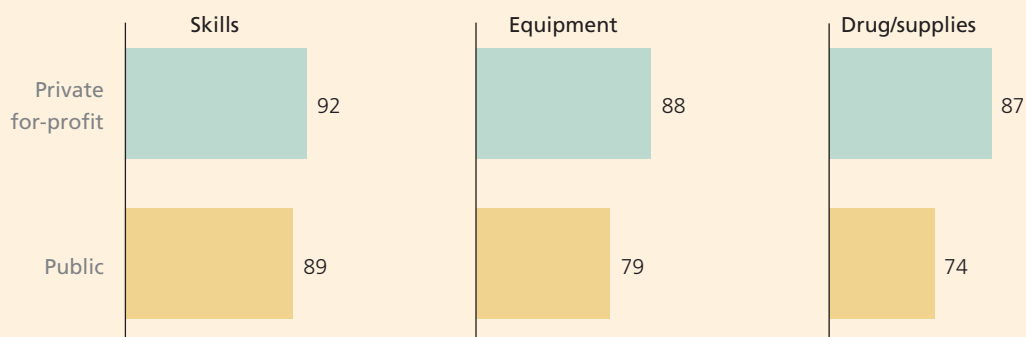
The hospital has had good years and bad years financially, but has always been self-sustaining, and Dr. Oladipo "is committed to sticking it out." Given his success, Dr. Oladipo is often asked about expanding further or opening a new facility, but he cites access to affordable financing as a barrier: "I don't know where to get it."

Source: McKinsey survey; country interview.

Figure 1.7

Patients rating characteristics of inpatient hospital as “adequate” or “more than adequate” by ownership type

Percent of respondents*



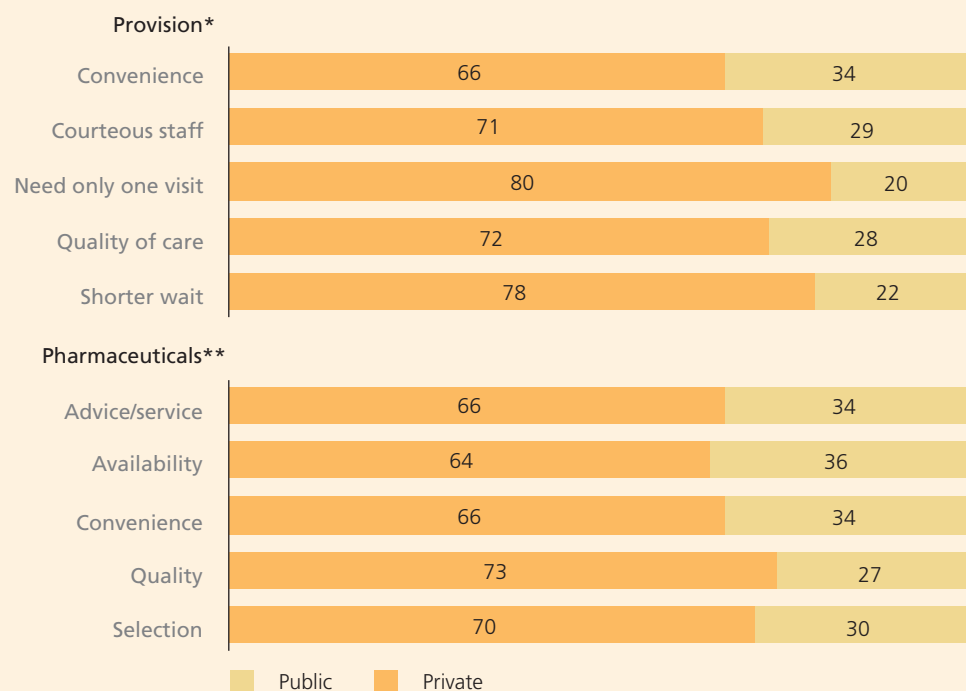
* Based on surveys from 18 Sub-Saharan African countries: Burkina Faso, Chad, Comoros, Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Malawi, Mali, Mauritania, Mauritius, Namibia, Senegal, South Africa, Swaziland, Zambia, and Zimbabwe; weighted by population.

Source: World Health Surveys, WHO.

Figure 1.8

Preference for public vs. private sector facilities/providers for specific characteristics, rural Tanzania

Percent of respondents, n = 129



* Private includes modern for-profit and non-profit private facilities.

** Private includes for-profit and non-profit pharmacies/dispensaries and individual sellers; public includes government facilities and dispensaries.

Source: McKinsey/TechnoServe survey conducted in rural regions in Tanzania, 2007.

Ghana, for example, of 39 sampled medicines used to treat acute and chronic diseases, the public sector had less than 50 percent availability for 27 of the medicines while the private retail sector had less than 50 percent availability for only six.⁴⁸

Local sourcing of generic drugs can reduce the long and costly lead times often associated with purchasing pharmaceuticals. In Mozambique, for example, an average of nine months elapses from the moment a public international tender is concluded until medicines arrive in the country. By contrast, working with local product suppliers, Affordable Medicines for Africa (AFMA) is able to fulfill an order in 28 days across Africa. One reason AFMA is able to reduce lead times so dramatically is because their manufacturing partners are willing to fill order sizes that are smaller than most major offshore suppliers usually accept. The results of AFMA's reduced lead times are less product obsolescence and lower inventory costs.

Private Sector Health Care Will Grow Substantially in Some Markets

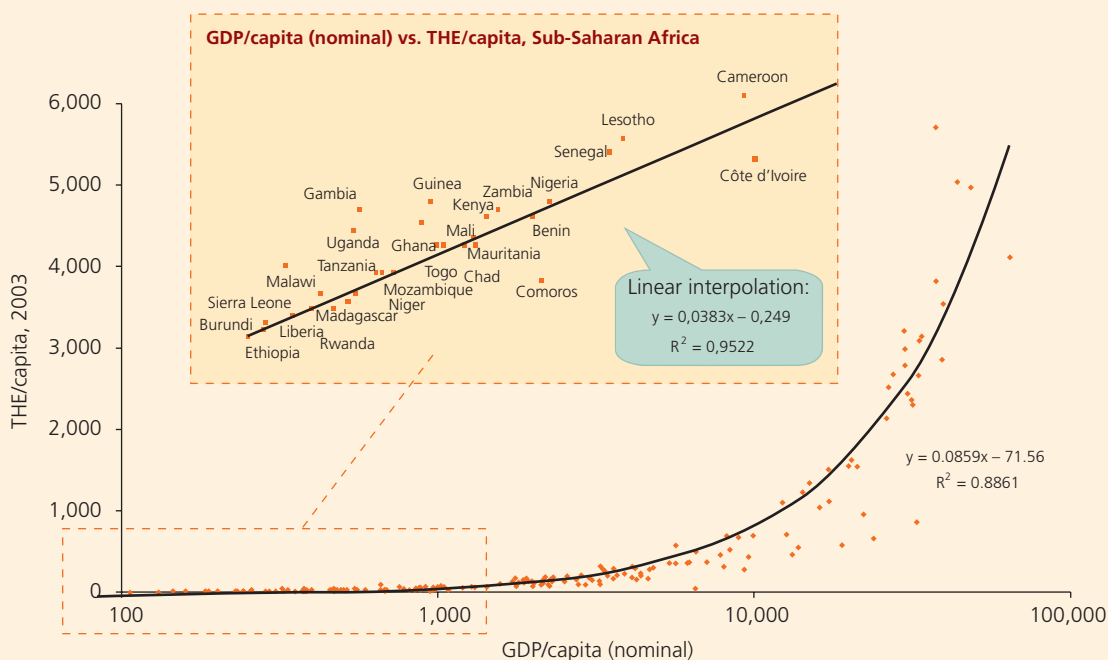
The story of stagnant economic growth in Sub-Saharan Africa is well known. Over the last 20 years, real GDP per capita growth in the region has been only 0.2 percent per year on average,⁴⁹ roughly 30 times slower than growth in Asia.⁵⁰ Growth in health care expenditure has been correspondingly sluggish.

However, that story has begun to change. Since 2001, Africa's GDP as a whole has grown annually at five percent—faster than the global average of 4.2 percent. The IMF expects this performance to continue for at least the next five years as African growth climbs to a projected 5.6 percent. In some large Sub-Saharan population centers such as Nigeria, and post-conflict areas such as Angola and the Democratic Republic of Congo, GDP per capita growth has exceeded five percent for each of the last five years.^{51, 52}

Figure 1.9

GDP/capita (nominal) vs. THE/capita, worldwide

\$

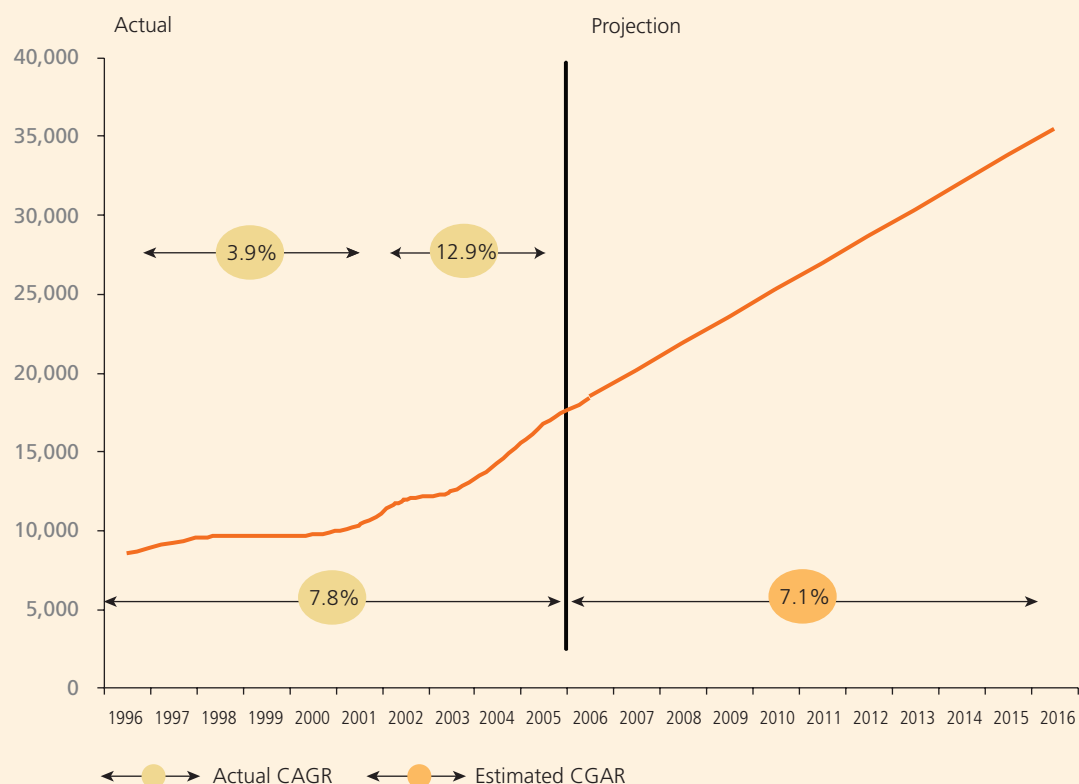


Source: WHO; McKinsey analysis.

Figure 1.10

Total Health Expenditure (THE), Sub-Saharan Africa; actual figures for 1996–2005, projections for 2005–onward

\$ million



Note: Refer to Annex 6 for a detailed review of methodology for estimating future health expenditure.

Source: WHO; Global Insights; McKinsey analysis.

Consistent with international trends, this growth in GDP will drive a greater demand for health care and an increase in per capita expenditure on health related goods and services (see Figure 1.9).

Based on projected economic and population growth rates, the health care expenditure in Sub-Saharan Africa is expected to grow from \$16.7 billion in 2005 to \$35 billion in 2016 (see Annex 6 for details), an annual growth rate of 7.1 percent per annum (Figure 1.10).

This report also estimates that around \$25–\$30 billion in incremental investment will be required for the physical assets (hospitals, clinics, distribution warehouses, etc.) needed to meet this increased demand over the next ten years.

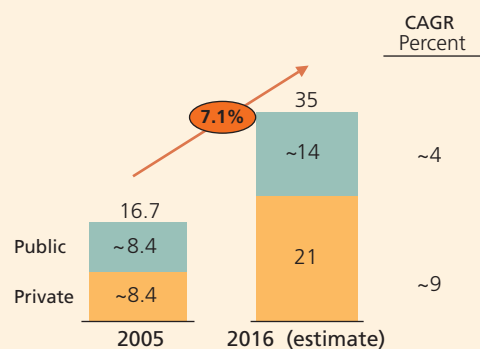
Will governments in Sub-Saharan Africa be willing and able to provide the investment required? Perhaps, but history suggests that the private sector has a major role to play. In 2000, 53 Sub-Saharan African heads of state pledged to allocate 15 percent of their national budgets to health care. This pledge was reaffirmed in the Gaborone Declaration during the October 2005 session of the Conference of African Ministers of Health in Botswana. However, according to the latest available figures for 2003, only one country (Liberia) has reached this level of expenditure, while 33 countries have not even reached ten percent.

In select countries where the environment is favorable to private sector participation in health

Figure 1.11

Breakdown of Total Health Expenditure (THE) by provider ownership, Sub-Saharan Africa; 2005 actual values, 2016 estimate

Percent, \$ billion



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

care, this report estimates that private sector entities have the potential to deliver between 45 and 70 percent of the needed increase in capacity. This should not be surprising. As noted earlier in this report, in other markets such as India the development of health care has been heavily underwritten by the private sector, and in China the government has openly acknowledged the need for private sector investment to supplement the public sector in building health care capacity.

Overall, it is expected that the private sector will grow faster than the public sector in the next decade (Figure 1.11), and will require investments in the range of \$11–\$20 billion over the same period to sustain this growth.

For health care companies looking for markets in which to expand, and for investors looking to invest in health care businesses, this \$11–\$20 billion in private health care expansion represents a significant opportunity. These investment opportunities, and the challenges involved, are explained further in Section III.

Health policy makers will have to recognize the reality that private sector entities have a significant role to play in health care. Many have concerns about private sector involvement in this field, and governments and policy makers must ensure that the sector is properly regulated to achieve high-quality health outcomes.

Similarly, governments needing the support of the private sector to fund the expected growth in health care demand must create an environment supportive of significant private sector investment.

Conclusion

The private sector has a positive role to play within the broader context of Sub-Saharan African countries' health care systems by expanding access and improving quality and efficiency. Governments, donors, and others in the international community need to reconsider the role of private sector entities in health care and engage with the private sector as a necessary part of an overall strategy for improving health care.

The next section of this report highlights how legitimate concerns about the role of the private sector in health care can be ameliorated through appropriate oversight and regulation; it also discusses implications for governments and policy makers.



In order for the private sector to fulfill its potential for improving and expanding health care in Sub-Saharan Africa, five main imperatives have been identified. Together these imperatives create an agenda for policy makers, regulators, donors, and other stakeholders, aimed at the improvement of health care provision in Sub-Saharan Africa.

Section II: Actions Needed to Enhance the Private Sector's Participation in Health Care

When appropriately regulated, private sector enterprises can stimulate higher efficiency and quality standards by competing with each other and by complementing, and also providing competition to, public sector providers. Even those with concerns about the private sector in health care are increasingly recognizing the important role it can play as part of an overall health system.

However, in order for the private sector to fulfill its potential for improving and expanding health care in Sub-Saharan Africa, its shortcomings must be honestly confronted and addressed. Consumers and patients must have confidence in the price, quality, and value of the care and products they purchase from the private sector.

Regulation and oversight are at the heart of effective, high-quality private sector involvement in health care. In the United States, for example, there is a comprehensive framework for the regulation of health care delivery. For pharmaceutical products, the high levels of oversight provided by the U.S. Food and Drug Administration and the European Agency for the Evaluation of Medicinal Products (EMA) have been an important factor underpinning the success of the multinational pharmaceutical industry. In Colombia, major health reforms were introduced through Law 100, which extends universal health coverage for public and private health services. As part of this reform, the Colombian Ministry of Health established a registration system and later the Unified Accreditation System to improve quality and regulate the growing private medical sector.

Even initial efforts at enhanced and targeted regulation could have large and immediate bene-

fits for the private health care sector in Sub-Saharan Africa. If governments can then couple increased oversight with other efforts to stimulate development of companies with high-quality practices, the result could be a more substantial, more formally structured, less fragmented, and higher-quality private sector that could foster improved health outcomes within a mixed public-private model.

From interviews conducted as a part of this work, many ideas were generated, particularly from private sector representatives for what governments, policy advisors, donors and others could do to encourage the development of a responsible private health sector.

Five main imperatives have been distilled from this long list of specific ideas. Together these imperatives create an agenda for policy makers, regulators, donors, and other stakeholders, aimed at the improvement of health care provision in Sub-Saharan Africa, including through the private sector. These priorities include:

1. Developing mechanisms for creating and enforcing quality standards for health services and medical product manufacturing and distribution;
2. Including as many of the population as possible in risk pooling programs;
3. Channeling a portion of public and donor funds through the private health sector;
4. Enacting local regulations that are more encouraging of a private health care sector; and
5. Improving access to capital, including by increasing the ability of local financial institutions to support private health care enterprises.

To be effective, this agenda must be targeted at the local level with specific intervention strategies that take local situations into account. The remainder of this section of this report explains those imperatives further.

1. Develop and Enforce Quality Standards

The quality of health care in Sub-Saharan Africa is highly variable and in many cases clearly substandard. Counterfeit and poor quality drugs, untrained and under-trained providers, unhygienic facilities, and inadequate supplies and equipment are commonplace in both the private and public sectors.

The reasons for these shortcomings are many and varied. They include lack of resources, insufficient training, corruption, and technically inadequate, opaque, and inconsistently monitored or enforced regulatory standards. As in all countries, the asymmetry of information in health care between providers and patients makes consumers vulnerable to low-quality providers. In Sub-Saharan Africa, this lack of knowledge is compounded by limited access to care for many of the most vulnerable populations.

Beyond the obvious impact on the health of the population, the lack of transparent and enforced quality standards is a major barrier to the development of a more formal and higher-quality private sector in health. Reputable providers may find that they cannot recover the costs required to provide high-quality products and services in a market where unscrupulous or less competent providers hold a competitive advantage. Investors do not want to be associated with potentially low-quality health care provision.

In interviews with entrepreneurs and business operators, the need for clearer—and more clearly enforced—quality standards, together with accreditation of quality providers, was one of the most commonly cited barriers to a more vibrant and sustainable private health care sector in Sub-Saharan Africa.

Improving quality standards is easy to applaud but hard to achieve. A plethora of quality-enhancing ideas have been tried in a variety of settings,^{53,54} but few have been systematically evaluated and then replicated on a larger scale. An effort to analyze attempted interventions for malaria drug sellers is a welcome start and offers a useful overview of the range of potential actions that can help to improve quality (see Figure 2.1).

National governments interested in enhancing the private sector's contribution to health care should look for new approaches to regulating the industry while also seeking to foster initiatives that promote transparency and help give patients a voice. All stakeholders should explore financial or technical means of supporting and piloting quality-enhancing initiatives for health care products and services for both the public and private sectors.

The most effective interventions are likely to be designed around local institutions and incentives, and all stakeholders should try to build on efforts that are already working in a local context (many of them collaborative rather than state run). The suggested interventions below give a broad idea of what is needed, but in all cases the local situation must be considered carefully to avoid the risk that increased government intervention might simply increase bureaucracy and transaction costs.

In *pharmaceuticals and medical products*, improving quality will require stakeholder support to:

- **Strengthen national drug regulatory authorities.** All stakeholders should explore financial and technical means to strengthen the capacity of national drug regulatory authorities. Such bodies can achieve noteworthy improvements in quality. For example, Nigeria's official drug regulatory authority, NAFDAC, reports reducing the incidence of counterfeit products in Nigeria from 40 percent to 17 percent between 2001 and 2006.⁵⁵ Support is also needed to introduce good manufacturing practice (GMP) standards, to develop and qualify bioequivalence testing laboratories, and to establish and maintain drug registration standards.⁵⁶
- **Increase regional collaboration, mutual recognition, and harmonization of regulatory standards.** Regional standards and processes for

Figure 2.1

Interventions to improve quality of health care services in Sub-Saharan Africa*

	Rationale	Sample interventions
Creating an enabling environment	- Public regulations and enforcement practices may be inappropriate or have unintended consequences and deserve analysis and reform. - Lack of access to capital can be a significant barrier to investing in quality improvements.	- Changes in policy and regulations (e.g., updated standards, decentralized enforcement). - Credit facilities for facility operators.
Quality assurance	- Public oversight is often inadequate to ensure a high standard of care. - Community involvement and provider self-regulation can provide additional needed capacity in terms of monitoring and supervision.	- Franchising and outlet accreditation. - Community accountability (e.g., involvement of community organizations). - Involvement of provider associations. - Public monitoring and supervision. - Distribution of pre-packaged drugs and pooled procurement.
Training and capacity building	- Previous education of health care providers (formal or informal) may be absent, inadequate, or inappropriate, leading to adverse outcomes. - Efforts to help correct these deficiencies may promote quality improvements.	- Formal education (e.g., workshops, courses). - Peer and in-shop education. - Use of job aids and supportive instructional materials.
Demand generation	- Information asymmetry is a challenge across the health care industry. - Using market-related tactics and public education can help guide consumers toward high-quality products/services.	- Formal education (e.g., workshops, courses). - Peer and in-shop education. - Use of job aids and supportive instructional materials.

* Framework based on literature review of tactics used to improve quality of services provided by drug-sellers for malaria in Sub-Saharan Africa.

Source: Goodman, unpublished.

drug registration facilitate the entry of larger manufacturers with higher-quality products and enable facilities such as bioequivalence laboratories to be leveraged across the region. Some efforts in this direction have been started by the Ministries of Health of the Economic Community of West African States (ECOW-AS),⁵⁷ but the lack of mutually recognized centers of excellence makes the task particularly complicated. The international community can assist both financially and technically to bring regulators together on a regional basis around a harmonization agenda.

- **Strengthen inspection and enforcement of existing regulations.** While most nations have policies that aim to safeguard the quality of goods delivered to the public, efforts to monitor and enforce these regulations are often lacking.⁵⁸ Potential mechanisms to enhance this

aspect of quality oversight include: creation of independent or semi-independent inspection bodies; enhanced training and incentives for inspectors; conducting surprise (rather than planned) inspections and continuing inspections beyond initial licensing or accreditation; publication of inspection findings; and creation of mechanisms to enable anonymous reporting of violations.^{59, 60, 61} Concentrating on informal drug sellers and counterfeit drugs would have the greatest development impact given the poor's reliance on these services.

- **Educate patients and care providers.** Governments and the international donor community can support and expand initiatives to educate patients—as well as employees of hospitals, clinics, and pharmacies—on how to avoid counterfeit drugs and the dangers of informal, unregulated drug sellers. For example, consum-

er awareness campaigns conducted in rural Zambia between 2000 and 2001 that educated families about correct chloroquine dosing led to a 60 percent improvement in anti-malarial dosing.⁶² Other steps, including packaging, branding, and labeling initiatives (including use of prepackaged drugs), can further help patients and care providers to identify potentially low-quality counterfeits.

Improving the overall quality of *medical care provider facilities* will be particularly difficult given the fragmented, widely distributed, and essentially local nature of health care provision and will require sustained effort and enhanced regulatory oversight. An engaged community and more empowered patients will be important drivers behind higher-quality care. The international community can provide both financial and technical assistance to establish and scale-up local and regional initiatives to:

- **Establish standards of care and build regulatory skills** through, for example, organizing regional forums to share best practices, evaluate existing quality initiatives, and learn from failures. Not all efforts to establish standards of care will be led by government regulators. For example, in Nigeria the private sector is leading the creation of the SQHN (Society for Quality Healthcare in Nigeria), an organization aimed at establishing quality standards and benchmarks for HMOs.
- **Strengthen inspection and enforcement of existing regulations.** As described above for pharmaceuticals and medical products, efforts to monitor and enforce existing regulations are often lacking. Mechanisms, such as creation of independent or semi-independent inspection bodies, enhanced training and incentives for inspectors, and surprise inspections apply also in health services. In addition, encouraging involvement of professional associations by conducting peer reviews and peer reporting, publishing inspection findings, and creating mechanisms to enable anonymous reporting of violations could also be valuable in the provider setting.^{63, 64, 65}
- **Compile and publish clinical performance data** for both private and public provider facilities. Sub-Saharan Africa is a long way from having the information technology infrastructure or the clinical data available to undertake the sophisticated “league table”-type performance tracking that is seen, with mixed results, in both the United Kingdom’s National Health Service and in the United States. Nevertheless, some level of transparency on clinical performance, combined with the availability of the results of, and lessons learned from, the various quality initiatives around the region, could be a powerful force to improve quality.
- **Provide education and technical support to providers**, including hospitals, clinics, and pharmacies, to help them improve the quality of clinical care and meet established clinical care standards. Training is needed in both the formal and informal private sector. The quality of medical schools is uneven and public efforts to provide post-graduate training and continuing education often fail to include private providers.⁶⁶ Additional training is even more important in the informal sector. Informal sector participants are less likely to have adequate levels of education to begin with, and the poor people that they serve are at a disadvantage in terms of education and purchasing power; they are, therefore, especially at risk. Though debate surrounds the effectiveness of specific interventions, some programs have achieved notable results. A pilot in the Kilifi District of rural Kenya, for example, found that efforts to educate shopkeepers and community members were effective in improving anti-malarial dosing in young children.⁶⁷
- **Foster community involvement in provider facilities** by, for example, establishing governing or quality oversight boards for private sector hospitals drawn from the local community.
- **Encourage franchising of high-quality provider organizations** and implement performance contracts with service providers to create more standard levels of quality throughout broader networks.
- **Enable legal redress by patients and families** for harm done to patients. Conceptually, this has some appeal as a way of putting pressure

on providers. India experimented with this approach in their Consumer Protection Act of 1986, with some documented improvements in quality, but with rather mixed results overall.⁶⁸ Given that only a small percentage of the population will have the education and funds necessary to pursue this course, and that a robust justice system is a prerequisite for this mechanism to have any effect, the applicability of this idea to improve health care quality in much of Sub-Saharan Africa is likely to be limited, at least in the near-term.

2. Foster Inclusion in Risk Pooling Arrangements

Risk pooling arrangements—be they government-funded National Payment schemes,⁶⁹ commercial insurance, or community non-profit *mutuelles*—are critical to driving sustainable improvement in health care provision in Sub-Saharan Africa.

Risk pooling is widely regarded as a better and more equitable method for financing health care rather than the out-of-pocket payments on which most of the Sub-Saharan African population currently depends. Further, risk pooling arrangements—and their ability to contract with provider organizations for the provision of care—are a powerful force to encourage the development of higher-quality, more organized private sector providers.

For donors, risk pooling arrangements provide a means to aid the poorest of the population (for example, by subsidizing coverage for these groups) while encouraging sustainable improvements in health care provision by allowing the private sector to care for those able to pay for their services.

For example, the Health Insurance Fund is a Dutch NGO financed by the Dutch Ministry of Development Cooperation. In a pilot program it is beginning to replicate in other countries, it aims to extend coverage to 115,000 people in Nigeria, with an emphasis on those in Lagos and the rural Kwara State who are not formally employed. It is likely that these farmers, market women, and their families would not otherwise be able to obtain health insurance coverage. Nigeria is the first country to benefit from this program, while other countries in Sub-Saharan Africa will follow.

Developing and regulating “insurance” markets is complex, and implementation of national payment systems may be beyond the reach of many governments. Further, there are low national social cohesion patterns in parts of Africa, and this may compromise the willingness of groups to enter into risk pooling arrangements. However, by developing consistent health-financing systems, local governments, donors, and the international technical assistance community can together help to significantly expand the number of people covered by risk pooling arrangements, with substantial benefits to health care.

Risk Pooling—a Superior Way to Pay for Health Care

Today, Sub-Saharan Africa depends on out-of-pocket payments as a means of financing about half of total health expenditure, and in some countries—such as Burundi, Democratic Republic of Congo, and Guinea—they account for more than 75 percent.⁷⁰ Out-of-pocket payments have many drawbacks: they are the most inequitable form of health care financing, the poor pay a disproportionate share of their income, and there is no opportunity for cross-subsidization between rich and poor or between the healthy and the unhealthy.

From a public health perspective, out-of-pocket payments fail to promote utilization of health care services for early detection and treatment of disease. For patients, they do not provide financial protection against the costs of serious illness, and payment is required at the time that care is delivered—the time when, due to illness, the patient is least able to pay.

Financing primarily through out-of-pocket payments is also a significant barrier to the development of a higher-quality, formalized private sector. For providers, payments are unpredictable, making business planning and forecasting difficult, increasing risk, and decreasing the appetite of investors. From an investor perspective, payments typically go to small, poorly organized providers that are often of substandard quality, rather than the formal, established providers more suitable for capitalization.

Risk pooling arrangements are widely recognized as far superior to out-of-pocket payments.⁷¹ For the general population, these arrangements provide financial risk protection and can help to promote equity through cross-subsidization. The timing of payment is uncoupled from the timing of care delivery, increasing the patient's ability to pay. Unsurprisingly, there is evidence that such risk pooling arrangements promote utilization of services and a healthier population. Figure 2.2 describes a recently implemented insurance program for pregnant women in Mauritania and demonstrates the potential positive effect of risk pooling on utilization patterns and health outcomes.

As well as benefiting the patient, the expansion of the number of lives covered by risk pooling arrangements is a potentially profound force in developing a more structured, and higher-quality service provider system.

Risk pooling arrangements often include organized “contracting” functions that purchase health

care on behalf of the individuals covered. For private sector insurers, these contracting groups tend to purchase health care from private sector providers. If properly structured and professionally managed, contracting for a sizeable population can lead to better scrutiny of quality, promote greater efficiency, and, importantly, achieve the scale needed to help capture efficiency gains and encourage the development of organized provider networks.

This dynamic of large-scale purchasing fostering the development of organized provider networks applies to government-funded health plans as well as the private market. However, this benefit of risk pooling cannot be realized under national health payment plans that restrict members to using only public health facilities. In addition, the lack of private contracting risks perpetuating poor health care access for rural populations in areas where public sector providers often do not exist. A case in point is Tanzania, where the

Figure 2.2

Mauritania: Flat-fee coverage for obstetric care

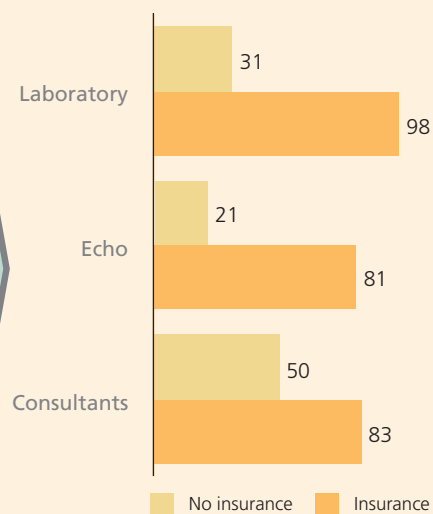
For a ~\$15 fee, patients receive pre-, ante-, and post-natal care, including:

- Medical consultations
- Diagnostic testing
- Medications
- Education
- Necessary emergency care
- Initial vaccinations

Maternal mortality was 747 (per 100,000 births) for those without insurance and 100 for those with insurance

Appointment attendance

Percent



Note: Scheme initially piloted in two regions (Sebkha and El Mina) in November 2002 and has since been rolled out in additional areas; enrollment rates during pilot period exceeded 60 percent.

Source: Country interviews; McKinsey analysis.

national risk pooling arrangement covers civil servants. Although initially supportive, unions are now protesting the plan on behalf of teachers in rural areas who have contributions deducted automatically from their payroll but are unable to make use of their benefits because there are no local public providers of an acceptable quality.

Help Is Needed to Expand Risk Pooling Arrangements

Many forms of risk pooling already exist in Sub-Saharan Africa, but they cover only a very small proportion of the population. In a study of 12 primarily West African nations,⁷² only two percent of

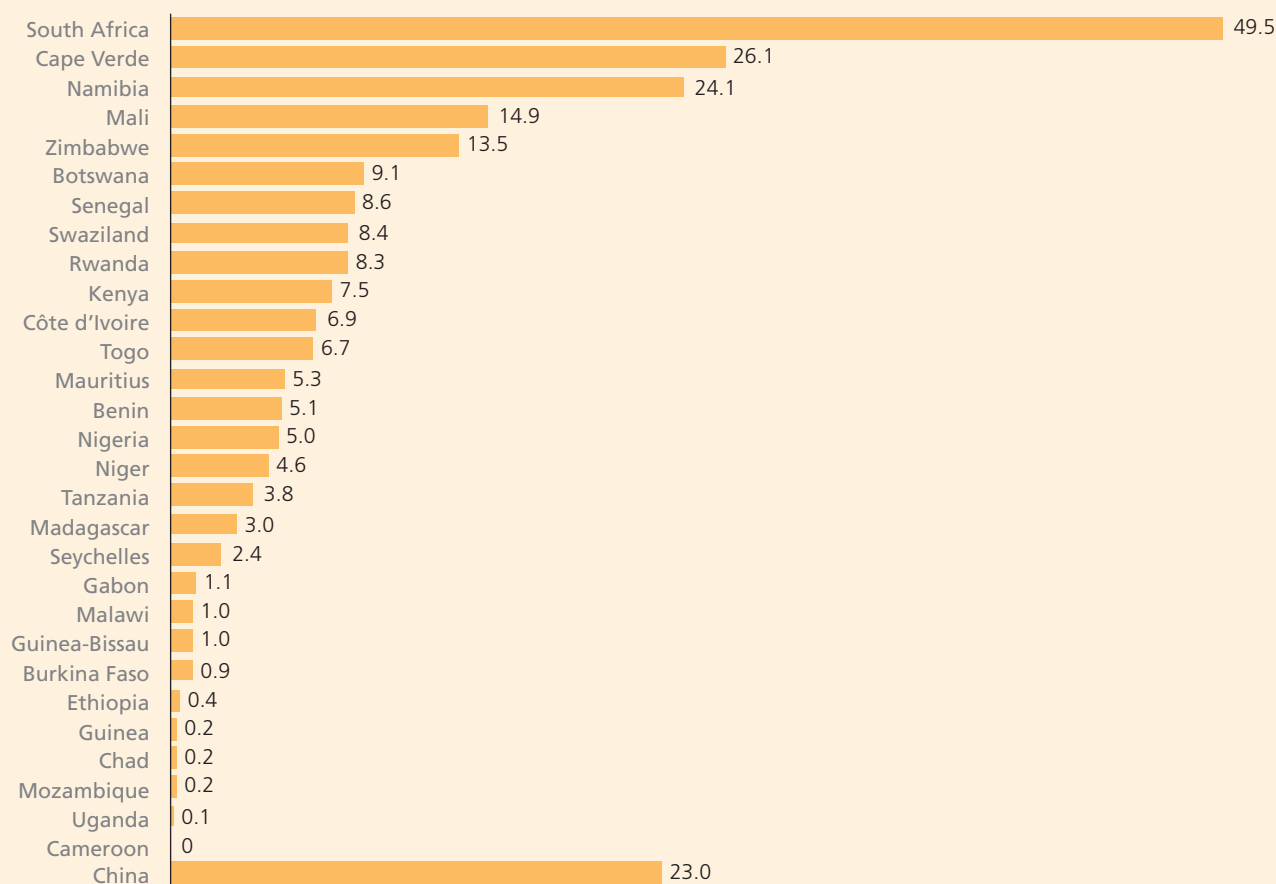
the population was enrolled in community insurance plans. Figure 2.3 below shows how risk pooling—whether in the form of government social security programs or private sector insurance—currently accounts for only a small proportion of total health expenditure in the majority of Sub-Saharan African countries. The use of risk pooling is low in almost all countries in the region, even when compared to other health care markets that are still in the developmental stages (such as China).

More governments are considering national health insurance schemes but, as the examples of both Kenya and Uganda show, launching these initiatives presents a number of formidable challenges

Figure 2.3

Social security* and private prepaid** health care spending, 2003

Percent of total expenditure



* Includes schemes that are mandatory and government-controlled.

** Includes private insurance schemes, private social insurance schemes, commercial and non-profit (mutual) insurance schemes, HMOs, and other agents managing prepaid medical and paramedical benefits.

Source: World Health Report, WHO 2006.

Models of risk pooling in Sub-Saharan Africa

	Key characteristics	Sub-Saharan Africa examples	Non-Sub-Saharan Africa examples
State-funded systems	- Public system funded by general revenues - Attempt to achieve universal coverage but often lack sufficient allocated funds from general ledger to do so. - Though equity is theoretically superior to other models, management and efficiency are often lacking, especially in those systems in which care is delivered through public providers.	- Ghana (2004): National Health Insurance Scheme (est. 2004) is a mixture of a state-funded and social-security system. - Supported by consumption and pension taxes. - Currently covers ~38 percent of the population but aims for comprehensive coverage. - Implemented through public and private community mutuelles and private plans.	- United Kingdom. - New Zealand. - Sweden.
Social insurance systems	- Parastatal or independent, non-profit insurance fund financed primarily by government-mandated payroll contributions. - Coverage linked to paying population (the formally employed) though may attempt to be extended, often with difficulty, to others (e.g., unemployed, informally employed).	- Kenya: System initially established in 1966 as universal, state-funded system, but underwent major reform in 1998 to transition to a social insurance scheme with mandatory coverage of all employed populations and voluntary enrollment for others; current enrollment ~1.6 million. - Many recently legislated plans, including Tanzania (1999) and Nigeria (2006). - Nigeria (2005): currently rolled out to civil servants, with plans to ultimately achieve universal coverage. - Uganda is in the process of designing a social insurance program.	- Common in European Union nations (e.g., Germany, France) and Latin America (e.g., Argentina). - Republic of Korea.
Private insurance	- Classically for-profit, voluntary schemes funded by non-income-based contributions of individuals or employers or supported by donors. - May provide primary coverage or exist alongside public payer systems. - Open competition affords efficiency gains but adverse selection by insurers and reliance on private contributions tend to limit access and equity in favor of the healthy and rich populations. - As a variation of the model, large employers who otherwise would have purchased coverage from external private insurers may form their own risk pool and self-insure.	- Most nations have very few private insurers who cater to the wealthy or foreign populations. - Plans are more widespread in Namibia and Zimbabwe, though still cover a relatively small share of the population (Zimbabwe: six percent in 2002). - Also common in South Africa.	Chile, Singapore, United States, Uruguay.
Community health insurance	- Typically non-profit, voluntary community or employment-based risk pooling prepayment schemes. - Community solidarity and control are key elements. - Take a variety of forms, including micro-insurance. - Though they offer coverage to typically uninsured populations, small risk pools and low-income of enrolled populations limits protection and sustainability.	- Increasing prevalence in much of West, Central, and East Africa; coverage still <five percent of the population. - Plans in parts of East Africa (e.g., Rwanda, Tanzania) vary from the norm in that they are initiated by governments rather than communities.	- Common across much of Asia (e.g., Philippines) and Latin America (e.g., Mexico). - Precursor to social insurance systems in Germany, Japan, and Republic of Korea.

Source: Gottret, 2006; Atim, 1998; Ndiaye, 2007; country interviews.

(see sidebar). In both countries the government faced significant opposition to the introduction of such plans. The opposition came from diverse sectors of the community, but in both cases the lack of private sector participation was a rallying point.

Beyond national payment schemes, private sector arrangements—whether for-profit insurance or community-based *mutuelles*—will be unlikely to develop effectively without support, including technical assistance, to create the right conditions for expansion.

The number of community health insurance schemes has risen dramatically in recent years. In West Africa, for example, where a majority of schemes are based, there were 76 functional plans in 1997 and 626 in 2006.⁷³ However, many of these are small-scale and their sustainability is uncertain. Individual countries have established public entities, such as Senegal's Cellule d'Appui au Financement de la Santé et au Partenariat, responsible for organizing and supporting these various schemes with the aim of making them viable. Mali has a private technical institution (UTM) that develops tools to train people regarding community risk pooling schemes and provides training to help establish such schemes, although its financing as an NGO is not assured.

Cultural barriers to saving for future health care needs must also be overcome, and trust in the entities managing the funds, whether public or private, needs to be built. In both Uganda and Kenya, one reason for the opposition to the introduction of national health insurance schemes was a lack of trust and a concern about corruption in managing the fund. Trust in a mechanism to pay for risks in the future is further undermined in Sub-Saharan Africa due to ethnic diversity, low national social cohesion, and low levels of solidarity/identification between social groups, as well as civil strife and conflict in some areas.

In addition, better data concerning population, health, and costs are needed to control for risk, set premiums, track outcomes, and contract with providers. Many countries lack population registries or death registries, and health statistics are not detailed enough to allow for actuarial analysis. Within a fully public provider system there is no transparency regarding the cost of services, but purchasing—rather than simply subsidi-

Over the last several years, a number of nations in Sub-Saharan Africa have sought to develop national or social health insurance schemes but have faced objections from various interest groups regarding specific aspects of the plans' designs:

- In Uganda, the government is in the process of establishing a social health insurance scheme. Though theoretically supportive of attempts to provide risk pooling and health care coverage to the population, a variety of employer associations, insurance companies, and private providers have joined forces to lobby against the government's proposal that it manage and administer the plan. In response, the government is evaluating the potential solutions in which private sector players would have a role in managing the fund.
- Kenya's government has similarly struggled with civil servant unions that object to their medical allowances being used as contributions to the social insurance scheme. A wide range of industry associations and trade and civil servant unions have raised other concerns. Beyond fears of under-representation, corruption, and inefficiency and debates over premium contributions, stakeholders have also pointed to insufficient private sector participation for both insurers and providers, though the government provided assurances that the program's beneficiaries would be free to use accredited private sector providers (reimbursed at lower mission/public rates) and that insurers would be free to provide supplemental or complementary coverage to those interested.

dizing—health care requires knowing how much one will need to pay.

Regulations that treat HMOs in the same way as auto or life insurance, or even fee-for-service health insurance, significantly inhibit the development of these types of plans. Because HMOs provide the insured with services themselves, they tend to have far greater control over costs than traditional insurers—yet in many countries they are grouped with other insurers and are required to have the same minimum capitalization. In interviews conducted for this report with insurers, HMO executives, and entrepreneurs, capitalization requirements were cited as a significant barrier to entering the market in Sub-Saharan Africa.

Finally, anything governments and external stakeholders can do to directly foster the develop-

ment of organized, high-quality private sector provider networks would, in turn, benefit the expansion of large-scale private sector risk pooling arrangements. The extreme fragmentation among private sector providers today is, in itself, a barrier to entry for large-scale risk pooling entities. To operate effectively, such entities need to drive efficiency through their health purchasing, something which is difficult to do until consolidation into networks has commenced.

Agenda for Action

There is much that local governments, donors, and the international community can do to expand the number of individuals covered by risk pooling arrangements in Sub-Saharan Africa.

Governments can:

- Develop coherent health financing systems that include the best mix of possible risk pooling mechanisms (national payment plans as well as community and private plans);
- Allow private sector participation in national health payment plans, both by contracting with private care providers and sourcing some administrative and other fund-management activities from the private sector;
- Develop the capacity to promote, implement, and monitor community risk pooling schemes;
- Create incentives for people to enroll in private or community insurance where consistent with a coherent health financing system;
- Develop and make available to the private sector demographic and health data;
- Create health-specific capitalization requirements for HMO-style insurers; and
- Establish entities to support the development and expansion of community insurance schemes.

Donors can:

- Channel some of their aid through private, public or community risk pooling organizations, for example, in the form of premium subsidies to expand coverage to the poorest members of the population.

The International Community can:

- Support governments in developing the often complex regulatory frameworks required for effective operation of private sector risk pooling arrangements;
- Assist donors in designing aid approaches that help overcome cultural barriers to saving and insurance and encourage individual participation in risk pooling arrangements; and
- Develop in-field research to study the impacts of different plans on health outcomes, health-system efficiency, and quality, in order to identify best practices and learn from failures.

3. Channel Public and Donor Funds Through the Private Health Sector

Risk pooling is just one way in which the public sector and/or donors can leverage the private sector to improve access to and quality of care. There are other mechanisms, which are explained below, which involve channeling some public or donor funds through the private sector to provide a base level of stable income so private sector entities can expand.

Governments

Around the world, governments are increasingly looking to leverage the capabilities of the private sector to meet public needs, and this is now as true in health care as it is in more traditional infrastructure such as transportation and energy. The evidence—though not extensive—suggests that such arrangements for health care can have a positive impact. In a 2005 study⁷⁴ of private sector contracting arrangements in developing countries (including one in Sub-Saharan Africa), the private sector performed better in terms of quality and coverage and in many cases provided services that were less expensive than the equivalent government services.

Public and private sectors can work together in a wide variety of ways, as summarized in Figure 2.4. Although, at present, very few of these ideas have been tried in Sub-Saharan African health care, there are some interesting examples represented—

such as one in Lesotho—that could serve as models for others (see sidebar on page 28).

There are many reasons why the private sector is not more extensively involved in public health priorities in Sub-Saharan Africa:

- Many governments do not have the capacity or capability to effectively procure, price, supervise, evaluate, or manage private sector contractors;
- Many policy makers are unaware of the benefits of partnering with the private sector or have an ideological opposition to private sector involvement in health care;

- Some countries have only limited private sector capacity and, where the private sector market is small, prices are often high due to lack of competition; and
- Existing laws and regulations may make it difficult to reduce current public sector staff and replace them with private sector equivalents—even where hiring private contractors to handle services such as cleaning, security, transportation, and catering would be far more cost-effective.

These barriers will not be easy to overcome, but governments could start immediately by examining their attitude towards private sector involvement in health care and, importantly, articu-

Figure 2.4

Potential interactions between public and private health sectors

Type	Description and examples
Procurement	• Purchase of supplies or equipment from external private sources (e.g., NGOs, private clinics, etc.).
Funds transfer	• Funds channeled to the private sector in exchange for provision of a single concrete episode of care, effectively subsidizing service provision (e.g., grants to NGOs for HIV/AIDS care, voucher schemes for maternal check-ups).
Service contracts “contracting in”	• Private sector delivers a defined set of services for public facilities, e.g., – Non-clinical support services (e.g., housekeeping, maintenance, catering, transportation, security, laundry, etc.) – Ancillary clinical services (e.g., laboratory, radiology) – Core clinical services (e.g., surgery, reproductive health care) – Third-party administration
Service contracts “contracting out”	• Private sector delivers a set of predefined services for the public sector within private settings (e.g., immunization programs, nutrition programs, and consumer education campaigns).
Management contracts	• Private sector assumes management responsibilities (e.g., staffing and labor, supplies, ongoing training) for public facilities.
Leasing	• Temporary operation and management of public facilities by private sector players; the private sector bears all risk and retains any profits, but does not enjoy ownership of facilities.
Concessions	• Private sector provides capital investment for new or existing facilities and transfers ownership to the public sector after a specified period of time (e.g., build-operate-transfer).
Divestiture/ privatization	• Sale of a public facility to the private sector (e.g., build-own-operate-transfer) for ongoing operations and ownership.

Source: Framework adapted from Marek, 2003; USAID, 2006; Loevinson, 2003; Harding, 2003.

A demonstration of the potential for broader engagement between the public and private sector is underway at the Queen Elizabeth Hospital in Lesotho. The Advisory Services Group of IFC is working with the government of Lesotho to contract the construction and management of a 400-bed hospital and two associated clinics to the private sector. Historically, the private sector has been reluctant to bid for public management contracts in Sub-Saharan Africa (outside of South Africa) because of two factors: 1) the size of the facility may not be large enough to secure sufficient financial interest; and 2) the risk that the government will not pay for the services rendered. Both of these risks are being addressed in this example. Expected annual turnover of the facility is in the range of \$18–\$20 million, which has garnered interest from a number of South African based operators. Secondly, the Lesotho government has been bonded by a partial risk guarantee from the World Bank, which guarantees the private sector provider payment through a unitary payment scheme over 17 years.

lating where they would like to see it involved and what they plan to do to encourage participation in those areas. This level of transparency would help private sector organizations—and their investors—prioritize their efforts towards those countries and areas where the government is willing to engage them as partners in the development of health care services.

Donors

Although most donor resources for health in Sub-Saharan Africa are channelled through the public rather than the private sector (Figure 2.5), the breakdown varies a great deal by country.

In addition to variations between countries regarding where donors channel their resources, there are other differences in funding patterns. These differences correlate closely with donor size. Larger donors, including the major multilateral and bilateral organizations and financing vehicles, typically target the majority of their funds to the public sector, supplementing health and finance ministry budgets in individual Sub-Saharan African countries. Two notable exceptions are the United States President's Emergency Plan for AIDS Relief (PEPFAR), which allocates large sums to the private sector for distribution of an-

tiretroviral drugs, and the Global Fund to Fight AIDS, TB, and Malaria (GFATM), which allows private sector enterprises to qualify as funding recipients. Other exceptions to this pattern include governments regarded as too corrupt, incompetent, or distracted to handle international aid. In those cases donors have been known to channel a larger proportion of their money through the private sector (typically through NGOs).

On the other hand smaller donors, which are usually dominated by private foundations and faith-based organizations, dedicate the majority (if not the entirety) of their funds to the private sector. They tend, however, to focus their donations on directly supporting private sector provider organizations (typically non-profit entities) rather than expanding the ability of the poor to pay for health care, for example, by subsidizing their participation in insurance or other risk pooling mechanisms.

With the exception of the distribution sub-sector, for-profit entities rarely participate in donor-funded activities. Only in distribution is it common to see for-profit companies play a prominent role in such activities. For example, South Africa's Fuel, Senegal's Universat Logistics Company, and Kenya's Shely's Pharmaceuticals, Ltd., distribute medications, insecticide-treated malaria nets, and condoms for a small mark-up fee to end-users on behalf of donors and multilaterals.

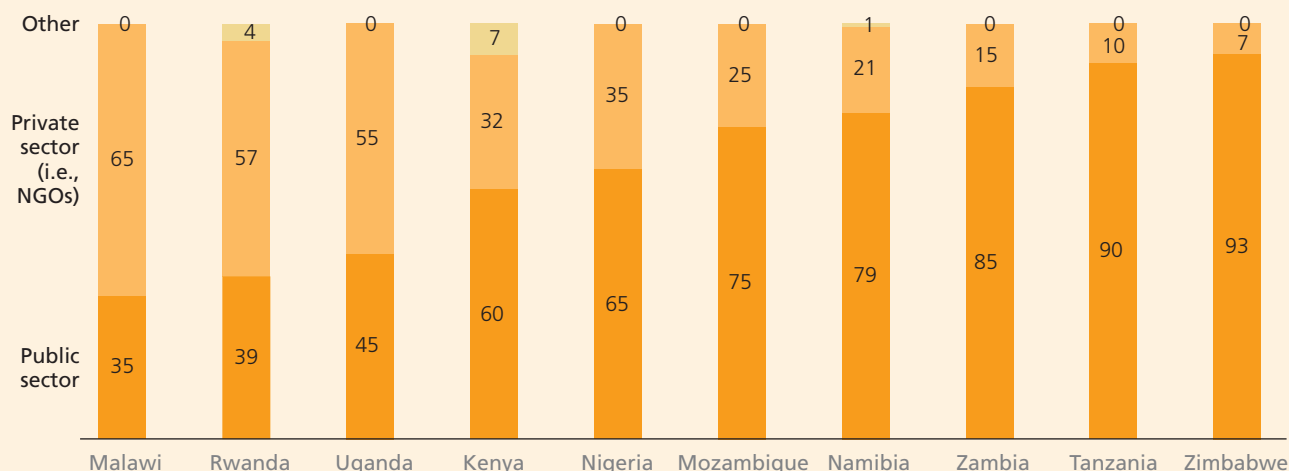
Given that some countries are believed to be reaching their absorptive capacity for additional donor funds, and that the private sector can be an efficient, equitable, and high-quality provider of health care services, the international community should consider:

- Earmarking a higher proportion of aid to fund private sector entities, particularly those that, increase the ability of the poor to pay for health care and, in so doing, foster the development of high-quality providers;
- “Blending” aid money with some commercial financing in order to create and expand more sustainable private sector entities including health care social enterprises;
- Assisting local governments in expanding their ability to manage procurement and contracts with the private sector; and

Figure 2.5

Recipient of external donor funding

Percent of total



Source: National Health Accounts 1997-2002 (latest year available); McKinsey analysis.

- Ways to reduce the risk for private sector entities in contracting with governments (as in the Lesotho example).

Employers

Because the formal economy remains small in Sub-Saharan Africa, employers tend to play a very limited role in total health expenditure, ranging from two percent in Kenya to 11 percent in Zambia. When employers do participate in the health care system, their involvement can be both direct (operating their own clinics, for example) and indirect (purchasing health care services for their employees). Due to a growing awareness of corporate social responsibility, some companies have begun to participate even more broadly. For example, in Ghana, AngloGold is financing and implementing a malaria control program for its own workers and the communities in which they live.⁷⁵ Several similar initiatives—such as the malaria control program of BHP Billiton in Mozambique⁷⁶ and the HIV/AIDS monitoring and treatment program of Coca Cola,⁷⁷ also in Mozambique—are present across Sub-Saharan Africa. When private sector employers do participate in health care provision, the private health sector is the recipient of the

vast majority of the funds expended (Figure 2.6).

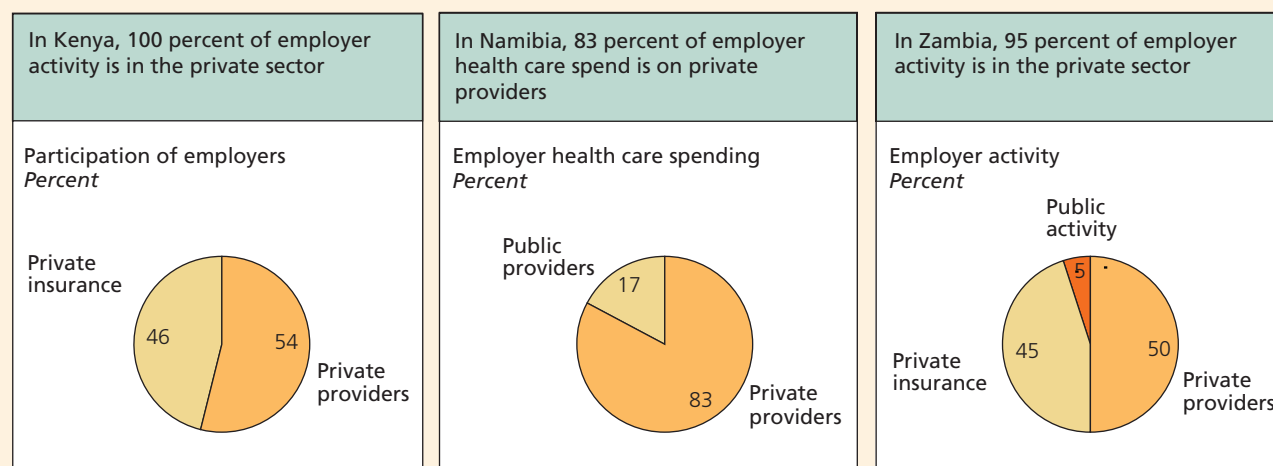
Thus, employers, including multinationals, can clearly help the development of the local private health care sector by outsourcing the provision of health care for their employees. For example, Shell Nigeria, which traditionally managed its own clinics, is now in the process of contracting out services to a local integrated delivery network, an action that will help to build local capacity and broadly benefit the surrounding community.

4. Ensure That Local Policies and Regulations Embrace and Foster the Role of the Private Sector

The ways in which local policies and regulations impede the development of the private sector in health care are myriad and often unintended. Modifying these policies and regulations can provide a rich opportunity for governments that are seeking to support the mobilization of a socially responsible private health care sector.

Figure 2.6

Country examples of employer-based health spending and activity



Source: National Health Accounts; McKinsey analysis.

Detailed below are some of the more commonly encountered opportunities for reforms that would allow governments to either “get out of the way” or to actively create an enabling environment for private sector participation.

Cumbersome and Bureaucratic Regulatory Processes

As is extensively described in the World Bank’s annual *Doing Business* report, costly, slow and needlessly complex registration processes can impede new entrants in any business sector and choke off the growth of existing businesses. Interviews with health care business people for this report also highlighted a number of specific issues relating to the establishment of sound health care enterprises and access to quality drugs. In addition to addressing the need for accepted and enforced quality standards and HMO-specific capitalization rules (both already described elsewhere in this section), governments should seek opportunities to:

- Liberalize pharmacy chain ownership regulations in order to allow development of chains and price competition. For example, in Senegal pharmacists can only own one pharmacy because the law requires them to be constantly present in their outlet. Similarly, diagnostic labs are limited in their development by the fact

that only holders of a degree in biology can be equity holders in such businesses;

- Build regional credential recognition programs that will allow an easier flow of health care staff and providers between neighboring countries—and allow local staff who have been trained overseas to return;
- Streamline the application processes for the establishment of country-specific health care non-profit organizations; and
- Develop common regional drug registration requirements. For example, the Food and Drug Administration bodies of Ghana and Nigeria have started to cooperate informally so that when a drug is approved in one country, the approval process in the other country takes that approval into account.

Policies on Human Resources for Health

There is a human resources crisis facing the health care sector in Sub-Saharan Africa, a crisis that acts as a major impediment to the development of health care in the region for both the public *and* the private sectors. The shortage of staff in public sector health care explains much of the reluctance expressed by public officials to support the growth of private sector providers who could lure away valuable staff.

A case in point is Mozambique. With only 850 physicians available to serve a population of 19 million, health ministry officials are understandably critical of for-profit and non-profit private operations which attract scarce qualified staff away from public service positions. Similarly, in efforts to boost the provision of care for HIV/AIDS patients, some donors are competing with each other to attract medical staff to their programs, offering additional grants and more attractive benefits as incentives.

It is therefore not surprising that many governments have regulations that require physicians, or at least some physicians, as well as nurses and pharmacists to practice only within the public sector. It is also clear that there are risks associated with dual (public and private) practice by health care professionals. Misappropriation of scarce public resources (e.g., use of facilities and drugs), diversion of patients away from public services,⁷⁸ reduced quality of care, and increased waiting times in the public sector are some of the more obvious possible concerns.

Allowing part-time or after-hours private practice can, however, have benefits. Public sector waiting times can be reduced, since patients who are willing and able to pay for their own care can be treated after hours; allowing health care professionals to supplement their incomes may enable the government to avoid losing skilled health workers; and formalizing the “dual practice” approach may help decrease the system of “unofficial” payments that is widespread in the public sector in many countries.

In Tanzania, ten to 15 percent of graduating doctors emigrate or leave medical practice and nurses commonly work in second jobs outside health care (typically in agriculture) in order to increase their income. These figures demonstrate that permitting health care providers to supplement their income by also working in the private sector health care market would be a more beneficial approach than restricting work to the public sector market.

Therefore, although well-intentioned, regulations that restrict the ability of health care professionals to participate in the private sector can have the perverse effect of exacerbating the human resource shortage in health care without producing

any obvious benefits to the public sector. That said, governments’ ability to enforce these regulations appears limited, and many professionals do work actively in both sectors despite regulations forbidding them to do so. For example, in Tanzania, 60 to 80 percent of doctors employed in the public sector moonlight.⁷⁹ And in Zambia, though junior doctors who work in the public sector are banned from also working in the private sector, it is common knowledge that many do so anyway.⁸⁰

Governments should consider:

- Re-examining health care staffing policies—particularly those that restrict provider participation in the private sector, with an eye toward removing or modifying those policies that have had unintended and negative consequences. Policies that allow for the “safety valve” of private sector participation and include controls concerning misappropriation of public funds are likely to have a positive impact on availability of human resources for both the public and private sectors. For example, policies that allow public sector doctors to practice privately, perhaps even using public facilities in exchange for a fee, will help to keep those doctors in the country and working in the health sector, and
- Mobilizing the private sector to help meet human resource needs by allowing and, when possible, encouraging private sector training for health care professionals, including health care managers. For example, in Dakar, 150 out of 250 nursing graduates each year are trained in one of the city’s 13 private nursing schools.

Tariffs and Other Barriers to Trade

Policies that impede access to health supplies, or raise their cost, are a major concern for private businesses and patients alike. Burdensome customs processes often cause lengthy port delays that increase costs to consumers. In some countries, tariffs and import fees on medical goods are far more costly than those for non-health-related products. In Kenya, import agent fees, port and clearance charges, and import declaration fees account for 21 percent of the final retail price of a typical medicine. Similarly, ten percent of private sector retail prices in Ethiopia, and 12 percent in Ghana, are attributable to non-freight costs of importation.⁸¹

Though these taxes raise public revenue and may encourage local manufacturing, they also raise drug costs, thus decreasing access to necessary treatments and supplies.

Non-customs regulations can also increase the cost of doing business for private sector enterprises and complicate access to affordable products. In Senegal, the fixed percentage-based product mark-ups at pharmacies (23 percent) undermine retailers' incentive to substitute lower-cost generic equivalents for higher-priced brand-name drugs.

In addition, inter-country differences in regulations governing the transport and sale of medical products can disrupt established retail and distribution patterns. This disharmony most severely limits product availability in the poorest countries, since producers may not be motivated to overcome the import challenges of markets they regard as insufficiently profitable.

In theory many of these regulations exist to support local manufacturers. However, in reality the benefit of such trade barriers does not bear up under closer inspection. In Nigeria and Ghana, import barriers for selected products may protect the local pharmaceutical industry in the short-term, but in the long-term they limit incentives for quality improvements by reducing competition with foreign companies. In the Democratic Republic of Congo, while customs rates for final products and active pharmaceutical ingredients (API), are the same, taxes on packaging material exceed these rates. Because local material suitable for drug packaging is largely unavailable, the effective tax rate for local formulations is higher than that for imported products.

In South Africa, a public tender system designed to support local industry often produces the opposite outcome. Out of ten total points, four are awarded to local suppliers, but these points are not weighted according to local value contribution. As a result, a small subsidiary of a foreign company with minimal local sourcing can achieve the same rating as a large local manufacturer that adds significant value to the national economy.

Governments should consider:

- Taking a more nuanced view of import barriers. For example, when a government is aiming to support the development of the local pharmaceutical manufacturing industry, it should consider also the downstream impact on health care of reduced competition from imported products. Under certain circumstances, authorities should reduce barriers to importing health care products, particularly for those categories of products where local players don't have the capabilities or the potential to develop a competitive cost position; and
- Examining how customs clearance and other cargo-handling activities for health care products can be accelerated.

5. Improve the Ability of Local Financial Institutions to Support Health Care Enterprises

A prime cause of the fragmented nature of the private health care sector in Sub-Saharan Africa (as discussed in previous parts of this report) is the difficulty entrepreneurs and business operators face in securing financing from established financial institutions to expand their businesses or start new ones. This lack of access to formal financing is not unique to the private health care sector. Less than 25 percent of people living in developing countries have access to formal financial services. (By contrast, 90 percent of the residents of industrialized nations have access to such services.⁸²)

Health care businesses in Sub-Saharan Africa tend to be small- and medium-sized enterprises (SMEs), and lack of access to capital is even more acute for SMEs. According to the 2005 World Bank's *World Development Report*, small firms obtain five percent of their financing through banks, while large firms rely on banks for 22 percent of financing needs.

Limited lender experience and expertise is a part of the problem. While some investors have found success in the sector—local banks in Kenya, for example, originated over \$30 million in health care loans in 2006 and are actively seeking additional investments⁸³—a lack of banking know-how regarding SME lending combined with a lack of

knowledge about the health care sector, in general, leads to a perception of greater risk when evaluating loans to health care companies. Exacerbating the problem is that many health-related businesses are ill-equipped to provide the sort of financial information required by formal lenders. The resulting opacity of these businesses helps create the perception that SMEs are high-risk borrowers.

The lack, or high cost, of financing has resulted in the continued fragmentation of the health care industry in Sub-Saharan Africa. That, in turn, causes inefficiency in operations due to lost economies of scale in procurement, systems, staffing, marketing, distribution, and administration.

To tackle the problem, central banks and national governments in the region could consider mandating the expansion of bank lending to SMEs. In Nigeria, the central bank requires all Nigerian banks to set aside ten percent of their after-tax profit for equity investment in and the promotion of SMEs. Interventions of this kind, however, need to be carefully designed and monitored so as not to introduce unintended distortions and incentives into the financial system.

The international community can take several steps to improve the availability of debt and equity financing to private sector health care entrepreneurs in Sub-Saharan Africa, such as:

- **Educate local banks about the health care sector.** Stakeholders such as development finance institutions (DFIs), bilateral donors, NGOs, and central banks should invest in technical assistance education and training programs for local financial institutions, or at a minimum, should ensure that technical assistance is an element of existing financial sector programs. Training should focus on health care-specific risk assessment, loan origination, and adaptation of lending products, with an eye toward development of sustainable capacity in health care expertise within institutions;
- **Encourage local banks and financial institutions to lend to health care SMEs.** A second cause of limited health care portfolios is a lack of long-term liquidity within local financial institutions. Investors should work with local banks to negotiate and invest in lines of credit,

risk-sharing programs, guarantee facilities, or subsidized lending terms for health care specific portfolios. More immediately, bilateral and multilateral donors, foundations, and DFIs can channel investment through the small number of existing SME financiers, such as Business Partners and GroFin; and

- **Develop equity-focused financing vehicles for health care enterprises.** International stakeholders should prioritize the development of equity-focused financing vehicles that can provide long-term capital to private sector health care businesses without the pressure of short-term returns on interest payments. Similarly, investors—such as DFIs, foundations, bilateral and multilateral donors—should be willing to collaborate to provide “patient capital” to catalyze entrepreneurial action and accelerate the growth of health care enterprises across Sub-Saharan Africa.

Conclusion

Local governments, donors, and other stakeholders can all take action to mobilize and expand a high-quality private health care sector in Sub-Saharan Africa, thereby improving health systems overall. Specific solutions will vary greatly depending on the local political and social context, the effectiveness of local regulatory institutions, and the current level of development of the formal private sector in health care. However, five imperatives—developing and enhancing quality standards; increasing the use of risk pooling arrangements; channeling more public and donor funds to private sector entities; creating a regulatory framework that is encouraging of private sector participation; and improving the ability of local financial institutions to support private sector health care enterprises—are common elements that stakeholders need to emphasize.

Political stability has dramatically improved in Sub-Saharan Africa in recent years. Concurrent with the increasing political stability is an improvement in the macroeconomic environment of Sub-Saharan Africa. Sub-Saharan Africa has achieved an average annual GDP growth rate of five percent over the last seven years, and this growth rate is forecast to increase throughout the remainder of this decade.



Section III: The Case for Investing in the Private Health Care Sector in Sub-Saharan Africa

The poor investment climate in Sub-Saharan Africa has long discouraged entrepreneurs and investors. But today, numerous indicators, point to the development of a more attractive investment climate. This include dramatic increases in foreign direct and private equity investment and significant gains in stock market indices across the continent. To date, health care has not been a major beneficiary of these positive investment trends. In spite of an oft-stated interest in investing in health care, most capital has instead gone into telecommunications, financial services, oil, minerals, mining, and infrastructure.

This section of the report reviews the improvements underway in Sub-Saharan Africa's investment climate and summarizes the challenges particular to the health care sector. It also provides an assessment of the magnitude of health care investment opportunities available and highlights some potentially attractive health care business models for different types of investors. More detail on these business models, including case studies, are also provided in the Annexes to this report.

The Investment Climate in Sub-Saharan Africa is Improving Significantly

Political stability has dramatically improved in Sub-Saharan Africa in recent years, as Figure 3.1 shows. The likelihood of continued stability has been strengthened by progress in establishing more resilient democratic structures and processes.

According to the political freedom rating system maintained by the U.S.-based non-profit organization Freedom House, over the past ten years three countries in the region have moved from "partly free" to "free," and eight countries have

moved from "not free" to "partly free".⁸⁴ In only three cases (Eritrea, Malawi, and Zimbabwe) have political freedom and civil liberties decreased.

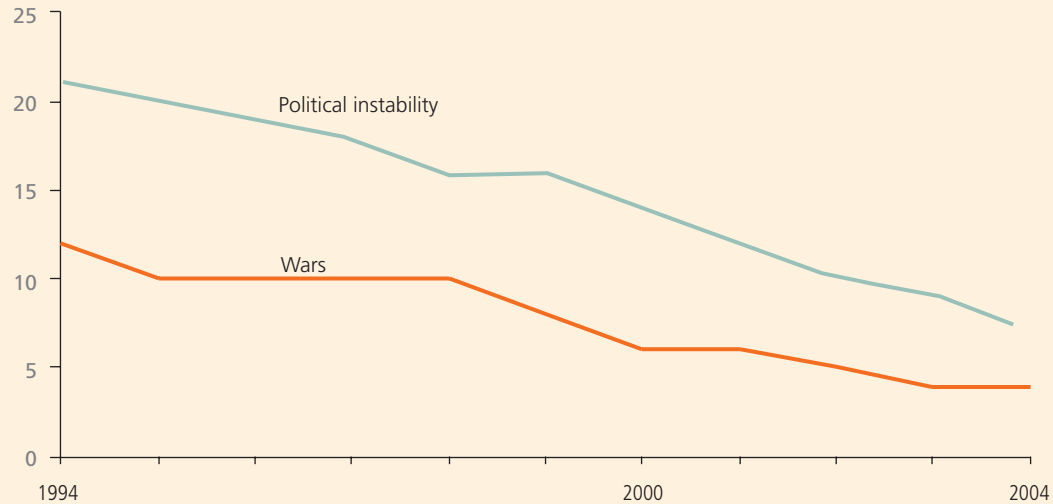
Corruption is still a major obstacle to investment, and the prospects for systemic reforms that could counter it vary considerably across the region. The institutions responsible for providing checks and balances across Sub-Saharan Africa generally lack both resources and political clout. New organizations, such as the Mo Ibrahim Foundation, are raising awareness of good governance by providing a quantified list of Sub-Saharan countries ranked according to quality of governance. These organizations also raise awareness of the problem by conferring awards for excellence.⁸⁵ Civil society is also increasingly active and outspoken concerning governance issues and corruption. Media in many Sub-Saharan African countries are independent and critical, and corruption is increasingly debated publicly.

Concurrent with the increasing political stability is an improvement in the macroeconomic environment of Sub-Saharan Africa. Sub-Saharan Africa has achieved an average annual GDP growth rate of five percent over the last seven years, and this growth rate is forecast to increase throughout the remainder of this decade. Over the same period, average inflation has dropped from 16 percent to less than eight percent. For many countries, these continental averages actually mask an even more compelling story. The combination of stable growth and reduced inflation has been one of the most compelling macroeconomic factors influencing a positive investment climate.^{86, 87}

Figure 3.1

Indices of war and political conflict, Sub-Saharan Africa, 1994–2004

Percent



Source: International Monetary Fund.

These improved political and macroeconomic developments have created an improved business environment. In 2007, according to the World Bank's annual *Doing Business* report, Africa ranked third in the world (trailing only the Eastern Europe-Central Asia group and the OECD countries) in the pace of economic reform. In 2006, two-thirds of Sub-Saharan African countries made at least one significant economic reform, and Tanzania and Ghana ranked among the top ten reformers worldwide. Some countries have set ambitious goals. Mauritius, for example, wants to be a top ten worldwide country by 2009 when it comes to ease of doing business.⁸⁸

A concrete measure of the improving investment climate in Sub-Saharan Africa can be seen in the changing financial landscape in the region, especially in the rapid increase in the role of stock exchanges. In 1993 only ten stock exchanges operated in Sub-Saharan Africa, with a market capitalization of \$175 billion. Today 19 stock exchanges are open for business, listing a total of about 800 companies, with a total market capitalization of about \$1 trillion. The largest of these is Johannesburg (accounting for around \$800

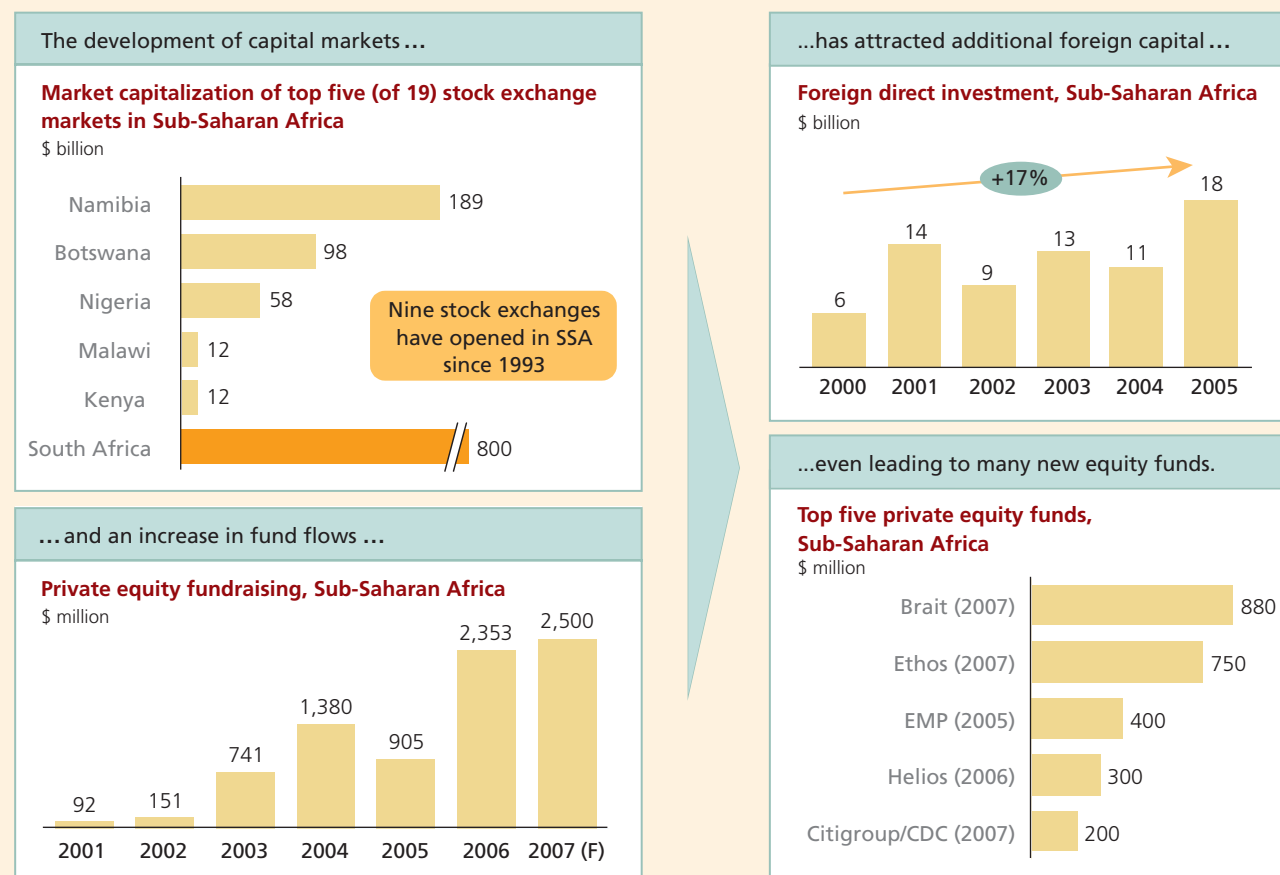
billion of market capitalization), while start-ups like Uganda and Cameroon account for just under \$3 billion each.⁸⁹

Sub-Saharan African companies such as cable television network M-Net and beer giant SAB Miller have achieved impressive growth over the past ten years. The most notable case may be the incredible expansion of MTN, the South African cellular network operator, which has expanded throughout the continent and across all sectors of society.

Foreign investors have taken note of these changes. The net inflow of foreign investment increased from \$6 billion in 2000 to \$18 billion in 2005—an increase from less than one half of one percent to around two percent of global foreign investment.⁹⁰ Close to half of the world's major investment groups now express interest in the region,⁹¹ and several (including JP Morgan, Citibank, and AIG) have established specialized funds to focus on it. Large development finance institutions such as IFC, FMO,⁹² DEG,⁹³ NORFUND,⁹⁴ and OPIC⁹⁵ have begun to focus on investment in Sub-Saharan Africa, and several of these are committing upwards of 20 percent of their portfolios

Figure 3.2

Investment landscape in Sub-Saharan Africa



Source: Stock exchange websites; Freedomhouse; Economist Intelligence Unit; Web research; Emerging Markets Private Equity Association; McKinsey analysis.

to the region. Private equity flows to Sub-Saharan Africa have increased from a little under \$100 million in 2001 to over 2.3 billion in 2006.

Figure 3.2 summarizes some of these positive changes in the investment landscape.

Health Care Represents a Significant Investment Opportunity

Current consumer demand for health care services continues to be unmet in most Sub-Saharan African countries. For example, every year 18,500 wealthy Nigerians travel abroad to seek medical care.⁹⁶ This supply gap applies to Sub-Saharan Africans with closer to average incomes as well. In

Kenya at least five percent of the total stated demand for health care is not satisfied due to limited access to services and products.⁹⁷ Informal anecdotes gathered in the course of preparing this report suggest that unsatisfied demand for health care is probably much higher.

As described earlier, in 14 Sub-Saharan African countries real GDP per capita has increased by more than five percent per annum for the past five years and is projected to grow at a similar rate for the next ten years. Increased incomes are already creating new opportunities. For example, Bridge Clinic, an ISO-certified facility in Lagos, Nigeria, that specializes in in-vitro fertilization, is planning to open a second location (in Port Harcourt)

because it believes there will be sufficient patients in that area with the financial means to afford its services. The Reddington Hospital, also in Lagos, started in 2003 as a cardiac center to provide more affordable care for cardiac-related disorders that previously required treatment abroad.

Further economic growth will fuel still greater demand for health care—and a greater need for capital investment in health care businesses to meet those demands. Merrill Lynch recently named health care as one of the top five sectors for investment in Africa, higher than infrastructure.⁹⁸

The biggest individual investment opportunities over the next decade will be found in building and improving the sector's physical capacity. Around 550,000–650,000 additional hospital beds must be added to the existing base of 850,000. An additional 90,000 physicians, about 500,000 nurses, and 300,000 community health workers will be required over and above the numbers that will graduate from existing medical colleges and training institutions. Adding the demand for better distribution and retail systems and the need for pharmaceutical and medical supply production facilities to these numbers yields an estimate of \$11–\$20 billion in new investment needed by 2016. (See Annex 6 for details concerning the methodology used to arrive at these amounts.)

Health care provision accounts for roughly half of the current investment opportunity, with the remainder split across distribution and retail, pharmaceutical and medical product manufacturing, insurance, and medical education. About 60 percent of these opportunities could attract for-profit investors, the remaining portion being equally spread between social enterprises and non-profit organizations (Figure 3.3).

The uses of investment funds will typically include refurbishment of existing assets, working capital increases, expansion of current capacity, service/product portfolio expansion, and new ventures. Expanding current capacity is the most common use of the projected investment across all sub-sectors. Working-capital funding is most relevant for distribution and retail enterprises, while financing for service and product-line ex-

pansion is needed primarily among insurance and manufacturing companies.

Almost a quarter of these investment opportunities are expected to have a project size larger than \$3 million, a sum that is the typical minimum threshold for direct investment by the traditional private equity players and large multilateral banks that have entered the region so far. The vast majority of investment opportunities (outside of the manufacturing sector) will be in SMEs, and some will require financing below \$250,000.

Innovative Business Models Can Deliver Returns and Significant Development Impact

The landscape of private health care in Sub-Saharan Africa is as diverse as that of the continent itself. This report explores five different sub-sectors: health services provision, risk pooling, life sciences, distribution and retail, and medical education. Together these sub-sectors represent an estimated cumulative investment opportunity for the private sector of between \$11–\$20 billion over the next ten years. Each sub-sector provides its own unique range of financial and developmental opportunities.

As private investors survey the health care landscape in Sub-Saharan Africa, they will find a confluence of sustained industry growth and opportunities for consolidation. These investors should prioritize the development of equity-focused financing vehicles that can provide long-term capital without the pressure for early returns or interest payments to private sector health care businesses.

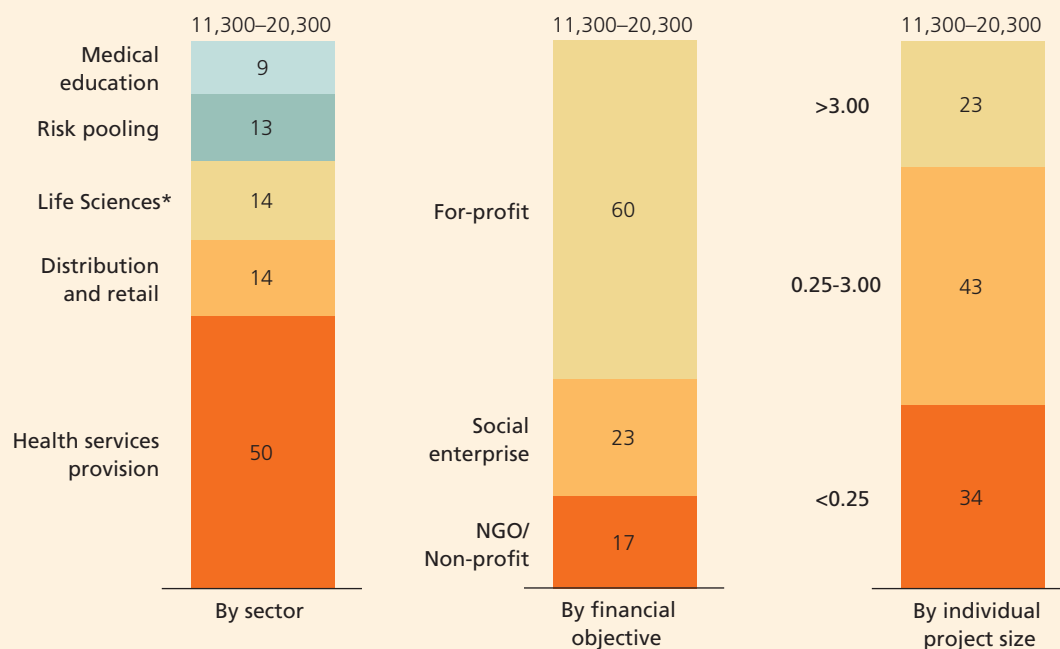
“Angel” investors will find opportunities to engage with some of the most innovative social enterprises in the world—enterprises that rely on new technology, experimental human resource approaches, or innovative business models. Investment in the region can deliver strong financial returns while also addressing some of the most pressing health care needs in the world.

Investors who are interested in both financial returns and development impact (such as DFIs and foundations) should be willing to collaborate

Figure 3.3

Breakdown of private investment opportunities in Sub-Saharan Africa, 2007–2016

Percent, \$ million



*Pharmaceuticals and medical products include South Africa. All other areas exclude South Africa.

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

to provide “patient capital” willing to seek returns over the longer term. This approach is expected to provide financial returns as well as accelerate access to health-related goods and services across Sub-Saharan Africa.

Finally, donors have a key role to play, using subsidized investments to finance those opportunities that are not quite financially viable but that show crucial promise in the development of a sustainable, high-quality, and responsible private health sector in Sub-Saharan Africa.

Just as there is no single kind of investor, there is no single best investment opportunity. However, given the breadth and diversity of the private health care landscape in Sub-Saharan Africa, investors should be able to find an opportunity that is right for their individual needs and goals.

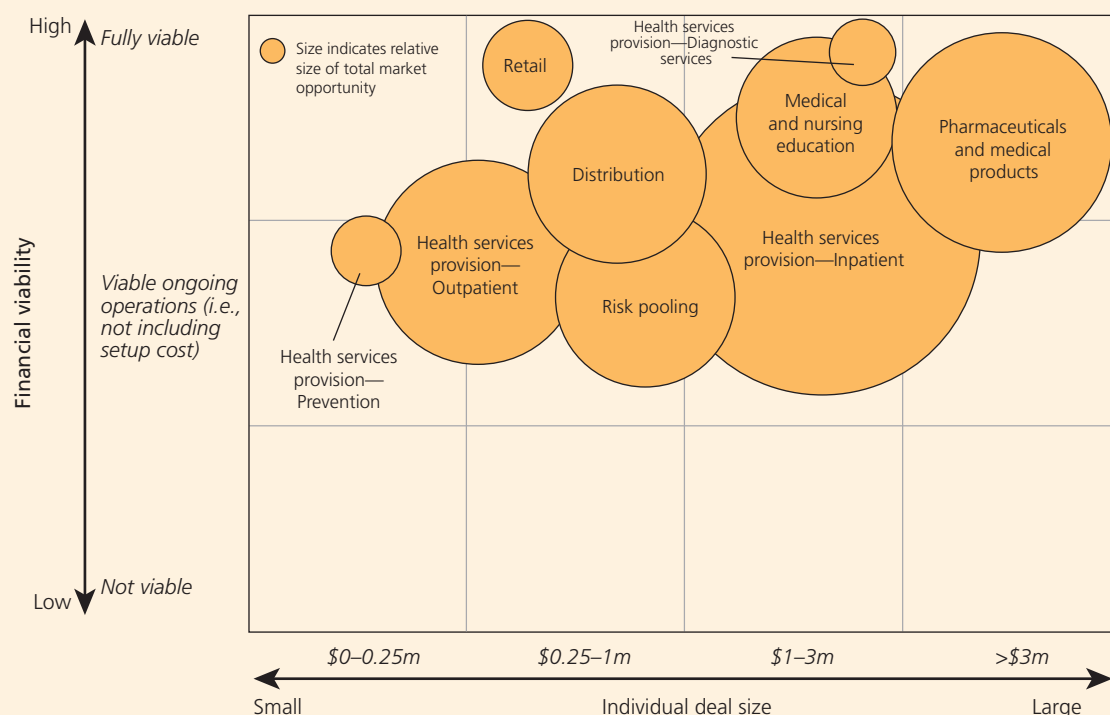
The five sub-sectors and their key segments are illustrated in Figure 3.4 along the dimensions of financial viability, individual project size, and total

market opportunity. It is important to stress that this illustration (as well as those that follow it for each sub-sector) represents the range of well-operated businesses and organizations observed during the development of this report. They are intended to give a sense of the opportunities available and to illustrate the main differences between the sub-sectors. Individual enterprises that fall outside the ranges shown are also likely exist, but the volume of available opportunities outside of these ranges is not expected to be significant.

Each of these sub-sectors is explored in more depth below. An even fuller description of each (including market trends, successful business models, and case studies) can be found in Annexes 1–5.

Figure 3.4

Investment opportunities in private health care in Sub-Saharan Africa



Note: Chart is illustrative and represents the range of well-operated businesses and organizations observed during the development of this report. Intended to provide overview of the opportunities available and the differences between the sub-sectors. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

Provision

As discussed earlier in this report, provision is the largest private health care segment in Sub-Saharan Africa and holds significant potential for financial returns and development impact. The private sector share of provision varies significantly by country, and this variation is primarily driven by individual government perspectives on the role that should be played by paid health care services. Regardless of the social and political context, over time the limited capability of the public sector to fully satisfy the anticipated continued rapid increase in demand is expected to drive an increase in the private sector's share in most countries.

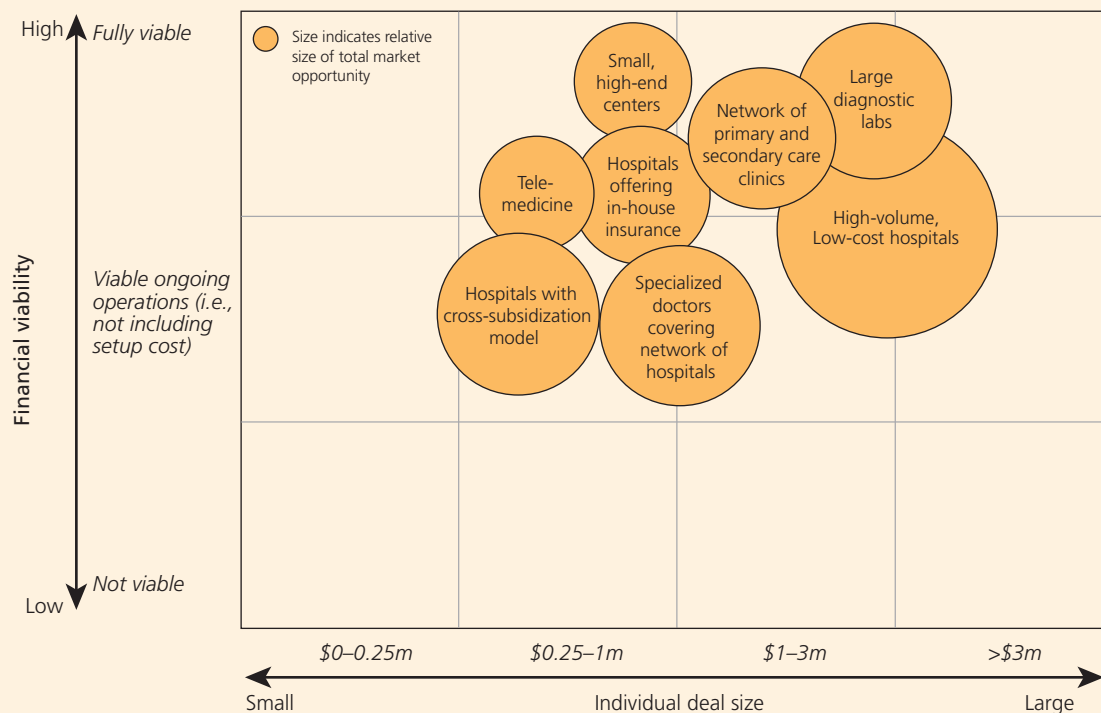
The majority of private health care provision is for-profit. Within provision, business models typically fall into four broad categories: inpatient care (including primary care), outpatient care, preven-

tative care, and diagnostic services. Inpatient care is by far the largest of these categories in financial terms, at 65 percent of total provision expenditure. Specific investment models within these four segments are illustrated below (Figure 3.5).

High-end clinics that target growing middle- and upper-income populations in urban centers can deliver net profits of up to 30 percent. These clinics provide the high-quality care that attracts patients and the well-equipped environment that attracts medical and nursing staff. An expected increase in the number of patients able to afford these services, as well as increasing acceptance of local treatment among patients, makes prospects for growth impressive. Examples include the Tanzania Heart Institute in Dar es Salaam, Lagoon Hospital in Lagos, Bridge Clinic in Abuja, and Nyaho Medical Clinic in Ghana.

Figure 3.5

Promising investment opportunities—health services provision



Note: Chart is illustrative and intended to provide indication of the variety of well-operated businesses and organizations observed and a directional orientation to some of the main differences between them. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

At the other end of the spectrum are high-volume, low-cost hospitals. These tend to be located in high-density areas and target low-income groups requiring basic medical care. Since the services available are limited, patient throughput is extremely high (up to 100 patients per day per doctor). A typical revenue range for such businesses is \$1–\$5 million per year. Examples include R-Jolad Hospital in Nigeria, Selien Hospital in Tanzania and the Nsambya Hospital in Uganda. Because they provide health services to a very large population, these hospitals have significant development impact. Additionally, the high productivity of their medical personnel helps to make the services affordable.

These examples of both high-end clinics and high-volume, low-cost hospitals are only two of the many promising investment models to be found in this sub-sector. Figure 3.6 provides a

brief description of some other possibilities. A more comprehensive description of opportunities in provision, including further detail on each of the models below and specific case examples, can be found in Annex 1.

Risk pooling

As discussed in Section II, risk pooling mechanisms are critical to driving sustainable improvement in health care provision in Sub-Saharan Africa. Risk pooling is a better way to pay for health care than the out-of-pocket payment systems on which most of the Sub-Saharan African population currently depends. Further, because they are able to contract directly with provider organizations, risk pooling arrangements are a powerful force for encouraging the development of higher-quality, better organized private sector providers.

Figure 3.6

Promising investment opportunities in health services provision

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Small, high-end centers	• Tanzania Heart Institute (Tanzania), Lagoon Hospital (Nigeria), Bridge Clinic (Nigeria), Lister Hospital (Ghana).	• 0.2–10.0	• 0.5–3.0	• Allows the retention of high-quality, specialized resources in the country.
Network of primary and secondary care clinics	• Christian Health Association (Kenya), Biruh Tesfa (Ethiopia), Clinic Africa (Uganda).	• 0.01–0.3 per clinic	• 0.02–0.6 per clinic	• Improves access in rural regions, providing quality care to underserved populations.
Hospitals offering in-house insurance	• Kadic Hospital (Uganda), AAR Clinic (Uganda), Selian Lutheran Hospital (Tanzania).	• 0.3–5.0	• 0.5–3.0	• Increases accessibility to health care services in regions without established insurance systems.
High-volume, low-cost hospitals	• R- Jolad Hospital (Nigeria), Nsambya Hospital (Uganda), Selian Lutheran Hospital (Tanzania).	• 1.0–5.0	• 0.5–3.0	• Increases access to standardized services within a larger population base.
Hospitals with cross-subsidization models	• International Hospital (Uganda), CCBRT (Tanzania).	• 0.2–2.0	• 0.2–1.5	• Extends affordable care to larger population base, especially the poor.
Large diagnostic laboratories	• Bio24 (Senegal), Radmed Diagnostic Center (Nigeria).	• 0.5–3.0	• 1.0–3.0	• Improves the overall efficacy of treatment by supporting the diagnostic phase.
Telemedicine	• Tsilitwa (South Africa).	• 0.1–1.0	• 0.3–1.0	• Provides access to specialized resources in rural areas.
Specialized doctors covering network of hospitals	• N/A (potential model yet to be piloted).	• 0.1–1.0	• 0.2–2.0	• Increases access to specialty care across the region.

Source: Country interviews; McKinsey analysis.

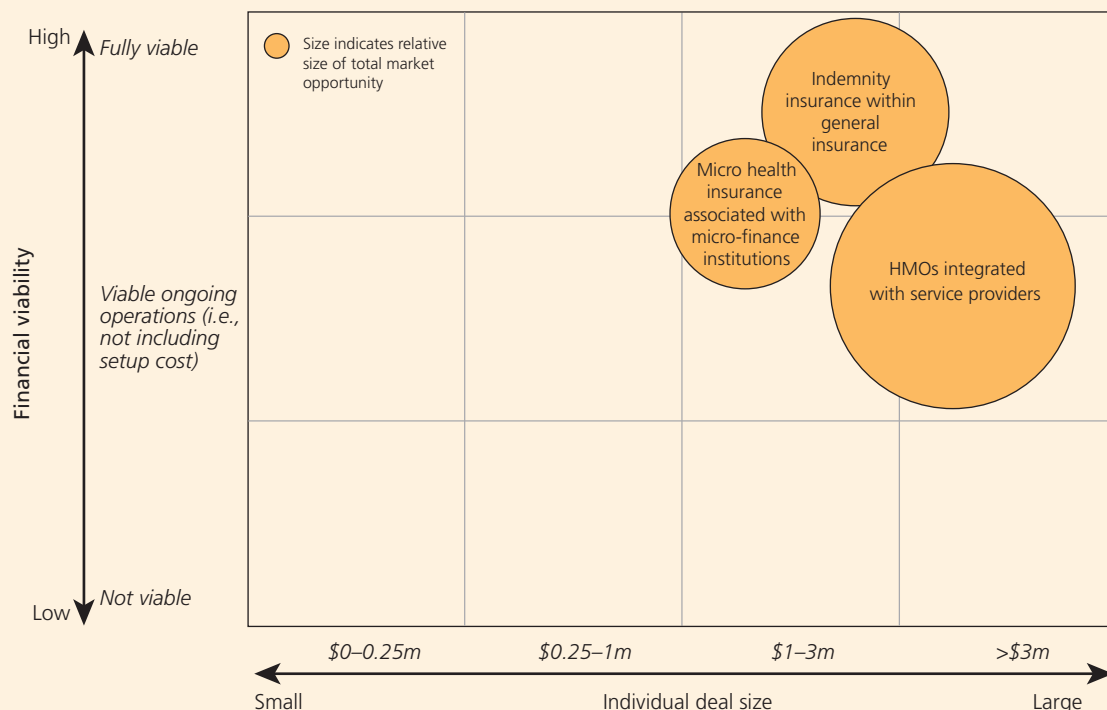
Risk pooling can take many forms. It is still in its nascent stages in Sub-Saharan Africa, but evidence exists of its appeal. Private insurance accounts for 20–30 percent of health care expenditure in Namibia. In West and East Africa, there are as many as 600 distinct community-based health insurance schemes, covering over 1.5 million people. Nigeria recently approved a compulsory national health insurance scheme for civil servants and the formal sector that is to be implemented by private enterprises with the goal of eventually extending coverage to the entire population. Overall, risk pooling arrangements are expected to present a \$1.4–\$2.5 billion investment opportunities in Sub-Saharan Africa over the next ten years.

Specific investment models within risk pooling are illustrated in Figure 3.7.

Integrated HMOs, which typically provide basic insurance coverage coupled with selected preferred providers, are currently emerging throughout the region. These usually involve a capitation model or in-house provision of care. By providing in-house health services (generally primary care), these HMOs can control claims costs and fraud more efficiently. Although cost containment can make insurance affordable, the main development impact is the creation of incentives to catalyze the development of a larger provider network. Currently this model is best developed in Namibia, Nigeria, and Zimbabwe.

Figure 3.7

Promising investment opportunities—risk pooling arrangements



Note: Chart is illustrative and intended to provide indication of the variety of well-operated businesses and organizations observed and a directional orientation to some of the main differences between them. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

Microinsurance is still rare across Sub-Saharan Africa. However, creating incentives for customers to buy health insurance packaged with traditional microfinance products could spur the growth of this market and extend health care coverage within poorer segments of society and rural populations. Plans including basic coverage for common or catastrophic conditions could be sold by microfinance corporations and linked to products like loans. While current examples of such models in Sub-Saharan Africa are primarily social enterprises accepting below-commercial returns, Grameen's experience in Bangladesh suggests that margins can be high.

Figure 3.8 provides a brief description of business models in this sub-sector. A fuller description of the opportunities available, including further detail on the business models and specific case examples, can be found in Annex 2.

Life sciences

Overall, life sciences represent a \$1.6–\$2.9 billion investment opportunity over the next ten years, with the largest segment being generic manufacturing. The four life science segments explored in this report are generic drug manufacturing, medical supplies manufacturing, infectious disease innovation (based outside of Sub-Saharan Africa), and South African-based life sciences innovation. Of note, the majority of investment opportunities in life sciences are expected to be in excess of \$3 million, significantly higher than the smaller-scale projects that are more common in the other sub-sectors.

The estimated 2006 pharmaceutical market in Sub-Saharan Africa was \$3.8 billion, but local manufacturers account for only 25–30 percent of that. Medical supplies and devices account for an

Figure 3.8

Promising investment opportunities in risk pooling arrangements

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Indemnity insurance within general insurance	Strategis (Tanzania), UNIC Health (Nigeria), GLICO (Ghana), CFC Life (Kenya), The Cooperative Insurance—CIC (Uganda).	1.0–5.0	2.0–4.0	- Creates an insurance culture. - If properly scaled and managed, can force efficiency gains within the network of providers.
HMOs integrated with service providers	- Hygeia (Nigeria). - Total Health Trust (Nigeria).	0.5–15.0	1.5–7.0	- Increases accessibility to health care services to broader population. - Risk pool sharing makes health care more affordable. - Acts as a catalyst in building a provider network of both private and public clinics.
Micro health insurance associated with micro-finance institutions	- Limited examples in Sub-Saharan Africa. - Application potential for Grameen Kaylan (Bangladesh) model.	0.5–5.0	1.0–2.0	- Provides financial protection for low-income groups. - Establishes an insurance culture across rural and underprivileged segments. - Catalyst for growth of providers within these segments.

Source: Country interviews; McKinsey analysis.

additional \$2.1 billion, but less than ten percent of that is locally produced.

Specific investment models in life sciences are illustrated in Figure 3.9

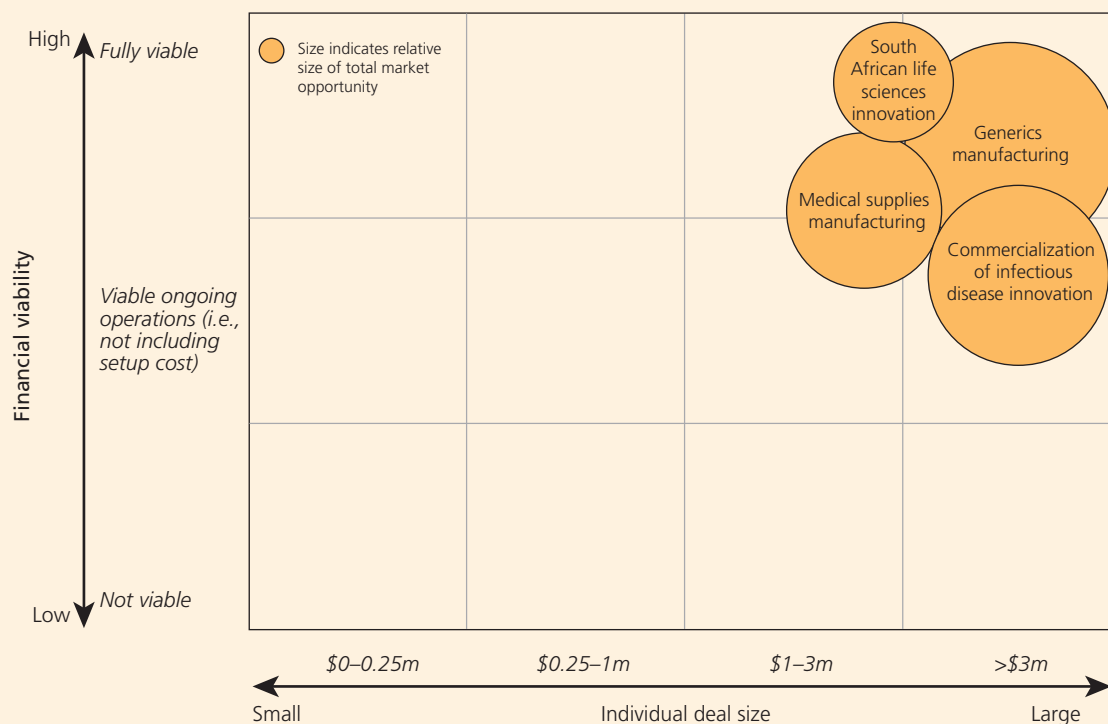
More than 70 percent of Sub-Saharan Africa's estimated \$1 billion in annual pharmaceutical production is concentrated in South Africa, where Aspen Pharmacare, the only vertically integrated manufacturer in the region, is the clear leader. Together Nigeria, Ghana, and Kenya represent about 20 percent of Sub-Saharan Africa's pharmaceutical production. Overall, 37 Sub-Saharan African countries have some pharmaceutical production. Local manufacturers currently capture only a small share of the donor market in Sub-Saharan Africa (estimated to amount to a total between \$750 million and \$1 billion), primarily because donors require product prequalification from more stringent regulatory bodies

like the WHO or the United States Food and Drug Administration. As of April 2007, only two Sub-Saharan African manufacturers⁹⁹ had WHO prequalified products.

It is important to note that Sub-Saharan African manufacturers generally produce at a cost disadvantage to large Asian generic manufacturers due to a variety of factors, including scale, an expensive asset base coupled with older technology, higher financing costs, and lack of integration with API production. Despite this cost disadvantage, Sub-Saharan African manufacturers sold \$1 billion of generic pharmaceuticals in the region last year.¹⁰⁰ There is mixed evidence regarding whether or not local production is preferable to importation. A 2003 WHO study of anti-malarials, for example, found no consistent quality differences between locally produced and imported products.¹⁰¹

Figure 3.9

Promising investment opportunities—pharmaceuticals and medical products



Note: Chart is illustrative and intended to provide indication of the variety of well-operated businesses and organizations observed and a directional orientation to some of the main differences between them. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

Figure 3.10 provides a brief description of investment models in life sciences. A fuller description of possible opportunities, including further detail regarding these models and specific case examples, can be found in Annex 3.

Distribution and retail

Distribution and retail represents a \$1.6–\$2.8 billion investment opportunity for the next ten years, with 80 percent of the investment potential to be found in the development of distribution infrastructure (warehouses, trucks, supply chain management information systems, etc.). The retail sector, while significantly smaller, is the most profitable segment within health care across most of Sub-Saharan Africa, with net margins of up to 50 percent. Across Sub-Saharan Africa, hospitals and clinics often depend on their pharmacies to cross-

subsidize their businesses. For example, in one Kenyan outpatient clinic, 70 percent of the clinic's profit came from its pharmacy.

The counterfeit drugs epidemic (and the health risks they represent) in Sub-Saharan Africa makes distribution and retail extremely sensitive components of the health care sector. In Kenya, a survey by the National Quality Control Laboratories (NQCL) and the Pharmacy and Poisons Board and based on a random sample of 116 anti-malarial products found that almost 30 percent of those drugs in the country were counterfeit.¹⁰² One of the factors allowing for the prevalence of counterfeit products is the often enormously fragmented supply chain that feeds both the public and private sectors. In Uganda there are over 100 officially registered importers/distributors, and 12–14 “industry leaders.” In Nigeria, there are 292 licensed

Figure 3.10

Promising investment opportunities in pharmaceuticals and medical products

	Description	Annual revenues \$ million	Setup cost \$ million	Development impact
Generics manufacturing	Formulation of generic medicines, both prescription and OTC.	10–100*	5–50	- Local source of medicines - Economic development from industrial activity.
Medical supplies manufacturing	Manufacturing of medical supplies—such as long lasting mosquito nets, medical gauzes, and medical furniture—in Sub-Saharan Africa.	5–20	2–10	- Local source of medical supplies. - Economic development from industrial activity.
South African life sciences innovation	Financing the development and commercialization of entrepreneurial innovation in South Africa's life sciences sector.	N/A	0.2–5	- Development of innovation industry around existing research capabilities. - Innovators likely to develop some solutions for local health challenges.
Commercialization of infectious disease innovation	Financing Phase 3 and production of products for infectious diseases developed all around the world.	N/A	20–150	Serves critical need for products to address SSA's major and neglected disease burden.

* There are a few manufacturers in Sub-Saharan Africa with greater than \$100 million in revenues, most notably Aspen Pharmacare, with revenues of almost \$500 million across all its business units.

Source: Interviews; McKinsey analysis.

medical importers and 724 licensed medical distributors. One leading manufacturer reported supplying a complex network of more than 100 outsourced or owned distributors.

Specific investment models in distribution and retail are illustrated in Figure 3.11.

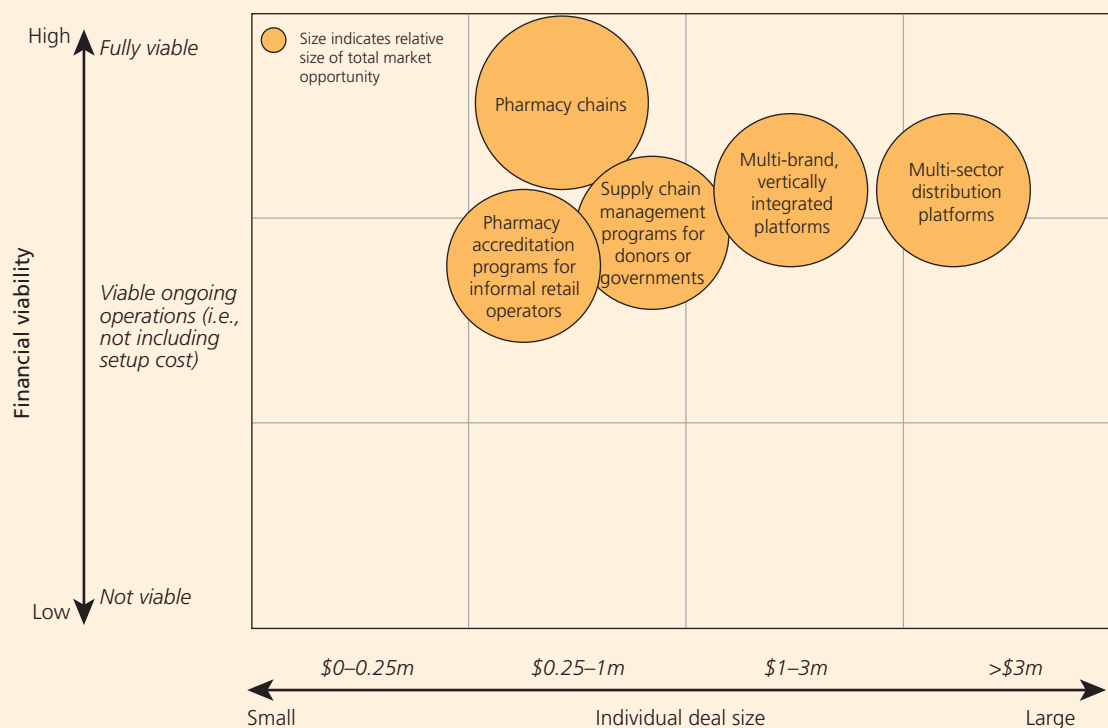
Aside from pharmacies attached to public hospitals and clinics, most formal outlets are private, single-outlet operations. For example, over 1,500 retail outlets are legally registered with the Pharmacists Council of Nigeria, but the only retail chain is Mediplus, with ten outlets. This situation offers significant opportunities for consolidation. In South Africa, where retail margins have been stringently regulated in recent years, the sector is shifting rapidly toward major chains, which compensate for lower margins with volume. Although there are only a handful of pharmacy chains in the remainder of Sub-Saharan Africa, those that do exist are extremely successful, in some cases show-

ing growth rates of over 100 percent a year. This opportunity varies significantly by country due to government regulations that restrict the development of pharmacy chains in many areas.

Given the relatively low volume of medical products that flow through formal distribution in some countries, successful distribution companies have chosen to operate across sectors, delivering soft drinks and consumer goods as well as pharmaceuticals. Though these distribution approaches have limitations for some categories of product (for example, vaccines requiring temperature-controlled distribution), they are adequate for the vast majority of over-the-counter medicines. These are often the products with the lowest margins, and, therefore, they benefit the most from a lower-cost, shared transportation platform. Depending on the region in which they operate, businesses of this kind can have from \$1–\$15 million in annual revenues. Because they increase the accessibility

Figure 3.11

Promising investment opportunities—retail and distribution



Note: Chart is illustrative and intended to provide indication of the variety of well-operated businesses and organizations observed and a directional orientation to some of the main differences between them. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

and availability of drugs, the development impact of investing in such models is significant. By enabling low-volume distribution of pharmaceuticals, these models also reduce both stock-outs and obsolescence.

Figure 3.12 provides a brief description of several possible investment models in distribution and retail. A fuller description of the opportunities, including further detail on the models and specific case examples, can be found in Annex 4.

Medical and nursing education

As mentioned in Section II, Sub-Saharan Africa has the lowest availability of qualified health care human resources in the world. This situation has seen little improvement in the last 40 years. (In comparison, countries like India and Morocco have seen physician and nurse densities increase by 200 to 400 percent). Unfortunately the exist-

ing capacity for medical and nursing education remains woefully inadequate across many emerging economies. The WHO estimates that the largest relative shortage in health service staff (doctors, nurses and midwives) is in Sub-Saharan Africa where an increase in the order of 140% is required to meet the threshold standard per 1,000 population.

The availability of skilled human resources is one of the most significant barriers to the growth of health care provision across Sub-Saharan Africa. The estimated shortage of health care professionals is in the order of 4.3 million globally with an uneven distribution between geographic and economic regions. Therefore, the development impact of expanding the capacity for medical and nursing training institutions is clearly significant.

In many countries in Sub-Saharan Africa, public teaching institutions for health professionals

Figure 3.12

Promising investment opportunities in retail and distribution

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Pharmacy chains	Mediplus (Nigeria), Vine Pharmacy (Uganda).	0.5–3.0	0.3–1.0	- Serves as a platform for expanding reach of drug outlets to rural regions. - Efficiency gains allow for lower prices and increased affordability.
Multi-sector distribution platforms	Nufaika (Tanzania), Great Brands (Nigeria).	1.0–15.0	1.5–7.0	- Broadens access in rural regions. - Profit maximization strategies also expand portfolio of drugs being made available. - Increases overall capacity of distribution system.
Multi-brand, vertically integrated platforms	PHD (South Africa), MDS Logistics (Nigeria).	3.0–10.0	1.0–3.0	- Expands overall capacity of distribution system. - Increases access to drugs in rural areas.
Pharmacy accreditation programs for informal retail operators	ADDO (Tanzania).	0.3–2.0	0.3–1.0	Significantly increases access to essential drugs in remote regions.
Supply chain management programs for donors or governments	MEDA voucher program (Tanzania), Village Reach (Mozambique).	0.3–1.0	0.3–1.0	Relieves burden on public sector and helps improve efficiencies across system.

Source: Country interviews; McKinsey analysis.

are oversubscribed by students possessing the required entry qualifications. For example, in Ghana public nursing schools have the capacity to accept only 40 to 50 percent of qualified applicants—despite a serious shortage of nurses. Research undertaken for the WHO in 2006 indicates that the African Region has the lowest number of professional training institutions for medical education (66 as compared to the next lowest region of the Eastern Mediterranean with 137 and the Americas with 441). The African Region also has the second lowest density of nursing and midwifery training institutions with just 288 (compared to 1,338 in the Europe Region).

The World Health Report 2006 suggests that there has been significant growth in private sector provision, albeit from a very low base. Nevertheless, the role of the private sector in the African Region has been limited to date.

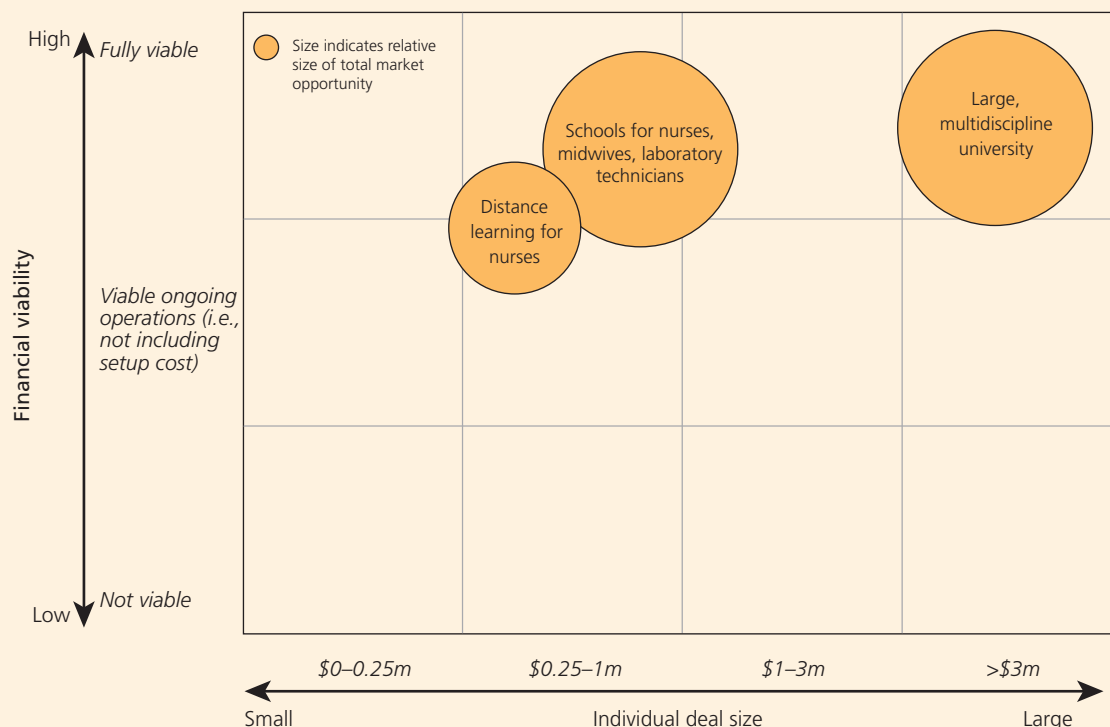
There are a number of reasons for this including:

- government regulations which have traditionally restricted the role of the private sector in medical and nursing education;
- the difficulties facing potential schools in partnering with approved local teaching hospitals, which are usually public institutions;
- the high capital investment costs relating to medical education; and
- in some cases, the limited spending power of potential students.

Evidence from developing countries elsewhere (e.g., in Egypt and India) indicates that private medical and nursing schools can be financially viable—and that they can play an important role in the supply of qualified health care staff.

Figure 3.13

Promising investment opportunities—medical and nursing education



Note: Chart is illustrative and intended to provide indication of the variety of well-operated businesses and organizations observed and a directional orientation to some of the main differences between them. Individual enterprises may fall outside the ranges shown.

Source: McKinsey analysis.

Countries like Ghana, Senegal, Tanzania, and Uganda, tend to have more open policies regarding the participation of the private sector in education, and therefore may be best suited to the development of private sector models for professional health education.

In the short term, nursing schools would appear to offer the more attractive investment opportunity—as regulations tend to be less restrictive than medical schools, and set-up costs are lower, thus leading to more affordable courses. For example, private institutions in Ghana currently charge about \$2,500 for annual tuition—representing a 50 percent premium over government schools. Still, such fees are low enough that the potential wages offered by local employers can quickly pay off the debt. In countries with more restrictive regulations the provision of specialist or post-graduate nursing courses may offer an

early opportunity—as regulations tend to affect undergraduate courses.

Private medical and nursing education could represent a total investment opportunity of \$1.1 to \$1.9 billion over the next decade. Medical education in particular is asset intensive and it is likely that more than half of the potential investments would require more than \$3 million. Considering the barriers to entry, established private hospitals which can achieve local accreditation as training institutions are clearly best suited to take advantage of such opportunities. Of course, private hospitals around the world commonly establish private training institutions, especially for nursing staff, in order to source qualified staff for their own needs.

Specific investment models in medical and nursing education are illustrated in Figure 3.13.

Figure 3.14

Promising investment opportunities in medical and nursing education

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Large, multidiscipline 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	AMREF (Kenya).	0.2–0.5	0.2–0.5	- Provides access to education to students in rural areas and helps them avoid the cost of relocation. - Increases the availability of specialized skills in rural areas.

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

Source: Country interviews; McKinsey analysis.

Figure 3.14 provides a brief description of some existing models in medical and nursing education in Sub-Saharan Africa. A fuller description of opportunities, including further detail on these models and specific case examples, is available in Annex 5.

Conclusion

The sheer size of the health care challenges facing Sub-Saharan Africa often obscures the remarkable opportunities that lie beneath the daunting statistics.

Improved political and economic conditions across Sub-Saharan Africa are creating new investment opportunities and growing economies in the region will create increasing demand for health care goods and services.

Of the estimated \$11–\$20 billion in private investment needed to meet health care demand over the next decade, health care provision accounts for roughly half, with the remainder split across distribution and retail, pharmaceutical and medical product manufacturing, risk pooling, and medical education. About half of these investments will be attractive to fully for-profit entities, the remaining portion of private sector investment being equally spread between social enterprises and NGOs.

The unfulfilled economic potential in health care means that with relatively minor policy and attitudinal changes potential investors of all kinds will find numerous opportunities to reap returns. Just as importantly, those changes and the resulting investments will have a transformational impact on the development of the region and the health of its people.



CONCLUSION

Conclusion

As much as \$30 billion in new investment over the next decade will be required to meet the region's health care demands, and up to two-thirds of that may have to come from the private sector. Fortunately, increased political stability has led to improved economic prospects in the region. Vibrant local stock markets and an influx of new foreign investors attest to the increasing role of the private sector across all economic activities in Sub-Saharan Africa, and health care is no exception.

The private sector already accounts for a remarkable share of the region's health care. Private parties financed roughly 60 percent of all health expenditure—predominantly in the form of out-of-pocket payments by individuals, and about 50 percent of that went to private providers. But private health care will require support and increased supervision if it is to continue to play the important role that it currently plays.

This report identifies a number of significant impediments or barriers to the further development of a sustainable and socially responsible private health sector, integrated into the broader strategies and systems developed by the governments of Sub-Saharan Africa. To help knock down these barriers, it advocates:

- 1 Developing and enforcing quality standards through both government and self-regulation to foster the development of a more formal, sustainable and higher-quality private sector;
- 2 Fostering risk pooling programs to improve the financing of health care;
- 3 Using the private sector to deliver services by encouraging the public sector and donors to more closely engage with that sector;
- 4 Modifying local policies and regulations to support and mobilize the private sector by streamlining bureaucratic processes, liberalizing human resource regulations, and reducing tariffs and other import barriers; and
- 5 Improving access to capital from financial institutions by educating local banks about the true risk profile of the health care sector, using international financial backing to encourage local financial institutions to lend to health care enterprises, and developing equity-focused financing vehicles for health care enterprises.

Even before those initiatives are tackled, the estimated \$11–\$20 billion in private investment needed to support the expected growth in health care spending in Sub-Saharan Africa over the next decade will provide opportunities that yield both financial return and health impact for investors of all kinds.

This report was based in large part on interviews with many innovative, principled, and socially minded entrepreneurs who are dedicated to building strong health care enterprises in Sub-Saharan Africa. Their enthusiasm and commitment coupled with appropriate policy changes by donors, governments and the investment community can create a private sector that is a robust and integrated component of a broader health system—one that can help provide the region's inhabitants with the healthier future they have so long deserved.



ANNEXES

Annex I: Examples of Successful Business Models in Health Services Provision

Current private sector participation in health services provision varies widely by country (Figure A1.1). The capabilities of the public sector and the attitude of the population toward it are generally the primary drivers of such variability. In some countries, access to public health services is considered a right and the utilization of paid services is heavily resisted. Government's view of the role of the private sector in provision of health services also varies widely.

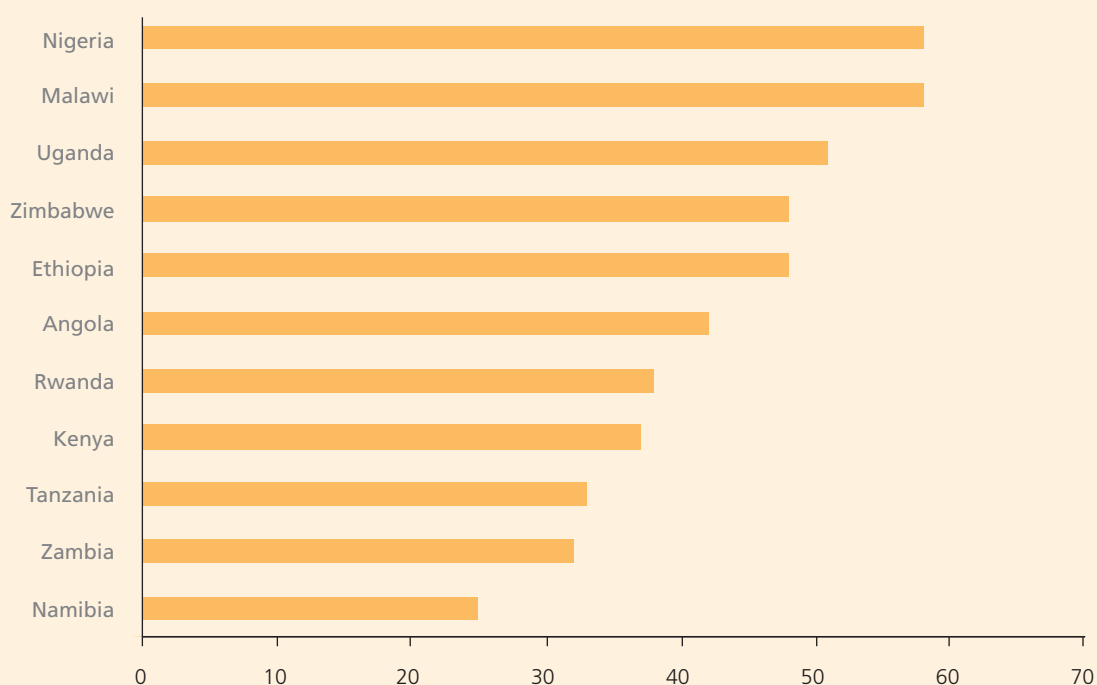
The public-private mix and the composition of the private sector in terms of financial objectives have even higher variability when each of the four components of health services provision (outpatient care, inpatient and specialty care, preventive medicine, and diagnostic services) are examined, as shown in Figure A1.2.

For-profit involvement in outpatient services ranges from 84 percent of private outpatient revenues in Kenya¹⁰³ to only 15 percent in Tanza-

Figure A1.1

Private sector participation in health services provision

Percent of total health services provision expenditure



Source: National Health Accounts, WHO; McKinsey analysis.

Figure A1.2

Provision of health services in selected countries

	 Nigeria	 Tanzania	 Mozambique
Private sector participation	Private sector participation is among highest (~58 percent), dominated by the for-profit segment. Share of the private sector is set to grow relatively to the overall growth in the market.	Private sector participation is relatively modest at 33 percent with proportional participation within the for-profit, social, and non-profit sectors. The private sector is expected to grow in share as the economy liberalizes further.	Smallest participation of private sector across continent: the Ministry of Health operates 5,000 total facilities nationwide, equivalent to 85 percent of total provision. Large presence in rural communities, with health posts not staffed by a health professional.
Private sector structure			
Outpatient	For-profit activities dominate this space with 65 percent of the private sector share (covering 52 percent of the market).	- Primary-care provision is 30 percent private in rural areas and 40 percent private in urban areas. - Social enterprises cover 45 percent of private activity.	- Common specialists (e.g., cardiology, surgery) with private practices account for about 20 percent of overall private outpatient sector. - Traditional healers play a significant role (13 percent of the private activity).
Inpatient and specialty care	72 percent of all private hospital revenues (half of total in the sector) are absorbed by the private, for-profit sector. - Specialists frequently serve at both public tertiary care centers and separate private practices.	44 percent of private activity (41 percent of market) is for-profit. - Two tertiary referral hospitals are faith-based. - Specialty services extremely limited, many patients are flown to India for specialty services (e.g., surgery, dialysis, transplants, etc.).	- Limited access anywhere to highly specialized services. –No dialysis facilities in the country. –Cardiac surgery provided in one private facility only; most patients flown to Portugal. - For-profit clinics account for only ten percent of the small private sector (eight percent), largely covered by FBOs and other NGOs (45 percent).
Preventive	- Ministry of Health involves private sector in preventive health strategies (e.g., distributes free vaccines to private clinics) but only social enterprises. - No activity of for-profit segment in this area.	- All social enterprise facilities participate in public vaccination program, yet private share of prevention is only 10 percent. 90 percent of prenatal care is public.	Private sector participation in preventive care is limited to FBOs, NGOs, and the informal segment. They constitute about 13 percent of overall prevention and are expected to grow at the same rate as the public sector.
Diagnostic services	Approximately half of modern diagnostics (e.g., mammogram, CT, MRI) are in the private for-profit sector.	- No known private sector diagnostics. - South African-based company provides some services.	- Private sector unable to afford CT/MRI and use public equipment. - FBO inpatient practices cover large portion of basic lab services (45 percent of private contribution).

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

nia.¹⁰⁴ Traditional healers are also extremely active in the outpatient sector. For example, they account for up to 30 percent of the private activity in Ethiopia.¹⁰⁵

Inpatient services follow a similarly diverse pattern. In Nigeria, for-profit businesses garner 72 percent of the expenditure on private inpatient services, which accounts for about half of the total market.¹⁰⁶ Conversely, in Mozambique, only ten percent of the already small private sector participation (eight percent of the market) goes to for-profit players.¹⁰⁷

Across the continent the participation of the private sector in preventive services (vaccination and prenatal being the most-often used services) is limited. The highest market shares are 45 percent in Nigeria¹⁰⁸ and 30 percent in Uganda.¹⁰⁹ Elsewhere, the private sector participation in these activities is less than 20 percent. FBOs and NGOs are the main providers of private activity, often in partnership with the public sector.

While diagnostic services are often offered only at large hospitals, various examples of outsourced specialized providers with profitable business

models do exist. In Uganda, up to 50 percent of diagnostic services are supplied by private enterprises, and more than half of them operate on a for-profit basis.¹¹⁰

Regardless of the social and political context, the limited capability of the public sector to satisfy the rapid increase in demand for health services will, in most cases, drive an increase in the private sector's market share.

Empirical evidence (detailed in Annex 6) suggests that health care provision will attract about 50 percent of the total projected private sector investment opportunity, or about \$5.6–\$10.2 billion (Figure A1.3). Nearly two-thirds of this will be for inpatient care, about 30 percent for outpatient care, and less than ten percent for preventive care, diagnostic services, and auxiliary services. Most of the investment opportunity will be in

SMEs, with nearly two-thirds being in projects with sizes below \$250,000, a quarter between \$250,000 and \$3 million, and just over ten percent being greater than \$3 million.

Innovative Strategies Exist and Will Represent the Basis for Competitiveness

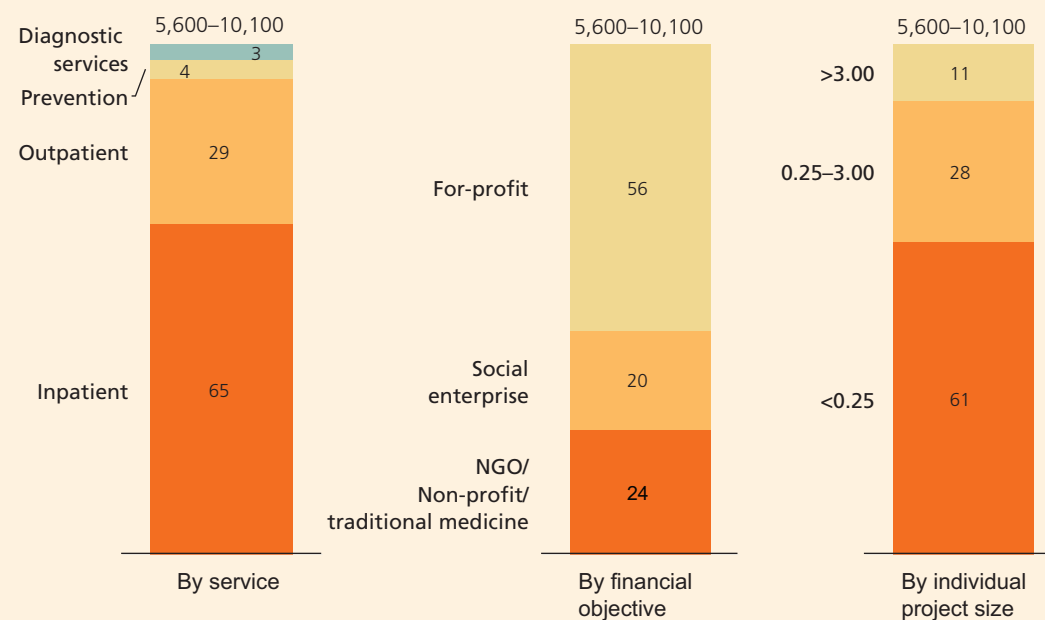
While health-service provision remains a challenging sector, successful innovative business models have overcome some of the barriers that have historically crippled this area. Investing in such opportunities could deliver significant financial returns in addition to making a fundamental contribution to the development of the region.

The following are some of the approaches that have worked well and that will likely be replicated in existing or new businesses:

Figure A1.3

Breakdown of private health services provision investment opportunities in Sub-Saharan Africa, 2007–2016

Percent, \$ million



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

- **Innovative utilization of medical personnel.** The lack of specialized resources can significantly constrain the delivery of services; it is necessary to develop innovative models to overcome this problem, especially in rural areas. Use of ophthalmic officers instead of fully qualified surgeons for common eye procedures, use of nursing attendants instead of qualified nurses, and even in some cases the involvement of family members are typical solutions, albeit non-optimal, to such shortages. Such solutions also keep costs down and therefore allow facilities to serve the lowest quintiles of the population.
- **Sharing of managerial resources.** Another way to overcome the lack of human resources and to reduce overhead costs involves resource-sharing initiatives, which a number of facilities have adopted. In the case of the Biruh Tesfa project in Ethiopia, for instance, 92 reproductive health and family planning clinics share equipment and pharmaceutical procurement, technical support, and financial management and control.
- **Cross-subsidization.** Health providers that cater to a broad range of target population groups across urban/rural or rich/poor divides can offer a tiered pricing system that allows more affluent patients to subsidize other patients in need. At the same time, treating both types of patients makes it possible to spread the fixed cost over a larger volume.
- **Establishment of outsourcing contracts or government concessions.** Health services providers that can guarantee consistent quality should be able to establish outsourcing agreements with governments for specific services where public resources may be constrained (as in the case of nutrition services in Senegal). In other situations (as in the case of hospital concessions in South Africa), the partnership is set up in the form of a concession.
- **Creation of a reputation for quality through franchising.** In an environment where people travel long distances for health care, sometimes by-passing “free” public facilities in doing so, a reputation for quality and reliability is a key condition for success. The establishment of franchises can allow a set of facilities to share a common, highly-controlled supply chain, thus

guaranteeing the origin of pharmaceuticals and medical supplies.

- **Procurement pooling.** Given that the expenditure in pharmaceutical and medical products is in some cases up to two-thirds of the total operating cost for facilities, an effective procurement strategy is a major key to success. Procurement pooling can deliver significant savings due to increased purchasing power.

Examples of Successful Business Models

The investment themes described in Figure A1.4 are examples of business models that effectively utilize the innovative strategies discussed above, achieving financial success and having an enormous development impact.

The likelihood of an investment’s success will significantly depend on the target country. Different countries will present different market opportunities (both in terms of expected market growth and competitive scenarios), and investment climates remain significantly heterogeneous across the region.

Detailed descriptions of these models follow.

Small, High-End Centers

High-end hospitals serve both middle-class and wealthy patients in cities across Africa. While the very wealthy may travel abroad for elective medical procedures, high-end hospitals serve the emergency and general health needs of these populations in addition to the health needs of the moderately wealthy. High-end hospitals generally depend on a mix of company membership plans, individual pay-per-service fees, and private insurance programs for their revenue. High-end hospitals provide the high-quality care that attracts patients and the well-resourced environment that attracts medical staff. Notwithstanding these advantages, these hospitals still often cite recruitment and retention of top doctors as a key limitation.

There are numerous examples of high-end hospitals across Sub-Saharan Africa, including both commercial and social enterprise models. Examples include the Tanzania Heart Institute in Dar es Salaam, Lagoon Hospital in Lagos, Bridge Clinic in Abuja, and Nyaho Medical Clinic in Ghana. Figure A1.5 below presents another example of a high-end hospital, Lister

Figure A1.4

Promising investment themes in health services provision

	Examples	Revenue range \$ million	Setup cost \$ million	Development impact
Small, high-end centers	Tanzania Heart Institute (Tanzania), Lagoon Hospital (Nigeria), Bridge Clinic (Nigeria), Lister Hospital (Ghana).	0.2–10.0	0.5–3.0	Allows the retention of high-quality, specialized resources in the country.
Network of primary and secondary care clinics	Christian Health Association (Kenya), Biruh Tesfa (Ethiopia), Clinic Africa (Uganda).	0.01–0.3 per clinic	0.02–0.6 per clinic	Improves access within rural regions, providing quality care to underserved populations.
Hospitals offering in-house insurance	Kadic Hospital (Uganda), AAR Clinic (Uganda), Selian Lutheran Hospital (Tanzania).	0.3–5.0	0.5–3.0	Increases accessibility to health care services to regions without established insurance systems.
High-volume, low-cost hospitals	R-Jolad (Nigeria), Nsambya Hospital (Uganda), Selian Lutheran Hospital (Tanzania).	1.0–5.0	0.5–3.0	Increases access to standardized services within a larger population base.
Hospitals with cross-subsidization model	International Hospital (Kampala), CCBRT (Tanzania).	0.2–2.0	0.2–1.5	Extends affordable care to larger population base, especially the poor.
Large diagnostic laboratories	Bio24 (Senegal), Radmed Diagnostic Center (Nigeria).	0.5–3.0	1.0–3.0	Improves the overall efficacy of treatment by supporting the diagnostic phase.
Telemedicine	Tsilitwa (South Africa).	0.1–1.0	0.3–1.0	Provides access to specialized resources in rural areas.
Specialized doctors covering network of hospitals	N/A (potential model yet to be piloted).	0.1–1.0	0.2–2.0	Increases access to specialty care across the region.

Source: Country interviews; McKinsey analysis.

Hospital in Accra. Lister Hospital is a two-year-old, for-profit, 25-bed hospital and in-vitro fertilization center. Notably, Lister Hospital has a large patient base. Having achieved early success, Lister seeks to expand both its facilities and its patient base.

Network of Primary and Secondary Care Clinics

The Christian Health Association of Kenya has been successfully coordinating the operations of a network of 363 facilities (24 hospitals, 43 health centers, and 296 dispensaries) since the 1930s. Across the continent other FBOs have tackled the issues of limited demand in low population density regions, scarcity of management resources, and limited purchasing power by forming integrated networks of clinics.

For-profit models, often based on a franchising model, have developed more recently. Each facility is operated independently, typically attracting revenues of \$20,000–\$300,000 per year. Initial capital, technical assistance, and management talent are provided by a central agency that is also responsible for procuring equipment, purchasing drugs and supplies, and enforcing process standards. Other forms of for-profit networks include large chains of clinics with similar operational characteristics.

Being part of a network allows management to spread overhead costs over a large revenue base and to share managerial resources across the network. The increased scale also allows the provider to offer a large set of specialized services, often including dental or maternity services, relying for these on shared medical personnel across hospitals.

Figure A1.5

Case study, small high-end hospital: Lister Hospital, Ghana

Lister Hospital is an upscale, 25-bed private hospital in Accra

A large, up-scale hospital

Hospital profile

- Opened in 2005.
- 25 bed in/outpatient facility with a separate in-vitro fertilization center.
- 10,896 patients currently registered. Some regulars, some one-time only.
- National Health Insurance Coverage is too low (\$2 per doctor consultation) and therefore not accepted.

Lister had support at start-up

- Total start-up cost was ~\$2.7 million, funded by four shareholders.
- Suppliers credit has largely been used for equipment purchase since then.
- Government was supportive of Lister and readily accredited the facility after it was operational.

Planning to expand

Lister Hospital plans to expand

- Seeks to grow direct employer accounts, which currently only account for 10 percent of patients.
- Plans to expand its facilities:
 - Invest in Intensive Care Unit (ICU).
 - Build full Emergency Room (ER);
 - Improve equipment: mammogram & cat scan; and
 - Build bigger pharmacy.

Lister faces some challenges as it grows

- Financing
 - Available local bank rates are high, therefore Lister is also exploring international and development financiers.
- Medical personnel
 - Attracting and retaining medical personnel who have practiced in first-world medical facilities and/or have opportunity to leave is a challenge.
- Client base
 - Direct employer accounts are important to sustainability and growth, but there is strong competition for them among private hospitals.

Source: Country interviews; McKinsey analysis.

These models can effectively reach underserved rural populations; additionally, high operational efficiency and standardized processes can improve the quality of care. A reputation for quality often helps these networks to generate additional revenues through increased volumes and/or premiums.

Figure A1.6 shows highlights of the business model and the financials for Clinic Africa, an integrated network of clinics in Uganda. Another example is the Biruh Tesfa project in Ethiopia; started in 2000, it has expanded at an impressive rate and currently operates 92 clinics. The Mucas Hospital in Nigeria is a group practice combining several general practitioners and specialists that is based on this same model.

Hospitals Offering In-House Insurance

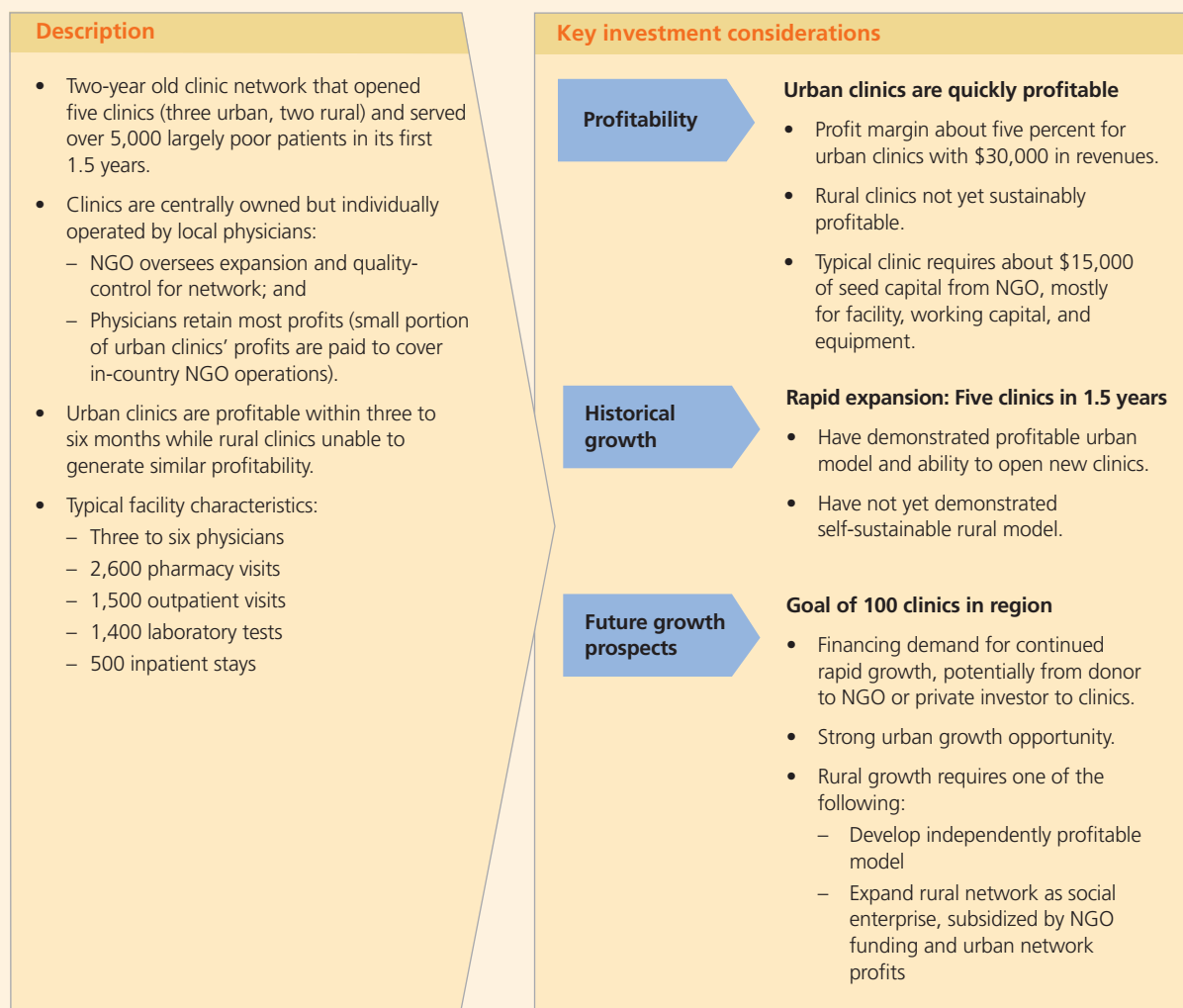
Section II of this report discussed the fact that the establishment of risk pooling mechanisms significantly increases the financial viability of health-service provision facilities. Given the limited presence of health financing vehicles in Sub-Saharan Africa, some providers have set up their own in-house insurance schemes.

These businesses increase the accessibility of health care to segments of the population that would otherwise be unable to afford specialized services. At the same time, risk pooling allows enterprises to be profitable, especially if they manage to attract a base of at least 20,000 members, guaranteeing them a revenue range of at least \$500,000 per year.

Figure A1.6

Case study, primary care clinic network: Clinic Africa, Uganda

Clinic Africa is a fast-growing network of primary-care clinics in Uganda. With demonstrated profitability at urban clinics, Clinic Africa's challenge is to build profitability among its rural clinics as it continues growing aggressively.



Source: Country interviews; McKinsey analysis.

Some in-house schemes may need reinsurance or subsidies from donor agencies to protect them in case of catastrophic conditions or epidemics, yet the model is fundamentally viable, as shown by the example of Kadic Hospital in Uganda (described in Figure A1.7). While its current profitability is limited, Kadic could significantly increase its margins if it doubled its capacity, a prospect that is in line with forecasted demand.

Another example is the AAR Clinic in Kampala (200 patients/day and 30,000 members). Selian

Lutheran Hospital in Tanzania, a FBO, relies on in-house insurance for only part of its catchment population. Further applications of this model are currently present in the Democratic Republic of Congo, Nigeria, and Uganda across the for-profit and social enterprise segments.

Countries like Cameroon, Chad, Sierra Leone, and Sudan, where coverage by risk pooling arrangements is very small, are likely candidates for future successful implementations of this model, provided capital is made available.

Figure A1.7

Case study, provider with in-house insurance: Kadic Hospital, Uganda

Kadic Hospital is a 32-bed private hospital with approximately five percent profit margins serving middle-income patients in Kampala. It also serves low-income patients, primarily through outreach programs. Kadic first established an in-house insurance program to help patients finance health care at a time when most patients had no external source of insurance.

A hospital with in-house insurance

Hospital care

- 24-hour outpatient services in addition to inpatient services.
- 85 permanent medical, support, and allied medical staff plus 40 part-time consultants in various specialties.
- Currently 60 percent of hospital patients have some form of health insurance, increasingly from outside sources.

In-house insurance

- Kadic offers schemes for families, schools, and corporations.
- Creation of own membership model was necessary due to lack of health insurance companies at the time of establishing the hospital. Today, however, the hospital is developing relationships with external health insurance companies to slowly replace in-house membership model.
- Membership costs \$15 per year and covers outpatient services and two days of hospitalization.
- Co-payments and additional charges (e.g., for drugs) also apply for members of in-house insurance scheme.
- Currently about 6,000 members contributing 10 percent of hospital revenue through membership premiums.

Key investment considerations

Profitability

- Five percent net margins.
- \$800,000 revenues.
- Costs evenly split between COGS and OPEX.

Historical growth

- In-house insurance provision supported historical growth by funding demand with a secure revenue stream.

Future growth prospects

- Reduce in-house insurance for groups with more efficient external alternatives.
- \$1.1 million investment to double capacity.
- Kadic faces competition from other hospitals for growing middle-class demand, including five new hospitals being built in Kampala targeting middle- to high-income patients.

Source: Country interviews; McKinsey analysis.

High-Volume, Low-Cost Hospitals

Hospitals located in high-density areas often use a low-cost, high-volume business model that allows them to target low-income groups needing basic interventions. The throughput of patients is extremely high (up to 100 patients per day per doctor), since the set of services provided is limited; the typical revenue range of such businesses is \$1–\$5 million.

In a few cases, a variation of this business model exists in the form of specialized care: by focusing on a single type of service (e.g., cataract surgeries, heart conditions), hospitals can achieve high efficiency levels and maximize the utilization of their personnel. These hospitals have sig-

nificant development impact as they can provide health services to a very large population; additionally, the high productivity of the medical personnel and the resulting possibility to contain prices significantly impacts the affordability of the services.

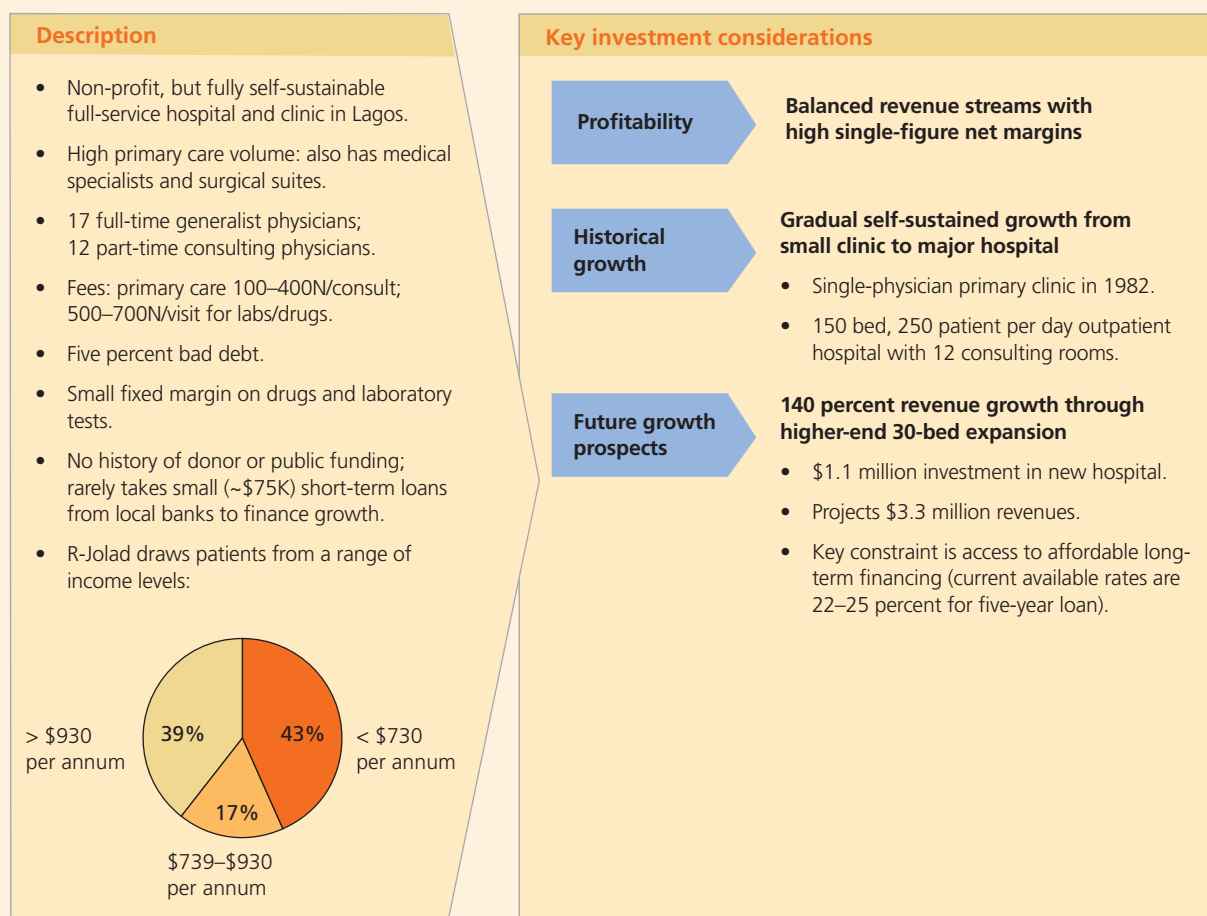
Figure A1.8 shows the details of the business model and the financials for R-Jolad, a successful high-volume hospital in Nigeria that is mentioned in Section I. Other examples of this model are the Selien Hospital in Tanzania and the Nsambya Hospital in Uganda (350 beds).

In general, countries that have adopted a national health insurance scheme (Ghana, Namibia, Nigeria, and Senegal) are favorable environments

Figure A1.8

Case study, high volume hospital: R-Jolad, Nigeria

R-Jolad is a financially sustainable social enterprise in Lagos providing 200–250 patients a day from mixed income levels with good quality health care. In the words of one patient, “They offer on-time services, are friendly, and have qualified doctors.”



Source: Country interviews; McKinsey site survey; McKinsey analysis.

for this model, since such schemes favor providers that are able to contain prices.

Hospitals with Cross-Subsidization Models

The limited size of the patient base that can afford top-quality treatment in Sub-Saharan Africa significantly hinders the growth of the for-profit private sector. However, many facilities have started to use cross-subsidization business models to overcome this constraint. Differential pricing structures enable hospitals to successfully cater to the needs of diverse segments of the population and spread the elevated fixed-cost structure of the operation over a large set of customers.

Clients with the ability to pay higher prices receive a higher level of service, which generally includes nicer waiting rooms, private rooms, and an appointment reservation service. Conversely, poorer clients pay a reduced price, in some cases a fee that only covers the cost for provision of the service, and receive a more basic service while receiving the same quality of medical care.

Figure A1.9 shows some highlights of the business model and the financials for a facility based on cross-subsidization in East Africa.¹¹¹ Examples of cross-subsidization models currently in operation are either for-profit or social enterprises (often FBOs). The size of such businesses is typically

Figure A1.9

Case study, cross-subsidization: private specialized hospital, East Africa

This private hospital in East Africa offers high-quality outpatient and inpatient services for eye and orthopedic consultation and surgery. A social enterprise, it is committed to serving primarily low-income populations, but seeks to grow its service to higher-income patients to build profitability.

A valued hospital needs to grow

I. A commitment to serve the poor

Hospital committed to serve their general patient base even if it means turning away wealthy patients.

II. Quality that attracts the wealthy, too

High quality standards and good reputation for specialized care attracts all patients, including the wealthy. However, the hospital lacks capacity to meet the demand for its higher-priced private services.

III. Price differentiation on comforts, not medical care

Medical care for private and general patients are identical. Price differentiation is based on comfort levels (non-emergency waiting times, private rooms, food choice).

IV. Facing a growth imperative

- Unstable break-even margins at present.
- Excess demand from wealthy patients.
- Has acquired land and is training doctors for expansion.

The cross-subsidization solution

I. The hospital offers a differentially priced menu of services...

Consultation cost (\$)		Bed cost (\$)	
Normal	2	General ward	35
Fast-track	15	Private room	85
Fixed appointment	25	VIP room	115

II. ...so by growing its high-income patient base only slightly...

(percent)	General	Private	VIP
Current	96	3	1
Planned	90	7	3

III. ...it can improve the sustainability of all its operations.

Net margins (percent)

Current	-2 to 2
Planned	10

Source: Country interviews; McKinsey analysis.

within the range \$0.3–\$2 million. The level of cross-subsidization determines the profitability of the overall operation. Lastly, in some cases, cross-subsidization takes place through the intervention of donors, as is the case with the Hope Ward at the International Hospital in Kampala.

Diagnostic Labs

Because screening for HIV/AIDS, TB, Sexually Transmitted Diseases (STDs), and other conditions is absolutely essential to planning treatment, diagnostic services are a fundamental component of the health care sector. Most labs across Sub-Saharan Africa attract revenues between \$500,000 and \$3 million, and most operate at capacity with high profit margins. Their expansion is often lim-

ited by the scarcity of technical personnel and capital resources.

In the case of the example in Figure A1.10, a successful lab in Senegal achieved a net profitability of 14 percent by catering to individuals, private clinics, and even public facilities.

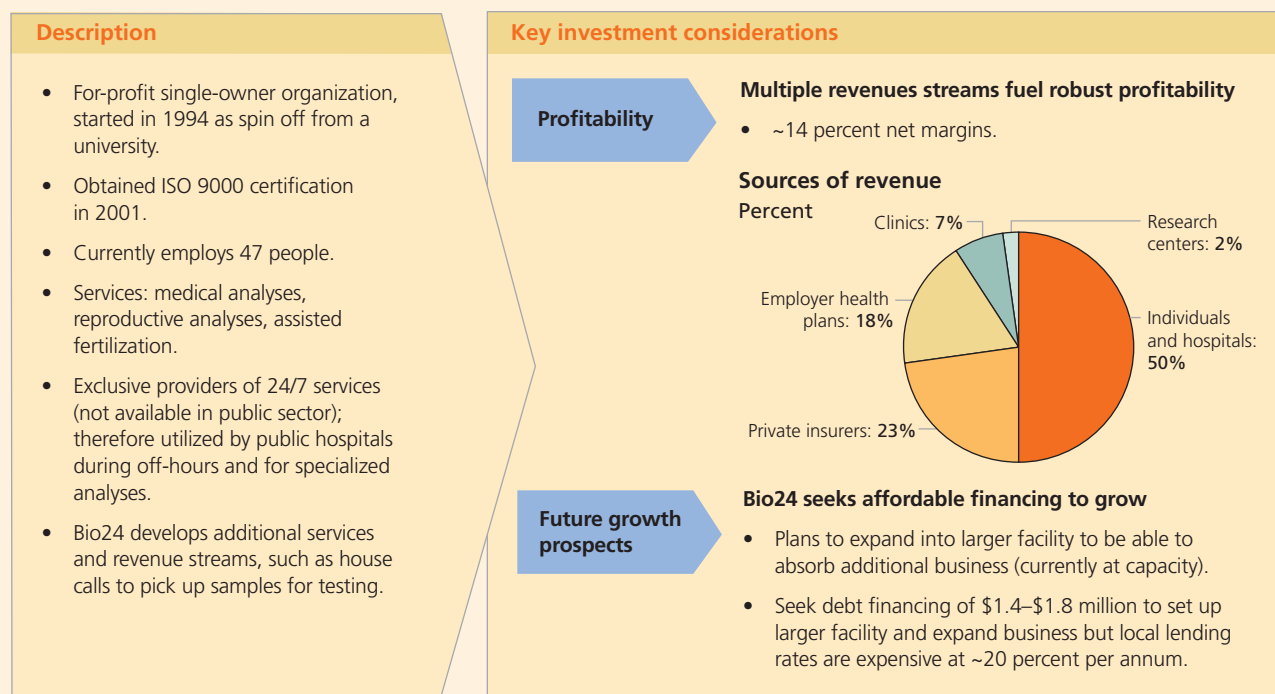
Diagnostic labs improve access by extending services that are underrepresented across Sub-Saharan Africa. This improves the overall efficacy of treatment and delivers significant positive health outcomes.

In other situations, diagnostic labs serve entire regions; satellite facilities collect samples and transport them to the central lab, where the few specialized technicians process them.

Figure A1.10

Case study, diagnostic laboratories: Bio24, Senegal

Bio24 is a profitable diagnostic laboratory in Dakar operating at capacity and interested in expanding. Its services are in high demand by insurers, health providers, research centers, and individuals in both the public and private sector.



Source: Country interviews; McKinsey analysis; company website.

Telemedicine

Telemedicine offers a solution to the lack of doctors in rural areas. Many small and rural towns across Africa are served by small clinics staffed only by a nurse, with the nearest fully qualified doctor ten or more miles away. That makes the doctor inaccessible to a sick patient for whom the journey may be too arduous or expensive.

As detailed in Figure A1.11, in Tsilitwa, a town in South Africa's Eastern Cape, a government-sponsored telemedicine project offers a solution. Tsilitwa's single clinic serves 10,000 patients but has no doctor. The closest doctor-staffed hospital is over ten miles away, with no direct transportation connecting the towns. South Africa's Center for Scientific and Industrial Research and researchers from the University of Cape Town's computer science department have equipped Tsilitwa's clinic with wireless Internet equipment

with which nurses can send pictures to doctors remotely and speak with them in real time. The set up uses a wireless local area network (LAN), a computer with a Web camera, a VoIP-enabled phone, and specialized software.

The telemedicine project improves patient health outcomes while saving them time and money. Many patients who could not or would not make the journey to see a doctor now have the benefit of a doctor consultation. Patients do not have to waste time and can avoid the costs associated with transportation and additional consultations.

The Tsilitwa's Telehealth Project is a non-commercial venture, and telemedicine in Sub-Saharan Africa has yet to demonstrate its commercial viability. The primary challenge to commercial viability is the high cost of telecommunications. However, the use of Web cameras and VoIP-

Figure A1.11

Case study, telemedicine: Tsilitwa Telehealth Project, South Africa

The Tsilitwa Telehealth Project is a government-sponsored program that allows rural nurses to consult remotely with doctors on challenging cases by speaking and sending pictures through wireless telephony.

Description

- **Initiative:** The telehealth project in Southern Africa uses a system in which a nurse can send live pictures of a patient over a wireless network to a remote doctor while speaking on a VoIP-enabled phone.
- **Implemented by:** The wireless network, including VoIP was set up by the governmental telecom authority.
- **Local context:** Village lies over 10 miles from the nearest hub, which is a small town 20 miles north of a regional hub.

Impact and Outlook

- **Profitability:** While the model has not demonstrated financial sustainability, it can be cross-subsidized with other services at the hub. Funding has thus far come from a combination of government, donors, and private enterprises.
- **Development impact:**
 - The Tsilitwa Telehealth Project serves 10,000 people in the rural Eastern Cape of South Africa.
 - There is one clinic and no doctor at the clinic in Tsilitwa, so this service gives patients access to doctors for which they would otherwise travel at least ten miles.
 - This model makes health care cheaper by avoiding additional transportation and consultation costs.
 - This model makes health care more responsive since patients do not have to waste time traveling or in waiting rooms.
 - This model improves health care quality since it enables nurses to more easily consult a doctor.
- **Growth opportunities:**
 - Expand network to additional rural areas as possible given growth in rural tele-connectivity across the continent.
 - Financial sustainability will be challenging to achieve on a commercial basis given the costs of technology and doctors' time. Growth and health objectives may best be accomplished through a wholly or partially-subsidized model.

Source: Country interviews; McKinsey analysis.

enabled phones, which are cheaper than traditional telephone communication, and the increasing penetration of wireless connectivity throughout the continent, bodes well for health entrepreneurs who seek to develop scalable telemedicine. Secondary challenges include constraints on doctors' time and clinic staffs' varying capability to use technology effectively.

Specialized Doctors Covering a Network of Hospitals

Most hospitals across Sub-Saharan Africa are unable to offer specialized care. This is due to a shortage of skilled specialists, high capital expenditures for equipment, and, especially in rural areas, lack of sufficient demand to absorb the fixed costs. A business model that includes a group of specialists that moves across a large network of hospitals with spe-

cialized equipment could prove financially viable. For example, a group of orthopedic surgeons could share equipment and conduct operations in hospitals throughout East Africa. Rural hospitals could book patients in blocks for a given week when the surgeons are scheduled to be there. Typical size range of such businesses is \$0.1–\$1 million.

Given the relatively well-developed road infrastructure in Southern Africa (Botswana, Namibia, and South Africa), this model has a better chance of success in that region. These models have the potential to extend specialized care to underserved regions. They could also be combined with a cross-subsidization model to serve the poorer sections of society at a cheaper rate than richer segments. While no examples of this model have yet been found on the ground, industry experts believe it has significant potential.

Annex 2: Examples of Successful Business Models in Risk Pooling Arrangements

As described in detail in Section II, risk pooling arrangements in Sub-Saharan Africa can be found in discrete regional and population niches. Private schemes are predominantly found among the wealthy, foreigners, and/or employees of large corporations. For example, in Namibia and Zimbabwe—two of the more developed insurance markets—private insurance accounts for 20–30 percent of health care expenditure even though it covers only three to seven percent of the population. An additional core of risk pooling arrangements is concentrated in employer-managed health plans, which are increasingly common even among small enterprises. Employers outsourcing the administration of their medical plans to separate insurance companies and workplace clinics also represent an emerging trend in the development of health insurance and HMO industries in Sub-Saharan Africa.

In West and East Africa, community-based health insurance schemes (a term that includes a diverse array of risk pooling arrangements with varying degrees of sustainability) are widespread; as many as 600, with over 1.5 million beneficiaries, have been launched in Francophone Africa in the past 20 years.

Many countries have sought to implement social security systems, but success has been restricted by the limited size of the formally employed population. Micro health insurance, health savings accounts, or health credits all play a minimal role in Sub-Saharan African society, where low levels of social cohesion due to ethnic diversity undermine trust in the willingness of other groups to pay for future risks. Nevertheless, these mechanisms present long-term growth opportunities, especially given a considerable cultural shift toward pre-paid mechanisms.¹¹²

Figure A2.1 shows the large variability in the development of the health financing industry across three sample countries.

Although the market is nascent, some governments are starting to view private risk pooling arrangements as a potential mechanism to extend health care to the broader population. For example, Nigeria, the continent's most populous nation, has recently approved a compulsory national health insurance scheme to be implemented by private enterprises with the ultimate goal of extending coverage to the entire population. Also in Nigeria, bilateral donor funds are passing through a private HMO to subsidize basic health care insurance to 115,000 people in two poor target groups.

Overall, we estimate that risk pooling arrangements will represent about 13 percent of the projected cumulative investment demand in private health care, or about \$1.4–\$2.5 billion. About 80 percent of this is estimated to consist of investment opportunities below \$3 million (Figure A2.2).

Focused Strategies Are Being Tested

In these nascent markets, the challenge for new companies is twofold: how to reach minimum economic scale as fast as possible, and how to finance operations during the initial money-losing phase.

The following are some of the strategies that have been shown to work well; companies that adopt them can be attractive investment opportunities.

- **Access to large and randomly selected groups.** The size of the population pool is key. A risk pooling scheme requires a minimum of 20,000 people. With this size, unsystematic risk can be diversified within the insured population as a

Figure A2.1

Risk pooling arrangements in selected countries

	 Ghana	 Nigeria	 Senegal
Industry structure	- Rapid recent buildup of public National Health Insurance Coverage, now covering 38 percent of population. - Insurance pay-out terms lower than most private providers will accept, so mostly used for public providers.	- Legislation for compulsory HMO membership for the formally employed sector expected to be passed in 2007. - Health insurance funds provide subsidies to poor.	- Wide variety of health insurance models in Senegal, with most of them not-for-profit or public. - Bulk of people with insurance are covered by compulsory employee programs (50/50 employer-employee), of which there are about 120 in Senegal.
Private sector participation	- Private insurance also available, though generally limited to rich. - Employer-based insurance programs also exist.	- Private insurance accessible primarily to the rich and employed, mostly through employer benefits. - Only one company, UNIC, with 20,000 covered lives. - Government has contracted HMOs to provide risk pooling to government employees. - Experimental of donor insurance subsidies for the poor through private HMO.	- Long-standing private insurance history, though programs focus on small, high-income, more easily managed groups. - Seven private insurance companies average 1,500 beneficiaries, cover one percent of beneficiaries, but represent 31 percent of expenditures. - Lack of volume results in expensive premiums.
Areas of growth	- Employer programs. - Micro insurance schemes.	- HMOs. - Private indemnity insurance.	- Microinsurance. - HMOs.

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

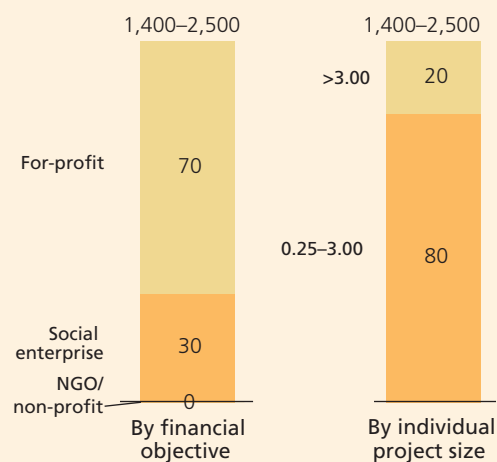
whole so that it is not necessary for every product to be profitable in order for the overall plan to be viable. With more than 100,000 lives, a scheme can optimize individual risk pools for each plan, making each product profitable on its own, or it can offer more extensive coverage, covering, for example, chronic diseases, as well as products for higher-risk groups. An additional condition for the success of this strategy is that the population must be randomly selected in order to avoid the adverse selection issues that a voluntary scheme naturally incurs. Given the size and nature of the populations composing public workforces, outsourcing agreements with governments that cover a group of employees are a natural opportunity for programs of these kinds.

- **Vertical integration.** Integrating the risk pooling mechanism with service provision significantly increases the likelihood of financial viability, since the possibility of fraud is reduced

Figure A2.2

Risk pooling investment opportunity, cumulative 2007–2016

Percent, \$ million



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

and direct access to data on the covered lives allows for optimization of each plan.

Several Successful Business Models

Figure A2.3 illustrates selected examples of business models that effectively leverage the strategies discussed above; these models can help business to achieve financial success while also having significant development impact.

A detailed description of these models follows.

Indemnity Insurance as Part of General Insurance

Indemnity insurance is a classic fee-for-service insurance model that generally targets the employed segment of the population. Several large general insurers in the region are considering extending their service lines to include indemnity health insurance. This model would charge a fixed fee premium based on subscriber's risk profile and could be available for groups or individuals.

Given the large customer base that most of these insurance companies already have, offering

an indemnity health insurance product would be a natural product line extension. The extensive databases these payers maintain regarding their customers—including which products they purchased and their creditworthiness—means that cross-selling can be tailored and focused. The life insurance information contained within these databases can be used to price premiums. In fact, several organizations have already started offering indemnity insurance across Sub-Saharan Africa.

Investments in this sector could fund capital expenditures in new equipment, skill enhancement, and marketing efforts. Some investments could also fund acquisitions of the indemnity arms of other companies. In the Sub-Saharan African context, opportunities in this area typically have a revenue basis of \$1–\$5 million.

The key drivers of profitability are operational scale and insured population demographic make-up. Most companies aspire to make the bulk of their profits on investment earnings from premiums while only breaking even on medical costs. Kenya and Tanzania have seen the growth of organizations using this model over the last few years.

Figure A2.3

Promising investment themes in risk pooling arrangements

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Indemnity insurance within general insurance	Strategis (Tanzania), UNIC Health (Nigeria), GLICO (Ghana), CFC Life (Kenya), The Cooperative Insurance—CIC (Uganda).	1.0–5.0	2.0–4.0	- Creates an insurance culture. - If properly scaled and managed, can force efficiency gains within the network of service providers.
HMOs integrated with service providers	- Hygeia (Nigeria). - Total Health Trust (Nigeria).	0.5–15.0	1.5–7.0	- Increases accessibility to health care services to broader population. - Risk pool sharing makes health care more affordable. - Acts as a catalyst in building a provider network of both private and public clinics.
Micro health insurance associated with microfinance institutions	- N/A in Sub-Saharan Africa. - Application potential for Grameen Kaylan (Bangladesh) model.	0.5–5.0	1.0–2.0	- Provides financial protection for low-income groups. - Establishes an insurance culture across rural and underprivileged segments. - Catalyst for growth of providers within these segments.

Source: Country interviews; McKinsey analysis.

Life insurance companies, specifically, have broadened their product portfolio by offering indemnity coverage. Uganda is also well positioned to see this model flourish given the relatively large number of general insurance companies there. Conversely, countries with established national health insurance schemes (like Namibia, Nigeria, Senegal, and Zimbabwe) may not be favorable markets for this business model.

Figure A2.4 shows the key features of this business model and the financials for private insurance in Tanzania.

Integrated HMOs

Several health insurers are starting to offer a range of medical services themselves. These models provide broad insurance coverage with restricted provider choice. This usually involves a capitation model or in-house provision for care. By providing in-house health services (generally primary care), insurers can more efficiently control claims cost and fraud. Furthermore, additional availability of information can allow rigorous case management.

The market for these financing vehicles is growing significantly, although setbacks have occurred

Figure A2.4

Case study, private insurance: Strategis, Tanzania

Tanzania's leading private insurer, Strategis has experienced rapid growth from corporate subscribers, and has set aggressive growth targets for underwriting large insurance funds, more local companies, and individuals.

Tanzania's leading private insurer...

- Strategis offered the first private health insurance in Tanzania. It designs, underwrites, and sells medical insurance to:
 - Companies
 - Affinity groups
 - Families and individuals
 - Travel cover (in/out)
- Three percent profit before tax, almost exclusively from underwriting given limited investment income opportunities.
 - Currently > 90 percent corporate, plan to increase retail to 30 percent.
- Network of > 100 contracted private providers throughout the country.
- Quality standards part of provider contract, but hard to enforce if no alternative provider is available.
- Expatriate management provided through AMSCO project (funded by UN and IFC).
- 30,000 of Tanzania's 60,000–70,000 insured lives.

... Strategis has experienced rapid growth from corporate subscribers...

- Four year old company with 2005–2006 subscriber growth of ~50 percent.
- Past growth driven by corporate accounts (first multinational corporations, then local companies).

...and has set aggressive growth targets for underwriting large insurance funds, medium sized enterprises and individuals.

- Growth targets of doubling underwriting in 2007 and 50 percent growth in 2008.
- Strategis has tendered for new Dutch Health Insurance Fund contract to insure large, generally non-wealthy population.
- Corporate insurance continues to offer near term growth with good margins.
- Retail growth opportunity in medium-term, given growth in employed families seeking quality care.
 - Currently <ten percent retail, with 30 percent target
 - First local company with individual risk assessment capability for retail underwriting. Able to partner with affinity groups and banks for retail volume.
- Key growth challenges include:
 - Competition from new entrants for both subscribers and personnel.
 - Uncertain regulatory environment: New legislation expected on HMOs may have consequences for registered insurers.
 - Uncertain impact of National Health Insurance Fund's aspiration of growing coverage to 45 percent of Tanzanian lives by 2015.

Source: Country interviews; McKinsey analysis.

in some East African countries. In countries with compulsory schemes or tax incentives, this industry is projected to grow. The model is relatively well-developed in Namibia, Nigeria, and Zimbabwe. Other countries have smaller enterprises but are looking to expand. So far, individual HMOs have not been able to grow their revenues over \$15 million in Africa.

Health insurance usually operates with high loss ratios and low reserves; however, with limited investment income opportunities, a profit margin needs to be generated through underwriting. Containment of medical costs within a member population is an important key to profitability. The recent failures of some HMOs in Kenya that lacked in-house care provision indicate that vertically integrating primary care may be a critical element

of success. The prevalence of vertical integration financing opportunity could be higher in countries like Namibia and Zimbabwe, where several large HMOs are already active.

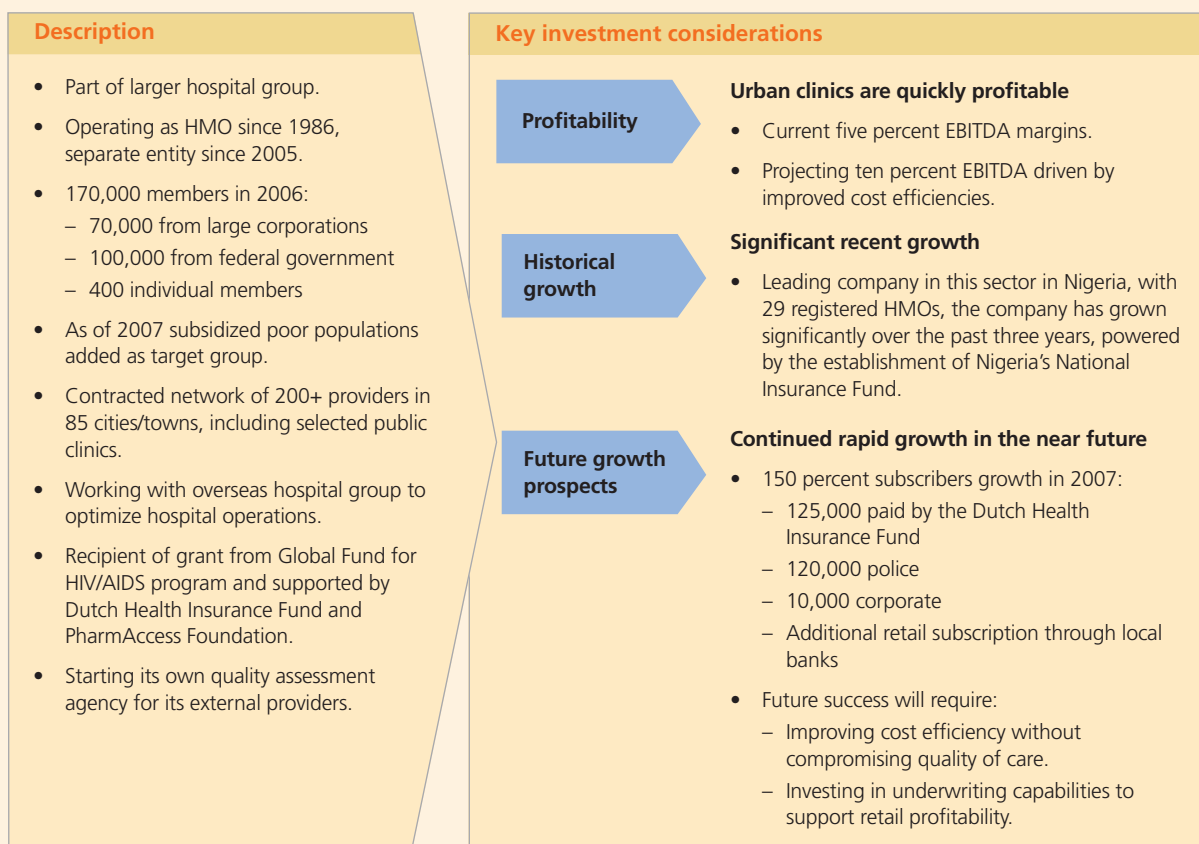
Although cost containment through in-house managed care can make insurance affordable, the main development impact is the creation of incentives to catalyze the creation of a larger provider network. Integrated HMOs are also central to establishing an insurance culture across the region.

Figure A2.5 shows the key features of this business model and the financials for such an integrated HMO in Nigeria. While this initiative is still not making a profit, it is expected to rapidly achieve break-even status followed by sustained profitability once subscriptions peak.

Figure A2.5

Case study, integrated HMO: Nigeria

Large Nigerian HMO with more than 170,000 members and over 200 providers, the company is in the midst of a growth phase.



Source: Country interviews; McKinsey analysis.

Micro Health Insurance

Microinsurance remains rare across Sub-Saharan Africa, but creating incentives for customers to buy health insurance along with traditional microfinance products could create an excellent opportunity to spur the growth of the market and extend health care coverage within the poorer segments of society and rural populations.

Plans including basic coverage for common or catastrophic conditions would be sold by the microfinance corporation and would be linked to products like loans. Combining insurance products and loans could yield cost synergies by reducing the transaction costs of separately offering loan and insurance products.

In Sub-Saharan Africa, the expected scale for such vehicles is \$0.5–\$5 million. Profitability is tightly linked to administration costs and default rates; these can be significantly reduced if linked

to other microfinance products such as loans. In addition, products with higher cost sharing with customers can further increase margins.

Most examples of microinsurance available today involve social enterprises that are ready to accept sub-commercial rates of return on their businesses. In Bangladesh, where such models are significantly more developed, micro health insurance achieves up to 39 percent profit (Figure A2.6). This model must be built on the existing infrastructure of a microfinance institution to amortize enrollment and premium collection costs. Extending customer reach through financing pools such as farmers' associations is critical to the success of these models.

Given the aggravated financial risk of insolvency that could be brought on by an epidemic, the need to subsidize catastrophic coverage is acute within this sector. Governmental and donor sup-

Figure A2.6

Case study, microinsurance: Grameen Kaylan, Bangladesh

Grameen Kaylan is a micro health insurance scheme created by the Grameen Bank, recipient of the 2006 Nobel Peace Prize. It offers pre-paid insurance to all Grameen Bank employees and borrowers, as well as the poor close to any of its clinics.

Grameen Kaylan offers pre-paid insurance for the poor...

- Health program initiated in 1993.
- Ten clinics and \$40 million endowment fund for start-up of operations.
- Upgrade of facilities and expansion financed by grants from International Labor Organization.
- Six health centers financed by donations from Stitching.
- Out of 2.5 million microfinance clients, 58,000 subscribe to voluntary health insurance.
- Pre-paid insurance card valid for 12 months.
- Insurance coverage includes:
 - Free check-ups
 - Pregnancy cost
 - Limited hospitalization
 - Discounts for drugs and diagnostic services
- Network of about 50 doctors in 29 rural health centers.
- Providers available for non-members who pay more.

...in a financially successful model

Sample financials 2004

Income statement

Revenues

- No. covered lives 290,000
- Revenue \$ 338,005

Costs

- Claims \$ 5,164
- Administration \$ 38,611
- Commissions \$ 163,687

Operating income

- Depreciation Non notable
- Taxes Non notable

Operating margin 39%*

* Excluding grant funding of additional \$126,015.

Source: NGO website; country interviews; McKinsey analysis.

port would be essential to manage and subsidize this risk. Microinsurance products provide a significant level of financial protection for low-income groups. Furthermore, they establish a platform for more evolved health care products across communities. This, in turn, stimulates demand among the poor and acts as a catalyst for overall growth of provision in this segment.

Annex 3: Examples of Successful Business Models in Life Sciences Manufacturing and Innovation

The estimated 2006 pharmaceutical market in Sub-Saharan Africa was \$3.8 billion, of which local manufacturers produced 25–30 percent. Medical supplies and devices accounted for an additional \$2.1 billion, but less than ten percent of that was locally produced.

Two additional components of the life sciences are relevant to Sub-Saharan Africa's health sector. One is the innovation taking place in the region, primarily in South Africa, where companies like Bioclones—which develops novel formulations for erythropoietin (EPO), a hormone used to treat renal failure—are contributing to the establishment of a sustainable innovation sector. The other is research that is undertaken outside Sub-Saharan Africa but which is aimed at addressing health burdens that are relevant to Sub-Saharan Africa—such as The Foundation for Innovative Diagnostics (FIND), which has developed rapid tuberculosis diagnostics.

Provided that manufacturers will be able to withstand the pressure of competition from imports, life sciences across the region (including South Africa) is expected to account for 14 percent of projected cumulative health care investment opportunities, or about \$1.6–\$2.9 billion. Generic pharmaceutical manufacturing will be the largest single component, representing 40 percent of the projected investment in this sector. Most of the investments in this sector are likely to be greater than \$3 million.

Innovation represents most of the remaining investment opportunities, while medical supplies and devices manufacturing will absorb not more than three percent of the projected investment volume. The investment potential in clinical research organizations (CROs) is even smaller, but could potentially present some attractive knowl-

edge-transfer opportunities for investors looking for smaller opportunities. Most CRO opportunities are expected to be below \$250,000.

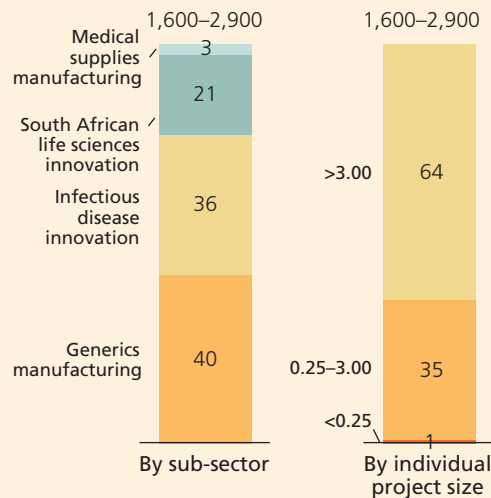
Overall, most of the investment opportunities in life science are large; two-thirds are expected to be greater than \$3 million and one-third is expected to be between \$250,000 and \$3 million; a negligible component will be below \$250,000 (see Figure A3.1).

Following is a description of key industry dynamics and promising investment opportunities in these four areas.

Figure A3.1

Life sciences investment opportunity, cumulative 2007–2016, including South Africa

Percent, \$ million



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

Pharmaceutical Manufacturing

More than 70 percent of Sub-Saharan Africa's estimated \$1 billion in annual pharmaceutical production is concentrated in South Africa, where Aspen Pharmacare, the only vertically integrated manufacturer in the region, is the clear leader. Nigeria, Ghana, and Kenya together represent about 20 percent of Sub-Saharan Africa's pharmaceutical production (see Figure A3.2). Of these three countries, only Kenya produces significant volumes for regional export—between 35 and 45 percent of Kenyan manufacturers' revenues come from exports to other Eastern African Community (EAC) and Common Market for Eastern and Southern Africa (COMESA) countries.

Overall, 37 Sub-Saharan African countries have some pharmaceutical production, with 34

having capacity for formulation and 25 limited to packaging or labelling. Only South Africa has a limited degree of API production. Most production outside South Africa is of non-complex, high-volume, essential products, such as basic analgesics, simple antibiotics, anti-malarial drugs, and vitamins.

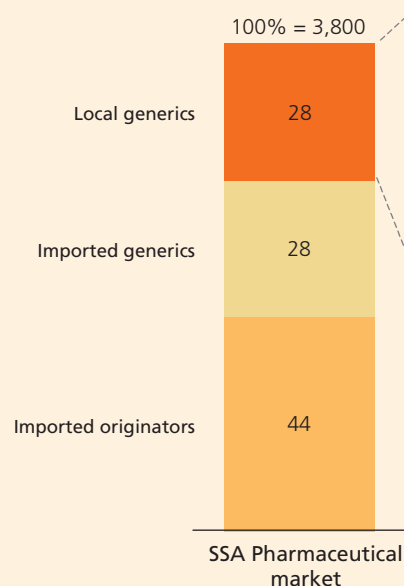
Local manufacturers currently capture only a small share of the donor market in Sub-Saharan Africa (estimated to amount to a total between \$750 million and \$1 billion), which is mostly focused on treatments for HIV, TB, and malaria. Donor-funded contracts generally require product prequalification from stringent regulatory bodies such as the WHO or the United States Food and Drug Administration (FDA). As of April 2007, only two Sub-Saharan African manufacturers¹¹³ had WHO prequalified products, and only 11 of

Figure A3.2

Estimated pharmaceutical market and generics manufacturing in Sub-Saharan Africa

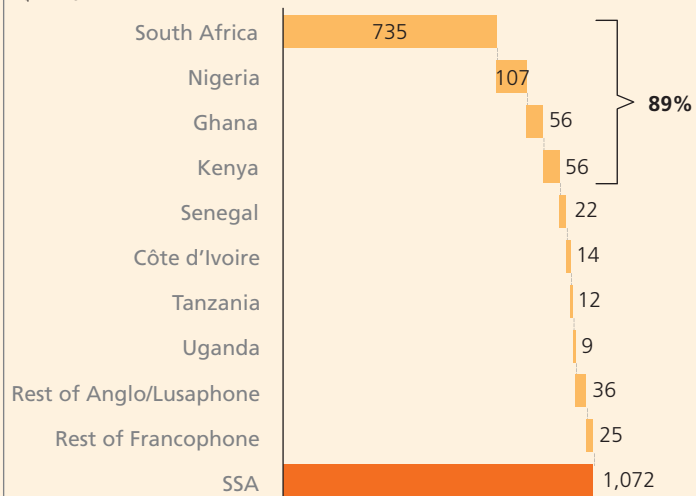
Breakdown of estimated ex-factory pharmaceuticals market in SSA, 2006

Percent, \$ million



Breakdown of estimated ex-factory local generics manufacturing by country, 2006

\$ million



Of 46 SSA countries, 37 have pharmaceutical industries, with 34 doing formulation, 25 doing packaging/labelling, and just 1* doing limited API production

* South Africa's Fine Chemicals Corporation (owned jointly by Aspen Pharmacare and India's Matrix) is the only API producer in SSA.

Source: Country interviews, BMI South Africa Pharmaceuticals and Health Report Q4 2006; Global Insight; IMS; Company annual reports; African Union Draft Pharmaceutical Manufacturing Plan; McKinsey analysis.

the 248 WHO prequalified HIV, TB, and malaria medicines were produced by these two Sub-Saharan African manufacturers. While several manufacturers in the region are seeking prequalification, it is a difficult process for most of them—it requires renovation of production facilities, familiarity with qualification requirements and processes, and a dossier of product efficacy and safety tests that meets with regulatory bodies' requirements. Given the prevalence of small manufacturers in the region, the above requirements represent too high an economic burden, and at the same time often exceed the limited technical capability of the management teams.

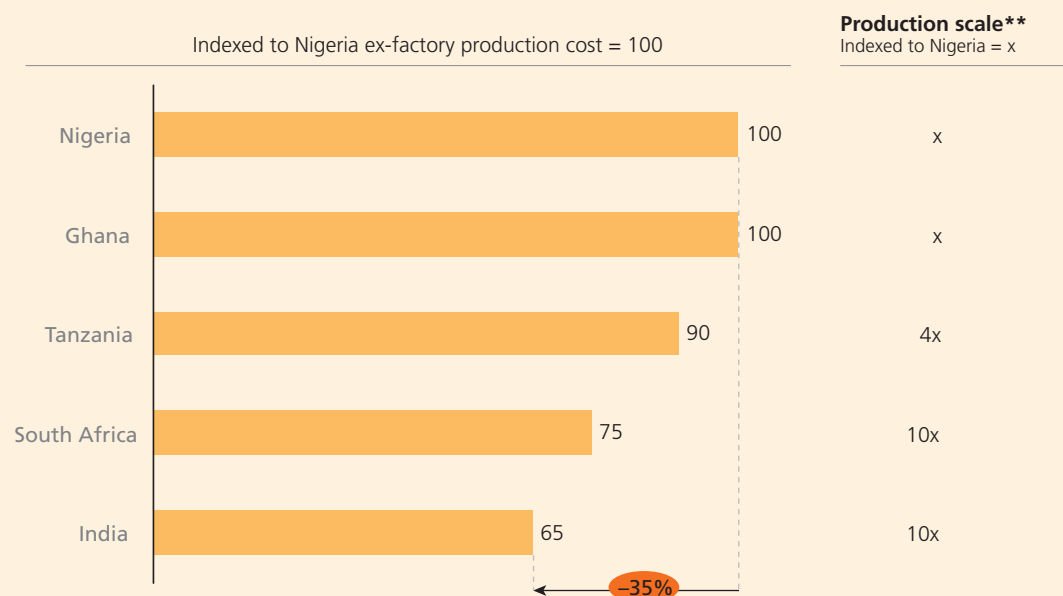
Sub-Saharan African manufacturers generally produce at a cost disadvantage to the large Asian generic manufacturers (Figure A3.3). One key disadvantage is scale. Although conversion cost

scale efficiencies generally plateau around 1.0–1.5 billion tablets in blister packaging per year, production at most Sub-Saharan African formulation sites is far below that level. For example, it is estimated that a third of the 30–40 percent cost disadvantage that a leading Ghanaian manufacturer suffers versus high-scale Indian manufacturers is attributable to scale.

Other causes of production cost disadvantage include a more expensive asset base (partially related to less-optimized process design), often coupled with obsolete technology, financing costs, and lack of integration with API production. In some cases, for example South Africa, labor costs are significantly higher than in India. In other situations, lower labor productivity leads to higher labor costs even where employee wages in comparable roles are close to those in Asia. Finally,

Figure A3.3

Estimated representative production cost structure for a bottle of 100 simple analgesic tablets*



* Costs include both raw materials (API, non actives, and packaging) and conversion.

** Relative volumes based on manufacturing plants with estimated production of 1.2 billion tablets for South African facility vs. 500 million for Tanzanian facility, 120 million for Nigerian facility, ~120 million for Ghanaian facility, 1.2 billion for Indian facility.

Source: Ghana Ministry of Health; Energy Information Administration 2006 Industry Electricity Prices; country interviews; McKinsey analysis.

regulation can work against local production, as in the Democratic Republic of Congo, where high import duties on packaging materials result in a higher overall tax on production for local manufacturing than on importing.

Freight costs do not go very far to close the gap between low-cost imports and locally manufactured generics, since they only account for approximately 12 percent out of 35 percent of the cost disadvantage (or four percent of the ex-factory cost of local manufacturers).

Moreover, given import difficulties and the fragmentation of distribution networks, shipping to other markets in Sub-Saharan Africa can be more expensive than Asia-to-Africa shipping, thus significantly limiting export opportunities. Intra-African imports are often subject to the same import tariffs as intercontinental ones, and manufacturers report that even when there are favorable trade terms between countries, they often do not actually enjoy the benefits (tax breaks), since they either don't extend to pharmaceuticals or are misapplied.

Despite this cost disadvantage, last year Sub-Saharan African manufacturers sold \$1 billion of generic pharmaceuticals in the region.¹¹⁴ In most countries, local producers benefit from regulatory support in one or more of the following forms: (1) preference policies for public tenders (price advantage); (2) tax benefits on raw materials, intermediates, and final products; and (3) import bans on selected essential medicines (for example, in Ghana and Nigeria, import is banned for the seven largest volume products).

In general, these protectionist policies aid the domestic competitive position of Sub-Saharan African pharmaceutical manufacturers. As local manufacturers increase their production capabilities, it is plausible to anticipate that governments will extend this support to new products or segments of the supply chain. However, whether these policies will improve access to more affordable drugs or create the right incentives to improve drug quality is debatable.

Over the past decade, key stakeholders in the Sub-Saharan African pharmaceutical industry have debated whether the establishment of local manufacturing has a beneficial role to play in in-

creasing the accessibility to and quality of drugs. In many instances there is a perception that local manufacturing improves production quality oversight and security of supply. However, evidence of this is mixed. A 2003 WHO study of anti-malarial drug quality in selected Sub-Saharan African countries acknowledged that it is easier to exercise oversight over local producers than foreign producers. However, no consistent quality differences between locally and imported products were found.¹¹⁵

Separate research found that, although over 90 percent of counterfeit products in Nigeria with an identified source were imported, 44 percent of banned products come from unidentified sources.¹¹⁶ Any effort to limit the tragically high prevalence of counterfeit and substandard products in Sub-Saharan African markets would certainly serve both patients' and legitimate manufacturers' interests.

Some stakeholders express concern regarding security of supply for HIV, TB, and malaria (ACTs) treatments given patients' vulnerability to shortages in product availability. Supply interruptions that might occur if product supply was not able to respond immediately to demand—for example, as a result of a surge in global demand for such drugs—could theoretically cause supply interruptions and be disastrous for patients requiring these remedies. To put some quantification around this concern, if the percentage of HIV-affected Indian population under ARV treatment were to increase from its 2005 levels of seven percent to 50 percent, the worldwide demand would grow by an estimated 25 percent.¹¹⁷

API supply appears to be the key potential vulnerability, and this would not be addressed unless Sub-Saharan African manufacturers were able to develop greater control over their API supply. While it would be hard for Sub-Saharan Africa to develop a competitive API industry (given scale and expertise disadvantages), a viable alternative seems to be increasing the local formulation of final products to a size where it would be possible to acquire an offshore API source; this is the case for Aspen Pharmacare, which recently acquired API production facilities in both South Africa and India.

Notwithstanding the debate about the benefits of local production, there is a clear mandate from Sub-Saharan African governments and regional bodies to support the development of pharmaceutical manufacturing in Sub-Saharan Africa. This is made explicit in the African Union's 2007–2015 health strategy, which stated that "African Union Member States need to embark on local production of pharmaceuticals and other health commodities."

Key Investment Opportunities

Successful local companies have adopted some or all of the following strategies to increase their competitiveness:

- **Establish scale and invest in quality certification.** The opportunity to build scale is important to the growth and future competitiveness of Sub-Saharan African manufacturers. Likely future opportunities include:
 - The growth of domestic generic pharmaceutical markets; domestic industry consolidation; and greater access to regional and even global markets. In addition to revenue growth opportunities, there are productivity gains to be garnered from increased manufacturing scale. Furthermore, large-scale manufacturers are better able to support the costs and administration needs associated with certification and maintenance of quality standards.
 - Expansion of product portfolios. Larger-scale manufacturers are more likely to obtain WHO prequalification and, therefore, become able to locally produce more ARVs, TB drugs, ACTs, and drugs for the treatment of the region's growing non-communicable disease burden (hypertension, heart disease, cancer, etc.) in addition to the low-complexity, high-volume drugs local manufacturers often have the capability to manufacture at this time.
 - Aggregation of country markets into regional markets. This would create significant scale opportunities for Sub-Saharan African manufacturers (see Figure A3.4, where the potential opportunity created by regionalizing markets according to current regional trade community memberships is estimated).

- **Secure contract manufacturing, product licensing, or other technology-transfer-based relationships with multinational companies.** Sub-Saharan African manufacturers can derive significant advantages from partnerships with multinational companies, including leading South African manufacturers. Contract manufacturing or licensing arrangements offer local firms the opportunity to expand product portfolios, increase market share, and develop competencies. There are multiple local firms that have tie-ups/joint ventures with either niche multinational companies or Indian manufacturers (especially in South Africa) who could help improve the viability of local manufacturing. For example, the Cipla-Medpro relationship has facilitated technology transfer and cost effective manufacturing.

Typically, foreign manufacturers' criteria in assessing local partners for contract, license, or joint venture relationships are the prospective local partner's production capability and standards, market access and position, and management professionalism.

An example of a successful generics manufacturer is detailed in Figure A3.5.

Manufacturing of Medical Supplies

The overwhelming majority of Sub-Saharan Africa's estimated \$2.1 billion medical supplies market is imported. This lack of local manufacturing is generally linked to the lack of scale for commodity supplies, the production complexity of specialized devices, and the established expertise or proximity to raw materials (such as latex) of other production sites.

However, there is a case for local manufacturing for the following categories of goods:

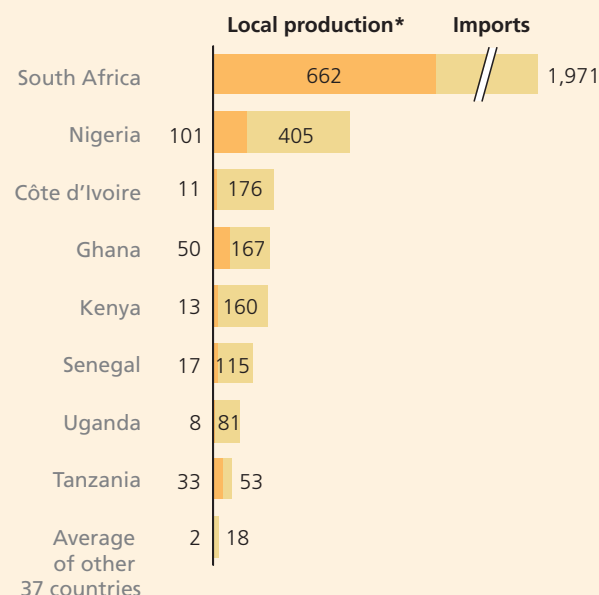
- **Bulky products.** For items such as furniture for hospitals and clinics, local manufacturers would have a significant distribution and cost advantage over imports.
- **Products that make use of locally available raw materials.** Vertical integration efficiencies and the lack of tariffs on local raw materials would allow viable production of goods such as gauze-

Figure A3.4

Evaluation of scale effects of regionalization of pharmaceutical production

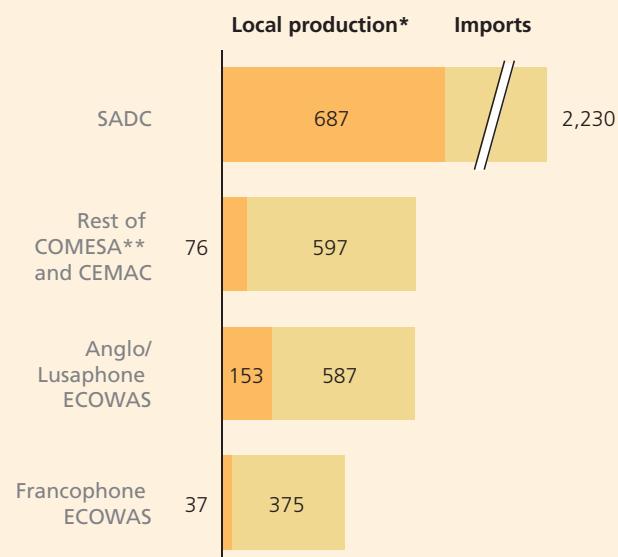
National market sizes, 2006

\$ million



Regional market sizes, 2006

\$ million



In addition, large manufacturers could afford the investment and time required to undergo WHO certification and access donors' markets

* Domestic production for domestic market. Excludes intra-African exports, e.g., Kenyan production exported to other African countries.

** Includes Tanzania. Excludes COMESA countries that are also in SADC.

Source: Country interviews, BMI South Africa Pharmaceuticals and Health Report Q4 2006; Global Insight; IMS; Company annual reports; African Union Draft Pharmaceutical Manufacturing Plan; McKinsey analysis.

es and dressings. For example, cotton is grown in Uganda, Senegal, and Mozambique, and manufacturing finished cotton products would be a natural vertical integration opportunity.

- Products that require customization. Items such as prosthetics and eyeglasses typically require proximity to users.
- High-value products and products in high-tariff categories. For example, Disa Vascular in South Africa can supply the local market with high-quality coronary stents, relying not only on state-of-the-art technology but also on its protection from import duties.

In addition, the availability of existing capacity favors the production of goods with low manufacturing complexity and/or those that are related to an existing industry, such as textiles. Three large product categories that fit the above criteria are mosquito nets—the current shift is toward long-lasting insecticide treated nets (LLINs)—medical gauzes, and medical furniture.

As shown in Figure A3.6, in 2007 LLINs represent a global market of \$150–\$300 million, of which about two-thirds is concentrated in Sub-Saharan Africa.¹¹⁸ Medical gauzes, wadding, and dressings represent an estimated \$90–\$120 million annual market in the region. Medical and dental furniture represent an estimated \$80–\$120 million annual market.

Figure A3.5

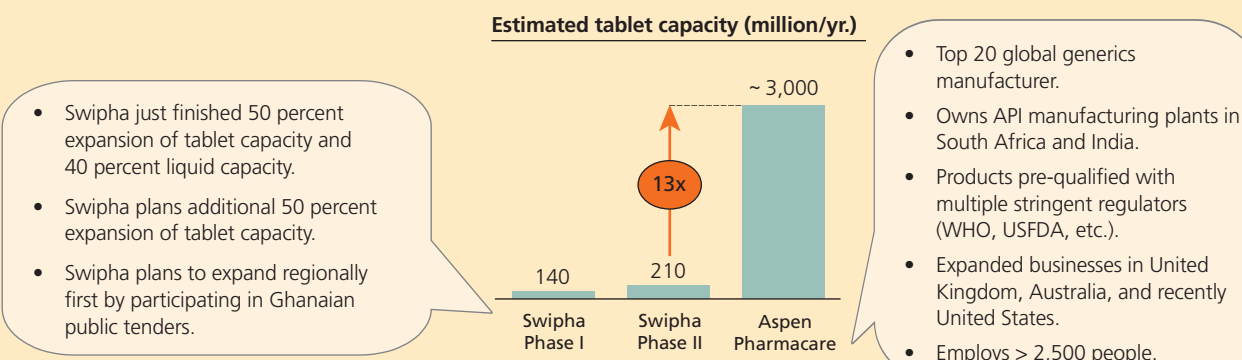
Case study, certified generics manufacturer: Swipha, Nigeria

Swipha is a leading generics manufacturer in Nigeria with good quality that is poised for growth. Swipha is investing in growth, but still has a lot of room for growth in order to become a continental leader.

1. Swipha is a top-three Nigerian manufacturer... ...with distinctive quality... ...that is poised for growth.

Estimated share of Nigerian manufacturing	Quality certification	Growth opportunity
Percent		
Emzor 23	The only Nigerian manufacturer with ISO 9000 certification.	- Large market opportunity. - Nigerian pharmaceutical market ~\$400 million. - ECOWAS pharmaceutical market ~\$1 billion. - Strict quality standards creates growth opportunities. - Key concern for MNCs considering contract manufacturing is quality. - Nigerian regulator intends to increase local GMP requirements.
Evans* 16		
Swipha* 13		
May & Baker* 12		

2. Swipha is investing in expansion but still has a lot of room to grow in order to become a regional leader.



* Excluding estimated 25 percent of products (by value) imported in final product form from Roche (Swipha), 33 percent from Cipla for Evans, 25 percent from Aventis for May & Baker. GlaxoSmithKline is Nigeria's largest pharmaceutical company, but locally manufactured value is less than those listed above.

Source: Country interviews; company business plan; McKinsey analysis.

The LLINs case example below (Figure A3.7) shows the challenges of investing in LLINs as well as the potential opportunities.

Innovation

In 2006, South Africa spent 0.9 percent of its \$250 billion GDP on research and development across industries. In comparison, India's spending in research and development is 1.2 percent of GDP, or \$9.5 billion, and the amount for the United States is 2.7 percent of GDP, or \$350 billion.

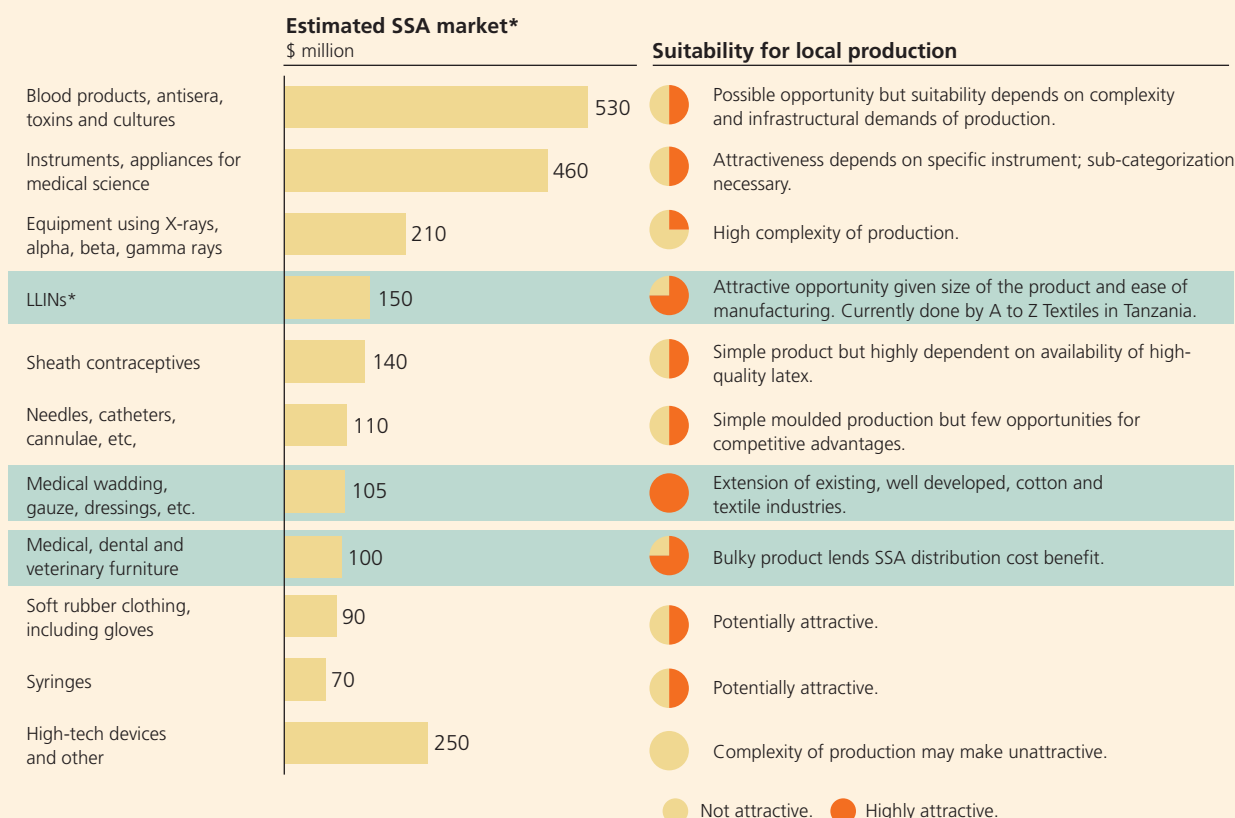
Private sector investment in biological, medical, and health sciences accounted for less than 10 percent of that value in South Africa.¹¹⁹ Not surprisingly, there is only one biotech-focused venture capital firm in the country, Bioventures, with just \$11 million under management.

Limiting factors for the development of early stage biotech venture capital funds have been:

- Few exit opportunities. There are no later stage venture capital firms to fill the developmental funding pipeline and private equity firms are

Figure A3.6

Evaluation of opportunities for local manufacturing of medical supplies



* All figures, except mosquito nets, are imports with estimates extrapolated from Comtrade medical supplies import data to countries with 65 percent of total 2007 Sub-Saharan African health care spending and estimating that imports represent 95 percent of SSA medical supplies. LLIN sizing based on Roll Back Malaria projection of 42 million nets demanded in 2006, assuming 70:30 (30m:12m) LLIN : conventional net split, at \$5/net pre-distribution price based on producer interviews and net prices quoted on Roll Back Malaria website data. Price encountered ranges from \$4 to \$6, pre-distribution.

Source: Comtrade; Rollback Malaria; McKinsey analysis.

not interested in such early entrepreneurial models or in risky biotech investment. In addition, in recent years major device and biotech companies (usually the larger exit opportunity) have been less acquisitive of new ventures.

- A limited pipeline. Venture capital firms would have to reach down further into basic research to “pull up” very early stage companies, and therefore would end up holding investments for a very long time.
- Lack of experience. Few funding sources understand the sector well enough to feel comfortable investing in it.

On the other hand, about 51 biotech companies are active, engaged in first-, second-, and third-generation technologies.¹²⁰

Although small by global standards—private sector life sciences innovation outside large companies spending in clinical research currently receives an estimated \$50–\$60 million—South Africa’s emerging life sciences innovation sector has a strong base. The nation is politically stable and enjoys the subcontinent’s highest rating for ease of doing business.¹²¹ The country has strong communication, research, and physical infrastructures, and it is endowed with one of the world’s highest rates of biodiversity per unit area.

Figure A3.7

Case study, medical supplies manufacturing: long lasting insecticide treated nets (LLINs)

LLIN manufacturing illustrates some of the opportunities and challenges for supplies manufacturing in Sub-Saharan Africa. There is currently one LLIN manufacturer in Africa, Tanzania's A to Z Textiles, making three–four million nets per annum.

A large market... • Estimated \$120–\$250 million per annum 2007 market in SSA, based on 30–50 million nets at \$4–5/net ex-factory. • LLINs have lower life-time cost to user (\$5.33) than regular insecticide treated nets (ITNs) that last fewer washes (\$8.33).* • 10–20 percent margins.	...and a challenging market • Challenging business environment given price variations between countries, nascent distribution systems, need to sell on credit, higher up-front user cost than insecticide treated nets (ITN), risk of counterfeits. • Slow registration process (both WHOPES & in-country) vs. conventional nets that do not require registration. • Market for LLINs is currently >90 percent public/donor funded, and not yet a developed or sustainable private market.
Africa already produces textiles and bed nets... • Africa has local textile manufacturing. • Textile manufacturers have experience with mosquito net production (but not LLIN production).	...although it is at a cost and technical disadvantage to Asia • Cost leaders are Bangladesh, Vietnam, and China. • Technical leaders are Thailand and China.
A bulky product means a freight advantage... • Bulky product may offer distribution cost savings if manufactured locally.	...which helps, but does not achieve cost parity • Distribution costs estimated at only five percent of total cost for nets with stenting technology. The key cost considerations are in yarn, stitching, stenting, chemicals, and financing.
There may be preference for local supply... • With a high malaria burden, Africa has an interest in ensuring a stable LLIN markets, including supply. • Potential for preferential status as a local producer when competing for tenders, especially if channeled through government procurement. • Local supply would support the development of sustainable markets needed to reach more people.	...and that will require building sustainable private markets • Developing competitive local supply requires a long-term co-investment by local manufacturers and foreign technology owners. • To build a rationale for long-term co-investment, donors, governments, and suppliers need to collaborate to develop sustainable private LLIN markets.

* Rollback Malaria estimate based on three year lifespan (estimate of seven washes/year), and re-treatment of ITNs every six months.

Source: Country interviews; Rollback Malaria; McKinsey analysis.

South Africa also has strong academic and research institutions with expertise in the biomedical sciences and a track record of medical device innovation. Historically, however, intellectual property (IP) has generally been sold off-shore or simply not been commercialized. Hence researchers lack experience commercializing IP.

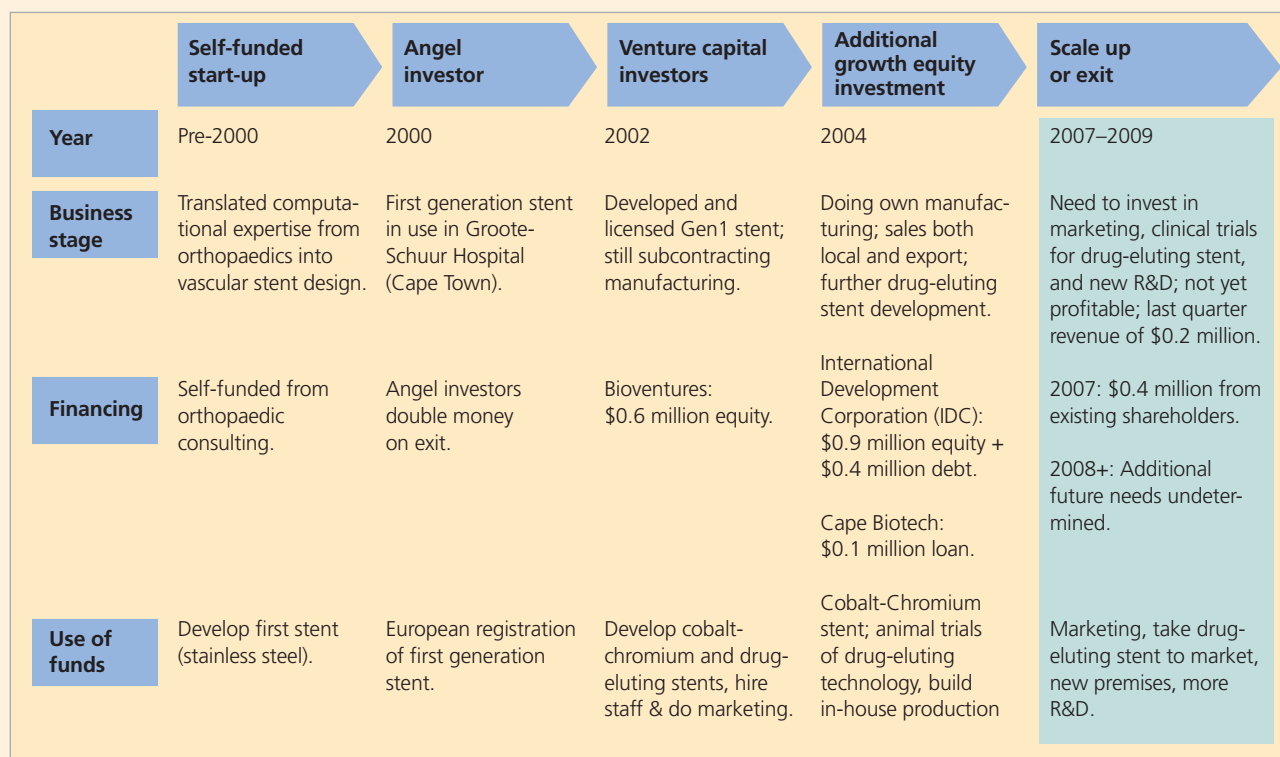
On the basis of the above, access to capital from financiers with investment experience in innovation would address a critical need in the sector's development.

The sector's need for capital extends along the developmental pipeline, from pre-clinical work to commercialization of both APIs and intermediate or finished products.

Figure A3.8

Case study, biotech innovator: Disa Vascular, South Africa

Disa Vascular is a South African biotech company that develops coronary stents. With strong academic backgrounds but minimal prior commercial experience, Disa's founders have developed market-ready innovations with limited external funding.



Source: Country interviews; McKinsey analysis.

With other imperatives for public spending in South Africa, including other urgent health needs, future growth in research and development investment may need to come largely from the private sector. In 2006, South Africa's Ministry of Finance increased tax deductions for private research and development from 100–150 percent, signalling strong support for private sector-led innovation. That support builds on a public investment in 2003 in biotechnology regional innovation centers to support the commercialization of life sciences research.

Additionally, South Africa enjoys a strong reputation for clinical research, with a \$10 billion global industry that grew a remarkable 15 percent from 2005–2006.¹²² With a strong laboratory infrastructure, a diverse native patient population, reliable ethical standards, and lower costs than

similar research in the Western world, the country is an attractive base for clinical research. At present South Africa absorbs an estimated three percent of the global market (400 studies in Africa, of 8,000 globally¹²³).

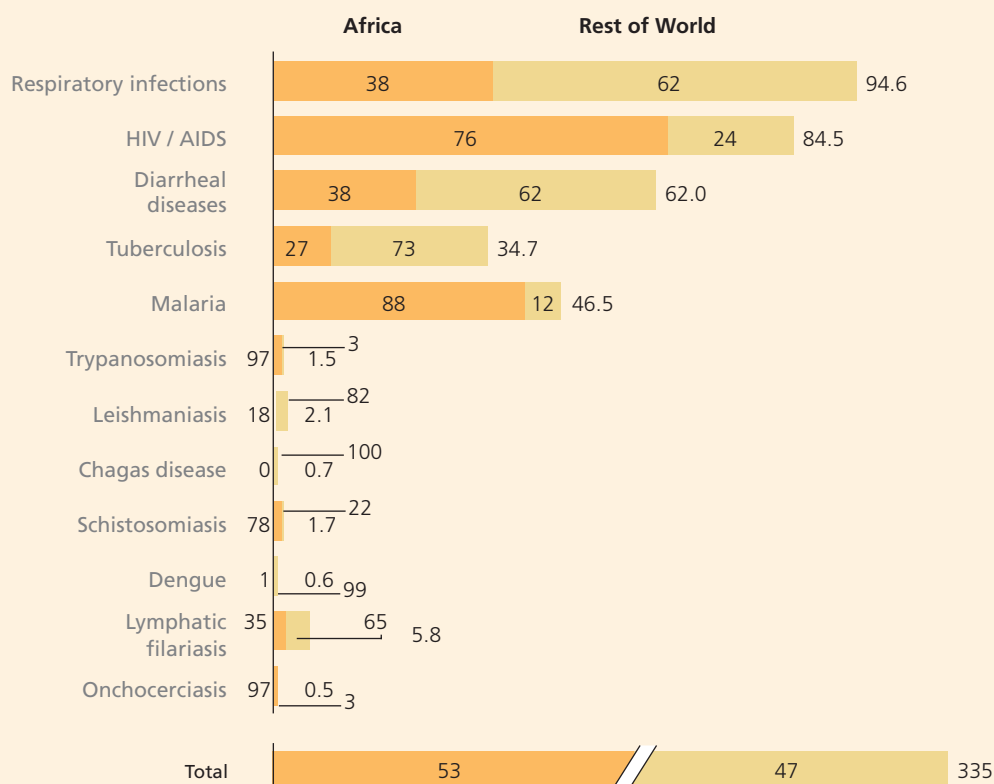
External investment opportunities in clinical research organizations are, however, limited. With an estimated capital investment of only \$30,000–\$60,000 to set up an out-patient clinical research site, the need for external financing is particularly low.

The key driver of public support for life science innovation in South Africa is the aspiration that local innovation will generate solutions to local health burdens. Public funding and research institutions are seeking to prioritise initiatives that address key health burdens, such as HIV and TB, or that develop innovations related to key indus-

Figure A3.9

HIV, TB, malaria and neglected disease burden, 2002

Percent, millions of disability-adjusted life years (DALYs)



Source: WHO 2002 disease burden statistics; organization websites; country interviews; McKinsey analysis.

trial sectors, such as mining and agriculture. Entrepreneurs, on the other hand, are primarily guided by the market opportunity for their products (both domestic and global) and the research interests of product innovators.

For now, the best opportunity for commercial investors may be in late-round funding given the dearth of venture capital, greater public participation in early stages of funding, and the long time to exit. The current landscape shows that investors prefer innovations that are cheap to develop and quick to commercialize, such as medical devices and innovative formulations of existing drugs.

Figure A3.8 shows the investment opportunity associated with Disa Vascular, a South African biotech company producing coronary stents.

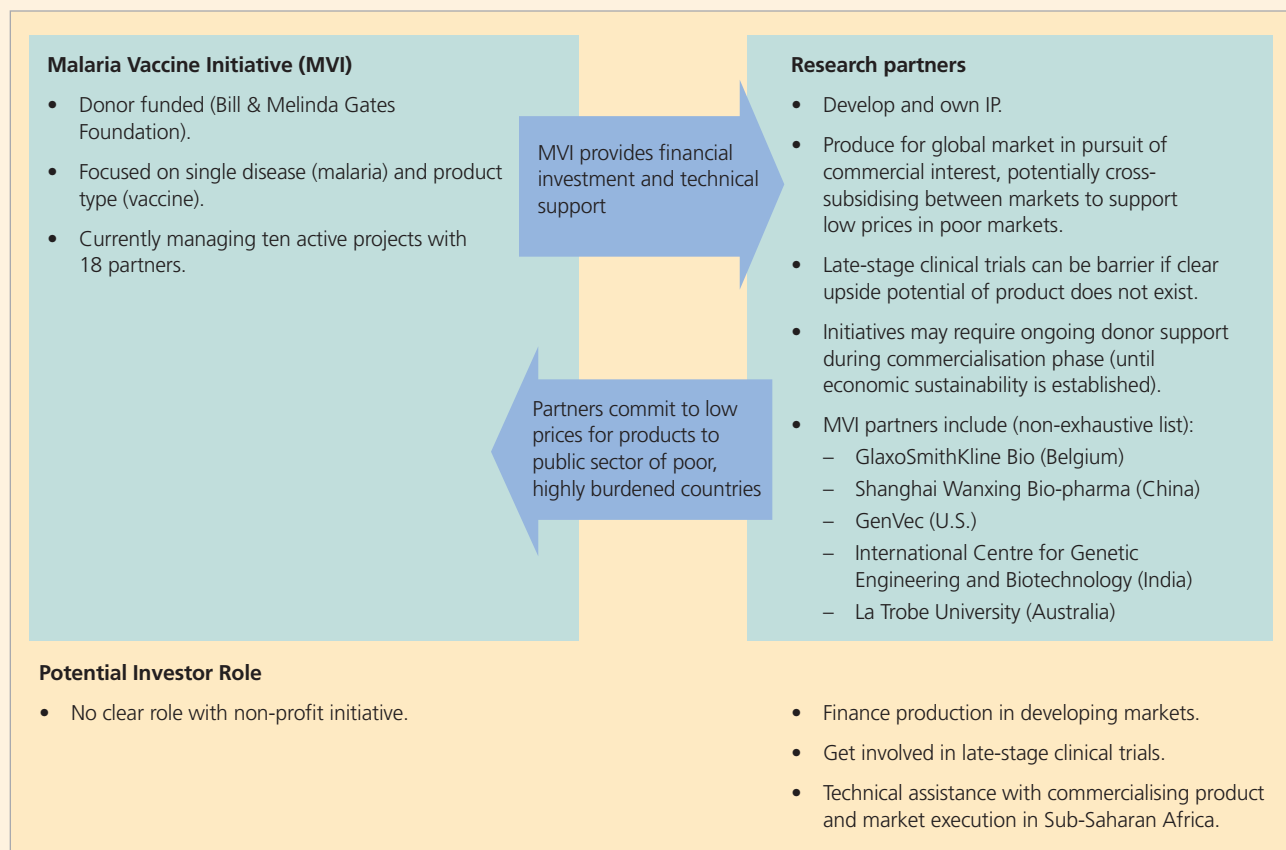
Commercialization of Infectious and Neglected Disease Research

Sub-Saharan Africa stands to benefit greatly from the development and commercialization of infectious disease medicines and products. The region bears a disproportionate share of the world's infectious disease burden (Figure A3.9).

Africa bears 88 percent of malaria's health burden, 76 percent of HIV's health burden, and 58 percent of the overall HIV, TB, and malaria, neglected disease burden. The bulk of this is burden is found in Sub-Saharan Africa. Investing in solutions to these diseases, no matter where the innovation is based, is key to addressing the most important problems in Sub-Saharan African health.

Figure A3.10

Case study, product development partnerships: Malaria Vaccine Initiative (MVI)



Source: Country interviews; MVI web site; McKinsey analysis.

A significant opportunity to make a dramatic and positive impact on health care in Sub-Saharan Africa lies in financing the commercialization of infectious and neglected disease products that are developed at a global level. Although there are several sources and models of innovation for such products, commercial/non-profit product development partnerships (PDPs) are the clear leaders in this area.

The prototypical model for a PDP centers on a non-profit, donor-funded organization that manages a portfolio of partnerships with multiple commercial companies and research institutions, all focused on developing a drug, vaccine, diagnostic, or other product for a specific disease. For example, the Malaria Vaccine Initiative (MVI) is a

donor-funded organization that is partnering with companies such as GlaxoSmithKline, Shanghai Wanxing Bio-pharma, and GenVec, and research institutions such as La Trobe University in Australia and the International Center for Genetic Engineering and Biotechnology in India to develop a malaria vaccine (Figure A3.10).

MVI provides its partners with financial and technical support and, in exchange, requires that they commit to preset, low “cost-plus” prices for the public sector of poor nations. The commercial or institutional partners own the IP that is developed by the partnership and are free to pursue commercial pricing in wealthy nations, as well as in the private sector of poor nations.

Commercial partners often also see their investment in neglected disease research as part of their commitment to corporate social responsibility. There are similar partnerships pursuing malaria drugs (e.g., the Medicines for Malaria Venture); diagnostics (e.g., the Foundation for Innovative New Diagnostics); and other products (e.g., Net-Mark, which focuses on developing affordable and easily transferable LLIN technologies).

Investing in the commercialization of APIs, pharmaceuticals, and products developed by PDPs could entail financing some of the costs of Phase 3 clinical trials, as well as costs related to commercialization (such as manufacturing and product registration), provided that the products had significant market potential in wealthier countries (making the opportunity appealing from a financial standpoint).

Annex 4: Examples of Successful Business Models in Distribution and Retail

The challenge posed by the epidemic of counterfeit drugs—and the health risks they represent—in Sub-Saharan Africa makes distribution and retail industries an extremely sensitive component of the health care sector. In Kenya, a survey by the National Quality Control Laboratories (NQCL) and the Pharmacy and Poisons Board, and based on a random sample of 116 anti-malarial products, found that almost 30 percent of the drugs in the country were counterfeit.¹²⁴ Some of the drugs lacked the necessary active pharmaceutical ingredients, contained the wrong ingredients, or were useless preparations. Aside from the obvious immediate threat this presents to the patient, an even larger issue is associated with the potential increase in resistance rates that such counterfeits can cause. These outcomes make such practices absolutely damaging.

According to the Kenyan Association of the Pharmaceutical Industry, counterfeit pharmaceutical products account for approximately \$130 million annually in sales there;¹²⁵ in Nigeria, the largest market in the region, 17 percent of the drugs in circulation are still fake despite recent focused efforts undertaken by the National Agency for Food, Drug Administration, and Control (NAFDAC).

There are several forces driving the demand for counterfeit and substandard drugs; the financial inaccessibility of basic medicines and limited physical access are the obvious ones. If affordable quality drugs were available at reliable retail outlets, or if drug coverage could be fostered, the market for drug peddlers would diminish.

In addition to the above, however, one of the key root causes of the prevalence of this problem in Sub-Saharan Africa is the difficulty in utilizing an enormously fragmented supply chain that feeds both the public and private sectors.

In Uganda there are over 100 officially registered drug importers/distributors, and 12–14 “industry leaders” In Nigeria there are 292 licensed medical importers and 724 licensed medical distributors; one leading manufacturer reported supplying a complex network of both outsourced and owned distribution that involves more than 100 distributors.

The regional exception to this fragmentation is Francophone West Africa, where four major distribution companies serve the region, largely using France as an operational hub. Naturally the landscape is also fundamentally different in countries with higher public participation in the industry. In Tanzania and Mozambique, for example, most distribution is carried out by quasi-governmental companies that dominate the market, making quality control significantly easier to enforce.

In addition to fragmentation, the large role of informal channels (where quality is by nature harder to control) make the situation more challenging; for example, 60 percent of the secondary distribution in Nigeria takes place in informal markets, which also supply a large proportion of formal retailers. Pharmacists often prefer to pick up goods from the marketplace at a discount rather than having them delivered through formal distribution channels.

The lack of transportation infrastructure in the region also significantly hinders the growth of distribution businesses in general. The poor state of roads and ports raises capital costs and reduces asset life. Other infrastructural shortcomings, such as an inconsistent electricity supply, make the establishment of cold chains for vaccines and other sensitive drugs difficult. Also, low point-to-point volumes limit the investment return from build-

ing direct distribution capabilities within or between countries and create the need for hub-and-spoke models. Most distribution companies either focus on specific product lines or specific geographic regions. Most established enterprises make net margins of seven to 20 percent and importers can make net margins of up to 30 percent (depending on the drug) if they integrate import and distribution.

Retail is the most profitable segment within health care across most of Sub-Saharan Africa. Net margins can vary between five and 50 percent depending on the country. In Tanzania, where there are no margin limitations and there is limited competition in retail due to the small number of pharmacy authorizations granted, retailers have a gross margin of 80–100 percent, depending on the product.

In Senegal, by contrast, gross retail margins are set by regulation to 23 percent and, without any incentives to promote cheaper drugs, pharmacists actively push more expensive branded products.

Across Sub-Saharan Africa, hospitals and clinics often depend on their pharmacies to cross-subsidize their business. For example, in one Kenyan outpatient clinic, 70 percent of the clinic's profit comes from its pharmacy.

Aside from pharmacies that are part of public hospitals and clinics, most formal outlets are private, single-outlet operations. For example, over 1,500 retail outlets are legally registered with the Pharmacists Council of Nigeria, but the only retail chain is Mediplus, with 10 outlets. This scenario offers significant opportunities for consolidation. In South Africa, where retail margins have been stringently regulated in recent years, the sector is shifting rapidly toward the existence of major chains because they are able to compensate for lower margins with volume. In the remainder of Sub-Saharan Africa, only a handful of chains are in operation; however, those that do exist are extremely successful, in some cases showing growth rates of over 100 percent a year.

Given the significant regulatory and infrastructural differences between the region's nations, the opportunity for growth through consolidation is country-specific. For example, in Uganda each pharmacist can operate a maximum of only two

retail outlets. Given the shortage of qualified pharmacists, there are only 250 retail pharmacies in the country. Similarly, Senegalese law limits pharmacy ownership to a single pharmacist. So, it is not possible to own a pharmacy chain in that country. In other areas, the ability to consolidate pharmacies to create chains may be limited less by regulation than by the infrastructure complexities of managing a geographically dispersed business.

Figure A4.1 shows the difference in industry landscape in three representative countries.

Distribution and Retail Will Present Investment Opportunities of Over \$2 Billion

It is estimated that distribution and retail will attract about 14 percent of the projected cumulative investment demand, or about \$1.6–\$2.8 billion (see Figure A4.2). Nearly 80 percent of investments will finance the development of distribution infrastructures (warehouses, trucks, and supply chain management information systems), with the vast majority of the opportunity concentrated in the medium-sized enterprises range (87 percent of investments in distribution will be in the range of \$0.25–\$3 million). Within retail, where the remaining 21 percent of the opportunity will lie, most of the investment will finance SMEs with project sizes below \$250,000.

Successful Strategies Exist and Will Represent the Basis for Competitiveness

Entrepreneurs and business managers have developed many strategies for success in this challenging environment, and they will represent the basis for competitiveness either on a country or a regional basis.

- **Forward or backward integration.** Distribution is a business that presents opportunities for integration worldwide. However, in the case of Sub-Saharan Africa, experience with integration has so far been very limited (with the exception of Francophone Africa), mostly due to limitations in access to capital. In the vast majority of cases, products go through a national

Figure A4.1

Distribution and retail in selected countries

	 Nigeria	 Senegal	 Uganda
Retail			
Industry structure	15–25 percent price mark-ups. - Highly fragmented (1,500 registered retailers and estimated 6,000–10,000 hawkers) with a few nascent chains (<ten outlets generally).	- Retail gross margins capped at 23 percent by law. - Highly fragmented; law prohibits chains of more than one pharmacy and proscribes a maximum permitted number of pharmacies in a given area.	- Fragmented market with ~35 percent margins make retail lucrative and allow room for competitors to harvest volume at lower prices. - Shortage of pharmacies despite high margins due to limited number of qualified pharmacists and law prohibiting pharmacists from operating more than two pharmacies.
Opportunities	Consolidation of outlets into pharmacy chains is a significant opportunity, further improved by the high geographic concentration of existing outlets in urban centers, (Lagos state has 30 percent of total national outlets, Abuja has 11 percent).	Limited opportunity given the regulatory limitations on scale.	Consolidation of pharmacies, employing at least one pharmacist for every two pharmacies; demand exists for additional outlets but growth is limited by shortage of qualified pharmacists.
Distribution			
Industry structure	- Reported margins low at 2–10 percent, depending on volume and region. - Largely private and highly fragmented (290 registered importers and 720 registered distributors); fragmentation stimulates competition but introduces supply chain weaknesses resulting in obsolescence and counterfeit leakage.	- Distribution gross margins capped at 18 percent by law, often 15 percent after discounts. - Consolidated among three major distributors with a fourth smaller one. Regulatory requirements for distributors to serve all retail outlets raises costs of entry.	10–20 percent estimated net margins. - Distribution largely controlled by 8–12 companies; landlocked country means imported products often come through neighbouring countries first.
Opportunities	Vertical integration between manufacturing and distribution, or between retail and distribution for high population density areas. Rural distribution opportunities by combining medical product distribution with other goods or with transport services.	Significant investment required to enter market as a distributor. Possibility of network of separately owned pharmacies to jointly invest in distribution company given high degree of industry organisation among pharmacies.	Potential for regional integration of distributors due to moderate domestic consolidation, the requirement to import through other countries from being landlocked, presence of large export-oriented manufacturers in neighbouring countries, and regional trade policies of COMESA and EAC.

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

importer/distributor, who then sells to a primary distributor, who again sells to a local wholesaler. In numerous situations the number of steps in the supply chain is even greater, and this obviously creates a significant amount of inefficiency in terms of assets and inventory management.

- **Leveraging the informal network of non-pharmacy drug outlets.** In spite of extreme fragmentation, the informal network as a whole offers a capillary infrastructure and the possibility to access rural areas where the formal sector would not be able to compete due to the

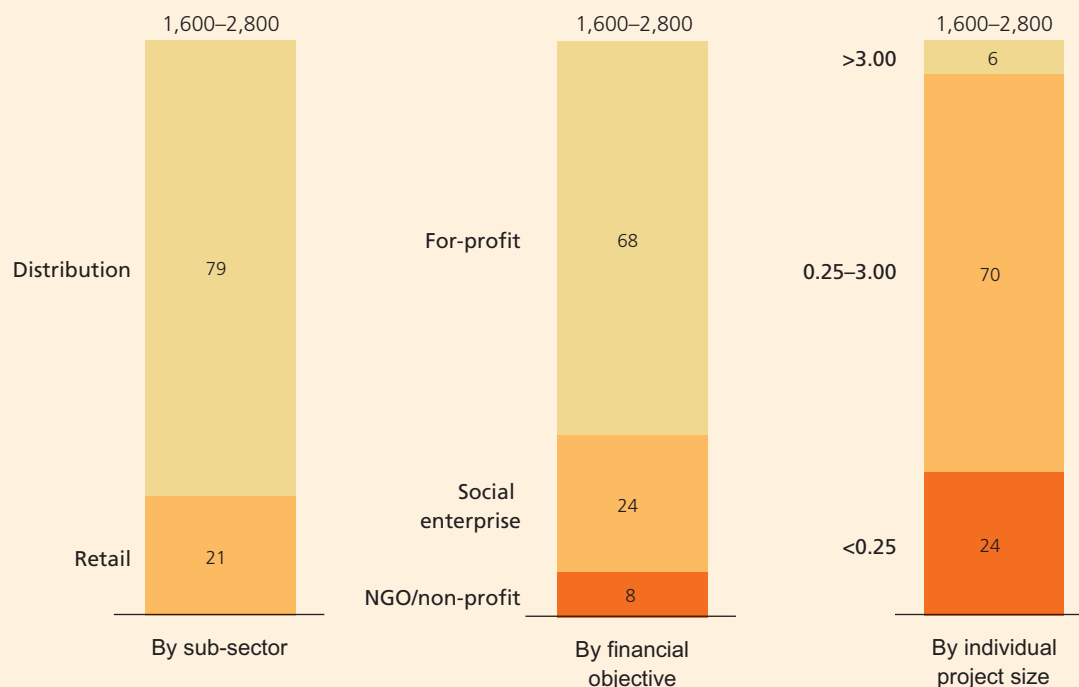
limited scale of the market. Leveraging this network—with the necessary control mechanisms—can be a major source of competitiveness. For example, in Senegal some pharmaceutical distributors have partnerships with local redistributors, shipping parcels of products via the informal network of buses that covers the rural regions of the country.

- **Guarantee of quality through scale or franchise.** In today's market, a guarantee of quality is a more significant strategic advantage than it was in the past. Initiatives such as the consumer awareness campaigns launched by NAFDAC

Figure A4.2

Private distribution and retail investment opportunities, cumulative 2007–2016

Percent, \$ million



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

have significantly altered the attitude of Sub-Saharan African consumers toward quality. Creating a controlled supply chain and a brand associated with product quality can be a major source of competitiveness. High-quality distributors with geographic breadth also offer significant value to donors who procure in bulk and seek private sector distribution partners to cover whole countries or regions. For example, the United States President's Emergency Plan for AIDS Relief (PEPFAR) has chosen to distribute products regionally through a company that has high-quality and information-tracking capabilities and distribution hubs in Southern, West, and East Africa. One consortium is in the process of launching a single quality-oriented brand sourcing products exclusively from high-quality producers.

Examples of Successful Business Models

The investment themes described in Figure A4.3 are selected examples of business models that effectively utilize the innovative strategies discussed above, achieving financial success but also having a significant 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 A4.3

Promising investment themes in retail and distribution

	Examples	Annual revenues \$ million	Setup cost \$ million	Development impact
Pharmacy chains	Mediplus (Nigeria), Vine Pharmacy (Uganda).	0.5–3.0	0.3–1.0	- Serves as a platform for expanding reach of drug outlets to rural regions. - Efficiency gains allows for lower prices and increased affordability.
Multi-sector distribution platforms	Nufaika (Tanzania), Great Brands (Nigeria).	1.0–15.0	1.5–7.0	- Broadens access within rural regions. - Profit maximization strategies also expand portfolio of drugs being made available. - Increases overall capacity of distribution system.
Multi-brand vertically integrated platforms	PHD (South Africa), MDS Logistics (Nigeria).	3.0–10.0	1.0–3.0	- Expands overall capacity of distribution system. - Increases access to drugs in rural areas.
Pharmacy accreditation programs for informal retail operators	ADDO (Tanzania).	0.3–2.0	0.3–1.0	Significantly increases access to essential drugs in remote regions.
Supply chain management programs for donors or governments	MEDA voucher program (Tanzania), Village Reach (Mozambique).	0.3–1.0	0.3–1.0	Relieves burden on public sector and helps improve efficiencies across system.

Source: Country interviews; McKinsey analysis.

Pharmacy Chains

Pharmacy chains or consolidation within the retail segment can create financial returns—provided that the legislative framework does not give incentives to distributors to push higher-value products because of higher fixed distribution margins—via efficiency gains in purchasing, consolidated operations, resource sharing, and quality controls. Some pharmacy consolidations have paid back their investment within 18–24 months through efficiency gains. Furthermore, these businesses have established a reputation for quality and built a brand that attracts talent from universities.

Other existing pharmacy chains in Sub-Saharan Africa have less than \$3 million in revenues.

The development benefit of retail consolidation can come from improved product quality due to increased supply chain management capabilities and better aggregate information for demand forecasting. Additionally, a large pharmacy chain can use its profitable operations as a platform to penetrate rural markets or markets for the poor.

Provided that the legislative framework is structured to avoid giving distributors and retailers incentives to promote the use of more expensive products, pharmacy chains, with their more efficient cost structures, can support reduced prices for patients.

Figure A4.4

Case study, pharmacy chain: Vine Pharmacy, Uganda

Vine Pharmacy is a growing pharmacy chain in Uganda with five outlets in urban Kampala and Entebbe.

Vine Pharmacy is building a profitable chain...



- Started in late 1999, added approximately one outlet per year.
- Average payback for initial investment on each pharmacy has been between 12–18 months.
- Total staff of ~15 people.
- Expansion to date has been largely internally financed.

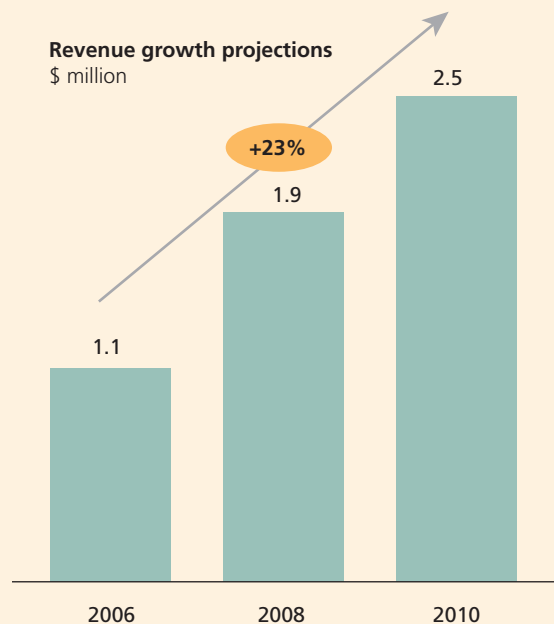
Sample financials 2006

\$ million

Operations		Assets	
• Sales	1.1	• Stores	5
• Cost of goods	0.5	• Employees	15
• Operating Expenses	0.2	• Debt	0
• Net profit	0.4		

...and projects to grow at 23 percent per annum over the next three–five years.

- Vine Pharmacy plans to expand to 12 stores by 2012.
- Availability of trained staff is an inhibitor to growth.



Source: Country interviews; McKinsey analysis; company website.

Figure A4.4 shows the details of the establishment of a successful pharmacy chain in Uganda.

Multi-Sector Distribution Platforms

In some countries, the volume of drugs that flows through distribution channels is too small to sustain pharmaceutical-only operations. Distribution companies that operate across sectors—such as those that distribute soft drinks and consumer goods—have demonstrated a financially viable operation model.

It is important to notice that this model cannot be extended to all types of drugs throughout the supply chain because several prescription drugs require very stringent transport conditions in order to avoid cross-contamination, not to mention those that require a refrigerated supply chain (typically vaccines).

Nevertheless, this opportunity applies to the vast majority of over-the-counter (OTC) drugs, which are often also the drugs with the most limited margins and, therefore, those that would most benefit from a shared transportation platform.

These integrated enterprises combine drugs and medical supplies with existing distribution platforms to achieve scale. Trucks carrying supplies of consumer goods now also carry pharmaceutical products—loads which on their own might not have been able to fill a truck. This in turn reduces the cost of transportation and builds efficiencies within the supply chain.

Depending on the regions where they operate, businesses of this kind can have sizes between \$1 million and \$15 million in revenues.

The example detailed in Figure A4.5 has a net profit of three percent.

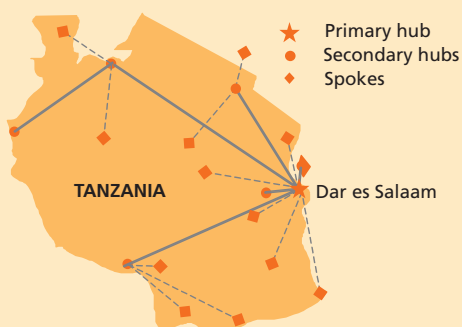
Figure A4.5

Case study, multi-sector distributor: Nufaika, Tanzania

One of East Africa's largest integrated distributors, Nufaika combines pharmaceutical distribution with other consumer goods.

1. One of East Africa's largest distributors

- Robust IT backbone for tracking inventory.
- Management team has deep and international experience.
- Total staff of 100 people.



2. A mix of pharmaceutical and consumer goods

- Pharmaceuticals
- Personal hygiene (soaps, diapers, toothpaste, etc.)
- Food
- Cosmetics

3. Profitable and growing

Sample financials 2006

\$ million

Operations

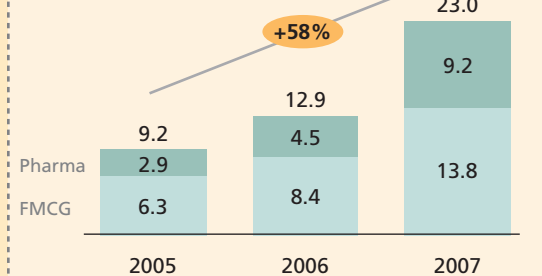
• Sales	12.9
• Cost of goods	11.1
• Operating expenses	1.4
• Net profit	0.4 (3%)

Assets

• Trucks	45
• Branch offices	9
• Stock offices	18

Revenue growth projections

\$ million



Source: Country interviews; McKinsey analysis; company website.

Because they increase the accessibility and availability of drugs, the development impact of investing in such models is significant. By enabling low-volume distribution of pharmaceuticals, these models improve the frequency of distribution, thereby reducing both stock-outs and obsolescence.

Multi-Brand Vertically Integrated Platforms

A profitable distribution business can also be built through vertical integration across portions of the life sciences supply chain.

Historically, in Sub-Saharan Africa products are imported through a national agent, often exclusive, who then sells to a primary distributor, taking charge of the distribution of the product to a network of regional warehouses. From the ware-

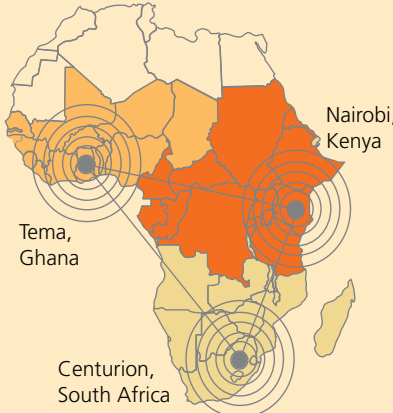
house, the product is sold to a local wholesaler who then distributes to the network of pharmacies and hospitals in its region of coverage. In numerous situations the number of steps in the supply chain is even higher than this, a situation that obviously creates a significant amount of inefficiency in terms of capital asset and inventory management.

Once developed, a distribution infrastructure that covers the entire supply chain will easily attract pharmaceutical manufacturers. Without sophisticated, large-scale, or reliable national distributors, many of these producers across Sub-Saharan Africa have historically taken it upon themselves to secure the distribution of their own products. However, for many of these companies, distribution is not a core competence, and they are more

Figure A4.6

Case study, vertically integrated distributor: Fuel Africa, Sub-Saharan Africa

Fuel Africa is a subsidiary of South African Fuel Group. It distributes medical products across Sub-Saharan Africa, with hubs in South Africa, Kenya, and Ghana. It estimates reducing consumer prices by 15–30 percent for imported pharmaceuticals.

Regional distribution model	Integration	Key success factors
- Regional hubs aggregate volume. - Replace local primary wholesalers, but outsource final-mile to local SMEs. - Provide high-quality inventory management to improve efficiency and reduce obsolescence. - Reduce mark-ups by providing logistics service only, but not assuming ownership for inventory. This lowers working capital needs. 	Vertical - Provides procurement, importing, primary warehousing, and primary bulk-distribution logistics services; integration allows Fuel to reduce both importer and distributor mark-ups. - Tight operational coordination with secondary/final-mile distribution partners through information tracking systems and capability support improves supply chain management. Horizontal (future potential) - Currently solely pharmaceutical and medical products distribution. - Product and service expansion possibilities include “pharmacies in a box,” distribution of other products through pharmaceutical distribution infrastructure, and on-site medical suppliers servicing/rentals.	Scale - Hub-and-spoke model aggregates volumes to solve problem of low intra-Africa point-to-point volumes. - Volume growth and lower mark-ups increase competitiveness over time. - Infrastructure investment enabled by multi-year, large-volume PEPFAR* commitment; additional opportunity to add volumes from other sources. Quality reputation - South Africa parent company with high-quality standards and supply chain capabilities. Management - Parent company with logistics expertise as well as experience operating in Sub-Saharan Africa. Innovation resource use - Seek to partner with local distributors for last-mile distribution, potentially providing SME loans and capability development for partners.

* The United States President's Emergency Plan for AIDS Relief.

Source: Country interviews; McKinsey analysis.

than willing to outsource it and reap the benefits of an overall cheaper chain. In the example in Figure A4.6, Fuel Africa not only covers the entire supply chain for pharmaceuticals distribution, but also distributes on behalf of numerous suppliers, with the effect that its economies of scale become more and more important, to the point that consumer prices for the products it distributes can go down by 15–30 percent (vs. similar figures for exclusive distributors or direct distribution).

Additionally, improved supply chain control can increase the quality of products in the market while reducing stock-outs.

Businesses of this type are typically large (in the context of Sub-Saharan Africa), in the range of \$3–\$10 million in revenues.

Pharmacy Accreditation Programs for Informal Retail Operators

Because they allow access to treatment in areas and conditions where no formal commercial entity could operate at a profit, distribution models that leverage existing physical infrastructures and consumer habits to distribute drugs in remote areas have an enormous development potential.

An accreditation and training program enabling small rural shops to sell essential drugs is a business model that has significant development impact that can also be financially sustainable. Given high retail margins, charging fees for a 40-day training program that allows regular shop owners to sell essential medicines is a viable business

Figure A4.7

Case study, solutions to localized conditions: Accredited Drug Dispensing Outlets (ADDO), Tanzania

ADDO is a donor-supported initiative led by the Tanzanian Food and Drug Authority to train and license small, privately operated retail outlets in rural and poor areas to sell a set list of essential medicines, including selected prescription drugs.

ADDO addresses a key local health challenge...

- Safe and effective drug retail is a key health challenge.
 - Small retail outlets (*duka la dawa baridi*) are a key source of pharmaceuticals for rural and poor Tanzanians.
 - Up to 70 percent of fevers are managed in private sector dispensaries in Tanzania.
 - While *duka la dawa baridi* are only licensed to sell non-prescription medicines, they often sell others too.

...with an innovative model that relies on existing consumer behavior and private-public partnership...

- Train and accredit new small private retailers to dispense both OTC and some prescription medicines.
- Support ADDO retailers with a private campaign that also improves health outcomes for patients.
- Provide microfinancing services to retailers to expand ADDO.
- Local government officials monitor outlet practices.
- Medicines are both OTC and prescription medicines (e.g., ACTs).

...and which may have commercial potential.

- The ADDO model provides value to retailers for which a fee could be charged
 - Expanded product options
 - Training
 - Marketing support
 - Large market potential

- ADDO addresses a large market

	Population per outlet 000's	Outlets 000's
Current (est.)	19.5	1.8
Current gap	16.0	7.8
Target	3.5	9.6

Source: Country interviews; "Strategies for Enhancing Medicines to Africa" web site; McKinsey analysis.

model. This has been implemented in Tanzania through the ADDO scheme on a pro-bono basis (Figure A4.7). However, regular retail shop owners have demonstrated a willingness to pay for this training in order to enter the lucrative retail drug market.

These models have revenues in the range of \$0.3–\$2 million.

These business models dramatically increase access to drugs for remote populations by increasing the number of medical outlets available. In addition, training programs for small retailers can improve their awareness of counterfeit and sub-standard products, thus enlisting them as key agents in improving product quality.

Supply Chain Management Programs for Donors or Governments

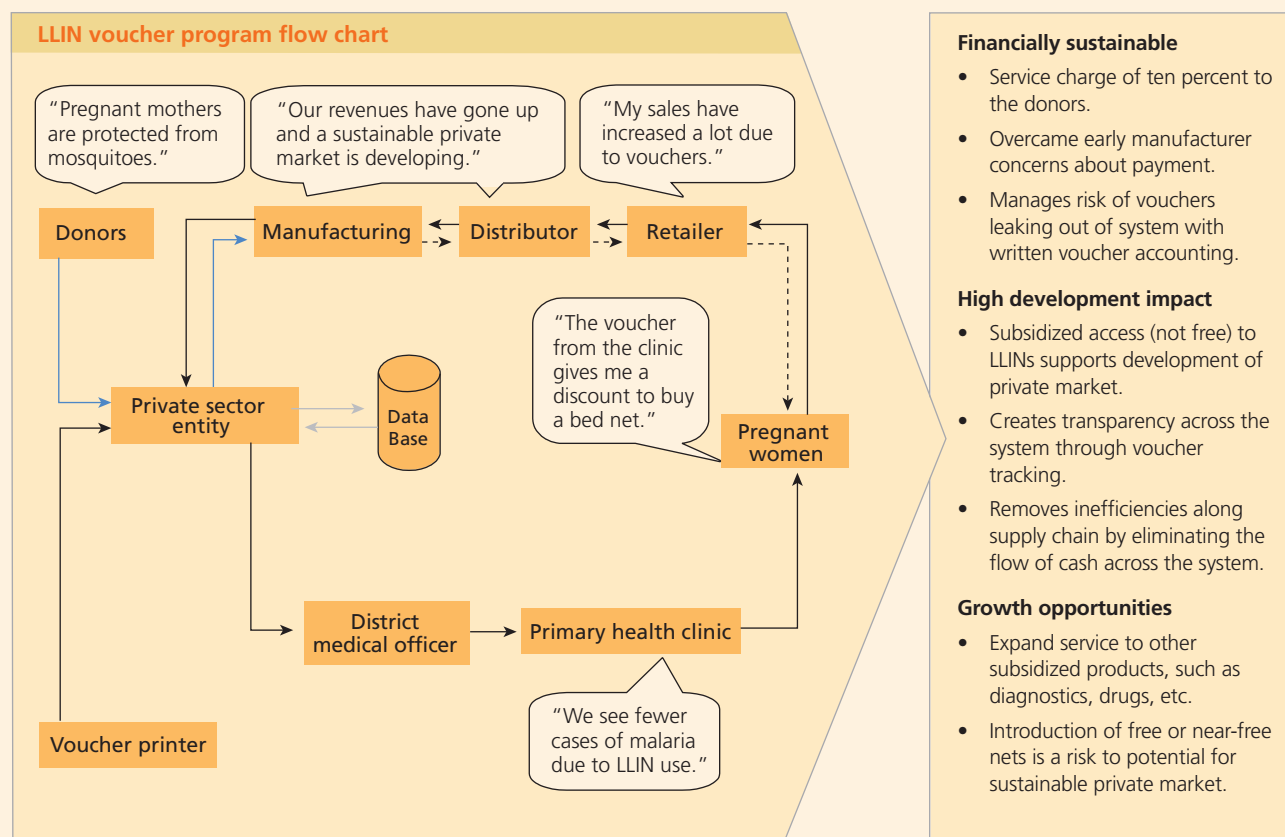
The voucher program described in Figure A4.8, which administers (as a social enterprise) the distribution of LLINs on behalf of donors, is one of the several examples of private sector initiatives that provide health services on behalf of governments and donors.

Governments that find themselves unable to address all their capacity shortfalls often look to the private sector to support the growth in demand. These models are usually based on a fixed margin structure. Hence, their financial viability is often linked to operational effectiveness, and therefore, to their capability to deliver positive health outcomes.

Figure A4.8

Case study, outsourcing for donors: MEDA's LLIN Voucher Program, Tanzania

MEDA's LLIN voucher program provides a private-market mechanism to subsidize the distribution of long-lasting insecticide treated nets. This system improves access to LLINs while supporting the development of a private market.



Source: Country interviews; McKinsey analysis.

Donors, on the other hand, usually rely on the private sector to leverage their local expertise and exposure to local conditions. Although private sector participation in outsourced donor services is dominated by NGOs, a number of commercial ventures have recently created financially viable operations by achieving superior operational efficiency.

Businesses of this nature are typically small, within the range of \$0.3–\$1 million in revenue.

Several businesses adopting this model have been social enterprises, since often the outsourcing fees offered by governments and donors to serve the poor or rural sectors are not sufficient to cover a fully commercial entity.

The importance of these models is fundamental, given that they can relieve the burden on public systems, thus freeing additional capacity. Given the high levels of operational efficiency they can achieve, they often maximize the effectiveness of public and donor money.

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.

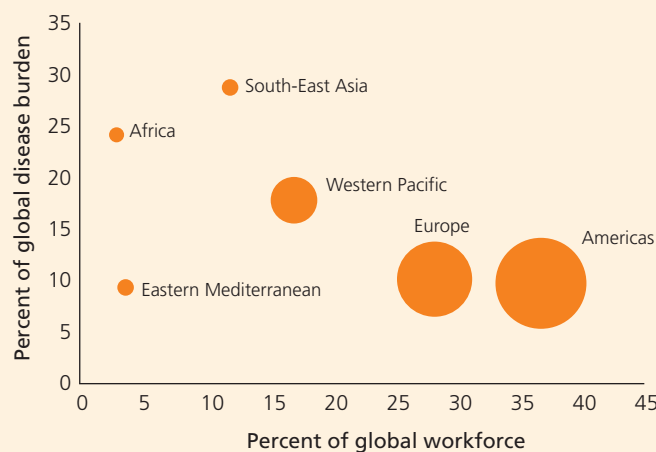
Beyond this major issue, there has also been little improvement in HRH coverage over the last 40 years in the region, whereas other countries, such as India and Morocco, have seen physician and nurse densities increase by 200–400 percent.

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.

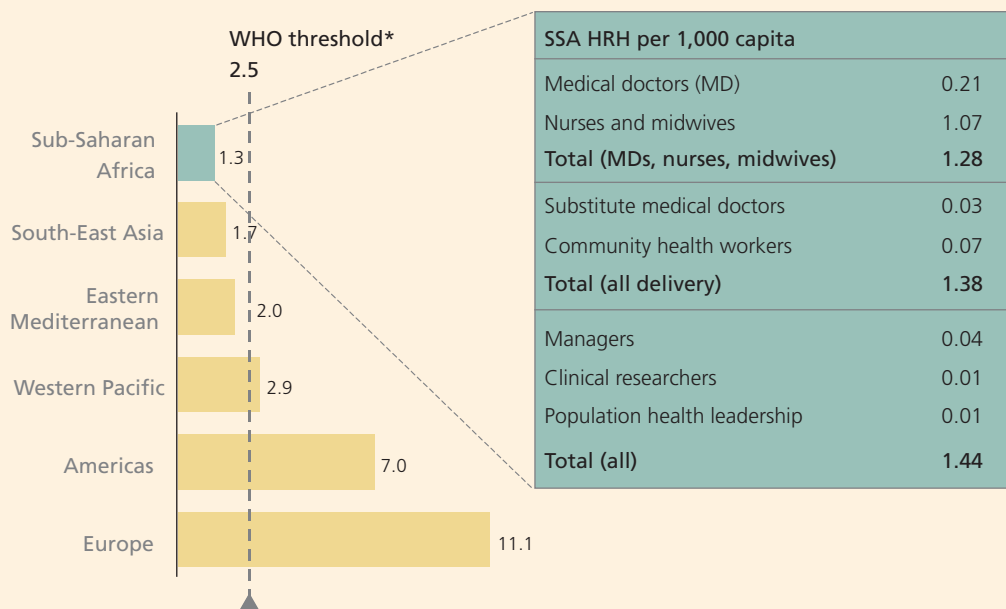
Note: 36 of the 57 countries with critical shortages of health workers (as defined by WHO) are in Africa.

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	• 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.	• 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.	• 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	• Nursing schools.	• Nursing schools. • Schools for other medical professionals, such as lab technicians.	• 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-

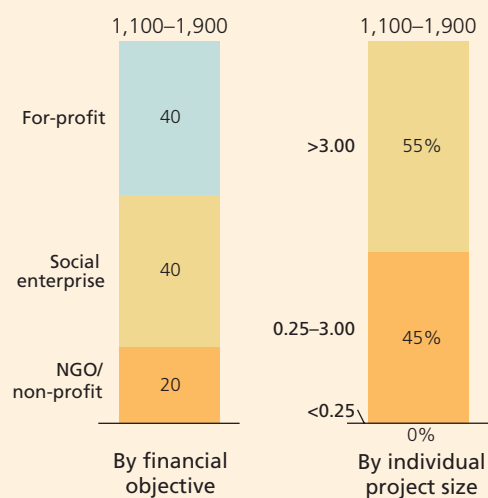
tee a flow of qualified nurses to the U.S.; U.S. institutions would partly finance the establishment of facilities in addition to supporting the development of the curriculum. Nurses would return to home countries after their time spent working in the U.S.

- **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.

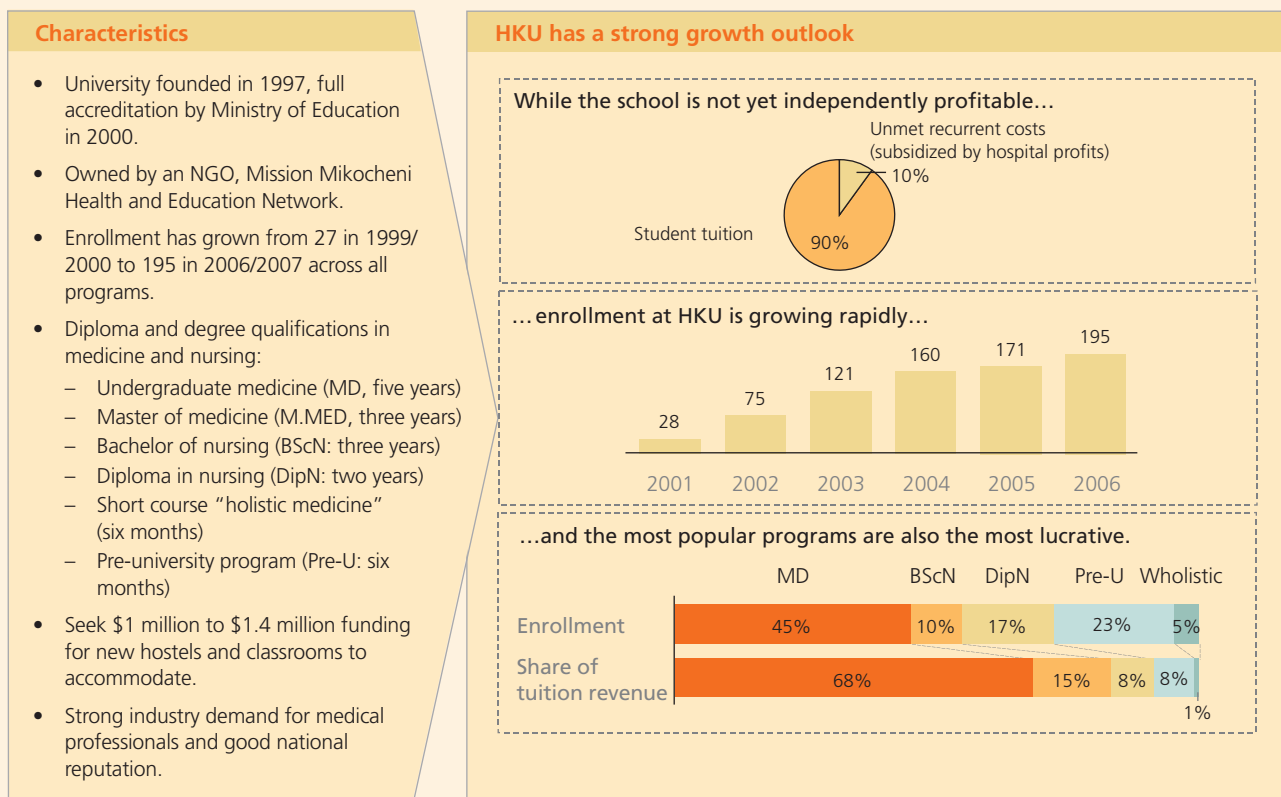
Large medical universities can have a profound development impact. The lack of skilled human resources is one of the biggest barriers to health care growth in Sub-Saharan Africa. Any model that addresses this crisis will increase the accessibility and affordability of health care across the region.

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 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

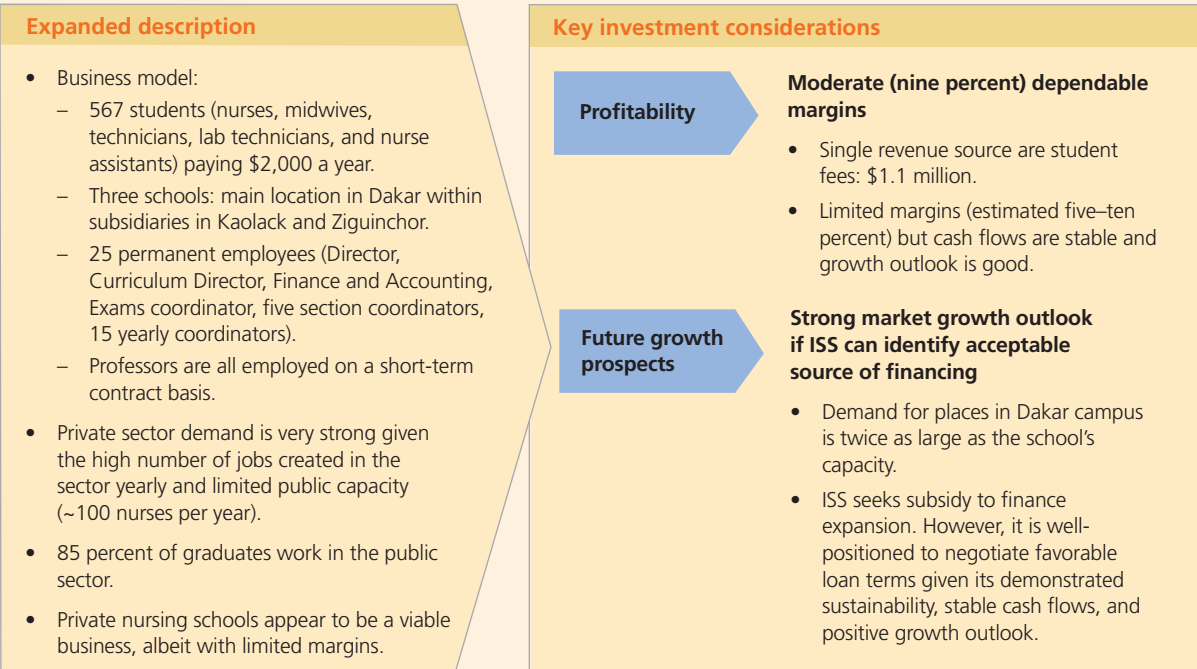
Most nurses across Sub-Saharan Africa are only qualified to the lowest level of accreditation. Furthermore, the exodus of specialized nurses to more lucrative markets and the lack of teaching institutes have created an unmet need for specialized nursing staff. Furthermore, infrastructure problems and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



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

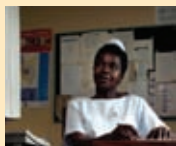
Case study, distance learning for nurses: (AMREF), Kenya

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

Annex 6: Methodology for Market Sizing

The approach taken in this report to projecting investment opportunities in the health care market in Sub-Saharan Africa (summarized in Figure A6.1) involved:

- Projecting the growth of the overall health care market in Sub-Saharan Africa (exclusive of South Africa and exclusive of pharmaceuticals and medical products);
- Translating the projected growth into an investment opportunity in Sub-Saharan Africa (exclusive of South Africa and exclusive of pharmaceuticals and medical products); and

- Calculating the investment opportunity for pharmaceuticals and medical products, inclusive of South Africa, and adding this to the rest of the total Sub-Saharan African investment opportunities.

Private Health Care Market Projection

A strong linear correlation ($R^2=0.89$) between nominal GDP per capita and Total Health Expenditure (THE) per capita allows for estimates of future THE (Figure A6.2). Reliable estimates of

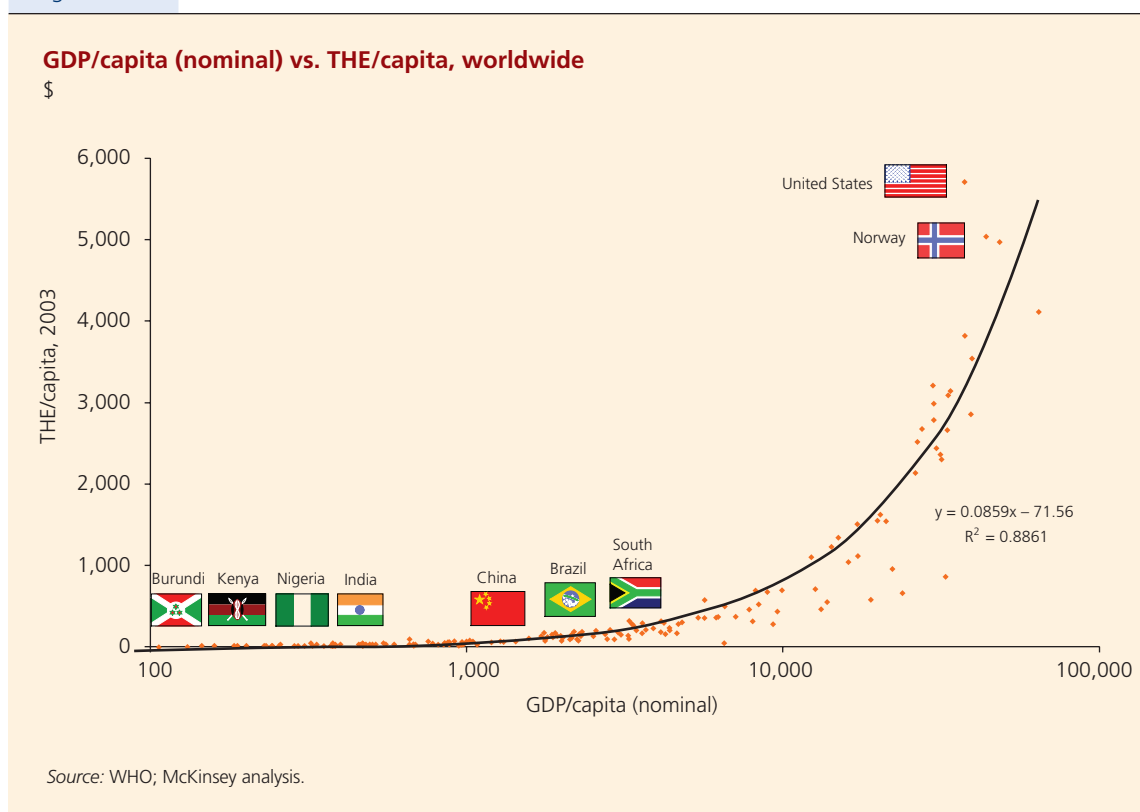
Figure A6.1

Methodology for estimating the investment opportunities generated by increase in private sector health care in Sub-Saharan Africa

Process stage	Description	Data	Source
Determining overall GDP growth	• Determine the overall GDP growth expected within SSA based on population growth and GDP/capita growth estimates.	• GDP/capita growth estimates. • Population growth estimates.	• IFC • Global Insight
Translating GDP growth into THE*	• Project THE based on the proportionality relationship between THE/capita and GDP/capita. • Verify findings with historical growth of THE within SSA.	• THE/capita and GDP/capita historical numbers. • THE historical growth in SSA.	• WHO • WHO
Projecting the share of the private sector provision	• Project the share of the private sector provision by sub-sector, provider type (for-profit vs. NGO), and size of investment need.	• Share of private sector provision. • Breakdown of private sector provision.	• National Health Accounts (NHA), household surveys. • In country interviews.
Translating private revenue growth into investment need	• Translate the overall revenue growth within the private sector provision to investment need by utilizing asset turnover ratios for each sector.	• Asset turnover ratios. • Asset lifetime. • External investment need.	• In-country interviews. • IFC investment experience. • In-country interviews/primary research.

*Total Health Expenditure.

Figure A6.2



GDP per capita can be used to project future THE per capita based on the correlation below.

Note that the correlation is extremely strong in the lowest range of GDP. For the 45 countries in Sub-Saharan Africa (excluding South Africa), most of which lie in the lowest segment of the curve ($R^2=0.95$) (see Figure A6.3), while worldwide the correlation is $R^2=0.89$.

As the level of GDP per capita increases within a country, so does the THE per capita. Projected THE per capita can then be multiplied by population estimates to arrive at future expenditures. Based on this model, it is projected that THE in Sub-Saharan Africa will grow from \$16.7 billion in 2006 to \$35.4 billion in 2016. The projected THE annual growth rate of 7.1 percent combines THE per capita growth (itself determined by GDP per capita growth) and population growth.

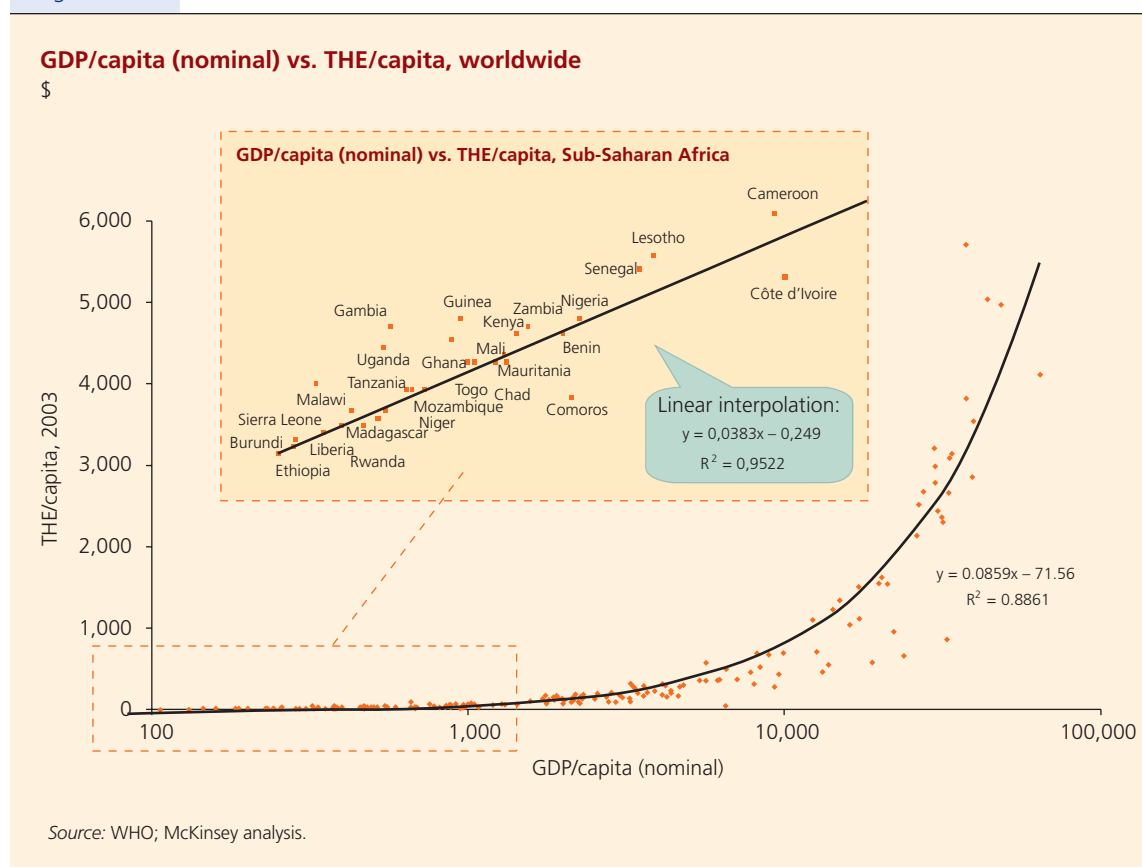
THE growth in the past ten years has been fuelled by a significant increase in GDP (about six percent nominal growth derived from an average growth of 2.4 percent in population and a

3.5 percent increase in nominal GDP per capita, most of which has been concentrated in the last five years), as well as by an increase in donors' expenditures.

In making projections for the next ten years, an increase in nominal GDP of 7.7 percent linked to a GDP per capita growth of 5.7 percent and a population growth rate of 1.9 percent has been assumed; however, it has been conservatively assumed that the THE growth will be slower than the GDP growth due to the fact that a significant component of GDP will be associated with natural resources businesses and, therefore, will not be spread uniformly across the population. A conservative view has also been taken on the willingness of donors to continue to increase levels of aid at the rate that they have over the last decade.

Due to the underlying conditions mentioned in Section I, there are differing levels of private sector participation across Sub-Saharan Africa. As a result, estimates of private sector participation have taken into account the private sector "friendliness" of each country and the different scenarios

Figure A6.3



for private sector participation that might be expected within each. Current estimates indicate that the private sector comprised approximately 50 percent of expenditures in 2005.

It is estimated that the private sector will increase its share in the health care market by almost ten percent given its accelerated increase in share in some of the faster-growing economies in the region. However, this growth might not change the composition of the private sector itself, and the various segments within the private sector might not grow at the same rate at which they do now (Figure A6.4).

Translation of Revenues into Investment Opportunities

After calculating overall private health expenditures, aggregate investment opportunities are determined using asset turnover ratios for different components of the health sector. These ratios rep-

resent the average required investment to realize health revenues or expenditures. For example, for inpatient facilities, the average investment cost as a percentage of revenues is estimated to be 175 percent (based on interviews and analysis of case studies in developing countries).

The translation of 2007–2015 revenue to external investment opportunities involves two steps:

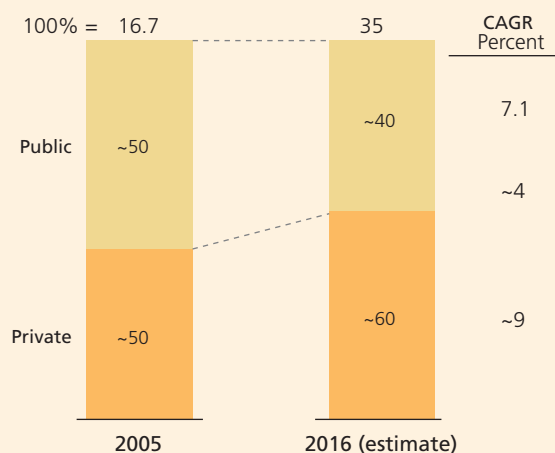
1. Determining industry-specific asset-to-turnover ratios separately for new assets and replacement of existing assets; and
2. Determining the percent of investment opportunity that would come from external sources (again, separately for new assets and replacement of existing assets).

Asset-to-turnover ratios are based on the most-relevant case studies encountered. Investment cost-to-revenue ratios are determined using two primary drivers: (1) the cost of the asset needed to generate the forecast revenue levels; and (2) the

Figure A6.4

Breakdown of Total Health Expenditure (THE) by provider ownership, Sub-Saharan Africa; 2005 actual values, 2016 estimate

Percent, \$ billion



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

life of the asset. Figure A6.5 shows the details for health services provision.

Based on the investment-cost-to-revenue ratio and the projected revenue growth in the market, the model determines the need for new capacity and the need to refurbish existing capacity.

New capacity is assumed to require a greater share of external financing than the refurbishment of existing capacity. The underlying rationale for this difference is that enterprises will seek significant external funding for growth projects, whereas the replacement of existing assets can largely be financed through internal operational cash flows.

Based on this approach, it is estimated that \$9.8–\$17.3 billion will be needed to finance the needs of the private health sector (excluding pharmaceuticals and medical products) in the future.

Figure A6.5

Assumptions for translating revenues to investments

Translating revenues to annual investments

- Collect case studies for each type of investment by sub-sector.
- Derive average required investment to realize a certain revenue volume by dividing overall capital asset need by the expected lifetime of the asset and the revenue potential of that asset.

		Outpatient	Inpatient	Drug retail	Prevention	Other
A	Average capital asset need to generate \$1 million in yearly revenues (\$ thousand)	750	1,750	150	500	250
B	Estimated life of asset (years)	15	15	5	5	5
C	Translation of revenues into investment needs					

- For every dollar of increase in inpatient sales, \$1.75 of assets are needed.
- For every dollar of assets installed, 1/15 needs to be refurbished or upgraded every year.

Source: Case studies; country interviews; McKinsey analysis.

Estimate of Manufacturing Investment Opportunities

The future growth of Sub-Saharan Africa generics manufacturing, inclusive of South Africa, is projected from three factors: (1) the same GDP per capita/PPP per capita relationship as drove the growth of the overall health care market; (2) substitution of generics and lowered use of patented products in South Africa; and (3) scenario-based projected changes in Sub-Saharan African manufacturers' share of the future generics market. Based on this methodology, Sub-Saharan African manufacturers' ex-factory revenues are projected to grow from \$1.1 billion in 2007 to between \$1.8 billion and \$3.2 billion in 2015.

A similar methodology was used to project the future size of the Sub-Saharan African medical supplies manufacturing market. Sub-Saharan African medical supplies manufacturers' revenues for 2015 are projected to be between \$170 million and \$270 million.

Translating market growth into investment opportunities for both generics manufacturing and supplies manufacturing follows a similar methodology as the broader health sector. Given the global flow of pharmaceutical products and medical

supplies, those opportunities need to be viewed through the lens of cost competitiveness. As with each analyzed industry, separate ratios and assumptions are used for generics and supplies manufacturing, respectively.

Projections of 2007–2015 investment opportunities in South Africa's life sciences innovation sector are based on two factors: (1) a calculation of 2007 private sector investment tied to national research and development investment as a percentage of GDP; and (2) scenario-based projections of the future percentage of GDP spent on research and development (accounting for projected growth in GDP).

The commercialization of neglected disease product development is considered to involve two stages: (1) Phase 3 clinical trials; and (2) taking a product to market. An annual investment opportunity combining these two stages is calculated and used to estimate the recurrent annual investment opportunity between 2007 and 2015.

The resulting estimate of the overall need for external capital for the manufacturing and innovation sector as a whole is in the range of \$1.6–\$2.6 billion.

Accreditation: The process by which an organization recognizes a provider, a program of study, or an institution as meeting predetermined standards.

ACT: Artemisinin-based Combination Therapy.

Actuarial (adjective): Of or pertaining to statistical calculations based on projections of utilization and costs for a defined risk that are used to determine insurance rates and premiums.

ADDO: Accredited Drug Dispensing Outlets.

Adverse selection: A problem encountered by health care providers or insurers that attract members who are sicker than the general population. Specifically, a tendency for unhealthy people to purchase health insurance and for healthy people to forego insurance as an unnecessary expense.

AMREF: African Medical & Research Foundation.

Analgesics: A group of medications that reduce pain.

Ancillary services: Supplemental services, including laboratory, radiology, physical therapy, and inhalation therapy that are provided in conjunction with medical or hospital care.

API: Active pharmaceutical ingredients. Active chemicals used in the manufacturing of drugs.

ARV: Antiretroviral drug.

Bilateral aid: Development assistance provided by one party or country directly to another.

Biodiversity: The number and variety of organisms within one region. This includes also the variability within and between species and within and between ecosystems.

Bioequivalence: The scientific basis on which generic and brand-name drugs are compared. To be considered bioequivalent, the bioavailability of two products must not differ significantly when, in studies, the two products are given at the same dosage under similar conditions.

BMGF: The Bill & Melinda Gates Foundation.

Capitation: A payment system in which health care providers are paid a fixed amount to care for each person over a given period (usually a year). Providers are not reimbursed for services that exceed the allotted amount. The rate may be fixed for all members or it can be adjusted for the age and gender of the member, based on actuarial projections of medical utilization.

Catastrophic health insurance: Health insurance, which provides protection against the high cost of treating severe or lengthy illnesses or disability. Generally such policies cover all, or a specified percentage of, medical expenses above an amount that is the responsibility of another insurance policy up to a maximum limit of liability.

CEMAC: Communauté Economique et Monétaire de l'Afrique Centrale.

Chronic care: Long-term care of individuals with long-standing, persistent diseases or conditions. This includes care specific to the problem as well as other measures that are undertaken to encourage self-care, promote health, and prevent loss of function.

COGS: Cost of Goods Sold.

COMESA: Common Market for Eastern and Southern Africa.

Coverage: In the context of this report, this mainly refers to insurance coverage. The guarantee against specific losses provided under the terms of an insurance policy.

CRO: Contract Research Organization.

DFI: Development Finance Institution.

DFID: The Department for International Development (United Kingdom).

Diagnostics: The art or practice of medical diagnosis. Also refers to instruments or techniques used in medical diagnosis.

Dissolution testing: The process of testing something, such as a pharmaceutical or a polymer, to observe its dissolving characteristics—that is, how quickly it dissolves.

EAC: East African Community.

ECOWAS: Economic Community of West African States.

EMA: European Agency for the Evaluation of Medicinal Products.

EPO: Erythropoietin.

FBO: Faith Based Organization.

FDA: The Food and Drug Administration. An agency within the United States Department of Health and Human Services that administers Federal laws regarding the purity of food, the safety and effectiveness of drugs and the safety of cosmetics.

FDI: Foreign Direct Investment.

FIND: Foundation for Innovative Diagnostics.

Formulation (drug): The act of developing or preparing a drug, or the final product itself.

GDP: Gross Domestic Product.

Generic drug: A drug which is exactly the same as a brand-name drug; generic drugs can only be manufactured and marketed after the brand-name drug's patent has expired.

GFATM: The Global Fund to fight AIDS, Tuberculosis, and Malaria. Also referred to as The Global Fund.

GMP: Good Manufacturing Practice.

Health care: Care, services, and supplies related to the health of an individual. Health care includes preventive, diagnostic, therapeutic, rehabilitative, maintenance, or palliative care, and counseling, among other services. Health care also includes the sale and dispensing of prescription drugs or devices.

HIV/AIDS: Human immunodeficiency virus/acquired immune deficiency syndrome.

HMO: Health Maintenance Organization. An organization that arranges for, or contracts with, a variety of health care providers to deliver a range of services to consumers who make up its membership. HMOs employ managed care strategies that emphasize prevention, detection and treatment of illness. HMOs often use primary care physicians as the coordinator of patient care needs.

HRH: Human Resources for Health.

Indemnity: Health insurance benefits provided in the form of cash payments rather than services. Insurance program in which covered person is reimbursed for covered expenses. An indemnity insurance contract usually defines the maximum amounts that will be paid for covered services.

Informal health care provider: A subset of private sector providers. Typically includes traditional health practitioners and unregistered vendors supplying traditional and modern drugs outside a registered health facility or pharmacy.

Inpatient care: Care given to a patient who is admitted to a hospital or other medical institution for at least one overnight stay; distinct from care given when visiting such institutions as an outpatient.

IP: Intellectual Property.

ISO-Certified: Certified by the International Organization for Standardization.

ITN: Insecticide Treated Nets.

IVF: In-vitro fertilization. A technique in which egg cells are fertilized by sperm outside a woman's womb.

Life sciences: A field encompassing biotechnology, pharmaceuticals, diagnostics, devices, human health care and related medical technologies, nutraceuticals and wellness. In this report it does not include agricultural biotechnology, and industrial biotechnology (biomaterials/bioprocesses), which are often included in the definition.

LLIN: Long-lasting insecticide treated nets.

Malnutrition: A broad term commonly used as an alternative to *undernutrition*, but technically it also refers to over-nutrition. People are considered malnourished if their diets do not provide adequate calories and protein for growth and physical maintenance or if they are unable to fully utilize the food they eat due to illness (undernutrition). People are also considered malnourished if they consume too many calories (overnutrition).

MFI: Microfinance institution.

MRI: Magnetic Resonance Imaging. An MRI scanner is an advanced radiological device commonly used in the detection of cancer and neurological conditions.

MTN: Mobile Telephone Networks, South Africa.

Multilateral aid: Aid involving more than two nations or parties, usually in the form of donations through a multilateral organization such as the United Nations or the World Bank.

Mutuelle: Community based insurance program, where the entity is owned by policy owners rather than stockholders.

MVI: Malaria Vaccine Initiative.

NAFDAC: National Agency for Food, Drug Administration, and Control (Nigeria).

NGO: Nongovernmental Organization.

NHA: National Health Accounts.

Non-profit: An organization whose primary objective is to support an issue or matter of private interest or public concern for non-commercial purposes, without concern for monetary profit. Status of nonprofits does not permit them to be a source of income, profit or other financial gain for the entities that establish, control or finance them.

NQCL: National Quality Control Laboratories.

OPEX: Operating Expenses.

OTC: Over-the-counter. Refers to health care products available without a prescription.

Out-of-pocket payment: A fee paid by the consumer of health services directly to the provider.

Outpatient care: Treatment or diagnosis provided in hospitals or clinics that does not require an overnight stay. A type of ambulatory care.

Payer: The public or private organization that is responsible for payment of health care expenses. Payers may be insurance companies, government institutions, self-insured employers, or individuals.

PDP: Product development partnership.

PEPFAR: The United States President's Emergency Plan for AIDS Relief.

Phase: Drug development is divided into phases that are determined by the main objectives of the drug development process:

- *Preclinical:* This phase encompasses laboratory or animal studies that show the biological activity of the compound against the targeted disease; the compound is also evaluated for safety and possible formulations.
- *Phase 1:* A Phase 1 clinical trial is the first step in testing a new investigational medication (or new use of a previously marketed drug) in humans. Phase 1 studies are mainly concerned with evaluating a drug's safety profile, including the safe dosage range.
- *Phase 2:* Phase 2 clinical trials involve volunteers who have the disease or condition in question. These trials help physicians and researchers begin to learn more about the safety of the new drug treatment and how well the drug treats the targeted disease or condition.
- *Phase 3:* After a drug has been shown to have positive results in small groups of patients, it may be studied in a larger Phase 3 trial to confirm efficacy and to iden-

tify adverse events that may occur with long-term use. A Phase 3 trial usually compares how well the study drug works compared to an inactive placebo and/or another approved medication.

- *Phase 4:* Phase 4 clinical trials are sometimes called “post-marketing” trials because these studies begin after the Phase 1-3 study results have been given to the FDA for evaluation.

Premium: Money paid out in advance for insurance coverage. A monetary amount paid to an insurer in exchange for providing coverage under a contract. A periodic payment by the insured to the health insurance company or prescription benefit manager in exchange for insurance coverage. This amount varies depending on the health plan or drug formulary in question.

Preventive care: Health care that emphasizes disease prevention, early detection, and early treatment, thereby reducing the costs of health care in the long run. Health care that seeks to prevent disease or foster early detection of disease and morbidity and that focuses on keeping patients well in addition to healing them when they do become sick.

Primary care: Basic or general health care provided outside of a hospital environment, usually by general practitioners.

Private sector: For the purposes of this report, the term private sector includes:

- For-profit organizations;
- Social enterprises – often described elsewhere as not-for-profit organizations;
- Non-profits including nongovernmental organizations (NGOs) and faith-based organizations; and
- Privately motivated individuals and groups of individuals.

It does not include private practitioners in the informal sector (traditional healers and informal drug retailers, for example).

Provider: This term usually refers to a health care institution (usually a hospital) or doctor who “provides” care. A health plan, managed care company, or insurance carrier is not a health care provider. Those entities are called payers.

Public health: The aspect of medical activity directed towards improving the health of the whole community.

Public sector: In the context of this report, the delivery of health-related goods and services by and for the government, whether national, regional or local/municipal.

Quality: Quality is, according to the Institute of Medicine (IOM), the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. Quality can be defined as a measure of the degree to which delivered health services meet established professional standards and consume value judgments.

R&D: Research and Development.

Reinsurance: The practice by an HMO or insurance company of purchasing insurance from another company in order to protect itself against part or all of the losses that may be incurred in the process of honoring the claims of policyholders.

Risk pooling: The practice of bringing several risks together for insurance purposes in order to balance the consequences of the realization of each individual risk.

SADC: Southern Africa Development Community.

Secondary care: Services provided by medical specialists in a hospital environment.

SME: Small and medium-sized enterprises.

Social Enterprise: A self-sustaining enterprise with a minimum (i.e., lower than commercial) expectation of financial return; the financial management of such an enterprise typically entails reinvestment of profits in enterprise activities.

Specialist: A doctor who specializes in a particular area of medicine (as opposed to a physician providing only primary care).

SSA: Sub-Saharan Africa.

Standards: According to the Institute of Medicine, standards are authoritative statements of: (1) minimum levels of acceptable performance or results; (2) excellent levels of performance or results; or (3) the range of acceptable performance or results.

STD: Sexually Transmitted Disease.

Stent: A device that is placed in an artery to keep the inner wall of the artery open. A small metal coil or mesh tube that is permanently left in the artery.

TB: Tuberculosis.

THE: Total Health Expenditure.

UNICEF: The United Nations Children's Fund.

USAID: The United States Agency for International Development.

Utilization: The use of services and supplies. Utilization is commonly discussed in terms of patterns or rates of use of a single service or type of service, such as hospital admissions, physician visits, and prescription drugs.

UTM: Union technique de la mutualité.

VoIP: Voice over Internet Protocol.

WHO: The World Health Organization.

WHOPES: World Health Organization Pesticides Evaluation Scheme.

\$: United States dollars.

1. WHO, "Spending on health: A global overview" Fact sheet
2. WHO, 2006 World Health Report
3. WHO, 2006 World Health Report
4. WHO, 2005 World Health Report
5. WHO, 2006 World Health Report
6. NHA reports from most recent year available between 1995–2002 for Ethiopia, Kenya, Malawi, Namibia, Nigeria, Rwanda, Tanzania, Uganda, Zambia, Zimbabwe; other sources for all other countries
7. The term *providers* is used broadly throughout this document in reference to any type of health care practitioner, facility, or retail outlet
8. Note: National payment schemes include both state-funded systems and social insurance funds
9. WHO, 2006 World Health Report
10. This figure excludes South Africa
11. World Bank
12. *The Economist*, "World in Figures", 2007
13. NHA reports from most recent year available between 1995–2002 for Ethiopia, Kenya, Malawi, Namibia, Nigeria, Rwanda, Tanzania, Uganda, Zambia, Zimbabwe; Ministries of Health of Nigeria, Senegal, Ghana, Uganda, Tanzania, Rwanda, Kenya, Mozambique, Democratic Republic of Congo; WHO, 2006 World Health Report
14. WHO, 2006 World Health Report
15. OECD, figure represents ODA commitments from 1996–2005
16. G8 Gleneagles 2005
17. NHA reports for Ethiopia, Kenya, Malawi, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe
18. WHO, "Spending on health: A global overview" Fact sheet
19. NHA reports for Ethiopia, Kenya, Malawi, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe
20. WHO, 2006 World Health Report
21. Ministries of Health of Ghana and Senegal
22. Cuellar, Timmons, 2000
23. Radwan, 2005
24. *Beijing Review*, *China Daily*
25. WHO, 2005 World Health Report
26. NHA Reports, WHO, 2006 World Health Report

27. NHA Reports
28. Zambia, NHA, 2002
29. Onwujekwe, 2005
30. Interviews with Medical aid and hospital management Department, Mozambique Ministry of Health
31. These estimates are based on NHA surveys and data on expenditure patterns in the public and private sector and are prone to two major drawbacks. First, as they are based on expenditures, in terms of volume of services provided, the data are likely to underestimate the contributions of both the nonprofit sector and informal sector. The former is due to the often free or subsidized services delivered by nonprofits; the later is due to the non-cash payments often collected by the informal sector in addition to the fact that it is largely unregulated and unrecognized
32. Hongoro, Kumaranayake, 2000
33. Boller, 2003
34. Brugha, Pritze-Aliassime, 1998
35. Taylor, 2001
36. WHO, 2003 (in Counterfeit medicines)
37. Patent medicine dealers are non-pharmacist retailers selling a restricted set of essential medicines
38. Onwujekwe, 2005
39. Marsh, 1999
40. Garrett, 2007
41. Interviews with Hubert Kairuki Memorial University and Bugando Medical School
42. B. Bustreo, A. Harding, and H. Axelsson. "Can developing countries achieve adequate improvements in child health outcomes without engaging the private sector?" WHO Bulletin, 2003; 81; 886–95
43. Boller, 2003
44. Onwujekwe, 2005
45. Mills, A., 2002
46. Ogunbekun, Orobato, 1999
47. Brugha, Pritze-Aliassime, 1998
48. Ghana Ministry of Health, "Medicine Prices in Ghana: A comparative study of Public, Private and Mission sector medicine prices", 2005
49. Global Insight World Market Monitor
50. Global Insight World Market Monitor
51. Angola, Botswana, Burkina Faso, Cape Verde, Chad, Democratic Republic of Congo, Equatorial Guinea, Lesotho, Mauritania, Mozambique, Nigeria, Sierra Leone, Sudan, and Tanzania. Source: Global Insight
52. Global Insight World Market Monitor
53. Mills, 2002
54. Laing, 2001
55. NAFDAC interviews
56. In February 2006, WHO created the first global partnership known as the International Medicinal Products Anti-Counterfeiting Taskforce (IMPACT), comprising of all 193 WHO Member States on a voluntary basis as well as international organizations,

national drug regulatory authorities, customs and police organizations and associations representing pharmaceutical manufacturers and wholesalers; IMPACT aims to improve harmonization across and between countries so that eventually the production, trading and selling of fake medicines will cease

57. Interviews with Food and Drug Administration of Ghana, Nigeria, and Senegal
58. Hongoro, 2000
59. Hongoro, 2000
60. Ogunbekun, 1999
61. Harding, Preker, 2003
62. Kaona, 2003
63. Hongoro, 2000
64. Ogunbekun, 1999
65. Harding, Preker, 2003
66. Brugha, 2005
67. Marsh, 1999
68. Misra, 2003
69. Note: National payment schemes include both state-funded systems and social insurance funds
70. WHO, World Health Report, 2006
71. Gottret, 2006; Preker, 2007
72. Ndiaye, et al., 2007
73. Ndiaye, et al., 2007
74. Loevinsohn, Harding, 2005
75. Global Business Coalition, case studies 2007
76. Global Business Coalition, case studies 2007
77. Global Business Coalition, case studies 2007
78. Nyazema, et al., 2003
79. McKinsey & Company: Acting now to overcome Tanzania's greatest health challenge—addressing the gap in human resources for health; 2004
80. Berman, Cuizon, 2004
81. WHO, Health Action International, 2005
82. IFC, 2006
83. Interviews from Kenya, February 2007
84. "Freedom in the World" publication, 2007
85. www.moibrahimfoundation.org
86. IMF, African Department database
87. Bernstein, Rasco, 2007
88. World Bank, "Doing Business 2007—How to Reform"
89. Standard & Poors Global Stock Market Factbook
90. United Nations Conference on Trade and Development, Foreign Direct Investment database
91. EMPEA Survey of LP interest in Emerging Markets Private Equity, conducted with Liberty Global Partners LLC, 2006
92. Netherlands Development Finance Company

93. Deutsche Investitions und Entwicklungsgesellschaft, the German development finance institution
94. Norwegian Investment Fund for Developing Countries
95. Overseas Private Investment Corporation
96. Science Magazine for Africa, www.scienceinafrica.co.za
97. Integrated household budget survey, Kenya National Bureau of Statistics, 2003
98. Bernstein, Rasco, 2007
99. South Africa's Aspen Pharmacare and Sandoz Pty
100. Ex-factory price
101. WHO, "The Quality of Anti-Malarials: A study in selected African countries", 2003
102. A. A. Amin, PhD, R.W. Snow, PhD, and G.O. Kokwaro, PhD, "The quality of sulphadoxine-pyrimethamine and amodiaquine products in the Kenyan retail sector."
103. NHA, Kenya
104. NHA, Tanzania
105. NHA, Ethiopia
106. NHA, Nigeria
107. Ministry of Health of Mozambique
108. NHA, Nigeria
109. NHA, Uganda
110. Ministry of Health of Uganda
111. Management requested that the hospital in question remain anonymous
112. WHO, 2006, "Health financing: a strategy for the African region", 2006
113. South Africa's Aspen Pharmacare and Sandoz Pty
114. Ex-factory price
115. WHO, 2003, "The Quality of Anti-Malarials: a study in selected African countries", 2003
116. National Agency for Food and Drug Administration and Control, Nigeria, list of fake products
117. Estimates based on data from WHO/UNAIDS 2006 report on "Progress on Global Access to HIV Antiretroviral Therapy"
118. An estimated 25–35 million nets for Sub-Saharan Africa at \$4.50–\$5.50 each
119. Figures based on data from 2005 South African National Survey of Research and Experimental Development, RSA Department of Science & Technology
120. Ernst & Young 2006 Biotech in South Africa report
121. World Bank's Global Doing Business report
122. Lead Discovery, 2006, "The Clinical Trials Market"
123. www.ClinicalTrials.gov
124. Amin, Snow, Kokwaro, 2005
125. International Medical Products Anti-Counterfeiting Taskforce (IMPACT), 2006, "Counterfeit medicines: an update on estimates"
126. WHO, "The global shortage of health workers and its impact" Fact Sheet
127. United States immigration support

Bibliography

- African Union. "Draft report of the Expert Meetings on the Africa Health Care Strategy." Addis Ababa, Ethiopia: African Union, 2007.
- Amin, Ph.D. A.A., Snow, Ph.D. R.W., and Kokwaro, Ph.D. G.O. "The quality of sulphadoxine-pyrimethamine and amodiaquine products in the Kenyan retail sector." *Journal of Clinical Pharmacy and Therapeutics*, 2005.
- Arhin-Tenkorang, D. "Health insurance for the informal sector in Africa: design features, risk protection, and resource mobilization." Commission on Macroeconomics and Health, Working Group 3, 2001.
- Aspen Holdings. "Aspen Pharmacare December interim results," 2006.
- Aspen Holdings. "Group Annual Results," 2006.
- A.T. Kearney and Fraunhofer Gesellschaft. "Biotechnology in Berlin/Brandenburg."
- A.T. Kearney and Fraunhofer Gesellschaft. "The Research-based Pharmaceutical Industry as an Opportunity for Business in Germany" (translated). Pharmaceutical Researchers and Manufacturers of America.
- Atim, C. "Contribution of mutual health organizations to financing, delivery, and access to health care: synthesis of research in nine West and Central African countries." Bethesda, MD: Partnerships for Health Reform, Abt Associates, Inc., 1998.
- Attridge, C.J., and Preker, A.S. "Improving access to medicines in developing countries." Washington, DC: The World Bank, 2005.
- Axelrod, R. "The Evolution of Co-operation." London: Penguin Books, 1990.
- Barbiero, Ph.D. V. "Africa health trends: a 21st century imperative." Washington, DC: The Woodrow Wilson International Center for Scholars, 2006.
- Barnes, K. "Singapore strives to boost science R&D." Drugresearcher.com, 2006.
- Bate, R., Tren, R., and Urbach, J. "Still taxed to death: An analysis of taxes and tariffs on medicines, vaccines and medical devices." The Brookings Institute, 2006.
- Bennett, S., and Gilson, L. "Health financing: designing and implementing pro-poor policies." DFID Health Systems Resource Centre, 2001.
- Berman, P., and Cuizon, D. "Kenya: Non-governmental healthcare provision." Harvard School of Public Health, 1995.
- Berman, P., et al. "Multiple public-private jobholding of healthcare providers in developing countries: an exploration of theory and evidence." London: DFID, Health Systems Resource Centre, 2004.
- Berman, P., et al. "Zambia: Non-governmental healthcare provision." Harvard School of Public Health, 1995.
- Bernstein, R., Rasco, J. "Africa: the final frontier." New York, NY: Merrill Lynch, 2007.
- Binam, J., Ebene Onana, Y., and Nkelzok, V. "Community Prepayment of Health Care and Estimation of the Willingness to Pay in Cameroon: Evidence of Rural Households in the Centre Region," Yaoundé, Cameroon.
- Boller, C., et al. "Quality and comparison of antenatal care in public and private providers in the United Republic of Tanzania." Geneva: *Bulletin of the World Health Organization*, vol. 81, no. 2, pp. 116–22, 2003.

- Brieger, W., et al. "Interventions to improve the role of medicine sellers in malaria case management for children in Africa." London and Arlington, VA: The Malaria Consortium and BASICS for USAID; prepared for Roll Back Malaria's sub-group for communications and training and the malaria case management working group, 2004.
- Broomberg, J. "Consultative investigation into low income medical schemes." Unpublished, 2006.
- Broomberg, J., Masobe, P., and Mills, A. "To Purchase or to Provide? The Relative Efficiency of Contracting Out versus Direct Public Provision of Hospital Services in South Africa." London: Zed Press, 1997.
- Brugha, R. "Working with private health providers to improve quality." *id21 Insights*, 2005.
- Brugha, R., and Pritze-Aliassime, P. "Promoting safe motherhood through the private sector in low- and middle-income countries." Geneva: *Bulletin of the World Health Organization*, vol. 81, no. 8, pp. 616–23, 2003.
- Brugha, R., and Zwi, A. "Improving the quality of private sector delivery of public health services: challenges and strategies." Oxford University Press, *Health Policy and Planning*, vol. 13, no. 2, pp. 107–20, 1998.
- Business Monitor International. "South Africa Pharmaceuticals and Health Report Q4 2006."
- Bustreo, F., Harding, A., and Axelsson, H. "Can developing countries achieve adequate improvements in child health outcomes without engaging the private sector?" Geneva: *Bulletin of the World Health Organization*, vol. 81, no. 12, pp. 886–95, 2003.
- Castro-Leal, F., Dayton, J., Demery, L., and Mehra, K. "Public Spending on Health Care in Africa: Do the Poor Benefit?" Geneva: *Bulletin of the World Health Organization*, vol. 78, no. 1, pp. 66–74, 2000.
- Central Intelligence Agency. "The World Factbook," <https://www.cia.gov/library/publications/the-world-factbook/>, 2007.
- Criel, B., et al. "Community health insurance (CHI) in sub-Saharan Africa: researching the context." *Tropical Medicine and International Health*, vol. 9, no. 10, pp. 1041–43, 2004.
- Cuellar, C. and Timmons, B., "The Prosalud model for expanding access to health services." Management Sciences for Health, 2000.
- Curtis, K., Yadav, P., and Sekhri, N. "Mapping and realigning incentives in the global health supply chain." Center for Global Development, 2006.
- DeJong, J. "Traditional Medicine in Sub-Saharan Africa: Its Importance and Potential Policy Options." Washington, DC: The World Bank; Population, Health, and Nutrition Division; Population and Human Resources Department; 1991.
- Dummett, H. "An overview of the supply and demand in South Africa's pharmaceutical industry—opportunity or risk." World Markets Research Centre, 2002.
- Easterly, W. "The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good." New York: The Penguin Press, 2006.
- Emerson, J. "The Blended Value Map: Tracking the Intersects and Opportunities of Economic, Social, and Environmental Value Creation." Blendedvalue.org, 2003.
- Emmett, B., et al. "In the Public Interest: Health, Education, and Water and Sanitation for All." Oxford: Oxfam International, 2006.
- Energy Information Administration. "2006 Industry Electricity Prices," 2007.
- England, R. "Experiences of contracting with the private sector." London: DFID Health Systems Resource Centre, 2004.
- Enterprise Strategy Group. "Ahead of the curve: Ireland's place in the global economy." Dublin: Enterprise Strategy Group, 2004.
- Ernst & Young. "Biotech in South Africa," 2006.
- Espicom. "South Africa medical devices report," 2006.
- Espicom. "South Africa pharmaceutical market intelligence report," 2006.
- Espicom. "South Africa Update," 2006.

- Ethiopia Ministry of Health. "National Health Accounts," 1996.
- European Trend Chart on Innovation. "Annual Innovation Policy Trends Report for United States, Canada, Mexico, and Brazil," 2006.
- Fairbanks, M., and Lindsay, S. *Plowing the Sea: Nurturing the Hidden Sources of Growth in the Developing World*. Boston: Harvard Business School Press, 1997.
- Franco, L., Mbengue, C. and Atim, C. "Social participation in the development of mutual health organizations in Senegal." Bethesda, MD: PHRplus, 2004.
- Garcia-Prado, A., and Gonzalez, P. "Policy and regulatory responses to dual practice in the health sector." Health Policy, 2007.
- Garrett, L., "The challenge of global health," *Foreign Affairs*, 2007.
- Global Insight. "Kenya Health Care and Pharma report," 2007.
- Global Insight. "South Africa Healthcare and Pharma report," 2006.
- Global Insight. "South African Healthcare and Pharma sector analysis," 2006.
- Goodman, C., et al. "Retail supply of malaria-related drugs in rural Tanzania: risks and opportunities." *Tropical Medicine and International Health*, vol. 9, no. 6, pp. 655–63, 2004.
- Gottret, P., and Schieber, G. "A practitioner's guide: health financing revisited." Washington, DC: The World Bank, 2006.
- Gwatkin, D. "Health inequalities and the health of the poor: What do we know? What can we do?" Geneva: *Bulletin of the World Health Organization*, vol. 78, no. 1, pp. 3–18, 2000.
- Gwatkin, D., Wagstaff, A. and Yazbeck, A. "Reaching the poor with health, nutrition, and population services: What works, what doesn't work, and why?" Washington, DC: The World Bank, 2005.
- Hammond, A.L., Kramer, W.J., Katz, R.S., Tran, J.T. and Walker, C. "The next 4 Billion—Market size and business strategy at the bottom of the pyramid." Washington, DC: IFC and World Resources Institute, 2007.
- Hanson, K., and Berman, P. "Non-government financing and provision of services in Africa: A background paper." Boston: The Harvard School of Public Health, 1994.
- Hanson, K., and Berman, P. "Non-government financing and provision of services in Africa: A preliminary analysis." Boston: The Harvard School of Public Health, 1994.
- Harding, A., and Preker, A. "Private participation in health services." Washington, DC: The World Bank; Health, Nutrition, and Population (HNP); Human Development Network; 2003.
- Harvard Medical School and World Health Organization. "Using indicators to measure country pharmaceutical situations." Geneva: World Health Organization, 2006.
- Health, Nutrition, and Population (HNP). "Pharmaceuticals: Cost containment, Pricing, Reimbursement." Washington, DC: The World Bank, 2005.
- Health, Nutrition, and Population (HNP). "Pharmaceuticals: Drug Regulation in Low and Middle Income Countries." Washington, DC: The World Bank, 2005.
- Health, Nutrition, and Population (HNP). "Pharmaceuticals: Local Manufacturing." Washington, DC: The World Bank, 2005.
- Health, Nutrition, and Population (HNP). "Pharmaceuticals: Quality Assurance in the Distribution Chain." Washington, DC: The World Bank, 2005.
- Heritage Foundation. "Index of Economic Freedom," 2007.
- Hernández-Catá, E., Schwab, K., Lopez-Claros, A. "The Africa competitiveness report, 2004." Geneva: The World Economic Forum, 2004.
- Hongoro, C., and Kumaranayake, L. "Do they work? Regulating for-profit providers in Zimbabwe." Oxford: The Oxford University Press, *Health Policy and Planning*, vol. 15, no. 4, pp. 368–77, 2000.
- Hsiao, W. "Unmet needs of two billion: Is community financing a solution?" Washington, DC: The World Bank; Health, Nutrition, and Population (HNP); Human Development Network; 2001.

- IMS Health. "South Africa health report," 2007.
- Intercontinental Bank, PLC, Nigeria. "Performance and review of the pharmaceutical sector in Nigeria," 2006.
- International Finance Corporation. "Report to the donor community on technical assistance programs." Washington, DC: IFC, 2006.
- International Labour Organization. "Women and men in the informal economy: A statistical picture." Geneva: International Labour Organization, 2002.
- International Labour Organization-Universitas. "Extending social protection in health through community based health organizations: evidence and challenges." Geneva: International Labour Organization, 2002.
- International Medical Products Anti-Counterfeiting Taskforce (IMPACT). "Counterfeit medicines: an update on estimates," 2006.
- Jakab, M., and Krishnan, C. "Community involvement in health care financing: A survey of the literature on the impacts, strengths, and weaknesses." Washington, DC: The World Bank; Health, Nutrition, and Population (HNP); Human Development Network; 2001.
- Jamison, Dean T., Feachem, R. G., Makgoba, M. W., Bos, E. R., Baingana, F. K., Hofman, K. J., and Rogo, K. O. "Disease and Mortality in Sub-Saharan Africa." Washington, DC: The World Bank, 2006.
- Jan, S., et al. "Dual job holding amongst public sector health professionals in highly resource constrained settings: problem or solution?" Geneva: *Bulletin of the World Health Organization*, vol. 83, pp. 771–76, 2005.
- Janovski, K., and Travis, P. "Non-State providers of health care in Tanzania." Geneva: WHO, 2006.
- Jefferys, E. "Evaluating the private sector potential for franchising TB and HIV/AIDS diagnosis and care in Sub-Saharan Africa." Institute for Health Sector Development, 2004.
- Kalk, A., et al. "Paying for health in two Rwandan provinces: financial flows and flaws." *Tropical Medicine and International Health*, vol. 10, no. 9, pp. 872–78, 2005.
- Kaona, F., and Tuba, M., "Improving ability to identify malaria and correctly use chloroquine in children at household level in Nakonde district, Northern Province of Zambia," *Malaria Journal*, 2003.
- Kaplan, W., and Laing, R. "Local Production of Pharmaceuticals: Industrial Policy and Access to Medicines." Washington, DC: The World Bank, 2005.
- Kaseje, MD, Ph.D. D. "Health care in Africa: challenges, opportunities and emerging model for improvement." Washington, DC: The Woodrow Wilson International Center for Scholars, 2006.
- Keating, J. "Nigeria Reproductive Health, Child Health, and Education Baseline Household Survey, 2005." Washington, DC: USAID, 2006.
- Kenyan Export Processing Zones Authority. "Kenya's Pharmaceutical Industry," Nairobi, 2005.
- Kenyan government. "Household health expenditure and utilization survey report, 2003," 2004.
- Kenyan government. "Joint appraisal mission of Government of Kenya and partners in the health sector," 2006.
- Kenyan government. "Joint Programme of Work and Funding for the Kenya Health Sector 2006/07–2009/10," 2006.
- Kenyan government. "Joint support programme to the Kenyan health sector," 2007.
- Kenyan government. "Kenya National Health Accounts, 2001–2002."
- Kenyan government. "Millennium development goals in Kenya." Ministry of Planning and National Development, 2005.
- Kenyan government. "Second National Health Sector Strategic Plan (NHSSP II)," 2005.
- KPMG. "Manufacturing in India—Opportunities, Challenges, and Myths," 2005.
- KPMG. "Pharmaceutical sub sector in Kenya." International Finance Corporation, 2006.

- Kumaranayake, L., et al. "How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe." Oxford: Oxford University Press, *Health Policy and Planning*, vol. 15, no. 4, pp. 357–67, 2000.
- Laing, R., Hogerzeil, H. and Ross-Degnan, D. "Ten recommendations to improve use of medicines in developing countries." Oxford: Oxford University Press, *Health Policy and Planning*, vol. 16, no. 1, pp. 13–20, 2001.
- Lindeloew, M., et al. "Buying results? Contracting for health service delivery in developing countries." *Lancet*, vol. 366, pp. 676–81, 2005.
- Lindeloew, M., et al. "Health Care on the Frontlines: Survey Evidence on Public and Private Providers in Uganda." Washington, DC: The World Bank, Human Development Sector, Africa Region, 2003.
- Loevinsohn, B., and Harding, A. "Contracting for the delivery of community health services: a review of global experience." Washington, DC: The World Bank; Health, Nutrition, and Population Family (HNP); Human Development Network; 2004.
- Malawi Ministry of Health and Population. "Malawi National Health Accounts, 1998–99."
- Maponga, C., and Ondari, C. "The quality of anti-malarials: a study in selected African countries." Geneva: The World Health Organization, 2003.
- Marek, T., et al. "Trends and Opportunities in Public-private Partnerships to Improve Health Service Delivery in Africa." Washington, DC: The World Bank, Human Development Sector, Africa Region, 2005.
- Marek, T., Yamamoto, C., and Ruster, J. "Private health: policy and regulatory options for private participation." Washington, DC: The World Bank Group, Private Sector and Infrastructure Network, no. 264, 2003.
- Marsh, V., et al. "Changing home treatment of childhood fevers by training shop keepers in rural Kenya." *Tropical Medicine and International Health*, vol. 4, no. 5, pp. 383–89, 1999.
- Misra, B. "Study on the Regulatory Framework for Consumer Redress in the Health Care Sector in India." New Delhi: Voluntary Organization in Interest of Consumer Education, 2003.
- McKinsey & Company. "Acting now to overcome Tanzania's greatest health challenge—addressing the gap in human resources for health," 2004.
- McKinsey & Company. "GCC Healthcare 2025."
- McKinsey & Company. "Global Health Partnerships: Assessing Country Consequences." Seattle: The Bill & Melinda Gates Foundation, 2005.
- McKinsey & Company. "Health Care in India: The Road Ahead," 2002.
- McKinsey & Company. "Human Resources for Health Strategic Plan." Seattle: The Bill & Melinda Gates Foundation, 2007.
- McPake, B., and Mills, A. "What can we learn from international comparisons of health systems and health system reform?" Geneva: *Bulletin of the World Health Organization*, vol. 78, no. 6, pp. 811–20, 2000.
- Michaud, C. "Development assistance for health (DAH): recent trends and resource allocation." Geneva: World Health Organization, 2003.
- Mills, A. "What can be done about the private health sector in low-income countries?" Geneva: *Bulletin of the World Health Organization*, vol. 80, no. 4, pp. 325–30, 2002.
- Montagu, D., Prata, N., Campbell, M., Walsh, J., and Orero, S. "Kenya: Reaching the poor through the private sector—A network model for expanding access to reproductive health services." Washington, DC: The World Bank, 2005.
- Morris, J., and Stevens, P. "Counterfeit medicines in less developed countries." London: The International Policy Network, 2006.
- Mozambique Ministry of Health. "National Health Accounts 1999," 2000.
- Mtullu, Dr. S. "Presentation: Traditional Medicine and HIV/AIDS—Tanga, Tanzania." Tanga AIDS Working Group, 2005.
- Namibia Ministry of Health. "National Health Accounts," 2003.

- Namibia Ministry of Health and Social Services. "Namibia National Health Accounts, 1998–2001," 2003.
- Ndiaye, P., Soors, W., and Criel, B. "A view from beneath: community health insurance in Africa." *Tropical Medicine and International Health*, vol. 12, no. 2, pp. 157–61, 2007.
- Newbrander, W. "Accreditation of providers for the National Health Insurance Fund of Tanzania." Boston: Management Sciences for Health, 2000.
- NHA Estimation Group. "Nigeria National Health Accounts, 1998–2002," 2005.
- Nigeria Ministry of Health. "National health accounts of Nigeria, 1998–2002," 2005.
- Nigeria National Agency for Food, Drug Administration and Control. "Fake and Counterfeit Products." Abuja, Nigeria: 2006.
- Nigeria National Bureau of Statistics. "IMO State statistical year book, 2006," 2007.
- Nigeria National Bureau of Statistics. "Nigeria National Core Welfare Indicators Questionnaire Survey 2006," 2007.
- Nigeria National Bureau of Statistics. "Social statistics in Nigeria, 2005," 2006.
- Nigeria National Health Insurance Fund. "NHIS healthcare providers service price list," 2006.
- Njau, J.D., et al. "Fever treatment and household wealth: the challenge posed for rolling out combination therapy for malaria." *Tropical Medicine and International Health*, vol. 11, no. 3, pp. 299–313, 2006.
- Nyazema, N., et al. "Dual practice in Zimbabwe—a policy and regulatory dilemma." London: The London School of Hygiene and Tropical Medicine, 2003.
- OECD. "DAC statistical database."
- Ogunbekun, I., Ogunbekun, A., and Orobato, N. "Private health care in Nigeria: walking the tightrope." Oxford: The Oxford University Press, *Health Policy and Planning*, vol. 14, no. 2, pp. 174–81, 1999.
- Onwujekwe, O. "Inequities in healthcare seeking in the treatment of communicable endemic diseases in Southeast Nigeria." *Social Science & Medicine*, vol. 61, pp. 455–63, 2005.
- Onwujekwe, O., and Uzochukwu, B. "Socio-economic and geographic differentials in costs and payment strategies for primary healthcare services in Southeast Nigeria." *Health Policy*, vol. 71, pp. 383–97, 2005.
- Osewe, M.D. P. "Strengthening the Role of the Private Sector in Expanding Health Coverage in Africa." Washington, DC: The Woodrow Wilson International Center for Scholars, 2006.
- Palmer, N. "The use of private-sector contracts for primary health care: theory, evidence, and lessons for low-income and middle-income countries." Geneva: *Bulletin of the World Health Organization*, vol. 78, no. 6, pp. 821–29, 2000.
- Palmer, N., et al. "A new face for private providers in developing countries: what implications for public health." Geneva: *Bulletin of the World Health Organization*, vol. 81, no. 4, pp. 292–97, 2003.
- Paul, C. "Tanzania's Health SWAP." Washington, DC: The World Bank, 2005.
- Perrot, J. "The role of contracting in improving health systems performance." Geneva: The World Health Organization, 2004.
- Pharmaceutical Council of Nigeria. "Statistics of licensed pharmaceutical premises as of 31st December, 2006," 2007.
- Pharmaceutical Manufacturers Group of Manufacturers Association of Nigeria. "Report on Nigerian pharmaceutical manufacturers," 2005.
- Phiri, F., and Tien, M. "Zambia National Health Accounts, 2002," 2004.
- Pool, C. "Research Report on Manufacture of Pharmaceuticals." *Who Owns Whom*, South Africa, 2007.
- Population Services International, World Health Organization, United Nations Children's Fund, Management Sciences for Health, and Roll Back Malaria. "Sources and prices of selected products for the prevention, diagnosis, and treatment of malaria," 2004.
- Prahalad, C.K. "The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through

- Profits." Philadelphia: Wharton School Publishing, 2004.
- Prata, N., Montagu, D. and Jefferys, E. "Private sector, human resources, and health franchising in Africa." Geneva: *Bulletin of the World Health Organization*, vol. 83, no. 4, pp. 274–79, 2005.
- Preker, A., and Carrin, G. "Health financing for poor people: resource mobilization and risk sharing." Washington, DC: The World Bank, 2004.
- Preker, A., Scheffler, R., and Bassett, M. "Private voluntary health insurance in development: friend of foe?" Washington, DC: The World Bank, 2007.
- PSP-One. "Primer for policymakers: Contracting-out reproductive health and family planning services: contracting management and operations." Washington, DC: USAID, 2006.
- Radwan, I. "India—Private health sector for the poor", Washington, DC: The World Bank, 2005.
- Rago, Dr. L. "Standards for Medicines: what they are and who sets them?" Geneva: WHO, 2007.
- Ramachandran, V., Kedia Shah, M., Turner, G. "Does the Private Sector Care About AIDS? Evidence from Investment Climate Surveys in East Africa." Washington, DC: The World Bank and Georgetown University, 2006.
- Rollback Malaria Partnership. "Minutes of the meeting on the Development, Production, and Distribution of Long Lasting Insecticidal Nets (LLINs), Johannesburg, South Africa," 2004.
- Ruster, J., Yamamoto, C., and Rogo, K. "Franchising in Health." Washington, DC: The World Bank Group, Private Sector and Infrastructure Network, no. 263, 2003.
- Rwanda Ministry of Health "Rwanda National Health Accounts," 2003.
- Rwanda Ministry of Health. "Rwanda National Health Accounts, 2002," 2005.
- Schneider, P., and Diop, F. "Utilization, cost, and financing of district health services in Rwanda." Bethesda, MD: Partnerships for Health Reform, 2001.
- Sekhri, N. "From funding to action: strengthening healthcare systems in sub-Saharan Africa." Geneva: The World Economic Forum, 2006.
- Sekhri, N., and Savedoff, W. "Private health insurance: implications for developing countries." Geneva: *Bulletin of the World Health Organization*, vol. 83, no. 2, pp. 127–34, 2005.
- Sekhri, N., Savedoff, W., and Thripathi, S. "Regulating private health insurance to serve the public interest: policy issues for developing countries." Geneva: The World Health Organization, paper no. 3, 2005.
- South African Ministry of Finance. "South African Budget Speech," 2006.
- Tanzania Ministry of Health. "Annual Health Sector review: District health services in Tanzania," 2006.
- Tanzania Ministry of Health. "Review of claims status for the National Health Insurance Fund," 2006.
- Tanzania Ministry of Health. "Tanzania National Health Accounts, 1999–2000," 2000.
- Taylor, R., et al. "Pharmacopoeial quality of drugs supplied by Nigerian pharmacies." *Lancet*, vol. 357, pp. 1,933–36, 2001.
- Turshen, M. "Privatizing Health Services in Africa". Rutgers, NJ: Rutgers University Press, 1999.
- Uganda Bureau of Statistics. "National Service Delivery Survey (NSDS)," 2004.
- Uganda Bureau of Statistics. "Uganda national household survey, 2002/2003," 2004.
- Uganda Ministry of Health. "Uganda National Health Accounts, 1997–98," 2000.
- UNDP. "Human Development Report," 2001.
- Unwin, N. "Commentary: Non-communicable disease and priorities for health policy in sub-Saharan Africa." Oxford: Oxford University Press, 2001.
- USAID. "The HIV/AIDS crisis: how are African businesses responding?" Washington, DC: USAID, 2001.

- USAID. "Public-private alliances for transformational development." Washington, DC: USAID, The Global Development Alliance, 2006.
- Uzochukwu, B., and Onwujekwe, O. "Socio-economic differences and health seeking behavior for the diagnosis and treatment of malaria: a case study of four local government areas operating the Bamako initiative programme in south-east Nigeria." *International Journal for Equity in Health*, vol. 3, no. 1, pg. 6, 2004.
- Vestergaard-Frandsen. "Creating sustainable impact through public private partnerships in the fight against malaria—Linking Free Distribution, Time Limited Subsidy, and Sustainable Commercial Markets in Sierra Leone," 2006.
- Waters, H., Hatt, L., and Peters, D. "Working with the private sector for child health." Oxford: Oxford University Press, *Health Policy and Planning*, vol. 18(2), pp. 127–37, 2003.
- WHO. "China HIV & ARV fact sheet." Geneva: WHO, 2005.
- WHO. "Effective medicines regulation: ensuring safety, efficacy, and quality." Geneva: WHO, 2003.
- WHO. "Global disease burden statistics." Geneva: WHO, 2007.
- WHO. "Health financing: a strategy for the African region." Geneva: WHO, 2006.
- WHO. "The Health of the People: The African Regional Health Report." Geneva: WHO, 2006.
- WHO. "India HIV & ARV fact sheet." Geneva: WHO, 2005.
- WHO. "List of prequalified HIV drugs, TB drugs, and diagnostic labs." Geneva: WHO, 2007.
- WHO. "Local production of essential medicines, including antiretrovirals: issues, challenges and perspectives in the African region." Maputo, Mozambique: WHO, 2005.
- WHO. "Medicine prices in Kenya." Geneva: WHO, Health Action International Africa, 2003.
- WHO. "WHO medicines strategy—countries at the core." Geneva: WHO, 2004.
- WHO. "World Health Report 2000—Health systems: Improving performance." Geneva: WHO.
- WHO. "World Health Report 2006: Working together for health." Geneva: WHO, 2006.
- WHO, Africa Region. "Africa Region Health Report." Geneva: WHO, Africa Region, 2006.
- WHO and Ethiopian Ministry of Health. "Assessment of the Pharmaceutical sector in Ethiopia," 2003.
- WHO and Ghanaian Ministry of Health. "Assessment of the Pharmaceutical sector in Ghana," 2003.
- WHO-GTZ. "National social health insurance: Financial projections and future bilateral/multilateral cooperation; Joint WHO-GTZ Mission to Kenya." Geneva: WHO-GTZ, 2004.
- WHO and Health Action International. "Assessment of the Pharmaceutical sector in Kenya—A baseline survey." Addis Ababa, Ethiopia: WHO.
- WHO and Health Action International. "Medicine prices in Ghana." Geneva: WHO and Health Action International, 2005.
- WHO and Health Action International. "Medicine prices in Tanzania." Geneva: WHO and Health Action International, 2005.
- WHO and Nigerian Ministry of Health. "Baseline Assessment of the Nigerian Pharmaceutical Sector." Geneva: WHO, 2002.
- WHO, the Rockefeller Foundation, and UNICEF. "Draft Business Plan for stimulating the development, manufacturing and widespread distribution of long-lasting insecticidal nets." Geneva: WHO and Rollback Malaria Partnership, 2004.
- WHO and Tanzanian Ministry of Health. "Baseline Assessment of the Pharmaceutical Sector in Tanzania." Geneva: WHO and Tanzanian Ministry of Health, 2002.
- WHO and Ugandan Ministry of Health. "Uganda Pharmaceutical Sector Baseline Survey." Geneva: WHO and Ugandan Ministry of Health, 2002.
- WHO and UNAIDS. "Progress on Global Access to HIV Antiretroviral Therapy: a report on '3 by 5' and beyond." Geneva: WHO and UNAIDS, 2006.

- WHO, the World Bank, and USAID. "Guide to producing the National Health Accounts with special applications for low and middle-income countries." Geneva: WHO, 2003.
- World Bank. "Africa Development Indicators 2006." Washington, DC: The World Bank, International Bank for Reconstruction and Development, 2006.
- World Bank. "Global Doing Business Report." Washington, DC: The World Bank, 2006.
- World Bank. "Improving Health, Nutrition, and Population Outcomes in Sub-Saharan Africa." Washington, DC: The World Bank, 2005.
- World Bank. Malaria initiative website. Washington, DC: The World Bank.
- World Economic Forum. "World Economic Forum on Africa." Geneva: World Economic Forum, 2006.
- Wyatt, W. "Global 50 Remuneration Planning Report 2005/06," 2006.
- Yates, R., and Zorzi, N. "Health Expenditure Review Mozambique, 1997," 1999.
- Zimbabwe Ministry of Health. "Zimbabwe National Health Accounts, 1999."
- Zwi, A., Brugha, R. and Smith, E. "Private health care in developing countries." *British Medical Journal*, vol. 323, pp. 463–64, 2001.

Acknowledgments

The list of acknowledgements in is alphabetical order.

Technical Advisory Board:

- Tayo Aderinokun, Founder and CEO, Guaranty Trust Bank, Nigeria
- Dr. Jonathan Broomberg, Head, Discovery Holdings Ltd., Strategy & Risk Management, South Africa
- Jean-François de Lavison, International Affairs and Public Relations Vice President, Mérieux-Alliance, France
- Gopi Gopalakrishnan, DKT International, Vietnam
- Laurent Leksell, Former President and CEO of Elekta, Sweden
- Professor Anne Mills, London School of Hygiene and Tropical Medicine, United Kingdom
- Kimanthi Mutua, Founder and Managing Director of K-Rep Bank Limited, Kenya
- Stavros Nicolaou, CFO, Aspen Pharmacare Holding Ltd., South Africa
- Ryan Noach, COO, Netcare Holdings Ltd., South Africa
- Howard Pien, CEO, Medarex, New Jersey, United States

A special acknowledgment is provided to the following individuals who provided expertise that greatly enhanced this report:

Joseph Addo-Yobo, Tropical Subsidy Manager, Netmark, Ghana
Funlola Adewale, Managing Director/CEO, UBA Foundation, Nigeria
Segun Adeyemo, Programme Director, Riders for Health, Nigeria
Soji Adeyi, Coordinator Stop TB initiative, AIDS, malaria, non-communicable disease initiatives, World Bank
Dr. Francis Adu-Ababio, Medical Association for Ghana
Dr. Yaw Adu-Gyamfi, Danadams Pharmaceutical Limited, Ghana
Emil Afenyo, Planning Officer, Central University College, Ghana
Dr. Richard Ajayi, Director, Bridge Clinic, Nigeria
Frank Ajilore, Investment Officer, Nigeria, Africa Dept., International Finance Corporation
Zacch Akinyemi, SFH/PSI (Society for Family Health/population services international), Nigeria
S.S. Mr. Alag, Directeur général, Zanufa, Congo
Martin Alilio, Tanzania Marketing and Communications AIDS Reproductive Health (T-Marc).
Jerry Alilo, Chargé de Clientèle, Banque Internationale pour L'Afrique au Congo
Muhimbo Allan, Corporate Sales Executive, Paragon Hospital Kampala Ltd, Uganda
Prof. Albert J. Alos, Vice Chancellor, Pan African University, Nigeria
Dr. Antonini, Consultorio Medics Maputo, Mozambique
Dr. Ebere Anyachukwu, Assistant Health Advisor, DFID, Nigeria
Dr. Ben Anyene, Federal Ministry of Health Technical Team/IT Management Coordinator, Nigeria Partnership for Transforming Health Systems (PATHS)
Gem Argwings-Kodkek, CEO, Safemed HMO, Kenya
Batul Athman, Operations Manager, AAR Health Services, Tanzania
Kola Awokoya, Managing Director, HYGEIA HMO, Nigeria
Dr. Badiane, former Director, Senegal Direction de Pharmacie et Laboratoires
Christopher Bajowa, Access Bank Plc, Nigeria

Dr. Bode Bakre, Medical Director, R-Jolad Hospital Ltd, Nigeria
 Aloysius Balina, Bugando University College of Health Sciences (BUCHS) Management, Tanzania
 Amara Bamba, Pfizer, Senegal
 Jeff Barnes, Deputy Project Director, Private Sector Partnerships, Abt Associates, United States
 John Barton-Bridges, VP, AIG Global Investment Group, South Africa
 Robert Basaza, Social Health Insurance, Uganda Ministry of Health
 Johnbosco Basominger, Advocacy and External Relations Manager, Marie Stopes, Tanzania
 Amie Batson, Vaccine program leader, World Bank
 Ernest Bediako Sampong, Ernest Chemists Ltd, Ghana
 Mohammed Belchocine, WHO, Nigeria
 Lahouari Belgharbi, Quality Control systems expert, WHO, Switzerland
 Dr. El Hadi Benzerroug, Representative, WHO, Mozambique
 Ruth Berg, Project Director, Private Sector Partnerships, Abt Associates, United States
 Fred Binka, Executive Director, INDEPTH Network, Ghana
 Mélanie Birgé, Head of department, Individuals insurance, Grace Savoye, Senegal
 Samuel Boateng, Director, Procurement and Supply Directorate, Ghana Ministry of Health
 Ras A. Boateng, Chief Executive Officer, National Health Insurance Council, Ghana
 Eduardo Boechat, Senior Investment Officer, International Finance Corporation
 Benjamin K. Botwe, Deputy Chief Executive, Drugs Davison, Food and Drug Board (FDB), Ghana
 Dr. Bourgi, Sogen, Senegal
 Douglas Bramsen, Chief Executive Officer, Strategis Insurance Limited, Tanzania
 Benedicte Brusset, Cellule d'Appui au Financement de la Santé et au Partenariat, Senegal Ministry of Health
 Alta Bruwer, Hollard Insurance, Mozambique
 Anthony Bugg-Levine, Associate Director, The Rockefeller Foundation, United States
 Navaid Burney, Director, Emerging Market Partners-Africa (EMP-Africa), South Africa
 Eduardo Sergio Cassola, Senior Manager, Banco Internacional de Moçambique
 Erik Charas, Endowment and Investment Director, Foundation for Community Development (FDC), Mozambique
 Israel Chasosa, Managing Director, African Banking Corporation, Tanzania
 Greg Chirishungu Mukulu, Coordinator, Banque Centrale du Congo: Centre Hospitalier
 Cheikh Christophe Gueye, Director, Senegal Ministry of Scientific Research
 Mounirou Cisse, Director, Laboratoire National de Contrôle, Senegal
 Dr. Ian Clarke, CEO, International Hospital Kampala, Uganda
 Ken Cockerill, Head of Corporate Banking, Standard Bank, Mozambique
 Andrea Coleman, CFO, Riders for Health, Nigeria
 Daniel Crisafulli, Sr. Corporate Strategy Officer, Corporate Strategy Group, World Bank
 Foudeh Darwish, Managing Director, Afrab-Chem Ltd, Nigeria
 Clayton Davis, PSI Population Services International Mozambique
 Michel de Pasquale, Laboratoire Canone SA, Senegal
 Aida Der Hovanessian, Country Manager for Senegal, International Finance Corporation
 Vinod Dhall, Director Corporate Planning, MAC Group Ltd, Tanzania
 Raju Dhanani, Director, Universal Corporation, Kenya
 Dr. Diabeno, General Hospital, Democratic Republic of Congo
 Kaustubh Dharkar, CEO, Phyto-Ryker, Ghana
 Aissatou Diack, Senior Public Health specialist, World Bank
 Mounibe Diarra, Head of Department of Chemistry and Physics, UCAD, Senegal
 Amdaou Dieye, Head of Department of Pharmacy, UCAD, Senegal
 François Diop, Health Economist, Abt Associates, Senegal
 Dr. Alex Dodoo, Head of Dept. of Pharmacology, Ghana Medical School, Korle-bu
 M.B.W. Dogo-Mohammed, Coordinator, National Health Insurance Scheme, Nigeria
 Henry Dummett, Senior Analyst, Global Insight, United States
 Raymond Dunn, Healthcare Investments International
 Gerald Eaton, Managing Director, CFC Life Insurance, Kenya
 Uloma Ulonnaya Egekwu, NHIS, Nigeria

Kwesi Eghan, Director, Projects, Family Health International, Ghana
 Kunle Elebute, Partner and Head Financial Advisory Services, KPMG, Nigeria
 Dr. Adeyemo Elebute, Lagoon Hospitals, Nigeria
 E.A. Elebute, Chairman, HYGEIA Nigeria Limited
 Dr. Mahmoud El-Gazar, Director, Kibuli Muslim Hospital, Uganda
 Dr. Ellis, Trust Hospital, Ghana
 Okechukwu Enelamah, Managing Director, African Capital Alliance, Nigeria
 Dr. Peter Eriki, WHO Representative to Nigeria, WHO
 Eme Essien, Senior Investment Officer, East Africa, International Finance Corporation
 Dr. Tolu Fakeye, Head, Division of International Health, Nigeria Ministry of Health
 Aboubacry Fall, Cellule d'Appui au Financement de la Santé et au Partenariat, Senegal
 Ministry of Health
 Ajibola Falomo, CRI Critical Rescue International, Nigeria
 Dr. Bayo Fatumnbi, WHO, Nigeria
 Dr. Aires Fernandes, Cruz Azul Clinic, Mozambique
 Patricia R. Ferrara, Fundação Joaquim Chiassano, Mozambique
 J.A. Ferreira Gomes, General Manager, Banco Internacional de Moçambique
 Dr. Maria Beatriz Ferreira, Cardiologist, Instituto do Coração (ICOR), Mozambique
 Leonard Fine, Chief Executive Officer, Glenhove Fund Managers, South Africa
 Mandi Fine, Director, Fine Healthcare, South Africa
 Wing Fone, Director General, Mozambique Scientific
 Greg Foster, Country Manager, Mennonite Economic Development Associates, Tanzania
 Dr. Alastair Fraser, Shell Exploration and Production, Nigeria
 Alun Frost, Director, Glenhove Fund Managers, South Africa
 V.P.Y. Gadzekpo, President, Central University College, Ghana
 Jagi Gakunju, Chief Executive Officer, AAR, Kenya
 Dr. Folarin Gdadebo-Smith, Dentist and local politician, Nigeria
 Lesley Gene Agams, Country Representative, Ashoka, Nigeria
 Chris Getonga, Managing Director, Acacia Medical Center, Kenya
 Gargee Ghosh, Senior Program Officer, Global Health Policy & Finance, Bill & Melinda Gates
 Foundation, United States
 Dr. Kenny Gimbel-Sherr, Health Alliance, Mozambique
 Mario Gobbo, Managing Director, Natexis Bleichroeder Inc., United States
 Maria Gomes Afonso, Resident Coordinator, Village Reach, Mozambique
 Lucas Greyling, General Manager, AAR Health Services Ltd, Uganda
 Carolyn Hart, Deputy Director—Africa Comprehensive HIV/AIDS Partnership Program,
 John Snow Inc., United States
 Dr. S.M.A. Hashim, Private Medical Practitioner, Zenco Clinic & Mikumi Hospital, Tanzania
 Dr. Richard Hess, CCBRT—Comprehensive Community Based Rehabilitation Tanzania
 Edem Hiadzi, Medical Director, Lister Hospital, Ghana
 Paul Hunter, Human Development Advisor, DFID, Mozambique
 Philip Ilako, Director Corporate Banking, Kenya Commercial Bank
 Dom Illunga, Centre Lelo. Democratic Republic of Congo
 Joss Ilunga Dijimba, President/Director General, Pharmagros S.P.R.L, Democratic Republic
 of Congo
 Dr. Jacobson, Selian Lutheran Hospital, Tanzania
 Elise Jensen, Team Leader, HIV/AIDS, USAID, Tanzania
 Blaise Judja-Sato, Village Reach, Mozambique
 Dr. Benjamin Kabwe-Mwilambwe, Director, Ministry of Health Democratic Republic of
 Congo
 Alain Kaninda, Managing Director, Cether Holding, Democratic Republic of Congo
 Fabian Kasi, Chief Executive Officer, FINCA Uganda
 Prof. Kasozi, Medical Director, Kadic Hospital Bukoto/Kadic Clinic Nakulabye, Uganda
 Dr. Wandera Susan Kayizzi, Senior Program Officer, African Medical and Research
 Foundation (AMREF), Uganda
 Florence Kazhanje, General Manager, AAR Health Services, Tanzania

Richard L. Kerich, Chief Executive Officer, National Hospital Insurance Fund, Kenya
 Sheetal Khanna, Fuel Group, Kenya
 Moses Kibirige, Executive Director, DFCU Limited, Uganda
 Dr. Fredrick Kigadye, Bugando University College of Health Sciences (BUCHS) Management, Tanzania
 Adeline Kimambo, Director, Christian Social Services Commission, Tanzania
 Liza Kimbo, Director Business Development, SHEF/CWS Shops, Kenya
 Aida Kimemia, Senior Investment Officer, Health and Education Dept., International Finance Corporation
 Rose Kioko, CEO, Kenya Medical Association
 Priscilla Kirigua, Director—CFC Health Division, Cfc Life Insurance, Kenya
 Taukeme Koroye, Access Bank Plc, Nigeria
 Dr. Nyinongo Korve, NHIS, Nigeria
 Nelson C. Kuria, Managing Director, Cooperative Insurance Company of Kenya Ltd
 Donna Kusemererwa, Pharmacist, Joint Medical Stores, Uganda
 Joshua Kyallo, Country Director, African Medical and Research Foundation (AMREF), Uganda
 Bruno Lab, General Coordinator, Doctors Without Borders, Switzerland
 Adam Lagerstedt, Senior Health Specialist, World Bank
 Eyitayo Lambo, Hon. Minister of Health, Nigeria Ministry of Health
 Yao V. Landewijk, CEO, First Pharma Ghana
 Dr. Joep Lange, Chairman, PharmAccess Foundation, Nigeria
 Folashade Laoye, Group Managing Director, HYGEIA Nigeria Limited
 Dr. Lawrence, Clinic Africa, Uganda
 Dr. Lovett Lawson, Chief Med. Director, Zankli Hospital, Nigeria
 Connie Lee, Save the Children, Mozambique
 Liliane Lelo, Centre Lelo, Democratic Republic of Congo
 Andrew Lewis, Managing Director, Global Alliance Seguros-Insurance, Mozambique
 Robert Lewis, Global Alliance Seguros-Insurance, Mozambique
 Dr. Olle Liungman, Swedish Clinic, Mozambique
 Charles Llewellyn, USAID/Tanzania
 Laurent Lombard, Supply Chain Expert, Missionpharma, Denmark
 Dr. Charles Majinge, Director, Bugando Medical Center, Tanzania
 Dr. Malangalila, Head of Tanzania Desk, World Bank
 Y.M. Manek, Group Chairman, MAC Group Ltd, Tanzania
 Anatole Mangala, CARITAS, Democratic Republic of Congo
 Dr. Elias Mangujo Cuambe, Deputy National Director, Ministry of Health of Mozambique
 Max Mapunda, WHO, Tanzania
 Pierre Martin, Project Manager, Mozambique Microfinance Facility
 Ferdinand B. Masau, Founder & President, Tanzania Heart Institute
 Dr. Helder Matines, Advisor to the Minister of Health, Mozambique Ministry of Health
 Philippe Mauciere, Director, Institut Pasteur, Senegal
 Moussa Mbaye, Senegal Ministry of Health
 Dr. Romuald Mbwas, Senior Technical Advisor (Country Director), Management Sciences for Health (MSH), Tanzania
 Julie McLaughlin, Lead Health Specialist, Africa Region, World Bank
 Daniel Mensah, Manager, Social Franchise, Freedom from Hunger, Ghana
 Inaete Merali, Director, Banco de Desenvolvimento e Comércio, Mozambique
 Yunus Merali, Executive Director, Shani Limitada, Mozambique
 Monica Millard, Country Team Leader, Makerere University Walter Reed Project, Uganda
 Anderson Mlabwa, Director of Credit, Country Rural Development Bank Limited, Tanzania
 Dr. Dogo Mohammed, Acting Chief Executive, NHIS, Nigeria
 Raj Mohan, Managing Director, Unichem Ghana Limited
 Jerry Monshwengwo, BIAC Bank, Democratic Republic of Congo
 Beth Anne Moskov, Health Office Chief, USAID, Ghana
 Keto E. Mshigeni, Vice Chancellor, The Hubert Kairuki Memorial University, Tanzania

Dr. Deus Mubangizi, Regulatory, National Drug Authority, Uganda
 S. N. Muchiri, Chief Economist Division of planning and policy, Kenya Ministry of Health
 James Mugambi, Head, Business Development, Uganda Microfinance Limited
 Susan Mukasa, PSI, Uganda
 Aleathea Musah, Health Team Leader, USAID, Democratic Republic of Congo
 Kimanthi Mutua, Managing Director, K-Rep Bank, Kenya
 Mark Muyobo, Business Development Manager, DFCU Limited, Uganda
 Hippolyte Mwakanzal, CARITAS, Democratic Republic of Congo
 Rosemary Mwakitawange, Beyond the Line Services, Tanzania
 Grace Mwangi, Deputy Marketing Manager, Nairobi Women's Hospital, Kenya
 Peter Mwarogo, Country Director, FHI, Kenya
 Dr. Samuel Mwenda, General Secretary, Christian Health Association of Kenya
 Isaya Mzoro, Director, Information Systems, Medical Stores Department, Tanzania
 Charles W. Nalyaali, Chief Executive Officer, Uganda Microfinance Limited
 Dr. Edward Narh, Narh Bitu Hospital, Ghana
 Piet Nel, General Manager/Director, Global Alliance Seguros-Insurance, Mozambique
 Elizabeth Njoroge, Project Manager, Acacia Medical Center, Kenya
 Dr. Gerry Noble, Chief Executive Officer, Micro Care, Uganda
 Kofi Nsiah-Poku, Managing Director, KINAPHARMA Limited, Ghana
 Dr. Martin Nsubuga, Medical Superintendent, St. Francis's Hospital Nsambya, Uganda
 Dr. Ifeanyi Obiakor, Nigeria
 Judy O'Connor, Country Director for Tanzania and Uganda, World Bank
 Dr. Olusegun S. Odujebu, General Manager, Chief Operating Officer, Multishield Limited, Nigeria
 Joseph Odumodu, Managing Director/CEO, May & Banker Nigeria Plc
 Gordon Odundo, CEO, Gertrude Garden Children's Hospital, Kenya
 Roosevelt Ogbonna, Access Bank Plc, Nigeria
 Hakeem Ogunniran, MDS Logistics, Nigeria
 Mr. Okelola, Secretary, Pharmaceutical Manufacturers Group of Manufacturers Association of Nigeria
 Dr. Funsho Oladipo, Founder, physician, R-Jolad Hospital Ltd, Nigeria
 Wenga Olanbajay, Hygeia HMO, Nigeria
 Cecilia Olapeju Osipitan, Managing Director/CEO, UNIC Insurance Plc, Nigeria
 Dr. Ayankogbe Olayinka, Consultant, Family Medicine, Lagos University Teaching Hospital, Nigeria
 B.B. Olowodola, Special Assistant to Hon. Minister of Health, Nigeria Ministry of Health
 Mr. Olumo, Sommershield clinic, Mozambique
 William N. Olwoch-Lalobo, Director/Management Consultant, Paragon Hospital Kampala Ltd, Uganda
 Clare Omashaye, non-executive board member, Christian Health Association of Nigeria
 Dr. Yemi Onabowale, MD, President/CEO, Reddington Hospital, Nigeria
 Dr. Kunle Onakoya, Lagoon Hospitals, Nigeria
 Babatunde Onitiri, Country Manager for Angola and Mozambique, International Finance Corporation
 Obinna Onwujekwe, University of Nigeria
 Dr. Darius Kofi Osei, General Manager, Trust Hospital, Ghana
 Osaze Osifo, Ocean and Oil Holdings, Nigeria
 C. Olapeju Osipitan, UNIC, Nigeria
 Richard Owens, Project Director-Supply Chain Management Systems, John Snow Inc., United States
 Rotimi Oyekanmi, Managing Director, African Venture Capital Association, Nigeria
 Ramesh Pandey, Xechem, Nigeria
 Ok Pannenborg, Senior Advisor to the Africa region on health, World Bank
 Mark Paper, Chief Operating Officer, Business Partners International, South Africa
 Dr. Amos Petu, Health Economics Advisor, WHO, Nigeria
 Udo Phillip, Lead Consultant, Christian Social Services Commission, Tanzania
 Peter Potter Lesage, CFO and Donor Relations, Medicines for Malaria Venture, Switzerland

Jose Prata, Director, Mozambique, Companhia de Seguros, S.A.R.L.
 Maria João Quadros, Corporate Banking, Standard Bank, Mozambique
 Solomon Quaynor, Country Manager for Nigeria, International Finance Corporation
 Sangeeta Raja, Supply chain management specialist, World Bank
 Dr. Kaushik Ramaiya, Association of Private Health Care facilities in Tanzania (APHFTA)
 Jim Rankin, Director, Center for Pharmaceutical Management, Management Sciences
 for Health, United States
 Sabine Rens, Country Director, Mozambique, Clinton Foundation HIV/AIDS Initiative
 Jorge Ribeiro, Managing Director, Medimport, Mozambique
 Joan Robertson, Senior Health Expert, USAID, United States
 Jessica Rockwood, Senior Manager, Development Finance International, Inc.
 João Antonio Rodrigues, Regional Manager, VidaGas, Mozambique
 Renato Ronda, President and Chief Executive Officer, Medimoc, Mozambique
 David K. Ronoh, General Manager Medical division, Cooperative Insurance Company of
 Kenya Ltd, Mozambique
 Dr. Jean-Baptiste ROUNGOU, WHO Democratic Republic of Congo
 Dr. Paschalis Rugarabamu, Deputy Vice Chancellor for Academic Affairs, The Hubert Kairuki
 Memorial University, Tanzania
 Dr. Rui, Consultorio Medics Maputo, Mozambique
 Vikash Salig, CEO of Venturepharm, South Africa
 Dr. Abdulrahman Sambo, NHIS, Nigeria
 Dr. Kefas Samson, National Professional Officer, WHO Nigeria
 Ernest Sappong, Managing Director, Ernest Chemists Ltd, Ghana
 Neil Sapsford, Country Director, Gro Fin South Africa
 Camille Sarkis, Director General, Wagenia Pharma, Democratic Republic of Congo
 Aboubakrine Sarr, President, Syndicat des Pharmacies Privées au Sénégal
 Dr. Joaquim Saweka, WHO Representative, WHO Ghana
 Mike Saxton, COO, Riders for Health, Nigeria
 Onno Schellekens, Managing Director, PharmAccess Foundation, Nigeria
 Rodney Schuster, Uganda Microfinance Limited
 Sara Seims, Director, Population Program, William and Flora Hewlett Foundation,
 United States
 Vincent Ssekitto, Finance Manager, Mengo Hospital, Uganda
 Rita Sembuya, Joyce Fertility Support Center, Uganda
 Ashok Shah, Chartered Insurer, APA Insurance, Nigeria
 Adeboye Shonekan, UNIC, Nigeria
 Peter Silveira, Marketing and Sales, Utomi, Mozambique
 Abigal Simon-Hart, General Manager, UNICHEALTH, Nigeria
 Dr. Sipula, Bethesda Clinic, Mozambique
 Michael Smalley, Director General, African Medical and Research Foundation (AMREF),
 Kenya
 Francis Somerwell, Micro Care, Uganda
 Dr. Ebum Sonaiya, Chief Medical Director, Total Health Trust, Nigeria
 Daouda Sow, Director, Institut Santé Service, Senegal
 Vincent Ssekitto, Finance Manager, Mengo Hospital, Uganda
 Chris Sserunkuma, Business Development Manager, DFCU Limited, Uganda
 Amir Surani, Promed, Democratic Republic of Congo
 Riyaz Takim, Aureos Capital, Tanzania
 Janet Tamaklo, Chairman/Managing Director, Nyaho Clinic, Ghana
 James Tamale, Secretary, The Pharmaceutical Society of Uganda
 Erwin Telemans, Chief Executive Officer, Comprehensive Community Based Rehabilitation
 (CCBRT), Tanzania
 Dr. Amit Thakker, CEO, Amini Management (EA) Limited, Kenya
 Rita Toutant, CEO, TZ Network of Community Health Funds (TNCHF), Tanzania
 Brian Trelstad, CIO, Acumen Fund, United States
 Dr. Pascal Tshiamala Kashala, Medical Director, Clinique Ngaliema, Democratic Republic of
 Congo

Benjamin Uzochukwu, University of Nigeria
Michael Van Vleck, former Chief Executive Officer, Phyto-Riker Pharmaceuticals, Ghana
Jan Van Esch, Country Manager, Nigeria, PharmAccess Foundation, Nigeria
Jacinto Veloso, JV Consultores Internacionais LDA, Mozambique
Dr. Kiran Virat, Group Managing Director, Evans Medical Plc, Nigeria
Victor Viseu, Director, African Banking Corporation, Mozambique
Paul Wafer, DFID/Mozambique
Herbert Wigwe, Access Bank Plc, Nigeria
Aliu Yesufu, NHIS, Nigeria



Health and Education Department
2121 Pennsylvania Avenue, NW
MSN 9K-907
Washington, DC 20433 USA
www.ifc.org/HealthinAfrica