

A practical approach to health system strengthening in sub-Saharan Africa

System-wide barriers are impeding health care delivery in sub-Saharan Africa. A comprehensive approach that strengthens key elements of a country's health system is required to save lives. Lowell Bryan; Michael Conway; Tineke Keesmaat; Sorcha McKenna, PhD; and Ben Richardson

¹Zanzibar Malaria Control Programme, Ministry of Health and Social Welfare. First biannual malaria surveillance report, 2009. ²Unless otherwise indicated, all economic and epidemiological statistics cited in this article are from the World Bank's Africa Development Indicators 2008/09 or the World Health Organization's World Health Statistics 2009. ³See, for example, Michael R. Reich et al., "Global action on health systems: A proposal for the Toyako G8 summit," The Lancet, March 8, 2008, Volume 371, Number 9615, pp. 865-69; Laurie Garrett, "The challenge of global health," Foreign Affairs, January/February 2007, Volume 86, Number 1, pp. 14-38.

In recent decades, global attention to the harrowing state of health in sub-Saharan Africa has increased dramatically. Funding to combat the major health problems there has reached unprecedented levels, and marked improvements have been made on certain fronts. In Zanzibar, for example, malaria deaths have been reduced substantially.¹ And in Uganda, maternal mortality has dropped by more than half.²

But despite the increased investment, the health of the vast majority of people in sub-Saharan Africa remains in jeopardy. From 1990 to 2005, life expectancy slid by more than 2 years, to 47.1 years. Millions of Africans continue to suffer from diseases that are relatively simple to prevent or treat. And for most nations in the region, the United Nations' health-related Millennium Development Goals (MDGs)—the targets for reducing child and maternal mortality rates and reversing the spread of infectious diseases by 2015—remain out of reach.

As the health systems in sub-Saharan Africa continue to struggle to meet basic standards of care, many experts have come to believe that system-wide barriers to care delivery are preventing greater progress from being made. If substantive improvements in health outcomes are to be achieved, a comprehensive approach is required to overcome these barriers.³

But how can system-wide changes be made in countries that are struggling to provide even basic care delivery? To address this issue, the Touch Foundation, a nonprofit organization active in Tanzania, and McKinsey recently conducted an intensive investigation of the health system in the Lake Zone, the northwest section of that country. This region is small enough that it could be studied in detail but large enough that it could serve as a suitable geographic proxy for Tanzania as a whole and, potentially, for the entire sub-Saharan region.

The investigation took a novel approach centered on the use of clinical pathways to understand the health system strengthening required to allow the Lake Zone to meet its MDG targets. It mapped care delivery in four different clinical areas (maternal health, child health, trauma care, and malaria prevention and treatment) to identify commonalities-problems that are preventing the health system from routinely providing effective care to all. It also enabled us to develop a highly targeted suite of recommendations for how these common barriers to care delivery could be surmounted. The recommended initiatives are feasible (especially in terms of cost) and would enhance care delivery significantly.

The initiatives will require new investments, and we do not underestimate the difficulty the Lake Zone may have in finding the necessary funds. But because the initiatives are targeted, their impact is disproportionate to their cost. As funds become available, the Lake Zone can implement the initiatives, knowing that it is maximizing its ability to improve its health system and save lives.

The diagnostic approach used in the Lake Zone provides a way to move past the debate about whether the countries in sub-Saharan Africa should pursue "vertical" programs targeted to specific disease outcomes or "horizontal" efforts to strengthen their health systems. It identifies the most significant impediments to effective care delivery and the actions that would have the greatest impact in overcoming those impediments. The approach could be adapted by any health system,



in sub-Saharan Africa or elsewhere, that wants to improve its performance and the health of the population it serves.

The challenges sub-Saharan Africa still faces

The poor health of so many people in sub-Saharan Africa has long been known. Over the past decade, however, renewed attention to Africa's health care crisis has arisen because of a number of factors, including the spread of HIV/AIDS and our increasing understanding of the link between population health and economic development. New funding agencies (PEPFAR,⁴ the Gates Foundation, and the Global Fund, for example) have put considerable effort into combating the region's health problems, especially HIV/AIDS, tuberculosis, and malaria. These efforts have produced some important results. In a growing number of African nations, the catastrophic prevalence of adult HIV infection appears to be falling. Similarly, tuberculosis rates are slowly decreasing across the region. And malaria incidence and mortality are declining not only in Zanzibar but also in several other African countries.

Nevertheless, the health challenges the region continues to face are profound. Tanzania, for example, has made progress against childhood mortality, but one in every nine Tanzanian children still dies before age five. The maternal mortality rate in that country remains stubbornly high, even though almost three-quarters of the maternal deaths are preventable.

⁴President's Emergency Plan for AIDS Relief is an initiative of the US government that authorized \$48 billion in funds to fight HIV/AIDS, tuberculosis, and malaria for fiscal years (FY) 2009–13.

Framework for analysis

This innovative approach allows health systems to identify the barriers that are preventing effective care delivery and the enablers that would make it possible.



(malaria, child health, maternal

health, and trauma)

Diagnostic approach

delivery challenges

The investigation focused on the Lake Zone, the northwest section of Tanzania near Lake Victoria (Exhibit 1). Its goal was to identify the primary barriers that were thwarting the delivery of preventive health services, diagnostic services, and effective treatments. At the heart of the investigation were four different clinical pathways designed to describe the journey patients take through the health system. Because these pathways focused on a range of health problems-malaria, child health, maternal health, and trauma care-they provided insights into how the system functioned as a whole. (For more information about these pathways, see sidebar, "Using clinical pathways to understand care delivery," p. 84.)

This innovative approach provides several benefits. It offers a window into how patients experience the health system and how care is being delivered on the ground. By enabling comparisons between actual care delivery and best-practice international guidelines, it illuminates gaps in care delivery (Exhibit 2). More important, the approach exposes the common barriers that are allowing the gaps to persist—the factors that are hindering the health system from delivering effective preventive health services, primary care, and acute care. Only by identifying those barriers can recommendations for overcoming them be developed.

The primary barriers to effective care

improve care delivery

Three mutually reinforcing problems are the most important barriers in all four pathways: access to primary care is at most only onethird of what the Lake Zone requires,⁵ the workforce is only a fraction of the size needed, and several operational weaknesses are preventing the system from functioning well.

Insufficient access to primary care

In the Lake Zone, the greatest gaps in care delivery occur in primary care. About two-thirds of all primary care in that region is provided by the public health system; the remainder is supplied by nonprofit organizations (typically, faith-based or other humanitarian groups), by private enterprises, or through the informal sector (by traditional healers or moonlighting health workers, for example).⁶ Despite the services provided by these other groups, primary care in the Lake Zone remains woefully insufficient.

⁵Access to care can be measured in different ways. Our estimate here is based on the fact that 38 percent of the population live within two kilometers of dispensaries and 76 percent live within six kilometers, that dispensaries have only about 35 percent of the staff they should have, and that only about 50 percent of the needed drugs are available at any given time. When these factors are combined, access to effective care is currently between 12 percent and 38 percent.

⁶Primary care delivered in the public sector is mostly free, but private and nonprofit organizations often charge user fees. In addition, patients opt to pay out of pocket for services delivered in the informal sector.

Using clinical pathways to understand care delivery

The Lake Zone investigation was predicated on a simple concept: the best way to identify the system-wide barriers to better health care delivery would be to understand the patient experience-how people use the health system and what they experience while receiving health care. Thus, the investigation used 'clinical pathways' to map the routes patients take from the onset of a health issue through its resolution.

To identify the barriers to care delivery, the investigation examined four different pathways, each of which reflected a different facet of the health system's performance. Malaria was selected to study how well the system addresses communicable diseases. Trauma was included because the treatment of accident victims reflects the performance of the system's hospitals. Child health and maternal health helped illuminate why the Lake Zone has not made greater progress in reducing mortality in these two important areas. Maternal health is also widely seen as an indicator of the performance of the health system as a whole. Together, these four

pathways revealed how well the health system is providing preventive services, diagnostic services, and effective treatments.

In each pathway, actual care delivery was compared with established guidelines to identify gaps. International best practices were used to determine how care should be delivered. To establish how care was actually being delivered, the investigation included site visits to more than 40 hospitals and clinics, focus groups with patients, and interviews with more than 200 frontline health professionals, including doctors, nurses, and pharmacists.

Once all of this information was compiled, numerous gaps in care delivery were found in each of the four clinical pathways (exhibit). Further analysis revealed that two sets of barriers underlay all the gaps. The first set were problems impeding on-the-ground care delivery; the second were the system-wide weaknesses that were allowing those problems to persist.

Exhibit		0	2	8	4
Clinical pathways for	Pathway	Promotion and prevention	Onset and diagnosis	Treatment	Follow-up
maternal health The inability to provide effective maternal health care has prevented Tanzania from lowering maternal mortality.	WHO ¹ target	 Family-planning services Reproductive health Nutrition 	Antenatal care (four visits during pregnancy)	 Delivery by skilled attendant Emergency transport and equipment for complications 	 Follow-up within 48 hours of birth Ongoing care for mother and child
	Tanzania	Maternal mortality is a major government priority for Tanzania	78% of pregnant women visit facilities for antenatal care, but only once	47% of deliveries take place in health facilities	68% of women access postnatal care
		Maternal mortality is increasing	Consultations often not complete, eg, no risk strategy or delivery plan	Dispensaries lack supplies and equipment for complications	Newborn and postpartum- care strategy not fully realized
	Available Unavailable		34%	10%	32%
		Facilities with family- planning items	Facilities with health worked trained in antenatal care	rs Facilities with emergency transport	Women accessing postnatal care

¹World Health Organization.

Source: Y. Agyenim-Boateng et al., Catalyzing change: Molecular strengthening of the health system in the Tanzania Lake Zone, July 2009

Two types of facilities are used to deliver primary care services in the Lake Zone: dispensaries and health centers. Dispensaries are small clinics that provide basic consultations, diagnostic services, treatment for routine conditions, and referrals if treatment is beyond their capacity. They are critical for the delivery of antenatal and infant care (including immunizations), maternal support, and first aid for trauma. Health centers provide these types of basic medical services as well. Although they should also be able to offer minor surgical procedures and basic laboratory analyses (blood, urine, and stool testing, for example), their actual ability to do so is often limited.

Only 38 percent of Lake Zone residents live within 2 kilometers of a dispensary or health center; 76 percent live within 6 kilometers and 92 percent within 10 kilometers. The travel distances make it difficult for people in a poor rural environment, especially mothers and children, to access primary care conveniently. Furthermore, the effectiveness of these facilities is compromised by significant shortages of medical supplies and skilled staff, and often

Exhibit 3

Physical infrastructure and supply shortages

In the Lake Zone, many primary care facilities lack needed equipment, electricity, and clean water.



Most primary care facilities are far from patients

Many primary care facilities lack adequate diagnostic capabilities



Distance to nearest facility







¹Devices had to be available 24 hours a day, either on site or within a five-minute walk.

Source: Y. Agyenim-Boateng et al., Catalyzing change: Molecular strengthening of the health system in the Tanzania Lake Zone, July 2009

⁷WHO estimates that a minimum of 2.3 trained health care workers per 1,000 people are needed to provide the basic standard of care required to meet Millennium Development Goals (MDG) targets. ⁸In Tanzania, qualified health workers include specialists (surgeons and pediatricians, for example), medical officers (doctors with at least six years' training), clinical officers (who typically undergo three years' training), assistant medical officers (clinical officers who have practiced for at least three years and undergo another two years of training), and nurses (who receive three or four years'

by the absence of electricity and clean water (Exhibit 3). For example, although the incidence of new malaria cases spikes during the rainy season, many facilities exhaust their supply of effective antimalarial drugs before the rainy season begins. In all four clinical pathways, the greatest gaps in care delivery occur at the dispensaries, but the situation is little better in the health centers (Exhibit 4).

An acute shortage of health workers

Health workers are in short supply across sub-Saharan Africa, but the problem is especially acute in Tanzania (Exhibit 5). The World Health Organization (WHO) estimates that the country should have a workforce of about 92,000.⁷ The government aspires to have an even larger (140,500) workforce by 2019. But at present, the country has only about 25,400 health workers.⁸

One reason for the workforce shortage is an insufficient number of training programs; Tanzania has fewer than 100 training institutions, which together produce fewer than 4,000 graduates per year. But a lack of training

Exhibit 4 Impact on care pathways

Shortages of supplies and trained staff leave many facilities unable to provide needed care in all four pathways.



Source: Y. Agyenim-Boateng et al., Catalyzing change: Molecular strengthening of the health system in the Tanzania Lake Zone, July 2009

Workforce shortage

Overall, Tanzania has a dramatic shortage of trained health workers, even in comparison with the rest of sub-Saharan Africa.

Number of health workers¹ Per 100,000 population



¹Data are best available, and year of data collection varies. Additionally, data are not available in South Africa to separate medical officers from assistant or substitute medical officers, and so both are included as medical officers (mid-level). Source: World Health Organization Statistical Information System (WHOSIS); US Census Bureau; Lowell Bryan et al., *Investing in Tanzanian Human Resources for Health*, July 2006

programs is not the only issue. Up to 30 percent of health workers leave the system within one year of training completion. Myriad problems—including low salaries (with payments often delayed by over a year), the remote location and poor quality of most primary care facilities, the lack of choice about initial postings, and the absence of access to additional training encourage many health workers to take up other forms of employment.

As a result, health facilities often lack workers with the skills needed to meet basic standards of care. According to government guidelines,⁹ dispensaries should be staffed by eight health workers, but in practice most have only one or two. Health centers are supposed to have about 30 staff members, but they typically have less than half that number. And too often, the health workers who do staff these facilities either do not have the appropriate training or do not have access to continuing medical education to learn about new techniques. For example, less than half the dispensaries and health centers have staff members trained in obstetrics, and even fewer have staff members trained to treat malaria effectively.

Furthermore, workforce productivity is low. On average, staff members spend only about 40 percent of their work time on patient care.¹⁰

Systemic weaknesses

In addition to these problems in on-the-ground care delivery, three systemic weaknesses are preventing the Lake Zone's health system from achieving better results.

training). They also include the recently introduced clinical assistants (who will receive two years' training) and other ancillary groups, such as pharmacy and laboratory technicians. (Source: "Action now on the Tanzanian health workforce crisis: Expanding health worker training the Twiga Initiative," Touch Foundation, June 2009.) 9 Tanzanian Ministry of Health

- and Social Welfare, *Staffing* Establishment, 2005.
- ¹⁰Y. Agyenim-Boateng et al., "Catalyzing change: Molecular strengthening of the health system in the Tanzanian Lake Zone," Touch Foundation, July 2009.

Lack of money. An obvious cause of the health system's shortcomings is insufficient funding. The WHO's Commission on Macroeconomics and Health has estimated that most developing nations need to spend between \$30 and \$40 per person per year if they want to reach the MDG targets.¹¹ Tanzania's annual per capita spending, at about \$20, remains far below the desired level.

Weak management practices. Few dispensaries, health centers, and hospitals use effective performance-management tools (targets for operational performance, for example, or the capability to measure, track, and report performance). Throughout the system, many of the incentives for health workers are misaligned; workers are rewarded for tenure, not patient outcomes, for example. In addition, the Lake Zone lacks the information systems required to support health care delivery; one of the reasons that supply shortages are common in dispensaries and health centers is that the health system has no good way to keep track of stock levels at those facilities (Exhibit 6). The system's supply chain also suffers from weak managerial oversight and poor procurement and distribution processes.

Mind-sets and behaviors. In any health system, the effectiveness of care delivery depends heavily on how staff members regard their work, how they act, and what messages they inadvertently convey to patients. Interviews with staff members (especially those working in primary care) suggest that many of them are demoralized by the same factors that cause

¹¹ Jeffrey D. Sachs et al., Macroeconomics and Health: Investing in Health for Economic Development, Report of the Commission on Macroeconomics and Health, WHO, 2001.

Exhibit 6

Supply chain weaknesses

Poor inventory management at health facilites makes it difficult for the Lake Zone's health system to predict demand for supplies.

Time when supply orders are placed %



Source: Macro International, Tanzania Service Provision Assessment Survey 2006



some of their colleagues to leave health care. Patients detect the demoralization; many of them view most health workers as unmotivated, as well as unaccountable and insufficiently skilled. As a result, many patients have a poor perception of the health system overall, and they often delay seeking needed care, seek treatment only at hospitals (which are seen as providing higher-quality care), or pay out of pocket for care.

Addressing on-the-ground problems

The impediments just described are not the only problems the Lake Zone's health system is facing, but they are the chief obstacles to the delivery of high-quality health care. Collectively, they reinforce one another: low financing, for example, translates to low salaries and supply levels, which contribute to low morale, which then leads to low productivity and retention rates. If health care is to be delivered effectively in the Lake Zone, this vicious circle must be turned into a virtuous one. Better, more readily available services and supplies could attract more patients, which could lead to increased revenues and salaries and, eventually, higher morale, productivity, and retention.

Accomplishing this type of turnaround will not be easy, but neither is it impossible. It requires initiatives that are both highly feasible (especially in terms of cost) and highly likely to produce the greatest impact. The initiatives described in the remainder of this article meet both of those criteria. Those in this section address the Lake Zone's two chief problems in on-the-ground care delivery (insufficient access to primary care and the workforce shortage). The next section presents initiatives to strengthen the health system and make it more sustainable.

Improving access to primary care

To extend the reach of primary care and improve its performance, simultaneous action on several fronts is required: new delivery models to increase access, a greater role for nonprofit and private organizations in service delivery, and the introduction of performance incentives to improve service delivery.

Three innovative delivery models are being used in other developing countries to provide primary care at a reduced cost. Community health workers have only limited training, but they can perform health promotion activities and serve as liaisons to more highly trained colleagues. Because almost every village can have its own community health worker, the basics of health care delivery are extended to all. Mobile *health care* is a way to extend the reach of dispensaries and health centers. Health workers travel to surrounding unserved villages on a regular basis (one day per week, for example), bringing with them basic medical supplies and communication tools. Call centers staffed by nurses (with oversight from doctors) can support both the community and mobile health workers; the workers use mobile phones or other communication technologies to consult with the call centers' staff.

To enhance performance within the publicsector dispensaries and health centers, the health system could offer incentives to the workforce. At present, these facilities are staffed with salaried employees who have little motivation to improve care delivery. Many developed countries address a similar problem by basing reimbursement on a combination of capitation and some fee-for-service or pay-for-performance payments to balance the need to increase service against budget limitations. Tanzania has begun to move in this direction; for example, it has started to offer pay-for-performance bonuses to health workers who can meet certain infant and maternal care objectives.

Tanzania could go further with its use of incentives, however. Many countries encourage ownership of some forms of care delivery. Even in publicly funded systems such as the UK's National Health System, for example, most general practitioners are independent operators who own their practices. Tanzania could use similar techniques to find the formula that will work in the Lake Zone.

One innovation that has been used successfully elsewhere is to encourage nonprofit and private organizations to provide more primary care. In a number of developing countries, dispensaries and health centers that are either owner-operated or managed through a social-franchising model are being used to complement public-sector facilities. In Kenya, for example, more than 65 franchised dispensaries called Child and Family Wellness (CFW) Shops are providing health care to more than 350,000 patients annually.12 The cost of these facilities is covered not only through government spending and donor contributions but also through patient payments, which gives their staffs an incentive to improve care delivery. Having Tanzanians pay for some health services is not a new concept; estimates suggest that in 2006 alone, they spent between \$208 million and \$265 million out of pocket on health care.

Regardless of what form incentives take, they must be supported by detailed operational data on the number of patients seen and conditions treated if they are to work properly. Routine collection of such data is therefore essential, a recommendation that is more achievable in Tanzania than it may initially seem. The rapidly expanding use of mobile phones and other communication technologies makes data collection feasible even in resourcepoor environments.

Addressing the workforce shortage

The health workforce shortage in sub-Saharan Africa is not a new phenomenon; it has been particularly well documented in Tanzania.13 Concerted action to alleviate the workforce crisis is rare, however. Tanzania has outlined a plan, the Twiga Initiative, to double its capacity to train health workers (from 3,850 to 7,500 per year). Although this plan could increase the health system's workforce from 25,000 to 48,000 by about 2019, staffing will still fall far short of the required level. Thus, four additional measures should be considered: new cadres of workers with shorter training requirements, improved staff retention, enhanced training capabilities, and increased staff productivity.

Most health workers in Tanzania receive a minimum of two years' training and an average of three. However, average training times could be decreased considerably if two new types of health workers were introduced: one group would provide basic primary care at dispensaries; the other would provide the types of community outreach described above.14 The experience of other developing countries suggests that these workers could be educated in about one year. Ethiopia, for example, now trains a group it calls health extension workers in a one-year program; it aims to create 30,000 new workers through this program.¹⁵ By creating a similar cadre, Tanzania could educate another 26,500 workers within 10 years (Exhibit 7).

- ¹²HealthStore Statistics, CFW Shops, a project of the HealthStore Foundation (www
- .cfwshops.org/statistics.html.) ¹³See, for example, Christoph Kurowski et al., "Human resources for health: Requirements and availability in the context of scaling up priority interventions in low-income countries. Case studies from Tanzania and Chad (working paper)," London School of Hygiene and Tropical Medicine, London, 2003.
- ¹⁴ For more details about how these types of health workers can expand care delivery not only in Tanzania but also throughout sub-Saharan Africa, see Michael D. Conway, Srishti Gupta, and Kamiar Khajavi "Addressing Africa's health workforce crisis," *Health International*, Number 7, 2008, pp. 72–85.
- ¹⁵ "Country case study: Ethiopia's human resources for health programme," GHWA Task Force on Scaling Up Education and Training for Health Workers,

Meeting the workforce challenge

Number of health workers

The combination of expanded training output, a new cadre, and productivity gains could enable Tanzania to exceed the workforce target for the World Health Organization (WHO) by 2019.



Source: Y. Agyenim-Boateng et al., Catalyzing change: Molecular strengthening of the health system in the Tanzania Lake Zone, July 2009

The new cadre will not reduce the need for staff members willing to work in rural areas, though. To help attract health workers (especially doctors and nurses) to, and encourage them to remain in, rural areas, Tanzania could offer them student loans and incentive packages, as well as an increased commitment from the local districts to maintain the quality of their health care facilities. In addition, the country could introduce e-learning capabilities and active mentorship programs to improve ongoing training for all health workers. The e-learning programs, which could be delivered via DVDs, mobile phones, or satellite transmission,16 should focus initially on the MDGs but could later be expanded to other topics.

Tanzania's hospitals will play a crucial role in expanding the country's workforce training programs, creating and delivering e-learning capabilities, and developing new mentorship programs. Thus, the hospitals' own capabilities must be improved. To accomplish this, the hospitals could enhance their clinical leadership, performancemanagement, and talent-management abilities. In addition, they could form networks to establish more effective referral arrangements (from primary care and among the district, regional, and tertiary hospitals). The networks could also serve as a way to deliver continuing medical education within catchment areas and to increase collaboration among all facilities. Furthermore, the hospitals could

¹⁶ In Tanzania, Internet access is not always available and is very expensive in the few places it is available. In the future, however, it may become a viable way to deliver e-learning programs and to improve communication in the health system. partner with international educational institutions to get access to information about the latest advances in care.

However, Tanzania will not be able to solve its workforce crisis unless it improves its workforce's productivity from its current 40 percent to about 55 percent (a reasonable target by international standards). A productivity increase of this magnitude will require significant effort; the Lake Zone alone has more than 1,500 health care facilities. Hospitals could lead the way by undertaking performanceimprovement programs to increase their own productivity; these programs would provide an additional benefit in that they would expose those in training to more efficient methods, which the trainees could then bring with them when they move into primary care. A standardized performance-improvement program aimed specifically at dispensaries and health centers could also be developed; such a program could have significant impact if the facilities' staffs are given appropriate incentives and are willing to change.

Creating a sustainable health system

Three fundamental changes must occur if the health system is to become sustainable. None of these changes will be easy to make, but all are necessary if the health system is to improve care delivery. For this reason, they can be considered *system enablers*.

Increased funding

The health system's funding must be increased. But given current economic conditions (in the world generally and in Tanzania specifically), a significant rise in the system's funding is an unrealistic expectation. And as we have shown, the workforce shortage cannot be solved overnight, or even within several years, which limits the speed with which changes can be implemented.

It is for this reason that we have proposed the new models of primary care and new ways to extend the workforce described above. These changes could increase the health system's coverage (as measured by access to primary care) in the Lake Zone significantly, but in a more efficient and economical way. Today, the health system reaches only about one-third of the region's population. Thus, in absence of changes to the way the health system operates, funding might have to triple to enable the system to provide adequate health care to the entire population. However, our recommendations would allow the Lake Zone to double coverage for about a 35 percent increase in funding and to reach full coverage with roughly a 70 percent increase.

Even this degree of additional funding will be a challenge for the Lake Zone in the near term. However, in recent years Tanzania's GDP has been rising at twice the rate of population growth (6 percent versus 3 percent); even in 2008, the country posted a solid GDP gain. As a result of this trend alone, Tanzania's per capita spending on health care should increase by 70 percent in 18 years. Furthermore, if GDP growth remains strong, the government might be able to increase the share of its budget devoted to health care to the 15 percent it committed to in the Abuja Declaration.17 If the budget allocation could rise from its current level (about 11 percent) to the promised 15 percent, the system's public funding would rise by almost 36 percent. The impact of this would be to shorten the time needed to achieve a 70 percent increase to 13 years. Some of the gains from GDP growth would, however, be offset by health care

¹⁷ The Abuja Declaration, which Tanzania and a number of other African countries signed in 2001, commits them to spending 15 percent of their budgets on publichealth efforts. inflation, which tends to be higher than the general inflation rate. Nevertheless, we estimate that by 2019, Tanzania's per capita spending on health care could increase by 85 percent (Exhibit 8). Even if GDP growth is lower in 2009 than it has been in previous years, Tanzania could still boost its health care funding considerably by 2019; however, it might need another two years to reach an 85 percent increase.

These calculations assume that the percentage of total health care funding contributed by the private sector remains steady; for this to happen, out-of-pocket spending by Tanzanians and overseas development aid would have to continue to rise in line with GDP growth. Given the current recession, maintaining this rate of growth in the near term will be another challenge. However, donors may be attracted by the chance to act as catalysts for the needed changes, especially if the funding they provide "primes the pump" for a decade or so while a financial model that can be sustained by domestic funding is built. Whether Tanzanians can afford higher total out-of-pocket payments is unclear, but by offering innovative care models with better service delivery, private or nonprofit providers might be able to capture a greater share of the payments currently going to the informal sector.

Although the Lake Zone may not be able to implement all the initiatives immediately, neither should it wait ten or more years to begin. Instead, it should begin moving forward with whatever funds it has to lay the foundation for sustainable improvements in its health system. It can then expand its efforts as more financing becomes available.

Better management capabilities

Implementation of the recommendations to improve primary care and workforce capacity will require significant oversight from Ministry of Health and district officials. These officials will have to work closely with multiple partners, including providers and donors in the public, private, and nonprofit sectors, to ensure that both access to and quality of care are enhanced. Thus, they will need to strengthen their leadership capabilities, especially their ability to ensure delivery of ambitious initiatives and to provide effective stewardship of a health system that may include an increasing number of nonprofit and private players.

Information technology can help them in these efforts. For example, the officials could harness the power of mobile phones and other communication technologies to collect data and manage operations in individual facilities. In addition, information technology could enable them to significantly improve the system's supply chain and ensure that adequate amounts of drugs and equipment are available when needed. Nonprofit and faith-based organizations in Tanzania report that

Although the Lake Zone may not be able to implement all the initiatives immediately, neither should it wait ten or more years to begin

Meeting the funding challenge in Tanzania

New delivery models could help dramatically expand health care coverage by 2019.



¹"Private" includes some overseas-development assistance, private-insurance payments, and out-of-pocket funding; projections assume that it remains constant as a share of health care spending.

²World Market Monitor (WMM) estimates GDP to grow at a compound annual growth rate (CAGR) of 6.0% from 2005–15. The Tanzanian government forecasts that population will grow at a 3.1% CAGR.

³Abuja targets commit governments to spend 15% of general government expenditure on health.

Source: World Bank, WMM Global Insights (GDP); Tanzanian Population Planning Unit; *World Health Statistics*, 2006; *World Health Report*, 2006, Commission on Macroeconomics and Health; World Health Organization (WHO), World Development Indicators

they have far fewer stockouts and lower supplychain costs than the government-run Medical Stores Department (MSD). Possible reasons include the fact that the organizations give individual facilities greater control over ordering, focus on a smaller number of products, and source from multiple suppliers. Their results suggest that Tanzania has an opportunity to strengthen the performance of its MSD, to open the supply provision to private competition, or both. Routine data collection would provide other managerial benefits as well: it would allow officials to monitor demand for services, as well as staff deployment and productivity, at each facility. And once aggregated, the data could be used for health surveillance (to survey health trends and spot emerging issues) and to assess the performance of the health system as a whole. Another important managerial challenge the health ministry will have to address is how best to interact with providers outside the public system. On the one hand, these providers could play an important role in extending the health system's reach. On the other hand, ministry officials are responsible for ensuring that the providers deliver quality care at a reasonable price. Greater oversight of nonprofit and private providers is needed, including requirements that they meet certain standards of care delivery. At the same time, however, the regulations should enable private providers to operate sustainably anywhere, not just in high-income areas.

Improving mind-sets and behaviors

Many of the initiatives already outlined would go a long way to improve the morale of the health workforce. For example, pay-forperformance bonuses and other incentive programs would give health workers the motivation to provide high-quality care efficiently. Improved supply deliveries would reduce frustration levels. Better management capabilities would help ensure that workers are paid on time. To achieve further improvements in health workers' attitudes, the health system should provide them with management training and other skill-development opportunities and give them a more supportive working environment. And it should make sure that the clinical leaders within the system are effective role models of the desired behaviors.

A mind-set shift among patients is needed as well so that they will seek needed treatments more promptly. The presence of community health workers in each village may help change mind-sets by making patients see that the health system is addressing their immediate needs.

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Although many of the findings presented here are specific to the Lake Zone, our experience in other sub-Saharan countries suggests that a large number of them face similar problems. An investigative approach similar to the one described in this article can enable these or other countries to identify the specific barriers that are preventing them from delivering health care effectively and the initiatives that would have the greatest impact in overcoming those barriers. As a result, countries can strengthen their health systems and make significant progress in improving care delivery, meeting their MDG targets, and—most important—saving lives.o

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Sorcha McKenna, an associate principal in the Dublin office, has served numerous clients on primary care commissioning and improvement.
Ben Richardson, a principal in the London office, leads McKinsey's work in primary care and has worked extensively on health system strategy and performance improvement.