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The role of hospitals in primary health care

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NEWS

The world in the hands of billionaires

According to a briefing paper issued by OXFAM in January 2018, "last year saw the biggest increase in billionaires in history, one more every two days". In just twelve months, the wealth of the world's billionaires grew by 762 billion dollars. In addition, 82% of all wealth created in the last year was pocketed by the richest 1% of the global population, while not a penny went to the bottom 50% (Figure 1).

FIGURE 1 / MANNA FOR THE WORLD'S BILLIONAIRES

BILLIONARIE BONANZA

Last year saw the biggest increase billionaires in history, one more every two days.
Billionaires saw their wealth increase by $762bn in just 12 months (March 2016 – March 2017). This huge increase could have ended global extreme poverty seven times over.

82% of the new wealth created has gone to top 1%, while 0% has gone to the world's poorest 50%.

In 12 months, the wealth of billionaires has increased by $ 762bn
This is enough to end extreme poverty 7x over

Over the last decade, ordinary workers have seen their income rise by an average of just 2% a year
While billionaire wealth has been rising by 13% a year

Source: Oxfam https://www.oxfam.org/en/even-it/5-shocking-facts-about-extreme-global-inequality-and-how-even-it-davos

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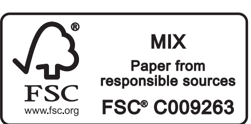
TRANSLATION

Sara Copeland Benjamin

With the support of

In limited-resource countries, hospitals are the top tier of the health system. To ensure that everyone has adequate access to essential care services, a synergistic process needs to be developed between their activities and those carried out in villages and peripheral health centers.



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ENSURING ESSENTIAL CARE FOR THE VERY POOREST

In sub-Saharan African countries, primary health care remains a mirage for those sections of the population that are unable to afford even the most basic treatment. That's why CUAMM works every day with local communities at every level of the health system – from the hospital to the community – to ensure equitable health care access for every last individual, including those too often overlooked by society.

TEXT BY / DON DANTE CARRARO / DIRECTOR OF DOCTORS WITH AFRICA CUAMM

Nearly 40 years have passed since the Declaration of Alma-Ata articulated the need to invest on a global level in primary health care (PHC) in order to make it affordable, sustainable and accessible by all at every level of the health care system, from communities to hospitals and from prevention to treatment[1].
Despite the progress made in recent decades in improving the health conditions of local communities, health inequalities persist and have in some cases even worsened: nearly half of the world's people still lack access to essential health services[2], and PHC is often pushed aside in favor of the commodification and marketing of health services. This phenomenon has been seen not only in wealthier Western countries but also in developing ones, and continues to occur throughout Africa. In sub-Saharan African countries, basic health care provision is frequently mismanaged; indeed, many hospitals do not even offer it, leaving the majority of poor communities deprived of any form of health services and treatment. Africa continues to have the world's worst maternal and infant mortality rates, many of which could be prevented if the region had a PHC-based health system. We at CUAMM believe that all of this is unacceptable. That is why we work day in and day out with local health workers and authorities to make hospitals accessible and – above all – strongholds for ensuring universal care and treatment.
But hospitals cannot ensure equitable health care access for all on their own. PHC needs to begin first and foremost at the village level, through health education and awareness-raising activities, the regular monitoring of children's weight and routine vaccination services. Such apparently simple interventions, carried out thanks to the diligence of local health workers and volunteers, are an invaluable tool for ensuring better health even for those living in the most isolated areas. And let us not forget the vital role played by peripheral clinics with the skills to assist pregnant women, ensuring the referral of those requiring further assistance, such as mothers-to-be with obstetric complications, to the nearest hospital. Just as villages are dependent on hospitals, so too – if they are to function in a manner that is not just effective but also sustainable – are hospitals dependent on the work done by local communities and health centers. This joint effort engenders synergies between the various levels of health care which enable the overall system to function more efficiently and to ensure PHC. In the absence of such cooperation, hospitals risk becoming the lone focal point for communities, leading to unnecessary hospitalizations, higher hospital costs and a drastic drop in the quality of care provided. This is what has occurred in Wolisso, Ethiopia, where the health system has expanded over the years yet is still too weak on the ground, driving people to the hospital en masse and creating a surge in hospital costs that is increasingly difficult to manage.
It is not easy to run a hospital. It is even more difficult to make hospital services accessible to the most vulnerable members of a community, those unable to afford even the most essential care. If there is a will to expand access to such care even to the neediest, a joint effort is necessary, with local government, the church and international partners joining CUAMM on the front line.
Co-organized with the Global Health Center, a multidisciplinary facility of the Tuscany Region, our next conference – to be held at the Sant'Anna School of Advanced Studies in Pisa on 2 March 2018 – will focus on the sensitive topic of the role of hospitals in PHC, exploring how important it is to measure the performance of these facilities even in low-resource countries in order to ensure quality health care in settings where access to it remains inadequate. We must continue to spotlight the fact that health care is a sacrosanct, fundamental human right, not a marketplace commodity. This is why Doctors with Africa CUAMM is committed to working every day with the most marginalized populations to ensure that essential health care is accessible to everyone, not just the privileged individuals able to afford it.

NOTES

1 Chan M. *Return to Alma-Ata*. Lancet 2008; 372: 865-6.
2 WHO. World Bank and WHO: *Half the world lacks access to essential health services, 100 million still pushed into extreme poverty because of health expenses*, available at www.who.int/mediacentre/news/releases/2017/half-lacks-access/en/

WHEN THE TOP 1% TAKE EVERYTHING

The richest 1% of the world's population now own more wealth than the whole of the rest of humanity. We live in a world where a tiny group of incredibly affluent individuals exercises disproportionate levels of control over the economic and political life of the global community (OXFAM *Briefing Paper*, January 2017).

TEXT BY / GAVINO MACIOCCO / DEPARTMENT OF EXPERIMENTAL AND CLINICAL MEDICINE, UNIVERSITY OF FLORENCE

"The richest 1% of the world's population now own more wealth than the other 99%", a briefing paper[1] released by OXFAM on the eve of the 2017 World Economic Forum in Davos, Switzerland, reported. The '*We are the 99%*' slogan had already begun to be used widely by Occupy Wall Street protesters active in the 2011 movement in New York City that sought to blow the whistle on the abuses and misdeeds of financial corporations. In November of the same year, in a New York Times opinion piece, the economist Paul Krugman wrote "'*We are the 99 percent' is a great slogan. It correctly defines the issue as being the middle class versus the elite (as opposed to the middle class versus the poor). And it also gets past the common but wrong establishment notion that rising inequality is mainly about the well educated doing better than the less educated; the big winners in this new Gilded Age have been a handful of very wealthy people, not college graduates in general. If anything, however, the 99 percent slogan aims too low. A large fraction of the top 1 percent's gains have actually gone to an even smaller group, the top 0.1 percent – the richest one-thousandth of the population.*" While the direction globalization was headed in was already crystal clear by 2011, in the ensuing years this second "Gilded Age"[2] became even more egregiously manifest (see News, *The world in the hands of billionaires*).
"*Here is where we are as a planet in 2018*," Bernie Sanders wrote in another op-ed published by the Guardian in January 2018[3]. "*After all of the wars, revolutions and international summits of the past 100 years, we live in a world where a tiny handful of incredibly wealthy individuals exercise disproportionate levels of control over the economic and political life of the global community. Difficult as it is to comprehend, the fact is that the six richest people on Earth now own more wealth than the bottom half of the world's population – 3.7 billion people. Further, the top 1% now have more money than the bottom 99%. Meanwhile, as the billionaires flaunt their opulence, nearly one in seven people struggle to survive on less than $1.25 a day and – horrifyingly – some 29,000 children die daily from entirely preventable causes such as diarrhea, malaria and pneumonia* (…). *Not only that, but at a time of massive wealth and income inequality, people all over the world are losing their faith in democracy – government by the people, for the people and of the people. They increasingly recognize that the global economy has been rigged to reward those at the top at the expense of everyone else, and they are angry. Millions of people are working longer hours for lower wages than they did 40 years ago, in both the United States and many other countries. They look on, feeling helpless in the face of a powerful few who buy elections, and a political and economic elite that grows wealthier, even as their own children's future grows dimmer. In the midst of all of this economic disparity, the world is witnessing an alarming rise in authoritarianism and rightwing extremism – which feeds off, exploits and amplifies the resentments of those left behind, and fans the flames of ethnic and racial hatred.* (…) *We must develop an international movement that takes on the greed and ideology of the billionaire class and leads us to a world of economic, social and environmental justice. Will this be an easy struggle? Certainly not. But it is a fight that we cannot avoid. The stakes are just too high.*"
Here is a three-point summary of some of the key proposals put forth in a new Oxfam briefing paper released in January 2018[4]: 1) Limit returns to shareholders and the pay of top executives, and ensure that workers are paid a "minimum" wage with which they can maintain a decent living standard; 2) Eliminate the gender pay gap and protect the rights of women workers; 3) Increase tax rates for the very rich and tackle tax evasion in order to scale up public spending on healthcare and education.

NOTES

1 Oxfam International, "*An Economy for the 99 Percent*", available at www.oxfam.org/en/research/economy-99.
2 The "Gilded Age" is the term given to the period in U.S. history that ran from the 1870s to the early twentieth century, an era characterized by political and economic corruption and major social protest. It took its name from Mark Twain's 1873 novel of the same name.
3 Sanders B., "*Let's wrench power back from the billionaires*", available at www.theguardian.com/commentisfree/2018/jan/14/power-billionaires-bernie-sanders-poverty-life-expectancy-climate-change.
4 Oxfam International, "*Reward Work, Not Wealth*", available at www.oxfam.org/en/research/reward-work-not-wealth

NEW CHALLENGES FOR A GROWING CONTINENT

In Africa, population aging, rapid urbanization and development processes are driving a rise in chronic diseases such as diabetes. Yet there is little awareness of the magnitude of the problem: under-diagnosis and even greater under-treatment are leading to both complications and premature mortality. According to the WHO, by 2030 these diseases will account for 42% of all deaths in sub-Saharan Africa. This is why Doctors with Africa CUAMM, supported by the World Diabetes Foundation (WDF), has launched a number of programs in Sierra Leone, Angola, Mozambique and Ethiopia to provide care to the populations of those countries and raise their awareness about the risks of leaving diabetes, which is often associated with other diseases such as tuberculosis and hypertension, untreated.

ARCHIVE OF DOCTORS WITH AFRICA CUAMM

THE WOLISSO PROJECT ENGENDERS THE ULTRASOUND PROJECT

The Italian Medical Students' Association (SISM)'s commitment to global health continues with the Ultrasound Project, a student-led initiative whose aim is to improve the performances of the Wolisso and Tosamaganga Hospitals through donations of ultrasonographs and training sessions for local staff.

INTERVIEWS WITH / SILVIA SPOLVERATO, ANNA SPADA AND ALESSIA BIASOTTO / ITALIAN MEDICAL STUDENTS' ASSOCIATION (SISM)
TEXT BY / ALESSIA BIASOTTO AND ALICE SILVESTRO / ITALIAN MEDICAL STUDENTS' ASSOCIATION (SISM)

THE ULTRASOUND PROJECT

An initiative of the Italian Medical Students' Association (SISM) in partnership with Doctors with Africa CUAMM, the Wolisso Project has for more than a decade made it possible for Italian medical students to spend a month at either the Wolisso Hospital in Ethiopia or the Tosamaganga Hospital in Tanzania. Several years ago the project also started up research initiatives aimed at addressing the needs of the hospitals hosting the visiting students, which is how the Wolisso (2009) and Tosamaganga (2011) Ultrasound Projects came about. Both ventures involved two components: fundraising events to enable SISM to buy an ultrasonograph for each of the hospitals, and training activities to teach local health workers how to use the devices. This dual endeavor enabled our association not only to meet the hospitals' need for equipment, but also to train and empower local staff by helping them acquire new skills for their professional futures.
Much can be said about the Wolisso Project, but the best way to get a sense of what it's all about is to ask some of the students who have taken part in it firsthand.

PLAYING AN ACTIVE ROLE IN THE FIELD

Silvia, Anna and Alessia, three SISM members who worked on the Ultrasound Project, recount how the initiative provides young medical students with an opportunity to see medicine from a different perspective than the one learned in university lecture halls. Indeed, "rolling up one's sleeves" to work directly in the field makes it possible to develop a strong critical sense about how and where to best use scarce human and economic resources. "In Africa," explain Silvia and Anna, "it's not difficult to play the *role* of doctor. But to really *be* a good doctor is a whole other story. To do that, you've got to do the best you can with whatever's available to you, think clearly and above all, establish a productive rapport with local staff that makes clinical activities more effective, thanks to a real exchange of information and know-how." Alessia explains how invaluable this African learning experience proved upon her return to an increasingly multicultural Italy, as it provided her with a new set of tools for handling the daily challenge of interacting with patients from around the world with sociocultural backgrounds that are often complex and completely unfamiliar to Italians.

It is not easy to leave a familiar setting to travel to a low-resource country like Tanzania, but the challenges faced by those who do so help them to appreciate just how much human and professional growth can be gained through the experience. Here we interview Dr. Elena Caltarossa, a specialist in gynecology and obstetrics at the Saints John and Paul Hospital in Venice, who spent a period in Tosamaganga as part of the Ultrasound Project.

- **What differences did you notice between the medical practices of an Italian hospital and those of an African one?**

I could spend hours telling you about having to deal with operating room emergencies with no running water, or the different notions about asepsis in this setting, or the animals wandering around right outside the hospital, or the endless, inexplicable delays – all things you might imagine even before leaving Italy. But what really struck me were the commonalities between our two peoples: the seriousness of the hospital staff, the competence of many of my colleagues, the countless gestures of solidarity, the feeling of pride intermingled with a sense of responsibility the moment a patient places his or her health in your hands, and your unbending resolve to give it your all even in conditions that are sometimes truly dire.

- **What were the main difficulties you had to face?**

I didn't encounter any special difficulties on the whole. My Tanzanian gynecologist peer was initially a bit wary of me, but his active engagement in planning the staff training course helped us to develop a wonderful connection both personally and professionally speaking. Despite the fact that the theory lessons were taught after working hours, the health staff took part in the educational activities with great enthusiasm. Many of the patients allowed us to do checkups and ultrasounds on them, and the interesting personal and clinical stories of some of them led us to reflect on the complexity and sometimes quite alien nature of the setting in which we were working. Time management was a big problem: things were never done on schedule, and the delays were far longer than we, wearing our Western blinders, could even

conceive of. But as my Tanzanian colleague pointed out, while we Europeans are accustomed to optimizing time, we often do so in an automatic way without really knowing why we believe things have to be done that way.

- **Aside from the professional aspects, how did the experience affect you on a personal level?**

I'd been eager to take part in a global health project for some time after attending a course organized by Doctors with Africa CUAMM for people interested in spending a period of time working in Africa. I was keen to find a way to take everything I'd learned during the course and use it while teaching others. I'd expected to encounter a certain degree of standoffishness or mistrust in Tanzania, so was surprised by both the warm welcome I got and my colleague's expertise and receptiveness; after all, we were talking about patients under *his* care, exchanging ideas about what was ailing them and how best to treat them. There's no doubt that I grew both personally and professionally during my time there: I dealt with clinical cases that I'd never have seen in Italy, and also realized how no matter where we do our work, we in the medical profession all share the same determination to do good.

A MONTH THAT FLIES BY IN A FLASH

The Ultrasound Project has been an invaluable experience for SISM's members, who – after overcoming an initial sense of apprehension – learn to get past linguistic and cultural barriers, find their way around in an unfamiliar setting, and confront sometimes disconcerting realities. It is a month during which Africa gives and teaches you far more than you could possibly have imagined before packing your backpack and flying over. Our Western approach to health, disease, life and death – and hence our ideas about the role medicine should play in them all – is not the only one in the world, nor is it always the most suitable.

THE *ANESTHESIA SCHOLARSHIP*

A project spearheaded by students to improve health care skills in Ethiopia's St. Luke Catholic Hospital, where there are still not enough qualified health workers to meet the community's needs.

TEXT BY / ALTEA RENGRUBER AND ALICE SILVESTRO / ITALIAN MEDICAL STUDENTS' ASSOCIATION (SISM)

A project spearheaded by students to improve health care skills in Ethiopia's St. Luke Catholic Hospital, where there are still not enough qualified health workers to meet the community's needs. From the very start of the Wolisso Project, the Italian Medical Students' Association (SISM) and Doctors with Africa CUAMM had their sights set on a dual goal: not only to provide quality clinical services, but also to help develop the skills of local health workers. To this end, an *Anesthesia Scholarship* program was launched in October 2013 to enable a nurse to train to become an anesthesia technician, with the creation of an express fund to cover the tuition for a three-year course at the Haramaya University as well as the cost of the trainee's food and on-campus lodging.

The main objective was to sponsor professional training for a nurse in a sub-Saharan African setting characterized by a chronic shortage of adequately-trained health workers. The family members of the scholarship recipient were also indirect beneficiaries: deprived of their only means of support, the nurse's income, they too were provided for economically for the duration of the university course.

The future anesthesia technician had but one requirement: to work at the hospital for four years upon completion of the training course, as part of an effort to combat the "brain drain" phenomenon, i.e. the dramatic migration to wealthier countries or major African cities of health workers seeking better living and working conditions. This phenomenon has grown in recent decades due to the active recruitment efforts of developed countries. According to the World Health Organization (WHO)'s 2006 *World Health Report*, sub-Saharan Africa has 24% of the global burden of disease but only 3% of the world's health workers. Ethiopia is no exception: ideally the St. Luke Catholic Hospital needs at least five anesthesia technicians, but it has just one working based on a fixed-term contract and three others on monthly ones.

Thus the *Anesthesia Scholarship* program seeks to address the strong demand for local training opportunities against the backdrop of a chronic imbalance between the existing work force and the health needs of the local population, a gap that we believe can be bridged only through the systematic implementation of a long-term educational and professional training program.

THE COST OF HOSPITALS IN LIMITED-RESOURCE COUNTRIES

In countries with limited resources the high cost of managing hospital facilities necessitates financing that both public systems and private nonprofit facilities can have difficulty finding, and that does not ensure good-quality services since those provided tend to be based more on the resources available than on recognized quality standards.

TEXT BY / FABIO MANENTI / DOCTORS WITH AFRICA CUAMM

NATURE AND PURPOSE OF HOSPITALS

Hospitals are institutions whose purpose is to provide health care. In order to do so in a sustainable and balanced way, they require economic resources for their expenditures on personnel, equipment, medicines and infrastructure. Facilities often use different types of financing depending on their specific aims, which can run from improving the health conditions of a community to marketing goods to individuals with various degrees of awareness about their need for them. Thus these ends can either be expressly public (e.g. improving community health) or, on the opposite end of the spectrum, involve monetizing services and making a profit on one's investment as a private provider. The two scenarios are also reflected in different ownership models: the state/public sector in the former case and private for-profit entities in the latter. But there are also exceptions, including mixed public-private models, in terms of the nature and the stated purpose of such entities, e.g. nonprofit hospitals that are private yet have the mission, at least on paper, of addressing a community's health needs. Hence, whether explicit or implicit, actually abided by or merely theoretical, the nature and purpose of a health facility impact not only the costs of services and forms of financing, but also the efficiency of service provision. Indeed, some studies have shown that public and private nonprofit systems are more efficient than private for-profit ones[1].

THE COST OF RUNNING A NONPROFIT HOSPITAL

In general, the cost breakdown for running a nonprofit hospital depends on the operating costs of the facility and its balancing its annual income and expenses, due to the impossibility of financing amortizations, infrastructure development or replaced equipment without resorting to ad hoc donations. Thus because of their inability to generate sufficient revenues, the cost incurred by such facilities are often lower than they would be to provide services that meet quality standards adequately[2].

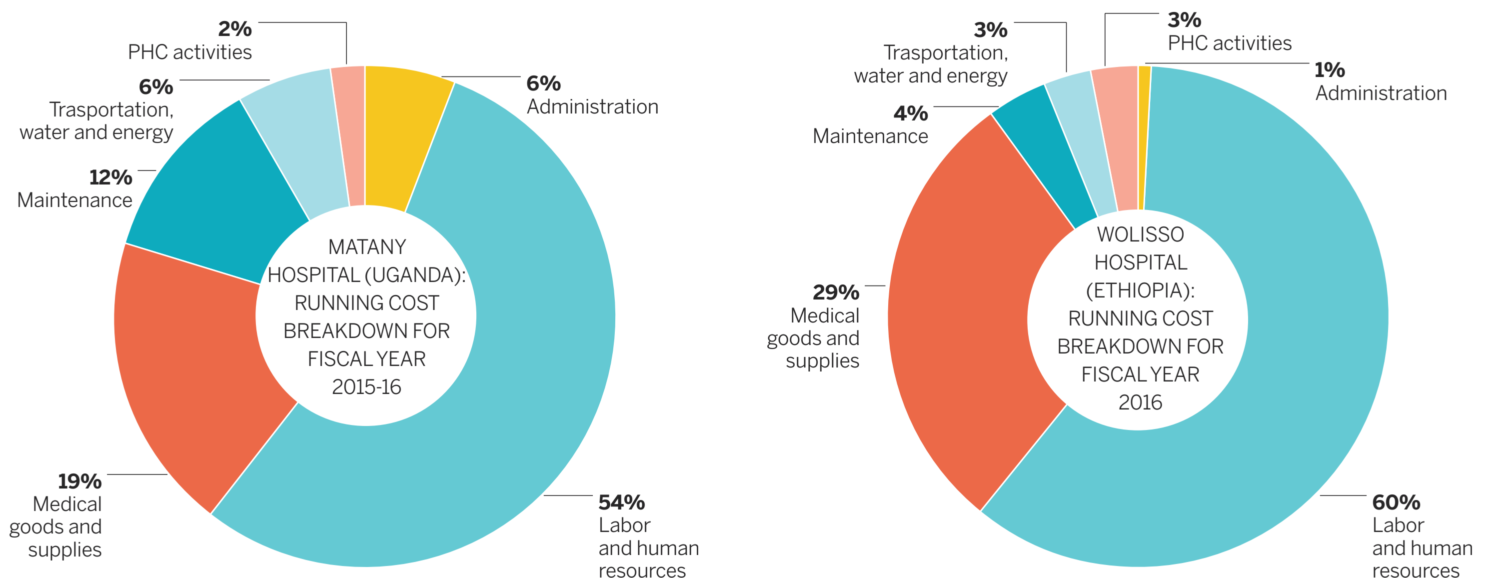
The broad array of operating costs faced by hospitals can be classified into five broad macro-categories (see **Graphic 1**): i) expenditures for human resources, which normally account for 50% to 70% of the total; ii) expenditures for drugs and medical items (20-30%); iii) expenditures for the ordinary maintenance of infrastructure and equipment (10%); iv) expenditures for energy, water, communications and the transport of goods and people (5-10%); and, finally, v) administrative costs (2-3%). Let's look, for example, at how much it costs to run the Matany Hospital in Uganda and the Wolisso Hospital in Ethiopia. In the first case, with a catchment area of approximately 150,000 individuals, the cost for the 2015-16 fiscal year was 729,000 euros for, while in the second, with a catchment area of approximately 1 million, it was 1,621,000 euros. **Table 1** shows figures for some of the activities in the two hospitals:

TABLE 1 / MATANY AND WOLISSO HOSPITAL ACTIVITIES IN NUMBERS

ACTIVITIES	MATANY	WOLISSO
OUTPATIENT VISITS	24,005	78,716
ADMISSIONS	8,655	14,742
PRENATAL VISITS	3,707	8,244
DELIVERIES (OF WHICH CESAREAN-SECTIONS)	1,118 (252)	3,687 (562)
MORE COMPLEX SURGICAL OPERATIONS	650	3.328

While there is an obvious difference between the costs, numbers and complexity of the cases handled by the two facilities, it is difficult to make an in-depth measurement of them to evaluate their cost-effectiveness as they are based more on the resources available than on recognized quality standards.
If these are the operating costs for the facilities, guaranteeing accessibility and sustainability will necessitate financing that both public systems and private nonprofit facilities have difficulty finding even when they depend in part on user fees and private donations, which have in any case been shown to be insufficient for guaranteeing the sustainability of systems (ibidem). And if the costs were to be covered by users alone (the average cost of hospitalization at the Matany and Wolisso Hospitals) is 58 and 75 euros, respectively), most people in both countries would be unable to afford access to services, given that 33% of their populations lives on less than $1.90 PPP[3]. A survey carried out in Catholic hospitals in Uganda has suggested that deriving an average 20-30% of the facility's operating costs from user fees[4] would be acceptable, i.e. could be done without bringing about

GRAPHIC 1 / RUNNING COST BREAKDOWN FOR THE MATANY (UGANDA) AND WOLISSO (ETHIOPIA) HOSPITALS



negative effects in terms of access equity. In the case of the Matany Hospital the figure is 16%, while at the Wolisso Hospital it is 38%. Hence there is a variation in user fees, in an effort to promote women's and children's access to services: the respective costs for patients in Matany and Wolisso for an outpatient visit are 1.80 vs. 2.50 euros; for a pediatric admission, 1.60 vs. 2.50 euros; for a delivery, 4.90 vs. 3.30 euros (until 2016, Cesarean-sections were free in Wolisso; they now cost 10 euros); for a medical admission, 17 vs. 33 euros; and for a surgical admission, 33 vs. from 33 to 68 euros for more complex operations.
The rest of the costs are covered by local government (26% in Matany vs. 17% in Wolisso) and international donors (55% vs. 45%, respectively). While the public system usually describes the services as "free", in reality it is unable to afford their true costs, which end up being passed on to patients in one way or another. Let us not forget that the so-called "structural adjustment" programs that introduced user fees[5] into public systems, thereby reducing access without improving the quality, let alone the sustainability, of services, were imposed by the World Bank and the International Monetary Fund.
Thus the nonprofit health systems which have developed especially in rural areas not well served by public systems could serve as an alternative, filling the gap left by the absence of these services and helping improve integration and cooperation with public systems, even though this will mean higher costs for patients[6].
In conclusion, the cost of hospital services in limited-resource countries has more to do with the type of financing that is available to a facility than its compliance with quality standards. Looking to patients to cover part or all of the costs of these services has important implications in terms of their access to, or exclusion from, treatment. Both the community-based and national health insurance schemes experimented with over the last twenty years seem to have had only partial success in helping to raise the funds necessary for covering the costs of services, as well as in improving insurance coverage for populations, reducing the risk of catastrophic expenses, and expanding the use of services[7,8]. Unless governments make drastic changes in the amount of public funds that they allocate to health, current financing systems (out-of-pocket, government and donors) will neither be sufficient nor able to guarantee the necessary move towards universal health coverage. Thus reducing dependency on user fees and further developing insurance systems seem the only tools currently available to nonprofit hospitals, and possibly also public ones, that seek a relative balance between accessibility and the sustainability of hospital costs.

NOTES

1 Global Center for Public Service Excellence, UNDP 2015, Is the private sector more efficient? A cautionary tale.
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FINANCING NONPROFIT HOSPITALS IN AFRICA

In sub-Saharan Africa, nonprofit hospitals are financed through a mix of government allocations, patient payments and international aid. Nonetheless, many encounter difficulties in finding stable and adequate sources of financing, which hampers the way forward to universal health coverage.

TEXT BY / GIOVANNI PUTOTO AND FABIO MANENTI / DOCTORS WITH AFRICA CUAMM

The nonprofit (NFP) health sector plays a fundamental role in the provision of primary and secondary health services in Africa. It has been estimated that 30% to 70% of such services in this part of the world are provided by health facilities owned by churches of various religious denominations[1]. How is this sector – and in particular, how are NFP faith-based hospitals – financed? Given the relative lack of research on the topic, this article explores general trends based on firsthand experience, case studies and the available literature, describing the variable mix of government funds, patient payments (i.e., "user fees") and international aid that finances faith-based hospitals in Africa.

GOVERNMENT ALLOCATIONS

For many years public funding of the NFP hospital sector was indirect, with the most common forms of support including exemption from import duties on drugs and equipment and the provision of public health care personnel to NFP hospitals[2]. Over the past decade, however, new types of contractual relationships have been emerging between interfaith networks active in the health care sector and governments, whereby state funds are disbursed after an agreement has been reached on the package of health services to be provided (including activity volumes, costs, quality, the lowering or waiving of user fees, new services, etc.) and the conditions for reimbursement. The most typical packages tend to focus on maternal-child health services[3].
The contracts are not standardized: the mechanisms, forms and approaches they entail vary greatly, depending on the setting in question and its history, and they are in any case difficult to codify both from a practical and conceptual standpoint[4]. With public funds, coverage of the operating costs of NFP hospitals can range from around 50-60%, as in Tanzania, to 10-20%, as in Uganda and Ethiopia.
The few studies available on the effectiveness and sustainability of these contractual forms paint a picture of an "ongoing crisis"[5,6,7,8]. The most common problems noted are lack of clarity regarding reimbursement procedures, outdated tariff systems, significant delays in the payment of invoices, lack of transparency, insufficient human and material resources, and weak systems for performance monitoring and control. In particular, those working in the NFP hospital system are concerned about the increase in costs linked to health inflation (which is historically higher than general inflation), the rise in the use of services, and the migration of health workers from the NFP sector back to the public sector when government wages are raised. The situation is closely interlinked with the underfunding of health systems in Africa, where many states allocate an amount to the sector that is often well below the target – at least 15% of a country's annual budget – set out in the 2001 Abuja Declaration[9,10]. In Uganda, expenditures on public health averaged around 7% of the national budget from 2011 to 2016, while the NFP sector received just 7% of the total health allocation[11].
Rwanda, which has spent up to 23% of its annual budget on health care and where public/private partnerships have made it possible for the health system to grow and expand in the aftermath of the genocide, is a different case[12]. Thanks to the establishment of a single health insurance fund and an innovative agreement between the various parties involved, the package of health services available to citizens has been made identical for everyone, involving the same costs, procedures and guidelines and incorporating services for HIV patients as well. In return, NFP hospitals receive the same equipment as public health facilities, and 50% coverage of their staff costs. Even so, the services provided by the NFP health sector have dropped from 40% to 30% of the total.

PAYMENT OF HEALTH SERVICES BY THE POPULATION: USER FEES AND COMMUNITY HEALTH FINANCING

Patient payments continue to be a widespread form of financing for African NFP hospitals, despite their sometimes pernicious consequences, which in the worst cases can involve truly "catastrophic" expenditures. However, payment models vary greatly. In Uganda, for example, some rural hospitals apply flat rates that cover an average 20% to 30% of their operating costs, while some hospitals in urban areas apply variable rates based on the type of service provided, thereby covering up to 90% or sometimes even more of said costs[13]. It is important to be aware of and monitor these varying models and price tiers, as they point to how much or little focus is being given to making care accessible to the most marginalized individuals in the population[14].
Of particular interest with regard to risk-sharing and the financial

TABLE 1 / HEALTH FINANCING REFORMS IN 5 SUB-SAHARAN COUNTRIES

COUNTRY	SYSTEM STRUCTURE/TYPE	YEAR OF REFORM	REVENUES GENERATED	HEALTH INSURANCE COVERAGE (% OF POPULATION)
GHANA	*NATIONAL HEALTH INSURANCE SCHEME* – NHIS (FORMAL SECTOR)	2005	72% TAXES 20% DERIVED FROM THE SOCIAL SECURITY AND NATIONAL INSURANCE TRUST (SSNIT) 4% DERIVED FROM INVESTMENTS 3% PREMIUMS 1% OTHER SOURCES	38% (2015)
RWANDA	*COMMUNITY-BASED HEALTH INSURANCE* – CBHI (INFORMAL SECTOR)	1994	66% COMMUNITY INSURANCE 14% STATE 10% GLOBAL FUND 10% OTHER SOURCES	80% (2015-2016)
KENYA	- *NATIONAL HEALTH INSURANCE FUND* – NHIF (FORMAL SECTOR) - *COMMUNITY-BASED HEALTH INSURANCE* – CBHI (FORMAL SECTOR) - *SOCIAL HEALTH INSURANCE BENEFIT* – SHIB (DEPENDENT ON THE PRIVATE SECTOR)	1999	34% STATE 29% DIRECT EXPENDITURE BY PATIENTS (OUT-OF-POCKET – OOP) 19% NON-PROFIT ORGANIZATIONS SERVING HOUSEHOLDS (NPISH) 4% OTHER SOURCES	11% (NHIF) 1.3% (CBHI)
TANZANIA	- *NATIONAL HEALTH INSURANCE FUND* – NHIF (FORMAL SECTOR) - *COMMUNITY HEALTH FUND* – CHF (RURAL INFORMAL SECTOR) - *TIBA KWA KADI* – TIKA (URBAN INFORMAL SECTOR)	2001	6% SALARY WITHHOLDING SPLIT BETWEEN EMPLOYEES AND EMPLOYERS. MEMBER CONTRIBUTIONS (FROM $3 TO $6) ARE DETERMINED BY THE STATE AT THE DISTRICT LEVEL	4%
ETHIOPIA	- *COMMUNITY-BASED HEALTH INSURANCE SCHEME* – CBHIS	2010/11	70% COMMUNITY INSURANCE 25% STATE ALLOCATIONS 5% OTHER SOURCES	7.5%

Source: International Health, 2017[18]

protection of uninsured rural communities are community savings groups (CSGs), informal associations that often develop spontaneously. Their members, of whom there may be either just a few or a few hundred, share the group's savings based on various mechanisms in order to be able to meet unplanned-for expenditures such as funerals, assisted childbirth or emergency transportation[15]. Recent studies carried out in the Oyam District and the NFP Aber Hospital in Uganda found that there were many such groups among the local community, which also showed interest in starting up other types of community health insurance prepayment schemes, often to meet women's and children's needs for services[16] (also see Maria Nannini's article on such systems in Uganda on p. 13 of this magazine). The Uganda Catholic Medical Bureau (UCMB) health facility network, which has experimented with various types of community health funds (CHF) in the western and south-western parts of the country, has expressed interest in promoting this type of financing for NFP hospitals even while calling attention to some of its more problematic aspects, e.g. the lack of public subsidies, the choice of fund managers, the exclusion of the poorest, the lack of econometric research on the actual costs of health packages, low enrolment rates, the misuse of services, and adverse selection[17].

Thus in order to achieve stability and sustainability over time, both CSGs and community health insurance schemes must address a number of complex political and technical aspects including group standardization, the prudent use of a fund's capital by its manager, integration with national insurance schemes, guarantees in the case of default, and population coverage. **Table 1** shows examples of how some African countries have sought to develop mixed forms of health financing that include insurance contributions from both the informal and formal sectors. The variety of the schemes, and their different outcomes in terms of coverage, are noteworthy.

INTERNATIONAL AID

International aid to NFP hospitals varies greatly. It rarely goes to the support of hospital budgets (as was the case with Doctors with Africa CUAMM's *Mothers and Children First* program); it is more commonly granted for capital costs (i.e., the construction of new buildings or purchase of equipment), with negative implications in terms of the consequent increased operating costs. Moreover, in recent years these same international vertical programs have financed NFP hospitals for packages focused exclusively on specific diseases such as HIV; a case in point is *AIDS Care and Treatment* (ACT), where support was provided to 17 NFP health facilities, in many cases engendering "parallel", and counterproductive, systems of hospital management particularly vis-à-vis the management of human resources.

Recently, international support has been moving in the direction of various kinds of performance-based financing linked to outputs, service quality and accountability. Two such cases are Uganda's Jinja Diocesan Hospital, which receives support from Cordaid, a Dutch NGO, and from the aforementioned UCMB, and the NewHealth program financed by the U.K. Department for International Development (DFID) in support of NFP hospitals in northern Uganda. Although complex, this financing system based on performance-linked incentives has spurred NFP hospitals to review their activity volume mixes and to make a serious assessment of the overall quality of the services they provide[19].
In short, international aid is not only variable in terms of the funding it provides and its duration over time; it can also, depending on the approach taken and the degree to which it is integrated with local health policies and systems, have both positive and negative outcomes vis-à-vis people's access to hospital services, service quality and a facility's recurring costs, and hence also its sustainability.

CONCLUSIONS

Financing NFP hospitals in Africa in a stable and adequate manner remains problematic. In order to move gradually towards universal health coverage, ensuring access to care and financial protection for all, there is a need for inclusive health systems where the various parties involved – states, communities and international donors – share and implement common goals and strategies[20]. It is also critical to vet policies and experiences in a thorough and transparent manner through research and evaluation. Rather than looking for non-existent, ready-to-use universal solutions, the route forward calls for a mix of dialogue, trust and innovation.

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COMMUNITY-BASED HEALTH INSURANCE

Many individuals living in middle- and low-income countries lack adequate financial protection in the event of illness or maternity, and face exorbitant out-of-pocket expenses when seeking out medical care. In order to improve access to health services for poor rural populations, community-based health insurance schemes have been set up in some countries.

TEXT BY / MARIA NANNINI / UNIVERSITY OF FLORENCE – DEPARTMENT OF ECONOMICS

Many families in middle- and low-income countries lack adequate financial protection in the event of illness, accidents or death[1], and face exorbitant health care expenses particularly through the direct outlay of cash when receiving health services, i.e., out-of-pocket expenditures[2]. Despite the fact that the governments of such countries should play a key role in addressing this problem, in reality only a small fraction of public revenue is allocated to the provision of public health care services. Recent years have seen the spread in some Asian and sub-Saharan African countries of community-based health insurance (CBHI) schemes, which have been deemed a viable method of providing communities with adequate financial protection by mobilizing them to raise and pool financial contributions through prepayment schemes.

Although these schemes can sometimes make a significant contribution towards the achievement of universal health coverage, various studies have pointed up the limitations and operational factors that militate against their success, including the lack of appropriate government regulatory frameworks, poor fund-management skills, insufficient control measures, excessive operating costs and low rates of enrollment in voluntary insurance schemes. Furthermore, recent studies[3,4,5] have suggested that the low population coverage achieved by CBHI may also have to do with factors linked to social capital, including the existence (or lack thereof) of forms of solidarity, problems of trust among community members, and the long distances and transport difficulties involved in accessing health care[6,7,8].

With regard to the possible types of community prepayment schemes, from October to December 2016 CUAMM conducted a feasibility study with the aim of making a systematic ex-ante appraisal of the possible implementation of a CBHI scheme in the rural district of Oyam (Uganda)[9]. A survey of 180 families was carried out to investigate the key factors impacting the community's access to health services, and 40 interviews were done with key technical and political authorities from the district to explore the role that community leaders could play in implementing such a scheme. Finally, 8 focus groups involving various community representatives were assembled to determine the specific impact of each of the main barriers to health service access.

Our analysis of the data collected made it possible to verify the presence of key feasibility factors for setting up a micro-insurance scheme in the area. Health care seemed to be very important for the community, which was also well aware of the heavy cost of accessing it. They found the quality of the services provided by local health facilities to be acceptable, and trusted the health workers providing them. In addition, we found a strong degree of solidarity in the community: a number of local groups were already involved in mutual aid schemes, collecting financial contributions in order to facilitate health savings or make available solidarity funds for emergencies. Finally, the community is both able and willing to pay a reasonable premium for a CBHI scheme. Our study, therefore, demonstrated how a well-designed micro-insurance scheme can serve as a viable tool for expanding access to health care and offering financial protection to the Oyam community.

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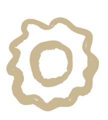
A NEW "CITY"

Since 2016 the ongoing situation of insecurity and violence in South Sudan has forced much of the population to flee from their homes, with many crossing into neighboring countries: out of a total population of 12 million, it is estimated that 3 million – one out of every four – have sought refuge outside their home country, mainly in Uganda and Ethiopia.

The UNHCR estimates that in March 2017 alone an average of 684 refugees arrived in Ethiopia daily, most of them women, children and unaccompanied minors. Nguenyyiel is the newest refugee camp in the Gambella region. Opened in October 2016 and now being expanded to provide more space, its refugee population has already risen to 85,000, turning it into a veritable "city" in a matter of months.

NICOLA BERTI



EXPERIENCES FROM THE FIELD

MEASURING HOSPITAL PERFORMANCE

It can be difficult to measure hospital performance in sub-Saharan Africa in an adequate manner using the tools employed in wealthier countries. Despite these limitations, Doctors with Africa CUAMM has adopted a viable tool to assess the performance of its own hospitals to the greatest extent possible, based on the relative weight of the services provided.

TEXT BY / FABIO MANENTI / DOCTORS WITH AFRICA CUAMM

MEASUREMENT TOOLS

The cost of running a hospital facility depends in part on how efficiently the resources available are used in providing health services. Requiring patients to cover the cost of the latter creates equity problems, especially in low-income countries. There are currently no tools available for assessing hospital performance efficiency in a way that is both viable in this type of setting and enables informed choices, due primarily to the lack of data and detailed indicators vis-à-vis health and financial activities, as well as the poor managerial and decision-making skills of hospital administrators and boards of directors, respectively.
A new possible approach was recently introduced. It combines the most commonly-used indicators with the measurement of various management indicators; however, it is based on the greater efficiency and quality attained through good management practices in high-income settings[1]. The most common indicators are number of days of hospitalization, operating costs per day of hospitalization, the duration of hospitalizations, guideline-based infection control practices, the bed occupancy rate, the number of days of hospitalization per total technical staff, and the unit cost of outpatient services. Other approaches, such as the nonparametric data envelopment analysis (DEA) technique with an associated Malmquist productivity index[2], are overly complex and generally not implementable by individual hospitals.
The most commonly-used indicator for calculating derivatives such as unit costs or staff productivity is the Patient-Day Equivalent (PDE), which equates a day of hospitalization to a certain number of outpatient visits based on how much it costs to produce the respective activity. The hospital's activities volume is therefore measured together with the number of days of hospitalization, which may depend on both the severity of the case-mix and the norms and criteria for admission and discharge. Simple and easily available to any hospital, this method enables facilities to measure their performance over time, but could have limitations if used to compare production unit costs across hospitals, due to their potentially different admissions criteria.
Another way to measure hospital performance is to compare the bed occupancy rate with the number of patients discharged for each available bed, defining an above-85% rate and 30 patients discharged per bed as a "good" performance. This method has been used to compare public and private nonprofit (PNFP) hospitals in Ethiopia[3], where a further element of comparison – the cost per PDE – was also used to demonstrate how high performance levels can cost less per PDE than lower ones, thanks to better use of the same inputs, i.e. greater technical efficiency.

THE STANDARD UNIT OF OUTPUT (SUO)

In the latter half of the 1990s, Daniele Giusti, a doctor and Comboni brother, developed another performance measurement indicator in Uganda based more on the relative weight of the various services than on days of hospitalization[4]. The five indicators chosen for measurement focused on the most common activities, those normally carried out in any hospital, particularly rural ones, i.e. the number of outpatient visits, admissions, deliveries, prenatal visits and vaccinations, respectively. The relative weight associated with each of these indicators was calculated based on specific analyses of the cost of the services, hence a relative cost was established for an outpatient visit: an admission cost 15 times more, a delivery 5 times more, a prenatal visit 50% as much and a vaccination 20%. This is how the standard unit of output (SUO) came about, as the solution to the following formula: *Number of outpatient visits + number of admissions x 15 + number of deliveries x 5 + number of prenatal visits x 0.5 + number of vaccinations x 0.2*. The Ugandan Ministry of Health continues to use this indicator to measure the performance of its own hospitals[5]. The following figures show a comparison of the four hospitals where Doctors with Africa CUAMM has been active for many years. Those in Matany (Uganda), Wolisso (Ethiopia) and Tosamaganga (Tanzania) are all PNFP, while the Yirol Hospital (South Sudan) is state-run.

A COMPARISON OF THE INDICATORS

In a comparison of the PDE (**Figure 1**) with the SUO (**Figure 2**), the Matany hospital is nearly twice as productive as those in Yirol and Tosamaganga according to the PDE, while the Yirol hospital appears more productive according to the SUO. The reason is that in the former case, only the number of days of hospitalization are measured, something that can depend on a hospital's internal fac-

tors (i.e., it is not necessarily an indicator of greater efficiency), and their equivalent in terms of outpatient activities, while the SUO measures the services provided rather than the number of days of bed occupancy that they represent. Thus Wolisso, which appeared about as productive as Matany, now appears far more productive. These differences lead to different unit costs: with the PDE they are quite variable, while with the SUO they are more similar across different settings; in fact, the latter depends more on the cost of the inputs (particularly salaries and medicines) required to produce a given service than it does on often arbitrary choices vis-à-vis more or fewer days of hospitalization for the same service (e.g., deliveries, surgical or medical admissions, etc.). Thus the SUO seems more appropriate for measuring a hospital's performance over time and comparing it with similar facilities, since it better reflects technical efficiency, i.e. the number of outputs (services) produced with equal inputs.

Despite these limitations, for several years CUAMM has used this method every year to compare the performance of the hospitals that it supports and their trends over time, also measuring two other important indicators: how much each unit of skilled personnel produces and the percentage of service costs that is passed on to patients. The former can be compared over time or against the measurements of other hospitals, thereby putting a spotlight on the level of quality provided (assuming that this depends on the number of skilled personnel), since it affects the volumes handled by each staff unit. The latter measures how much the hospital attempts to be, or succeeds in being, accessible, i.e. what percentage of service costs it manages to cover without resorting to user fees.

In conclusion, measuring hospital performance in low-income countries such as those in which Doctors with Africa CUAMM works remains complex due to the lack of indicators that are both simple yet also sufficiently comprehensive to provide answers to key questions on the efficiency, equity and quality of a hospital's services.

FIGURE 1 / PATIENT-DAY EQUIVALENT (PDE) TREND, 2010-2016

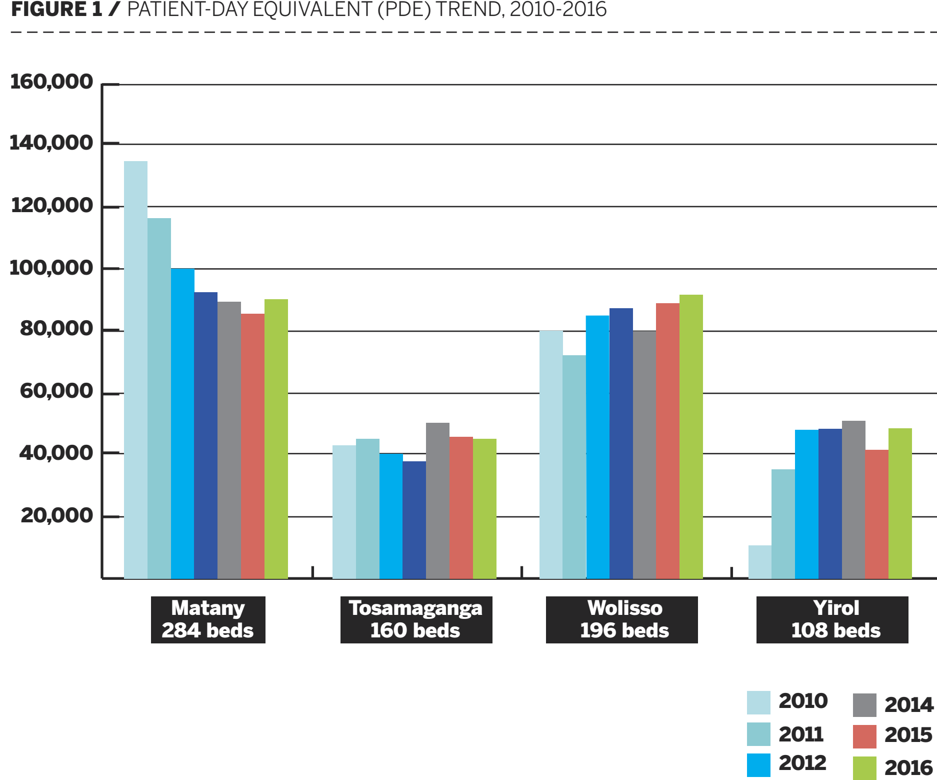
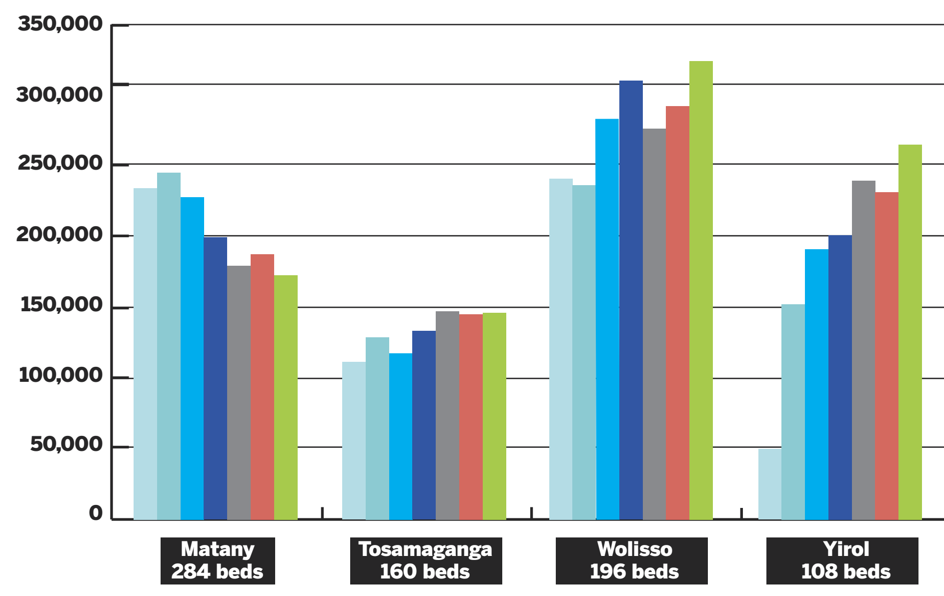


FIGURE 2 / STANDARD UNIT OF OUTPUT (SUO) TREND, 2010-2016



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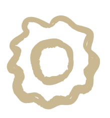

EXPERIENCES FROM THE FIELD

A COMPARISON OF THE MATANY AND WOLISSO HOSPITALS

Both the Wolisso (Ethiopia) and Matany (Uganda) hospitals, each with considerable activity volumes, are on the front line of public health activities in their respective areas. However, a comparative measurement of the performances of the two facilities reveals a number of differences vis-à-vis the type of services provided, activity levels and personnel, factors that impact the total costs borne by each.

TEXT BY / FABIO MANENTI / DOCTORS WITH AFRICA CUAMM

THE MATANY AND WOLISSO HOSPITALS

Founded in 1970, St. Kizito Hospital Matany is owned by the Catholic Diocese of Moroto in the Karamoja region of Uganda. Run by Comboni missionaries, the hospital has been supported from the start by Doctors with Africa CUAMM, which ensures the presence there of at least one of its doctors and helps cover the facility's operating and capital costs. St. Luke's Hospital in Wolisso (Ethiopia), which was opened in 2001, is instead owned by the Ethiopian Episcopal Conference and is currently being run by the India-based Society of Daughters of Mary Immaculate (DMI). CUAMM built the hospital and has partnered with it from the start to help run the facility, train its staff, and help cover operating and capital costs.
Both hospitals have schools for nurses and midwives. Matany's was founded in 1975 to address the problem of the shortage of skilled health workers in the Karamoja region, one of Uganda's poorest. Wolisso's has been part of the hospital since it was founded, borne of the need of Ethiopia's Catholic congregations for a place in which to train health facility staff, and the difficulty in accessing the few such public schools in the 1990s. Thus both facilities not only provide a large number of health services and are involved in public health activities in their respective areas, but are also centers of learning.

ACTIVITIES AND COSTS OF THE TWO HOSPITALS

Let's look at the respective performances of the two facilities between 2015 and 2016. Shown on the right in **Table 1**, using data taken from the annual reports of each[1,2], are key figures for each facility, including activities, costs and financing sources in the most recent comparable year.
As can be seen, there were significant differences between the levels of activities and personnel at the two hospitals, factors which impacted the total respective costs of each, with about twice as many Caesarean sections provided in Wolisso as Matany, three times as many deliveries, and almost three-and-a-half times as many out- patient visits. The total number of admissions and surgical procedures performed at the St. Luke's Hospital in Wolisso also far exceeded the numbers recorded at the St. Kizito Hospital in Matany. However, Matany provided many more vaccinations than the Wolisso hospital, as its figure includes those provided on the ground by the hospital's public health team.
To better compare this performance differentiation, let's calculate the Standard Unit of Output (SUO)[3] as the solution to the following formula: *Number of outpatient visits + number of admissions*

TABLE 1 / A COMPARISON OF THE MATANY AND WOLISSO HOSPITALS

	MATANY (2015-2016)	WOLISSO (2016)
NUMBER OF HOSPITAL BEDS	250	200
NUMBER OF EMPLOYEES	221	385
NUMBER OF SPECIALIZED DOCTORS	2	7
NUMBER OF DOCTORS AND PARAMEDICS	21	14
NUMBER OF NURSES AND MIDWIVES	69	159
SALARY - SPECIALIZED DOCTOR	2,137 EUROS	1,852 EUROS
SALARY - DOCTOR	856 EUROS	450 EUROS
SALARY - NURSE/MIDWIFE	148 EUROS	93 EUROS
TOTAL NUMBER OF OUTPATIENT VISITS	23,473	78,662
OUTPATIENT VISITS FOR UNDER-5 CHILDREN	8,695	11,337
PRENATAL VISITS	3,707	4,557
VACCINATIONS	50,462	5.552
TOTAL NUMBER OF ADMISSIONS	8,665	14,330
PEDIATRIC ADMISSIONS	3,934	3,675
TOTAL NUMBER OF DELIVERIES	1,118	3,687
CESAREAN SECTIONS	252	562
MAJOR SURGICAL PROCEDURES	650	3,328
MINOR SURGICAL PROCEDURES	956	5,035
TOTAL OPERATING COSTS IN EUROS	647,842	1,621,760
STAFF COSTS	348,693	895,696
AVERAGE COST PER STAFF MEMBER/MONTH	131	194
COST OF SCHOOL FOR NURSE MIDWIVES	52,913	78,757
TOTAL REVENUES	759.106	1,729,205
REVENUES FROM FEES (% OF COSTS)	100,476 (15.5%)	593,639 (36,6%)
REVENUES FROM LOCAL GOVERNMENT (% OF COSTS)	170,777 (26.3%)	272,336 (16.7%)

TABLE 2 / MATANY AND WOLISSO HOSPITALS: THE SUO AND INDICATORS

	MATANY (2015-2016)	WOLISSO (2016)
STANDARD UNIT OF OUTPUT (SUO)	171,516	323,513
COST/SUO	3.77 EURO	5.01 EURO
SUO/SKILLED PERSONNEL UNIT	1,618	1,413
SUO/TOTAL PERSONNEL UNIT	776	840
% OF COSTS BORNE BY PATIENTS	15.6%	36.6%

x 15 + number of deliveries x 5 + number of prenatal visits x 0.5 + number of vaccinations x 0.2. The table below shows the SUO and derivative indicators.

As can be seen, Wolisso's SUO is almost double Matany's; nevertheless, Matany's productivity per unit of skilled personnel is higher than Wolisso's, while it is lower vis-à-vis the total number of personnel. It would appear that Matany's skilled personnel are more productive than Wolisso's, but it is important not to overlook the higher number of minor and major surgical procedures performed in Wolisso (see **Table 1**), which means the need for more skilled health personnel and hence higher costs, something that the SUO accounts for only in terms of numbers of admissions. Wolisso's unit cost is, in fact, 33% higher than Matany's, due primarily to its handling of twice the number of Cesareans and five times the number of major surgical procedures handled by the latter. Moreover, Wolisso has more specialized doctors (a total of 7, including 2 surgeons, 1 gynecologist, 1 internist, 1 pediatrician, 1 orthopedist and 1 public health specialist), while Matany has only 2 (1 gynecologist and 1 surgeon).

The apparent higher quality provided by Wolisso should be reflected by better outcome indicators, but these are never easy to measure specifically. The proportion of skilled personnel out of the total is 55% in Wolisso (213/385) compared to 44% in Matany (91/221); the bed occupancy rate and number of patients for each available bed are higher in Wolisso (99.1% and 73.7 patients/bed) than in Matany (82.1% and 32 patients/bed). However, Matany's bed occupancy rate, which is close to the golden standard of 85%, is negatively impacted by the average length of hospitalization, which is nearly twice as long as that in Wolisso (10 vs. 5.1 days). This could point to the inefficient use of the beds available, or an excessive number of beds vis-à-vis the needs of the population, or the greater complexity of the cases handled (which, however, is doubtful given the higher number of major surgical procedures done in Wolisso).

Likewise, if we look at the causes of admissions, excluding those for childbirth, more than 68% of Matany's are for infectious conditions (with a high prevalence of malaria), while in Wolisso the number falls to 33%. Abdominal or gynecological surgical problems and chronic diseases including diabetes, heart disease, liver disease and renal failure are predominant in Wolisso. In Matany, admissions due to liver diseases account for 9% of the total, and in most cases are the result of chronic alcoholism rather than forms of infectious hepatitis. Given these figures, we can rule out the aforementioned hypothesis that the average 10-day hospitalization in Matany is due to the greater complexity of the cases handled.

The overall mortality rate in Matany is lower than in Wolisso (2.2% vs. 3.2%, respectively); however, its mortality rate due to direct obstetric causes is higher than Wolisso's (0.4% vs. 0.1%, respectively), as are the rates for intrapartum mortality and neonatal mortality within 24 hours (3.8% vs. 2.2%, respectively). Based on this performance comparison, and notwithstanding the limitations of the small number of indicators considered and the differences between the two countries vis-à-vis their respective degrees of development and socioeconomic indicators, it seems possible to state that Wolisso handles more complex cases than Matany does, which more than justifies its higher overall costs.

TERRITORIAL INTEGRATION AND REFERRAL SYSTEM

With respect to the territorial integration of the facilities and their role as referral hospitals, it is worth noting that Matany is the referral hospital for the Napak District, with approximately 150,000 inhabitants, while Wolisso's reference population is around 400,000, i.e. the residents of the three contiguous districts, which have no other referral hospitals. **Table 3** (on the next page) shows some recent data on pediatric admissions, deliveries and assisted delivery coverage in the two facilities.

It is interesting to note how in recent years the number of peripheral health facilities in Matany has grown from 11 to 14, while in Wolisso it has risen from 8 to 19. In addition, the number of pediatric admissions to Matany has dropped by more than half over the last 5 years, even if under-5 children account for 26% of the population, while in Wolisso, they account for only 13% of the population, even though this number is on the rise.

In the last year considered, the number of admissions recorded in the two hospitals was similar, but the five-year trend shows a 36% drop in Matany and a 56% increase in Wolisso. Overall, it seems reasonable to hypothesize that the peripheral system in Matany has seen a certain degree of improvement, with a drop in the number of complicated admissions/cases and hospitalizations, while that in Wolisso still seems to be developing. With regard to deliveries, both facilities have seen a significant increase in childbirth coverage since 2014, due in particular to an increase in the number of admissions to peripheral centers. Met need for EmOC – i.e., the percent of all women with major direct obstetric complications who are actually treated – is still limited, even though it is improving: in Matany the figure was 1 out of 4, while in Wolisso it was 1 out of 3.

FINANCING

The various types of financing deserve separate mention, particularly as regards revenue derived from user fees and governments. Wolisso directly covers over a third of its operating costs

TABLE 3 / ACTIVITIES IN NUMBERS AT THE MATANY AND WOLISSO HOSPITALS (2011 TO 2016)

	2011/12	2012/13	2013/14	2014/15	2015/16
MATANY HOSPITAL					
UNDER-5 VISITS TO THE OUTPATIENT DEPARTMENT (OPD)	21,732	17,305	13,585	12,971	8,189
UNDER-5 ADMISSIONS	5,739	4,859	4,026	4,217	3,677
NUMBER OF HOSPITAL-ASSISTED DELIVERIES REFERRED BY THE NAPAK DISTRICT (150,000 INHABITANTS)	725	714	795	873	839
% OF ASSISTED DELIVERIES IN THE DISTRICT	18.1%	N.D.	19.2%	63.1%	64.6%
MET NEED FOR EMOC	12.5%	N.D.	12.2%	22.9%	25.6%
WOLISSO HOSPITAL					
UNDER-5 VISITS AT THE OUTPATIENT DEPARTMENT (OPD)	7,745	9,361	7,807	9,287	10,826
UNDER-5 ADMISSIONS	2,356	2,808	2,275	3,610	3,675
NUMBER OF HOSPITAL-ASSISTED DELIVERIES REFERRED BY REFERENCE DISTRICTS (400,000 INHABITANTS)	1,875	2,002	2,361	2,423	2,764
% OF ASSISTED DELIVERIES IN THE DISTRICT	20.0%	23.7%	41.9%	53.6%	56.4%
MET NEED FOR EMOC26,3%	30.2%	30.7%	33.7%	34.9%	

with the fees received from its patients, while the figure for Matany is 15.5% (**Table 1**); however, it is important to note that it was actually less than 10% prior to the financial year considered for this analysis. There are a number of reasons for this difference, the most important of which is the rural setting in which Matany operates, as opposed to Wolisso's urban setting, where people seem better able to contribute to the cost of services. There are also historical factors: Ethiopia has always required patients to pay a portion – sometimes even a quite significant one – of the costs of their health services. Only since 2012 has the government exempted women from paying for childbirth, although they must cover the medicines and consumables. Instead, the Wolisso hospital has a fixed fee for normal deliveries and offered free Cesarean sections up through 2016. This is why in the financial years considered the average fee for a maternity admission in Matany was 4.90 Euros vs. 3.2 Euros in Wolisso. Even though the overall contribution to operating costs by patients is clearly much higher in Wolisso, what they are asked to pay depends greatly on what type of condition/admission is involved.
With regard to government allocations, Uganda contributes 26.3% to the Matany hospital's operating costs, as opposed to only 16.7% in the Ethiopian case. The Ugandan government first provided financing to nonprofit hospitals in 1997, later – in 2003 – putting into effect an actual law on financing, even though over time the allocation has stagnated in absolute terms. Ethiopia, on the other hand, made its first allocation to a nonprofit hospital – that in Wolisso – only in 2003, and has never provided more than 20% of the hospital's operating expenses despite the fact that a specific agreement stipulated that it cover 24%.
In conclusion, we can assert that despite the significantly different types of services provided by each of these Catholic hospitals – a difference that explains the disparity in costs, and likely also in the quality of the services provided – both institutions have significant activity volumes.

NOTES

1 St. Kizito Hospital Matany, Moroto Diocese, Karamoja, Annual Analytical Report FY 2015-2016.
2 St. Luke Catholic Hospital and College of Nursing & Midwifery, Wolisso, Annual Report 2016.
3 Giusti D., Health and Development, Doctors with Africa CUAMM 3/02, pag. 55.

INNOVATION IN COUNTRIES WITH LIMITED RESOURCES

Diagnostic innovation is an important breakthrough for patient care worldwide, including in middle- and low-income countries. A case in point is the GeneXpert system, a valuable tool for the rapid detection of tuberculosis whose high costs, however, continue to be a major impediment to its global application.

TEXT BY / MASSIMO LA RAJA / PADUA HOSPITAL TRUST (AZIENDA OSPEDALIERA DI PADOVA)

Despite the barriers created by their complexity and costly management, some of today's innovative health technologies are still finding their ways to hospitals in developing countries, including those in sub-Saharan Africa where CUAMM is active, opening up new possibilities for the containment of diseases with high mortality and morbidity rates. The molecular diagnostic platform GeneXpert is a prime example. Developed in the United States at the start of the twenty-first century as a tool to help prevent bioterrorist attacks in the U.S. postal system, thanks to the ease of its use the GeneXpert platform was re-launched a few years later by the Foundation for Innovative New Diagnostics (FIND) for the microbiological diagnosis of tuberculosis (TB). Indeed, the Xpert MTB/RIF assay is able to rapidly (in less than two hours) and safely detect both the presence of Mycobacterium tuberculosis in biological fluids and resistance to rifampicin. Previously – using conventional techniques, the only ones available to poorer countries up to that point – it took weeks to arrive at these diagnoses.
In 2010 the World Health Organization (WHO) and the STOP TB Partnership launched the platform as a new diagnostic tool for use in TB control programs in low-income countries. Because of its versatility, GeneXpert was defined as a "disruptive technology" capable of redesigning infectious disease diagnostics (and therefore also the related diagnostic algorithms) in the countries that bear the greatest infectious disease burden, but that have until now lacked the resources and skills to manage even traditional microbiological laboratories, much less molecular ones.
The launch of this new diagnostic tool entailed three main challenges, i.e. the need to:

- show how a technology as highly sophisticated as molecular technology can be implemented on a global scale through the use of simple, safe, "hard-wearing" tools that require single-use cartridges as their only consumable;
- offer standardized concessional pricing for all low-income countries based on a global bulk purchase plan;
- provide a simple, far-reaching system of comprehensive assistance for the regular and rapid replacement of the only component requiring maintenance and calibration, i.e. the diagnostic "core", as well as for the recurrent supply of the single-use cartridges.

As of 31 December 2016, some 6,500 GeneXpert machines had been installed and 23 million cartridges distributed in the public sector in 130 countries. This expansion made it possible to bring the concessional price of the cartridges down from the initial $17 to less than $10.
Following WHO guidelines, the Xpert MTB/RIF assay is now present in the TB diagnostic algorithms of most high TB incidence countries. In addition to helping diagnose different types of pulmonary TB, the method has brought about new diagnostic capacities vis-à-vis cases of pediatric TB, TB and HIV co-infection, extrapulmonary TB and drug-resistant TB, all diseases for which conventional diagnostic techniques have obvious limitations.
Despite the rapid spread of the new diagnostic platform, little reliable evidence is available thus far with regard to its impact in terms of either case-finding or the TB cure rate in most low-income countries. Indeed, in part because the costs of managing it are still too high, the Xpert MTB/RIF assay is not the first-line diagnostic technique for pulmonary TB in most low-income countries with a high incidence of the disease. In addition, its impact vis-à-vis the detection of rifampicin resistance will inevitably be limited for as long as second-line medicines – which are still very expensive – are not more widely available.
Although promising, the way forward will not be easy. It will require donor countries and local governments to scale up their efforts to strengthen health systems overall, a critical element to the success of any vertical approach. The challenge remains: how to ensure that molecular methodology, one of the most important medical advances of this new century, does not remain a privilege reserved for the world's wealthiest countries?

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1 WHO, *WHO monitoring of Xpert MTB/RIF roll-out*, available at www.who.int/tb/areas-of-work/laboratory/mtb-rif-rollout/en/
2 Albert H. et al., *Development, roll-out and impact of Xpert MTB/RIF for tuberculosis: what lessons have we learnt and how can we do better?*, in *European Respiratory Journal*, August 2016.
3 Pai M. and Furin J., *Point of View: Tuberculosis innovations mean little if they cannot save lives* available at https://elifesciences.org/articles/25956

THE PRIDE OF "FEELING" UGANDAN

For many years South Sudan has been ravaged by a civil war that has forced millions of people to abandon their homes and flee the country, many of them crossing into neighboring countries such as Uganda. The Ugandan government has responded to the crisis by implementing various refugee reception policies aimed at improving the lives of those who have lost everything.

TEXT BY / GAVINO MACIOCCO / DEPARTMENT OF EXPERIMENTAL AND CLINICAL MEDICINE, UNIVERSITY OF FLORENCE

Over the past several years South Sudan has been devastated by an internal conflict that has led to death, starvation and horrific destruction, forcing millions of people to flee their homes. Many of them have crossed into neighboring countries, with the majority – around one million individuals – ending up in Uganda.
This is how the writer Khaled Hosseini, in a long article published on 23 July 2017 in the Italian daily *La Repubblica*[1], described the exodus and the relief effort that is being implemented by the UN Refugee Agency (UNHCR), the Ugandan government and local communities.
"*This trip to Uganda differs from visits I have made to refugee operations in other countries*," Hosseini writes. "*The most glaring difference here is the absence of fenced-off refugee camps. Rather, in remarkable acts of generosity and solidarity, individual and community landowners, as well as the government, donate land to the refugees. (...) [A]s I watch the tired refugees from Pajok, I feel a little hope knowing that within a few days they will be allocated a plot of land on which to build their emergency shelters. They will be free to start cultivating crops there to become less reliant on aid. Refugees in Uganda are allowed to move freely, to access the same health care and education systems as nationals, and they are allowed to work and own businesses. Uganda has its own painful history. It understands well that protracted war forces refugees to live in exile for years on average, often decades, and it has learned that all parties are best served when refugees are incorporated into national development plans, instead of being viewed strictly through a humanitarian lens. Uganda's policy is not only progressive and compassionate, but also smart, as it helps better the lives of its own citizens.*"
The author continues: "*Every refugee I have met – in Uganda, Chad, Jordan, Iraq, even my own native Afghanistan – has echoed the same wish: When can I go home and help my own people?" Nothing can replace the deep sense of connection with your birthplace. But when going back to your own country isn't an option, home becomes the place where you feel a sense of belonging. A place where people don't look at you and say 'you don't belong here'. And there are too many voices of fear in the world right now telling refugees they are not wanted. I think of a lovely moment that unfolds daily at the Koluba collection centre, where refugees are first brought for a hot meal and medical screening ahead of being allotted their land. Every morning, a representative from the Ugandan Office of the Prime Minister picks up a microphone and addresses them. Her smile is open. «You have come here to ensure the safety of your children,» she says. «They are the hope and they are the future. It's our wish that in your new home here you can make your children's dreams and aspirations come true. Welcome to Uganda.*»"
I must confess that when I finished reading Hosseini's account I was overwhelmed with emotion, because I too lived and worked in Uganda for many years. My two children were born there. I formed important friendships and developed projects there. In short, I've always felt a little bit Ugandan myself, and when I read about what Ugandans are doing for their refugee sisters and brothers who are fleeing from South Sudan, well, it made me feel very proud.
What a huge gap there is, not only in terms of civic sense but also humanity, between the welcoming words addressed to refugees by the Ugandan government representative and the hypocritical slogan – '*Help them in their own countries*' – often spouted by our own politicians. What a huge gap between the tireless, unseen work done by UNHCR in South Sudan to ensure the safety of refugee convoys crossing national borders, and the attacks made by our own country on aid groups working to rescue migrants lost at sea, in an effort to prevent or limit any such activities. Finally, what a huge gap there is between the generous refugee reception policies practiced by a country like Uganda and the closed border policies imposed by Europe in recent years.

NOTES

1 Hosseini K., *South Sudan. Traveling together in solidarity with Gladys, a refugee*, La Repubblica, pp. 12-13, 23 July 2017.

TAKING A CLOSER LOOK

MANAGING A HOSPITAL DISPENSARY IN SOUTH SUDAN

In sub-Saharan Africa the management of medicines by hospitals is often not very effective. A case in point is the new hospital dispensary in Lui, South Sudan, which despite having been set up only recently still has to deal with an array of problems, including the government's failure to provide materials on time and the appropriate storage of medicines.

TEXT BY / PIETRO ARTEGIANI / VERONA HOSPITAL TRUST (AZIENDA OSPEDALIERA DI VERONA)

When planning and developing health activities in an African hospital, it is critical to bear in mind that these activities will not always be of an exclusively clinical nature, but will instead often involve various other related functions, from logistics to financial administration to human resource management. Such is the case with the Lui Diocesan Hospital, a facility with an approximately 100-bed capacity in South Sudan, a complex and volatile setting where Doctors with Africa CUAMM has been working since 2009 in an effort to help develop each of the aforementioned areas, with a particular focus on the hospital's drug dispensary.

Located in the central part of the hospital complex, the building now housing the dispensary was originally a chapel of the local Episcopal Church, the owner of the hospital. A decision was made to transform it into a drug storage area as the chapel was no longer used for worship and the hospital's stock of medicines was being kept in an untidy jumble in the hospital's hallways or stored in containers outside the building. Despite the fact that the hospital made use of a system recommended by South Sudan's Ministry of Health, this method of storing the hospital's supplies inevitably made it difficult to inventory and manage them effectively.

The new dispensary area was conceived in the most functional way possible, with a switch from a "push" system entailing the biannual supply of coded, standardized kits and modalities and schedules set by the government, to a "pull" system driven by actual demand. Each hospital and health unit must now inventory its own stocks, record what comes in and what goes out, keep an updated balance and forward orders to the state's central drug store based on the actual needs of the facility and what supplies have actually been used in each of its divisions.

The stock management system required that an information system (initially used alongside the hospital's manual system) be brought in as well so as to have an automatically updated stock inventory. However, it can only be used during working hours when the hospital generator is switched on – i.e., for 7 to 8 hours a day from Monday through Friday, and a few hours a day on Saturdays and Sundays – which means that the records are not always regularly updated.

Despite the setting-up of the new dispensary, there are still various problematic issues that make it complicated to store medicines in the hospital. Tensions have resumed between the country's various ethnic groups, and the sporadic flare-ups of violence make it dangerous to travel on its roads, a situation that generates serious problems vis-à-vis the replenishment of supplies and hospital devices by the central store in Juba, the capital of South Sudan, which has often had delays or problems in meeting its half-yearly commitment in any case. As a result, the hospital often comes close to exhausting its stocks of medicines and other medical products such as disposable gloves, suture thread and physiological solutions, and supplies of pediatric intravenous cannulas have sometimes run out, forcing hospital staff to seek out and purchase them directly from private pharmacies.

Another critical issue, given how extreme African temperatures can be, is the appropriate storage of the medicines. As the dispensary is not air-conditioned, each of its rooms has been equipped with a large ceiling fan in order to ventilate the premises. However, average temperatures still tend to be too high for the proper storage of medicines. There are refrigerators for storing vaccines able to guarantee thermal isolation even when the hospital's power generators are turned off, provided they are not opened too often. But the entire system – information, electricity and storage – functions only when the power generator is on, with all the implications that this may entail, including inefficient energy management and medicine spoilage. In some cases generators have been powered by photovoltaic (solar power) systems, but these are difficult to upkeep in rural African settings and a single technical problem can often cause the entire system to break down. Until the instability comes to an end in South Sudan, it will be impossible to develop essential infrastructure (power lines and so forth), leaving facilities like the Lui Diocesan Hospital unable to guarantee the appropriate management of its drug stocks.

DOCTORS WITH AFRICA CUAMM

Founded in 1950, Doctors with Africa CUAMM was the first non-governmental organization focused on healthcare to be recognized by the Italian government. It is now the country's leading organization working to protect and improve the health of vulnerable communities in Sub-Saharan Africa.

CUAMM implements long-term development projects, working to ensure access to quality health care even in emergency situations.

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- **41** countries have been the beneficiaries of CUAMM's work;Diagnostic innovation is an important breakthrough for patient care worldwide, including in middle- and low-income countries. A case in point is the GeneXpert system, a valuable tool for the rapid detection of tuberculosis whose high costs, however, continue to be a major impediment to its global application.Diagnostic innovation is an important breakthrough for patient care worldwide, including in middle- and low-income countries. A case in point is the GeneXpert system, a valuable tool for the rapid detection of tuberculosis whose high costs, however, continue to be a major impediment to its global application.
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