

A report from the Economist Intelligence Unit.



Sub-Saharan African healthcare: the user experience

A focus on
non-communicable
diseases

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About this research

While the world has focused on the traditional causes of premature death in Africa – communicable diseases such as HIV, malaria and tuberculosis, malnutrition, road and other accidents and political conflicts – a column of other types of killers has been gaining ground. These are the chronic, non-communicable diseases (NCDs) such as cancer, heart disease, diabetes, sickle-cell disease and kidney disease, whose collective toll is rising rapidly. The World Health Organisation predicts that by 2030, deaths from NCDs in sub-Saharan Africa (SSA) will surpass those for deaths due to infectious diseases. By that year, deaths from NCDs are expected to account for 42% of all SSA deaths, up from approximately 25% today.

To understand better the causes of this dramatic rise in NCDs and the degree to which the region's healthcare systems are prepared to address the problem, the Economist Intelligence Unit undertook this study, which is sponsored by Novartis. The focus of this study is on the user experience: How aware are patients of the causes of and cures for their diseases, and how well are they served by the healthcare providers in their countries?

This report draws on three main streams of research: extensive desk research; a programme of in-depth interviews with 16 healthcare experts; and a survey of 490 NCD patients—or, in a small minority of cases, their primary carers—in 10 SSA countries, with a minimum of 36 respondents in each country. The countries, representing different parts of the region and varied levels of development, are: Cameroon, Ethiopia, Ghana, Kenya, Nigeria, South Africa, Tanzania, Uganda, Zambia and Zimbabwe. The numbers from each country are roughly even, with between 40 and 55 in eight of the countries, 36 in Kenya and 64 in South Africa.

The survey was carried out in January and February 2014, with most respondents interviewed in person or by telephone. Respondents had a wide range of NCDs, with the most common being diabetes (23%), asthma (17%), heart disease (16%), and cancer (12%). Seven percent had more than one condition. Of respondents, 57% are male and 43% female. The sample covers a wide range of ages, with 25% between 18 and 30, 27% in their 30s, 26% in their 40s, 15% in their 50s, and 7% 60 or over.

As discussed in the text, the sample is better educated than the region's population as a whole. The maximum educational attainment of 32% of the sample is primary school, 16% secondary school, 13% non-university further education, and 39% a university degree. The survey sample is also more urban than much of Africa, with 52% living in cities or suburbs, 31% in rural areas, and 17% in informal settlements. In terms of income, 19% say that they are in the bottom quarter of earners in their countries, 21% that they are in the middle half, 41% that they are in the top quarter, and 19% preferred not to say.

In addition to the survey, the Economist Intelligence Unit carried out a programme of in-depth interviews to gain experts' views on the problems facing sub-Saharan African healthcare systems and the potential solutions to those problems. The Economist Intelligence Unit would like to thank the following individuals, listed in alphabetical order by surname, for their insights and contribution to this research:

- Kingsley Akinroye, former president of the African Heart Network, and president-elect World Heart Federation
- Professor Abraham Haile Amlak, Vice President for Health Service and Local Training Facilities, and Associate Professor of

Pediatrics and Child Health, Jimma University, Ethiopia

- Dr. Mary Amuyunzu-Nyamongo Coordinator, Consortium for Non-communicable Diseases Prevention and Control in sub-Saharan Africa
- Daniel Arhinful, PhD, Noguchi Memorial Institute for Medical Research, University of Ghana; and Principle Partner, UK-Africa Partnership on Chronic Diseases
- Dr. Agnes Binagwaho, Minister of Health, Rwanda
- Try Turrel Chadyiwa, Executive Director, The Heart Foundation Of Zimbabwe, and National Committee Member, Non Communicable Diseases Alliance, Zimbabwe
- Dr Jean-Marie Dangou, Africa Regional Advisor Cancer Control, World Health Organisation, Senegal
- Professor Naomi (Dinky) Levitt, Director, Chronic Diseases Initiative for Africa, South Africa
- Patricio V. Marquez, Lead Health Specialist, World Bank Africa Region
- Elizabeth Matare, Chief Executive Officer, South Africa Depression and Anxiety Group

- Gertrude Nakigudde, Ugandan Women's Cancer Support Organisation
- Dr. Michael Neba, Executive Director, Father John Kolkman Sickle Cell Foundation, Cameroon
- Dr Kaushik Ramaiya, Consultant Physician and Endocrinologist, Shree Hindu Mandal Hospital, Dar es Salaam, Tanzania
- Dr. Steven Shongwe, WHO Africa Acting Programme Area Coordinator, Non Communicable Diseases, former Principal Secretary, Swaziland Ministry of Health
- Dr Sandro Vento, Department of Internal Medicine, University of Botswana, Gaborone
- Dr. Anthony Usoro, National Coordinator for Non-Communicable Diseases, Federal Ministry of Health, Nigeria

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Executive summary

Non-communicable diseases (NCDs) are no longer solely the concern of the old and well off in the developed world. In 2011, the Brazzaville declaration of over 50 sub-Saharan health ministers called them “a significant development challenge” in emerging economies, and a threat to progress toward meeting the United Nations’ Millennium Development Goals.

Such concern is understandable. Although currently communicable diseases constitute the largest part of the region’s health burden, the World Health Organisation (WHO) predicts that between now and 2020 the fastest increase in NCD deaths in the world will occur in sub-Saharan Africa (SSA). The WHO further predicts that, by 2030, more SSA residents will die from NCDs than from infectious diseases. Part of the reason for this is progress in combatting communicable diseases. However, the data show that NCDs are gaining ground as well: Africans are already dying younger from many NCDs than people in other parts of the world. If the continent does not come to terms with the challenge that these illnesses represent, millions more will do so unnecessarily.

Nor is the problem confined to one non-communicable disease. Sub-Saharan Africa is facing a range of related NCD epidemics. It has the largest proportion of people with hypertension in the world, as well as the second

highest age-standardised death-rate from diabetes. The region’s incidence of cancer is rising rapidly, and poor care levels make cancer in SSA more likely to be fatal than in most other countries. Mental illness, sickle cell disease, chronic kidney disease and chronic obstructive pulmonary disease also represent substantial health challenges in the region. While clearly substantial, the full extent of the problem remains unclear. Poor data obscure understanding of the regional NCD burden as well as impeding informed policy making.

This Economist Intelligence Unit study, sponsored by Novartis, provides an important contribution to shedding light on the sub-Saharan NCD picture by focusing on an often overlooked but key stakeholder: the patient. In particular it draws on a unique survey of nearly 500 NCD patients across sub-Saharan Africa commissioned for this report. This has been supplemented by interviews with 16 experts in the region, and substantial desk research to consider the extent and implications of the NCD problem, as well as possible strategies for addressing it. The report’s key findings are:

The NCD risk in Africa is growing, as societal shifts increasingly constrain certain healthy lifestyle choices and create opportunities for unhealthy ones. In particular, SSA is seeing

rapid urbanisation, fast economic growth, and increasing openness to global markets and products. These trends, while potentially very positive, can reduce healthy options: cities, for example, often bring more people into contact with pollution or can be unsafe places in which to exercise. Meanwhile, increased wealth enhances the options for making unhealthy choices, such as enabling motorised transportation instead of walking.

These factors set the backdrop for some of the worrying health behaviours common in SSA, including unbalanced diets (only one in ten people in the region eat five helpings of fruit and vegetables per day); high salt consumption (on average more than 60% above the recommended maximum in Nigeria and South Africa); low levels of physical activity by a majority of the population; high levels of binge drinking in the west and south of the region (in seven countries roughly 10% or more of the population do so weekly). Meanwhile, although smoking rates are not high by international standards, indoor air pollution—often from solid fuel cooking and heating—kills 3.5 million people annually.

Widespread lack of understanding of NCD-related risk, and even of the nature of NCDs themselves, impedes prevention and treatment. Fully 28% of all survey respondents did not recognise that smoking poses a health risk. For other unhealthy behaviours—unbalanced diet, high salt consumption, lack of physical exercise, being overweight—that figure is at or near 50% for the full sample. Worse still, our sample is on average better educated than sub-Saharan Africans as a whole, and education has a profound impact on understanding of health risk. The majority of people in this region have no formal education at all, and of this group only 29% are aware of the dangers of tobacco, 17% are aware of the dangers related to excess drinking, and fewer than 7% of the risks surrounding being overweight and physically inactive or making poor dietary choices (high salt intake, unbalanced diet).

Such low knowledge levels point to a larger problem: cultural assumptions about disease and health which make it harder to address NCDs. These include perceptions of beauty that include being overweight; an idea that sickness is an acute episode and treatment involves brief interventions rather than ongoing management; and, in extreme cases, the stigmatisation of those with NCDs.

NCDs place a crushing cost burden on a large number of patients, with a majority needing to borrow in order to fund treatment: The two largest barriers to managing NCDs are general expenses—including medical fees, travel, and lost pay while seeking and receiving treatment (cited by 45% of respondents)—and the costs of medications (cited by 44%). On average, respondents estimate that their total care costs the equivalent of 29% of annual income, most of which they pay themselves. These high costs have a direct impact on adherence to medical advice: 69% spend less than they would if they followed the entire care strategy that their clinicians recommend. They are also having an impact on economic health. Around 21% of NCD care in sub-Saharan Africa is funded by loans—from family, community, or banks—and 64% of those surveyed have needed to borrow.

However expensive it is, NCD care is often of poor quality. Only 24% of NCD patients in SSA say their care is managed well or very well. For cancer the figure drops to 5%. These figures reflect a variety of widespread deficiencies in health care in the region, including: very poor staffing of systems in general; little spending on NCDs specifically (despite many countries having recently established NCD desks in health ministries, budgets have not followed in the vast majority of cases); few specialists, or often none in rural areas; and lack of equipment. In our survey 49% listed lack of access to specialists, to GPs, or to clinicians with the necessary equipment as a leading barrier to management of their condition. Worse still, generalist clinicians in Africa often are poorly trained at diagnosing

NCDs. Given the costs and barriers, it is little wonder that 20% of respondents had visited a traditional healer in the last month to seek care for some aspect of their condition.

Improvements in a variety of areas can start making a difference: Healthcare systems in both developed and developing countries are struggling to refashion themselves in ways that better address the challenges of NCDs. African ones must do this in a context of continuing high rates of communicable disease and few resources. Nevertheless, examples from the continent show the kind of necessary changes that are possible in a variety of areas:

- *Improved data:* Already, 30 SSA countries have conducted population-wide surveys of NCD risk factors, using a WHO template, and other such surveys are being planned. Two economically better off countries in the region, Botswana and Namibia, have gone further, recently creating electronic patient record systems.

- *Prevention:* Raising NCD awareness, especially among those with little or no formal education, is essential although reaching these parts of the population is not easy. Radio and even popular films can help. Meanwhile, just as healthy choices are being constrained by economic development, regulation can play a role in restricting unhealthy ones, as South Africa's experience with tobacco taxation shows. Such policies, however, are likely to spark resistance which could circumvent any potential gains if populations do not understand the health benefits they are seeking to promote.

- *Patient power:* Patients are an underused asset for raising awareness in Africa. As the efforts of the Ugandan Women's Cancer Support Organisation show, survivor and patient groups can save lives.

- *Expanded use of existing personnel and assets:* Existing health care facilities can be better used in the fight against NCDs. Better training of existing clinicians has been shown to have a rapid impact on diabetes care in Tanzania. Community health workers have shown their ability to improve outcomes in maternal health and could play an important role in combatting NCDs. Meanwhile, HIV clinics are some of the most effective health facilities in many parts of sub-Saharan Africa and efforts in Zambia to use them as the focus of cervical cancer care indicate the potential benefits of strategically expanding their use.

- *Universal health care:* Ultimately, NCDs would best be dealt with by a universal, patient-focused health system based on primary care. For the past 20 years, Rwanda has slowly been building one, relying largely on 45,000 community health workers. The country's rapidly improving health outcomes shows the effectiveness of this approach against communicable disease. Now health authorities have turned their attention to NCDs. The results will be worth watching.

1

Non-communicable Diseases in sub-Saharan Africa

An increasingly visible issue in Africa

Non-communicable diseases (NCDs) are the world's largest killers, accounting for just under two-thirds of deaths in 2010, according to the World Health Organisation's (WHO) Global Burden of Disease (GBD) data. NCDs are therefore prominent on the international political agenda. A 2011 United Nations summit on combatting NCDs, and the release of the WHO Global Action Plan for the Prevention and Control of NCDs in 2013, are recent examples of government attention.

At first glance, NCDs may seem less pressing for sub-Saharan Africa (SSA). They account for only about a quarter of deaths in the region, less than HIV, malaria, and tuberculosis combined. However, the challenges posed by NCDs in the region "have increased dramatically and are immense," according to Anthony Usoro, national coordinator for NCDs in Nigeria's health ministry. Moreover, whilst in the past NCDs afflicted mainly the economically well off, in recent years they have spread to all parts of the population.

Looking ahead, the situation is worse. "We are in an epidemiological transition," says Dr Steven Shongwe, regional advisor, non-communicable diseases prevention and control at the WHO. His organisation predicts that by 2030, such deaths will account for 42% of those in SSA, surpassing the figure for infectious diseases. Worldwide, between now and 2020, the largest increase in NCD deaths will occur in Africa.

One reason for this trend is positive: progress has been made in the fight against communicable diseases. Between 1990 and 2010, the region's

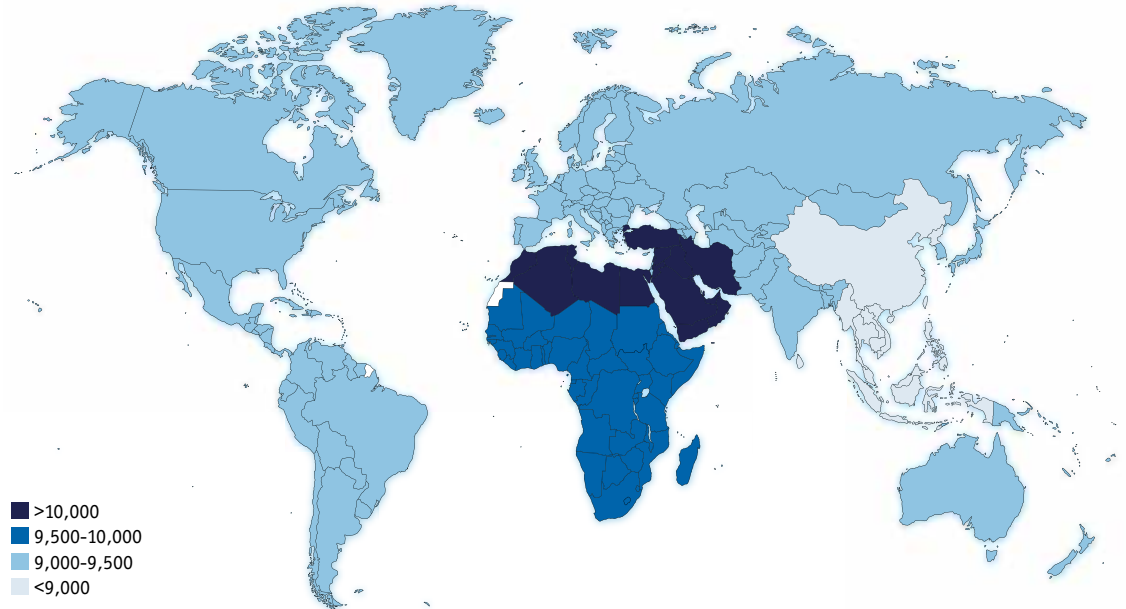
deaths per capita from these conditions fell by 31%, and the number of Disability-Adjusted Life Years (DALYs)—a broader measure of disease burden measuring healthy years lost due to illness, disability, or early death—fell by 36%. As Agnes Binagwaho, Rwandan Minister of Health, puts it for her country, "because deaths occur less frequently at an early age, we have time to develop more NCDs that our people did not have before."

But most of the reasons for the rise in the proportion of NCD-related deaths in the region are negative. Sub-Saharan Africans are developing many NCDs at younger ages than people in other parts of the world. Already by 2008, aggregate age standardised mortality rates for NCDs, which correct for the region's younger average population age, were higher in SSA than in any other region.¹ NCDs are also affecting the living adversely. According to the WHO's Global Burden of Disease data, when data are adjusted for the region's lower average age, they show SSA residents spending the second-highest (after the Middle East and North Africa) number of years living with an NCD-caused disability of any in the world. [see map].

This high incidence of NCDs, and the above-average impact that NCDs have in SSA, have become impossible to ignore. Mary Amuyunzu-Nyamongo, coordinator of the Consortium for Non-Communicable Diseases Prevention and Control in SSA, notes of cancer, for example, that now, "if you ask people if they know somebody or have lost somebody, a lot say 'yes.'" Patricio Marquez, lead health specialist for the World

¹ WHO, *World Health Statistics 2013*, 2013, p. 80.

Age-standardised years lived with disability caused by NCDs per 100,000 population



Source: WHO Global Burden of Disease 2010, Institute for Health Metrics and Visualization.

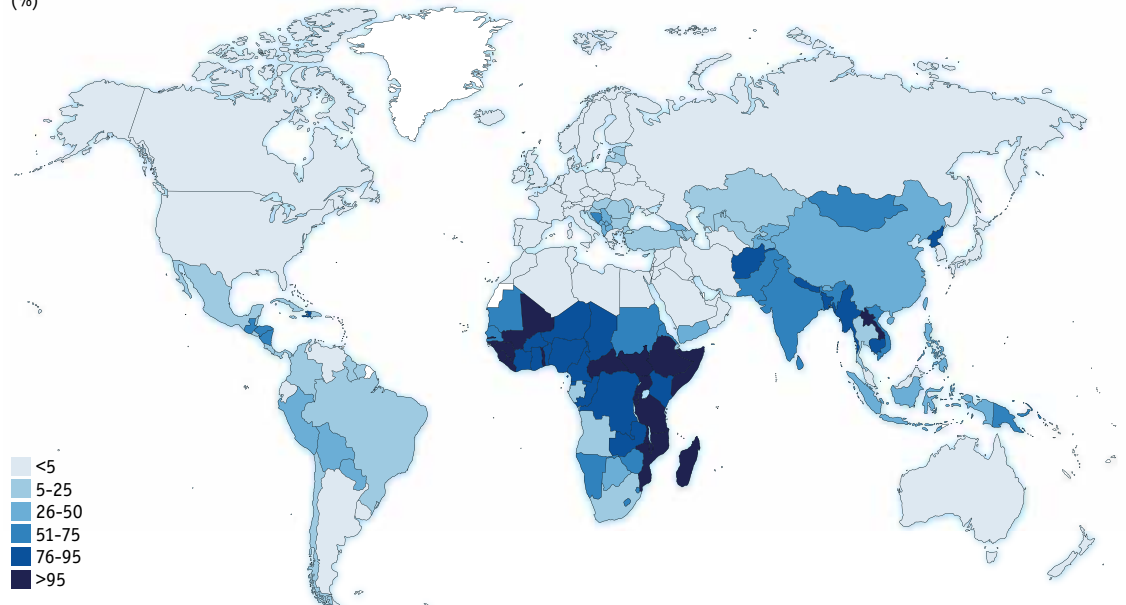
Bank Africa Region, adds that NCDs are “a social reality that is already being felt. There is a growing awareness that something needs to be done.”

Drivers of rising NCD prevalence

The causes of the increasing NCD burden are numerous, but the main one is a rise in unhealthy behaviours which contribute to development of diseases, says Dr Shongwe. Indeed, many of these

conditions are often called “lifestyle diseases” because of their close relationship to choices around eating, physical activity, and smoking. Individual health decisions, however, are hard to separate from people’s social and economic situations. Across many African societies, two inter-related, largely positive developments—economic growth and urbanisation—are both constraining certain healthy lifestyle choices and enabling unhealthy ones, in ways that do much to explain NCD growth.

Population using solid fuel, 2012 (%)



Source: WHO.

According to EIU figures, SSA has been home to nine of the 20 fastest growing economies in the world over the last five years. The EIU projects a similar figure for the next five years. This has happened in tandem with the world's most rapid urbanisation. Between 2000 and 2010, the absolute number of sub-Saharan Africa city dwellers rose by 44%; in 2010, city dwellers were 36% of the total population. By 2030, the UN projects that the number of urban residents in SSA will nearly double again, with urban residents constituting 46% of the region's total population. Many of these migrants have ended up in the widespread informal settlements, or slums, around cities.

Urbanisation drives NCD risk in various ways. First, physical insecurity in many cities makes outdoor exercise dangerous. Next, as Professor Sandro Vento, head of the University of Botswana's School of Medicine notes, urban living often involves greater contact with air pollution and with potentially dangerous chemicals. The pollution is not only from industrial sources; household air pollution kills 3.5 million SSA residents each year, with smoke from widely used solid fuel cooking stoves alone accounting for half a million of those deaths. [See map]

Moreover, adds Professor Naomi (Dinky) Levitt, "there is the stress component, the impact migration has on the psyche, and the challenges of the loss of family structure." In addition, urbanisation frequently brings a nutritional transition. New, low-income African city-dwellers frequently rely on inexpensive but high carbohydrate meals like maize. Our survey of NCD patients shows the collective impact of these factors: 31% of urban respondents cited difficulties of following medical advice in the context of day to day life as a leading barrier to managing their conditions, compared to 21% in rural areas.

Whilst poverty clearly constrains healthy choices, economic success brings its own dangers. Professor Vento notes that "for those who can

afford it, the young generation is eating more junk food," a deleterious effect of globalisation. Meanwhile, greater wealth is allowing people to reduce their physical activity. Motor vehicle sales are still low by global standards, but growing in the region. Meanwhile, as Dr Amuynzo-Nyamongo explains, less expensive vehicles such as motorbikes and bicycle taxis are "permeating rural areas. Even women who used to walk to markets have access to these."

This context helps to explain the lifestyle choices which are boosting NCD rates across the region. These begin with poor diet. The STEPS (Stepwise approach to surveillance) surveys—a standardised WHO NCD risk factor survey covering 30 sub-Saharan countries over the last decade—have found that on average 89% eat fewer than the recommended five daily helpings of fruit or vegetables. In many parts of Africa salt is also commonly added to food. The regional data on its consumption is sparse, but in South Africa and Nigeria, daily salt intake averages roughly 8 grams per day, well above the WHO's recommended limit of 5 grams.² This salty food is not offset with exercise: the STEPS data show that only a minority of Africans engage in vigorous physical activity.

In several countries in Southern and parts of West Africa, binge drinking is also a problem. Even though in every country in the region abstainers are in the majority, in Mozambique, Madagascar, Botswana, Zambia, Gabon, Sao Tome, Cape Verde, and Benin, STEPS studies found that roughly 10% or more of the entire population had had five or more drinks in a single day within the preceding week. This reflects the growing problem of youth alcohol addiction particularly among those who are unemployed or underemployed, notes Mr Marquez. It also helps to explain the 21% increase between 1990 and 2010 of death rates among those aged 15 to 49 from alcohol-related cirrhosis in southern SSA.

About the only—relative—good news is that smoking rates in SSA are low by international standards, averaging around 12% of adults. On

² UK Department for International Development Human Development Resource Centre, "Helpdesk Report: Salt intake", 2011.

the other hand, as noted above, many African lungs are assailed by air pollution in their homes driven in part by the world's most widespread use of solid fuels for cooking and heating, involving 90% of rural households and half of urban ones.

The impact of these risks shows clearly in various types of health statistics. The region has the most widespread problem with hypertension in the world. According to the WHO, 46% of adults have high blood pressure, with both men and women affected. (And, according to 12 national STEPS surveys carried out in SSA since 2010, on average only 10% of those with hypertension were receiving treatment.) Obesity is also becoming more common, even if not to the extent seen in many developed countries. Currently in the region, 23% of men and 30% of women are overweight or obese, and childhood overweight/obesity rates in SSA (8.7%) are already higher than the global average (6.7%).

Not all NCDs are the result of lifestyle choices; many result from genetic inheritance, autoimmune conditions, or infectious disease. But if nothing changes, Africa can expect a large increase in the lifestyle-related diseases.

A deadly fog of ignorance I: Risk, what risk?

Contributing to the growth of these risky behaviours, and impeding their prevention, is "the widespread lack of awareness and apathy of the public around issues like diet, physical activity, alcohol, and tobacco," says Daniel Arhinful, a medical anthropologist and health systems analyst at the University of Ghana. "[This ignorance] is a hell of a big problem to deal with." Our survey figures provide striking corroboration: fewer than half of respondents recognize that being overweight (45%), physical inactivity (42%), or a high salt intake (41%) represent health risks, and only 51% do for lack of a balanced diet. The dangers of tobacco are more widely appreciated, but still recognized by just 72% of respondents.

Worse still, these figures may even understate the problem in the general population. To begin with, those surveyed are individuals who have been diagnosed with an NCD and so, presumably, have had greater contact with medical professionals than the average.

Moreover, our survey respondents have higher educational attainment than the regional average: in our sample, only 32% of adults have just a primary school education or less. According to the latest available, albeit incomplete, country data from the UNESCO Institute for Statistics, the average figure for SSA is about 75%. Moreover, 59% of the whole population have either no or an incomplete primary education.

This difference is significant, since education levels have a direct, profound effect on knowledge of health. Among respondents who had not completed primary school, only 29% are aware of the dangers of tobacco, 17% of those related to excess drinking, and under 7% of the risks surrounding being overweight and physically inactive or making poor dietary choices [see chart]. For those who have completed primary school, these figures are typically higher, but still only 47% for tobacco, 33% for alcohol, and under 15% for the other risks. On the other hand, a majority – typically a large one – of those with a completed post-secondary education are aware of most of the risks covered in the survey.

These results based on educational differences closely track those based on income level, so that it is impossible to tell which is the driving factor. The figures show that sub-Saharan Africa's educational, economic, and presumably social, elites are fully aware of NCD-related health risks. The region's majority of have-nots, in contrast, are woefully ill-informed. This helps to explain the recent, rapid appearance of NCDs in this part of the population.

The type of community in which individuals live also has an effect on risk awareness. Among those with primary education or below, the many living in informal settlements—who, in turn,

Impact of education



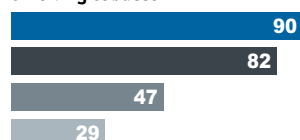
Are you aware of the health dangers presented by the following behaviours?

By level of education

(% yes respondents)

■ Post-secondary ■ Secondary ■ Primary ■ No education

Smoking tobacco



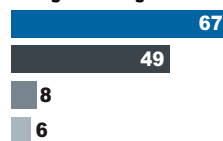
Drinking excessive alcohol



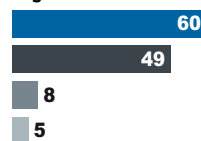
Physical inactivity



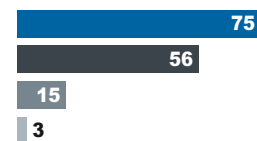
Being overweight



High salt intake



Unbalanced diet



Source: The Economist Intelligence Unit.

Impact of type of settlement

Percentage of respondents who with no or only primary education who are aware of various health risks

(% respondents)

■ All respondents ■ Live in informal settlement ■ Live in rural area

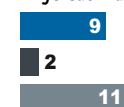
Smoking tobacco



Drinking excessive alcohol



Physical inactivity



Being overweight



High salt intake



Unbalanced diet



Source: The Economist Intelligence Unit.

represent most of the city dwellers—are far less likely than the average for those with that level of educational attainment to be aware of most of the health risks [see chart].

Indeed, in some cases the differences in health awareness—based on type of settlement alone—are extreme. None of our respondents living in informal settlements who have no formal education say they are aware of the health dangers of an unbalanced diet. The data may mean that such schooling as exists in informal settlements is less effective than that in rural areas. Or it may mean that the environment

in informal settlements is less conducive to spreading information on health risks, or that the notion of a “balanced diet” is not especially relevant in the context of the poverty reigning in informal settlements. Whatever the reason, residents of informal settlements, where conditions already make the risks of communicable disease high, are likely to bear a disproportionate part of the NCD burden as well.

A deadly fog of ignorance II: What do you mean by NCD?

Misunderstanding of risk, however, is only part of a wider set of problematic cultural issues.

Another problem is a flawed “perception of who is healthy and what is healthy living,” says Dr Amuyunzu-Nyamongo. “Some African cultures look at a fat person as a healthy person,” especially in light of the weight loss accompanying advanced stages of AIDS. Moreover, higher levels of female than male obesity in sub-Saharan Africa may result at least partly from an association between greater weight and feminine beauty.

Adding to these difficulties are widespread misconceptions about the nature of specific NCDs. In our survey, 87% said that awareness of their condition was mediocre or poor in their country as a whole. This can take various forms. Dr Arhinful, for example, points out that West Africans who are not medical specialists commonly believe that hypertension is the result of “having too much blood” (a literal translation from the name for the disease “*mogya mmroso*” in the Akan language of Ghana).³ Similarly, Gertrude Nakigudde, a co-founder of the Uganda Women’s Cancer Support Organization, explains that “we still have a big job to change people’s beliefs, attitudes, and myths about cancer.”

This will be all the harder because NCDs as a whole do not fit into the mental picture that many Africans have of the nature of disease itself. Dr Kingsley Akinroye, a Nigerian cardiovascular health expert and vice-president of the World Heart Federation, notes that “the long term manifestation of risk factors is still not well understood in Africa.” He explains that harm from tobacco smoking might take decades to show. “You can’t compare this to communicable disease, where if you are bitten by a mosquito, you could have malaria in a short time. People don’t appreciate the degree of shift from the communicable disease way of thinking to the NCD way of thinking.” He adds that this is also true of treatment, with few patients able to understand that NCDs require long-term management rather than a single course of drugs.

The widespread misunderstanding of NCDs has a direct medical effect: lack understanding

by community or family is cited as one of the top barriers to effective disease management by 15% of respondents in our survey. The misunderstanding also tends to lead to stigmatisation of NCD sufferers, sometimes to an extreme degree. Several interviewees for this study noted that different NCDs are often blamed on witchcraft or curses. Cases of ostracism, divorce, and even physical beatings are not uncommon. Even where less dramatic, the stigma surrounding NCDs is a powerful barrier to addressing them. Elizabeth Matare, CEO of the South African Depression and Anxiety Group, for example, says that “mental health in particular has not received the attention it deserves from policymakers. The lack of enabling and inclusive National Health Policies further marginalises people with mental disorders.”

Misunderstanding disease as something involving acute episodes creates another major problem for addressing NCDs in Africa: a reluctance to seek treatment. Dr Jean-Marie Dangou, WHO Africa’s regional adviser for cancer control, estimates that “80% to 90% of cancer cases first arrive [at clinics] when already at an advanced stage. The announcement of the disease is associated with the perception of the announcement of imminent death. For diabetes, Dr Ramaiya, a consultant physician and endocrinologist in Tanzania, also says “many patients [first] come [to the clinic] with stroke, or diabetic foot, or end-stage renal failure. Early diagnosis is a major challenge in semi-urban and rural areas.” Dr Neba explains that for sickle cell discovery of the disease can be several years post-mortem: it is not unusual for parents of a newly diagnosed child to tell him that an older sibling died three or four years earlier exhibiting similar symptoms.

For the majority of Africans who have at most a primary school education, this reluctance to interact with the health system combines with a continued high regard for traditional healers. Indeed, the latter are popular competitors to clinicians. In our survey, of those with NCDs and

³ Cf. Jacqueline Spencer and Gbenga Ogedegbe, “Knowledge, Attitudes, Beliefs and Blood Pressure Control in a Community-Based Sample in Ghana”, *Ethnicity & Disease*, 2005.

low education, 28% consider healers a preferred source of healthcare, a higher figure than for pharmacists (27%) and specialist nurses (20%), and not very far below general practitioners (37%). Moreover, 31% say that they have seen a healer in the last month, about the same as those who had gone to a general practitioner (33%).

Healers can, in some circumstances, improve health outcomes. They were often co-opted in the early stage of the fight against AIDS in Africa and used to provide counselling, although these efforts inevitably included training so that they understood the disease. A World Bank literature review found that, because they are often integrated into existing culture, traditional healers were effective at counselling behaviour change, particularly “of low-status, stigmatised patients, who often avoid public providers.”⁴ A recent study also found that combined use of traditional healers and modern care apparently led to improved outcomes for mental health.⁵ Too often, though, these unregulated individuals have no more knowledge of NCDs than the patients themselves. Experts trained in Western medicine say that unregulated healers can be medically dangerous, as their ministrations too often delay a patient’s appearance at a hospital or clinic until a point when the disease is no longer easily treatable.

⁴ World Bank, “Traditional Healer Services”, <http://web.worldbank.org/>

⁵ Catherine Abbo, “Profiles and outcome of traditional healing practices for severe mental illnesses in two districts of Eastern Uganda,” *Global Health Action*, 2011.

⁶ Jané Joubert, et al., “Evaluating the Quality of National Mortality Statistics from Civil Registration in South Africa, 1997–2007,” *PLOS One*, 27 May 2013.

A deadly fog of ignorance III: the dearth of data

Those with a better understanding of NCDs than the general population face their own type of knowledge gap: a dearth of solid data on prevalence, incidence, and risks associated with NCDs. Even the Global Burden of Disease study figures, the best data available, should be taken with a substantial amount of salt. Although NCD risk-factor data has improved with the widespread carrying out of WHO STEPS surveys by health ministries, not every country has completed such a survey, and in some countries the most recent one occurred a decade ago.

In particular, as Professor Levitt notes, African

“data are poor on mortality and morbidity and other quantitative measures. For example, if you look at the reports in *The Lancet* on levels of physical inactivity etc, you see lots of grey because there is no data. There are also sparse qualitative data relating to NCDs” Mr Marquez agrees, calling this “a critically underdeveloped area that needs to be taken into account for evidence based decision making.” In many sub-Saharan countries information is simply not gathered: only four states in the region send mortality data to the WHO. Even where it is collected, comparability is often hampered by inconsistency of definition. Such data as exist tend to come from healthcare facilities which commonly collect it manually. Moreover, even when clinicians correctly diagnose an NCD—not a given—“the system doesn’t capture people who have not gone to [a clinic],” points out Dr Arhinful. He adds that this is a substantial problem, given the “huge informal sector.”

South Africa probably has the region’s best national mortality and morbidity data, and these figures are often used in creating estimates for other African states. Nevertheless, South Africa’s cause-of-death information remains problematic.⁶ Nigeria has also done comparatively extensive data gathering for the region, including a STEPS survey, the Global Youth Tobacco Survey, and the SSA’s first Global Adult Tobacco Survey, and has derived national incidence rates for hypertension, diabetes, cancer, mental health, and several other major NCDs. Although Nigeria is ahead of many African countries, Dr Usoro admits “We are not very satisfied with the data we have at the moment. It is not adequate to capture the full burden all over the country.”

The lack of data does not make addressing the problem impossible. “We know enough to begin to intervene,” says Dr Amuyunzu-Nyamongo, but without more detailed knowledge it is difficult to determine the degree of intervention needed or which actions are most cost effective. A look at how healthcare systems are coping with NCDs reveals that such understanding is sorely needed.

The profile of sub-Saharan Africa's NCD Burden

NCDs in different regions take on different characteristics. In Sub-Saharan Africa, hypertension—likely driven by high salt intake—is a huge problem and is frequently described as the most common African NCD. The WHO estimates that sub-Saharan Africa has the world's highest proportion of people with high blood pressure. [See map showing mean Systolic Blood Pressure by country] The WHO's Global Burden of Disease data show that the region trails only the Middle East and North Africa in terms of Disability Adjusted Life Years (DALYs) lost to hypertensive heart disease. Stroke and heart attacks claim the most lives of any NCD in the region.

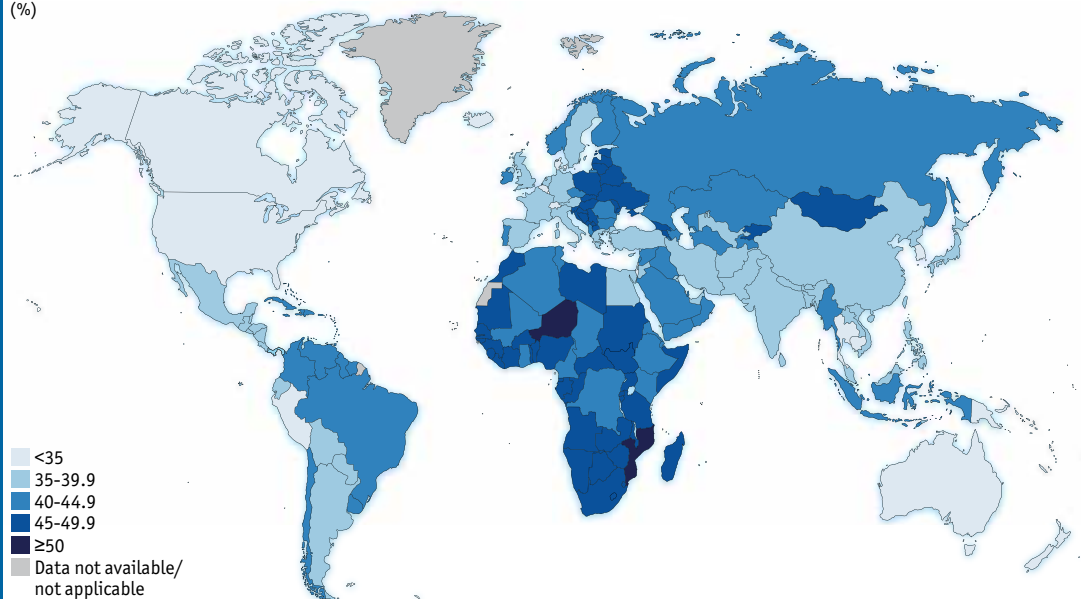
After these two diseases, the next biggest sub-Saharan NCD killer is diabetes. The region also has the second highest rate of deaths from this disease in the world after adjusting for Africa's relatively low average age. Over 90% of the burden is type-II, or adult onset, diabetes, which is driven by lifestyle factors. As yet there is too little data to understand if type-I diabetes, an auto-immune condition, is also increasing in prevalence in the region, although it is on the rise worldwide.

While cancer prevalence is still low in SSA by global standards, "in the WHO African region

its incidence is soaring in most countries" says Dr Jean-Marie Dangou, WHO Africa's regional adviser for cancer control. Moreover, the tendency not to take care of the disease until late, and the lack of treatment facilities, mean that the region is particularly unprepared for this challenge. In our survey, only 5% of those with cancer believe that their condition is being managed well or very well—far below the sample average of 27%. Five-year survival rates are also far lower in SSA than in other parts of even the developing world. One indicator of the extent of the problem: A woman in Africa has double the lifetime risk of dying from cancer than a woman in the developed world.⁷

Looking beyond the highest profile NCDs, sickle cell disease is a particular issue in the region, although mostly in West and Central Africa. Here, the WHO estimates that 20% to 30% of individuals in some countries are carriers, meaning that an estimated 2% suffer from the full disease. Mental illness is a more globally widespread problem, but the level of DALYs related to mental illness in Central and Eastern Africa are higher than in most parts of the world. Other chronic diseases, such as chronic obstructive pulmonary disease, asthma, and epilepsy are almost certainly significant

Prevalence of raised blood pressure*, ages 25+, age standardized both sexes, 2008 (%)



*SBP≥140 and/or DBP≥90 or using medication to lower blood pressure.
Source: WHO.

⁷Shona Dalal, et al., "Non-communicable diseases in sub-Saharan Africa: what we know now", *International Journal of Epidemiology*, 2011.

problems, but lack of studies on them makes it hard to say much more.

Another unique element of sub-Saharan Africa's NCD picture is the complex interplay of these conditions with the still substantial number of communicable diseases. The latter cause NCDs in a variety of ways, such as rheumatic heart disease which results from damage done by rheumatic fever. More striking, up to 30% of African cancer may be caused by an infectious disease.⁸ Of growing concern in particular, as increasing numbers are able to live with HIV for longer periods, is the link between that condition and several types of cancers, notably cervical cancer. Although not the direct cause, HIV patients have much higher rates of these cancers because weakened immune systems are not capable of fighting off other viruses which can cause them.

A causal relationship between NCDs and communicable disease works the other way as well. NCDs can increase susceptibility to communicable diseases. Diabetes, for example, compromises immune systems. A 2010 study in Ghana found that those with type-II diabetes had a 46% higher risk of infection with malaria.⁹ In order to fully understand African NCDs, then, as Patricio Marquez, a lead health specialist, for the World Bank Africa Region puts it, "we need to avoid a dichotomy between communicable and non-communicable disease but see them as part of a biological continuum that requires a multi-sectoral response along a public health and medical care continuum."

⁸ F. Okuku, "Infection-Related Cancers in Sub-Saharan Africa: A Paradigm for Cancer Prevention and Control", *Oncology*, 2013.

⁹ Ina Danquah, et al., "Type 2 Diabetes Mellitus and Increased Risk for Malaria Infection", *Emerging Infectious Diseases*, 2010.

2

The patient experience

Current Health Systems Are Not Delivering

Dr Shongwe observes that “NCDs are overwhelming overstressed health systems and African countries are not well prepared to respond.” The experience of NCD patients in sub-Saharan Africa backs him up. Of survey respondents, only 24% say that their personal conditions are being managed well or very well. There is some national variation, but in seven of the ten countries where our survey took place, most described their disease management as poor or very poor; only in South Africa did a bare majority (52%) say it was better than mediocre. Even that relatively high result, however, may reflect in part an abnormally low level of cancer patients and high level of educated individuals in the South African sub-sample.

Nor are healthcare systems helping patients to understand their conditions, a first step to maintaining health: large majorities in our survey give themselves average or low grades on awareness of how to prevent or slow progress of their own condition via lifestyle change (71%) or medication (75%).

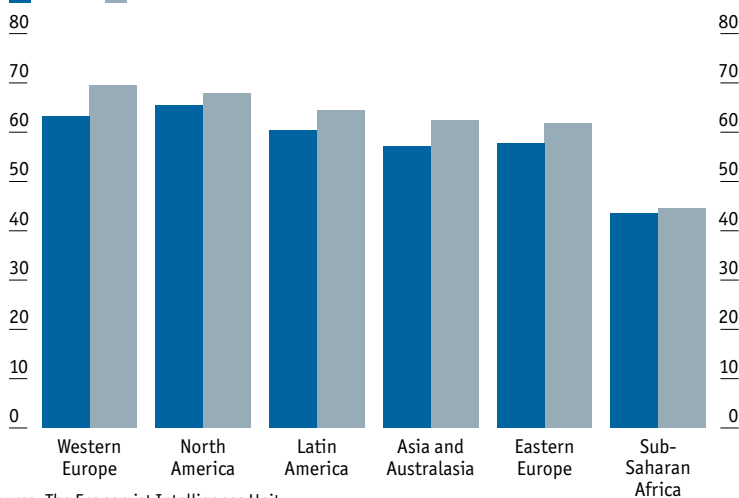
Part of the problem is the poor state of African health systems in general. They are notoriously under-resourced, with more than 30 sub-Saharan systems having annual per capita spending of less than \$100 on health, including both public and private money. Even the wealthiest – South Africa – has fewer than one doctor per 1,000 people. The region also has, by some margin, the lowest life expectancy in the world and has seen the least improvement in that metric over the last decade. [See chart: Life expectancy by region, 1994–2014] In this context, for 17% of respondents to rate medical care in their country as good or very good may be a surprisingly positive result, but the life expectancy figures still reflect the indisputably low average level of care available in the region.

Worse still for those with NCDs, the area’s already hard-pressed health systems focus very little on their conditions, concentrating instead—perhaps understandably—on the continuing, substantial burden of communicable diseases. Dr Ramaiya explains that “health systems remain geared toward acute diseases and treatment by crisis. Programmes deal with the major burdens such as malaria, HIV/AIDS, tuberculosis, and maternal and child health, and are not yet geared toward chronic disease.”

Short-lived**Life expectancy**

(years)

■ 1994 ■ 2014

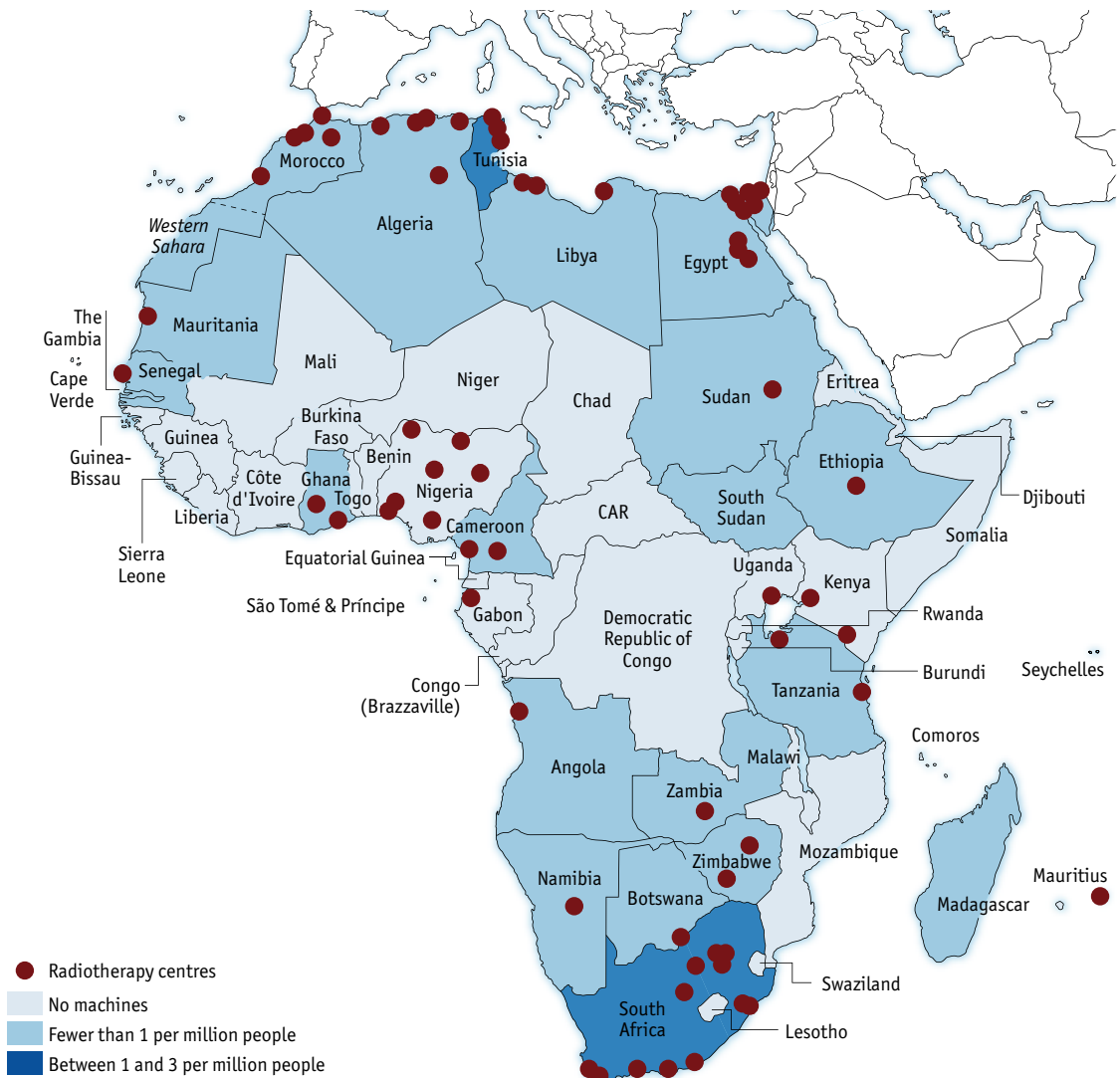


Source: The Economist Intelligence Unit.

Although in recent years most—but by no means yet all—of sub-Saharan Africa's governments have developed an NCD strategy, programmes for specific conditions are still much less common. Dr Dangou, for example, reports that only a minority have yet been able to put in place cancer prevention and control programmes. Money has also frequently not followed the creation of NCD structures. Dr Akinroye notes that "only two countries of 52 in the region have a substantial budget for NCDs." Dr Shongwe agrees. Although he sees "a high political commitment in the region, regrettably this has not yet translated into increased allocation of resources for NCD prevention and control."

The results for specialist care are predictably bleak, especially in poorer countries. To cite an extreme example, Try Chadiywa, executive director of the Heart Foundation of Zimbabwe, reports that his country's 13.7 million-strong population has only one heart surgeon, who charges more than most people can afford. At least, however, he remains in place: "in southern Africa, when someone qualifies as a cardiologist, he or she flees the country to Europe or the West for better working conditions and greener pastures", Mr Chadiywa adds. Heart disease is not the exception: a map of cancer radiotherapy centres on the continent shows many countries completely lacking. Instead, cancer is treated

External beam radiotherapy machines in Africa, 2010



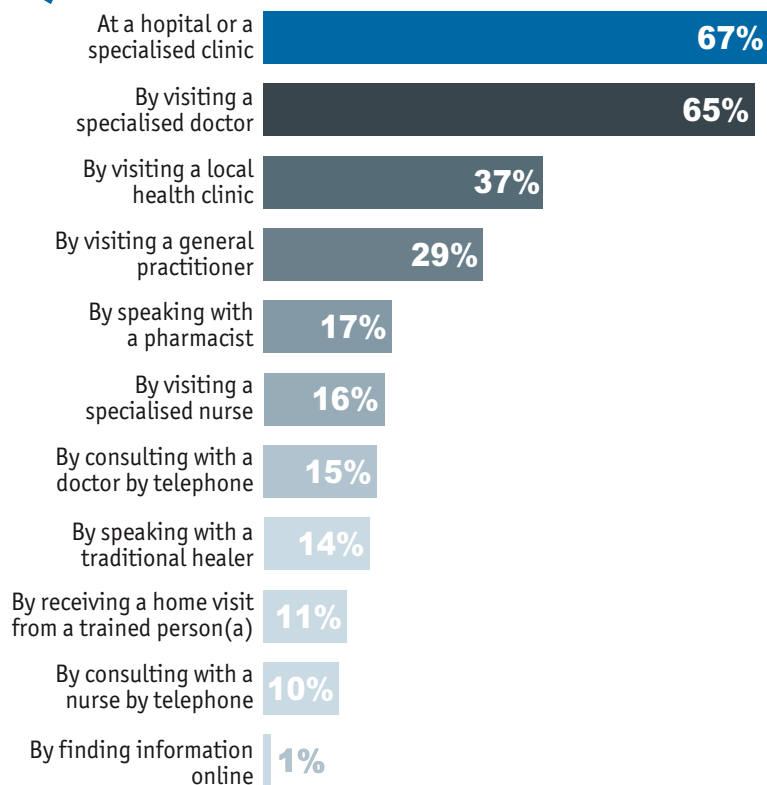
Source: May Abdel-Wahab et al., "Status of radiotherapy resources in Africa: an International Atomic Energy Agency analysis." *Lancet Oncology* 2013.

Healthcare preferences



How would you prefer to receive healthcare?

(% respondents)



(a) such as a community health worker, who is knowledgeable about my condition.
Source: Economist Intelligence Unit.

largely through surgery, which in turn further discourages those with symptoms from seeking help.

Even in relatively well-off South Africa, people with certain chronic conditions suffer from almost no medical provision. For example, although an extensive 2009 study found that 30% of the population have a mental health issue at some time in their lives and 17% did so in the preceding year,¹⁰ the number of psychologists and psychiatrists available to the population is under one per 100,000 people.

Our survey indicates the extent to which such access issues affect NCD patients. Overall, 26% list lack of access to medical professionals – including doctors, nurses, or clinics – as a leading barrier to management of their condition and 18% said the same of lack of access to specialists

in their condition. Moreover, 18% say that the lack of necessary equipment or facilities by the professionals they are able to see is a top impediment to managing their NCDs. Collectively, at least one of these is a leading barrier for 49% of respondents. In rural areas it rises to 56%.

Our survey also shows that respondents want to access more expertise: specialist clinics (67%) or specialised doctors (65%) are by far their preferred means of accessing care. In practice, however, they face constraints, with only roughly half those numbers visiting such clinics or professionals in the last month. For surveyed NCD patients living in rural areas and informal settlements, the figures are even lower, with only 19% of the former and 11% of the latter seeing a specialist in that period. In many cases, this is because reaching such care would require extensive, and expensive, travel.

Primary care may be relatively more accessible—46% visited a local health clinic, and 34% a general practitioner in the previous month—but the ability of primary care providers to address NCDs is open to question. Dr Amuyunzu-Nyamongo explains that “When patients go to a dispensary or health post, nurses and clinicians are trained to pick out [major] communicable diseases. Sometimes they don’t do basic assessments” of things that could be indicative of NCDs. Dr Arhinful agrees: “Someone with hypertension may also have diabetes but, depending on whom the patient sees, may be treated for malaria and not any of these, or might be treated for one NCD but not for pre-conditions” of others.

It is not just a lack of attention to the possibility of NCDs: in some cases clinicians at the local level are far better versed in communicable diseases. For example, Dr Neba notes that even though sickle cell disease is common in Cameroon, where he works, “healthcare providers have limited information on its manifestations,” leading to frequent misdiagnosis of sickle cell episodes. Type I diabetes is also commonly

¹⁰ Allen Herman et al., “The South African Stress and Health (SASH) study”, *South African Medical Journal*, May 2009.

incorrectly identified as an infection such as pneumonia. The problem is not restricted to NCDs either: a recent study over 150 clinics in each of Tanzania and Senegal found misdiagnosis in general was common, with Senegalese professionals identifying the presenting condition correctly less than half the time and Tanzanian ones just 57%.¹¹

Meanwhile, local healthcare providers in many countries are also notorious for their long waits and poor levels of care. The study cited above, for example, found that absenteeism among health professionals was rife and that the latter spent on average less than 40 minutes per workday with patients. Frequently such behaviour reflects low morale, notes Professor Levitt: "If there are 100 people milling around in the foyer when you arrive at work, you feel pretty overwhelmed. Staff also feel unappreciated by the hierarchy and health services."

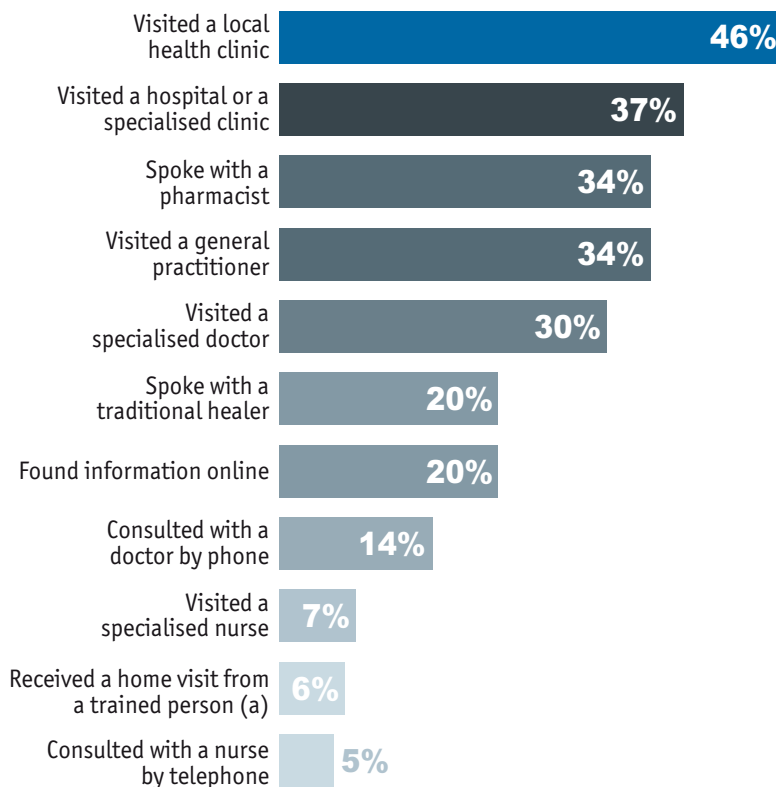
Finally, even patients who can negotiate the difficulties of seeing clinicians may simply not be able to get the medication they need. In our survey, 19% listed inability to obtain medication—independent of cost—as a major barrier to management of their condition. As Dr Ramaiya says of diabetes, "you can have the best of medical support, but if insulin or blood glucose strips do not reach a farmer living in rural areas, it is of no use. Supply, logistics, and

Seeking help



Which of the following actions have you taken within the past month regarding your condition?

(% respondents)



(a) such as a community health worker, who is knowledgeable about my condition.

Source: Economist Intelligence Unit.

forecasting – these are three major challenges we are facing." This is not the responsibility of a single stakeholder. Although governments have an important role to play in maintaining the infrastructure around supply, so does private industry. A number of pharmaceutical companies have been trialing different models, ranging from free or low cost distribution of basic medication, such as insulin, to those who cannot afford it, through pay incentives to sales staff based on volume sold rather than the economic value of contracts. Others are experimenting with programmes to train healthcare providers in delivery of therapies to NCD patients. Nevertheless, finding a balanced solution that is equitable, efficient, and economically sustainable in the long run remains a work in progress.

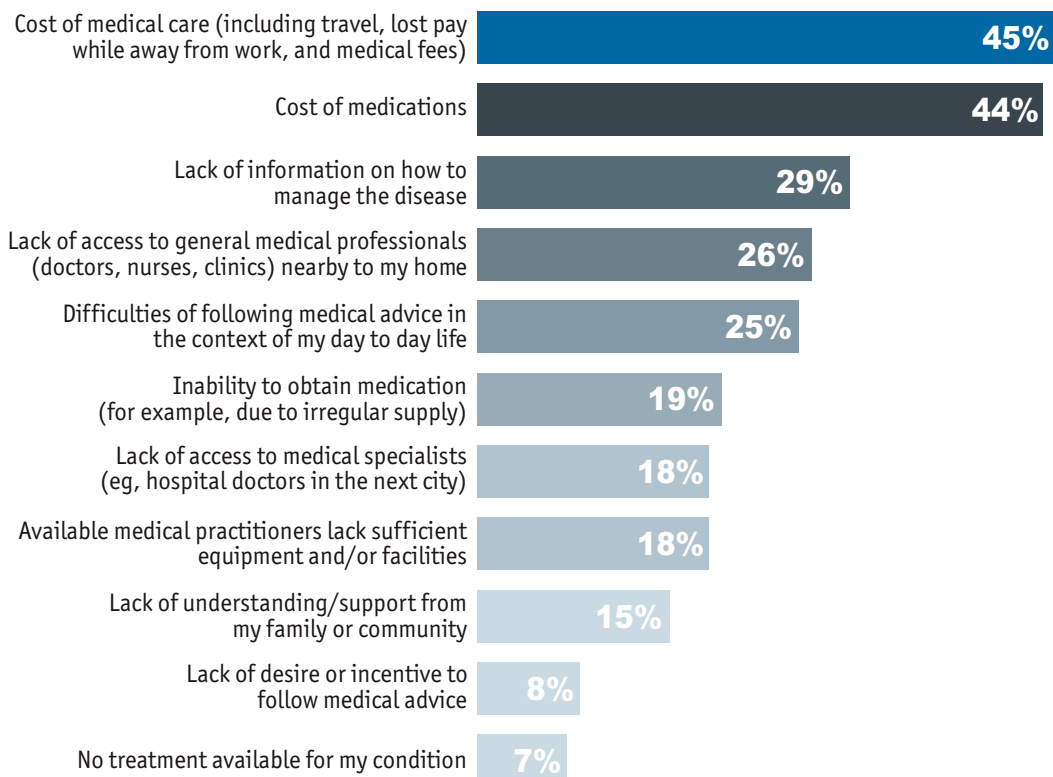
¹¹ Mwangi Kimenyi and Brandon Routman, "The Africa growth initiative presents ... meeting the deadline: challenges to development in Sub-Saharan Africa", *Harvard International Review*, June 2013.

Cost barriers



What are the biggest difficulties in managing your condition?

(% respondents)



Source: Economist Intelligence Unit.

High Costs

While the issues with quality and access are serious, for sub-Saharan NCD patients by far the biggest problem is the high cost of care.

In our survey, the two leading barriers which respondents cited to managing their conditions are general expenses—including medical fees, travel, and lost pay while seeking and receiving treatment (cited by 45%)—and the costs of medication (44%). Dr Akinroye puts the problem simply: “the majority of African patients pay out of pocket and cannot afford their treatment.” Very few regional countries have free public healthcare provision, and the few plans which exist can be restricted in ways which do not cover certain NCD care. Ghana’s, one of the more extensive public health insurance schemes, for example, does not pay for chronic renal failure or certain cancer treatment.

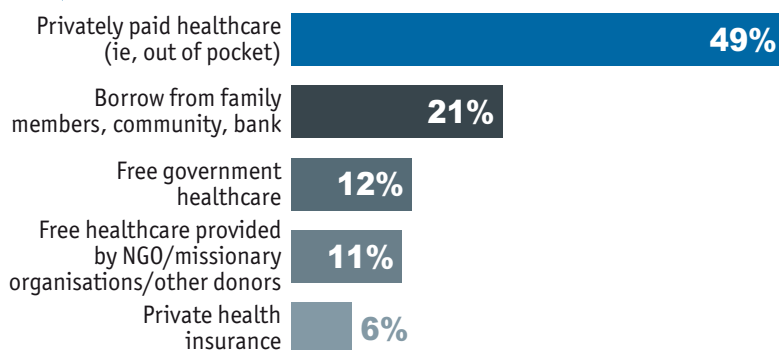
Predictably, these issues were by far the dominant ones for Africans who reported that their incomes were in the bottom three quarters of what fellow nationals earned. Perhaps more

Paying for healthcare



How is the care of the chronic condition which affects you paid for?

(% respondents)



Source: Economist Intelligence Unit.

surprising is that wealthier Africans also struggle with costs. For those in the top quarter of income earners, lack of information is the biggest barrier to disease management (36%), followed closely by general medical expenses (34%).

These results, though, make sense when considering the amount of money required for the individual patient. Our survey respondents estimate that, on average, the total cost of their NCD care comes to 29% of their annual income. About 12% of their total spend comes from free government healthcare, but the lion's share, 49%, comes directly from the patient's own resources while an additional fifth is borrowed.

Faced with such a substantial burden, those with NCDs adopt a variety of strategies. For the very well off, this involves travel. For example, Dr Amuyunzu-Nyamongo explains, "People [who can afford it] go to India for cancer treatment, although it is available locally, because the cost [in Africa] is so high." The same is true of heart surgery. East Africa has become one of India's biggest sources of medical tourists, with around 100,000 coming each year and the number growing by 4% annually.¹² The Nigerian government, meanwhile, estimates that its citizens spend over \$200m dollars abroad each year on healthcare. Not all of this is for NCD care but cardiac and cancer surgery are prominent medical tourism offerings.

For the vast majority of Africans, such care is out of reach. Accordingly, some simply avoid treatment. Respondents say that, if they were to follow all the medical advice that they receive, their costs would be nearly one and half times higher, or 42% of income. Only 31% percent of patients do not skimp at all and, even among the richest tenth of the population, this figure rises to just half. Presumably some of this foregone care is discretionary but much is not. High costs, says Ms Matare, "result in poor adherence to treatment, defaulting of treatment regimens, and an increase in mortality rates that can be prevented."

Another common option is recourse to a lower cost and often more accessible source of advice: traditional healers. Twenty percent of respondents visited such an individual in the preceding month, even though they are a preferred care option of only 13%. The difference is particularly stark at higher income levels. Among those in the lower half of incomes in their country, 20% see traditional healers as a favoured option; for those in the upper half, the figure is 5%. Despite the risks noted earlier, this is perhaps rational. When the healthcare system provides very poor outcomes—even when clinicians get the diagnosis right—and involves high levels of cost and inconvenience, it makes little sense to spend a large amount on modern healthcare. A less expensive traditional healer, whose results may not be much worse, can be an appealing alternative. Indeed, the common practice among traditional healers of taking most of their payment only if a patient is cured adds to the attraction.¹³

Dr Vento believes that health systems "need to show results. For instance, you need to have – depending on the population – one or more good, well-funded and well equipped public cancer centres in each country where people can see results, where people go into remission or can even be healed. Otherwise, people will only seek help from traditional healers because they will believe that going to a hospital means going to die."

Those with NCDs who are convinced of the value of modern medicine, though, eventually need to pay for at least some care. This involves painful choices for raising money. A number of experts interviewed for this study say it is common to hear of patients selling income producing assets or land to raise funds. Our survey indicates that borrowing – from family, communities, or banks – is not only common; it is the norm. As noted above, 21% of the costs of NCD care comes from such loans. Overall, 64% of respondents borrowed at least some money to pay for treatment. Even among those in the top quarter

¹² "Rwanda targets medical tourism", *The Independent* (Kampala), 22 April 2013.

¹³ "African Traditional Healers: The economics of healing", *World Bank IK Notes* 2001.

of the population by income, a majority needed a loan.

This strategy brings issues of its own. Dr Dangou notes with respect to cancer that it can create a “vicious circle, where the patient waits for funds to be raised, but the disease will have progressed” so that the planned treatment is no longer appropriate and a more expensive one needed. On the other hand, Ms Nakigudde notes, some patients have to end their care when their collateral is used up and they are no longer able to borrow. The results of successful borrowing can also be devastating. Ms Nakigudde adds that for “those who finish their treatment successfully, survivorship and quality of life are compromised as patients struggle to pay debts. At times, they fail to pay and banks take their property. This has also caused a lot of premature death.” The debt totals have a negative knock on impact on the economy as a whole as well, as often survivors will have had to sell their income creating goods such as tools and livestock reducing their economic productivity. The alternative to such debt is even less attractive to most, although adopted by some. Dr Neba notes that certain patients take no treatment because “they would rather die in pain than risk their pride” and be seen as a debtor.

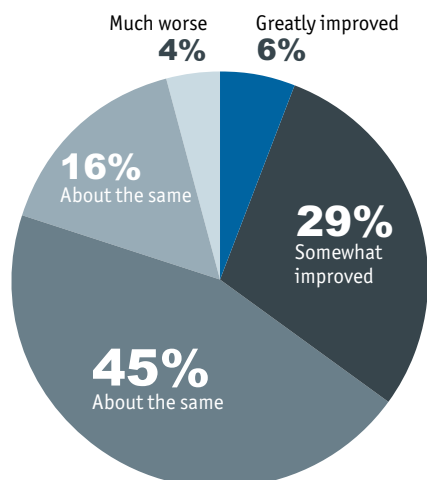
Is care getting better or treading water?

Although the present situation is far short of desirable, what are the prospects for the future care of NCDs given their growing incidence and their increased prominence among health policy makers? Innovation is feeding through in a minority of cases, with 31% saying that they have received access to new technologies or medications in last three years. Nevertheless, survey respondents are sceptical. Although more say things have become better than believe they have grown worse over the last three years, the most frequent sentiment is that little has changed in terms of quality and access. Moreover, respondents see policy makers as distant. Only 45% of those surveyed think that their governments pay enough attention to their condition, and just 40% believe that this level of interest among officials has increased in the last three years.

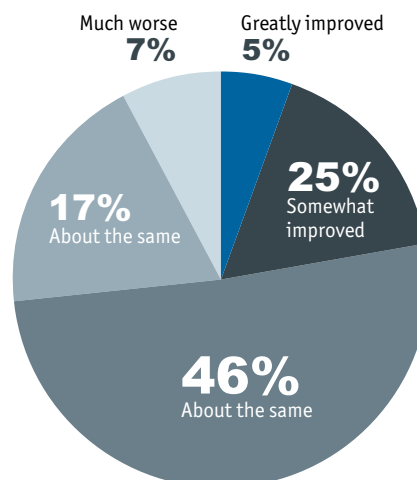
On the other hand, most experts interviewed for this study tend to be positive about policy makers’ attitudes, even as they remain unsure how far this will translate into anything concrete. Professor Levitt’s views are typical: “policy makers in sub-Saharan Africa are fully aware of the burden of NCDs. But

Slow to change

Q How has the quality of the overall healthcare (eg, quality of infrastructure, doctors) you receive for your condition changed over the last three years?
(% respondents)



Q How has the availability/access to overall healthcare (eg, lower costs, doctor clinics closer to your home) you receive for your condition changed over the last three years?
(% respondents)



Source: The Economist Intelligence Unit.

Sickle Cell Care in Northwest Cameroon: How access and cost issues look in practice

Sickle cell disease is a genetic condition which causes the body to produce irregular, sickle-shaped blood cells rather than round ones. This difference causes a variety of serious problems. Because the misshapen cells can obstruct the flow of blood, those with the disease from time to time experience blockages that lead to swelling and pain. Such an episode, called a “crisis”, can last for days and can cause organ damage. Moreover, the sickle-shaped cells die more quickly than normal ones, sometimes leading to a shortage of red blood cells.

Those with the condition are also more susceptible to infection, stroke, kidney disease, and pulmonary hypertension. The combined impact of all these difficulties can be considerable: until a few decades ago, most sufferers died in childhood or their teens. Although there is no cure, careful management, including a controlled diet, food supplements and taking of hydroxyurea (a drug that reduces the severity of the disease) can reduce the frequency and length of crises, minimise other symptoms, and has extended patients’ life expectancy into the late 40s or early 50s in developed countries.

Although between 20% and 30% of people in Cameroon are carriers of sickle cell, and therefore at least 2% suffer from the full disease, care for it is spotty, especially in rural areas. In 2010, the Father John Kolkman Foundation, a Roman Catholic NGO, established a clinic at Barmenda, a city of 800,000 in the country’s northwest. In addition to providing education and counselling, the foundation offers vitamin supplements which increase the supply of normal red blood cells: hydroxyurea is well beyond the financial reach of the organisation or of the local residents.

The clinic’s experience shows how several of the main barriers in sub-Saharan Africa to addressing NCDs affect the work of a small urban clinic with a substantial rural hinterland.

The first issue is getting people even to understand the nature of sickle cell disease. Dr Neba notes that the condition, although long present locally, has been known by its individual symptoms with different ones presumed to be distinct medical problems. “If it is a crisis leading to pain in the bones, it will be called ‘that which chews the bone’, other times it is called ‘person with yellow eye,’” he says. “The name sickle cell has just been surfacing in the last ten or 15 years, and you still don’t always find that in remote villages.”

Even once the condition is recognised as a single disease, causation remains widely misunderstood: “mostly it is attributed to witchcraft. In 2011, we had someone in his 20s who was in a crisis and his parents would beat him in order to cast out a devil.”

Even once people understand enough about the disease that they are willing to start treatment, a large number drop out. In the clinic’s first six months of operation, 45% of patients did so, prompting the foundation to survey these individuals and families in order to understand why.

Access to care was a leading difficulty, cited in about a third of discontinued treatments. Difficulties for rural patients in coming to Barmenda included long distances and the need to use infrequent public transportation – vehicles called taxis, which typically are large vans that begin their journey only when enough people are on board to make the trip economically worthwhile to the driver. The nature of the condition compounded the problem. As Dr Neba explains, “How can you carry a child in pain [due to a crisis] in a crowded taxi?” The foundation accordingly is establishing a mobile clinic to service rural populations.

The biggest barrier, however, is cost. The main diet supplement which the clinic provides costs \$1 per day per patient, but that is beyond the means of many local families, some of whom may have more than one child affected. The foundation raises money to defray the expense, but still must charge something. Even small amounts, however, are too much for some. Three quarters of those who ceased treatment, or about a third of those initially treated, said that they stayed away because they owed the clinic money for previous medication. Others were struggling to pay off debts incurred elsewhere. Even when family members abroad are willing to pay for medication, poverty is a complication. A number of patients take the money sent by relatives for medication and use it for other purposes. This has led the foundation to create a PayPal account so that overseas relatives can fund care directly.

Despite all these barriers, Dr Neba remains an optimist. He reports that among the 350 children the foundation has been tracking “we have found no crises in two years in some; in others crises are less frequent and their duration is reduced. Children who did not go to school are going. Things like this are changing the landscape.”

3

Steps Toward a Healthier Future

Africa is not alone in its need to modernise healthcare. Worldwide, NCDs represent a substantial challenge for health systems that evolved around treating communicable disease and acute episodes. The growing international consensus is that in order to address NCDs healthcare will need to make various changes, including:

- emphasising prevention more, as this is better for overall health and potentially – although not always – less expensive than treatment;
- becoming patient-focussed and collaborative, with empowered patients and clinicians working together to find optimal behaviour and care regimens that potentially address a range of co-morbidities within given individuals;
- organising health services around primary care provision, as this is the most effective, and least expensive, way to co-ordinate care and insure the appropriate interventions for a particular individual.

Also highly relevant in the sub-Saharan context is the recent push toward more universal health coverage. With NCDs now affecting the population as a whole, success in addressing them requires such a solution.

This broad formula can work south of the Sahara as well as anywhere else. Mr Marquez says “if we use a universal health coverage platform and bring in a disease prevention pillar to promote multi-sector interventions, we can make a dent in Africa’s double burden of disease.” The difficulty

is finding the best road map given where the region is starting. As Dr Akinroye explains, “we need actions that are simple, innovative, and home grown.”

This section does not present a simple set of solutions. Rather it outlines a number of areas where change is essential, and provides some examples where certain reforms are being tried.

Data: New efforts and new approaches

Sub-Saharan Africa will not be able to address NCDs effectively and efficiently without more complete information. As Professor Levitt explains, “for policy, you need data. You need to be able to describe the degree of the problem and determine the degree policy has impacted.” Improving data quality is also an implicit commitment in the widely adopted WHO NCD Action Plan – in which states agree to assess and monitor the public health burden arising from NCDs – and in the Brazzaville Declaration which called for strengthened health information systems to produce disaggregated NCD data.

Data improvement has already begun. As noted above, STEPS surveys have shed light on risk factors in the region and countries which have not conducted them, such as Kenya and Uganda, are planning to do so. Nevertheless, getting better information will be a long, hard task. Dr Usoro explains that data will be a priority area of the Nigeria’s health ministry in 2014 in order to create the baseline NCD data required to track progress under the WHO action plan. He expects that the country will have the necessary statistics by the end of that plan in 2020 but adds, “Nigeria

needs a lot of logistical, technical, and financial assistance to produce national baseline data for NCDs” and to track progress under the action plan’s Global Monitoring Framework.

Just as important as collecting data at the aggregate level is changing how data is gathered and used locally. In much of the developing world medical records are not organised by patient, but by individual visits, which makes it difficult to provide the continuity of care needed for those with NCDs.¹⁴ Moreover, where more comprehensive data is gathered, as for tuberculosis registries, too often this is done manually and the data simply not used.

Although advanced record systems can be costly, some African countries are well enough off to afford them. Both Botswana and Namibia have created individual-centred electronic medical records across their hospital systems, which should allow improved NCD and general care.

Prevention: Public education and population-wide measures

For Mr Marquez, “Prevention, prevention, prevention is becoming the key, not only to ensure good health outcomes before the onset of disease but to ensure the financial sustainability of health systems. You can’t keep just treating diseases. It is not sustainable as the population starts to age.” Improved prevention has the added benefit of simultaneously reducing the burden of several NCDs, as cancer, heart disease, diabetes, and COPD, for example, share multiple underlying risks.

So far, however, efforts to improve prevention have been sparse. One obvious need is to improve understanding of NCDs and risk factors among the general public. Given the link discussed above between education and such knowledge, increasing primary school enrolment and completion across the region in pursuit of the Millennium Development Goals is very positive news. According to UN figures, the number finishing primary school rose from just 54% in

2000 to 71% in 2010. Dr Binagwaho explains that “behaviour change is easier when someone is educated. This is the first generation with universal access to education in Rwanda – now we have 96% of kids in school – so this generation will be easier to educate in healthy behaviours.”

Such gains, while important, nevertheless take a long time to feed through. Moreover, for the regional as a whole, they are likely to be limited. As noted earlier only minorities, in some cases small, of those with a primary school education are aware of every health risk. Meanwhile, according to UNESCO data, sub-Saharan African’s secondary schools could accommodate a maximum of only 36% of the population of that age. The evidence of our survey, however, points to a need for at least a secondary school-level education for a significant improvement to be visible in health awareness and health practices.

Formal education, then, will likely remain a long-term, partial solution to raising NCD risk awareness for some time. Reaching the many still unaware of how dangerous their behaviour is, especially those living in informal settlements and rural areas, will be essential, but what Dr Arhinful says of Ghana could apply to much of sub-Saharan Africa: “we are paying lip service to sensitising people about the risks of lifestyle changes. This is how far it goes.”

One reason is that, in Professor Vento’s words, those living in “poor communities are difficult to access with any kind of information.” There are, however, ways around this problem. He notes that radio is probably the most widely used medium in the continent and that working with community and religious leaders can be effective. The Nigerian government has done this and even tried to spread the message through popular musicians and Nollywood (Nigerian cinema) stars. The latter efforts included release of the diabetes related film, “Sugar Boy” late in 2013 which features a number of leading Nollywood actors.

¹⁴ Soeren Mattke, “Learning from the HIV/AIDS experience to improve NCD interventions,” Louis Galambos and Jeffrey Sturchio, eds., *Addressing the Gaps in Global Policy and Research for Non-Communicable Diseases*, 2012.

The potential impact of raising public understanding of NCDs is, though, difficult to assess. On the one hand, reducing levels of behaviour-driven risk simply will not happen if people do not know the danger. Moreover, our survey suggests that health messages may have some direct impact. A large majority, around 75% to 80%, of those respondents aware of the health risks involved in smoking, excessive drinking or various poor dietary choices say that this knowledge caused them to modify their behaviour.

On the other hand, such education is not always effective: 20% to 25% in our survey—all people who already have NCDs—who know of the risks admit to not changing their behaviour as a result. Worse still, indications are that poorly educated individuals—those most likely to be unaware of the dangers—are the least likely to modify their actions even if they learn. For most risks, there are too few respondents in this group to judge how they are likely to react, but of those with little education who do know that drinking excessive alcohol is risky, 33% say it has not changed their behaviour, and for tobacco use the figure is over half (55%).

Moreover, these are self-reported results, so people may be painting too rosy a picture. In 2013, a large international study of individuals who had suffered a heart attack or stroke reported that only 35% of these most at risk individuals had begun engaging in a high level of exercise and 39% adopted a healthy diet, while 19% continued to smoke.¹⁵ The general population is likely to be even more reticent. As Dr Ramaiya notes, “prevention messages are not well liked. Somebody eating pizza three times a day doesn’t like being told to stop.” This is consistent with experience in much of the world: public health advocates, while stressing that people knowing the dangers of unhealthy behaviour is an essential first step for effective change, increasingly believe that such education efforts are on their own unlikely to be cost effective.

Instead, officials tend to focus on population-wide measures. Just as social and economic developments can constrain healthy choices and encourage unhealthy ones, population-level prevention attempts to use regulation to do the reverse. Typically these measures either penalise risky activities or encourage healthy ones.¹⁶ Of the 14 most cost-effective interventions listed in the WHO NCD action plan, six involve taxation and regulation and two further ones—reducing salt intake and shifting from trans fats to other unsaturated fats that are not hydrogenated—typically involve regulation of, or cooperation with the food industry. NCDs need to be “a whole-of-government issue, not just a health one,” says Dr Usoro. “[In the Nigerian government] there is inter-sectoral collaboration on fiscal measures to reduce NCDs and their risk factors. These include levies on products like tobacco, refined sugars and salt.” ECOWAS – West Africa’s regional trade body – is even moving toward harmonised standards on high fat meat. Dr Akinroye adds that this means, for population wide prevention, that “high level political commitment is essential.”

One frequently praised population-level prevention measure in SSA has been South Africa’s imposition of tobacco taxes. In 1994, the government started raising excise taxes on tobacco from 32% of the retail price to 50%, a process completed by 1997. The impact was striking: the proportion of smokers in the adult population fell from 33% to 24%, total legal cigarette consumption dropped 40%, and age-standardised death rates for diseases associated with smoking, such as chronic obstructive pulmonary disease and lung cancer, also fell, although the exact extent is difficult to tell because of poor data.

Sub-Saharan Africa has plenty of scope to increase tobacco taxes where levels are still below those in much of the developed world. Other population-level prevention measures like declaring certain public places smoke free, have been shown to have a substantial effect, at little or no cost. South Africa itself is moving

¹⁵ K Teo et al., “Prevalence of a healthy lifestyle among individuals with cardiovascular disease in high-, middle- and low-income countries: The Prospective Urban Rural Epidemiology (PURE) study,” *Journal of the American Medical Association*, 2013.

¹⁶ See: Economist Intelligence Unit, *The heart of the matter: Rethinking prevention of cardiovascular disease*, 2013 for an extended discussion of this shift.

ahead with other population level prevention initiatives: in 2013 it enacted legislation requiring the reduction of salt in a range of processed food products.

As a solution on its own, especially used without data, however, prevention by influencing behaviour can be so blunt an instrument as to be ineffective. South Africa's actions make sense for a country which had a high adult smoking prevalence and where the majority of dietary salt intake comes from processed food. Nigeria, with a much lower smoking prevalence and where most salt intake is discretionary, is likely to benefit less—although still some—from these approaches.

Moreover, paternalistically reshaping the individual's environment in order to encourage healthy choices does not work if most of the population is not already well informed and motivated to make those choices. Even in South Africa, 40% to 50% of cigarettes consumed in the country are illegally sold to avoid tax, presumably dampening the health impact of the tax measure.¹⁷ Mr Chadiywa notes that after Zimbabwe's recent increase in alcohol and tobacco taxes, many of the country's mainly rural population have taken to drinking the local illegal, high-alcohol moonshine, Kachasu, and cheaper, unfiltered cigarettes, Chimonera. This has actually increased their health risks. Although population-level prevention can help in some cases, there is no quick substitute for prevention education, especially in a region where many countries have too weak a state apparatus to enforce unpopular measures effectively.

Patients: An overlooked resource

Although NCD awareness programmes may not lead all or even most individuals to adopt less risky behaviour, they are essential if African populations are to move away from the myths and stigma surrounding NCDs. This in turn is necessary to make the population more willing to interact with the health systems, rather than

waiting until it is too late or using traditional healers. Mr Dangou notes that "communication is critical to decreasing stigma, raising awareness and disseminating education. People with a personal history are a key resource." One of the rare examples of what this can look like in practice is the Ugandan Women's Cancer Support Organisation (UWOCASO).

Ms Nakigudde notes that "such groups are not very common in Africa because there not many survivors of cancer, and some survivors do not want to talk about their diagnosis because of stigma." Nevertheless, she and four other survivors founded UWOCASO in 2004 with the joint goals of supporting women and families affected by a cancer diagnosis and increasing awareness about the importance of early diagnosis and treatment. In pursuit of the first goal, the organisation engages in one-on-one peer counselling between a survivor and a newly diagnosed patient.

Before launching efforts to improve awareness, UWOCASO conducted a qualitative study to understand the barriers to early screening and detection, as well as to determine which types of materials would be the most effective. The group adopted a strategy of using media friendly events—such as an annual bicycle ride through Kampala on World Cancer Day, and making survivors available for radio and television interviews—as well as open educational and cancer screening sessions, known as cancer camps, which it also often combines with fun activities. To increase its visibility, it partners with other groups, including the local Rotary Club and the Uganda Cycling Association.

The camps have attracted hundreds of women and, Ms Nakigudde believes, "a lot of lives are being saved. The people we have reached understand cancer a bit better and people go to hospitals rather than traditional healers." Moreover, many more survivors are willing to be publically known as such, and their "experiences and success stories are very powerful in reducing

¹⁷ Craig Lemboe and Philip Black, "Cigarettes taxes and smuggling in South Africa: Causes and Consequences," University of Stellenbosch Economic Working Papers 2012.

stigma and raising awareness about NCDs.” The need, nevertheless, remains great. From speaking with new patients, Ms Nakigudde finds that many still have “no single piece of information on things ranging from their treatment’s benefits, its side effects, survivorship and positive living, information on prevention, etc.” The big barrier for doing more is funding, although the value of UWOCASO’s work has been such that the Union for International Cancer Control, other international NGOs and private companies have provided money and the Ugandan Ministry of Health has given technical support.

Existing Assets: Expanding and repurposing what is already there

As health systems try to provide patient-centred, integrated care for those with NCDs, several existing assets within the healthcare system would be natural places to concentrate initial efforts.

One is better training of existing clinicians to recognise and understand the basic care of NCDs. The impact can be substantial and rapid. Dr Ramaia explains that, less than a decade ago, Tanzania had around 20 children with diagnosed type-I diabetes in the national referral hospital and few, if any, elsewhere. Others with the disease “were probably being misdiagnosed as having severe falciparum malaria, bronchopneumonia, or pneumocystis carinii.” After its onset, though, type I diabetes is fatal within months without insulin therapy so many were likely dying. He then assisted in establishing the World Diabetes Foundation’s Changing Diabetes in Children programme, which has spread to a number of African and other developing countries. Now there are approximately 1,300 children with type 1 diabetes in clinics all over the country. The programme involves a number of important elements—including the introduction of simple diagnostic technology, free provision of insulin, and training of appropriate specialists—but Dr Ramaia reports that a key part of this success is

simply that generalist “nurses are now aware” of diabetes and can easily test for it.

Better trained doctors and nurses, however, are unlikely to be able to meet the region’s healthcare needs alone. As noted earlier, access is a major issue and supplying a sufficient number of such highly trained staff is simply beyond the budget of many sub-Saharan countries. Meanwhile, the World Health Organisation is encouraging health services to engage in greater task-shifting, or giving routine tasks to individuals with less training. This has led in several parts of the region to the widespread use of Community Health Workers (CHWs): Ethiopia, Nigeria, Rwanda, and Malawi, for example, have each deployed over 10,000. These are individuals chosen from within communities, sometimes by popular election. They lack general medical expertise but are trained, usually for several weeks or months, to provide basic prevention education and conduct low level care interventions. Just as important, they are able to refer those with symptoms of conditions they cannot treat to more skilled medical professionals. CHWs typically do this for little or no pay. Where working in conjunction with an effective health system, such individuals have proved themselves to be highly cost-effective in a number of areas, including maternal and childhood health as well as communicable disease prevention.¹⁸

NCDs, or at least their identification and prevention, seem like an obvious target for CHWs. The problem is that these individuals often have as confused an idea of NCDs as the general public.¹⁹ They would therefore require additional training which would likely add to the cost of CHW schemes. Moreover, although such programmes have been shown to be cost-effective for NCD care in developed countries, a recent *WHO Bulletin* report noted that their ability to manage such conditions in low-income states remains unproven.²⁰ Finally, CHWs cannot be a panacea: although prominent in the 1970s and 1980s, they went out of fashion because they were given

¹⁸ For a literature review from the John Hopkins Bloomberg School of Public Health, see Henry Perry and Rose Zulliger, “How Effective Are Community Health Workers? An Overview of Current Evidence...”, September 2012.

¹⁹ Gail Hughes, et al., “Ability to manage diabetes – community health workers’ knowledge, attitudes and beliefs”, *Journal of Endocrinology, Metabolism and Diabetes of South Africa*, 2006; MJ Sengwana and T Puoane, “Knowledge, beliefs and attitudes of community health workers about hypertension in the Cape Peninsula, South Africa.” *Curationis*, 2004.

²⁰ Gordon McCord et al., “Deployment of community health workers across rural sub-Saharan Africa: financial considerations and operational assumptions”, *Bulletin of the World Health Organization*, 2012

insufficient education and support by the rest of the health system.

With all these caveats, Dr Akinroye is probably right when he notes, “we can train many community health workers with knowledge of NCDs within a short time to deliver health promotion and diagnosis. I am convinced that specific ones trained in NCDs could make an impact quickly without major investment.”

The issues around CHWs reflect a broader aspect of sub-Saharan healthcare. Especially because so much funding comes from outside, much of the most effective infrastructure is highly focussed on particular conditions or types of health, rather than broadly integrated. This means that a community may, for example, have very effective provision for HIV – often under the United States’ President’s Emergency Plan for AIDS Relief (PEPFAR) – but lack even basic care for other conditions.

Expanding existing single-disease centres of excellence to cover a wider range of conditions—especially where there are common co-morbidities associated with the original illness—is another commonly posited strategy for improving NCD care. The best known example is the integration of PEPFAR-funded HIV clinics with the Cervical Cancer Prevention Programme in Zambia (CCPPZ). The latter’s facilities are housed in PEPFAR’s clinics but open to all women and provide both testing and basic treatment or, where appropriate, referral for more advanced care.

The programme demonstrates how such care can become generalised across the population. CCPPZ testing initially was dominated by HIV positive women—as HIV increases the risk of cervical cancer—but over a seven year period this has shifted so that the large majority are now either HIV negative or of unknown status. With over 100,000 Zambians tested, it is the largest cervical cancer screening programme in Africa.²¹ The concept is now being applied more broadly.

HIV patients are also more likely to suffer from mental health issues and a pilot mental health screening study at PEPFAR facilities in Zimbabwe has yielded promising results in terms of stigma reduction as well as better identification of those in need of treatment.²²

Mr Marquez believes the potential exists for much further expansion and integration as part of a greater emphasis on integration and primary care. “HIV clinics,” he says, “could examine for hypertension, high sugar, or pre-cancerous conditions. It requires some training and retooling, but you could use one patient visit to cover several programmes at the same time.” Others are more cautious. Dr Amuyunzu-Nyamongo, while seeing promise in such developments, notes that the “problem is communicating between a well-financed programme and one without finance. The question of ‘What are you bringing to the table?’ is likely to arise.” Professor Vento adds that it would not be easy to change HIV facilities into “NCD clinics where appropriate diagnosis and treatment are available,” as in many cases it would require extensive training, especially for overseeing complex care regimens.

Expansion of existing facilities, then, like the use of CHWs for NCDs, can help, but these are only partial solutions on the road to integrated, universal care.

What Might Universal Care Look Like in Africa?

Rwanda’s healthcare system has been attracting substantial attention recently, and for good reason. In the last decade, the country has seen dramatic, across the board progress in a variety of areas. Between 2005 and 2011, deaths from malaria dropped by 85% and from 2000 to 2011 those from tuberculosis by 77% and maternal mortality by 60%.²³ Although these statistics partially reflect the dire health situation which the genocide and destruction of the mid-1990s had created, since that time the country has not only regained what it lost during that period but

²¹ Mulindi Mwanahamuntu et al., “Utilization of Cervical Cancer Screening Services and Trends in Screening Positivity Rates in a ‘Screen-And-Treat’ Program Integrated with HIV/AIDS Care in Zambia”, *PLOS One*, September 2013.

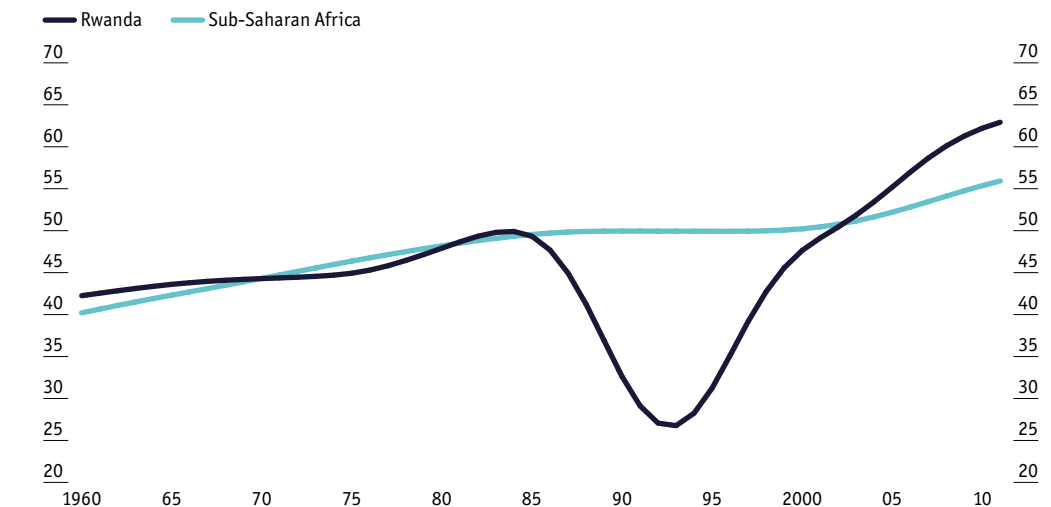
²² AIDSTAR-One, “Assessment of Mental Health and HIV Integration pilot in Zimbabwe”, June 2013.

²³ Paul Farmer et al., “Reduced premature mortality in Rwanda: lessons from success”, *BMJ*, 2013.

Upward bound

Life expectancy in Rwanda and sub-Saharan Africa

(% respondents)



Source: World Bank.

powered ahead of the rest of the region. [See chart comparing life expectancies in Rwanda and SSA.]

These gains have not come through extensive spending on health; the average is \$55 per capita annually. Instead, two health-system attributes which have been essential in this success set it apart from its neighbours. First, care is universal: 98% have some form of health insurance, including 91% who are members of the low-cost government plan. This has a 10% co-pay, but the poorest quarter of the population are subsidised.

Even more important, the health system is structured around integrated primary care. Dr Binagwaho explains that “When we started to tackle the major killers, we never built a system for emergencies only. We have a principle: quick, emergency solutions will kill our future.” Instead, the system is tiered to use the limited health professionals to maximum effect. The country still has fewer than 700 doctors but it has 45,000 trained community health workers, three for each village. These can refer cases to the sector level – each sector has 50 to 100 villages – where the patient can be seen by qualified nurses who can again refer people further up the line to see

doctors in a district general hospital, who in turn can send them to one of the Rwanda’s five specialist hospitals.

When the country began rebuilding its health system after the genocide, it originally focussed on communicable disease, still an important priority. Since 2008, however, it has been trying to address NCDs as well. In doing so it is again adopting an integrated approach.

On the health system side, the country is busy building up capacity. For example, it recently opened up East Africa’s first rural cancer clinic. It is also addressing its dearth of medical professionals. Human Resources for Health is a health ministry programme run in cooperation with prominent American medical schools—including Harvard, Yale, and Columbia—that Dr Binagwaho calls “the biggest ever education programme involving cooperation between north and south.” It should produce 500 specialist doctors, many experts in NCDs, as well as strengthen the capacity of Rwanda to train its own future specialists. Even though the scheme is still in its early stages, Dr Binagwaho calls the impact to date “already huge, because faculty members are bringing a new way to look at how

to manage diseases. It has already had a skill transfer impact.”

Without US government funding, this effort could not have been launched, but there is also much the country is doing that it can afford on its own. In particular, Rwandan officials have been engaged in, or are planning, a variety of large scale prevention and screening programmes to catch NCDs early, when they are easier, and less expensive, to treat. These have included the voluntary vaccination of girls aged 12 to 16 for human papillomavirus (HPV) in order to prevent cervical cancer, a programme that reached 93% of the target population, and a pilot study screening 10,000 women for the same disease to determine how best to check the entire female population for this cancer.

This, however, is only a small taste of what is to come. CHWs are being trained to recognize the symptoms of NCDs in preparation for a general check-up, done at the village level, of every woman in the country aged 35 or over and every man aged 40 or more. Part of this effort is meant to be educational says Dr Binagwaho. The check-up will involve a patient discussion with the CHW, during which the latter can explain risks around overeating, lack of exercise, smoking and other

unhealthy activities. Where that talk reveals high levels of risks or symptoms, the individual will be sent for follow up clinical tests. Says Dr Binagwaho, “With the little means we have, we can catch NCDs early.”

Meanwhile, the government is engaging in population-level prevention as well. “We try to regulate what we can regulate,” explains Dr Binagwaho, adding that this is done by authorities across government, not just in her ministry. Laws already include a ban on smoking in public places, and the government is looking at regulating sugar levels in certain foods and drinks. At the same time, the ministry is planning to raise public awareness by having a yearly NCD week in which it promotes prevention messages.

Inevitably, such a holistic approach to NCDs requires prioritising by a government that, like others in Africa, faces significant resource constraints. Dr Binagwaho recommends a systematic approach: “for what we can do [easily], there is no restriction; for what is hard, we start with the biggest problem.” This strategy has proven effective so far against communicable disease in Rwanda, and could have similar results on NCDs region-wide.

Conclusion

An issue that will not wait

Non-communicable diseases are not currently the biggest element of sub-Saharan Africa's health care burden, a fact that could tempt the region's policy makers to focus on more pressing concerns. That would be a dangerous gamble at best. In the face of a rising prevalence of NCDs as a proportion of the region's total disease burden, many NCD patients are already not receiving the care they need. As the effects of today's high risk behaviours appear in future, too many Africans will die younger than they need to from largely preventable NCDs.

The best long term solutions involve shifting to patient-centred, integrated healthcare systems, a focus on education and prevention surrounding NCDs, and a culture which understands both the risk factors driving NCDs and the needs of those who have developed these conditions. These solutions, while reasonable, can be hard to implement in the context of the region's current circumstances, particularly the poverty of most countries' populations. That said, several African countries are taking steps that can help, including gathering more extensive data, engaging in education and prevention of risky behaviours, expanding the use of existing

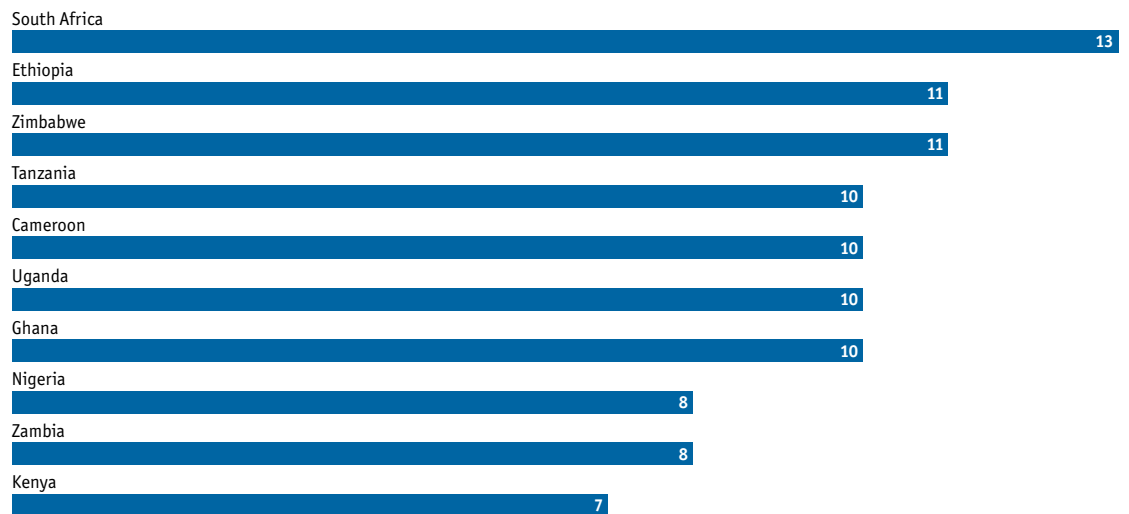
healthcare assets and even, in some cases, building universal health systems.

This is not merely a government issue, however. Other stakeholders have important roles that they are able to play. Patient support groups, for example, can save lives. Companies in different sectors can contribute in a variety of ways: pharmaceutical and medical device firms in increasing access; food companies in reducing the levels of salt and sugar in processed foods; and business in general in encouraging healthy behaviour and, where appropriate, medical care along the lines that mining companies have done for HIV with some success. Civil society, meanwhile, even while continuing to fight the leading communicable disease needs to understand the epidemiological transition which is occurring and be prepared to focus increasingly on the NCD challenge, in particular the stigma attached to these conditions. Perhaps most important, individual Africans, or at least those aware of the dangers, need to accept that they are not immune to NCDs and to modify their own behaviour.

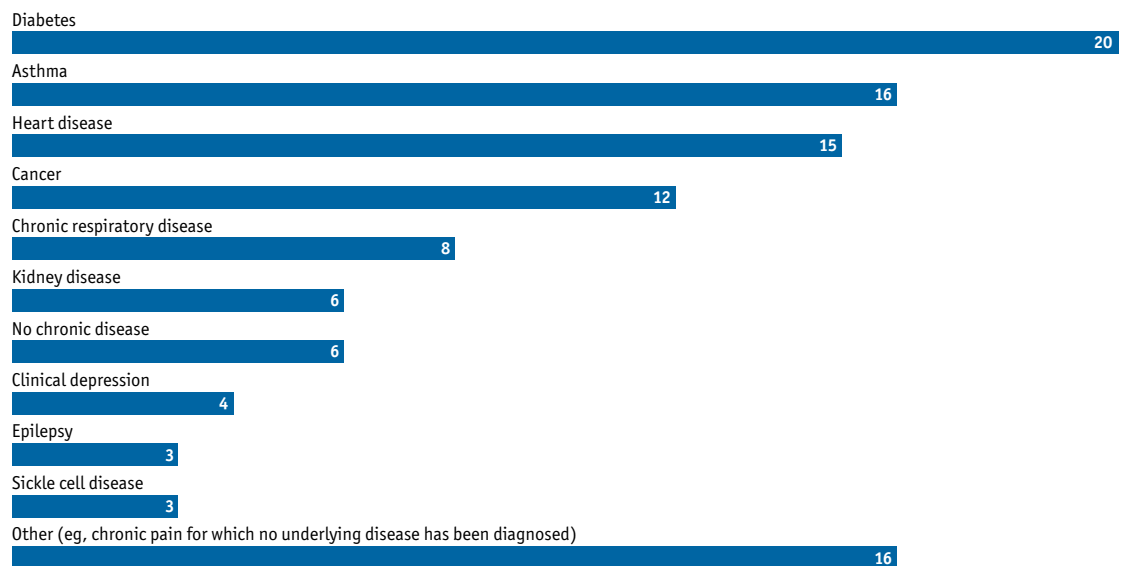
As the efforts described show, progress is possible. It is also necessary in order to avoid what Dr Shongwe calls "a catastrophe [of NCDs] in the future."

Appendix

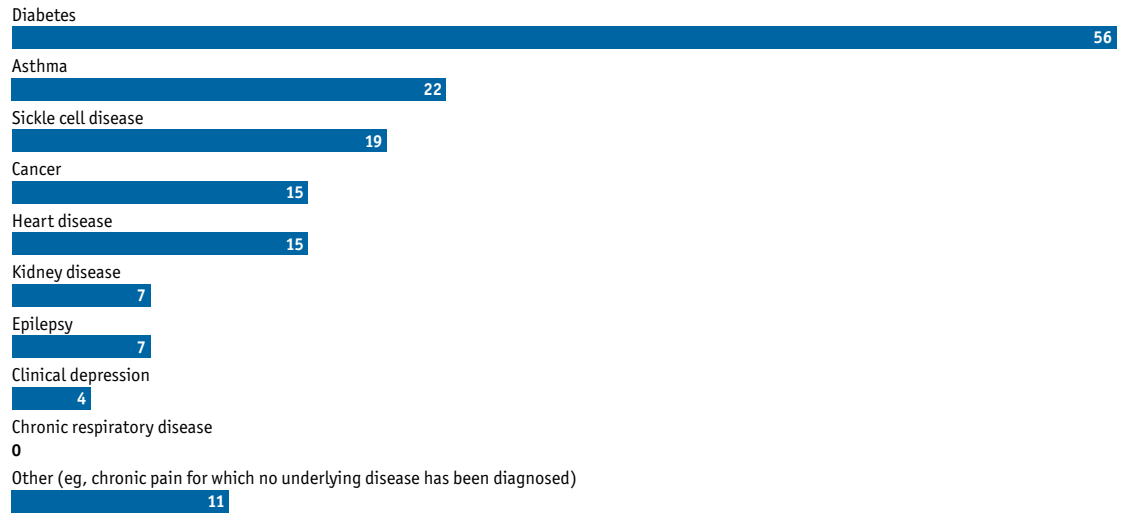
Country of residence (% respondents)



Do you currently have any of the following medical conditions? Please select all that apply (% respondents)

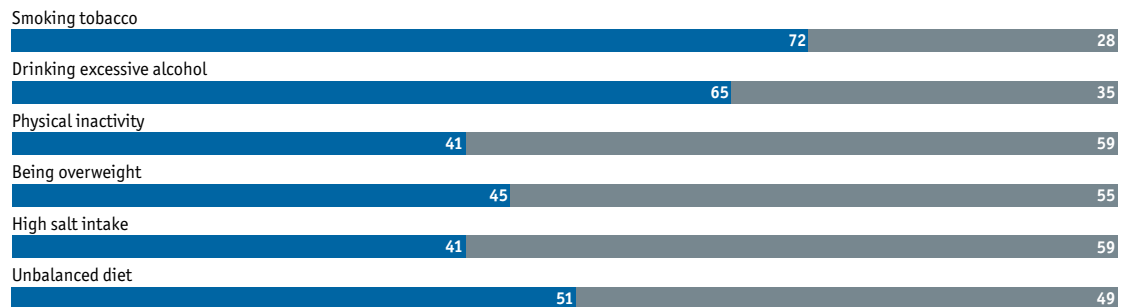


Are you a direct carer and/or an immediate family member of a patient with one or more chronic diseases? If so, please indicate which disease(s) the patient/family member has
(% respondents)



Are you aware of the health dangers presented by the following behaviours? Please select one for each row
(% respondents)

■ Yes ■ No

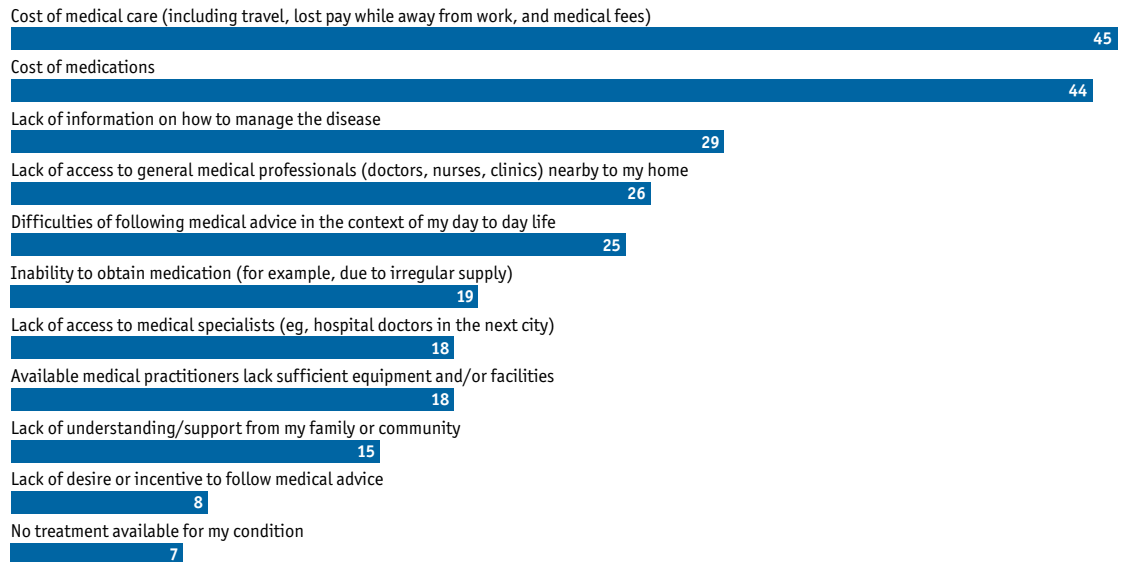


Has this knowledge caused you to change your behaviour? Please select one for each row
(% respondents)

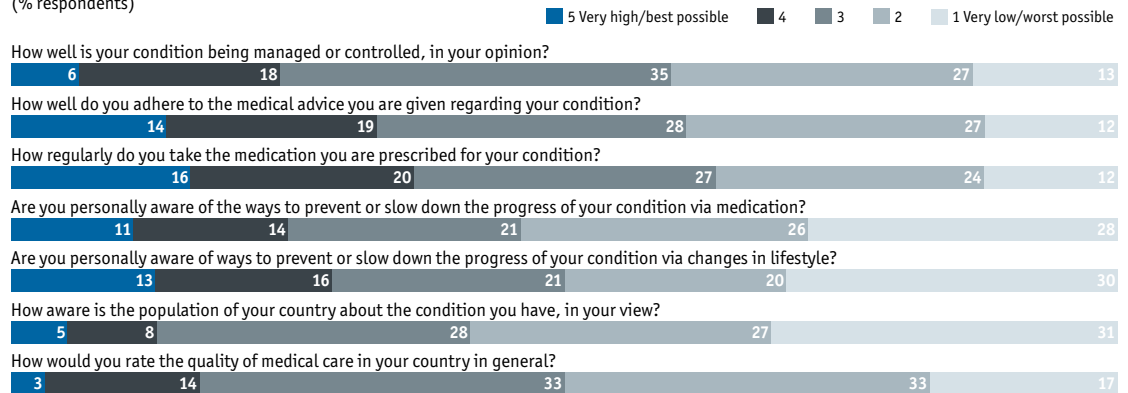
■ Yes ■ No



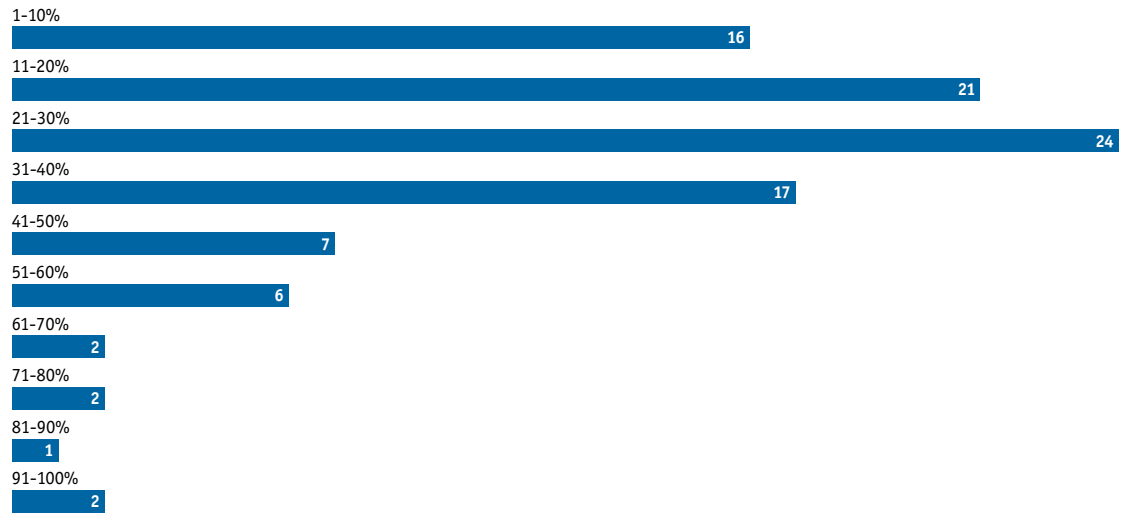
What are the biggest difficulties in managing your condition? Please select up to three
(% respondents)



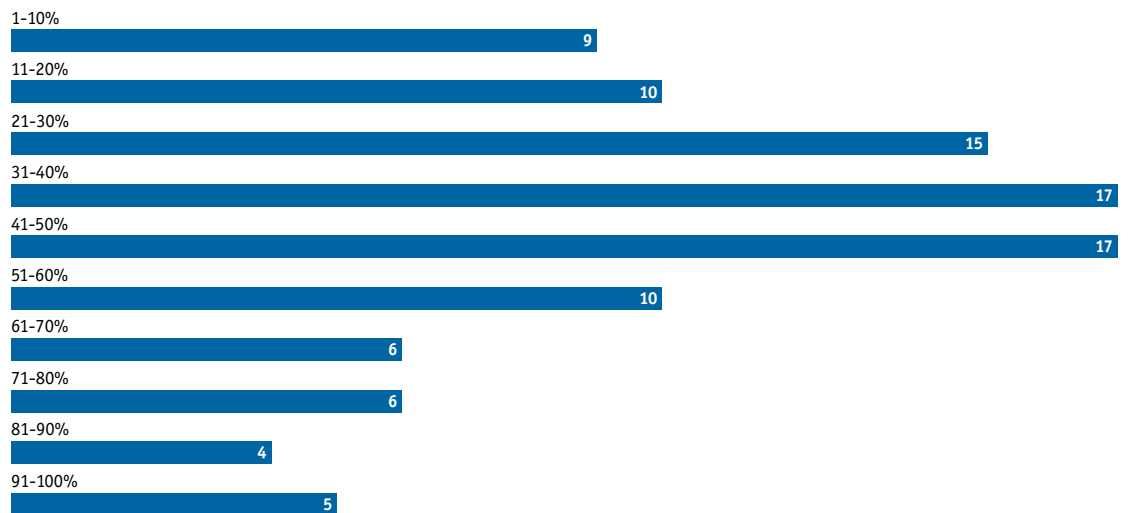
Please rate each of the following on a scale of 1 to 5, where 5=Very high/best possible, 1=Very low/worst possible
(% respondents)



Roughly what percentage of your income currently goes to treatment (eg, including doctors' fees, medications and cost of travel) of your condition?
(% respondents)



Roughly what percentage of your income would go to treatment (eg, including doctors' fees, medications and cost of travel) of your condition if you followed all the medical advice that you receive?
(% respondents)



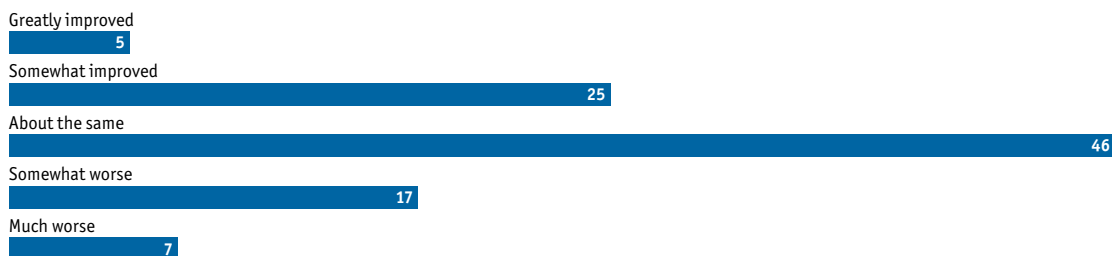
How has the quality of the overall healthcare (eg, quality of infrastructure, doctors) you receive for your condition changed over the last three years?

(% respondents)



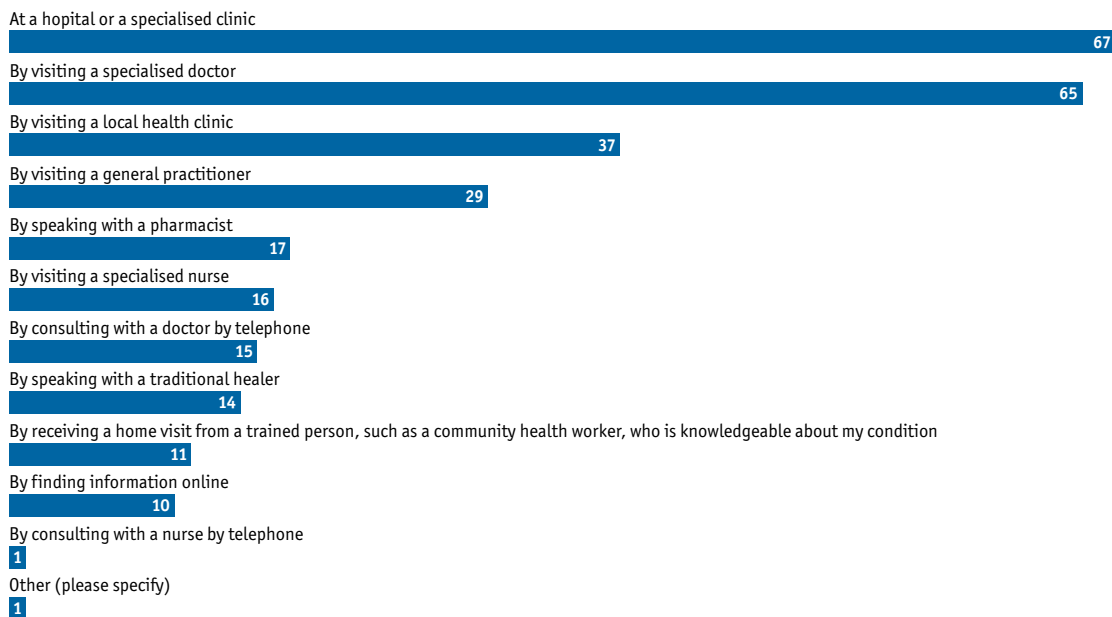
How has the availability/access to overall health care (eg, lower costs, doctor clinics closer to your home) you receive for your condition changed over the last three years?

(% respondents)

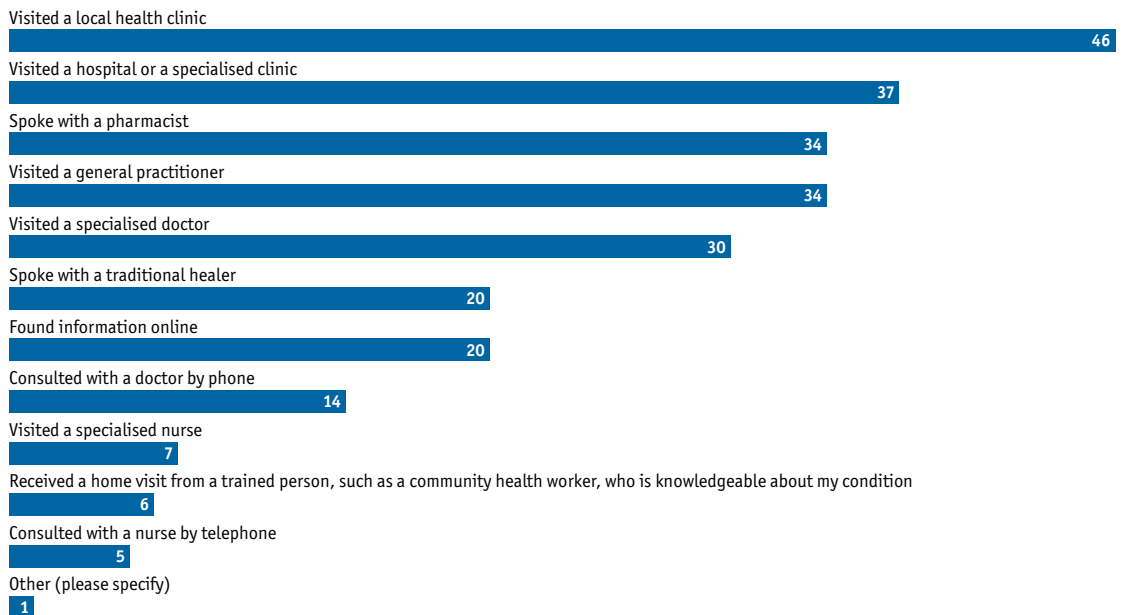


How would you prefer to receive healthcare? Please select your top three preferences

(% respondents)



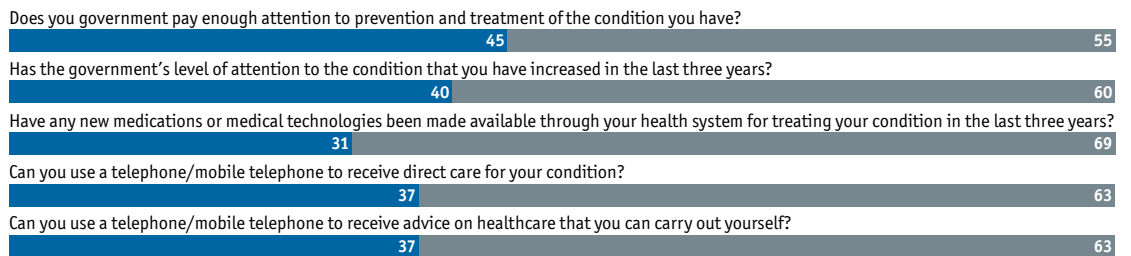
Which of the following actions have you taken within the past month regarding your condition? Please select all that apply
(% respondents)



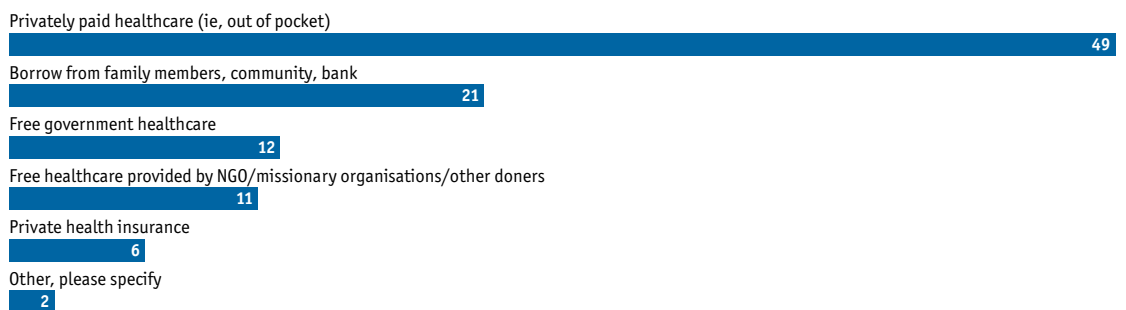
Please answer yes or no to the following questions:

(% respondents)

■ Yes ■ No



How is the care of the chronic condition which affects you paid for? Please indicate what proportion of the cost is paid by each of the following categories; the total should add up to 100%
(% respondents)



In which of the following do you live?

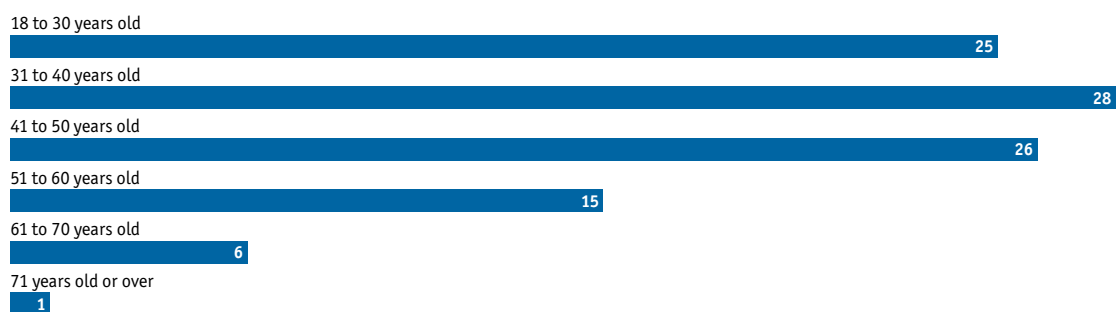
(% respondents)

**What is your gender?**

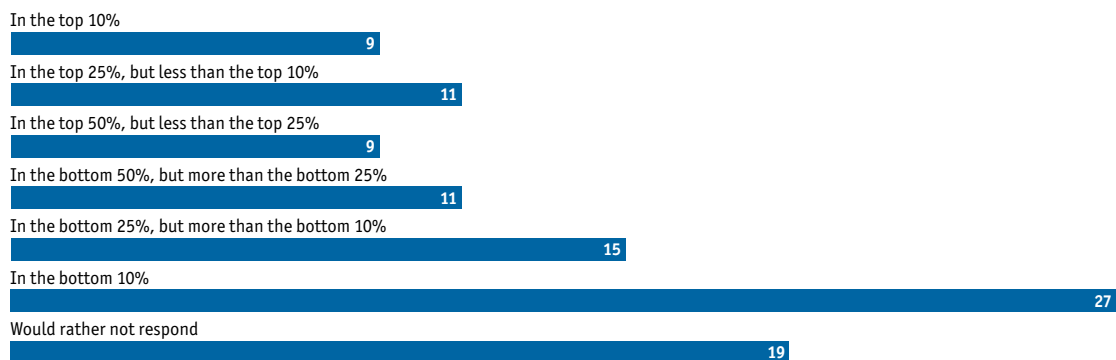
(% respondents)

**How old are you?**

(% respondents)

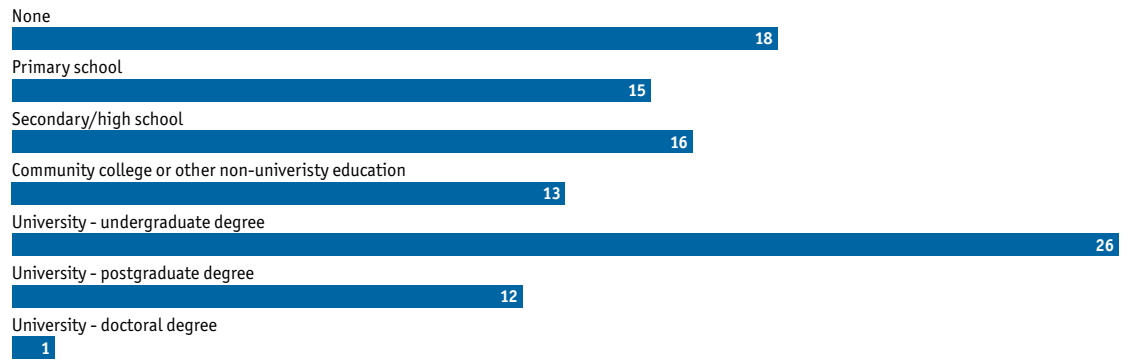
**How would you describe your income compared to others living in your country of residence?**

(% respondents)



What is the highest level of formal education that you have completed?

(% respondents)



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