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Taking Opportunities, Taking Medicines: Antibiotic Use in Rural Eastern Uganda

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ABSTRACT

The ways in which dimensions of health and healthcare intersect with economics and politics in particular contexts requires close attention. In this article we connect concerns about antibiotic overuse in Uganda to the social milieu created through policies that follow President Museveni's vision for a population who *kulembeka*, "tap wealth." Ethnographic fieldwork in rural Eastern Uganda illustrates how taking medicines in rural households reflects a wider landscape of everyday imperatives to "tap" opportunities in a context of acute precarity. We argue for a closer connection between medical and economic anthropology to push forward understanding of health, medicines and wellbeing in Africa.

KEYWORDS

Uganda; medicines; rural; precarity; antibiotics; opportunity

"The whole family is taking this medicine," Harriet explains, as she shows me the packet of ampicillin-cloxacillin that she has stored in her house. A wife and primary caretaker of seven children and two grandchildren, Harriet is organized and meticulous. She always ensures she is enrolled in government and non-governmental farming opportunities, she participates in available clinical research projects in the area, and she installed a solar power system in her house enabling her to start a home business charging mobile phones for a fee. This is on top of her other small enterprise providing care for animals belonging to relatives. Living on less than US $1 a day, Harriet is one of the 19% of Ugandans living in extreme poverty, but she appears to personify Ugandan president Museveni's vision for an opportunity-poised population who *kulembeka* –"tap wealth" in the way that rainwater is captured for consumption. Here, *kulembeka* has become not only an economic imperative but a social expectation repeated through radio, newspaper, church and development channels. To be understood to be tapping opportunities that come one's way is to be a good Ugandan citizen, fulfilling one's duty to oneself, family and the country. The social milieu created by this orientation seeps into Harriet's and others' whole ways of being in the world, from economics to politics to health. It also, we argue in this article, feeds into the ways in which rural Ugandans relate to and use medicinal drugs, antibiotics included.

We are seated on a mat under a tree in Harriet's cassava garden. She shows me medicines including amoxicillin, metronidazole, artemether, ibuprofen and paracetamol that she has kept safely in a polythene bag for her family. Some of these medicines were left over from previous treatments while others are recent prescriptions and are currently being taken by her family members. Her youngest child, Amari, who has a fever and cannot walk, is lying on her lap. Harriet says that despite

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Media Teaser We argue that to understand how medicines are used and repurposed, we must pay attention to the ways that medicines are presented as opportunities themselves.

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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receiving treatment recently, Amari is still weak and has sores in the mouth. She also describes the long-standing health problems that her family members are grappling with. Harriet's biggest concern now is her eldest daughter Akello, who is asthmatic. She explains that she decided each of her other family members should also take ampicillin-cloxacillin that was recently prescribed for Akello at the local research clinic in order to prevent asthma. She has also been treating the six chickens in her care for cough with the amoxicillin that she has at home, left over from a previous illness. Here, medicines in the home must, like everything else, be turned into opportunities too: objects to tap wealth from, where wealth is certainly money, but also health and wellness. Indeed, spending time with Harriet and her family revealed the constant effort required to navigate life in rural households under this rubric of wealth tapping, or of constantly being expected to be seeking opportunities. When the groundnuts that Harriet and her family planted failed to grow because of the prolonged dry season, they found ways to repay the loan from digging for people at a fee. When the animals she had been caring for were stolen, she borrowed money from the village savings group to replace them, and opted to sleep with the animals in the house at night to avoid similar losses in the future. When her family members required medical treatment, they used the money raised from the sale of the groundnut harvest to pay, and shared medicines from other illnesses.

In this article we tell the story of both taking opportunities *and* taking medicines, demonstrating the ongoing relationship between the two. We argue that to understand the ways that medicines are used, shared and repurposed requires attending to the ways that medicines, like so many other things in this setting, are framed as opportunities themselves. In modern Uganda, citizens are encouraged to take advantage of opportunities that will enable them to get out of poverty and create wealth for their households. Deploying the *kulembeka* slogan in his 1996 presidential campaign, President Yoweri Museveni – then at the end of his first of multiple decades in power – emphasized that opportunities were within the reach of every Ugandan and all people needed to do was "tap" into them using the resources at their disposal. In rural households, much like where our research took place, we observed the ways that this "opportunity tapping" happened under uncertain economic opportunities, within settings marked by a scarcity of quality health care and persistent ill health. In Museveni's formulation of a competitive modern society, seeking opportunities for one's betterment is a central tenet, and our research reveals how medicines, including antibiotics, are both taken and deployed in ways that reflect this wider milieu. Medicines are opportunities, but they also enable further opportunities, as they help people and households cope with chronic health problems. Harriet's story both relates to and reflects the ways that medicines (including antibiotics) are entangled in market-oriented systems more broadly (Nabirye et al. 2021). In this article, through the study of everyday life in rural households in Eastern Uganda, we explore the role of antibiotics in society. We look at the way people appropriate pharmaceuticals (Saethre and Stadler 2010; Whyte et al. 2002), putting them to use to cope with chronic ill health and to pursue opportunity.

Medicines are often viewed as part of the biomedical apparatus, and their use is envisioned within certain parameters: medicine use should be preceded by diagnosis and a prescription from a qualified health professional and patients should take medicines as instructed by healthcare providers. This expectation is reflected in the World Health Organization's definition of rational and irrational use of medicines. According to the World Health Organisation, 2002, the irrational use of medicines among healthcare providers involves "use of too many medicines per patient, inappropriate use of antimicrobials, often inadequate dosage for non-bacterial infections, over-use of injections when oral formulations would be more appropriate, and failure to prescribe in accordance with clinical guidelines." Among patients, irrational use of medicines is said to involve "inappropriate self-medication, often of prescription-only medicines and non-adherence to dosing regimens" (World Health Organisation 2002). Given this framing, it is not surprising that amidst rising threats of AMR, global health actors like the WHO and the Food and Agricultural Organization of the United Nations have placed emphasis on the need to address individual practices that are understood to accelerate the spread of AMR (Food and Agriculture Organisation of the United Nations 2016; World Health Organisation 2015; World Organisation for Animal Health 2015). In human healthcare, these

practices have been said to include inappropriate prescribing and dispensing, and rampant sale of medicines over-the-counter – which is seen as enabling self-medication (World Health Organisation 2015). In animals, the problem has been reported as widespread use of antibiotics for therapeutic and non-therapeutic purposes (Food and Agriculture Organisation of the United Nations 2016; World Organisation for Animal Health 2015).

The ways in which antibiotics figure in the social, economic, and political realities of the everyday lives of the people identified as responsible for "irrational" medicines use requires closer attention, especially in the light of recent efforts to address the burden of AMR. Anthropologists have studied medicine use around the world for over seven decades. Some of the key influential scholarship in this field emerged from research in Tororo, where this article's research took place. Susan Reynolds Whyte (Van der Geest and Whyte 1989; Whyte et al. 2002) carried out long-term ethnographic fieldwork in Tororo, revealing critical insights about the various ways in which medicines have taken on meaning and power in different scenarios well beyond formal health care settings. Her research attends to the arrangements and forms of life that are brought into being through medicines, and we follow this theme in our own exploration of the work that medicines do in society – in social, political and economic life. Keen to avoid overemphasis on individual behavior, which has characterized much of the social science literature on antibiotic use (Tompson et al. 2021) or on the significance of particular materials that our research project was interested in – namely antibiotics – we aimed to foreground the wider milieu of medicines. In other words, we suggest that the ways that medicines are understood, and the values and expectations tied to them, are never just local, but emerge in relation to national and global forces. Thus, we pursue an ethnography of *connections*, tracing how threads of peoples' lives with antibiotics are interwoven with other aspects of their lives and those of many in the globalised society of Uganda today (Tsing 2005). Inevitably incomplete and impartial (Pandian 2019), such an approach nonetheless strives to extend ethnographic attention beyond a series of individual moments of antibiotic consumption, to follow what matters and how this manifests in daily life for those living in an area marked by decades of political and economic neglect and sustained through the "projectified" landscapes of global health's making (Prince 2014a; Whyte et al. 2013).

Here, our fieldwork connects medicines to a wider culture of opportunity and entrepreneurship. Whilst the body of scholarship focusing on the economies of medical research participation has grown substantially (Aellah and Geissler 2016; Prince 2014b; Stadler and Saethre 2010), the connections between everyday use of medicines and wider cultures of opportunity and entrepreneurship are less well developed in the medical anthropology literature. Anthropologists engaging in the anthropology of work have examined the changes in the production and economic space in market-driven societies around the world, illustrating the ways that marginalized populations are often forced to navigate these changes and create new opportunities for themselves defined through informality, hustle, and precarity (Aggarwal 1995; Millar 2008; Preston-Werner 2007; Freeman 2014). Across diverse spaces, these studies demonstrate how "entrepreneurship" infiltrates social relations, citizenship and notions of the self. As Carla Freeman writes, entrepreneurship is "not simply a mechanism of self-employment – a vehicle for income generation, an economic matter of business but a subtler, generalised way of being and way of feeling in the world" (Freeman 2014).

We undertook ethnographic fieldwork between November 2018 and August 2019 in Nagongera, a sub-county of Tororo in eastern Uganda as part of our Antimicrobials In Society (AMIS) research project. The research began with a medicines survey, moving between 100 households – defined as people eating and sleeping in the same dwelling – using an antibiotic "drug bag" to elicit familiarity with, and stories about, medicines (Nayiga et al. 2020). Subsequently, ethnographic research was carried out with three households by SN. In addition, we convened four group meetings with selected participants and district officials for human health, veterinary medicine and agriculture, where we shared the findings from the research and solicited feedback on them. We employed a collaborative approach to the study, with analysis emerging through an oscillation between fieldwork, literature and conceptual questioning that kept momentum across the differently-situated co-authors through frequent points of connection both physically and virtually throughout the study.

The entrepreneurial "tapping" of opportunities

> The four economic sectors where there are jobs and wealth are: commercial agriculture with counting profitability; industries; services; and ICT. With your individual savings, collective savings by groups, borrowing from banks, or with Government support, you should enter one or more of these sectors so as to chase poverty from your homesteads, create wealth and jobs for some of your family and also for others.
>
> President Museveni, May 2021 (Uganda Media Centre 2021)

At his swearing-in speech in May 2021, President Museveni highlighted key areas where Ugandans can take advantage of opportunities for wealth creation. Reaching thousands of Ugandans through local radio and television stations on a Wednesday afternoon, the president's speech consolidated decades of his push toward wealth creation. In Uganda, a statistic that is widely quoted with pride is that the country is the most entrepreneurial in the world, with 28% of adults owning or co-owning a new business (Global Entrepreneurship Monitor 2014). The Ugandan people are encouraged to join the national drive for socio-economic development, by "tapping into" available opportunities and starting income-generating projects, aiming to transform Uganda into a modern, independent, resilient and self-sustaining economy (The state house of Uganda 2012; Uganda National Planning Authority 2020). After the first years (1986–1990) of President Museveni's leadership, when his focus was on restoring security and economic stabilization following years of civil war (Kjaer and Muhumuza 2009), the 1990s saw a shift toward a new poverty alleviation agenda. During the 1996 campaign, President Museveni used the slogan *kulembeka* (translated as "tapping wealth") to promote the idea that "rain was free water only if the people tapped (*kulembeka*) it from their roofs. Likewise, economic prosperity was accessible to all only if they took advantage of the infrastructure (such as good roads, telecommunication systems and electricity) put at their disposal by the government" (Rubongoya 2007). Sequential governmental strategies have been shaped by this framing: the *Entandikwa* ("Seed Capital for starting a business") credit scheme that was started in 1995; the Poverty Eradication Action Plan (PEAP) launched in 1997; the plan for modernization of Agriculture launched in 2000; the National Agricultural Advisory Services (NAADs) established by an act of parliament in 2002; and the *Bona Bagagawale* Programme (Prosperity For All) launched in 2006 (Uganda National NGO Forum 2016). In 2013, these programs were pieced together into a broader ambition, when President Museveni launched the Operation Wealth Creation (OWC) program. This government-funded program aims to facilitate national socio-economic transformation, focusing on not just transforming the economy, but on transforming the mind-sets of subsistence farmers in order to see them embrace the "money economy" and to raise household incomes through commercial farming (Angina 2019; Tabaro 2018). The OWC programme aims to achieve development and modernisation in a context of severe economic uncertainty, high prices of consumer goods and escalating expenditures for basic services (Africa Research Institute 2017; International Monetary Fund 2019). In the following sections, we describe how residents have attempted to take up this vision, to operate for wealth, by "tapping" into various opportunities, demonstrating how efforts to become commercial and financially independent individuals and households are experienced in Tororo. In doing so, we explain how productivity is enabled through the use of medicines in low-income rural households, showing how entrepreneurship, the drive for wealth, and the activity of "tapping" itself, are all tied up in medicine use amidst precarious landscapes.

"Tapping" scarce opportunities in rural Tororo

Tororo district, on the border with Kenya, is in the poorest region of Uganda (Uganda Bureau of Statistics 2019). The economy is described as predominantly "agricultural" with 70% of people categorized as "subsistence farmers" (Tororo District Local Government 2015). Money is scarce: more than half of Tororo's population live on less than US $1 per day (Tororo District Local

Government 2015), a chronic situation that is compounded by no improvement in education and health indicators and that contrasts with reports elsewhere in the country of remarkable economic growth and poverty reduction (Lubaale 2019; Wiegratz et al. 2018). These contrasts reflect the marginalization of Eastern Uganda that can be traced back to the North-South division of Uganda by the British colonialists in the early 1900s. Eastern Uganda was considered a labor reservoir and was neglected when infrastructure and social services were developed and assets distributed (Lwanga-Ntale 2015; Mamdani 1983). This division has continued in subsequent decades with ethnic groups from the southern part of Uganda (Baganda and Banyankole) dominating the economic and political sectors while the northerners (including ethnic groups from Northern and Eastern Uganda) are seen as best suited for so-called menial jobs such as domestic work and working as security guards and farm laborers. In practice, being labeled "agricultural" disguises the range of small-scale activities pursued by residents for their survival. Here, the discourse of "tapping opportunities" is translated into a way of life that seeks scarce opportunities across a landscape of family and wider social networks, international agencies and health and climate dynamics.

In 2019, we observed the tenacious efforts of families enrolled in our research to "tap" Operation Wealth Creation opportunities. The OWC program distributed free "agricultural inputs", and two families secured cassava stems, one household received a heifer, and two further families received two plowing oxen and a plowing machine between them. Most residents did not benefit from the OWC program because its eligibility required already owning sizeable pieces of land, and demonstrating ability to care financially for the non-domestic breeds of heifers. Our fieldwork documented the daily struggles many families had to meet the basic needs of food, health and education. Most families that we observed ate one meal a day, and access to clean water was limited, with most people dependent on unprotected wells shared by humans and animals. Whilst residents were tuned-in to the pursuit of opportunities to meet the financial demands of daily life in modern Uganda, not all opportunities were equally accessible, and many failed in their pursuits along the way, causing further hardships.

In 2019, Alice, a 50-year-old retired teacher and mother of seven, registered with a cooperative union that had recently started distributing groundnuts in Tororo. Each selected household received a bag of groundnut seedlings that were expected to yield nine bags of groundnuts at harvest. On harvesting, each household was expected to return one 40 kilogram bag of groundnuts to the cooperative, or pay the equivalent in cash. The eight extra bags of groundnuts harvested by the cooperative member could then be sold to generate income. During our time in the village, however, the groundnut harvest was damaged by the prolonged dry season making it challenging for beneficiaries to reach the targeted nine bags. One afternoon when we visited Alice, we found her lying on a mat in her compound with her clothes covered with dust. She looked tired as she explained that she had spent the whole morning in the garden harvesting her groundnuts but had not even collected a full basin. As if trying to make sense of why her groundnut harvest was smaller than expected, Alice explained that "I planted the groundnuts late because my garden was not ready. After planting them the weather did not favor their growth." With a failed groundnut harvest, Alice had to find the money to pay back the equivalent of one bag of groundnuts to the cooperative union. James, a young father of two, had a similar experience with the groundnut harvest. He explained that he had harvested less than three bags of groundnuts that year from the same piece of land that he harvested 27 bags from the previous year. In addition, the groundnuts harvested this year were very small, resulting in low prices on the market. While Alice and James had "tapped" the opportunity, they had not succeeded at making a profit, leading to further insecurity for them and their families. With low yields from agriculture overall, food scarcity had actually increased, and household incomes remained low. By the end of the growing season, people could barely meet the basic needs of food, education and healthcare. Entrepreneurialism and wealth creation are not without risk.

Grace, a forty-year-old mother of four, actively sought work to make ends meet when her household's financial investment in her husband's education, a diploma in construction work, did not translate into formal employment. After her husband Ben returned home one day after being away for

a month working at a construction site in a neighboring village, Grace explained that he had come home with no money to show from the work he had been doing. She said that Ben was a very humble man and would never demand his pending payment from his employers. For Grace, though, there were still other opportunities to be tapped. She herself kept livestock, had been a milk vendor and was involved in delivering health-related projects as a Village Health volunteer. She offered her services digging in gardens for other people, sold soil from a piece of land she owned, was part of several saving groups and the cooperative union in her village, and took out loans from these groups and from the local Christian microfinance network. In the face of her husband's failed "tap", she explained the achievement of the cumulative "tapping" of these various opportunities: "I have been able to buy food at home, pay school fees for the children and buy a sewing machine for my son to start his business," but, she added, "I will pay the loans off one by one."

While Tororo might be characterized as "agricultural", over the past three decades Tororo has emerged as a site of global health clinical research (Chandler et al. 2013; Gonzaga et al. 1999; Kamya et al. 2015; Staedke et al. 2013). These research studies, along with the NGOs that have cropped up around them, have aimed to correct and intervene on a remarkable number of things, from health care, to education, to family planning, and access to water, from domestic violence prevention to human rights provisioning and the broad pursuit of development and community empowerment. When residents enroll in local research studies, however, they often speak first and foremost about the immediate material benefits of the projects, rather than their loftier goals. From transport reimbursement, allowances, bed nets and food supplements provided by these projects and clinical trials, many explained how these projects and trials were safety nets in their lives. Harriet, the mother of seven in her late thirties from the opening story, explained how her family benefited from participation in several research studies:

> I joined the malaria research project where I was given 70,000 shillings (US $19) [for transport reimbursement for monthly visits and compensation for entomology collections] and every month I would sign for it in a book. This money helped me build this house. I used the money to buy iron sheets and make bricks for building the house. Six members of my family are enrolled in the malaria research project.

At the time this research was undertaken, every member of Harriet's family received a transport refund from these monthly research study clinic visits. The family depended on these funds, which were used to cover the costs of basic needs in the home. Together with the care the family received at the research clinic for any illness they suffered from, Harriet concluded with a smile that, "That is why I do not chase away government projects." Clinical research projects had become a way for Harriet to keep her family afloat for years. When two of her grandchildren were dropped off at her home one day by her son who could not afford to take care of them, she made plans to have them enrolled in a clinical research study as a way of catering for their health care needs. In this way, clinical research studies too were an opportunity to be tapped, where the volunteering of people's own bodies and their children's bodies became ways to tap into global health funding that otherwise overlooked them, and which they were poised to make of what they could.

Medicines as opportunities

When SN visited households with her "drug bag" to ascertain familiarity with antibiotics, she was met with great excitement. The hope and potential embodied in these packets was palpable. Those keeping animals were especially keen to know what unfamiliar drugs could be used for – an anticipation that these medicines could bring into being the productive livestock they had imagined was possible if they had better – and cheaper – access to veterinary services and antibiotic information. Without this, residents made do with the knowledge and medicines they could pick up from others and experience. It appeared common to use the antibiotics prescribed for humans to treat animals especially for similar symptoms. One resident talked about treating cough in chicken with ciprofloxacin and septrin. He said:

> Sometimes I use cipro and septrin to treat cough and flu in chicken. This is gambling. Like for septrin I break it into 4 pieces and give a quarter every day. I hold the chicken and make it swallow the drug.

A few residents also reported using antiretroviral medicines prescribed for HIV in humans to manage illnesses and boost immunity in pigs, chickens and turkeys. About a month into the ethnographic work with Harriet's household, she told SN about her mother and youngest sister, who were battling HIV, and explained that whenever there was a change in the type of antiretrovirals (ARVs) prescribed at the government health center, the old drugs which she referred to as "wasted" were kept for use in the treatment of livestock. She described the process of administering the ARVs to the pigs: "You put the tablet in the pig's mouth and pull its tail as you are doing that. Then you pour water in its mouth to help it swallow the medicine." Harriet explained that if one gave ARVs to the pigs when they were sick, they would be guaranteed that the animal would not die. However, she added that this practice needed to be undertaken with caution as some types of ARVs were very strong and had the potential to kill the animal. "One HIV drug that tastes like bubble gum is too strong and cannot be given to animals because they may die," she said. These are not frivolous decisions, taken lightly. Farmers like Harriet agonise over their animals which are central to their lives and livelihoods. Moreover, their encounters with their animals are intimate, engaged, and about more than profit.

As well as caring for animals, many residents engaged in long hours of garden work. Tom, a health worker at a local Health Center II described how hard residents, especially the women, worked, saying, "Women in this community can dig from morning to sunset, only taking breaks to prepare and have lunch." Residents described the body pain that they frequently suffered from when they worked long hours in the gardens. Local health workers also reported that patients presented frequently complaining of body pain, which they believed to be caused by working long hours in the swamps. Rose, an enrolled nurse who operated a private clinic in the local area, described, 'Now like here at the swamp people cultivate, they get back pain. We call it "lumbago" so that's what we commonly treat.' Similarly, Rachel, an enrolled nurse working in a local government health facility, explained that residents spent long hours bending while doing their garden work often resulting in pain in the lower back. In such cases, antibiotics were often prescribed in addition to painkillers to treat possible infections. She explained that local residents commonly stocked medicines at home, including previously prescribed antibiotics, which were often used to manage pain:

> Some will say "aah I heard they have brought drugs [to the government health centre], let me go and I pick." Now the day he receives some pain is when he will take. You see? Communities are not easy.

The typical practices of health workers in the public sector – often prescribing antibiotics and pain killers – were frequently adopted when seeking health care in the private sector, or when self-treating with medicines stored at home (Nichter 2008). Through this practice, antibiotics had become a routine treatment for pain, enabling garden work to continue. In Nagongera, antibiotics were not readily distinguished from other medicines. One resident said that he took amoxicillin for relief from chest and joint pains that he experienced after digging. He explained that he bought 10 tablets from the drug shop at 1000 shillings (less than a quarter of a dollar) to cover him for a week. He said that he took two tablets every day. Judith, a primary school teacher and farmer in the local area, described antibiotics as having become essential for residents' work,

> What I have seen with these routine medicines that we take, some of these antibiotic medicines they are not really medicine now. Some people are now addicted to these things. They are not taking them as medicine, I mean they have gotten used to it so much so that they cannot work without. You find that someone says that if I don't take it I won't sleep. *(Participant-Community feedback Dialogue 1)*

This was the case with Peter, a young man who worked as a carpenter in the local area. He approached us during one of our visits in the village, seeking advice on where he could find appropriate treatment for a persistent back problem he had endured since 2013. Sounding frustrated, he explained that he had been reporting the backache on all his visits to the government health center but had not succeeded in receiving effective treatment. While working in one of the neighboring towns seven

years back, Peter had fallen off a roof while laying logs of wood in preparation for roofing. His employer had paid for his treatment in a private hospital where he was hospitalised for over a month before being discharged. Unfortunately, Peter could not afford to pay for the required follow up visits to the private hospital after his employer cut off his medical support. "The pain is getting worse. It might turn into a serious problem," he said, looking worried. Peter's chest was now swollen on one side. Peter was still working as a carpenter, a job he thought was not good for his back problem given the heavy lifting it involved, but he needed the money to support his family. He had been advised by a health worker at the clinic to take ciprofloxacin which he described as taking "on and off". "Cipro is strong. I can sleep after taking it but the back pain later returns," he said, describing how effective ciprofloxacin was in offering some relief from the backpain. He feared that his frequent intake of ciprofloxacin might turn out to be harmful. "Too much of anything is not good," he said.

Peter's case is not unique. In Nagongera, we found that people were sick frequently. Notably, infectious diseases, such as malaria, HIV/AIDS and tuberculosis and neglected tropical diseases such as schistosomiasis, as well as respiratory and diarrheal diseases, are prevalent in Uganda (World Health Organisation 2018). Residents described multiple health conditions that they had accumulated and tolerated over time. In addition to the multitude of health problems experienced by each member of her family, Harriet from the opening story explained her own symptoms of a painful skin rash, pus coming out of her nose and drowsiness that she had endured for two years. She said that she had received doxycycline from the nearby Health Center II which she was taking but her illness persisted. She was hesitant to visit the Health Center IV for further treatment. "It is hard to get the attention of the health workers there," she said as she explained her previous unpleasant experience visiting the Health Center IV. Instead, she resorted to buying amoxicillin and a pain killer from the nearby clinic and using herbs from a local herbalist.

The public health system in Uganda is multi layered including Health Center IIs at parish level, Health Center IIIs at sub-county level, Health Center IVs at county level, and higher-level district hospitals, regional referral hospitals and a national referral hospital. Although 65 government health facilities exist in Tororo, they generally lack equipment and electricity and suffer from frequent stock-outs of supplies and absence of the required health personnel (Medicines and health service delivery monitoring unit 2014). In Tororo, there is one doctor for every 43,144 residents compared to one doctor for every 20,000 residents, nationally (Tororo District Local Government 2015). The government-supported village health teams (VHTs), who previously provided the first level of care in this area, had not had medicines for several years. As a result, residents relied on local drug shops and private clinics (Nayiga et al. 2020) where medicines were available at the lowest cost possible. Residents were able to buy individual tablets at these shops and could also buy medicines on loan.

In Uganda and elsewhere, the majority of the rural population have relied on the public health system where health care is available free of charge (Pariyo et al. 2009). However, residents described the challenges they often encountered when they sought health care from government health facilities, including long waiting times, absence of health workers, frequent medicine stock out and lack of equipment and supplies. At the government health facilities, residents were often referred for further care or asked to buy medicines, but most could not afford these extra costs. This was the case with Harriet whose story opens this piece, who was sent for an ultrasound at a private facility. She was unable to raise the 25,000 shillings (approximately US $7) that was required to pay for the ultrasound. Although the Health Center IV was the highest level of care in the sub-county, it did not have an ultrasound machine. During our fieldwork, SN offered to pay half of the cost for the ultrasound. Harriet took out a loan from her neighbor to cover the balance of the cost. On presenting the results of her ultrasound to the government health facility confirming a diagnosis of pelvic inflammatory disease, Harriet was given ciprofloxacin, metronidazole and paracetamol, and was asked to buy doxycycline from a private facility. She was only able to find the funds to purchase doxycycline after completing the other medicines.

Residents believed that one of the main causes of persistent ill health in their community was drinking contaminated water. Stomach problems such as diarrhea and abdominal pain were recurrent in this area. During one participant feedback dialogue a woman said:

> Now the reason why I am saying that we are falling sick and continue to take these medicines is, some are air borne diseases, others are water borne diseases and we are sharing water with the animals. That is why you find people are sick all the time and you continue taking that medicine [referring to antibiotics in the drug bag during the medicines survey]. *(Participant-Community feedback Dialogue 1)*

In this community, wells and boreholes were the main source of water. Boreholes were considered a source of clean water, but each family was required to pay a fee of 5000 shillings (about US $1.5) per month to the local government water committee as contribution towards maintenance costs, which many families could not afford. Poor sanitation was another challenge. Persistent diarrhea was linked to challenges in the disposal of human waste as many households did not have toilet facilities. In several homes, residents lived with their livestock and poultry, as this was the only way to ensure security for their animals. Some residents believed that exposure to animal fecal material within the shared space could be causing illnesses. The state of chronic ill health was also believed to be a result of inadequate treatment due to a lack of medicines. Many times, residents could not afford to buy medicines or were only able to purchase them in small quantities as described by Rose from the local clinic:

> People come with very little money. 500 shillings, 200 shillings [less than a quarter of a dollar] and someone tells you I am sick or someone is at home very sick, what, this and that, but with less money. So you can't give enough treatment.

As a result, residents were caught up in a cycle of treatment-temporary improvement-recurrence of symptoms-treatment-temporary improvement. One middle aged resident described this cycle in a participant feedback dialogue. He said:

> The problem is within the economy because you go to the government health unit and you find they give you under dose. Now this under dose is what makes us sometimes stay addicted to the drug. Because you take an under dose the disease becomes stronger. Now when you get some money you get the dose. If not, you get some little money you go and buy another under-dose also because you cannot afford one full dose.
> *(Participant-Community feedback Dialogue 1)*

Residents recognized that their undesirable living conditions including limited access to clean water and temporary or no toilets facilities, would be difficult to address given limited financial resources and competing households needs. Residents had to endure their recurrent health problems while continuing to live under the circumstances that predisposed them to ill health. Although the cost of medicines including antibiotics seemed to add to the already existing financial burden of households, in a context of scarcity medicines were often the only tool available for residents to manage the risks they faced every day. Some of the local antibiotic treatment practices observed, such as taking antibiotics for pain, could be described as "irrational." However, medicine users have their own rationality, which is best understood within their context (Feierman 1981; Kamat 2006; Nichter 2001, 2008; Whyte et al. 2002). As demonstrated by our research, people's treatment practices reflect what makes sense in their context, and thus are neither universally rational, nor irrational. In Tororo, antibiotics had become a solution to chronic ill health, as described by a resident in a participant dialogue, who said:

> We need these medicines [referring to antibiotics] because we are often sick. It is not just using, but because of the sickness and the sickness is from the various sources including water sources and other conditions of life. That means that medicines are needed but we don't know the right medicines to use otherwise we still see people sick and people die. *(Participant-Community feedback Dialogue 1)*

Antibiotics provided some comfort, as described by one resident in a participant feedback dialogue, who said:

> You take this one today like Flagyl [metronidazole] . . . the stomach cools. That is a water borne disease. If it heals, you will sleep well. The following day it disturbs you in the evening, you take. You are a bit comfortable.
> *(Participant-Community feedback Dialogue 1)*

Some residents also considered antibiotics essential for human survival in Nagongera, as described by one resident in a participant feedback dialogue. She said, "For human beings we are going to die if those antibiotics are not there . . . "

Beyond their immediate curative role, antibiotics may play other roles in society, serving as infrastructure to fill the gaps created by inequality and fractured health systems (Denyer Willis and Chandler 2019). In Uganda and elsewhere, antibiotics are used to protect and enable certain ways of life. Antibiotics offer protection for financial investments among poultry and pig farmers in Uganda (Kayendeke et al.), among sex workers in the Philippines (Nichter 2001), and in conditions of inadequate sanitary facilities in Uganda and Thailand (Denyer Willis and Chandler 2019). Use of antibiotics can also enable people to live and work within inequitable spaces in Uganda (Nabirye et al. 2021), and enable a "modern life", by speeding up recovery making it possible for people to get back to work and for quick production and standardization of animal products globally (Chandler 2019). Our findings suggest that antibiotics have become essential for coping with uncertain economic opportunities in rural households, including lack of quality health services, inadequate sanitation, and lack of clean water. Medicines play a key role in mitigating the many risks encountered in everyday life, serving as an opportunity in themselves and a vehicle through which to continue to "tap" other opportunities in modern Ugandan life.

Understanding antibiotic use as a case for stretching "context" in medical anthropology

Through our analysis of life in rural households in Tororo, we have seen that medicine use is entangled with a wider landscape of everyday imperatives to "tap" opportunities in contemporary Uganda. This extends our previous analyses, through which we have come to view antibiotics as substances that are utilised to effectively "fill gaps" and address structural weaknesses, including in Uganda today (Denyer Willis and Chandler 2019; Nabirye et al. 2021). The Ugandan government's drive toward wealth creation through ideologies such as *kulembeka* has spilled-over into all aspects of life, intimately shaping family relations, labor practices, and of course health and wellness too. Poised for every opportunity, residents used medicines to mitigate many of the risks encountered in everyday life, serving both as an opportunity in themselves and a vehicle through which to continue to "tap" other opportunities.

The research presented in this article emerged from a desire to understand and document antibiotic use "in context": a shorthand commonly deployed in medical anthropology, and often compartmentalized as either political, economic, or historical context. Throughout this research we have found this framing lacking for us, and have been compelled instead to trace the ways that an economic aspiration and imperative – *to kulembeka* – reverberates in everyday life, transforming even the ways medicines are understood and deployed. In finding that we could not describe antibiotic use without first explicating how economic narratives and aspiration constituted a distinctive social milieu in Tororo, we also came to observe something of a blind spot in our typical analyses within the sub-discipline of medical anthropology. Whilst health related analysis frequently cites resource constraints as an influencing factor, it is less common to see an integrated economic-medical anthropological analysis developed. Following calls for a revitalization of anthropological work on African capitalism (Breckenridge 2021; Breckenridge and James 2021), we propose that further research is required to take seriously the ways that health, medicine and wellness are interwoven with emerging economic forms, to contribute to the development of our understandings of African capitalism as much as our understandings of health.

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