USING MOBILE TECHNOLOGY TO BREAK ACCESS AND AWARENESS BARRIERS FOR THE BENEFIT OF PATIENTS WITH DIABETES AND HYPERTENSION

AN INNOVATIVE AND DYNAMIC PARTNERSHIP OF PHARMACCESS, CAREPAY AND SANOFI

AN URGENT NEED FOR INCREASED ACCESS TO NCD AWARENESS AND TREATMENT

The increasing burden of non-communicable diseases (NCD) in low- and middle-income countries (LMICs) has revealed an urgent need for a new caremodel that is affordable, can reach everyone and puts less strain on the limited number of health workers. LMICs – especially in sub-Saharan Africa – are struggling to scale their NCD response due to lack of funding, infrastructure and appropriate medical staff. At the same time, mobile technology is transforming LMIC economies at an unprecedented pace and scale. Sub-Saharan Africa is expected to have 623 million mobile phone subscribers by 2025, who can all be reached, no matter where they live, at extremely low costs. In light of the double burden of communicable and non-communicable diseases which increasingly challenge African governments in realizing Universal Health Coverage, there is a huge need for affordable NCD prevention and care. Digital services can be the answer.

Developing countries

85% of deaths ascribed to NCDs are in developing countries
80% of the global burden of cardiovascular disease (CVD) occurs in developing countries

Sub-Sahara Africa

5% Diabetes prevalence
~65% of diabetes patients are undiagnosed
~28% Hypertension prevalence

Kenya

2,2% Diabetes prevalence
18-32% Hypertension prevalence
2,3-7,4% Hypertension control levels

PHARMACCESSGROUP

USING DIGITAL TECHNOLOGY TO INCREASE THE ACCESS, AFFORDABILITY, AND QUALITY OF DIABETES AND HYPERTENSION CARE IN KENYA

Inspired by the opportunities Africa's mobile transformation brings for healthcare access, PharmAccess, CarePay and Sanofi have joined forces to develop a pilot of a mobile technology-based model for NCD care in Kenya. Benefitting from shared skills and expertise, the partners initiated Ngao Ya Afya (Shield for Health in Kiswahili): a digital service model for diabetes and hypertension care that combines direct financial support and access to care for low-income patients while stimulating quality of care and generating real-time medical and financial data insights for doctors and healthcare payers. This model runs on M-TIBA, a mobile healthcare payment platform that allows people to save and receive funds designated for healthcare on their mobile phone.

These funds can be spent in a network of digitally connected health facilities. In addition, patients can use measuring devices and a dedicated mobile app to track their health condition from home.

The digital service model was designed with a view to developing a scalable service model that optimizes cost of care and efficiency, while leveraging available funds from patients and payers in one wallet. If successful, the pilot will be scaled and replicated by healthcare payers and providers in Kenya as well as other African countries.

HOW DOES IT WORK?

The Ngao Ya Afya model empowers several key players in the healthcare system, starting with **the patient.** When diagnosed with hypertension and/or diabetes and enrolled in the program, lower income patients receive financial support for (co-paying) tests, consultations, and medicines directly in their mobile health wallets. In addition to increasing financial access, Ngao Ya Afya also breaks down physical access barriers to diabetes and hypertension care. Through the 'Afya Pap' app, developed by the social enterprise Baobab Circle, and blood pressure and glucose meters, patients can monitor their condition from home and communicate digitally with their physician. This reduces the patient's opportunity cost of going to a clinic and losing a day's income. Patients also receive support in leading healthier lifestyles and adhering to treatment. This behavioral support was developed and tested in close collaboration with behavioral scientists at Duke University.

For doctors, the model enables for remotely monitoring the patient's health status and provides feedback on guideline adherence. The platform collects medical and financial data from each healthcare visit in real-time – at both the individual and patient population level.

Payers, such as private insurers, employers or the National Hospital Insurance Fund, benefit from real-time information on costs and outcomes of care (figure 2), helping them make informed decisions on increasing efficiencies in financing NCD care, e.g. by reducing the need for in-person visits due to remote monitoring.
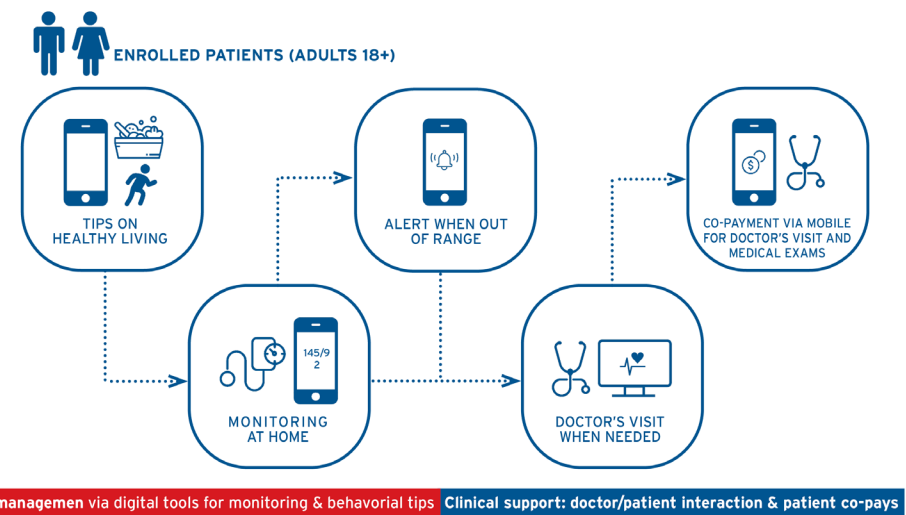

Figure 1: Many benefits for patients and physicians in disease management and control

LEAN START UP APPROACH

Digital insights in cost, quality, outcomes -> **improved value of care**

PAYER

Digital NCD Service Model = **TRUST AND TRANSPARENCY**

Screening to increase awareness
Empower patients with digital **self-management** tools
Behavorial incentives to adhere to care plans

PATIENT

CLINICS

Digital tools to **reduce burden of healthcare staff** and to **improve quality of care**

Figure 2: The digital service model and benefits for the patients, clinics and the payer

In line with learnings from tech start-ups, key components for the model's success include patient empowerment, usability and the continuous use of services at clinics. The partners therefore began by conducting a market analysis: to assess patients' and doctor's needs, doctors' treatment and market barriers and the demand for, and affordability of lower- and middle-income patients. Subsequently, a viable prototype was developed and tested in a small patient group. Participating doctors and nurses were trained on using the technology. Quick feedback loops allowed for feature improvements that were eventually incorporated into a fully designed application.

This application has since been made available to a larger group of patients and healthcare facilities, allowing for full-fledged testing.

PROMISING PRELIMINARY RESULTS

> **BEFORE I JOINED THIS PROGRAM, I WAS OFTEN ADMITTED WITH HIGH SUGAR LEVELS. SINCE I JOINED, I MEASURE AT HOME, I KNOW WHAT TO EAT AND WHAT NOT TO. MY SUGARS STABILIZED. I HAVE NOT BEEN ADMITTED SINCE I JOINED - 2 MONTHS NOW."**
> PATIENT ON THE PROGRAM

> **THE DESIGN OF THIS PROGRAM HAS BROUGHT US CLOSER TO THE PATIENTS. NGAO YA AFYA'S SUPPORT TO THE NCD PATIENTS, ESPECIALLY FOR THOSE WHO CANNOT AFFORD TO PAY FOR CARE, GIVES THEM HOPE FOR TOMORROW."**
> HERBERT CHERUIYOT MEDICAL MANAGER ONE OF THE PARTICIPATING HOSPITALS

The first patients were enrolled in the pilot in 2018. Since then, over 600 people have signed up at four private clinics in Nairobi. Of these patients, 17 percent have diabetes, 55 percent have hypertension and 28 percent have both conditions. A highlight of some of the first results:

- **Cost-efficiency:** overall, average costs of care are USD 7.80 per month for patients with hypertension, USD 9.40 for patients with diabetes and USD 14 for patients with both conditions. These amounts include tests, consultations, medicines, and subscription to a self-management app[1]. These insights in costs are valuable in a health system where reliable cost estimations are not widely available.
- **Increased adherence to care:** to date, adherence[2] stands at 53% after three months in care and 39% after 6 months, almost twice the benchmark (25 percent).[3] 47% of the 650 enrolled patients, have been in care in the last three months.
- **Better value of care:** due to increased interaction between clinic staff and patients. Clinicians listen to the patients' feedback on the costs and care they have received. At some clinics costs have been brought down based on the feedback.
- **Positive effect on Health outcomes:** scientific research is still ongoing to validate results, but the data collected through M-TIBA and the self-management devices and app show a positive effect on patients' health. In a subgroup of patients who were in care for more than 6 months, on average self-measured/reported systolic blood pressure dropped from 139.6 to 127.4 in 6 months' time. In a subgroup of diabetic patients, fasting blood sugar on average dropped from 9.2 to 7.3 in three months' time, and non-fasting from 10.3 to 8.3.
- **Patient satisfaction:** patient feedback is positive. Measuring remotely and getting the financial support directly in their digital wallets has empowered patients to efficiently manage their own health.
- **Better educated patient group:** patients are better educated about the importance of a healthy diet, physical exercise and taking their medication. We have even seen patients independently starting peer-to-peer support groups, and trickle-down effects, in which family members and others in the community begin to benefit from the patient group's education.

1   This average also includes weeks where patients did not seek care, and excludes patients who did not visit the clinic at all. Focusing only on the months patients were actively in care results in average costs of USD 33 for hypertensive patients, USD 36 for diabetics and USD 43 for patients with both conditions.

2   Adherence defined as measuring at home or visiting the clinic

3   Oti et al. Outcomes and costs of implementing a community-based intervention for hypertension in an urban slum in Kenya. Bull World Health Organ. 2016 Jul 1;94(7):501-9

NGAO YA AFYA GOING FORWARD

While initial results are positive, we still have a lot to learn. The model uses a mix of digital and non-digital interventions, which makes it more challenging to understand the subsequent actions patients take to enroll and stay in care for longer periods of time. Moreover, adherence to care remains an issue of concern. Adherence to care is often triggered by high opportunity costs for patients. We are testing teleconsultations and enrolling community pharmacies closer to the communities to address this issue. And, while costs can be curbed because of increased efficiencies, costs will initially increase compared to the situation when patients were not in care, or dropped out after a month or two.

Moreover, we have learned that face-to-face contact is critical for people to stay in care and use the apps, especially for less tech-savvy people. We are currently working closely with patient organizations such as the Kenya Defeat Diabetes Association, to discuss topics including lifestyle, how to use the digital tool and how to stimulate the organization of peer groups.

Lastly, we are exploring new partnerships with insurance companies to test the model on their client base – with a view to scale in the market at the program's conclusion. A new pilot is in development with such an insurance company.

STRENGTHS OF THE PARTNERSHIP

The combination of a locally-rooted NGO, a Kenya founded social IT venture, and a global biopharma company has proven synergetic:

- PharmAccess' Medical Credit Fund (MCF) has helped a vast network of healthcare facilities to strengthen their services through access to loans and quality improvement tools (SafeCare). Moreover, PharmAccess innovatively uses digital technology to drastically increase access, transparency, and quality of care. Lastly, PharmAcces has on-the-ground experience in stimulating lower income groups to save and pre-pay for healthcare expenses and seek care when they need it, not just when they can afford it.
- CarePay has created a payment and data generating backbone. Introduced in 2016 as a local solution for Kenyans, by Kenyans, the M-TIBA platform has now reached over 4 million users and became a well-known brand.
- Sanofi is a global industry leader and has been a key healthcare actor in Africa for over 60 years. It has a broad portfolio of products and strong expertise in the field of non-communicable disease management and treatment, including hypertension and diabetes, and is willing to partner and bring innovative solutions to address this growing health burden in Africa.

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ABOUT

PharmAccess is a group of organizations dedicated to improving healthcare. With a focus on sub-Saharan Africa, we work to strengthen health markets with digital technologies so that people can access better services, lead healthier lives and reach their full potential. This work echoes the global call for universal health coverage, and is achievable by mobilizing private and public resources, to reach those in even the most remote areas with affordable healthcare they can trust.

CarePay is an IT technology company with a mission to change how healthcare works. CarePay helps insurers, donors and governments run large scale health schemes, distributing benefits efficiently and transparently. It is the developer and administrator of M-TIBA – the health finance platform integrating payments and revolutionizing health schemes to drive healthcare inclusion in Africa. While initially founded in Kenya, CarePay is now also active in Nigeria and Tanzania, and an international parent company, CarePay International, has been created to facilitate further international expansion.

Sanofi is a dedicated to supporting people through their health challenges. We are a global biopharmaceutical company focused on human health. Sanofi prevents illness with vaccines, provide innovative treatments to fight pain and ease suffering. Sanofi stands by the few who suffer from rare diseases and the millions with long-term chronic conditions. With more than 100,000 people in 100 countries, Sanofi is transforming scientific innovation into healthcare solutions around the globe.