



ANNUAL REPORT  
2017

VACCINE	Date (month/year)	Status
BCG	15/11/17	
OPV1	15/11/17	
OPV2	15/11/17	
OPV3	28/10/17	
OPV4	28/10/17	
OPV5	28/10/17	
OPV6	28/10/17	
OPV7	28/10/17	
OPV8	28/10/17	
OPV9	28/10/17	
OPV10	28/10/17	
OPV11	28/10/17	
OPV12	28/10/17	
OPV13	28/10/17	
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OPV47	28/10/17	
OPV48	28/10/17	
OPV49	28/10/17	
OPV50	28/10/17	



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IMAGE, FRONT COVER:  
A MOTHER WAITS TO HAVE HER CHILD IMMUNIZED AT A CLINIC  
KANO, NIGERIA

IMAGE, OPPOSITE:  
A MOTHER WHO RECEIVED ANTENATAL CARE AND DELIVERED  
HER SON AT THE BARAU DIKO HOSPITAL  
KADUNA, NIGERIA

# MESSAGE FROM LEADERSHIP

During the past year CHAI has renewed its strategy and set important goals for the future. A platform has been established from which we can accomplish profound humanitarian goals over the next five to ten years. We have extraordinary people, a global reach, a unique body of knowledge and capabilities, and close and trusted relationships with governments, local communities, global organizations, other NGOs and suppliers of health products and services. We have the track record to accomplish our goals, and an excellent board of directors to help guide and support our efforts.

We will not do this work alone. Our partner governments will continue to take the lead and we will work with others.

Over the next five to ten years, we can help cure twenty million people who suffer from hepatitis C and prevent tens of millions more from being infected by hepatitis B. We can help treat 10 million additional people who would otherwise die of AIDS, including over a million children, who will now live long, quality lives. We can help make sure that over 500 thousand additional children every year will not fall prey to vaccine preventable diseases. For millions of other children, diarrhea and respiratory illnesses will be relatively mild and temporary episodes, rather than precipitators of severe illness and death. We will help whole regions of the world that have suffered from malaria for millennia to become malaria free, and we will help reduce the burden of malaria in other high-endemic regions. Hundreds of thousands of children who otherwise would have died from malaria will live. We will help prevent tuberculosis

in a number of high-endemic areas and treat it effectively when it does occur.

In places where we work, over 40 percent less women will die in childbirth and over 40 percent fewer infants will die in their first weeks of life. Certain preventable and curable cancers will no longer be “death sentences” in many developing countries as we help make prevention and cures affordable and available. With our help, within the next 10 years, a number of the countries where we work will set up finance systems, educate enough health care professionals and create the physical infrastructure to be able to provide universal health coverage with high quality services to all of their people.

Many of the people we help will never know who we are and we will never have the opportunity to meet them. But our impact will be measurable and real. In many cases, such as the vaccine preventable disease that a child never contracts, the person we help will not know that they have been helped. But we will be able to measure the impact in the reduced rates of diseases, illnesses, and lives lost.

Since CHAI was founded in 2002, we have accomplished a great deal toward fulfilling our mission to help save lives, reduce the burden of disease, and enable people to fulfill their potential. Now, the organization we have built aims to have even further impact in fulfilling our mission over these coming years.

— CHAI Management

IMAGE:  
A WOMAN FEEDS ORAL REHYDRATION SALTS TO A BOY SUFFERING FROM DIARRHEA  
MADHYA PRADESH, INDIA



# OUR HISTORY

CHAI was founded in 2002 with a transformational goal: help save the lives of millions of people living with HIV/AIDS by dramatically increasing access to lifesaving antiretroviral treatment (ART) in the developing world. Since that time, CHAI has expanded its work to tackle diseases such as malaria, tuberculosis, hepatitis, and cancer, reduce mortality for mothers and their children, and help partner governments reform their health systems to make quality, affordable health care available to everyone, no matter where they were born.

CHAI's strategy is defined by the approach of taking on large, ambitious projects to save the most lives, while creating sustainable programs to improve government and health services that can continue long after our work is done. Today, CHAI is working in 36 countries around the world. Around 80 countries have access to lower price medications negotiated by CHAI.



MOTHERS WAIT TO HAVE THEIR CHILDREN IMMUNIZED AT A CLINIC  
KANO, NIGERIA

## Key milestones

2002

**CHAI founded** to help save the lives of millions of people living with HIV/AIDS in developing countries.

2002/2003

**First programs started** in Africa and the Caribbean aimed at scaling up HIV/AIDS care and treatment in entire countries. CHAI helps develop and implement national plans with the governments of Mozambique, Rwanda, Tanzania, the Bahamas, Haiti, the Dominican Republic, and eastern Caribbean states, to test people for AIDS, procure drugs, accredit facilities, set up supply chains, train health workers, and establish laboratories. 800,000 people are treated in these countries in five years as a result of this work, up from a total of 2,000 when the work began.

2003

**CHAI negotiates lower prices for first-line HIV drugs** by over 60 percent, enabling over 60 countries to access lower prices. CHAI begins work with South Africa to scale up treatment, laying foundation for largest antiretroviral therapy (ART) program in the world.

2004

**CHAI negotiates 50-90 percent price reductions for CD4 diagnostic tests** for AIDS patients worldwide and enables nationwide scale-up of CD4 testing in over 40 countries.

2004/2005

**CHAI leads global effort alongside Unitaid to scale-up treatment for children with AIDS** in 34 countries, from around 75,000 on treatment to over 900,000 today. This work lowers the price of AIDS medications from over US\$600 per child, per year to around US\$60 per child, per year. CHAI scales up deployment of special pediatric diagnostic tests from 50,000 to over one million tests per year.

2005

**CHAI works with Unitaid to negotiate agreements to lower price of second-line HIV/AIDS treatments** by 75 percent and accelerate roll out of these drugs to over 30 countries where patients were failing on first-line treatments.

**CHAI expands work to Southeast Asia** to scale up care and treatment programs for HIV/AIDS.

2007

**CHAI begins work in malaria.** CHAI's malaria program grows rapidly to help government partners increase funding to combat malaria, improve access to quality diagnosis and treatment, and support evidence-based decision making to target resources and accelerate progress toward elimination.

2008-2011

**CHAI helps reduce mother-to-child transmission of HIV by 40 percent** in high-burden areas in six countries.

2011

**CHAI begins work to lower costs and increase access to lifesaving vaccines.** Working alongside the Bill & Melinda Gates Foundation, CHAI negotiates a landmark agreement to lower the price of the Rotavirus vaccine by 67 percent, saving the global community over US\$800 million, and the Pentavalent vaccine by 50 percent, saving over US\$150 million over five years.

2012

**CHAI negotiates agreement to lower the price of long-acting reversible contraceptives from US\$18 to US\$8.50** per implant and accelerates roll out of the products to save the lives of women.

2013

**CHAI begins work to reduce mortality from diarrhea for children under five,** scaling up access to lifesaving zinc/ORS treatment in India, Kenya, and Uganda.

2014

**CHAI negotiates a 67 percent price reduction for service and maintenance of the first point-of-care CD4 diagnostic tool for HIV.** With the support of Unitaid, more than one million HIV diagnostic tests for infants were performed globally, up from 80,000 tests in 2007.

**CHAI helps lead case management and health worker training in response to the Ebola crisis** in Liberia, responsible for implementing a massive scale-up of treatment centers, distribution of critical supplies and serving as a critical link between the international emergency response and the Liberian government.

2015

**CHAI introduces a new, comprehensive community-based approach to reduce maternal and infant mortality** in Northern Nigeria through improved outreach, treatment, and training of health workers.

**CHAI introduces new programs in hepatitis, pneumonia, and cancer.**

2016

**CHAI's integrated approach to reducing maternal and newborn deaths was found by two independent external evaluations to have resulted in rapid, consistent and continuing declines in maternal and neonatal mortality and the proportion of stillbirths in a target area of Nigeria.** Starting from a baseline established at six months into implementation, the evaluations confirmed that the CHAI approach contributed to a sustained 37 percent reduction in maternal mortality, a 43 percent reduction in neonatal mortality, and a 15 percent reduction in stillbirths within 12 months.

**CHAI helped reduce the cost of Hepatitis C treatment in seven focal countries by 71-95 percent,** from US\$2,618 per patient to between US\$133 and US\$789 per patient treated, depending on the country.

# OUR VALUES

## **We work with urgency.**

People are dying unnecessarily from AIDS, malaria, tuberculosis, and other preventable and treatable conditions. We recognize that every day we delay, people die. Therefore, we work with utmost speed to build a strong foundation for sustainable impact. The faster we act the more lives we can save.

## **We work in cooperation with and at the service of partner governments.**

We believe that to make programs sustainable and scalable we need to help strengthen the mainstream government health systems. This means that we align our program strategies with our partner governments to work in service of their priorities and goals. Partnering with governments enables transformational impact, as they are the strongest institutions in developing countries with long term and expansive health policies and programs.

## **We are a mission-driven organization.**

We want people to work with us who believe in the mission and whose fulfillment comes from the fact that collectively we succeed in advancing the mission. This ensures our unity of purpose, with all leaders and managers and their staff at all levels working to a common cause.

## **We are frugal.**

Our offices are modest. We do not use donor money to travel lavishly. We maintain low overheads. We feel that the donor funds we raise should go as much as possible to saving lives directly rather than to compensating ourselves excessively or incurring elaborate expenses.

## **We operate with humility.**

We do not seek credit for our work and will only take it if it is necessary to fulfill our mission. We do not seek to publicize our work independent of publicity that our government partners or donors want.

## **We have an entrepreneurial and action-oriented culture.**

We hire good people and give them wide latitude to conceive of and execute programs. We have a culture of seeking out opportunities and then seizing them. Some of our greatest accomplishments, large and small, were not planned centrally. We are willing to take calculated risks to attempt to achieve goals that are substantial, challenging, and uncertain.

## **We operate based on trust and transparency.**

We expect employees and partners to make ethical decisions and to work hard and manage their own work. As an organization, at all levels, we uphold good governance with transparency and accountability.

## **We recognize that our staff is our greatest asset.**

Our successes are driven by the talent, creativity, and hard work of the people who work for us. We strive to support and protect our staff to grow and thrive within the organization and to enable them to have a major impact in fulfilling the mission.

## **We foster diversity and inclusion.**

We are an inclusive workplace and promote and integrate the principles of fairness, respect, equality, and dignity into CHAI's culture. We take a firm position against any form of discrimination and harassment.

IMAGE:  
TWO GIRLS ATTEND AN INFORMATION SESSION ABOUT THE  
ADVERSE EFFECTS OF ANEMIA AT A GIRLS' HOSTEL  
MADHYA PRADESH, INDIA



# WHERE WE WORK

★ BOSTON, MA, USA  
GLOBAL OPERATIONS

Countries where CHAI currently operates program activities:

36

Countries participating in CHAI procurement consortium activities:

84

Countries with a CHAI country office:

28

## MAP KEY:

- Procurement Consortium Countries
- Program and Procurement Consortium Countries
- Countries with offices, programs, and procurement consortium members

## 2017 PROGRAM COUNTRIES

Countries where CHAI had programmatic engagement with the government in 2017.

Botswana	Mozambique
Burkina Faso	Myanmar
Cambodia	Namibia
Cameroon	Nicaragua
Democratic Republic of Congo	Nigeria
Dominican Republic	Panama
El Salvador	Papua New Guinea
Ethiopia	Rwanda
Guatemala	Senegal
Haiti	Sierra Leone
Honduras	South Africa
India	Swaziland
Indonesia	Tanzania
Kenya	Uganda
Lao PDR	Ukraine
Lesotho	Vietnam
Liberia	Zambia
Malawi	Zimbabwe

## 2017 COUNTRY OFFICES

Countries where CHAI operated out of an office location in 2017.

Cambodia	Rwanda
Cameroon	Sierra Leone
Democratic Republic of Congo	South Africa
Ethiopia	Swaziland
Haiti	Tanzania
India	Uganda
Indonesia	Ukraine
Kenya	United States
Lao PDR	Vietnam
Lesotho	Zambia
Liberia	Zimbabwe
Malawi	
Mozambique	
Myanmar	
Nigeria	
Panama	
Papua New Guinea	

## 2017 PROCUREMENT CONSORTIUM MEMBER COUNTRIES

Procurement Consortium Member Countries have access to CHAI-negotiated price reductions for key high-quality medicines and diagnostics

Anguilla	Chile	Guyana	Myanmar	St. Kitts & Nevis
Antigua & Barbuda	China	Haiti	Namibia	St. Vincent & the Grenadines
The Bahamas	Colombia	Honduras	Nepal	Suriname
Barbados	Commonwealth of Dominica	India	Nicaragua	Swaziland
Belize	Democratic Republic of Congo	Indonesia	Niger	Tanzania
Benin	Dominican Republic	Jamaica	Nigeria	Thailand
Bhutan	Costa Rica	Kazakhstan	Pakistan	Togo
Bolivia	Côte d'Ivoire	Kenya	Panama	Trinidad & Tobago
Botswana	Ecuador	Kyrgyz Republic	Papua New Guinea	Uganda
Brazil	El Salvador	Lao PDR	Paraguay	Ukraine
British Virgin Islands	Ethiopia	Lesotho	Peru	Vietnam
Burkina Faso	Gambia	Liberia	Rwanda	Zambia
Burundi	Ghana	Malawi	St. Lucia	Zimbabwe
Cambodia	Grenada	Mali	São Tomé and Príncipe	
Cameroon	Guatemala	Mauritius	Senegal	
Cape Verde	Guinea	Montserrat	Sierra Leone	
Central African Republic	Guinea-Bissau	Morocco	South Africa	
Chad		Mozambique	Sri Lanka	

# HIV/AIDS

Over the last 15 years, there has been great progress in combatting HIV/AIDS. AIDS-related deaths have dropped by 48 percent since 2005. Over 21 million people living with HIV now receive the treatment they need to make the disease a chronic illness rather than a death sentence. However, there are still almost two million new infections every year, and of the 1.8 million children living with HIV globally, only half are on treatment. Current HIV testing efforts are not effectively identifying and linking to care all those at risk.

Antiretroviral treatment (ART) is one of the most effective tools used against the virus, and there are exciting opportunities for antiretroviral (ARV) drugs for

both adults and children that are cheaper, less toxic, and more effective than previous options, achieving faster viral suppression with fewer side effects. Access to the best available regimens is increasingly important as more patients start treatment earlier in their disease progression, when they are healthier and less likely to tolerate debilitating side effects. Ensuring this access can be challenging, especially for children, where a small market, limited financial incentives to quickly develop specially-formulated products, and a lack of coordination have led to delays in available pediatric regimens. For those who successfully initiate treatment, too many patients are lost-to-follow-up and the rate of

viral suppression is often unknown. CHAI supports a ‘test smart, treat right, stay negative’ strategy that applies a targeted approach to testing, treatment, and prevention, while strengthening the links between services, enabling countries to identify and treat the vast majority of people living with HIV and reduce new infections.

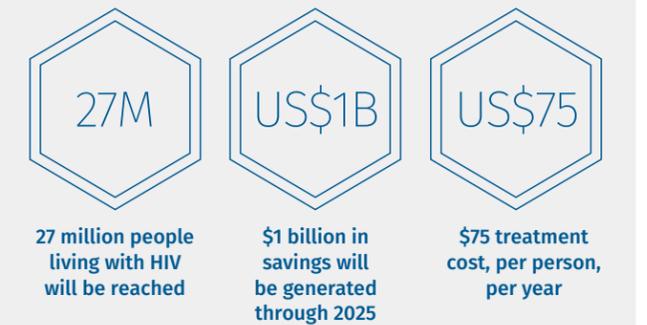
## TEST SMART TO REACH MORE INFANTS, CHILDREN, AND ADULTS LIVING WITH HIV

CHAI works with governments to identify the most effective and affordable testing strategies to identify all remaining people living with HIV and link them to care. In 2017, with the continued support of ELMA Philanthropies, CHAI helped **Malawi, Uganda, Zambia, and Zimbabwe** scale up treatment and reduce new infections in children through targeted testing strategies. In **Malawi**, the government has adopted the first guidelines for index case testing through the use of Family Referral Slips (FRS) which are issued to clients who test HIV-positive to give to sexual partners and family members to refer them for testing. CHAI ran the initial pilot in 80 facilities and saw five and a half times more HIV-positive children identified through the program, paving the way for a national scale-up in 2017. In **Zimbabwe**, another CHAI pilot targeted testing in high-volume outpatient settings through the use of a simple five-question screening process that assessed children’s HIV risk and identified those most in need of testing. The number of children tested for HIV increased by 71 percent, and the number of children diagnosed with HIV increased by 69 percent. As a result, the pilot was rolled out across the country.

Most children are infected with HIV through their mothers during pregnancy, childbirth or breastfeeding. In order to monitor for mother-to-child transmission, children born to HIV-positive mothers need to be tested at key points from birth through to the end of breastfeeding, when they are no longer at risk. Historically, blood samples for this testing are sent

## TREATMENT PRICE AGREEMENT

A CHAI-negotiated pricing agreement will make an affordable, generic, single-pill regimen containing best-in-class DTG available to low- and middle-income countries.



“

Early infant diagnosis and rapid tests have replaced months of waiting for HIV test results for both children and adults, and pregnant women are tested at antenatal clinics in order to prevent babies from acquiring HIV.”

— Dr. Mobumo Kiromat

READ MORE P. 17



NURSES SHOW ANTIRETROVIRAL DRUGS, PART OF THE FIRST LINE THERAPY FOR HIV ART UNIT IN CHAMPASAK PROVINCIAL HOSPITAL, LAO PDR

away to be tested in centralized laboratories. The results can take days, weeks, or even months to process and report back to health facilities, resulting in high rates of loss-to-follow-up before HIV positive infants can be diagnosed and begin treatment. With Unitaid’s support, CHAI is working to address this by scaling up new diagnostic products that take testing out of the laboratory and bring it to the point of care (POC)—where and when patients are treated.

CHAI is partnering with governments to improve early infant diagnosis (EID) by introducing systems to track HIV-positive mothers and their infants, enabling providers to follow up with mothers and infants that have disengaged with care. As a result, there

has been a sharp increase in EID coverage at the end of breastfeeding, with countries such as Malawi demonstrating increases from 41 percent in 2014 to 68 percent in 2017.

Following successful pilots of POC EID testing on the Abbott m-Pima platform in 2016, **Malawi** and **Mozambique** have scaled up POC EID testing nationally. With Unitaid’s support, CHAI helped the Ministry of Health in Malawi to conduct a mapping exercise of potential POC sites that resulted in an ambitious plan to reach 90 percent EID coverage. In Mozambique, CHAI helped develop a manual for POC EID implementation to guide scale-up efforts. Additionally, in 2017 CHAI introduced POC EID testing on GeneXpert in **Ethiopia**, **Malawi**, and **Zimbabwe**. GeneXpert is widely used by tuberculosis (TB) programs in many low- and middle-income countries, but can perform several types of tests on the same instrument, including EID and viral load tests. This technology remains underutilized in many health facilities and these pilots aimed to demonstrate operational feasibility of integrated testing without compromising patient care. If successful, integrated testing can help countries rapidly scale up POC EID at a lower cost, as countries will not have to make expensive upfront capital investments. In addition, CHAI helped secure the pricing on both POC EID and viral load tests on GeneXpert at \$14.90, reduced from \$17.95 and \$16.80, respectively.

In **India**, CHAI partnered with the National AIDS Control Organization (NACO) to revise EID testing and treatment guidelines. Changes to sample collection enabled NACO to increase the number of centers that provide this test from 200 to 5,500. CHAI also developed and helped roll out a web-based patient management system at all EID testing labs in the country. The system emails patients’ lab results to counsellors, automating what had been a manual process and reducing the result delivery time from days to minutes. In 2017, **Myanmar** established a national lab information management system for EID and viral load testing. The government, with CHAI support, expanded the system in the public sector and integrated SMS-based test result delivery into the management system at over two dozen EID sites and 12 prevention of mother-to-child-transmission (PMTCT)

hospitals with high caseloads. This resulted in 44 percent of all HIV-exposed infants being tested in their first two months, an increase from 32 percent in 2015. Of those infants, 79 percent who tested positive were initiated on ART, an increase from 44 percent in 2015.

CHAI also supports test smart initiatives for adults. In **Kenya**, where 53 percent of people are unaware of their HIV status, self-testing is recognized as a way to reach those who may be left behind by conventional strategies. At the request of the government, CHAI partnered with the Pharmaceutical Society of Kenya to roll out a pilot in private sector pharmacies to size the potential market for HIV self-testing, test the retail model for self-test kits, and gauge public interest. The success of the pilot added to the growing body of evidence the government needed to scale up self-testing throughout the country, with the public roll-out of the program expected in 2018.

#### TREAT RIGHT WITH IMPROVED HIV REGIMENS

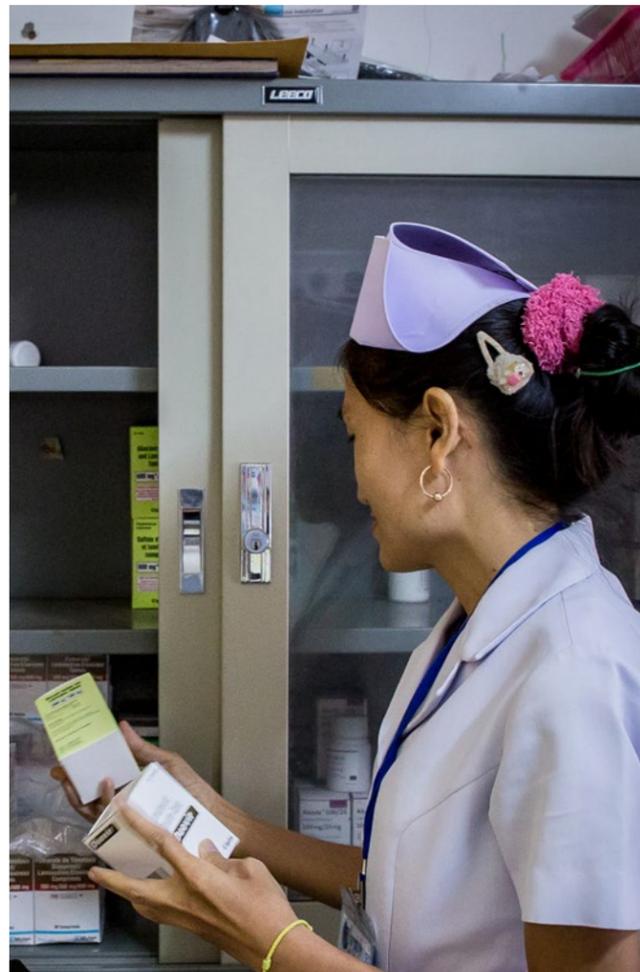
New treatments for both adults and children are available today which are less toxic and more effective than previous options, making it easier for patients to continue their regimens and stay healthy, as well as limit the spread of the disease. However, some of the best medicines are only available in high-income countries, and there can be a significant lag before a generic is developed and patients in low- and middle-income countries have access to those benefits. CHAI works to make optimal treatment options more accessible and affordable, much more quickly. In 2017, CHAI and partners worked to accelerate the availability of dolutegravir (DTG)—the standard of care in the U.S. because it suppresses the HIV virus faster and lacks the debilitating side effects of alternative ARVs—by supporting early introduction efforts and negotiating a landmark global pricing deal.

In 2017, CHAI partnered with Unitaid to accelerate the introduction of DTG in **Kenya**, **Nigeria**, and **Uganda** and build a platform for rapid uptake of the preferred first-line HIV treatment containing DTG: tenofovir disoproxil fumarate/lamivudine/DTG (TLD). Through a catalytic procurement initiative supported by Unitaid and CHAI, in June of 2017, **Kenya** became the first country in Africa to access generic DTG. CHAI also supported enhanced

implementation monitoring in **Uganda** and **Nigeria** on the introduction of DTG into first-line therapy to capture early patient and provider experiences with the drug, and to draw lessons for national and global scale-up. This served as a critical foundation for building early demand for DTG-based products in advance of transitions to TLD, generating evidence on the use of DTG in resource-limited settings, and helping to build the global consensus that now surrounds the transition to rapid, widespread TLD access. By the end of 2017, over 23 low- and middle-income countries initiated procurement of generic DTG singles.

Building on CHAI and Unitaid’s work introducing DTG, in 2017 CHAI joined partners including Unitaid, the Bill & Melinda Gates Foundation (BMGF), World Health Organization (WHO), UNAIDS, the Global Fund, the President’s Emergency Plan for AIDS Relief (PEPFAR), and the UK Department for International Development (DFID), alongside the governments of **South Africa** and **Kenya**, in announcing a breakthrough pricing agreement to accelerate access to TLD for public sector purchasers in low- and middle-income countries at around US\$75 per person, per year. This agreement, negotiated by CHAI, marked a huge step forward in providing access to the best treatment options for people living with HIV in the developing world and was the first time the best available regimen has come to market at a price below the current standard of care. The agreement is expected to reach over 27 million people living with HIV, generating savings of over US\$1 billion through 2025. It will help governments offer better treatment options to patients while reducing overall treatment costs to make limited budgets go further.

CHAI takes a holistic end-to-end approach to facilitate the rapid introduction of new HIV products in partner countries, including working with ministries of health, implementing partners and communities to develop the right phase-in strategies. Ensuring that optimal treatment is widely accessible to patients requires high levels of planning, coordination, and targeted implementation. CHAI has developed expertise in these areas, but it is critical to transition this expertise to our partners, ensuring sustainability and national ownership. With support from Unitaid, CHAI developed



A NURSE TAKES ANTIRETROVIRAL MEDICINE FROM A CABINET TO DISPENSE TO A PATIENT  
LAO PDR

an online HIV New Product Introduction Toolkit ([www.newhivdrugs.org](http://www.newhivdrugs.org)), which provides access to resources, such as planning tools, job aides, training kits, patient and provider information, to assist national programs, partners, and community representatives as they evaluate, plan, and execute transitions to new ART regimens. The Toolkit has been accessed by people in over 90 countries.

To help national ministries of health decide whether to adopt TLD, CHAI provided clinical guidance and developed program and budget impact analyses to inform decision making. CHAI also supported forecasting and phase-in planning to help countries develop feasible rollout plans that will make optimal treatment available as quickly as possible, while ensuring a sustainable supply and avoiding existing commodities wastage. Through CHAI's support, for example, DTG has been adopted into national

treatment guidelines in 18 countries, including **Nigeria, Uganda, Kenya, Tanzania, and Malawi**. In **South Africa**, the largest single market for ARVs globally, CHAI is supporting the government to make TLD available to over 4 million people living with HIV and accessing treatment through the national program by 2019.

CHAI continues to support national pediatric programs to review and introduce optimal HIV products for children, including fixed dose-combinations of abacavir/lamivudine (ABC/3TC) and an improved and more tolerable formulation of lopinavir/ritonavir (LPV/r), both key components making up WHO-preferred regimens for children. In **Zimbabwe**, CHAI partnered with the ministry of health and the Drugs for Neglected Diseases Initiative (DNDi) to conduct a pilot of LPV/r oral pellets. The pellets can replace LPV/r oral solution, which is very difficult for children to take due to its bitter taste and need for cold chain storage.



A NURSE DISPENSES ANTIRETROVIRAL MEDICATION FOR A PATIENT PRESCRIPTION  
LAO PDR

The study showed high acceptability rates, and these results and recommendations will be used to inform the procurement and scale-up of the pellets both in Zimbabwe and across other countries. In addition to increasing access to the best available products for children, CHAI also works to accelerate the development of new treatments for children—including DTG. In 2017, together with Unitaid and ViiV Healthcare, CHAI launched a unique public-private partnership and incentive program to accelerate the development and introduction of optimized pediatric formulations of DTG for children living with HIV in resource-limited settings.

In 2017, the Ministry of Health in **Eswatini** (formerly known as Swaziland), CHAI, and other partners concluded the ground-breaking MaxART Early Access to ART for All (EAAA) study. The program began in 2011 with the goal of reducing new HIV infections and improving access to treatment throughout the country. Eswatini has the highest rate of HIV infection in the world: 27.2 percent of adults live with the disease. Initial phases of the program focused on scaling up diagnosis and linkage to care, and the final phase demonstrated the feasibility of implementing treat-all policies, meaning anyone diagnosed with HIV is eligible for treatment. At the International AIDS Society conference in Durban in 2017, Eswatini shared results that for the first time showed a decline in HIV incidence as a result of the programmatic interventions within the country. Results from the MaxART study will help inform the implementation of WHO-recommended treatment for all across sub-Saharan Africa.

Throughout 2017, CHAI also expanded our partnership with leading civil society groups representing the interests of people living with HIV to closely collaborate on the rapid introduction and scale up of better treatments. CHAI, with Unitaid, HIV i-Base and AfroCAB, established the Optimal Antiretroviral Community Advisory Board. The board includes representatives from a range of global and national communities of people living with HIV and provides strategic leadership to strengthen community engagement in product adoption and to foster demand generation.

Once HIV patients initiate life-saving, life-long treatment, it is essential to periodically monitor their response to

treatment by conducting a viral load test, to ensure that the virus continues to be suppressed. Viral load testing is a critical tool for clinical decision-making in terms of adherence support and switching to second-line in the case of failure. While the viral load testing volume has dramatically increased in recent years, due in part to the efforts of CHAI and other partners, gaps still remain with only 56 percent of patients receiving routine viral load tests in 2017. To help accelerate the expansion of viral load access, CHAI supported the pilots of viral load testing on GeneXpert in **Malawi, Tanzania, and Zimbabwe**, with Unitaid support.

### STAY NEGATIVE AND GET TO ELIMINATION

In addition to introducing better tests and more effective treatments for people living with HIV, CHAI continues to support governments to implement proven HIV prevention strategies, including voluntary medical male circumcision (VMMC) and oral pre-exposure prophylaxis (PrEP). CHAI is also working with suppliers to make sure promising products in the pipeline—including long-acting injectable and implant options—can be rapidly introduced when they come to market.

VMMC is one of the most cost-effective ways to prevent HIV, reducing female-to-male transmission by 60 percent. Since 2015, BMGF has funded CHAI to catalyze scale-up of VMMC in **Zambia, Zimbabwe, and South Africa**, through enhancing coordination and management structures and adopting evidence-based targets within each country. 2017 was the best year so far for the CHAI-supported program, with all three countries conducting approximately 1.3 million VMMCs in total, and **Zambia and Zimbabwe** achieving 113 and 94 percent of their annual targets, respectively. Decentralized coordination and management encouraged community-led strategies and local engagement, which contributed to the success of these programs and, in **Zambia and Zimbabwe**, helped to optimize resources and data for decision-making to fill the gap for underfunded districts. Since the program's inception, the three countries have circumcised approximately 6.3 million men.

PrEP is the use of antiretroviral medications to keep people who do not have HIV from becoming infected.

Since 2015 the WHO has recommended that people at substantial risk of HIV infection should be offered oral PrEP as part of a comprehensive HIV prevention program. CHAI has been supporting a number of ministries of health to introduce oral PrEP. For example, in 2017 CHAI worked with **Lesotho's** Ministry of Health to introduce oral PrEP as part of a combination prevention package. As part of a pilot in **Eswatini**, CHAI helped introduce PrEP to six facilities, with 216 clients initiated. The results will help determine the feasibility of a national rollout. In **South Africa**, where PrEP was introduced in 2016 with CHAI's support, CHAI worked closely with the Department of Health to expand access on university campuses through campus health clinics.

## LOOKING AHEAD

In the next decade, CHAI plans to continue to support governments to make significant progress toward controlling the HIV epidemic by working together to identify, link, and initiate 10 million new HIV patients—including one million children—into treatment and improve the quality of their care with the most effective medicines and services. CHAI will work to ensure all countries are on track to eliminate mother-to-child-transmissions and to reduce new HIV infections by 50 percent in partner countries by supporting and scaling up new and existing prevention measures.



## Dr. Mobumo Kiromat

Country Director,  
Papua New Guinea

My journey with CHAI began during Papua New Guinea's (PNG) HIV and AIDS epidemic. In 1999, I returned home after four years of postgraduate training abroad. By then the epidemic was in its twelfth year. The government had just formed the National AIDS Council (NAC) in 1997 and its public health program was in its infancy. Upon my return, I joined the country's only third level referral hospital as a pediatrician, and was assigned to manage the children's HIV clinic.

I quickly realized that I would face major limitations in managing these children and their families. I had neither prior training nor experience in HIV medicine and neither did my superiors. My learning curve was steep and very sad, and I received little support. All I could do for these families was test them for HIV, wait for weeks to get their results back, and then offer them antibiotics for infection. The number of children I treated increased every year. Many of them did not survive to celebrate their first birthday, and those who survived lost either one or both parents to AIDS.

Six years after I began my journey with these children, the World Health Organization (WHO) and the Asian Development Bank introduced antiretroviral therapy (ART) for adults. By then I had received some support from UNICEF and the WHO and learned that ART saves lives. When ART became available in Papua New Guinea in February 2004, I started the first child on treatment by breaking up, measuring, and adjusting an adult dosage to make it suitable for a child.

I was introduced to CHAI in 2006, soon after the organization opened its office in PNG. It was a huge relief. After eight years of struggling, help was now available to manage this disease. Since then, ART for children has become available through Unitaid, early infant diagnosis and rapid tests have replaced months of waiting for HIV test results, and pregnant women are tested at antenatal clinics in order to prevent babies from acquiring HIV. Being supported in my work has been an invaluable experience.

I have joined a group of like-minded people who have become family—where urgency, humility, results, government partnership, and saving lives are our values.

I soon realized that in order to contribute to national policy decisions, plans, and guidelines that could change the course of the epidemic, I needed to focus solely on my HIV efforts. I joined CHAI in 2009 as Papua New Guinea's clinical director of the Pediatric HIV and Prevention of Mother-to-Child Transmission (PMTCT) program. I have not had a reason to look back. I have grown professionally as well as personally, with support that was freely and sincerely available. CHAI has been my bank of knowledge and experience since 2006. I continue to draw from this bank and this has made my work and life much more enjoyable. I have joined a group of like-minded people who have become family—where urgency, humility, results, government partnership, and saving lives are our values.

Soon after I became clinical director, the CHAI team nominated me for the Westpac Outstanding Women Awards, which celebrate the significant professional contributions women make to the development of PNG. In 2013, I was humbled and honored to win the Westpac Outstanding Woman for the Public Sector Award, for my leadership on HIV in the public health sector.

Our program in Papua New Guinea is now in transition as we carry out a scoping project to explore the potential of a new vaccines program in the country, funded by the Bill & Melinda Gates Foundation. After 18 years of declaring the country polio-free, we experienced an outbreak in the spring of 2018. We hope that with the new funding we can continue to do the same life-saving work we did for HIV. There will always be challenges, but we will attempt to solve them together.

# MALARIA

Each year, nearly half the world's population is at risk of contracting malaria. The disease kills around 400,000 people annually with children under five representing 90 percent of these deaths. There has been significant headway in diagnosing, treating, and even eliminating the disease in certain regions, but progress is threatened by drug and insecticide resistance, and continued dependency on donor funding means recent gains may not be sustainable.

## SAVING LIVES, REDUCING TRANSMISSION, AND WORKING TOWARD ELIMINATION

CHAI is working with government malaria programs, the private sector, and their partners to build more

effective and efficient systems to better target prevention, diagnosis, and treatment to greatly reduce infection, save lives, and in some places, eliminate the disease altogether. CHAI's approach focuses on expanding diagnostic testing and strengthening disease surveillance to help governments deploy targeted, tailored prevention and treatment measures guided by enhanced disease intelligence.

In certain parts of the world, malaria elimination appears to be the most cost-effective way to permanently maintain the gains against the disease. In 2014 CHAI began a partnership with the Bill & Melinda Gates Foundation (BMGF) to sustainably eliminate malaria from three regions of the world: Southern

Africa, the Greater Mekong region in Southeast Asia, Central America, and the Caribbean. Through this effort, CHAI is providing operational support to 14 countries across these regions to build better surveillance systems to identify where transmission is occurring, strengthen operational processes to improve the effectiveness of governmental programs, increase the funding available to support malaria interventions, and tailor and target intervention packages where they will have greatest impact.

### Southern Africa

In **South Africa**, CHAI and the National Department of Health collaborated to mobilize a 15 percent increase in domestic funding for malaria in 2017. CHAI also led development of a national surveillance system for malaria elimination, upgrading legacy data management tools onto a centralized, web-based platform. To further strengthen surveillance and chart the last mile to elimination, CHAI worked with the South African

government to develop an *Elimination Checklist* based upon the World Health Organization's (WHO) Framework for Malaria Elimination. A comprehensive and granular data review was conducted for the *Elimination Checklist* in KwaZulu-Natal (KZN) province, to quantify progress toward elimination and inform action on key gaps. The *Elimination Checklist* demonstrated that as of 2017, 89 percent of KZN's municipalities were cleared of malaria transmission.

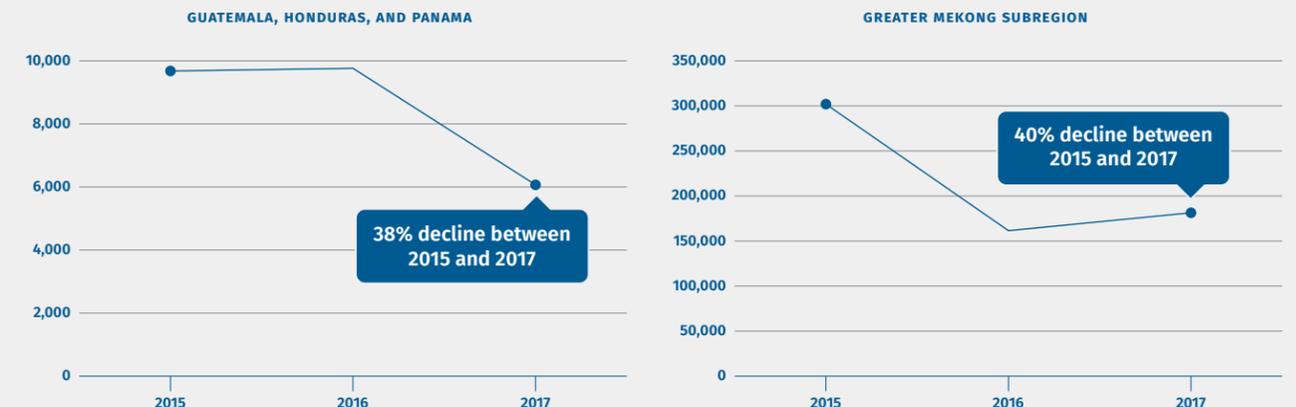
In **Eswatini**, CHAI supported the National Malaria Program to conduct a mid-term review of the National Malaria Elimination Strategic Plan in collaboration with the WHO, and supported the country to secure a Global Fund grant to eliminate malaria by 2020. In **Botswana**, CHAI supported the national malaria program to undertake a comprehensive review of the program, providing recommendations to strengthen elimination activities in line with WHO Global Technical Strategy (2016-2030). Taking advantage of remote satellite



THE SANASOMBOUN DISTRICT HOSPITAL  
LAO PDR

### DECLINES IN MALARIA INCIDENCE

Declines in the number of malaria cases were achieved by government malaria programs, with operation support from CHAI and critical contributions from numerous other partners.



MALARIA *continued*

imagery and online mapping tools, CHAI helped the program to quantify the number of buildings in the six malaria endemic districts and introduce electronic data collection and reporting tools in Chobe and Tutume districts to improve targeting and monitoring of indoor spraying with insecticides. In **Mozambique**, CHAI used the 2016 Surveillance Assessment to support development of the National Malaria Surveillance Roadmap, which culminated in additional funding from BMGF for national level surveillance strengthening and establishment of an elimination specific surveillance system; CHAI also led the development of the 2017-2022 National Strategic Plan with the inclusion of an elimination objective and supported development of a successful Global Fund application. In **Zimbabwe**, CHAI provided technical and financial support for the development of the first Malaria Elimination Foci Investigation and Response Guidelines, which was approved and launched by the Ministry of Health and Child Care in 2017. The foci guidelines will help district authorities to define areas of local malaria transmission

and deploy the right tools in the right places to eliminate the final few cases of malaria in targeted areas using available resources.

In areas where mosquitoes bite indoors, targeted housing improvements such as screening windows, doors, and eaves may help reduce disease transmission. In Eswatini, CHAI supported monitoring and evaluation of a house screening intervention in two localities with poor quality housing. In **Namibia**, CHAI helped the government complete its first malaria-focused housing improvements project, improving 1,033 structures across six villages, including 1,129 doors, 1,014 windows, 560 eaves, and 174 cracks. These improvements resulted in a 36 percent drop in malaria-carrying mosquitos inside the homes that underwent renovation.

**Greater Mekong**

In **Laos**, alongside the World Health Organization (WHO) and other partners, CHAI helped shift 100 percent of district-level reporting from paper to an electronic system that has significantly improved reporting



A NURSE PERFORMS A RAPID DIAGNOSTIC TEST ON A PATIENT WITH SUSPECTED MALARIA AT KHAMPANG HEALTH CENTER LAO PDR



If my neighbor and I simultaneously reduce malaria prevalence, we each see fewer parasites moving across our borders and thus achieve more stable gains.”

— Dr. Justin Cohen  
READ MORE P. 23

timelines along with better access to data for decision-making. CHAI helped direct Global Fund investments toward high-priority interventions that align with the country’s national strategic plan, such as increasing capacity of village malaria workers to test and treat infections at the community-level, and introducing case and foci investigation, classification, and response at all health care facilities in elimination-targeted provinces. In **Myanmar**, CHAI completed a malaria situational analysis in Ayeyarwady Region, including an investigation of local epidemiological dynamics and operational challenges, to produce a targeted plan for reducing the malaria burden in eight high-endemic townships.

**Central America**

To help increase diagnosis, treatment, and reporting, in 2017 CHAI continued to support planning and implementation of a community health worker (CHW) program in Guna Yala, **Panama**. CHAI is using data gathered from the program to generate evidence to help scale-up the model in three indigenous regions where malaria prevalence is the highest. As a result of this work, 37 of the 40 targeted communities now have active CHWs performing passive case detection and 59 percent of the total cases of malaria in Guna Yala were detected by a CHW between October 2016 and June 2017. In **Guatemala’s** Escuintla department, which has historically reported the highest incidence of malaria in the country, CHAI worked with the Pan-American Health Organization and the national program to implement the first indoor residual spraying campaign in seven years, protecting 7,750 people in 1,702 households. During the spray campaign CHAI helped build an electronic system with tablets to collect real-time monitoring and evaluation data.

**West, Central, and East Africa**

To drive down the burden of disease in high-endemic African countries, CHAI is also working to expand diagnostic testing and effective treatment of malaria cases into all of the communities that need them. While access to effective drugs has steadily improved, testing of suspected malaria has lagged behind. In the absence of appropriate testing, patients often receive ineffective treatment and national programs fail to have an accurate understanding of the true patterns of disease

transmission. In order to address this, with the support of the UK government’s Department for International Development (DFID), CHAI engages with governments to increase access to high-quality, low-cost rapid tests in all locations where patients receive treatment for malaria, while increasing access to lifesaving medications.

In 2017, CHAI, with support from Unitaid, worked in collaboration with UNICEF and the Swiss Tropical and Public Health Institute (Swiss TPH) to launch the Community Access to Rectal Artesunate for Severe Malaria (CARAMAL) project to reduce global malaria mortality among children. The goal of the three-year project is to increase access to quality-assured rectal artesunate (QA RAS) at the community level as part of strengthened severe malaria management programs in the **Democratic Republic of Congo (DRC), Nigeria, and Uganda**. Without effective and timely treatment that can be administered in the community, many cases of severe malaria will result in death. QA RAS is critical in preventing progression of the disease in children suffering from severe malaria and helps bide



A PATIENT THAT CAME TO THE SANASOMBOUN DISTRICT HOSPITAL WITH A FEVER AND TESTED POSITIVE FOR MALARIA SHOWS THE MEDICINE HE RECEIVED LAO PDR

## MALARIA *continued*

time until they can receive injectable artesunate—the recommended treatment for malaria—which is often unavailable at the community-level.

In **Nigeria**, CHAI is working with the National Malaria Elimination program (NMEP) to scale up malaria diagnosis in the private sector where a large proportion (66 percent) of treatment-seeking takes place. In 2017, CHAI worked with the NMEP to introduce the use of malaria rapid diagnostic tests (mRDTs) to over 800 providers in the retail private sector and improve reporting rates through the introduction of a data reporting system. As a result, 80 percent of clients with malaria symptoms visiting these providers were tested with rapid tests and the average reporting rate was 40 percent among trained providers. In order to reduce the availability of counterfeit anti-malarials and antibiotics, CHAI, with funding from Malaria No More, supported the National Agency for Food and Drug Administration and Control to strengthen the regulatory framework for implementation of its anti-counterfeiting mobile authentication service scheme. In **Kenya**, CHAI supported efforts to improve its surveillance system in the formal health sector at county and sub-county levels.

In **Uganda**, CHAI supported the National Malaria Control Program (NMCP), in collaboration with in-country stakeholders, to obtain a policy approval allowing mRDT testing in drug shops to strengthen malaria diagnosis and overall case management in the private sector. CHAI worked with importers to bring a total of around 824,000 high-quality low-cost mRDTs into the country. CHAI also supported the development of a national malaria dashboard and partner-mapping platform, which will facilitate evidence-based decision-making to better target interventions where there is a need and strengthen malaria partner coordination. In **Tanzania**, with funding from Comic Relief, CHAI collaborated with the Ministry of Health to enhance high-quality febrile illness management within accredited drug store outlets (ADDO) and private autonomous laboratories in four regions (Iringa, Njombe, Rukwa, and Ruvuma) with the goal of dramatically increasing patient access to high-quality care for malaria, pneumonia, and diarrhea, the top three causes of mortality in children

under five years of age. Thus far, the program has trained 1,467 ADDO dispensers on effectively managing fever cases, including safely and effectively providing recommended treatments for confirmed malaria cases, recognizing symptoms of pneumonia and diarrhea, and administering the correct treatments. In addition, 34 private autonomous laboratories were trained on malaria diagnosis using malaria microscopy and mRDTs. Within two months after the training, over 6,000 people received correct treatment for malaria, diarrhea, or pneumonia, including over 1200 children under the age of five. Of the 52 percent of fever patients served at ADDOs that tested positive for malaria in 2017, 92 percent received artemisinin-based combination therapies, adhering to the National Guidelines for Malaria Diagnosis and Treatment. The program has also helped ADDOs better diagnose and treat pneumonia and diarrhea and increased the availability of treatments including the lifesaving diarrheal treatment, zinc/ORS.

## LOOKING AHEAD

Over the next 10 years, CHAI aims to eliminate malaria permanently from connected regions of Central America, the Caribbean, the Greater Mekong region in Southeast Asia, and Southern Africa, while greatly driving down disease incidence and mortality in areas with the highest rates of malaria and child mortality, including West, Central, and East Africa. To do so, CHAI will continue its work with partners to help governments strengthen systems for diagnostic testing, disease surveillance, data analysis, and rigorously monitored and evaluated program implementation. Achieving these goals will require substantial efforts to improve program management and planning and strengthen execution of vector control and other interventions.



## Dr. Justin Cohen

Senior Director,  
Global Malaria

I joined CHAI in 2007 to help apply the model it pioneered to deliver HIV/AIDS treatment in resource-constrained settings to support governmental malaria programs. The challenges of malaria are quite different from HIV/AIDS—for example, commodities tend to already be much cheaper on a per-patient basis, and in many highly-endemic countries a majority of patients buy drugs at pharmacies rather than encountering the formal public health sector. Yet we found that the CHAI approach of providing direct operational assistance to governmental health staff while ensuring they had access to best-available commodities could be just as successful in combatting malaria, and we're now helping malaria programs in 20 countries achieve their burden-reduction and elimination goals.

Malaria has a long history, and I've always tried hard to make sure our program learns from it. The last time countries made great strides against malaria was during a coordinated campaign during the 1950s and 1960s. When donors lost interest, funding dried up, anti-malaria efforts weakened, and malaria came roaring back globally. Today, thanks to the Global Fund, the United States government, and other major contributors, including the Bill & Melinda Gates Foundation (which has helped catalyze a renewed push for global eradication), endemic countries are receiving more donor funding than ever before and they're achieving unprecedented reductions in malaria, including a 25 percent reduction in deaths from malaria over the past six years. While this is a cause for celebration, it's absolutely critical that we figure out how to make these gains permanent. I love that CHAI encourages its staff to think about the long game—what we can do to make a lasting improvement in the world—rather than just chase after the next grant or project.

That's also why I'm so excited about CHAI's plans for the next few years. First, we're working in some of the places in the world with highest malaria burden—countries such as Nigeria and the Democratic Republic of the Congo—to strengthen malaria case

Endemic countries are receiving more donor funding than ever before and they're achieving unprecedented reductions in malaria, including a 25 percent reduction in deaths from malaria over the past six years.

management at community level. We need to make sure people are appropriately diagnosed and receive effective treatment whether they seek care at the local pharmacy or a primary health center. Second, we're providing coordinated operational support to groups of countries that share a malaria challenge linked by geography, ecology, and social connections, including those of Central America, Southern Africa, and Southeast Asia. By helping the governments in each of these regions build better surveillance systems, use available data to tailor interventions and target them to the specific places where they'll have greatest impact, and strengthen their management processes to increase accountability and evidence-based decision-making, CHAI is helping them reduce malaria in mutually-reinforcing ways. If my neighbor and I simultaneously reduce malaria prevalence, we each see fewer parasites moving across our borders and thus achieve more stable gains. The ultimate goal of all of these countries is to eliminate malaria in the coming years; it's a highly ambitious objective, but one that we think is achievable if countries have sufficient support to keep strengthening their core operations and reducing malaria transmission in coordination.

# MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH

Every year over 300,000 mothers die from complications around pregnancy and childbirth, with 99 percent of deaths occurring in low- and middle-income countries. Four complications account for over half of all deaths. Simple and effective interventions are available to treat these complications, but many countries face critical gaps which prevent the interventions from being implemented. Unintended pregnancies, particularly among adolescent women, also significantly contribute to maternal mortality. In developing countries, 214 million women and girls have an unmet need for contraception, meaning they want to avoid or postpone pregnancy but are not using a modern contraceptive method. This

unmet need results in 75 million unintended pregnancies annually. Providing women with the option to choose when to get pregnant is crucial not only to their sexual and reproductive health, but also to increasing education and breaking the cycle of poverty.

Though progress has been made globally to reduce the number of children under five who die every year, reducing neonatal deaths has been slower. In 2015, an estimated 2.6 million infants were stillborn. For almost one million newborns in 2016, their day of birth was also the day they died. Another million infants did not survive the next six days.



A MOTHER AND CHILD SIT OUTSIDE THE LABOR WARD OF THE JAJI COMMUNITY HEALTH CENTER, WAITING FOR THEIR PATIENT WHO WAS BROUGHT TO THE FACILITY USING A CHAI MOTORCYCLE AMBULANCE KADUNA, NIGERIA

## AN INTEGRATED APPROACH

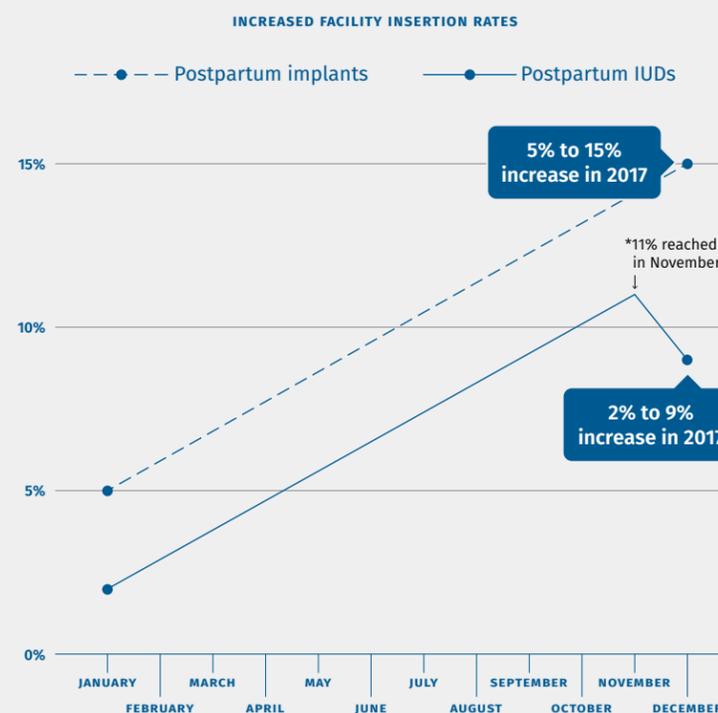
In response, CHAI has developed an integrated Sexual, Reproductive, Maternal and Neonatal Health (SRMNH) strategy to dramatically reduce unintended pregnancies, maternal and neonatal deaths and stillbirths. Combining CHAI's experience in family planning and maternal and neonatal health, CHAI's integrated approach begins by educating adolescents about their reproductive health and the services available to them, and supports women throughout their reproductive years to ensure that everyone is able to realize her reproductive intentions, including: avoiding unplanned pregnancies and sexually

transmitted infections, spacing and limiting births, enjoying a healthy pregnancy and childbirth, and seeing her newborn thrive through to childhood. This approach was first introduced in **Nigeria**, and is rolling out at scale in 2018 across **Zambia, Uganda, and South Africa**. CHAI is also implementing key elements of the program across a large number of other countries.

## SEXUAL AND REPRODUCTIVE HEALTH

To reduce unintended pregnancies, CHAI works with governments and the private sector to reach women early in life and often, ensuring they receive

### SPOTLIGHT ON NIGERIA



374 access points activated for postpartum family planning services across three states

11,323 women served with immediate postpartum IUDs

18,752 women served with immediate postpartum implants

5,097 women served with interval IUDs

69,046 women served with interval implants

## MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH *continued*

comprehensive sexual and reproductive health education and can access effective and affordable contraception. Long-acting, reversible contraception enables women to plan their families. As more women have begun to deliver in health facilities, the immediate post-partum period provides an opportunity to offer them family planning options, for which they may be unlikely to return at a later date. In 2017, CHAI supported **Nigeria** in three northern states to increase training and mentoring of healthcare providers and provide essential equipment for post-partum family planning services in order to open 374 new access points. As a result, over 100,000 women received contraceptive implants or IUDs. CHAI also supported the government to deploy the National Family Planning Dashboard across 36 states to enable the government and its partners to accurately direct limited resources, strengthen weak areas of the system and improve program management. Similarly,

the development of a family planning dashboard in **Tanzania** increased the number of women receiving implants by 20 percent over the prior year, compared to a 9.7 percent increase in regions without the dashboard. In **Democratic Republic of Congo**, CHAI, in partnership with the United Nations Population Fund, worked with the government to develop and institute a national reproductive health quantification guide and tool. The tool enables the government to more effectively estimate commodity needs to make contraceptive choices available to all women and girls in the country. To further bolster access to commodity data, CHAI, with funding from the Bill & Melinda Gates Foundation (BMGF), supported the government to create an electronic logistics management information system roadmap, as well as redesign the reporting process with regional medical stores to better monitor commodities until the information system rolls out.



A NURSE COUNSELS A PATIENT ON HER FAMILY PLANNING OPTIONS AT KHAMPANG HEALTH CENTER  
LAO PDR

## MATERNAL AND NEONATAL HEALTH

Sub-Saharan Africa alone accounts for 66 percent of maternal deaths globally. Within countries, large disparities exist as poorer women who live in rural areas are more likely to die from pregnancy or childbirth complications than those with higher incomes in urban areas. For infants, the first four weeks of life are the most vulnerable. As with mothers, a small number of conditions are responsible for most infant deaths, in particular birth asphyxia, infection, and preterm birth complications. Interventions that can save mothers and infants' lives do exist, but are often not available where they are needed most. CHAI's approach to maternal and neonatal health focuses on averting the majority of preventable deaths that occur in the 48 hours around delivery, whether a birth happens at home or in a health facility. The approach

“

Being in the field and hearing direct stories of mothers who would otherwise have lost their newborns if not for our work to get life-saving devices into the hands of ‘first responders’ in the community makes it all worth it.”

— Dr. Olufunke Fasawe  
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A MOTHER WHO HAS JUST GIVEN BIRTH HOLDS HER NEWBORN WHILE A NURSE CUTS THE UMBILICAL CORD  
KANO, NIGERIA

## MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH *continued*

involves implementing the interventions necessary to ensure potential complications are identified early to prevent them from becoming life-threatening. Simple interventions are applied immediately to ensure survival, and when required, cases are quickly referred to the appropriate level of the health system. The program was first piloted at small scale in **Ethiopia** and then implemented at large scale in **Nigeria**, which has one of the highest maternal and neonatal mortality rates in the world.

In **Nigeria**, the program was implemented across three states, with a population of 10 million, in collaboration with the Nigerian government and funded by the Norwegian Agency for Development Cooperation. It addressed critical gaps in care by integrating the entire health system, from the home – where over 80 percent of births occur – to the hospital. At the core of the program is the community health center, which connects a pregnant woman to each level of the system. She begins with a first, essential, antenatal care visit, and continues with periodic checkups throughout her pregnancy. The program also includes a mentoring program for traditional birth attendants, who are most often present during home births. The attendants act as first responders to minimize complications, or when complications arise, to stabilize and treat them while waiting for emergency referral and transport to the nearest hospital. Due to this program, in the three states where it ran, neonatal deaths dropped by 43 percent, maternal deaths by 37 percent and stillbirths by 15 percent. As a result, the Bill & Melinda Gates Foundation awarded CHAI one of three prizes, from among 48 applicants, in the Horizon Birth Day Prize contest, which was hosted by the European Commission and recognized demonstrated and scalable solutions

to reduce or prevent deaths during pregnancy and childbirth. The program, having transitioned to the complete management of the Nigerian government, has sustained the gains originally made and is now expanding to other parts of the country.

Building on the lessons of the program in Nigeria, and following a request from the Federal Ministry of Health, CHAI, with the support of the ELMA Foundation, began scaling up the approach in the hardest to reach areas in **Ethiopia**. These regions include some of the least developed and underserved areas of the country, which are characterized by high home birth rates, poor supply chains, long distances to health facilities, and limited numbers of trained birth attendants.

### LOOKING AHEAD

CHAI is currently expanding its integrated Sexual, Reproductive, Maternal, and Neonatal Health strategy and elements of the programs to several additional countries. In the next 10 years, CHAI aims to reduce the unmet need for contraceptives by 25 percent and reduce maternal and newborn deaths and stillbirths by at least 40 percent across the poorest performing regions of our partner countries. CHAI will ensure wider transformational impact by supporting governments and partners to scale up program components nationwide and for other countries to adopt an integrated, community-based approach.



## Dr. Olufunke Fasawe

Director of Programs and Sexual, Reproductive, Maternal and Neonatal Health, CHAI Nigeria

I joined CHAI in February of 2012 as a volunteer after leaving a comfortable health economics consultancy at the UNAIDS headquarters in Geneva. I was in search of work that connected me to the realities of the people we serve and wanted to ‘get my hands dirty’ just doing the work! At the time, CHAI felt like the perfect fit. Although it was a relatively new organization compared to many others in the same space, it had already established itself as a markets leader in the public health domain. More importantly, CHAI had earned the reputation as an organization that got things done. With a background in clinical dentistry, I always wanted the opportunity to work on a larger scale to impact more lives through my work on policy, management and strategic planning.

My six years at CHAI, of which my time as a volunteer was more of a ‘try and see’ period, has been more than rewarding. I gave myself a maximum of two years at CHAI with plans to go back to school or move on to another job. But CHAI has become more than just a job. I often get asked by friends, colleagues and even government staff ‘What is it about this CHAI? Why are you so tied to CHAI?’ My answer is simple—working with government with a mindset of strengthening its capacity rather than depleting already existing capacity is one of the most gratifying aspects of this organization. Our focus on the people we work with to increase access to essential health services makes the work even more purposeful. I have learned so much and surprised myself with how much potential I didn’t know I had until I was given so many opportunities to take on very ambitious programs and positions. Being in the field and hearing direct stories of mothers who would otherwise have lost their newborns if not for our work to get life-saving devices into the hands of ‘first responders’ in the community makes it all worth it.

As we grow over the next few years, I am constantly gladdened by the sustained passion and commitment from all CHAI staff in the countries where we work. I believe very much in the strong

Working with government with a mindset of strengthening its capacity rather than depleting already existing capacity is one of the most gratifying aspects of this organization.

leadership that we have in the organization to continue to direct our programs with a focus on saving lives and strengthening health systems. I like that we are expanding our frontiers and constantly looking for innovative ways to bring our distinct approach to tackling major public health challenges globally, from the HIV epidemic in the 2000s, to malaria, and more recently, to sexual and reproductive, maternal and newborn health, among many others. I look forward to being part of a highly successful mission to contribute to global and national level efforts to take on new frontiers in non-communicable diseases and universal health coverage, and end preventable deaths while maximizing available yet scarce resources in our partner countries.

# ESSENTIAL MEDICINES FOR DIARRHEA AND PNEUMONIA

Pneumonia and diarrhea are the two largest killers of children under five globally, responsible for nearly one and a half million deaths each year. Although these deaths are largely preventable with the right treatment, many children in low-resource countries do not receive it. CHAI is working with partner governments in countries that account for almost 40 percent of all deaths from diarrhea and pneumonia worldwide to reduce market barriers and improve access to and usage of medications and equipment that will save lives.

## DIARRHEA

Diarrhea is the second-largest single cause of death of children worldwide. Even when children do survive,

repeated episodes can have serious long-term impacts on a child's growth and make them vulnerable to further infections. While vaccinations can reduce mortality from diarrhea by up to half, treatment with zinc and oral rehydration salts (ORS) has the potential to prevent 93 percent of all deaths from pediatric diarrhea. Unfortunately, many children in need of zinc/ORS treatment do not receive it.

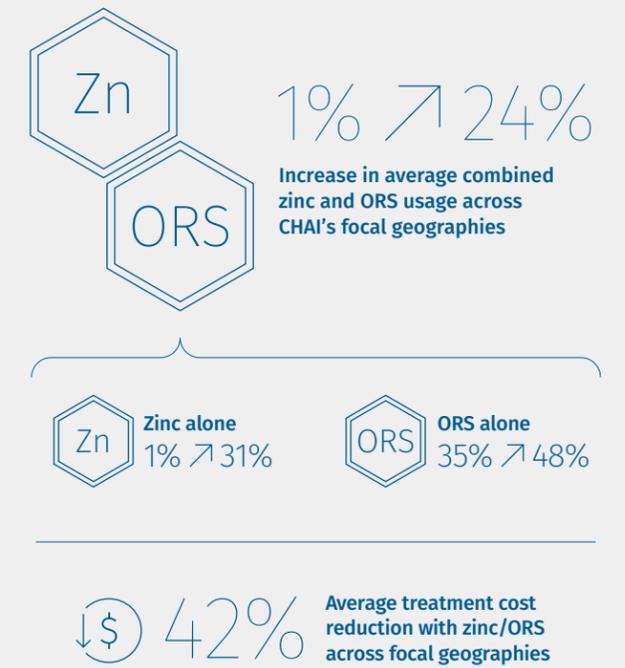
When CHAI began work in diarrhea treatment in 2012, only about one-third of children that needed ORS received it. Usage rates of zinc were even worse with only one to two percent of children needing it receiving it globally. CHAI's goal has been to demonstrate that significant, sustainable increases in zinc/ORS treatment

rates are possible and scalable. In partnership with the governments in four countries where 40 percent of all deaths occur—**Nigeria, India, Uganda, and Kenya**—CHAI worked to increase the percentage of children with diarrhea receiving zinc/ORS from less than one percent to more than 50 percent. CHAI's strategy is holistic—addressing both supply and demand barriers, and ensuring children receive the right treatment wherever they are seeking care, in the public or private sector. In addition, the program aims to create sustainable market growth: lasting increases in demand that would not be dependent on ongoing, external support.

In the first two years of the program, CHAI worked with companies to develop co-packaged zinc/ORS products and with governments to secure over-the-counter status for zinc. By 2016, CHAI had helped to introduce over 15 new zinc/ORS products in the four focal countries. The increased competition has helped to reduce the wholesale price of treatment by up to 75 percent, and usage rates of the combined treatment with zinc/ORS have increased dramatically in just a few years. Since the program launched in 2012, average combined ORS and zinc coverage grew from one to 24 percent across focal geographies by 2016, while average ORS coverage increased from 35 to 48 percent.

In **Nigeria**, an estimated 18,300 deaths of children under five have been averted in eight states as a result of the program. In these eight states, usage of zinc/ORS has increased by 28 percentage points—from three percent in 2014 to 31 percent by 2017. This increase was coupled with a 36 percent reduction in the price of combined treatment and an increase in availability in private drug shops (from 15 to 72 percent) and public health facilities (from five to 62 percent). In **Ethiopia**, where CHAI began diarrhea treatment efforts in late 2015, ORS availability increased from 72 to 98 percent by 2018 and zinc from 48 to 96 percent.

## DIARRHEA TREATMENT UPTAKE



A CLINICIAN AT KIAMBU LEVEL 4 HOSPITAL PREPARES ORAL REHYDRATION SALTS FOR A CHILD SUFFERING FROM DIARRHEA  
 KIAMBU, KENYA



A CHILD WITH DIARRHEA DRINKS A MIXTURE OF ORAL REHYDRATION SALTS AT KIAMBU LEVEL 4 HOSPITAL  
 KIAMBU, KENYA

**SPOTLIGHT ON ETHIOPIA**



Introduced National Roadmap for Oxygen and Pulse Oximetry

**Increased availability at hospitals' pediatric inpatient departments**

	2015		2017
Oxygen	62%	↗	94%
Pulse oximetry	45%	↗	81%

**Increased availability of Amoxicillin DT**

	2015		2017
At health centers	0%	↗	94%
At health posts	57%	↗	85%

**In India**, CHAI engaged with the private sector and worked in collaboration with the state governments of Madhya Pradesh, Uttar Pradesh, and Gujarat to improve the uptake of ORS and zinc. Average usage of both zinc and ORS increased from less than one percent to 22 percent across the focal states. In public health facilities, availability of ORS increased from 85 percent to 96 percent and zinc availability increased from 71 percent to 95 percent. The availability of ORS and zinc in the private sector also improved considerably. CHAI's end of project assessment indicated that 75 percent of private sector providers were carrying ORS and 55 percent were carrying zinc.

**PNEUMONIA**

Pneumonia is the largest single killer of children worldwide. All pneumonia cases initially begin as non-severe pneumonia; if untreated, non-severe pneumonia cases can progress to severe pneumonia. Severe pneumonia has a high fatality rate—sometimes exceeding 20 percent—and death can occur after only three days of illness. Timely and accurate diagnosis and treatment is critical to preventing pneumonia deaths in children, yet many caregivers delay seeking care and children are not accurately diagnosed and treated when they arrive at health facilities.

CHAI is working in five focal countries—**Ethiopia, Nigeria, Uganda, India and Kenya**—where 40 percent of all pneumonia deaths occur, to ensure that that every child seeking treatment for respiratory illness is accurately diagnosed and treated in a timely manner, especially those with pneumonia and hypoxemia (low levels of blood oxygen). CHAI's pneumonia program, launched in 2016, is building on the success of its work in diarrhea, partnering with governments to increase access to lifesaving tools for diagnosis (pulse oximetry) and for treatment including oxygen to treat hypoxemia and Amoxicillin dispersible tablets (DT) to treat non-severe pneumonia. CHAI is engaging with suppliers globally and in countries to improve market dynamics for pulse oximeters and oxygen to improve pricing and access to optimal products. CHAI is also working with global stakeholders, such as the World Health Organization (WHO), UNICEF, the United States Agency

for International Development (USAID), and others, to develop standardized indicators for tracking progress on pneumonia and hypoxemia treatment.

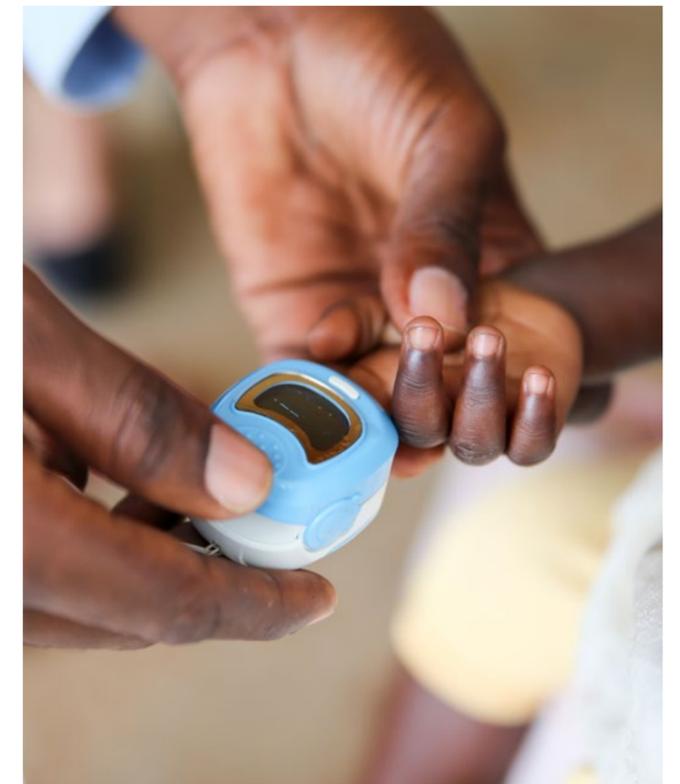
CHAI is helping government partners to educate caregivers on the signs and symptoms of pneumonia and the importance of seeking timely medical care, and with health workers to recognize and appropriately treat the disease at all parts of the health system. CHAI is helping governments to update guidelines where appropriate to include pulse oximetry and oxygen, as well as Amoxicillin DT as the first line treatment for non-severe pneumonia, and ensure that these guidelines are fully and consistently implemented. CHAI is also supporting governments to develop costed national oxygen strategies and effective logistics systems for distribution and maintenance of oxygen equipment and provide technical assistance in procurement of medical oxygen, pulse oximeters, spare parts, and related supplies.

In 2017, CHAI worked with the Federal Ministry of Health in **Ethiopia** to launch the country's first National Roadmap for Oxygen and Pulse Oximetry and revise its national Integrated Management of Neonatal and Childhood Illnesses (IMNCI) guide to include Amoxicillin DT as the preferred treatment for pneumonia and introduce it at the health center level. As a result of these efforts, Amoxicillin DT availability has increased in health centers from zero percent in 2015 to 94 percent in 2017, and in health posts at the community level from 57 percent in 2015 to 85 percent in 2017. In addition, the availability of functional oxygen systems in Pediatric Inpatient Departments of general/referral hospitals increased from a baseline of 62 percent in 2015 to 94 percent in 2017 and availability of functional pulse oximeters at hospital inpatient departments from a baseline of 45 percent in 2015 to 81 percent in 2017. Ethiopia's Oxygen Roadmap, one of the first of its kind globally, will accelerate access to pulse oximeters and oxygen services to help to prevent thousands of deaths and serve as a model for other countries.

With CHAI's support, the Federal Ministry of Health, through the Pharmaceuticals Fund and Supply Agency (PFSA), has procured pulse oximeters and concentrators and distributed them to hospitals throughout the country. To increase timely diagnosis and treatment of the disease

for patients seeking care, CHAI is working alongside the Ministry to facilitate trainings and create training materials for clinicians and biomedical engineers.

In **Nigeria**, CHAI assisted the governments in three states (Kano, Kaduna, and Niger) with tendering, evaluation and selection of optimal equipment in their state-level procurement of oxygen equipment in 30 facilities. Over the first two years of the grant, oxygen usage among pediatric hypoxemic patients has increased 27 percentage points (from 19 to 46 percent) and Amoxicillin DT usage among pediatric non-severe pneumonia patients has grown 27 percentage points (from 33 to 60 percent) at these 30 facilities. CHAI also supported the Federal Ministry of Health to create the first-ever national policy documents to provide a framework and guidelines for the use of medical oxygen and appropriate diagnostics in health facilities. CHAI helped update national and state policies for Amoxicillin DT, helped local Amoxicillin DT manufacturers to improve competition and pricing, and



A CHILD HAS PULSE OXIMETRY PERFORMED AT A HEALTH CENTER BULUGUYI, UGANDA

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On a recent visit to a hospital in Nigeria, a three-year-old boy in need of oxygen had been admitted with severe respiratory distress. Although there were two oxygen cylinders at the hospital, they were locked in the office of an administer who had left for the day... That little boy—and thousands of others—are what motivate me.”

— **Kate Schroder**  
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## ESSENTIAL MEDICINES FOR DIARRHEA AND PNEUMONIA *continued*

collaborated with the Pharmacists Council of Nigeria (PCN) to include the medication in its list of approved medicines for proprietary patent medicine vendors (PPMVs). These steps have allowed for the provision of pneumonia treatment at the community level among registered PPMVs, where a large portion of the population seeks care.

In **Uganda**, CHAI worked closely with the Pharmacy Division and Ministry of Health to finalize the draft of the Uganda Clinical Guidelines (UCG) and subsequent updating of the Essential Medicines and Health Supplies List (EMHSL). Amoxicillin DT is now included in the list as the recommended first-line treatment for pneumonia. Three new Amoxicillin DT 250 mg products have been registered and two additional brands are being domestically manufactured, with two new products currently in the pipeline for registration. CHAI worked closely with the health infrastructure division to advocate for and subsequently monitor installation of oxygen generation plants in regional referral hospitals. By November 2017, all 13 plants had been successfully installed and commissioned by the Ministry of Health. CHAI is also working with the government to design ideal last-mile distribution models for oxygen supply and helped the Ministry to successfully integrate pulse oximetry training and utilization into the clinical audit curriculum for management of pneumonia. The Ministry of Health in Uganda has also recently approved a national oxygen scale up plan which will provide a framework for improving supply, distribution and rational use of oxygen.

In 2017, CHAI also began supporting the governments of **India** and **Kenya** to reduce child mortality due to pneumonia. In **India**, CHAI is working with the national government to update their pneumonia treatment guidelines and to ensure routine use of pulse oximetry. CHAI is also assisting the state government in Madhya Pradesh to strengthen referrals to higher level health facilities that are equipped for treatment, particularly for severe pneumonia. In the private sector, CHAI is leveraging the last-mile supply chain that was established through the diarrhea treatment program to incorporate key messages on pneumonia diagnosis and referral in reaching informal private providers.

In **Kenya**, CHAI has worked with suppliers to introduce Amoxicillin DT into the local market, including engagement with a local manufacturer to produce the medication. In total, four new Amoxicillin DT suppliers have been registered in Kenya since the launch of the program, including the local manufacturer whose product is now available in the private sector. Kenya's national Integrated Management of Childhood Illness (IMCI) guidelines have also been updated to include the medication and also to recommend expanded availability of pulse oximetry and oxygen to improve diagnosis and treatment rates. CHAI is also supporting the Ministry of Health to develop a national medical devices and equipment policy which will include oxygen equipment. To improve the management of children with severe pneumonia, the government, with support from CHAI, is also rolling out the Emergency Triage, Assessment and Treatment (ETAT) strategy.

### LOOKING AHEAD

In the next 10 years, CHAI aims to dramatically reduce diarrheal deaths globally by more than 50 percent through a combination of prevention and treatment. CHAI will continue to work in five focal countries to increase combined zinc/ORS usage rates to over 50 percent, while also striving to catalyze increases in diarrhea treatment rates in other high-burden geographies. To reduce deaths from pneumonia, CHAI aims to accelerate introduction and uptake of improved diagnostic devices and to significantly increase the percentage of children receiving the correct treatment in a timely manner. For severe cases in particular, CHAI is working to increase the percent of children receiving correct and timely treatment from less than 5 percent to over 50 percent. And CHAI will continue its work to increase access to lifesaving vaccinations to prevent pneumonia and diarrhea cases from happening.



## Kate Schroder

Vice President,  
Essential Medicines

My path to CHAI involved a serendipitous happy hour. In 2006, I was living in Washington, D.C. and working as a Senior Consultant for the Advisory Board Company (ABC). While out one evening, a friend of a friend asked our group if we knew anyone with health care experience and an MBA; CHAI was hiring in Zambia. Intrigued, I introduced myself. That conversation changed my life's trajectory.

Prior to ABC, I received my MBA at the Wharton School at the University of Pennsylvania and spent my first three years out of college working in health-focused government and policy roles. I grew up in a family of medical professionals where "service to others" was a core value and deeply ingrained practice. CHAI's values of urgency, humility, results, government partnership, and saving lives resonated with me. Within weeks of that happy hour conversation, I had accepted a role to lead CHAI's Zambia office.

In Zambia, I worked with the government to launch CHAI's initial HIV and lab services programs, and helped the government design, fund, and launch a multi-year, US\$50 million National Plan to expand Human Resources for Health that aimed to increase the number of health workers by over 10,000. CHAI also helped the Ministry of Health triple the number of HIV-positive children receiving treatment.

As Country Director, I grew as much personally as professionally. I was repeatedly humbled by the daily realities of life in a low-resource setting: unpredictable electricity, fuel shortages, floods, and the unfathomable frequency of funerals. At the same time, I was inspired by the resilience, kindness, and humor of colleagues, friends, and the broader community who remained hopeful and dedicated despite the challenges.

In April 2009, I shifted to a new role as head of the Global Pediatric HIV Program, coordinating efforts across 34 countries to improve treatment rates. I worked closely with CHAI country teams and partner governments to address risks to sustainability and scale-up of pediatric HIV services. Over the next two

Every day, I am grateful for the opportunity to work on this incredible challenge. Countless children are depending on us.

years, the program helped increase the number of children on treatment by over 20 percent, and the number of infants tested by over 30 percent in counties where we worked.

In 2011, I helped launch a diarrhea treatment program. Diarrhea is the second-largest killer of children under five, outside of neonatal causes. Simple treatment with zinc and oral rehydration salts (ORS) is affordable and effective, preventing over 90 percent of deaths; however, very few children received the recommended treatment. We focused on four high-burden countries—India, Kenya, Nigeria, and Uganda—taking a comprehensive approach to increase use of zinc and ORS at scale.

To date, the percent of children with diarrhea receiving zinc/ORS has increased from below one percent to 24 percent across focal geographies. Building on that progress, the program expanded its scope in 2016 to include pneumonia: the largest killer of children globally.

On a recent visit to a hospital in Nigeria, a three-year-old boy in need of oxygen had been admitted with severe respiratory distress. Although there were two oxygen cylinders at the hospital, they were locked in the office of an administrator who had left for the day. Another cylinder on site was broken. The child died that night.

As a parent, watching a child die unnecessarily is an image that you never forget. That little boy—and thousands of others—are what motivate me. Every day, I am grateful for the opportunity to work on this incredible challenge. Countless children are depending on us.

# VACCINES

Vaccines are one of the most effective and economical methods available to prevent diseases and save lives. Yet, one out of every five children, an estimated 20 million each year, do not receive even the most basic vaccines. More than two million children die from vaccine-preventable diseases annually, with the majority of these deaths in low-income countries.

CHAI works with global health partners, including the Bill & Melinda Gates Foundation (BMGF), the United Kingdom's Department for International Development (DFID), Gavi, The ELMA Vaccines & Immunization Foundation, the World Health Organization (WHO), and UNICEF, as well as governments and vaccine

manufacturers, in order to immunize as many children as possible. While continuing efforts to improve affordability and access to existing vaccines, CHAI also supports the introduction of new vaccines, including rotavirus, pneumococcal, human papilloma virus (HPV), and hepatitis B birth dose, that could potentially prevent half a million deaths per year.

## LOWERING COSTS AND ENSURING VACCINE SUPPLY SECURITY

Over the last five years, CHAI has worked with suppliers and global partners to help reduce the cost of procuring

vaccines against the 12 diseases required to fully immunize a child, from approximately US\$37 per child to about US\$23. In 2017, CHAI continued its work to lower prices for lifesaving vaccines, helping to bring the cost of a new typhoid vaccine down to US\$1.50 a dose for Gavi-supported countries, which is 95 percent cheaper than the current private sector price. Bharat Biotech's newly WHO-prequalified typhoid conjugate vaccine, Typbar, provides longer-lasting protection than previous polysaccharide vaccines, requires fewer doses and can be given to young children through routine immunization programs. In December 2017, Gavi funding for this vaccine became available, with the new pricing agreement announced in early 2018, allowing for a rapid uptake in low- and lower-middle income countries.

## REMOVING COLD CHAIN AS A BARRIER TO EFFECTIVE COVERAGE

Vaccines must be transported through a cold chain, a specialized distribution system that stores and transports inoculations in the specific temperature range needed to maintain their potency and avoid costly wastage. CHAI helps immunization programs

strengthen their cold chains by ensuring all sites have the storage capacity to stock existing and newly-introduced vaccines, and by deploying higher-performing cold chain equipment that keeps vaccines in safe and potent condition.

At the global level, CHAI has supported Gavi in the rollout of a financing platform that helps countries scale up optimal equipment by subsidizing procurement costs. Through the Cold Chain Equipment Optimization Platform (CCEOP), CHAI has supported five countries, **Cameroon, Kenya, Uganda, Ethiopia, and Tanzania**, to secure US\$60 million of Gavi funding in 2016 and 2017 — enabling the procurement of 24,000 units of high-performing equipment over the next five years. For example, in **Cameroon**, by 2020, this funding will increase the proportion of health facilities with enough volume to store routine and new vaccines from 29 percent to 100 percent, equip 629 new sites, and increase the proportion of sites equipped with high-performing equipment from 7.2 percent to 100 percent. In 2017, CHAI also reached a milestone in its multi-year work with Chinese manufacturer Haier Biomedical with the introduction of three new vaccine refrigerators and one freezer, all at lowest-in-market prices and meeting



A NURSE IMMUNIZES A CHILD AT A HEALTH FACILITY  
KANO, NIGERIA

### VACCINE PROGRAM HIGHLIGHTS



95%

price reduction achieved for Typbar, a newly WHO-prequalified typhoid conjugate vaccine (TCV)



21  $\searrow$  7

months reduced from country approval of Gavi support to cold chain equipment being deployed, by 2020



~14,000

high-performing refrigerators on track to be deployed across at least 14 countries by the end of 2018

## VACCINES *continued*

WHO safety standards, particularly Grade A freeze protection. Grade A freeze protection is a fridge feature that ensures vaccines are never exposed to freezing temperatures that can damage their potency.

Diarrheal deaths are a significant driver of under-five mortality in **India**. To urgently tackle this challenge, the national government introduced the rotavirus vaccine in 2015 in the national Universal Immunization Programme. This lifesaving vaccine is currently being scaled up across different states in the country. Ahead of the launch, Madhya Pradesh asked CHAI to ensure its cold chain could handle the new vaccine. CHAI worked with the state government to develop and execute a multi-year strategic plan to address gaps in the cold chain, which included relocating excess storage capacity to areas of need, repairing broken equipment and establishing an asset replacement schedule. In 2017, CHAI and Madhya Pradesh added over 14,000

liters of cold chain capacity and saved US\$215,000 by transferring storage resources. Madhya Pradesh now has a cold chain that provides rotavirus to two million infants every year.

### NEW VACCINE INTRODUCTION

In 2017, CHAI supported **Nigeria, Uganda, and Lesotho** to prepare for the introduction of the rotavirus vaccine that will help save the lives of more than 18,000 children every year. CHAI also helped six countries accelerate access to the human papillomavirus (HPV) vaccine through funding from Gavi. The vaccine protects women against HPV strains that cause more than 70 percent of all cervical cancers. The vaccine is administered in two doses to girls between the ages of 9 and 14, and should occur six to 18 months apart. In 2017, CHAI helped double HPV coverage in **Uganda**. With technical support from CHAI, **Tanzania** successfully



AN EMPLOYEE CHECKS THE TEMPERATURE OF A REFRIGERATOR USED TO STORE VACCINES AT THE DOMICILIARY HEALTH CLINIC MASERU, LESOTHO

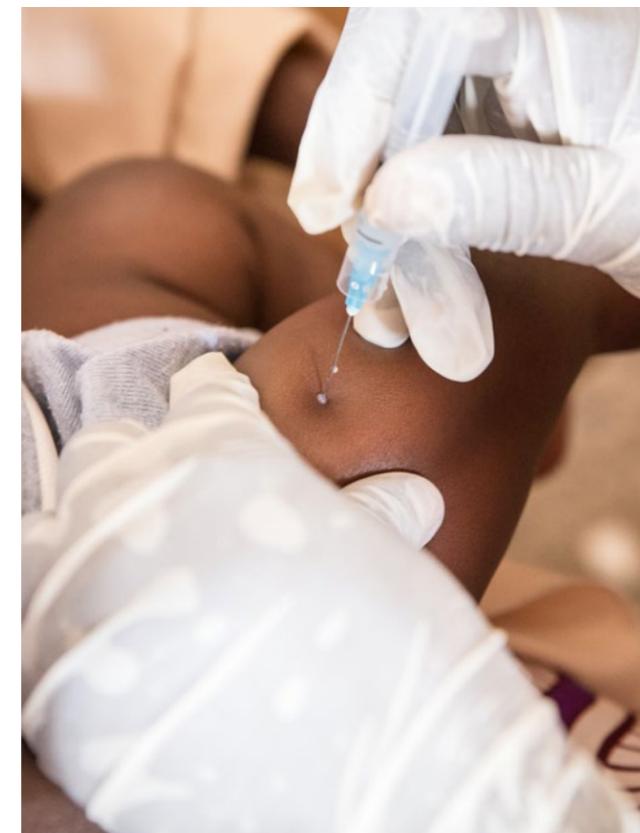
introduced the HPV vaccine nationally in 2018, where it is expected to reach 615,000 14-year-old girls. Similarly, CHAI is supporting **Ethiopia** to introduce the HPV vaccine in late 2018, as well as **Kenya, Lesotho, and Cameroon** in the coming years. CHAI's experience and tools have also been adapted and leveraged to support HPV introductions in other Gavi-funded countries, such as **Senegal and Zimbabwe**.

### STRENGTHENING MANAGEMENT SYSTEMS AND CAPACITY OF NATIONAL IMMUNIZATION PROGRAMS

Strong immunization program management systems are critical to achieving high coverage rates across countries, introducing new vaccines, successfully transitioning from Gavi funding, and other key immunization objectives. CHAI works with seven countries, **Cameroon, Ethiopia, Kenya, Lesotho, Nigeria,**

**Tanzania, and Uganda**, to improve their management systems and immunization capacity to better meet their program needs.

In several countries, CHAI has helped governments strengthen the annual planning and progress review processes for their expanded programs for immunization (EPI) in order to make the most of limited resources. For example, in **Kenya and Tanzania**, CHAI developed and supported the implementation of a minimum budgeting checklist for counties and districts, respectively. The checklist ensures that critical immunization activities are adequately budgeted for in annual plans. This enabled four of five focus counties in Kenya to double their immunization budgets and led to a 47 percent increase in domestic funding for immunization across 32 program councils in Tanzania. In addition, CHAI supports governments to access Gavi's health system and immunization strengthening



A NURSE IMMUNIZES A CHILD AT A HEALTH FACILITY KANO, NIGERIA

“

We have provided doctors and nurses with the tools they need to save lives, such as machines that help diagnose difficult illnesses or ensuring the availability of medicines critical to the treatment of everything from childhood HIV to obstetric complications.”

— Lise Ellyin  
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## VACCINES *continued*

grants, which are critical sources of funding to improve countries' immunization systems so they can achieve higher coverage rates and introduce new vaccines. In 2017, CHAI helped **Cameroon, Kenya, and Uganda** to access a combined US\$75 million of this funding. Currently, CHAI is working with EPI in Tanzania to secure US\$40 million in funding for the next five years.

## LOOKING AHEAD

By the end of 2020, 20 countries will have to transition from the significant funding support they receive from Gavi, while still sustaining high immunization coverage rates. CHAI will support **Kenya, Lao PDR, Indonesia, and Vietnam** to do so, notably by preparing sustainable financing for their immunization programs, affordable access to vaccines, stronger immunization systems, and adequate planning for the transition. In addition to focused efforts in these five countries, CHAI will also work to improve accessibility of affordable vaccines in non-Gavi middle-income countries, many of which have struggled to introduce life-saving vaccines.

Aside from continued efforts to foster healthy, competitive markets for existing vaccines and to support the uptake of these vaccines, CHAI also aims to accelerate, where feasible, the market entry of high-impact future vaccines. CHAI will support manufacturers in better understanding pipeline candidates' market potential, by developing demand forecasts and by building on CHAI's country insights on product uptake and usage.



## Lise Ellyin

Country Director,  
Mozambique

After 16 years in the private sector in Canada, I decided to take a break and spend a year volunteering at an orphanage in northwest Kenya. I was looking for a career change and wanted to explore what value my management skills might provide in the developing world. After this experience, in 2006, I read an article in *Forbes Magazine* about CHAI and saw an opportunity to work for an organization that was recruiting people with private sector experience for their country operations.

A short time later, I found myself on a plane to Nigeria as Deputy Country Director to open a CHAI office with the new Country Director. We had only a few months to set up and begin collaborating with the government to scale up the National Pediatric HIV program. Somehow we managed to accomplish these objectives in the short period of time, driven by a motivated Ministry of Health and a small CHAI team. Following my work in Nigeria, I moved to Mozambique in 2008 as Country Director.

The CHAI team in Mozambique is dedicated beyond words and we have remained together for most of my nine years here. We have implemented programs that improve the quality of health services and survival outcomes for women and children who come long distances to seek care at health facilities. We have provided doctors and nurses with the tools they need to save lives, such as machines that help diagnose difficult illnesses or ensuring the availability of medicines critical to the treatment of everything from childhood HIV to obstetric complications. Why have I stayed with CHAI this long? CHAI's unique approach to problem-solving, combined with a sense of urgency, brings together a wealth of people who are motivated by the same commitments to achieve ambitious goals. I stay due to these people—from governments, donors and partners to my CHAI colleagues, both in Mozambique and around the world.

I am often asked—are we making progress? There is no doubt in my mind that we are. We have helped contribute to the rise

CHAI's unique approach to problem-solving, combined with a sense of urgency, brings together a wealth of people who are motivated by the same commitments to achieve ambitious goals.

of children on HIV treatment in Mozambique from 3,000 to over 85,000 and with our donors procured national supplements to treat over 500,000 children with severe malnutrition. I see this progress first-hand at health facilities. Through bringing together the private sector, universities, and the medical community, we help bring the best possible healthcare services to patients through the use of new technologies and innovations. For example, we have introduced accurate and timely diagnosis for pre-eclampsia—the second largest cause of maternal mortality in the country—as well as cold boxes that keep vaccines safe for up to five days in a very hot climate.

I, along with the Mozambique team, celebrate our successes with our partners. As CHAI expands our portfolio of programs in new areas such as non-communicable diseases, cancer and neonatal illnesses, we look forward to continuing to implement innovative solutions for better care.

# NUTRITION

In many countries across sub-Saharan Africa, Southeast and Southern Asia, over 40 percent of all children under the age of five suffer from chronic malnutrition, or stunting. Stunting is measured as a height-for-age that is at least two standard deviations below average. Stunting impacts cognitive functions as well as the immune system, affecting a child's ability to reach her mental potential and putting her health at risk. Malnutrition is a contributing factor in almost half of all childhood deaths in low- and middle-income countries.

Stunting begins during pregnancy, but in many countries it most commonly develops between six

and 23 months, when children should be introduced to nutritious foods in addition to breast milk. Many parents understand what they should be giving their children, but do not have the means to provide that food. Anemia – a lack of iron in the blood – can also be linked to malnutrition in both children and women, contributing to low birth weights and increasing the risk of serious complications during pregnancy. These two conditions, malnutrition and anemia, form an inter-generational cycle: a malnourished child is more likely to become anemic as an adolescent, who is more likely to have a risky pregnancy and deliver an underweight infant, who, in turn, is more likely to grow into a

malnourished child. To address malnutrition in children, women's dietary intake must also therefore improve.

To break the cycle, CHAI works at the intersection of the private and public sectors to ensure that vulnerable, at-risk populations receive wholly nutritious food supplements to prevent chronic malnutrition and anemia. In Africa, CHAI supports the local production of high-quality complementary and supplementary foods for distribution to groups at risk of stunting. In India, it involves supporting the government to drive an ambitious set of reforms to the country's long-running child health and development program.

## STRENGTHENING NATIONAL NUTRITION PROGRAMS

In 2017, **Rwanda** launched a national distribution program that delivers free, highly nutritious, fortified blended food to children six to 23 months old and pregnant and nursing mothers. By the end of the year, the program was reaching more than 90,000 children and women every month. Through funding from the UK government, the New Zealand government, and the Netherlands' development bank, CHAI supported Rwanda to develop supply chain and health monitoring systems for the program and developed and disseminated messaging about the supplement's importance, ensuring that the fortified food reached vulnerable households across the country.

Africa Improved Foods Ltd., the factory that produces fortified food in Rwanda, was design and launched with CHAI technical support in 2016 as a for-profit private-public venture. In 2017, CHAI supported the Rwandan government to manage the national distribution system that operates between the factory in Kigali and all eligible health centers across the country. CHAI also provided ongoing system monitoring and problem-solving support. The factory is the first in sub-Saharan Africa with the quality systems and ingredients capable



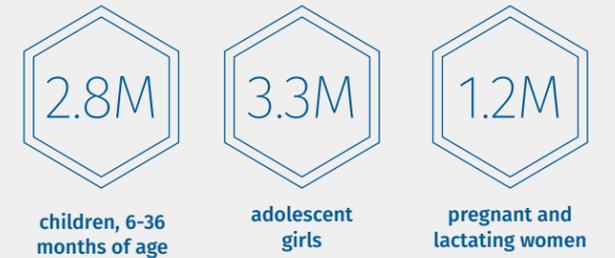
ANGANWADI CENTER WORKERS MEET TO DISCUSS HEALTH AND NUTRITION NEEDS WITHIN THEIR COMMUNITY  
MADHYA PRADESH, INDIA

## SPOTLIGHT ON INDIA

The nutrition program targets 3 key areas:

- Reducing anemia in adolescent girls and pregnant women
- Improving quality and access to complementary foods, and
- Enhancing capacity of frontline workers.

Since inception, the program has reached:



“

I look forward to mobilizing enough resources to support more strategic health systems and disease areas in Malawi and to continue our work in training health services workers such as laboratory and pharmacy technicians, nurses and midwives.”

— **Andrews Gunda**  
READ MORE P. 46

## NUTRITION *continued*

of producing Super Cereal Plus, a World Food Program-approved fortified food used to feed infants and young children in emergency settings. In 2017, the World Food Program purchased 25 thousand metric tons (MT) of the cereal for distribution to vulnerable children through the World Food Program's relief programs.

In cooperation with government partners and with technical and financial support from the New Zealand government, CHAI helped farmers in both Rwanda and **Ethiopia** in 2017. Efforts focused on improving farmers' yields and crop quality and reducing their production costs, which in turn allowed local factories to purchase high-quality inputs for fortified blended food production.

In **India**, CHAI, with funding from the IKEA Foundation, worked in the state of Madhya Pradesh to strengthen and improve components of the country's Integrated Child Development Services (ICDS) program. The program focuses on three key areas: reducing the burden of anemia for adolescent girls and pregnant women; improving quality and access to complementary foods; and enhancing the capacity of frontline workers to manage ICDS. In 2017, CHAI successfully advocated to change the formulation of supplementary foods provided to mothers and children through ICDS to ensure they meet the full nutritional needs of these vulnerable populations. CHAI then helped develop the new recipes, which have been rolled out to approximately 3.5 million children and 1.4 million pregnant women across Madhya

Pradesh in 2018. CHAI also facilitated the introduction of improved formulations of iron-folic acid tablets, which are distributed to adolescent girls, pregnant, and breastfeeding women. Simultaneously, CHAI also supported the State in implementing an efficient procurement and distribution approach to ensure that iron-folic acid tablets are readily available at community health posts and schools. Building the capacities of approximately 51,000 health and 73,000 nutrition workers, the program has reached 2,776,800 children six to 36 months of age, 2,745,600 adolescent girls, and 1,147,520 pregnant and lactating women to identify cases of anemia, promote exclusive breastfeeding, growth monitoring, and, referral and treatment in cases of severe malnutrition.

## LOOKING AHEAD

Sustainability is central to the planning and execution of each nutrition program. In Rwanda, Africa Improved Foods' business model was designed to be commercially sustainable in order to continue to produce fortified food for at-cost sales to the government. CHAI is working to support the factory's sustainability by implementing an innovative plan for local, cost-effective maize sourcing, a primary ingredient in the supplements the company produces. The plan will streamline the maize procurement process and improve quality. In Madhya Pradesh, CHAI is working closely with the government to ensure the distribution system is running smoothly and that women and children are actually consuming the recommended quantity of supplements to be beneficial. Additionally, CHAI is assisting the national and state governments to create and mobilize resources towards a consumer-facing anemia control campaign to drive uptake of iron folic acid tablets during pregnancy and adolescence.

Through partnerships with national governments, CHAI aims to demonstrate that it is possible for countries to achieve dramatic reductions in chronic malnutrition, or stunting, through a targeted set of interventions focused on locally produced complementary and supplementary foods.



CHILDREN AT AN ANGANWADI CENTER  
MADHYA PRADESH, INDIA



A PREGNANT WOMAN IS WEIGHED AT AN ANGANWADI CENTER  
MADHYA PRADESH, INDIA.



## Andrews Gunda

Country Director,  
Malawi

I began my career in development and health care working as a consultant for an agriculture and nutrition project with funding from Action Aid Malawi. This work deeply connected me to communities throughout Malawi, and was the beginning of my career in community service. As a part of this work, I helped implement a soya bean and rabbit production and utilization project for around 300 families. The project helped to reduce poverty and increased intake of proteins and vitamins among household members in selected communities in Mchinji. The project was uniquely interesting and inspirational and was so successful that it has been replicated in other areas in Malawi.

Prior to that role, I served as a student union president and university council representative at the University of Malawi, where I helped lead and mentor a diverse group of more than 1,000 students. Recognizing my leadership potential, the university council awarded me a contract to teach students across all universities about good conduct, conflict resolution, and constructive engagement. I later worked for the University of North Carolina (UNC) as a Research Fellow providing technical advice for quality research and ethics compliance. UNC helped me understand the importance of sound research and how it could be applied to routine service delivery. My experience at UNC groomed me for the challenging and interesting work I would later face at CHAI.

I learned about CHAI after hearing very positive stories about the organization from my long-time colleagues participating in HIV and Nutrition technical working Groups (TWG). The hard work and determination I saw in CHAI staff inspired me to monitor job opportunities with the organization. CHAI's mission and values, its reputation, and its strong relationships with governments were the right fit for my personal values and career goals. In December 2017, I marked ten years at CHAI, working both at the global and country levels, dedicating my time to saving the lives of those we serve in partnership with the government. Over the course of my work at CHAI, I have been proud to live up to the organization's values to lead CHAI's programs in Malawi, helping to achieve transformational change in a number of areas.

I am particularly proud of what we helped accomplish when I served as a program manager for nutrition and prevention of mother-to-child transmission of HIV. One nutrition treatment program became so successful that the government decided to scale it up nationally, reaching 77 percent of children potentially suffering from undernutrition in the catchment area between 2008 and 2009. In addition, we helped the government and development partners establish the Civil Society for Nutrition Alliance (CSONA) to coordinate all non-governmental organizations (NGOs) implementing nutrition

activities in Malawi to better consolidate efforts in nutrition programming, increasing effectiveness and decreasing cost. This alliance has been a particularly successful achievement given how fragmented and uncoordinated the nutrition program had been in Malawi. I now serve as the chairperson of the advisory board for the network of NGOs supporting nutrition initiatives in Malawi.

CHAI was also among the first to ask the government to allow for a pilot of HIV testing in nutrition clinics to ensure all children in need are linked to care and treatment; now a national policy. We also helped pilot a comprehensive mother-to-child transmission prevention program that informed the design and implementation framework for the world-class design known as Option B+. This approach helps ensure that all HIV-positive pregnant women receive antiretroviral treatment (ART), regardless of their CD4 count or clinical staging.

I eventually rose to become CHAI Malawi's Deputy Country Director and later Country Director, a role I now fill. Through my leadership, CHAI has helped achieve transformational change in Malawi by working closely with the government as a trusted advisor. My work at CHAI has enabled me to affect change, and to do so in collaboration with the government. I have been able to interact with ministers from different ministries on personal

My work at CHAI has enabled me to affect change, and to do so in collaboration with the government.

matters and on CHAI business, most of whom value greatly the technical assistance CHAI provides.

Looking ahead, I would like to see CHAI continue to strengthen its partnership with the government of Malawi through the technical assistance we provide. I would like to see the government strategically focus on high-impact interventions to effectively achieve program performance and strengthen health systems and become even more responsive to the needs of the general populace. I look forward to mobilizing enough resources to support more strategic health systems and disease areas in Malawi and to continue our work in training health services workers such as laboratory and pharmacy technicians, nurses and midwives. I would also like to support regional initiatives like malaria elimination and to expand these efforts to tuberculosis and human resources for health. In the coming years, I hope to continue to grow in my role at CHAI to eventually serve at the executive level and contribute significantly to CHAI as a global organization.

At CHAI, we work to serve beyond self, caring for others more than just our community while enjoying being in the mode of working all the time. I wish to instill such a culture and practice to governments and other organizations.

# TUBERCULOSIS

Tuberculosis (TB) is the leading cause of death from infectious disease globally. The World Health Organization (WHO) estimated that in 2016, there were 10.4 million cases of TB with 1.7 million deaths worldwide. Nearly all TB deaths occur in low- and middle-income countries, and it is particularly harmful for children and those living with HIV. In 2016, a quarter of all children who became ill with TB died and the disease accounted for 40 percent of all HIV deaths.

TB incidence is falling at less than two percent per year globally, which is significantly slower than the declines needed annually to achieve global elimination. Progress toward elimination has been hindered by numerous factors including insufficient data on TB cases within countries (leading to poor decision making and resource

allocation), drug resistance compounded by long and inconvenient drug regimens, and barriers to access for new and better drugs and appropriate diagnostic technology. Resistance to drugs remains a significant issue, with 600,000 new drug-resistant cases diagnosed in 2016 according to the WHO, and 490,000 of those cases multidrug-resistant (MDR-TB).

Working toward the ultimate goal of disease elimination, CHAI is helping partner governments to reduce deaths from TB by improving data collection about TB cases, increasing access to effective medications for treatment and prevention, and improving early diagnosis and linkage to care—particularly for high-risk groups and those with drug-resistant TB. By identifying cases sooner and treating them appropriately, patients have a greater chance of survival and lower rates of transmission of the disease.

## UNDERSTANDING DATA TO TARGET TREATMENT

CHAI is working with National TB Programs (NTPs) to enable them to better collect and analyze data, in near real-time, to make data-driven decisions to reduce mortality and prevent the spread of the disease. At the patient level, CHAI is supporting the development of digital systems to facilitate patient follow-up, ensuring patients are retained from screening through treatment initiation. CHAI is supporting NTPs to set strategies informed by epidemiological and geospatial data to redirect resources as needed and to implement innovative approaches such as private sector engagement, use of digital chest x-ray for screening, and other digital tools for patient tracking and treatment. CHAI is helping NTPs develop informed strategic plans for disease elimination and examine financial plans.

In **India**, CHAI is serving as the principal advisor in the city of Chennai's effort to eliminate TB. The TB Free Chennai Initiative (TFCI), led by the Greater Chennai Corporation (GCC), aims to expedite and optimize the

use of effective tools, approaches, and systems for TB management. CHAI is providing technical assistance to the project which is being implemented with the support of a consortium of donors and partners including the State of Tamil Nadu, Surgo, REACH, the National Institute for Research in Tuberculosis (NIRT), TB Reach, Lilly MDR-TB Partnership, Advance Access & Delivery, USAID, the Government of Canada, Cognizant Foundation, and Apollo Hospitals. By 2021, the project aims to increase TB detection from 36 percent to 90 percent and TB treatment success from 80 percent to 90 percent through a number of activities including engagement with the private sector, intensifying case detection at the community and facility level, preventative treatment for latent (non-active) TB infection, electronic tools for patient follow-up and adherence monitoring, and differentiated treatment support. By the end of 2017, TB case detection had already increased to 49 percent.

In 2017, in **Malawi**, CHAI supported the National TB Control Program with the implementation of contact investigation guidelines in five districts by introducing standard operating procedures as well as trainings and new tools. This work resulted in an increase in the rate of household contact screening from 26 percent to 51 percent. The rate of treatment for latent TB infection in child contacts also improved from 19 percent to 38 percent in these five districts. The intervention, along with a pediatric TB diagnosis package, were adopted by the National TB Control Program and scaled up in additional districts.

## INCREASING ACCESS TO NEXT GENERATION TREATMENTS AND TOOLS FOR DIAGNOSIS

Although high-quality medications are available to treat MDR-TB, high prices and weak country health systems can be barriers to access. CHAI is working with drug suppliers to develop sustainable access

### SPOTLIGHT ON SOUTH AFRICA

The shorter MDR-TB regimen is:

- ✓ less burdensome for patients
- ✓ improves adherence to treatment
- ✓ improves treatment outcomes

US\$1,374  
Treatment cost reduction per patient  
using shorter MDR-TB regimen

7,000+  
DR-TB patients placed on new  
optimal regimens



A COMMUNITY HEALTH WORKER HELPS TUBERCULOSIS PATIENTS UNDERSTAND THEIR DISEASE AND ADHERE TO THEIR MEDICATION  
CAPE TOWN, SOUTH AFRICA



The Global Markets Team at CHAI helps global life science companies understand what products are needed in low- and middle-income countries, what prices are sustainable, and how to navigate complex regulatory and procurement systems.”

— Alan Staple  
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programs to lower prices for new treatments which offer higher cure rates, shorter treatment duration, and fewer side effects than other treatments. These new medications have the potential to be used for nearly all TB patients regardless of drug resistance. CHAI is also working to increase access to improved preventative treatments for people with latent TB infection, particularly for children exposed to TB or people living with HIV. CHAI is helping to catalyze the market by increasing supplier competition, lowering prices and supporting NTPs while adapting and piloting these new shorter regimen treatments. To help ensure better diagnosis of the disease to improve treatment rates and reduce transmission, CHAI is also helping countries evaluate and integrate options for efficient TB testing as high-burden countries switch from older conventional tests to rapid molecular diagnostics. CHAI is also working with suppliers to improve pricing and service and is speeding the scale-up of improved diagnostic technologies to ensure universal access to fast and reliable diagnosis for patients.

In **South Africa**, CHAI is providing ongoing support to the National TB Program, with a focus on strengthening the TB medicines supply chain in order to ensure availability of treatment for all patients. CHAI is providing technical support during quantification and forecasting for the national TB tender and has also supported the transition to a shorter drug regimen for MDR-TB, which is less burdensome for patients, to help improve treatment adherence and outcomes. The regimen also reduces the cost of MDR-TB treatment in South Africa by an estimated US\$1,347, per patient. CHAI also supported the government with costing analyses, implementation and supply planning and technical support during rollout of the drug regimen. To date, over 5,000 patients have received this improved regimen.

In **Vietnam**, the CHAI-developed Access to Care Information Software (ACIS) has reduced loss-to-follow-up for TB patients by 50 percent when they are referred between health facilities. Over 12,000 HIV and TB positive patients have benefitted from the service since 2014, which sends SMS messages

to patients when they are diagnosed with HIV or TB to encourage them to seek treatment. In 2017, CHAI added new case finding features for the system under the Zero TB Vietnam project, a comprehensive TB care model supported by the Stop TB Partnership in Ho Chi Minh City, Hoi An City and Hai Phong province. ACIS now connects to VITIMES, Vietnam's national electronic routine surveillance system for drug sensitive TB treatment. When a patient is recorded in VITIMES, ACIS receives and forwards the record to a community health worker near the patient's residence and functions as a survey tool for verbal screening of patient contacts in their household and community, or others who may be high-risk of contacting the disease. The records of individuals suspected of having TB are referred for X-ray screening and are transferred from ACIS to VITIMES prior to their arrival at health facilities to ensure that the most up-to-date data is recorded. ACIS also tracks TB sample transportation and allows project staff to record test results. Treatment monitoring and outcome data entered into VITIMES is automatically updated in ACIS. The initial launch results have shown that over 88,000 people were verbally screened in 2017, resulting in a 16 percent increase in notifications compared to the baseline. CHAI plans to add latent TB infection case management features to ACIS in 2018 and apply ACIS in pediatric hospitals to increase detection of pediatric TB cases.

## LOOKING AHEAD

With the ultimate goal of elimination, CHAI will work over the next 10 years to prevent TB in high-endemic areas, and treat the disease effectively where it occurs. Working with key stakeholders, NTPs and local governments to accelerate access to safer, more effective MDR-TB drugs, CHAI will work to improve the availability of protective treatment regimens, and increase treatment access.



## Alan Staple

Vice President,  
Global Markets

I came of age in the 1970s and 80s, during a time of protest against the Vietnam War, corporate excess, and environmental destruction. At college and graduate school I focused on economics and then worked for over 25 years in the private sector: an eclectic career spanning strategy consulting, start-ups, and well-established companies.

As a strategy consultant working in Europe with a range of well-known companies I learned that businesses often fail or succeed not because of the invisible hand of market forces but due to the decisions and choices made by managers. Companies could bring prosperity to their work force, provide critical products and services, and make the world a better place...or not. I joined CHAI to help companies that make the world's most valuable and essential health care products find practical ways to get their products to the tens of millions of people who need them but can't afford them. The Global Markets Team at CHAI helps global life science companies understand what products are needed in low- and middle-income countries, what prices are sustainable, and how to navigate complex regulatory and procurement systems. Working with partners such as ViiV Healthcare, Mylan, and Aurobindo, we have been able to expand access to the gold standard for AIDS therapy at a price of less than \$.20 per day. It is a privilege to visit the factories where these products are made. They are among the largest and most efficient in the world, employing thousands of people, meeting FDA standards for quality, and operating profitably 365 days per year.

My mother is 94, an advocate for women's rights and a well-read scientist. Like most parents, she always wants to know, what do you really do all day? A few years ago, I had a project I knew she would understand and appreciate. A small team at CHAI saw the opportunity to bring simple, effective, long-acting contraceptive products into the mainstream of public health programs in the developing world. By studying the economics of making the products, we concluded they could be produced and sold for a

fraction of their price in the West, if volumes were consistently large enough to justify investment in an automated production line. This would make the products affordable for governments in low- and middle-income countries to purchase and distribute. We assembled a multi-institutional partnership, championed by the Bill & Melinda Gates Foundation (BMGF), DFID, The Children's Investment Fund Foundation, and others, that assured the companies over 40 million units could be produced and sold in a six-year period. The program saved governments over \$500 million and empowered millions of women in over 80 countries to plan and space their pregnancies. The companies reported that for the first time, many of their employees had written to the CEO saying how great it was to work for a company that helped make a difference in the world. My mom was thrilled to read about the results and continues to track the program.

At CHAI, we constantly challenge ourselves, and the companies we work with, to overcome obstacles, to invest in the right products, and to create viable business systems for delivering critical health commodities to the poor.

Looking ahead, we expect to increase the range of high-quality drugs and diagnostics that are covered by access programs to include tests and treatments for cancer, new treatments for TB, and new innovative products for family planning. Finally, economics has caught up with reality.

# HEPATITIS

Viral hepatitis, consisting of hepatitis B (HBV) and hepatitis C (HCV), affects more than 320 million people worldwide, with 90 percent of infections concentrated in low- and middle-income countries. The disease leads to significant liver damage and other complications over time, culminating in high rates of liver cancer and liver failure.

HBV is vaccine-preventable, but not yet curable, and requires lifetime treatment with antiretroviral drugs. The

HBV epidemic affects more than 250 million people, but in low- and middle-income countries only 250,000 are on treatment—a fraction of those who need it—due to lack of access to, and affordability of, drugs and diagnostics.

More than 70 million people are chronically infected with HCV. While no vaccines exist to prevent HCV, it is curable in more than 95 percent of patients with the use of direct-acting antivirals (DAAs). But despite this safe and effective treatment, less than 5 percent of

those infected have been cured because the drugs are too expensive, and identifying and diagnosing people with the disease can be difficult.

CHAI recognizes that by scaling up access to the services and medicines required to prevent and manage HBV and to eliminate HCV, millions of lives can be saved. CHAI is leveraging lessons from its HIV and TB programs and building off its experience in malaria elimination to inform the design of practical activities and rapidly launch public HCV and HBV programs in countries.

## ELIMINATING HEPATITIS C

In 2017, CHAI's market-shaping efforts continued to drive down drug and diagnostic prices, with the cost-per-cure falling as low as US\$80. Since the inception of the HCV program, over 57,000 patients have been initiated on treatment across CHAI program countries through a simplified diagnostic and monitoring process; and over 700 health care workers have been trained on the process.

Scaling screening and treatment of HCV will require countries to make a significant investment in public health hepatitis programs. CHAI has already begun to demonstrate how these programs can succeed in achieving that goal in six countries: **India, Indonesia, Myanmar, Nigeria, Rwanda, and Vietnam.**

The state of **Punjab, India** has set the benchmark in providing hepatitis C care to its residents, and thanks to an innovative program is well-positioned to eliminate the disease. CHAI has provided strategic and operational support to the program since its launch. That support has helped to rapidly scale up care and treatment in the state, with more than 41,000 people on treatment, and a 90 percent cure rate to date. CHAI has supported Punjab on a number of fronts, including the development of a robust monitoring and evaluation system that captures and analyzes patient data to inform evidence-based decision making. For example, a



HEALTH CARE WORKERS TREAT PATIENTS WITH HEPATITIS C  
HAI DUONG, VIETNAM

## IMPROVING HEPATITIS C TREATMENT

6 countries with HCV screening and treatment programs launched

50%+ price reduction for key drugs and diagnostics

US\$80 low-cost range per cure

57,000 patients initiated on treatment across CHAI program countries

700+ health care workers trained on simplified HCV treatment processes across program countries

“

What struck me the most when I joined CHAI was the importance of working with the government to build capacity and ownership of the programs, along with the sense of urgency to save lives.”

— Hilda Shakwelele  
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## HEPATITIS *continued*

pilot study is getting under way to determine whether text message reminders reduce patient loss-to-follow-up—a problem that only became known once the monitoring system was set up. Punjab’s success has not gone unnoticed. In 2018, the government of India is expected to launch a National Program on Hepatitis C based on the Punjab model.

In **Nigeria**, gains were made in patients’ access to diagnostics and treatment. New viral load tests were introduced which could confirm a patient’s HCV status in three days instead of the previous 28 or more in states like Nasarawa. CHAI is partnering with the government to support the expansion of the National Health Insurance Scheme benefit package to include full insurance coverage for hepatitis diagnostics, including the new tests, as well as a 10 percent

co-payment for treatment costs. CHAI has also supported advocacy for domestic resource mobilization leading to the creation of budget lines for hepatitis programs within two states.

In **Rwanda** and **Indonesia**, patients continued to benefit from access to DAAs and the availability of testing and treatment services has rapidly expanded. In 2017, over 1,900 patients were treated with DAAs in **Rwanda**. CHAI supported the training of health care workers, increasing the number of HCV treatment prescribers from 4 to 16. In **Indonesia**, continued registration of DAAs is helping reduce the price of these medicines. The price of sofosbuvir, for example, decreased by 24 percent over 12 months. CHAI also supported the expansion of hepatitis testing and treatment programs at 29 hospitals across 7 provinces and helped launch an

information system to capture data that will help the government evaluate success of the program and better target interventions.

CHAI supported both Vietnam and Myanmar to launch the countries’ first-ever public sector hepatitis C treatment platforms in June 2017. Within its first five months in **Myanmar**, the Quick Start program treated almost 2,000 patients suffering from chronic HCV. To establish this momentum, CHAI supported the development of the National Strategic Plan, a five-year cost analysis and operational plan for the program. CHAI also provided training to Quick Start trainers and assisted the National Health Laboratory to alleviate a bottleneck within labs processing HCV diagnostic tests, which resulted in a 2.5 to 3 times increase in the number of completed tests.

In **Vietnam**, CHAI collaborated with the National Hospital of Tropical Diseases to launch the Quick Start program at five health facilities in three provinces for patients infected with both HIV and HCV. Treatment under the program was subsidized through a free donation of a DAA called daclatasvir, from Bristol-Myers Squibb and Américas. Patients were also able to purchase sofosbuvir at CHAI-negotiated prices—about half the current cost of the drug in the public sector. There were 775 patients on treatment by December 2017. These medicines were added to the government social health insurance reimbursement list, significantly improving access to this critical treatment for people across the country.

## LOOKING AHEAD

The world has the opportunity of a generation right now to stop hepatitis C, a disease that ranks among the top ten killers globally. Building off lessons learned through country implementation, CHAI has developed a hepatitis C elimination strategy that aims to cure over 16 million people in 34 countries over the next ten years. CHAI will work with governments, and where appropriate, the private sector, on a data-driven response to ensure optimal deployment of resources for case finding, access to affordable, high-quality treatment, and targeted prevention efforts. This will demonstrate effective models that can serve as guides to the countries that follow this initial push.

Though HCV has been the main focus of CHAI’s hepatitis work, CHAI has made early strides in improving access to HBV services through joint policy, training, and financing work with HCV and HIV programs. CHAI’s approach leverages the achievements and infrastructure of those established programs to catalyze price reductions for HBV diagnosis and treatment so that it is affordable enough to launch and grow public sector programs.



A HEALTH CARE WORKER TREATS A PATIENT WITH HCV  
HAI DUONG, VIETNAM



## Hilda Shakwelele

Country Director,  
Zambia

When I started working in 1996, I had a career path in business clearly mapped out in my mind and I made a commitment to myself that I would follow it to the letter. In so doing, I also had visualized my 'ideal' organization which needed to be at least 10 years old, have formal systems in place, and have at least 100 staff. For 12 years, I followed this plan until one day I came across a job advertisement for an Administrative Officer for the then Clinton HIV/AIDS Access Initiative, which had just set up operations in Zambia. As usual, I began researching to ensure that the organization fit the criteria I had developed for myself. This time however, I could not find much information. Out of curiosity, I decided to apply for the job anyway.

Ten years ago, I joined CHAI. My friends, colleagues and family worried about me leaving a stable organization to join one that I didn't know much about and which was literally new. However, I was ready for a new challenge in my professional life. I was with CHAI for only a few months when I was asked to fill in for a colleague on the then Drug Access program, responsible for the procurement of HIV commodities under a grant with Unitaid. I knew nothing about antiretroviral (ARV) medications and had to learn the names of the drugs overnight. I vividly remember writing the names on a flip chart which I stuck on my office wall so that I could practice their pronunciation every morning I reported for work. And the acronyms were simply out of this world! This was a turning point in my life and the start of my career in public health. True to the values of entrepreneurial and action-oriented staff being CHAI's most important asset, the

organization believed in me and gave me the latitude I needed to carve a new career path in public health despite not having a health background.

At this point, Zambia had already started making steady progress in the fight against HIV, with adult patients finally receiving free treatment. However, the pediatric program was lagging behind and a lot of work still needed to be done. Worse still, even though easier to take and less expensive fixed-dose combinations (FDCs) were available on the market, the program was still using suboptimal formulations like suspensions and other single tablets. Within a short period of time, CHAI supported the Ministry of Health to eliminate all the suboptimal formulations from the pediatric HIV treatment program and helped them to update pediatric HIV treatment guidelines to be explicit on the use of FDCs instead of single formulations. CHAI also helped develop and distribute pediatric dosage guidelines for healthcare workers which had not previously existed.

What struck me the most when I joined CHAI was the importance of working with the government to build capacity and ownership of the programs, along with the sense of urgency to save lives. Though CHAI has helped to significantly reduce mortality and improve quality of life for millions of people in the countries where we work, there is still much to do. CHAI is strategically and uniquely positioned to continue making a huge difference in global health. As countries create national health insurance systems, CHAI needs to continue supporting governments to build sustainable and resilient systems to achieve universal

health coverage. I look forward to a future with CHAI where every citizen in a country we serve will have access to high-quality healthcare without suffering financial hardship.

In Zambia, CHAI has successfully worked with the government to alleviate human resources challenges in the health sector and has an opportunity to ensure continued progress with the training, management, and financing of skilled birth attendants, related specialist physicians and Community Health Assistants (CHAs). Building on the successes of our existing programs, we will scale up our efforts and help the government stretch limited resources further. CHAI will continue to play a significant role in helping the government achieve reduced maternal and neonatal mortality rates. Through our new comprehensive sexual, reproductive, maternal and newborn health program, we will improve the lives of women, adolescent girls and newborns. The rates of pregnancy and HIV amongst our young population are worrisome. Through our work in this area, we will help target the unique needs of this key population and contribute to the improvement of the health status and quality of life for these adolescents as lack of access to sexual and reproductive health services can have lifelong implications.

Pediatric HIV was CHAI's flagship program in Zambia and even though major strides have been made in reducing mother-to-child transmission and getting more children on treatment, pediatric HIV treatment continues to lag behind the adult program. Significant effort is still needed to close the gap and CHAI's role remains critical. CHAI's recent work on an all-

inclusive 'price per test' for viral load testing will transform this space by enabling countries to pay for one diagnostic package that includes both equipment and maintenance which will reduce costs and change how business has been done over the years. CHAI must also scale up its effort in proven HIV prevention interventions like voluntary medical male circumcision (VMMC) and pre-exposure prophylaxis (PrEP) to accelerate progress to an HIV free generation. We also have an opportunity to improve cancer diagnosis and treatment, particularly around treatable but deadly forms such as cervical cancer. CHAI is already applying its unique approach to save lives and reduce the burden of the disease in other sub-Saharan countries, increasing access to lifesaving medications and diagnostics as well as preventive tools such as vaccinations. To help better inform and influence health policies, we will continue to expand our capacity to generate evidence to support healthcare delivery.

At CHAI we have the unique opportunity to contribute to better health outcomes, save and improve the lives of millions in the least developed communities around the world. We work to sustainably change mindsets, and demonstrate that indeed each and every life is precious. As CHAI has expanded its mission, I am grateful that it believed in me to make my little contribution and continues to do so 10 years on. It has been a life fulfilling experience and I am eternally indebted to CHAI for awakening the passion of saving lives.

# CANCER

Every year, around 450,000 people in sub-Saharan Africa lose their lives to cancer, often to forms that are preventable or treatable. Lack of information about the disease or inadequate care means that many patients do not seek treatment until it is too late. When they do, health care facilities are often not equipped with the right tools, medications, or trained workers. Due to these challenges, patients are almost twice as likely to die of cancer in sub-Saharan Africa as the United States, and cancer incidence in the region is projected to increase by 85 percent in the next 15 years.

Cervical cancer is almost entirely preventable, through vaccination or timely screening. Cervical cancer was

once one of the most common causes of cancer death for American women, but in the four decades following the introduction of screening, cervical cancer incidence and death rates decreased by more than 60 percent. Unfortunately, low- and middle-income countries, where 86 percent of all cervical cancer deaths occur, have not experienced these same declines.

In order to help reverse these trends, CHAI began partnering with the American Cancer Society (ACS) in 2015 to create a program focused on increasing access to quality, affordable treatment, improving health worker training, and helping partner governments establish plans to comprehensively manage the disease. CHAI

has worked with the governments of **Nigeria, Uganda, and Ethiopia** to develop strategies for cervical screening and treatment programs and with manufacturers of key diagnostics and treatment devices to understand the product landscape. Alongside partners, CHAI is helping to improve the market for optimal technologies that can enable quality, affordable scale up of screening programs.

## IMPROVING ACCESS TO CANCER TREATMENT

Due to the small, unpredictable and opaque market for cancer medicines in the region, quality, affordable medications have historically been in short supply in sub-Saharan Africa. In 2017, CHAI and ACS announced a groundbreaking agreement with pharmaceutical manufacturers Pfizer, Inc. and Cipla, Inc. that will expand access to cancer treatment, enabling a switch to quality products while simultaneously creating the potential for an over 50 percent savings for partner governments. The agreements expand access to 16 essential cancer treatment medications, in **Nigeria, Uganda, Ethiopia, Kenya, Rwanda, and Tanzania**. These six countries represent 44 percent of cancer cases in sub-Saharan Africa. CHAI and ACS are already working with countries to take advantage of these lower prices. Ethiopia selected several of these medicines in late 2017 through their national tender. In Nigeria, CHAI has supported the Federal Ministry of Health to consolidate procurement across the country's major public cancer hospitals. The first consolidated chemotherapy procurement is expected in 2018.

CHAI is also working to ensure that partner countries are developing plans to screen, diagnose, and treat cancer patients. In Nigeria, CHAI partnered with the Federal Ministry of Health in 2017 to inaugurate the country's first Cancer Control Steering Committee and develop a National Cancer Control Plan (CCP). The CCP, completed in 2018, will serve as a roadmap for the Ministry to improve cancer care through a number of ambitious goals

## GROUNDBREAKING MARKET ACCESS AGREEMENT

50%+  
potential savings on

16

essential cancer treatment medications due to a groundbreaking market access agreement which:



including improved public outreach to encourage earlier screening, diagnosis and treatment, better equipped cancer treatment centers with qualified and trained staff, increased access to high-quality medications, and improved palliative care. The plan also takes a number of steps to grow the health workforce in cancer care with a goal of increasing the percentage of trained and available health workers by 60 percent by 2022, including the establishment of Medical Oncology and Nuclear Medicine specialties in Nigeria's post-graduate medical colleges.

In **Uganda**, CHAI is supporting the American Society of Clinical Pathology (ASCP) with the introduction of telepathology at the Uganda Cancer Institute (UCI), as well as access to essential pathology supplies. This program, expected to begin in late 2018, will utilize a network of United States-based pathologists to provide technical assistance and capacity building support in interpreting



PATIENT RECEIVING TREATMENT AT THE UGANDA CANCER INSTITUTE  
KAMPALA, UGANDA

## CANCER *continued*

tissue samples when requested by UCI and other lab teams.

In **Ethiopia**, where often treatable breast cancer accounts for 33 percent of all cancer cases, CHAI supported the government in 2017 to increase the provision of quality treatment services at eight hospitals, up from only two. In partnership with ACS and CHAI, the Federal Ministry of Health trained 20 physicians and 23 nurses in breast cancer treatment, and 69 pharmacists in supply chain management of chemotherapy drugs. So far, eight hospitals have begun delivering breast cancer treatment services to patients and, at the five hospitals where data has been collected, the number of breast cancer patients treated has tripled from around 300 to 1000 over a six-month period. CHAI is also working with the Ethiopian government to address the critical shortage of chemotherapy in the country. In addition to being one of the countries selected to benefit from the market-access agreement with Pfizer and Cipla, CHAI supported a forecast of chemotherapy drugs needed for 2017-2019, which was used to inform a national tender.

### TARGETING PREVENTION

In 2017, CHAI also continued efforts to ensure that six partner countries—**Uganda, Tanzania, Ethiopia, Kenya, Cameroon, and Lesotho**—include the HPV vaccine in the regular course of vaccinations for young girls and to identify barriers to vaccination. If each of these countries attain 85 percent coverage, an estimated 9,000 cervical cancer deaths can be prevented each year.

In Uganda, only 22 percent of girls aged 9-14 were fully vaccinated for HPV by the end of 2016. In 2017, CHAI began supporting the Ugandan government to determine reasons for vaccination non-completion and discovered significant gaps in health worker training and the distribution of tools to support HPV programs. To address this, CHAI worked with the government to clarify HPV eligibility and schedule policy, inform community activists about the HPV vaccination program, and develop refresher trainings for all healthcare

workers carrying out immunization activities. In districts targeted for this additional support, the number of girls receiving their second dose of the vaccine increased nearly 20 percent within the month of engagement. By the end of 2017, coverage for the second dose of the HPV vaccine increased to 42 percent. In early 2018, CHAI applied these lessons in the development of a coverage improvement plan and helped the government secure over US \$700,000 in funding to scale up best practices nationwide. CHAI is continuing to work with the government to address these issues and eventually reach the target of 85 percent coverage. It is also using these lessons learned to help improve vaccination coverage in Tanzania and Ethiopia, both of which are introducing the HPV vaccine into routine immunization in 2018.

## LOOKING AHEAD

Over the coming years, CHAI will continue to pursue the ambitious goal of expanding access to quality, affordable cancer care in sub-Saharan Africa, while simultaneously seeking to expand impact to new geographies, including India and Southeast Asia. CHAI will also continue to support countries to design and implement nationwide cervical screen-and-treat programs to prevent cervical cancer. CHAI will help accelerate the introduction of optimal screening and treatment technologies and support governments to develop the systems to deploy them effectively at scale. And CHAI will work to expand the set of essential medicines included in its access partnerships, with a focus on pediatric chemotherapies and highly-effective biologic therapies, in order to increase access to quality, affordable cancer treatment.



## Alexio Mangwiro

Country Director, Zimbabwe

I affirm my decision over ten years ago to join CHAI's mission to save lives, particularly when I reflect on how much we have achieved in rolling back disease and death in various areas that CHAI operates programs.

Prior to CHAI, I took up various roles, including stints with the Zimbabwean government at district level, helping to organize and implement public health programs; working with a national network of 140 NGOs providing palliative care mainly to HIV patients; and working with UNICEF's HIV/AIDS unit. It was while at UNICEF that I became aware of a new entity named CHAI through a friend working there, who spoke highly of the organization's magnanimous vision and mission. I joined in 2007. I was younger then, and wanted to push the boundaries of what was thought possible in global public health. At that time, HIV infection and AIDS-related deaths among adults and children were a prominent problem in every community in Zimbabwe, and no family was spared. Access to HIV testing and treatment was a pipe dream for the majority. Public health systems were unable to deliver life-saving services due to unsustainable costs associated with care, unarticulated strategies to reach all those in need, and poor market access to diagnostics, optimal treatments, and prevention tools—some of which were readily available in developed economies. Infectious diseases such as TB and malaria were also a scourge, with hundreds of people dying every day. I needed to work with an organization that had a global reach but acted locally. An organization that would tap into my energy, skills, zeal, and creativity to work on pressing health challenges. Starting as an analyst on a three-member country team, today I am the Country Director of our program in Zimbabwe, working with a team of 50. I am continually humbled by the diversity, talent, and commitment of my colleagues, many of whom I have learned much from.

Fast forward to 2017. Zimbabwe has smart, coherent strategies for all aspects of infectious diseases and the country's HIV

I am continually humbled by the diversity, talent and commitment of my colleagues, many of whom I have learned much from.

program reaches 84 percent of adults and over 90 percent of children in need of treatment. HIV testing for adults, as well as early infant diagnosis, is available at all 1,560 health facilities that provide prevention of mother to child transmission services. In some places service is delivered by innovative point-of-care technologies that drastically cut result turnaround times. While much progress has been achieved, there remains more work to be done to improve the quality of care Zimbabweans receive; to ensure everyone has equal access to that care without consideration of financial, social, or other status; and to address new and emerging health challenges, including non-communicable diseases that now account for 38 percent of deaths every year.

Looking toward the future, I retain the same zeal and optimism I had over ten years ago, regarding the role CHAI can and will play to ensure all people in Zimbabwe (and around the world) have access to universal health care. We can achieve this by leveraging the competencies that CHAI has developed and ably demonstrated in other areas and building on our core values and strong relationships with both governments and global health partners.

# HEALTH SYSTEMS STRENGTHENING

CHAI's ultimate goal is to help partner countries accelerate progress toward Universal Health Coverage (UHC) to ensure that all people have access to quality, essential health services without suffering financial hardship. Each year, at least half of the world's population is unable to obtain essential health services, with almost 100 million people pushed into extreme poverty due to health care costs. Africa, India, and countries in Southeast Asia where CHAI works are home to 41 percent of the global population under 50 years of age and face a significant disease burden, but they account for only about eight and a half percent of total health spending. Low-income countries are often reliant



A WOMAN CELEBRATES HER GRADUATION FROM THE COMMUNITY HEALTH ASSISTANT PROGRAM ZAMBIA

on donor funding, and domestic health spending is often insufficient to meet population needs. As a result, healthcare providers must ration services or charge high user fees for health care which can be cost-prohibitive for many, forcing the most vulnerable to choose between paying for health services or for other basic necessities.

## HEALTH FINANCING

To move toward the goal of UHC, CHAI is committed to helping governments sustainably finance health systems and address financial barriers that prevent patients from accessing the care they need. With support from the Swedish International Development Cooperation Agency (Sida) and Irish Aid, CHAI is working in **Ethiopia, Eswatini, Malawi, Rwanda, South Africa, Zambia, Zimbabwe,** and **Cameroon** to establish financing systems that improve equity and efficiency in how funds are collected, distributed, and spent. In donor dependent settings, CHAI works with governments to ensure limited resources are used efficiently, mobilize additional resources, and build national budgeting systems that can manage a greater proportion of funds over time. In countries moving toward aid independence, CHAI supports governments to comprehensively reform national financing systems, including through national health insurance reform.

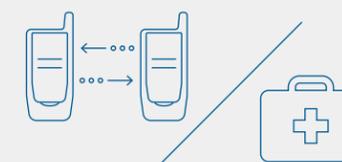
## FINANCING REFORMS

In 2017, working with the governments of **Ethiopia, Rwanda,** and **South Africa,** CHAI supported the design, roll-out, and improvement of health financing reforms. In **Ethiopia,** CHAI continued to work with the Ethiopian Health Insurance Agency (EHIA) to implement a health insurance system that will move away from a reliance on donor funding, which is not sustainable, and user fees, which are not affordable for many. CHAI provided critical input for the EHIA's development of a

draft legislation that will determine the design of the community-based and social health insurance schemes toward a goal of national insurance. CHAI worked with EHIA to design a pilot to test key changes for the insurance scheme to sustainably reach the entire population. This pilot includes shifting from district to regional pooling and administration and working with an IT partner, Watsi, on the development of a mobile- and web-based, scalable insurance management information system. The IT system will use mobile technology to increase the reach and efficiency of the insurance scheme, while generating real-time patient-level data that can be used for performance and quality management. CHAI worked with EHIA to generate the evidence needed to plan for this pilot, including conducting a study on the cost and availability of health care services in 21 facilities. This pilot of a new insurance model will begin in 2018 and reach 300,000 people in three districts over the first year and one million people in 2020, with successes informing insurance scale-up.

**In South Africa,** CHAI worked with the National Department of Health on national health insurance (NHI) which aims to address the severe inequity in the South African health care system. CHAI supported development of a blueprint for NHI implementation, consolidating input from experts and key stakeholders in the development of an NHI Bill. Passage of this legislation will allow the government to set up institutional structures and an NHI Fund. As part of a multi-stakeholder technical task team, CHAI developed recommendations for the design of a benefits package under the NHI system, creating a single reference point for key inputs and costs of all primary care services which has been adopted by the government. In 2017, CHAI also expanded work in **Rwanda** to support the Rwanda Social Security Board (RSSB) to assess and identify key areas for improved management of the Mutuelles, Rwanda's insurance scheme. CHAI began

## SPOTLIGHT ON ZIMBABWE



5%

health levy introduced on mobile airtime and data charges, earmarked for the purchase of hospital drugs and commodities

US\$4M

per month expected to be generated by levy, with more than US\$18M released by September 2017

work in 2017 to help directorates use existing claims and enrollment data to improve performance management, including by developing a tool for routine analysis of key performance indicators. CHAI also continued work with the Ministry of Health to improve the quality of services delivered through strengthening the hospital accreditation program.

In a number of countries, CHAI worked with governments to plan for, design, and assess comprehensive financing reforms, including through the development of National Health Care Financing Strategies. In **Zimbabwe,** CHAI supported the Ministry of Health and Child Care to develop the Health Financing Strategy—approved in early 2018—outlining key steps toward the goal of UHC as part of a Technical Working Group composed of the Ministry, the World Bank and other stakeholders. To begin to support resource

## HEALTH SYSTEMS STRENGTHENING *continued*

mobilization, CHAI supported the implementation of an earmarked health tax on mobile airtime and data, which is expected to generate up to US\$4 million per month dedicated to hospital drugs and commodities.

### PLANNING AND BUDGETING

In 2017, CHAI continued to support the governments of **Ethiopia, Malawi, Zimbabwe, Rwanda, and Cameroon** to conduct ‘Resource Mapping’, an annual process to increase government visibility on donor and government funding flows for the health sector and support joint planning. In 2017, CHAI’s work on resource mapping was increasingly institutionalized within Ministries of Health. CHAI supported governments to use data from resource mapping to conduct financial gap analyses against costed plans. In **Malawi and Rwanda** this detailed costing and gap analysis informed successful applications to the Global Fund for HIV/AIDS,

TB, and Malaria of US\$450 million in Malawi and US\$154 million in Rwanda. In Malawi, this included grants for HIV, TB, and Malaria, as well as health systems strengthening, which has been chronically underfunded. In **Cameroon**, CHAI helped to quantify a gap of US\$138 million for reproductive, maternal, and child health interventions to support a Global Financing Facility (GFF) investment case, which helped secure US\$127 million from the GFF.

CHAI also worked with governments to improve their financial management systems more broadly. In **Eswatini**, CHAI supported the government to identify and quantify basic needs for an Essential Health Care Package and use this information to inform budgets and resource allocation. CHAI supported assessments of readiness and service availability at 12 facilities to identify key gaps on the ground, including critical needs such as infection prevention and control. CHAI then

worked with the Ministry of Health to use the collected information to improve budget development, execution, and reporting. In **Zambia and Cameroon**, CHAI supported sub-national planning and budgeting to better link budgets to plans and enable managers to track performance and improve efficiency and effectiveness of health spending. With the aim of increasing government accountability, CHAI provided technical assistance to a performance-based financing initiative in Zambia. The initiative, funded by Sida, helped strengthen routine data systems, improving quality and efficiency. CHAI also supported the development and roll-out of district budget consolidation and accounting tools, linked to plans. Today, all funding channeled directly to districts, whether from donors or the government, is planned and allocated through these tools. In **Cameroon**, CHAI trained district planners in 48 districts in four regions to develop costed health plans for 2017 through 2020. Using these plans, CHAI supported the central government to advocate for a 4.4 percent increase in its primary health care budget between 2017 and 2018. The average allocation to district hospitals increased five-fold and the average allocation to health centers doubled.

### HEALTH WORKFORCE

In order to make progress toward UHC, countries must also have sufficient qualified health workers to deliver essential health services. Many countries where CHAI works face significant shortages of quality, trained health workers, inequities in distribution, and inefficiencies in how those health workers are managed. CHAI is working to address these health resource gaps by working alongside partner governments to identify their health workforce needs and subsequently transform the capacity of educational institutions in the country to train the right number and kind of health workers. In 2017, CHAI continued to help partner countries improve the availability of qualified health workers by scaling up high-quality education and training and supporting governments to improve management of their health workforces.

In **Zambia**, CHAI continued efforts to strengthen the Community Health Assistant (CHA) program through curriculum revision, strengthening CHA data

collection and reporting functions, and supervision and mentorship to over 500 CHA Supervisors. Through efforts supported by CHAI, government institutions have trained over 2,000 CHAs; to date 1,400 of these have been hired and deployed to provide essential health services through home visits and community mobilization. CHAI is supporting the government to decentralize CHA training and management through sustainability planning and to strengthen overall program management at the national- and district-level. CHAI also supported the government to train and deploy more Skilled Birth Attendants (SBAs), while strengthening their supervision, mentorship and retention in order to improve coverage of preventive and curative maternal and newborn care. To increase the number of SBAs trained and improve their quality of training, CHAI has supported infrastructure expansions at select training institutions, such as upgrades to administrative structures, skills labs, classrooms and lecture theaters, libraries, practicum sites and housing. As a result of these investments, hundreds of SBAs were in training or had graduated by the end of 2017. CHAI has also facilitated the administration of scholarships to 613 health workers including nurses, midwives and doctors specializing in obstetrics and gynecology, pediatrics, anesthesia, surgery, internal medicine, and emergency medicine. CHAI’s SBA mentoring program piloted the introduction of the Safe Childbirth Checklist, which provides best practice clinical guidance to health workers attending deliveries. The checklist was

“

Throughout the rapid expansion of CHAI’s program work, we have remained keenly aware that the effective management and custodianship of donor funds is vital to developing strong partnerships and is critical to ensuring that CHAI continues to garner their support in order to carry out its mission.”

— Eric Gatabaki  
READ MORE P. 69



CHAI, MINISTRY OF HEALTH AND OTHER STAFF DURING A ROUTINE VISIT TO DISCUSS PROGRESS AND FURTHER OPPORTUNITIES FOR IMPROVEMENT AT A SUPPLY WAREHOUSE  
LAO PDR

## HEALTH SYSTEMS STRENGTHENING *continued*

introduced in June of 2017, and initial midline findings show that adherence to the 21 essential tasks on the list increased from 56 to 72 percent. Over 1,000 critical perinatal and neonatal cases were referred to appropriate health facilities for treatment via motorbike ambulances and vehicles that are currently maintained by CHAI. CHAI also completed a study in 2017 which showed that housing for health workers is the most cost-effective and impactful way to improve retention. In order to retain quality SBAs in rural and remote areas, CHAI is supporting the government to adopt and implement this strategy.

In 2017, in **Tanzania**, CHAI supported the government to implement a National Community-Based Health Program (CBHP) to improve community health services throughout the country. Tanzania faces a critical shortage of health services, particularly in rural areas, due in part to a shortage of health workers. Currently, 52 percent of clinical health worker positions are vacant, and there are only 1.35 health workers per 1,000 people. The national CBHP 2015-2020 aims to increase health service coverage by expanding the availability

of high-quality and responsive health services at the community-level through improved coordination and empowerment of existing services and structures for implementation and oversight. The CBHP will also facilitate effective coordination and collaboration among all stakeholders implementing interventions laid out in the plan to ensure quality health services are provided to community members. CHAI also provided technical assistance and capacity building to the government to develop systems to monitor the progress of the CBHP implementation, including dissemination of web-based data collection and dashboards used by CBHP district and regional coordinators, and through updating existing community-level data collection tools to monitor the performance and coverage of Community Health Worker (CHW) interventions. CHAI also conducted a funding landscape analysis to enable the government and partners to oversee associated costs and timeline for deploying CHWs in villages as required by the CBHP.

In **Sierra Leone**, CHAI supported the Ministry of Health and Sanitation in 2017 to develop its Human Resources for Health Strategy 2017-2021—a nine-month process

that included consultations with more than 260 stakeholders. As part of this process, CHAI worked with the government to complete a country profile for human resources for health based on data from a health worker census and other primary and secondary data collection activities carried out in 2016. The analyses were critical not only in identifying critical needs, but also in successfully securing commitments from the government and development partners to fully fund key areas of the first year of strategy implementation. In 2017, CHAI began supporting the Ministry to implement the strategy, including through technical assistance to key human resource management functions and through coordination of donors and partners. At the national level, CHAI is supporting the development of the Rural Retention Action Plan, with the aim of identifying evidence-based solutions for increasing the availability of health workers in rural and remote areas. CHAI also supported the government to make progress toward the objective of decentralizing human resources management by helping to mobilize funding for decentralization activities and supporting the appointment, training, and deployment of district human resources officers and assistants to all 14 districts and hospitals. These actions helped drastically reduce the number of days health workers spent outside of their duty station on administrative processes and increased time spent delivering health services. CHAI also helped the Government of Sierra Leone secure US\$2.1 million from the Global Fund to increase production of nurse/midwife tutors and registered nurses and successfully advocated that the government redirect funding used in the production of lower-skilled nurses toward educating higher-skilled nurses.

In **Malawi**, CHAI provided scholarships for 1,184 nursing and midwifery students across nine supported colleges, including 590 Nurse Midwife Technicians, 109 Diploma Nurses, 26 Bachelors Nurse Educators, 30 Bachelors Nurses, and 429 Community Midwifery Assistants by the end of 2017. All of the students will graduate by the end of 2018. In order to expand college capacity to increase the number of students trained, 13 structures have been built across the nine colleges, including skills laboratories, lecture theatres, classrooms and

dormitories. In 2017, construction was also completed on a model maternity hospital—the Chimwawa Maternity Wing—in Chiradzulu district. In order to expand the reach of critical family planning services to rural areas, CHAI has helped train 612 Community-Based Distribution Agents and 146 supervisors across eight districts, to provide family planning information and commodities in their communities and trained 200 practicing Health Surveillance Assistants to provide injectable contraceptives at the community-level. These efforts have generated significant evidence to inform policy and planning around the health workforce, including the completion of a multi-phase nurse retention study which assessed factors which motivate nurses to remain in rural health posts and an analysis of health worker gaps by cadre, facility type, and geographic area and workforce growth rates through 2040 in order to design interventions to meet national and international workforce targets.

These analyses formed the evidence base within the Ministry of Health's Human Resources for Health Strategic Plan 2018-2022. Acting as a technical assistant to the government, CHAI supported the Ministry's Department of Human Resources Management and Development to lead a national consultative process to develop and cost the and supported the Ministry's Nursing Directorate to develop its national Nursing and Midwifery Services Policy. Both plans will be launched in 2018.

In **Liberia**, CHAI continued to provide management assistance to the government on the implementation of its Health Workforce Program, a seven year national initiative that will improve health worker quality and retention to improve health care throughout the system. CHAI supported the government to develop an operational plan and seven year costing for the program, and has subsequently assisted the government to raise and coordinate resources against this plan. Within the first two years (by the end of 2017), over US\$83 million had been secured for implementation, out of a US\$200 million budget spanning seven years. To support effective utilization of these resources, CHAI supported the government to develop contract and performance management tools for partners, established and ran technical working



A PROVINCIAL ANTI-MALARIA UNIT DISCUSSES A FINANCE REPORT  
CHAMPASAK, LAO PDR

groups and coordination committees, procured three academic partners to implement key interventions in medical, nursing, midwifery, and health management education, and a firm to implement a CHA program, coordinated resources for the construction of educational infrastructure and teaching hospitals, and developed systems to monitor and evaluate the program. CHAI also helped revise the National Human Resources Policy and Plan. Through these efforts, 3,014 CHAs were trained in two years (quickly approaching the seven year target of 4,100) and 50 visiting faculty were recruited and deployed to support quality improvement for educational programs in medical education, nursing, midwifery, and health management. In addition, CHAI helped develop curriculum for a new certificate program in Health Management and secure resources and planning for dormitories for 96 medical students and classrooms with capacity for 50 students. CHAI also helped the government secure resources to equip four computer labs and five skills labs at nursing and midwifery training institutions and for the construction of two medical facilities—the new JJ Dossen Hospital, and New Redemption, a state-of-the-art teaching hospital which will be rebuilt with the aim of improving service delivery quality and providing a better environment for clinical education. Through the Health Workforce Program Liberia has graduated it's first-ever class of 16 medical residents across Pediatrics, Internal Medicine, Obstetrics & Gynecology, and General Surgery.

## LOOKING AHEAD

Over the next 10 years, CHAI will continue to support low-and middle- income countries to make real progress toward the ambitious goal of UHC, significantly improving health care coverage, affordability, and quality. CHAI will support governments to design, roll-out, and improve national financing reforms while continuing to improve efficiency in donor and government spending. Specifically, CHAI will continue to support the governments of Ethiopia, South Africa, and Rwanda to establish national health insurance while responding to recent requests in a number of new countries undertaking similar financing reforms. At the same time, CHAI will work with governments to improve service coverage and quality, including by supporting governments to expand the availability and improve the performance of qualified health workers through education, management, and improved health workforce and budgetary planning.



## Eric Gatabaki

Director, Budgeting and Reporting

I have always had a strong passion for helping others and making a positive contribution. The roots of this passion stretch back to my childhood. As a youngster, I frequently assisted my father as he and a group of his fellow doctors conducted free medical clinics in the Kikuyu highlands of Kenya. It was inspiring to watch my father work tirelessly in the clinics, and to this day, I can still picture that smile that never seemed to leave his face. My father's dedication to helping others left an indelible mark on me. Later in life as I pursued my postgraduate degree at Yale, I kept asking myself how I could answer the call to serve a greater mission. I had a solid skillset in finance, and I seemed headed to the corporate world when I met a Yale student who was interning at CHAI and I learned about the work that CHAI was doing. I was hooked. I strongly believed that I could leverage my finance skillset and make a truly meaningful contribution in an organization that had such a compelling mission. Fortunately, CHAI had an opening in the Finance team, and I took the job, and it's been a great decision.

Since joining CHAI in 2010, I have witnessed significant growth in the organization as we have more than doubled in size and substantially diversified our programmatic areas of work, largely due to existing donors expanding their portfolio of projects with CHAI and significantly increasing funding. This fact stands as a testament to the continued success of CHAI's transformative approach to addressing programmatic challenges, and to its laser-like focus on its mission. Throughout my eight years at CHAI, I have been privileged to work with a finance team of truly committed and talented staff members who have had an unrelenting dedication to the continuous improvement of our financial management, processes, and internal controls, all in furtherance of CHAI's mission. Throughout the rapid expansion

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of CHAI's program work, we have remained keenly aware that the effective management and custodianship of donor funds is vital to developing strong partnerships and is critical to ensuring that CHAI continues to garner their support in order to carry out its mission.

This is an exciting time for CHAI—a time of renewed challenge and great opportunity to continue making impactful change. Looking ahead, we are anticipating growing our programs by an average of approximately 20 percent per year, over the next two years and beyond. As our programs grow, we must ensure that they have a solid infrastructure of business systems and processes to support that growth. To that end, the finance team will continue improving, reassessing and adapting to the changing needs of the growing organization. Exciting times indeed!

# FINANCIALS

Clinton Health Access Initiative, Inc. and Subsidiaries  
 End-year **2014, 2015, 2016** and **2017**  
 Amounts in Thousands of Dollars (\$000's)

## CONSOLIDATED STATEMENT OF ACTIVITIES

	2017	2016	2015	2014
<b>Total revenue</b>	<b>\$ 136,448</b>	<b>\$ 139,733</b>	<b>\$ 152,586</b>	<b>\$ 141,534</b>
<b>EXPENSES</b>				
East Africa	23,992	26,708	24,328	24,197
Caribbean	412	-	387	347
Southeast Asia	6,021	6,522	11,988	14,407
Southern African Development Community	27,693	28,544	31,868	29,239
West Africa	21,585	23,191	30,251	20,004
India	5,993	8,701	6,150	7,672
<b>Direct Country Team Expenses</b>	<b>85,696</b>	<b>93,666</b>	<b>104,972</b>	<b>95,866</b>
<b>Direct Global Team Expenses</b>	<b>26,935</b>	<b>33,011</b>	<b>31,853</b>	<b>30,790</b>
In-Country Indirect Cost	1,711	2,056	1,900	1,553
Executive & Program Management	2,333	2,226	2,530	1,892
General and Administrative	9,354	9,390	9,861	7,891
<b>Overhead</b>	<b>13,398</b>	<b>13,672</b>	<b>14,291</b>	<b>11,336</b>
Finance System	-	465	633	760
<b>Total expenses</b>	<b>126,029</b>	<b>140,814</b>	<b>151,749</b>	<b>138,752</b>
<b>Increase (Decrease) in Development Fund</b>	<b>\$ 274</b>	<b>\$ (1,082)</b>	<b>\$ 838</b>	<b>\$ 2,783</b>

## CONSOLIDATED STATEMENT OF FINANCIAL POSITION

	2017	2016	2015	2014
<b>ASSETS</b>				
Cash and cash equivalents	\$ 1,165	\$ 2,232	\$ 9,913	\$ 10,403
Assets limited as to use	\$ 71,640	72,903	77,693	60,369
Accounts receivable	\$ 612	411	1,437	1,732
Contributions receivable	\$ 1,388	2,830	3,038	3,393
Grants receivable	\$ 2,768	6,092	1,926	7,641
Prepaid expenses	\$ 5,082	6,049	1,006	1,527
Property and equipment, net of accumulated depreciation	\$ 204	247	225	184
<b>Total assets</b>	<b>82,859</b>	<b>90,764</b>	<b>95,238</b>	<b>85,249</b>
<b>LIABILITIES AND NET ASSETS</b>				
Accounts payable	3,912	1,971	3,550	2,395
Accrued expenses	2,623	2,540	2,547	4,211
Deferred revenue	21,119	23,442	29,207	36,029
Obligations associated with assets held for commodities purchases	-	220	375	3,128
<b>Total liabilities</b>	<b>27,654</b>	<b>28,173</b>	<b>35,679</b>	<b>45,763</b>
<b>Total net assets</b>	<b>55,205</b>	<b>62,591</b>	<b>59,559</b>	<b>39,487</b>
<b>Total liabilities and net assets</b>	<b>\$ 82,859</b>	<b>\$ 90,764</b>	<b>\$ 95,238</b>	<b>\$ 85,250</b>



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## ACKNOWLEDGEMENTS

CHAI'S 2017 WORK IS POSSIBLE THANKS TO A COMMITTED NETWORK OF DONORS AND PARTNERS.

- |  |   |  |  |
|--|---|--|--|
| African Leaders Malaria Alliance                                   | Friends for International TB Relief (FIT)                 | Medicines for Malaria Venture  | UK Department for International Development (DFID) |
| African Leadership Academy   | GAVI Alliance   | National Health Laboratory Service, South Africa                       | Unitaid  |
| AVAC   | Georgetown University                                     | National Lung Hospital Vietnam   | United Nations Children's Fund (UNICEF)            |
| Aidsfonds (STOP AIDS NOW!)   | Global Affairs Canada                                     | Nelson Madubuonwu  | United Nations Office for Project Services (UNOPS) |
| Alan D Schwartz  | Global Fund to Fight AIDS, Tuberculosis and Malaria       | Netherlands Development Finance Company (FMO)                          | United Nations Population Fund (UNFPA)             |
| American Cancer Society, Inc.                                      | Global Health Corps                                       | NETWORK FOR GOOD   | University of Amsterdam                            |
| Avenir Health  | Government of Flanders                                    | New Zealand Ministry of Foreign Affairs and Trade                      | University of California, San Francisco            |
| Barbara Harte  | Grand Challenges Canada                                   | Norwegian Ministry of Foreign Affairs                                  | University of Cape Town                            |
| Bill & Melinda Gates Foundation (BMGF)                             | Harry and Sandra Zimmerman                                | Partners in Health   | University of Malawi, College of Medicine          |
| Cameroon Baptist Convention Health Board (CBCHB)                   | Health Partners International Ltd                         | Population Services International                                      | University of Pennsylvania                         |
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| Dale C. Rosenbloom   | Innovative Vector Control Consortium (IVCC)               | Segal Family Foundation  | World Bank   |
| Danielle Garfinkel   | International Union Against Tuberculosis and Lung Disease | Stop TB Partnership  | World Health Organization (WHO)                    |
| Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH | Julia Hunt Bogardus                                       | Surgo Foundation UK Limited  | World Hepatitis Alliance                           |
| ELMA Foundation  | Kenneth I Pearlman & Sharon Katz Pearlman                 | Susan Zimmerman  |  |
| ELMA Vaccines and Immunization Foundation                          | Kriti Kohli   | Swedish International Development Cooperation Agency                   | <b>IN KIND DONATIONS</b>                           |
| Elton John AIDS Foundation   | Magic Pebble Foundation                                   | The Aurum Institute NPC  | Proskauer Rose LLP                                 |
| Embassy of Ireland   | Malaria No More   | The Australian Government  | Timothy A.A. Stiles                                |
| Epic   | Medecins du Monde   | The MCJ Amelior Foundation   |  |
| Foundation for Innovative New Diagnostics (FIND)                   | Medical Products Supply Center                            |  |  |

IMAGE, LEFT PAGE: CHILDREN POSE FOR A PHOTO AT THEIR LOCAL ANGANWADI CENTER, MADHYA PRADESH, INDIA

## OUR LEADERSHIP TEAM

### Ira C. Magaziner

Chief Executive Officer

### Alice Kang'ethe

Chief Operating Officer

### Linda DeNicola\*

Chief Financial Officer

### Joshua Chu

Executive Vice President, Vaccines

### Kelly McCrystal

Executive Vice President SRMNCH and Chief Strategy Officer

### Dr. Mphu Ramatlapeng

Executive Vice President - Implementation

### Dr. David Ripin

Executive Vice President, Infectious Diseases; Chief Science Officer

### Dr. Owens Wiwa

Executive Vice President, West and Central Africa; Country Director - Nigeria

### Dr. Yigeremu Abebe Asemere

Vice President and Country Director - Ethiopia

### Harkesh Dabas

Vice President and Country Director - India

### Gerald Macharia

Vice President, East and Southern Africa; Country Director - Kenya

### Dang Ngo

Vice President Southeast Asia, Pacific and Country Director - Vietnam

### Kate Schroder

Vice President, Essential Medicines

### Elya Tagar

Senior Director, HIV, TB and Health Financing

### Cathleen Creedon

Director of Development

### Katherine DeMarco

Director of Global Operations

### Regan Lachapelle

Director of Communications

### Joseph Levy\*

Senior Director of Human Resources and Chief Human Resources Officer

### Joan Muasa

Senior Director of Institutional Relations and Program Review

\*Started in 2018

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Chair of the Board

### Raymond G. Chambers

Board Member and Chair of the Executive Committee

### Dr. Gro Harlem Brundtland

Board Member

### Dr. Awa Marie Coll-Seck

Board Member

### Chelsea Clinton

Board Member

### President William J. Clinton

Board Member, Chairman Emeritus and Co-Founder

### Aliko Dangote

Board Member

### Professor Dame Sally Davies

Board Member

### Dr. Mark Dybul

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### Dr. Paul Farmer

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### Mala Gaonkar

Board Member

### Bruce Lindsey

Board Member

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Board Member and Chair of the Human Resources Committee

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Board Member and Chair of the Finance Committee

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Board Member

### Ira C. Magaziner

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### Timothy A. A. Stiles

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### Richard Zall

Board Secretary and Legal Counsel

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